

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

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SUMMARY

Aquatic invasive species (AIS) are introduced, non-native organisms that cause significant harm to ecosystems, which can impact municipal water supplies, recreation, agriculture, aquaculture, and other commercial activities. While there are multiple aquatic invasive species that threaten Wyoming waters, the most significant is zebra and quagga mussels, based on their proximity and demonstrated impacts in neighboring states. This Rapid Response Plan provides a guide for how to minimize and contain a potential dreissenid mussel detection at Grayrocks Reservoir.

Grayrocks Reservoir is located 16 miles northeast of Wheatland and is a popular destination for anglers targeting walleye and smallmouth bass. Grayrocks Dam impounds the Laramie River, creating the 3,547 acre reservoir. The Missouri Basin Power Plant Project (MBPPP) is the primary landowner and Basin Electric Power Cooperative (a member of the MBPPP) operates the reservoir to supply cooling water for their coal-fired plant. Through a Cooperative Agreement between the Wyoming Game and Fish Commission and the MBPPP, the reservoir is managed for public recreational opportunities and wildlife habitat as a Public Access Area. Based on 2018 through 2019 AIS inspections, boaters using Grayrocks Reservoir were primarily from Colorado (48%), Wyoming (38%), and Nebraska (21%). Boat angler use peaks in June (including three fishing tournaments), then transitions into more recreational boating in July through August, followed by mostly boat angler use again in September and October. There are three permanent public concrete boat ramps and no private boat ramps, but shore launching from private and public land is possible.

If a sample from Grayrocks Reservoir is confirmed as dreissenid mussels, the reservoir will be considered Short-term Suspect. The goal will be to minimize the risk of spreading mussels to other waters while awaiting follow-up sampling results, which should be available within six weeks. The eastern boat ramp will be closed to all watercraft within the first week and watercraft will be funneled to a single inspection and decontamination station near the two western-most boat ramps. A seasonal closure will be implemented from November 1 through March 31 and shore launching by motorized watercraft will be prohibited. Staffing at the check station will be highest from May 15 through August 15, with four inspectors working each day on Thursday-Sunday and three inspectors on Monday-Wednesday. At a minimum, this schedule will require six inspectors working 40-hour weeks. The check station will be open 16 hours a day (5 am-9 pm), seven days a week.

The long-term containment plan will be similar to our initial response (i.e., similar staffing and check station hours), but will require investment in permanent facilities for decontaminations. In addition, a nighttime boating closure and local boater program will be implemented. First year implementation costs for containment would be approximately \$317,000 at Suspect Status, \$358,000 at Positive Status and \$700,000 at Infested Status. After

the initial year, annual operating costs would be approximately \$205,000 at Suspect or Positive status and \$174,000 at Infested Status.

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 Grayrocks Reservoir 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 DREISSENIID 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

Grayrocks Reservoir is located on the Laramie River, 16 miles northeast of Wheatland, Wyoming (Figure 1). The reservoir is approximately seven miles long by one mile wide and covers 3,547 surface acres with a total water capacity of 146,880 acre-feet. Water surface elevation at full pool is 4,404 feet, with 65,000 feet of shoreline. The reservoir has an average depth of 42 feet and a maximum depth of 74 feet. The topography of the Lower Laramie River drainage is a combination of flat floodplains, rolling hills, sharp breaks and cliffs. The dam and reservoir are within a meandering valley of the Laramie River. The main valley has a width of about one mile with steep cliffs on the north shoreline and more gentle sloping lands on the south shoreline.

The Missouri Basin Power Plant Project (MBPPP) is the primary landowner of lands surrounding the reservoir. Basin Electric Power Cooperative (a member of the MBPPP) operates the Laramie River Power Station, a coal-fired power plant which receives cooling water from Grayrocks Reservoir. The total land area owned by the MBPPP is approximately 6,250 acres; 3,550 acres comprise the reservoir and the remaining 2,700 acres surrounding the reservoir. Other parcels of land surrounding the reservoir are owned by the PL Ranch, Laurie Rhoades, and the Bureau of Land Management. Through a Cooperative Agreement between the Wyoming Game and Fish Commission and the MBPPP, MBPPP lands, including the reservoir, are managed for public recreational opportunities and wildlife habitat as a Public Access Area (PAA). Other key stakeholders include Town of Wheatland, Town of Torrington, Platte County, Goshen County, Camp Guernsey Joint Training Center (Wyoming National Guard), Goshen Irrigation District, Fort Laramie National Historic Site, and the Nebraska Game and Parks AIS Program.

