

Rapid Response Plan Following Detection of Dreissenid Mussels in Sulphur Creek Reservoir, Wyoming

Green River Regional Fisheries Management Crew, Wyoming Game and Fish Department, 351 Astle Ave, Green River, WY 82935

SUMMARY

Sulphur Creek Reservoir is located 10.75 miles southeast of Evanston, Wyoming, is a 650 surface acre impoundment on Sulphur Creek, and was constructed for flood control with an added benefit of fishing and hunting privileges. At full pool, the reservoir elevation is 7,187 feet, and it is 1.8 miles long and 0.5 miles wide. There are only two access points and only one of these has the infrastructure in place to launch watercraft. The majority of the remaining shoreline is largely inaccessible to the public. The City of Evanston owns and operates the reservoir and maintains the facilities.

Motorized and non-motorized vessels use Sulphur Creek Reservoir. The peak boating season runs from May to August. The majority of vessels are motorized (83%) and of those 64% have outboard motors. The remaining 17% of vessels consists of inboard/outboard, inboard, and jet boats, and personal watercraft. The majority of watercraft inspections were for Wyoming residents (60%) and 33% were for Utah residents. The remaining 7% of inspections were for residents from Colorado, Nebraska, Idaho, and Washington. Given the location and water source for the reservoir, there is minuscule chance of infestation from positive waters upstream of Sulphur Creek Reservoir.

The initial response if dreissenid mussels are detected is to minimize the risk of spreading mussels to other waters while awaiting follow up sampling results. To prevent the spread of mussels, a mandatory exit inspection of all conveyances will occur at Sulphur Creek Reservoir. During the initial six weeks, regional personnel, with the assistance of available AIS rovers, will staff the check station which will be open from one hour before sunrise to one hour after sunset, April through November. There will be a check station located at the only access point with boat ramps. The check station is strategically located to intercept all watercraft entering and leaving Sulphur Creek Reservoir. The number of personnel required to staff the check station will range from two to six, depending on the month and status. The hours of operation will remain the same and there will be no closures. Given the low use, a local boater program will likely not be pursued. The cost will range from \$28,000 (not including regional personnel time) during the first six weeks to nearly \$238,000 for the initial year at Infested Status. After the initial year, annual operating expenses for containment of dreissenid mussels at an infested Sulphur Creek Reservoir are estimated at approximately \$150,000.

INTRODUCTION

Zebra (*Dreissena polymorpha*) and quagga (*Dreissena bugensis*) mussels are aquatic invasive species (AIS) that have far-reaching negative impacts on natural resources, water infrastructure, recreation, and can be attributed to significant economic loss. Zebra mussels are native to the Black and Caspian seas and were first discovered in the Great Lakes in 1988. Quagga mussels are native to the Dnieper River Drainage in Ukraine and were first found in the Great Lakes in 1989. Since their initial introductions, these species have spread across most of the United States, and have been detected in Wyoming's neighboring states of Nebraska, South Dakota, Montana, Colorado, and Utah. The close proximity of zebra and quagga mussels to Wyoming elevates the threat of introduction and increases the need for plans to contain them if detected.

Currently, Wyoming's AIS program is focused on outreach, watercraft inspection and monitoring, with the overall goal of keeping invasive species such as zebra and quagga mussels out of the state. Wyoming law requires inspection of all watercraft entering the state and the Wyoming Game and Fish Department (WGFD) currently maintains 14 inspection stations (primarily at Department of Transportation Ports of Entry) that intercept incoming watercraft and inspect them for the presence of AIS. The WGFD AIS program also conducts inspections at various waters by roving personnel and at regional offices. Annual monitoring for a variety of AIS, including zebra and quagga mussels, is conducted on priority waters throughout Wyoming and an outreach program is in place to educate the public about the threats of AIS and what they can do to prevent their spread.

If zebra or quagga mussels are detected in a Wyoming water, immediate action will be necessary to prevent their spread to other waters. This rapid response plan is a water-specific plan that outlines the steps needed to quickly mobilize personnel and equipment to provide exit inspections and, if necessary, decontaminations of all boats leaving the affected water. This plan will be initiated when zebra or quagga mussel veligers (larvae) or adults are detected in a sample from Fremont Lake and are verified by independent experts and genetic analysis. At that point, the lake will enter Short-term Suspect Status. This coincides with the period of time necessary to conduct additional sampling and testing necessary to verify whether zebra or quagga mussels are present (up to six weeks). If follow-up sampling does not detect zebra or quagga mussels, the water will enter Long-term Suspect Status and monthly monitoring will be initiated. If zebra or quagga mussels are not detected for three years, the water will once again be considered negative. Conversely, if two sampling events within a 12-month period detect zebra or quagga mussels, the water will enter Positive Status and will not be considered negative again unless mussels are not detected in monthly monitoring for five years. Finally, a water will enter Infested Status when evidence shows a recruiting and reproducing population of zebra or quagga mussels is established. At this point, eradication of mussels is highly unlikely and containment efforts will be necessary for the foreseeable future.

This plan provides guidance for the initial response to detection of dreissenid mussels at each of these four status levels and is intended to be implemented quickly and act as the guiding document for initial decision making following detection. It is not intended as a long-term containment plan, but will outline the action necessary to provide short-term containment while a long-term containment and monitoring plan is developed.

