

Wyoming Aquatic Invasive Species 2013 Program Summary



The Wyoming Aquatic Invasive Species (AIS) program was implemented in 2010. The goal of the program is to prevent the spread of aquatic invasive species within and to Wyoming through public outreach, watercraft inspections, and monitoring.

LEGISLATION

No statute or regulation changes were enacted in 2013. During 2013, changes to the program were implemented to meet the requirements of the 2012 statute amendment requiring all conveyances entering the state by land from March through November to have an AIS inspection before contacting or entering a water of the state.

PERSONNEL

AIS personnel in 2013 included one permanent coordinator, one 12-month At-Will Employee Contract (AWEC) program assistant, eight 9-month AWEC crew leads and 42 seasonal technicians (38 general funded; 2 U.S. Forest Service funded and 2 U.S. Fish and Wildlife Service funded).

OUTREACH AND EDUCATION

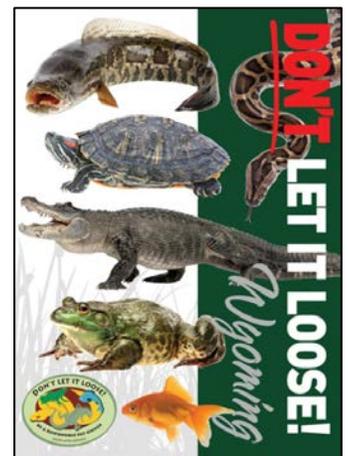
Outreach to resident boaters focused on the drain, clean, dry message and reminding boaters of the need to complete these steps every time they boat, even if returning to the same water or only boating in Wyoming.



Billboards with the "Drain Clean Dry" slogan were placed at ten locations throughout the state near major boating waters. Radio advertisements and call-ins also focused on outreach to resident boaters and to residents who may boat in other states and then return to Wyoming waters.

Numerous presentations were conducted and booths were staffed at various venues to spread the message to a wider audience. Most of the outreach in 2013 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.

The results of the 2012 boater survey were compiled to assess boater awareness of AIS. A total of 691 individuals responded to the survey for a 6.7% response rate and a survey error rate of 4.0%. Of boaters who responded to the survey, 42.7% were Wyoming residents and 57.3% were nonresidents from 23 different states. Respondent awareness of AIS was high, as was the frequency with which boaters followed prevention guidelines (i.e. Drain, Clean, Dry). Overall, boater's experiences at watercraft inspection stations, and when purchasing a decal, were positive.



A new "Don't Let it Loose" campaign was launched to educate pet owners on the dangers of letting pets loose into the wild. A Don't Let it Loose brochure was produced and distributed to all 4th grade students in Wyoming. Additional brochures were distributed to regional offices, and will be distributed to additional venues in 2014.

WATERCRAFT INSPECTIONS

A total of 15 watercraft inspection and decontaminations trainings were conducted in 10 different locations throughout the state. Inspectors that had been certified in 2011 or 2012 were allowed to recertify online. A total of 266 individuals attended classes in 2013. Since the program has been offering trainings a total of 538 individuals have been certified as inspectors. Private individuals were encouraged to become AIS inspectors and to offer services to the boating public as certified inspection locations. Twenty-four (24) locations were authorized as certified inspection locations and an additional 33 individuals were certified as a private authorized inspector, allowing them to conduct inspections for the boating public.

Inspections during the early spring and fall were primarily conducted at regional offices and certified inspection locations. The majority of inspections were conducted at border locations and major waters throughout the state during peak boating season, from April 20 through September 28 (Figure 1). All inspections were documented with a tamper proof seal and receipt, or just a receipt if inspectors were unable to attach a seal in the case of non-motorized watercraft. This allowed watercraft transported into the state to have documentation of the required mandatory inspection before launching in Wyoming.

A total of 40,180 watercraft inspections were conducted over 205 days, resulting in 21,916 individual boaters being contacted at all check stations. A total of 1,515 high risk inspections were conducted and 578 watercraft required decontamination (Table 1). The majority of decontaminations (431), were performed on watercraft with standing water in the motor, 117 were conducted on watercraft with standing water in other compartments (livewell, bilge, etc.) that had last been used in an infested water or infested state, and 30 decontaminations were conducted on watercraft with confirmed or suspect invasive species onboard.



Fourteen watercraft had confirmed zebra or quagga mussels attached and were completely decontaminated. On all but one watercraft, the mussels were determined to be dead and not viable. The watercraft with live mussels was quarantined for several weeks to ensure all mussels had been killed by desiccation, and was then completely decontaminated before being allowed to launch. Infested watercraft originated from the Great Lakes (4 watercraft); Lake Mead, NV (3); Ft. Gibson, OK (2); Colorado River, AZ (1); Wynona Lake, IN (1); Mississippi River, IL (1), Lake Champlain, VT (1), and an unknown water (1). These watercraft were destined for Wyoming (7), Idaho (2), Washington (2), Utah (2), and British Columbia (1; Figure 2).

