

# Wyoming Aquatic Invasive Species 2014 Program Summary



The Wyoming Aquatic Invasive Species (AIS) program continued to focus on outreach, watercraft inspections, and monitoring in 2014.

## LEGISLATION

No statute or regulation changes were enacted in 2014. The program continued to operate border watercraft check stations to assist boaters in meeting the requirement that all watercraft entering the state by land from March through November have an AIS inspection before contacting or entering a water of the state.

## PERSONNEL

AIS personnel in 2014 included one permanent coordinator, four 12-month AWEC Regional AIS Specialists, four 9-month AWEC Regional AIS Specialists, and 43 seasonal technicians (39 general funded; 2 U.S. Forest Service funded and 2 U.S. Fish and Wildlife Service funded).

## OUTREACH AND EDUCATION

Outreach focused on increasing awareness by out of state boaters on the inspection requirements when launching in Wyoming. Billboards alerting boaters to this requirement were placed near major entrances into Wyoming from neighboring states (Colorado, South Dakota, Nebraska, Montana, Utah; Figure 1). Direct mail was also sent to boaters in Wyoming and neighboring states.



In 2014, a boater appreciation raffle was conducted with the goals of thanking boaters for cooperation with watercraft inspections, increasing compliance with watercraft stopping at check stations by incentivizing the inspections, and gathering information from boaters about the inspection process. Raffle cards were handed out at check stations at the completion of an inspection. Raffle cards directed boaters to a website where they were asked a series of questions. There were a total of 4,175 entries in the raffle survey; the number of raffle cards given to boaters was not tracked therefore it is not possible to determine a response rate.



The overall experience by boaters at watercraft check stations was positive with 92.5% indicating they were either very satisfied (75.3%) or satisfied (17.2%). Satisfaction with the timeliness of inspections was also high, with 92.3% of boaters very satisfied (77.7%) or satisfied (14.6%) with the amount of time required for inspection. Lastly, boaters rated the professionalism of inspectors high with 94.9% of boaters very satisfied (77.7%) or satisfied (14.6%).

The majority of boaters (80.5%) responding to the survey had purchased a 2014 AIS decal. Raffle respondents were mostly Wyoming residents (52.3%), followed by residents of Utah (19.5%), Colorado (16.5%), Montana (4.0%), and Idaho (2.1%). Boaters who responded to the raffle survey were from 36 different states.

## WATERCRAFT INSPECTIONS

A total of 19 watercraft inspection and decontaminations trainings were conducted in 13 different locations throughout the state. Inspectors that had been certified from 2011 through 2013 were allowed to recertify online. A total of 255 individuals attended a training course in 2014 and 524 individuals were authorized as inspectors in 2014. Private individuals were again encouraged to become AIS inspectors and to offer services to the boating public as certified inspection locations. Thirty (30) locations were authorized as certified inspection locations and many others were certified as private authorized inspectors; 32 of which allowed their information to be given out to the public online to contact for watercraft inspections.

Watercraft check stations were operated from April 26 through September 14 at fifteen permanent check stations at port of entries (POE), rest areas, and other border locations to intercept watercraft entering the state (Figure 1). Roving crews also conducted inspections at waters on a rotating basis. A total of 43,068 watercraft inspections were conducted over 209 days, resulting in 25,661 individual boaters being contacted at all check stations. A total of 2,087 high risk inspections were conducted and 880 watercraft required decontamination (Table 1). The majority of decontaminations were performed on watercraft with standing water in the motor.



Ten watercraft had confirmed zebra or quagga mussels attached and were completely decontaminated; on all watercraft the mussels were determined to be dead and not viable. The watercrafts were thoroughly decontaminated and released. Mussel infested watercraft originated from the Lake Pleasant, AZ (2 watercraft); Lake Minnetonka, MN (2), Fox Lake, IL (1), Sturgeon Bay, WI (1), Lake Texoma, TX (1), Lake Havasu, AZ (1), Mississippi River, IA (1), and an unknown Iowa water (1). These watercraft were destined for Boysen Reservoir, WY (1), Flaming Gorge Reservoir, WY (1), Horsetooth Reservoir, CO (1), San Francisco Bay, CA (1), and unknown waters in Idaho (1), Washington (2), Oregon (2), and North Dakota (1). Mussel infested watercraft were intercepted at the Evanston I-80 POE check station (3 watercraft), Cheyenne I-80 POE (3), Sundance 90 check station (3), and Cheyenne I-25 POE (1; Figure 2). One additional watercraft was intercepted at Cheyenne I-25 POE that was last used at Clear Lake, TX with mussels attached. Later laboratory analysis confirmed these to be Conrad's false mussels; this species is related to zebra/quagga mussels (Family Dreissenidae) but is found in higher salinity water.

The greatest number of inspections were conducted at the Evanston I-80 check station (7,980), followed by Cheyenne I-25 (4,757), Glendo Reservoir (4,208), Flaming Gorge Reservoir (3,919), and Alpine POE (2,637; Figure 3). The highest inspection activity per hour occurred from 10:00am to 1:00pm and the busiest day of the weeks were Friday and Saturday. As in previous years, the highest inspection activity occurred over the July 4<sup>th</sup> holiday (Figure 4). Total hours spent conducting watercraft inspections at all check stations and regional offices was about 35,155 hours, for an average of 1.2 inspections per hour. Inspection rate (inspections/hour) ranged from 0.1 at Hog Park Reservoir and Lake Owen to 5.4 at the Jackson-Sleeping Indian check station (Table 1).

