



# Considerations for Establishing Equipment Caches to Aid Rapid Responses to Zebra and Quagga Mussels in Western Waters – Pilot Project Summary Report

Prepared by an *ad hoc* work group advancing the interagency Memorandum of Understanding to  
Support Rapid Response Actions for Invasive Zebra and Quagga Mussels  
in Western Waters of the United States

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## Introduction

Zebra and quagga mussels are invasive species that pose substantial risks to aquatic resources including biodiversity, hydropower, irrigation, and recreation. The 2020 interagency [Memorandum Of Understanding \(MOU\) to Support Rapid Response Actions for Invasive Zebra and Quagga Mussels in Western Waters of the United States](#) describes the intent of the signers, “to strengthen Federal coordination, communication, and collaboration to enhance the capacity of Federal, State, and Tribal agencies to rapidly respond to new infestations of Dreissenid mussels (zebra mussels and quagga mussels) in western waters.” The MOU outlines tasks the agencies will strive for in Section V. E., including “Coordinating the Federal sector's role in supporting the creation and maintenance of equipment caches for rapid response actions.”

This document lays out the guidance developed by a pilot project Planning Team in 2024 to advance that goal.

## Planning Team

This pilot effort leveraged a project in the State of Washington made possible by a Bureau of Reclamation grant (Fiscal Year 2024) to the Washington Invasive Species Council. The project was to build response readiness and capabilities to address aquatic invasive species. Additional work group members were identified from within federal agencies and nearby states.

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- Justin Bush, Aquatic Invasive Species Policy Coordinator, Washington Department of Fish and Wildlife
- Stephanie Helms, Executive Coordinator, Washington Invasive Species Council
- Jesse Schultz, Fish and Wildlife Biologist, Washington Department of Fish and Wildlife
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- Maria Marlin, Community Outreach and Environmental Education Specialist, Washington Invasive Species Council
- Kevin L. Kelly, Research Chemist, Bureau of Reclamation
- Sherri Pucherelli, Biologist, Bureau of Reclamation
- Nicholas Zurfluh, Bureau Chief, Invasive Species/Noxious Weeds/Range, Idaho Department of Agriculture
- Theresa Thom, Pacific Regional Aquatic Invasive Species Coordinator, U.S. Fish and Wildlife Service
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## Conceptual Scope

What is in the scope of an equipment cache?

This document describes what is needed for an equipment cache to aid rapid responses for new detections of zebra or quagga mussels. For the purposes of this effort, an equipment cache (cache) refers to staging gear, equipment, and supplies in a location (or locations) that could be accessed for use by those implementing response actions (users).

The guiding principles of the planning team were:

- 1) Access to supplies and equipment results in faster responses to new infestations.
- 2) Users are able to use the supplies and equipment safely and effectively.
- 3) Cache use must facilitate containment and/or treatment.

What is outside of the scope of an equipment cache?

This document is not meant to outline early detection or rapid response procedures – those are often determined by the lead management agency(ies). Any response action should be initiated only after implementation of the lead management agency(ies) response plan which will include the following types of steps:

- Reporting the occurrence
- Confirming the identity of the occurrence
- Assessing that the ecological or economic risk of the occurrence going untreated is high
- Determining the infestation boundaries
- Identifying a response that is feasible
- Ensuring legal authorities permit response and environmental compliance requirements are met

This document is not a formal agreement to share resources.

### Geographic Scope

The MOU referenced above includes the western states that are within the geography of the Western Governors' Association and Western Regional Panel on Aquatic Nuisance Species. The states are Alaska, Arizona, California, Colorado, Hawaii, Idaho, Kansas, Montana, North Dakota, Nebraska, New Mexico, Nevada, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming.

This pilot project included the State of Washington but considers adjacent states and the multi-state roles of federal agencies.

### Taxonomic Scope

Although the initial focus of this effort was supporting the response to a new mussel infestation, the planning process also included the potential response for other aquatic taxa and potentially terrestrial taxa, too.

### Cache Information

This section includes information about what a physical cache should include, where it should be, how it should be used, and basic information about what it should contain.

### Existing cache efforts

As an example of the usefulness of caches, the U.S. Forest Service maintains a national cache for fire response and a formal process for requesting, securing, and returning materials to the centralized cache location. Additional information is available at

[https://www.fs.usda.gov/business/incident/logistics.php?tab=tab\\_1](https://www.fs.usda.gov/business/incident/logistics.php?tab=tab_1).

### Cache characteristics

For cache materials to be useful they must:

1. Be geographically accessible.
  - Ideally within a two-hour drive.
2. Be in good working order.
  - The users and the host entity must commit to ensuring supplies are re-stocked and nothing is left wet or contaminated after use.
3. Be easy to move.
  - E.g., in towable trailers. For more information about storage see **Appendix A**.
4. Have a system to track what and when materials are available.

### Potential users

For this document the term “User” indicates the lead management agency’s designated point of contact for a given response. That agency must be a party to the relevant agreement (to be developed) covering cache use. That individual also must be determined by the agency to be qualified for using materials in the cache.

### Cache contents

For this document the term “cache” refers to both 1) a physical collection of materials meant for sharing and 2) a list of materials available to share.

Many supplies are needed for a rapid response action including: tools and equipment to conduct the response, Personal Protective Equipment (PPE), supplies to communicate within the response group and with the public, and supplies to ensure the response actions themselves are not spreading invasive species to the site or from the site.

Cache materials include containment tools (such as air curtains and booms) to help isolate the site. Site isolation 1) improves treatment efficacy by maintaining chemical concentrations, if used and 2) reduces the spread of fragments/individuals.

Cache materials also include decontamination equipment. See **Appendix B** for decontamination guidance in the State of Washington.