The greatest number of inspections were conducted at the Evanston I-80 check station (6,336), followed by Alpine (5,472), Cheyenne I-25 (4,788), and Flaming Gorge-Anvil Draw (4,250; Figure 3). The highest inspection activity per hour occurred from 10:00am to 1:00pm and the busiest day of the week was Saturday. The highest inspection activity occurred over the July 4th holiday (Figure 4). Total hours spent conducting watercraft inspections at all check stations and regional offices was about 36,868 hours, for an average of 1.1 inspections per hour. Inspection rate (inspections/hour) ranged from 0.2 at Lusk and New Fork Lake to 3.3 at Jackson Lake (Table 1).

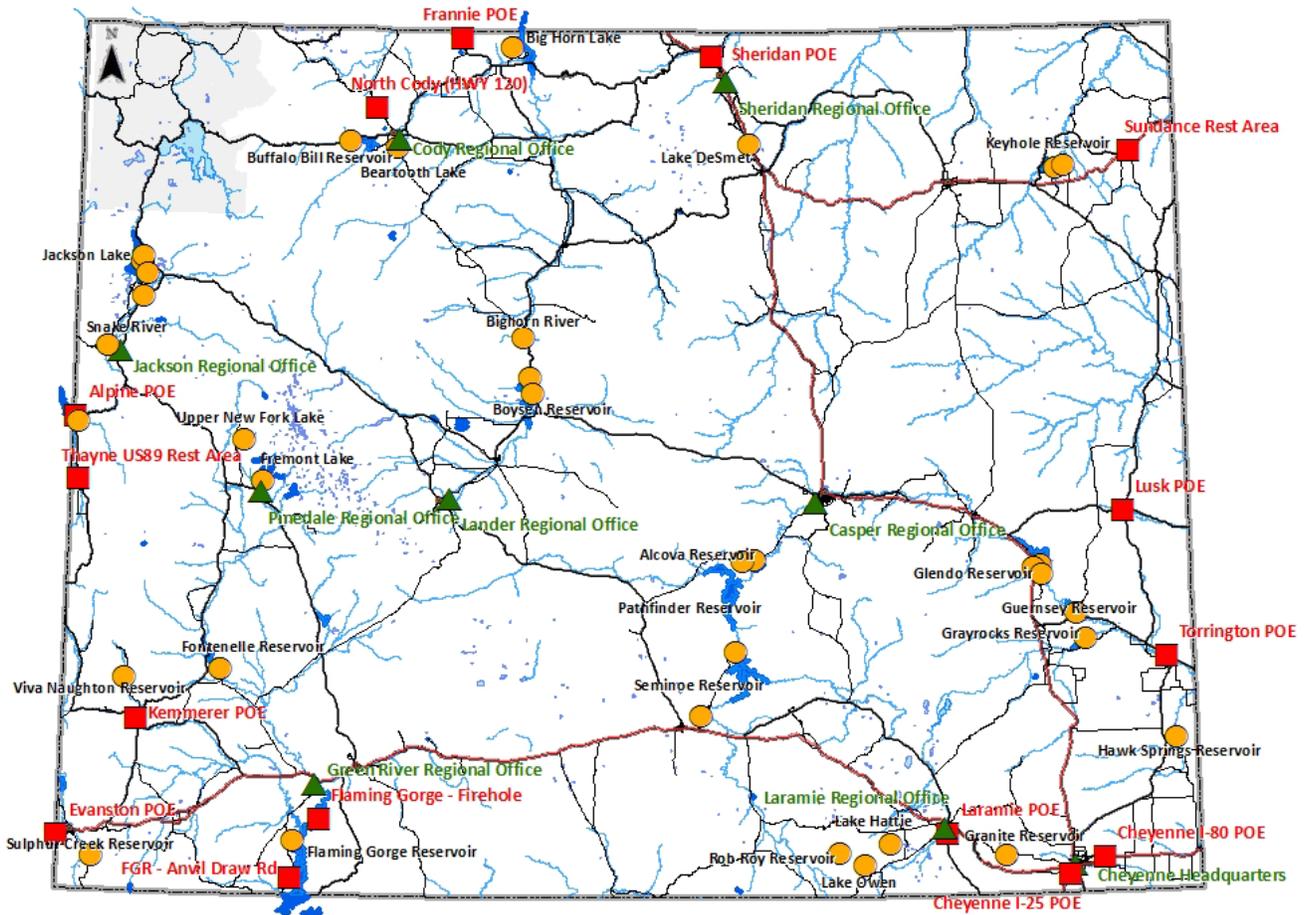


Figure 1. Location of watercraft inspections during 2013 at waters (yellow circle), borders (red square), and regional offices (green triangle).

