

Wild Horse Rapid Response After Action Report

October 5-6, 2022



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Purpose and Scope

The goal of this exercise was to improve regional understanding of the roles and responsibilities of the primary managing entities of Wild Horse Reservoir, Nevada in the event of a dreissenid discovery. By broadening partner participation in dreissenid management an improved response and preparation for actual response in Nevada waters is possible. This was the first exercise conducted in Nevada as part of the 100th Meridian Columbia River Basin Team Dreissenid Rapid Response Exercises.

Participants

<p>Nevada State Agencies Kevin Netcher - Department of Wildlife Cody Burns - Department of Wildlife CJ Ellenwood - Department of Wildlife Jeff Peterson - Department of Wildlife Julie Gabrielson - Department of Wildlife Weston Fettgater – Department of Environmental Protection</p>	<p>Shoshone Paiute Tribe of Duck Valley Tyree Lee Marissa Snapp, Environmental Director</p>
<p>US Fish and Wildlife Service Cesar Blanco Laura Sprague Theresa Thom Lena Chang, Regional PIO Justin Barrett Josh Homer – Dive Team Lee Bender – Dive Team</p>	<p>US Bureau of Reclamation Anthony Prisciandaro Melanie Lowe Heidi McMaster Ben Radchik – Dive Team Ryan Hedrick – Dive Team</p>
<p>Stephen Phillips – Pacific States Marine Fisheries Commission Leah Elwell – Invasive Species Action Network /facilitator</p>	<p>Observers Nic Zurfluh, ID Department of Agriculture Michael Stephenson, ID Power</p>

Invited: Bureau of Indian Affairs Reno Office staff, and Nevada State Parks; Wild Horse Park staff.

Objectives

The following objectives were examined during the exercise

- The exercise team will demonstrate the ability to engage, prioritize, coordinate, and complete emergency response activities.
- The exercise team will demonstrate an ability to conduct and disseminate information of the detection, and response plan of a dreissenid veliger discovery in Wild Horse Reservoir.
- Utilize the Columbia River Basin Dreissenid Mussel Rapid Response Plan (crbdirt.com) elements and the Columbia River Basin ESA Manual for Rapid Response in the exercise process.

Scenario

A routine water sample to monitor for veliger mussels was taken by Nevada Department of Wildlife (NDOW) on September 15 from Hendrick Arm of Wild Horse Reservoir near the Shoshone Paiute (ShoPai) boat ramp. Two samples taken elsewhere in the reservoir were negative. The samples were processed by KASF Consulting using microscopy and Pisces Molecular using qPCR and within 2 weeks results were provided. Both analyses indicated dreissenid veligers/DNA. A repeat sampling confirmed a positive result for veligers. The results are disseminated to the appropriate agency staff. Internal notifications within both the state of Nevada and the Bureau of Reclamation (BOR) are completed. Immediately after the positive results are confirmed, rapid evaluation of a possible distribution of a population of mussels is made by NDOW with multiple samples taken within the area of the positive sample, and both up and down lake from the area of detection.

Outcomes

The exercise team successfully explored various aspects of rapid response preparation including details on verification steps, ability to close access based on jurisdiction, understanding how Nevada and the Shoshone Paiute Tribes of Duck Valley would co-manage an event, exploring the advancement of chemical control, and how Incident Command System (ICS) tools could be utilized in the event of an actual discovery. Using a discussion format, the multiple steps that would be taken during an actual event were explored. A site visit to Wild Horse Reservoir also took place to help familiarize participants with the scope and logistics of the area directly.

Possible immediate follow-up actions were mentioned during the exercise and may be areas for preparation in dreissenid response for Nevada:

- Better clarify the jurisdictional role of Bureau of Indian Affairs.
- Pre-load possible contractors within NDOW procurement system for processing samples for dreissenid identification.
- Explore the addition of settling plates to enhance current monitoring program.
- Explore current permitting changes that could be made to the current General Permit for in-water operations within Nevada Division of Environmental Protection.
- Explore partnership capabilities with nearby states (Idaho and Oregon) for monitoring not only Wild Horse, but downstream reservoirs on Duck Valley Reservation.
- Clarify Nevada State Parks ability and mechanisms for restricting access at Wild Horse.
- Seek to better understand establishment success of veligers moving into downstream systems.
- Draft a rapid response plan in Nevada, either waterbody specific or state-wide.
- All participating agencies can share experiences internally from the exercise to better integrate response capabilities for the future into their individual agencies.

Initial Exploration of Various Response Components

The following information provides detail on discussion by the exercise team to address various steps that would follow a detection.

Processing monitoring samples – Further Confirmation

Samples are currently being processed by two different entities for identification, a) KASF – microscopy and b) Pisces Molecular - DNA.

