

ADVANCING A REGIONAL DEFENSE AGAINST DREISSENIDS IN THE PACIFIC NORTHWEST



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Pacific Northwest Economic Region
Big Sky, Montana

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“Unity is strength . . . When there is teamwork and collaboration, wonderful things can be achieved.”
– Mattie Stepanek

FOUR OBJECTIVES

- Define and describe an effective, efficient, and practical perimeter strategy (framework)—structure, cost, and policy needs.
- Work with stakeholders to assess possible sources of long-term sustainable funding for perimeter defense.
- Provide a high-level estimate of the avoided costs saved by focusing on prevention.
- Produce and distribute the framework to member states/provinces, Congressional delegation, stakeholders, and others.

WESTERN INVASIVE MUSSEL EFFORTS

Regional Defense Using resources in a cost-effective, interjurisdictional, coordinated, and collaborative response to prevent mussels from entering uninfested areas and to contain AIS at their source.

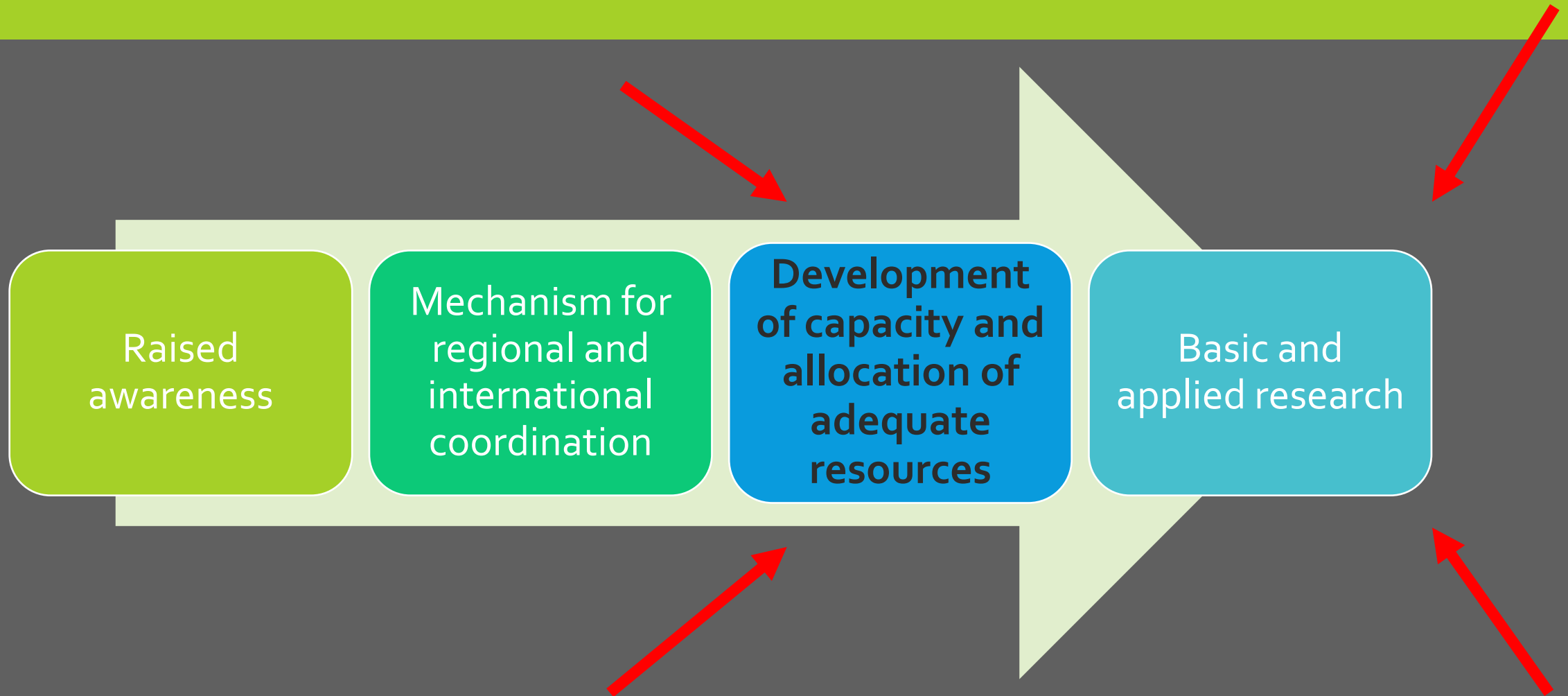


GOALS OF A REGIONAL FRAMEWORK

- Prevent the introduction of dreissenids (and other AIS) to the PNW
- Prevent the spread of dreissenids in North America
- Improve surveillance and monitoring of dreissenids
- Improve rapid response and management capabilities
- Create an aware, informed, and educated public
- Develop and enhance detection and response tools and technologies
- Improve communication and information about key vectors and pathways
- Help to ensure states and provinces collaborate and cooperate on a regular basis throughout the year



