

Dreissenid Mussel Prevention Across the Pacific Northwest and Columbia River Basin (CRB)

21th International Conference on Aquatic Invasive Species

Montreal, Quebec, Canada

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PSMFC
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Authorized by Congress in 1947, the Pacific States Marine Fisheries Commission (PSMFC) is one of three interstate commissions dedicated to resolving fishery issues.

Member States: California, Oregon, Washington, Idaho, and Alaska

Aquatic Invasive Species Program Since 1999

Main Species of Concern: Zebra and Quagga Mussels

PSMFC Staff: GIS/Database Manager: Van Hare; AA Susan Anderson

Contractors: Lisa A. DeBruyckere, Debra "QUAGGA D" Davis, Leah Elwell and Robyn Draheim;



**US Army Corps
of Engineers®**

PSMFC Main AIS Species of Concern

West Coast, USA

2003 ICAIS Windsor, ON
Atlantic Salmon Zebra Mussel Mitten Crab Green Crab

PSMFC Main AIS Species of Concern

West Coast, USA

2019 ICAIS
Montreal, QC

~~Atlantic Salmon~~

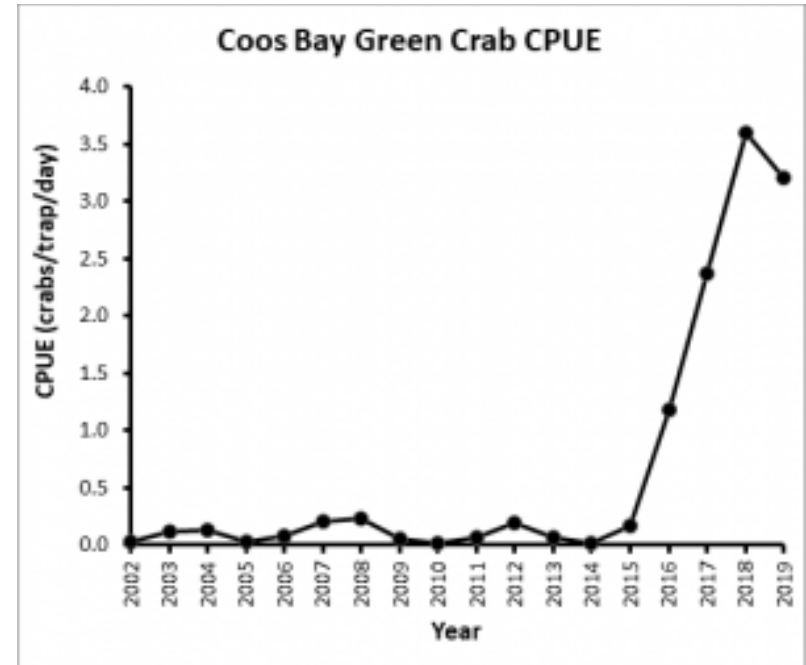
Zebra Mussel

Quagga Mussel

~~Mitten Crab~~

Green Crab

Northern Pike



Source: Sylvia Yamada, Oregon State



Pike with 16" kokanee in its
stomach

(Source: NWPCC)

#1 DRESSSENID VECTOR: WATERCRAFT



Decon by NDOW staff at Lake Mead NRA

Photo Credit K. Vargas, NDOW (retired)



Zebra and Quagga Mussel Sightings Distribution

Dreissena polymorpha and *D. rostriformis bugensis*



Tiber Reservoir, Missouri Basin

Safeguarding the West from Invasive Species

*Actions to Strengthen Federal, State, and Tribal
Coordination to Address Invasive Mussels*



Canyon Fe
2016, sho

STATUS

- Infested
- Positive
- Suspect
- Eradicated
- Delisted
- Failed



Zebra
Mussel



Mussel



DREISSENID FUNDING ARRIVES IN THE CRB

Water Resources Reform and Development Act (WRDA) (Passed in 2014, 2016, 2018)

“Water Resources Reform and Development Act of 2014”(Public Law 113–121—June 10, 2014` , Sec. 1039. Invasive species)

“(1) IN GENERAL

—In carrying out this section, the **Secretary may establish watercraft inspection stations in the Columbia River Basin to be located in the States of Idaho, Montana, Oregon, and Washington at locations**, as determined by the Secretary, with the highest likelihood of preventing the spread of aquatic invasive species at reservoirs operated and maintained by the Secretary.

