

Zebra Mussels on the Western Slope : An Update

New Castle Town Council Meeting – 06/02/2026



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Parks and Wildlife
Department of Natural Resources

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ANS Program Overview

- 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.
- Prevention focused
- WID, Sampling, Education



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Zebra and Quagga Mussels

- Freshwater bivalve mollusks
- Highly variable color patterns
- Triangular (Z) Rounded (Q)



Dreissena rostriformis bugensis

Dreissena polymorpha



Invasive Characteristics:

- Rapid Reproduction
- Attach with Byssal Threads
- Filter Feeding



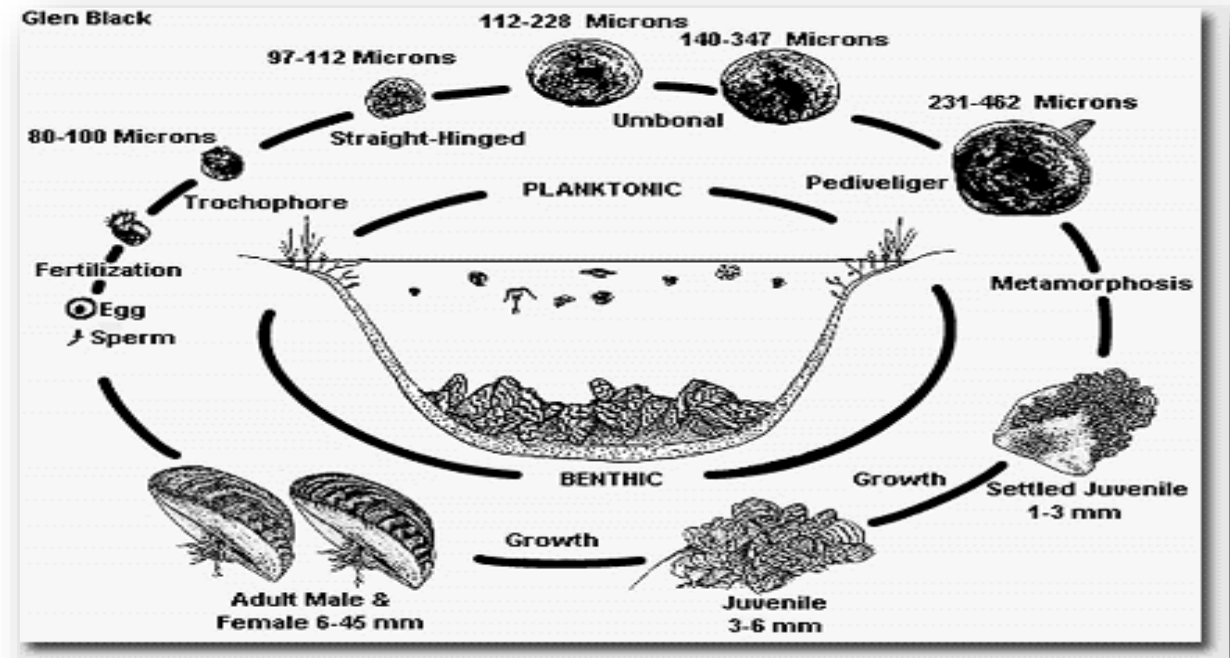
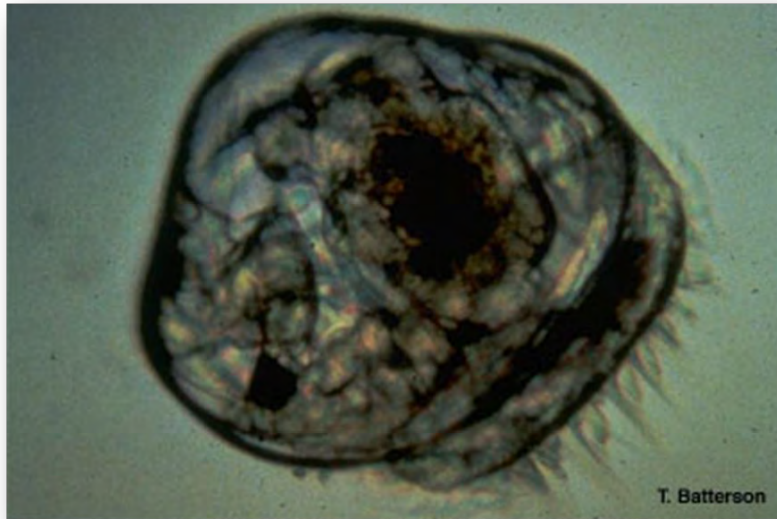
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Life Cycle

