

Preventing the Transfer of Dreissenid Mussels and Other Aquatic Invasive Species by Commercial Watercraft and Equipment Transport Providers

*Results of an On-line Survey Completed in July, 2010
Prevention Strategy Recommendations for the Commercial Watercraft
Transport Industry*



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Background

The overland transfer of Dreissenid mussels and other aquatic invasive species on large watercraft and equipment transported by commercial haulers contributes to their range expansion in North America. Watercraft and equipment that require the services of a commercial hauler tend to be larger, more structurally and functionally complex and more likely to have been in the water for an extended period of time. Those factors elevate the level of risk for having attached mussels, mussel larvae or other invasive species on-board when these vessels are moved from contaminated to uncontaminated waterways.

In 2003 and again in 2007, the Western Regional Panel on Aquatic Nuisance Species (WRP), the 100th Meridian Initiative's Columbia River Basin Team and the Pacific States Marine Fisheries Commission (PSMFC) undertook efforts to identify watercraft and water-based equipment transport businesses in North America and provide outreach material designed to educate these service providers about Dreissenid mussels and other aquatic invasive species. With no direct follow-up or engagement required from these earlier mass mailing campaigns, the effectiveness of these efforts has remained largely unknown¹.

Since the last outreach effort to this group in 2007, many state, federal and local water resource managers and access regulators have developed watercraft interception programs and adopted new laws and regulations designed to prevent the inadvertent overland transport of Dreissenid mussels and other ANS on trailered watercraft and equipment. Many of these jurisdictions have established new cleaning, inspection and decontamination requirements for all transported watercraft and water-based equipment. These programs coupled with aggressive public outreach and education and early detection programs have been implemented to prevent the spread of quagga and zebra mussels and avoid their damaging impacts on aquatic ecosystems, water supplies and recreation.

In March of 2010, the WRP approved this project and the tasks listed below to be undertaken by the PSMFC:

1. Identify and prepare a mailing list of the most active commercial watercraft and water-based equipment transport providers operating in the western United States

¹ Note: In the past year, some states (e.g. Idaho and California) also have contacted potential commercial haulers to their state to inform them about the threat posed by invasive mussels and laws prohibiting their transport.

2. Design and distribute a survey to at least 500 of these service providers that would:
 - a. Identify and characterize their relative business volume and area of activity
 - b. Determine their level of ANS issue awareness (to the extent possible determine the effectiveness of past outreach efforts)
 - c. Determine their level of regulation awareness
 - d. Identify current industry practices
 - e. Gain input from the industry on the most effective and practical industry standards to prevent the transfer of aquatic invasive species
 - f. Identify industry representatives for collaboration to achieve more consistent and coordinated industry standards
3. Based on the results of the survey, prepare a set of recommendations that will improve the effectiveness of on-going efforts to prevent the overland transport of Dreissenid mussels and other AIS on trailered and transported watercraft and equipment

Acknowledgements

The authors wish to thank all of those commercial transport businesses who took the time to complete and participate in this on-line survey. At their request, the names and contact information of those businesses participating in the survey will remain confidential.

We would also like to thank all those agency, organization and participating commercial transport industry representatives who reviewed survey results and contributed to the development of recommendations to improve the effectiveness of AIS prevention efforts in a manner that recognizes the practical realities and operational constraints of the commercial watercraft transport industry. Funding for this project was provided by the U.S. Fish and Wildlife Service and Bonneville Power Administration.

Survey Methods

The survey was distributed to a list of commercial watercraft and/or equipment transport businesses developed by combining several existing lists of commercial hauler businesses using the following sources:

1. Mailing list of commercial watercraft transport businesses developed by Jim Athearn (Pacific State Marine Fisheries Commission Contractor) for the 2007 100th Meridian Initiative outreach effort
2. A list of commercial watercraft carriers who had been checked at ports of entry in California in 2008-2009 compiled by the California Department of Transportation
3. Lists of commercial watercraft/equipment permit holders in 2008-2009 from the National Park Service at Lake Mead (Lake Mead NRA) and Lake Powell (Glen Canyon NRA)
4. Partial lists of watercraft/equipment operators contacted at points of entry from Washington and Idaho Departments of Transportation

The work done by Athearn in 2007 revealed that there are an estimated 3,000 to 5,000 commercial watercraft and/or equipment transport providers operating in North America. There is currently one, relatively new, association (National Boat and Yacht Transport Association) that is attempting to develop a membership and some standards for the watercraft/equipment transport industry. But, until that organization gains some traction with a significant number of fiercely independent and diverse commercial haulers, this and previous efforts to identify, network and engage these service providers will continue to be a difficult task. The authors used the above sources to select 500 transport businesses who appeared to be currently active in the western US to be included in this survey.

The authors used an on-line computer survey program called “Survey Monkey” to design, distribute and analyze the data obtained for this survey and report.

All businesses were mailed a letter on April 10, 2010 explaining the purpose of the survey, asking for their participation and providing them with a web link to access the survey from their computer. The initial letter generated 13 completed surveys. A follow-up letter was mailed on June 4, 2010 reminding them of the importance of their participation and again asking them to complete the survey and providing the web link. This mailing generated an additional 12 completed surveys. Beginning on June 18 and continuing periodically until July 15, 2010,

phone calls were made to more than 50 of the remaining businesses on the list in an attempt to generate enough additional survey responses to reach a 10% return level (50). That effort resulted in an additional six completed surveys, for a total of 31 completed surveys.



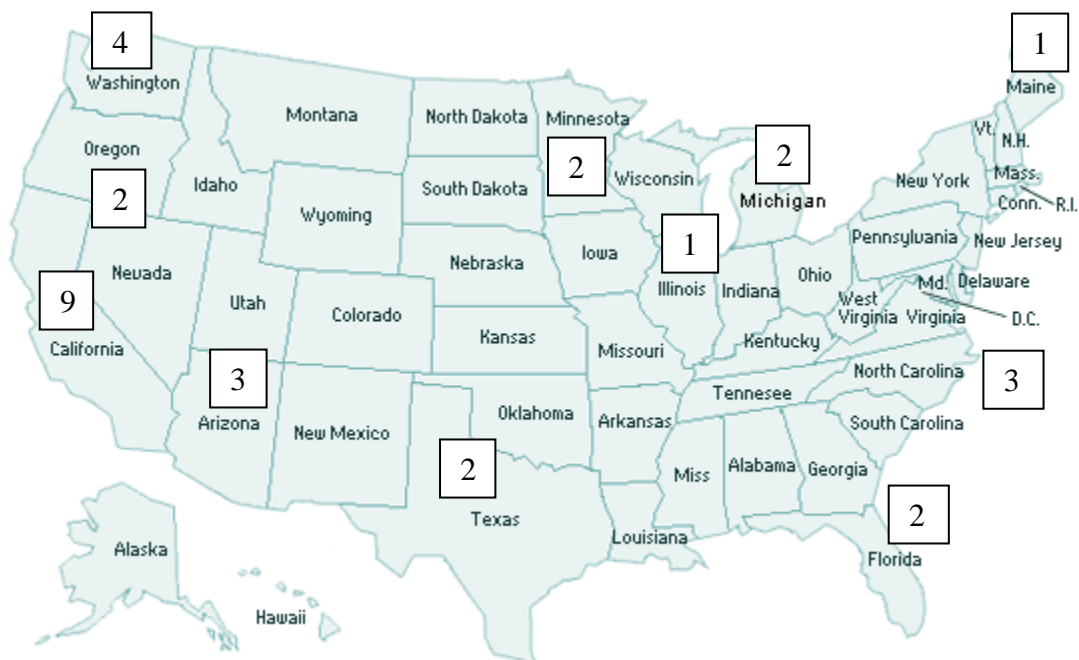
Commercial Hauler Survey Results

Of the 500 commercial transport businesses who were asked to participate in the survey, thirty-one or just over 6% filed completed surveys. The 6% return rate falls short of the goal of at least 10% return rate for this survey. The results should be considered in the light of this relatively low return rate and may not be truly representative.

The following is a summary of responses to individual survey questions:

Question #1: Respondent Geographical Distribution

Please refer to the map below for the home location of the 31 watercraft and/or equipment transport businesses completing the survey:

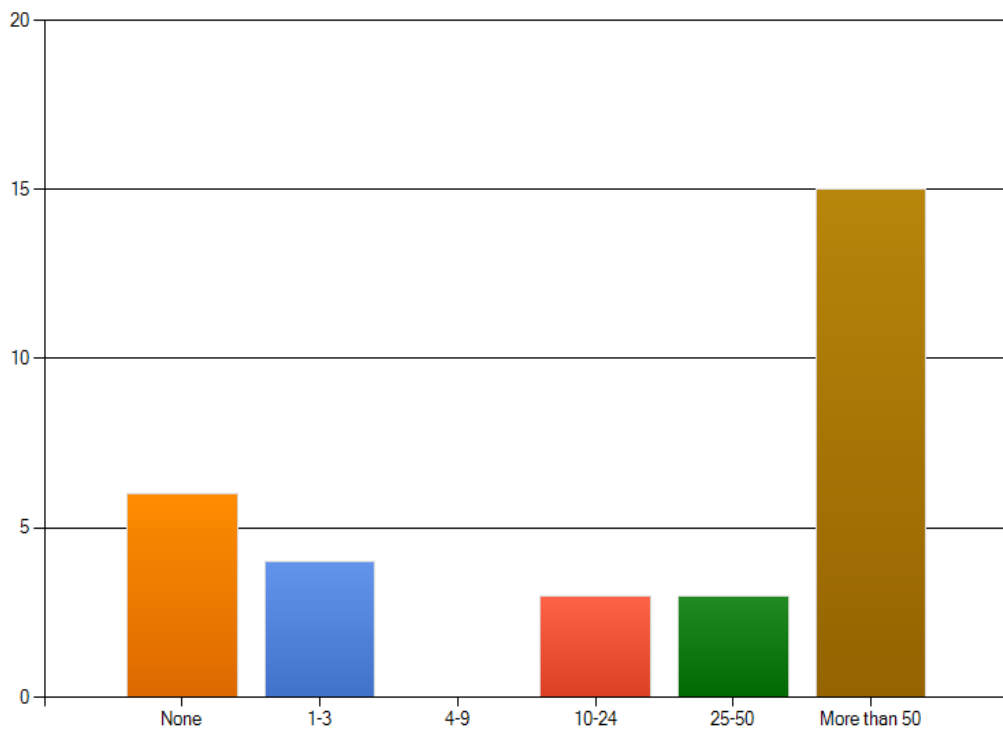


While the authors had hoped for the survey results to have been more geographically representative, we had little or no control over which businesses responded to our repeated requests for participation. The list of 500 businesses selected for survey distribution included transport businesses located in 41 states and one Canadian province. However, the survey distribution was purposely weighted toward those commercial transport businesses operating in the western United States in the past 24 months, regardless of home location.