Water Resources Reform and Development Act (WRDA) (2014, 2016, 2018)

- **April 2017:** Watercraft Inspection and Monitoring 50/50 Cost Share Program Begins; PSMFC signs agreement to administer the \$\$\$ with the USACE (Walla Walla) on behalf of OR, ID, MT and WA.
 - Watercraft Inspection Program 2019 -- \$4.5 million
 - Monitoring 2019: \$720,000
- **March 2018:** FY 2018 federal budget included \$1 million for the control of the flowering rush.
- **Fall 2019/2020:**
 - USACE Dreissenid Rapid Response 50/50 Cost Share Program (agreement with PSMFC as administrator)
 - Flowering rush to begin ?
- **Summer 2020 – The Expansion**

2018 WRDA Reauthorization (The Expansion)

“(A) WATERCRAFT INSPECTION STATIONS.—In carrying out this section, the Secretary shall establish (as applicable), operate, and maintain new or existing watercraft inspection stations—

“(i) to protect the Columbia River Basin;

“(ii) to protect the Upper Missouri River Basin; and

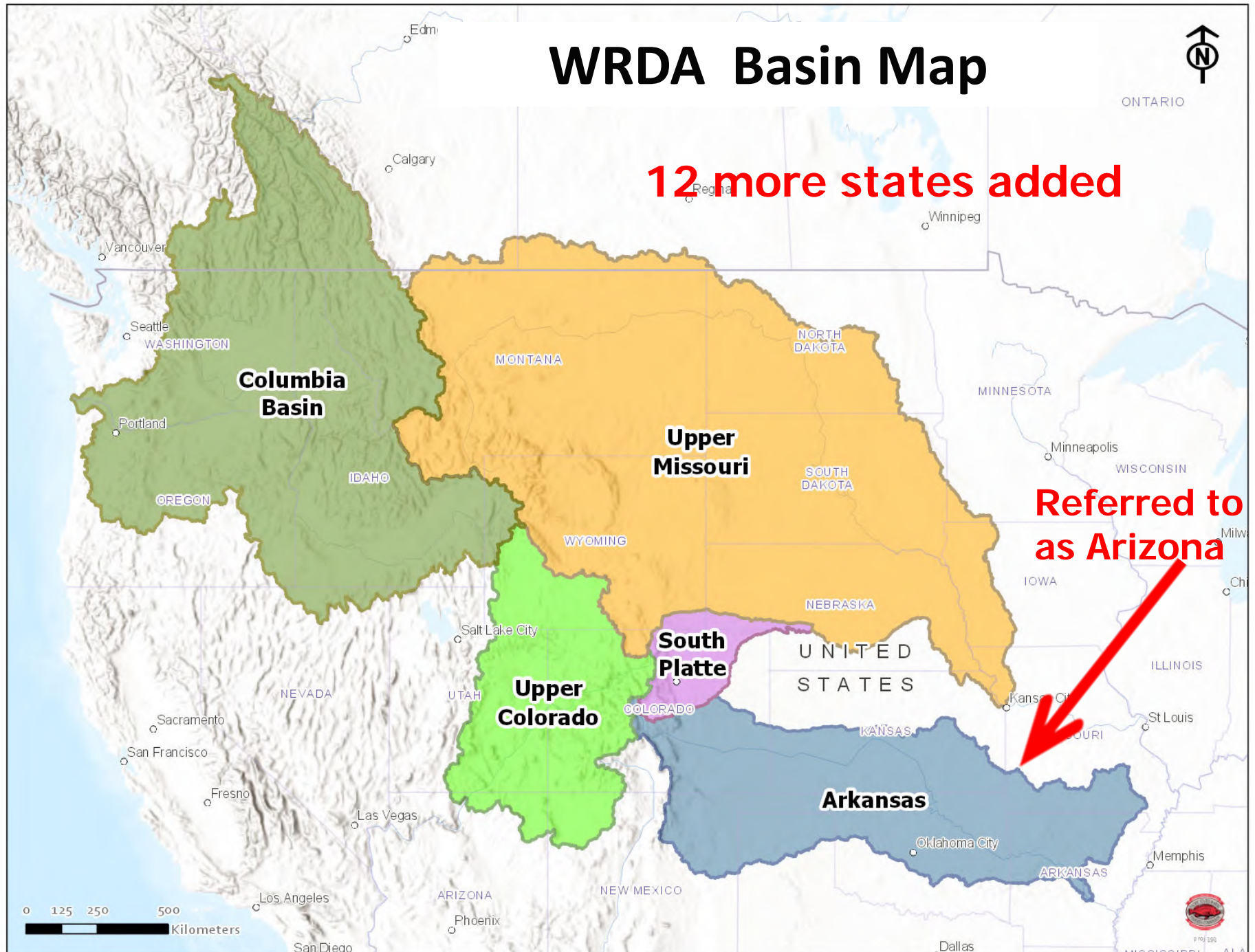
“(iii) to protect the Upper Colorado River Basin and the South Platte and **Arizona*** River Basins.