CONFIRMATION OF DREISSENID MUSSELS

Sampling of Wyoming waters is conducted annually in accordance with the “Wyoming Game and Fish Department Aquatic Invasive Species Sampling and Monitoring Manual” (WGFD 2019). High priority waters are sampled twice per season (June or July, and September or October), and lower priority waters are sampled once per season in September or October. To determine whether Wyoming waters contain evidence of AIS, specimens of adult or juvenile crayfish, snails, mollusks, plants, etc. are collected during routine sampling and any specimen suspected of being AIS must be positively identified by at least two independent experts. Only samples collected by the WGFD may be used to change the classification of a water. Samples collected by a third party will be used as a notification of a possible detection which must be confirmed by a WGFD sample.

To meet the minimum criteria for detection of dreissenid mussels, an adult or juvenile specimen must be verified by two independent experts and confirmed by DNA, or a veliger (larval form) must be identified and verified using cross-polarized light microscopy by two independent experts and confirmed by DNA analysis (PCR and gene sequencing).

Based on sampling results, waters are given certain classifications related to their dreissenid mussel status:

A water body that has not been sampled for aquatic invasive species is classified as *Unknown/Not Tested*. A water body at which sampling is ongoing and nothing has been detected (or nothing has been detected within the time frames for de-listing) is classified as *Negative*. Currently, all waters in Wyoming are classified as either *Unknown/Not Tested*, or *Negative*.

A water body classified as *Inconclusive* has not met the minimum criteria for detection but evidence of dreissenids has been documented. For example, evidence of a mussel veliger is detected via microscopy but cannot be confirmed by DNA analysis. This is a temporary classification and additional sampling of this water will be conducted to determine whether the water body is classified as negative (no detections in subsequent sample) or suspect (verified detection in subsequent sample).

A water body classified as *Suspect* indicates a water at which one sample has been verified by visual confirmation (visual identification of adult or microscopy identification of veliger) and this sample was confirmed as dreissenid by DNA analysis (PCR and gene sequencing). In this scenario, additional sampling will be conducted to determine whether another sample taken within 12 months detects evidence of dreissenids. If a subsequent sample does detect dreissenids, this water will then be classified as *Positive*.

A water body classified as *Positive* indicates a water at which two or more sampling events within a 12-month period meet the minimum criteria for detection. For example, samples from two different sampling events are verified by both visual identification (including microscopy) and DNA confirmation (PCR and gene sequencing).

In many cases, a water classified as *Positive* will ultimately become *Infested* which is a water body with an established (recruiting and reproducing) population of dreissenid mussels. For example, lakes Mead and Powell are considered infested waters as they have large populations of reproducing dreissenids and mussels are readily evident on the shoreline and submerged materials such as docks, buoys, etc.

In some instances, the classification of a water body can be downgraded over time. The exact reasons why dreissenids are detected at a water once, then not again in subsequent

sampling, or are detected in a water classified as *Positive* but never establish a population, remains largely unknown.

A water body initially classified as *Inconclusive* can be de-listed to *Negative* status after one year of negative testing results including at least one sample taken in the same month of subsequent year as the initial positive sample (to account for seasonal environment variability). The time frame for de-listing a water body extends from there with a water body initially classified as *Suspect* requiring three years of negative testing to re-classify to *Negative*, a *Positive* water body requiring five years of negative testing to re-classify to *Negative*, and an *Infested* water body requiring a successful eradication or extirpation event and a minimum of five years of negative testing results post-eradication event to re-classify to *Negative*.

WATER DESCRIPTION

Sulphur Creek Reservoir is located 10.75 miles southeast of Evanston, Wyoming. Users traveling to the reservoir head southeast on Highway 150 from Evanston for 10.75 miles, turn left on County Road 173 (Piedmont Road), and travel an additional 1.2 miles before turning left again for the boat ramp access on the reservoir (Figures 1 and 2). This is the only access available for launching a boat and is the public's primary location for other recreational uses. There is one other publicly accessible point located in the northwest corner of the reservoir along the dam. There is not a boat ramp, but parking is available for shore anglers (Figure 3). To access the reservoir at this location, users travel southeast out of Evanston on Highway 150 for 9.5 miles, turn left onto County Road 75 and travel an additional mile until the road dead ends at the northwest corner of the dam.

The reservoir is a 650 surface acre impoundment on Sulphur Creek. It was constructed in 1958 and enlarged in 1987. The elevation of the dam is 7206 feet at the top with a full-pool water elevation of 7187 feet. The maximum depth at full pool is 67 feet and average depth is 40 feet. It is approximately 1.8 miles long, 0.5 miles wide, and contains 7.4 miles of shoreline. The majority of shoreline is inaccessible to the public.

The purpose of the reservoir is for irrigation and flood control with the added benefit of fishing and hunting privileges. Wyoming Game and Fish Department manages the fishery and the land immediately surrounding the reservoir is owned by the City of Evanston. The boat ramps, restrooms, and picnic shelters are managed and maintained by the City of Evanston.

The area surrounding Sulphur Creek Reservoir is dominated by sagebrush and grass on the steep hills to the north and east. Grass pastures cover the south side and the west side below the dam. The reservoir substrate is predominately clay and silt with some sand and gravel bars associated with the previous shoreline before the enlargement. Sulphur Creek enters in the southeast corner and fills the reservoir during spring high flows. Supplemental flows are infrequent, but do occur through Bear River canals and consist of the City of Evanston's excess municipal water from the Bear River and irrigation return flows.