In the event of a positive identification, a NDOW biologist would return to the area of detection and sample in various locations within Wild Horse. Additional sampling would ideally take place in downstream reservoirs on Duck Valley Reservation with assistance from other entities for verification and require seeking out entities beyond NDOW. The Shoshone Paiute Tribal Fish and Game has sampling gear, and the tribe would be there if needed.

Temperature sampling profiles are currently not coupled with the sampling. Highest concentration is associated with the thermocline. On average, early June to begin sampling and continue to October.

Jurisdictions on the waterbody

There is a need to understand what agreements are in place with the Shoshone Paiute Tribe and Bureau of Indian Affairs (BIA) at Wild Horse. Bureau of Reclamation built the facility and gave it to BIA. The Tribe is responsible for management of the water. NDOW is responsible for management of wildlife/fish. At this time, the lake bottom management is being explored for various reasons. It is not resolved who owns the bed and banks at Wild Horse. There may be clarification in the near term.

U.S. Fish and Wildlife Service (USFWS) would need to be consulted for response with even if it with themselves because of the different branches within USFWS. BIA may not want to be involved and push to the Tribe to manage. It may be wise to clarify the BIA-Tribe responsibilities in writing – letters of authorization and intent between two entities could be a viable next step. BIA may not have the authority to make specific decisions.

Determining the Lead of a Response

After discussion, it was determined that based on the situation, the response would be co-led between Shoshone Paiute Tribe and NDOW.

- Who within NDOW – it might fall to the tribal liaison in directors' office to get involved. Chief of Fisheries would play a leadership role if it does not fall to Kevin in the AIS Program.
- Molly Snapp, Sho-Pai environmental director, would play role; and tribal leaders would be engaged.

What happens if it is all privately owned? They would have to be a player in the room. Because they are prohibited for possession in the state of NV, this might be the way to encourage action with private entities.

Initial Communication

- Quiet conversations would occur right away with USFWS, ID, State Parks, tribe, Director's office
- Next communication layer would include state-related partners and for informing other respective state affected entities

- Open communication once confirmation is received would include press release and an outline of a communication plan for NV based response

Restricting Access while Determining Response

Anglers are the primary user group that would be accessing the waterbody. Closing the waterbody would need co-management with shore launching and tribal boat launching. With just two highway access points, access control is straightforward. This would involve coordination with DOT and Highway Patrol – if there was suspect quagga, then the current law would allow NDOW to require mandatory inspection. The Sho Pai Tribe will be needed on this, including engaging any wardens.

The activity on-site at the busiest time of year (i.e., summer months) would be 30-40 boats and a full parking lot and up to 50-100 people accessing shoreline. This is one of the highest fished reservoirs in the region. Many anglers and boaters that are using Wild Horse are traveling from Idaho and Oregon.

It is likely not possible to completely shut off flow from the dam as this would push into the irrigation water rights use downstream. It may be that flow typically goes down to just seepage in late winter through spring. Water was also shut off this summer for maintenance work. It may be possible to shut off short term or over the winter.

Delineation

During the exercise the Region 6 USFWS Dive Team was invited to practice delineation techniques. There was the opportunity to bring additional divers from BOR and NDOW to participate. Utilizing divers during an exercise can be a positive way to support dive techniques in searching for adult dreissenids as well as give opportunity to test how best to delineate and use diver resources. Two divers from USFWS and 2 divers from BOR did suit up and enter the water on October 4. Their feedback on dive conditions and overall water visibility was extremely helpful for consideration of chemical control option timing and the practicality of using dive teams for dreissenid searches when visibility conditions are poor. Better and increased communication between dive team agencies members prior to the event in October could have better maximized their participation.



Figure 1. Participating divers at Wild Horse Reservoir Exercise.

Immediate delineation would require divers to search for adults. Multiple partners have divers, including 2 divers with NDOW that could be mobilized quickly, and BOR with multiple divers that could be mobilized from Boise. The goal for the divers would be to do visual inspections around structures,

substrates and within the dam facility. Sampling the output from the reservoir would be needed, and other broad secondary monitoring at nearby waterbodies would be helpful.

There are three important reservoirs below Wild Horse on tribal land. Two of those are currently sampled by ID, and ID would be willing to do additional sampling. The canal that separates water for irrigation purposes could be closed and sampled. Shoreline walks would be initiated as well.

NDEP does water quality sampling in Owyhee and would be willing add eDNA for future efforts if helpful.

Past monitoring samples using PCR have had positive hits at Wild Horse. However, these have been for zebra mussels (not quagga), and they tend to “fade” over the season.

