Divers gearing up, and containment system deployment at Kettle Falls Marina.

Photo courtesy of Washington Department of Fish and Wildlife, Rachel Blomker
This project was made possible by funding provided to the State of Washington Recreation and Conservation Office by the U.S. Department of Interior Bureau of Reclamation via contract # R18AP00055.

This exercise was planned and implemented by the following organizations:

Washington Invasive Species Council
Washington Department of Fish and Wildlife
Spokane Tribe of Indians
Colville Confederated Tribes
US Bureau of Reclamation
U.S. National Park Service

With the support and technical assistance from:

Able Cleanup Tech
Alberta Environment and Natural Resources
The Office of Representative Kathy McMorris Rogers
Pacific States Marine Fisheries Commission
Regional District of Okanogan-Similkameen
Representative Jacqueline Maycumber
TVW – Washington’s Public Affairs Network
US Army Corps of Engineers
US Coast Guard Auxiliary
Washington House of Representatives
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Introduction

On October 22-24, 2019, sixteen tribal, state and federal agencies, other managing organizations, and partners assembled to enact Washington State’s first operations-based response exercise to a fictitious discovery of dreissenid veligers in the Kettle Falls Marina located within the Lake Roosevelt National Recreation Area. In total, 59 individuals, representing 16 different organizations participated in the full-day exercise. The exercise utilized the Incident Command System (ICS), which is a command structure typically applied to emergency situations; including the discovery of an invasive species. Prior to the exercise, multiple trainings of the ICS command structure and its various utilities was offered to all participants, and a functional exercise to test response in a discussion-based setting were held as foundational events. The reasoning behind these trainings and preparation was to provide a structure where command lines are clear, and methods to complete goals and objectives are defined for all participants.

The exercise was a hypothetical response scenario that followed a timeline and chronological overview of events that would take place after a sampling and confirmation of presence of dreissenids in the Kettle Falls Marina. The scenario utilized the Lake Roosevelt National Recreation Area as the location of the detection. Lake Roosevelt is a 130 mile long lake formed after the completion of the Grand Coulee Dam in 1941 that resides in northeast Washington 150 miles from the Canadian border. The location was chosen intentionally, as it shares jurisdiction between several state and federal agencies, an international border, local tribes, managing partners, and the recreating public. In the event that invasive freshwater mussels were introduced, the Columbia system would be the most likely place, as well as have the farthest reaching impact on native species.
The exercise concluded on October 24th, with a short in-person debrief of the response—focusing on lessons learned, and what went well during the course of the day’s events. Further discussion between stakeholders is currently in the works as to how best to share the success and completion of the drill with partners; as well as make materials and talking points available for those who would like to use them.

Funding for the exercise was provided by the U.S. Department of Interior Bureau of Reclamation through an agreement with the Washington Recreation and Conservation Office. This funding supported the planning, meeting facilities, travel costs, supplies, equipment, and other incidentals.
Methodology

On March 12, 2019, an exercise planning team was assembled to hold an initial planning meeting for the purpose of reviewing prior discussion-based mussel response exercise After Action Reports (AARs), reviewing Washington State and Columbia Basin response plans, setting expectations, and scheduling future events. The exercise team included the following individuals:

- Eric Anderson, Washington Department of Fish and Wildlife
- Justin Bush, Washington Recreation and Conservation Office
- Leah Elwell, Invasive Species Action Network on behalf of Pacific States Marine Fisheries Commission
- Dan Foster, US National Parks Service
- Bryan Horsburgh, US Bureau of Reclamation
- Tamara Knudson, Spokane Tribe of Indians
- Holly McClellan, Confederated Tribes of the Colville Reservation
- Heidi McMaster, US Bureau of Reclamation
- Brent Nichols, Spokane Tribe of Indians
- Allen Pleus, Washington Department of Fish and Wildlife
- Brianna Widner, Washington Recreation and Conservation Office

The exercise planning team hosted a workshop on May 13, 2019 for the purpose of discussing and documenting authorities, notification processes, and overall response framework for the upcoming invasive mussel drill. During the May workshop, the planning team decided on the Kettle Falls Marina, in Kettle Falls, Washington as an ideal location to host the mussel exercise.

In the interim period, exercise participants took Federal Emergency Management Administration Emergency Management Institute Trainings to establish a common baseline of incident command training that included:

1. IS-100: Introduction to the Incident Command System
2. IS-200: Basin Incident Command System for Initial Response
3. IS-700: An Introduction to the National Incident Command System
4. IS-800: National Response Framework, an Introduction

Exercise participants were also invited to take part in Incident Command System 300: Intermediate Incident Command System for Expanding Incidents training held in Olympia, WA from July 24-26, 2019. In total, 23 individuals attended the ICS-300 course and received certificates of completion from the State of Washington Emergency Management Division.

The exercise planning team was then replaced by delegates of each organization having jurisdiction operating as incident commanders. Commanders included:

- Craig Brouwer, US National Park Service
- Heidi McMaster, US Bureau of Reclamation
The organizations determined that decision making would be shared and that unified command would be used for this exercise. The Unified Commanders, Command and General Staff to the Unit Leader level met on September 4, 2019 to hold a ½ day Mid Term Planning Meeting. At this meeting the planning team engaged with officials to settle logistical and organizational issues.

Building on the successful Midterm Planning Meeting, Unified Command held a Functional Exercise in Spokane, WA on September 5th. The key focus of the exercise was to practice unified command operations and to make operational decisions in a controlled setting prior to field implementation.

Following the Functional Exercise, the Unified Command, Safety Officer, Planning Section, and all Operations Section personnel met in Kettle Falls, WA to hold an Operations Planning Workshop, to discuss how they would implement the objectives of Unified Command both safely and efficiently. The Planning Workshop culminated in a site-visit to Kettle Falls Marina.

Following stakeholder input, negotiation and formalization of process, objectives, and safe implementation through training and preparation, the exercise team then held an operations-based exercise in Kettle Falls from October 22-24, 2019.
Operations Chief reviewing logistics for the day’s exercise.
Photo courtesy of Washington Department of Fish and Wildlife, Rachel Blomker
Goals and Objectives

There were four main goals at the start of the mussel response exercise including:

1. Safety—provide for overall ICS security and safety of all command, general and operational teams
2. Disseminate timely and accurate information –
   a. To local, state, federal, and tribal cooperators
   b. To public through social media, press releases, networks, etc.
3. Identify, coordinate, and move towards containment –
   a. Make plans for physical containment of Dreissenid veliger’s in Kettle Falls Marina;
   b. Make plans for physical containment of Dreissenid pathways in and out of Kettle Falls Marina; and
   c. Make plans for assessing Dreissenid presence and distribution at all life stages within a 10-mile radius of Kettle Falls Marina.
4. Develop long-term planning: create plans for ongoing containment, continuous and limited identification and/or eradication.

Although completing all these goals during the course of a one day exercise was quite ambitious, through the combined effort and dedication of all involved, each goal was completed! Remaining projects will be completed once all the data is collected and compiled in such a way that it can be shared to a broader audience.
Outcomes, Lessons, and Takeaways

All participants completed a demobilization form at the close of the exercise. During this time each individual was interviewed to gather feedback on the strengths and weaknesses of the day’s events.

Top Ten Strengths Observed:

1. Established timeline was followed
2. Communication was appropriately shared up and down the chain of command
3. The boom contained the dye successfully
4. The majority of objectives were carried out as planned
5. Public Information Officers were able to take photos and compile videos
6. Everyone, save the Coast Guard Auxiliary team, checked in and checked out
7. Both canine survey teams detected 100% of hidden mussels
8. The standard operating procedures for dive operations was followed and the protocol was determined to be immensely helpful for the exercise
9. Teamwork was excellent—especially considering it was a large (40+) group of people, many of whom had never worked together before
10. Canine teams were able to meet, and scan the exercise area in advance, which ensured shoreline survey teams were working collaboratively

Top Ten Challenges and Lessons Learned:

1. Need to field test equipment before use—problems arose during the exercise with the containment boom, generators, spraying attachments for decontamination unit, etc.
2. Dive team observed that surveying around a metal dock caused malfunctions in their compasses and equipment—something to be mindful of especially in future low visibility situations.
3. For better communication, feedback was received of the need to use radios instead of cell phones. Radios would allow for everyone involved to hear what’s going on, in addition to the fact that radios don’t depend on a cell phone signal.
4. In a real incident, or future drill, the planning team needs to ensure there is reliable Wi-Fi. For example, the hotspots staff were using on their phones during the drill was not sufficient for all the online needs.
5. More practice is needed with the containment boom to ensure staff are comfortable, and familiar with deployment.
6. Further discussion and follow-up is needed in regards to managing data. For example, state and federal agencies have policies against some document sharing sites (google drive, Box, etc.) however, if documents are shared over email there are issues with size limitations and versioning.
7. When deploying the dye, it would be valuable if there was a plan for how best to disperse the dye when the water is stagnant. During the drill there was a lot of last minute trouble shooting when it was discovered that the dye was not
dispersing in the way that was expected. This led to more time to find a solution, additional equipment requests, and other unplanned miscellaneous needs.