The boating season extends from April to November depending on weather conditions. There are two boat launches at the access point on the south side of the reservoir (Figure 2). The access point in the northwest corner of the reservoir does not allow for boat launching (Figure 3). This access point is primarily used by shore anglers, but could be used to launch non-motorized vessels (i.e., canoes and kayaks). Private property or small parcels of BLM land without road access surround the remainder of the lake making shore launching impossible. All motorized

boats must launch from the ramps on the south side of the reservoir, making this access area an ideal location for an exit inspection station (Figure 2).

Motorized and non-motorized vessels use Sulphur Creek Reservoir. The majority of vessels are motorized (83%) and of those 64% have outboard motors. The remaining 17% of vessels consists of inboard/outboard, inboard, and jet boats, and personal watercraft. May through August present the busiest times for boat activity on the reservoir. From January 1, 2018 to November 11, 2019, 168 inspections were completed on watercraft bound for Sulphur Creek Reservoir and 11 (6.6%) of those were high risk inspections. Only four (2.4%) decontaminations were performed on boats heading to the reservoir. The majority of watercraft inspections were for Wyoming residents (60%) and 33% were for Utah residents. The remaining 7% of inspections were for residents from Colorado, Nebraska, Idaho, and Washington. Given the location and water source for the reservoir, there is meniscule chance of infestation from positive watersupstream of Sulphur Creek Reservoir.



Figure 1. Satellite imagery of Sulphur Creek Reservoir from 2017.



Figure 2. Boat ramp access on Sulphur Creek Reservoir with AIS check station identified.



Figure 3. Shoreline access area located in the northwest corner of Sulphur Creek Reservoir.

RAPID RESPONSE – SHORT-TERM SUSPECT STATUS

In the event that a sample from Sulphur Creek Reservoir is confirmed positive for dreissenid mussels, the reservoir will be considered Short-term Suspect (defined above). After the initial detection, follow-up sampling will occur and results will take approximately six weeks to be reported. During that time, it will be necessary to minimize the risk of spreading mussels to other waters. Within one week, resources will need to be in place to perform required clean, drain, dry exit inspections of all boats leaving the reservoir and decontamination of undrainable areas, such as ballast tanks and motors. All watercraft leaving Sulphur Creek Reservoir will receive a red seal and seal receipt to verify the watercraft received an exit inspection. Red seals will designate use on a suspect, positive or infested water versus the brown seal currently used after a Wyoming AIS inspection.

At Short-term Suspect Status, there will not be time to hire personnel or purchase equipment. Therefore, the initial response will rely on existing personnel and equipment.

Immediately after initial detection, job announcements and requisitions will be prepared so personnel can be hired and equipment can be purchased as quickly as possible once follow-up results are available.

Communication Plan

Upon the initial detection of dreissenid mussels, WGFD's AIS Coordinator will begin the administrative communication chain outlined in the WGFD AIS Administrative Rapid Response Plan (WGFD 2020). Initial contacts in the administrative communication chain include the AIS Coordinator contacting the Communications Director, the Regional Fisheries Supervisor, and the Fish Division Chief, who contacts the WGFD Director. On the regional level, the Green River Regional Fisheries Supervisor will begin the regional communication chain to disseminate information about the detection to internal and external partners and stakeholders (Figure 4). Internal WGFD contacts include Regional Fish Division personnel, the Regional Wildlife Supervisor, the Regional Habitat and Access Supervisor and the Regional I&E Specialist. The Regional Wildlife Supervisor will then contact the Green River Game Warden(s) as well as local Wildlife and Terrestrial Habitat biologists. The Regional Habitat and Access Supervisor will contact appropriate Habitat and Access biologists.

The Green River Regional Fisheries Supervisor or biologists will also contact the key stakeholder; the City of Evanston which has the sole water right. They will also contact the Evanston Chamber of Commerce along with other key local business owners outlined in Appendix A. Boater contacts made through the Wyoming AIS inspection stations will be used as a primary notification and education outlet during this time period. The AIS Coordinator will also contact and coordinate with WGFD communication personnel, including Regional I&E (see Public Outreach, below), and regional stakeholders (Western Regional Panel, federal partners, etc.).

Key information to convey to internal and external partners and stakeholders should include the name of the affected water, which species was collected, who collected the sample, where the sample was collected, which agency/expert analyzed the sample, any relevant information about the sample, who to contact for more information, a brief description of containment protocols that will be put in place, and any critical changes for the public. Every effort should be made to quickly contact all partners and stakeholders prior to beginning public outreach efforts. The regional fisheries supervisor will attempt to make all contacts within 24 hours of detection and will contact the Communications Director once enough contacts have been made to initiate outreach efforts.

Contact information for key individuals can be found in Appendix A.

