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

Lander Regional Fisheries Management Crew, Wyoming Game and Fish Department, 260 Buena Vista Driver, Lander, WY 82520

SUMMARY

Boysen Reservoir is located in central Wyoming within Boysen State Park. The Wind River Reservation and Riverton Reclamation Withdrawal Area border the State Park to the west with primarily Bureau of Land Management (BLM) lands to the east. The Wyoming Game and Fish Department manages the fishery and the reservoir is owned and managed by the Bureau of Reclamation. The lands adjacent to the reservoir are managed primarily by Boysen State Park.

Boysen Reservoir is 20 miles long and 6 miles wide (widest point) at full pool. The reservoir has 76 miles of shoreline and spans 19,560 acres with a volume of 802,000 acre-feet (full joint use is 741,594 acre-feet). Maximum depth is 115 feet at the dam while average depth is approximately 45 feet. Water surface elevation is 4,725 feet at full joint use allocation. The surrounding landscape is primarily upland sagebrush, rock outcrops, tamarisk, sparse cottonwood trees, and some wetland areas.

There are five main entrances to the State Park. The east side entrances are the Dam, Brannon, Tough Creek, and Poison Creek roads. County Road 430 is the only main access point on the west side north of U.S. Highway 26. In addition to these main access locations, many secondary dirt roads access both sides of the reservoir (primarily West Shoreline Drive loops 1 and 2).

In the event that a sample from Boysen Reservoir tests positive for dreissenid mussels, the reservoir will be considered Short-term Suspect Status. After the initial detection, follow-up sampling will occur and results may take up to six weeks to be reported. The goal for rapid response at this status level is to minimize the risk of spreading mussels to other waters while waiting on follow-up test results. Within one week, we will provide a capacity to contact all boaters coming off the water, conduct clean, drain, dry exit contacts, decontaminate all ballast tanks and other undrainable areas and flush all motors, if feasible.

If initial follow-up sampling does not yield a positive result, Boysen Reservoir would enter Long-term Suspect Status and remain at this level for up to three years if no additional positive samples are found. Boysen Reservoir will enter Positive Status for dreissenid mussels if two or more sampling events within a 12-month period meet the minimum criteria for detection. The reservoir will be considered Infested if an established (recruiting and reproducing) population of adult dreissenid mussels is found. The goal for all Status levels is to minimize the risk of spreading mussels to other waters.

During the Long-term Suspect and Positive status periods, 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. If Infested Status is reached, all boats will require full decontaminations. All watercraft leaving Boysen Reservoir will receive a seal and seal receipt to verify the watercraft received an exit

inspection. Seals will be of a color that designates use on a suspect, positive or infested water versus the brown seal currently used at all Wyoming check stations.

Inspection and decontamination check stations will be located at access points to the Brannon and Tough Creek boat ramp areas. A third check station will also be needed on County Road 430 if the boat ramps on the west side of the reservoir remain open. Communication plans, staffing plans, equipment and supply needs, and budgets have been developed for each status level. The cost of containment efforts for the first year of a Suspect, Positive or Infested status on Boysen Reservoir is approximately $1,000,000, with annual operating costs of $380,000-$850,000, thereafter.

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 area native to the Dnieper River Drainage in Ukraine and were first found in the Great Lakes in 1989. Since their initial introductions, these species have spread across most of the United States, and have been detected in Wyoming's neighboring states of Nebraska, South Dakota, Montana, Colorado, and Utah. The close proximity of zebra and quagga mussels to Wyoming elevates the threat of introduction and increases the need for plans to contain them if detected.

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

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

Infested Status when evidence shows a recruiting and reproducing population of zebra or quagga mussels is established. At this point, eradication of mussels is highly unlikely and containment efforts will be necessary for the foreseeable future.

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

CONFIRMATION OF DREISSENID MUSSELS

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

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

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

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

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

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

A water body classified as *Positive* indicates a water at which two or more sampling events within a 12-month period meet the minimum criteria for detection. For example, samples

from two different sampling events are verified by both visual identification (including microscopy) and DNA confirmation (PCR and gene sequencing).

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

In some instances, the classification of a water body can be downgraded over time. The exact reasons why dreissenids are detected at a water once, then not again in subsequent sampling, or are detected in a water classified as *Positive* but never establish a population, remains largely unknown.

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

WATER DESCRIPTION

Boysen Reservoir is located in central Wyoming within Boysen State Park. The Wind River Reservation and Riverton Reclamation Withdrawal Area border the State Park to the west with primarily Bureau of Land Management (BLM) lands to the east. Access to the reservoir from the south is via the town of Shoshoni and U.S. Highway 20 on the east side and County Road 430 on the west side. The Wyoming Game and Fish Department manages the fishery and the reservoir is owned and managed by the Bureau of Reclamation. The lands adjacent to the reservoir are managed primarily by Boysen State Park and all aspects of this plan have been coordinated with park personnel.

Key stakeholders include Boysen Marina located next to the reservoir on the northeast side and B&K Shoreline Stop near the southwest portion of the reservoir. A number of private residences are located east of the marina as well. Additional key stakeholders are the Town of Shoshoni and downstream municipal and agriculture water users in the Bighorn Basin.

The main non-boating use of the reservoir is hydropower production. Boysen Dam houses two power plant units that produce 15,000 kilowatts. Camping and shoreline recreation are extremely popular and the reservoir serves as storage for downstream municipal and irrigation water.

Boysen is 20 miles long and 6 miles wide (widest point) at full pool. The reservoir has 76 miles of shoreline and spans 19,560 acres with a volume of 802,000 acre-feet (full joint use is 741,594 acre-feet). Maximum depth is 115 feet at the dam while average depth is approximately 45 feet. Water surface elevation is 4,725 feet at full joint use allocation. The surrounding landscape is primarily upland sagebrush, rock outcrops, tamarisk, sparse cottonwood trees, and some wetland areas.

The typical boating season is from early April to late October, depending on weather. General boating numbers are difficult to estimate because there is no current program creel

survey data and few AIS inspections have occurred recently. The entire 76 miles of shoreline is publicly accessible. The reservoir has nine developed campgrounds and six boat ramps, which include: Brannon, Tough Creek, Poison Creek, Lakeside, Fremont, and Cottonwood Bay. A minimal amount of shore launching also occurs on the west side of the reservoir.

There are five main entrances to the State Park. The east side entrances are the Dam, Brannon, Tough Creek, and Poison Creek roads. County Road 430 is the only main access point on the west side north of U.S. Highway 26. In addition to these main access locations, many secondary dirt roads access both sides of the reservoir (primarily West Shoreline Drive loops 1 and 2).

According to AIS boat inspection data from the 2018 and 2019 boating seasons (n = 466), 69% of boaters bound for Boysen Reservoir are Wyoming residents and 31% are non-residents. Among the non-resident boaters, most were from Colorado and Montana, followed by Utah, Nebraska and Idaho. Motorized watercraft are by far the most common at 86% and 58% of those were outboard motors which typically are easy to drain and do not have ballast tanks. Inboard/outboard boats made up 14% and inboard boats accounted for 5% of boat inspections. Personal watercraft and jet boats comprised 7% and 2%, respectively. This AIS inspection data is the only information available for boater use since there is no recent programmed creel survey data for Boysen Reservoir.