- Planktonic Larval Stage (veliger)
- Settler Juvenile Stage
- Sessile as Adults



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History of Introduction to the U

- Originated in Russia/Ukraine
- International cargo ships
- Ground Zero in the USA: Lake St. Clair- 1989
- Widespread in eastern USA
- Fun fact: In lakes populated with both zebra and quagga mussels, quagga mussels outcompete zebra mussels

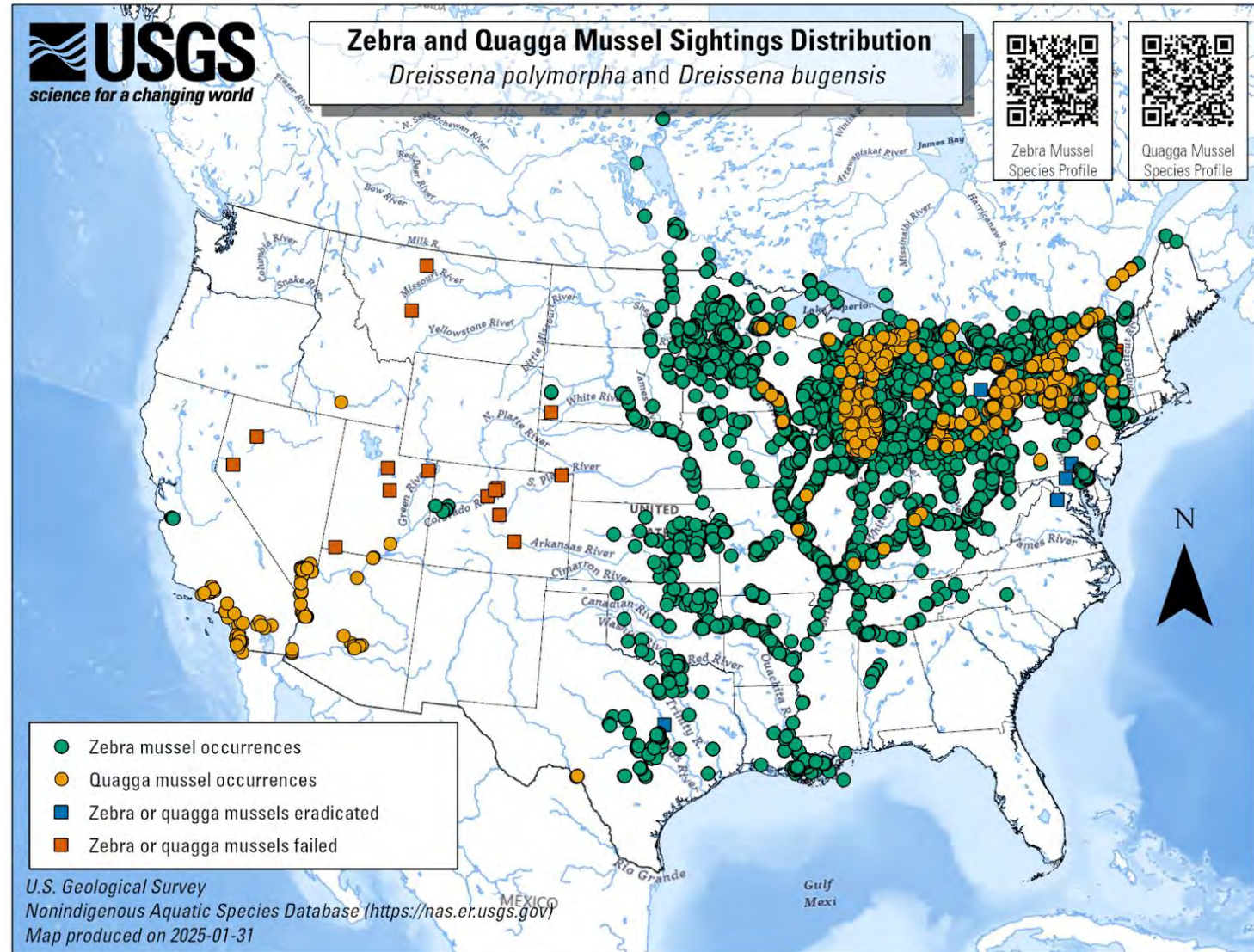


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2025



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Detrimental Effects

- Alter native food web by filtering out phytoplankton and zooplankton
 - HABs
 - Benthification
- Infrastructure damage including clogging raw water systems (irrigation, hydropower, watercraft)
- Recreational impacts
 - Loss of recreational opportunity
- Economic impacts
 - Loss of tourism revenue, infrastructure damage, agricultural loss