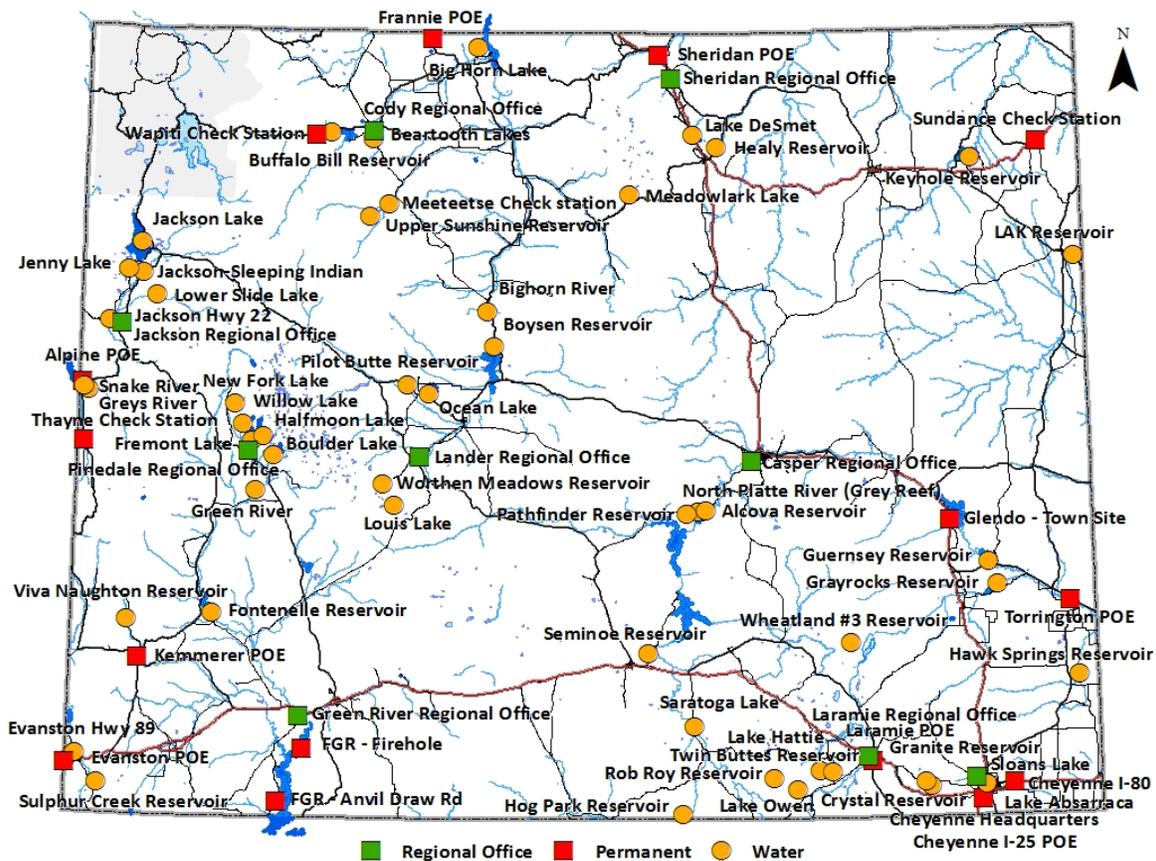


Figure 1. Location of watercraft inspections during 2014 at waters (yellow circle), borders (red square), and regional offices (green triangle).