NOTE: A response would vary if adult dreissenids were found rather than veligers. However, if veligers are found, it is likely that there are viable adults present. The calcium levels are 9-10 mg/L at inlet and 22 mg/L closest to dam. Overall, the Ca levels represent a medium to high risk for successful dreissenid establishment.

Exploring Response - Treatment Options

The Shoshone Paiute Tribe will need to be on board with all actions. Because of the downstream value of the tribal reservoirs, it might be prudent to treat Wild Horse chemically. Consideration of the density of veligers in the waterbody is needed and therefore it might not be the best option to go right to chemical treatment. Understanding any possible public push back with chemical use is still needed.

There are multiple treatment options:

- Treat the whole waterbody: to determine the treatment costs, the size to be treated could be full reservoir: 29,450 acre/feet.
- Carve off the bay: 50 acre/feet. But if veligers are everywhere, it may not be worth it to even look at treating an arm.
- The other option might be to not do any chemical treatment and just do containment.

Permitting for NDEP NV Water Pollution Control Bureau does the actual permitting for state. Early communication would be good to have if any action would be held up by actions that might need a permit. Contacting Water Quality Planning Bureau would be the point of contact. It is not clear if chemical actions fall under a general permit and if a 404-401 certification may be needed.

Discussion on Chemical Control Options

There are currently two possible chemical applications that may be considered in the treatment of dreissenids; Potassium chloride /KCl (potash) currently not labeled for control of dreissenids and Earth Tech QZ which is labeled for control of dreissenids. Discussion with two representatives that have successfully used the respective chemical with dreissenid control were consulted during the exercise. Both were posed a control situation of mid-late fall and an application of the entire reservoir. Whole lake 72500 acre/ft | 2830 acres | max depth 67 feet | average depth is 20 feet

Potassium chloride

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- The application of KCl would be cost prohibitive for treatment of the entire reservoir
- The treatment rate would be 100mg/liter – potash specific to adults/ static treatments
- It took 3 months for approval for treatment in another waterbody
- Effects of potash on non-target organisms – no negative effects on fisheries, but it would have negative affect on native mollusks.
- How long would it take to get chemical on-site – conservatively 1 month.
- Cost estimate: \$350K to treat 150 million gallons of water (1/2 acres). The cost of potash is fluctuating, and it has doubled in price recently.
- To acquire potash: look to agriculture suppliers
- To apply: use surface diffusion with a floating supply line. Use GPS to section off treatment area. No additional mixing is required. Treatment and then use bioassays to represent at the various depths.
- Timing treatment will be temperature dependent – in the summer 12 days, in the winter 30 plus days. Temperature range 5C – 22C.
- No public health concerns, when handled solution you would be wearing protective gear but not for others. It is essentially fertilizer, so other impacts may want to be considered. Their work has been focused on treating fire protection systems.
- In other systems where KCl was used, such as Lake Winnipeg the treatment involved sectioned off harbors. Also, the long-time dreissenid positive San Justo Reservoir is currently being explored for KCl treatment with a price tag of \$5-10 million according to BOR. For reference, at full pool, San Justo Reservoir has a capacity of 9,785 acre/feet.

Permitting considerations: NDOW may be able to utilize special applicator. Major modification to a general permit would likely have to take place. General permit that NDOW has for rotenone would have to be reviewed if an additional chemical like potash were to be added. This permit change would also involve the NV Pollution Bureau. It is possible that NDOW could look at this preemptively. There might be some additional new anti-degradation regulations coming that could affect an addition such as KCl. Even adding it to the current permit, there would be regular reporting requirements regardless of treatments were occurring or not.

There may be a TMDL established on the Owyhee which would trigger a possible impact permit. There may not be a discharge that occurs. The Tribe is the only water right holder out of the reservoir. Badger Creek and Trail Creek water rights of the tribe need to be clarified. Division of Water Resources could have information. Opening and closing water sources can be political within the reservation. There currently is no water quality standard for potassium.

Bottom dissolved oxygen (DO) on the reservoir is near zero. If you are near full pool and the DO is low, then maybe just drop the water level and sandwich all the adults out of suitable habitat. Tribal leaders

would not like the idea of draining water. How long downstream would this push the problem. Veliger survivability would have to be examined.

