

# Idaho Invasive Species Program

Responding to the Snake River quagga mussel infestation.



# Invasive Species Program

- Legislature passed Invasive Species Act in 2008
- **Prevention** - Watercraft Inspection Stations
- **Detection** - Early Detection Monitoring
- **Treatment** - Aquatic Invasive Species Management/Control
- **Education** – Outreach Campaigns and Collaboration
- **Lead Agency** – Idaho State Department of Agriculture
- **Idaho Invasive Species Council**
- **Program Funding** – Sticker/General Fund/Federal



# Quagga Mussels

- One mussel can produce 30,000 to 1,000,000 veligers per year.
  - 82 to 2739 per day
- These veligers will move downstream with currents for up to 30 days as a veliger before it settles.
- Hair-like byssal threads allow them to attach to surfaces.
- Filter-feeders that consume nutrients at a rapid rate.



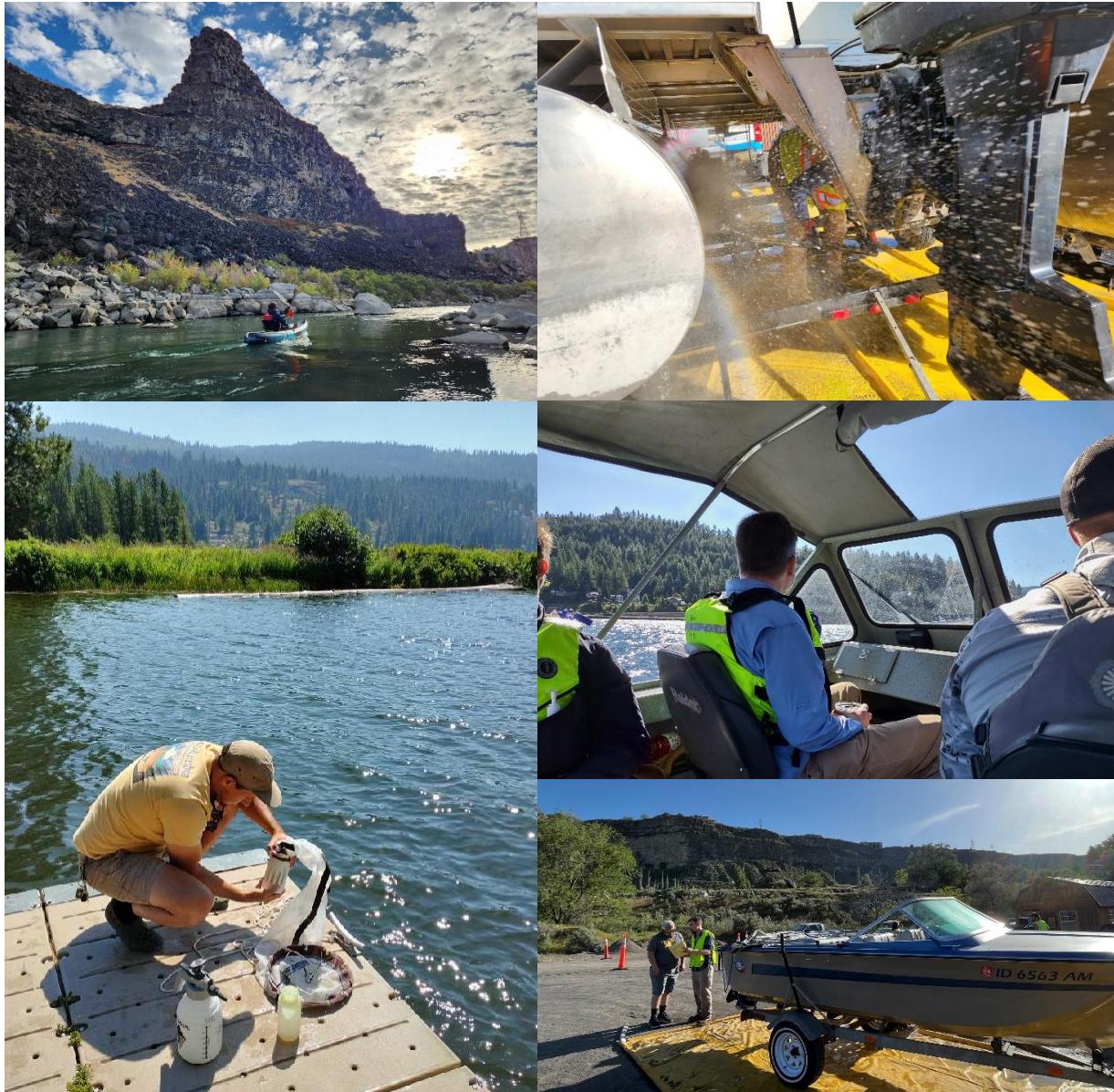
# Potential Impact

- Quickly clogs pipes that deliver water for drinking, energy, agriculture, recreation, and a variety of other uses.
- Potential to eliminate Idaho's diverse biological landscape.
- Threat to the Columbia River Basin.
- Hundreds of millions of dollars in actual and indirect costs to Idaho.