8. If drills similar to these are to become a regular exercise in the future, there could be some benefit to distinguishing between ICS lite and standard ICS

9. Staff realized there was unnecessary duplication in some of the forms, resulting in delay. For example, the forms that the decontamination team and inspectors used today are all electronic. Staff printed them out specifically for the drill, but it added a small amount of work and redundancy.

10. There were several small oversights in equipment needs as the day progressed. For example, the dive team needed containers for specimens, a knife was requested for the boom team, etc. By documenting needs as they arise, this could potentially prevent similar oversights in the future.

Top Takeaways for future events:

1. Need to revise and/or create a state response plan.
2. All information from this drill needs to be compiled and disseminated to all interested parties.
3. There could be a benefit to scheduling a MAC/Unified Command Workshop for staff.
4. All staff should be at least familiar with the ICS structure, could be a benefit to making trainings mandatory for staff members that do this work.
Summary

In summary, the Kettle Falls Marina Rapid Response Exercise was a great success for all involved. Knowing this drill was the first of its kind, laying the foundation for similar drills to follow—all the planning and preparation that went into it's creation was well worth the time and effort.

A video summary of the exercise may be viewed at https://youtu.be/A4GFvLUKOBI.
Appendix A

Kettle Falls Marina Rapid Response Exercise Participant List
<table>
<thead>
<tr>
<th>Participant Name</th>
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<tbody>
<tr>
<td>Anderson, Eric</td>
<td>WA State Department of Fish and Wildlife</td>
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<td>Bausch, Denise</td>
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<td>DeHaas, Derek</td>
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<td>DeForest, Adam</td>
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<td>Draheim, Robyn</td>
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<td>Dunn, David</td>
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Appendix B

Kettle Falls Marina Rapid Response Players Handbook
This document provides several planning components for the Kettle Falls Marina Rapid Response Exercise (KFMRRE) and is divided into the following sections:

1. Hypothetical response scenario and timeline that provides a chronological overview from original sampling event to the proposed ICS operational and command exercises.
2. ICS exercise tasks and objectives by role including KFMRRE Coordination, Incident Command Facilitation, Multiagency Coordination (MAC) group, Command Staff, General Staff, and Field Unit Leads.
3. ICS Hot Wash objectives for October 24th
4. Post-Operational exercise objectives.

**RESPONSE SCENARIO & TIMELINE July 31, 2019:**

- a) WDFW Aquatic Invasive Species (AIS) Unit early detection monitoring crews collected routine plankton, substrate, shoreline, Ponar benthic, eDNA (environmental DNA), and water quality samples from Kettle Falls Marina.
- b) Substrate, shoreline, and Ponar benthic samples were immediately assessed by WDFW staff with no Dreissenids detected.

**August 15, 2019:**

- a) WDFW sent preserved plankton samples to primary Dreissenid (zebra and/or quagga) microscopy contractor as per routine protocols.
- b) WDFW sent eDNA samples to primary genetics contractor per routine protocols.

**August 22, 2019:**

- a) WDFW primary Dreissenid microscopy contractor contacted WDFW to report he had verified detection of three (3) Dreissenid veliger’s (larval life stage) in the plankton sample.
- b) Primary contractor was directed to immediately send samples to WDFW’s secondary microscopy contractor.
- c) Primary eDNA contractor alerted to expedite analysis.

**August 26, 2019:**

- a) WDFW secondary Dreissenid microscopy contractor contacted AIS Unit and verified detection of three Dreissenid veliger’s in the plankton sample.
- b) Primary eDNA contractor reported negative result from analysis of sample.
- c) WDFW advised the Office of the Governor of Washington State of the detection and designation of Kettle Falls Marina as a SUSPECT water body for the presence of invasive Dreissenid mussels.
- d) WDFW directed their AIS Unit early detection monitoring team to collect samples
e) WDFW contacted primary jurisdictional leads (National Park Service, Colville Confederated Tribes, Spokane Tribe, and U.S. Bureau of Reclamation) alerting them to the SUSPECT designation.

f) WDFW initiated a Type 5 Incident Command System for addressing risks and additional rapid response management actions recommended for Kettle Falls Marina, Lake Roosevelt, and surrounding areas.

g) Initial meeting is conference call set for September 5, 2019, at 1000hr.

August 27, 2019:

a) WDFW AIS Unit early detection monitoring crews collected additional plankton, substrate, shoreline, Ponar benthic, eDNA (environmental DNA), and water quality samples from four (4) additional sample sites in Kettle Falls Marina and ten (10) additional sample sites in the area upstream to Kettle Falls bay and downstream to Martin Creek. Crews collected duplicate plankton samples.

b) Substrate, shoreline, and Ponar benthic samples were immediately assessed by WDFW staff with no Dreissenids detected.

c) WDFW AIS Unit sent duplicate plankton samples by overnight express to primary and secondary Dreissenid microscopy contractors.

d) WDFW AIS Unit sent eDNA samples by overnight express to primary eDNA contractor.

August 28, 2019:

a) WDFW’s primary microscopy contractor verified detection of six (6) Dreissenid veliger’s in sample “LR-3” taken within Kettle Falls Marina and secondary microscopy contractor verified detection of two (2) Dreissenid veliger’s in same sample “LR-3.” Samples taken at 13 other survey sites were negative for Dreissenids.

b) WDFW advised the Office of the Governor of Washington State of the detection and revised designation of Kettle Falls Marina as a POSITIVE water body for the presence of invasive Dreissenid mussels.

c) WDFW contacted primary jurisdictional leads (National Park Service, Colville Confederated Tribes, Spokane Tribe, and U.S. Bureau of Reclamation) alerting them to the POSITIVE designation.

d) WDFW initiated a Type 4 Incident Command System request to establish a Unified Command for incident titled “Kettle Falls Marina Rapid Response” (KFMRR) comprised of jurisdictional leads for addressing risks and additional rapid response management actions recommended for Kettle Falls Marina, Lake Roosevelt, and surrounding areas.

e) KFMRR Incident Command Post and first meeting set for September 5, 2019, starting at 1000hr – located at Enduris Training Center in Spokane, Washington.

September 5, 2019:

1. Briefing
2. ICP established
3. Incident objectives established
   a. Safety – provide for overall ICS security and safety of all command, general and operational teams
b. Disseminate timely and accurate information -
   i. To local, state, federal, and tribal cooperators (Liaison)
   ii. To public through social media, press releases, networks, etc. (PIO)

c. Identify, coordinate and move towards containment -
   i. Make plans for physical containment of Dreissenid veliger’s in Kettle Falls Marina;
   ii. Make plans for physical containment of Dreissenid pathways in and out of Kettle Falls Marina; and
   iii. Make plans for assessing Dreissenid presence and distribution at all life stages within a 10-mile radius of Kettle Falls Marina.

d. Develop long-term planning – develop plans for ongoing containment, continuous and limited identification and/or eradication.

4. IAP approved including following operation actions:
   i. Boat-based detection surveys
   ii. Shoreline detection surveys using canines
   iii. Dive detection surveys
   iv. Watercraft inspections
   v. Watercraft decontaminations
   vi. Containment boom
   vii. Water safety zone

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**October 22, 2019**

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<td>Various</td>
<td>Operations personnel and equipment mobilize to KFM</td>
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<td>1500</td>
<td>KFM</td>
<td>Safety Officer inspects incident area for risks/hazards (ICS Forms 208 or 208HM and 215A Completion)</td>
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<td>1600</td>
<td>KFM</td>
<td>Staging Area Manager checks-in all field operations personnel and equipment (ICS Form 218)</td>
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<td>1630</td>
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<td>All ICS exercise personnel briefing in NPS conference room (ICS Form 204)</td>
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<td>Operations briefing based on 9/5 IAP (ICS Forms 201 and 202)</td>
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<td>Safety Briefing from 215A</td>
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<td>KFM</td>
<td>Operations actions implemented</td>
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<td>KFM/ICP</td>
<td>Working lunches provided</td>
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<td>1600</td>
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<td>Hard Stop all operational actions</td>
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<td>Check-out/demobilize operations personnel completed (ICS Forms 204 and 218)</td>
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October 24, 2019

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<td>Exercise “Hot Wash” of good/bad/recommendations</td>
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<td>1100</td>
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<td>Exercise completion</td>
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*KFM = Kettle Falls Marina; ICP = Incident Command Post at NPS Operations Center.