RAPID RESPONSE – SHORT-TERM SUSPECT STATUS

In the event that a sample for Boysen Reservoir tests positive for dreissenid mussels, the reservoir will be consider Short-term Suspect (defined above). After the initial detection, follow-up sampling will occur and results may take up to six weeks to be reported. The goal for rapid response at this status level is to minimize the risk of spreading mussels to other waters while waiting on follow-up test results. Within one week, we will provide a capacity to contact all boaters coming off the water, conduct clean, drain, dry exit contacts, decontaminate all ballast tanks and other undrainable areas and flush all motors, if feasible. All watercraft leaving Boysen 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 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

Upon the initial positive result, the AIS Coordinator will inform WGFD Administrators and Lander Regional Fisheries Supervisor according to the 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 1). The Lander Regional

Fisheries Supervisor will contact regional personnel, including regional fish biologists, and the Regional Wildlife Supervisor, the Regional Habitat and Access Supervisor. In addition, the Regional Fisheries Supervisor or fish biologists will contact key stakeholders, including personnel from Boysen State Park, the Bureau of Reclamation, Bureau of Land Management, Boysen Marina and the Town of Shoshoni. The AIS Coordinator will also contact and coordinate with WGFD communication personnel, including Regional I&E (see Public Outreach, below).

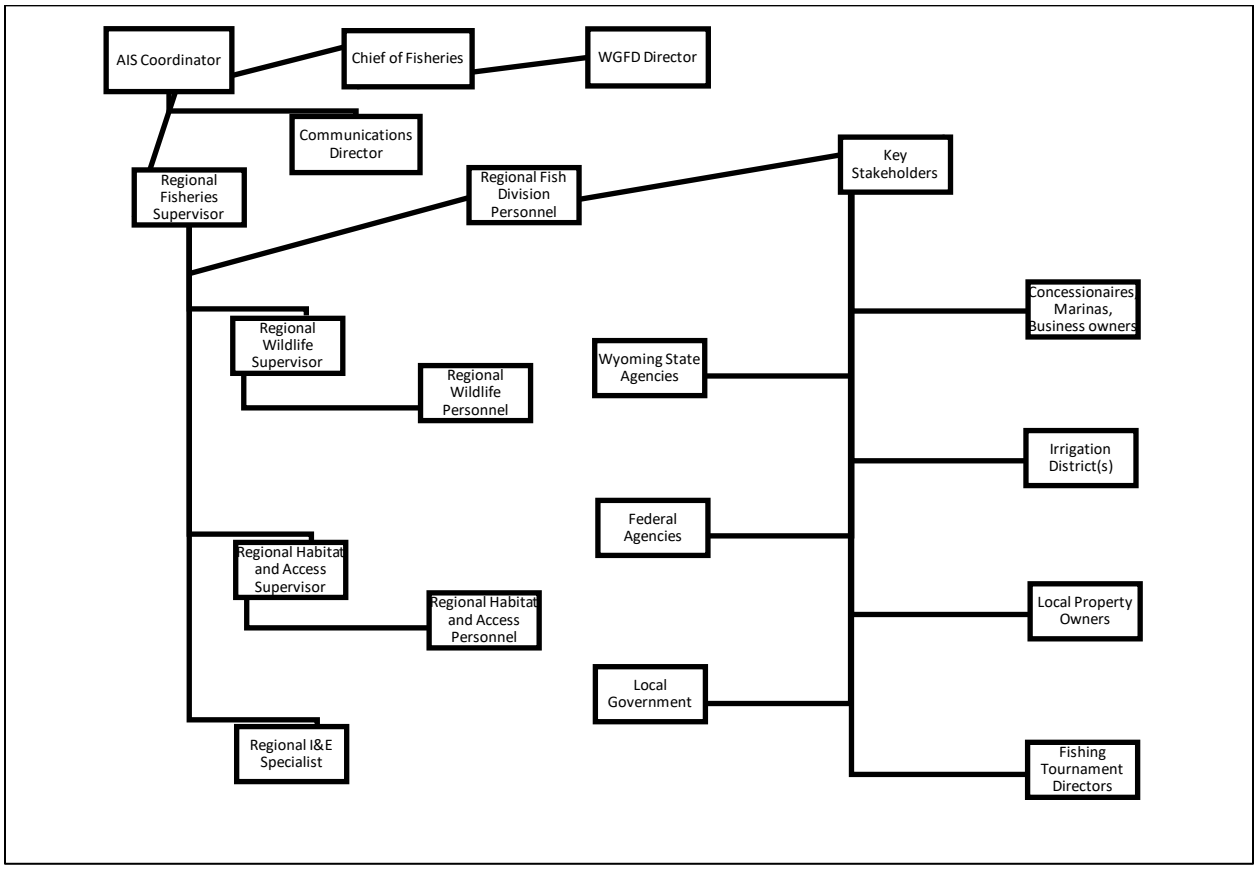

FIGURE 1. Communication chain for dissemination of information on the local and regional level following a dreissenid mussel detection in a Wyoming water.

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

The focus of this plan is on containing invasive mussels through inspection and decontamination of exiting watercraft. Consideration should be given to other potential vectors that could spread invasive mussels (e.g., aircraft used to combat wildfires, commercial water hauling equipment) and communication and coordination should occur with these entities to ensure containment. Current information on preventing the spread of aquatic invasive species in firefighting and water hauling equipment can be found on the WGFD website at https://wgfd.wyo.gov/Fishing-and-Boating/Aquatic-Invasive-Species-Prevention/AIS-Construction-and-Fire.

Closures

Closing boating ramps, night access, and shoreline launching will be at the discretion of Boysen State Park officials. Two closures that should be considered are the Lakeside (Causeway) and Poison Creek boat ramps. These ramps see very little use and they are not planned as inspection locations. Ramp closures would involve having habitat and access personnel place large boulders to serve as physical barriers to the ramps. Night closures should be considered but night use on the reservoir is minimal and generally occurs during the ice fishing season. Additional closures, including shore launching, are likely unnecessary due to the locations of the three planned exit inspection sites.

Check Stations

We anticipate three exit inspection locations at Brannon, Tough Creek, and County Road 430 (Figure 2). The Brannon and Tough Creek locations have sufficient pullout space to conduct exit inspections and will intercept boaters from the two eastern boat ramps (Figures 3-4). It is unknown at this point if County Road 430 has a pullout area where inspections could occur without disrupting traffic (Figure 5). This check station will intercept all boaters using the Cottonwood and Fremont boat ramps. In addition, most shore launching occurs on the west side of the reservoir, so this check station will intercept those boats as well. These roadside check stations will be far more efficient than boat ramp inspections and will allow us to keep traffic moving. Check stations will be staffed daily from sunrise to sunset.