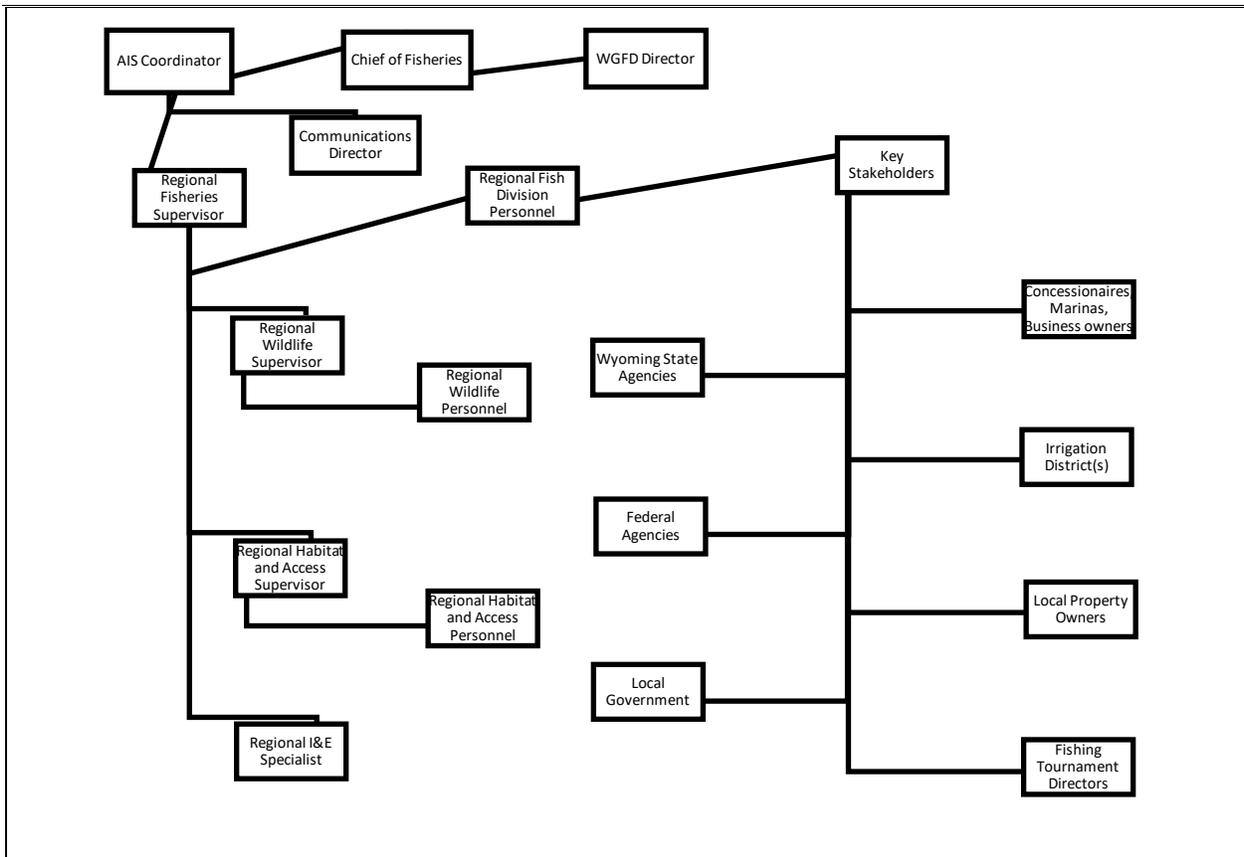


Figure 4. Communication chain for dissemination of information on the local and regional level following a dreissenid mussel detection in a Wyoming water.

Check Station

There will be no need for closures during the six-week window of Short-term Suspect Status. Minimal access exists around the reservoir, forcing all watercraft to launch from the two ramps located at the access area on the south shore. The northwest parking area may be used by non-motorized watercraft, but is primarily used by shore anglers and shall remain open for use. A single exit check station will exist at the public boat launch and picnic area on the south shore of the reservoir (Figure 2). When feasible, AIS inspectors will offer inspections for entering conveyances, but priority will be given to mandatory exit inspections and necessary decontaminations. The check station will be open from one hour before sunrise until one hour after sunset. Night use on the reservoir is minimal, so no night closures will be necessary. The boat launch and picnic area also has established roads, parking areas, and a latrine, so no additional site preparation is needed during this period.

Staffing Plan

A technician announcement to meet staffing needs for the check station will be developed and sent out immediately. This process is expected to take six weeks, during which time the staffing needs will be met by existing personnel. The Green River Fisheries Supervisor will

develop the check station schedule. The fish management crew in Green River will supply the main work force and shall be augmented by two rovers from positions across the state when available. Other Department personnel may be needed to fill all time slots. Law enforcement personnel will be required at the check station during busy months (May-August) and one should be available on call during slow months to respond in case of emergencies.

Assuming the check station is in operation for sixteen hours a day (6AM-10PM) with personnel rotating through two shifts a day (early: 6AM-2PM and late: 2PM-10PM), staffing needs could be met with a minimum of two people each day and three each week. Operating a crew of four allows for more flexibility in time and a crew of six allows for alternating work weeks. Work weeks for existing personnel would not exceed 40 hours. The minimal amount of watercraft traffic even during the busy season should allow for shifts to be met with one AIS inspector and one enforcement officer. Keeping the check station open from 6AM-10PM will be approximately from an hour before sunrise to an hour after sunset while also allowing personnel time to prep the check station in the morning and night. During the first week, personnel will be provided hotel accommodations in Evanston and per diem for food while working. Also during this time, two studio apartments will be rented for two months from Harman Properties or similar group. Monthly rates are \$525 per apartments, which includes all utilities and internet. While utilizing the apartments, personnel will be allowed \$24 a day for camp groceries.

