

**Invasive Species I Session Proceedings**  
PNWER Annual Summit – Whistler, British Columbia  
July 22, 2014

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**Co-Chair** Dr. Mark Sytsma, Professor at Portland State University

**Co-Chair** Rep. Deborah Boone, Oregon State Legislature

**Speakers**

*Zebra and Quagga Mussel Prevention: Building a perimeter of protection*

Lake Powell & Lake Winnipeg threats

- Laureen Janusz, Fisheries Biologist, Manitoba Conservation and Water Stewardship and Kate Wilson, Senior Director, Tight Oil and Gas, Alberta Energy and Environment, via teleconference
- Jordan Nielson, Aquatic Invasive Species Coordinator, Utah Division of Wildlife Resources, via teleconference

Emerging issues, Early Detection and Rapid Response

- Matthias Herborg, Aquatic Invasive Species Coordinator, BC Ministry of Environment
- Stephen Phillips, Senior Program Manager, Pacific States Marine Fisheries Commission

*Legislative Discussion*

Washington State Senator Jim Honeyford

Oregon Representative Bill Kennemer

Montana Representative Mike Cuffe

Alaska Representative Paul Seaton

Alberta MLA Alana DeLong

*Industry Initiatives to Prevent the Spread of Invasive Species*

Ballast water/Shipping industry

- Captain Mike Moore, Vice President, Pacific Merchant Shipping Association

Oil and Gas

Horticulture

- Heike Stippler, Director of Horticulture at Invasive Species Council of BC, Advisor at Sea to Sky Invasive Species Council, and President at Heike Designs Inc.

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Opening Remarks by Mark Sytsma: Introduction to speakers and their topics.

Statements of note from speakers and participants:

- Zebra mussels are a \$75 million / year problem for Alberta
- Aquatic plants impact the spread of zebra mussels
- Mussels can live for 30 days on a boat out of water
- Getting the invasive species problem recognized federally would increase treatment success
- Manitoba has over 1,000 lakes
- Important to prevent invasives in ports on the Pacific coast (ballast water exchange)
- Terrestrial invasive species (e.g. feral pigs, fire ants, rats) are also of concern in the Pacific Northwest
- Irrigation systems can also be impacted by mussels and agriculture depends on water

**Presentation: Jordan Neilson, Aquatic Invasive Species Coordinator, Utah (via teleconference) and Stephen Phillips, Senior Program Manager, Pacific**

Lake Powell has Quagga mussels and speakers want to list it as infested and put a plan in place: closure order means decontamination of boats is enforced, but have to go through Wildlife Board to get it listed as infested and develop a control plan (not yet approved by NPS).

Boat decontamination process: inspect, clean, drain, and dry boats / or professional hot water decontamination system

Lake is 200 miles long with mussels in first 24 miles. Mussels aren't visible during the summer (water level is high), but are visible in winter on rocks and beaches. The colonization is happening rapidly, expect to see infestation move upstream. Refer to slideshow for map showing extent of infestation.

Want to become more efficient at managing infestation:

- Restrict boats coming and going from same location (if clean, drained, and tagged) don't have to complete the decontamination process
- Listing and delisting process is changed such that Sand Hollow, Red Fleet Reservoir, Electric Lake are completely delisted → only threat in Utah comes from Lake Powell
- Issued 235 warnings and 26 citations for not stopping at inspection stations so far this year
- Bear Lake (border between Utah & Idaho) has two inspection stations going into the Bear Lake Valley
- Lake Powell will have three inspection stations next year at pinch points to catch the majority of people leaving Lake Powell. Also will check people leaving the boat ramp, but can't catch everyone there (high use area).
- Working with National Parks Service to inform and educate boaters: signs and instructions for boat users
- State of Utah has authority to inspect boats (can't inspect decontamination equipment)
- Developed a new flyer to be handed to every boater during visit to the lake to provide information and directions what they are supposed to do to prevent the spread.
- Law enforcement (guys with guns and badges to make sure people are taking it seriously): UDWR technicians on the boat ramp, boat tagging to prove decontamination
- Intend to install permanent, free decontamination stations around the state, where they are convenient for people to use them.
- Also have authority to stop people at point of entry (I-15)