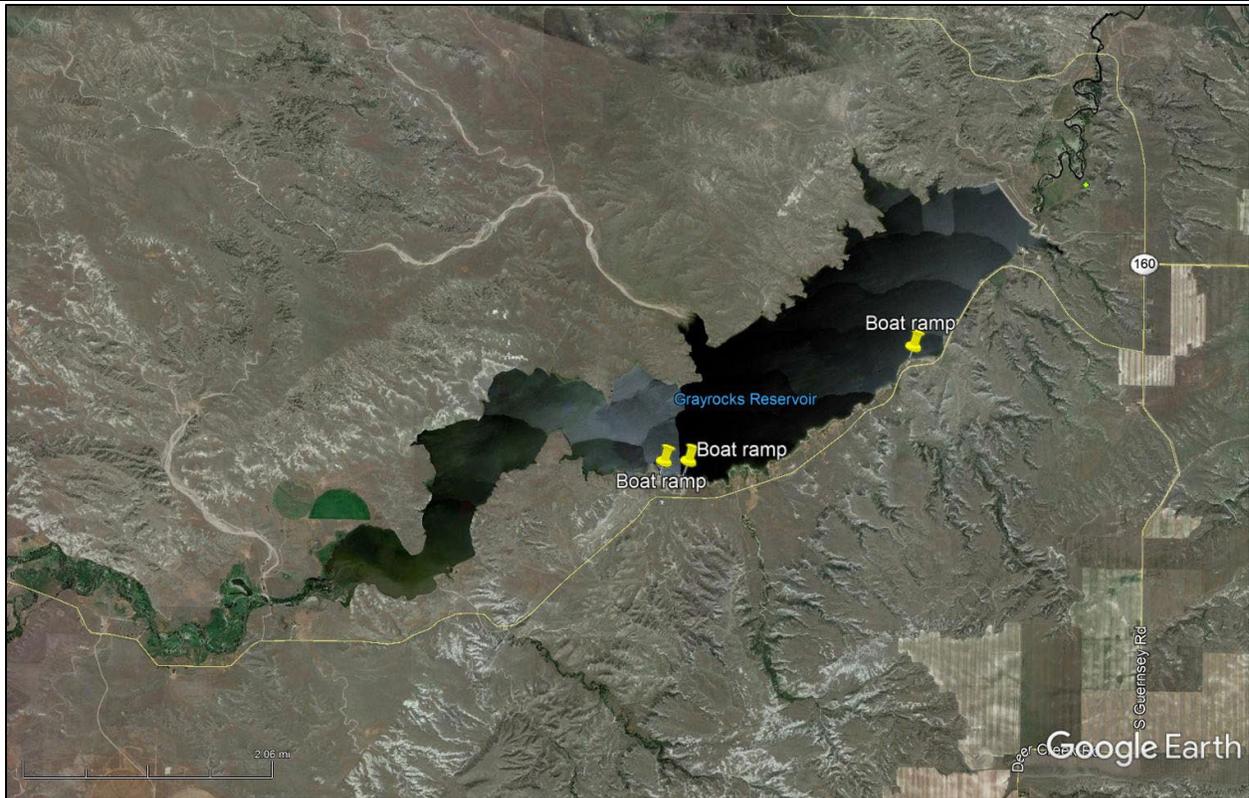


FIGURE 1. Grayrocks Reservoir with boat ramps highlighted with yellow pins.

Access and Boating Season

There are three permanent public concrete boat ramps (Figure 1) and no private permanent boat ramps, but shore launching from private land is possible. Shore launching within the PAA by motorized watercraft is allowed, but is not common because of good access to multiple boat ramps and soft lake substrate. Shore launching by motorized watercraft does increase if the reservoir level drops dramatically. Shore launching by non-motorized watercraft is possible at many access points along the south shoreline. Vehicles can only access the reservoir from two different roads. One access point is north of Wheatland on Wyoming State Highway 320, then turning east onto Grayrocks Road. The other access is from the South Guernsey Road, turning west onto Grayrocks Road. Anglers from Nebraska typically access the reservoir from the South Guernsey Road, whereas anglers from Wyoming and Colorado travel through Wheatland.

Based on 2018 and 2019 AIS inspections of boats bound for Grayrocks Reservoir, boaters were typically from Colorado (45%), Wyoming (36%), or Nebraska (17%). Boaters from other states also visit Grayrocks Reservoir, but in low numbers. Based on data from the 2012 creel survey, the majority of resident anglers are from Platte, Laramie, and Goshen counties (Gale 2012). Grayrocks Reservoir is primarily a destination for angler and recreational boating. Around 95% of the boats inspected in 2018 and 2019 were motorized boats (i.e., outboards, inboard/outboards, inboards, and jet skis).

Based on Laramie Region AIS inspection data from 2016 through 2018, the number of boaters entering inspection stations increases mid-May, peaks the 1st week of July, and steadily

decreases in September. This regional boating use pattern is also seen at Grayrocks Reservoir where the typical boating season starts when anglers begin to fish the reservoir in late April to early May. Boat angler use peaks in June, which also includes several fishing tournaments. Boating use transitions into more recreational boating (i.e. wakeboard and ski boats, jet skis) July through August. Boat anglers return to the reservoir in September with sporadic use through October. A June 2012 creel survey estimated an average of 26 boats per weekend day and 12 boats per week day (Gale 2015). Another creel survey was conducted in June 2018, and the results will be incorporated into this document when the report is finalized.

RAPID RESPONSE – SHORT-TERM SUSPECT STATUS

In the event that a sample from Grayrocks 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. All watercraft leaving Grayrocks Reservoir will receive a red seal and seal receipt to verify the watercraft received an exit inspection. Red seals designate use on a suspect, positive or infested water versus the brown seal currently used after a Wyoming AIS inspection. Quick action will be needed to mobilize the necessary personnel and resources to effectively meet these obligations.

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 should be prepared so personnel can be hired and equipment can be purchased as quickly as possible once follow-up results are available.

Communication Plan

Immediately after Grayrocks Reservoir becomes a “suspect” water, the administrative communication chain will be initiated (see 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. The Regional Fisheries Supervisor will then follow the local and regional communication chain to disseminate information about the detection to internal and external partners and stakeholders (Figure 2). Once the internal communication chain has been completed, the Regional Fisheries Supervisor and biologists will contact the list of key stakeholders listed in Appendix A, particularly Basin Electric Power Cooperative, the towns of Wheatland and Torrington, Platte and Goshen counties, Camp Guernsey Joint Training Center, Goshen Irrigation District, Fort Laramie National Historic Site, and Nebraska Game and Parks.