Question #2: Number of watercraft or pieces of water-based equipment hauled on an annual basis:

Nearly half (15 of 31) of the businesses responding to the survey reported that they annually transported more than 50 watercraft or pieces of water-based equipment (such as dredges, barges, bridge construction equipment, etc.). Six reported hauling no watercraft or equipment in the past year. Of the remaining respondents; four reported hauling 1-3; none reported 4-9; three reported transporting between 10 and 24; and three reported moving between 25-50 watercraft per year.

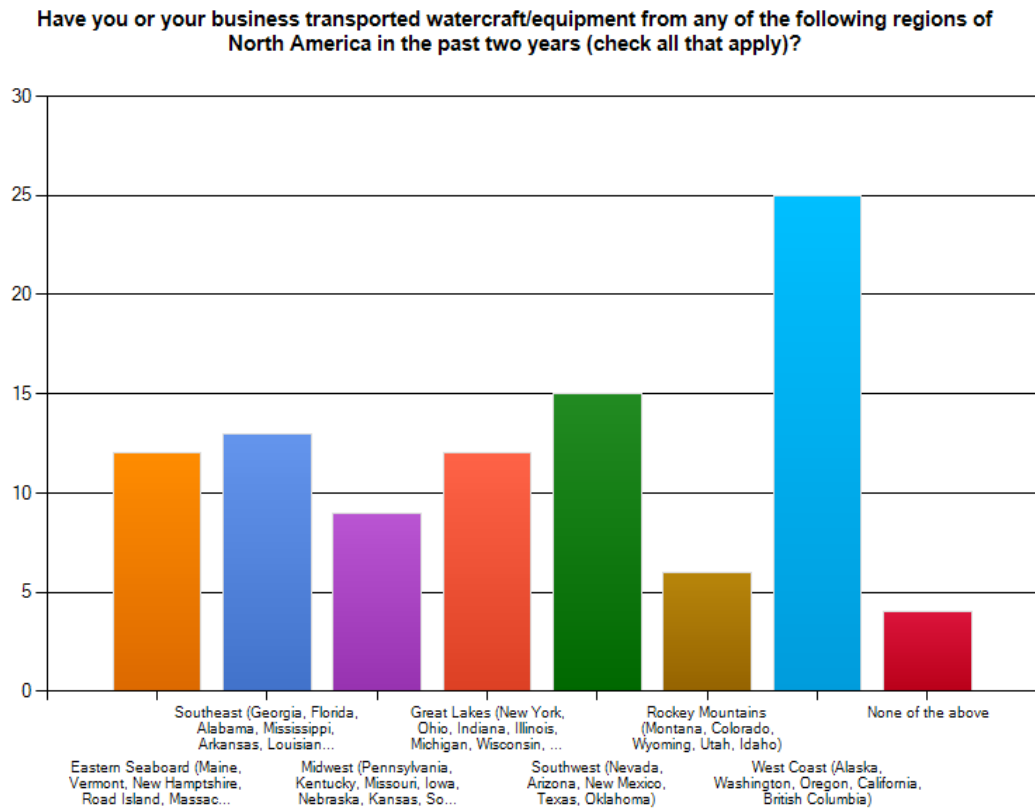
Approximately how many watercraft or pieces of water-based equipment (construction, dredging, etc.) does your business transport on an annual basis?



Questions #3: Regions of North America from where respondents reported transporting watercraft/equipment

The graph below shows the number of individual businesses who reported hauling watercraft/equipment within one of the seven geographic regions offered as

choices in the survey. Twelve of the 31 reporting said they worked in the eastern seaboard, transporting into, out of, or within that region; 13 reported working in the Southeast; 9 in the Midwest; 12 in the Great Lakes; 15 in the Southwest; 6 in the Rocky Mountain Region; and 25 on the West Coast. Only four reported no activity, indicating that two of those six businesses that reported no activity in the past year (Question 2) did have activity in the previous year since this question asked for locations hauled in the last 24 months and Question 2 asked for number of units transported in the last year (annually).

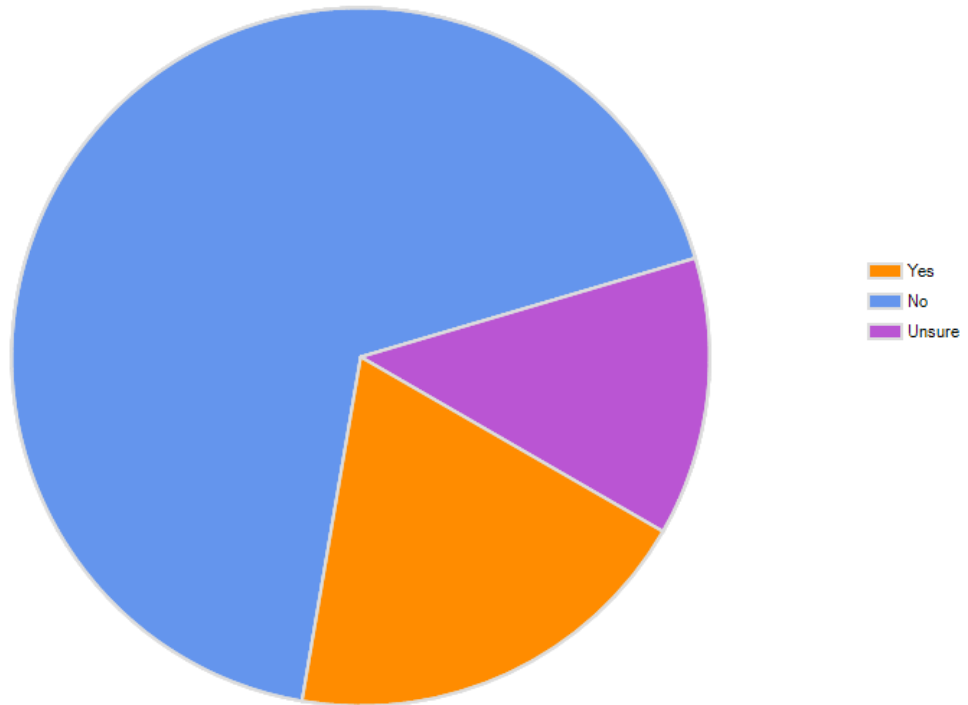


Since the geographic distribution of businesses receiving the survey and those who completed it represent a relatively small sample (< 1%) of commercial watercraft/equipment transport businesses in North America (estimated at between 3,000-5,000), the numbers here show only that many of these businesses are far ranging in their activities and routinely operate in multiple regions and routinely across jurisdictional boundaries.

Question # 4: Transporting to or from known zebra/quagga mussel waters

This question asks the respondent if they have transported watercraft or equipment to or from any known zebra or quagga mussel positive waters in the past two years. Only six of the 31 businesses responding reported they had; 21 indicated no; and four where unsure.

To the best of your knowledge, have you or your business transported any watercraft or equipment to or from any waterbody known to have zebra or quagga mussels in the past two years?

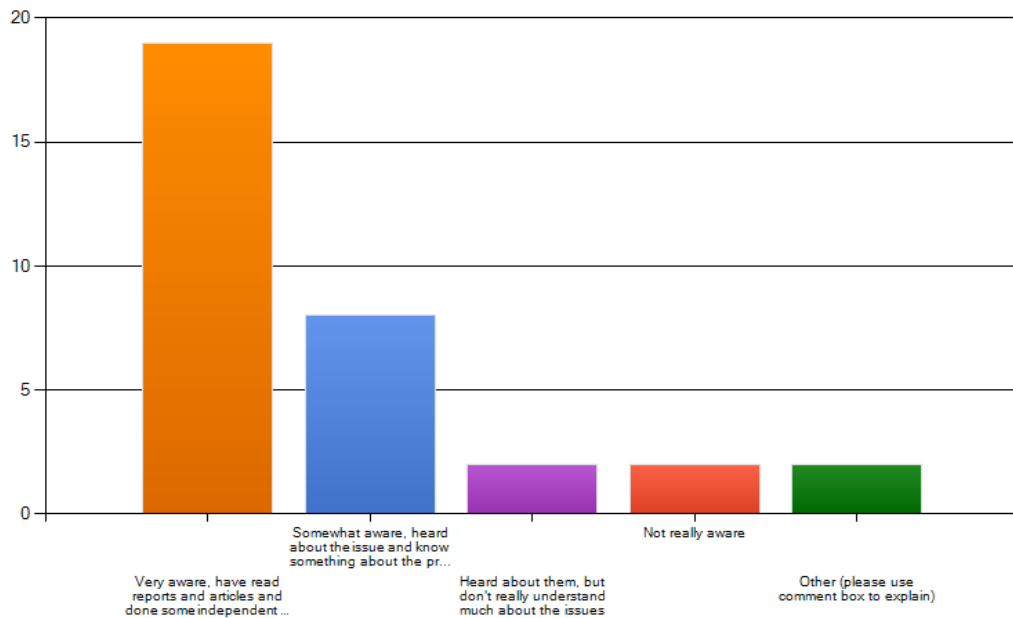


While only six (19%) of the haulers surveyed reported knowingly moving watercraft/equipment to or from contaminated waters, if that number is expanded from the 31 businesses who participated in this survey to a conservatively estimated 3,100 commercial haulers in North America, it represents at least 600 haulers who have transported at least one watercraft or piece of water-based equipment to or from contaminated waterways in North America during the 24 month period ending in June, 2010. That is a significant number and highlights the importance of working with this industry to protect public resources and values.