ICS EXERCISE TASKS & OBJECTIVES BY ROLE

All “Exercise Objectives” times are for October 23, 2019. The General Staff will exercise using an Incident Action Plans (IAP) based on a POSITIVE water body classification. There will be no specific MAC/UC exercise during this period. The following provides an outline of the exercise by response group type, personnel, their roles and responsibilities, and objectives.

2a. KFMRRE Coordination

Personnel
Justin Bush (RC); Allen Pleus, Eric Anderson, and Phil Johnson (WDFW)

Pre-Exercise Tasks

1. Develop operations exercise plan (this document)
2. Notify MAC, UC, and ICS Facilitator of revised exercise plan
3. Notify General Staff that are no longer required for this exercise period
4. Finalize NPS Special Use Permit
5. Coordinate plan with USBR on contract requirements
6. Coordinate exercise logistics (meeting locations, lodging, reimbursements, etc.)
7. Approve exercise joint press release
8. Establish IC Post at NPS Operations Center including Hot Spot Wi-Fi
9. WDFW train RCO on use of story map product
10. ICS Facilitation
    a. Coordination
    b. Inter-agency agreement(s) as necessary
11. Videography
    a. Develop SOW
    b. Contract with TVW
Exercise Objectives

1. Participate in roles as assigned
2. Support successful completion of Operational exercise objectives

Post-Exercise Tasks

1. Oct. 24: Participate in Hot Wash to review objectives
2. Coordinate completion of After Action Report
3. Coordinate completion of Video product
4. Coordinate completion of Revised Washington State Rapid Response Plan
5. Assess need for additional ICS tabletop exercise
6. Finalize USBR contract obligations

2b. Incident Command Facilitation

Personnel

Captain Phil Johnson (WDFW)

Pre-Exercise Tasks

1. Assist RCO/WDFW in developing operations exercise script/plan
2. Complete POSITIVE IAP
   a. ICS 200 (IAP cover)
   b. ICS 201 (Incident Briefing)
   c. ICS 203 (Organization Assignment List)
   d. ICS 204 (Assignment List)
   e. ICS 205 (Incident Radio Communications Plan)
   f. ICS 206 (Medical Plan)
   g. ICS 207 (Organizational Chart)
   h. ICS 208 (Safety Message)
   i. ICS 2015a (Incident Action Plan Safety Analysis)
   j. ICS 221 (Demobilization Plan)
3. All equipment/materials operational and staged for deployment

Post-Exercise Tasks

1. Oct. 24: Attend Hot Wash to ensure ICS objectives are met
2. Provide input and review of After Action Report from ICS perspective
3. Provide input and review of revised Washington Rapid Response Plan from ICS perspective
Exercise Observers

Personnel
Robyn Draheim (PSMFC); Joe Maroney (Kalispel Tribe); __

Pre-Exercise Tasks
1. Confirm Observer participation status

Exercise Objectives
1. Coordinate with and follow ICS Branch Director and Safety Officer directives on observation boundaries
2. Observe exercise actions based on own needs

Post-Exercise Tasks
1. Provide feedback to RCO and WDFW on observations
2. Provide review of After Action Report
3. Provide input and review of revised Washington Rapid Response Plan

2c. Multiagency Coordination (MAC) Group

Personnel
Stephen Pozzanghera (WDFW); JT Austin (GOV); Dan Foster (NPS); BJ Kieffer (STI); Randall Friedlander (CCT);
____________ (USBR); LT Luke Woods (USCG); Ray Willard (WISC); Marvin Shutters (USACE); Johnna Roy (USFWS); Stephen Phillips (Columbia Basin Team)

Pre-Exercise Tasks
1. Review Operational objectives (this document)
2. Review Incident Action Plan (IAP)

Exercise Objectives
1. Observe Operational actions as interested
Post-Exercise Tasks

1. Provide review of After Action Report
2. Provide input and review of revised Washington Rapid Response Plan
3. Provide input on development of a future ICS tabletop exercise based on this exercise
4. Participate in a future ICS tabletop exercise (Pending)

2d. Command Staff

Unified Command

Personnel
Allen Pleus (WDFW); Craig Brouwer (NPS); Tamara Knudson (STI); Holly McClellan (CCT); (USBR)

Pre-Exercise Tasks

1. Review Operational objectives (this document)
2. Review Incident Action Plan (IAP)

Exercise Objectives

1. Observe Operational actions as interested
2. Provide UC support to meet Operational objectives exercise as necessary

Post-Exercise Tasks

1. Oct. 24: Provide Hot Wash feedback
2. Provide input and review of After Action Report
3. Provide input and review of revised Washington Rapid Response Plan
4. Planning for future ICS tabletop exercise

Public Information Officer (PIO)

Personnel
Rachel Blomker (WDFW); Eryn Couch (RCO); Denise Bausch (NPS); (STI); (CCT); Edna Rey-Vizgirdas (USBR)

Pre-Exercise Tasks

1. KFMRRE/ZQ bio one-paper handout
2. Exercise official joint press release
3. Exercise photography
4. Contact/coordinate local media for coverage
5. Plan for coordination with TVW as necessary (RCO)
6. All PIO equipment/materials operational and staged for deployment

Exercise Objectives

1. Maintain communications with Unified Command
2. Manage media relations
3. Take photos of exercise activities
4. Coordinate with TVW as necessary

Post-Exercise Tasks

1. Oct. 24: Provide Hot Wash feedback
2. Provide input and review of After Action Report from PIO perspective
3. Provide input and review of revised Washington Rapid Response Plan from PIO perspective

Liaison Officer(s) (LO)

Personnel

Justin Bush (RCO)

Pre-Exercise Tasks

1. All Liaison equipment/materials operational and staged for deployment Exercise Objectives

Post-Exercise Tasks

1. Oct. 24: Provide Hot Wash feedback
2. Provide input and review of After Action Report from Liaison perspective
3. Provide input and review of revised Washington Rapid Response Plan from Liaison perspective

Safety Officer/Deputy

Personnel

Andy Steiner (NPS); Jim Fry (WDFW); Taylor Kimball (WDFW)

Pre-Exercise Tasks

2019 Lake Roosevelt Invasive Mussel Response Exercise
1. NPS coordinate with WDFW Safety personnel
2. Finalize ICS safety-related forms for IAP
3. All Safety equipment/materials operational and staged for deployment

Exercise Objectives

1. Report on KFM incident area risk/hazard assessment advisory
2. Establish a Medical/First Aid station
3. Provide safety briefing to all field operational personnel prior to any actions
4. Maintain safe response environment with objective of Zero injuries
5. Ensure safe dive operations
6. Communicate up ICS chain on hourly schedule
7. Provide an “All Clear” communication up ICS chain when all operations completed

Post-Exercise Tasks

1. Oct. 24: Provide Hot Wash feedback
2. Provide input and review of After Action Report from Safety Officer perspective
3. Provide input and review of revised Washington Rapid Response Plan from Safety Officer perspective

Legal Liaison

Position not utilized for this exercise.

2e. General Staff

Operations Section Chief/Deputy

Personnel

Captain Eric Anderson (WDFW); Heidi McMaster (USBR)

Pre-Exercise Tasks

1. Determine if full-scale operational actions are achievable for timeline
2. Overall Operational exercise timeline for October 22-24
3. Communications plan
4. Request for USCG Aux assistance finalize
5. Verify operational unit preparations on track for exercise
6. All Operations Section equipment/materials operational and staged for deployment

Exercise Objectives
1. Meet ICS Incident Safety Objective: Provide for overall safety of operational teams.
2. Meet ICS Incident Containment Exercise Objectives:
   a. Make plans for physical containment of Dreissenid veliger’s in KFM;
   b. Make plans for physical containment of Dreissenid pathways in and out of KFM;
   c. Make plans for assessing Dreissenid presence and distribution at all life stages within KFM
3. Ensure operational units meeting timeline expectations
4. Ensure Hard Stop of all operation actions by 1600hr
5. Provide closing briefing on meeting operational objectives by 1700hr

Post-Exercise Tasks
1. October 24: Lead debrief on operations Hot Wash objectives
2. October 24: Ensure all operational staff are demobilized safely
3. Provide input and review of After Action Report from Operations Section Chief perspective
4. Provide input and review of revised Washington Rapid Response Plan from Operations Section Chief perspective

Staging Area Manager
Personnel
Brianna Widner (RCO)

Pre-Exercise Tasks
1. Verify protocols and data collection expectations
2. All Staging equipment/materials operational and staged for deployment
3. Oct. 22: All operational equipment checked in on ICS Form 204 and 211