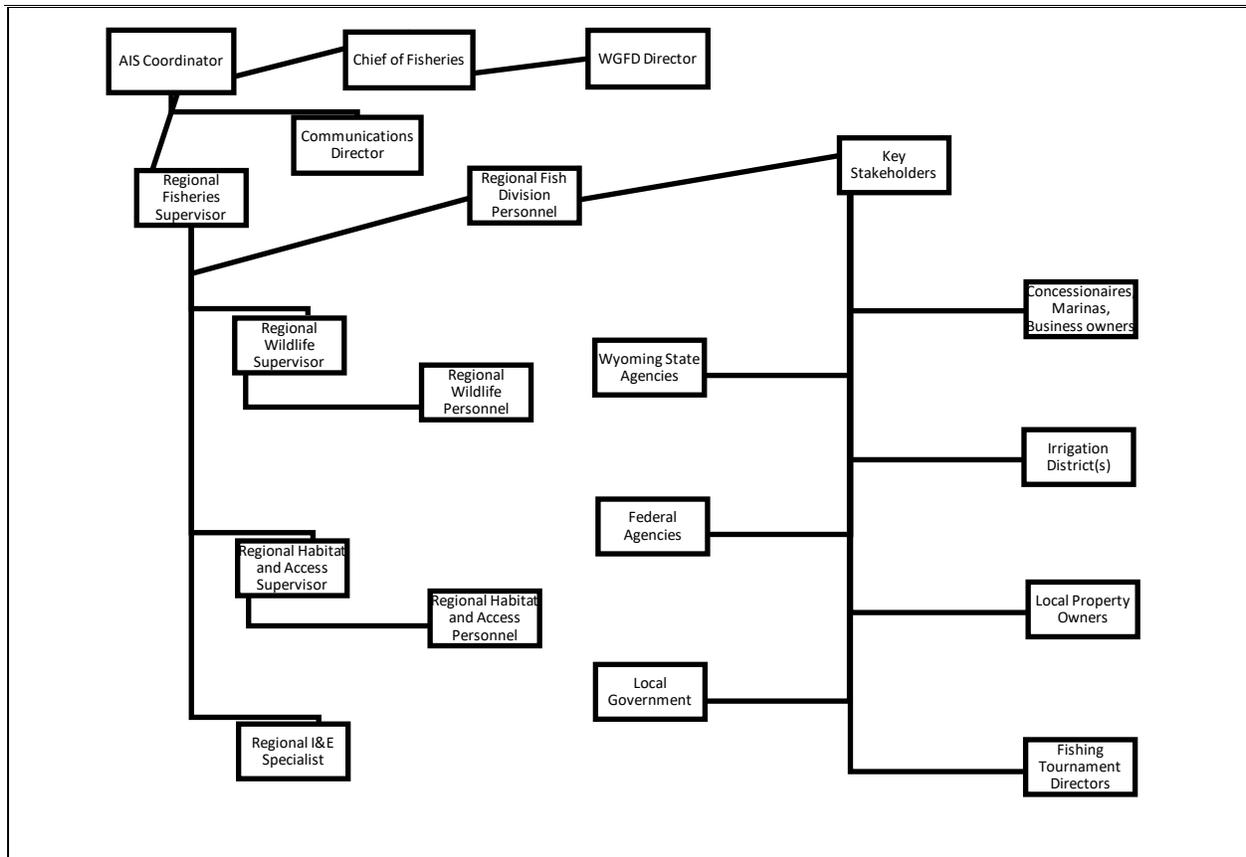


FIGURE 2. Communication chain for dissemination of information on the local and regional level following a dreissenid mussel detection in a Wyoming water.

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 WGFD Laramie Regional employees, partners, and other key stakeholders can be found in Appendix A.

Check Station

Within the first week of Grayrocks Reservoir becoming a “suspect” water, the Laramie Regional Fisheries Supervisor, working with the Laramie Habitat and Access Supervisor and Wheatland Game Warden will close the eastern boat ramp to all watercraft. All watercraft will be funneled to a single inspection and decontamination station set up near the two western-most boat ramps, allowing WGFD personnel to inspect traffic leaving for Nebraska to the east and

Wheatland to the west (Figure 3). This single inspection station would require less effort and resources while increasing success to limit the spread of AIS from Grayrocks Reservoir. A seasonal closure will be implemented from November 1 through March 31. In addition, shore launching by motorized watercraft will be prohibited. Non-motorized watercraft would be permitted to shore launch, but would be required to obtain an exit inspection prior to leaving the reservoir. Additional closures could be considered after discussions among the Laramie Regional Wildlife, Fisheries and Habitat and Access supervisors, and the AIS Coordinator.

Hours of operation for the AIS check station will be 6 am-8 pm from April 1 to May 15, 5 am-9 pm from May 16 to August 15, 6 am-8 pm from August 16 to September 30, and 6 am-7 pm in October. Boaters entering or exiting Grayrocks Reservoir at the western boat ramps will encounter the AIS check station and must stop. Inspections will be based on current WGFD AIS inspection protocols. At the Short-term Suspect Status level, boats exiting Grayrocks Reservoir will be given an AIS exit inspection, ensuring that the boat has been cleaned, drained, and is able to dry. Motor flushes will be conducted if feasible, and all undrainable areas, such as ballast tanks, will be decontaminated.