Supplies and Equipment

Additional supplies and equipment will need to be purchased or rented during Short-term Suspect Status. Two decontamination units will need to be rented for \$285 a day, or if available, borrowed from elsewhere. One to two vehicles will need to be borrowed from across the state, with one being able to tow a 3,500 lb decontamination unit. The truck capable of towing will be provided by the Green River fish management crew. Fresh water is available on site to refill the decontamination unit. A camp trailer will be borrowed from the Green River office for use at the check station as an office and shelter from the elements. Hotel lodging and food expenses will be provided at per diem rates for those not considered local and camp grocery per diem while accommodating apartments. One dynamic messaging sign will be borrowed from the Green River regional office or rented. The messaging sign will be placed along Highway 150 approximately eight miles south of Evanston. Additional equipment, such as generators for the camp trailer will be borrowed from the Green River office or AIS program. Brief informational placards will be displayed at the main south access and northwest access informing recreationalists of the Suspect Status. A summary of budgetary expenses for Short-term Suspect Status is summarized in Appendix B. A complete list of supply and equipment needs that are needed to be borrowed or purchased is summarized in Appendix C.

Public Outreach

The AIS Administrative Rapid Response Plan outlines the general public outreach plan for suspect, positive or infested determinations for Wyoming waters (WGFD 2020). Following an initial sample testing positive for dreissenid mussels, the AIS Coordinator will contact the Communication Director at WGFD Cheyenne Headquarters. Prior to initiating the public outreach plan, key partners and stakeholders should be contacted according to the Communication Plan (above). The regional fisheries supervisor will attempt to make all contacts within 24 hours of detection and will contact the Communications Director once enough contacts

have been made. The Communications Director will then initiate the Communications Plan. A statewide press release will be sent out and information will be posted on the AIS website and any necessary social media. The AIS Coordinator, Regional Fisheries Supervisor and Regional AIS Specialist will collaborate with the Green River Regional I&E Specialist to relay information about Short-term Suspect Status at Sulfur Creek Reservoir through media outlets (newspapers, radio, etc.). Regional Information and Education personnel will coordinate all communications efforts with the Communications Director.

The AIS Coordinator and Green River Information and Education Specialist will work with the media to ensure accurate information is being released to the public. Important information to provide to the public includes: Names(s) of affected waters(s), which species was collected, from which location(s), a brief description of the containment protocols in place at the water(s), and who to contact for more information. The information shared at this level should be adequate to serve as a template for all future requests for information and should help eliminate distribution of misinformation. Any changes or information relevant to the water's status should follow this same reporting process.

The AIS Administrative Rapid Response Plan (WGFD 2020) and other pertinent information will be available at the Green River Regional Office and on the WGFD website. Local community meetings will be held in Evanston, Kemmerer, Mountain View, Green River, and Rock Springs and as requested by stakeholders.

RAPID RESPONSE – LONG-TERM SUSPECT STATUS

YEAR 1 LONG-TERM SUSPECT STATUS

If initial follow-up sampling does not yield a positive result, Sulphur Creek Reservoir would enter Long-term Suspect Status (defined above) and remain at this level for up to three years if no additional positive samples are found. The goal during this period is still to minimize the risk of spreading mussels to other waters. During the first year (from initial detection through the following boating season), we will need to provide capacity for all boaters coming off the water to efficiently obtain a required clean, drain, dry exit inspection, motor flush, and decontamination of ballast tanks and other undrainable areas. All watercraft leaving Sulphur Creek Reservoir will receive a red seal and seal receipt to verify the watercraft received an exit inspection. Red seals will designate use on a suspect, positive or infested water versus the brown seal currently used after a Wyoming AIS inspection.

If there is no confirmation of dreissenid mussel presence after the first full boating season, efforts will switch in years two and three to a lower level response, with a goal of contacting a significant number of boaters, but placing more responsibility on boaters to obtain an exit inspection. Inspectors will still conduct clean, drain, dry exit inspections on boats leaving the water and decontaminate ballast tanks and other undrainable areas. If feasible, they will continue to flush all motors. If not, they will drain outboards motors and only flush inboard/outboard and inboard motors as these motor types are difficult to drain completely. Public outreach will increase via multiple outlets to highlight the potential threat at the suspect water.

Communication Plan

The administrative communication chain will continue to be utilized to inform all parties on follow-up sampling results and water status (see WGFD AIS Administrative Rapid Response Plan; WGFD 2020). In addition, the Green River Region internal communication chain outlined in the Short-term Suspect Status section (above) will continue to be utilized to inform the Green River Region and key stakeholders (Appendix A) of follow-up sampling results.

Check Station

There will be no need for closures during Long-term Suspect Status. All watercraft launch from two ramps at a single access area on the south side of the reservoir (Figure 2). A single check station will be established at this access point. Should recreationalists desire to launch non-motorized watercraft at the access area in the northwest corner of the dam, a sign will be posted to direct them to launch at the boat ramp. AIS inspectors may offer inspections for entering conveyances, but priority will be given to mandatory exit inspections of watercraft, motor flushes and decontaminations of undrainable areas such as ballast tanks. Night use on the reservoir is minimal, so no night closures will be necessary.

Inspection stations will be open April 1 through October 31 and will be closed November 1 through March 31. It will be the responsibility of the watercraft owner to get the required inspection prior to launching again during months when the check station is not open. It will be the responsibility of the Green River AIS Specialist to ensure the check station is operational and personnel are hired and trained by April 1.