EarthTech QZ

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- Liquid product that is easy to apply and disperses well. Can treat effectively, but it does disperse. There have been previous treatments for entire lakes for both quagga and zebra mussels.
- 50 acres for arm assuming 10 feet deep; 500-acre /ft; convert to 160 million gallons use a concentration of 4 ppm which is .24 mg/l of copper that is a dose that is comparatively low from previous applications. You could go at half of that dose and still be effective but may need to reapply to maintain concentration. Low dose for a long time is preferred. Higher dose means higher risk for non-target organisms.
- 650 gallons (4 x 163) = \$13,000 in chemical costs for the side arm. Treating the entire reservoir. 2830 surface acres average depth 20 – \$1.8 million dollars.
- Impacts to organisms: trout are among the most sensitive fish, bass less so. Product has been used in trout hatcheries safely. However, fish do not like the copper. Approved for drinking water and other places where humans are exposed.
- Possible application method could start at the northern most tip and move toward the opening of the bay and will help minimize fish being trapped and force them out.
- Applicators: different companies may charge different amounts, but it is suggested to budget 25% of the chemical costs for application.
- To acquire it on site – maybe a 1 week it could be here. Manufacturing is in Nebraska. Time to get an applicator is likely more time. Make inquiries on who might be available for the future.
- Temperature: the warmer the better. Because it works faster. Product label and EPA limit is 1 mg/L. There is some new language from EPA on copper risk mitigation on repeated application.
- Apply early in the morning.
- David said a barrier would be used to keep the product in one place. Repeat dose assuming that it is going to disperse and dilute, you could use a boat with drop lines.

Additional Chemical Considerations and Discussion

The participants agreed that Potash would be a first choice for safety of non-target organisms.

Double check the crbdirt.com for mention of the .1 mg/l total copper. EPA 1 mg/L max limit in a waterbody, but however studies show that fish impacts are significant at a much lower level. Update the crbdirt.com website on the research impacts.



Figure 2. Discussion of logistics while at the Wild Horse Reservoir State Park boat ramp.

Copper can be toxic at .94 mg/l, if the water has low hardness, then standard is stricter. For drinking water 100 ppm potash.

NDOW expressed that would be easier to set up a containment on the lake with the Tribe and manage it like Lake Mead. But ID and OR may have feedback on how to manage an infested waterbody due to proximity.

Feasibility is going to come down to money. If there is interest by all downstream water users, there may be a way to bring group funding interest. Treating the reservoir is going to get more options

for the overall benefits. Could the other states provide any financial assistance?

There is significant amount of science information to look at. Wild Horse is on the edge of being too large to treat, but it is the preferred. If you can kill off 95% of stuff to knock it back and there is less density of veligers. Fish could be salvaged. Might be able to manipulate water levels and make DO changes that would be beneficial to killing veligers off.

Further exploration

- Would it be possible to treat the output of the lake?
- Look extensively at the downstream reservoirs to understand survivability of veligers.
- The onsite dive team could only see 12-24 inches out and there is thick muck. Could possibly do targeted treatment at shoreline to help prohibit reproduction and then if you do find adults in targeted areas for further treatment spots? Settlement 40 feet and less and hard surfaces, quagga can be found very deep. Most of the reservoir sediment is variable.
- Will need to know what month treatment will occur. Good timing for water clarity would be later in October. Ice starts in December. Otherwise pushes to April but would have more input of sediment then. When to treat will be affected by prime summer recreation use, migratory bird activity in summer, and prime chemical application due to temperature all overlap.
- A communication suggestion for closures, treatments etc. could be to local mines in their staff newsletter.
- Local boater program – could be put in place to address South Fork Reservoir boaters that are hitting Wild Horse too. Seals could be used in this situation.

ESA Consultation Preparation

Lisa DeBruyckere of Creative Resource Strategies provided a preparation session on how to work through an Endangered Species Act (ESA) Consultation with the US Fish and Wildlife Service. The triggers

that prompt a consultation on response actions are any nexus with federal land, federally managed species, or federal funds associated. Also, if actions will affect federal ESA listed species.

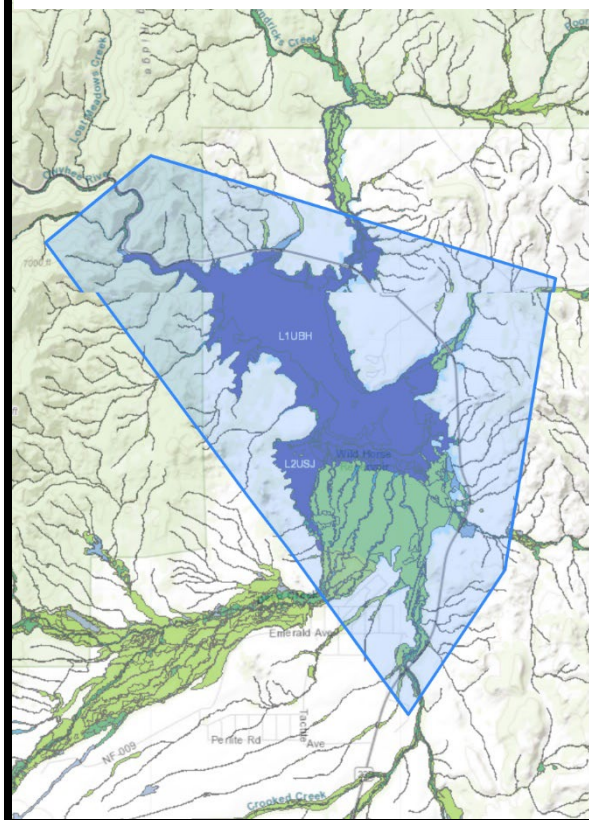
The intent of the consultation is to share proposed actions and to justify choices. It is important to convey the benefit of achieving control actions while minimizing any impacts. In general, the timing for contact with the US Fish and Wildlife Service will be at several times during the response process.