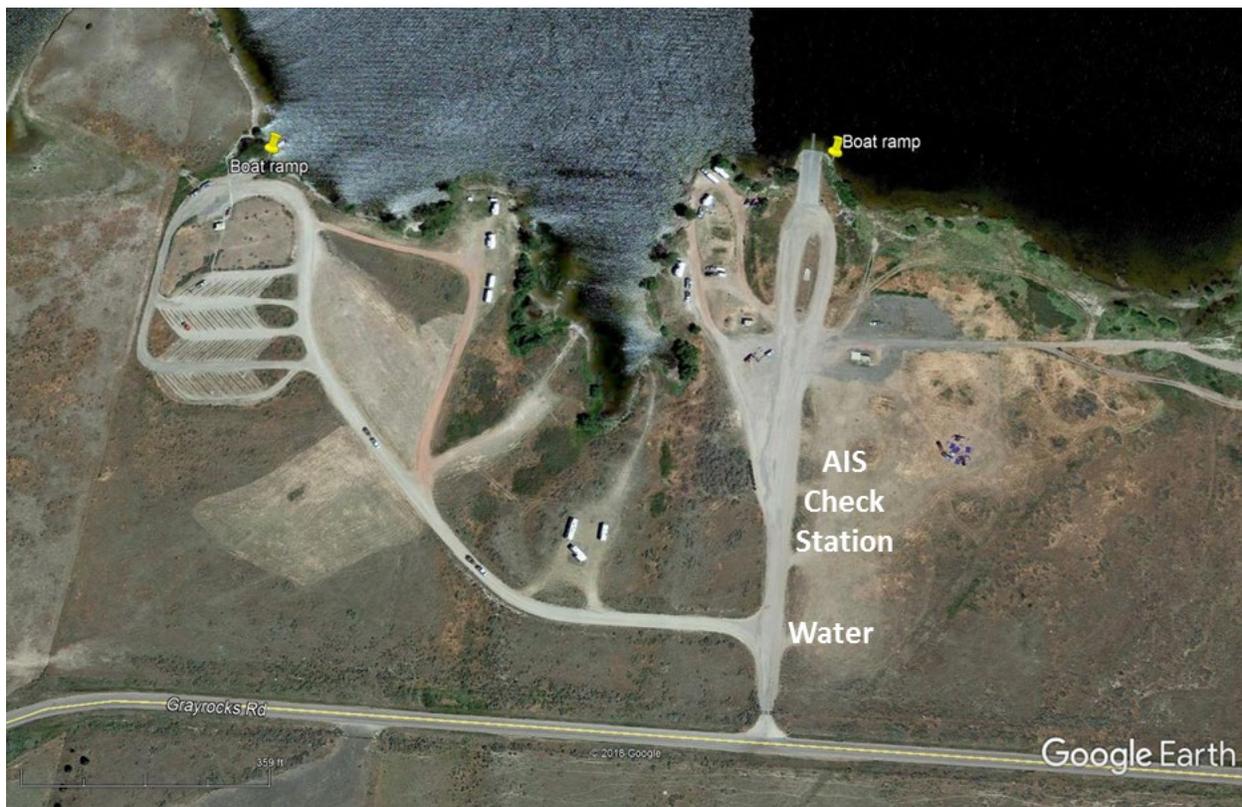


FIGURE 3. Image of the two western boat ramps at Grayrocks Reservoir. Location of AIS check station and freshwater storage tanks shown by bolded white text.

Staffing Plan

Staffing needs will be highest from May 15 through August 15 when the AIS check station will be open 16 hours a day (5 am-9 pm), seven days a week. The AIS check station will be staffed with four inspectors on Thursday-Sunday, and three inspectors on Monday-

Wednesday. Based on a 40-hour work week, at least six inspectors will be needed to maintain this staffing level.

During most non-peak months (April 1-May 15, August 16-September 30), the AIS check station will be open 14 hours a day (6 am-8 pm), seven days a week. In October, the AIS check station will be open 13 hours a day (6 am-7 pm), seven days a week. The AIS check station will be staffed with three inspectors on Thursday-Sunday and two inspectors on Monday-Wednesday. Based on a 40 hour work week, at least four inspectors will be needed to maintain these staffing levels.

There will be a fair amount of overlap on inspector shifts, but not all shifts will have multiple inspectors present (i.e., morning time between 6 am and 9 am in non-peak season and between 5 am and 7 am during peak season, along with evening shifts). The AIS check station would be open from April 1 through October 31, when the reservoir is ice-free.

During the Short-term Suspect Status period, it is recommended that the AIS Specialist be present weekly, spending 40 hours per week overseeing operations. In addition, the AIS check station would be staffed by roving AIS inspectors, Laramie Regional Fish, Wildlife and Services division personnel, and potentially personnel from the Cheyenne Headquarters Office.

Supplies and Equipment

The Laramie AIS Specialist and the Regional Fisheries biologists will transport the Laramie Region AIS camper and two mobile decontamination units to the reservoir. A generator will be borrowed from Fish Division crews in the Laramie Regional Office to power the camper. Additionally, two poly fresh water storage tanks (4,900 gallons each) will be delivered on site to supply water to the decontamination units. These tanks will be rented through Rain for Rent Cheyenne (Bryce Bowman, 970-302-2765), and cost approximately \$35/day for a single tank. The cost for filling a tank is \$770. Other water service contacts include Northern Plains Trucking/A&W Water Services (21,500 gal tanks for \$440 plus a \$15/day rental, \$2,200 one-time fill; Douglas WY, 307-358-5239), Triple J Pumping (Cheyenne WY, 307-632-6476), TDS (Torrington WY, 307-532-3105), and 307 Transport LLC (Douglas WY, 307-331-1754). It is estimated that two 4,900 gallon tanks will last about one week during peak boating season and at least two weeks during non-peak boating season. Water pumps will be borrowed from the Laramie Region Habitat and Access Crew to transfer water from tanks to decontamination units.

In addition to mobilizing the temporary inspection station, the Laramie AIS Specialist will install the appropriate signs at the two open boat ramps, and all access gates to Grayrocks Reservoir. Signage will include information about inspection requirements upon leaving Grayrocks Reservoir. The Laramie AIS Specialist should use dynamic signs, if available, until permanent signs are installed. See Short-term Suspect Status budget in Appendix B for information on costs associated with this six-week period.

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 Laramie Regional I&E Specialist to relay information about Short-term Suspect Status at Grayrocks Reservoir through media outlets (newspapers, radio, etc.). Information should be targeted at the Wyoming communities of Cheyenne, Chugwater, Glendo, Guernsey, Laramie, Torrington, and Wheatland as well as the Colorado communities of Fort Collins and Greeley and Nebraska communities of Gering and Scottsbluff. Regional Information and Education personnel will coordinate all communications efforts with the Communications Director.

All stakeholders should refer interested individuals and groups to the WGFD AIS website for general information on AIS as well as updates regarding the water's status. Information regarding Grayrocks Reservoir will also be distributed to boaters through contact at watercraft inspection locations. Laramie Regional personnel will direct all media requests to the AIS Coordinator or Laramie AIS Specialist for information concerning the status of Grayrocks Reservoir and AIS impacts to boaters and anglers.