* Typo: Should read “**Arkansas**” (AR is Arkansas)

WRDA Basin Map

12 more states added

**Referred to
as Arizona**



Watercraft Inspection

PREVENTION: WATERCRAFT INSPECTION STATIONS

Samuels, ID



Troy, MT



Ashland, OR



Spokane, WA



WATERCRAFT MOVEMENT -- THE NIGHT

Nighttime Aquatic Invasive Species Watercraft Inspection and Decontamination Stations: A Review (L. DeBruyckere, October, 2019)

Since 2017, two states, two provinces, and one tribe in the Columbia River Basin geography have conducted nighttime watercraft inspection and decontamination stations.

Costs: Costs ranged from \$700 for lighting to \$25,000 for electronic message boards. Some nighttime inspectors receive additional compensation for working weekends and evenings.

Challenges:

- hiring additional inspectors (accessing an adequate local work force can be challenging) and additional law enforcement officers
- boredom experienced by inspectors
- safety concerns for those inspectors that work alone (some entities require at least two people on each nighttime shift), limited LE in the evening and adequate signage.

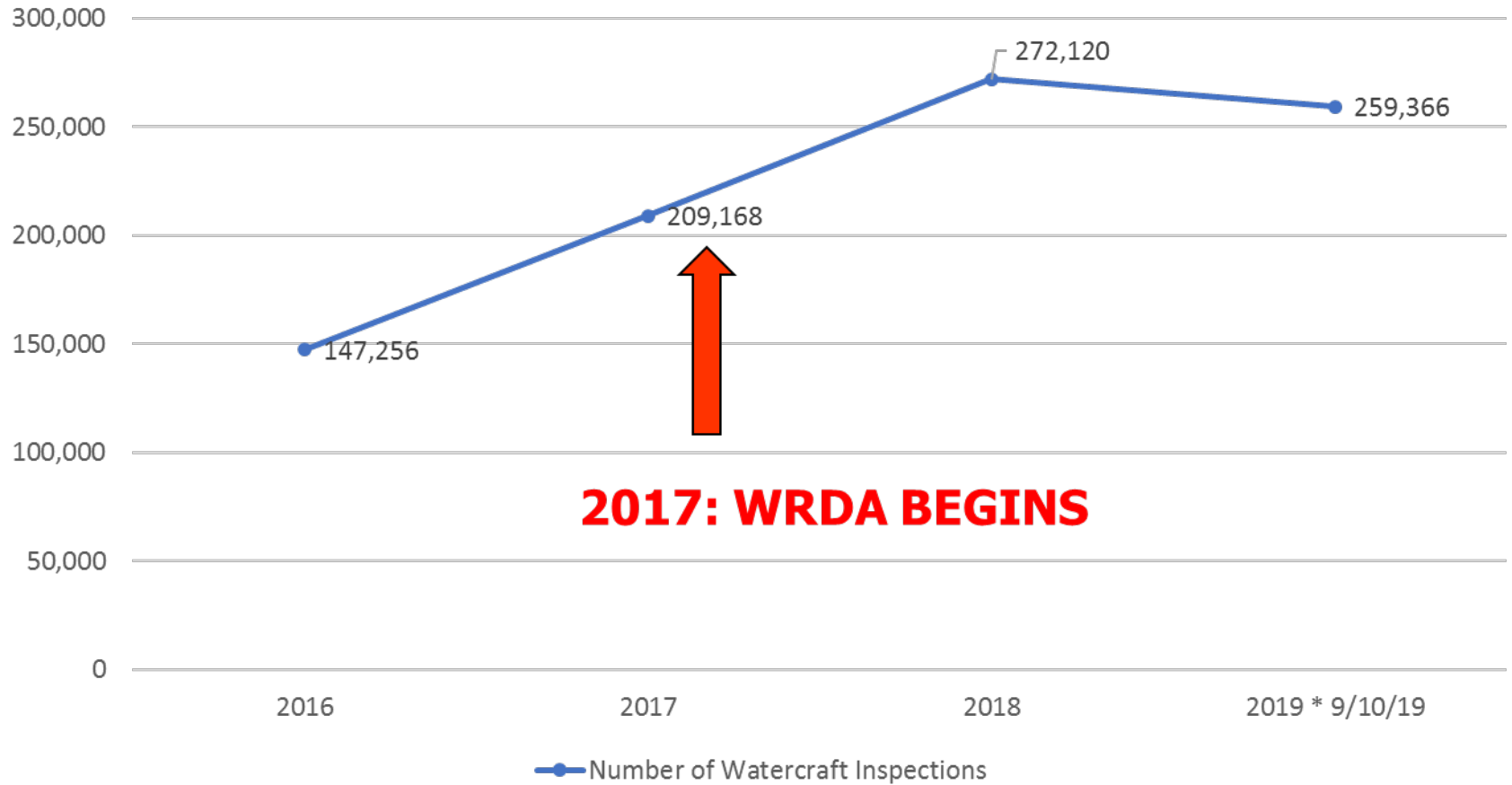
Successes:

- Nighttime inspections have been successful based on the number of mussel-fouled boats intercepted
- raised awareness by the public regarding the importance entities place on transporting clean watercraft, success inspecting watercraft being transported long distances,
- the percentage of high-risk boats inspected during evening hours compared to daylight hours,
- use of canines to supplement human inspectors

