

Lessons Learned

State Dreissenid Rapid Response Exercises

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Introduction

The basic principle of Early Detection Rapid Response (EDRR) is that an invasive species will be detected, contained, and eradicated before it becomes established, thus slowing the range expansion of the species and costly financial investments to contain and control the species through time.

Since 2007, entities in the Columbia River Basin (CRB) have been hosting dreissenid rapid response exercises to prepare for an eventual introduction of dreissenids in the CRB. The exercises are intended to evaluate the ability to implement the *Columbia River Basin Interagency Invasive Species Response Plan* as well as each state's rapid response plan, ensuring a rapid response is feasible. Early iterations of these exercises were primarily off-site tabletop exercises. Through time, these events have matured into multi-day exercises involving an Incident Management structure, multiple partners, and site-specific practical activities.

The purpose of this report is to review past rapid response exercises and compile lessons learned to inform future exercises.

State Rapid Response Exercises

2007 Tabletop Exercise – Vancouver, Washington

The ground-breaking rapid response exercise was a tabletop exercise in October of 2007 in Vancouver, Washington hosted by the Pacific States Marine Fisheries Commission and the US Fish and Wildlife Service. More than 40 individuals representing 20 agencies and organizations attended to respond to a scenario of a reported detection of dreissenid mussels on a vessel at a county boat access facility at the mouth of the Wind River in Washington, just upstream of the Bonneville Dam on the Columbia River. The outcomes of this workshop informed numerous refinements of existing rapid response plans.

Lessons learned:

- Obtain full buy-in by all entities involved in a response is critical. These entities should be a part of all future planning exercises.
- Deficiencies exist in needed supporting documentation (e.g., permitting, memoranda of agreements (MOA) and understanding (MOU), funding arrangements, forms, glossary, job descriptions for positions, etc.) to fully implement a response.
- Resources should be shared across state lines through supporting MOA's and ordering procedures.

- The role of tribal governments in a response needs clarification.
- Develop procedures to complete applicable permitting and environmental analyses in advance of an infestation.
- Develop briefing packages (e.g., press releases, talking points).
- Identify legal authorities likely to be required.
- Conduct additional training and exercises for all organizational elements of the plans.
- Develop a situational analysis tool that focuses on biological issues, resources at risk, likelihood of successful intervention, and political, social, and economic ramifications.

2008 Tabletop Exercise – Portland, Oregon

This 2008 exercise in October of 2008 focused on the pathway management components of the *Columbia Interagency Invasive Species Rapid Response Plan*, with an emphasis on actions needed to prevent secondary spread of an incipient mussel introduction via commercial and recreational vehicle traffic. The two-part exercise (one for the Multi-agency Coordination [MAC] group and the other for coordination and support staff) familiarized participants with the CRB Plan and its components, and highlighted the value of using an actual scenario to illustrate plan implementation.

Lessons Learned:

- Participating agencies need to develop resources lists.
- Logistics needs more re-planning, and reciprocity agreements need to be developed.
- Legal issues need to be clarified in advance, and MOUs that establish authority need to be developed.
- Samples of forms and mutual aid agreements are needed, and the plan needs to be presented in a more user-friendly format.
- Decontamination protocols need to be added to appendices.

2009 Tabletop Exercise – Boise, Idaho

This one-day tabletop exercise in Boise, Idaho was focused on determining the effectiveness, adequacy, and applicability of existing plans, policies, and procedures by analyzing state code, agency guidelines and regulations, and Mutual Aid agreements to improve overall command and control procedures and enhance unified command response. The exercise was intended to be a round table discussion that simulated an emergency situation in an informal, low-stress environment, using plans, policies, and procedures already in place for each agency.