REGIONAL FRAMEWORK PREREQUISITES



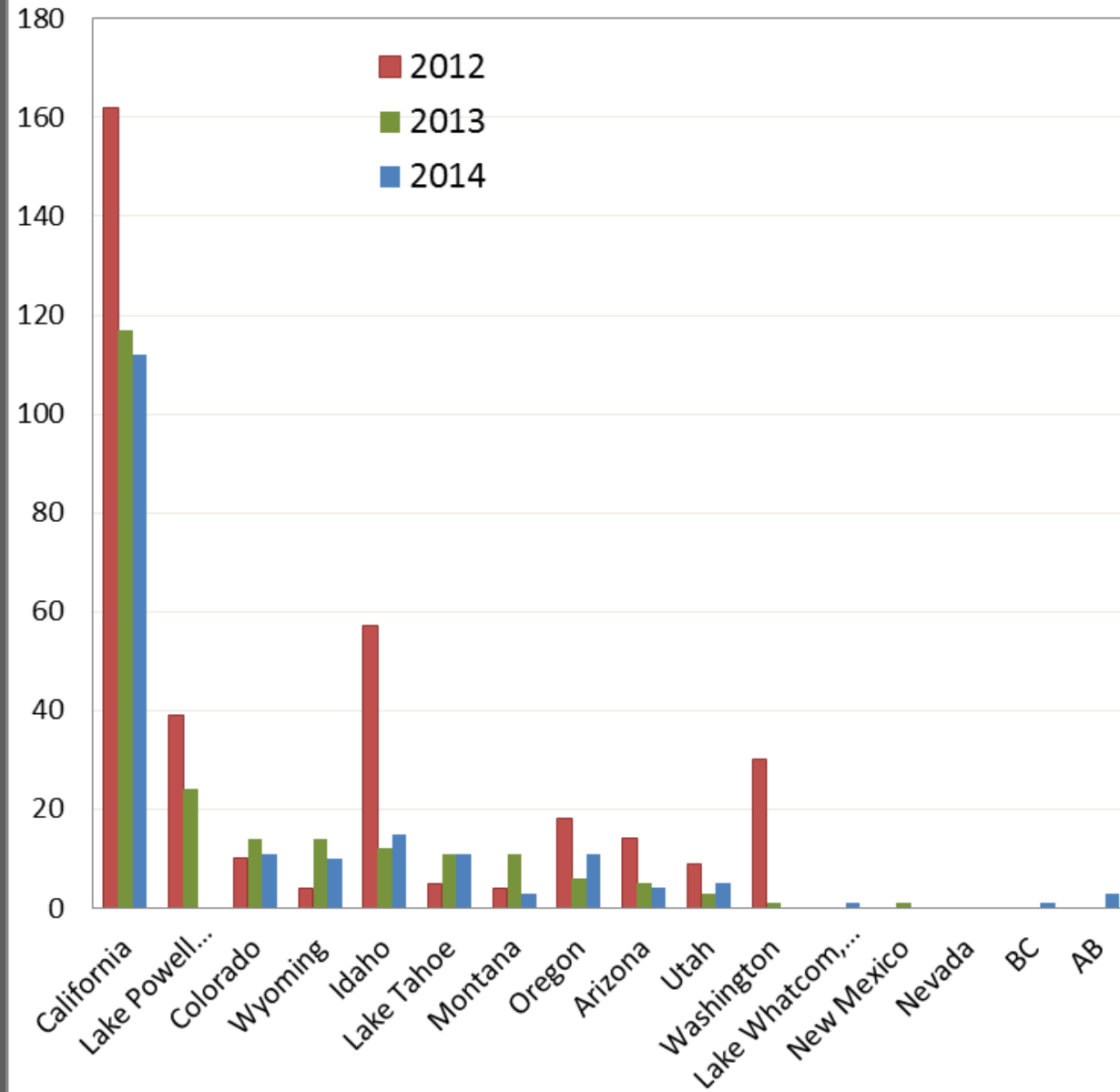
WATERCRAFT INSPECTION/INTERCEPTION PROGRAM DATA BY STATE - 2014

	MT	OR	WA	ID	WY	UT	CO	CA	TAH OE	AZ	NM	NV	AL	BC	TOTAL
BOATS INSPECTED	34,121	11,490	22,074	49,380	40,587	106,000	428,457	110,053	