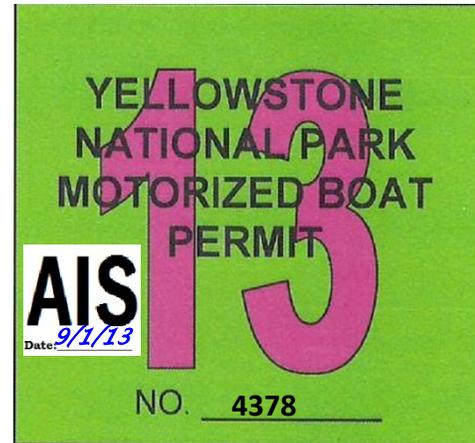


# 2013 Aquatic Invasive Species Project Report

## Vegetation and Resource Operations

### Yellowstone Center for Resources



**Figure 1** In 2013 motor watercraft were required to have an AIS inspection. Shown above is the small white sticker affixed to a boat permit indicating that an inspection was completed. The decal is required to be attached to the permit holder's boat.

This year's [Aquatic Invasive Species funds allocated by the Yellowstone Park Foundation](#) were primarily used for seasonal staffing and for the purchase of a slip-on pressure washer. The [grant again program](#) allowed seven-day coverage throughout the summer, but with additional staffing in the busy Grant area. This allowed for a substantial increase in watercraft inspections over the previous year. In 2012, a total of 1,251 boats were inspected for AIS. This year staff inspected 2,172 boats, a 36.61% increase. 17 were found to be high risk watercraft suspected to be harboring AIS that were either dirty or contained standing water.

The park continued to build greater alliance with state programs through participation in the Greater Yellowstone Coordinating Committee (GYCC) AIS group. Our partnership with the Wyoming Game and Fish again resulted in Yellowstone hosting AIS boat inspection certification training in the park where 17 additional park employees became state certified AIS boat inspectors for Wyoming. AIS staff continued to use a mobile trailered wash station at Bridge Bay Marina, and a portable washing unit in the Grant area purchased with YPF funds in previous years.

The 2013 program saw significant increased involvement from the ranger division permit office program. For the first time, a park mandated policy was in place that all motorized watercraft be inspected for AIS prior to issuing a boat permit. This new requirement for permit office staffs assures an ever greater level of protection for Yellowstone's waters from AIS. Doing so, the ecology of the park and its resources remain unharmed for the public to enjoy.

Project goals have not changed throughout the life of the AIS prevention program at Yellowstone, and progress towards achieving them continue. These are:

- I. [Prevention through education](#). Educate the public of the AIS threat and subsequent environmental impacts of their occurrence in the park. Teach water users of the most likely AIS threats, their mode of entry, and what precautions they can take in preventing their spread. Promote to boaters and

anglers the cardinal rule in AIS prevention: *Inspect, Clean, Drain, and Dry* their watercraft and equipment prior to entering any water.

- II. Prevention through water user assessment. Increase the number of AIS assessment contacts of boat and fishing permit holders in the park towards 100%. Conduct one-on-one interviews with boaters and anglers before they enter park waters. Interviews should educate water users, but their primary purpose is to ascertain the AIS risk and take actions necessary to prevent AIS entry.

Program emphasis in 2013 was placed on the greatest AIS threat, motorized watercraft. Over 90% of motorized boats entering the park were assessed for AIS prior to entering the water. To a substantial degree (72%) non-motorized watercraft were also intercepted and assessed for AIS. Unfortunately, the most widespread water users, anglers, received the least attention with no significant degree of AIS evaluation being conducted in the park and no data was collected for the year. Much more needs to be done in this area.



**Figure 2** In 2013 non-motored watercraft were not required to have an AIS inspection; however a majority were assessed by AIS technicians as opportunities occurred. Shown here is AIS technician James Michael Sanders performing a standard inspection on canoes at Bridge Bay.