# Impact to Water Delivery & Facilities





# By the Numbers

- Budget
  - General Fund, Dedicated Fund, Federal Cost Share
- Watercraft Inspection Stations
  - 23
- Watercraft Inspections
  - Over 1.2 million since 2009
  - 156,624 in 2024
- Quagga Mussel Veliger Samples
  - More than **15,000 samples**
  - **902% increase** in sampling from 2010 to 2023
  - 2x the samples in 2024 from 2023

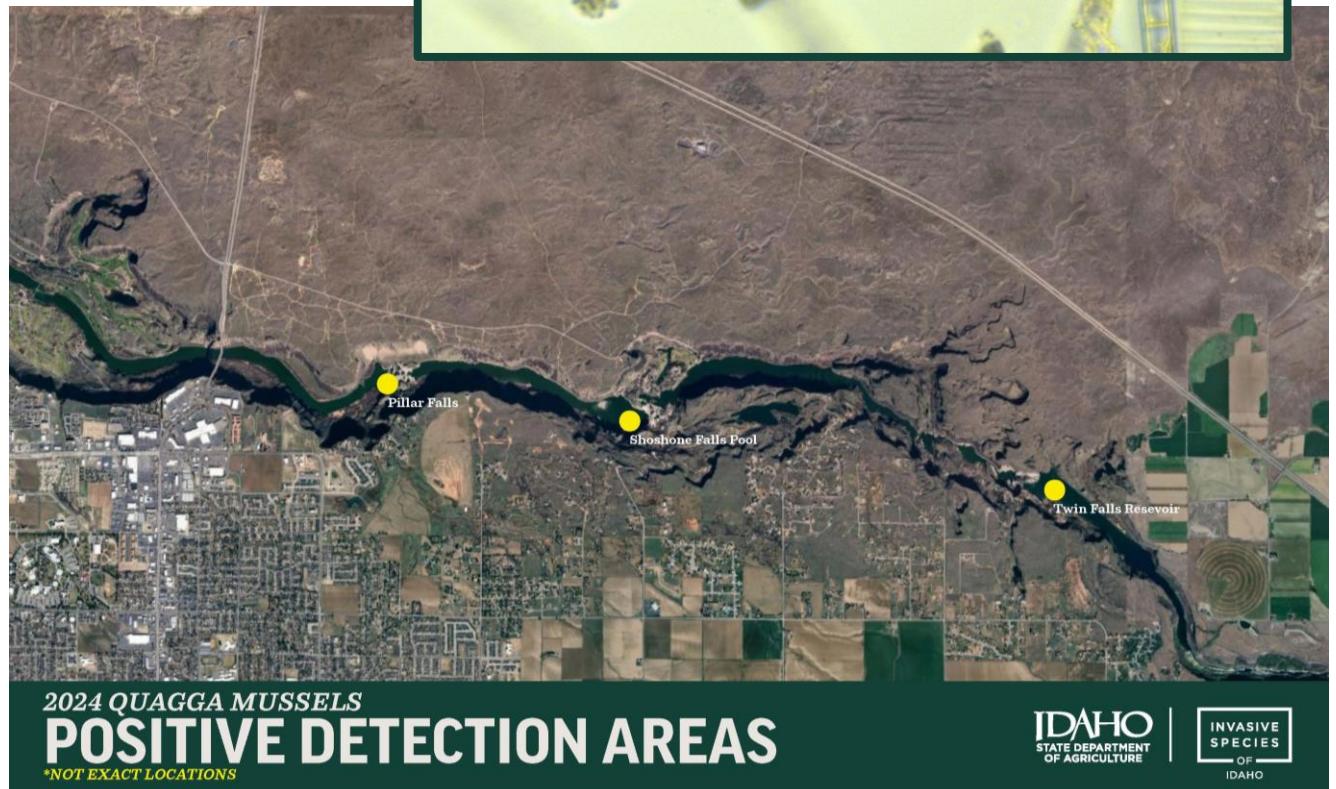
# 2023 Treatment

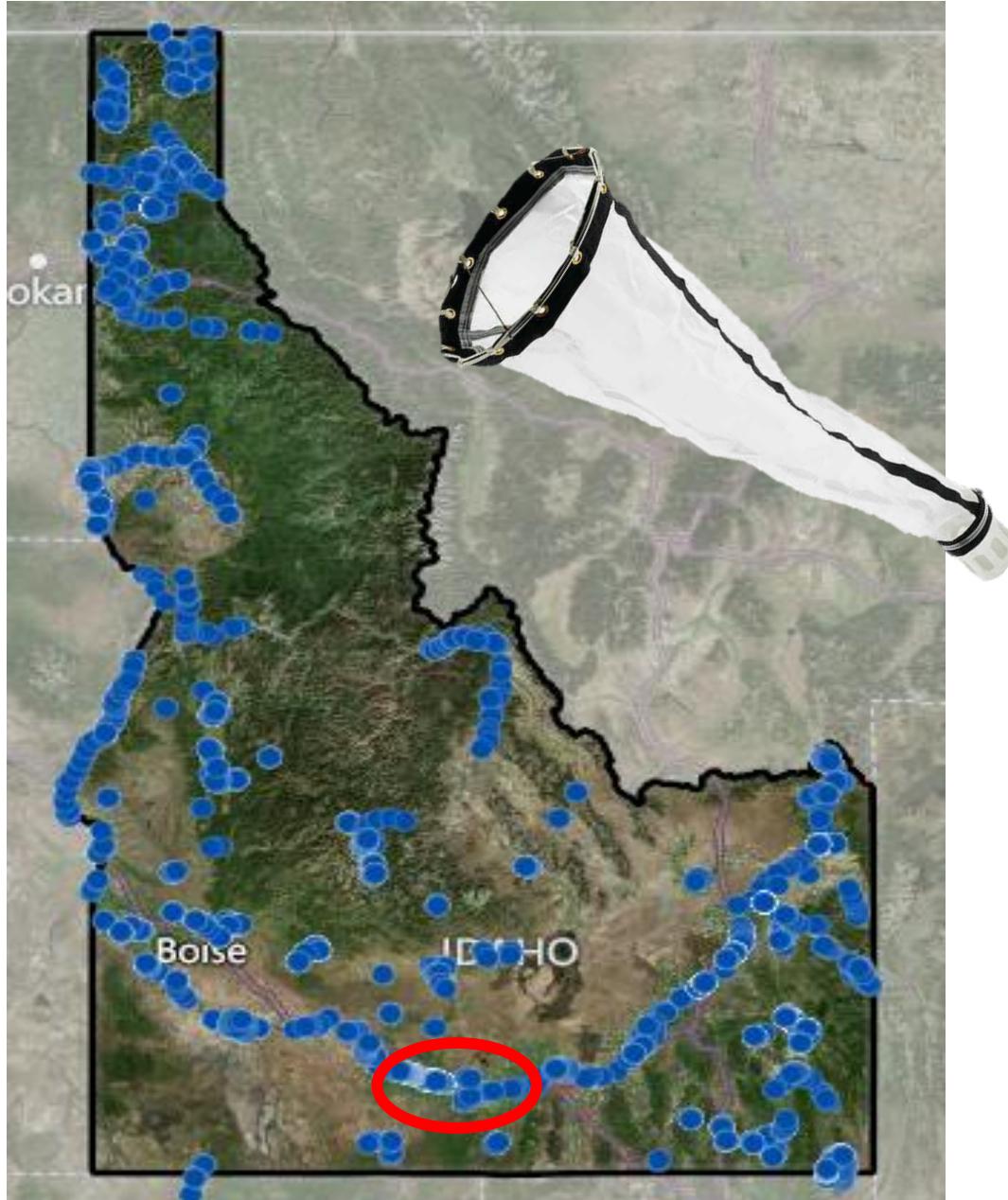
- Detection Sept. 18
  - 1st live detection in Columbia River Basin (in 15 years of sampling)
- Quarantine and delimit
- Notifications
- Treatment Oct. 3-13
  - Two 96 hours; 1ppm
  - Chelated Copper
  - 1st treatment of this type and scale ever attempted in North America



