

Reclamation Detection Laboratory for Exotic Species (RDLES)

Invasive Mussel Detection and Research Related to Spread, Control, and Management

Research Bulletin Science and Technology Program 2617

The advantages of an in-house early detection laboratory include customized support for the agency with improved quality control, tailored testing, and cost efficiency.

Mission Issue

RDLES provides quality sampling and analytical work for the detection of mussels with shorter turn-around times and high Quality Assurance/Quality Control (QA/QC) standards.

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Problem

Two species of dreissenid mussels, zebra and quagga, have become established in freshwater lakes, reservoirs, and rivers in the United States. Invasive mussels pose significant challenges for Reclamation and all agencies and industries that manage water. Invasive mussels are prolific breeders and settle on or within water facility infrastructure such as water intakes, gates, diversion screens, hydropower equipment, pumps, pipelines, and boats. Infested water and hydropower infrastructure can fail or choke off water transmissions. Invasive mussels negatively impact the natural ecology, which can be detrimental to native and endangered species, including native fisheries.

Maintaining and operating water supply and delivery facilities, water recreation, and other water dependent industries and economies in mussel infested water bodies are dramatically more expensive and complex. Public recreation may also be severely impacted by mussel infestations, from shell fragments degrading swim beaches to increased requirements and cost for boaters to have their watercraft inspected and decontaminated, and potential impacts on populations of game fish.

Solution

The arrival of quagga mussels in Lake Mead in 2007 triggered Reclamation to invest in developing and maintaining the Reclamation Detection Laboratory for Exotic Species (RDLES). Based upon experience with zebra mussels in the Eastern U.S., if mussels are detected early, then facility operators may have three to five years to plan, budget, and implement protective measures before mussel populations are large enough to impair generation of hydropower and delivery of water by clogging critical structures such as pipes, water intakes, drains, gates, and trash racks.

One of the central goals of the early detection and monitoring effort is to provide Reclamation facility managers with the early warning they need to plan for the arrival of invasive mussels. Early actions may also be taken to prevent the spread of mussels to other water bodies.

“Invasive mussels are a threat to Reclamation facilities. Early detection allows us to give water managers a window of time to prepare for a possible infestation of quagga or zebra mussels.”

Jacque Keele
Biologist
Reclamation

Collaborators

Wide-range of other Federal and State agencies and organizations

More Information

<https://www.usbr.gov/research/projects/detail.cfm?id=2617>

<https://www.usbr.gov/research/projects/researcher.cfm?id=2952>

Application and Results

RDLES provided support and training to our partners in regional and area offices and expect to continue outreach efforts by participating in working groups, presenting at various meetings, sponsoring college and high school interns, and participating in water festivals.

Plans are in place to optimize the methods used for sample collection, analysis, and data management. Our SOPs are updated and shared with our partners as they are refined. Data will be collected for use in mussel management, modeling projects, population trend analysis, economic studies, and others.

Future Plans

In the coming years RDLES staff will continue to receive and analyze samples from a wide range of waterbodies across the western United States. New products such as videos, flyers, posters, and presentations will be created to increase standardization, as well as to provide information and education.



RDLES Intern collecting plankton tow water samples for early detection of invasive mussels at Pinewood Reservoir, Colorado in 2017.