Specifically, Idaho sought to:

- Define proper notification protocols within federal, state, and local agencies when an invasive mussel find occurs within the State of Idaho.
- Coordinate local and state agency response tactics when the Columbia River Basin Rapid Response Plan has been activated.
- Identify current shortfalls in local resources when containing or eradicating invasive mussels. If shortfalls are recognized locally, determine what state resources are necessary and when/how they should be requested.
- Define roles and responsibilities of state agency leadership when addressing long-term invasive mussel containment and eradication.
- Identify current shortfalls, conflicts, or gaps in existing policies, plans, regulations, and State Code that limit response and recovery efforts when an invasive mussel incident affects an Idaho waterbody.

Lessons Learned:

A draft After Action report was completed that described the questions discussed during each element of the exercise, and concluded with five areas for improvement:

- Annex the CRB Plan.
- Temporary rules may be needed.
- Establish delegation authorities via MOUs.
- Rural support is needed.
- Agency staff must be trained to respond to an emergency.

2010 Tabletop Exercise – Spokane, Washington

This two-day tabletop exercise included 28 individuals focused on a confirmed finding of dreissenid adults in Lake Roosevelt Reservoir near Davenport, Washington. The exercise included a review of the CRB Plan as well as the Incident Command System (ICS) planning process, followed by the development of an Incident Action Plan for the first operational period of response to the infestation. The goal of this exercise was to test and further refine the rapid response protocol and mechanism(s) specific to reviewing and approving an eradication strategy under the CRB Plan and clarify the process for identifying and obtaining permits and completing environmental documentation required by the scenario and the CRB Plan.

The group was notified that an Idaho water body sample tested positive for quagga mussel veligers.

Exercise objectives included:

- Provide an overview of roles and responsibilities under the Plan and the ICS planning process.
- Identify the roles and responsibilities of state, federal, tribal and local agency leadership in obtaining permits and other environmental compliance documentation necessary to proceed with a chemical treatment of quagga mussels.
- Identify and describe the process to approve, obtain permits, and complete all necessary environmental compliance documents for a proposed chemical treatment of an incipient invasive mussel infestation in Lake Roosevelt.
- Complete the planning process and develop a draft Incident Action Plan to implement the proposed chemical treatment of the invasive mussel infestation.
- Engage the Province of British Columbia, and other Canadian authorities as warranted, in the multi-jurisdictional response structure established in the Plan.
- Through creation of an After Action Report, refine the Plan and stimulate further planning specific to Lake Roosevelt. Use products and lessons learned from the exercise to determine gaps in eradication protocols and procedures.

Lessons Learned:

- The CRB Plan needs to clarify path to membership and participation, such as a three-tiered approach to a) standing membership, b) membership by concurrence, and c) ad hoc membership.
- Facilitate more ICS training for individuals expected to provide on-scene incident management.
- Identify a pool of individuals trained to assume ICS roles.
- Facilitate permitting through the development of a generic background document, and streamline applications for emergency exemptions.

2011 Tabletop Exercise – Lake Koocanusa, Libby, Montana

This international two-day tabletop exercise involved 27 participants focused on a confirmed finding of dreissenid larvae in Lake Koocanusa to test and further refine the rapid response protocol and mechanisms that advance coordination between the United States and Canada under the CRB Plan, and to further develop a containment strategy for watercraft moving in and out of an infested water body. Specific objectives included:

- Provide an overview of roles and responsibilities under the CRB Plan and the ICS planning process.
- Engage the Province of British Columbia and other Canadian authorities as warranted, in the multi-jurisdictional response structure established in the Plan.

- Increase coordination with US Army Corps of Engineers (USACOE) and other state, federal, and tribal agencies.
- Develop a containment strategy for watercraft entering and leaving an infested waterbody in the state of Montana and the Province of British Columbia.
- Exercise the Joint Information Center (JIC).
- Provide ICS training to participants.
- Through creation of an After Action Report, use products and lessons learned from the exercise to refine the CRB Plan and stimulate further planning specific to Montana and British Columbia.