One of the main functions of a cache is to acquire materials early. Procurement processes can be long, and funds are not always available. Having the items ahead of when they are needed will speed up the ability of the user to respond.

Pesticide shelf life varies by active ingredient, formulation, and storage. Some of the chemicals used to control mussels has a short shelf life and cannot be cached for use. Some pesticides are easily available, but others need to be produced on demand. See **Appendix D** for more information on shelf life and availability. See **Appendix E** for information on suppliers for many relevant pesticides. See **Appendix F** for more information on PPE needed for those same pesticides. For all of these reasons, chemicals should not be included in any staged cache material. If pesticides are applied, then the applicator must comply with applicable laws and regulations around licensing and application.

See **Appendix C** for a draft recommended list of cache contents; it includes materials in three usage categories. 1) Stored – these materials are recommended to have on hand in locations ready to be used and not already in use for agency operations. 2) Shared – these materials generally are large and/or expensive, and therefore it is recommended to have a list of these materials that agencies have in use in their operations that could be deployed for rapid response. 3) User supplied – these materials are

agency-specific or have a short shelf life so the user must supply them. **Table 1** indicates which category each supply type falls under. Note that some supply types include supplies in more than one category.

Table 1 Summary of supply types

| Supply type                      | Notes                   | Store | Share | User supplied |
|----------------------------------|-------------------------|-------|-------|---------------|
| Air curtains                     | for containment         |       | x     |               |
| Booms                            | for containment         |       | x     |               |
| Chemical application - mixing    | e.g., measuring devices | x     |       |               |
| Chemical application - PPE       | e.g., gloves            | x     |       | x             |
| Chemical application - signage   |                         | x     |       |               |
| Chemical application - treatment | e.g., sprayers          | x     |       | x             |
| Chemical application - treatment | e.g., pesticides        |       |       | x             |
| Collection equipment             |                         | x     |       |               |
| Decontamination                  | e.g., wash water        | x     |       | x             |
| Decontamination unit             |                         |       | x     |               |
| Diving equipment                 |                         |       | x     |               |
| eDNA samplers                    |                         |       | x     |               |
| General supplies                 | e.g., pencils, tape     | x     |       | x             |
| Generator                        |                         | x     |       |               |
| Generator fuel                   |                         |       |       | x             |
| Inform the public                | e.g., signage           |       |       | x             |
| Inform the responders            | e.g., radios            | x     |       | x             |
| Lab Services                     |                         |       | x     |               |
| Manual application - treatment   | e.g., rakes             | x     |       |               |
| Remotely Operated vehicles       |                         |       | x     |               |
| Safety - personal                | e.g., first aid kit     | x     |       | x             |
| Safety - site                    | e.g., spill kit         | x     |       |               |
| Waders                           |                         |       | x     |               |
| Watercraft                       |                         |       | x     |               |

### What triggers the user being “allowed” to use the cache?

Each participating entity should have its own Rapid Response plan in place. Those plans may be specific to the participating entity or in collaboration with other partners. That plan should identify when a response is warranted. For example, the [Washington Dreissenid Mussel Rapid Response Plan | Washington Department of Fish & Wildlife](#) includes a table (**Table 2**) of “Interim protocols for verifying adult and veliger stages of dreissenids, with corresponding water body determinations.”

Table 2 Example table indicating when response is warranted “Interim protocols for verifying adult and veliger stages of dreissenids, with corresponding water body determinations.”

| Adult   |  | Veliger/Microscopy (XPLM) (Veliger sample preservation/handling to meet minimum PCR requirements (e.g., 70% buffered EtOH, cold storage, isopropyl alcohol) |  |   |
|---|--|---|--|---|
| Visual ID of settled adult by expert                        | Plausible report, no shell/specimen available, survey water body | Strong positive visual ID [multiple larval states, high quality sample]   | Positive visual ID [lacking “strong” criteria] | Weak visual ID [suspect bivalve, poor quality sample] |
| Confirmation of visual ID by additional expert [photo okay] |  | Independent expert confirmation of Dreissenid veliger [photo okay] – must be confirmed by at least 2 independent experts                                    | Same as “strong”                               | [Evaluate other samples if avail.]                    |
| Confirmation of ID and determination of species             |  | Microscopy by independent lab and/or PCR by independent lab   | Same as “strong”                               | PCR confirmation X 2 and gene sequence match          |

“Inconclusive”     
  State Preparation Begins     
  “Suspect”

### Cache restrictions

If chemicals are used in the response the cache must be deployed for an extended period. Because some chemicals used for treatment must be secured specifically or require special permission for use, it is recommended that the cache be able to sustain containment for **at least 45 days**. That would leave time for pesticides to be acquired, delivered, and approved. Once the infestation is contained, the cache should also be able to support sufficient control actions to treat (and continue to contain) the entire population. The intent for using the cache is for the initial response only. Users should target 90 days as the time for when the borrowed material should be returned. However, the specific needs of the response and knowledge about other competing demands for the materials in use will also be factors.

By dividing cache supplies into categories (as described above), then each cache component can be deployed independently. If the containment portion is in use it would not hinder the borrowing of the response portion.

There is no inherent infestation size restriction for use of the cache. The lead responding agency will use their Rapid Response plan, an assessment of available resources, and other factors to determine what size infestation warrants response.

## Recommended Next Steps

To ensure the long-term and widespread utility of the work of this planning team, two primary actions are recommended: 1) Share this document and the associated cache list with entities involved in response actions (including tribes, states, federal agencies, and local governments) to inform planning efforts. 2) Establish a new agreement among Federal entities in the West to streamline resource sharing. This section also includes recommendations on funding and tabletop exercises.

