

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

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SUMMARY

Pilot Butte Reservoir is 2.3 miles long and 921 surface acres with a maximum volume of 36,900 acre-feet. Maximum depth is 75 feet and water surface elevation is 5,500 feet at full pool. The reservoir is located approximately 25 miles west of Riverton and stores water for the Midvale Irrigation District. It is surrounded by Bureau of Reclamation property and private lands. The Wyoming Game and Fish Department manages the fishery and water is managed by the Bureau of Reclamation, Wyoming Area Office. Water supply is provided by the Wyoming Canal and the reservoir is subject to drastic seasonal fluctuations.

The typical boating season is primarily angler use from April to October. There is only one public access area on the north side of the reservoir with one boat ramp and parking area. No shore launching is known to occur. General boating numbers are difficult to estimate because there is no current program creel survey data and only three AIS inspections have occurred since 2018. However, boating use is generally low throughout the season and the vast majority of boats are resident motorized watercraft with outboard motors.

In the event that a sample from Pilot Butte Reservoir is confirmed positive for dreissenid mussels, the water will be considered Short-term Suspect Status for six weeks while follow-up sampling occurs. During that time, it will be necessary to minimize the risk of spreading mussels to other waters and resources will be put in place to perform exit inspections of all boats leaving the reservoir. One exit check station will be established at the boat ramp access parking area and will be staffed daily with 1-2 inspectors from 8:00 AM to sunset.

If initial follow-up sampling does not yield a positive result, Pilot Butte would enter Long-term Suspect Status for up to three years. The reservoir will be considered Positive Status for dreissenid mussels if two or more sampling events meet the minimum criteria for detection. Infested Status would occur if an established reproducing mussel population is detected. Containment plans are similar for each status level.

Pilot Butte Reservoir is unique because it doesn't have a peak boating season. It is not a recreational destination and angler use is fairly consistent during the open water period. The inspection check station should be operated daily between April and October during Long-term Suspect and Positive status periods. Inspection station hours of operation will be from 8:00 AM until sunset, requiring 1-2 inspectors each day. Two inspection technicians will be hired in addition to a Biologist I to coordinate program efforts, assist with boat inspections, and supervise the technicians.

Initial supply and equipment needs will be substantial and infrastructure improvements are required at the check station to construct an asphalt inspection pullout area. Major equipment purchases include one 3/4 ton truck, two mobile decontamination units, a camper and an office trailer. Additional equipment needs are generators, water tanks, utility trailers, water pumps,

inspection/closure signs, camp groceries and miscellaneous supplies. Supply and equipment needs in subsequent years will likely be considerably lower since most major purchases are planned for the first year.

Anticipated overall costs vary based on status level and year of program implementation. First year expenses for Long-term Suspect and Positive status are approximately \$223,000. Annual operating costs will be reduced to around \$96,000 to \$98,000 after the first year once major equipment and infrastructure needs are addressed. The budget for year 1 of Infested Status significantly decreases to only \$19,000 for closure signs and a boat ramp barricade including a locking gate, assuming a permanent boat access closure is implemented.

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 Pilot Butte and are verified by independent experts and genetic analysis. At that point, the reservoir 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

Pilot Butte Reservoir is located in central Wyoming approximately 25 miles west of Riverton on the Wind River Reservation. The reservoir lies directly north of U.S. Highway 26 within the Midvale Irrigation District. It is surrounded by Bureau of Reclamation property and private lands. The Wyoming Game and Fish Department manages the fishery and the water is owned and managed by the Bureau of Reclamation, Wyoming Area Office. Water supply is provided by the Wyoming Canal and the reservoir is subject to drastic fluctuations.

Key stakeholders are the Bureau of Reclamation and Midvale Irrigation District. Additional key stakeholders are the City of Riverton and the towns of Pavillion and Kinnear, as well as downstream agriculture water users in the Wind River Basin. The main non-boating use of the reservoir is irrigation water storage. Camping and shoreline recreation are not common.