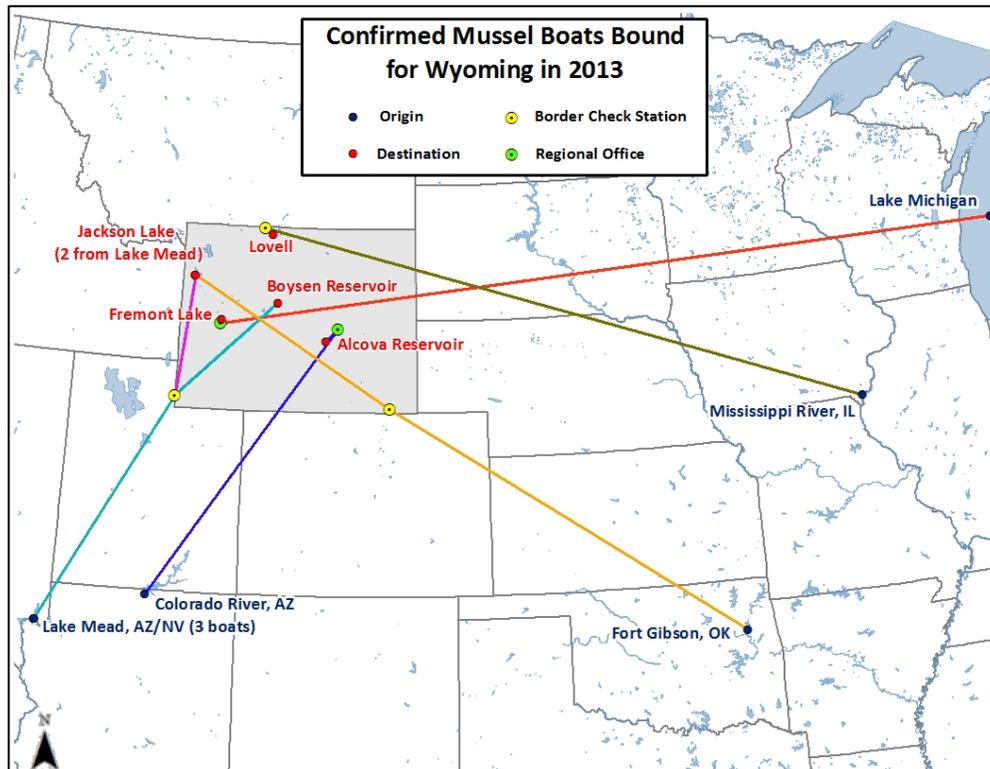


Figure 2. Origin and destination of watercraft bound for Wyoming with confirmed mussels.

Table 1. Inspections, decontaminations, inspection hours and inspection rate at check stations.

Check Station	Total Inspections	High Risk Inspections	Decons	Inspection Hours	Inspection Rate
Lusk	289	35	4	1,808	0.2
Torrington	597	37	19	1,795	0.3
Alcova Res.	427	2	1	167	2.6
Glendo Res.	859	8	0	428	2.0
Pathfinder Res.	454	0	0	186	2.4
Casper GF Office	74	15	4	52	1.4
Cheyenne I-25	4,788	453	173	4,311	1.1
Cheyenne I-80	1,899	298	58	2,561	0.7
Laramie 287	1,251	70	17	2,114	0.6
Granite Res.	200	2	0	344	0.6
Grayrocks Res.	634	5	0	352	1.8
Guernsey Res.	5	0	0	20	0.3
Hawk Springs Res.	182	1	0	182	1.0
Lake Hattie	21	0	0	64	0.3
Lake Owen	1	0	0	12	0.1
Rob Roy Res.	26	1	0	70	0.4
Seminole Res.	34	0	0	76	0.4
Cheyenne HQ	47	6	2	9	5.2
Laramie GF Office	22	1	0	11	0.3
Frannie	1,046	5	4	1,934	0.5
N. Cody Hwy 120	487	3	1	971	0.5
Beartooth Lake	6	0	0	10	0.6
Bighorn River	51	0	0	56	0.9
Big Horn Lake	291	4	3	106	2.7
Boysen Res.	191	0	0	163	1.2
Buffalo Bill Res.	153	0	0	270	0.6
Cody GF Office	38	3	0	13	2.9
Lander GF Office	21	3	0	16	1.3
Evanston I-80	6,336	360	215	3,981	1.6
Kemmerer	286	11	9	626	0.5
Fontenelle Res.	39	0	0	31	1.3
Sulphur Creek Res.	107	0	0	174	0.6
Viva Naughton Res. Res.	33	0	0	56	0.6
Flaming Gorge-Anvil	4,250	20	0	2,232	1.9
Flaming Gorge-Buckboard	201	2	0	312	0.6
Flaming Gorge-Firehole	1,447	17	0	1,545	0.9
Green River GF Office	26	1	0	12	2.2
Alpine	5,472	7	6	1,952	2.8
Thayne	1,711	23	13	1,004	1.7
Fremont Lake	331	0	0	182	1.8
Snake River	32	0	0	20	1.6
Jackson Lake	1,974	22	0	596	3.3
New Fork Lake	11	0	0	48	0.2
Jackson GF Office	64	9	0	20	3.2
Pinedale GF Office	21	2	2	16	1.3
Sheridan I-90	1,217	2	0	2,564	0.5
Sundance I-90	1,319	85	47	2,589	0.5
Keyhole Res.	882	2	0	423	2.1
Lake De Smet	326	0	0	383	0.9
Sheridan GF Office	1	0	0	1	1.0
Total	40,180	1,515	578	36,868	1.1

