Colorado Aquatic Nuisance Species Program

November 14, 2019
Upper Colorado River Basin Water Forum
Our Mission

To Protect Wildlife, Recreation, Natural Resources, Infrastructure and the Economy by Preventing the Introduction of Zebra & Quagga Mussels, and Other Invasive Species, by Containing Current Infestations and Stopping the Spread into New Waters.
What Are Invasive Species?

- Non-native plants, animals or pathogens
- No natural predators outside native range
- Harmful effect on natural resources and the human use of resources
- Economic, Cultural and Ecological Impacts
- Aquatic Invaders = Aquatic Nuisance Species = ANS

New Zealand Mudsnail
Rusty Crayfish
Eurasian watermilfoil
Zebra Mussel
What A.N.S. Are We Concerned About?

- **Animals**
  - Zebra Mussels
  - Quagga Mussels
  - New Zealand Mudsnaills
  - Rusty Crayfish
  - Spiny Waterflea
  - Fishhook Waterflea
  - Asian Carp

- **Plants**
  - African elodea
  - Brazilian egeria
  - Eurasian watermilfoil
  - Giant salvinia
  - Water hyacinth
  - Hydrilla
  - Parrotfeather
  - Yellow floating heart
Risk Based Implementation
Risk Based Implementation

- CDOW ZQM Risk Assessment – 2008
- CPW Risk of Introduction via Recreational Watercraft – 2012
- CDPHE ZQM Habitat Suitability Assessment 2013
- CPW ANS Habitat Suitability Assessment – 2016
- CPW Temperature Analysis for ZQM – 2016
- CPW Risk of Introduction via Recreational Watercraft – 2016, 2017, 2018
- CPW Risk of Establishment – ZQM Habitat Suitability Assessment – 2016, 2017, 2018
Prioritizing ANS Funding: A science based data driven approach to risk

Risk of Introduction: What is the likelihood that mussels will be introduced via watercraft?

Risk of Establishment
Part 1: What is the likelihood that if introduced, mussels can build shells and survive?

Risk of Establishment
Part 2: What is the likelihood that mussels can grow, reproduce and establish an invasive population?
Results

- All waters fall within suitable range for zebra and quagga mussel habitat.
- Approximately 70% of waters fall in the Very High or High risk level.

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>1º CHALK</th>
<th>2º Trophic</th>
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<tbody>
<tr>
<td>Very High</td>
<td>70 (40%)</td>
<td>31</td>
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<tr>
<td>High</td>
<td>54 (30%)</td>
<td>68</td>
</tr>
<tr>
<td>Moderate</td>
<td>37 (21%)</td>
<td>55</td>
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<tr>
<td>Low</td>
<td>16 (9%)</td>
<td>11</td>
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</table>
Temperature is not a limiting factor for mussels in Colorado!
Sampling and Monitoring
**CPW Technicians**

- Plankton tows
- Substrate checks
- Shoreline surveys
- Stream surveys
- Crayfish trapping
- Plant inventories

**Frequency**

- Risk Dependent
- 1 time per year up to every 6 weeks
Sampling

- 181 waters in 2018
  - Plankton Tows – ZQM Veligers
  - Substrate Checks – ZQM Settlers / Juveniles
  - Shoreline Surveys – ZQM Adults and Other ANS

- 584 total waters sampled since 2004

- Waters = Public Lakes and Reservoirs w/Boating

New Zealand Mudsnaill Eurasian watermilfoil Zebra & Quagga Mussel Rusty Crayfish
2018 ZQM Sample Numbers

- Plankton tows – 1,687
- Substrate Checks – 664
- Shoreline surveys – 1,141
- Processed at CPW ANS Lab

Summary of ZQM Monitoring Activities By Year
BOR detected 12 veligers
- 8/25/17 – QM Veligers Confirmed
- 8/26/17 – Enacted WID Containment
- 8/28/17 – Agency Notification
- 8/29/17 – CPW Press Release

Partnership Rapid Response:
- Access management
- Capital construction
- Utilities
- Public information

- No New Detections in 2018
- Closed for the year in Sept.
Green Mountain Reservoir – 2018

- Plankton Tows – 54
- Shorelines – 20
- Substrate Checks – 11
- SCUBA
- Additional Sampling by B.O.R.