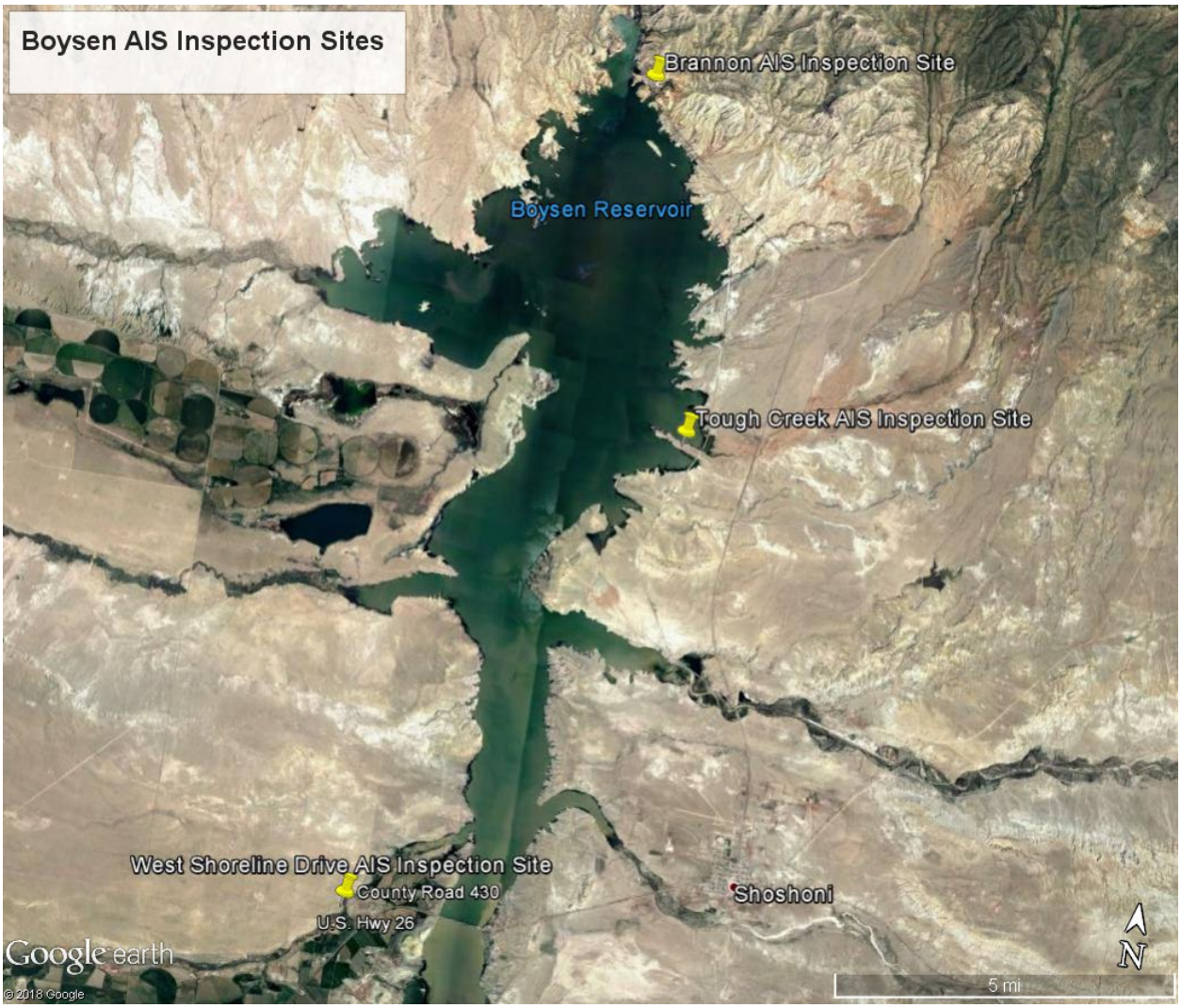

FIGURE 2. The Brannon, Tough Creek, and County Road 430 AIS exit inspection sites at Boysen Reservoir.

FIGURE 3. The Brannon AIS exit inspection location at Boysen Reservoir.

FIGURE 4. The Tough Creek AIS exit inspection location at Boysen Reservoir.