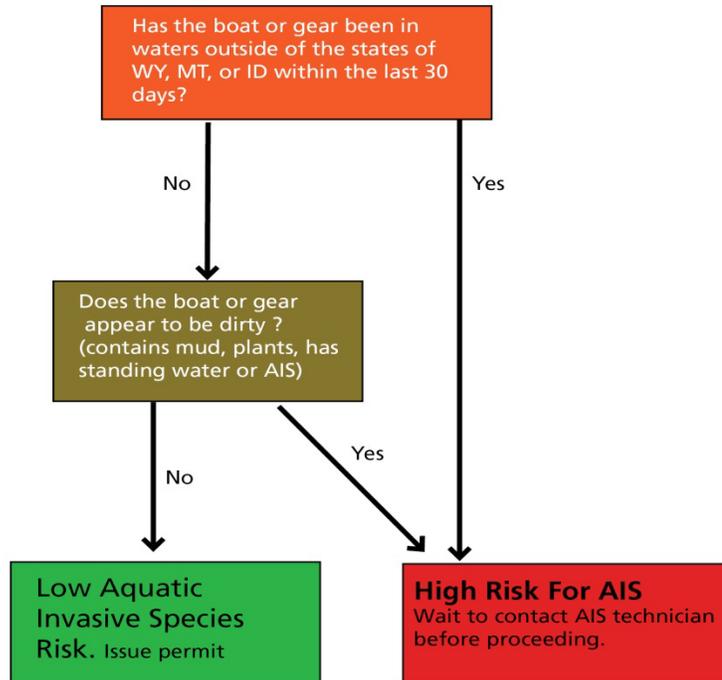
2. Every water user contact was conducted by a NPS uniformed AIS trained technician or volunteer. At the time of the contact, the AIS technician is required to complete a data sheet to collect pertinent information. Each generated a data record into the park's AIS informational database. With some very basic information obtained, the technician must decide whether the water user is a low or high risk for AIS, and as facts develop in the interview, the AIS technician will adjust the intensity and thoroughness of the inspection. For standard inspections that present little or no AIS risk, technicians record only basic information. On lesser occasions where the potential for AIS is higher (i.e. the water user was previously in AIS infested waters) the technician will conduct a more thorough and vigorous inspection. In these assessments the AIS technician will complete a high risk inspection form and obtain significantly more information. This includes more details on what was inspected and what was found. In the even less likely event that a technician finds a suspect AIS, or encounters a generally dirty watercraft, the AIS technician may opt that a decontamination or cleaning is necessary to minimize the likelihood of AIS entry. In these situations substantially more information is collected and recorded. AIS positive contacts are given the highest level of documentation collected, and in some cases it may be necessary to provide law enforcement rangers adequate facts to conduct a further investigation regarding the responsible individual and the movements of their vessel. AIS contact information is later entered into a database program such as Microsoft Access or Excel Spreadsheet. Typical information collected includes contact date, time, location, and the AIS technician's name. Other details such as type of water user, type of watercraft, and the boats home state and registration number are usually collected as well. The most vital piece of information acquired is what water body, if any, was the boat and trailer previously in, and how long ago. A boat coming from AIS contaminated waters in less than 30 days elevates the threat level to high.



What to do if AIS staff is unavailable for a boat inspection?

 All motorized boats must be inspected by an AIS Technician!

 If you are issuing a non motorized boat permit use the Risk Assessment Tool to determine whether a boat permit can be issued without an inspection.



**Figure 3** At permit office locations where AIS technicians were not available to inspect non-motorized boats, this simple flow chart decision tool was made available for station staff to use. Approximately 628 non-motorized boats were presumably assessed using this method, all apparently low risk and passed.