8,000	96	7,899	1,331	3,747	132	759,772
FOULED BOATS	3	11	1	15	10	5	11	112	11	4	0	0	3	1	187



Contaminated Dreissenid Watercraft Intercepted by State/Province

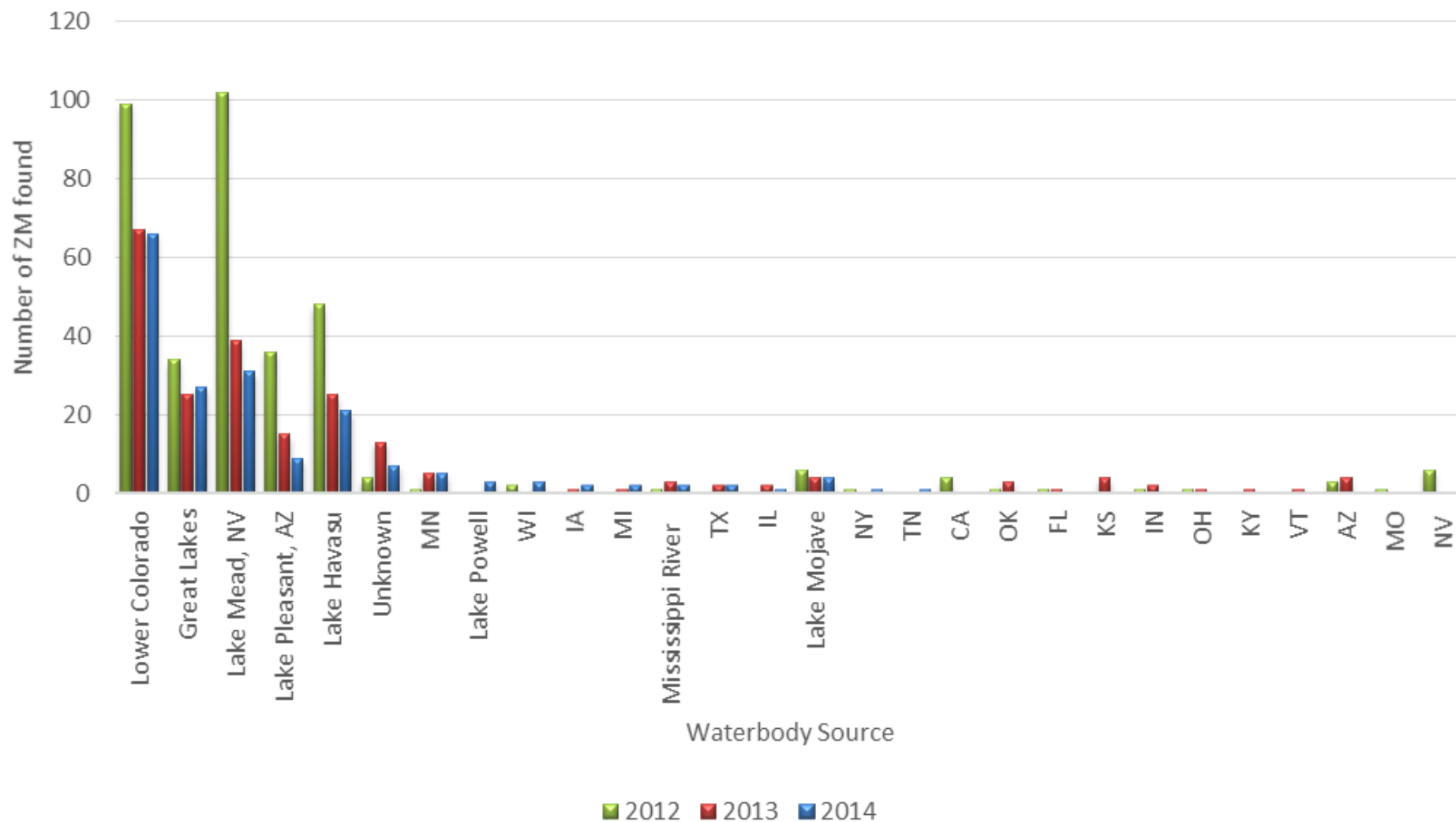
2012 vs. 2013 vs. 2014 (*N* = 352) (*N* = 219) (*N* = 187)





