



# Invasive Mussels

## Invasive Mussel Research Program

Reclamation's Science and Technology Program provides funding for research and development to detect and control invasive mussels throughout Reclamation. This research is developing, evaluating, and demonstrating effective technologies for the detection, prevention, control and management of invasive mussels both in the lab and in a field setting.

Reclamation project managers and researchers coordinate research efforts with private industry, managing partners, the U.S. Army Corps of Engineers, and other federal, state, and local agencies. Close coordination and cooperation between these parties is essential in making research studies successful, ensuring we do not duplicate efforts, and promoting implementation of developed technologies.

Significant progress has been made in the last five years on detection methodologies and laboratory capabilities. In addition, closed-pipe control technologies, specifically ultra-violet light (UV) systems, have proven effective. Additional research on this topic is ongoing, and an Invasive Mussels Research Roadmap has been prepared to direct future mussel research activities. Many of the mussel research topics in the roadmap address the following invasive species research priorities outlined in the Science Strategy and Implementation Plan:

### 1. Prevention

- a. Identify vector factors that have a significant potential to introduce invasive species to unaffected waterways (e.g. types of watercraft, types of motors, construction equipment etc.) and develop effective methods to reduce the probability of new infestations.
- b. Develop new construction designs and modifications to existing structures that improve their ability to prevent and control invasive species infestations for long-term control.

### 2. Early Detection and Monitoring

- a. Establish informative biotic and abiotic metrics, including factors associated with water management and past/present detection results to assess the potential for invasive species presence, growth, and reproduction.

- b. Develop a standardized model and strategy for invasive species risk assessments to prioritize and direct sample collection protocols and detect invasive species at an early stage, including water body/site selection and scheduling based on temporal variables.
- c. Develop emerging and optimize existing methods for invasive species detection, including sample collection and analysis, molecular methods, or others.

### **3. Control**

- a. Identify and develop biological control options including genetic controls for open-water management of invasive species.
- b. Develop closed-water system control tools, including mechanical and physical control options for use in enclosed pipe systems.
- c. Develop target specific, environmentally-friendly control methods.

### **4. Impact Assessment**

- a. Determine ecological and economic impacts of invasive species in the western United States.
- b. Estimate impacts to the life cycle of infrastructure and facility components impacted by invasive species.

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