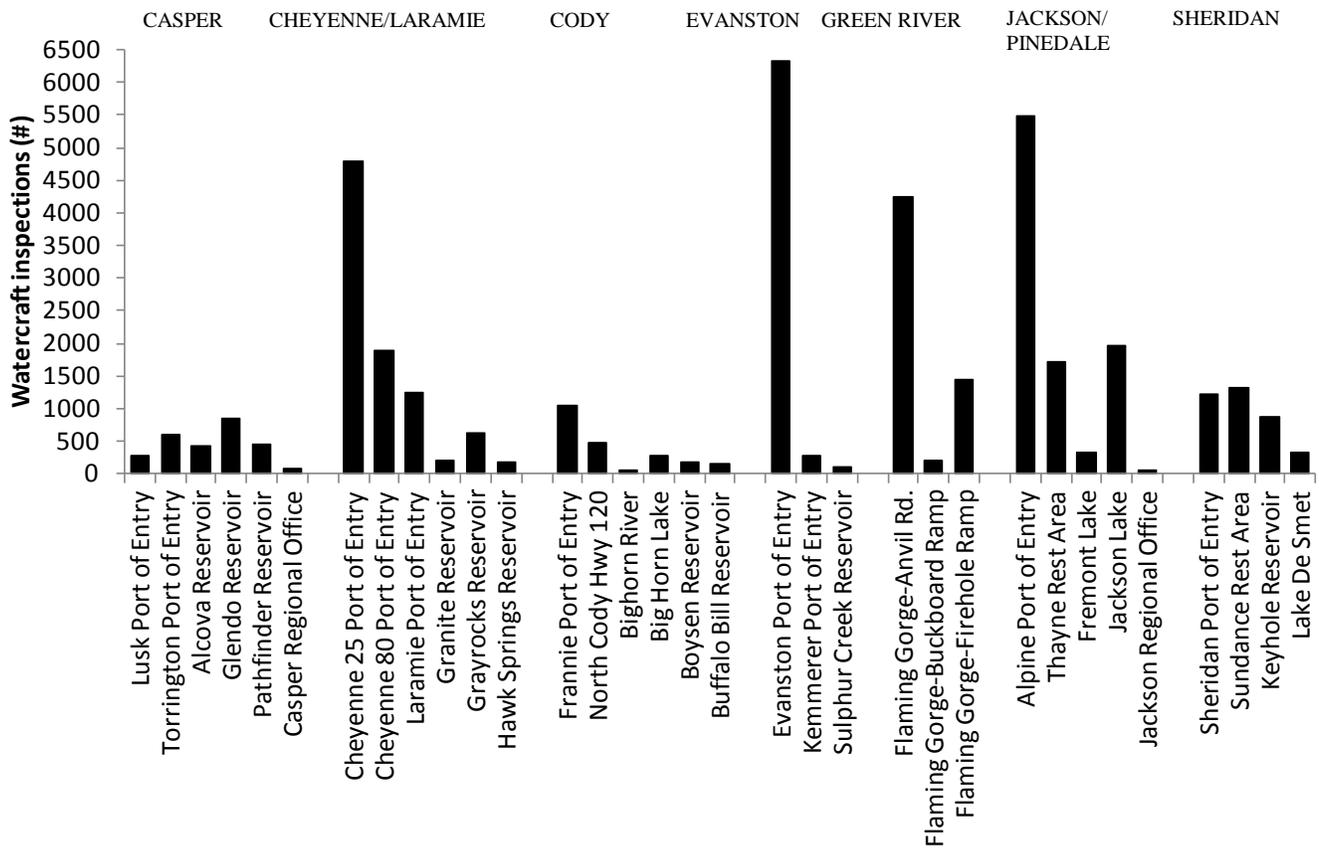


Figure 3. Total watercraft inspections by check station during 2013. Locations with fewer than 50 inspections are not included in the graph and are referenced in Table 3.