Source of Intercepted Watercraft with Adult Dreissenid Mussels 2012-2014

For: CA,OR, ID, MT, WA, WY, NV, UT, CO, AZ, TRPA, BC, AB, NM
N = 352 (2012), 219 (2013), 187 (2014)



PACIFIC NORTHWEST STATES AND PROVINCES	AMOUNT	SOURCE
ALBERTA	\$1,500,000	K. WILSON
BRITISH COLUMBIA	\$1,300,000	M. HERBORG
SASKATCHEWAN	\$260,000	C. DOHERTY
IDAHO	\$1,250,000	T. WOOLF
MONTANA	\$1,140,000	T. BOOS
OREGON	\$542,340	R. BOATNER
WASHINGTON	\$420,000	A. PLEUS
STATES AND PROVINCES ADJACENT TO THE PNW	AMOUNT	SOURCE
WYOMING	\$800,000	B. BEAR
CALIFORNIA/NEVADA – LAKE TAHOE	\$1,500,000	D. ZABAGLO
CALIFORNIA	\$2,931,207	D. NORTON
NEVADA	\$700,000	K. VARGAS
UTAH	\$1,350,000	J. NIELSON
GRAND TOTAL	\$13,693,547	

POTENTIAL COSTS OF A DREISSENIID INTRODUCTION	ALBERTA	BRITISH COLUMBIA	NORTHWEST TERRITORIES	SASKATCHEWAN	YUKON TERRITORIES
Power Generation	\$5,938,487	\$6,524,532			
Drinking Water Systems	\$20,839,921	\$9,251,608			
Boat Maintenance	\$390,060				
Recreational Fishing	\$21,830,892	\$12,385,962			
Water Management Structures	\$8,841,373			\$193,713,742	
Water Diversion Intakes	\$3,910,000				
Property Value	\$13,789,500	\$10,867			
Golf Courses					
TOTAL ANNUAL COST ESTIMATED	\$75,540,773	\$28,172,969	EST. \$30M	EST. \$30M	EST. \$30M
	ALASKA	IDAHO	OREGON	MONTANA	WASHINGTON
Hydropower		\$47,242,000			
Other Dams		\$148,700			
Drinking Water Intakes		\$4,287,000			
Boating Facilities		\$285,000			
Fish Hatcheries and Aquaculture		\$1,136,800			
Boater Costs/Maintenance		\$23,850,000			
Fishing Use		\$17,507,500			
Golf Courses		\$17,100			
Irrigation					
TOTAL ANNUAL COST ESTIMATED	EST. \$5M	\$94,474,000	EST. \$100M	EST. \$80M	EST. \$100M