- Initiation of the consultation
- Response that occurs
- Formal consultation is initiated after the action is taken.

Step 1: Define the area of action using the www.ipac.ecosphere.fws.gov and draw a polygon on the site. Included in the watershed boundaries are the Owyhee River etc. This will identify any possible endangered species, migratory birds or eagles managed by USFWS. Anadromous species are managed by National Marine Fisheries Service and do not come up on the IPAC. The local NMFS office may need to be contacted to understand if/what may need to be done in relation to the stocked tribal Chinook fishery below Wild Horse.

The polygon allows for analysis of what species are present and minimization of impact. It is important to draw a big enough polygon that looks at the geographic area broadly and above and beyond irrigation to humans. 20-26 sq miles is the polygon.

Figure 3. A proposed polygon of the response action area where activities transect with Endangered Species Act considerations.



Information layers, like sage grouse and critical habitat, can be added. There are not critical habitats within the geographic scope of the polygon. This step illustrates response agency due diligence in looking at the potentially affected species.

- Redband trout are present in the system.
- The monarch butterfly is a candidate species for ESA, but likely to become active on the list.
- Migratory species will also be provided. 11 migratory bird species are also listed, largely do not overlap with any bird critical habitat. There is a presence summary for all the bird species.
- The website will only list listed species and critical habitat species by the USFWS. If the resource list is empty, USFWS must still be contacted. There is the USFWS Coordination Act – to help provide guidance in various response situations.

Step 2: Also, for consideration is wetland habitat which are present in the drainage. This would prompt contact with the NV Natural Heritage

Program and referencing the Nevada Wetland Conservation Plan. Any response actions should also adhere to the nation-wide Standard Conservation Methods.

In the first consultation call, lead agencies should tell USFWS that agencies have read the methods and will follow them. It is unlikely that actions will impact adjacent vegetation near water access. But this communication serves as another sign of good faith.

Step 3: The co-leads will have to contact the USFWS with general plans and the USFWS can offer recommendations on reducing impacts.

General plans would include:

- Clearly delineate the staging areas (for chemical application etc.) and how those spaces will be managed.
- Acknowledging that there may be downstream impacts that could have initial and long-term effects. To cite knowledge of potential affects is a sign of due diligence.
- Invertebrates should be looked at for impacts. Based on what we know in the literature and what the impacts would be to breeding, refuge etc.
- Cultural and archeological resources. DOT in NV should be contacted with BLM and Tribe who will have information on the cultural and archeological staff. Ask for help from experts on protecting cultural and archeological resources and have staff on-site during action response.
- Avoid and minimize any practices and avoid the spread of invasive species in the actions. Follow BMPS during action implementation.
- Consider how the project be monitored for impacts during the application. In-situ etc. No in-water timing table is utilized by NDOW.
- The consultation will need to explain detail on chemicals, duration, time of year, and how it will be monitored. Consider all the mechanical actions that would be taken.

Other considerations that could influence response actions

A quick analysis in this region of NV on the species to make sure all of them are encompassed in our action. Maybe there should be an additional webpage on the crbdirt.com for others within the Basin.

How is BOR a steward of the wetlands at Wild Horse? An exploration of the Nevada Wetland Priority Conservation Plan where BOR is indicated as the lead is needed.

Consider using rhodamine dye to determine movement of chemical application. This is basically a study to help inform actual application.

Background concentrations of copper are problematic for all species. Cupric ion form is the most toxic form and what Earth Tech is comprised of.

Persistence of downstream veliger information is lacking in that area. But the monitoring to define the extent during and post treatment would be very informative. The Great Basin is a different environment than many for the research that currently exists. What is the risk of the dreissenids moving downstream? Unique slow moving water system. Likelihood of veligers spreading downstream is "low", much of what we know is from larger systems. Downstream transport in the Columbia River system.