Program Funding:

- Money = people with boots on the ground
- Legislative gave \$1.35 M / year, with additional \$245K for FY15
- Total FY15 budget is \$2.26 million – not enough to do a good job of protecting the state.
- Want to construct a virtual wall between Lake Powell and the rest of the state. Will be seeking more funding from state legislature to erect an “iron curtain” between Lake Powell and the rest of the state.

Question (Kate Wilson): can citations be given by all enforcement agents?

Response: conservation officers are issuing the most citations, but any agent who has the authority can issue a citation (state wardens, park rangers, etc.)

### **Presentation: Laureen Janusz and Kate Wilson – Zebra Mussels in Lake Winnipeg**

Lake Winnipeg key facts:

- The tenth largest freshwater lake in the world
- The north basin is deeper and less populated than south
- 7 million people live in the watershed
- Lake is shallow, turbid, and well mixed
- Commercial fishery is big business, \$25 million / year

Process:

- Mussels were found in four separate bays in October 2013.
- Implemented DFO's Rapid Response Framework, including the establishment of a Science Advisory Committee (SAC).
- Initial results suggested early stage infestation. SAC recommended treating with potash (potassium chloride).
- Treatment required six separate approvals (two provincial, four federal)
- Timing of treatment was important: needed to wait until ice was gone, but before lake temperatures allowed for mussel spawning (in May / June)
- Erected curtains to close off bays (except to commercial fisheries) and stored potash in tanks on shore, and pumped it into the water. Need mussels to be in contact with potash for 10-20 days to kill them.

Treatment took 1 month and \$1 million (accommodating commercial fishers increased timeline and cost)

Going forward: Monitoring, containment, and communication

- 64 sites will be monitored in future
- Boats leaving the lake will be decontaminated (three mobile decontamination sites)
- Communication through signs and social media to raise awareness
- Implement border inspection as well

Lessons learned:

- Federal framework did work, but the provincial response plan was also beneficial (different regions have different needs)
- Stakeholder Advisory Committee: weight / influence was determined prior to infestation
- Costs should be shared by affected parties – could establish emergency funds?
- Working with other people in the field of invasive species was hugely helpful.

Questions:

What concentration of potash is necessary?

100 ppm to kill the mussels

What was the success rate?

100% effective in the four bays treated

Mussels can live for 30 days out of water. Is Clean, Drain, Dry sufficient?

Not sufficient, but it is a start for education. Government needs to provide decontamination facilities for boaters to kill the mussels on boats.

What was the impact on drinking water quality?

The treatment didn't seem to have a significant impact on aquatic life other than zebra mussels (or other mollusks) and the lake isn't a source of untreated drinking water. Province is trying to reduce the phosphate levels in the lake, but because potash is potassium chloride, experts said that it would

affect the water quality. Also, treatment plan needed SARA (Species At Risk Act) approval, Small Craft Harbours approval, etc.

What about wakeboard boats where you can't get the ballast water out?  
Have them dry for a period of time

Need to be cautious about 100% success rate – is there a risk of telling people there's a way to deal with this because they might not take prevention seriously?  
Lake Winnipeg is still a huge risk and really stepping up monitoring efforts

How did the idea of using potash come about?  
Had been done before in Virginia (was 100% effective in a quarry), looked at a number of different options (e.g. draw down lake), but potash's effectiveness was attractive and had a lower environmental impact than other solutions.

### **Presentation: Emerging Issues, Early Detection, and Rapid Response – Stephen Phillips**

In central AR, a Code Red water emergency was declared on Jul 1 due to pump station fouling by Quagga mussels. US Geological Survey prepared a map (refer to slideshow) of extent of mussel infestation.