Exercise Objectives
1. Maintains food/water logistics during operations
2. All operation equipment checked out on ICS Form 221
3. Briefs personnel on overnight lodging and food arrangements

Post-Exercise Tasks
1. Oct. 24: Provide Hot Wash feedback
2. Provide input and review of After Action Report from Staging Area Manager perspective
3. Provide input and review of revised Washington Rapid Response Plan from Staging Area Manager perspective

Water Branch Director
Personnel
Jesse Schultz (WDFW)
Pre-Exercise Tasks

1. Verify protocols and data collection expectations
2. All Water Branch equipment/materials operational and staged for deployment

Exercise Objectives

1. Ensure water-based operational units meeting objectives and timeline expectations
2. Communicate status of water-based operational units to Operations Section Chief/Deputy on an hourly basis (bottom of each hour, i.e., 9:30, 10:30, etc.)
3. Verify and communicate Dreissenid findings immediately to Operations Section Chief/Deputy
4. Ensure Hard Stop of all land-based operation actions by 1600hr

Post-Exercise Tasks

1. Oct. 24: Provide Hot Wash feedback
2. Provide input and review of After Action Report from Water Branch Director perspective
3. Provide input and review of revised Washington Rapid Response Plan from Water Branch Director perspective

Land Branch Director

Personnel

Sgt. Pam Taylor (WDFW)

Pre-Exercise Tasks

1. Verify protocols and data collection expectations
2. All Land Branch equipment/materials operational and staged for deployment

Exercise Objectives

1. Ensure land-based operational units meeting objectives and timeline expectations
2. Communicate status of land-based operational units to Operations Section Chief/Deputy on an hourly basis (top of each hour, i.e., 9:00, 10:00, etc.)
3. Verify and communicate Dreissenid findings immediately to Operations Section Chief/Deputy
4. Ensure Hard Stop of all land-based operation actions by 1600hr

Post-Exercise Tasks

1. Oct. 24: Provide Hot Wash feedback
2. Provide input and review of After Action Report from Land Branch Director perspective
3. Provide input and review of revised Washington Rapid Response Plan from Land Branch Director perspective
**Situation Unit Lead**

Position not utilized for this exercise.

**Documentation Unit Lead**

Personnel
Alexis Haifley and Julia McNamara (RCO);

Pre-Exercise Tasks
1. Verify protocols and data collection expectations
2. All Documentation equipment/materials operational and staged for deployment

Exercise Objectives
1. Validate rapid response objectives as defined in the CRB RRP (2010) and the WA DM RRP (2017)
2. Document any objectives developed during the exercise that are not listed in the aforementioned plans
3. Record any requests for specialized assets that are not present but needed for the response
4. Collect all data developed from shore and water surveys and deliver to WDFW AIS unit for analysis at the end of the exercise
5. Record amount of time to complete exercise objectives for both Shore and Water based operations elements

Post-Exercise Tasks
1. Oct. 24: Provide Hot Wash feedback
2. Provide input and review of After Action Report from Documentation Lead perspective
3. Provide input and review of revised Washington Rapid Response Plan from Documentation Lead perspective

**Resources Unit Lead**

Position not utilized for this exercise.

**2f. Field Unit Leads**

**Water Safety Zone (WSZ) Unit Lead**

Personnel
Gerald Bishop (USCG Aux)

Pre-Exercise Tasks
1. Verify implementation protocols and data collection expectations
2. All Water Safety Zone equipment/materials operational and staged for deployment

Exercise Objectives
1. No unauthorized boats permitted to enter safety zone during operational period
2. Significant actions/findings are reported up ICS chain-of-command

Post-Exercise Tasks
1. Oct. 24: Provide Hot Wash feedback
2. Provide review of After Action Report from WSZ Unit Lead perspective
3. Provide input and review of revised Washington Rapid Response Plan from WSZ Unit Lead perspective

**Containment Boom (CB) Unit Lead**

Personnel
Richard Visser (WDFW)

Pre-Exercise Tasks
1. Verify implementation protocols and data collection expectations
2. New boom equipment delivered to NPS storage
3. All boom equipment/materials needs verified/obtained
4. All Containment Boom equipment/materials operational and staged for deployment

Exercise Objectives
1. Containment boom is fully deployed around NPS dock
2. Containment boom remains fully functional for hours during treatment actions
3. Containment boom removed, assessed for decontamination, and demobilized
4. Significant actions/findings are reported up ICS chain-of-command

Post-Exercise Tasks
1. Oct. 24: Provide Hot Wash feedback
2. Provide review of After Action Report from Containment Boom Unit Lead perspective
3. Provide input and review of revised Washington Rapid Response Plan from Containment Boom Unit Lead perspective
**Boat-Based Dreissenid Survey (BBDS) Unit Lead**

Personnel

Michael Wilkinson (WDFW)

Pre-Exercise Tasks

1. Verify survey protocols and data collection expectations
2. Plan for chain-of-command and mailing of plankton and eDNA samples to contractors
3. All Boat-Based Survey equipment/materials operational and staged for deployment

Exercise Objectives

1. Survey team launches boat and begins surveys
2. Completes 4 site surveys for horizontal/vertical plankton tows, ponor grab samples, eDNA, water quality
3. Evaluates Ponar samples for ZQ presence/absence
4. Prepares plankton and eDNA samples for analysis shipment
5. Provides survey data and samples to __
6. Boat is pulled and all equipment is decontaminated and demobilized
7. Significant actions/findings are reported up ICS chain-of-command

Post-Exercise Tasks

1. Oct. 24: Provide Hot Wash feedback
2. Provide review of After Action Report from BBDS Unit Lead perspective
3. Provide input and review of revised Washington Rapid Response Plan from BBDS Unit Lead perspective

**Watercraft Inspection (WI) Unit Leads**

Personnel

Nicolas Ramsey (WDFW);

(NPS)

Pre-Exercise Tasks

1. Verify inspection protocols and data collection expectations
2. Identify/coordinate minimum number of watercraft to be inspected
3. All Watercraft Inspection equipment/materials operational and staged for deployment
4. Pre-plan for placement and number of ZQ samples for canine detection during inspections
5. Oct 23: Deploy ZQ test samples
Exercise Objectives

1. A minimum of four (4) watercraft are inspected and “ZQ” samples alerted to by canine(s)
2. Significant actions/findings are reported up ICS chain-of-command

Post-Exercise Tasks

1. Oct. 24: Provide Hot Wash feedback
2. Provide review of After Action Report from WI Unit Lead perspective
3. Provide input and review of revised Washington Rapid Response Plan from WI Unit Lead perspective

Watercraft Decontamination (WD) Unit Leads

Personnel
Nicolas Ramsey (WDFW); (NPS)

Pre-Exercise Tasks

1. Verify decontamination protocols and data collection expectations
2. Identify/coordinate minimum number of watercraft to be decontaminated
3. All Watercraft Decontamination equipment/materials operational and staged for deployment

Exercise Objectives

1. A minimum of four (4) watercraft are decontaminated
2. Significant actions/findings are reported up ICS chain-of-command

Post-Exercise Tasks

1. Oct. 24: Provide Hot Wash feedback
2. Provide review of After Action Report from WD Unit Lead perspective
3. Provide input and review of revised Washington Rapid Response Plan from WD Unit Lead perspective

Diver-Based Dreissenid Survey (DBDS) Unit Lead

Personnel
Taylor Kimball (WDFW)

Pre-Exercise Tasks

1. Verify survey protocols and data collection expectations
2. All Diver-Based Survey equipment/materials operational and staged for deployment
3. Pre-plan for placement and number of “ZQ” samples for detection during surveys
4. Oct 22: Deploy ZQ test samples

Exercise Objectives
1. Divers inspect feet of dock and locate “ZQ” samples
2. Divers inspect square feet of benthic area and locate “ZQ” samples
3. Significant actions/findings are reported up ICS chain-of-command

Post-Exercise Tasks
1. Oct. 24: Provide Hot Wash feedback
2. Provide review of After Action Report from DBDS Unit Lead perspective
3. Provide input and review of revised Washington Rapid Response Plan from DBDS Unit Lead perspective

Shoreline Dreissenid Survey-Canine (SDSC) Unit Lead

Personnel
Sgt. Pam Taylor (WDFW)

Pre-Exercise Tasks
1. Verify survey protocols and data collection expectations
2. All Shoreline Survey equipment/materials operational and staged for deployment including canine first aid supplies
3. Pre-plan for placement and number of ZQ samples for detection during surveys
4. Oct 22: Deploy ZQ test samples