Question # 5: Issue awareness

This question asks respondents to categorize their level of knowledge regarding the quagga/zebra mussel issue and how mussels are moved by watercraft and equipment. A total of 19 of the 31 businesses (61.3%) responding to the survey reported that they were very aware of the issues; eight (25.8%) said they were somewhat aware; two (6.5%) indicated only minimal awareness and two (6.5%) said they were not aware at all. In addition two “others” posted comments that would indicate they are very aware of the issue (comments provided below).

The primary way that zebra and quagga mussels are spread from one un-connected waterbody to another is through the overland transport of “hitchhiking” mussels on or in trailered or transported watercraft or equipment. How familiar are you with the the zebra/quagga mussel issue in general (e.g. their impacts on public water resources, how they are spread, what’s being done to contain them, etc.)?



Comments to Question #5:

1. *Myself and my employees have finished level two training for cleaning and inspecting infected vessels*

2. *We explain to each customer the need to be able to prove cleaning i.e. an invoice or statement from origin that the mussel problem was addressed, the driver carries it with him during transport*

Eighty seven percent (87%) of those responding said that they were either “very aware” or somewhat aware” of the zebra/quagga mussel issue. This high level of awareness would seem to indicate that past and on-going outreach efforts with these service providers has paid dividends in raising the general level of awareness within this industry to the potential risks associated with their activity.

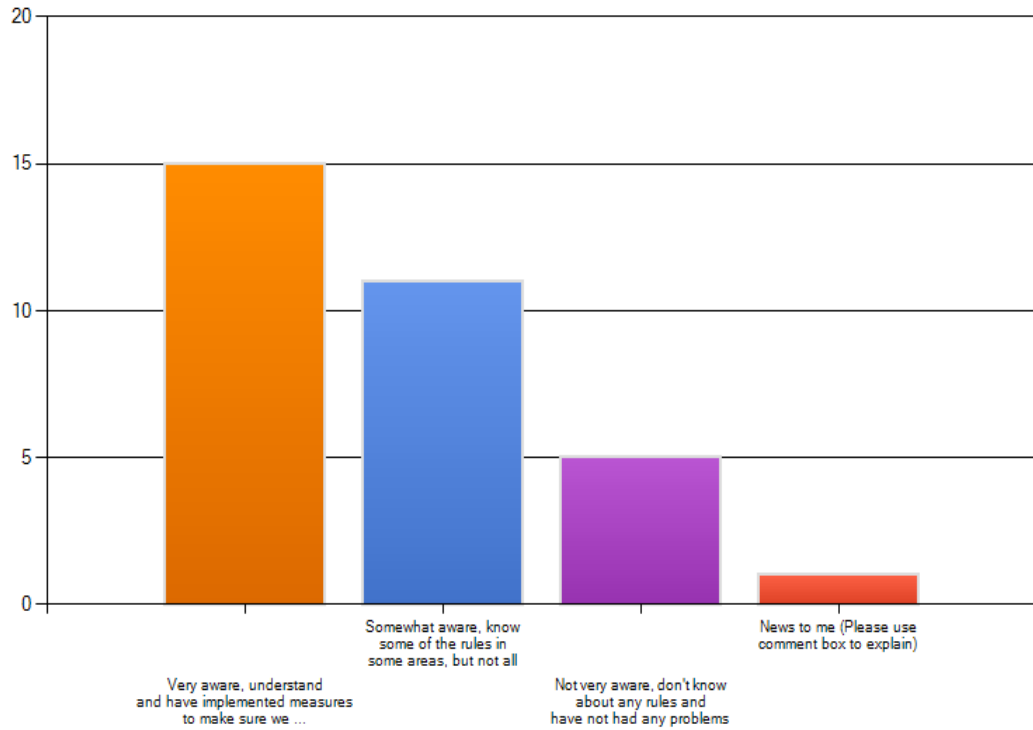
Question # 6: Regulation awareness

This question asks respondents to categorize their level of awareness of current state, federal and local regulations regarding the transport of watercraft or equipment as it relates to aquatic invasive species in general and quagga/zebra mussels in particular.

The graph below shows that just under half of respondents (48.4%) consider themselves to be very aware of individual jurisdiction requirements for the transport of watercraft with regard to quagga/zebra mussels and other AIS. Another third (35.5%) are somewhat aware, understanding general requirements but not those of all regulating jurisdictions. About 20% of respondents reported little or no understanding of rules regarding requirements for inspection, decontamination or certification of watercraft or equipment they transport in any jurisdiction.

One of the most important questions we had going into this project was if the perception that the majority of commercial watercraft/equipment transport providers would be confused by the patch-work of laws and regulations or lack of regulations within the multiple political jurisdictions they must work within was correct. Responses to this question indicate that confusion does exist with about half of these service providers, but that the experience of working under new regulations for the past couple of years has made many transport business operators aware of the new requirements placed on their industry by some jurisdictions.

In the past two years many state, federal and local government agencies and organizations have passed new laws and regulations regarding the transport of watercraft and equipment by individuals and commercial haulers to prevent the spread of zebra and quagga mussels and other aquatic invasive species. How aware are you of these rules in the areas that you or your business normally operates?

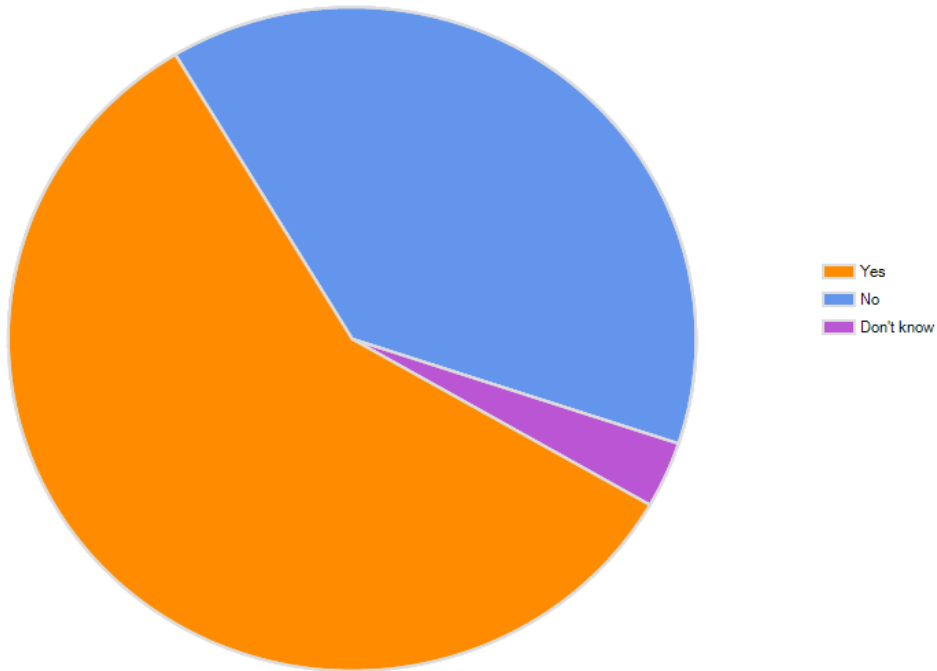


Question #7: Frequency of inspection

Of the 31 businesses reporting, 18 (58%) indicated that watercraft/equipment they hauled in the past 24 months had been intercepted for inspection; 12 (39%) said they had not been inspected and one indicated that they had self-inspected.

While the majority (58%) of businesses responding to the survey reported having been inspected at least once during the past 24 months, with the average commercial hauler reporting transporting more than 25 watercraft per year, the percentage of commercially transported watercraft that are subjected to inspection is likely far less.

Have you or your business been subjected to an invasive species inspection of any watercraft or equipment you have transported in the past two years?



Question #8: Where did the inspection take place and how did it go

This question asks the respondent to indicate where the inspection(s) had taken place and for their perspective on the inspection process. The individual responses to this question from those businesses who reported having been inspected by a Federal, State or local jurisdiction are provided below:

The comments received indicate that commercial haulers have had nearly as many negative (-) as positive (+) or neutral (o) experiences when it came to inspections. The number of negative comments points-out that inspectors may need to do a better job of either explaining the importance of or conducting inspections. Some negative comments can probably be attributed to the newness of these regulations and inspection procedures and the inevitable and unavoidable delays required. Both issues will be addressed in the discussion and recommendation sections of this report.

Comments to Question #8:

1. *+ Oregon & Washington Scales and the inspections went very well no problems*

2. *- All agricultural inspection stations entering California, Leaving Lake Pleasant regional lake in Peoria, AZ, Entering Glen Canyon Recreation areas, I feel that inspectors are afraid to make decisions on their own and have their hands tied. They tend to hold back vessels that are ok because of lack of training. I also think that AZ, NV and CA need to get one set of rules instead of each state trying their own path to fix the problem. The problem can't be fixed; we need to find the best way to work together and stop the spread and each state having their own way of doing things is not the answer.*

3. *- In Calif. on I-15 at the agriculture check. Held me up for 45 minutes over a piece of shell that was left behind after the boat was steam cleaned. Every time I bring a boat into Washington state.*

4. *+ California. It went well.*

5. *o At the Truck Scales. Most of the Boats are inspected for these species. None have been found on any vessel we have moved.*

6. *N/A*

7. *- WA POE on Hwy 5 - AG Inspection on I-5 in northern CA - AG inspection at Myers, CA - AG Ins on Hwy 395 south of Oregon - Tahoe City Marina in Tahoe City, CA - Lakeport launch ramp at Lakeport, CA - Hwy 97 at Doris, CA - Hwy 80 at Truckee, Ca - Obexer boat yard in Homewood, CA. All inspections went okay with the exception of the WA POE, they found barnacles on the props and it took them two hours to determine that they weren't invasive.*

8. *N/A*

9. *+ Minnesota and it went fine no problems*

10. *o I believe it's been mostly in WA and CA west coast areas they made it pretty clear to my drivers that a large fine could be imposed.*

11. *o WE GET CHECKED IN CALIFORNIA ON I 40 COMEING FROM NEVADA ALL THE TIME.*

12. + WA state line, I-90 westbound. Good, clean.