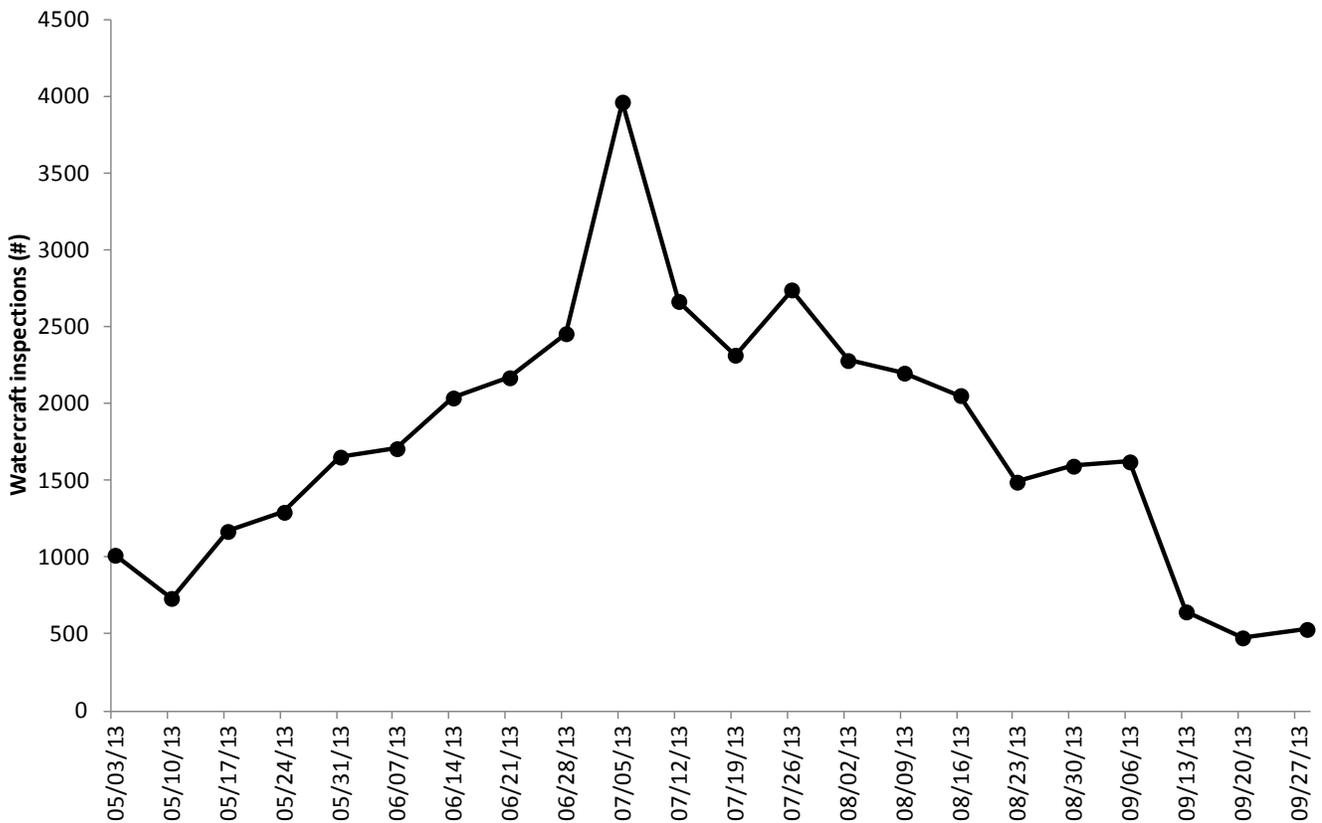


Figure 4. Weekly watercraft inspection totals at all waters during 2013.

A total of 2,403 watercraft entered a check station with an intact seal and 970 watercraft had a valid seal receipt (primarily non-motorized watercraft). Seals had been issued from Wyoming (1,527), Colorado (866), Utah (3), California (2), Montana (2), Lake Tahoe, CA/NV (2), and Idaho (1).