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Cost of Mussel Invasions

- Golden Mussels in Brazil
 - **\$120 million lost ANNUALLY** by power plants with infestations (SPIC Brazil, 2021)
- Cost of Unexpected Outages @ Hydropower Facilities (BOR)
 - Glen Canyon Dam(Quagga Mussels) : **\$45,278-\$61,465/day**
 - Hoover Dam (Quagga Mussels): **\$18,211-\$24,544 /day**
- Zebra Mussels in the Great Lakes
 - **\$300-500 million annually** lost by power plants, water systems, and industrial water intakes (Great Lakes Commission 2012)



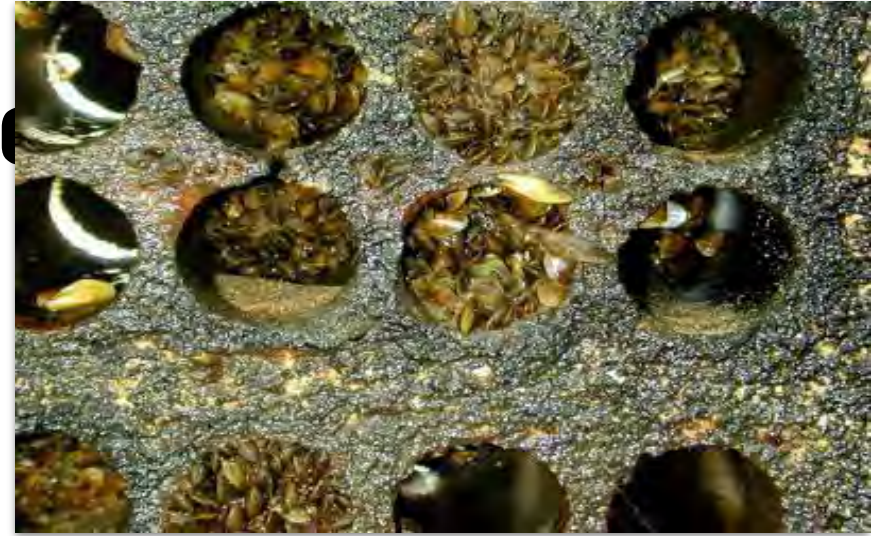
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Potential Landowner Impact

- Agricultural loss
 - Water delivery shortfalls during drought
 - Palisade agrotourism
 - Livestock and crop loss
- Cost of Infrastructure Repair
 - Sprinkler/irrigation systems
 - Fountains
 - Underground pipes
 - Head gates



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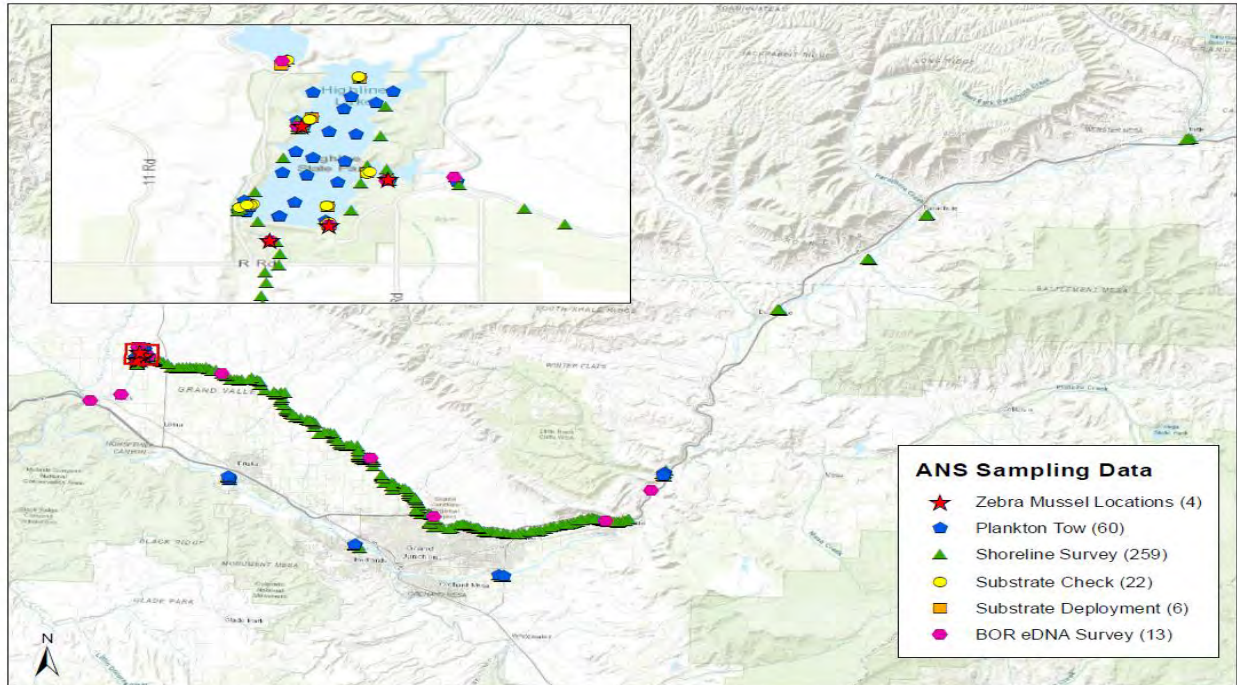
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Zebra Mussels At Highline Lake