13. + The Oregon/California border. It went very well, there was not a problem.

14. o Lake Powell, AZ--There are inspections at the launch ramp daily at set hours.

15. - LAKE POWELL PAGE, AZ. TOOK TO LONG TO GET INSPECTOR TO US FROM TIME OF CALL TO INSPECTION 45 MIN.

16. o Ports of entry in Washington and California

17. - Idaho. I think they may be able to target the problem better. The problem we have is that we live on the border which causes an inspection on the same boat in the same waters every weekend. Probably a unique problem to our local market

18. N/A

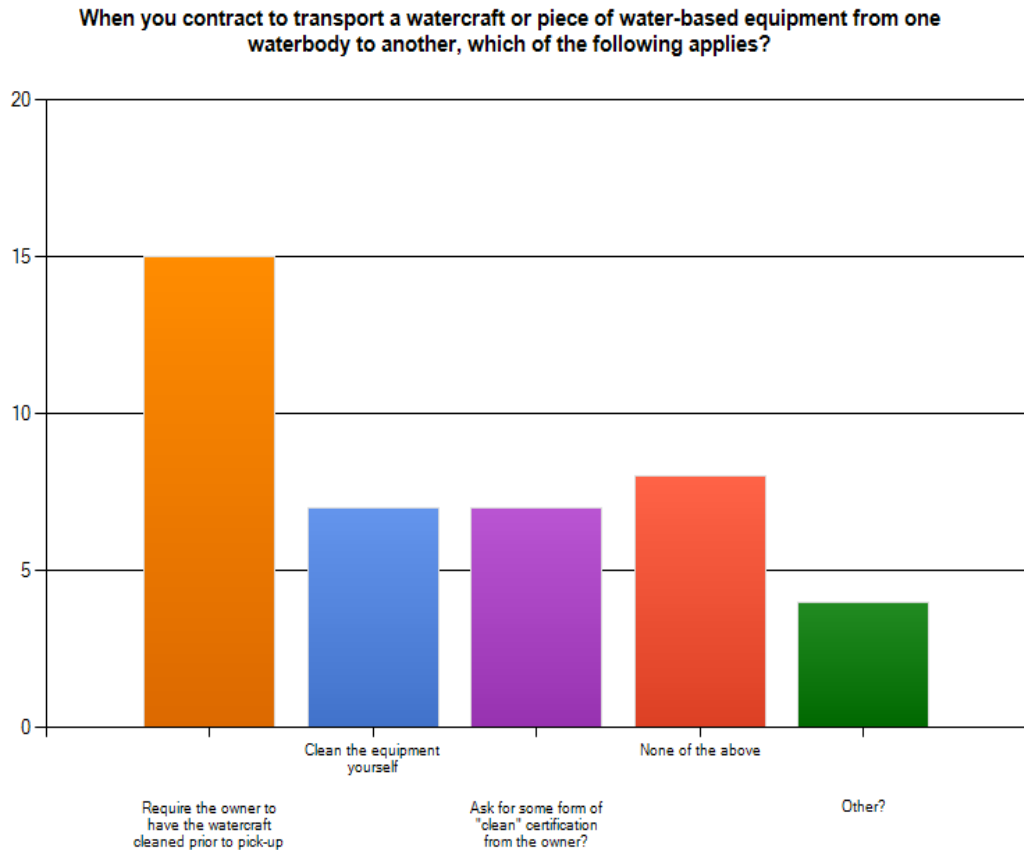
19. o Port of entry Washington, Port of entry California, Lake Minnetonka, MN

The next section of this report includes a series of questions about current industry practices that is designed to gain a better understanding of what steps commercial haulers are currently taking to clean watercraft and equipment they transport to prevent transporting Dreissenid mussels or other AIS.

Question #9: Current practices

1. In this question, respondents were asked to indicate if they required the owner to clean the watercraft; did it themselves; or required a third-party certification provided by the owner when contracting to transport watercraft or equipment. Half of the 30 businesses responding to this question reported that they required the owner to clean the watercraft; seven (23.3%) reported that they cleaned the watercraft/equipment themselves; seven (23.3%) indicated that they required some form of “clean” certification from the owner; eight (26.7%) did none of the above

and four indicated “other” as a response. Since they were asked to mark all options that applied, the total exceeds 100% as some operators reported using multiple approaches depending on individual circumstances. (Questions about the relative quality of the cleaning, draining and drying protocols and standards used by the industry were not part of this survey.)



Comments from the four respondents that indicated “other” are provided below followed by additional general comments from those responding to this question.

- 1.*** All of the boats that I transport are either new boats (never been in the water before) or from a dealership where they make sure boat is completely clean, we all are aware of the zebra mussel problem.

2. WE ONLY TRANSPORT FROM LAKE POWELL TO LAKE POWELL IN & OUT OF WATER.
3. 99% of boats we move are new and have no need to be cleaned.
4. Since the boats are coming and going from the same place we do nothing. I don't or haven't bought a lot of boats from other markets that would possibly have this problem.

General Comments:

1. Depending on where we pick up the boat, if we clean it ourselves or have the marina clean it. Some places these marinas look at this process as money making job and do not want an outside company taking that away from them. Also knowing this is mandatory when leaving there lake the pricing of this hydro wash is very pricey in some areas. This will deter customers from having it done by a trained staff member and try to clean the boat themselves.
2. I won't transport it if it is not clean of the mussels.
3. all watercraft are inspected ,scraped washed at 200 degree 200 psi water, sanded painted and dry dock for at least 2 weeks all coolant lines are flushed and inspected, bilges are cleaned along with all other water passages, also zinc plates are replaced inspected .All small watercraft are cleaned upon removing from water dried bleach cleaned.
4. try to get some kind of invoice or something showing what was done if anything.
5. we tell them verbally as well as send paper work with a caution about zebras.

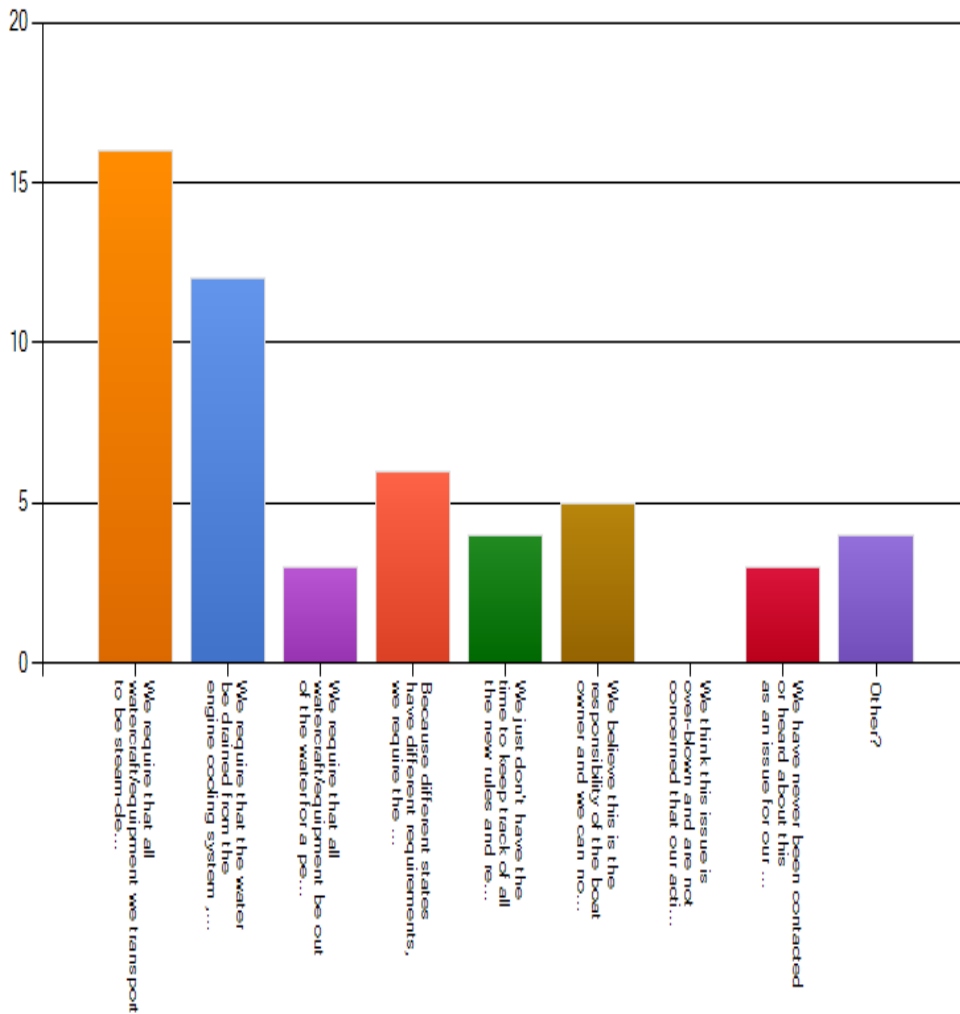
Question #10: Current Practices

This question asks what specific actions commercial haulers were currently taking to assure that watercraft/equipment they transport are mussel and AIS free. Respondents were provided with several options and were asked to check all that applied.

