

Wyoming

Aquatic Invasive Species

Program Review

Report to the
Joint Travel, Recreation, Wildlife
and
Cultural Resources Committee

Submitted by: The Wyoming Game and Fish Department

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EXECUTIVE SUMMARY

The 2010 Wyoming Aquatic Invasive Species (AIS) Act and subsequent Wyoming Game and Fish Commission regulation established the Wyoming AIS program. The mission of the program is to prevent the spread of AIS to Wyoming waters through public outreach, watercraft inspections, and monitoring.

Since implementation in March 2010, the program has operated with one permanent coordinator, one program assistant [12-month At-Will Employee Contract (AWEC)], and 30 to 34 seasonal technicians. Five crew leaders (6-month AWEC) were added to the program in 2011. The AIS program has also received considerable support from Wyoming Game and Fish Department personnel. A total of 327 different people have spent 72,817 hours on the program to date; the equivalent of 420 man-months of work.

Outreach activities have resulted in an increased awareness by the boating community and the general public on the issues. This awareness resulted in most boaters entering inspection stations in 2011 with the required decal purchased, drain, clean, and dry watercraft, knowledge of the issue, and overall support for the program.

The watercraft inspection component of the program was initiated in May 2010 to intercept high risk watercraft that may be transporting AIS into Wyoming, educate boaters on ways to self inspect their watercraft prior to launch in Wyoming, and increase boater and public awareness of AIS threats and prevention. Since the start of the program, 83,768 inspections have been conducted on 38 waters throughout Wyoming. An estimated 23 to 28% of all inspections were conducted on nonresident watercraft from at least 46 different states, Canada and Mexico. The greatest numbers of nonresident watercraft were from Colorado, Utah, Montana, and Idaho during 2010 and 2011.

Monitoring of waters is critical for early detection of invasive mussels and other AIS, and allows the state to implement containment strategies if any Wyoming water becomes infested. In 2010, 44 waters were sampled for adult, juvenile, and mussel veligers. During 2011, 53 waters were sampled for mussels, as well as aquatic plants, crayfish, snails, and clams. All results to date have been negative for the presence of mussels and other AIS.

The Wyoming AIS Act required all watercraft operating in Wyoming waters to purchase an AIS decal to help fund the program in the future. To date, 70,160 decals have been purchased by boaters. Total receipts from decal sales are \$882,515 which will go directly towards supporting the AIS program.

We believe the program has been a success during the first two years. However, operating with a single permanent employee and uncertain future funding creates enormous challenges. Program growth to increase effectiveness is critical if success is to be maintained into the future.

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Introduction

In March 2010, the Wyoming Aquatic Invasive Species (AIS) Act (enrolled act 62) was passed by the state legislature and signed into law by the Governor. Subsequent to this Act, the Wyoming Game and Fish Commission passed a regulation relating to AIS (Chapter 62). The state statute and regulation established the Wyoming AIS program and gave the agency the authority needed to implement an AIS prevention program including outreach, watercraft inspections, and monitoring. The regulation also detailed the boater decal program mandated by the state statute. The statute provided a \$1.5 million appropriation to the Wyoming Game and Fish Department (WGFD) to implement the AIS program in 2010. Funding through supplemental appropriations of \$1.06 million for FY12 allowed the program to continue through 2011.

The mission of the program is to prevent the spread of AIS to Wyoming waters through public outreach, watercraft inspections, and monitoring. The program has been successful at each of these components in the two years since implementation. However, program growth to increase effectiveness is critical if success is to be maintained in the future.

Personnel

Permanent WGFD personnel, specifically regional fisheries management crews, spent considerable time on AIS program activities during 2010 (Table 1). In addition to WGFD personnel assistance, AIS personnel in 2010 included one permanent coordinator, one 12-month At-Will Employee Contract (AWEC) program assistant, and 30 seasonal technicians (29 general funded; 1 U.S. Forest Service funded). In order to ease the burden on permanent WGFD personnel not funded through the AIS program, five AWEC crew leader positions were added in 2011. These positions were responsible for supervising and scheduling seasonal inspectors, conducting water sampling, conducting outreach, data entry, report writing, and program logistics within their assigned regions. Additional AIS personnel in 2011 included 34 seasonal technicians for a total of 41 AIS personnel (43 personnel indicated in Table 1 refers to positions vacated and re-filled during the season). Of these, 30 positions (coordinator and 29 AWEC) were general fund, 1 U.S. Forest Service funded, and 10 using WGFD positions and funds. Since the inception of the program in 2010, 327 different people with the WGFD have assisted with the implementation of the AIS program (Table 1). A total of 72,817 hours have been spent on the program to date; the equivalent of 420 man-months of work.

Table 1. Estimated hours personnel spent on AIS activities in 2010 and 2011

Division/Program	Personnel (#)			Hours		
	2010	2011	Total*	2010	2011	Total
AIS Personnel	32	43	63	21,816	28,171	49,987
WGFD Personnel						
Director's	5	----	5	47	----	47
Fish	77	55	91	12,801	2,813	15,614
Fiscal	20	8	21	949	185	1,134
Services	33	10	34	1,867	101	1,968
Wildlife	105	35	113	3,071	996	4,067
<i>WGFD Subtotal</i>	<i>240</i>	<i>108</i>	<i>264</i>	<i>18,735</i>	<i>4,095</i>	<i>22,830</i>
All Personnel	272	151	327	40,551	32,266	72,817

*Personnel total indicates number of different people for both years; multiple people conducted AIS activities in both years and are only counted once in the total.

Outreach

Outreach and education are major components of a successful AIS prevention program. The goal is to educate boaters, anglers, water recreationists, and the general public about AIS threats, and what they can do to prevent all aquatic invasive species from being spread to and within Wyoming. Outreach activities in 2010 focused largely on informing the boating public of the new AIS legislation, regulation, and decal requirement. Information was conveyed through postcard mailings, newspaper, radio, video, and internet advertising, signs at over 110 standing and flowing waters, informational brochures and self-check forms, traveler alert systems on interstate highways, key chains and bumper stickers, education at watercraft check stations, and more than 20 presentations to public schools and other venues.

Most of the outreach in 2011 consisted of one-on-one outreach to boaters at check stations. This has been the most effective way to spread the messages about the AIS threat and the drain, clean, dry protocol. In 2011, more boaters were aware of the issue, how to prepare for a watercraft inspection, and what they could do on their own to reduce the threat, than in the program's initial season. Traveler information signs were again used on interstate highways to alert boaters of inspection stations at nearby waters. Radio spots and interviews were again used to continue to educate a wide audience about AIS. Numerous presentations were conducted and booths set-up at various venues in order to spread the message to a wider audience.

