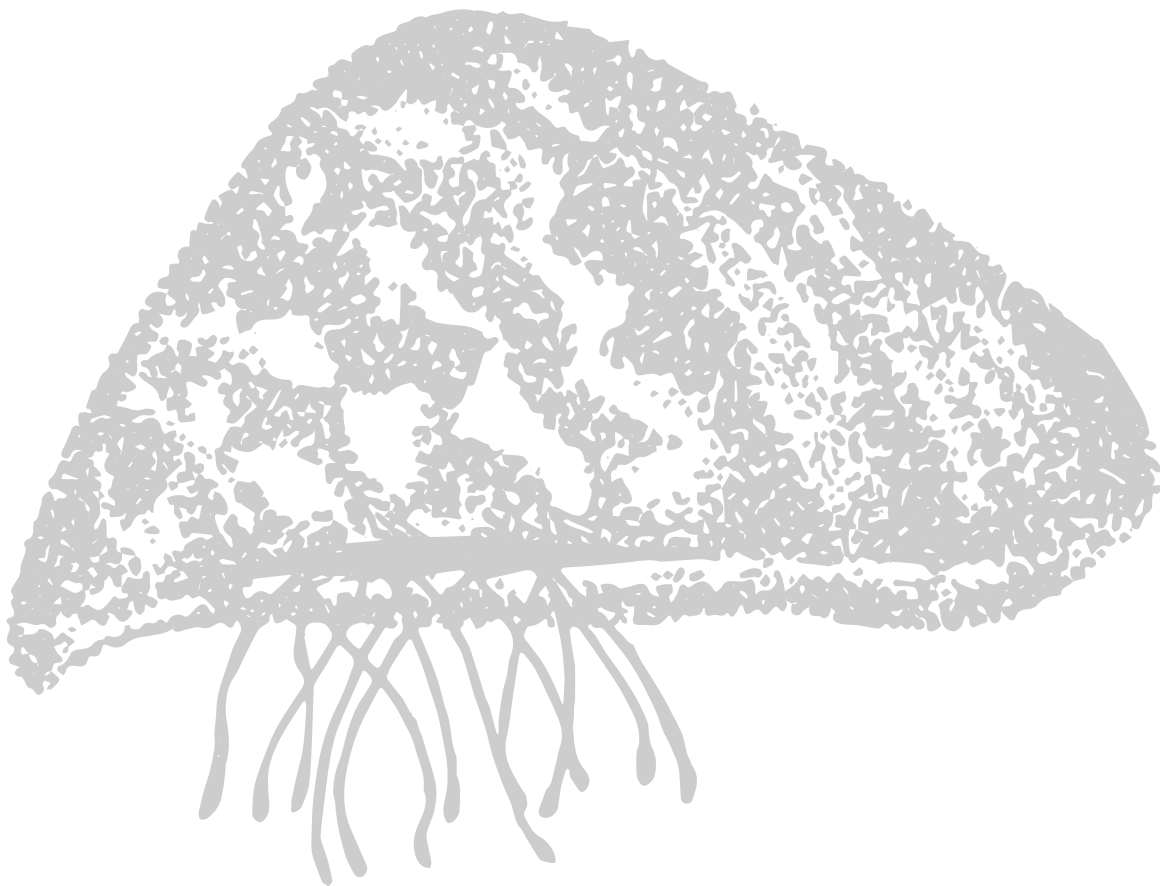
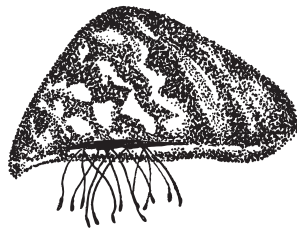


Safeguarding the West from Invasive Species

*Actions to Strengthen Federal, State, and Tribal
Coordination to Address Invasive Mussels*





Safeguarding the West from Invasive Species

Actions to Strengthen Federal, State, and Tribal Coordination to Address Invasive Mussels

The federal government is committed to working with the Western Governors' Association and Western States and Tribes to protect the region from invasive species. Nationwide, invasive species represent one of the most significant threats to ecosystems, human and animal health, infrastructure, the economy, and cultural resources. Invasive quagga and zebra mussels are a clear case in point. Unintentionally introduced into the Great Lakes through ballast water in the 1980s, the mussels proved highly invasive by clogging water supply pipes and dramatically changing the local environment. The regional cost to industry and the public is estimated at \$500 million annually. Invasive mussels subsequently have spread outward from the Great Lakes, often moved on the hulls and in the bilges of recreational boats. The Columbia River Basin is one of the few major U.S. watersheds uninfested by invasive mussels, and an invasion could have significant economic and ecological impacts comparable to the \$500 million in annual damage experienced in the Great Lakes region. Repeated interceptions of infested boats and the discovery in late 2016 of larval mussels in Montana near the headwaters of the Columbia River Basin highlight the ongoing and increasing risks to Western waters.