## Information Sharing

Making this document publicly available would aid preparedness planning efforts for rapid response. One option for public access to this document is through the Pacific States Marine Fisheries Commission (PSMFC). PSMFC is “an interstate compact agency that helps resource agencies and the fishing industry sustainably manage our valuable Pacific Ocean resources in a five-state region. Member states include California, Oregon, Washington, Idaho, and Alaska.” PSMFC hosts a website called the “Columbia River Basin Dreissenid Incident Response Toolkit” at <https://www.crbdirt.com/>. The site is dedicated to providing information and resources related to the prevention and management of invasive mussels, specifically focusing on the impacts of these species on ecosystems and infrastructure. It aims to educate stakeholders, including boaters, recreational users, and industry professionals, about the risks associated with invasive mussels and the importance of implementing effective prevention measures. The site offers guidance on best practices for cleaning and inspecting boats and equipment, as well as resources for reporting sightings and accessing local regulations.

Including this cache list as an additional resource on the PSMFC toolkit site will expand the information available on the site. And, because PSMFC reviews the site contents annually with key stakeholders, it will increase the audience for the list in the future.

Another potential site to access this document is through DOI’s website, under the Office of Policy Analysis, Invasive Species Coordination pages: <https://www.doi.gov/ppa/what-we-do/natural-cultural-resources/invasive-species-coordination> or <https://www.doi.gov/ppa/what-we-make/reports-and-statistics> (this page includes a link to the interagency MOU).

## Resource-sharing Agreement

By outlining who can borrow materials, what can be borrowed, and any restrictions on the borrowing process, agreements established before an incident can facilitate response during the incident. There are many different types of agreements (see **Appendix G**) that might apply and various ways the interested parties could be grouped to form agreements. Initial discussions focused on a single agreement between all interested parties (state, federal, and other) in the state of Washington. However, the planning team recommends separate agreement approaches for the following situations:



1. The state of Washington. Washington Department of Fish and Wildlife used this preliminary cache supply list to develop a cost-share agreement with the U.S. Army Corps of Engineers to secure additional supplies. Those supplies will enable the state to be better able to respond to new occurrences in the state. The state will establish bilateral agreements (see template in **Appendix H**) with land management entities in the state (e.g., Tribes, federal entities, or local governments) if the state is either the responsible parties or invited to respond.
2. Federal partners. It is recommended that the federal MOU partners pursue building upon their interagency MOU by creating a federal-only agreement that will cover supplies that can be shared among federal agencies. This approach avoids the complexities of agreements between state and federal entities. To make that process effective, additional detail will be needed for the existing list of federal resources available for sharing; some items will need to be added (see Table 1) and the spatial information will need to be enhanced. Ideally the list would be GIS-based so users could identify the material they need to borrow that is closest. Alternatively, additional information could be added for each of the 17 states where that resource is available.

### Funding – Washington State

In response to the September 2023 detection of mussels in the Snake River in Idaho, the first detection in the Columbia River Basin, and a May 2024 appeal from the Pacific Northwest Economic Region<sup>1</sup>, the state of Washington Legislature added \$1.8 million state general fund appropriations and \$1.81 million in federal expenditure authority to the 2024 operating budget. The state of Idaho also increased their funding.

Those recent appropriations in the state of Washington led to the allocation of funds within the Department of Fish and Wildlife to a cost-share agreement with the U.S. Army Corps of Engineers. The Department of Fish and Wildlife used the cache list to identify materials to buy that would enhance the Department's response capacity.

### Funding- Federal

Creation of caches of federal supplies will rely on the use of agency funding. The identification of necessary supplies can inform the acquisition of those materials as opportunities arise.

The federal funding cycle is often on a one- or two-year cycle such that funds are obligated before October 1<sup>st</sup> every year. An End of Year solicitation could be distributed in July of every year to members of the federal MOU to help purchase supplies for caches.

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<sup>1</sup> The Pacific Northwest Economic Region called for four actions to strengthen rapid response efforts. "1. Host a Regional Executive Level Tabletop Exercise and Multi-Agency Coordination Workshop, to prepare for detection of Quagga mussels downstream, ensuring a coordinated and effective response across Idaho, Washington, Oregon, and our regional partners to include all the governments. 2. Review, update, and reaffirm a regional executive level commitment to the Columbia River Basin Interagency Invasive Species Response Plan: Dreissenid Species. 3. Develop and execute memoranda of understanding with Washington, Oregon, Montana, Idaho, Canadian provinces (British Columbia, Saskatchewan, and Alberta), and Tribal/First Nations (such as the Nez Perce, Umatilla, Yakima, Warm Springs) to expedite actions such as increased prevention, communications and public engagement, enhanced early detection monitoring, and rapid response preparedness. 4. Based on tabletop exercise and workshop outcomes, develop short-, near-, and long-term recommendations for necessary supplies and equipment for immediate response capabilities (including response permitting) and ongoing monitoring efforts and containment strategies.

## Tabletop exercise

The Columbia River Basin (CRB) Team (including members of the Western Regional Panel on Aquatic Nuisance Species) hosts annual tabletop exercises ([Rapid Response | westernais](#)). Those exercises include many stakeholders including state and federal staff.

A joint state and federal tabletop exercise would further strengthen preparedness planning for efficient responses. Ideally, that exercise would be the next annual CRB exercise. Some of the key elements that would be most useful to include (and why) are:

- Takes place in the Snake River watershed.

*In 2023, the Washington Department of Fish and Wildlife's (WDFW) routine early detection monitoring resulted in determining a Snake River reach in Washington as Inconclusive status for presence of quagga mussels, requiring additional early detection monitoring. Monitoring site and conditions require sampling from a watercraft. Involves a response that is short of a declared emergency.*

*Due to the uncertainty, and inconclusive status, the WDFW Director will not implement Emergency Measures ([RCW 77.135.090: Emergency measures. \(wa.gov\)](#)) authority without conclusive evidence of presence.*

- Requires the need to request boat operators.