- Adult zebra mussels detected in Highline Lake in Fall of 2022
- Eradication effort attempted Winter 2022/2023
- Additional adult mussels detected in Fall of 2023
- Eradication efforts attempted Winter 2023 – Spring 2025



2022 ANS Sampling Around Highline Lake Post Zebra Mussel Detection



Map Produced by:
Colorado Parks and Wildlife Invasive Species Program, 11/18/2022

0 4.25 8.5 17 Miles



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2024 Overall Veliger Findings

Government Highline Canal

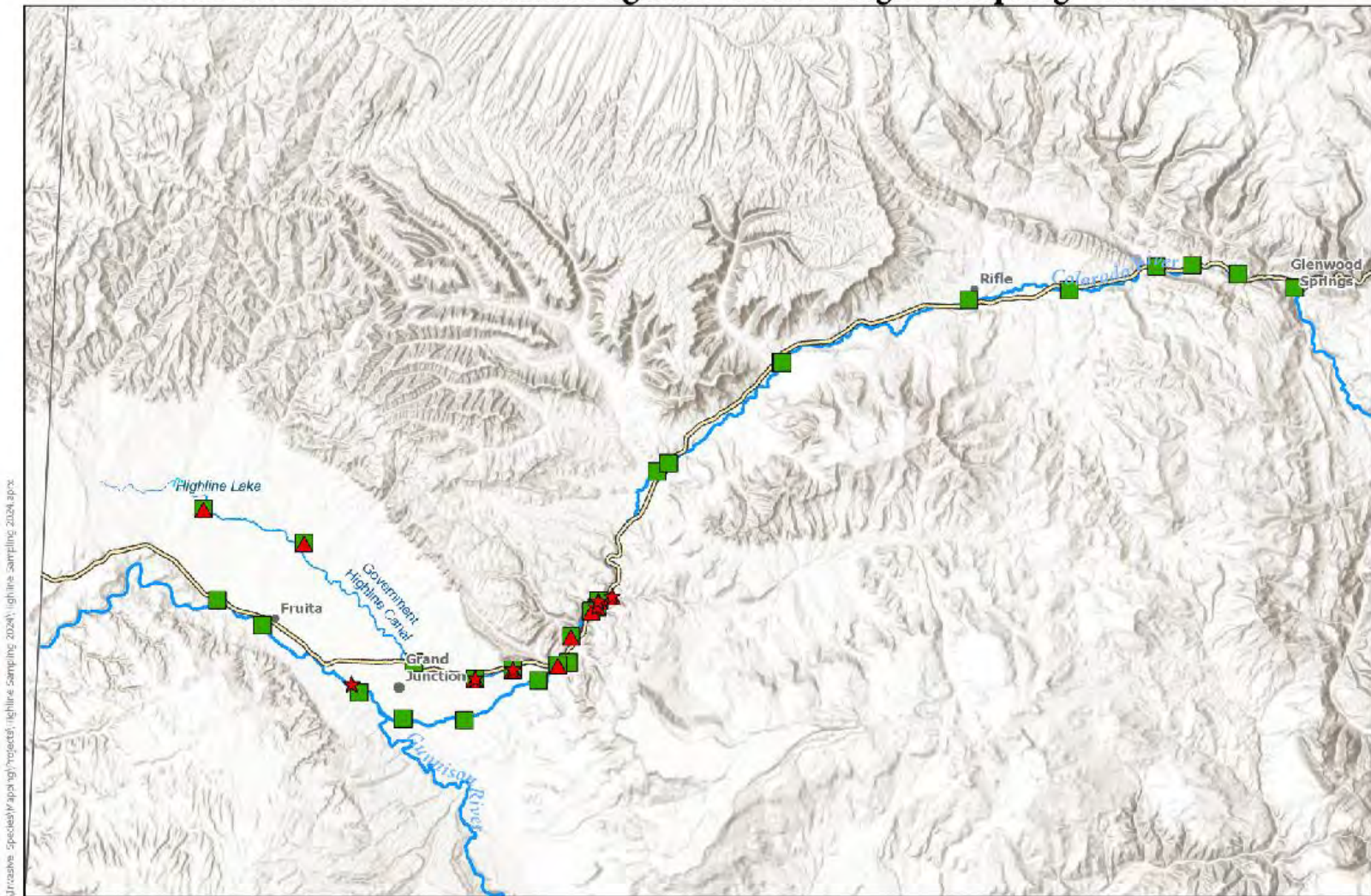
- Train Tracks – 07/01
- Distributing Co. - 07/01
- 35 Rd – 07/08