Lessons Learned:

- Recommendations for General Preparedness
 - Evaluate opportunities to tap into FEMA for money and resources if an event is declared an emergency.
 - Discuss with State Department and/or International Joint Commission how to expedite flow of money between the United States and Canadian response organizations.
 - Establish a system (and provide associated “launch” criteria) to convene Type 3 ICS teams to help fill roles where ICS knowledge is more important than aquatic invasive species knowledge (e.g., Finance and Logistics).
 - Work with the Federal Aviation Administration and Canadian counterpart to develop processes for restricting float plane operations.
 - Create a dedicated internet and/or Facebook page during a real event as a way to provide information to stakeholders.
 - Better define process and criteria for considering alterations to lock and dam operations as a way to contain spread.
- Recommendations for Plan Changes
 - Better reflect realities of how contacts are made/routed (Figure 3), and add Canadian counterparts.
 - Update notification lists, including a new column that briefly notes the individual’s ICS experience.
 - As needed, add new material that corresponds to recommendations under #1 above.
 - Include a provision about providing information on response via personal use of social media from responders.
 - Create a new plan appendix that provides Lake Koocanusa exercise forms 202–206 as examples.

- Recommendations for Future Exercises
 - Conduct less training and implement more problem solving (e.g., deal with implications if hatchery has been contaminated).
 - Host additional regional rapid response exercises in Montana that would convene groups and agencies, such as the Bureau of Reclamation.
 - British Columbia
 - Initiate a discussion in British Columbia about the current limitations the Province would face if confronted with an infestation.
 - Establish boat washing stations and staff trained in watercraft decontamination in British Columbia.
 - Establish closer collaboration with the Federal Government, in particular the Department of Fisheries and Oceans and the First Nations, as this relationship is imperative for an effective response.
 - Establish regulations prohibiting the movement of zebra and quagga mussels into British Columbia (and other provinces).
 - Determine if a British Columbia Environmental Emergency Declaration Regulation could be applied to mussel infestations.
 - Develop a British Columbia zebra and quagga mussel rapid response plan.
 - Hold a British Columbia-specific rapid response exercise to allow wider participation of federal, provincial and regional government, without the difficulty of international travel.

2013 – Field Exercise – Prineville Reservoir, Oregon

This two-day field exercise included 22 individuals focused on a confirmed finding of dreissenid veligers and an adult mussel shell in Prineville Reservoir near Prineville, Oregon. The exercises included a review of the CRB Plan and ICS as well as an overview of the ICS planning process. Specifically, the goals of the exercise were to:

- Test and further refine the rapid response protocols described in the Oregon Dreissenid Response Plan.
- Demonstrate the ability to implement the concepts and provisions of the Oregon Dreissenid Response Plan, including the ability to:
 - Use ICS to organize and staff the response to a simulated infestation.
 - Identify stakeholder agencies and user groups affected by the scenario, and develop strategies to incorporate their resources, issues, and concerns into the incident planning process.

- Use the ICS planning process to develop an Incident Action Plan for the first operational period.
- Develop strategies to ensure consistent, timely release of public information.

Participants describe this exercise as “the first thorough test of the CRB Plan.”

Lessons Learned:

- Training
 - Include local emergency managers in exercises.
 - Develop a workshop focused on water body-specific deliverables, such as maps, access points, and available resources so that these could be incorporated into water-body specific rapid response plans.
 - Develop a list of trained IMT members.
 - Consider longer (e.g., 3-day) exercises with more emphasis on political issues.
 - Develop a presentation on Delegation of Authority for agency administrators.
 - Identify and train personnel in the support functions so that technical AIS specialists can focus on implementing controls.
- Resources
 - Consider water body-specific resource lists.
 - Incorporate local Community Emergency Response Teams for trained, organized volunteers.
 - Seek partners agencies with similar challenges and skillsets.
- Planning
 - Develop a template for Delegation of Authority.
 - Develop a decision-making tool for closure of water bodies.
- Public education
 - Develop a public education initiative in concert with the Bass Foundation.