Increasing public awareness through outreach has proven to be the best method for successful AIS prevention. Outreach activities have resulted in an increased awareness by the boating community and the general public on the issues. This awareness resulted in most boaters entering inspection stations with the required decal purchased, drain, clean, and dry watercraft, knowledge of the issue, and overall support for the program.

Watercraft Inspections

The watercraft inspection component of the program was initiated in May 2010 to intercept high risk watercraft that may be transporting AIS into Wyoming, educate boaters on ways to self inspect their watercraft prior to launch in Wyoming, and increase boater and public awareness of AIS threats and prevention.

The "State of Wyoming Aquatic Invasive Species Watercraft Inspection and Decontamination Manual" was developed in 2010 and revised in 2011 to detail procedures used by authorized inspectors when conducting watercraft inspections in Wyoming. All inspectors were trained in these procedures with three training courses offered in 2010 and eight courses offered regionally in 2011. A total of 265 inspectors have been certified since the program began. In 2011, inspectors that had been certified the previous year were allowed to recertify with an online exam which greatly increased the number of certified inspectors available in 2011. Conducting training courses regionally in 2011 also increased the number of inspectors from sportsman groups and interested members of the public. In 2012, training courses will be offered regionally and evening and weekend courses will be added to further increase participation. Training courses have been effective in increasing knowledge of AIS and in certifying individuals that can assist with inspections on holiday weekends and during fishing tournaments.

Inspections were conducted from mid-May through mid-September each year to cover peak boating season in Wyoming. Inspections consisted of either a standard inspection, high risk inspection, or drain, clean, dry exit inspection. A standard inspection procedure applies to all watercraft before entering the water and includes a boater interview to assess the watercraft's risk, a rapid inspection of the watercraft exterior, inspection of any interior compartments that may hold water such as live

wells, lowering of motor to drain any water, and removal of the bilge plug to drain water from watercraft. A high risk inspection is a very thorough inspection of all areas of the watercraft and trailer to ensure no mussels or other AIS are present and to ensure there is no high risk water present. The inspection protocol was modified in 2011 to increase vigilance with high risk watercraft last used in either infested water or a state with infested waters. All watercraft that had been used in infested water within the last 30 days automatically received a high risk inspection. Additionally, any watercraft used in a state with infested waters within the last 30 days that had any standing water onboard automatically received a high risk inspection. This change in protocol increased the number of high risk inspections conducted and increased the effectiveness at stopping potentially infested watercraft prior to launch. In the event that AIS or high risk standing water were found, watercraft were decontaminated using high pressure, hot water (140°F). The high pressure removes mussels from the watercraft while the hot water kills mussels.

Watercraft seals were applied to some watercraft in 2011 that had undergone a standard inspection, exit inspection, or decontamination. The goal of the seal program was to expedite the next inspection for the boater and the inspector. If a boater entered a check station with a valid seal on their watercraft and the receipt they were given when the seal was applied, the seal was cut and the boater was allowed to launch without a standard inspection. Watercraft seals are small, tamper proof wires and are applied so that they connect the boat to the trailer, thus an intact seal indicates the watercraft had not launched since it was last inspected. Watercraft seals were applied as time permitted and were done as a courtesy to boaters. In most cases, boaters felt the watercraft seal expedited the process at their next launch. The process is most efficient when used at waters where large numbers of exit inspections are conducted and for boaters that may be traveling to a different water for their next launch. Increased use of seals in the future would increase the efficiency of watercraft inspections.

In 2010, a total of 40,964 inspections were conducted on 35 waters throughout Wyoming from May 22 through September 26 (Table 2). Of those, 62 watercraft also received a high risk inspection and 22 resulted in decontamination. Four mussel encrusted boats were intercepted and decontaminated in 2010; three, previously in Lake Mead, NV, were intercepted in Jackson and one, previously in the Great Lakes, was intercepted in Cody. In comparison, 42,804 watercraft inspections were conducted on 32 waters from May 21 through September 15 in 2011. Of those, 115 watercraft also received a high risk inspection and 14 resulted in decontamination. Due to the revision to the high risk inspection protocol in 2011, high risk inspections increased by 53 compared to 2010 (Table 2). However, only 14 decontaminations were conducted in 2011, eight fewer than 2010, indicating that boaters are being much more diligent about following drain, clean, and dry protocol. Four mussel encrusted boats were intercepted in 2011; three, previously in Lake Mead, NV, where intercepted in Jackson and one, previously in New York, was intercepted at Flaming Gorge Reservoir.

Since the start of the program, 83,768 inspections have been conducted on 38 waters throughout Wyoming (Figure 1; Table 2). In 2011, an additional 1,840 watercraft inspections were conducted compared with 2010. This increase in watercraft inspections is primarily due to inspections being conducted seven days a week at Jackson Lake in 2011 compared with four days a week in 2010. Jackson Lake had the greatest number of inspections in both 2010 (6,726) and 2011 (10,268), followed by Flaming Gorge Reservoir (5,481 in 2010; 4,434 in 2011) and Glendo Reservoir (4,746 in 2010; 5,050 in 2011; Figure 2). Some major waters (Buffalo Bill Reservoir, Big Horn Lake, Flaming Gorge Reservoir, Boysen Reservoir) had fewer watercraft inspections in 2011, likely a result of lower early season use due to high spring runoff.

An estimated 23 to 28% of inspections were conducted on nonresident watercraft from at least 46 different states, Canada and Mexico. The greatest numbers of nonresident watercraft were from Colorado, Utah, Montana, and Idaho during 2010 and 2011. Watercraft inspections followed the same pattern both years, with the greatest number of inspections conducted on July 4th weekend (4,495 in 2010; 5,171 in 2011; Figure 3). Inspections increased through mid-July then tapered off with decreased boating in September.

Inspection hours were greatest in 2010 at Flaming Gorge Reservoir (3,959 hours), where inspectors typically covered multiple boat ramps each inspection day (Table 3). However, because inspections were conducted seven days a week, inspection hours were highest at Jackson Lake (2,893 hours) in 2011. Efficiency of inspections, as measured by the number of inspections per inspection hour, was greatest at Jackson Lake, Big Horn Lake and Buffalo Bill Reservoir in 2010 and at Alcova Reservoir and Jackson Lake in 2011 (Table 3). These check stations typically operated in one location, had one to two inspectors at a time, and inspected relatively high numbers of watercraft, resulting in a high inspection per hour ratio.