- No Evidence of quagga mussels.
- Hope to de-list following 2020.
  - 3 years of negative detections
• Provide free taxonomic identification:
  • Aquatic Plants
  • Aquatic Mollusks
  • Crustaceans
  • Zooplankton
• CPW utilizes private labs for DNA confirmation as needed (e.g. EWM)
• Currently building an aquatic plant herbarium focused on the natural history inventory of macrophytes in CO waters
Colorado ANS Law – Reporting

• The Law requires that any person who knows or suspects an ANS is present (weed, animal or pathogen) must immediately report the suspect to the ANS Program.

• There are three options for reporting:
  • Email: Invasive.Species@state.co.us
  • State Program Office: 303–291–7295
  • Web: https://cpw.state.co.us
New Zealand Mudsnails are detected in new waters annually
Eurasian watermilfoil is detected in new waters annually
Rusty crayfish remain confined to known sites
Brazilian Egeria detected in Metro Wastewater Ponds near Loveland
Asian carp get closer and closer to our Eastern border annually
Current Status of Mussels

- No new ZQM detections in Colorado!
- Green Mountain is still suspect water
  - No new detections since original BOR finding
- Lake Powell is posing true challenge for western US states
- Mussel Boats are on the rise!
Watercraft Inspection & Decontamination (W.I.D.)
Watercraft Inspection and Decontamination

- 57 WID Classes Taught
  - 811 WID Classes since 2008

- 755 Authorized Agents
  - 6,854 Authorized Agents 2008

- 474,519 Inspections
  - 4.4 M Inspections since 2008

- 19,011 Decontaminations
  - 96,867 Decontaminations 2008
Statewide Inspection Numbers

Over 4.4 Million Inspections!
## Statewide Decontamination Numbers

<table>
<thead>
<tr>
<th>Year</th>
<th>Colorado Parks &amp; Wildlife</th>
<th>Division of Wildlife</th>
<th>State Parks</th>
<th>Larimer County</th>
<th>Municipalities</th>
<th>National Park Service</th>
<th>Private Industry</th>
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<td>2013</td>
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<td>7,965</td>
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<td>601</td>
<td>1,027</td>
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*Color codes:*
- **Blue:** Colorado Parks & Wildlife
- **Red:** Division of Wildlife
- **Green:** State Parks
- **Pink:** Larimer County
- **Yellow:** Municipalities
- **Orange:** National Park Service
- **Gray:** Private Industry
Infested Mussel Boat Interceptions
# Mussel Boats Intercepted by Entity

**Total Intercepted Vessels:** 195

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<thead>
<tr>
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<td>1</td>
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</table>
Lake Powell – A Game Changer
All states and provinces in the West now have ANS Programs.

Many are still unfunded or underfunded.

All are understaffed.

Western states and provinces are connected and helping each other.
Model Legal Framework

PREVENTING THE SPREAD OF AQUATIC INVASIVE SPECIES BY RECREATIONAL BOATS:
MODEL LEGISLATIVE PROVISIONS & GUIDANCE TO PROMOTE RECIPROCITY AMONG STATE WATERCRAFT INSPECTION AND DECONTAMINATION PROGRAMS

MODEL REGULATION FOR STATE WATERCRAFT INSPECTION AND DECONTAMINATION PROGRAMS

MODEL MEMORANDUM OF UNDERSTANDING FOR WATERCRAFT INSPECTION AND DECONTAMINATION PROGRAMS

Federal Policy Options
Addressing the Movement of Aquatic Invasive Species On and Off of Federal Lands and Waters

Western Regional Panel on Aquatic Nuisance Species

62% of states have legal provisions addressing the trailered recreational watercraft vector.

WD Programs (32%)  Courtesy Boat Inspections (8%)
Launch Restrictions (14%)  Transport Restrictions (10%)
No Relevant Provisions (38%)
Boat Industry Partnership

- ABYC Technical Information Report on AIS
  - October 2018

- NMMA Policy Paper and Political Priority
  - January 2019

- NMMA Video on CO ANS Program and Congressional Outreach
  - July 2019

- WSIA Ballast Tank Solutions Team
  - Present
What You Can Do

- Join the ANS Email List
- HAACP
- Facilitates Assessments
- Report New Invasions
- Support Funding and Legislative Initiatives
Thank you!

Questions?

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