2016 – Field Exercise Jackson Lake, Wyoming

This two-day exercise convened 25 Greater Yellowstone area managers to address a discovery of dreissenid veligers (confirmed dreissenid veliger sample by microscopy followed by molecular PCR confirmation) in Jackson Lake, Wyoming. Specifically, the group sought to:

- Establish an appropriate ICS team when there is discovery of a dreissenid mussel in the Greater Yellowstone Area of Wyoming by defining the roles and responsibilities of federal and state management entities.
- Determine the strategy for confirmation and/or monitoring of dreissenid populations.
- Determine appropriate management actions associated with a confirmed dreissenid discovery.
- Develop a primary communication strategy to the public based on the discovery of dreissenids.
- Use the developments and progress made during the exercise to inform the current WY Game and Fish Department Rapid Response Plan.

This exercise was the first to complete an Incident Action Plan as part of the overall exercise.

Lessons Learned:

- Improve productivity by making better use of staff in sections that do not have active tasks.
- Ensure that everyone understands role and potential actions so they are productive on Day 1.
- Provide handouts of terms, other ICS background information, and an outline of appropriate forms for each section.
- Use fewer ICS acronyms.
- Build in more time for long-term strategic planning.
- Focus on a longer-term plan versus a 24-hour operating period.
- There is inadequate time for a real-life interagency discussion.
- Clarification is needed for jurisdictional authorities.
- Ensure on-site mussel expertise and more background on mussels.
- Provide sample reports from previous rapid response exercises.
- Provide more injects to keep participants busy.
- Add a skilled Incident Command trained individual to each group.

2017 Field Exercise – Lincoln Rock State Park, Wenatchee, Washington

This two-day exercise convened 33 participants to address the detection of dreissenid veligers in the Columbia River near Wenatchee, Washington. An optional four-hour ICS training was offered to all participants prior to the start of the exercise. The goals of the exercise were to:

- Test application of rapid response statutes (Appendix B):
 - RCW 77.135.050 Department-declared quarantine
 - RCW 77.135.060 Rapid response management actions

- RCW 77.135.080 Implementation of Department’s duties--Department is lead agency—Notice
- RCW 77.135.090 Emergency measures
- Test application of the Columbia River Basin Interagency Invasive Species Response Plan (CRB Plan).
- Test application of the Washington Dreissenid Mussel Rapid Response Plan (WARR Plan) as a complement to the CRB Plan.
- Test application of the DRAFT Responding to an Introduction of Dreissenids in Oregon and Washington: BMPS, Effects Analysis.
- Demonstrate the ability to implement state authorities and response plans to:
 - Use the Incident Command System to organize and staff the response to a simulated infestation;
 - Identify stakeholder agencies and user groups affected by the scenario, and develop strategies to incorporate their resources, issues, and concerns into the incident planning process; and
 - Develop strategies to ensure consistent, timely release of public information.

This exercise was the second to complete an Incident Action Plan as part of the exercise.

Lessons Learned:

- Provide more preparatory materials (i.e., more homework prior to exercise).
- Provide more training on usage of ICS forms.
- Separate training for CRB MAC members .
- Pre-assemble documents for chemical emergency labeling to reduce process time in an actual incident.
- Spend more time on the “planning P” to familiarize participants with the process.
- Develop and maintain as much response information (e.g., response team, control resources) in preparation for an actual incident.
- Distinguish between role play knowledge and actual situation knowledge.
- Verify that IC declarations are heard by all participants during the exercise (e.g., expansion to unified command).
- Address the process of de-mobilization of the exercise.
- Provide wall posters of ICS forms, basic acronyms, and organizational charts.
- Establish a better communication network for on-site information transfer/compilation of forms (e.g., thumb drives, laptop availability, printer, scanner, possible central file for forms).
- Provide a pre-prepared set of ICS forms for participants as an example (e.g., Incident Action Plan and ICS 201).

