Five acres of mats for Tahoe Asian clam project

October 17 2012

Rubber barriers bound for the lakebed of Lake Tahoe's Emerald Bay are being assembled at the University of California, Davis, as part of the biggest Asian clam control project in the lake's history. UC Davis scientists, staff and students are unfolding the long, black mats and enhancing them with rebar, brass grommets and valves that will hold the barriers in place underwater and enable scientific analysis of the project.

The barriers will be trucked to Lake Tahoe and, beginning Oct. 22 (weather permitting), be placed by divers onto a 5-acre area on the floor of Emerald Bay.

"This is the engineering that happens behind the scenes, before the barriers are deployed," said Geoffrey Schladow, director of the UC Davis Tahoe Environmental Research Center. "The purpose is to make the barriers physically sound, but also to minimize the amount of time divers have to spend underwater."

The valves being built into the material will serve as a port, allowing divers to insert a syringe and collect water samples from under the mat without disturbing the project.

Assembling the barrier material involves:

- 238 rolls of rubber barrier, each 100 feet long and weighing 300

pounds
- 10 miles of rebar
- 16,000 grommets

UC Davis, the University of Nevada, Reno, and a team of interagency partners first tested the concept of using rubber barriers to smother Asian clams in 2010, when scientists placed an acre of the barriers on the lake bottom. The project killed 100 percent of the clams. The success of those efforts and additional research led to this bigger project.

The goal of the Emerald Bay Asian clam control project is to treat a relatively small, isolated population of Asian clams before they spread to an unmanageable level. Currently, the clams live on a shallow, gravel sill roughly 15 feet below the surface that partially separates Emerald Bay from Lake Tahoe. Treatment will be accomplished by covering the infested lake bottom with the thin rubber barriers, augmented with organic material, that reduce the available oxygen and smother the clams.

The Asian clam control project is the work of a team of partners, including scientists at UC Davis, that makes up the Lake Tahoe Aquatic Invasive Species Program. The program consists of 40 public and private partner organizations including federal, state and local jurisdictions, research partners, public utility districts, and private marinas. The program provides leadership, direction and resources to fulfill its mission of prevention, detection and control of aquatic invasive species in the Lake Tahoe Basin.

The UC Davis Tahoe Environmental Research Center will provide scientific oversight as the barriers are being deployed and when the barriers are removed in the fall of 2013. TERC and collaborators from the University of Nevada, Reno, will also analyze the project over the

next 12 months, taking sediment samples, measuring nutrients and oxygen levels under the mats, and monitoring the project's overall effect on the Asian clams.

Controlling the Asian clam population in Lake Tahoe is critical as the clams have a variety of negative impacts. The clams could increase the potential for other species, such as quagga mussels, to establish in Lake Tahoe. They also promote the growth of algae by releasing highly concentrated nutrients. Increases in algae impact the scenic beauty of the shoreline by changing the water color, reducing water quality, and washing rotting materials onto the beaches. Perhaps most significant, Asian clams compete with native animals for habitat and food, which causes a disruption in the food web.

By treating the Emerald Bay infestation in the early stage, these impacts can be minimized or avoided. The treatment will also help prevent the spread of these invasive clams to other areas of Lake Tahoe.

The project will cost about $810,000 and is funded by the Lahontan Regional Water Quality Control Board, U.S. Fish and Wildlife Service, and U.S. Forest Service Pacific Southwest Research Station.

Provided by UC Davis