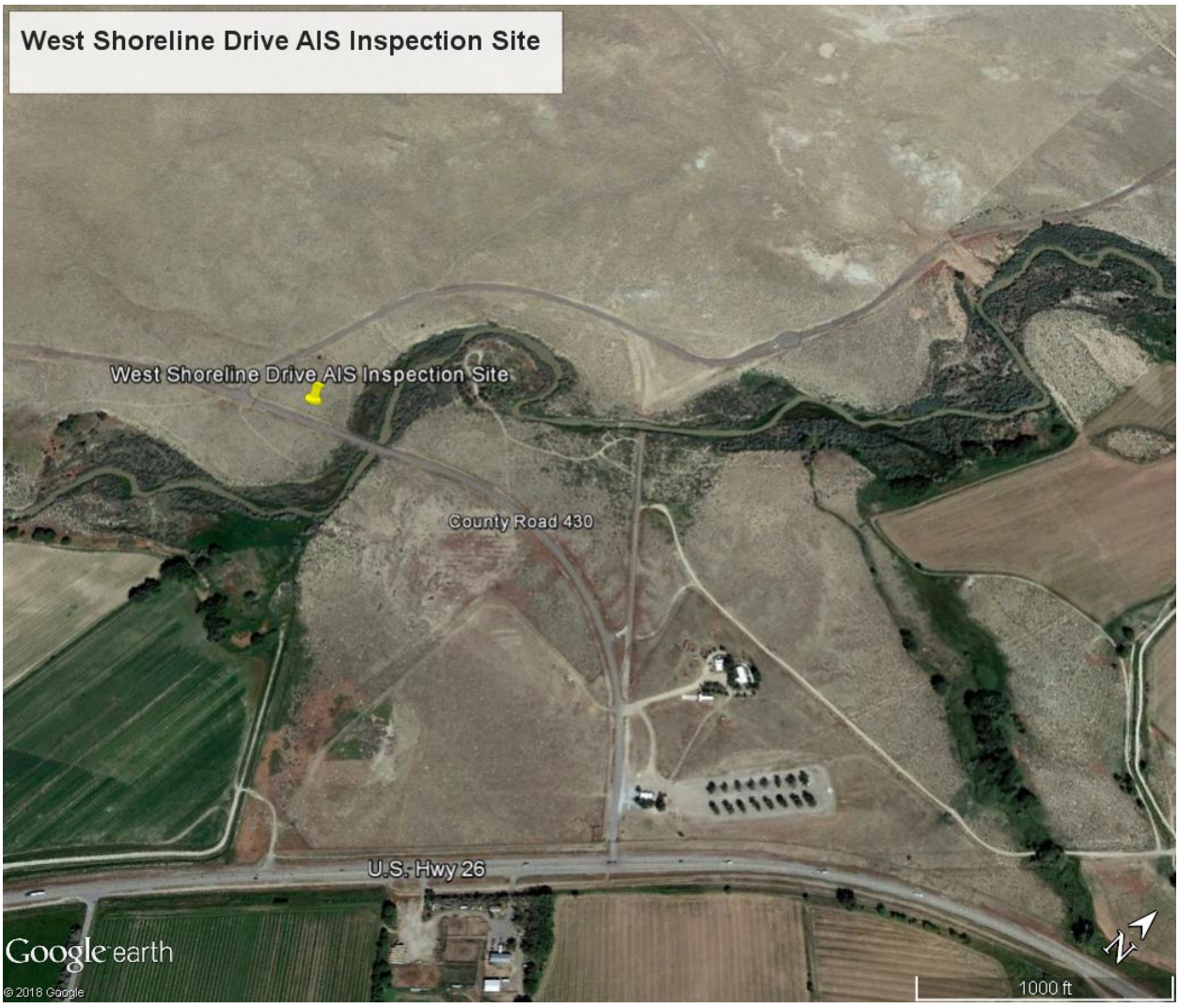

FIGURE 5. The County Road 430 AIS exit inspection location at Boysen Reservoir.

Staffing Plan

The Brannon and Tough Creek locations will require one inspector in the morning and two in the afternoon while County Road 430 will require only one inspector. At least eight inspectors will be needed to fully staff these three locations between 8:00 am and 9:00 pm each day. Lander regional personnel, with assistance from roving AIS technicians will be used to staff exit inspection stations over the six week Short-term Suspect Status period.

Supplies and Equipment

Six mobile decontamination units will be needed to provide sufficient exit inspection coverage at the three checkpoints (two units at each location). Brannon and Tough Creek will need two units operating at the same time if the Short-term Suspect Status response period occurs during the peak boating period (May through September). The Lander Region currently has one decontamination unit, but it is not a mobile unit and will need to be mounted on a pickup

or trailer with an associated water tank. Five additional units would need to be rented ($1,400/week) or borrowed from other regions. Utilities and water are present at Brannon and Tough Creek, but there will not be sufficient time to develop these resources during the Short-term Status period. Therefore, generators will need to be borrowed and water tanks purchased for all three check station locations. Pumps will be needed to transfer water from tanks to decontamination units and can likely be borrowed from the Regional Habitat and Access Crew until new pumps are purchased. Existing Department ¾ ton pickups will be used to haul water in 350 gallon tanks. A camper trailer will be needed at each location for shelter from weather and lodging for technicians. The Lander Fish Management Crew does not have a camper, so three would need to be borrowed from elsewhere in the Department. Camp groceries will be provided for inspectors while staying at inspection stations. Nine large boat inspection signs would be needed for the three exit inspection locations and additional signs will be needed to indicate closures of the Poison Creek and Causeway ramps.

Public Outreach

The Administrative Rapid Response Plan (WGFD 2020) outlines the general public outreach plan for suspect, positive or infested determinations for Wyoming waters. 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 Boysen Reservoir through media outlets. These efforts could include radio and television interviews, postings on social media and the Game and Fish website, as well as public meetings in Lander, Riverton, Shoshoni, and Thermopolis 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, Boysen 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 Boysen Reservoir will receive a red seal and seal receipt to verify the watercraft received an exit inspection. Red seals will designate use on a suspect, positive or infested water versus the brown seal currently used after a Wyoming AIS inspection.

If there is no confirmation of dreissenid mussel presence after the first full boating season, efforts will switch in years two and three to a lower level response, with a goal of contacting a significant number of boaters, but placing more responsibility on boaters to get 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. 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 (above) will continue to be utilized to inform the Lander Region and key stakeholders of follow-up sampling results.

Closures

As stated in the Short-term Suspect Status section, closing boat ramps, night access, and shoreline launching will be at the discretion of Boysen State Park officials. Two closures that should be considered are the Lakeside and Poison Creek boat ramps. These ramps see very little use and they are not planned as inspection locations. Ramp closures would involve having State Park or Habitat and Access personnel place barrier posts and large boulders to serve as physical barriers to the ramps. Night and shoreline launching closures should be considered, but may not be warranted (see Short-term Suspect, above).

Check Stations

During Long-term Suspect Status, we anticipate using the three primary exit inspection locations used during Short-term Suspect Status (Brannon, Tough Creek, and County Road 430; Figures 2-5). The Brannon and Tough Creek ramps are by far the busiest and are where most camping occurs. Both locations would be near the boat ramps on exit roads. The Cottonwood and Fremont boat ramps are located on the west side of the reservoir and all boats exit on County Road 430. The majority of shore launching also occurs on the west side of the reservoir, so the County Road 430 exit inspection station (Figure 5) will intercept most boats using the west side of the reservoir. Asphalt pullouts will need to be constructed at Tough Creek and County Road 430 (see Supplies and Equipment, below). All three locations will be necessary during the entire Long-term Suspect Status period (years 1, 2 and 3).

Local Boater Program

Boating use is high at Boysen Reservoir between May and September and inspectors might not be able to handle inspection and/or decontamination of all boats. In addition, Boysen Reservoir has a relatively high percentage of resident boater use (69% based on recent inspection data). Therefore, a local boater program should be implemented to provide an ability to expedite

inspections for boats that only use Boysen Reservoir. Details and implementation plan for local boater programs can be found in the Administrative Rapid Response Plan (WGFD 2020).

Staffing Plan

The peak boating season at Boysen Reservoir is between May and September. During peak season of the first year of Long-term Suspect Status, inspection stations will need to be staffed from 7:00 am to 10:00 pm. On a typical day at each station, 3-4 inspectors will work overlapping shifts so 1-3 inspectors are always on site (Table 1). To cover all shifts at all three stations during the 5 month peak season, it is estimated that we will need at least 18 technicians. During the 4 month non-peak season (March-April and October-November), inspection stations will need to be staffed from 8:00 am to 9:00 pm. On a typical day at each station, 2-3 inspectors will work overlapping shifts so 1-2 inspectors are always on site (Table 2).

TABLE 1. Number of inspectors needed to staff Long-term Suspect Status AIS exit inspection stations during the peak watercraft season on Boysen Reservoir. Hours worked each shift are based on the longest day length during peak watercraft season: opening (7:00 am to 5:00 pm), mid-day (9:00 am to 7:00 pm) and closing (12:00 pm to 10:00 pm).

	Monday thru Wednesday			Thursday thru Sunday			
Location	Open shift	Mid shift	Close shift	Open Shift	Mid shift	Close shift	Shifts Per Week
Brannon	1	1	1	1	2	1	25
Tough Creek	1	1	1	1	2	1	25
CR 430	1	1	1	1	2	1	25
Lakeside	Closed	Closed	Closed	Closed	Closed	Closed	0
Poison Creek	Closed	Closed	Closed	Closed	Closed	Closed	0
Total	9	9	9	12	24	12	75

TABLE 2. Number of inspectors needed to staff Long-term Suspect Status AIS exit inspection stations during the non-peak watercraft season on Boysen Reservoir. Hours worked each shift are based on the longest day length during non-peak watercraft season: open (8:00 am to 6:00 pm), mid (9:00 am to 7:00 pm) and close (11:00 am to 9:00 pm).