2018 Field Exercise – Flathead Lake, Montana

This three-day field exercise convened 32 people (and an additional seven people remotely) focused on using the Montana *Dreissenid Mussel Rapid Response Guidelines* and ICS to address a detection of adult mussels on a boat purchased from the Midwest and moored at Flathead Lake in Somers Bay. A co-jurisdictional response, including the Confederated Salish and Kootenai Tribes and the State of Montana were involved. The goals of the meeting were to:

- Improve the *Montana Dreissenid Mussel Rapid Response Guidelines*, improve communication guidance, and continue to enhance Incident Command System familiarity. The exercise objectives focused on helping address response issues and assist in a better understanding of how a possible eradication of mussels in Montana might be conducted.
 - A. Command and Control: Through ICS, the exercise team will demonstrate the ability to engage, prioritize, coordinate and complete emergency response activities.
 - B. Communication: Through ICS, the exercise team will demonstrate an ability to conduct and disseminate information of the detection, response, and conclusion of a dreissenid emergency.
 - C. Resource Management: Through ICS, the exercise team will demonstrate ability to respond to a dreissenid emergency and explore the use of an emergency resource system in conjunction with a geographic response plan and a map-based augmentation of the state's response guidelines.

Lessons Learned:

- A better background or rationale on why ICS is used for AIS should be provided.
- Create an enhanced process to address and resolve the injects received during the exercise.
- Reduce the amount of paper; find a way to use digital forms or project more.
- Reduce inconsistencies in filling out forms among the divisions.
- Establish clarity on when and how a critical review would be completed on tactics selected.
- Fill the Finance Chief position with an actual finance professional.
- Discuss actual public access determinations during the exercise rather than assumptions.
- Provide US Coast Guard ICS booklets to all participants.
- Enhance training materials provided by incorporating examples of work products for each position.
- Pare down the ICS products work for an AIS incident.
- Promote more engagement with leadership (tribal, state agencies) to improve comfort in decision making.
- Establish an MOU between FWP and CSKT to clarify AIS communication/data sharing.

- Complete a statewide environmental assessment for a possible EarthTec QZ® eradication treatment.
- Ensure there is a person present within IC with more knowledge/experience related to aquatic pesticides and treatment.

Summary of Recommendations to Improve State Rapid Response Exercises

Through time, CRB team members and state agency representatives (and other entities) have addressed the lessons learned from previous exercises, enhancing the efficacy and utility of future exercises. The following table summarizes all of the lessons learned and recommendations made during state rapid response exercises, including identification of those that have and have not been addressed.

Table 1. Summary of lessons learned and recommendations made during state rapid response exercises.

	Status of Implementation
1. General Preparedness	
A. Planning check on opportunities to tap into FEMA for money and resources if an event is declared an emergency.	
B. Follow up with State Department and/or International Joint Commission regarding how to expedite flow of money between U.S. and Canadian response organizations.	
C. Set up system (and provide associated “launch” criteria) to bring in Type 3 ICS teams to help fill roles where ICS knowledge is more important than AIS knowledge (e.g., Finance and Logistics).	
D. Work with FAA and Canadian counterpart to develop process for restricting float plane operations.	
E. Create dedicated internet and/or Facebook page during an actual event as a way to provide information to stakeholders.	Online toolkit under development – incorporate template for actual event
F. Better define process and criteria for considering alterations to lock and dam operations as a way to contain spread.	
G. Deficiencies in needed supporting documentation (e.g., permitting, memoranda of agreements (MOA, reciprocity agreements) and understanding (MOU), funding arrangements, forms, glossary, job descriptions for positions, etc.) were identified.	ONLINE TOOLKIT
H. Clarify the role of tribal government.	ONLINE TOOLKIT
I. Identify legal authorities likely to be required.	ONLINE TOOLKIT
J. Develop a public education initiative in concert with the Bass Foundation.	