Pilot Butte Reservoir is 2.3 miles long and 0.7 miles wide at full pool. The reservoir has approximately 6 miles of shoreline and spans 921 acres with a maximum volume of 36,900 acre-feet. Maximum depth is 75 feet at the dam while average depth is approximately 21 feet. Water surface elevation is 5,500 feet at full pool. The surrounding landscape is primarily upland sagebrush, rock outcrops, and irrigated crops.

The typical boating season is from early April to early October, depending on weather. General boating numbers are difficult to estimate because there is no current program creel survey data and only three AIS inspections have occurred since 2018. However, boating use is generally low throughout the season. Shoreline access is limited to the northern side of the reservoir. There is one boat ramp and comfort station. No shore launching is known to occur. There is only one public entrance via West Pavillion and Pilot Butte roads on the east and north sides of the reservoir. The vast majority of boaters are residents and motorized watercraft with outboard motors are most common.

RAPID RESPONSE – SHORT-TERM SUSPECT STATUS

In the event that a sample from Pilot Butte 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 Pilot Butte 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, the WGFD AIS Coordinator will begin the administrative communication chain outlined in the WGFD 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 Lander Regional Fisheries Supervisor will begin the regional communication chain to disseminate information about the detection to internal and external partners and stakeholders (Figure 1). 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 Riverton and Lander Game Wardens as well as local Wildlife and Terrestrial Habitat biologists. The Regional Habitat and Access Supervisor will contact appropriate Habitat and Access biologists.

The Lander Regional Fisheries Supervisor or biologists will also contact key stakeholders, including the Wind River Inter-tribal Counsel, U.S Fish and Wildlife Service, Bureau of Reclamation, Midvale Irrigation District, and officials with the communities of Riverton, Pavillion and Kinnear. They will also contact the local businesses of Rocky Mountain Discount Sports and Kinnear General Store. 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.