<https://www.westernais.org/moving-a-boat>

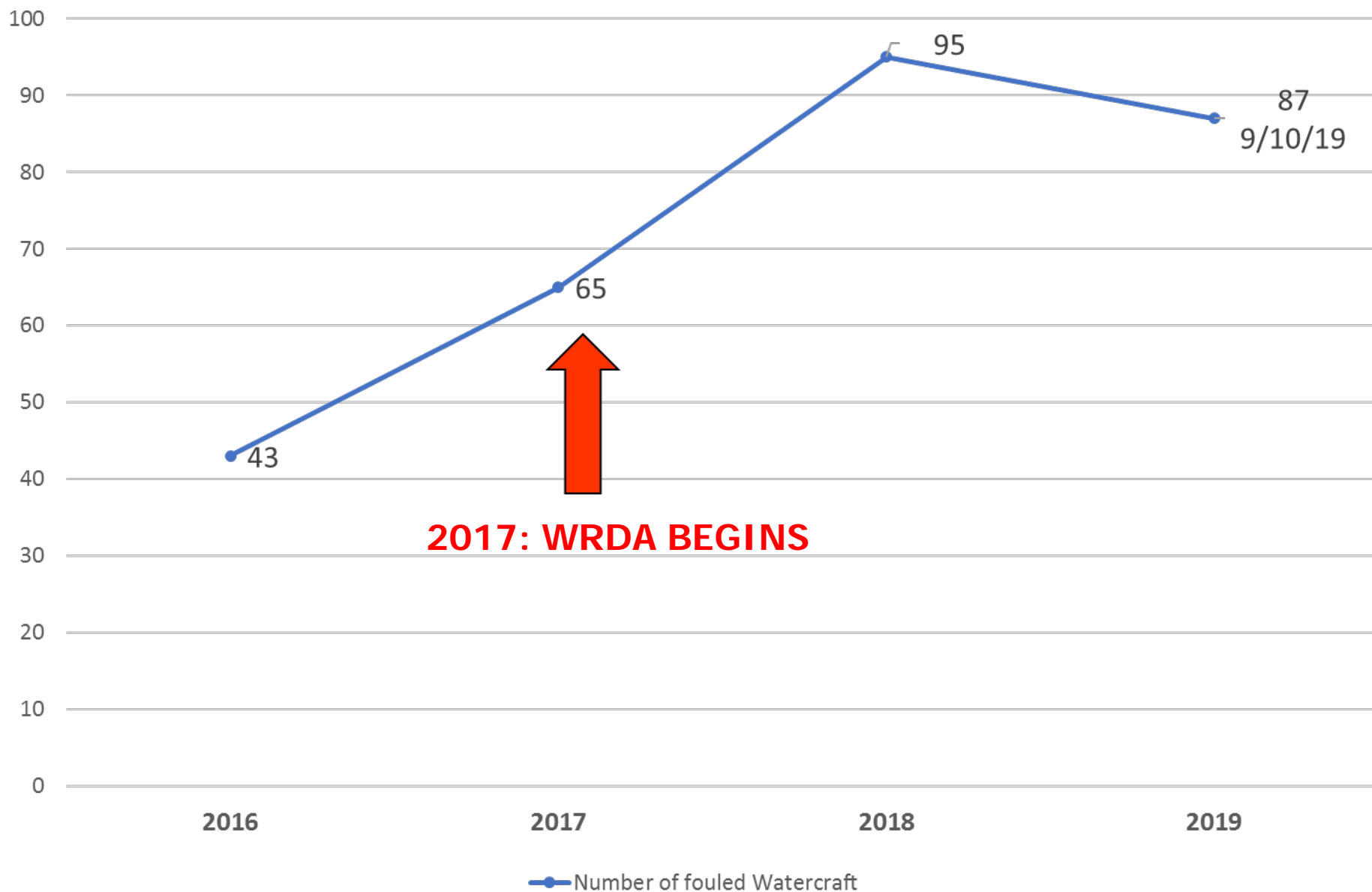
Number of Watercraft Inspections 2016- 2019 (Oregon Washington Montana Idaho)

(Through 9/10/19)