RAPID RESPONSE – LONG-TERM SUSPECT STATUS

If initial follow-up sampling does not yield a positive result, Grayrocks Reservoir will enter Long-term Suspect Status and remain at this status for up to three years if no additional positive samples are found during monthly monitoring. Grayrocks Reservoir is a relatively small reservoir where boater use is predictable and boater traffic can be contained to one inspection area. Therefore, inspections and decontaminations can be conducted with minimal staffing at the single inspection area. Because of these simple logistics, the AIS containment response during the Long-term Suspect Status period will not change from year 1 through year 3. The budget will decrease in years two and three, since most equipment was purchased in year one, but staffing needs will not change. Keeping a consistent staffing schedule throughout the Long-term Suspect Status period achieves the goal of minimizing the risk of spreading mussels to other waters. During the Long-term Suspect Status period, the response will provide capacity for all boats coming off Grayrocks Reservoir to efficiently obtain a required clean, drain, dry inspection, motor flush, and decontamination of ballast tanks and other undrainable areas. All watercraft leaving Grayrocks 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. In addition, the Laramie Region will increase public outreach and education via multiple outlets to highlight the potential threat of AIS at Grayrocks Reservoir.

Communication Plan

The administrative communication chain will continue to be utilized to inform all parties of follow-up sampling results and water status (see Administrative Rapid Response Plan; WGFD 2020). In addition, the Laramie Region internal communication chain (Figure 3) will continue to be utilized to inform the Laramie Region of follow-up sampling results. The Regional Fisheries Supervisor and biologists will continue to contact and update key stakeholders listed in Appendix A.

Check Station

During the Long-term Suspect Status period, the eastern-most boat ramp closure and the seasonal (November 1-March 31) boating closure will remain in effect. In addition, shore launching by motorized watercraft will be prohibited. Non-motorized watercraft would be permitted to shore launch, but would be required to obtain an exit inspection prior to leaving the Grayrocks Reservoir PAA.

The inspection and decontamination area near the western boat ramps will allow AIS inspectors to inspect boat traffic entering and leaving the reservoir (Figure 4). Entrance inspections will be given when necessary, but during busy periods, priority will be given to providing required exit inspections. Boats entering the reservoir will be inspected based on current WGFDA AIS inspection protocols. For the Long-term Suspect Status level, boats exiting the reservoir will be given an AIS exit inspection, ensuring that the boat has been cleaned, drained, and is able to dry. Motor flushes will be conducted and all undrainable areas, such as ballast tanks, will be decontaminated.

During the Long-term Suspect Status period, boater data, as it pertains to local use of Grayrocks Reservoir, will be collected. If data points to high use by local boaters, then a local boater program could be implemented during the Positive Status period.



FIGURE 4. Two western-most boat ramps at Grayrocks Reservoir and layout of the AIS check station, decontamination pads, and water storage area during Long-term Suspect Status. White arrows show direction for two decontamination pads and yellow line shows location of a new road.

Staffing Plan

Staffing needs will remain the same as the Short-term Suspect Status staffing plan and check station hours would remain the same as Short-term Suspect Status. Three 7-month and two 3-month technicians will be hired to perform inspections and decontaminations. In addition, a 9-month contract Biologist I will be hired to supervise technicians and oversee check station operations under two different scenarios. Scenario 1 is if the first detection occurs during annual July or September AIS monitoring surveys. Under this scenario the Laramie AIS Specialist will staff and supervise the Grayrocks AIS check station for the remainder of the boating season (through October 31) and then be replaced by the Biologist I the following spring (March 1). Scenario 2 is if the first detection is in the early spring/summer period (before July 1). Under this scenario, the Laramie AIS Specialist will staff and supervise the Grayrocks AIS check station until a Biologist I is hired. In both scenarios, Laramie Fish Management personnel will assume the day-to-day Laramie AIS Specialist duties while the Specialist assumes Rapid Response and containment duties at the Grayrocks AIS check station. The Biologist I and technicians hired for the Grayrocks AIS check station will be stationed in Wheatland and will need to find housing and their own transportation to and from the AIS check station. Costs associated with staffing the check station during Long-term Suspect Status can be found in Appendix B.

Supplies and Equipment

The Laramie Regional Supervisor and Laramie AIS Specialist will work with the Laramie Habitat and Access Supervisor and Yoder Habitat and Access Biologist to improve the lands encompassing the AIS check station for future inspections and decontaminations (Figure 4). Ideally, this process will be started during the Short-term Suspect Status period. A new road will be built to ease traffic flow and improve safety in and out of the inspection and decontamination area. Road base and gravel will be needed to cover the area surrounding the AIS check station and decontamination areas, while two concrete pads (25 x 25 feet) will be poured where actual decontaminations will be conducted (Figure 4). In addition, a mobile office will be needed to house Department personnel conducting inspections and decontaminations at Grayrocks Reservoir. A 5000 watt generator will be purchased to power the mobile office. Three decontamination units will be purchased and a ½ ton pickup will be leased from State Motor Pool to pull them and perform other AIS check station functions.

The Laramie AIS Specialist will replace any temporary signs with newly purchased permanent signs (e.g., Boat Ramp Closed, Exit Inspection Required, Motorized Shore Launching Prohibited, Non-motorized Watercraft Need Exit Inspection, etc.) and dynamic signs will be purchased and used to inform boat traffic on Grayrocks Road of the inspection requirements before they arrive at the western boat ramps.

Supply and equipment costs associated with the Long-term Suspect Status response can be found in Appendix B.

Public Outreach

Refer to the Administrative Rapid Response Plan (WGFD 2020) for draft press releases and the general public outreach plan while Grayrocks Reservoir is in Long-term Suspect Status. The AIS Coordinator, Laramie AIS Specialist, and Laramie Regional Information &

Education Specialist should consult the Short-term Suspect Status “Public Outreach” section of this plan to update the appropriate communities and stakeholders with information regarding Grayrocks Reservoir’s status. Laramie Regional personnel will be instructed to continue to direct all media requests to the AIS Coordinator or Laramie AIS Specialist for information concerning the status of Grayrocks Reservoir and AIS impacts to boaters and anglers.