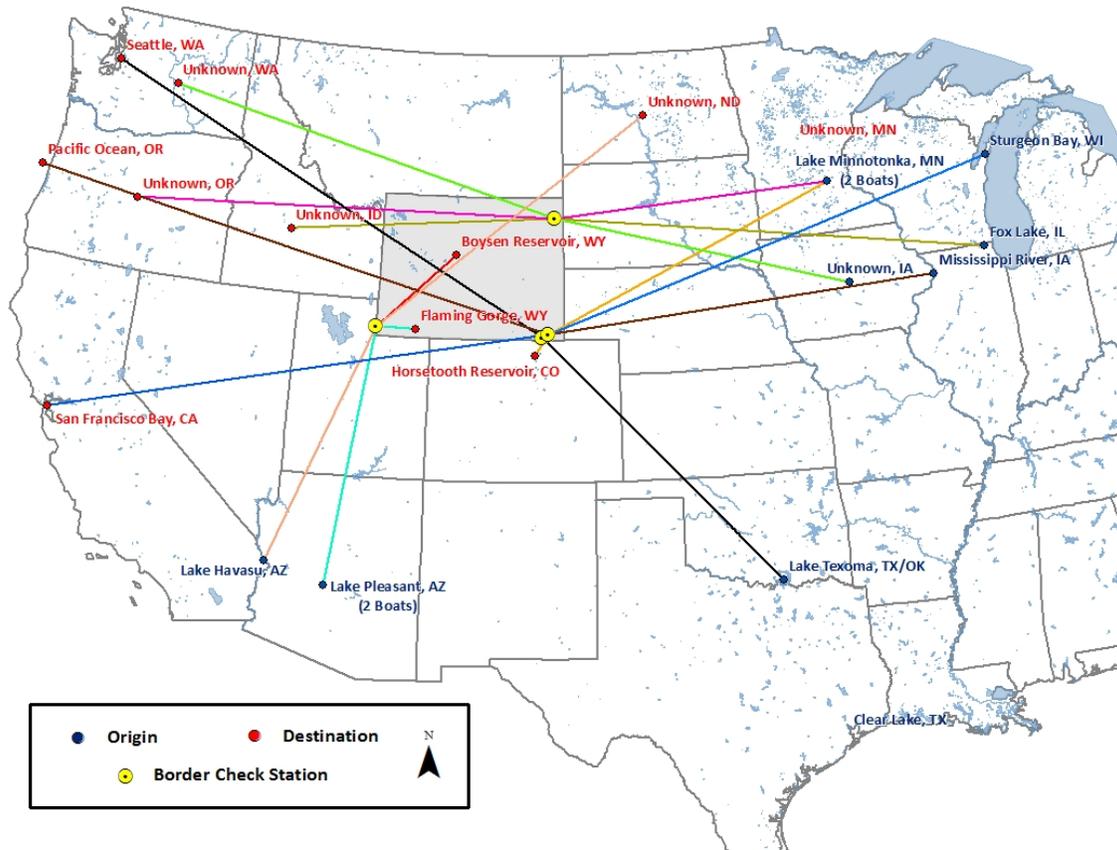


Figure 2. Origin and destination of watercraft intercepted in Wyoming with confirmed mussels attached.

Table 1. Inspections, decontaminations, inspection hours and inspection rate (inspections per hour) at check stations in 2014.

Check Station	Total Inspections	High Risk Inspections	Decons	Inspection Hours	Inspection Rate
<b>CASPER</b>					
Alcova Reservoir	618	2	0	244	2.5
Glendo Reservoir	4,208	25	12	1,888	2.2
Guernsey Reservoir	51	1	0	42	1.2
North Platte River	292	0	0	240	1.2
Pathfinder Reservoir	388	1	0	192	2.0
Seminole Reservoir	140	0	0	182	0.8
Torrington POE	787	41	3	1,739	0.5
<b>CODY/LANDER</b>					
Beartooth Lakes	6	0	0	20	0.3
Big Horn Lake	211	2	0	78	*0.8
Bighorn River	135	0	0	69	2.0
Boysen Reservoir	684	2	0	366	1.9
Buffalo Bill Reservoir	162	0	0	195	0.8
Frannie POE	984	3	0	1707	0.6
Louis Lake	3	0	0	8	0.4
Meadowlark Lake	6	0	0	16	0.4
Meeteetse Check Station	34	0	0	29	1.2
Ocean Lake	13	0	0	9	1.2
Pilot Butte Reservoir	4	0	0	16	0.4
Upper Sunshine Reservoir	26	0	0	20	1.3
Wapiti Check Station	402	8	2	859	0.5
Worthen Meadows Reservoir	3	0	0	9	0.3
<b>GREEN RIVER</b>					
Evanston Hwy 89 Check Station	136	7	0	1.6	1.3
Evanston POE	7,980	819	554	3,821	2.1
Flaming Gorge Reservoir	3,919	24	4	3,479	1.1
Fontenelle Reservoir	217	1	0	325	0.7
Green River	5	1	0	17	0.3
Kemmerer POE	299	34	20	644	0.5
Sulphur Creek Reservoir	45	0	0	65	0.7
Viva Naughton Reservoir	82	9	1	194	0.4
<b>LARAMIE/CHEYENNE</b>					
Cheyenne I-25 POE	4,757	316	103	3,506	1.4
Cheyenne I-80 POE	1,998	456	96	2,240	0.9
Crystal Reservoir	9	0	0	20	0.5
Granite Reservoir	469	3	0	401	1.2
Grayrocks Reservoir	584	3	0	317	1.8
Hawk Spring Reservoir	160	1	0	160	1.0
Hog Park Reservoir	4	0	0	30	0.1
Lake Absaraca	2	0	0	2	1.0
Lake Hattie	22	0	0	39	0.6
Lake Owen	1	0	0	9	0.1
Laramie POE	1,607	53	13	2,410	0.7
Rob Roy Reservoir	101	3	0	170	0.6
Saratoga Lake	9	0	0	51	0.2
Sloans Lake	3	0	0	11	0.3
Twin Buttes Reservoir	8	0	0	15	0.5
Wheatland #3 Reservoir	8	0	0	17	0.5

Table 1. continued.