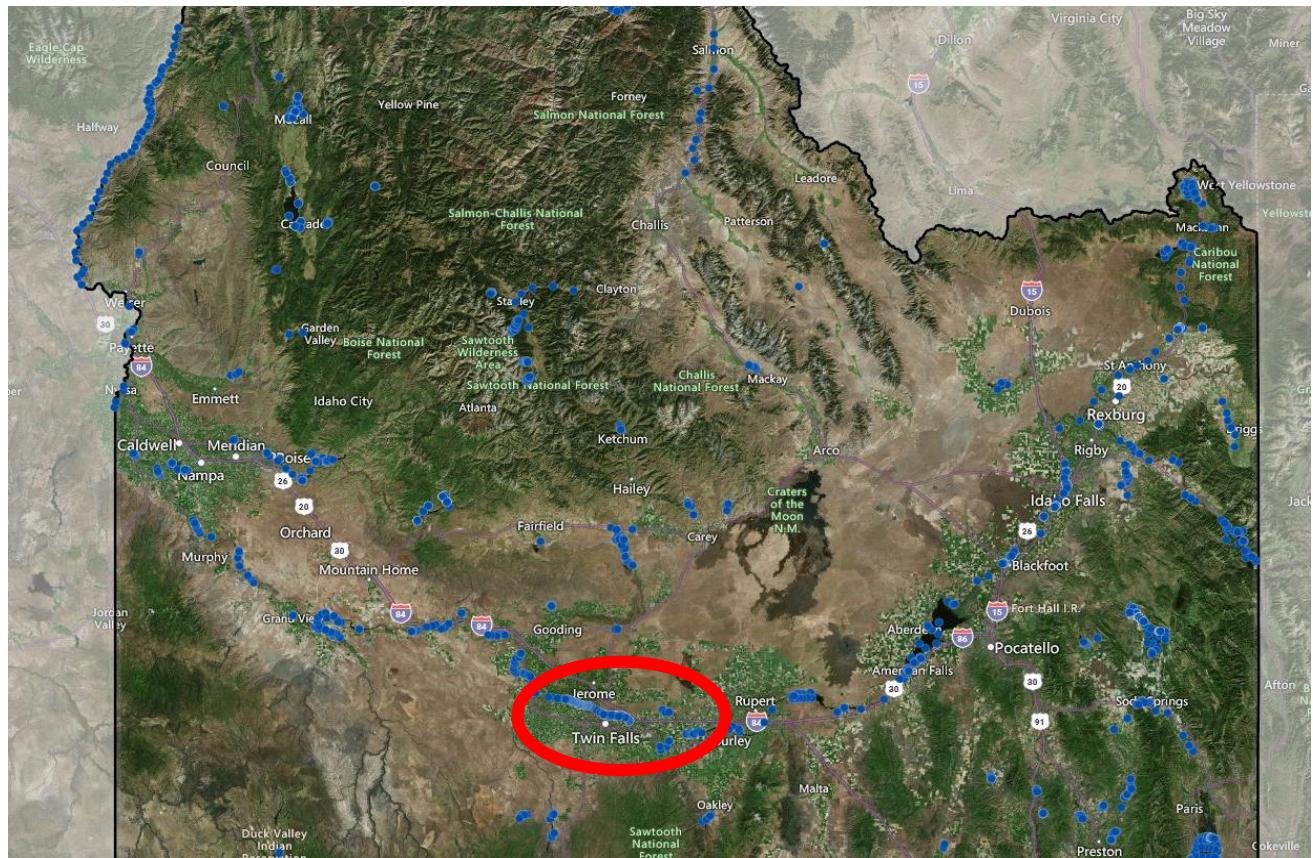
# 2024 Work

- Additional program tools
- Expanded program – sampling, stations, hours, outreach, partners, tools.
- Doubled Statewide Monitoring (3,000+)
- Detection Sept. 24
  - Shoshone Falls pool, Pillar Falls and the Twin Falls Reservoir
  - 2023 treatment effective on mussel population.
- 152 Delimit Samples
  - Microscopy and eDNA