Staffing Plan

After the six-week Short-term Suspect Status period, staffing of the check station will switch to three newly-hired AIS technicians. Technicians would start March 15 and end October 31. Starting technicians two weeks before the check station opens allows for personnel to prepare the check station and allows for training. The check station will be in operation for 16 hours a day. Assuming a 16 hour operational day (6AM-10PM), with personnel rotating through two shifts a day (early: 6AM-2PM and late: 2PM-10PM), staffing needs could be met with a minimum of two people each day and three each week. Work weeks would not exceed 40 hours. An example schedule for a given week is provided in Appendix D. Technicians can rotate shifts weekly. One technician each week will have the ability to augment a weekend/holiday shift or have 8 hours to devote to other Department needs. The minimal amount of watercraft traffic even during the busy season should allow for shifts to be met with one AIS inspector and one on-call enforcement officer. Keeping the check station open from 6AM-10PM will be approximately from an hour before sunrise to an hour after sunset while also allowing personnel time to prep the check station in the morning and night.

The Green River AIS Specialist will oversee check station operations. Ideally, hired technicians will be local and not require housing. Those not from the area will be encouraged to rent housing. If additional personnel are needed to operate the station during holidays, permanent personnel from the region and across the state will be used. Permanent personnel traveling to Sulfur Creek Reservoir will be allowed federal per diem travel rates. An itemized budget for this period is located in Appendix B.

Supplies and Equipment

Equipment and supplies will need to be purchased during Long-term Suspect Status. Large purchases will include two decontamination units; one of which would serve as a backup unit. In the event the onsite water supply malfunctions, a 550 gallon polytank will also be purchased as a water reserve and a 2-inch trash pump will be purchased to transfer water from the polytank to the decontamination units. A dynamic messaging sign and office trailer will also need to be purchased. Two 2200W generators with a parallel cord will also need to be purchased to supply power to the office trailer in the event of a power outage. A camper should also be purchased to house personnel volunteering from outside the region or in the event hired personnel are unable to find housing in Evanston. The camper would be stationed at the RV Park in Evanston. To prevent erosion and improve flow of boating traffic, improvements will need to be made to the inspection and decontamination area. Approximately 0.50 acres of sagebrush, grass, and rock will be cleared and gravel will need to be added to harden the surface. This will require two workers, a bulldozer, and backhoe for one day from the Habitat and Access Crew. It will cost \$18,500 for crushed asphalt. This work will require coordination with the City of Evanston. While this work is completed it would be financially responsible to also extend a water line from the onsite hydrant near the picnic shelter and power. The water and power lines would need to be extended approximately 250 feet and cost roughly \$10,000. The 550 gallon polytank will be initially filled with the onsite water hydrant. In the event the water hydrant becomes fouled and the reserve tank requires additional fills before repairs are made to the hydrant, FMGR's stocking tank, and ¾ ton truck can be borrowed to haul water from a clean water source at Bear River State Park. A full list of expected budgetary needs is supplied in Appendix B.

Public Outreach

At Long-term Suspect Status, statewide public outreach efforts will continue to follow the process outlined in the Administrative Rapid Response Plan (WGFD 2020). The Regional Fisheries Supervisor and Regional AIS Specialist will continue to collaborate with the Green River Regional I&E Specialist to keep the local boating public aware of the threats and responsibilities associated with a Long-term Suspect Status on Sulphur Creek Reservoir.

YEAR 2-3 LONG TERM SUSPECT STATUS

During years 2 and 3 of Long-term Suspect Status, actions will be similar to those used in year 1. The number of personnel working the station is unable to decrease as doing so will cause personnel to exceed 40 hours a week. Check station hours will not change during this period. Most large purchases and infrastructure will have been built and purchased during the first year. The only expenses will be for personnel, camp groceries, and per diem (if permanent employee assistance is needed). A local boater program also seems unlikely given the low use and AIS inspectors should be able to handle the expected volume of boaters in an efficient manner.

RAPID RESPONSE – POSITIVE STATUS

Sulphur Creek Reservoir will be considered positive for dreissenid mussels if two or more sampling events within a 12-month period meet the minimum criteria for detection

(defined above). Sulphur Creek Reservoir will remain at Positive Status for five consecutive years of negative sample results, at which time it will be downgraded to Negative Status. Alternatively, if an established population of mussels is detected during that five years, it will be upgraded to Infested Status.

The goal during Positive Status is still to minimize the risk of spreading mussels to other waters. We will need to provide capacity for all boaters coming off the water to efficiently obtain a required clean, drain, dry inspection, motor flush, and decontamination of ballast tanks and other undrainable areas. If live mussels are found on any boats during exit inspections, they will be fully decontaminated and consideration will be given to upgrading Sulphur Creek Reservoir to Infested Status. All watercraft leaving Sulphur Creek Reservoir will receive a seal and seal receipt to verify the watercraft received an exit inspection. Seals will be red in color to designate use on a suspect, positive or infested water versus the brown seal currently used after a Wyoming AIS inspection.

The Sulphur Creek Reservoir AIS Rapid Response actions for Positive Status will remain similar to Year-1 Long-Term Suspect Status. During this period, no closures will occur. In order to provide efficient service to boaters, the number of personnel will also remain the same as during Year-1 Long-Term Suspect Status. All watercraft will be required to have an exit inspection. While AIS Inspectors will offer inspections for entering conveyances, priority will be given to mandatory exit inspections and decontaminations. No additional supplies and equipment will be needed. Given the low use even during the busy season, a local boater program is likely unnecessary. The AIS Inspector(s) onsite will be able to keep up with the volume of expected watercraft. An itemized budget is supplied in Appendix B.