The majority of watercraft at the inspection station were motorized (73.7%), with lesser non-motorized use (26.3%). The majority of motorized watercraft were outboard (34.7%), followed by inboard/outboard (25.0%), inboard (7.4%), and personal watercraft (6.6%). Based on registration state of inspected watercraft or trailer, inspection of resident boats (37.8%) was much lower than non-resident boats (62.2%). The majority of nonresident use came from watercraft registered in Utah (23.8%), Colorado (15.1%), Idaho (6.1%), Montana (4.4%), and California (1.5%; Figure 5). Of all registered watercraft through the inspection station, 74.7% were inspected one-time, while 25.3% were repeat boaters who had been through the inspection station more than one time during the season.

When asked what the last waters boaters had been at, the majority had been to Flaming Gorge Reservoir, UT/WY (17.4%), followed by Snake River, WY (8.0%), Palisades Reservoir, WY/ID (5.3%), Glendo Reservoir, WY (4.8%), and Jackson Lake, WY (3.1%). Boaters indicated they had been to 1,361 different waters in 50 states, Canada, Mexico, the Middle East, Netherlands, and the Virgin Islands prior to inspection in Wyoming. Of those states Utah, Colorado, Montana, Idaho, and Nebraska received the highest visitation. Overall, 37.9% of watercraft inspected were last used out of state.

Of the last waters visited, 287 are considered suspect or confirmed infested with invasive mussels with the greatest use from Lake Powell, UT/AZ (399 watercraft); Colorado River (149 watercraft); Pueblo Reservoir, CO (139 watercraft), Missouri River (100 watercraft), and Lake Havasu CA/AZ (39 watercraft). Over 1,524 inspections (3.8% of total) were conducted on watercraft that were last used on a water considered to be infested with zebra or quagga mussels and 918 (60.2%) of those had been at an infested water within the last month.

When boaters were asked where their destination (next water) was going to be the majority (79.49%) indicated that were planning to launch in Wyoming, including interstate waters (Big Horn Lake, Flaming Gorge, Palisades Reservoir). There was a smaller percentage (20.6%) that indicated they were planning to boat next out of state with the majority visiting Bear Lake, UT, Snake River, ID, Green River, UT, and Lake McConaughy, NE. A small percentage of boaters (0.9%) indicated they would be visiting an infested (or suspect) water next with the majority visiting Lake Powell, AZ/UT; Missouri River; Pueblo Reservoir, CO; Lake Mead, NV; and Lake Superior, MN.

All watercraft must display an aquatic invasive species decal prior to launch in Wyoming waters. Over 47.0% of watercraft did not have a valid AIS decal at the time of inspection. However, many of these watercraft were not intending to launching in Wyoming, and therefore are not required to have a decal, or they purchased a decal after stopping at the check station. Of the watercraft destined for a Wyoming water that came through a check station more than one time, 1.7% never purchased a decal; it is not possible to calculate whether watercraft that only came through a check station one time ultimately purchased a decal prior to launch.