Sixteen (53.3%) of the thirty businesses reporting said that they required steam cleaning or power washing; Twelve (40%) said that they required all water to be drained; three (10%) indicated that they required that watercraft/equipment be dried out of the water for at least 30 days; six (20%) reported requiring the owner to know the specific requirements of the receiving jurisdiction and take the necessary steps to be in compliance; four (13.3%) said they don't have the time to know all the requirement and just did their best to remove any mussels or

vegetation; five (16.7%) believed this to be the sole responsibility of the owner; no one believed this was an overblown issue and were not concerned; three (10%) indicated that they did not know this was an issue; and four checked “other” for their response.

What steps are you or your business currently taking to remove surface deposits and completely drain water from all areas of the watercraft and equipment that you transport (check all that apply)?



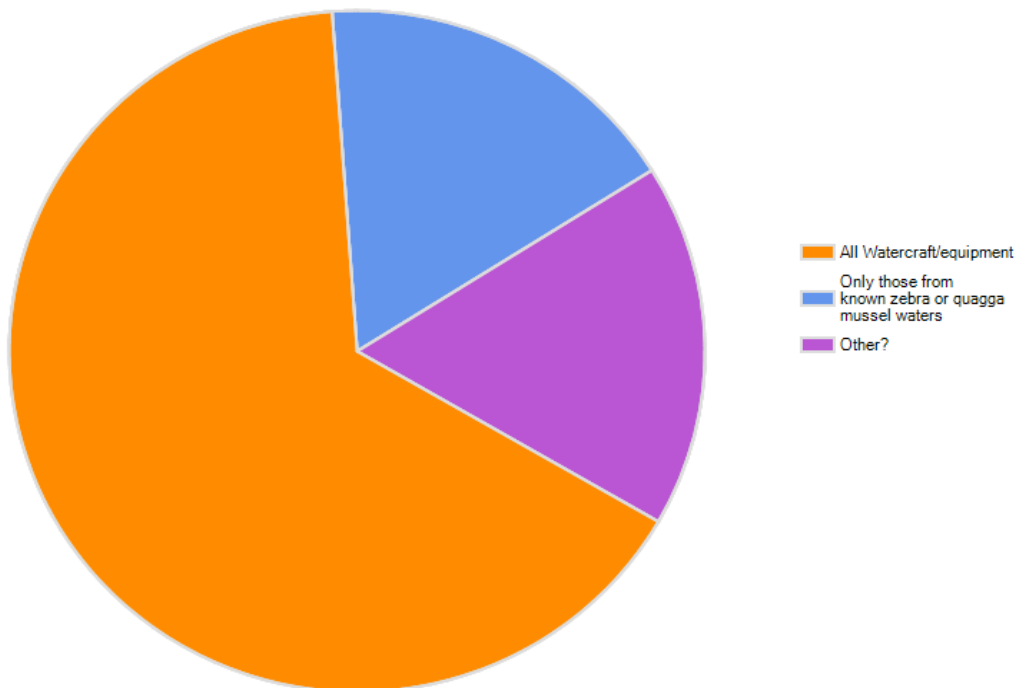
“Other” actions from comments section for Question #10:

1. We ship a majority of new boats that are factory direct and have never been in the water. Our drivers make sure the vessels are power washed and clean prior to shipment. We require the owners to have the vessel cleaned prior to shipment.
2. We only haul our own rental vessels from lakes which do not have Quagga mussels.

Question #11: Current Practices

This question asked the respondent if they applied the cleaning, draining and drying measures they indicated using in Question #10 above to all watercraft or only to those they transport from known mussel infested waterways. Nineteen of the 28 businesses responding (67.9%) said they applied the same standards to all watercraft; five (17.9%) said they were applied only to watercraft or equipment hauled from known mussels positive waters; and five (17.9%) listed “other” and registered a comment (see below).

Are these steps taken for all watercraft and equipment transported or only applied to those being moved from a known zebra or quagga mussel infested water?



“Other” actions from comments section for Question #11:

1. We don't know of any water that has Zebra Mussels on the West Coast.

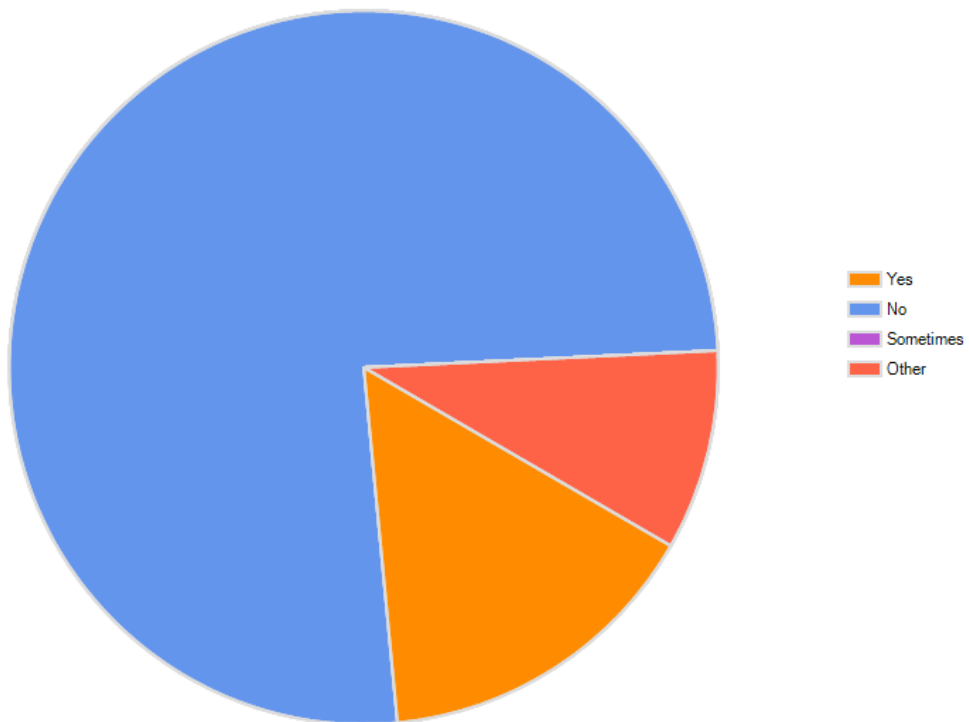
2. DIFFERENT STATES HAVE DIFFERENT REQUIREMENTS. SOME STATES HAVE NEVER HEARD OF THIS PROBLEM

3. if coming out of salt water we have not done anything

Question #12 Current services

This question asks the respondent if they provided any watercraft and equipment decontamination training for their employees. All 31 businesses responded to this question and only 5 (16.1%) reported they did; 25 (80.6%) said they did not provide training; and 3 (9.7%) also indicated “other”.

Do you or your business provide watercraft and equipment decontamination (cleaning/draining) training to your employees?



All of the comments (including those listed as “other”) relating to this question are provided below.

1. but I would like to learn

We have no capacity to do this function. We are traveling on State and local highways as permitted by law on oversize loads. Where would you suggest we perform this function? Along the side of a freeway or highway? And where would the removed product go? In the street or side of the road? You cannot powerwash a boat along side of the road or highway. Wouldn't that be a violation of Department of Ecology's laws? Our drivers are in no way insured or allowed to perform any work other than what is

2. listed in the Federal Motor Carrier Safety Regulations. The customer only pays us to haul the boat. We are not responsible for the shipping, prepping etc. The customer pays the boat yards and or Marinas to do this function, not the carrier. We are over the road drivers and are not licensed or insured to perform equipment decontamination. Please see the U.S Department of Transportation manual to verify this. This responsibility relies on the boat yard or marinas; they have the marine watercraft knowledge and equipment to perform this function, not the truck driver.

-
3. TRPA and TRCD (Lake Tahoe) provides the cleaning

4. I have no idea what the cost of decontamination equipment is, but i heard it is expensive to do the decontamination itself. My one man operated company, could not afford the equipment.

-
5. i do it my self

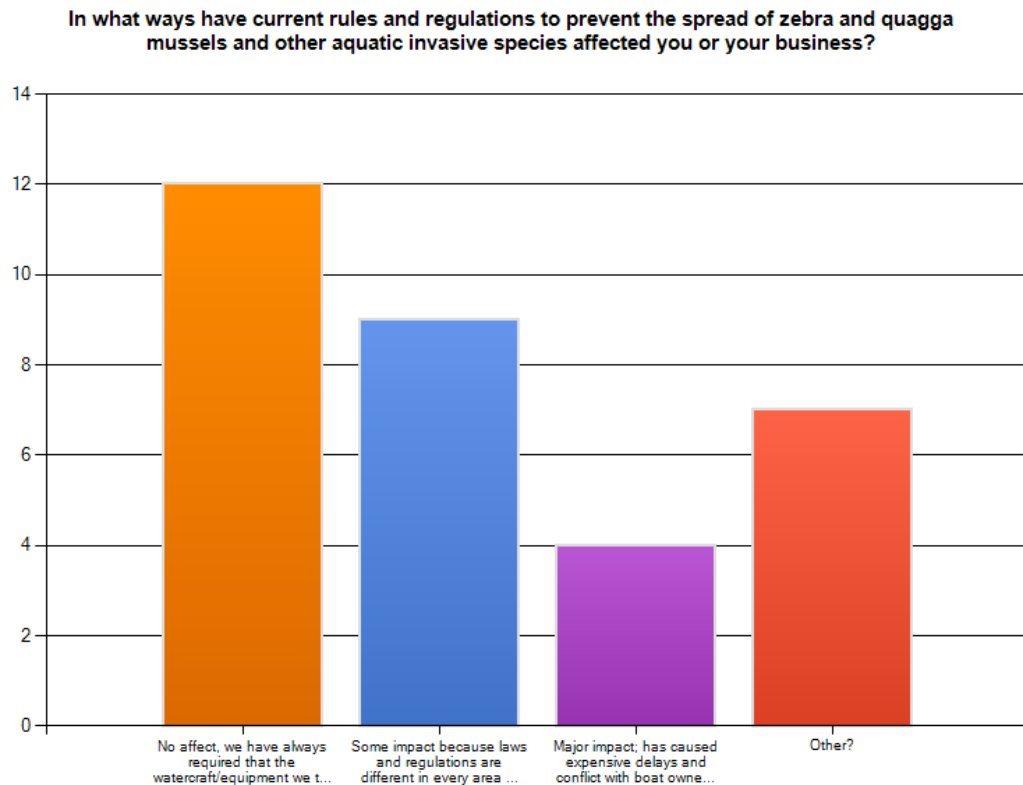
-
6. O/O

-
7. We travel all 48 states. Cost would be prohibitive

Question #13 Effects of current transport rules for AIS on business

This question asks respondents to characterize the effect that laws and regulations designed to prevent the spread of Dreissenid mussels and other AIS on commercially hauled watercraft and equipment have had on their business. Of the 28 businesses responding to this question, 12 (42.9%) reported no effect; indicating they have always required that all watercraft they transport be cleaned, drained and dry. Nine (32.1%) said that that new laws and regulations have had some impact mainly due to not understanding all the requirements from multiple jurisdictions. Four (14.3%) indicated that new laws and regulations have had a major impact on their business that have caused expensive delays or conflict with

watercraft owners and/or regulatory authorities. And, seven (25%) marked “other” in response to this question.