Recognizing this threat, state and federal agencies, tribes, and partners have made unprecedented efforts to contain the spread of invasive mussels. Although the challenge is substantial, it is not insurmountable. Multi-stakeholder coordination efforts, such as the Aquatic Nuisance Species Task Force's Western Regional Panel, the Building Consensus in the West Initiative, and the 100th Meridian Initiative's Columbia River Basin Team, have clearly identified the most immediate priorities, as best represented by the Quagga-Zebra Mussel Action Plan for Western Waters (QZAP).

Conscious of the critical need to act promptly, federal agencies, states, tribes, and other partners collaborated over the spring of 2017 to identify more than 40 actions to prevent, contain, and control invasive mussels. Geographically, this effort addresses the Columbia River Basin and other uninfested Western waters, as well as the lower Colorado River Basin. The resulting commitments from federal agencies are summarized below. This work complements existing efforts and strengthens state-federal-tribal coordination to better protect the West from invasive mussels.



Committees that had broad representation from federal and state agencies and tribes identified a range of actions. The timeline and duration vary, from actions underway to those that explore longer-term initiatives. Activities contemplated beyond the federal 2017 fiscal year would require Congressional approval through the routine appropriations process. The items listed here are not all-inclusive, nor meant to exclude useful ideas that may be subsequently identified. The agency listed in parentheses has the lead, but most items involve close coordination with others.



PREVENTION

RISK ASSESSMENT AND IDENTIFICATION

- Develop vulnerability assessments for facilities and infrastructure at risk of mussel infestation in the Columbia River Basin (Reclamation)
- Improve predictive models and methodologies for identifying waterbodies at risk of mussel infestation in the West, with a focus on the Columbia and Snake River reservoir systems (USGS/Reclamation/NPS)

WATERCRAFT INSPECTION/DECONTAMINATION – COLUMBIA RIVER BASIN

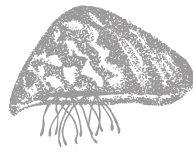
- Support Salish Kootenai College students to assist with watercraft inspections and other prevention, detection, and outreach efforts at tribal and public waters, through BIA project funding (BIA)
- Support watercraft inspection stations and K-9 inspection units on the Blackfoot Indian Reservation, through BIA project funding (BIA)
- Maintain or enhance mussel prevention programs at vulnerable National Parks in the Columbia River Basin, and evaluate existing programs for effectiveness (NPS)
- Assess establishing watercraft inspection and decontamination programs at Lake Chelan National Recreation Area and Ross Lake National Recreation Area in the North Cascades Complex (NPS)

WATERCRAFT INSPECTION/DECONTAMINATION – DATA-SHARING

- Explore options for sharing information on trailered boats that are putting in and taking out of NPS managed waters, for inclusion in a database developed by the State of Colorado and used by western states (NPS)

WEST-WIDE WATERCRAFT INSPECTION/ DECONTAMINATION COORDINATION

- Better coordinate and harmonize agency watercraft inspection and decontamination efforts on recreational boaters and boat haulers through the Building Consensus in the West Initiative, while reducing the administrative burden (USFWS)



EARLY-DETECTION MONITORING

ENVIRONMENTAL DNA AND OTHER DETECTION TECHNOLOGIES

- Assess various eDNA methodologies and develop criteria, guidelines, and decision-support tools for using eDNA in concert with other tools to increase the probability of detecting mussel populations (USGS/Reclamation)
- Develop and validate a portable eDNA detector tool for mussels, which could be used at boat inspection stations and by other monitoring efforts (e.g., citizen scientists) (USGS)
- Develop, apply, and evaluate eDNA and microscopy technologies to support sampling and detection efforts (Reclamation)
- Conduct eDNA sampling efforts in high risk waters on the Blackfeet Indian Reservation, through BIA project funding (BIA)

SAMPLE ANALYSIS AND CONFIRMATION

- Support the mussel detection lab at Montana Fish, Wildlife and Parks to process samples received throughout the Missouri River Basin at no charge to states (USFWS)
- Continue to analyze water samples from across the western United States and provide results to staff and stakeholders (Reclamation)

REGIONAL AND SITE-SPECIFIC MONITORING

- Continue monitoring efforts throughout Lake Roosevelt National Recreational Area, in conjunction with the Spokane Tribe of Indians and the Washington Department of Fish and Wildlife (NPS)
- Enhance capacity of tribes to monitor for mussels and other aquatic invasive species in the Columbia and Snake Rivers, through the Columbia River Inter-Tribal Fish Commission and in coordination with USGS, Washington State University, and other partners, through BIA project funding (BIA)
- Continue or expand monitoring activities at Lake Mead and Glen Canyon National Recreation Areas and share lessons learned from implementing a large-scale aquatic invasive species program (NPS)
- Continue monitoring for mussels in Bureau of Reclamation waters and facilities, as well as connected waters (Reclamation)