# 2024 Monitoring Locations



# Expanded Lab Capacity in 2024

- Cross Polarized Light Microscopy (CPLM)
  - Aquaticus (Chiefland, Florida)
  - Eco Analyst (Moscow, Idaho)
- Visual confirmation
  - Multiple subject matter experts
- Molecular confirmation
  - Pisces Molecular (Boulder, Colorado)
- eDNA
  - Pisces Molecular (Boulder, Colorado)
  - University of Idaho Aquatic Research Institute (Hagerman, Idaho)

# Idaho's Response 2024

Sept. 24

Positive Detection

Sept. 24 – Oct.

Delimit Sampling

Oct. 8

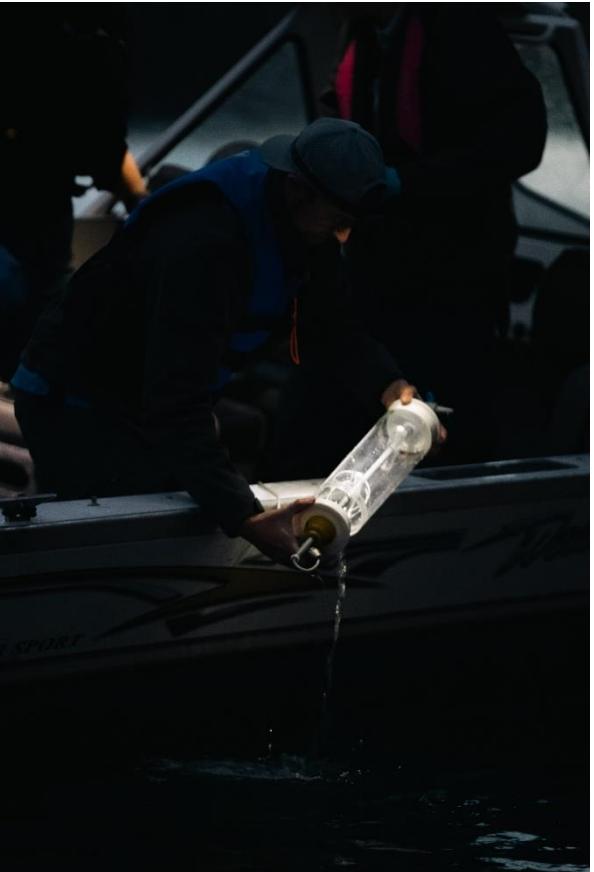
Treatment Begins

Oct. 19

Treatment Concludes

Today

Preparing for 2<sup>nd</sup> Treatment



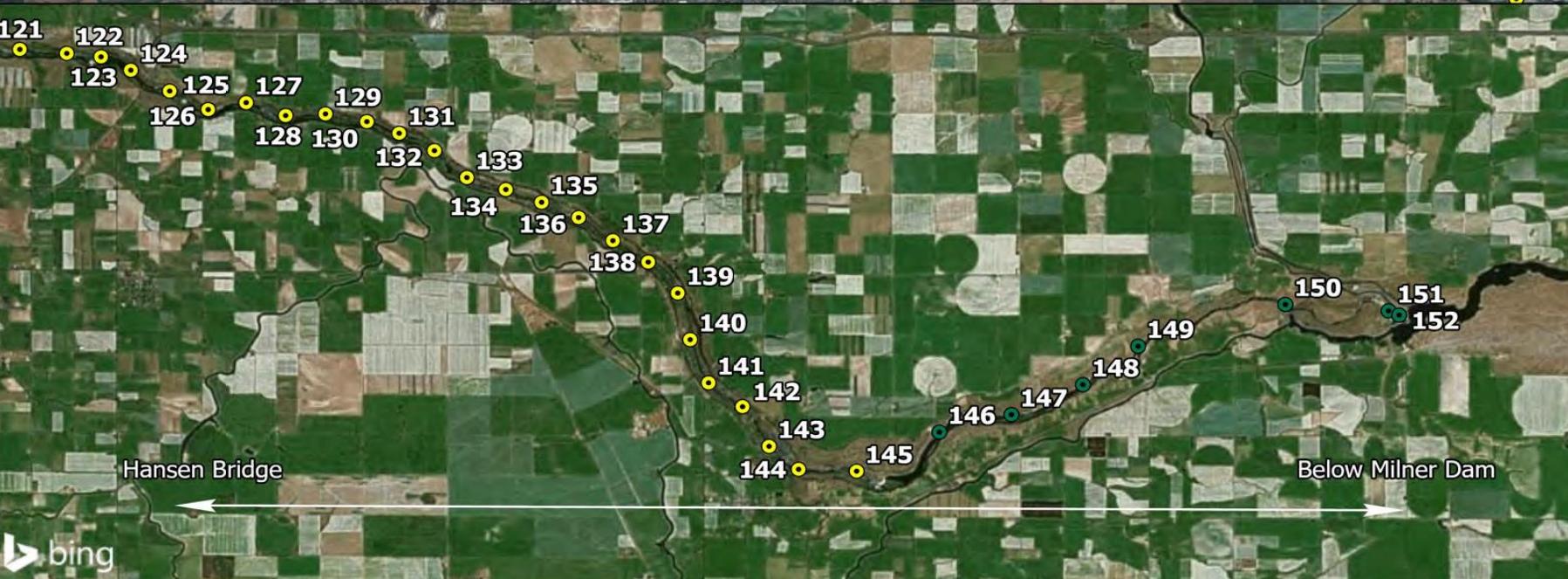
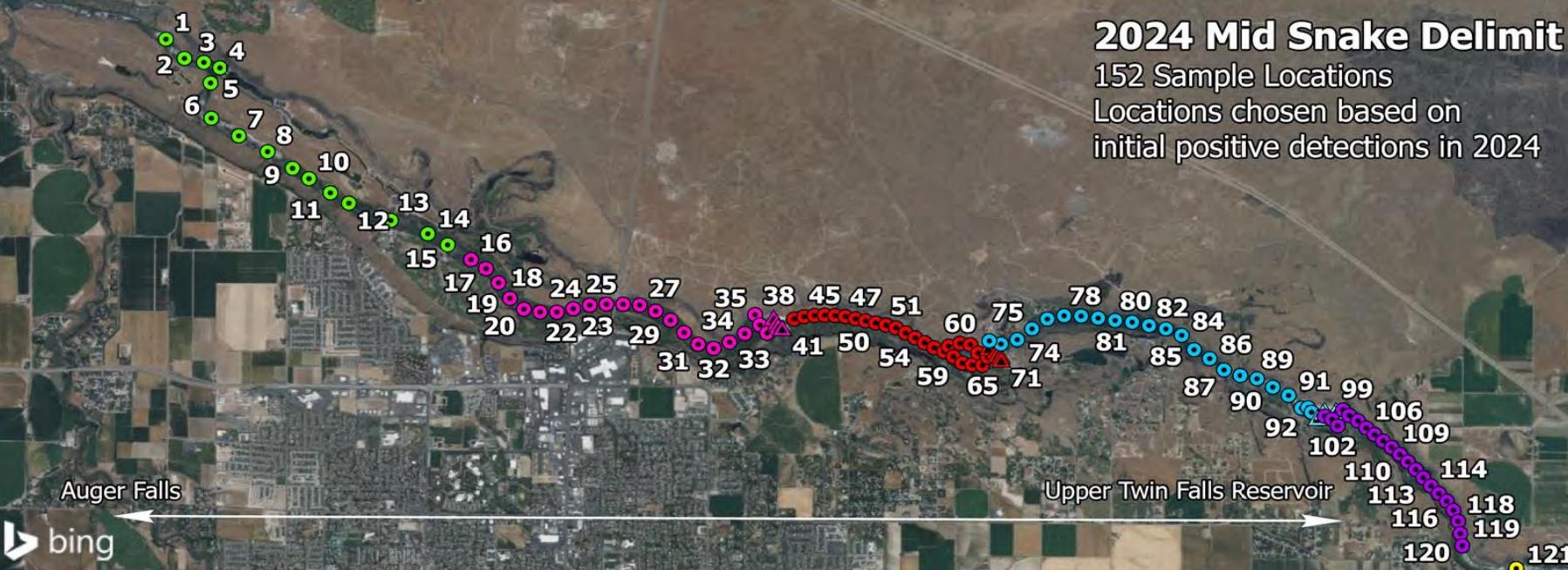
# Conduct Delimiting Surveys

- Initial veliger plankton tow delimit from Twin Falls Reservoir to Centennial Park
  - Start upstream, new net, tow across flow
- Extended delimit upstream to American Falls
  - Is there anything upstream?
- Extended delimit downstream to CJ Strike
  - Downstream movement?