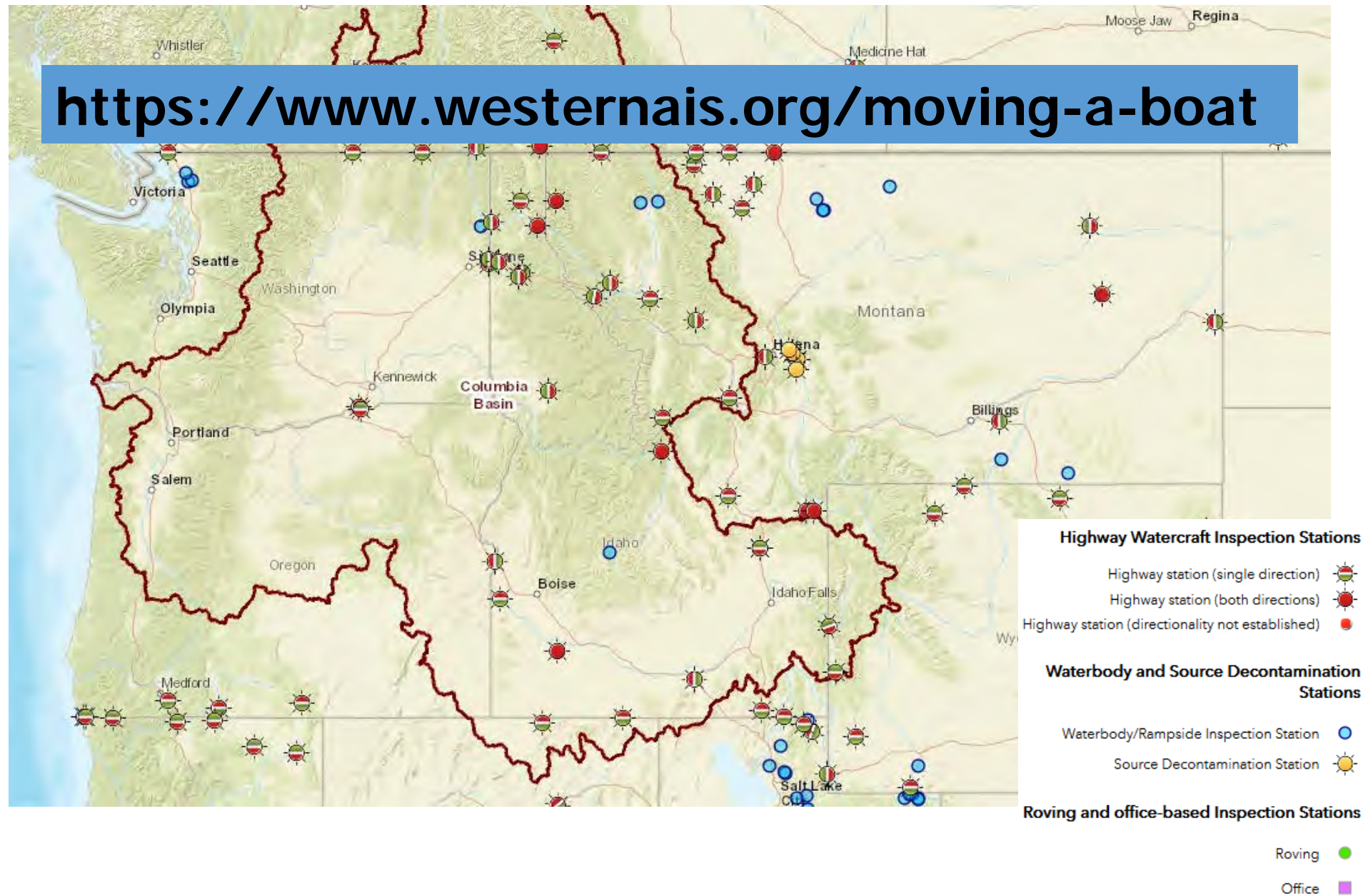
Number of Dreissenid Fouled Watercraft Interceptions

Oregon Washington Montana Idaho



Map of Watercraft Inspection Stations in Western N. A.