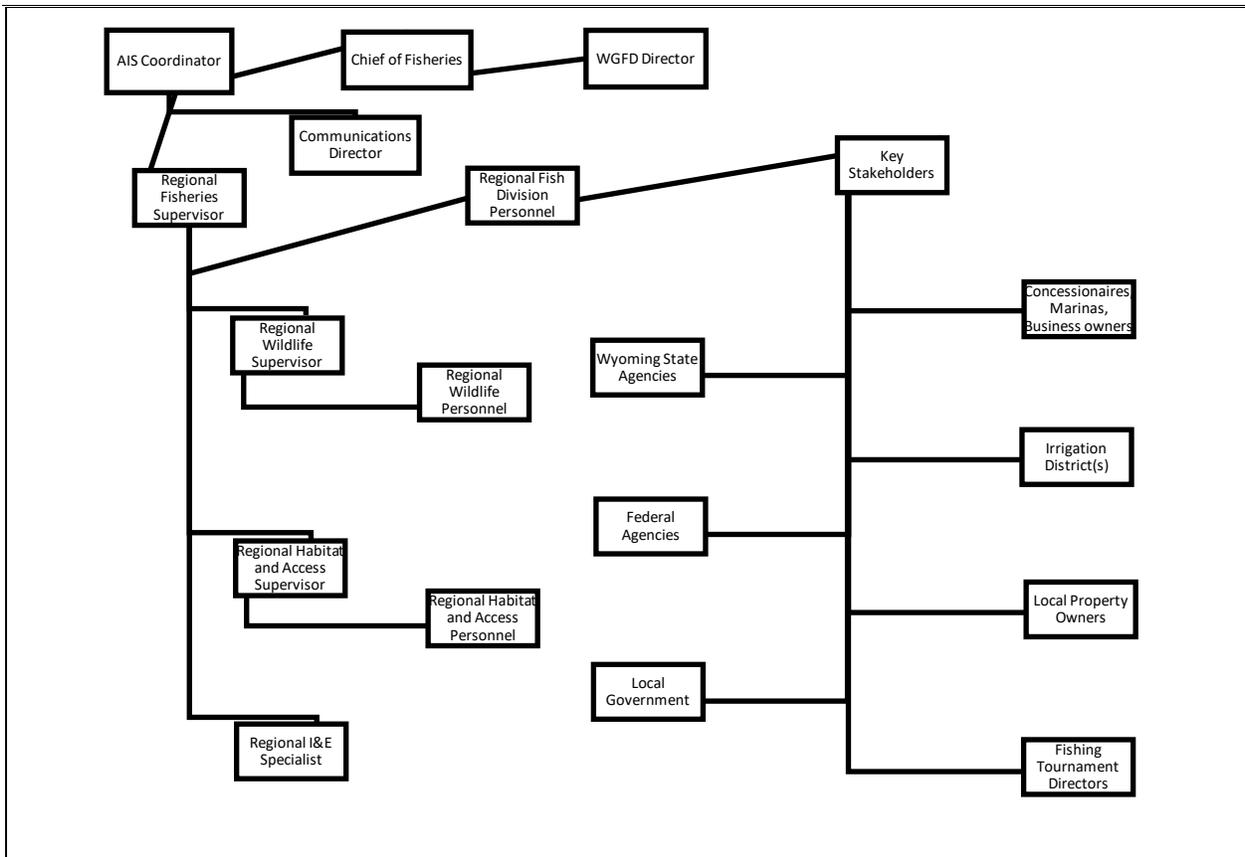


FIGURE 1. Communication chain for dissemination of information on the local and regional level following a dreissenid mussel detection in a Wyoming water.

Closures

Closures will not be necessary since there is only one public access road and boat ramp at the reservoir. Neither shore launching or night use are significant concerns.

Check Stations

One exit inspection check station will be operated in the dirt parking lot north of the boat ramp (Figure 2). This location will intercept all boats leaving the water and will not require any significant improvements. Boat volume will likely be quite low and will require only minimal staffing with one person on site. The inspection check station should be operated 7 days a week during the 6 week Short-term Suspect Status period. Hours of operation will be between 8:00 AM and sunset.



FIGURE 2. The boat ramp and AIS exit inspection location at Pilot Butte Reservoir.

Staffing Plan

Staffing needs will be minimal during the 6 week Short-term Suspect Status period. Lander regional personnel, perhaps with assistance from roving AIS technicians, will be used to staff the exit inspection station. One inspector will need to be present from 8:00 AM until sunset. This will require 1-2 inspectors each day and approximately 4 inspectors per week.

Supplies and Equipment

During the 6 week Short-term Suspect Status period, equipment will need to be borrowed rather than purchased. Two mobile decontamination unit should be sufficient to cover this inspection location. The Lander Region currently has one decontamination unit, but it is not a mobile unit so it will either need to be mounted on a pickup or trailer with an associated water tank. Ideally, two mobile decontamination units would be rented or borrowed from other regions. An existing Department $\frac{3}{4}$ ton pickup will be used to haul water in a 350 gallon tank

and a pump will be needed to transfer water from the tank to the decontamination unit. Both pieces of equipment can likely be borrowed from the Regional Habitat and Access Crew during the 6 week period. Three large boat inspection signs will also need to be borrowed to post along the access roads and in the parking lot at the inspection site. A borrowed camper trailer and generator will be placed at the check station to provide a space for inspectors to work and seek shelter during inclement weather. Camp groceries will also be provided during Short-term Suspect Status.

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 Lander Regional I&E Specialist to relay information about Short-term Suspect Status at Pilot Butte Reservoir through media outlets (newspapers, radio, etc.) and a public meeting will be held in Riverton. Regional Information and Education personnel will coordinate all communications efforts with the Communications Director.

RAPID RESPONSE – LONG-TERM SUSPECT STATUS

If initial follow-up sampling does not yield a positive result, Pilot Butte 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 Pilot Butte 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 Lander Region internal communication chain outlined in the Short-term Suspect Status section will continue to be utilized to inform the Lander Region and key stakeholders (Appendix A) of follow-up sampling results.

Closures

As stated in the Short-term Suspect Status section, closures will not be necessary since there is only one public access road and boat ramp at the reservoir. Neither shore launching nor night use are significant concerns.