All of the comments (including those listed as “other”) relating to Question #13 are provided below.

1. Sitting the boats out of the water for a minimum of seven days in AZ is a expense and time that is difficult for the customers not really the company. We charge accordingly but the extra expense is a problem.

2. No known impact

3. Explanation to customers regarding the new invasive species fee has become difficult at times, but we as a business have always thoroughly cleaned all vessels and equipment after being taken through any water.

6. we have been quarantined by Washington but allowed to finish to destination but inspectors followed up at destination with customer.

7. NOT ANY, WE DON'T MOVE WATERCRAFT EQUIPMENT

8. At this point neither state are requiring any thing

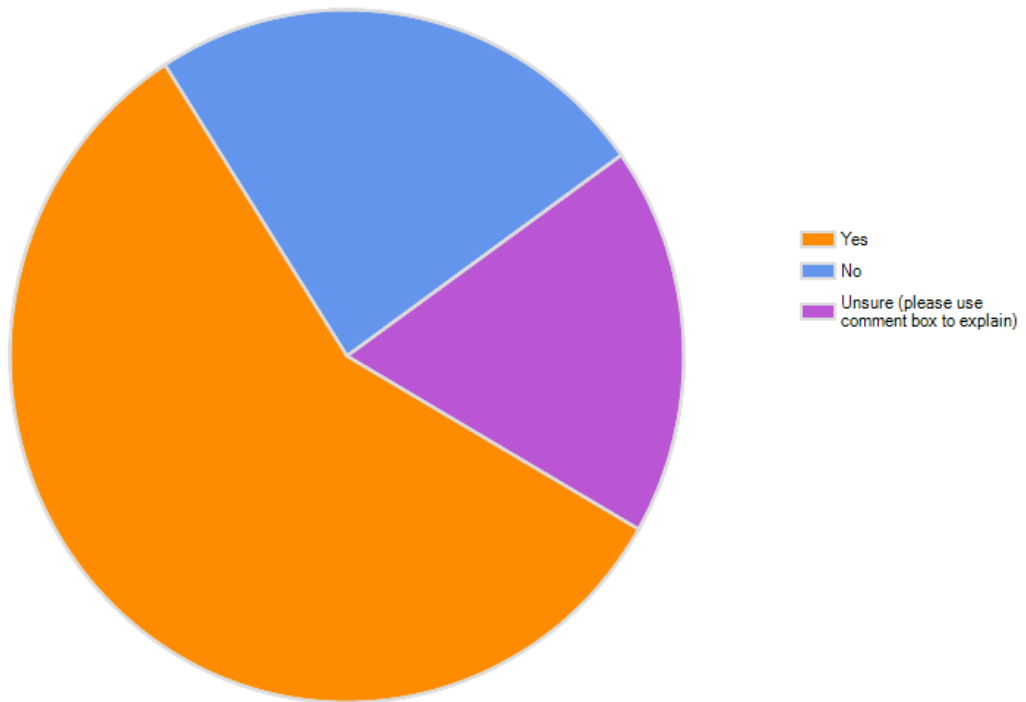
9. We have a new line of business conducting inspections.

10. Some impact and delays, some people think we are crazy (I never heard of such a thing) all need to be informed

Question #14: *Opinion on uniform industry standards for ANS*

This question asks those responding if they would favor the development of a uniform set of ANS prevention standards for the commercial watercraft and equipment transport industry that would apply throughout North America. Of the 30 businesses reporting, 18 (60%) said they would favor uniform standards; 7 (23.3%) said they would not; and 5 (16.7%) said they were unsure.

In order to level the playing field for all operators and replace the existing patch-work of regulations, would you favor development of a uniform set of standards for the commercial transport of watercraft and equipment that would apply to all watercraft and water-based equipment transport businesses throughout North America?



Answers to this question should be considered in the context that survey participants were asked their opinion to a given set of conditions; e.g. “in order to level the playing field and replace the existing patchwork of regulations.”

All of the comments from Question #14 are provided below:

1. As long as the people making the rules are not just people behind a desk trying to justify their existence by writing a bunch of words on paper that cannot be adhered to because there is no way to implement them. AZ is a perfect example of some of these rules, wanting every boat washed before it leaves Lake Pleasant but not having any wash stations available or any private entity in line to handle the job. How do implement the rule.

2. But you seem to be forgetting that most of these are transported by private individuals that know nothing about it. You need to educate the entire boating public, not just commercial carriers.

3. We don't need more laws or regulations in this country; Need to build the boats so they can't transport the spread of zebra/quagga mussels.

4. I do not believe this to be a situation that needs to be handled by the transporter. OWNERS SHOULD BEAR THE SOLE RESPONSIBILITY.

5. it should apply to ALL WATERCRAFT EVEN PERSONAL AND PRIVATE SMALL AND LARGE

6. Not all lakes are infested. Local Transport would have a problem complying with nationwide transport rules if the local body of water was not affected.

7. READ 10

8. What about the individual pulling his own boat that does not go thru scales? Each state should have 24 hour manned inspection site for all pulling watercraft.

9. I should be consistent with private and public transportation

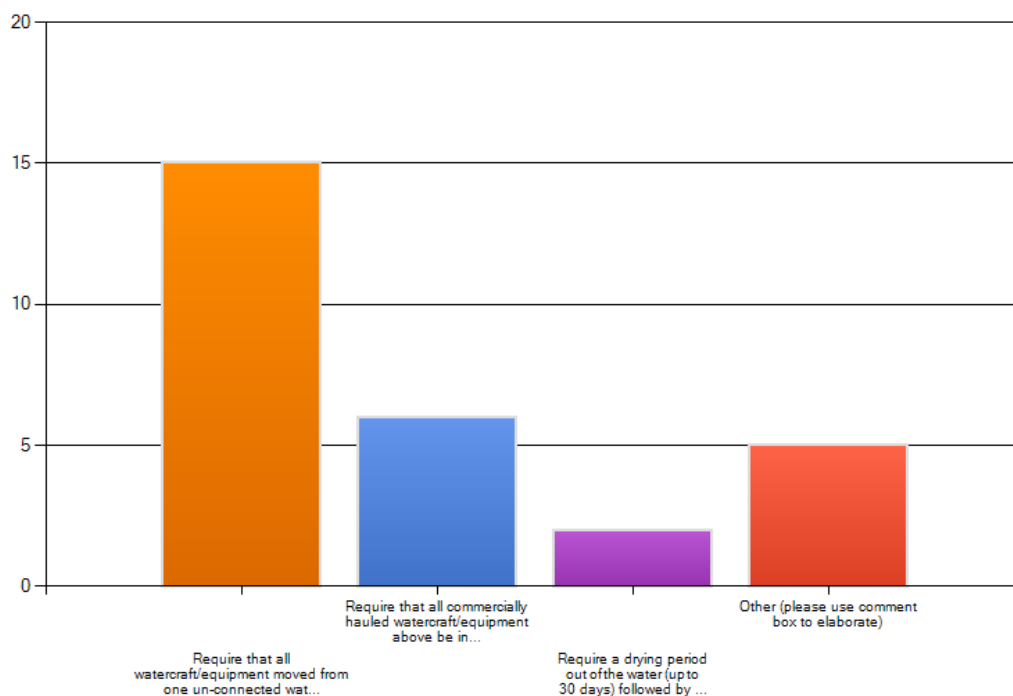
10. It makes no sense to require the cleaning of equipment coming from non infected areas or bodies of water.

Question #15: *What form should industry standards take*

In this question, respondents who favored the development of uniform national standards for the commercial watercraft/equipment transport industry were asked

to indicate their preferences for three potential standards offered. Of the 20 businesses responding, 15 (75%) indicated they favored requiring that all watercraft/equipment moved from one un-connected waterbody to another be cleaned, drained and dry; six (30%) favored requiring that all commercially hauled watercraft/equipment be inspected before launch; two (10%) favored requiring a 30 drying period and cleaning before being allowed to launch; and five (25%) suggested “other” standards.

If you answered yes to Question 13 above, what standards should be included in those uniform rules?



All of the comments from Question #15 are provided below:

Somebody who knows the makeup of these mussels and what will kill them and not allow them to spread needs to make that decision, not some truck driver, we will always go to the side that takes less time and more money in our pocket. Just remember the

1. the more time consuming the cleaning process gets the more money will need to be charged and the more the customer will go behind our backs and get the boat moved. No matter how many rules you have there will always be somebody out there that will move the boat illegally.

2. A drying time of 30 days is utterly ridiculous and will never be enforceable. Cleaning the

boats thoroughly and inspect them before launching.