To estimate the daylight coverage provided by inspections, a metric of ramp days was used. Total available ramp days were calculated as the number of ramps at a water multiplied by the number of days in the boating season (mid-May to mid-September). This gave an estimate of total available ramp days, or days in the season when watercraft could launch at that water. Ramp days covered was calculated as the number of days inspections occurred at a water multiplied by the number of ramps typically covered by that check station. Coverage was then calculated as the ramp days covered divided by the total available ramp days.

Coverage was greatest at Fremont Lake, Jackson Lake, and Granite Reservoir in 2010 and at Jackson Lake, Buffalo Bill Reservoir, and Granite Reservoir in 2011 (Table 3). Coverage increased on 70% of the waters from 2010 to 2011 (Figure 4). This increase was due largely to consolidating inspections in 2011 at waters which received the highest boating use in 2010. Average coverage across all waters increased from 20.3% in 2010 to 34.4% in 2011. Coverage on priority waters averaged 29.9% in 2010 compared to 37.4% in 2011. The coverage provided in 2011 is the maximum that can be provided on 26 waters with current AIS personnel. Coverage can be increased either by consolidating inspections to cover fewer waters or by increasing number of personnel. The 2011 AIS program balanced the need for high coverage at major waters, with the need to conduct inspections and outreach at lower use waters to reach a wider audience.

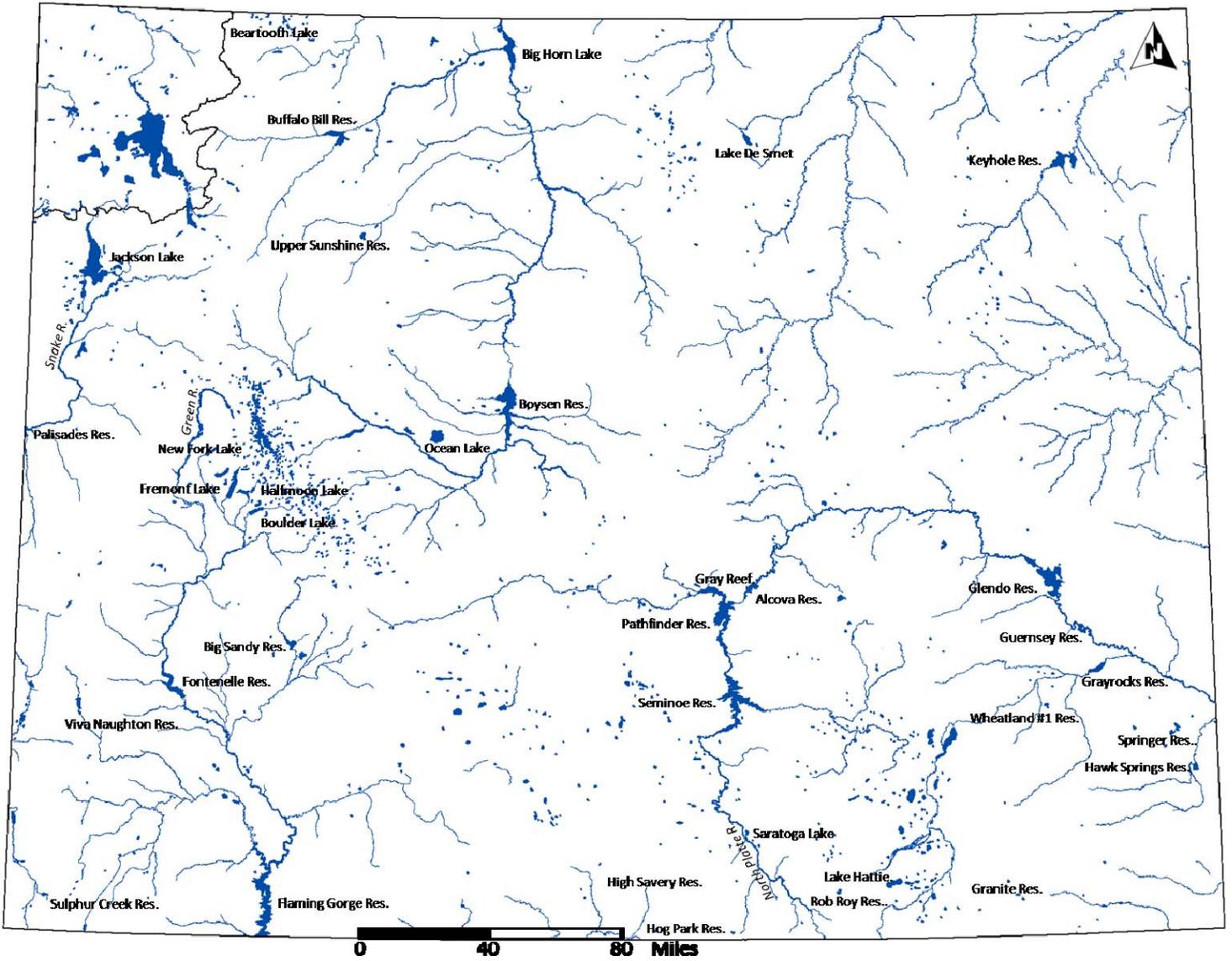


Figure 1. Waters with aquatic invasive species inspection stations during the 2010 and 2011 boating seasons. All labeled waters had aquatic invasive species check stations.

Table 2. Total (standard and exit) inspections, high risk inspections, and decontaminations at waters during 2010 and 2011.