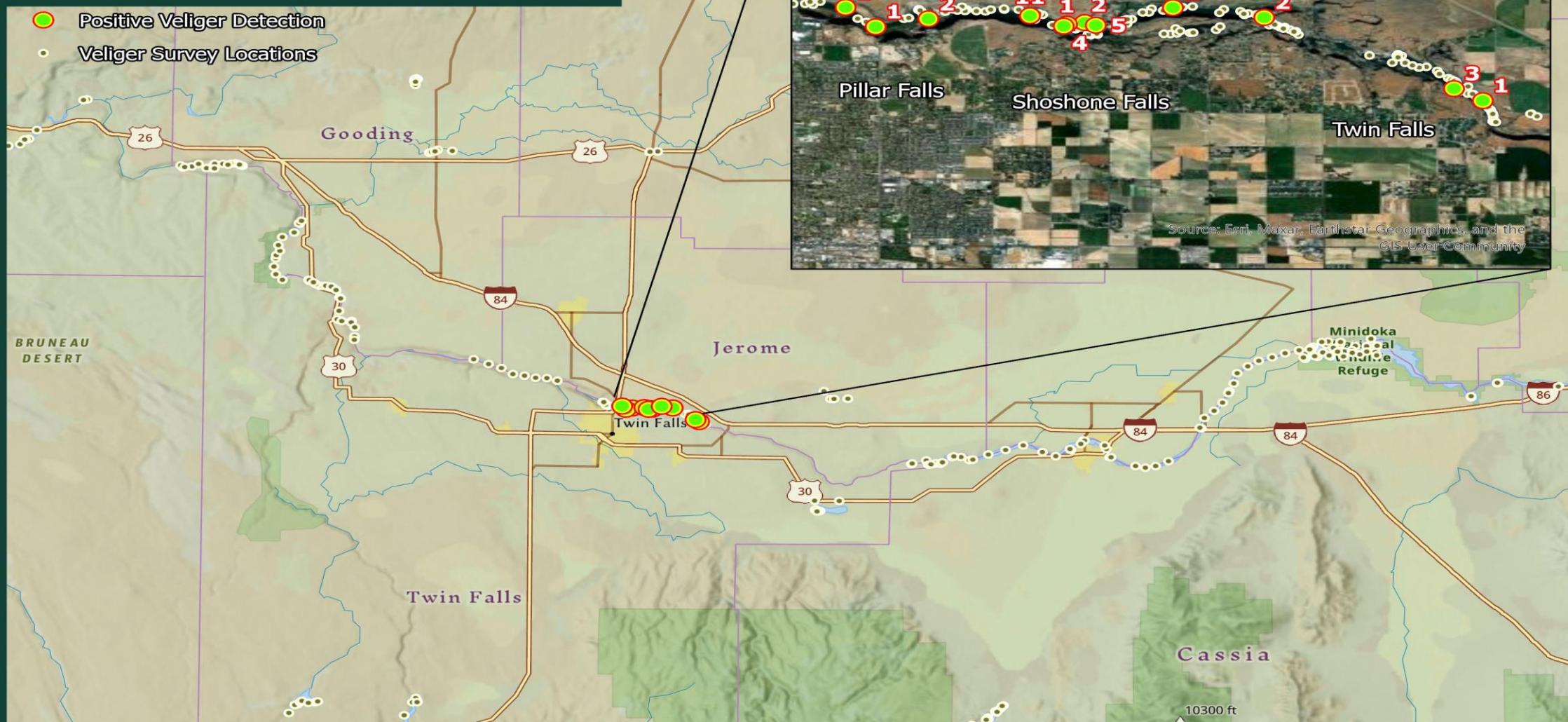


# 2024 Mid Snake Delimit

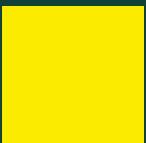
152 Sample Locations  
Locations chosen based on  
initial positive detections in 2024



# SNAKE RIVER VELIGER SURVEY



# SNAKE RIVER TREATMENT AREA



Each section evaluated for average CFS, PH, and average depth

CFS X 1 ppm = quarts per hour



Metered gravity boxes placed at key mix points to deliver molluscicide to the Snake River

Downstream movement to distribute molluscicide throughout target area for the full duration of 200 hours

# EPA Doublecheck for Labeling and Use

US EPA

RE: Crisis Exemption 40 CFR part 166, subpart C

The Idaho State Department of Agriculture is requesting consideration of a crisis exemption for the treatment of the first discovered infestation of Quagga Mussel, *Dreissena bugensis*, near Twin Falls Idaho, on a dam-controlled section of the Snake River. Between the upstream edge of Shoshone Falls to downstream mitigation area of Niagara Springs.

Immediate control of the Quagga mussel is needed due to the ecological, environmental, and real-world financial impacts this species will cause to the Snake River and Columbia River Basin if left unchecked. The Project of controlling these mussels during the initial stages of infestation are imperative to prevent and stop any further spread. Idaho has spent more than 20 years and millions of dollars to remove this organism out of Idaho and unfortunately it has found a way in. It is necessary to take a timely response time to enact control on the mussels due to their ability to produce many propagules which leads to infestations spreading rapidly. As such, immediate control of the Quagga mussel treatment is needed to stop any further spread and prevent the spread of the Quagga mussel. This exemption is due to the fact that although the Quagga mussel is not listed as an exotic species under state law, it clearly defines Rivers or reservoirs as waters of the state.

The Plan ISDA has requested the use of Natrix®

- Flow rate of 300 CFS
- Two (2) treatments using Natrix®
  - Treatment 1-Target Rate of 1ppm for a duration of 96 hours as per the label
  - Treatment 2-Target Rate of 1ppm for a duration of 96 hours as per the label
    - The second treatment will not start until a full 96 hours after Treatment 1 has

- Flow rate of 300 CFS
- One (1) treatment using Natrix®
  - Treatment 1-Target Rate of 1ppm for a duration of 96 hours as per the label



ISDA plans to incorporate two (methods) of applying the Natrix® to the water. First, using 275 Gallon totes of product with a metered control box to drip in the product at water mix points at a rate of 1.25 gallons per minute (75 gallons per hour) for the duration of the 96 hour treatment. This method is to maintain the labeled 1 part per million (ppm) through out the duration of the treatment time. The Second Method is to utilize an application watercraft with a weighted hose to apply Natrix into existing deeper water areas that area present in the bathymetry. There are five (5) of these areas. Two (2) are in the Shoshone to Pillar area, and 3 are in the Pillar to Centennial Park area. By treating these standing deep pools it will allow ISDA to more accurately maintain the 1 ppm target rate by bringing these large areas of potential dilution up to target rates.



# 2024 Treatment

- Extended Treatment Area
  - Twin Falls Reservoir
  - 8.6 miles (less than one-percent of the Snake River)
  - Additional tools and partners
- Chelated Copper, Natrix
- Target rate 1ppm for 200 hr treatment
- Labeled for use site
- Registered for use in Idaho
- Product manufacturing was available for the quantity needed



## Natrix®

For the control of mollusks in still or flowing aquatic sites including: golf course ponds, ornamental ponds, fish ponds, irrigation and fire ponds and aquaculture including fish, shrimp; fresh water lakes, ponds, and fish hatcheries; potable water reservoirs; and crop non-crop irrigation and drainage systems (canals, laterals and ditches) and chemical systems.