Colorado River

- Beaver Tail Pull-Off – 07/08
- Canal Diversion Upstream – 07/08
- Blue Heron Boat Ramp – 07/14
- Beaver Tail Pull-Off – 07/15

Government Highline Canal & Colorado River are considered “Positive”

- **No adult mussels found**



Path: c:\j\rosario - species\y\ap\high\project\highline_sampling_2024.aprx



Map Produced by:
Colorado Parks and Wildlife Invasive Species Program 10/1/2024



- ★ Veliger Locations (7)
- ▲ eDNA Positive (15)
- Negative Sampling Results (40)

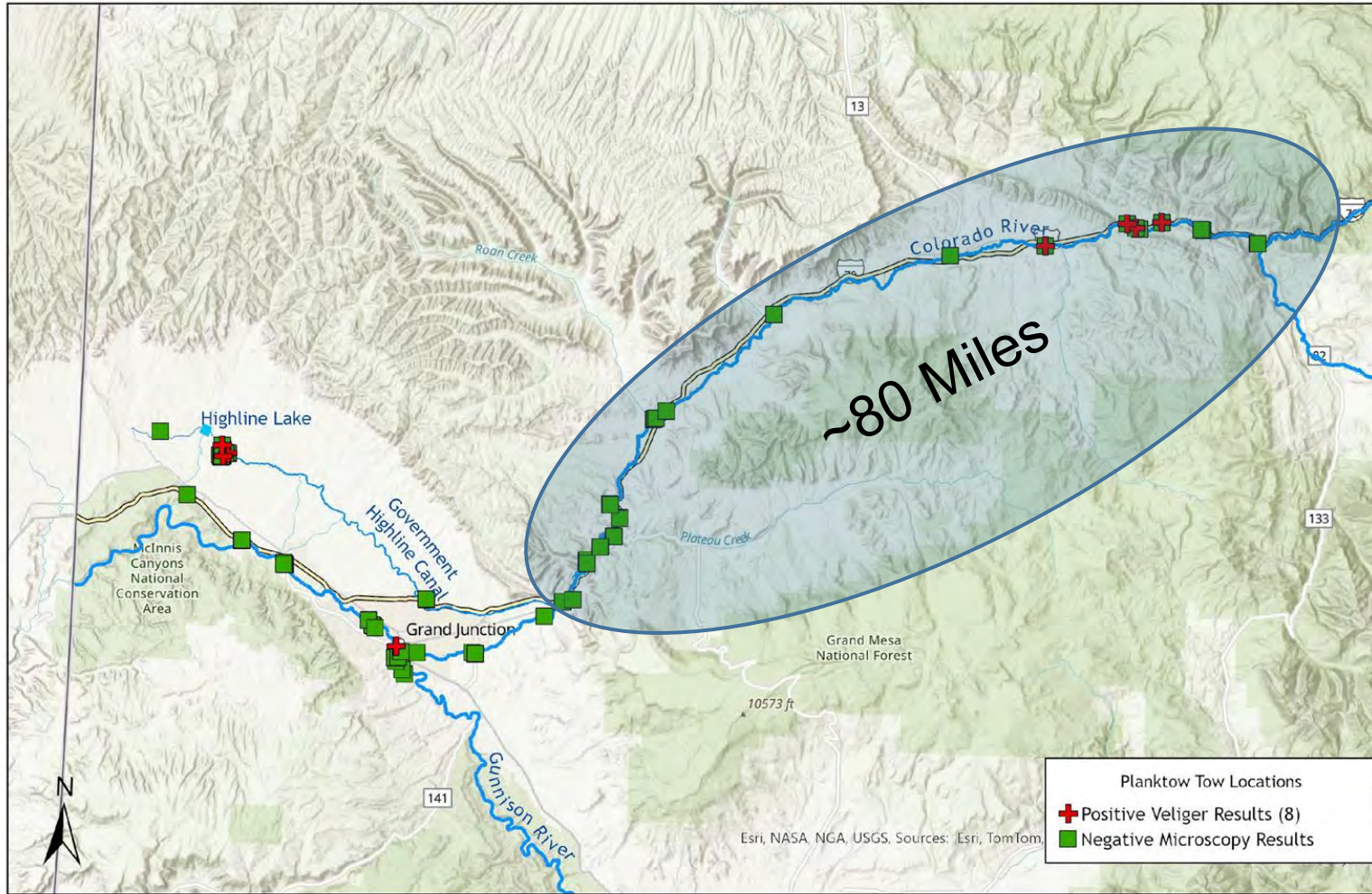


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2025 Colorado River Sampling Locations