*Currently, the single WDFW career seasonal staff member with Motorboat Operator Certification Course (MOCC) training left their position for a full-time position with another state agency. In 2023, due to quagga mussels detected in the Snake River in Idaho, WDFW requested [Rapid Response Funding from the U.S. Fish and Wildlife Service](#) for an additional trained and certified delineation monitoring team but did not receive the requested funding. WDFW requires assistance to complete this work.*

- Requires the need to share equipment.

*WDFW requires assistance from a federal agency/agency to provide a MOCC certified boat operator, and watercraft to conduct additional sampling to determine if the waterbody is Suspect, Positive, or Infested. If positive, WDFW anticipates a Director's request to the Governor seeking Emergency Measures.*

## Appendices

- Appendix A** Container research
- Appendix B** Decontamination guidance for Washington State
- Appendix C** Cache supply list
- Appendix D** Chemical Shelf Life and Availability
- Appendix E** Pesticide Suppliers
- Appendix F** Chemical Personal Protective Equipment
- Appendix G** Agreements Information
- Appendix H** Agreement Template

## Appendix A- Container research

Storing materials to be shared requires a storage location. The standard storage options for field equipment are typically buildings. Having a moveable storage solution reduces the time and labor needed to respond. Below is some basic information about two movable storage options – trailers and shipping containers.

In addition to considering the nature of the storage container, the applicable parties should also consider the impacts of temperature extremes. Some materials and chemical degrade when exposed to hot or cold temperatures.

### Trailer

Towable and enclosed cargo trailers come in a variety of sizes and with a variety of features. There are trailers as small as five feet and as long as 30 feet. Key features to consider are rear door style (double doors or garage style), side doors (Is it needed? Where should it be?), inside visibility (windows, translucent panels, electrical wiring), and if a rear ramp is needed. Finally, storage space within the trailer: used trailers may already come with shelving but new trailers may need shelving added.

As of the writing of this document, used trailers in the five to ten feet long range are approximately \$3,000 to \$4,000. Larger trailers are more expensive. The longer the trailer, the harder it is to park and maneuver. Only if the trailer is large (over 10,000 lbs.) is a Commercial Drivers License needed.

### Shipping container

Prices will vary based on time, location, and company. This option may be impractical because of the expense to move but is included for consideration.

#### Availability

- Standard sizes (see below) can be purchased fairly easily<sup>2</sup> (e.g., [boxhub.com](http://boxhub.com), [eveoncontainers.com](http://eveoncontainers.com), [getcontainercosts.com](http://getcontainercosts.com), [container-xchange.com](http://container-xchange.com), [conexdepot.com](http://conexdepot.com))
- Delivery time can be as short as 5 days.

#### Sizes

- 20 ft and 40 ft lengths are the most common.
- Standard height is 8'6", High height is 9'6".
- An empty 20 ft shipping container is 5,181 lbs and an empty 40ft shipping container is 8,267 lbs.

#### Box Costs (on [boxhub.com](http://boxhub.com) on 6/7/2024)

- A 20 ft standard height used container was \$1,585 plus \$1,235 delivery (\$2,290 total).
- A 20 ft standard height new container was \$3,170 plus \$800 delivery (\$3,170 total).
- A 40 ft high height new container was \$4,620 plus \$1,235 Delivery (\$4,620 total).

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<sup>2</sup> Because these items are standardized, they are a variety of vendors available. In June 2024 it took some time to locate vendors online so that list is included here. This is not an endorsement but just a list of examples. There are other equal vendors available: [boxhub.com](http://boxhub.com), [eveoncontainers.com](http://eveoncontainers.com), [getcontainercosts.com](http://getcontainercosts.com), [container-xchange.com](http://container-xchange.com), [conexdepot.com](http://conexdepot.com).

#### Accessories Costs (on boxhub.com on 6/7/2024)

- Container accessories that are available (and likely needed) include:
  - Ramps (\$351).
  - Double pane window kit (\$416).
  - Steel man door kits (\$618).
  - Vent kits (\$46).

#### Moving a shipping container

- A shipping container can be transported by a tilt bed truck with no crane or forklift. A container can be moved with a flatbed truck or a truck with a container chassis, but those two options require a crane or forklift at both ends.
- The cost to move a container can be as low \$200 if the move is short but more than \$1,500 if the move is across the state. Each move will require a quote and planning.
- Moving with a tilt bed means 1) a lot of space is needed at both ends of the move to maneuver the truck and 2) material inside the contain will shift around a lot if not well secured.
- A trucking company would need to be contacted to see whether it can handle moving the container (e.g., in Washington: <https://getsimplebox.com/moving-containers/> confirmed they can move containers).

## Appendix B- Decontamination Guidance for Washington State

There are a variety of detailed decontamination documents available that can be referenced for ensuring that materials in the cache are clean and ready for use. For example:

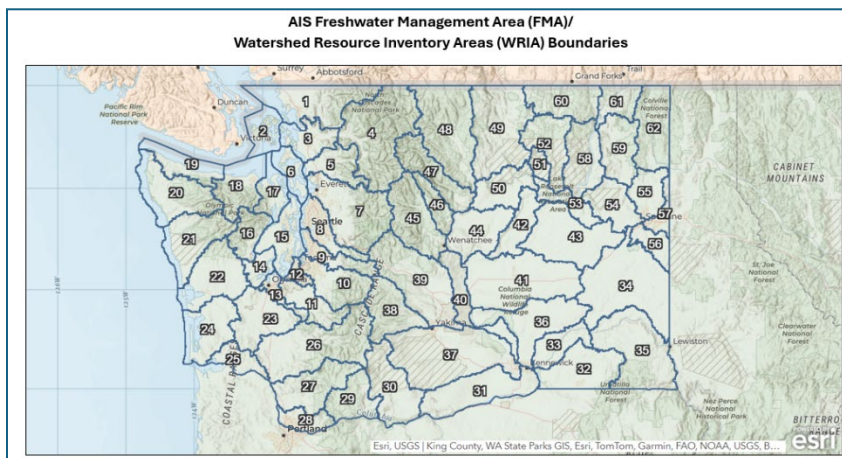
- The Armed Forces Pest Management Board Technical Guide No. 31, Operational Washdown and Agricultural Inspection Preparation for Military Conveyances and Equipment (<https://www.acq.osd.mil/eie/afpmb/docs/techguides/tg31.pdf>).
- Washington Department of Fish and Wildlife Invasive Species Management Protocols (Version 4) (<https://wdfw.wa.gov/sites/default/files/publications/01490/wdfw01490.pdf>).

This Appendix includes excerpts from the Washington Department of Fish and Wildlife Invasive Species Management Protocols (Version 4) and some additional information from the Aquatic Invasive Species Decontamination Biologist with the Washington Department of Fish and Wildlife.

### Introduction

- Any equipment that comes into contact with water from the water body must be decontaminated using [Invasive Species Management Protocols \(Version 4\) \(wa.gov\)](https://wdfw.wa.gov/sites/default/files/publications/01490/wdfw01490.pdf).
- Levels of decontamination are based on the details of the activities.
- The state is split up into different Freshwater Management Areas (FMAs) and Marine and Estuarine Management Areas (MEMAs).

### Freshwater Management Areas (FMAs) – Decontamination requirements:



#### Level 1 Decontamination protocols required:

- Whenever moving from one freshwater water body to another including delineated streams or other aquatic habitats that serve as conduits between water bodies, regardless of whether they occur in the same FMA.

#### Level 2 Decontamination (as defined below) is required:

- When moving across FMA boundaries, OR
- When leaving known AIS infested waters, OR
- Before entering protected or highly sensitive sites, OR

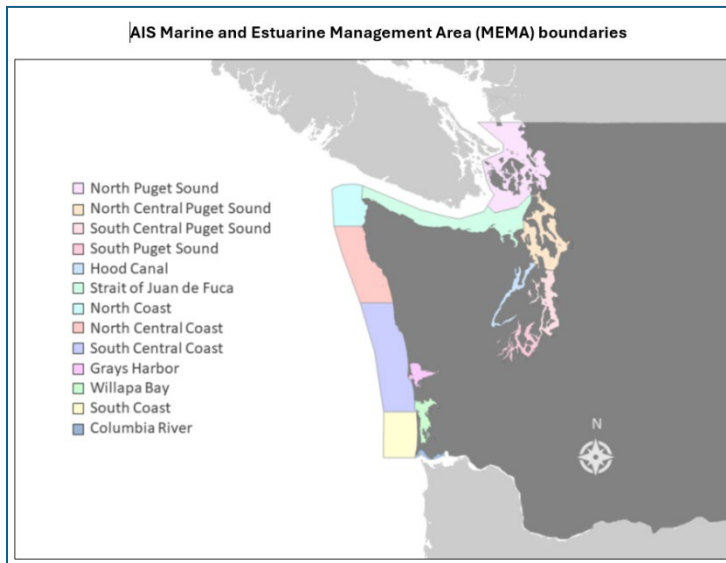
- When moving between still-water habitats (e.g., lakes, marshes, ponds, reservoirs, or other freshwater impoundments) that have no surface water connections to streams or other aquatic habitats regardless of whether they are in the same FMA.

### Marine and Estuarine Management Areas (MEMAs) – Decontamination requirements:

Level 1 Decontamination protocols required:

- Whenever moving from one MEMA to another.

Level 2 Decontamination is required for equipment or vessels:



- Whenever transported from known AIS infested waters, regardless of whether they are in the same MEMA, OR
- Before entering protected or highly sensitive areas (e.g., National Wildlife Refuges, restoration sites).

Additionally, Level 2 decontamination is required whenever moving between an FMA and MEMA (or vice versa).

### Treatment options (from the Aquatic Invasive Species Decontamination Biologist with the Washington Department of Fish and Wildlife)

- Hot water treatment is the agency-preferred method for Level 2 decontamination. For the hot water pressure washers there are two types that should be considered:
  - Hand-pushed units are heavy and take a lot of space.
  - Trailered units would require an extra vehicle to tow.
- Virkon is useful but proper disposal is challenging.
- Formula 409 Antibacterial is widely available.

- Bleach quickly degrades in sunlight and is only stable for about 1 day for decontamination purposes (even out of the sun), however it is easily acquired. Bleach is not on the WA official list of recommended Level 2 decontamination methods, but other agencies use it.
- Freezing is also an option for Level 2, but a freezer is not practical in a response trailer.
- Water recapture mat that can be used when you don't want the rinse water to re-enter into a body of water.