Water name	Total inspections			High risk inspections			Decontaminations		
	2010	2011	<i>Total</i>	2010	2011	<i>Total</i>	2010	2011	<i>Total</i>
Alcova Reservoir	1,118	2,729	3,847	2	11	13	0	1	1
Beartooth Lake	----	33	33	----	0	0	----	0	0
Big Horn Lake	2,940	2,005	4,945	2	0	2	0	0	0
Big Sandy Reservoir	2	----	2	0	----	0	0	0	0
Boulder Lake	11	23	34	0	0	0	0	0	0
Boysen Reservoir	3,298	2,611	5,909	0	1	1	0	0	0
Buffalo Bill Reservoir	3,504	2,381	5,885	1	2	3	0	1	1
Flaming Gorge	5,481	4,434	9,915	14	17	31	5	5	10
Fontenelle Reservoir	533	267	800	2	1	3	0	0	0
Fremont Lake	1,484	1,132	2,616	0	0	0	0	0	0
Glendo Reservoir	4,746	5,050	9,796	8	50	58	3	2	5
Granite Reservoir	872	1,029	1,901	0	3	3	0	1	1
Grayrocks Reservoir	794	910	1,704	2	0	2	0	0	0
Gray Reef-NP Riv.	80	53	133	0	0	0	0	0	0
Green River	34	6	40	0	0	0	0	0	0
Guernsey Reservoir	894	763	1,657	7	2	9	1	0	1
Halfmoon Lake	40	3	43	0	0	0	0	0	0
Hawk Springs	421	432	853	0	1	1	0	1	1
High Savery Reservoir	21	----	21	0	----	0	0	0	0
Hog Park Reservoir	----	8	8	----	0	0	----	0	0
Jackson Lake	6,726	10,268	16,994	8	2	10	6	1	7
Keyhole Reservoir	2,595	2,841	5,436	8	8	16	3	0	3
Lake De Smet	769	1,304	2,073	0	7	7	0	0	0
Lake Hattie	42	37	79	0	0	0	0	0	0
New Fork Lake	250	41	291	0	0	0	0	0	0
North Platte R.-Upper	13	8	21	0	0	0	0	0	0
Ocean Lake	47	----	47	0	----	0	0	0	0
Palisades Reservoir	1,819	1,788	3,607	0	2	2	0	2	2
Pathfinder Reservoir	871	1,295	2,166	0	4	4	0	0	0
Rob Roy Reservoir	90	10	100	0	0	0	0	0	0
Saratoga Lake	11	75	86	1	0	1	1	0	1
Seminole Reservoir	1,084	925	2,009	6	1	7	2	0	2
Snake River	30	----	30	0	----	0	0	0	0
Springer Reservoir	1	----	1	0	----	0	0	0	0
Sulphur Creek	182	116	298	1	1	2	1	0	1
Upper Sunshine	----	114	114	----	0	0	----	0	0
Viva Naughton	154	113	267	0	2	2	0	0	0
Wheatland #1	7	----	7	0	----	0	0	0	0
Total	40,964	42,804	83,768	62	115	177	22	14	36

Table 3. Watercraft inspection effort and coverage for 2010 and 2011 including inspection hours, inspections per hour, and coverage as a percent of total daylight hours.

Water name	Inspection hours		Inspections per hour		Coverage (%)	
	2010	2011	2010	2011	2010	2011
Alcova Reservoir	499	686	2.2	4.0	14.4	28.1
Beartooth Lake	----	30	----	1.1	----	2.5
Big Horn Lake	835	1,192	3.5	1.7	20.7	26.3
Big Sandy Reservoir	10	----	0.2	----	0.8	----
Boulder Lake	37	145	0.3	0.2	2.3	11.7
Boysen Reservoir	1,723	1,377	1.9	1.9	21.4	22.0
Buffalo Bill Reservoir	835	1,170	3.5	2.0	42.2	55.8
Flaming Gorge Reservoir	3,959	2,764	1.4	1.6	36.7	35.0
Fontenelle Reservoir	647	557	0.8	0.5	16.0	18.8
Fremont Lake	1,170	976	1.3	1.2	58.2	50.0
Glendo Reservoir	2,194	1,844	2.2	2.7	30.5	27.5
Granite Reservoir	703	777	1.2	1.3	45.7	55.8
Grayrocks Reservoir	816	712	1.0	1.3	28.1	33.9
Gray Reef-NP Riv.	47	28	1.7	1.9	----	----
Green River	80	28	0.4	0.2	----	----
Guernsey Reservoir	625	615	1.4	1.2	25.8	44.2
Halfmoon Lake	20	20	2.0	0.2	1.6	1.7
Hawk Springs Reservoir	538	572	0.8	0.8	33.2	40.0
High Savery Reservoir	34	----	0.6	----	3.5	----
Hog Park Reservoir	----	----	----	----	----	----
Jackson Lake	1,115	2,893	6.0	3.5	51.6	96.7
Keyhole Reservoir	1,917	1,358	1.4	2.1	41.9	41.9
Lake De Smet	723	698	1.1	1.9	10.3	15.6
Lake Hattie	65	131	0.6	0.3	4.5	11.7
New Fork Lake	114	140	2.2	0.3	8.2	10.0
North Platte R.-Upper	37	----	0.3	----	----	----
Ocean Lake	34	----	1.4	----	1.6	----
Palisades Reservoir	778	1,003	2.3	1.6	44.1	48.3
Pathfinder Reservoir	460	579	1.9	2.2	20.7	43.3
Rob Roy Reservoir	155	8	0.6	1.3	12.1	0.8
Saratoga Lake	11	251	1.0	0.3	0.8	20.8
Seminole Reservoir	1,327	1,337	0.8	0.7	29.9	39.4
Snake River	20	----	1.5	----	----	----
Springer Reservoir	2	----	0.5	----	0.2	----
Sulphur Creek Reservoir	289	201	0.6	0.6	16.4	14.2
Upper Sunshine Reservoir	----	40	----	2.9	----	3.3
Viva Naughton Reservoir	338	304	0.5	0.4	10.9	10.8
Wheatland #1 Reservoir	32	----	0.2	----	2.3	----
Total/Average	22,189	22,436	1.8	1.9	20.3	34.4