Colorado River Findings April - June 2025

Suspect eDNA results @ New Castle Boat Ramp in late April - May

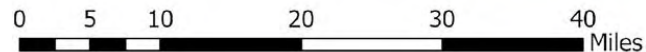
Colorado River Veligers

- Grand River Park - 06/09
- New Castle Boat Ramp - 06/16
- Silt Boat Ramp - 06/16
- Dinosaur Boat Ramp - 06/16
- Dike Road Island - 06/18
- Butterfly Pond Inlet - 06/18

Colorado River from Glenwood Springs to state line considered "Positive"



Map Produced by:
Colorado Parks and Wildlife Invasive Species Program, 09/12/2025



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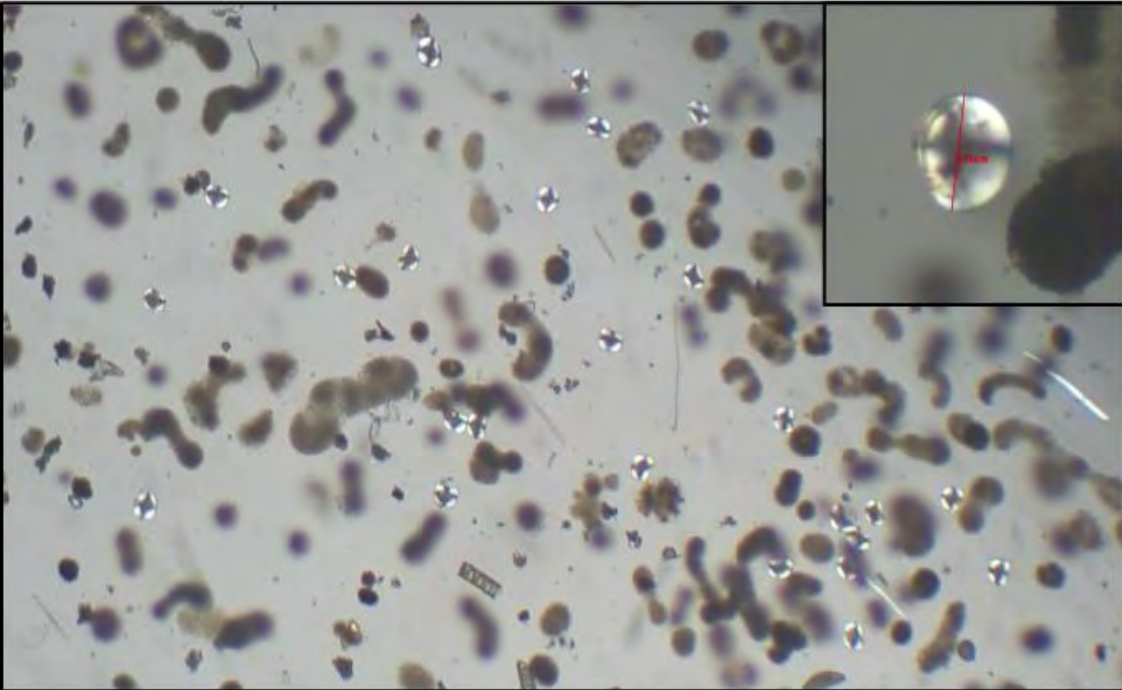
Private Lake Findings