	Monday thru Wednesday			Thursday thru Sunday			
Locations	Open shift	Mid shift	Close shift	Open shift	Mid shift	Close shift	Shifts Per Week
Brannon	1	0	1	1	1	1	18
Tough Creek	1	0	1	1	1	1	18
CR 430	1	0	1	1	1	1	18
Lakeside	Closed	Closed	Closed	Closed	Closed	Closed	0
Poison Creek	Closed	Closed	Closed	Closed	Closed	Closed	0
Total	9	0	9	12	12	12	54

To cover all shifts at all three stations during non-peak season, it is estimated that we will need at least 13 technicians. A Biologist I will be hired to from March-November to coordinate the efforts and supervise inspection technicians. Inspector staffing in years two and three of Long-term Suspect Status will be ramped down and will be similar to the efforts during the year one non-peak season.

Supplies and Equipment

At Long-term Suspect Status, a ¾ ton pickup truck will need to be purchased. State Motor Pool does not have trucks larger than ½ ton available and the larger capacity is necessary to tow water trailers. Three ½ ton trucks will be leased from State Motor Pool for use at each check station to tow decontamination units. Sedans will be leased from State Motor Pool to provide additional transportation for inspectors.

Asphalt pullouts at Tough Creek and County Road 430 will need to be constructed. The pullouts would likely be 120x40 feet and would consist 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 4-inch thick 1,200 square foot pullout areas at each location.

Six mobile decontamination units will need to be purchased to conduct decontaminations at the three inspection locations (two units per check station). 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 immediately available at the County Road 430 check station. Therefore, we plan on purchasing two 10,000 lb capacity trailers capable of hauling 1,000 gal each, with pumps to transfer water from trailer tanks to decontamination units. Two ¾ ton pickups will be purchased to pull water trailers. Rental or contracting of large water trucks may be necessary if the 1,000 gallon tanks are not sufficient to run the decontamination units, particularly during the peak season.

Water is available at Brannon and Tough Creek to fill decontamination units directly by tapping into water lines at camp host or fish cleaning station sites. Drilling a water well at County Road 430 should also be considered for the Long-term Suspect Status period, as it would provide a much better option for filling decontamination units. Depending on the depth of the well, costs could range from $25,000 for 100 feet to $100,000 for 500-600 feet. If a water wells can be drilled at County Road 430, a ¾ ton truck, trailers, water tanks and trash pumps will not need to be purchased.

One office trailer and one camper trailer will be purchased for each of the three check stations and generators will be purchased to power office and camper trailers at County Road 430. Electricity is available at Brannon and Tough Creek. The Long-term Suspect Status budget includes $25,000 to provide electrical service at the Count Road 430 check station (estimate only). If electrical service is provided, purchase of generators will not be necessary. Comfort stations are present at Brannon and Tough Creek, but an outhouse rental will be necessary for the County Road 430 location. Funds were also included to purchase additional signs and miscellaneous supplies, and purchase camp groceries for inspectors while staying on site.

Public Outreach

During 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 Boysen Reservoir.

RAPID RESPONSE – POSITIVE STATUS

Boysen Reservoir will enter Positive Status for dreissenid mussels if two or more sampling events within a 12-month period meet the minimum criteria for detection (defined above). The goal during the Positive Status period is 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 Boysen Reservoir's status to Infested. All watercraft leaving Boysen Reservoir will receive a red seal and seal receipt to verify the watercraft received an exit inspection. Red seals will designate use on a suspect, positive or infested water versus the brown seal currently used after a Wyoming AIS inspection. If there is no further confirmation of dreissenid mussel presence after five years, Boysen Reservoir would revert back to Negative Status.

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 follow-up sampling results.

Closures

As stated in the Short-term Suspect Status section, closing boat ramps, night access, and shoreline launching will be at the discretion of Boysen State Park officials. Two closures that should be considered are the Lakeside and Poison Creek boat ramps. These ramps see very little use and they are not planned as inspection locations. Ramp closures would involve having State Park or Habitat and Access personnel place barrier posts and large boulders to serve as physical barriers to the ramps. Night and shoreline launching closures should be considered, but may not be warranted (see Short-term Suspect, above).

Check Stations

During Positive Status, we anticipate using the three primary exit inspection locations used during Long-term Suspect Status (Brannon, Tough Creek, and County Road 430; Figures 2-5). The Brannon and Tough Creek ramps are by far the busiest and are where most camping occurs. Both locations would be near the boat ramps on exit roads. The Cottonwood and Fremont boat ramps are located on the west side of the reservoir and all boats exit on County Road 430. The majority of shore launching also occurs on the west side of the reservoir, so the County Road 430 exit inspection station (Figure 5) will intercept most boats using the west side of the reservoir. Asphalt pullouts will need to be constructed at Tough Creek and County Road

430 (see Supplies and Equipment, below). All three locations will be necessary during the Positive Status period.

Local Boater Program

Boating use is high at Boysen Reservoir between May and September and inspectors might not be able to handle decontamination of all boats. In addition, Boysen Reservoir has a relatively high percentage of resident boater use (69% based on recent inspection data). Therefore, a local boater program should be implemented to provide an ability to expedite inspections for boats that only use Boysen Reservoir. Details and implementation plan for local boater programs can be found in the Administrative Rapid Response Plan (WGFD 2020).

Staffing Plan

The peak boating season at Boysen Reservoir is between May and September. During peak season, inspection stations will need to be staffed from 8:00 am to 10:00 pm. On a typical day at each station, 3-4 inspectors will work overlapping shifts so 1-3 inspectors are always on site (Table 1). To cover all shifts at all three stations during the peak season, it is estimated that we will need at least 18 technicians. During the non-peak season, inspection stations will need to be staffed from 8:00 am to 9:00 pm. On a typical day at each station, 2-3 inspectors will work overlapping shifts so 1-2 inspectors are always on site (Table 2). To cover all shifts at all three stations during non-peak season, it is estimated that we will need at least 13 technicians. A Biologist I will be hired each year from April-November to coordinate the efforts and supervise inspection technicians.

Supplies and Equipment

At Positive Status, a ¾ ton pickup truck will need to be purchased. State Motor Pool does not have trucks larger than ½ ton available and the larger capacity is necessary to tow water trailers. Three ½ ton trucks will be leased from State Motor Pool for use at each check station to tow decontamination units. Sedans will be leased from State Motor Pool to provide additional transportation for inspectors.

Asphalt pullouts at Tough Creek and County Road 430 will need to be constructed. The pullouts would likely be 120x40 feet and would consist 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 4-inch thick 1,200 square foot pullout areas at each location.