Check Station	Total Inspections	High Risk Inspections	Decons	Inspection Hours	Inspection Rate
<b>JACKSON/PINEDALE</b>					
Alpine POE	2,637	5	0	1,677	1.6
Boulder Lake	15	0	0	22	0.7
Fremont Lake	304	1	0	190	1.6
Greys River	64	0	0	34	1.9
Halfmoon Lake	8	0	0	8	1.0
Jackson Hwy 22 Check Station	13	0	0	20	0.7
Jackson Lake	1,423	7	1	257	*2.1
Jackson-Sleeping Indian	571	0	0	106	5.4
Jenny Lake	17	0	0	15	1.1
Lower Slide Lake	39	0	0	20	2.0
New Fork Lake	35	0	0	44	0.8
Snake River	756	0	0	55	*1.7
Thayne Check Station	1,611	33	26	841	1.9
Willow Lake	4	0	0	10	0.4
<b>SHERIDAN</b>					
Healy Reservoir	3	0	0	6	0.5
Keyhole Reservoir	745	3	0	462	1.6
LAK Reservoir	5	0	0	12	0.4
Lake DeSmet	405	4	0	516	0.8
Sheridan POE	1,124	21	4	2,298	0.5
Sundance Check Station	1,195	163	31	2,459	0.5
GF Regional Offices	440	34	10	126	3.5
Certified Locations/Private Inspectors	**72	1	0	-----	-----
<b>TOTAL</b>	<b>43,068</b>	<b>2,087</b>	<b>880</b>	<b>35,155</b>	<b>1.2</b>

\*Inspections were also conducted by partners and hours were not recorded. Inspection rate was computed for the number of inspections conducted by Wyoming Game and Fish Dept. inspectors.

\*\*Additional inspection records conducted in 2014 by certified locations/private inspectors continue to be received by public inspectors.

A total of 4,710 watercraft (10.9% of the total) entered a check station with an intact seal, indicating the watercraft had been previously inspected. All watercraft must display an aquatic invasive species decal prior to launch in Wyoming waters. A total of 18,870 (43.0% of total) watercraft did not have a valid AIS decal at the time of inspection; this percentage has decreased from 47.7% in 2013. Many of the watercraft inspected without decals were not intending to launch in Wyoming and therefore are not required to have a decal.

The majority of watercraft at the inspection station were motorized (74.7%), with lesser non-motorized use (25.3%). The majority of motorized watercraft were outboard (36.3%), followed by inboard/outboard (23.4%), personal watercraft (8.0%), inboard (5.1%), and jet boats (1.9%). Based on registration state of inspected watercraft or trailer, inspection of resident boats (39.6%) was much lower than non-resident boats (60.4%). The majority of nonresident use came from watercraft registered in Utah (22.2%), Colorado (17.6%), Montana (3.8%), Idaho (3.6%), and California (1.5%; Figure 5). Watercraft were registered in all 50 states, Washington D.C., and 6 Canadian provinces. Of all registered watercraft through the inspection station, 72.1% were inspected one-time, while 27.9% were repeat boaters who had been through an inspection station more than one time during the season.