Another red flag is standing water in a vessel coming from an AIS contaminated area. Although standing water is more often from rain, snow, or water the owner applied from a garden hose, such facts are not verifiable, and the AIS technician must assume that the accumulated water is from AIS contaminated waters. In such cases it is realistic to expect standing water to contain AIS, as many species can survive for extended periods in water. Similarly, any live-well will need to be checked, and if necessary, emptied, cleaned, and dried. Depending on the AIS threat level, additional information may be collected. These may include a thorough description of the boat, the trailer and tag information, along with the tow vehicle and tag number. If conducting a high risk inspection, details on what the AIS technician checked and what was found are recorded. If a boat requires cleaning, details on how the boat and trailer



**Figure 4** Lead AIS technician and trainer Margie Fey instructs a class of park employees on the techniques in AIS boat inspection. As part of the training, prospective AIS technicians must know how to decontaminate a boat, including the flushing of various type engines where AIS are found.

were cleaned, who conducted the work, how long the work took, and what special methods if any were employed are taken. Boats come in all types and sizes, and of special concern are below deck areas, engines, and other spaces where AIS can hide. Any such challenging inspection details are well documented in the comment section of the form. While the information can be potentially used to find or track a contaminated boat that may be travelling to or from the park, it is primarily used in further perfecting future contacts and inspections. Knowing who our water users are, where they are traveling from, the timing of their arrival and duration of stay, park waters visited, and probability of them leaving for AIS infected waters and then returning to the park on the same permit; are a suite of facts for the AIS technician that make AIS prevention more effective. The information can also be useful in the unlikely event that an AIS infected boat escapes our control, or as a record in case the owner files a false tort claim against the government for damaged property.

Suspected or discovered AIS expand the inspection and interview much further. Specimens must be properly identified, and an inquiry launched on where the AIS originated and what bodies of water the boat and its items have visited since. In such cases a law enforcement ranger may be contacted to initiate a complete check of the boat, trailer, and owner. Law enforcement may also be needed in the event the boat may be impounded, or quarantined, though at the current time such actions are not authorized, nor have they been necessary.

In order to evaluate the effectiveness of the AIS prevention program, assessed boats now have their permit numbers recorded into the database. Later these are compared to data released on the number of permits issued. These reports are generated by the park's Visitor and Resource Protection Division, Visitor Services Office (VSO), the office responsible for overseeing the sales and issuing of boat and angler permits. Permit sales are classified by permit type (*angler* or *boat*) and by boat type (*motorized*, *non-motorized*). Boats are further classified by permit duration: *Annual Permit*, and *7-Day Permit*. The location of where a permit was issued and the total number permits issued from each outlet office is also available. With this information we can evaluate how effective we are. If, for example, by end of June 350 motorized boats are inspected for AIS (each with a recorded specific permit number); and the permit office later reports that the total number of motorized boat permits issued to the end of June is 350, then this would indicate that 100% of boats issued a

permit were inspected. Every fall, and after the water recreation season is concluded in the park, the summer's AIS data is compared with the completed permit sales data for the year. In 2013 for example there was 2,842 boat permits issued in the park. We evaluate the effectiveness of our program by comparing the number of boats inspected for AIS to the number of boats issued a permit. This year, that figure is 76.43%.

3. There was much improvement from previous years with coordinating the permit issuance and AIS inspections. Because AIS prevention can only be effective if inspections are done before boats enter the water, the park's boat permit program underwent some significant adaptive procedural changes for 2013. This included some consolidation of permit offices in the issuing of motorized boat permits, with these being only issued at offices nearer to where motorized boats are allowed. There was also greater communication between permit office staffs and AIS technicians in the field to effectively conduct timely AIS inspections that were concurrent with the issuing of permits. Supervisory park rangers were increasingly engaged in this resource protection activity, and were persistent in enforcing the new AIS pre-inspection policy at permit offices. Having fewer office outlets issuing motorized boat permits ensured that AIS technicians were more available to conduct inspections as water users arrived for a permit.
4. Yellowstone National Park AIS staff conducted over 2,400 various boat inspections in 2013. These included entry inspections, exit inspections, and re-entry inspections. AIS staffs also inspected 224 vessels permitted with Grand Teton National Park that under the two parks' reciprocity permit agreement are able to access Yellowstone National Park waters. All totaled, 4,342 water users were contacted and interviewed by AIS technicians in the park.