Because of the fluctuating system and sediment at Wild Horse, this might solve the issue of their success. But would they move downstream as any response is formulated.

Think about recreation, and the importance of water to Tribe. Chemicals could be helpful but look carefully at the tool kit. Might make sense to look at downstream transport (e.g., in Texas) to consider how these patterns could play a role in spread within this system.

Response Decision Points

Communication on response

Communicating with different layers of leadership will need consideration and would likely come in the form of press releases/social media. Leadership will direct how communications go out. Announcements and press releases could vary. Tribal liaison and statewide Public Information Officer (PIO) would be making contact. Transparency would be very important within the Tribe. The wording would need to effectively publish concerns and what the impacts would be to humans and make sure clear messaging is occurring. It will be important to get key messages out in physical messaging because many stakeholders may not be on social media.

Emergency management communication for multiple agencies means huddle and a provide a single main face on the external messages. Internally there is a lot of coordination, and it will depend on the scale of the incident. Lead PIO will be NDOW in coordination with the Tribe. Co-communication with State Parks would be critical. There would be a need to create a strategy in what needs to get out quickly – FAQs for the public and give any actions to the public as a call to action would be primary pieces.

All agreed that preparedness is better for all kinds of emergencies. Good to remind people to prepare than react. Even a message that basin wide that NV is connected to the other states. BOR communication would come into play but could take already created messaging. Anthony/Melanie could explore what might be the path there. It is not clear if a full communication plan could emerge now and who would be initiating or who at what level.

Internal communication will look different from external and there will be additional user groups than associated with this exercise to reach out to, like different angling community or others. Consider the seasonality of who to engage and be on the lookout for diverse stakeholders. The public could be engaged on how to report sightings and on the Clean, Drain, Dry of boats. Lake users may not be social media users, so will have to be cognizant of that and may be able to target NDOW license holders using email or letter. All outreach will be pushed out to WRP and WISCE partners. Emergency notification could be initiated by NDOW when purchasing licensing or campground, AIS tags etc.

Key Observation: Using alternatives to social media will be important for reaching user groups at Wild Horse and in the region.

Contain Reservoir

Would the entire park be closed or just the boat ramps? DNRC director would have the ultimate call on closure of the entire park, and it may be a political conversation. The group agreed that the entire reservoir should be closed to all activities to keep people safe.

Boaters on the water would be subject to temporary emergency decontamination stations northbound and southbound. Northbound station – could be operated by current tribal station operations. State Park could funnel all traffic. The issue will be the shoreline launch. Tribe would have to initiate decontamination. Tribe has mandatory power only on tribal land not the BIA. The idea would be to remove all boaters and funnel through each station. And then a full closure by State Parks. Private property for shore launching will require direct communication. Elko County Sheriff would be needed for communication.

How long would the waterbody be closed? If happening in the fall, treatment would have to happen in November. Closure would be from detection until treatment completion.

Currently NDOW only has authority for mandatory decontamination for long-term slipped boats. All boats must have an AIS sticker and NDOW can impound boats that may be carrying AIS.

NDOW would bring up staff from Lake Mead (or Reno AIS NDOW staff) to assist with decontamination within one day. Mobile units would just be brought to the reservoir. Regional level vessel removal and decontamination, transition decontamination for follow up activities would be done by the AIS staff. Maximum of 3 days to address all boats.

Housing for NDOW staff could be accommodated at Parks. One day of organization and 3 decontamination units. Wardens would be needed to help with crowd control. DOT reader board would be used communicate closure to travelers prior to getting to reservoir. ID and Tribe have reader boards that could be activated. Additional reader boards could be acquired from other partners or states. State barricades would be put up. Signage would be put up on site. Laminated signage would be put up on site. The dock would be removed at the State Parks launch site.

Response time by the Tribe might be slower than NDOW. Maybe NDOW could be help and as long as there is an understanding of response limitations. There could be an immediate response by State Parks and NDOW with law enforcement. Could use T-posts which are readily available. A concrete barrier or fillable water barriers would be desired for longer term barriers. Fencing at the wild west access could be a way to limit access with signage. Other divisions would be drawn from to help with the logistics.

Tribe would be contacting irrigation ditch operators, dam operations and depending on the time year and timing, the irrigation flow could be shut down to contain flow.

Key Observations:

- Clear agreement between NDOW and the Shoshone Paiute Tribe on reaction time and backfilling could be addressed in the near term.
- Clarifying Nevada Parks ability to contain and restrict access to park is needed.