## Appendix C- Cache supply list

This list is meant to inform cache creation. The last ten items on the list are highlighted in orange. These are items that the User must provide or borrow. Throughout the list there are items highlighted in blue. Those are items the user must provide if they are needed. The column headers and how to interpret them:

- **Category:** Indicates the specific type of action that the item supports. Refer to Table 1 above for a list of these categories.
- **Powered?:** This column shows whether the item requires power to operate. If it does, it specifies the type of power needed.
- **Decon. Level equip. can be used for:** This refers to the uses of decontamination equipment based on the Washington Department of Fish and Wildlife's decontamination guide. More details can be found in Appendix B.
- **Item:** A concise description of the item listed.
- **Quote source:** If applicable, this provides a hyperlink to the source used for cost information. Note that this does not imply endorsement of the product.
- **Items per:** The quantity of items included in a single purchase. For example, if you buy pens in packs of ten, this column would indicate "10."
- **Cost per item:** The price for each individual item listed.
- **#:** The number of items recommended for acquisition to create an effective cache.
- **Total cost:** The overall cost calculated by multiplying the cost per item by the number of items.
- **Cu ft per item:** An approximate estimate of the storage space required for one unit of the product.
- **Total vol:** The total storage volume needed for all items, calculated by multiplying the cubic feet per item by the number of items.
- **Note:** Any special considerations to keep in mind before purchasing, including the rationale for why the item is necessary.

| Category                      | Powered? | Decon. Level equip. can be used for | Item                               | Quote source   | Items per | Cost per item | # | Total cost | cu ft per item | Total vol | Note                                   |
|-------------------------------|----------|-------------------------------------|------------------------------------|--|-----------|---------------|---|------------|----------------|-----------|--|
| Chemical application - mixing | N        | 2                                   | Measure Mates                      | <a href="#">1 Quart Measure Mate Chemical Container (forestry-suppliers.com)</a>   | 1         | \$ 6.95       | 5 | \$ 34.75   | 0.2            | 1         |  |
| Chemical application - mixing | N        | 2                                   | Liquid Measuring pitcher           | <a href="#">Accu-Pour™ Measuring Pitchers (forestry-suppliers.com)</a>   | 1         | \$ 6.50       | 3 | \$ 19.50   | 0.2            | 0.6       |  |
| Chemical application - mixing | N        | N/A                                 | Funnels - 64 oz with screen filter | <a href="#">Heavy-Duty Funnels in Stock - ULINE</a>  | 12        | \$ 10.80      | 1 | \$ 10.80   | 0.1            | 0.1       |  |
| Chemical application - mixing | Batt     | N/A                                 | Scale                              | <a href="#">Brecknell 6030 Waterproof Portion Scale (forestry-suppliers.com)</a>   | 1         | \$ 145.95     | 1 | \$ 145.95  | 0.1            | 0.1       |  |
| Chemical application - mixing | N        | N/A                                 | Scoop                              | <a href="#">EISCO Lab Scoop Spatula, 6/PK - 6.3 Inch - Rounded &amp; Pointed Ends - Stainless Steel: Science Lab Scoops: Amazon.com: Industrial &amp; Scientific</a> | 6         | \$ 14.99      | 1 | \$ 14.99   | 0.1            | 0.1       |  |
| Chemical application - mixing | N        | N/A                                 | Weighing dish (4.75 in. diameter)  | <a href="#">Weighing Dishes - Polystyrene, 200 mL S-24433 - Uline</a>  | 500       | \$ 67.00      | 1 | \$ 67.00   | 0.5            | 0.5       | Check size for chemicals to be used    |
| Chemical application - mixing | Gas      | 1                                   | Utility pump                       | <a href="#">HONDA, 1 hp, 1 in MNPT, Engine Driven Utility Pump - 55MN45   WX10 - Grainger</a>  | 1         | \$ 567.00     | 1 | \$ 567.00  | 4              | 4         |  |
| Chemical application - mixing | N        | 1                                   | Utility pump hoses                 | <a href="#">Water Suction &amp; Discharge Hoses - Grainger Industrial Supply</a>   | 1         | \$ 87.90      | 3 | \$ 263.70  | 1              | 3         |  |
| Chemical application - mixing | Gas      | 1                                   | Trash pump                         | <a href="#">Tsurumi Sand/Trash Water Pump, 4,200 GPH, 1 HP, 3in. Ports, 60-Ft. Max. Total Head, Model# HS3.75S-62   Northern Tool</a>                                | 1         | \$ 595.00     | 1 | \$ 595.00  | 2              | 2         | Water supply (not for decontamination) |