TOTAL ESTIMATED COST TO THE PNW = MORE THAN \$0.5 BILLION ANNUALLY

FUNDING NEEDED - \$20 MILLION

- **Watercraft inspection and decontamination station expansion (\$1,977,969)**
 - Oregon-\$410,000; Montana-\$83,000; Washington-\$694,000; Wyoming-\$718,000
- **Build and fund the institutional capacity for collaboration in the region to monitor, assess, and renew regional AIS strategies, including enhancing the effectiveness of perimeter defense, on an annual basis - \$647,030**
- **Produce *Clean, Drain, Dry* pamphlets and support training for United States/Canada border patrol) - \$25,000**
- **Produce highway signs at the borders of the United States and Canada - \$100,000**
- **Increase monitoring to ensure early detection of dreissenids in the region - \$200,000**
- **Conduct research - Development of boater movement models to predict the most likely locations for an introduction of dreissenids in the Pacific Northwest - \$50,000**
- **Contain at the source (outside of the PNW and CRB) - directed at contaminated sources of water bodies that pose the greatest risk to the PNW - \$1,000,000**
- **Fund ANS Management Plans - \$16,000,000**

BEST MANAGEMENT PRACTICES

- Standards and protocols
- Research for early detection and monitoring
- Water manager actions to prevent and minimize veliger movements
- Notification/communication databases
- Messaging
- Monitoring
- Boater behavior
- Fishing tournaments
- Hydropower facilities and dams
- Local inspection programs



**CLEAN + DRAIN + DRY
YOUR BOAT**

prop anchor hat bucket deck lines hull rollers trailer bunk seat live wells bilge prop nut

Props, boats and natural ecosystems can be ruined by zebra mussels and other aquatic invasive species. Take a few simple steps to preserve our lakes and fisheries: **CLEAN** off the plants and debris, **DRAIN** bilges and ballast, and **DRY** any wet areas of your boat.



ZEBRA MUSSELS
2.0 cm



QUAGGA MUSSELS
3.0 cm



EURASIAN WATERMILFOIL

**DON'T LET THEM CATCH A RIDE
STOP AQUATIC HITCHHIKERS**

TO REPORT INVASIVE SPECIES:
1-855-336-BOAT (2628)
esrd.alberta.ca



RESEARCH PRIORITIES (2010 QZAP) (2015 GNLCC)

- Determine physiological tolerances to estimate potential range
- Develop a method to track dispersal via genetic fingerprints
- Develop alternative decontamination methods
- Develop biological control methods
- Develop eco-friendly chemical control methods



COMPARISON TO MODEL LAW



	IDAHO	OREGON	MONTANA	WASHINGTON	WYOMING
% of core authorities suggested in Model Law	70	75	55	75	90
LEGISLATIVE FINDINGS	√	X	√	√	X
DEFINITIONS	No definitions for decontamination or inspection	No explicit definition for inspection	No definitions for inspection, decontamination, and waters	Does not define inspection	√
POWERS AND DUTIES	√	√	√	√	√
PROHIBITIONS	√	√	No launching prohibitions	No prohibition on launching out-of-compliance conveyances	√
OWNER RESPONSIBILITIES	No general obligation to Clean, Drain, Dry	X	No cleaning and drying obligations	√	Does not impose Clean, Drain, Dry obligations
INSPECTION	√	√	No provisions to authorize law enforcement stops	No express authority for law enforcement stops	√
DECONTAMINATION	√	No express authority to impound conveyances or impose costs	No express authority to impound conveyances or impose costs	√	√
CERTIFICATION	Authorizes issuance of receipts/seals only for decontamination	√	X	No provisions for seals or reciprocity	√
PENALTIES	√	√	√	√	√

HIGHEST PRIORITY LEGISLATION

- Support appropriation of Water Resources Reform and Development Act funds to Columbia River Basin dreissenid activities.
- Support mandatory decontamination of fouled watercraft at federally managed waterbodies.
- Support reauthorization of the National Invasive Species Act.
- Support adding quagga mussels as “Injurious species” under the Lacey Act.
- Support the implementation of federal aquatic invasive species legislation in Canada.
- Support the Western Governors Association (WGA) resolution on dreissenid prevention efforts.

PRIORITIZED RECOMMENDATIONS

1. Contain dreissenids at the source.
2. Develop and foster long-term sustainable funding solutions for dreissenid and other aquatic invasive species prevention efforts, including industry participation.
3. Build and fund the institutional capacity for collaboration in the region to monitor, assess, and renew regional AIS strategies, including enhancing the effectiveness of perimeter defense, on an annual basis.
4. Establish and implement a real-time rapid response notification database.
5. Coordinate annual watercraft inspection and decontamination stations in the Pacific Northwest and with neighboring states and provinces annually using an online database.