-
3. I would have bottom pressure washed before loading
-

4. I believe that having the vessels inspected before launch and having a 30 day drying period will not only cost our business time and money but could cost us the sale of boats...customers from all over the world come to our establishment for friendly and effortless purchasing of boats, motors and equipment. If we have to enforce restrictions like these, our customers could very well become agitated and look for business elsewhere.
-

5. READ 10
-

6. requiring a dry out period would be hard to control
-

7. What size of boats are we talking about? Does that mean if I take my trailer boat to Spirit lake one weekend then I would need to wait 30 days before taking to another lake?
I our market most of the boats are small and it would be unreasonable for a boat to sit out of water for 30 days.
some form of permit that the boat has only been used in local lakes makes since to me
-

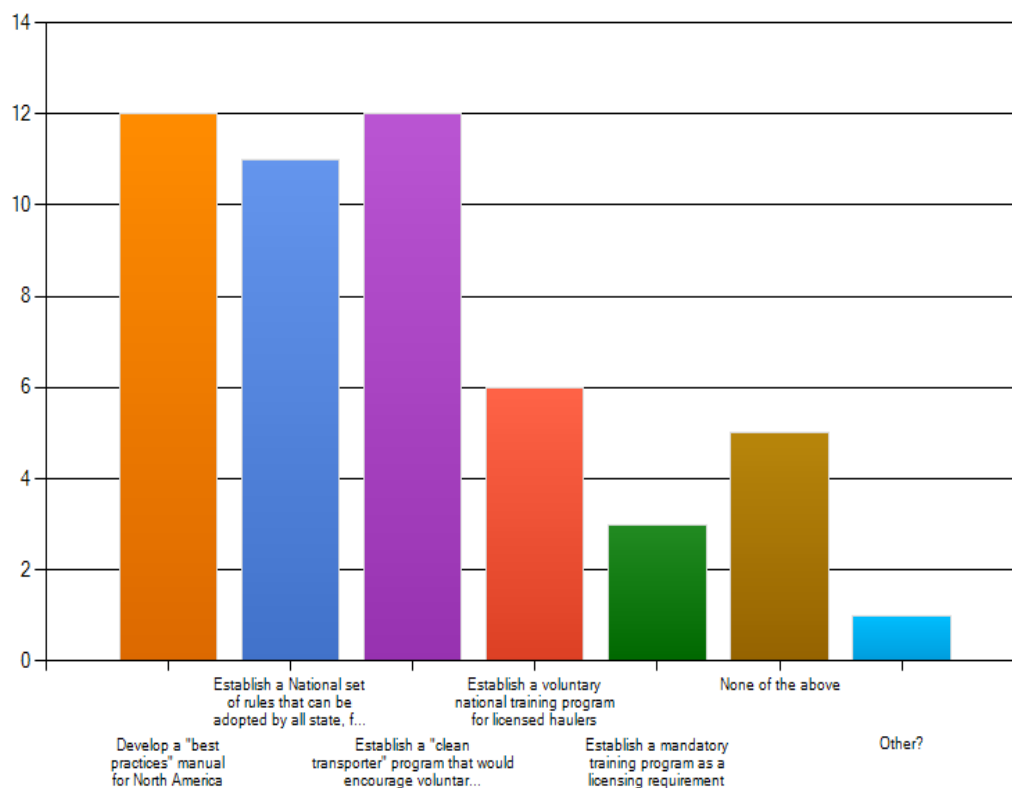
8. If going from infected to infected nothing required, If going from infected to non infected they should be pulled cleaned and put on land for 3 to 14 days
-

Question #16: Opinion on which type of standards should be pursued

In this question, respondents were presented with a number of “ideas” currently being considered as elements of any national/North American standards for their industry and were asked to indicate any that they supported from an industry standpoint.

Twelve (41.2%) of the 29 businesses reporting indicated that they favored the development of a national best practices manual; 11 (37.9%) favored development of a national set of rules that could be adopted by all state, federal and local jurisdictions; 12 (41.4%) favored the development of a “clean transporter” program that would encourage voluntary compliance; six (20.7%) favored development of a voluntary national training program for licensed haulers; three (10.3%) favored establishment of a mandatory national training program as a licensing requirement; five (17.2%) didn’t favor any of the options presented and one indicated ”other”.

There are several ideas being considered regarding development of national or North American standards for commercial watercraft and equipment haulers. Which of the following do you think would work best from an industry standpoint (check all that apply)?



All of the comments from Question #16 are provided below:

Why are you targeting the commercial hauler you need to figure out the private sector two. We as commercial transporters are use to rules and regs, I don't think we need to throw something else on our plate, we have a lot of mandates already just carrying a CDL, no more, I do believe the private sector is the one to watch and that the lakes and marinas should have the inspections before they launch. Don't leave it up to DOT because that will only turn into a money generator for the states.

1.

You will need to get approval of the Federal Motor Carrier Safety Administration and U.S. Department of Transportation for feedback and or approval of any new requirements you are thinking of placing on commercial transporters.

2.

It would be of no value to regulate commercial haulers without regulating recreational haulers which are at least 100 times greater in numbers.

3.

I think that the buyer/seller of the vessel should be responsible for the decontamination and inspection of such. And a certificate of such should be included with boat.

4.

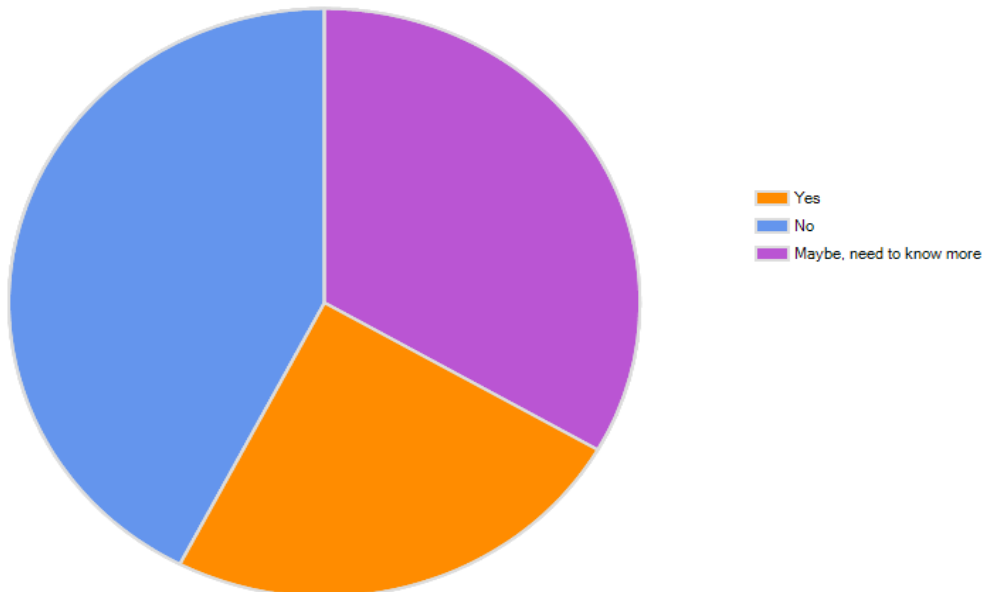
5. DO NOT LET CALIFORNIA HAVE ANY SAY IN IT SO IT WILL NOT GET SCREWED UP

6. I am sure the drivers would really squawk about training for mussel detection and if found would be in a position to play cop with no authority. Could be very expensive to the carrier. Seems to me the marinas are the best line of defense. A revenue and profit source for them. Not a revenue source for the carrier.

Question #17: Willingness to participate in development of industry standards

This question asks those businesses completing the survey to indicate if they would be willing to participate in a cooperative effort with regulating agencies to develop model standards for the industry as it relates to cleaning watercraft and equipment they transport. Eight of the 31 businesses responding (25.8%) said they would be willing to participate in a cooperative effort to develop industry standards; fourteen (45.2%) said they would not be willing to participate; and 11 (35.5%) indicated they may be interested in participating, but needed more information first.

Would you or your business be willing to participate as an industry representative in the development of national standards that protect water supply, recreation and other public water values from the devastating impacts of zebra and quagga mussels in a way that recognizes the real life operational and economic concerns of commercial watercraft and equipment haulers and their clients?



Question #18: Final comments

This question provided an opportunity for those completing the survey to make any general or additional comments they wished regarding the survey, the commercial transport industry, or AIS regulations. The complete unedited text of those comments are provided below.

You will need to contact the Federal Motor Carrier Administration and U.S. Department of Transportation to ensure any new requirement you are thinking of placing on commercial truck drivers is allowed and will not be a violation of current law, If you proceed in placing a new regulation on commercial truck drivers it must be admitted into law and listed on FMCSA revised guidelines, most likely section 393, 397, or by adding an entirely new section of law pertaining to this matter.

2. I do hope somebody would consider discussing the advantage of Zebra Mussels. Has anybody seen how pretty Green Bay, WI is without algae?

3. All buyers must require a letter or check list from seller/dealership stating that the boat has been checked for zebra and quagga mussels.

4. let's work together for our waters

5. PLEASE DO NOT CONTACT US OR SHARE OUR E MAIL / ADDRESS WITH OTHERS -- TOO MUCH JUNK

6. EVERY ONE SHOULD TAKE TIME TO KEEP OUR WATER WAYS CLEAN. IF YOU PACK IT IN PACK IT OUT

7. The best solution is if a vessel is moved from 1 body of water to another that vessel should be decontaminated no matter what 1 rule easy for everyone to understand & guess what we also saved a lot of money solution solved.

8. This should not be an issue that has any affect on haulers/transporters. It is an issue that should be taken up with boat owners through the registration process in the states/jurisdictions that they are moving to and from. Likewise all penalties and fines should lie with the registered owner of the boat/equipment as well.

9. I am all for the commercial carrier helping. It is my opinion the greatest

danger for spreading is from the individual, private, small watercraft hauler. From what I can see there is very little pressure, concern or enforcement of this population.