The table that follows shows that water users are permitted primarily in the southern region of the park. Initial contact with boaters in which permits are issued is typically at Lake, Grant, and the South Entrance (including Lewis Lake), with only a minority of boaters processed at other locations (2,629 vs. 213 permits). Unfortunately, of the 213 boats permitted at these lesser locations, only 23 received an AIS inspection. Permits issued at these lesser locations are primarily for the convenience to the public, where they are apparently offered a more local office closer to their intended water recreation. While not indicated in the table, other raw data and anecdotal testimony suggests that most AIS inspections are conducted concurrently with the issuing of permits. This is a marked improvement from previous years where AIS inspections were frequently conducted after the permit was issued, if at all.

With the increased funding this year, additional AIS staffs were available on station at the primary contact locations, Bridge Bay, Grant, and South Entrance. For example, there was nearly twice as many boats processed for permits and AIS prevention at Grant in 2013, then for the previous year. Similarly, South Entrance boaters were for the first time subjected to an AIS inspection, and nearly half (49.11%) had their watercraft assessed. In some situations, boaters were issued permits at one location, then given an AIS inspected at another. These were coordinated events where typically motorized boats entering South Entrance and destined for Lewis Lake were permitted to proceed to meet an AIS inspector. These exceptions were solely due to not having an adequate number of AIS technicians stationed at the South Entrance, a program deficiency which we hope to remedy next year. To a lesser extent, such type boaters were also permitted at other entrance station locations and met later by AIS technicians. These were situational, and only for the boater's convenience when entering the park late in the day. Such boaters could be immediately issued a permit due to their expected arrival at Lake or Grant occurring after permit offices closed. These too were coordinated events between station staff and AIS technicians.

## Comparison of 2012 and 2013 AIS Watercraft Inspections

(Motorized and Non-motorized Boats)

Park Permit Outlet Location	2012 Permits Issued	2013 Permits Issued	2012 Watercraft Inspected	2013 Watercraft Inspected	2012 Percent Inspected	2013 Percent Inspected
Grant Village BC Office	1,079	1,282	468	1,030	43.37%	80.34%
Bridge Bay Ranger Station	905	804	783	803	86.52%	99.88%
South Entrance BC Office	608	506	-	250	-	49.41%
Lewis Lake Campground	62	37	-	66	-	178.38%
Mammoth BC Office	134	83	-	-	-	-
West Yellowstone VIC	128	86	-	9	-	10.47%
Canyon BC Office	86	22	-	13	-	59.09%
Old Faithful BC Office	79	6	-	-	-	-
Northeast Entrance	34	7	-	-	-	-
Mammoth VSO	20	7	-	1	-	14.29%
Bechler Ranger Station	4	2	-	-	-	-
Old Faithful Visitor Center	3	0	-	-	-	-
<b>TOTAL</b>	3,142	<b>2,842</b>	1,251	<b>2,172</b>	39.82%	<b>76.43%</b>

**TABLE 1. Comparison of 2012 and 2013 Data.** There were 300 fewer boaters in the park in 2013 with AIS Technicians conducting 921 more boater inspections. 76.43% of all watercraft entering the park were inspected, an increase of 36.61% from the previous year. In some instances (i.e. Lewis Lake CG), boats were issued a permit at an entrance station and an AIS inspection was later conducted at the boaters destination.

### Motorized vs. Non-motorized Boats

As previously mentioned, in 2013 Yellowstone National Park issued a policy that all motorized boats will be inspected for AIS prior to the issuing of a park permit. Despite our best attempts, only 92.31% of motorized boats issued a permit were inspected for AIS with 44 being missed. This is however still a 29.34% increase over the previous year. These missed boats, though not inspected by AIS technicians, were likely given some type of cursory assessment by the staff issuing permits. We just don't know.