K. More engagement with leadership (tribal, state agencies) to improve comfort in decision making	
L. An MOU is needed between FWP and CSKT to clarify AIS communication/data sharing.	
2. Changes to CRB Plan	
A. Better reflect realities of how calls are made/routed), and add Canadian counterparts (Figure 4).	
B. Update notification lists, including a new column that briefly notes the individual's ICS experience.	
C. Include provision about providing information on response via personal use of social media from responders.	
D. Create a new plan appendix that provides Lake Koocanusa exercise forms 202-206 as examples.	Exercise forms to be incorporated into online toolkit in 2019
E. Add decontamination protocols.	
F. Facilitate permitting through the development of a generic background document, and streamline applications for emergency exemptions.	ESA Manual, included in ONLINE TOOLKIT, is intended to expedite emergency exemptions.
3. Training	
A. Include local emergency managers in exercises.	
B. Develop a workshop focused on water body-specific deliverables, such as maps, access points, available resources so that these could be incorporated into water-body specific rapid response plans.	Several of the more recent exercises have included water-body specific deliverables.
C. Develop a list of trained IMT members.	In progress.
D. Consider longer (e.g., 3-day) exercises with more emphasis on political issues.	Several of the more recent exercises have been lengthier.
E. Develop a presentation on Delegation of Authority for agency administrators.	
F. Identify and train personnel in the support functions so that technical AIS specialists can focus on implementing controls.	Ongoing
G. Conduct additional training and exercises for all organizational elements of the plans.	Ongoing
H. Facilitate more ICS training for individuals expected to provide on-scene incident management.	
I. Less training, more problem solving (e.g., deal with implications if hatchery had been contaminated).	
J. Host additional regional Rapid Response Exercises in Montana that would pull other groups and agencies in, such as the Bureau of Reclamation.	
K. Include a person with more knowledge / experience related to aquatic pesticides and treatment in rapid response exercises.	
4. Resources	

A. Develop water body-specific resource lists.	Entities are developing these resource lists as exercises are conducted. ¹
B. Incorporate local Community Emergency Response Teams for trained, organized volunteers.	Ongoing
C. Seek partners agencies with similar challenges and skillsets.	Ongoing
D. Develop briefing packages (e.g., press releases, talking points).	ONLINE TOOLKIT
E. Identify a pool of individuals trained to assume ICS roles.	ONLINE TOOLKIT
F. Complete a state-wide environmental assessment for a possible EarthTec QZ® eradication treatment.	ESA Manual will be incorporated into online toolkit.
5. Planning	
A. Develop a template for Delegation of Authority.	ONLINE TOOLKIT
B. Develop a decision-making tool for closure of water bodies.	ONLINE TOOLKIT
C. Ensure resources can be shared across state lines through supporting MOA's and ordering procedures.	ONLINE TOOLKIT
D. Consider completing applicable permitting and environmental analyses in advance of an infestation.	ONLINE TOOLKIT
E. Develop a situational analysis tool that focuses on biological issues, resources at risk, likelihood of successful intervention, and political, social, and economic ramifications.	ONLINE TOOLKIT
6. British Columbia	
A. Initiate a discussion in British Columbia about the current limitations the Province would face if confronted with an infestation.	
B. Develop a decision-making tool for closure of water bodies.	
C. There are currently no boat washing stations and staff trained in watercraft decontamination available in British Columbia.	
D. Closer collaboration with the Federal Government, in particular the Department of Fisheries and Oceans and the First Nations is imperative for an effective response.	
E. Establish regulations prohibiting the movement of zebra and quagga mussels into British Columbia (and other provinces).	
F. Determine if British Columbia Environmental Emergency Declaration Regulation could be applied to mussel infestations.	
G. Develop a British Columbia zebra and quagga mussel rapid response plan.	
H. Hold a British Columbia-specific rapid response exercise to allow wider participation of federal, provincial and regional government, without the difficulty of international travel.	

¹ Resource lists should be developed for the highest risk water bodies in each state.