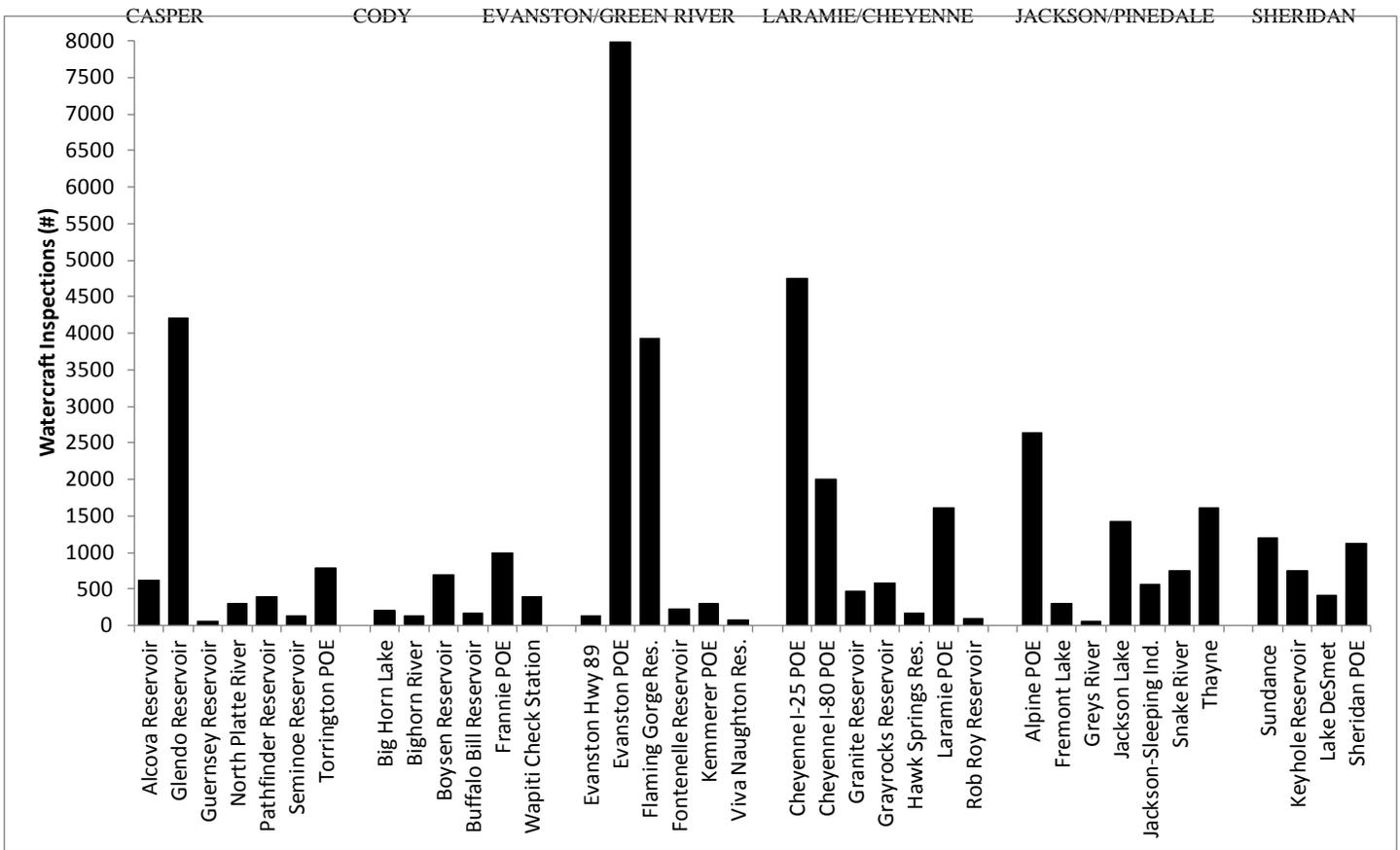


Figure 3. Total watercraft inspections by check station during 2014. Locations with fewer than 50 inspections are not included in the graph and are referenced in Table 3.

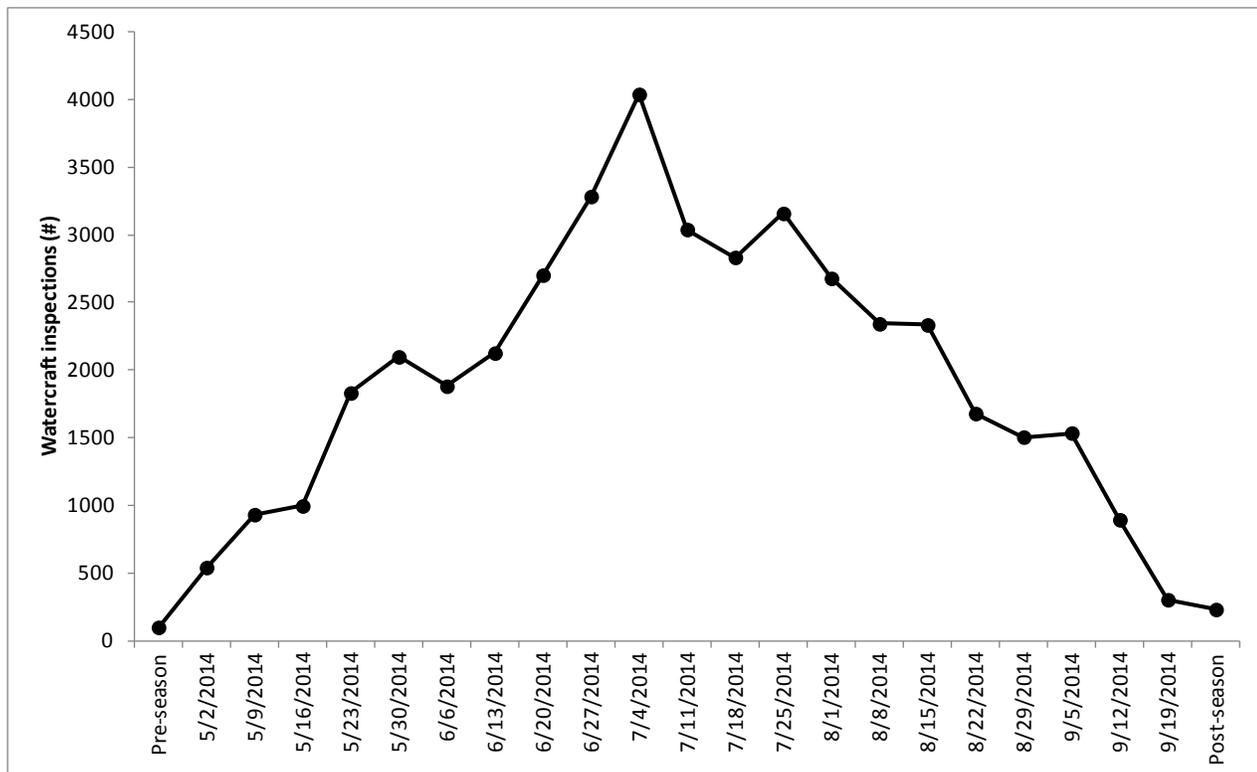


Figure 4. Weekly watercraft inspection totals at all waters during 2014. Pre-season inspections occurred before check stations opened on April 26 and post-season inspections occurred after check stations closed on September 14.