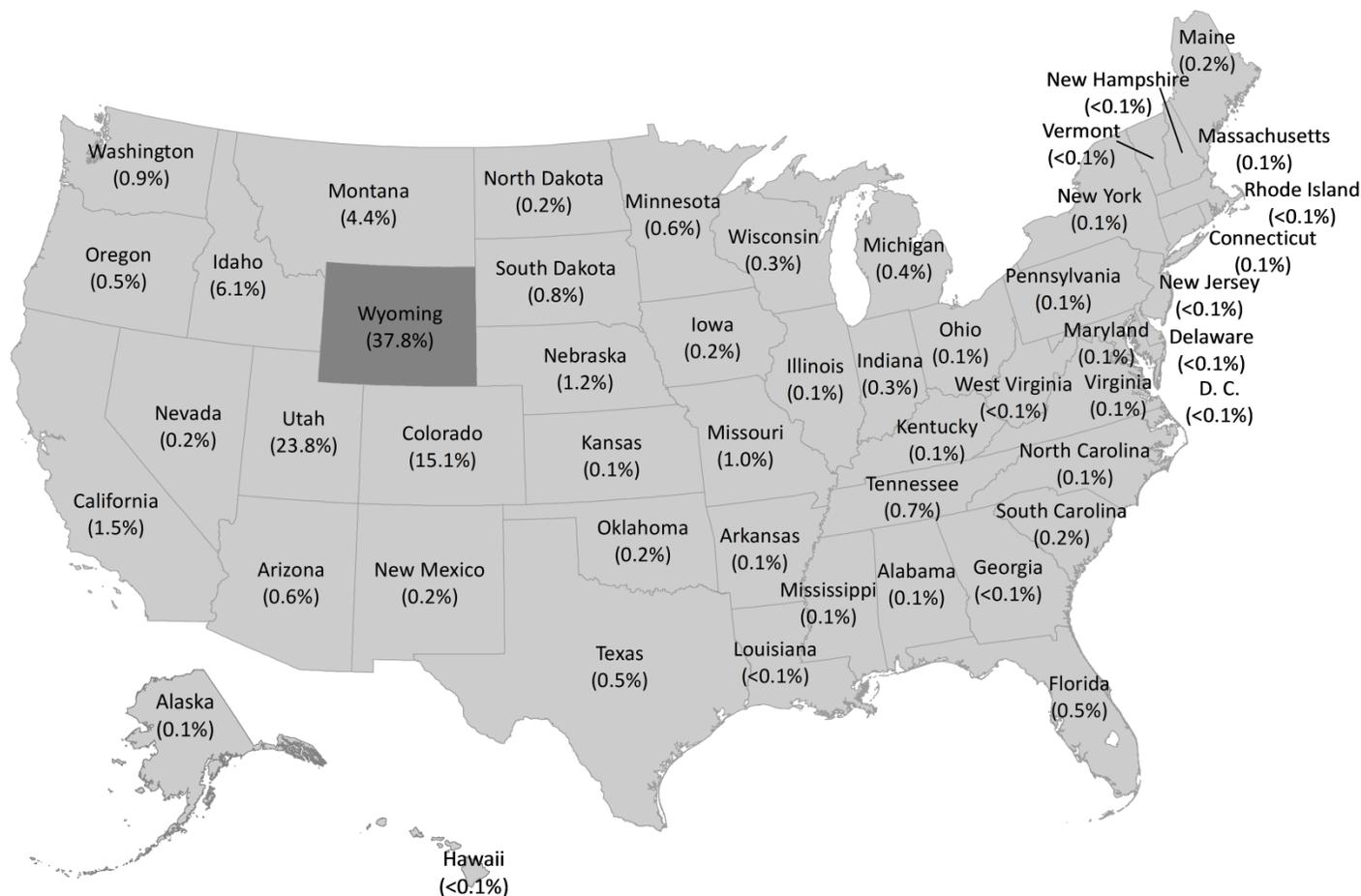


Figure 5. Map indicating registration of watercraft or trailer (state and percent of total) inspected during 2013. Watercraft were also registered in Canada (0.1%), Jamaica (<0.01%), New Zealand (<0.01%), and the Virgin Islands (<0.01%); not pictured.

MONITORING

Sampling and monitoring is an important component of the AIS program with a focus on early detection of AIS to allow for rapid response plans to be implemented. Regular monitoring is conducted statewide throughout the year and continues to be more extensive each year since the program started in 2010. Post-detection sampling and monitoring provides insight into population persistence and impacts on the ecosystem, infrastructure, and human use of those waters. Monitoring consists of sampling for larval (veliger), juvenile, and adult mussels, crayfish, clams, snails, aquatic plants, and testing water quality (temperature, pH, dissolved oxygen, conductivity, water clarity, calcium and hardness).

Plankton tow monitoring was conducted on 65 waters in 2013 (Figure 6). No larval invasive mussels were detected in any of the samples. Artificial substrates were deployed at 15 waters to capture the juvenile or adult form of invasive mussels. Surveys were also conducted on existing substrates such as boat docks and submerged objects at additional waters. No adult or juvenile mussels were detected during substrate monitoring. Shoreline and stream surveys were conducted to sample plants and animals (snails, clams, and crayfish) at 127 locations on 65 streams, rivers, and lakes.

Monitoring of existing populations of invasive species in Wyoming is conducted annually to track known populations of curly pondweed (*Potamogeton crispus*), New Zealand mudsnails (*Potamopyrgus antipodarum*), rusty crayfish (*Orconectes rusticus*), and Asian clam (*Corbicula fluminea*).

Curly pondweed was first found in Wyoming in 2011 in Lake DeSmet. It has subsequently been found in additional waters including Keyhole Reservoir and Boysen Reservoir, the North Platte River at the Miracle Mile, and New Fork Lake.

Historic locations of New Zealand mudsnails were re-sampled in 2012 and 2013 on the Big Horn River, Snake River, and Polecat Creek. These populations appear to have declined from historical accounts but still persist. No new populations of mudsnails have been discovered in Wyoming.

Asian clam were detected in the Laramie River at Tunnel Road, Monolith and Optimist Park access points in 2011 and have been monitored in 2012 and 2013. The populations persist but do not appear to be expanding; few live shells are found during surveys. A new population of Asian clam was detected by the Aquatic Assessment Crew in 2013 in the North Platte River downstream of the dam at Guernsey Reservoir.