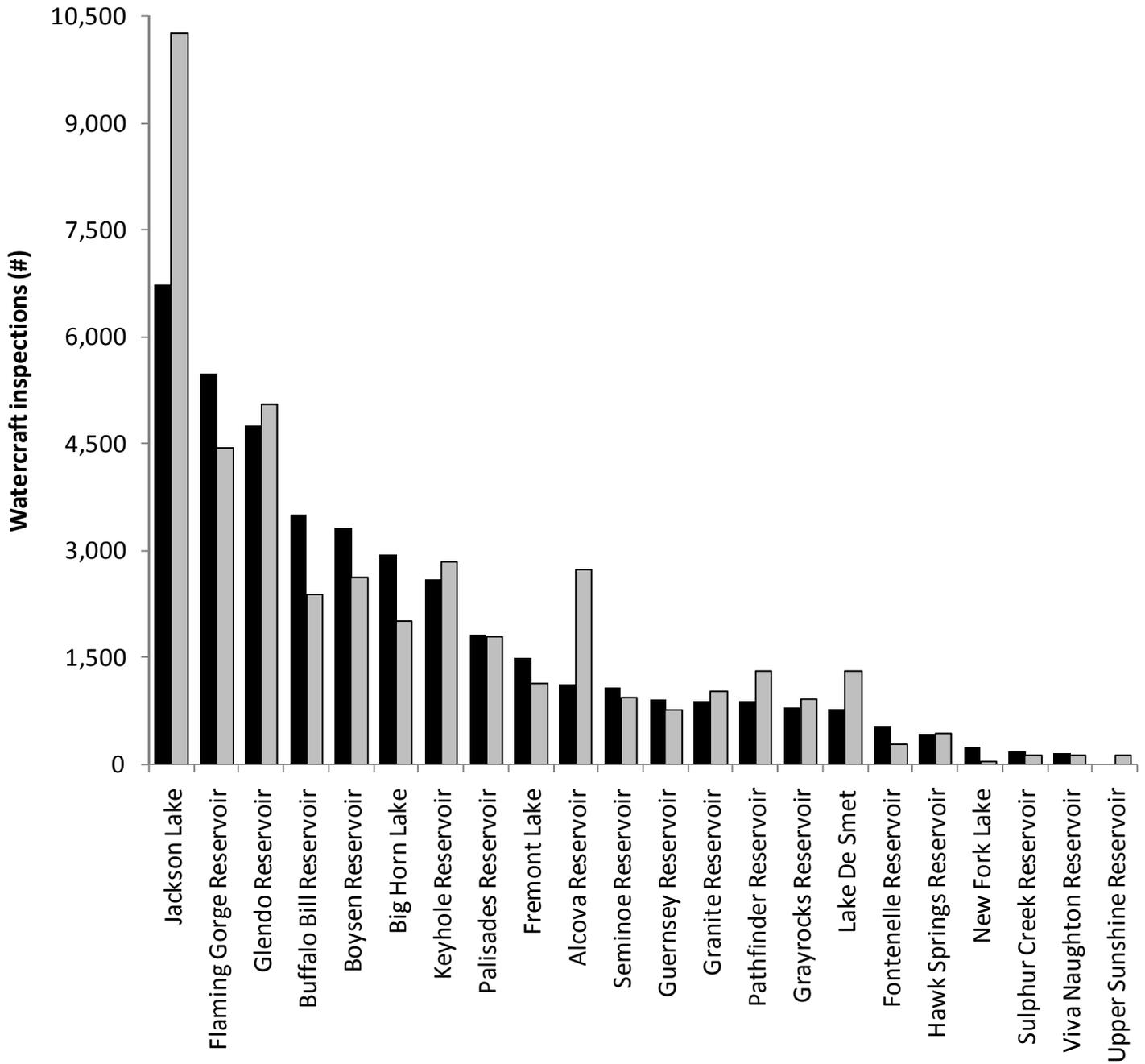


Figure 2. Total watercraft inspections during the 2010 (black) and 2011 (gray) boating seasons. Waters with fewer than 100 inspections are not included in the graph and are referenced in Table 2.

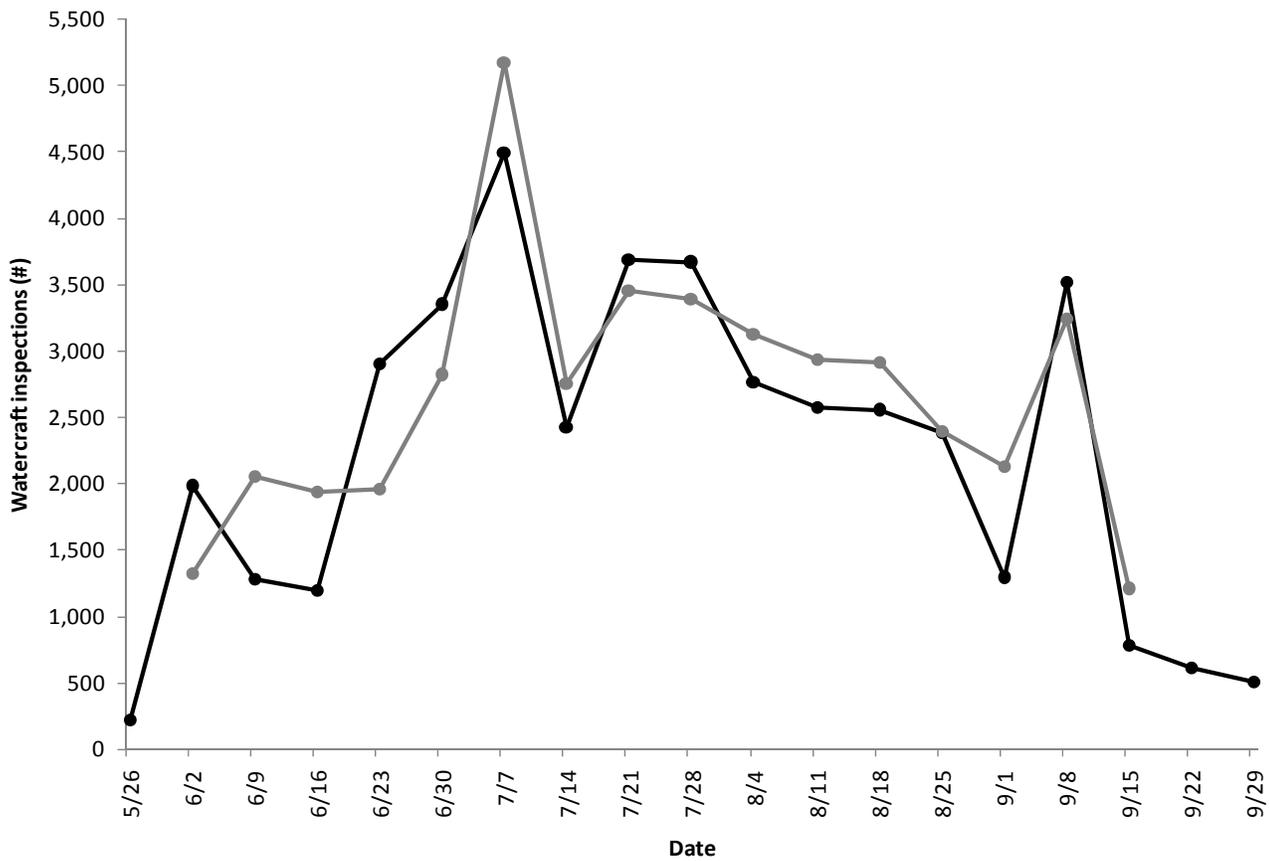


Figure 3. Weekly watercraft inspection totals in 2010 (black) and 2011 (gray).