RAPID RESPONSE – INFESTED STATUS

Sulphur Creek Reservoir will be considered Infested if an established (recruiting or reproducing) population of dreissenid mussels is identified. Sulphur Creek Reservoir will remain at Infested Status until methods for complete eradication are discovered and implemented. Based on the best available technology and science at the time of this publication, it is expected that Sulphur Creek Reservoir would remain in Infested Status in perpetuity.

The goal during Infested Status is still to minimize the risk of spreading mussels to other waters. We will need to provide the capacity to contact all boaters coming off the water, conduct exit inspections, and ensure all boats leaving have undergone a full decontamination. All watercraft leaving Sulphur Creek Reservoir will receive a red seal and seal receipt to verify the watercraft received an exit inspection. Red seals will designate use on a suspect, positive or infested water versus the brown seal currently used after a Wyoming AIS inspection.

The Sulphur Creek Reservoir AIS Rapid Response actions for Infested Status will remain similar to Positive Status with one exception. Confirmation of a reproducing dreissenid mussel population prompts the action of increasing personnel at the check station. This increase would consist of two personnel during each shift and result in the need to hire three additional 7-month technicians. The three new technicians would be employed for the same period the check station is open (April 1 to October 31). No other purchases or infrastructure are required. The preliminary budget for this status level is available in Appendix B.

REFERENCES

- WGFD. 2019. Wyoming Game and Fish Department Aquatic Invasive Species Sampling and Monitoring Manual. Wyoming Game and Fish Department, Cheyenne, WY.
- WGFD. 2020. Wyoming Game and Fish Department Administrative Dreissenid Mussel Rapid Response Plan. Wyoming Game and Fish Department, Cheyenne, WY.

APPENDIX A: NOTIFICATION LIST.

Names of response team members are followed by an asterisk. Updated March 27, 2020.

Entity	Position	Phone	Email
Wyoming Game & Fish Department	Aquatic Invasive Species Coordinator		
	Green River Region Fisheries Supervisor		
	Green River Region Wildlife Supervisor		
	Green River Region AIS Specialist		
	Evanston Port of Entry AIS Specialist		
	Green River Region Fisheries Biologist		
	Green River Region Fisheries Biologist		
	Evanston Game Warden		
	Information & Education Specialist		
City of Evanston	Evanston Parks and Recreation Director		
Bear River State Park	Bear River State Park – Superintendent		
License Agents	General Manager – Walmart		
	General Manager – RIPS Grocery		
	General Manager – Sportsworld		
Private Landowners	South-side residence		
	South-side residence		

APPENDIX B: ANNUAL BUDGETS ASSOCIATED WITH EACH STATUS LEVEL

SHORT-TERM SUSPECT STATUS

Lodging	Description	# of units	Cost/Month	Total Cost
	Studio Apartments (2 units x 2 mos. ea.)	4	\$525	\$2,100
	Subtotal			\$2,100
Travel	Description	# of Days	Cost/Day	Total Cost
	Per Diem - Lodging ^b	14	\$288	\$4,032
	Per Diem - Food ^b	14	\$55	\$770
	Camp groceries ^c	112	\$24	\$2,688
	Subtotal			\$7,490
Supplies	Description	# of units	Cost/unit	Total Cost
	Decon Unit	2	\$8,400	\$16,800
	DMS sign	1	\$1,620	\$1,620
	Check station signs	3	\$100	\$300
	Check station sign hardware	3	\$20	\$60
	Traffic Cones	10	\$20	\$200
	Gas/Diesel	6	\$25	\$150
	Subtotal			\$19,130
	Total			\$28,720

^a Only two apartments would be necessary, but needed for two months.

^b Lodging and Food provided at the federal per diem rate for the first week while apartments are rented and logistics handled.

^c Camp groceries provided after the first week for all employees once apartments have been rented.

LONG-TERM SUSPECT STATUS YEAR 1-3

Personnel	Description	# of Months	Cost/Month	Total Cost
	Technician 1, 7 months	7.5	\$2,863	\$21,473
	Technician 2, 7 months	7.5	\$2,863	\$21,473
	Technician 3, 7 months	7.5	\$2,863	\$21,473
	Outside help for busy times	1	\$4,553	\$4,553
	Subtotal			\$68,971
Vehicle	Description	# of Months	Cost/Month	Total Cost
	State Motor Pool 1/2 ton pickup - 1	7	\$960	\$6,720
	Subtotal			\$6,720
Travel	Description	# of Days	Cost/Day	Total Cost
	Per Diem for outside help	15	\$157	\$2,355
	Subtotal			\$2,355
Supplies	Description	# of Units	Cost/Unit	Total Cost
	Crushed asphalt for station ^a	1	\$18,500	\$18,500
	Water and power extension ^a	1	\$10,000	\$10,000
	Office Trailer ^a	1	\$20,000	\$20,000
	550 poly tank ^a	1	\$450	\$450
	2-inch trash pump ^a	1	\$300	\$300
	Generator 2-pack with parallel ^a	1	\$1,900	\$1,900
	Decon Unit with attachments ^a	2	\$12,500	\$25,000
	Dynamic Messaging Sign ^a	1	\$12,500	\$12,500
	Misc supplies 231 - 239 series			\$5,000
	Gas/Diesel	18	\$25	\$450
	Check Station signs ^a	2	\$650	\$1,300
	Subtotal			\$95,400
	Total			\$173,446

^a These items will not need to be purchased in years two and three of Long-term Suspect Status if transitioning from year one of Long-term Suspect Status.