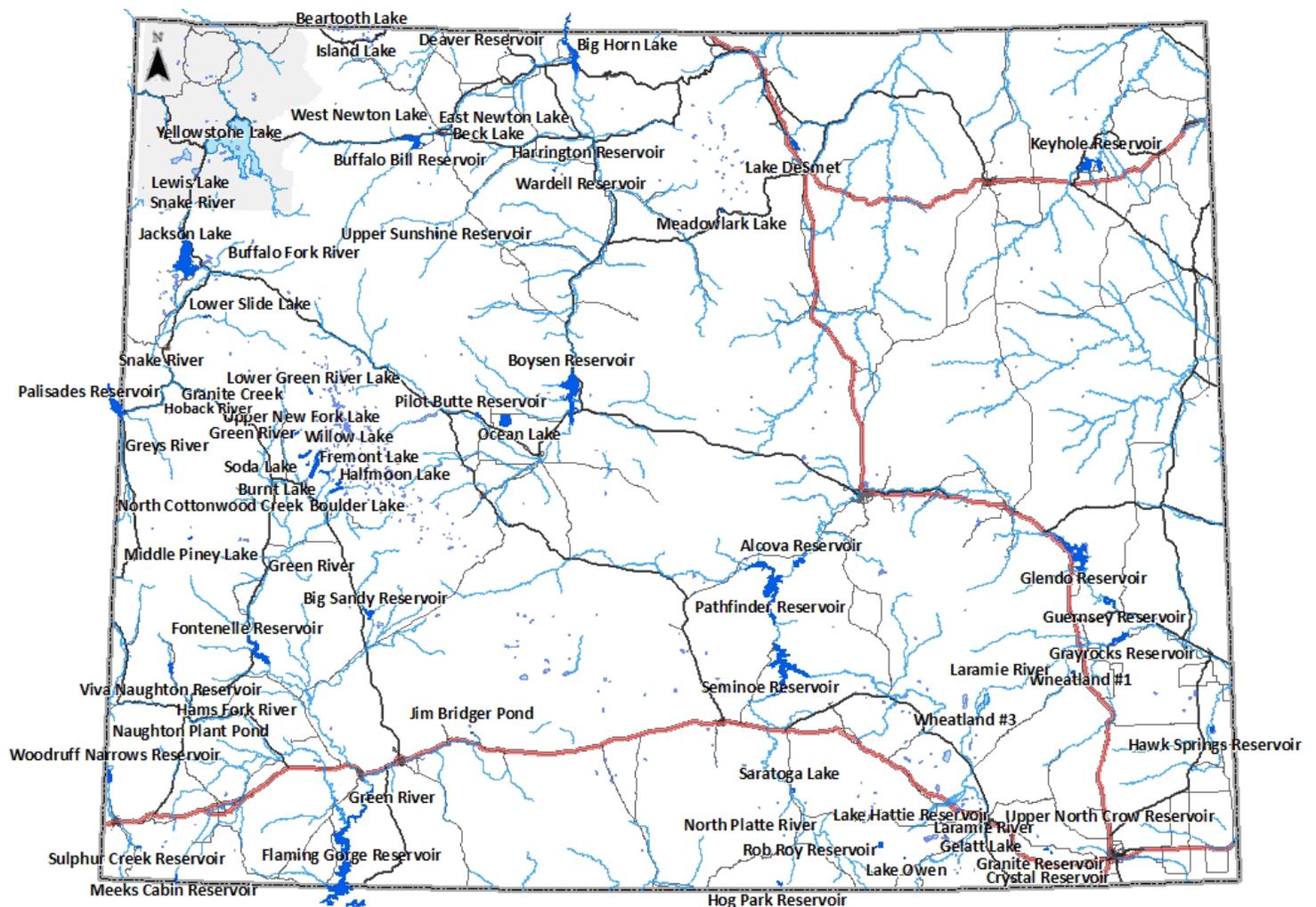


Figure 6. Map of 2013 monitoring locations.

DECAL

A total of 42,773 decals were sold resulting in receipt of \$634,395 (Table 2). Of the resident motorized decals sold, 4,861 (\$145,830) were three-year decals.

Table 2. Type, count, and monies generated from AIS decals sold in 2013.

Decal type	Count	Sales
Resident Motorized	22,614	\$323,360
Resident Non-motorized	8,942	\$44,710
Nonresident Motorized	6,538	\$196,140
Nonresident Non-motorized	4,679	\$70,185
TOTAL	42,773	\$634,395