<b>Comparison of 2012 and 2013 AIS Watercraft Inspections</b>						
<b>(Motorized Boats Only)</b>						
<b>Park Permit Outlet Location</b>	<b>2012 Permits Issued</b>	<b>2013 Permits Issued</b>	<b>2012 Watercraft Inspected</b>	<b>2013 Watercraft Inspected</b>	<b>2012 Percent Inspected</b>	<b>2013 Percent Inspected</b>
<b>Grant Village BC Office</b>	255	259	147	233	57.65%	89.96%
<b>Bridge Bay Ranger Station</b>	302	248	265	244	87.75%	98.39%
<b>South Entrance BC Office</b>	90	63	-	50	-	79.37%
<b>Mammoth BC Office</b>	3	-	-	-	-	-
<b>West Yellowstone VIC</b>	-	-	-	-	-	-
<b>Canyon BC Office</b>	-	-	-	-	-	-
<b>Old Faithful BC Office</b>	-	-	-	-	-	-
<b>Lewis Lake Campground</b>	4	-	3	-	75.00%	-
<b>Northeast Entrance</b>	-	-	-	-	-	-
<b>Mammoth VSO</b>	5	2	-	1	-	50.00%
<b>Bechler Ranger Station</b>	-	-	-	-	-	-
<b>Old Faithful Visitor Center</b>	-	-	-	-	-	-
<b>TOTAL</b>	659	572	415	528	62.97%	92.31%

**TABLE 2. Comparison of 2012 and 2013 Data.** There were 87 fewer motorized boats permitted in the park in 2013 with AIS Technicians conducting 113 more boater inspections. 92.31% of all motorized boats entering the park were inspected, an increase of 29.34% from the previous year. In some cases boats were issued a permit at an entrance station and an AIS inspection was later conducted at the boater's destination.

1. Despite much progress being made this year, AIS staffs continue to struggle with integrating AIS inspections into the existing water user permit program. These largely relate to certain aspects of the permit program which are counterproductive to AIS prevention, many involving South Entrance permit procedures:
  - a. Permit program reciprocity with Grand Teton National Park. While Grand Teton and Yellowstone National Parks share a common process for permitting water recreation in their respective parks, the two water recreational programs are very dissimilar. First and foremost is the fee structure. With Yellowstone boat permit fees discounted 50% from Grand Teton's fee, boaters flock to the South Entrance for their savings. Not only does this add from time to time to an overwhelmed small permit office, but it requires AIS inspections be conducted on watercraft that may or may not be used in the park. The transitory nature of these vessels moving in and out of Yellowstone also increases the risk of AIS entry. This is mostly due to the differences in AIS programs among the two parks. While Yellowstone has a mandatory inspection program, Grand Teton does not; and largely relies on the state of Wyoming's AIS program to prevent AIS. In the event of a significant AIS infestation into Jackson Lake for example, under the present arrangement it is likely to contaminate Yellowstone's waters at the same time. With no 24 hour stop and inspection station, such an infected boat could easily get past park staff. Many of the 224 Grand Teton permitted boats entering Yellowstone this year, appeared to have freely moved in and out of the waters of the two parks before Yellowstone permit offices opened for the season, and consequently did so without an AIS inspection.
  - b. Issuing of permits before scheduled office openings. For some reason it has been customary in the past to issue boat permits before the scheduled boating season and opening of permit offices. Doing so usually negates an AIS inspection or proper inspection as AIS staffs are not yet on duty; nor is it effective AIS prevention to inspect boats weeks earlier than their intended use into park waters
  - c. Bulk permit issuing to commercial boat rental businesses. Although a lower risk than interstate boaters, local boat rental companies do present some degree of an AIS threat. Given a stack of permits in late April, with or without an AIS inspection at the time, fails to adequately safeguard the park against hitchhiking AIS later. Boat renters are often non-local, and can bring with them AIS on their gear. Neither is it certain where these boats have been in the interim period. Later in the summer when they do enter the park, they may or may not be noticed by an AIS technician; and because many are non-motorized canoes and kayaks, most will be put into the water far away from boat ramps where AIS technicians are stationed. In order for AIS prevention to be effective, issuing boat permits and performing AIS inspections should not only be done at the same time, but at the designated time of the water user's recreational event. Not weeks before or later.
  - d. Too many permit outlets. Much of the increased effectiveness to the AIS program in 2013 was due to eliminating several boat permit office outlets. Although perhaps more inconvenient to the boating public, the greater the number of permit issuing stations escalates the logistical challenges and financial costs to the AIS prevention program. AIS technicians just cannot be effectively stationed or dispatched to remote permit offices such as the Bechler Ranger Station which only issues a few boat permits each year. The end result that can be seen in this year's data, is that these permit holders don't get inspected for AIS. In the case of anglers, the problem is exponentially greater, and to such a degree that they for the most part they are being wholly neglected. Without an option to have consistent AIS inspections at the parks five entrances, and compelled to move AIS prevention into the park interior, it is ever more critical that ever boat be inspected when issued a permit.
  - e. No strong message to water users upon entering the park. Unfortunately, intervening water users during the initial permit issue procedure is not enough to ensure AIS prevention. Boaters and