REGIONAL MONITORING COORDINATION

- Establish a committee to explore the establishment of a regionally coordinated early detection monitoring program for mussels in the Columbia River Basin, with the potential for expansion to other aquatic invasive species and regions (USGS)



RAPID RESPONSE

TECHNOLOGIES FOR RAPID RESPONSE AND CONTROL

- Identify and assess available tools that can be used for rapid response and control within the Columbia River Basin (USGS)

RAPID RESPONSE TEAM

- Continue to support a dive team that is “on call” to assist States with sampling to determine if adult mussels are present (USFWS)

CONTAINMENT AND CONTROL

FACILITIES AND INFRASTRUCTURE PROTECTION

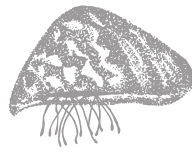
- Compile best practices, strategies, and technologies used at infested facilities to minimize risks and impacts (Reclamation)
- Convene a multi-stakeholder workshop in the Columbia River Basin to share information on budgeting for and implementing control technologies to increase preparedness and protect water infrastructure (Reclamation)

PRIZE COMPETITION

- Launch a prize competition to identify innovative concepts to eradicate or prevent mussel infestations in open waters, including large reservoirs and lakes (Reclamation)

COLORADO RIVER BASIN CONTAINMENT ACTIVITIES

- Maintain or enhance existing mussel containment programs at contaminated NPS waters on the Colorado River, and evaluate existing programs for effectiveness (NPS)
- Explore options for housing near areas with federal watercraft inspection and decontamination stations at Glen Canyon National Recreation Area (NPS)
- Identify approaches to develop commercial inspection and decontamination capacity for recreational watercraft, in collaboration with the private sector (NPS)
- Convene an interagency workshop to develop a multi-jurisdictional strategy to contain the spread of invasive mussels in the Lower Colorado River, from Lake Havasu and downstream (BLM)



OUTREACH AND EDUCATION

STOP AQUATIC HITCHHIKERS! (SAH!) WEBSITE

- Expand the SAH! Website to include an interactive portal that will enable sharing and tracking of outreach materials (USFWS)

MULTI-STATE MARKETING EVALUATION

- Explore options to evaluate existing outreach and education campaigns for message consistency, target audiences, delivery strategies, and gaps (ANSTF)

EFFECTIVENESS OF OUTREACH CAMPAIGNS

- Develop a research proposal to assess the efficacy of existing public outreach and refine specific recreational user behavior change goals (USGS/ANSTF)

RESEARCH

RESEARCH AND DEVELOPMENT PROGRAM ACTIVITIES

- Continue research on effective technologies for the detection, prevention, control, and management of invasive mussels in lab and field settings (Reclamation)
- Identify options to pilot the use of dip tank technology, a potential tool for reducing watercraft decontamination times, at a site in Glen Canyon National Recreation Area, and evaluate the potential to expand dip tank technology to other sites (NPS)

INCREASING CAPACITY

REGIONAL, STATE AND TRIBAL SUPPORT

- Continue to support regional panels of the Aquatic Nuisance Species Task Force that help to identify regional priorities and coordinate regional aquatic invasive species activities (USFWS)
- Continue to provide cost-share grants to states, regional organizations, and tribes, for the implementation of Aquatic Nuisance Species Management Plans and the Quagga-Zebra Mussel Action Plan (USFWS)
- Assist states and tribal governments to draft interstate aquatic invasive species plans (USFWS)



LEADERSHIP ENGAGEMENT AND COORDINATION

- Convene federal, state, and tribal leaders in the Pacific Northwest to discuss current and future actions to address aquatic invasive species (Reclamation)
- Explore options, in partnership with WGA, to enhance policy level coordination among federal, state, and tribal leaders (DOI)

DEPARTMENT AND AGENCY POLICIES AND PLANS

- Improve DOI's Invasive Species Policy, to include emphasis of the importance of federal-state-tribal coordination, harmonization of policies and procedures, and reduction of regulatory impediments to effective and timely invasive species management (DOI)

REGULATORY IMPROVEMENTS

- Evaluate NPS invasive species policy on watercraft inspection and decontamination to determine its adequacy for protecting NPS resources and working effectively with state, federal, and other partners, and if necessary, explore options to improve it (NPS)
- Work with partners and other action agencies to identify steps to complete Endangered Species Act consultation, including the development of a reference manual, to facilitate rapid response activities in response to mussel introductions in the Columbia River Basin (USFWS)

ACRONYMS

ANSTF	Aquatic Nuisance Species Task Force
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
Reclamation	Bureau of Reclamation
CRITFC	Columbia River Inter-Tribal Fish Commission
DOI	United States Department of the Interior
eDNA	Environmental Deoxyribonucleic Acid
NPS	National Park Service
QZAP	Quagga-Zebra Mussel Action Plan
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WGA	Western Governors' Association

NOTES