Six mobile decontamination units will be needed to conduct decontaminations at the three inspection locations (two units per check station). 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 immediately available at the County Road 430 check station. Therefore, we plan on purchasing two 10,000 lb capacity trailers capable of hauling 1,000 gal each, with pumps to transfer water from trailer tanks to decontamination units.

Drilling a water well at County Road 430 should also be considered for the Positive Status period, as it would provide a much better option for filling decontamination units. Depending on the depth of the well, costs could range from $25,000 for 100 feet to $100,000 for 500-600 feet. Water is available at Brannon and Tough Creek to fill decontamination units

directly by tapping into water lines at camp host or fish cleaning station sites. If a water well can be drilled at County Road 430, a ¾ ton truck, trailers, water tanks and trash pumps will not need to be purchased.

One office trailer and one camper trailer will be purchased for each of the three check stations and generators will be purchased to power the office and camper trailers at County Road 430. Electricity is available at Brannon and Tough Creek. The Positive Status budget includes $25,000 to provide electrical service at the County Road 430 check station (estimate only). If electrical service is provided, purchase of generators will not be necessary. Comfort stations are present at Brannon and Tough Creek, but an outhouse rental or single stall permanent restroom construction will be necessary for the County Road 430 location. Funds were also included to purchase additional signs and miscellaneous supplies, and purchase camp groceries for inspectors while staying on site.

The Positive Status budget (Appendix B) assumes that Boysen Reservoir progressed from Short-term Suspect Status directly to Positive Status. If the reservoir progressed from Long-term Suspect Status to Positive Status many items in the Positive Status budget will have already been purchased.

Public Outreach

During 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 Boysen Reservoir.

RAPID RESPONSE – INFESTED STATUS

Boysen 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 Boysen 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 Lander Region personnel and key stakeholders of follow-up sampling results. At this phase, the message will be about the confirmation of an established population of reproducing mussels in this water body and the focus to contain them into perpetuity. It is very unlikely the water will return to Negative Status.

Closures

As stated in the Short-term Suspect Status section, closing boat ramps, night access, and shoreline launching will be at the discretion of Boysen State Park officials. Two closures that will be necessary are the Lakeside and Poison Creek boat ramps. These ramps see very little use and they are not planned as inspection locations. Ramp closures would involve State Park or Habitat and Access personnel placing barrier posts and large boulders to serve as physical barriers to the ramps. Night and shoreline launching closures would also be implemented at Infested Status. Closure of the entire west side of the reservoir to boat launching only (not camping) may be warranted as well (see Alternative Plan – West Side Launching Closure section, below).

Check Stations

During Infested Status, we anticipate using the three primary exit inspection locations used during Long-term Suspect Status (Brannon, Tough Creek, and County Road 430; Figures 2-5). The Brannon and Tough Creek ramps are by far the busiest and are where most camping occurs. Both locations would be near the boat ramps on exit roads. The Cottonwood and Fremont boat ramps are located on the west side of the reservoir and all boats exit on County Road 430. Asphalt pullouts will need to be constructed at Tough Creek and County Road 430 (see Supplies and Equipment, below).

Local Boater Program

Boating use is high at Boysen Reservoir between May and September and inspectors might not be able to handle decontamination of all boats. In addition, Boysen Reservoir has a relatively high percentage of resident boater use (69% based on recent inspection data). Therefore, a local boater program should be implemented to provide an ability to expedite inspections for boats that only use Boysen Reservoir. Details and an implementation plan for local boater programs can be found in the Administrative Rapid Response Plan (WGFD 2020).

Staffing Plan

The peak boating season at Boysen Reservoir is between May and September. During peak season, inspection stations will need to be staffed from 7:00 am to 10:00 pm. On a typical day at each station, a minimum of six inspectors will work overlapping shifts so 4-6 inspectors are always on site (Table 3). To cover all shifts at all three stations during the peak season, it is estimated that we will need at least 30 technicians. During the non-peak season, inspection stations will need to be staffed from 7:00 am to 9:00 pm. On a typical day at each station, 3-5 inspectors will work overlapping shifts so multiple inspectors are always on site (Table 4). To cover all shifts at all three stations during non-peak season, it is estimated that we will need at least 22 technicians. A Biologist I will be hired each year from March-November to coordinate the efforts and supervise inspection technicians.

TABLE 3. Number of inspectors needed to staff Infested Status AIS exit inspection stations during the peak watercraft season on Boysen Reservoir. Hours worked each shift are based on the longest day length during peak watercraft season: opening (7:00 am to 5:00 pm), mid-day (9:00 am to 7:00 pm) and closing (12:00 pm to 10:00 pm).

	Monday thru Wednesday			Thursday thru Sunday			
Location	Open shift	Mid shift	Close shift	Open Shift	Mid shift	Close shift	Shifts Per Week
Brannon	2	2	2	2	3	2	46
Tough Creek	2	2	2	2	3	2	46
CR 430	1	2	1	1	3	1	32
Lakeside	Closed	Closed	Closed	Closed	Closed	Closed	0
Poison Creek	Closed	Closed	Closed	Closed	Closed	Closed	0
Total	15	18	15	20	36	20	124

TABLE 4. Number of inspectors needed to staff Infested Status AIS exit inspection stations during the non-peak watercraft season on Boysen Reservoir. Hours worked each shift are based on the longest day length during non-peak watercraft season: opening (7:00 am to 5:00 pm), mid-day (9:00 am to 7:00 pm) and closing (11:00 am to 9:00 pm).

	Monday thru Wednesday			Thursday thru Sunday			
Locations	Open shift	Mid shift	Close shift	Open shift	Mid shift	Close shift	Shifts Per Week
Brannon	1	2	1	2	3	2	40
Tough Creek	1	2	1	1	3	1	32
CR 430	1	1	1	1	2	1	25
Lakeside	Closed	Closed	Closed	Closed	Closed	Closed	0
Poison Creek	Closed	Closed	Closed	Closed	Closed	Closed	0
Total/Week	9	15	9	16	32	16	97

Supplies and Equipment

At Infested Status, a ¾ ton pickup truck will need to be purchased. State Motor Pool does not have trucks larger than ½ ton available and the larger capacity is necessary to tow water trailers. Three ½ ton trucks will be leased from State Motor Pool for use at each check station to tow decontamination units. Sedans will be leased from State Motor Pool to provide additional transportation for inspectors.

Asphalt pullouts at Tough Creek and County Road 430 will need to be constructed. The pullouts would likely be 120x40 feet and would consist 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 road base would be needed to cover 4-inch thick, 1,200 square foot pullout areas at each location.

Six mobile decontamination units will need to be purchased to conduct decontaminations at the three inspection locations (two units per check station). 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 immediately available at the County Road 430 check station. Therefore, we plan on purchasing two 10,000 lb capacity trailers capable of hauling 1,000 gal each, with pumps to transfer water from trailer tanks to decontamination units.