anglers frequently obtain an annual permit and then leave and return (and sometimes often) throughout the fishing and boating season. Where they go and what they may acquire in other waters outside the park could have terrible consequences if they bring it into Yellowstone on a return trip. It is all the more vital that the park send a clear and powerful message each and every time they enter the park that an AIS inspection is required every time they enter the park. Currently, the only AIS signs are at boat launches and select fishing access routes. None are located at the park's five entrance locations. Boater and angler education regarding AIS prevention has gone a long way, and most water users are very supportive in AIS prevention and in protecting the park. However, it is important that the park stress this on a continual basis. Comparatively, visitors see many firm messages upon entering states such as Wyoming, other national and state parks across the country; and yet, at the world's premier park, there is nothing.

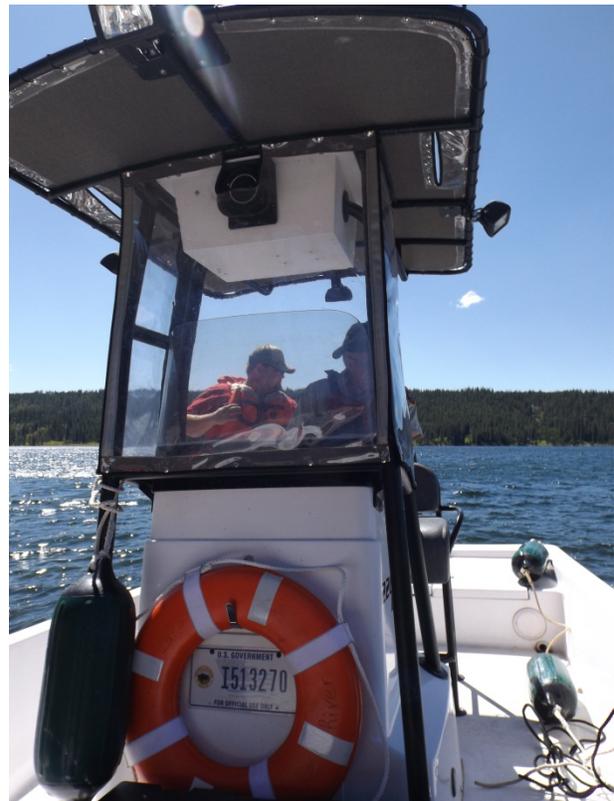


**Figure 5** New signs installed by Wyoming. As part of Wyoming's shift to interdict AIS at the state border, new signs have been installed at every major route into the state. This sign is just outside the park's East Entrance.

- f. AIS prevention must be conducted by trained and dedicated staff. While this year showed increased coverage and increased number of boats inspected, it also showed in the data that there were an increased number of AIS technicians. Unfortunately, some of these additional staff were mostly incidental employees and volunteers with little knowledge or experience in conducting an effective AIS threat assessment. While the park has experienced a low volume of high risk AIS boats in the past, such is not likely the case in the future; and while any set of eyes is better than none, effective AIS prevention requires skilled technicians to effectively identify and intercept AIS threats.
- g. Uncertain future funding. While grateful to the YPF for funding AIS prevention these many years, it is unclear to the AIS staff, other park staff, and water users alike, as to whether it will continue. Most see AIS prevention as a necessary and ongoing program, yet there seems little long-term credibility in a program that is only funded from year to year. Over the past decade the program has had difficulty in obtaining support in permanent wash stations, obtaining needed trucks for the program, and instituting necessary changes to the park's regulations and operations to not only

facilitate AIS prevention, but to promote its function. The most significant challenge is that there is no clear picture as to where permanent funding for this program is to come from. Without such, it gives the impression to those both within and outside the park organization that AIS prevention is not a major long-term undertaking in protecting park resources.