RAPID RESPONSE – POSITIVE STATUS

Grayrocks 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). Grayrocks Reservoir would remain in Positive Status for up to five years if no additional positive samples are found during monthly monitoring. As previously mentioned, Grayrocks Reservoir is a relatively small reservoir where boater use is predictable and boater traffic can be contained to one inspection area. Therefore, inspections and decontaminations can be conducted with minimal staffing at the single inspection area. Because of these simple logistics, the AIS containment response during Positive Status will be similar to Long-term Suspect Status. The budget will change as more permanent facilities will need to be constructed, but staffing needs will not change.

The goal during the Positive Status period 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 Grayrocks Reservoir’s status to Infested. All watercraft leaving Grayrocks 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. In addition, the Laramie Region will continue public outreach and education via multiple outlets to highlight the AIS threat at Grayrocks Reservoir.

Communication Plan

The administrative communication chain will continue to be utilized to inform all parties on follow-up sampling results and water status (see Administrative Rapid Response Plan; WGFD 2020). In addition, the Laramie Region internal communication chain (Figure 3) will continue to be used to inform the Laramie Region of follow-up sampling results. The Regional Fisheries Supervisor and biologists will continue to contact and update key stakeholders listed in Appendix A.

Check Station

During the Positive Status period, the eastern-most boat ramp closure and the seasonal (November 1-March 31) boating closure will remain in effect. In addition, shore launching by motorized watercraft will continue to be prohibited. All watercraft would be required to be off the reservoir to receive an exit inspection and decontamination by the established AIS check station closing time. Boats could be left on the water overnight, but could not be trailered and inspected until the decontamination station opens the following morning. All motorized and non-motorized watercraft must receive an exit inspection and decontamination before leaving the

Grayrocks PAA. Refer to the “Check Station” subheading in the Long-term Suspect Status for more information on how inspections and decontaminations will be conducted during Positive Status.

Local Boater Program

Consider implementation of a local boater program if local boater use is high enough to warrant it. A local boater program would ease the inspection process for boat owners and decrease the volume of boats that need inspections and decontaminations at the Grayrocks Reservoir check station. See the Administrative Rapid Response Plan (WGFD 2020) for more details about a local boater program.

Staffing Plan

Staffing needs will remain the same as the Long-term Suspect Status staffing plan and AIS check station hours would remain the same as the Short-term Suspect Status. Three 7-month term and two 3-month term technicians will be hired to perform inspections and decontaminations. In addition, a 9-month contract Biologist I will be hired to oversee check station operations and supervision of inspectors. The Biologist I and technicians hired for the Grayrocks AIS check station will be stationed in Wheatland and will need to find housing and their own transportation to and from the AIS check station. Costs associated with staffing the check station during Positive Status can be found in Appendix B.

Supplies and Equipment

Supply and equipment costs associated with the Positive Status response can be found in Appendix B. If Grayrocks Reservoir quickly enters Positive Status, the improvements initiated in Short-term and Long-term Suspect Status will need to be completed. This includes gravel road base, two 25 x 25 foot concrete decontamination pads and a freshwater well drilled near the check station to replace the freshwater storage tanks budgeted for in Long-term Suspect Status. During the Positive Status period, the commitment to containing the AIS threat at Grayrocks Reservoir is long-term (5 years or more). The installation of electrical power at the check station would be necessary to meet this long-term commitment. In order to run power to the check station, approximately 8-12 power poles would be needed to transmit power to the AIS check station. Electrical cost included in the budget table is an estimation based on prices for a similar project at Meeboer Lake.

The Laramie AIS Specialist will replace any temporary signs with newly purchased permanent signs (e.g., Boat Ramp Closed, Exit Inspection Required, Shore Launching Prohibited, Night Closures in effect, etc.). Dynamic signs, if not already purchased, will be purchased and used to inform boat traffic on Grayrocks Road of the inspection requirements before they arrive at the western boat ramps.

Public Outreach

Refer to the Administrative Rapid Response Plan (WGFD 2020) for draft press releases and the general public outreach plan while Grayrocks Reservoir is in Positive Status. The AIS Coordinator, Laramie AIS Specialist, and Laramie Regional Information & Education Specialist

should consult the Short-term Suspect Status “Public Outreach” section of this plan to update the appropriate communities and stakeholders with information regarding Grayrocks Reservoir’s status. Laramie Regional personnel will be instructed to continue to direct all media requests to the AIS Coordinator or Laramie AIS Specialist for information concerning the status of Grayrocks Reservoir and AIS impacts to boaters and anglers.

RAPID RESPONSE – INFESTED STATUS

Grayrocks Reservoir will be considered Infested if an established (recruiting and reproducing) population of adult dreissenid mussels is found. 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 Grayrocks 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 at all Wyoming check stations.

The elimination of adult dreissenid mussels in a waterbody the size of Grayrocks Reservoir is not economically feasible. Therefore, once infested with adult dreissenid mussels, it would likely remain at Infested Status. Grayrocks Reservoir could enter Infested Status at any point before or during other status levels, which means previous portions of this plan would need to be implemented if the reservoir quickly enters Infested Status. The AIS containment response during Infested Status period will be similar to Positive Status. The budget will change as more personnel and technical equipment will be needed. The Laramie Region would fully engage in a public outreach and education campaign via multiple outlets to highlight the AIS threat at Grayrocks Reservoir.

Communication Plan

The administrative communication chain will be utilized to inform all parties on Infested Status and follow-up sampling results (see Administrative Rapid Response Plan; WGFD 2020). In addition, the Laramie Region internal communication chain (Figure 3) will be utilized to inform the Laramie Region of the infestation and follow-up sampling results. The Regional Fisheries Supervisor and biologists will continue to contact and update key stakeholders listed in Appendix A.

Check Station

If the status level of Grayrocks Reservoir is raised quickly to Infested, therefore bypassing other status levels, it is recommended boating be prohibited until resources can be put in place for full containment. The closure could be two weeks during the peak boating season, while previous portions of this plan are implemented. If an established population of adult dreissenid mussels are found in August or later the recommendation is to prohibit boating until next boating season (April 1) when full containment operations can begin. Once infested, the eastern-most boat ramp will be permanently closed and a seasonal (November 1-March 31) boating closure will be implemented. In addition, shore launching by motorized watercraft will be prohibited.