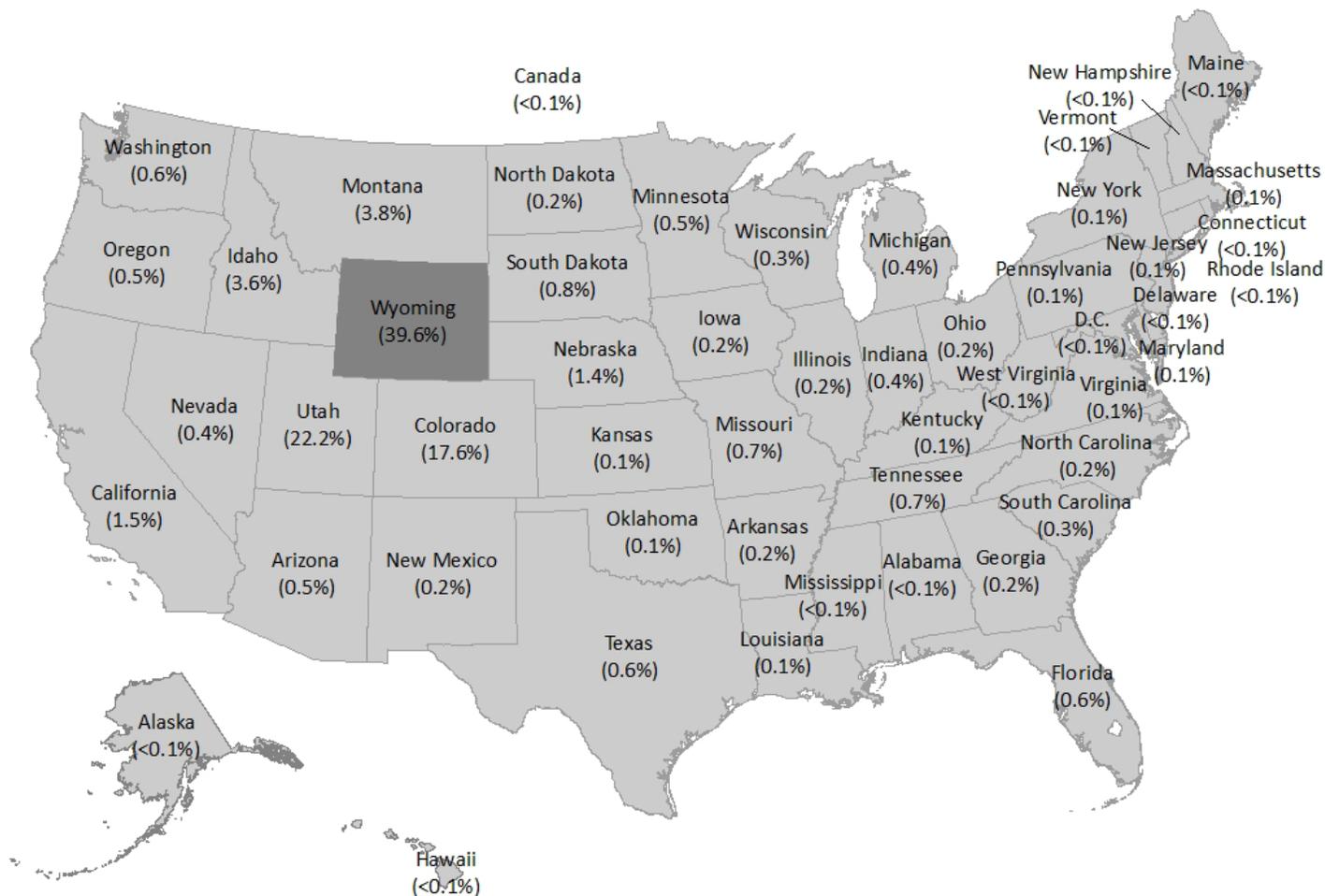


Figure 5. Map indicating registration of watercraft or trailer (state and percent of total) inspected during 2014.

The top ten waters boaters had last been at prior to inspection include Flaming Gorge Reservoir, UT/WY (13.3%), followed by Glendo Reservoir, WY (8.8%), Snake River, WY/ID (5.3%), Palisades Reservoir, WY/ID (2.9%), Grayrocks Reservoir, WY (2.8%), Jackson Lake, WY (2.4%), Bear Lake ID/UT (2.3%), Alcova Reservoir, WY (2.1%), Keyhole Reservoir, WY (2.1%), and Horsetooth Reservoir, CO (1.9%). Boaters indicated they had been to 1,535 different waters in 50 states, Canada, and Mexico prior to inspection in Wyoming. Of those states Utah, Colorado, Idaho, Montana, and Nebraska received the highest visitation. Overall, 50.7% of watercraft inspected were last used out of state. Most boats originating from out of state came from waters close to the Wyoming border (Figure 6).

Of the last waters visited, 344 are considered suspect or positive for zebra/quagga mussels with the greatest use from Lake Powell, UT/AZ (476 watercraft; 1.3% of total watercraft inspected); Pueblo Reservoir, CO (168 watercraft; 0.4%), Lake Havasu CA/AZ (60 watercraft; 0.2%), the Missouri River (53 watercraft; 0.1%), and Lake Mead (44 watercraft; 0.1%; Figure 6). Two waters in neighboring states were classified as positive in 2014 after the boating season and watercraft inspections concluded. Although not considered suspect/positive during inspections in 2014, a relatively high number of watercraft inspected were last at these waters. A total of 342 watercraft (0.9% of total) were last used at Deer Creek Reservoir, UT, and 37 watercraft (0.1%) were last used at Angostura Reservoir, SD. Over 1,685 inspections (4.0% of total) were conducted on watercraft that were last used on a water considered to be positive for zebra or quagga mussels; 49.8% of those had been at a positive water within the last month.