2. While we have learned what devastation to a park's resource and water recreation values AIS can have at other parks, we have fortunately not seen the level of threat here at Yellowstone. To date, not a single confirmed AIS has been intercepted by the prevention program. The data shows that park boaters and anglers are largely local or well informed, and most are coming to the park with relatively clean boats and gear. This however is more a function of what the AIS infestation realities are locally, and we can anticipate that as aquatic invasive species advance closer into the Intermountain West and the Greater Yellowstone Area (GYA), that we can assuredly expect more high risk inspections and AIS detections in our work. Like any security program, effective AIS prevention is a layering of defenses. We are fortunate to have Wyoming and Idaho advance such robust AIS prevention programs in recent years; and the Greater Yellowstone coalition of agencies and partners shouldering much of this as well. Yellowstone is the heart of the region that is viewed by many as deserving the maximum layer of protection. We have done a good job over the years, and in many ways we match our colleagues and partners in AIS prevention. However, we could still do a much better job.



**Figure 6 Conducting mussel surveys with Wyoming Game & Fish.** Yellowstone National Park AIS staff again partnered with Wyoming biologists in conducting random surveys for quagga and zebra mussels on Yellowstone Lake and Lewis Lake.

3. As this is a long-term program nearly entering its first decade of existence, there is not much more opportunity for adding partners or further synergistic arrangements. The park's AIS staff continues to maintain and promote better work relations among our AIS partner agencies within the GYA. This is especially the case with our state agency



**Figure 7 Volunteer AIS Technicians.** Volunteers are increasingly being employed in the AIS prevention. Shown above are long term VIP's Howard Egger and Jim Cooper pondering an exit cleaning of an inflatable kayak.

field offices engaged in AIS prevention. In addition to continuing our coordinating AIS prevention through our Greater Yellowstone Coordinating Committee AIS Subcommittee (GYCC), we have reached out to other national park units. Park's such as Glacier National Park, Glen Canyon National Recreation Area, and others, in an effort to share information and strategies relevant to the NPS.

Money for AIS prevention is not to be found in any large quantities, and most seem to be directed to state run efforts. Despite this, and though not a large sum of money, Yellowstone AIS staff have managed to acquire some matching dollars from the GYCC in order to conduct small selective survey and monitoring projects. We have also obtained like support from our fisheries office here in the park which has been helpful in providing some technical and professional support in these endeavors.

The entirety of this year's YPF funds were used for AIS staffing, purchased supplies, and for the purchase a self-sufficient mobile wash station that slips into the back of a pick-up truck. This was purchased late in the season and will be used as a cleaning unit in the Grant and South Entrance areas. It will be used exclusively at the South Entrance when a permanent wash station is operational at Grant. Staffs that were funded with the YPF grant were only seasonally employed biological science technicians. The YPF funding did leverage other temporary GYCC and NPS funding in 2013. This enabled the program to be properly managed and supervised by permanent NPS resource management staff. As in 2012, NPS staff worked with Wyoming AIS program managers to host an AIS boat inspection state certification class in the park. More than a dozen NPS personnel were trained and certified. Park staff also participated with Wyoming biologists to survey Yellowstone Lake and Lewis Lake for quagga and zebra mussels. Fortunately, none were found. Late in the season, Yellowstone National Park purchased a supply of boat seals and receipt books to effect an exit inspection and seal program. Only a handful of such inspections were conducted in 2013, however, the exit inspection program should be fully operational in 2014.