| Category                         | Powered? | Decon. Level equip. can be used for | Item  | Quote source   | Items per | Cost per item | #  | Total cost | cu ft per item | Total vol | Note   |
|----------------------------------|----------|-------------------------------------|---|--|-----------|---------------|----|------------|----------------|-----------|--|
| Chemical application - mixing    | N        | N/A                                 | Trash pump - discharge hose (3 in)                    | <a href="#">JGB Enterprises Water Pump Discharge Hose, 3in. x 50ft., Model# A008-0486-1650   Northern Tool</a>   | 1         | \$ 126.99     | 1  | \$ 126.99  | 3              | 3         | Ensure hose size fits purchased pump                   |
| Chemical application - mixing    | N        | N/A                                 | Trash pump - gaskets                                  | <a href="#">Female Short Shank Water Hose Gasket Pack, 3in.   Northern Tool</a>  | 2         | \$ 11.99      | 1  | \$ 11.99   | 4              | 4         |  |
| Chemical application - PPE       | N        | 2                                   | Chemical resistant apron                              | <a href="#">Work Aprons, Disposable Plastic Aprons in Stock - ULINE</a>  | 1         | \$ 10.00      | 3  | \$ 30.00   | 0.1            | 0.3       | For rotenone   |
| Chemical application - PPE       | N        | 1 & 2                               | Dust/mist filtering respirator                        | <a href="#">Grainger dust masks</a>  | 20        | \$ 30.60      | 1  | \$ 30.60   | 1              | 1         | meeting NIOSH standards of at least N95, R-95 or P-95. |
| Chemical application - PPE       | N        | 1 & 2                               | Leather gloves  | <a href="#">PIP® Unlined Leather Driver's Gloves (forestry-suppliers.com)</a>  | 1         | \$ 5.75       | 12 | \$ 69.00   | 0.1            | 1.2       | A range of sizes needed                                |
| Chemical application - PPE       | N        | 1 & 2                               | Nitrile gloves - disposable                           | <a href="#">Grainger disposable gloves</a>   | 100       | \$ 32.05      | 1  | \$ 32.05   | 1              | 1         |  |
| Chemical application - PPE       | N        | 1 & 2                               | Safety goggles  | <a href="#">Grainger safety goggles</a>  | 1         | \$ 7.76       | 15 | \$ 116.40  | 0.1            | 1.5       |  |
| Chemical application - PPE       | N        | N/A                                 | Portable eyewash station                              | <a href="#">Bradley® Mobile Eyewash Station H-6224 - Uline</a>   | 1         | \$ 345.00     | 1  | \$ 345.00  | 8              | 8         | 7 gallons  |
| Chemical application - PPE       | N        | N/A                                 | Eye wash bottles                                      | <a href="#">Grainger eye wash bottles</a>  | 1         | \$ 20.92      | 5  | \$ 104.60  | 0.1            | 0.5       |  |
| Chemical application - PPE       | N        | 2                                   | Labels and SDS binder                                 | <a href="#">Grainger binders</a>   | 1         | \$ 25.59      | 1  | \$ 25.59   | 1              | 1         |  |
| Chemical application - PPE       | N        | 2                                   | N95 Masks   | <a href="#">Dust Masks &amp; Disposable Particulate Respirators - Grainger Industrial Supply</a>   | 20        | \$ 26.14      | 2  | \$ 52.28   | 0.1            | 0.2       |  |
| Chemical application - signage   | N        | N/A                                 | Pre-printed and laminated plant state pesticide signs | NA   | 1         | \$ -          | 25 | \$ -       | 0.1            | 2.5       |  |
| Chemical application - treatment | N        | N/A                                 | Extra backpack wand                                   | <a href="#">Smith Pro 30" Universal Sprayer Wand and Shutoff Kit (forestry-suppliers.com)</a>  | 1         | \$ 23.50      | 1  | \$ 23.50   | 0.2            | 0.2       |  |
| Chemical application - treatment | N        | N/A                                 | Herbicide sharpie                                     | <a href="#">Sharpie® Fine Tip Markers - Black H-286BL - Uline</a>  | 1         | \$ 1.35       | 5  | \$ 6.75    | 0.1            | 0.5       |  |
| Chemical application - treatment | N        | N/A                                 | Herbicide signs                                       | <a href="#">Gemplers Washington Lawn Pesticide Application Signs</a>   | 25        | \$ 13.99      | 2  | \$ 27.98   | 0.1            | 0.2       | Includes stakes  |
| Chemical application - treatment | N        | 1                                   | Rotary drum pump                                      | <a href="#">Rotary Hand Pumps, Rotary Drum Pumps in Stock - ULINE</a>  | 1         | \$ 99.00      | 2  | \$ 198.00  | 2              | 4         |  |
| Chemical application - treatment | N        | 1 & 2                               | Contractor grade garden hoses                         | <a href="#">Jackson® Professional Tools Pro-Flow Heavy Duty Hose (forestry-suppliers.com)</a>  | 1         | \$ 46.95      | 1  | \$ 46.95   | 2              | 2         |  |
| Chemical application - treatment | N        | N/A                                 | On hose back flow preventer                           | <a href="#">Amazon.com: 5 Pack SUNROAD Lead-Free Brass 3/4" Inch MHT Hose Bibb Connector Backflow Preventer Vacuum Breaker, Check Valve For Garden Spigot RV Hose Connection, Anti-Siphon Fitting with extra set screws : Industrial &amp; Scientific Litter Bags (forestry-suppliers.com)</a> | 5         | \$ 25.99      | 1  | \$ 25.99   | 0.1            | 0.1       |  |
| Chemical application - treatment | N        | 1 & 2                               | Garbage bags  | <a href="#">Litter Bags (forestry-suppliers.com)</a>   | 50        | \$ 24.25      | 2  | \$ 48.50   | 0.5            | 1         |  |
| Chemical application - treatment | N        | 1 & 2                               | Backpack sprayers                                     | <a href="#">Field King Max Professional No Leak Pump Backpack Sprayer, 4-Gallon Capacity, 150 PSI, Model# 190348   Northern Tool</a>   | 1         | \$ 106.99     | 4  | \$ 427.96  | 2              | 8         | Includes a decent harness                              |