All watercraft would be required to be off the reservoir to receive an exit inspection and decontamination by check station closing time. Boats could be left on the water overnight, but could not be trailered and inspected until the decontamination station opens the following morning. All motorized and non-motorized watercraft must receive an exit inspection and decontamination before leaving the Grayrocks PAA. Refer to the “Check Station” subheading in the Long-term Suspect Status for more information on how inspections and decontaminations will be conducted during the Infested Status.

Local Boater Program

A local boater program will be implemented within one month of the reservoir entering Infested Status. A local boater program would ease the inspection and decontamination process for boat owners and decrease the volume of boats that need inspections and decontaminations at the Grayrocks Reservoir check station. See the Administrative Rapid Response Plan (WGFD 2020) for more details about a local boater program.

Staffing Plan

During Infested Status, staffing needs will increase during the peak boating season (May 15 – Aug 15). Three 7-month and six 3-month technicians will be hired to perform inspections and decontaminations. In addition, a 9-month contract Biologist I will be hired to supervise technicians and oversee check station operations under two different scenarios. The first scenario would entail the first detection occurring during annual July or September AIS monitoring surveys. Under this scenario, the Laramie AIS Specialist will staff and supervise the Grayrocks check station for the remainder of the boating season (through October 31) and then be replaced by the Biologist I the following spring (March 1). Scenario 2 is if the first detection of adult dreissenid mussels is in the early spring/summer period (before July 1). Under this scenario, the Laramie AIS Specialist will staff and supervise the Grayrocks check station until a Biologist I is hired. In both scenarios, Laramie Fish Management personnel will assume the day-to-day Laramie AIS Specialist duties while the Specialist assumes Rapid Response and containment duties at the Grayrocks check station. The Biologist I and technicians hired for the Grayrocks check station will be stationed in Wheatland and will need to find housing and their own transportation to and from the check station. Costs associated with staffing the check station during Infested Status can be found in Appendix B.

Supplies and Equipment

Supply and equipment costs associated with the Infested Status response can be found in Appendix B. If Grayrocks Reservoir quickly enters Infested Status, improvements mentioned in the previous status levels of this plan will need to be completed. Some of these improvements include gravel road base, two 25 x 25 foot concrete decontamination pads, electricity installation, and a freshwater well drilled near the check station. Because we will be conducting full decontaminations of all watercraft at Infested Status, a self-contained decontamination unit will be purchased to speed the rate of decontaminations.

In addition, the Laramie AIS Specialist will need to place temporary signs and order permanent signs (e.g., Boat Ramp Closed, Exit Inspection Required, Shore Launching Prohibited, Night Closures in effect, etc.) and dynamic signs, if not already purchased. Signage

will be used to inform boat traffic on Grayrocks Road of the inspection and decontamination requirements before they arrive at the western boat ramps.

Public Outreach

Refer to the Administrative Rapid Response Plan (WGFD 2020) for draft press releases and the general public outreach plan when Grayrocks Reservoir enters Infested Status. The AIS Coordinator, Laramie AIS Specialist, and Laramie Regional Information & Education Specialist should follow the Short-term Suspect Status “Public Outreach” section of this plan to update the appropriate communities and stakeholders with information regarding Grayrocks Reservoir’s status. Laramie Regional personnel will be instructed to direct all media requests to the AIS Coordinator or Laramie AIS Specialist for information concerning the AIS threat at Grayrocks Reservoir and impacts to boaters and anglers.

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: KEY CONTACTS

		Phone	Email
<u>Wyoming Game & Fish Department</u>			
	AIS Coordinator		
	Laramie Region Fisheries Supervisor		
	Laramie Region Wildlife Supervisor		
	Laramie Region AIS Specialist		
	Laramie Region Fisheries Biologist		
	Laramie Region Fisheries Biologist		
	Wheatland Game Warden Coord.		
	Laramie Region I&E Specialist		
<u>Basin Electric Power Cooperative</u>			
<u>Nebraska Game and Parks</u>			
	Invasive Species Program Coord.		
<u>Town of Wheatland</u>			
	City Hall		
<u>City of Torrington</u>			
	Mayor		
<u>Platte County</u>			
	City Clerk		
<u>Goshen County</u>			
	Goshen County Commission Chair.		
<u>Goshen Irrigation District</u>			
	Manager		
<u>Wyoming National Guard-Camp Guernsey</u>			
	Natural Resources Manager		
<u>Fort Laramie National Historic Site</u>			
	Superintendent		
<u>Fishing Tournaments</u>			
	Basin Electric Fishing Tournament		
	Medoza Tucker Fishing Tournament		
	Moose Lodge Fishing Contest		

APPENDIX B: ANNUAL BUDGETS ASSOCIATED WITH EACH STATUS LEVEL**SHORT-TERM SUSPECT STATUS**

Supplies	Description			Total Cost
	Water Pump (borrow WGFD)	2	\$0	\$0
	Subtotal			\$0
Utilities	Description			Total Cost
	Water tank rent (2 tanks; per month)	2	\$1,960	\$3,920
	Water (filled weekly)	8	\$767	\$6,138
	Generator (borrow WGFD)	1	\$0	\$0
	Generator gas (monthly cost)	2	\$22	\$44
	Outreach for newspaper or radio	5	\$1,000	\$5,000
	Traffic control equipment	10	\$100	\$1,000
	Hand-held radio (borrow WGFD)	1	\$0	\$0
	Subtotal			\$16,102
	Total			\$16,102