How would the Pacific Northwest respond to mussels if they were to infest our waters?

Rapid Response Working Group:

- Developed a response plan for the Columbia River Basin, including permits and chemicals
- Produced state RR plans for WA and OR, ID already has a plan
- Conducted a contingency planning exercise in December 2013
- Address pesticide registration issues

For more information, refer to: [preventinganinvasion.org](http://preventinganinvasion.org) (RRG tab)

Eradication is only feasible in isolated waters. Copper Sulphate and Potassium Chloride are best options for chemicals. Copper is really harmful to salmon, Zequanox looks good on paper, but hasn't been proven.

Applying a chemical that may impact a listed species is federal process:

- Identify BMPs,
- Identify control options,
- Identify S, T, and E species,
- Identify geographic scope

Look at other models of response, such as oil spill (don't have to ask for permission to take action in response to an incident because permission is already in place)

Next Steps:

1. Proposed action
2. Convene federal agencies for informal consultation
3. If "take", then biological assessment (BA) is needed
4. Federal consultation on BA needs lead Federal agency
5. Seek federal biologist opinion on response plan

Responding document at: [preventinganinvasion.psmfc.org](http://preventinganinvasion.psmfc.org) – providing a flowchart for rapid response plan.

Example: Vulnerability Assessments at Hydro Projects

Team includes USACE, BOR, BPA, FortisBC, Idaho Power, Seattle City Light, PUD

Status of CRB Vulnerability Assessments: very little complete, but different areas hope to complete assessments of different hydro areas this year.

- Cost effective strategy: bundling higher risk facilities on the Columbia River Basin
- Cost: \$500,000 to assess every facility shown on the map (see slides)
- Refer to slideshow for map of watercraft inspection stations in Pacific Northwest (some fixed, some mobile). Next map shows duration of inspection stations open times (when most boats are around), but how many boats are missed?
- Refer to slideshow for graph of contaminated boats intercepted by state in 2012 and 2013 (significant drop in contaminated boats). In 2013, the mussels dropped lower in the water column and weren't attaching to boats as much, but people are also learning what to do to prevent contamination.
- States are putting more inspection stations on highways, catching more people
- High interception rate in lower Colorado, but driven by boats going to California

Perimeter Defense:

- Refer to slideshow for current activities and goals
- Recommendation: decontaminate boats at source. E.g., NV decontaminates boats at Lake Mead, but it isn't mandatory (no authority to make people do it)
- Important component: CO and NM have a shared AIS Data Sharing System for Watercraft Inspection and Decontamination (WID) programs

Legislation:

- Legislative listing of Quagga mussels as an injurious species. S. 2530 has statutory exemption for public water systems
- Issue: DOI does not object to listing of Quagga mussels but opposes the proposed statutory exemption of any public water system or associated water conveyance, distribution, or storage facility or operator.
- Senator Baucus authorized a Water Resources Reform and Development Act in June 2010, but issue is stuck in FY 2015 Senate Energy and Water appropriations.
- Continue to request that NPS mandate that watercraft be decontaminated.
- Refer to slide for map to show where monitoring occurs in the US and BC:  
<http://crbais.psmfc.org/monitoring>

Questions:

Why was public conveyance opposed?

Fish & Wildlife service does not like the listing process and is concerned about exceptions

Are discussions about perimeter defense being looked at a watershed level?

First step is to consider the 30,000-foot level, and then what happens when they get inside our borders.

Western Canada Update: BC, AB, SK

Mussels are bad because they negatively impact:

- Fish, salmon, and native mussels in BC

- Hydro facilities
- Property values
- Irrigation systems

Estimated annual costs in BC: \$28 M (includes hydropower, water supply, recreational boating, fisheries, tourism, property value)

Eastern Canada (Ontario) is heavily infested

Boats coming out of Idaho with mussel infestation: 11% went to BC and 8% went to AB.