Active Ingredient	Copper Ethanolamine Complex <sup>†</sup> (Mixed CAS#s 82027-59-6 & 14215-52-2).....	28.2%
Other Ingredients.....		71.8%
<b>TOTAL.....</b>		<b>100.0%</b>

<sup>†</sup>Metallic copper equivalent = 9.1%

## KEEP OUT OF REACH OF CHILDREN WARNING / AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand the label, find someone to explain it to you in detail.)

# 2024 Treatment

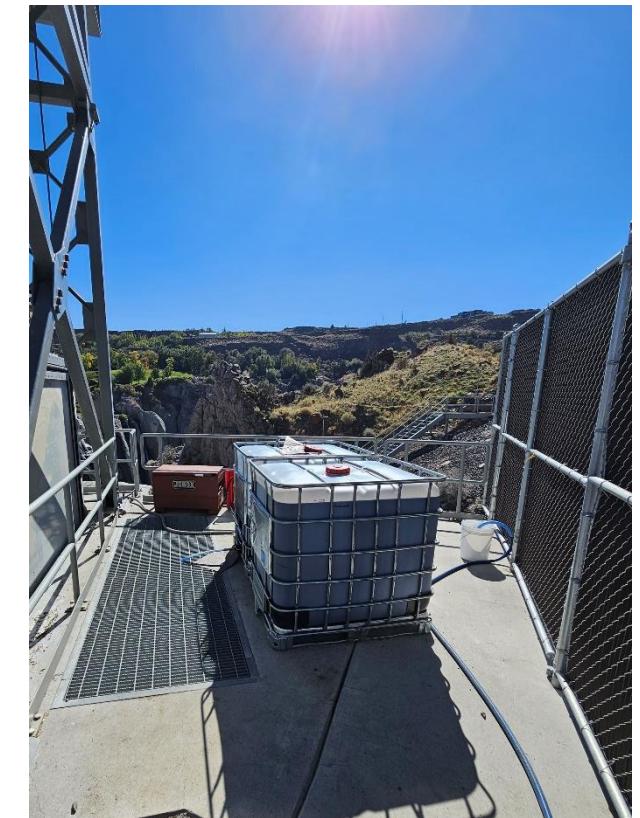
- Treatment started on October 8
- Treatment ended on October 19
- 63,525 gallons of Natrix® applied
- Copper actively monitored until recorded as back to base levels on November 8



# Treatment Challenges

- Complex River System
- Deep Pools, Springs, and Waterfalls
  - Assistance from other agencies
- Isolated Ponds
- Idaho Power Hydropower Facilities
- Sensitive Native Species (downstream)









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## Rapid Response Plan

- Developed and updated since 2009
- Outlines points for decision making to identify infested waterbodies and communicate to stakeholders
- DOES NOT contain the details of what a treatment would be



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## Treatment Planning & Response

- Survey to Define the Infestation
- Identify possible tools and products
- Understand the waterbody – flow, chemistry, use and diversion, endangered species, bathymetry

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# The Most Important Resource: People and Partners

- Who do you have?
  - Who do you need?
  - What is and will be the scope of their work?
  - Strengths? Weaknesses?
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- Survey and Planning: 2 weeks
  - Treatment: 2 weeks
  - Demobilization and Post Treatment Surveys: 2 weeks
  - Catch Up: ?





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## Treatment Planning & Response – Equipment and Logistics

