Pioneering boat inspections benefit Tahoe

By Christopher Kilian

After nine years and 51,000 inspections, Lake Tahoe's boat inspection program has become a national model for preventing aquatic invasive species (AIS) from sneaking into the lake and wreaking environmental havoc.

The program by the Tahoe Resource Conservation District (Tahoe RCD) and the Tahoe Regional Planning Agency (TRPA) has used research to pioneer innovative ways to decontaminate boats quickly and thoroughly. Program officials have consulted with boat mechanics to develop the best procedures and resources, and they are working with one manufacturer on engine designs that will facilitate decontamination in the future.

Stopping invaders

TRPA and Tahoe RCD launched the Watercraft Inspection Program in 2008 to minimize the risk of aquatic invasive species becoming established at Lake Tahoe. Understanding that watercraft play a significant role in spreading AIS, and notably the quagga and zebra mussel, the purpose of the program was to intercept these risks before they entered Lake Tahoe.

The 100th Meridian Initiative and Pacific States Marine Fisheries Commission provided the official training for Tahoe's original inspection team leaders. Inspections were introduced to the boating public at launch ramps around Lake Tahoe. Any vessel found to be harboring AIS had few options at the time. Other lakes might turn away potential risks, but the goal of the Tahoe program was to grant access to all watercraft.

From bleach to heat

The solution was decontaminations, a process that would allow access to all vessels that failed the inspection and were at high risk of infesting Lake Tahoe. At the time, science showed that adult mussels could be eradicated by exposure to high concentrations of bleach. And so the advent of Tahoe's decontamination program was born.

Spray bottles of bleach were used on areas of a watercraft deemed by the inspection process to be at high risk of transporting or harboring mussel larvae, called veligers, that are invisible to the naked eye. This process, although proven, had its drawbacks. Bleach could not be used everywhere, and in this concentration is harmful to carpeting, upholstery, and aluminum.

An inspector uses a pressure washer to decontaminate a boat before it is launched in Tahoe. Photo/Corey Rich

New techniques discovered

Other drawbacks were difficulties in achieving exposure times, removing bleach after application so it would not enter the lake, and an inability to be used in raw-water siphoning systems.

In 2009, scientists discovered that hot water was a suitable method for exterminating mussel veligers and other species. With an exposure time of just 10 seconds, adult quagga mussels will die when exposed to 140-degree water.

The Tahoe program purchased portable pressure washer units to improve the effectiveness of high-risk decontaminations and eliminate chemicals from the process. A small crew of Tahoe RCD and TRPA staff were responsible for performing every decontamination. Machines, equipment, and containment mats were transported to Tahoe marinas to perform these decontaminations, and took anywhere from one to four hours to complete. It was at this point that our knowledge of the complexity of watercraft began to blossom.

The Watercraft Inspection Program harnessed the knowledge of local boat mechanics, industry professionals, and marina operators and wrote what became known as “The Boat Book.”

This was a resource meant to expound upon the limited information previously understood about watercraft. Manufacturers of pumps, impellers, engines, and other marine parts were contacted to ensure that the process of flushing these components with hot water would be safe for vessels.

During the research and consulting process, it became obvious that the risks posed by watercraft lay much deeper than the outer hull and engine compartment. Watercraft have an intricate network of areas for discretely transporting potentially threatening AIS, explaining why they are one of the top carriers of AIS.

Process continually improved

Over the years, continuous research led to many more decontaminations. The program looked to science, statistics, and data analysis, as well as an ever-growing knowledge of the mechanics of watercraft, to eliminate some risk factors and absorb others. Decontamination procedures were vetted through local boat mechanics, including those that specialize in pleasure boats, race boats, and wooden boats.

Rigorous protocols were designed to effectively inspect and decontaminate, preventing the spread of AIS without having to decontaminate every vessel entering Lake Tahoe.

Through an outreach campaign, boaters were encouraged to arrive “Clean, Drain, and Dry” in order to pass the inspection.

Inspection sites were moved to improve boater convenience as they entered the basin and alleviate congestion at the launch ramps.

The decontamination equipment was heavily modified and evolved from a simple pressure washer to a unique and purpose-built machine that was quicker, safer, more effective, and capable of accommodating even the most obscure vessel. Through these processes, decontaminations became much quicker and less frequent. And Tahoe’s inspection program is now one of the nation’s most protective.

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