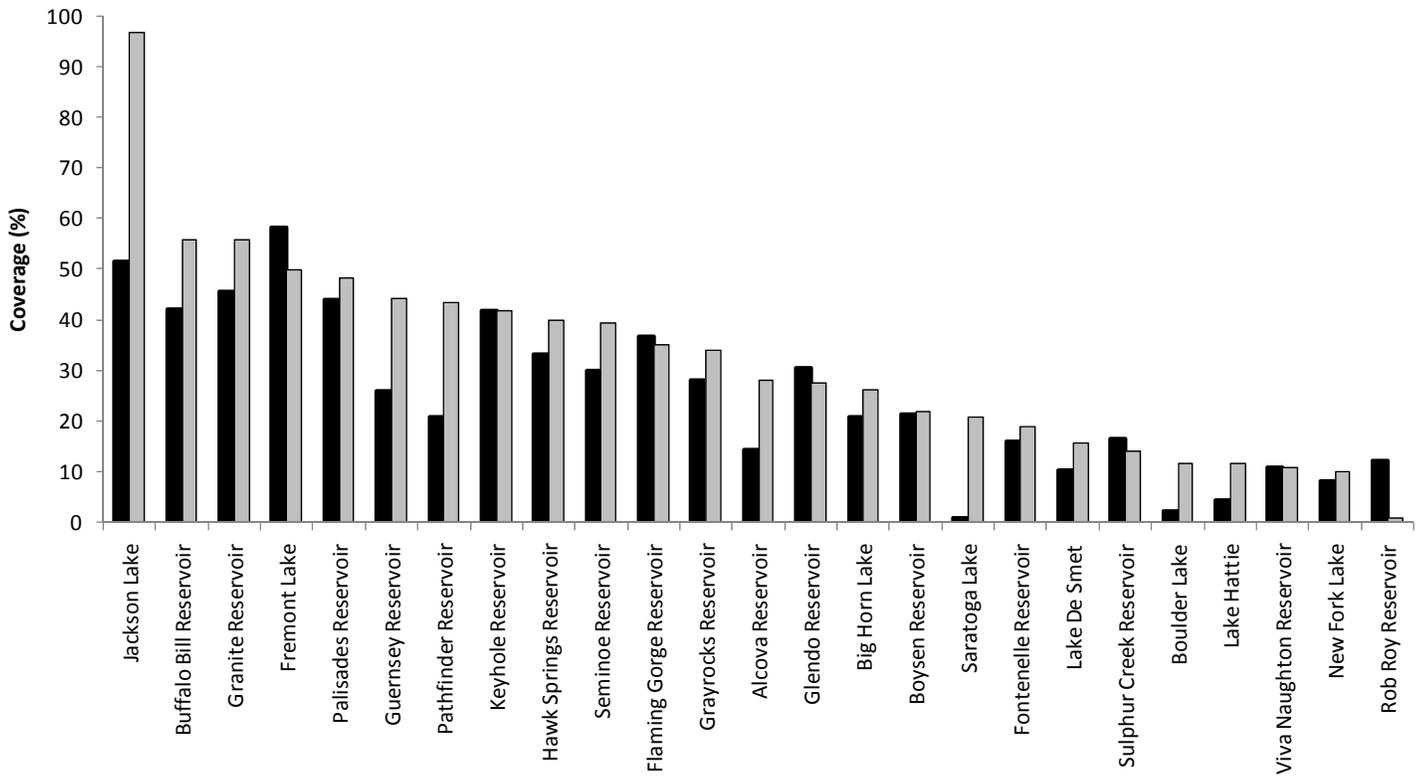


Figure 4. Percent daylight coverage of watercraft inspections during 2010 (black) and 2011 (gray). Waters with coverage less than 10% are not included in the graph and are referenced in Table 3.

Monitoring

Monitoring of waters is critical for early detection of invasive mussels and other AIS, and facilitates use of containment strategies if any Wyoming water becomes infested. Monitoring consists of sampling for larval (veliger), juvenile, and adult mussels, crayfish, clams, snails, aquatic plants, and testing water quality (temperature, calcium and hardness). Water samples from plankton tows are analyzed by microscopy for mussel veligers at the Bureau of Reclamation laboratory in Denver or the Montana Fish, Wildlife and Parks laboratory in Helena. All samples in 2010 and 2011 were analyzed at no cost to the WGFD. Specimens collected during shoreline surveys to search for invasive mussels, crayfish, clams, snails, and aquatic plants were analyzed by the WGFD.

In 2010, 44 waters were sampled for juvenile/adult mussels and veligers. All results for 2010 were negative, indicating no presence of mussel veligers in samples collected. Additional personnel (AIS crew leads) in 2011 allowed for enhanced monitoring and increased our effectiveness at early detection of any new AIS. During 2011, 53 waters were sampled for mussels, as well as aquatic plants, crayfish, snails, and clams. To date, veliger results have been received for 22 waters; all results were negative (Table 4).

Table 4. Monitoring results for the 53 waters sampled during 2010 or 2011.

Water name	Results	
	2010	2011
Alcova Reservoir	Negative	Negative
Beartooth Lake	Not tested	Negative
Beck Lake	Negative	Not yet reported
Big Horn Lake	Negative	Negative
Big Sandy Reservoir	Not tested	Not yet reported
Boulder Lake	Negative	Not yet reported
Boysen Reservoir	Negative	Negative
Buffalo Bill Reservoir	Negative	Negative
Crystal Reservoir	Negative	Not yet reported
Deaver Reservoir	Negative	Not yet reported
East Newton Lake	Negative	Not yet reported
Flaming Gorge Reservoir	Negative	Negative
Fontenelle Reservoir	Negative	Negative
Fremont Lake	Negative	Not yet reported
Glendo Reservoir	Negative	Negative
Granite Reservoir	Negative	Negative
Grayrocks Reservoir	Negative	Negative
Green River Lake	Negative	Not yet reported
Guernsey Reservoir	Negative	Negative
Harrington Reservoir	Negative	Not yet reported
Halfmoon Lake	Negative	Not yet reported
Hawk Springs Reservoir	Negative	Negative
High Savery Reservoir	Negative	Not yet reported
Hog Park Reservoir	Not tested	Not yet reported
Island Lake	Not tested	Negative
Jackson Lake	Negative	Not yet reported
Jim Bridger Pond	Not tested	Not yet reported
Keyhole Reservoir	Negative	Negative
Lake De Smet	Negative	Negative
Lake Owen	Negative	Negative
Lower Slide Lake	Negative	Not yet reported
Meadowlark Lake	Negative	Not yet reported
Meeks Cabin Reservoir	Not tested	Not yet reported
Middle Piney Lake	Not tested	Not yet reported

Table 4 continued. Monitoring results for the 53 waters sampled during 2010 or 2011.