10. *I have already been to court over zebra issues, many places are taking advantage of consumers over zebras and they need a standard in this issue. Not just make a law and pass on the responsibility to the transporter. If you are going to own a watercraft then you need to be responsible!!*

Discussion

The watercraft and water-based equipment transport industry is a very diverse group comprised of many large full-time businesses specializing in watercraft transport; a large number of general transport businesses who also haul watercraft and equipment; many small independent (mom and pop) businesses with one or two trucks and drivers; and a large number of part-time, often unregulated, individual operators with trucks who move a few watercraft a year. In all, the number of businesses engaging in this activity in North America has been estimated at between 3,000 and 5,000 (Athearn 2007). There is only one fledgling association striving to represent specialty watercraft haulers but several large general trucking associations that count as members some of the larger businesses that transport watercraft/equipment.

The diversity of these businesses, the lack of an effective association, and the high rate of turn-over among smaller and part-time operators has made it difficult over the years to provide direct and efficiently delivered outreach and education about Dreissenid mussel and other aquatic invasive species issues. Past efforts have been directed at periodic mass mailing campaigns with minimal feedback, engagement or interaction between commercial hauler service providers and water resource managers charged with protecting waterways.

Two primary objectives behind this effort have been to:

1. Increase the level of protection for water resources from any further expansion of harmful aquatic invasive species as an unintended outcome of the overland transport of large recreational and commercial watercraft and equipment, and

2. Achieve an increased level of protection in a way that has the least impact on and recognizes the practical realities of the industry.

In order to achieve those objectives, we used a survey to learn more about the industry; its make-up, understanding of the issues, current practices, attitudes, operational constraints and ideas for addressing the ANS issue as it relates to their activities. This is the first multi-state effort that we are aware of to engage this group and will hopefully lead to a more cooperative and collaborative approach to problem solving in the future.

Findings

NOTE: There are an estimated 3,000-5,000 individuals and/or businesses involved in the transport of large watercraft and/or water-based equipment in North America. This survey was distributed to only 500 of those individuals/businesses and only 31 (just over 6%) of those completed this survey. There are several reason why this survey may not be reflective of the industry as a whole, everyone who reads or uses this report should keep the small sample size in mind when interpreting the results.

As a result of this effort, the authors have found the following related to the commercial transport industry, their current practices, their experiences and their opinions about preventing the further expansion of Dreissenid mussels and other AIS resulting from their activities:

1. Nearly half (48.4%) of the 31 businesses responding reported transporting 50 or more watercraft annually and another 19.4 % reported transporting 10 or more watercraft annually.
2. Most watercraft transport service providers are highly mobile and work in multiple regions of North America, with 25 of the 27 businesses reporting hauling at least one watercraft either into, out of, or within the West Coast Region and working in an average of 2.8 regions per carrier.
3. Of those responding to the survey, only six (20%) reported hauling watercraft or equipment to or from waterbodies known to have zebra or quagga mussel populations in the past 24 months.
4. Eighty-seven (87%) percent of commercial watercraft transport operators completing the survey said they were either very (61%) or somewhat

(26%) aware of the of Dreissenid mussel issues. This high level of awareness can probably be attributed to several factors:

- Past and on-going outreach efforts to this group have at least been partially effective.
 - Direct contacts from current regulatory efforts (i.e. inspection stations).
 - Increased awareness by the general population (measured by a number of recent state and regional surveys) is also reflected in the commercial hauler owner/operator population.
5. Just under half (48.4%) of respondents considered themselves as being very aware of the laws and regulations pertaining to the transport of watercraft and equipment between waterbodies as it relates to aquatic invasive species.
 6. Twenty (20%) percent of those responding said they were not very aware or knew nothing about the issue or industry regulations.
 7. Fifty eight (58%) percent of those completing the survey said that they had been subjected to an inspection on at least one occasion in the past 24 months.
 8. Of the 18 commercial transport providers reporting have been inspected, five considered it a positive experience, eight said it was neither positive or negative and five reported it as a negative experience.
 9. Half of the businesses responding said that they require the vessel or equipment owner to clean the vessel before they haul; 23% said they clean the vessel themselves; and 23% require some form of third party “clean” certification before they will transport a watercraft.
 10. Just over half (53.3%) of those surveyed said that they required either steam-cleaning or power washing; 40% required that all water be drained; and 10% required some extended time out of the water for watercraft and equipment they transport. (Questions about the relative quality of the cleaning, draining and drying protocols and standards used by the industry were not part of this survey.)
 11. Sixty eight (68%) percent of those responding to the survey said that they required their cleaning, draining and drying standards for all watercraft

they haul and 17% said they only applied those standards to watercraft coming from waters known to have Dreissenid mussels.

12. Over 80% of those surveyed said that they have not had any decontamination training themselves or provided any training for their employees.
13. Forty three (43%) percent of those transport providers responding said that new laws and regulations requiring watercraft be free of Dreissenid mussels and other aquatic invasive species have had no effect on their business while 14% indicated that they have had major impacts to their business.
14. Sixty three (63%) of the businesses responding said they would favor the development of a uniform set of standards for the industry; 27% opposed uniform standards and 20% were unsure and needed more information.
15. Seventy five (75%) percent of those who favored development of uniform standards said that all watercraft should be clean, drained and dried; 30% said all watercraft should be required to be inspected; and 10% supported requiring a 30 drying period.
16. Forty one (41%) percent of those surveyed said they favored development of a national best practices manual; 38% supported the development of one set of national regulations to be adopted by all jurisdictions; 41% supported a “clean transporter” program; 20% supported a national voluntary training program for commercial haulers; 10% favored establishment of a mandatory training program; and 17% didn’t support any of those options.
17. Twenty six (26%) percent of those completing the survey were willing to participate in a collaborative effort with water resource managers to develop industry standards; 45% were not and 29% might be interested but needed more information.

Recommendations

Given the objectives for this project and the information gained from the completed surveys summarized above, we have the following recommendations regarding measures to reduce the risk of Dreissenid mussels or other aquatic

invasive species being inadvertently transferred from contaminated to uncontaminated waterways by commercial watercraft and/or water-based equipment transport providers:

1. Produce an industry directed brochure, booklet or manual clearly outlining the critical nature of the aquatic invasive species issue, the laws governing invasive species, their impacts on the economy, ecology and boating in general and identifying the specific steps that all commercial haulers and their customers should take to protect waterways and preserve their business/boating opportunity. This outreach document should be distributed to all commercial watercraft/equipment transport businesses and be made available on-line and at all sport shows (customers) and other outreach venues.
2. Establish and advertise a “tab” devoted to commercial transport issues on one of the established AIS websites; 100thmeridian.org or aquaticnuisance.org. The website should include a video segment demonstrating inspection and decontamination, an on-line training program, industry specific brochure, booklet or manual (see #1 above) and a list of contacts for information about regulations.
3. Develop best management practices (BMP’s) or uniform minimum standards for the watercraft and equipment transport industry. BMP’s or standards should be developed collaboratively between water resource managers and industry representatives, apply to all jurisdictions and include the following considerations:
 - a. Large, complex watercraft and water-based equipment that require the assistance of a commercial transport provider represent a very high level of risk for AIS transfer.
 - b. Commercial transport providers work within broad geographical ranges with multiple jurisdictions.
 - c. Best practices or minimum standards for the industry do not change with geography or political jurisdiction, but regulatory capacity does.
 - d. Consistent and coordinated standards that apply to all jurisdictions are the easiest to understand, comply with, enforce and most likely to be effective.

4. Best management practices or uniform minimum standards should include the following basic principles:
 - a. The watercraft/equipment owner and the commercial hauler share responsibility for assuring that watercraft or equipment is free of Dreissenid mussels or other AIS. The owner has primary responsibility, but commercial transport businesses will be held responsible to confirm that they are not violating the law by transporting AIS. Hauling contracts should clearly address and assign responsibility for inspecting and cleaning all watercraft and equipment before they are transported and reflect the added cost (either in time delays due to failure to comply or additional cost required to comply with federal, state and local laws and regulations).
 - b. All commercially hauled watercraft/equipment must be clean and free of any mussels, attached vegetation or surface deposits that could mask the presence of Dreissenid mussels.
 - c. All commercially transported watercraft/equipment must be completely drained including bilge, water wells, ballast tanks and raw water storage tanks.
 - d. All commercially transported watercraft/equipment must be completely dried and be held out of the water for a period of time required to desiccate any attached mussels or vegetation (use 100th Meridian Initiative quarantine time calculator to determine).
5. Develop a set of model regulations for federal, state and local authorities to consider for adoption as it specifically relates to commercial watercraft and water-based equipment transport businesses operating within their jurisdiction. Model regulations should specifically address the BMP's or standards outlined above.
6. Develop an issue paper on the merit of establishing a "Clean Hauler" program (similar to state "Clean Marina" programs) as an industry marketing tool and incentive for compliance with current laws and regulations regarding transport of AIS. Issue paper should include an assessment of program components as well as potential funding sources for implementation.

7. Film a segment on BMP's or standards for commercial transport in the new Dreissenid mussel education and training video to be produced in 2011.
8. Develop an on-line training program for watercraft/equipment owners and commercial transport providers that provides more information about the issue, it's importance and how to inspect and decontaminate large complex watercraft and equipment (use video segment to reinforce the training).
9. Continue outreach with this very large and diverse group of service providers by:
 - a. Maintaining and annually updating a list of commercial haulers operating in North America.
 - b. Making an annual mailing to include brief newsletter, website information and industry specify brochure.
 - c. Monitor the progress by the National Boat and Yacht Transport Association to establish a representative body and work through that association or others which might evolve to increase the effectiveness of outreach efforts and standardization of ANS/AIS prevention practices for the industry.
10. Complete a follow-up survey in 3-4 years. The follow-up survey should offer respondents the option of completing an online survey or receiving a paper survey to increase the response rate.