Prevention in Western Canada:

- Same message everywhere: Clean, Drain, and Dry
- Legislation – different in each province, and not in place at federal level to enforce inspections (current timeline for fall 2014)
- Rapid response: in process in BC and AB, not yet for SK and federal level

BC Provincial EDRR Plan, BC ZQM Plan, CRB Plan

- Early detection
- Identification
- Alert Screening (other steps on slide)

Impact assessments: BC (environmental & economic), AB (economic), SK (environmental)

Refer to slideshow for probability of survival for zebra / Quagga mussels (most places in BC are vulnerable, except south coast)

Conducting training, monitoring, and inspection in all provinces:

- Training resources are shared
- Use same flow chart to identify high risk boats for inspection
- Monitoring protocols are standardized across the Pacific Northwest
- Inspection: AB is the lead for highway inspections, BC and SK have pilot programs
- High level of collaboration in Western Canada
- Shared protocols and training
- Coordination of programs for inspection and outreach

Want to build a regional defense:

- The right time for regional prevention program
- Federal support for joint funding request
- Build on existing collaborations and coordination
- Focus to increase the perimeter defense approach, but also the prevention within each province.
- Need increased monitoring, public education, expanded inspection programs, capacity for decontamination, enhance rapid response tools by working with pesticide regulators

When boaters Clean, Drain, and Dry, we prevent not only mussels, **but the majority of other aquatic invasive species**. We are the last region free from the mussels, and we need to work together to keep it that way.

Conclusion:

- Pacific Northwest Region is at high risk for invasion by zebra and Quagga mussels
- Boaters don't have access to proper decontamination – need to provide tools

- Regional defense strategy would greatly increase effectiveness
- Collaboration and cooperation are already in place.

### **Legislative Discussion**

#### **Paul Seaton, AK Senator:**

Invasive species has been a big concern for a long time, but doing anything has been a slow process. There are many ways invasive species can get into an ecosystem. E.g., a drilling rig from SE Asia reconfigured for AK was not cleaned properly and was covered in mussels and other aquatic life. Fortunately, delays in process allowed inspections to catch the mussels and prevent the invasion. AK has no inspection and decontamination policies for drill rigs coming to AK (rig legs are of particular concern).

Sea vomit could close down Sitka herring industry (clog nets). Three agencies: Dept. of Fisheries, Dept. of Environment, Dept. of Conservation (safety inspections) are trying to control the problem (salt on rocks was pretty ineffective)

Questions to consider:

- How do we coordinate these agencies? Mandated law that they must coordinate – MOUs signed
- How do we deal with private property lawsuits from impeding agencies?
- How to we help commercial fisheries?

#### **BC Minister Mary Polak:**

Frustrating when you have an issue where you know what to do, but are stymied by process, cross-jurisdiction, and channeling efforts. Regulations seem to get in the way of efforts more than they help at times. Silver lining to infestation: new sport of killing bullfrogs with golf clubs

Future environmental and economic well-being depends on our ingenuity to deal with future challenges.

If you are a legislator, redouble efforts to think of commonsense means to address these challenges. If you are staff, please be patient, but keep prodding legislators onto further action and give them ammunition to take back to their colleagues to make changes happen.

#### **Jim Honeyford, OR Senator:**

Having been a farmer, infestation is a serious issue for irrigation and pumps – movement of water is necessary for agriculture.

Senate Bill 6040 was a comprehensive invasive species bill, supported by invasive species council to provide direction and control of invasive species, prohibit transportation, adopt a rapid response plan with inspection authority (into water bodies and on highways). WDF must adopt standards in line with regional standards to control invasive species.

WA Senate has majority coalition caucus, budget wanted to designate part of excise tax to support and fund invasive species legislation. Unfortunately, Democrat-controlled house wanted to use money for education and other areas, so no money was designated for invasive species.