Monitoring for Delineation and Scope

Right now, there is a two week turn around for samples. Suggestions were made to put a rush on the sampling and send out additional samples to 4 locations. To have multiple results determined simultaneously, different entities may need to submit samples for processing to expedite a process to use different vendors. Because of relationships with ID Dept of Ag and Shoshone Paiute Tribes of Duck Valley they may be able to handle sample submission. There are multiple labs, e.g. MT Veliger lab, Reclamation lab, that samples can go to. This logistic could be determined this prior to an actual event. *decontamination of equipment will be critical*

Locations to sample

- Owyhee River and extensive sampling on the downstream reservoirs.
- Floating safety structure in front of the dam could be examined for the presence of mussels.
- Old diversion dam, China dam and plunge pool by the dam could be sampled.
- DEP could do additional monitoring with the water quality sampling in the area. PCR and microscopy at additional sites. Ideally this additional sampling would require 4 people or two teams.

Equipment Available and People Power

- Other states could be drawn from to go sample.
- Reclamation has a crew in Boise and could be utilized. Lab in Denver BOR does the PCR, and Sacramento BOR has a lot of nets. There would have to be a management decision to prioritize BOR staff; Native American Affairs program in BOR might be how funding would be allocated under the DOI umbrella for signatory of dreissenid activity. If it was a federal entity there could be delays. Follow-up on what kind of MOU with tribe for monitoring on Sheep Creek, Billy Shaw River. There are other examples for mutual aid (e.g., SD Pactola) where partnerships could assist in monitoring.
- DEP samples are done quarterly and could add DNA sampled and hold them until needed, DEP has nets that could be used. 64 micron for mesh size. DEP could be trained on additional sampling protocols.

Decontamination of all the equipment and boats associated with sampling will be needed. Bring a decontamination unit with the sampling boat.

As long as the sample is fixed properly it can be held for long periods. Likely to do overnight shipping, and all out of Elko for FedEx. The cut off for the FedEx overnight is 9:30 am. Or drive them to Las Vegas or Boise. Fed Ex will not take flammables if preserved in ethanol in some areas. Does Fed Ex have a restriction on 70% ethanol or not?

Odds of this happening at multiple locations are slim. Keep dedicated sampling at HQ, so it could be moved where needed.

Key Observations:

- Reliance on neighboring partners to assist in monitoring will be critical for effective and timely sampling. Consider developing MOUs to leverage monitoring capabilities.
- Understand if there are any shipping limitations by FedEx with flammables.

Control response

Native mussel and invertebrates are of interest for protection and downstream there will be concern for Red Band trout. Potash would be the preferred chemical treatment. CA PAN website should be explored to understand possible chemical impacts.

Outside applicators would be deployed and there are multiple in Elko and Humboldt Counties.

Shoreline applications could be done with potash and if there are visible attached mussels and then those areas could be drawn down or use Earth Tech.

Large drums of potash would be used and applied as liquid form using a boat in a grid pattern. Rotenone application would use a pump and NDOW may have some of the potential equipment but not at the scale needed.

Rhodamine dye application would be used to understand the flow and the area as windy conditions creates mixing and stirring.

Military landing mats (boat launch) on the lake could be used as ultra back-up for accessing lake for management purposes and that is currently on the tribal/BIA property. This access point can only be seen when the reservoir is very low.

Using some bioassay to understand the effectiveness of the treatment is recommended. Two other native mussels could be collected and used for this purpose. Salvage for fish species present would likely be infeasible due to logistical constraints.

To do a full million-dollar treatment, the trigger would be the presence of adult dreissenids. In the meantime, you could develop a budget. The tribe must be 100 percent on board to move on treatment. Tribal chairperson would have to approve chemical application; NDES director (who issues the permit) and NDOW leadership to communicate in tandem.

What is the duration of containment and closure if no adults are found? In the fall – easy to stay closed until ice up but in spring closure would not be possible.

Permitting complications to avoid will be to work on that now and see if response actions can be added to a general permit. Contact must be made with the Water Control Board. Anything that would be potentially treated would be listed on the permit. Hesitant to have on a discharge permit, but it may be a tool. It would be helpful to have a clear route of what process is needed and when it is needed. If it was initiated now, it would likely be a 3–6-month time frame for completion. With new degradation language coming for general permits, anticipate that it will become more complicated. Donnett Burnato in Water Pollution Control is the suggested point of contact, and there is a new bureau chief. Also, an EPA permit is needed on top of the application for the potash because it is not listed for that use.

Additional follow up questions

What is the break down rate and patterns for each chemical?

Can application be done with a crop duster plane?

Key Observation:

Permitting logistics could be addressed in the near term to resolve any requirements and advance preparedness capabilities for an actual detection.