Exercise Objectives
1. Conduct meters of shoreline survey by two independent canine teams according to WDFW protocols
2. Each canine team locates ZQ samples
3. Each canine team completes survey data forms
4. Significant actions/findings are reported up ICS chain-of-command

Post-Exercise Tasks
1. Oct. 24: Provide Hot Wash feedback
2. Provide review of After Action Report from SDSC Unit Lead perspective
3. Provide input and review of revised Washington Rapid Response Plan from SDSC Unit Lead perspective
Treatment Unit Lead

Personnel

Richard Visser (WDFW)

Pre-Exercise Tasks

1. Pre- and post-dye application detection survey design completed
2. All Treatment equipment/materials operational and staged for deployment
3. Ecology Agreed Order signed by WDFW & Ecology

Exercise Objectives

1. Treatment application equipment and dye are prepped and ready for deployment
2. Initial pre-dye application detection surveys conducted
3. Dye treatment is applied within 1 hour of containment boom determined as fully functional
4. Series of post-dye application detection surveys conducted at hour intervals
5. Significant actions/findings are reported up ICS chain-of-command

Post-Exercise Tasks

1. Oct. 24: Provide Hot Wash feedback
2. Provide necessary maintenance and return equipment to original source
3. Meet Ecology Administrative Order requirements for use of dye
4. Provide review of After Action Report from Treatment Unit Lead perspective
5. Provide input and review of revised Washington Rapid Response Plan from Treatment Unit Lead perspective

Land Enforcement (LE) Unit Lead

NPS Personnel

Pre-Exercise Tasks

1. Verify enforcement protocols and data collection expectations
2. All Land Enforcement equipment/materials operational and staged for deployment

Exercise Objectives

1. Unescorted public and media are kept away from exercise actions
2. Significant actions/findings are reported up ICS chain-of-command

Post-Exercise Tasks
1. Oct. 24: Provide Hot Wash feedback
2. Provide review of After Action Report from LE Unit Lead perspective
3. Provide input and review of revised Washington Rapid Response Plan from LE Unit Lead perspective

**Communications (COM) Unit Lead**

**Personnel**

Rich Leon (WDFW)

**Pre-Exercise Tasks**

1. Verify communication protocols and data collection expectations
2. All Communications equipment/materials operational and staged for deployment

**Exercise Objectives**

1. Operations Section Chief/Deputy have communications capacity with all field units
2. Operations Section Chief/Deputy have communications capacity with Unified Command
3. Significant actions/findings are reported up ICS chain-of-command

**Post-Exercise Tasks**

1. Oct. 24: Provide Hot Wash feedback
2. Provide review of After Action Report from COM Unit Lead perspective
3. Provide input and review of revised Washington Rapid Response Plan from COM Unit Lead perspective

**3. ICS HOT WASH OBJECTIVES (Oct. 24)**

1. Brief Operations Section Chief/Deputy assessment of overall exercise success, failures, gaps, etc.
2. Brief ICS Facilitator assessment of overall exercise success, failures, gaps, etc.
3. All Operations objectives are evaluated for success of completion *(TBD: yes/no; 1-5 success rating?)*
4. Simple survey of participants for exercise success, failures, gaps, etc. (scribe writes down responses)

**POST-EXERCISE TASKS/OBJECTIVES (In progress)**

**A. Documentation:**

1. RCO collects and compiles all IC
2. RCO posts all documentation at
3. After Action Report
4. Videography
5. MS, notes, and other documents

EXERCISE! - - EXERCISE! - - EXERCISE!
Appendix C:

Kettle Falls Marina Rapid Response Exercise Planning Map
Field Operation Objectives

1. Watercraft Inspections
2. Watercraft Decontaminations
3. Containment (barrier)
4. Treatment (Non-Toxic)
5. Dive-Based Dreissenid Surveys
6. Boat-Based Dreissenid Surveys
7. Shoreline Dreissenid Surveys-Canine
8. USCG Safety Zone

*KFM-1 = Boat-based survey sites and site numbers
+ = First Aid Station

See other side for staging and containment/treatment location details
Staging Area A + Inspections & Decontaminations (WID):
Staging: RRE participants will check-in here and park at this location or another area as designated.

WID: Watercraft inspection and decontamination teams will set up and operate in this location as well.

Op Area B +
Public Safety Exclusion Area (Blue)
First Aid Station (Red Cross)

Estimated Containment Boom and Anchor points (Yellow)
(Maximum total boom length 350 feet)

Op Area C +
Public Safety Exclusion Area (Blue)

+ = First Aid Station and Lunch in AIS Trailer

2019 Lake Roosevelt Invasive Mussel Response Exercise 40
### Appendix D

Kettle Falls Marina Rapid Response Action Plan:

**Operations Estimated Time Table**

<table>
<thead>
<tr>
<th>When</th>
<th>What</th>
<th>Who</th>
<th>Where</th>
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</thead>
<tbody>
<tr>
<td>7:30</td>
<td>Check-in</td>
<td>All participants and observers</td>
<td>ICP</td>
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<td>7:45</td>
<td>Contractor on-site</td>
<td>Boom Team</td>
<td>ICP</td>
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<td>8:00-8:15</td>
<td>Operations/Safety Briefing</td>
<td>All participants and observers</td>
<td>ICP</td>
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<td>8:15-8:25</td>
<td>Inspection Station/Decon Set-up</td>
<td>Inspection Team/Decon Team</td>
<td>KFM Staging Area A</td>
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<td>8:30-8:35</td>
<td>Water Safety Set-up</td>
<td>Coast Guard Auxiliary</td>
<td>Safety Zone</td>
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<td>8:30-10:00</td>
<td>USBR Boat Decon</td>
<td>Inspection Team/Decon Team</td>
<td>KFM Staging Area A</td>
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<td>8:35-9:35</td>
<td>Boom Deployment</td>
<td>Boom Team</td>
<td>Federal Dock</td>
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<td>8:45-10:00</td>
<td>Water sampling</td>
<td>Sampling Team</td>
<td>KFM sample sites</td>
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<td>10:00-1:00</td>
<td>Water Sample Team Decon</td>
<td>Inspection Team/Decon Team</td>
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<td>3:30-4:00</td>
<td>Decon Station Demobilization</td>
<td>Inspection Team/Decon Team</td>
<td>KFM Staging Area A</td>
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<td>4:00</td>
<td>Hard Stop</td>
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<td>4:00-5:00</td>
<td>Demobilization of all Ops</td>
<td>All Operations Staff</td>
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<td>5:00-5:30</td>
<td>Closing Briefing/Check-out</td>
<td>All participants and observers</td>
<td>ICP</td>
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**Land Operational Teams**

**Water Operational Teams**

**Both Water and Land Operational Teams**

**Potential times for media/observers for decon operations**
<table>
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<th>Personnel Check-in Information</th>
<th>8. Initial Incident Check-In?</th>
<th>9. Time</th>
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<td>--------------</td>
<td>----------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Peters</td>
<td>Michael</td>
<td>TVW</td>
</tr>
<tr>
<td>Phillips</td>
<td>Allen</td>
<td>Able cleanup tech</td>
</tr>
<tr>
<td>Pleus</td>
<td>Allen</td>
<td>WDFW</td>
</tr>
<tr>
<td>Ramsay</td>
<td>Nicholas</td>
<td>WDFW</td>
</tr>
<tr>
<td>Sawchuk</td>
<td>Cindy</td>
<td>Alberta Environment</td>
</tr>
<tr>
<td>Schultz</td>
<td>Jesse</td>
<td>WDFW</td>
</tr>
<tr>
<td>Silver</td>
<td>Kipp</td>
<td>Able Cleanup Tech</td>
</tr>
<tr>
<td>Smith</td>
<td>Matt</td>
<td>NPS / LARO</td>
</tr>
<tr>
<td>Steinert</td>
<td>Andy</td>
<td>NPS</td>
</tr>
<tr>
<td>Taylor</td>
<td>Pam</td>
<td>WDFW</td>
</tr>
<tr>
<td>Treu-Fowler</td>
<td>Julia</td>
<td>NPS/LARO</td>
</tr>
<tr>
<td>Troyer</td>
<td>Bernard Paul</td>
<td>USCGA</td>
</tr>
<tr>
<td>Vaisler</td>
<td>Sean</td>
<td>RDOS (Canada)</td>
</tr>
<tr>
<td>Visser</td>
<td>Richard</td>
<td>WDFW</td>
</tr>
<tr>
<td>Walter</td>
<td>Damian</td>
<td>Usace</td>
</tr>
<tr>
<td>Widner</td>
<td>Brianna</td>
<td>RCO/WISC</td>
</tr>
<tr>
<td>Wilkinson</td>
<td>Mike</td>
<td>WDFW</td>
</tr>
<tr>
<td>Wold</td>
<td>Brendon</td>
<td>House of Reps, WA</td>
</tr>
<tr>
<td>Wolvert</td>
<td>Shay</td>
<td>CCT</td>
</tr>
</tbody>
</table>