Drilling a water wells at County Road 430 will be necessary if it has not already been drilled during previous status periods. A well will provide a much better option for filling decontamination units. Depending on the depth of the well, costs could range from $25,000 for 100 feet to $100,000 for 500-600 feet. Water is available at Brannon and Tough Creek to fill decontamination units directly by tapping into water lines at camp host or fish cleaning station sites. If a well can be drilled at County Road 430, the ¾ ton truck, trailers, water tanks and trash pumps will not need to be purchased.

One office trailer and one camper trailer will be purchased for each of the three check stations and generators will be purchased to power the office and camper trailers at County Road 430. Electricity is available at Brannon and Tough Creek. The Infested Status budget includes $25,000 to provide electrical service at the County Road 430 check station (estimate only). If electrical service is provided, purchase of generators will not be necessary. Comfort stations are present at Brannon and Tough Creek, but single stall permanent restroom construction will be necessary for the County Road 430 location. Funds were also included to purchase additional signs and miscellaneous supplies, and purchase camp groceries for inspectors while staying on site.

The Infested Status budget (Appendix B) assumes that Boysen Reservoir progressed from Short-term Suspect Status directly to Infested Status. If the reservoir progressed from Long-term Suspect Status or Positive Status, many items in the Infested Status budget will have already been purchased.

Alternative Plan-West Side Launching Closure

Closure of the entire west side of the reservoir to boat launching only (not camping) may be warranted. The west side access is all dirt roads and doesn't have nearly the number of boaters, particularly high risk boats, as the Brannon and Tough Creek boat ramps. This would not be popular with the public, but would allow us to avoid operating the County Road 430 check station and focus our efforts in the two locations with the majority of boating use on the reservoir. Not operating the County Road 430 check station would allow for more inspectors at the other two check stations while reducing overall personnel costs by approximately $150,000 or 18% (see Infested Status alternate budget). Not establishing a County Road 430 check station would also eliminate the need for an asphalt pullout, a ¾ ton pickup, one office trailer, one house trailer, a permanent restroom, water hauling equipment or a water well, and electrical service to one check station. This would provide an additional savings of $248,530 for an overall budget reduction of 32%. However, consolidating use at only two check stations may require expansion of parking areas and other facilities at Brannon and Tough Creek.

Public Outreach

During Infested 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 an infested Status on Boysen Reservoir. The message will be about the

confirmation of an established population of reproducing mussels in this water body and the focus to contain them into perpetuity. It is very unlikely the water will return to Negative Status.

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
Wyoming Game & Fish Department			
Josh Leonard	AIS Coordinator	307-721-1373	Joshua.Leonard@wyo.gov
Craig Amadio	Lander Region Fisheries Supervisor	307-335-2608	Craig.Amadio@wyo.gov
Jason Hunter	Lander Region Wildlife Supervisor	307-335-2609	Jason.Hunter@wyo.gov
Joe Deromedi	Lander Region Fisheries Biologist	307-335-2605	Joe.Deromedi@wyo.gov
Paul Gerrity	Lander Region Fisheries Biologist	307-335-2622	Paul.Gerrity@wyo.gov
Joanna Harter	Lander Region Aquatic Habitat Bio.	307-335-2645	Joanna Harter@wyo.gov
Brian Parker	Lander Region Hab. & Access Supv.	307-335-2612	Brian.Parker@wyo.gov
Rene Schell	Lander Region I&E Specialist	307-355-2630	Rene.Schell@wyo.gov
Alex LeCheminant	Lander/Cody Region AIS Specialist	307-683-7715	Alex.LeCheminant1@wyo.gov
Sam Hochhalter	Cody Region Fisheries Supervisor	307-527-7125	Sam.Hochhalter@wyo.gov
Joe Skorupski	Cody Region Fisheries Biologist	307-527-7125	Joe.Skorupski@wyo.gov
Jason Burckhardt	Cody Region Fisheries Biologist	307-527-7125	Jason.Burckhardt@wyo.gov
Jon Desonier	N. Riverton Game Warden	307-850-5224	Jon.Desonier@wyo.gov
Mitch Renteria	S. Riverton Game Warden	307-856-9005	Mitch.Renteria@wyo.gov
Brady Frude	Lander Game Warden	307-330-6345	Brady.Frude@wyo.gov
Wyoming State Parks			
John Bass	Superintendent, Boysen State Park	307-876-2796	John.Bass@wyo.gov
U.S. Fish and Wildlife Service			
Pat Hnilicka	Lander Area Office Supervisor	307-332-2159	Pat_Hnilicka@fws.gov
U.S. Bureau of Reclamation			
Cordell Perkins	Land Management Branch	307-261-5675	cperkins@usbr.gov
Wind River Researvation			
Art Lawson	Director, Tribal Fish and Game	307-332-7207	lawson@windriverfishandgame.com
	Inter-tribal Council	307-332-3532	
Concessionaires/Marinas			
Boysen Marina		307-876-2772	
B&K Shoreline Stop		307-857-0750	
Rocky Mountain Sports		307-265-6974	
Other Stakeholders			
City of Riverton		307-856-2227	
Town of Thermopolis		307-864-9285	
Town of Shoshoni		307-876-2515	

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)	210	$24	$5,040
	Subtotal			**$5,040**
Supplies	**Description**			**Total Cost**
	Five decontamination unit rentals (weeks)	30	$1,400	$42,000
	Metal check station signs	9	$250	$2,250
	350 gallon water tanks	3	$350	$1,050
	Portable water pumps	3	$300	$900
	Subtotal			**$46,200**
	Total			**$51,240**

LONG-TERM SUSPECT STATUS – Year 1

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I	9	$4,543	$40,887
	Technicians; 12 @ 8 months	96	$2,863	$274,848
	Technicians; 6 @ 5 months	30	$2,863	$85,890
	Subtotal			**$401,625**
Vehicle	**Description**	**# of Months**	**Cost/Month**	**Total Cost**
	Purchase 3/4 ton truck[a]	1	$33,000	$33,000
	State Motor Pool 1/2 ton trucks (3)	24	$960	$23,040
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	Subtotal			**$72,040**
Travel	**Description**	**# of Days**	**Cost/Day**	**Total Cost**
	Camp Groceries (person days)	3200	$24	$76,800
	Subtotal			**$76,800**
Supplies	**Description**			**Total Cost**
	Gravel road base for pullouts	2	$10,000	$20,000
	Recycled asphalt for pullouts	2	$500	$1,000
	Mobile decontamination units	6	$12,500	$75,000
	16 ft Utility Trailer, 10,000 lb rating[a]	2	$4,000	$8,000
	550 gal plastic ag tank[a]	4	$450	$1,800
	2 inch trash pump[a]	2	$300	$600
	Office Trailer	3	$20,000	$60,000
	Twin 2000 W Generators (per pair)[a]	4	$1,900	$7,600
	Camper trailers	3	$20,000	$60,000
	Outhouse rental (months)	8	$200	$1,600
	Misc supplies 231-239 series			$5,000
	Check station signs	15	$250	$3,750
	Subtotal			**$244,350**
Utilities	**Description**			**Total Cost**
	Water line and electric hookup	2	$3,000	$6,000
	Drilling water well	1	$75,000	$75,000
	Electrical service to check station	1	$25,000	$25,000
	Subtotal			**$106,000**
	Total			**$900,815**

[a] Do not purchase if water well is drilled and electricity is installed.