Check Station

The Long-term Suspect Status inspection site will be located at the same site described in the Short-term Suspect Status section and will be operated all 3 years during this period. This is the only boat ramp and public access road at Pilot Butte Reservoir. The check station should be operated daily between April and October. Inspection station hours of operation will likely be from 8:00 AM until sunset. Hours of operation may be reduced in years 2 and 3.

Local Boater Program

Pilot Butte Reservoir is a perfect water to implement a local boater program. Boating use is low and almost all watercraft are local resident boats. A local boater program should be implemented to provide an ability to expedite inspections for boats that only use Pilot Butte Reservoir. Details and implementation plan for local boater programs can be found in the Administrative Rapid Response Plan (WGFD 2020).

Staffing Plan

Similar to Ocean Lake, Pilot Butte Reservoir is unique because it doesn't have a peak boating season. It is not a recreational destination and angler use is consistently low during the open water period with only a couple boats most days. During the boating season (April - October), the inspection station will need to be staffed from 8:00 AM to sunset in year 1. One or two inspectors will need to be present each day, requiring 3 inspectors per week. A Biologist I will be hired from March - November to coordinate the efforts and supervise 2 inspection technicians. Inspector staffing in years 2 and 3 of Long-term Suspect Status will likely remain the same. Check station hours may be reduced, but the same number of personnel will still be necessary for staffing. See Appendix B for personnel budget information.

Supplies and Equipment

Supply and equipment needs in year 1 include infrastructure improvements at the check station (e.g., paving, gravel), and the purchase of major items such as decontamination units, campers, and office trailers. Supply and equipment needs in years 2 and 3 will likely be considerably lower than year 1 since many major purchases were made in the first year.

Two mobile decontamination units (primary and backup) will need to be purchased to conduct decontaminations. The Lander Region's current decontamination unit will be housed at the Lander Regional Office and will be used as a backup if necessary. Water is not available at the inspection location but is available in Kinnear (approximately 5 miles). Therefore, we plan on purchasing one 10,000 lb capacity trailer capable of hauling 1,000 gal in two 500 gal tanks, and a water pump to transfer water from trailer tanks to the decontamination unit. One ¾ ton pickup will be purchased to tow the water trailer.

An office trailer and a camper trailer will be purchased for the check station and two sets of two 2,000 Watt generators that can be connected in parallel will be purchased to power the office and camper trailers since electricity is not available. Funds were included to purchase four boat inspection signs, and miscellaneous supplies such as gasoline for generators. The budget also includes camp groceries for inspectors while staying on site.

An asphalt pullout is needed at the inspection site. It would be approximately 120x40 feet, consisting of a layer of gravel road base covered by recycled asphalt. Recycled asphalt material would cost approximately \$10.00 per ton if WGFD does the hauling. A minimum of 42 tons of recycled asphalt would be needed to cover a 1,200 square foot pullout area 4 inches thick. Refer to Appendix B for budget information pertaining to supplies and equipment.

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 Lander Regional I&E Specialist to keep the local boating public aware of the threats and responsibilities associated with a Long-term Suspect Status on Pilot Butte Reservoir.

RAPID RESPONSE – POSITIVE STATUS

Pilot Butte 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). Pilot Butte 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 Pilot Butte Reservoir to Infested Status. All watercraft leaving Pilot Butte 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.

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 Lander Region internal communication chain outlined in the Short-term Suspect Status section (above) will be used to inform the Lander Region and key stakeholders of changes in status level.

Closures

As stated in the Short-term Suspect Status section, facility closures will not be necessary since there is only one public access road and boat ramp at the reservoir. Neither shore launching nor night use are significant concerns.