When boaters were asked where their destination (next water) was going to be the majority (85.9%) indicated

that were planning to launch in Wyoming. The top ten destination waters included Flaming Gorge Reservoir, WY/UT (20.8%), Glendo Reservoir (15.7%), the Snake River, WY/ID (6.4%), Jackson Lake (5.4%), Bear Lake, ID/UT (4.4%), Grayrocks Reservoir, WY (3.7%), Big Horn Lake, WY/MT (3.5%), Palisades Reservoir, WY/ID (2.5%), Keyhole Reservoir, WY (2.4%), and Alcova Reservoir, WY (2.1%). A small percentage of boaters (0.7%) indicated they would be visiting a suspect/positive water next with the majority visiting Lake Powell, AZ/UT.

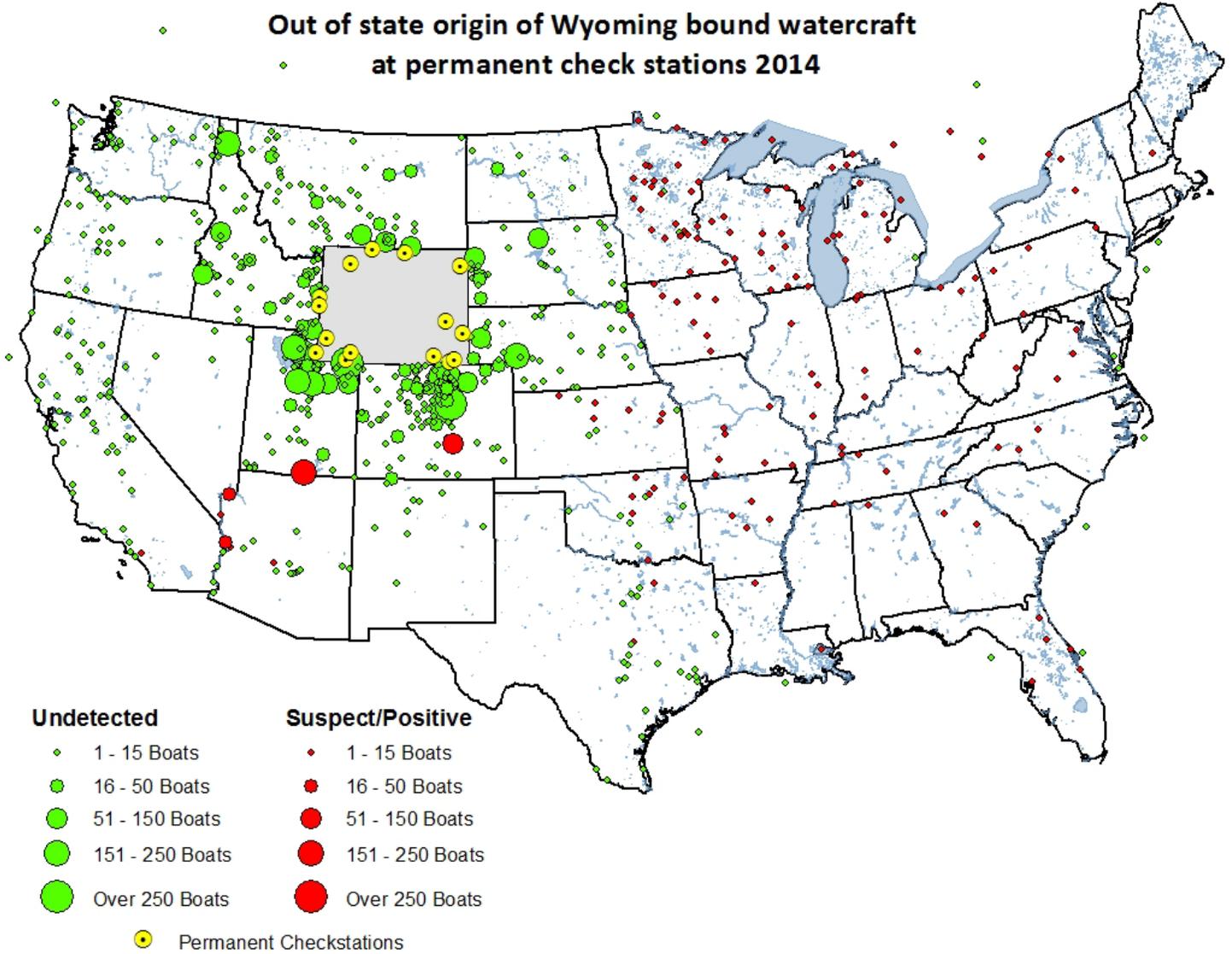


Figure 6. Map indicating origin of watercraft bound for Wyoming that were last used out of state and inspected at a permanent check station during 2014.

## MONITORING

Annual 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).

Monitoring was conducted on 76 waters in 2014 (Figure 7); plankton tows were conducted on 65 waters and stream surveys were conducted on 11 streams or rivers. No larval invasive mussels were detected in any of the samples and no adult or juvenile mussels were detected in surveys of existing substrates (boat docks, submerged objects) and shorelines.