LONG-TERM SUSPECT STATUS**Year 1**

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I, March - November	9	\$4,543	\$40,887
	Technician 1, April - October	7	\$2,863	\$20,041
	Technician 2, April - October	7	\$2,863	\$20,041
	Technician 3, April - October	7	\$2,863	\$20,041
	Technician 4, May 15 - August 15	3	\$2,863	\$8,589
	Technician 5, May 15 - August 15	3	\$2,863	\$8,589
	Subtotal			\$118,188
Vehicle	Description	# of Months	Cost/Month	Total Cost
	State Motor Pool 1/2 Ton Truck	9	\$960	\$8,640
	Subtotal			\$8,640
Supplies	Description			Total Cost
	Decon Unit	3	\$12,500	\$37,500
	Dynamic sign	2	\$17,000	\$34,000
	Regulation/informational signs	15	\$200	\$3,000
	Cell booster and WiFi hotspot	1	\$750	\$750
	Office Trailer	1	\$20,000	\$20,000
	Water Pump	2	\$500	\$1,000
	Subtotal			\$96,250
Utilities	Description			Total Cost
	Water tank rental (2 tanks)	7	\$1,960	\$13,720
	Water (Filled weekly)	7	\$6,160	\$43,120
	Generator	1	\$1,000	\$1,000
	Generator Gas	1	\$1,000	\$1,000
	Road base for decon lanes	1	\$10,000	\$10,000
	Concrete decontamination pads	2	\$10,000	\$20,000
	Drainage materials for waste water	1	\$5,000	\$5,000
	Subtotal			\$93,840
	Total			\$316,918

Years 2 and 3

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I, March - November	9	\$4,543	\$40,887
	Technician 1, April - October	7	\$2,863	\$20,041
	Technician 2, April - October	7	\$2,863	\$20,041
	Technician 3, April - October	7	\$2,863	\$20,041
	Technician 4, May 15 - August 15	3	\$2,863	\$8,589
	Technician 5, May 15 - August 15	3	\$2,863	\$8,589
	Subtotal			\$118,188
Vehicle	Description	# of Months	Cost/Month	Total Cost
	State Motor Pool 1/2 Ton Truck	9	\$960	\$8,640
	Subtotal			\$8,640
Utilities	Description			Total Cost
	Water tank rental (2 tanks)	7	\$1,960	\$13,720
	Water (filled weekly)	7	\$6,160	\$43,120
	Generator Gas	1	\$1,000	\$1,000
	Drill well for freshwater	1	\$20,000	\$20,000
	Subtotal			\$77,840
	Total			\$204,668

POSITIVE STATUS

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I, March - November	9	\$4,543	\$40,887
	Technicians 1-3, April - October	21	\$2,863	\$60,123
	Technicians 4-5, May 15 - August 15	6	\$2,863	\$17,178
	Subtotal			\$118,188
Vehicle	Description	# of Months	Cost/Month	Total Cost
	State Motor Pool 1/2 Ton Truck	9	\$960	\$8,640
	Subtotal			\$8,640
Supplies	Description			Total Cost
	Decon unit ^a	3	\$12,500	\$37,500
	Dynamic sign ^a	2	\$17,000	\$34,000
	Regulation/informational signs ^a	15	\$200	\$3,000
	Cell booster and WiFi hotspot ^a	1	\$750	\$750
	Office trailer ^a	1	\$20,000	\$20,000
	Water pump ^a	2	\$500	\$1,000
	Traffic control equipment ^a	10	\$100	\$1,000
	Outreach for newspaper/radio	5	\$1,000	\$5,000
	WGFD handheld radio (borrow)	1	\$0	\$0
	Subtotal			\$102,250
Utilities	Description			Total Cost
	Electricity installation	1	\$15,000	\$15,000
	Water tank rental (2 tanks)	7	\$1,960	\$13,720
	Water (filled weekly)	7	\$6,160	\$43,120
	Generator ^a	1	\$1,000	\$1,000
	Generator gas	1	\$1,000	\$1,000
	Road base for decon lanes ^a	1	\$10,000	\$10,000
	Concrete decon pads ^a	2	\$10,000	\$20,000
	Drainage materials for waste water ^a	1	\$5,000	\$5,000
	Drill freshwater well ^a	1	\$20,000	\$20,000
	Subtotal			\$128,840
	Total			\$357,918

^a Not necessary to purchase if transitioning from Long-term Suspect Status.

INFESTED STATUS

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I, March - November	9	\$4,543	\$40,887
	Technicians 1-3, April - October	21	\$2,863	\$60,123
	Technicians 4-9, May 15 - August 15	18	\$2,863	\$51,534
	Subtotal			\$152,544
Vehicle	Description	# of Months	Cost/Month	Total Cost
	State Motor Pool 1/2 Ton Truck	9	\$960	\$8,640
	Subtotal			\$8,640
Supplies	Description	Number	Cost (each)	Total Cost
	Self-contained decontamination unit	1	\$300,000	\$300,000
	Decon unit ^a	3	\$12,500	\$37,500
	Dynamic sign ^a	2	\$17,000	\$34,000
	Regulation and informational signs ^a	15	\$200	\$3,000
	Cell booster and wifi hotspot ^a	1	\$750	\$750
	Office trailer ^a	1	\$20,000	\$20,000
	Water pump ^a	2	\$500	\$1,000
	Traffic control equipment ^a	10	\$100	\$1,000
	Outreach for newspaper or radio	5	\$1,000	\$5,000
	WGFD hand-held radio (borrow WGFD)	1	\$0	\$0
	Subtotal			\$402,250
Utilities	Description	Number	Cost (each)	Total Cost
	Water tank rental (per month)	7	\$1,960	\$13,720
	Water (filled weekly; per month)	7	\$6,160	\$43,120
	Generator ^a	1	\$1,000	\$1,000
	Generator gas (per month)	7	\$150	\$1,050
	Road base for decon lanes ^a	1	\$10,000	\$10,000
	Concrete decon pads (25'x25') ^a	2	\$10,000	\$20,000
	Electrical service installation ^a	1	\$15,000	\$15,000
	Electric bill (per month)	7	\$1,000	\$7,000
	Drainage materials for waste water ^a	1	\$5,000	\$5,000
	Drill freshwater well ^a	1	\$20,000	\$20,000
	Subtotal			\$135,890
	Total			\$699,324

^a Not necessary to purchase if transitioning from Long-term Suspect or Positive status.