<https://www.westernais.org/moving-a-boat>



DREISSENID MONITORING

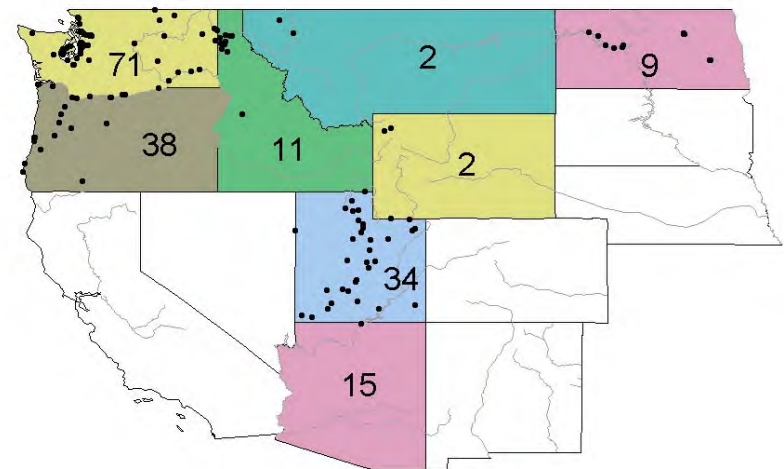
2001 DREISSENID MONITORING

- ◆ PVC substrate/mesh
- ◆ 1800 letters sent to WA, OR, ID, MT, WY

Contact: Mark Sytsma: sytsmam@pdx.edu



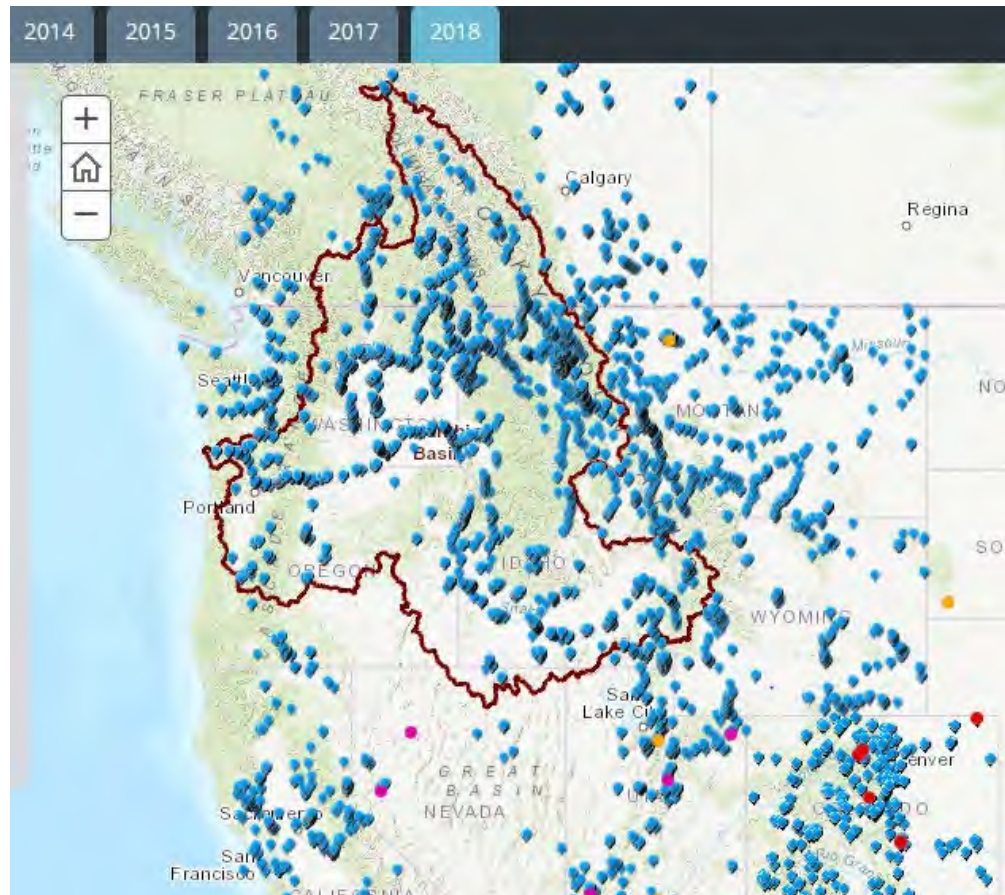
**Substrate Distribution Map
2001/2002**



2019 Dreissenid Monitoring

CRB Team 100th Meridian Dreissenid Mussel Monitoring Forum (Tim Counihan (USGS) /R. Draheim co-chairs)

Next Meeting 1/22/20, Portland Oregon



-Veliger (Larval)
Monitoring

-
Substrate/Shoreline
Sampling

-Water Quality
Sampling

-eDNA Sampling



<https://www.westernais.org/monitoring>

Inter-agency CRB Dreissenid Rapid Response Plan



Columbia River Inter-Tribal Fish
Commission (Date)
October 3, 2008

Province of British Columbia (Date)
October 9, 2009

As signatories, the above parties agree to implement this plan as appropriate consistent with each signatory's laws, policies, and authorities in the event that zebra mussels or other dreissenid species are detected in Columbia River Basin waters.

February 25, 2014
Columbia River Basin Team, 100% Michelson Initiative

<https://www.westernais.org/11-plans-exercises-groups>

Time for an update ...

<https://www.westernais.org/> "Rapid Response" tab

What Next For Dreissenid Prevention– 2020 and Beyond

Watercraft Inspection Station Strategy with expanded WRDA

- Additional funding needed for multi state expansion

Watercraft Tracking : Go electronic (RFID..."fast pass")

Watercraft Decontamination: Improve Technology/Ballast

Monitoring:

Risk Assessment- USGS and others

Location: Where , When , How much is enough, what are we missing,

Messaging: eDNA - when to initiate a response.

Thank You

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