POSITIVE STATUS

Personnel	Description	# of Months	Cost/Month	Total Cost
	Technician 1, 7 months	7.5	\$2,863	\$21,473
	Technician 2, 7 months	7.5	\$2,863	\$21,473
	Technician 3, 7 months	7.5	\$2,863	\$21,473
	Outside help for busy times	1	\$4,553	\$4,553
	Subtotal			\$68,971
Vehicle	Description	# of Months	Cost/Month	Total Cost
	State Motor Pool 1/2 ton pickup - 1	7	\$960	\$6,720
	Subtotal			\$6,720
Travel	Description	# of Days	Cost/Day	Total Cost
	Per Diem for outside help	15	\$157	\$2,355
	Subtotal			\$2,355
Supplies	Description	# of Units	Cost/Unit	Total Cost
	Crushed asphalt for station ^a	1	\$18,500	\$18,500
	Water and power extension ^a	1	\$10,000	\$10,000
	Office Trailer ^a	1	\$20,000	\$20,000
	550 poly tank ^a	1	\$450	\$450
	2-inch trash pump ^a	1	\$300	\$300
	Generator 2-pack with parallel ^a	1	\$1,900	\$1,900
	Decon Unit with attachments ^a	2	\$12,500	\$25,000
	Dynamic Messaging Sign ^a	1	\$12,500	\$12,500
	Check Station signs ^a	2	\$650	\$1,300
	Gas/Diesel	18	\$25	\$450
	Misc supplies 231 - 239 series			\$5,000
	Subtotal			\$95,400
	Total			\$173,446

^a These items will not need to be purchased if transitioning from Long-term Suspect Status.

INFESTED STATUS

Personnel	Description	# of Months	Cost/Month	Total Cost
	Technician 1, 7 months	7.5	\$2,863	\$21,473
	Technician 2, 7 months	7.5	\$2,863	\$21,473
	Technician 3, 7 months	7.5	\$2,863	\$21,473
	Technician 4, 7 months	7.5	\$2,863	\$21,473
	Technician 5, 7 months	7.5	\$2,863	\$21,473
	Technician 6, 7 months	7.5	\$2,863	\$21,473
	Outside help for busy times	1	\$4,553	\$4,553
	Subtotal			\$133,388
Vehicle	Description	# of Months	Cost/Month	Total Cost
	State Motor Pool 1/2 ton pickup - 1	7	\$960	\$6,720
	Subtotal			\$6,720
Travel	Description	# of Days	Cost/Day	Total Cost
	Per Diem for outside help	15	\$157	\$2,355
	Subtotal			\$2,355
Supplies	Description	# of Units	Cost/Unit	Total Cost
	Crushed asphalt for station ^a	1	\$18,500	\$18,500
	Water and power extension ^a	1	\$10,000	\$10,000
	Office Trailer ^a	1	\$20,000	\$20,000
	550 poly tank ^a	1	\$450	\$450
	2-inch trash pump ^a	1	\$300	\$300
	Generator 2-pack with parallel ^a	1	\$1,900	\$1,900
	Decon Unit with attachments ^a	2	\$12,500	\$25,000
	Dynamic Messaging Sign ^a	1	\$12,500	\$12,500
	Check Station signs ^a	2	\$650	\$1,300
	Gas/Diesel	18	\$25	\$450
	Misc supplies 231 - 239 series			\$5,000
	Subtotal			\$95,400
	Total			\$237,863

^a Will not need to be purchased if transitioning from Long-term Suspect or Positive status.

**APPENDIX C. EQUIPMENT NEEDS FOR SHORT-TERM SUSPECT
WHETHER BORROWED OR PURCHASED.**

Short-Term Suspect Status. Anticipated equipment and supply needs at Sulphur Creek Reservoir that will need to be borrowed or purchased. Sign #1 – Exit inspection required, Sign #2 – Shore launching prohibited. Per diem rates assume personnel not considered local.

Equipment Needed	Number	Status	New/ Cost
Sign #1	2	Purchase	\$100 each
Sign #2	1	Purchase	\$100 each
Per diem - food	14	Purchase	\$55/person/day
Per diem - lodging	14	Purchase	\$96/person/night
Apartments	2	Rent	\$525/month
Camp groceries	112	Purchase	\$24/day
Posts & hardware	3	Purchase	\$17.50 each
DMS signs	1	Rent/Borrow	\$1,040/month
Decon Units	1	Rent/Borrow	\$1,400/week
Camper	1	Borrow-FMGR	\$0
Water pumps	1	Borrow-FMGR	\$0
Generators	1	Borrow-FMGR	\$0
Gas		Purchase	\$25/week
Traffic cones	10	Purchase	\$20 each

APPENDIX D. CHECK STATION SCHEDULE FOR ALL STATUS LEVELS.

The following represents a rough schedule for inspectors conducting boat inspections and educating watercraft owners at Sulphur Creek Reservoir. Hours worked each shift are based on the longest day during this season: Opening 6AM-2PM and Closing 2PM-10PM. For infested status, the crew is doubled so there are two individuals for opening and closing shifts.

Check Station

Crew	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Technician 1	Opening	Opening	Opening			Opening	Opening
Technician 2	Closing	Closing		Opening	Opening	Free ^a	
Technician 3			Closing	Closing	Closing	Closing	Closing

^a If an additional inspector is needed on Saturday’s one can be provided. If not needed as an inspector, one individual will have 8 hours to devote to other Department needs.