WA is the only one who has contributed money to PNWER so far. Challenge to legislators: go back to your states and get \$50,000 for PNWER to coordinate a program to keep the invasive species out of the PNW.

Herb Cox, MLA SK:

Herb Cox was first exposed to this topic about 18 months ago. In SK, the issue is purview of Ministry of Environment, which is focused on the prevention of invasive species. We want to prohibit the import and transport of invasive species.

Over the past two years, the committee has focused on developing new regulations and providing more power to provincial ministries to streamline and accelerate a response to the issue. SK belongs to the West 911 network. Through this network, UT prevented a large riverboat from bringing Quagga mussels into SK.

There is a need to raise awareness in government, develop partnerships with agencies: SK Power, wildlife agencies, biosphere reserve, others in province to prevent and educate general public about invasive species risk. Education about prevention also is key. The vast majority of boats are caught but unfortunately this is not enough. We need to use educate the populous to stop all boats from spreading these invasive species.

A coordinated and ongoing effort will be required to satisfactorily address this issue. It is not enough for SK to work on its own. The PNWER Invasive Species Council, West 911 Network, and National Aquatic Invasive Species Committee must network among states and provinces. SK shares everyone's concerns and will continue to collaborate to address these risks.

Bill Kennemer, OR State Legislator:

Share two efforts for invasive species in OR from 2009 legislation:

1. Aquatic Invasive Species (AIS) Prevention Program: OR is gateway to PNW, five critical inspection points, and 1300 people with watercraft inspection training. Recognize it isn't just mussels – also aquatic plants.
2. Feral Swine in OR have a high potential for disease transmission: 45 viral and bacterial diseases that can transfer to deer, birds, etc. Feral Swine can also cause issues with overgrazing and rooting through dry grasslands. This can be controlled by shooting from helicopters, corralling, hunting with dogs (not very effective), and asking people to report to Fish & Wildlife ("Squeal on Pigs")

Alana DeLong, MLA AB

The primary concern is fiscal (expensive problem to have), but also environmental: mussels clean the water so well that nothing else can survive and coat the beaches with shells. The loss of family traditions (summers at the lake) and fisheries will speak louder than the costs associated with controlling invasive species.

We need to do more work to get buy-in from Canadian federal government to commit resources to this issue. New West Partnership: originally BC and AB, but now also SK – working to stop mussels in Canada. In AB, they have four inspection stations on major highways (but doesn't cover all routes), monitoring 70 lakes and reservoirs, launched a Clean, Drain, Dry campaign, and they want Fisheries Act to mandate inspections.

We are grateful to PNWER's efforts to raise the profile of this issue and spur everyone to action.



Mike Cuffe, Montana State Legislature

We all know the problem and the importance of it.

We need funding – each group needs to pay \$50,000 to PNWER to support this issue

In Montana, the program is in process, but every other year we have to scrape for the funding. Where is the best place to spend this funding? Pacific States Marine Fisheries might duplicate some of PNWER efforts but it doesn't matter who does it as long as it gets done in a coordinated way.

No one has mentioned Eurasian water milfoil which also needs to be controlled. Concern: AIS may lose its luster on this topic and get pulled in too many directions. Need to keep focused on mussels and milfoil. Concern about sufficient people resources in legislature to handle this issue

Proposal: reality TV show to raise awareness about the issue

Get boating manufacturers on board with education and awareness – tell people about invasive species at point of sale.

As legislators we need to monitor the process, trust the people doing the groundwork, continue reaching out to spread the word, and then monitor it enough to dive back in when necessary.

**Closing Remarks:**

In the US, there is federal legislation passed with millions of dollars on the table. Most of the time, the feds want to know there's isn't the only money in the game. We need PNWER reps in Washington DC.

Comment (Elaine Smith, ID): Eric Anderson chose not to run for re-election, but is campaigning with the governor that ID needs an invasive species coordinator for the state.