Waters with existing populations of AIS including curly pondweed (*Potamogeton crispus*), New Zealand mudsnails (*Potamopyrgus antipodarum*), rusty crayfish (*Orconectes rusticus*), and Asian clam (*Corbicula fluminea*) were further monitored to determine the extent of the populations. New Zealand mudsnails were found in the first new water in Wyoming in over a decade, Lake Cameahwait near Riverton. A new population of curly pondweed was sampled in the Shoshone River in 2014. No new populations of rusty crayfish or Asian clam were found in 2014.

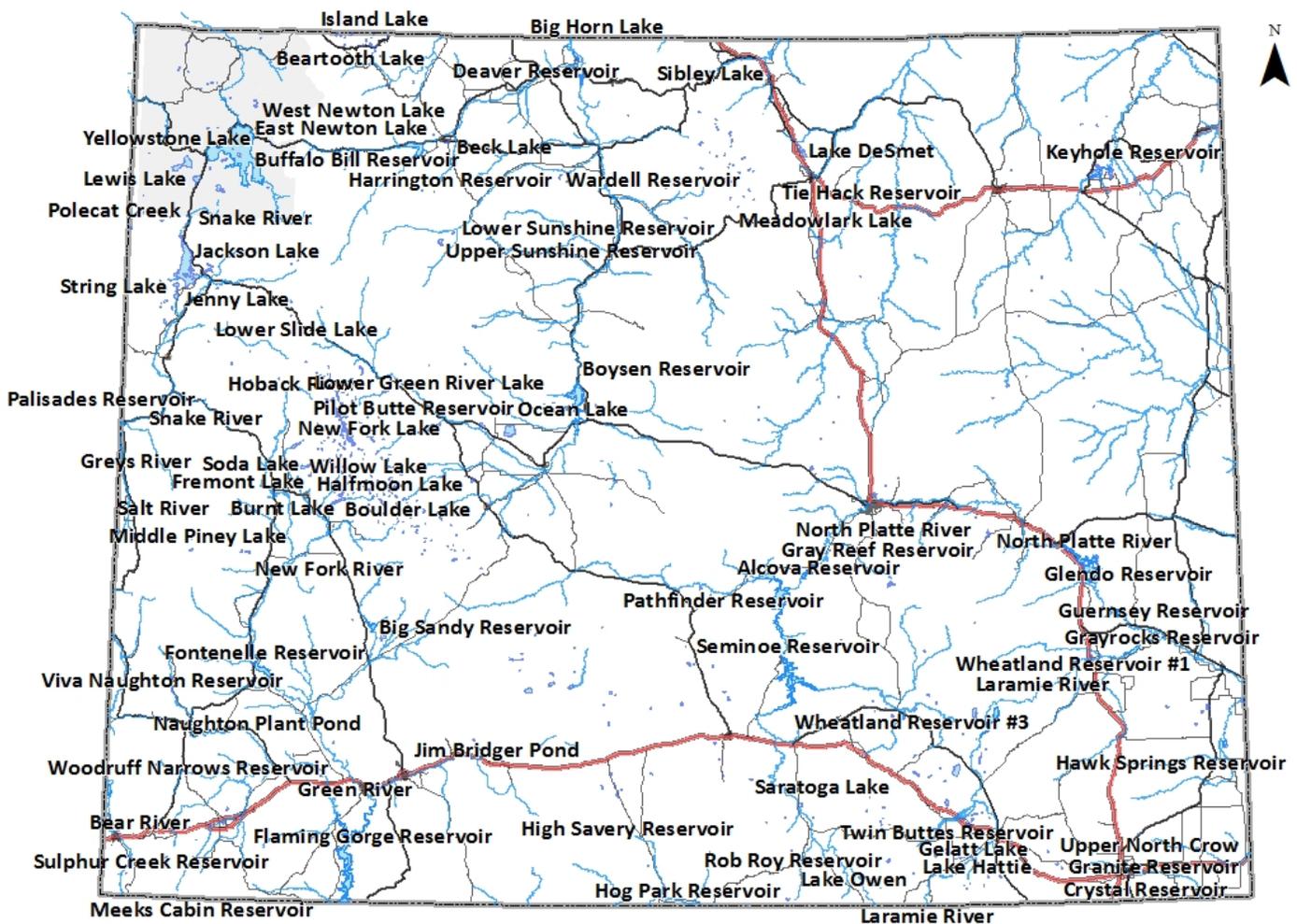


Figure 7. Map of 2014 monitoring locations.

## DECAL

A total of 42,260 decals were sold resulting in receipt of \$650,095 (Table 2). Of the resident motorized decals sold, 5,634 (\$169,020) were three-year decals. Sales of all nonresident decals and resident non-motorized decals have increased from 2013, whereas resident motorized decal sales have decreased (Table 2). This decrease in resident motorized sales is likely due to the purchase of a 3-year decal by many Wyoming registered boaters in 2013.

Table 2. Type, count, and monies generated from AIS decals sold in 2014 compared to 2013.

Decal type	Count		Sales	
	2013	2014	2013	2014
Resident Motorized	22,614	20,067	\$323,360	\$313,350
Resident Non-motorized	8,942	9,980	\$44,710	\$49,900
Nonresident Motorized	6,538	6,910	\$196,140	\$207,300
Nonresident Non-motorized	4,679	5,303	\$70,185	\$79,545
<b>TOTAL</b>	<b>42,773</b>	<b>42,260</b>	<b>\$634,395</b>	<b>\$650,095</b>