10. Prepared by: Brianna Widner  
11. Date / Time Sent to Resources Unit
### ACTIVITY LOG (ICS 214)

**1. Incident Name:**
KFMRE 2019  

**2. Operational Period:**
- **Date From:** 10/23/19  
- **Date To:** 10/23/19  
- **Time From:** 0730  
- **Time To:** 1600

**3. Name:** Julia McNamara  

**4. ICS Position:** Deputy Foc. Unit  

**5. Home Agency (and Unit):** RCO

**6. Resources Assigned:**
- **Radio**
- **Lead**
- **Demolition Set**

<table>
<thead>
<tr>
<th>Name</th>
<th>ICS Position</th>
<th>Home Agency (and Unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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### 7. Activity Log:

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Notable Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30</td>
<td>Demolition set-up</td>
</tr>
<tr>
<td>9:40</td>
<td>Voluntary local inspection begins</td>
</tr>
<tr>
<td>9:30</td>
<td>U.S. Coast Guard at safety area in water</td>
</tr>
<tr>
<td>9:45</td>
<td>Equipment being set up</td>
</tr>
<tr>
<td>9:20</td>
<td>Boat sampling is deployed</td>
</tr>
<tr>
<td>9:10</td>
<td>Water safety deployed</td>
</tr>
<tr>
<td>9:50</td>
<td>Pond, quay, &amp; sampling of plant life (CPA sample)</td>
</tr>
<tr>
<td>9:51</td>
<td>Dive team is preparing to enter water</td>
</tr>
<tr>
<td>9:54</td>
<td>Due deployment being set up</td>
</tr>
<tr>
<td>10:05</td>
<td>BOR boat set-up at present markers for dogs in search</td>
</tr>
<tr>
<td>10:09</td>
<td>Divers enter water for search</td>
</tr>
<tr>
<td>10:13</td>
<td>BOR boat is being searched by divers</td>
</tr>
<tr>
<td>10:15</td>
<td>Sampling team out of water - searching for other team</td>
</tr>
<tr>
<td>10:16</td>
<td>This starts shoreline search - Not yet</td>
</tr>
<tr>
<td>10:20</td>
<td>BOR markers are identified</td>
</tr>
<tr>
<td>10:20</td>
<td>BOR boat is sent to decontamination</td>
</tr>
<tr>
<td>10:30</td>
<td>Dive is being deployed (not quite) (communication)</td>
</tr>
<tr>
<td>10:49</td>
<td>Sampling boat team goes back to sampling on water</td>
</tr>
<tr>
<td>10:51</td>
<td>Dive is being deployed</td>
</tr>
<tr>
<td>11:01</td>
<td>Keep coming to mix dye with kayak paddle</td>
</tr>
<tr>
<td>11:20</td>
<td>Map of &quot;mussels&quot; have been found by divers</td>
</tr>
<tr>
<td>11:30</td>
<td>Shoreline survey (actually started) begins</td>
</tr>
<tr>
<td>11:59</td>
<td>Hill found mussels in shoreline search</td>
</tr>
<tr>
<td>12:20</td>
<td>Hill found a mussel</td>
</tr>
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**8. Prepared by:**
- **Name:**
- **Position/Title:**
- **Signature:**

ICS 214, Page 1  

**Date/Time:**
### ACTIVITY LOG (ICS 214)

<table>
<thead>
<tr>
<th>1. Incident Name:</th>
<th>2. Operational Period: Date From: 10/23/19 Date To: 10/28/19</th>
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<tbody>
<tr>
<td>KFM 2019 RESE 2019</td>
<td>Time From: 08:30 Time To: 15:03</td>
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<table>
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<tr>
<td>Julia McNamara</td>
<td>ICS Position</td>
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<th>6. Resources Assigned:</th>
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<th>7. Activity Log:</th>
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<td>2:07</td>
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<td>4:07</td>
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<tr>
<td>3:45</td>
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<th>Position/Title:</th>
<th>Signature:</th>
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<tbody>
<tr>
<td>ICS 214, Page 1</td>
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<td></td>
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</tr>
</tbody>
</table>

2019 Lake Roosevelt Invasive Mussel Response Exercise
46
WASHINGTON STATE DEPARTMENT OF
FISH AND WILDLIFE
DECONTAMINATION/QUARANTINE ORDER

Date: 10/23/19 Time: 11:20 Location: LAKE ROOSEVELT

Issued to: Name: MURRAY WALKER Phone: (360) 789-2460
Address: 511 N MAIN AVE DOB: 5/14/65 EMAIL:

Tow Vehicle Plate #: 06147M Description: 2540
Origin of vessel: Destination:
Location of AIS contamination on conveyance/watercraft (e.g. prop, hull, etc.): CONTAMINATED WATERS

Conveyance/watercraft information:

Manufacturer: LWMD Model: SSV-14 Length: 14
Engine type: MERCURY Registration #: WD-W2701
Trailer license plate #: 2962Z State: WA XMT

DECONTAMINATION/QUARANTINE PROTOCOL FOR CONVEYANCE/EQUIPMENT FOULED WITH AQUATIC INVASIVE SPECIES

Your conveyance/watercraft and/or equipment are required to undergo decontamination order authorized under RCW 77.135.130 because of one or more of the following reasons:

[ ] 1) Adult zebra or quagga mussels are present;
[ ] 2) The boat and/or equipment have been to a high risk area in the last 30 days and standing water is present; o
[ ] 3) It is suspected of being fouled with zebra/quagga mussels or other aquatic invasive species.

Adult Zebra/Quagga Mussels Decontamination Requirements

Hot wash & Drying Period required

Hot Wash Date: 10/23/19 Dry Time required & Release Date:

[ ] Other Decontamination procedure/plan (Fill in specific details in box below)

[ ] SEAL # 2208 221

WDFW

Failure to follow Decontamination Requirements may result in both Criminal & Civil prosecution under Washington State Law.

WDFW-Authorizing Personnel WDFW - Officer

Per RCW 77.15.160.4 Invasive Species Management (2017)
## Section I. Site Information

4. Incident Location: Kettle Falls Marina, Kettle Falls, WA

## Section II. Organization

5. Incident Commander: Allen Read
6. HM Group Supervisor: Jesse Schulte
7. Tech. Specialist - HM Reference: Kurt Marz
8. Safety Officer: Andy Stansbury
9. Entry Leader: Rusty Lawe
10. Site Access Control Leader:
11. Asst. Safety Officer - HM: 
12. Decontamination Leader: 
13. Safe Refuge Area Mgr:
14. Environmental Health: 
15. 
16. 
17. Entry Team: (Buddy System)
   - Name: PPE Level
   - Entry 1: Decon 1
   - Entry 2: Decon 2
   - Entry 3: Decon 3
   - Entry 4: Decon 4

## Section III. Hazard/Risk Analysis

19. Material: Rhodamine dye

<table>
<thead>
<tr>
<th>Container type</th>
<th>Qty.</th>
<th>Phys. State</th>
<th>pH</th>
<th>IDLH</th>
<th>F.P.</th>
<th>I.T.</th>
<th>V.P.</th>
<th>V.D.</th>
<th>S.G.</th>
<th>LEL</th>
<th>UEL</th>
</tr>
</thead>
</table>

Comment: Refer to rhodamine dye SDS/eye protection suit.

## Section IV. Hazard Monitoring

20. LEL Instrument(s): 
21. O₃ Instrument(s):
22. Toxicity/PPM Instrument(s): 
23. Radiological Instrument(s):

Comment: Fluorometer to measure dye concentration and multiparameter to measure water quality.

## Section V. Decontamination Procedures

24. Standard Decontamination Procedures: YES | NO |

Comment:

## Section VI. Site Communications

25. Command Frequency: 
26. Tactical Frequency: 
27. Entry Frequency: 

## Section VII. Medical Assistance

28. Medical Monitoring: YES | NO |
29. Medical Treatment and Transport In-place: YES | NO |
### Section VIII. Site Map

30. Site Map:  

*Refer to ICS 201*

### Section IX. Entry Objectives

31. Entry Objectives:

### Section X. SOPs and Safe Work Practices

32. Modifications to Documented SOPs or Work Practices:  

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Comment:

### Section XI. Emergency Procedures

33. Emergency Procedures:

### Section XII. Safety Briefing

34. Asst. Safety Officer - HM Signature:  

Safety Briefing Completed (Time):

35. HM Group Supervisor Signature:  

36. Incident Commander Signature:
# INSTRUCTIONS FOR COMPLETING THE SITE SAFETY AND CONTROL PLAN

ICS 208 HM

A Site Safety and Control Plan must be completed by the Hazardous Materials Group Supervisor and reviewed by all within the Hazardous Materials Group prior to operations commencing within the Exclusion Zone.