Activation of the Columbia River Basin Rapid Response Multi-Agency Committee

The Multi-Agency Committee (MAC) was established with the completion of the Columbia River Basin Rapid Response Plan in 2007. During the exercise, MAC members were informed of the exercise via email and then invited to a call to hear details of the situation and offer comments.

MAC participation on October 6 included ID Department of Agriculture, Oregon Department of Fish and Wildlife, Columbia River Intertribal Fish Commission, Washington Department of Fish and Wildlife and the US Fish and Wildlife Service. Unable to attend were Montana Fish Wildlife and Parks, British Columbia, and NOAA.

Key Observations:

The MAC could be utilized differently in future exercises to test partner capabilities. Posing specific resource needs to MAC members to greater engage them in the exercise process to mirror actual dialog would be helpful.

ESA Consultation with USFWS Ecological Services Justin Barrett

After discussions on response actions and ESA preparation, USFWS staff Justin Barrett in Ecological Services was contacted to explore what consultation might be like. Co-lead agency NDOW shared basic details of the response decisions points and how those would feed into an ESA consultation process. Feedback and discussion during the consultation:

- Candidate species do not have protection if not listed. Because you are mostly in aquatic systems there would not be any worry associated the monarchs.
- Certified pesticide contractor will be required.
- How long is the period between detection and treatment? The time between detection and treatment, roughly 30 days, is a reflection of time needed to confirm.
- NDOW would have the intimate knowledge of species and USFWS would work closely with their staff to understand potential impacts. It could be that the Service would go with a “no effect” or “not likely to affect”, could treat it as an emergency consultation and then consult after the fact.
- When is the best time to reach out to the ES USFWS office? Early in the process would be a good time. There is no harm in doing a consultation even if the details change.
- How would a consultation work between the state and Service if there was an ESA listed species – then the consultation would possibly be with BIA. But there could be a section 10 permit if it was just solely with the state. If you are receiving any federal funding, then that would be the connection. So inter-Service consultation. Consultation must happen between federal agencies.

- Are there any other species in NV currently – spring snails are important elsewhere in the state. Justin is open to continued conversations to be ready.
- Section 10 permit – permission to examine and harass ESA listed species usually for research or recovery efforts. Listed ESA species are the target of the work.
- Section 7 – covers operational incidental take – federal actions where ESA species may be incidentally impacted. Listed ESA species are not the target of the work. Storing and releasing water in the dam for 30 years is covered in a section 7 as an example.
- Migratory bird permits would be needed if the actions or timing of actions would affect migratory birds.
- There is an existing MOU for DOI and federal agencies to work cooperatively within their authorities and share resources for invasive mussel response as of November of 2020.
- Reclamation is looking into what authority it has to sample or assist in actions on non-Reclamation waterbodies. For this case the Shoshone Paiute Tribe may have to request assistance from Reclamation.
- Understand this gap: Categorical exclusions for aquatics do not or do exist? Or is NEPA required – each federal agency has separate categorical exclusions. The lead agency will be whomever holds the federal nexus. Clarification information provided: *All DOI categorical exclusions are listed in this document. Reclamation does not have one that would cover anything but partial drawdown. If any individual agency has a categorical exclusion that would work, other agencies could use that if all agencies are somehow participating.*
<https://www.doi.gov/sites/doi.gov/files/doi-and-bureau-categorical-exclusions-dec2020.pdf>

Key Observations:

- Understand any categorical exclusions under possible response scenarios.
- A better understanding Migratory Bird Permit needs is required.

Participant Feedback on Exercise

- Having experts on-site or available would be helpful. Understanding how fast we should think about invasion. Technical team could be used to look at all those science questions.
- Missing participants – Parks, more from Tribe, and BIA.
- Initiating conversations for all internally as follow up should be a priority.
- Forcing people to think through details of conceptualizing was beneficial.
- Interagency approach that is brought to the table is clearly a benefit to successful response.
- More information on the chemicals prior to would have been helpful. How much homework is needed?
- Take a break to review the information prior to getting experts.
- Creating a draft rapid response plan for the state should be an outcome.
- Discuss with the Tribe and BIA to make better connections.
- Work on the different levels of communication for Kevin.
- BOR internal conversations/ all agencies could talk.
- If Governor declares a state of emergency could this change the landscape of this situation.
- Politics can change potential response actions.
- Do we know if an emergency declaration would give emergency decontamination capabilities?
- Other state agencies might be able to help with response if Governor declares a state of emergency. Pressure from the surrounding governors can help motivate others to take actions.
- Include a list of participants in handbook.
- Include list of agencies that were contacted.
- There is a BSAI template for rapid response being developed. Laura will share.
- ANSTF rapid response template will be helpful in the process to develop rapid response documentation in Nevada.