Daily or seasonal closures may be considered during years 2-5 of the Positive Status period to limit motorboat access and reduce costs associated with operating check stations. As stated in previous sections, Pilot Butte Reservoir is not a recreational destination and angler use is low during the majority of the open water period. One closure option that could be implemented is a daily boat ramp closure Monday through Wednesday, with open access between Thursday and Sunday. This would limit motorboat access and check station operation to days with the most activity. Another option would be a seasonal closure beginning August 1 until March 31. This closure would still allow daily motorboat access between April and July which are the most popular and productive angling months. Another factor supporting a seasonal closure is that Pilot Butte Reservoir often experiences low water levels in late summer and fall due to irrigation water withdrawal making the boat ramp inaccessible under those conditions.

Check Station

The Positive Status inspection site will be located at the same site described in the Short-term Suspect and Long-term Suspect status sections. This is the only boat ramp and public access road at Pilot Butte Reservoir. The check station should be operated daily during the first year of Positive Status between April and October. Inspection station hours of operation will likely be from 8:00 AM until sunset. Hours of operation may be reduced or daily/seasonal access closures implemented in years 2-5.

Local Boater Program

Pilot Butte Reservoir is a perfect water to implement a local boater program. Boating use is low and almost all watercraft are local resident boats. A local boater program should be implemented to provide an ability to expedite inspections for boats that only use Pilot Butte Reservoir. Details and implementation plan for local boater programs can be found in the Administrative Rapid Response Plan (WGFD 2020).

Staffing Plan

Staffing needs for the first year of Positive Status will be the same as described for year 1 of Long-term Suspect Status. The inspection station will be staffed from 8:00 AM to sunset

between April and October. One inspector will need to be present each weekday and two inspectors during the weekend, requiring a total of 3 inspectors per week. A Biologist I will be hired from March - November to coordinate the efforts and supervise two inspection technicians. Inspector staffing in years 2-5 of Positive Status will remain the same if the check station continues to be operated 7 days a week between April and October. Check station hours may be reduced, but the same number of personnel will still be necessary for staffing. See Appendix B for personnel budget information.

Check station staffing would significantly change if daily or seasonal closures were implemented. A daily closure would result in check station operation Thursday - Sunday between April and October. If a seasonal closure was implemented, the check station would be open each day between April and July. Both closure scenarios would be staffed as described above with 1-2 inspectors from 8:00 AM until sunset. These closures would still provide angling opportunity while substantially decreasing costs to the Department. The personnel budget would be reduced to a Biologist I and single technician for daily or seasonal closures.

Supplies and Equipment

Positive Status supply and equipment needs will be similar to those for years 2 and 3 of Long-term Suspect Status. If Pilot Butte Reservoir changes from Short-term Status directly to Positive Status, year 1 will require infrastructure improvements at the check station and the purchase of major equipment items outlined for year 1 in the Long-term Suspect Status section. Supply and equipment needs in years 2-5 will be considerably lower since most major purchases won't be required. Refer to Appendix B for budget information pertaining to supplies and equipment.

Public Outreach

At Positive 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 Lander Regional I&E Specialist to keep the local boating public aware of the threats and responsibilities associated with a Positive Status on Pilot Butte Reservoir.

RAPID RESPONSE – INFESTED STATUS

Pilot Butte Reservoir will be considered Infested if an established (recruiting or reproducing) population of dreissenid mussels is identified. Pilot Butte 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 Pilot Butte Reservoir would remain at 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 if the water remains open to boating access. All watercraft leaving Pilot Butte 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.

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 Lander Region internal communication chain outlined in the Short-term Suspect Status section (above) will continue to be utilized to inform the Lander Region and key stakeholders of changes in status level.

Closures

As stated in previous sections, Pilot Butte Reservoir is not a recreational destination and angler use is low compared to other standing water fisheries in Wyoming. Therefore, it is recommended that Pilot Butte Reservoir be closed to boat access if it reaches Infested Status. The reservoir would remain open to gear exempt from the AIS decal provision [non-motorized inflatable watercraft ten feet in length or less, solid and inflatable paddleboards regardless of length and all water sport toys (i.e., sailboards, float tubes, kite boards or any aid to swimming or fishing that is not defined as a watercraft)]. Closing the reservoir would minimize the risk of spreading mussels and allow the Department to focus AIS prevention efforts and resources on other waters. A closure would require law enforcement support to patrol the area for compliance and issue citations for violations. However, Pilot Butte Reservoir is easily accessible and monitoring watercraft use should not significantly increase enforcement efforts or require hiring of additional contract personnel. Regional Fish Division employees would also assist with watercraft monitoring and public outreach, particularly during the first year of closure, to help provide education about the closure and Infested Status of the reservoir.