Water name	Results	
	2010	2011
Naughton Plant Pond	Not tested	Not yet reported
New Fork Lake	Negative	Not yet reported
Ocean Lake	Negative	Not yet reported
Palisades Reservoir	Negative	Not yet reported
Pathfinder Reservoir	Negative	Negative
Pilot Butte Reservoir	Negative	Not yet reported
Rob Roy Reservoir	Negative	Negative
Saratoga Lake	Negative	Not yet reported
Seminole Reservoir	Negative	Negative
Soda Lake	Negative	Not yet reported
Sulphur Creek Reservoir	Negative	Negative
Upper North Crow Reservoir	Negative	Not yet reported
Upper Sunshine Reservoir	Negative	Not yet reported
Viva Naughton Reservoir	Negative	Negative
Wardell Reservoir	Negative	Not yet reported
West Newton Lake	Negative	Not yet reported
Wheatland Reservoir #1	Negative	Negative
Willow Lake	Negative	Not yet reported
Woodruff Narrow Reservoir	Not tested	Not yet reported

Decal

The Wyoming AIS Act required all watercraft operating in Wyoming waters to purchase an AIS decal to help fund the program. The subsequent regulation pertaining to AIS detailed the fee structure for the decal and provided an exemption for inflatable watercraft less than 10 feet in length. The fee structure of the decal is \$5 for resident non-motorized, \$10 for resident motorized, \$15 for nonresident non-motorized, and \$30 for nonresident motorized watercraft. The decal became available for purchase on the WGFD website on April 15, 2010 and an all automated license selling agents on May 17, 2010. In 2010, decals were also sold in the field by law enforcement personnel and at WGFD regional offices. In 2011, WGFD regional offices were able to print the decal for purchasers, while decals purchased from license selling agents or online were mailed from WGFD headquarters in Cheyenne.

During 2010, a total of 35,456 decals were sold resulting in receipt of \$449,740. In 2011, 34,704 decals have been sold as of mid-October, resulting in receipt of \$432,775 (Table 5). Approximately 77% of all watercraft registered in Wyoming purchased a decal during 2011. Decal sales in 2011 were lower than in 2010, possible because of the slow start to the boating season in 2011 due to high spring run-off (Figure 5). Total receipts from decal sales since the inception of the law is \$882,515. Total revenue available to the program over two years is \$866,607 after license agent commissions and credit card fees were deducted; this is the amount fully available to directly support the AIS program.

To educate boaters about the decal and enhance public acceptance of the new law, the WGFD offered boaters a one-time temporary decal in the field to allow launch if a permanent decal had not yet been purchased. During 2010, an estimated 3,162 temporary decals were issued to boaters; less than 7 percent of the total number of permanent decals sold. During 2011, temporary decals were issued sparingly and boaters were encouraged to purchase decals.

Table 5. Cumulative decal sales (count and amount) in 2010 and 2011 (through mid-October).

Decal type	Count			Sales		
	2010	2011	Total	2010	2011	Total
Resident Motorized	20,675	19,899	40,574	\$206,750	\$198,990	\$405,740
Resident Non-motorized	6,505	6,698	13,203	\$32,525	\$33,490	\$66,015
Nonresident Motorized	5,755	5,246	11,001	\$172,650	\$157,380	\$330,030
Nonresident Non-motorized	2,521	2,861	5,382	\$37,815	\$42,915	\$80,730
Total	35,456	34,704	70,160	\$449,740	\$432,775	\$882,515