PRIORITIZED RECOMMENDATIONS

6. Fund adequate infrastructure, including installing permanent decontamination stations at key locations, along the perimeter of the PNW.
7. Fully fund State Aquatic Nuisance Species Management Plans.
8. Facilitate, through PNWER, consistent and comprehensive cross-border training for United States/Canada border patrol officers, equipping them with the necessary information, materials, and training to effectively.
9. Develop boater movement models to predict the most likely locations for an introduction of dreissenids in the Pacific Northwest.
10. Request and document the status of vulnerability assessments for all hydropower facilities in the PNW quarterly.

PRIORITIZED RECOMMENDATIONS

11. Ensure all chemical options for dreissenid treatment are registered for use in each state and province and that coordination among states and provinces continues through the established Rapid Response Working Group.
12. Support mechanisms to share resources across jurisdictions.
13. Develop an AIS coordinator position in the US Army Corps of Engineers in Washington, DC.
14. Strengthen alliances with organizations in Lake Tahoe and the states and provinces through consistent communication and collaboration and sharing notification, watercraft inspection and decontamination station, and fouled conveyance interceptions via real-time online databases.

NOTES ON RECOMMENDATIONS

- Add irrigators, direct diverters, municipalities, etc.
- Mandatory decontamination leaving water bodies “at the source”
- Water body closures to ballasted boats
- Challenge: fouled boats coming from the Great Lakes too, don't lose focus when looking at S. Colorado River area
- Canada/US match (WRDA), regional federal delegations : cross border issues
- Question: Recommendation 10 – quarterly documentation of facility risk assessments? Answ: simple quarterly email reminder, ask for updates if applicable), Suggestion: include annual updates from inspections done by power facilities
- Addressed moored vessels at contaminated sources--- expand on definition of long-term moorage (because of the risk associated with moorage)
- Columbia River Compact – integration with? Working through NWPCC, ? Room for other collaboration,
- Focus on Columbia Basin doesn't capture all at risk areas in Canada e.g. Fraser River
- Canadian parallel to ACOE DC AIS coordinator

NOTES CONT.

- Strategy move from Columbia Basin cost estimates to all of PNWER
- NW Waterways – supporter of WRDA, player in AIS issues, potential partner in conversation re support and promotion
- Cost to operation on dams and reservoirs – can imbed costs of operations and prevention in re AIS issues
- Integrate Canada: Canada has similar level of risk from Great Lakes as the CRB has with its focus on Colorado River Basin, importance of prevention focus bc of all of the infested water bodies that are not the targets of active containment, non- GL, non LCR boats add up to similar risk numbers...
- Look at other risk screening models (e.g. cattle disease) to primary points of commerce/travel, also potential partners in larger biosecurity inspections

MORE NOTES

- NMMA /Boat US/ ABYC (reach put to their counterparts in Canada)
- USFS wildfire fighting risks – US risks addressed at the regional level, ?Canada
- Hauler certification or other ways to address commercial transport of boats? Outreach and regulation possible at the state and provincial level, pursue at the national /federal level. Determine how “quarantine” works for commercially hauled vessels
- UMPS – expand beyond the West, beyond ZQ mussels
- Consistency of results hampered by differences in legislation with regard to inspection stations
- Consideration of sth like Interstate compact on pest control (“insurance policy” for Rapid Response)
- x

NOTES

- Opportunities for engineer single inspection stations for two-way traffic, cross-border movement
- R 12 – sharing resources – can CAN prov. create compacts to share resources?
- Mechanisms to share resources across international boundaries?
- Decision making structures that are needed to spend funding? PNWER could be the logical place to look for next steps/entities and examples of how these decisions get made (r15)??
- Keep Recommendations to short list, ? Tiered priorities
- Integration of inspection of commercially hauled boats at DOT inspection programs
- Education, public outreach and awareness, currently going on but consistency, tracking success and monitoring need to be improved

NOTES CONT.

- Education – puts responsibility / onus on the users (beyond government regulation/solution), tie to resource use, protection