Dreissenid Rapid Response Exercises

Best Management Practices

1. Participants

- Make better use of staff in sections that do not have active tasks to improve productivity.
- Ensure that everyone understands roles and potential actions so they have something to do on Day 1.
- Ensure there is on-site mussel expertise and more background information on mussels.
- Provide a skilled Incident Command trained individual to each group.
- Fill the Finance Chief position with an actual finance professional.
- Verify that IC declarations are heard by all participants during the exercise (e.g., expansion to unified command).

2. Documentation

- Provide handouts of terms, other ICS background and outline of appropriate forms for each section.
- Provide sample reports from previous rapid response exercises.
- Provide more preparatory materials (i.e., more homework prior to exercise).
- Pre-assemble documents for chemical emergency labeling to reduce process time in an actual incident.
- Provide US Coast Guard ICS booklets to all participants.
- Provide examples of work products for each position to enhance training materials.
- Minimize paper through use of digital forms.
- Provide a pre-prepared set of ICS forms for participants as an example (e.g., Incident Action Plan and ICS 201).
- Create a better communication network for on-site information transfer/compilation of forms (e.g., thumb drives, laptop availability, printer, scanner, possible central file for forms).
- Provide wall posters of ICS forms, basic acronyms, and organizational charts.
- Develop and maintain response information (e.g., response team, control resources) in preparation for actual incident.

3. Incident Command System

- Use fewer ICS acronyms.

4. Process

- Build in more time for long-term strategic planning.
- Incorporate adequate time for real-life interagency discussion.
- Clarify jurisdictional authorities.
- Spend more time on the “planning P” to familiarize participants with the process.
- Create a process to address and resolve injects received during the exercise.
- Address the process of de-mobilization of the exercise.
- Distinguish between role play knowledge and actual situation knowledge.

5. Training

- Offer more training on usage of ICS forms.
- Separate training for CRB MAC members .

Conclusions and Recommendations

Since 2009, nine dreissenid rapid response exercises have occurred in the CRB states of Washington (3), Oregon (2), Montana (2), Idaho (1), and Wyoming (1). Exercises have evolved through time from basic one-day table-top exercises to establish processes and protocols, to multi-day on-site events implementing Incident Command System processes and procedures. Through time, host states have attempted to expand the complexity of the exercises, engaging numerous jurisdictions (international and Tribal sovereign nations as well as federal, state, and local governments).

The after-action reports from all nine exercises were compiled to document lessons learned as well as recommended actions that have been implemented, those that are in progress (or ongoing), and those that are incomplete at the time of this report.

Despite the length of time that has occurred between exercises (generally one to two years), the compilation of lessons learned demonstrates that actions are not being taken to address important after-action report recommendations prior to the next dreissenid rapid response exercise. This lack of inaction may be a result of limited resources, the complexities associated with inter-jurisdictional recommendations (e.g., developing memorandums of understanding/agreements), or the fact that any one particular state does not host a dreissenid rapid response exercise in consecutive years. Therefore, the next state to host an exercise involves different teams of people with different priorities and interests – yet, several of the needs identified after each exercise are similar from state to state and year to year.

Recommendations:

- In 2020, plan for a CRB dreissenid rapid response summit to share the new online CRB Dreissenid Rapid Response Toolkit (CRB DIRT) and host multi-jurisdictional work sessions to draft products that address shortcomings and needs identified in this report from after-action reports. The goal would be to advance understanding of the new tool and its effective use, while convening the multi-jurisdictional entities to address much-needed actions relating to general preparedness, the components of the CRB plan, training, resources, planning, and issues that should be advanced relative to tribal sovereign nations and Canadian provinces. State-specific issues could be addressed during the summit as well as those issues that span all states and jurisdictions.
- Ensure all future state-sponsored dreissenid rapid response exercises include a team of people from a previous and recent exercise to help plan for and implement the exercise to avoid repetition of common mistakes.