LONG-TERM SUSPECT STATUS – Years 2-3

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I	9	$4,543	$40,887
	Technicians; 8 @ 8 months	64	$2,863	$183,232
	Technicians; 4 @ 5 months	20	$2,863	$57,260
	Subtotal			**$281,379**
Vehicle	**Description**	**# of Months**	**Cost/Month**	**Total Cost**
	State Motor Pool 1/2 ton trucks (3)	24	$960	$23,040
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	Subtotal			**$35,040**
Travel	**Description**	**# of Days**	**Cost/Day**	**Total Cost**
	Camp Groceries (person days)	2300	$24	$55,200
	Subtotal			**$55,200**
Supplies	**Description**			**Total Cost**
	Outhouse rental (months)	8	$200	$1,600
	Misc supplies 231-239 series			$5,000
	Check station signs	6	$250	$1,500
	Subtotal			**$8,100**
	Total			**$379,719**

POSITIVE STATUS

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I	9	$4,543	$40,887
	Technicians; 12 @ 8 months	96	$2,863	$274,848
	Technicians; 6 @ 5 months	30	$2,863	$85,890
	Subtotal			**$401,625**
Vehicle	**Description**	**# of Months**	**Cost/Month**	**Total Cost**
	Purchase 3/4 ton truck[a b]	1	$33,000	$33,000
	State Motor Pool 1/2 ton trucks (3)	24	$960	$23,040
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	Subtotal			**$72,040**
Travel	**Description**	**# of Days**	**Cost/Day**	**Total Cost**
	Camp Groceries (person days)	3200	$24	$76,800
	Subtotal			**$76,800**
Supplies	**Description**			**Total Cost**
	Gravel road base for pullouts[a]	2	$10,000	$20,000
	Recycled asphalt for pullouts[a]	2	$500	$1,000
	Mobile decontamination units[a]	6	$12,500	$75,000
	16 ft Utility Trailer, 10,000 lb rating[a b]	2	$4,000	$8,000
	550 gal plastic ag tank[a b]	4	$450	$1,800
	2 inch trash pump[a b]	2	$300	$600
	Office Trailer[a]	3	$20,000	$60,000
	Twin 2000 W Generators (per pair)[a]	4	$1,900	$7,600
	Camper trailers[a]	3	$20,000	$60,000
	Outhouse rental (months)[c]	8	$200	$1,600
	Misc supplies 231-239 series			$5,000
	Check station signs[a]	15	$250	$3,750
	Subtotal			**$244,350**
Utilities	**Description**			**Total Cost**
	Water line and electric hookup[a]	2	$3,000	$6,000
	Drilling water well[a]	1	$75,000	$75,000
	Electrical service to check station[a]	1	$25,000	$25,000
	Restroom construction	1	$12,000	$12,000
	Subtotal			**$118,000**
	Total			**$912,815**

[a] Do not purchase if purchased during Long-term Suspect Status.
[b] Do not purchase if water well is drilled and electricity is installed.
[c] Do not purchase if permanent restroom is constructed.

INFESTED STATUS

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I	9	$4,543	$40,887
	Technicians; 22 @ 8 months	176	$2,863	$503,888
	Technicians; 8 @ 5 months	40	$2,863	$114,520
	Subtotal			**$659,295**
Vehicle	**Description**	**# of Months**	**Cost/Month**	**Total Cost**
	Purchase 3/4 ton truck[ab]	1	$33,000	$33,000
	State Motor Pool 1/2 ton trucks (3)	24	$960	$23,040
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	Subtotal			**$72,040**
Travel	**Description**	**# of Days**	**Cost/Day**	**Total Cost**
	Camp Groceries (person days)	6000	$24	$144,000
	Subtotal			**$144,000**
Supplies	**Description**			**Total Cost**
	Gravel road base for pullouts[a]	2	$10,000	$20,000
	Recycled asphalt for pullouts[a]	2	$500	$1,000
	Mobile decontamination units[a]	6	$12,500	$75,000
	16 ft Utility Trailer, 10,000 lb rating[ab]	2	$4,000	$8,000
	550 gal plastic ag tank[ab]	4	$450	$1,800
	2 inch trash pump[ab]	2	$300	$600
	Office Trailer[a]	3	$20,000	$60,000
	Twin 2000 W Generators (per pair)[ab]	4	$1,900	$7,600
	Camper trailers[a]	3	$20,000	$60,000
	Outhouse rental (months)[c]	8	$200	$1,600
	Misc supplies 231-239 series			$5,000
	Check station signs[a]	15	$250	$3,750
	Subtotal			**$244,350**
Utilities	**Description**			**Total Cost**
	Water line and electric hookups[a]	2	$3,000	$6,000
	Drilling water well[a]	1	$75,000	$75,000
	Electrical service to check station[a]	1	$25,000	$25,000
	Restroom construction	1	$12,000	$12,000
	Subtotal			**$118,000**
	Total			**$1,237,685**

[a] Do not purchase if purchased during Long-term Suspect or Positive status.
[b] Do not purchase if water wells are drilled and electricity is installed.
[c] Do not purchase if permanent restroom is constructed.

INFESTED STATUS – Alternate Budget

Personnel	Description	# of Months	Cost/Month	Total Cost
	Biologist I	9	$4,543	$40,887
	Technicians; 18 @ 8 months	144	$2,863	$412,272
	Technicians; 6 @ 5 months	30	$2,863	$85,890
	Subtotal			**$539,049**
Vehicle	**Description**	**# of Months**	**Cost/Month**	**Total Cost**
	State Motor Pool 1/2 ton trucks (2)	16	$960	$15,360
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	State Motor Pool Sedan	8	$500	$4,000
	Subtotal			**$31,360**
Travel	**Description**	**# of Days**	**Cost/Day**	**Total Cost**
	Camp Groceries (person days)	4800	$24	$115,200
	Subtotal			**$115,200**
Supplies	**Description**			**Total Cost**
	Gravel road base for pullout[a]	1	$10,000	$10,000
	Recycled asphalt for pullout[a]	1	$500	$500
	Mobile decontamination units[a]	4	$12,500	$50,000
	Office Trailers[a]	2	$20,000	$40,000
	Camper trailers[a]	2	$20,000	$40,000
	Misc supplies 231-239 series			$5,000
	Check station signs[a]	12	$250	$3,000
	Subtotal			**$148,500**
Utilities	**Description**			**Total Cost**
	Water line and electric hookups[a]	2	$3,000	$6,000
	Subtotal			**$6,000**
	Total			**$840,109**

[a] Do not purchase if purchased during Long-term Suspect or Positive status.
[b] Do not purchase if water wells are drilled.