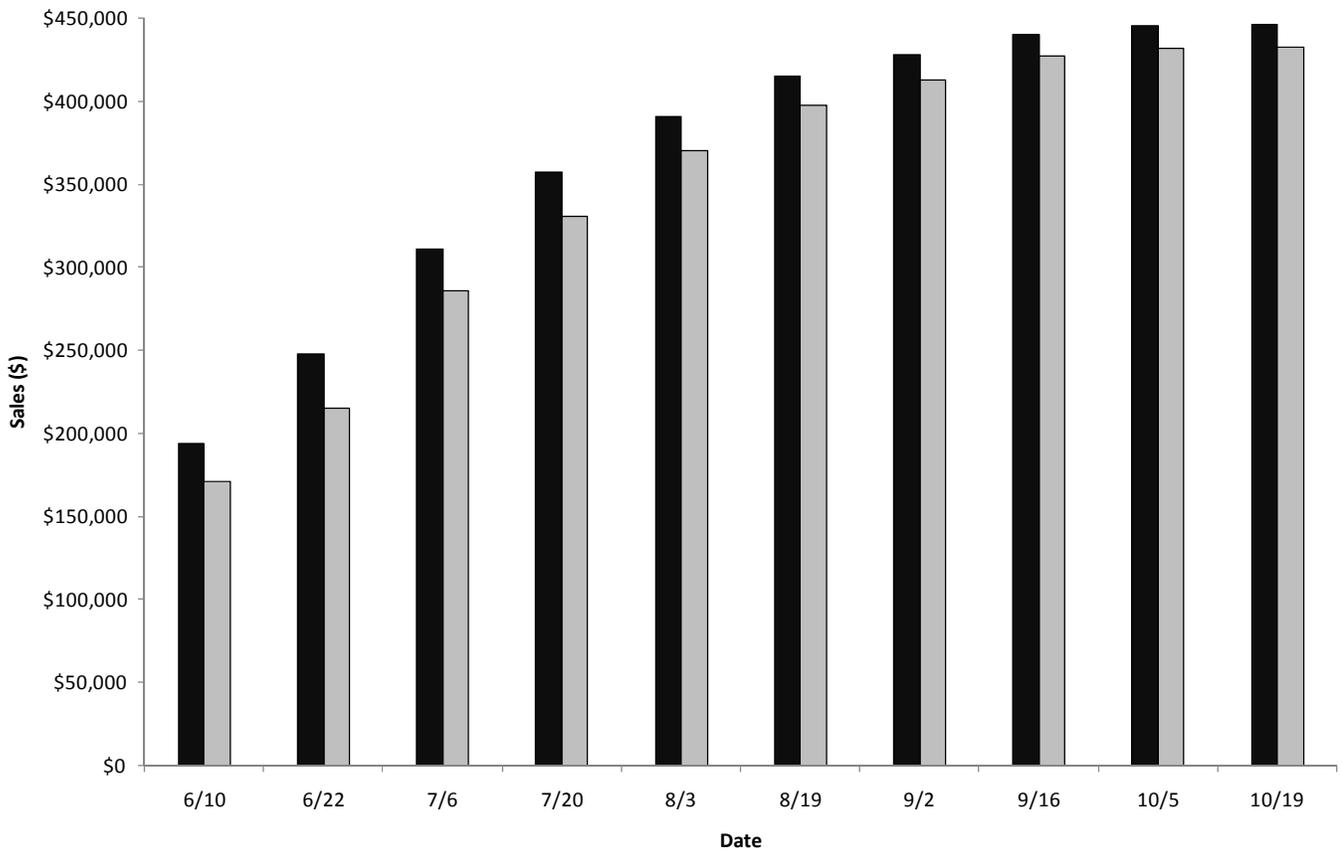


Figure 5. Cumulative decal sales by week in 2010 (black) and 2011 (white).

Increasing Program Effectiveness

We believe the program has been a success during the first two years. However, operating with a single permanent employee and uncertain future funding creates enormous challenges. Program growth to increase effectiveness is critical if success is to be maintained into the future.

Personnel

The addition of four permanent AIS biologists to the program would greatly increase effectiveness in prevention, outreach, and monitoring. Crew leads and additional technicians were hired in 2011 to maintain the capacity and coverage of the program without the substantial assistance from WGFD regional fish management, which helped initiate and sustain the program during the inaugural year. The addition of AWEC crew leads allowed the program to operate more autonomously and maintain consistency in outreach, inspections, and monitoring across the state.

After nearly two years of operations, the AIS program still lacks the program consistency and structure necessary to increase capacity and adapt in the future. Without consistency in employees from year to year, considerable time is spent training and conducting orientation each year that could be better spent on prevention efforts. With permanent personnel, outreach could be greatly expanded to reach new user groups and interested parties with the goal of educating all Wyoming water users, not just boaters and anglers. Biologists could commit substantial time in the off-season to outreach and education activities including: helping to develop and disseminate aquatic invasive species messages for promotional materials, delivering public presentations to explain AIS and generate support for the program to sportsman groups, professional natural resource societies, irrigation and conservations districts, water users, and schools. Permanent AIS biologists would allow the program to expand monitoring further, increase frequency of surveys, and gain information on the distribution and abundance of species currently in Wyoming (New Zealand mudsnail, Asian clam). Biologists would be responsible for developing and updating rapid response plans for waters to allow the program to respond quickly in the event of a new AIS discovery to reduce spread to other waters. Additionally, biologists would provide greater watercraft inspection coverage during the off-season.

Currently, funding for the program is unknown from year to year making planning difficult. Establishing a permanent, biennium budget for the AIS program would increase effectiveness by allowing adequate time for program planning, hiring, and equipment procurement.

Outreach

Outreach in future years will focus more on increasing boater awareness of AIS threats and prevention, including species other than invasive mussels. Several AIS (New Zealand mudsnail, Asian clam, whirling disease) currently exist in Wyoming and the program must increase outreach and education on these species to prevent the spread to other waters in Wyoming. Adding signs at access points on waters with a documented AIS such as Asian clam or New Zealand mudsnail would be the first step toward increasing awareness and preventing the spread of these species.

Invasive species can also spread through numerous pathways not tied to recreation, such as road construction, fire fighting, and oil and gas development. Any activity that moves water from one area to another could potentially spread AIS. Developing best management practices to offer suggestions and tips for water use activities will help prevent unintentionally spreading AIS. Partnering with other agencies (State Engineer's Office, Department of Environmental Quality, Bureau of Land Management) to add stipulations to water hauling permits to include drain, clean, and dry rules for conveyances and mandatory inspections

following exposure to infested waters would increase program effectiveness.

A boater survey will be sent to Wyoming boaters from 2010 and 2011 to better gauge their awareness of AIS and to identify areas where the program can focus outreach in the future.

Watercraft Inspections

Watercraft inspections are the largest component of the AIS program and offer the best opportunity to increase program effectiveness. Improvements to existing sites for watercraft inspections to allow for safer more efficient check station areas are critical in the future. Signing of check stations, gravel and grading, creating new pull-outs and other logistical improvements to sites would increase our ability to conduct watercraft inspections.

In addition to improving existing sites, conducting watercraft inspections at Port of Entry or rest area locations on major entrances into Wyoming would increase the likelihood of intercepting infested watercraft and allow a reduction in effort at boat ramps. Eleven key areas on highways or interstates have been identified to intercept watercraft entering Wyoming. Check stations at boat ramps should be maintained at up to six major waters to intercept watercraft moving between waters within Wyoming and those not intercepted at highway check stations. Highway check stations would allow more efficient coverage and use of personnel and would increase the likelihood of detecting an infested watercraft entering the state. In 2011, Utah operated a check station at the Port of Entry on I-15 near St. George for three days and intercepted a total of 80 watercraft. More than 26% of those watercraft required decontamination, indicating a large percentage of high risk watercraft enter from out of state.

The greatest threat of spreading AIS into Wyoming is currently from watercraft last used out of state. To further increase program effectiveness at preventing the spread of AIS into Wyoming, a statute or regulation change should be considered to require mandatory inspections for any watercraft last used out of state or recently purchased from out of state. This statute change would allow increased vigilance for out of state watercraft and would place responsibility on the boater to have their watercraft inspected before launching in Wyoming.

Conducting inspections at borders and requiring mandatory inspections for watercraft last used out of state would require the addition of the four permanent biologists and additional seasonal technicians to meet the increased demand.

Monitoring

Several invasive species currently exist in Wyoming including New Zealand mudsnail, Asian clam, and whirling disease. Greater effort needs to be placed on preventing the spread of these invasive species to new waters in Wyoming. Increased effort is needed to determine distribution and abundance, monitor impacts, prevent further spread, and assess feasibility of any eradication efforts.

Decal

The AIS decal can currently be purchased online, at any WGFD regional office, or at over 200 license selling agents. However, in order to increase the ease of purchasing the decal for boaters, plans are to allow the decal to be purchased concurrent with watercraft registration. This will allow boaters to purchase both their registration and decal at the same time, and may lead to greater compliance.