#### Personal Story:

##### *To Whom It May Concern:*

*As part of my duties as a Bio-Tech in Resource Management assigned to the East District at Lake I participate in the AIS prevention program in 2013. I've been a Bio-Tech in Yellowstone since 1987 and have had a wide variety of assignments over the decades. I've counted bears, measured the temperature of thermal pools, taken tissue samples from elk, bison, moose, deer for later DNA studies, fought wild land fires, and of course spent entire weeks involved with non-native invasive plant control.*

*The opportunity to expand my knowledge and skills in the area of AIS was most welcomed this past summer. I believe the program is very proactive in regard to preventing the introduction of aquatic invasive species into park waters. My personal experience was very positive and I was very pleasantly surprised how receptive the visitors I contacted were to the program. Being a teacher most of the year I embrace education, this program is all about educating the boating public about the need to be aware of the risks to the park of not cleaning boats and related equipment and the spread of AIS. I hope this program continues to expand and allows for even greater coverage of all park waters. Preventing problems is always easier and cheaper than trying to contain them once found!*

*Bill Kraegel  
Biological Science Technician  
Yellowstone National Park*

This project will need to continue the assimilation of the AIS inspection program into the park's Division of Resource and Visitor Protection (R&VP) permit program. The division of R&VP, or ranger division, is primarily responsible for the angler and boater permit program, and their participation this past summer was fundamental to the AIS programs improved success. Their continued cooperation will define the next steps to the program's improvement, and for the most part, this will only requires some further changes in permit issuance procedures. As already mentioned, these include further consolidating some locations where boat permits are issued. These are the

Mammoth, Northeast Entrance, Bechler, Old Faithful, and Canyon permit offices, where relatively very few boat permits are issued (less than 5% in total). In these and other cases, the desire to provide convenience to boaters has in the past compromised the effectiveness of the AIS program. An example is the park's South Entrance Station where many boaters come from Jackson and points south to obtain a permit prior to the boat season and the opening of the permit office. The South Entrance Station also experiences a demand from Grant Teton NP boaters who obtain boat permits at a cheaper price. These boaters have in the past been issued permits well in advanced, and often without their boat being present. In these situations the AIS program would benefit if boat permits only be issued to boaters using Yellowstone waters, and the two parks have separate permit programs. The South Entrance also issues permits in bulk to boat rental businesses in Jackson. Here the company is issued permits for watercraft that may or may not be used in Yellowstone later in the summer when renters appear at the gate. In these cases bulk permits should not be pre-issued as there is no certainty as to where the boats have been in the interim. For an effective AIS inspection, renters who appear later at the park should be issued a permit then, and at the same time given an AIS inspection. Finally, the division needs to use a clearer and more robust suite of park regulations and ranger SOP's that support AIS prevention. Most boat owners are purchasing a permit where and when they want to boat, and for an effective AIS program, boat permits and AIS inspections should function from that premise and without exceptions to it.

While believed to be a much lesser AIS threat to the park than boaters, anglers by their sheer numbers do pose multiple opportunities to introduce and spread AIS into Yellowstone waters. Currently there is little if any AIS prevention directed at anglers, and the future AIS prevention program will need to better target anglers, especially those that are not local.

This funding allowed our continued partnership with groups in the GYA through our membership in the Greater Yellowstone Coordinating Committee (GYCC) subcommittee in Aquatic Invasive Species. This group is representative of most agencies within the GYA and many private groups concerned with AIS. Through this involvement Yellowstone Park has benefited greatly in acquiring some additional late summer funding for AIS monitoring (\$5,000). This money was used to conduct AIS surveys in select water bodies within the park's backcountry. The partnership with the GYCC was especially influential for marked improvements in cooperation between neighboring state AIS programs; and especially so with Wyoming's Game and Fish AIS program. It was through this partnership that Yellowstone hosted a boat inspector course at Lake in which over a dozen park employees became certified by the state of Wyoming as AIS boat inspectors. Partnerships with these agencies and other area groups furthered information sharing, developing common strategies in education outreach and interdiction, and in the sharing of limited financial resources.



Photo Credit: Alex Zaideman, AIS Technician at Lake, 2013