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Item Title</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Incident Name/Number</td>
<td>Print name and/or incident number.</td>
</tr>
<tr>
<td>2.</td>
<td>Date and Time</td>
<td>Enter date and time prepared.</td>
</tr>
<tr>
<td>3.</td>
<td>Operational Period</td>
<td>Enter the time interval for which the form applies.</td>
</tr>
<tr>
<td>4.</td>
<td>Incident Location</td>
<td>Enter the address and or map coordinates of the incident.</td>
</tr>
<tr>
<td>5 - 16.</td>
<td>Organization</td>
<td>Enter names of all individuals assigned to ICS positions. (Entries 5 &amp; 8 mandatory). Use Boxes 15 and 16 for other functions: i.e. Medical Monitoring.</td>
</tr>
<tr>
<td>17 - 18.</td>
<td>Entry Team/Decon Element</td>
<td>Enter names and level of PPE of Entry &amp; Decon personnel. (Entries 1 - 4 mandatory buddy system and back-up.)</td>
</tr>
<tr>
<td>19.</td>
<td>Material</td>
<td>Enter names and pertinent information of all known chemical products. Enter UNK if material is not known. Include any which apply to chemical properties. (Definitions: pH = Potential for Hydrogen (Corrosivity), IDLH = Immediately Dangerous to Life and Health, F.P. = Flash Point, I.T. = Ignition Temperature, V.P. = Vapor Pressure, V.D. = Vapor Density, S.G. = Specific Gravity, LEL = Lower Explosive Limit,UEL = Upper Explosive Limit)</td>
</tr>
<tr>
<td>20 - 23.</td>
<td>Hazard Monitoring</td>
<td>List the instruments which will be used to monitor for chemical.</td>
</tr>
<tr>
<td>24.</td>
<td>Decontamination Procedures</td>
<td>Check NO if modifications are made to standard decontamination procedures and make appropriate Comments including type of solutions.</td>
</tr>
<tr>
<td>25 - 27.</td>
<td>Site Communications</td>
<td>Enter the radio frequency(ies) which apply.</td>
</tr>
<tr>
<td>28 - 29.</td>
<td>Medical Assistance</td>
<td>Enter comments if NO is checked.</td>
</tr>
<tr>
<td>30.</td>
<td>Site Map</td>
<td>Sketch or attach a site map which defines all locations and layouts of operational zones. (Check boxes are mandatory to be identified.)</td>
</tr>
<tr>
<td>31.</td>
<td>Entry Objectives</td>
<td>List all objectives to be performed by the Entry Team in the Exclusion Zone and any parameters which will alter or stop entry operations.</td>
</tr>
<tr>
<td>32 - 33.</td>
<td>SOP’s, Safe Work Practices, and Emergency Procedures</td>
<td>List in Comments if any modifications to SOP’s and any emergency procedures which will be affected if an emergency occurs while personnel are within the Exclusion Zone.</td>
</tr>
<tr>
<td>34 - 36.</td>
<td>Safety Briefing</td>
<td>Have the appropriate individual place their signature in the box once the Site Safety and Control Plan is reviewed. Note the time in box 34 when the safety briefing has been completed.</td>
</tr>
</tbody>
</table>
Appendix E

Kettle Falls Marina Rapid Response: Survey Results
Diver-Based Dreissenid Survey (DBDS) Unit

Personnel
Taylor Kimball (WDFW)

Pre-Exercise Tasks
1. Verify survey protocols and data collection expectations
2. Verify all Personal Protection Equipment requirements
3. All Diver-Based Survey equipment/materials operational and staged for deployment
4. Pre-plan for placement and number of "ZQ" samples for detection during surveys
5. Oct 22: Deploy ZQ test samples

Exercise Objectives
1. Oct. 22: Check-in
2. Divers inspect 20 feet of dock and locate 6 "ZQ" samples
3. Divers inspect 6 square feet of benthic area and locate 4 "ZQ" samples
4. Significant actions/findings are reported up ICS chain-of-command
5. Check-out/demobilize

Post-Exercise Tasks
1. Oct. 24: Provide Hot Wash feedback
2. Provide review of After Action Report from DBDS Unit Lead perspective
3. Provide input and review of revised Washington Rapid Response Plan from DBDS Unit Lead perspective
CANINE SHORELINE SURVEY DATA SHEET

HANDLER: Taylor CANINE: Puddles DATE: 10/23/19
LOCATION/INCIDENT: ICF marine
PHOTOS OF SEARCH AREA: YES: NO:

START TIME: 12:00 GPS LOCATION 117N 49' E 112
END TIME: 14:00 GPS LOCATION 117N 49' E 112
WEATHER: 50° F WIND DIRECTION: SW - 05

SEARCH AREA DATA
SHORELINE TYPE: Rocky & Some Veg
INFRASTRUCTURE TYPE: No Dikes
NOTES: Shoreline checked 2 locations found

K9 CONFIRMATION: NO: YES: (GPS): (1) 117N 49' E 112 MARKED: YES: NO:
TYPE OF FIND: Adult Mussel
SAMPLES COLLECTED: YES: NO:

ADDITIONAL NOTES: 100% Success on finds on known location.
CANINE SHORELINE SURVEY DATA SHEET

SEC 1

HANDLER: Sonechka  CANINE: Riku  DATE: 10/13/19
LOCATION/INCIDENT: KFR
PHOTOS OF SEARCH AREA: YES: ✔  NO: __

START TIME: 11:05  GPS LOCATION: 11 WUTM  041730 253838C
END TIME: 13:38  GPS LOCATION: 0417220 538335C
WEATHER: Sunny, wind 50's  WIND DIRECTION: SW 0-5

SEARCH AREA DATA

SHORELINE TYPE: Raily & Same Key
INFRASTRUCTURE TYPE: metal Docks
NOTES: Dock Area 1 checked - all removed
        Substructures checked.
        K9 CNOFIRMATION: NO: YES: ✔️ GPS: 0417220 538335C MARKED: YES: ✔  NO: __
        TYPE OF FIND: Adult mussel fifteen
        SAMPLES COLLECTED: YES: ✔️  NO: __

ADDITIONAL NOTES: Survey Area 1 - Dog alerted to
        two locations as noted above.
# KFM RRE Zebra/Quagga Mussels Water Quality October 23, 2019

Samplers Kurt Merg, Derick Largin, Richard Visser

<table>
<thead>
<tr>
<th>Time (military)</th>
<th>Site #</th>
<th>After Dye</th>
<th>Discharge</th>
<th>Measurement (6 inches)</th>
<th>Depth (ft)</th>
<th>Dye Concentration</th>
<th>Temp °F</th>
<th>pH</th>
<th>Salinity (ppt)</th>
<th>Secchi Disk (ft)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:43</td>
<td>1</td>
<td>Yes</td>
<td>No</td>
<td>Surface</td>
<td>1</td>
<td>3.882</td>
<td>11.32</td>
<td>7.81</td>
<td>6.12</td>
<td>11.48</td>
<td>Pre dye pre bloom</td>
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<td>08:47</td>
<td>1</td>
<td>Yes</td>
<td>No</td>
<td>Surface</td>
<td>11</td>
<td>6.46</td>
<td>10.33</td>
<td>8.03</td>
<td>6.12</td>
<td>11.48</td>
<td>Pre dye pre bloom</td>
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<td>08:51</td>
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<td>10.93</td>
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<td>16.52</td>
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<td>11.07</td>
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## KFM RRE Zebra/Quagga Mussels Water Quality October 23, 2019

Samplers Kurt Merg, Derick Largin, Richard Visser

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Zebra and Quagga Mussel Monitoring Datasheet

Date (M/D/Y): 10/23/2019  Site #: 2  Water Body: Columbia River  Reservoir: Roosevelt
Site Name: FM #2  N: 48.59883  W: -118.12343  Samplers: MW SE

1) Substrate Attached To:  
2) Total Water Depth (m):  
3) Substrate Depth (m):  

4) Substrate: Present  Absent
5) Intact  Damaged
Out of the water  Redeployed: Yes  No  1st Deployment

7) Zebra/Quagga Mussels: Present  Absent
If present, contact WDFW IMMEDIATELY

Limpets  Periwinkles  Physid Snails  Sponges  Unknown Snails  Unknown Eggs
Other:

9) Sample Taken: Yes  No

1) Vertical Depth (m): 4.5

Horizontal and Vertical Plankton Tow

1) Surveyed: Boat Ramp  Boulders  Buoys  Concrete Structures  Docks  LWD  Mooring Lines  Shoreline
Other:

2) Zebra/Quagga Mussels: Present  Absent
If present, contact WDFW IMMEDIATELY

3) AIS Present: Asian Clams  Chinese Mystery Snail  New Zealand Mudsnails  Crayfish Nonnative
Other:

4) Sample Taken: Yes  No

Ponar/Grab Sampler

1) Vertical Depth (m): 4.5

2) Zebra/Quagga Mussels: Present  Absent
If present, contact WDFW IMMEDIATELY

3) AIS Present: Asian Clams  Chinese Mystery Snail  New Zealand Mudsnails  Crayfish Nonnative
Other:

4) Sample Taken: Yes  No

eDNA

1) Sample Method: Smith Root Back Pack  Pump @ Lab  Electric Pump  Hand Pump  Filtered in Field, 5 μm
Other:

2) Sample Water Filtered (L): 5.11
3) Negative Water Filtered (L): 0.86

Water Quality

Calcium: Yes  No  Salinity: 0.14  pH: 8.01  Temp(°): 10.45  D.O.: secchi Depth (m): 4.5
Zebra and Quagga Mussel Monitoring Datasheet

Date(M/D/Y): 10/23/2019  Site#: 1  Waterbody: Columbia River  Reservoir: Lake Roosevelt
Site Name: FM #1 N: 48.59895 W: -118.12436  Samplers: NW SE

**Artificial Substrate**

1) Substrate Attached To:  2) Total Water Depth(m):  3) Substrate Depth(m)
4) Substrate: Present  Absent  5) Intact  Damaged  Out of the water  6) Redeployed: Yes  No  7) Zebra/Quagga Mussels: Present  Absent
Limpets  Periphytons  Physid Snails  Sponge  Unknown Snails  Unknown Eggs
Other:

9) Sample Taken: Yes  No

**Horizontal and Vertical Plankton Tow**

1) Vertical Depth(m):

**Shoreline**

1) Surveyed: Boat Ramp  Boulders  Buoys  Concrete Structures  Rocks  LWD  Mooring Lines  Shoreline
Other:

2) Zebra/Quagga Mussels: Present  Absent
If present, contact WDFW IMMEDIATELY
3) AIS Present: Asian Clams  Chinese Mystery Snail  New Zealand Mussels  Crayfish Nonnative
Other:

4) Sample Taken: Yes  No

**Ponar/Grab Sampler**

1) Vertical Depth(m):  2) Zebra/Quagga Mussels: Present  Absent
If present, contact WDFW IMMEDIATELY
3) AIS Present: Asian Clams  Chinese Mystery Snail  New Zealand Mussels  Crayfish Nonnative
Other:

4) Sample Taken: Yes  No

**eDNA**

1) Sample Method: Smith Root Backpack  Pump @ Lab  Electric Pump  Hand Pump  Filtered in Field, 5um
Other:

2) Sample Water Filtered(L):  3) Negative Water Filtered(L):

**Water Quality**

Calcium: Yes  No  Salinity: 0.14  pH: 7.07  Temp: 10.54  D.O.: Secchi Depth(m):

---

2019 Lake Roosevelt Invasive Mussel Response Exercise
59
Zebra (Dreissena polymorpha), and Quagga (Dreissena rostriformis) mussels Rapid Response eDNA Monitoring

10/24/2019

Laboratory work: Sarah Brown
Analysis: Sarah Brown

eDNA Laboratory Methods:

In eDNA analysis of aquatic organisms, water is typically collected and filtered. DNA is then extracted from the filter, and amplified using species-specific primers to determine if the species of interest is present or absent. We used Quantitative Polymerase Chain Reaction (qPCR) to detect minute levels of DNA, using species-specific primers, and a fluorescently labeled reporter molecule (probe), which yields increased fluorescence with an increasing amount of product DNA (Figure 1). A sample is determined “positive” or “negative,” based on whether or not the sample crossed the threshold (dashed line in Figure 1). When a sample crosses the threshold, this is referred to as the Ct, “Cycling Threshold.” Samples with higher concentration of DNA typically cross the threshold earlier in the cycling (~cycle 20-30) than samples with lower concentration (~cycle 31-40) (Figure 1).

All laboratory work was performed in AirClean 600 Work Stations (ISC Bioexpress, Utah, USA), which are equipped with HEPA air filters and UV lights. All work surfaces were decontaminated with 50% bleach, and exposed to UV light for at least one hour before work began. DNA extraction was performed on half of the filter sample, using the Qiagen DNeasy Blood & Tissue and Qiashredder kits (Qiagen, Inc.), as per Piliod et al. (2013). The other half of the filter was stored for potential future use. Post extraction, each filter sample was processed in triplicate.

We tested samples for the presence of Zebra (Dreissena polymorpha) and Quagga (Dreissena rostriformis) mussels eDNA, using genus level primers developed by Gingern et al. (2017, Table 1). qPCR products were obtained by amplifying DNA in 10µl reaction volumes, containing 5 µl of Taqman gene expression master mix, 0.5 µl of 20X primer/probe mixture, 0.28 µl of molecular grade water, 1 µl EXO-IPC (Internal Positive Control) Master Mix, 0.22 µl EXO-IPC DNA, and 3 µl of DNA. We included an internal positive control (IPC) to detect potential PCR inhibition. Cycling conditions consisted of 2 minutes at 50°C, then 95°C for 10 minutes, followed by 40 cycles of 95°C for 1 minute, and 60°C for 1 minute.

For quantification of Zebra/Quagga mussel eDNA, a 477 bp gBlock gene fragment was synthesized based on the Zebra Mussel complete mitochondrial DNA sequence (GenBank accession: KY091877.1), from base 5,215 to 5,353 (Table 2). All gBlocks were synthesized by IDT. Copy numbers for gBlock fragments were estimated by multiplying Avogadro’s number by the number of moles. We made a serial dilution of gBlock fragments from 10⁵ to 10⁻⁸, to determine the copy number present in each eDNA sample.

To assess the amplification success of each qPCR, we developed a standard curve from 1:10 serial dilutions of these synthetic fragments 10⁵ to 10⁻⁸. The Limit of Quantification (LOQ, the lowest concentration at which at least 90% of the replicates amplified), and the Limit of
Detection (LOD, the lowest concentration that was 10-fold below the LOQ) were determined for each assay by running the standard curve dilution with 3 replicates.

Filter samples were considered positive for detection if two out of three triplicate qPCRs per filter resulted in a positive amplification (e.g. Ct of 40 or below). If qPCR samples were positive for only one of three replicate, the samples were re-amplified, in triplicate.

Results/Discussion:

The LOQ of the Zebra/Quagga assay was $10^3$ (2,091 copies/μl), and the LOD was $10^5$ (2,091 copies/μl), indicating roughly insensitive detection abilities which can be improved (typical detection is at 20,9 copies ($10^4$)). Despite this low sensitivity, the Zebra/Quagga mussel assay performed reasonably well, suggesting a strong correlation between Ct and log copy number ($R^2 = 0.92$). None of the associated laboratory negative controls amplified, suggesting no detectable contamination from the field and laboratory. The internal positive control (IPC) amplified in every sample, except KFM 1 (+), indicating that inhibition was not present.

Of the 4 samples collected in Washington (Table 1), Zebra and Quagga mussel eDNA was not detected at any of the sites. In order to determine if KFM 1 (+) has Zebra/Quagga eDNA present, we will purify this sample to remove inhibitors, and re-amplify. Additionally, we will develop another serial dilution standard and re-amplify all samples, to assure that our sensitivity is as low as it typically has been in the past.
Figure 1. Diagram of qPCR real-time output. A sample replicate is deemed Detection, if the sample (blue line) crosses the threshold (dashed line), before the termination of thermal cycling. The point at which the sample crosses the threshold is referred to as $C_T$. 

https://doi.org/10.3389/fvets.2019.00038
Table 1. Primer and probe sequences used to amplify Zebra/Quagga mussels.

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Table 2. IDT gBlock sequences used to quantify qPCR reactions.

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Table 3. Samples collected from Lake Roosevelt National Recreation Area during the Emergency Response exercise.

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Literature Cited:


Gingera, T. D., Bajno, R., Docker, M. F., & Reist, J. D. (2017). Environmental DNA as a detection tool for zebra mussels Dreissena polymorpha (Pallas, 1771) at the forefront of an invasion event in Lake Winnipeg, Manitoba, Canada. MANAGEMENT OF BIOLOGICAL INVASIONS, 8(3), 287-300.


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