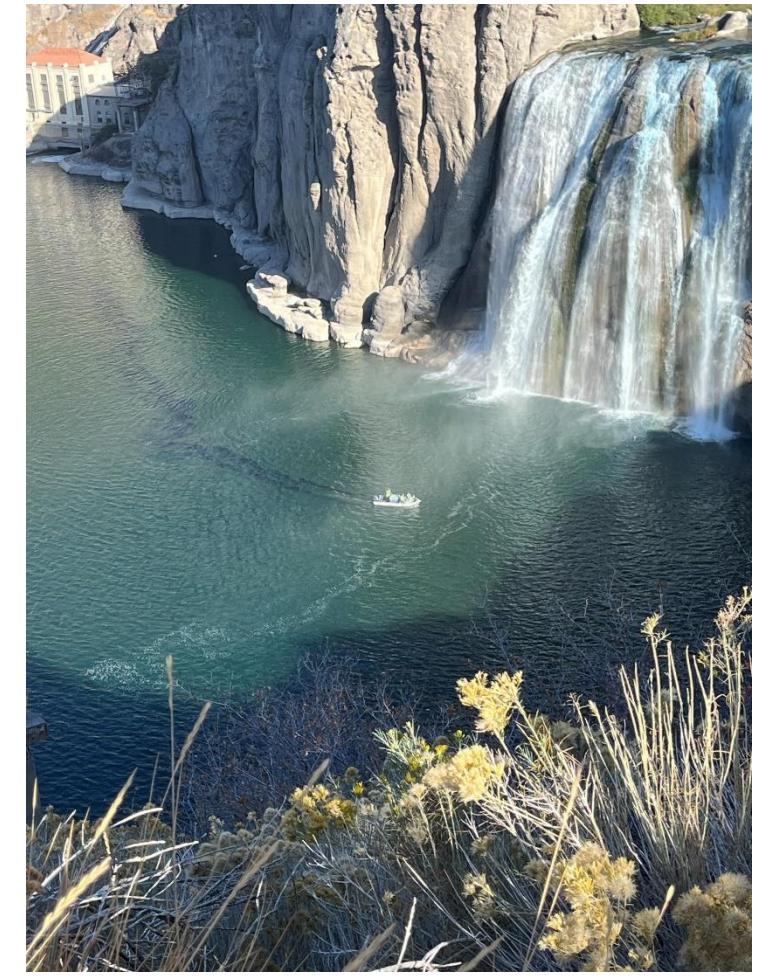
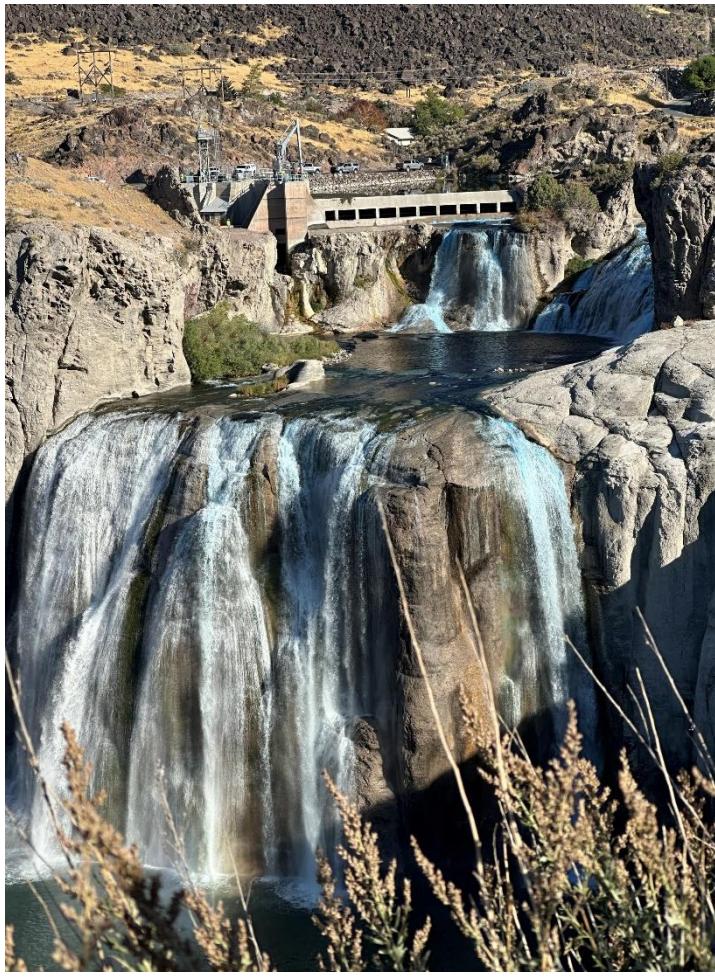
- Can you get what you need, where you need to get it?
- Can you secure the area?
- Can you enforce a quarantine?
- Can you get necessary access?
- What shifts are needed?

# Treatment Planning & Response

## – Who can help?

- Who has special tools or equipment?
- When do you call in that help?
- How does it affect operations?
- What are special requirements or restrictions?



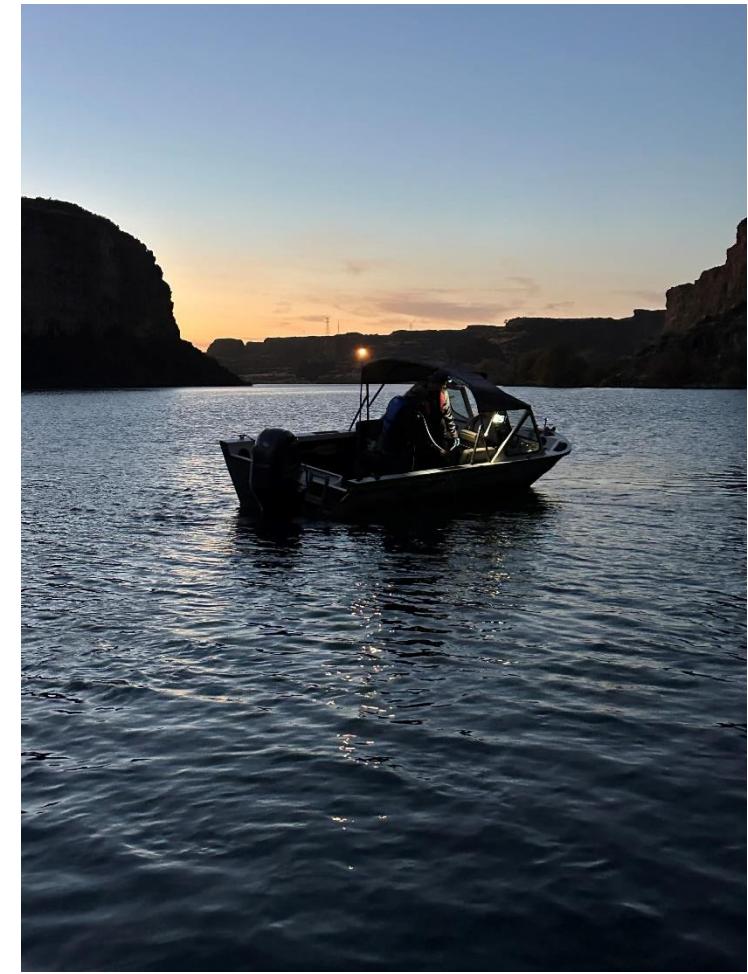


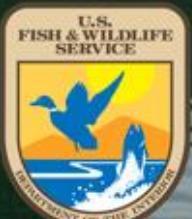


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Crew breakfast at the beginning of every day...







# IDAHO

STATE DEPARTMENT  
OF AGRICULTURE



US Army Corps  
of Engineers.



— BUREAU OF —  
RECLAMATION