The Bureau of Reclamation operates Pilot Butte Reservoir and storage water is delivered to the Midvale Irrigation District. Both agencies would support this proposed closure to boat access in tandem with a local boater program. However, a permanent closure would not be popular with local anglers and would require substantial social and political outreach to generate support to implement such a severe response to Infested Status. If a permanent closure receives overwhelming opposition from local or state officials, a limited access plan may need to be considered and implemented. Refer to the Positive Status section for daily or seasonal closure options.

Check Station

There is only one public entrance to the reservoir with a single parking area and boat ramp. Access is by way of West Pavillion and Pilot Butte roads on the east and north sides of the reservoir. No check station would be needed if a permanent closure to boat access is implemented. The boat ramp will be barricaded and signs posted at the parking area and along both access roads to alert the public to the closure. Refer to the Positive Status section for daily or seasonal check station information if a permanent closure is not possible.

Staffing Plan

No AIS inspection staff would be needed if a permanent closure to boat access is implemented. Refer to the Positive Status section for daily or seasonal staffing plans if a permanent closure is not possible.

Supplies and Equipment

A permanent motorboat access closure would require public information signs and boat ramp barrier. Three signs for the access roads and a sign at the boat ramp parking area will need to be installed. A locking gate will be constructed and peripheral boulder barricade placed by Habitat and Access personnel to prevent public access to the boat ramp while allowing administrative boat access for AIS monitoring and dam maintenance. Supply and equipment information for a permanent closure is located in the Infested Status budget (Appendix B). Refer to the Positive Status section and budget for daily or seasonal supply and equipment needs if a permanent closure is not possible.

Public Outreach

At Infested Status, statewide public outreach efforts will continue to follow the process outlined in the Administrative Rapid Response Plan (WGFD 2020). A permanent boat access closure will require substantial social and political outreach. The Regional Fisheries Supervisor and Regional AIS Specialist will continue to collaborate with the Lander Regional I&E Specialist to keep the local boating public aware of the threats and responsibilities associated with an Infested Status on Pilot Butte Reservoir.

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		
	Lander Region Fisheries Supervisor		
	Lander Region Wildlife Supervisor		
	Lander Region Fisheries Biologist		
	Lander Region Fisheries Biologist		
	Lander Region Aquatic Habitat Bio.		
	Lander Region Hab. & Access Supv.		
	Lander Region I&E Specialist		
	Lander/Cody Region AIS Specialist		
	Cody Region Fisheries Supervisor		
	Cody Region Fisheries Biologist		
	Cody Region Fisheries Biologist		
	N. Riverton Game Warden		
	S. Riverton Game Warden		
	Lander Game Warden		
<u>Wind River Reservation</u>			
	Director, Tribal Fish and Game		
	Inter-tribal Council		
<u>U.S Fish and Wildlife Service</u>			
	Lander Area Office Supervisor		
<u>Midvale Irrigation District</u>			
	District Manager		
	District 2 Commissioner		
<u>U.S. Bureau of Reclamation</u>			
	Land Management Branch		
<u>Concessionaires/Marinas</u>			
	Kinnear General Store		
	Rocky Mountain Sports		
<u>Other Stakeholders</u>			
	Town of Riverton		
	Town of Pavillion		
	Town of Kinnear		

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

Travel	Description	# of Days	Cost/Day	Total Cost
	Camp Groceries (person days)	80	\$24	\$1,920
	Subtotal			\$1,920
Supplies	Description	# of units	Cost/unit	Total Cost
	Pickup bed water tanks	2	\$349	\$698
	2-inch gas powered water pump	1	\$300	\$300
	Check station signs	4	\$600	\$2,400
	Subtotal			\$3,398
	Total			\$5,318