Large population of adult mussels found in Private Lake in Eagle County - 07/03

- Farthest upstream detection
- Significant risk to downstream water users

2 culverts that were potentially allowing outflow were removed from the lake - 07/06

- Cooperation w/ landowner is critical



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Private Lake Treatment

Treatment began on 08/25

- Utilizing Earthtec QZ
 - 0.2 - 0.4 mg/L Cu
 - Maintained concentrations for 30+ days
- Water temperatures ranged between 20°C and 21°C
- Initial results very promising
 - 5 years of ongoing monitoring required to delist this water

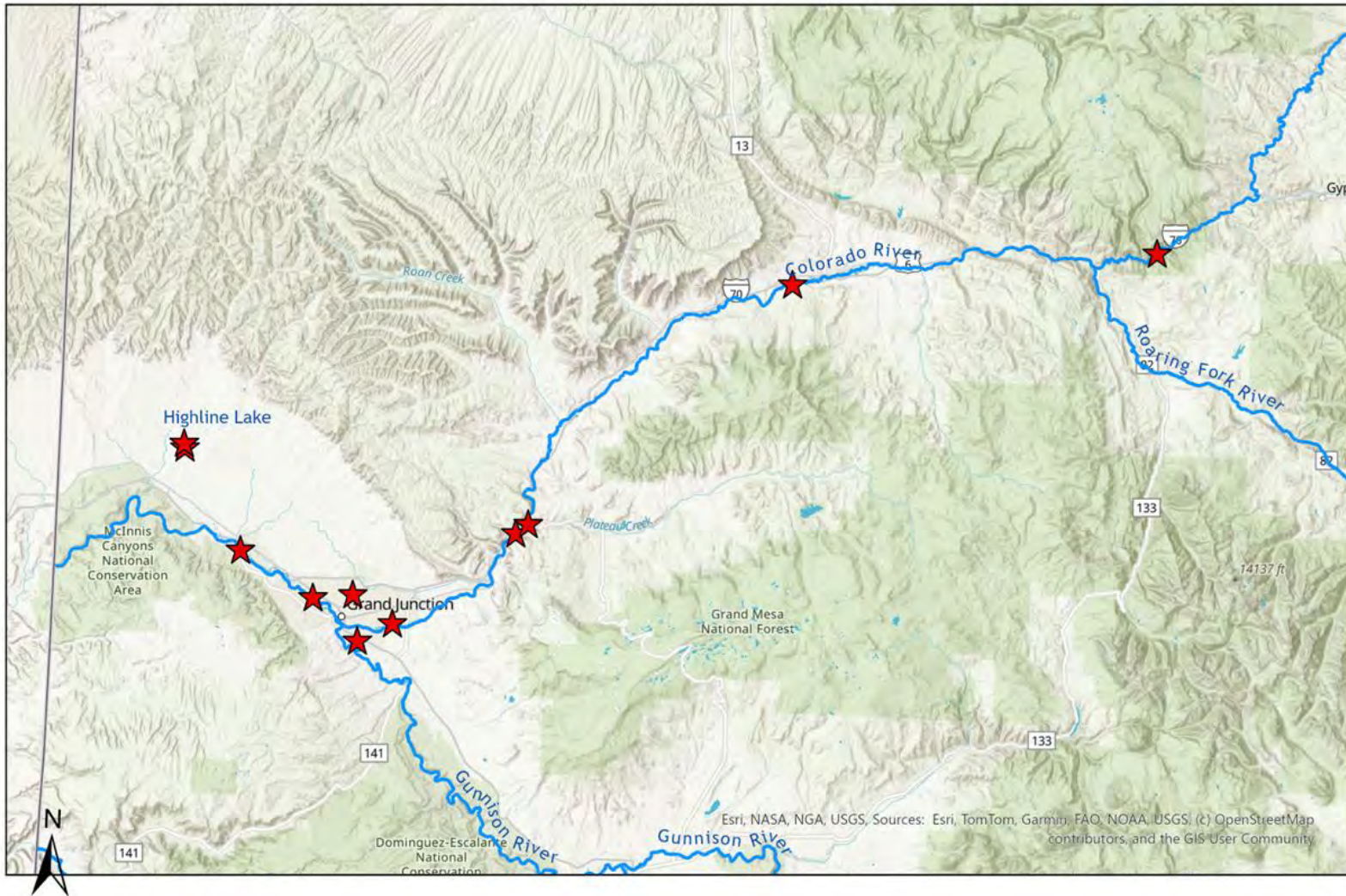


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Zebra Mussel Distribution in Western Colorado



Current Distribution of Zebra Mussels in Colorado

- Highline Lake (2022)
- Grand Valley Water Users Canal (Positive - 2024)
- Mack Mesa Lake (2025)
- West and East Lake (2025)
- Private Body of Water in Eagle County (2025)
- Red Rocks Lake (2025)
- Mesa County Fairgrounds Irrigation Pond (2025)
- Private Bodies of Water in Grand Junction (2025)
- Colorado River From Confluence of Eagle River -> Stateline (2025)
- Grand River Park Pond (2026)



Map Produced by:
Colorado Parks and Wildlife Invasive Species Program, 11/17/2025

0 5 10 20 30 40 Miles



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Zebra Mussel Local Concern

- Infrastructure Damage
 - Attach to surfaces with byssal threads
 - Impede water flow
 - May require replacement of extensive underground irrigation infrastructure or complex hydroelectrical infrastructure
 - Specialized equipment required to remove mussels
- Harm to fisheries, tourism revenue loss
- Agricultural loss
- Closure of recreational areas



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Mesa County Fairgrounds Irrigation Pond

Small (0.07 Acre) Irrigation Pond

- Sampling requested by Mesa County
- No public access
- Serves over 100 irrigation zones

Adult and veliger stage zebra mussels identified by CPW

Treatment of the pond was implemented in partnership with Orchard Mesa Irrigation District, Mesa County & CPW

- Goal = Minimize Impact on Irrigation



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What is CPW Doing?

- CPW is adapting in the face of increased risk factors and the need for containment
 - Improved infrastructure at Highline Lake State Park
 - Pursuing a dip tank- first ever in Colorado
 - Robust nonmotorized user outreach program in the Grand Valley
 - Increasing roadside inspection locations throughout the state
 - More cleaning stations deployed statewide
 - Adding fulltime positions to allow for increased protections in vulnerable areas
 - Improving early detection technology and capacity to process samples
 - **The cost of prevention pales in comparison to cost of infestation**



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**Oh,
SHELL NO**

Colorado's peach crop could be impacted by Aquatic Nuisance Species (ANS)

→ TAKE ACTION
Be a Pain in the ANS



cpw.info/PainIntheANS

El título de traducción depende en el otro web.



**¡Ay,
CARACOLES!**

El cultivo de durazno en Colorado podría ser afectada por especies acuáticas molestas (ANS)

→ Toma medidas
contra las especies acuáticas molestas




cpw.info/PainIntheANS



Oh, SHELL NO

Colorado's drinking water could be impacted by Aquatic Nuisance Species (ANS)

→ TAKE ACTION
Be a pain in the ANS


Oh, Shell No! Information Campaigns

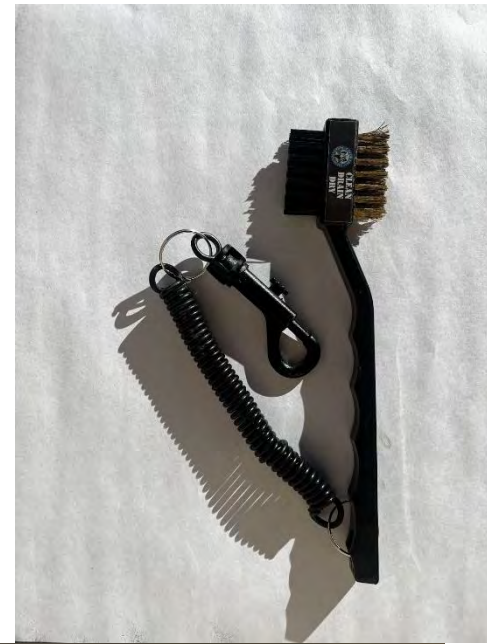
Oh, Shell No!

- ANS impacts aren't limited to recreation / recreationists
- Campaign targets potential impacts to all citizens of Colorado.
- Produced in both English and Spanish
- Help us spread the word!
 - Toolkit available on our website.

How Can You Help?

- Be A Pain In The ANS!

- **CLEAN, DRAIN, DRY!**
 - Clean: Remove any plant or mud material from boots and equipment **BEFORE** leaving
 - Drain: Drain **ALL** water from buckets, etc
 - Dry: Allow equipment to dry before using at a new location
- **Inspect & Report**
 - Any water delivery or storage system interacting with the Colorado River could harbor invasive mussels.
- **Consider Mitigation In Infested Waters**



Thank You!

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