LONG-TERM SUSPECT STATUS YEAR 1

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I, 9 months	9	\$4,543	\$40,887
	Technicians; 2 @ 7 months	14	\$2,863	\$40,082
	Subtotal			\$80,969
Vehicle	Description	# of Months	Cost/Month	Total Cost
	Purchase 3/4 ton Truck	1	\$33,000	\$33,000
	State Motor Pool Sedan 1	7	\$500	\$3,500
	Subtotal			\$36,500
Travel	Description	# of Days	Cost/Day	Total Cost
	Camp Groceries (person days)	350	\$24	\$8,400
	Subtotal			\$8,400
Supplies	Description	# of Units	Cost/Unit	Total Cost
	Gravel for pullout	1	\$15,000	\$15,000
	Recycled asphalt for pullout	1	\$500	\$500
	Mobile decontamination units	2	\$12,500	\$25,000
	16-foot utility trailer, 10,000lb rating	1	\$4,000	\$4,000
	550 gal plastic ag tank	2	\$450	\$900
	2-inch trash pump	1	\$300	\$300
	Office Trailer	1	\$20,000	\$20,000
	Generator 2-pack with parallel	2	\$1,900	\$3,800
	Camp Trailer	1	\$20,000	\$20,000
	Misc supplies 231 - 239 series			\$5,000
	Check Station signs	4	\$650	\$2,600
	Subtotal			\$97,100
	Total			\$222,969

LONG TERM SUSPECT STATUS YEARS 2-3

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I, 9 months	9	\$4,543	\$40,887
	Technicians; 2 @ 7 months	14	\$2,863	\$40,082
	Subtotal			\$80,969
Vehicle	Description	# of Months	Cost/Month	Total Cost
	State Motor Pool Sedan 1	9	\$500	\$4,500
	Subtotal			\$4,500
Travel	Description	# of Days	Cost/Day	Total Cost
	Camp Groceries (person days)	350	\$24	\$8,400
	Subtotal			\$8,400
Supplies	Description	# of units	Cost/unit	Total Cost
	misc supplies 231-239			\$2,500
	Subtotal			\$2,500
	TOTAL			\$96,369

POSITIVE STATUS

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I, 9 months	9	\$4,543	\$40,887
	Technician 2 @ 7 months	14	\$2,863	\$40,082
	Subtotal			\$80,969
Vehicle	Description	# of Months	Cost/Month	Total Cost
	Purchase 3/4 ton truck ^a	1	\$33,000	\$33,000
	State Motor Pool Sedan 1	7	\$500	\$3,500
	Subtotal			\$36,500
Travel	Description	# of Days	Cost/Day	Total Cost
	Camp Groceries	350	\$24	\$8,400
	Subtotal			\$8,400
Supplies	Description	# of Units	Cost/Unit	Total Cost
	Gravel for pullouts ^a	1	\$15,000	\$15,000
	Recycled asphalt for pullout ^a	1	\$500	\$500
	16-foot utility trailer, 10,000lb rating ^a	1	\$4,000	\$4,000
	550 gal plastic ag tank ^a	2	\$450	\$900
	2-inch trash pump ^a	1	\$300	\$300
	Office Trailer ^a	1	\$20,000	\$20,000
	Generator 2-pack with parallel ^a	2	\$1,900	\$3,800
	Mobile decon unit with attachments ^a	2	\$12,500	\$25,000
	Camp Trailer ^a	1	\$20,000	\$20,000
	Misc supplies 231 - 239 series		\$5,000	\$5,000
	Check Station signs ^a	4	\$650	\$2,600
	Subtotal			\$97,100
	Total			\$222,969

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

INFESTED STATUS*

Supplies	Description	# of Units	Cost/Unit	Total Cost
	Access closure signs	6	\$650	\$3,900
	Boat ramp closure gate	1	\$10,000	\$10,000
	Misc supplies 231 - 239 series			\$5,000
	Subtotal			\$18,900
	Total			\$18,900

* Infested Status budget assuming a permanent boat access closure.