| Category                         | Powered? | Decon. Level equip. can be used for | Item   | Quote source  | Items per | Cost per item | #  | Total cost  | cu ft per item | Total vol | Note   |
|----------------------------------|----------|-------------------------------------|--|---|-----------|---------------|----|-------------|----------------|-----------|--|
| Chemical application - treatment | N        | 1 & 2                               | Nitrile gloves (15 mil)                          | <a href="https://www.forestry-suppliers.com/Maxi-Guard-15-mil-Nitrile-Gloves">Maxi-Guard™ 15 mil Nitrile Gloves (forestry-suppliers.com)</a>  | 2         | \$ 4.50       | 15 | \$ 67.50    | 0.1            | 1.5       | For chemical application; Multiple sizes needed              |
| Chemical application - treatment | N        | N/A                                 | Backpack spare parts - #6 red conical tip        | <a href="https://www.thefountainheadgroup.com/products/smith-performance-sprayers-182938-6-red-poly-conical-nozzle-tip-with-ceramic-insert-10-gpm-80deg-fan-txvk6-208">https://www.thefountainheadgroup.com/products/smith-performance-sprayers-182938-6-red-poly-conical-nozzle-tip-with-ceramic-insert-10-gpm-80deg-fan-txvk6-208</a> | 1         | \$ 9.99       | 2  | \$ 19.98    | 0              | 0         |  |
| Chemical application - treatment | N        | N/A                                 | Backpack spare parts - #4 conical nozzle tip     | <a href="https://www.thefountainheadgroup.com/products/field-kingreg-max-190348-backpack-sprayer-for-professionals-19">https://www.thefountainheadgroup.com/products/field-kingreg-max-190348-backpack-sprayer-for-professionals-19</a>   | 1         | \$ 9.99       | 2  | \$ 19.98    | 0              | 0         |  |
| Chemical application - treatment | N        | N/A                                 | Backpack spare parts - #4 green fan tip          | <a href="https://www.forestry-suppliers.com/Field-King-Fan-Tip-Assembly">Field King Fan Tip Assembly (forestry-suppliers.com)</a>   | 1         | \$ 3.00       | 5  | \$ 15.00    | 0              | 0         |  |
| Chemical application - treatment | N        | N/A                                 | Backpack spare parts - service kit               | <a href="https://www.thefountainheadgroup.com/Product-Info-Fountainhead-Group-Inc">Product Info   Fountainhead Group Inc. (thefountainheadgroup.com)</a>  | 1         | \$ 7.00       | 2  | \$ 14.00    | 0              | 0         |  |
| Chemical application - treatment | N        | N/A                                 | Backpack spare parts - brass nozzels             | <a href="https://www.thefountainheadgroup.com/Product-Info-Fountainhead-Group-Inc">Product Info   Fountainhead Group Inc. (thefountainheadgroup.com)</a>  | 1         | \$ 3.99       | 2  | \$ 7.98     | 1              | 2         |  |
| Chemical application - treatment | N        | N/A                                 | Backpack parts organizer                         | <a href="https://www.grainger.com/product/Stanley-Compartment-Box">Grainger Stanley compartment box</a>   | 1         | \$ 22.54      | 1  | \$ 22.54    | 1              | 1         |  |
| Chemical application - treatment | N        | 1                                   | Rags   | <a href="https://www.uline.com/Standard-White-T-Shirt-Rags-10-lb-box-S-21353">Standard White T-Shirt Rags - 10 lb box S-21353 - Uline</a>   | 60        | \$ 35.00      | 1  | \$ 35.00    | 2              | 2         |  |
| Collection equipment             | N        | N/A                                 | Ponar grab samplers                              | <a href="https://www.forestry-suppliers.com/Wildco-Petite-Ponar-Stainless-Steel-Grab">Wildco® Petite Ponar® Stainless Steel Grab (forestry-suppliers.com)</a>   | 1         | \$ 1,534.00   | 1  | \$ 1,534.00 | 6              | 6         |  |
| Collection equipment             | N        | N/A                                 | Sampling bottles                                 | <a href="https://www.berlinpackaging.com/8.5-oz-Natural-PP-Nalgene-Leakproof-Bottles">8.5 oz Natural PP Nalgene Leakproof Bottles   Berlin Packaging</a>  | 1         | \$ 3.10       | 6  | \$ 18.60    | 0.1            | 0.6       |  |
| Decontamination                  | N        | 2                                   | Decon solution backpack                          | <a href="https://www.northern-tool.com/Field-King-Max-Professional-No-Leak-Pump-Backpack-Sprayer-4-Gallon-Capacity-150-PSI-Model-190348">Field King Max Professional No Leak Pump Backpack Sprayer, 4-Gallon Capacity, 150 PSI, Model# 190348   Northern Tool</a>   | 1         | \$ 106.99     | 4  | \$ 427.96   | 2              | 8         | Includes a decent harness; same as for pesticide application |
| Decontamination                  | N        | 1 & 2                               | Brush - scrub hard surfaces                      | <a href="https://www.uline.com/Colored-Scrub-Brushes-in-Stock">Colored Scrub Brushes in Stock - Uline</a>   | 1         | \$ 16.00      | 4  | \$ 64.00    | 0.5            | 2         |  |
| Decontamination                  | N        | N/A                                 | non-potable water for mixing pesticides (15 gal) | <a href="https://www.uline.com/Plastic-Drum-15-Gallon-Closed-Top-Blue-S-17007">Plastic Drum - 15 Gallon, Closed Top, Blue S-17007 - Uline</a>   | 1         | \$ 49.00      | 1  | \$ 49.00    | 2              | 2         |  |
| Decontamination                  | N        | 1 & 2                               | Tubs for nets and equipment cleaning             | <a href="https://www.uline.com/Cross-Stack-Tub-24-x-17-x-8-19503Y">Cross-Stack Tub - 24 x 17 x 8", Yellow S-19503Y - Uline</a>  | 1         | \$ 18.00      | 3  | \$ 54.00    | 1.5            | 4.5       |  |
| Decontamination                  | N        | 1 & 2                               | Decontamination instructions                     | <a href="https://www.invasivemusselcollaborative.net/IMC-Decon-Guide-4.3.2017.pdf">IMC-Decon-Guide-4.3.2017.pdf (invasivemusselcollaborative.net)</a>   | 1         | \$ -          | 1  | \$ -        | 0.1            | 0.1       |  |
| Decontamination                  | N        | 1                                   | Truck cleaning brooms                            | <a href="https://www.uline.com/Vehicle-Wash-Kit-H-9994">Vehicle Wash Kit H-9994 - Uline</a>   | 1 kit     | \$ 145.00     | 1  | \$ 145.00   | 1.1            | 1.1       |  |
| Decontamination                  | N        | 2                                   | Virkon aquatic disinfectant powder               | <a href="https://www.sigmaaldrich.com/Virkon-disinfectant-cleaner-effective-against-all-18-virus-families-affecting-man-including-AIDS-HIV-and-Hepatitis-B">Virkon® disinfectant cleaner effective against all 18 virus families affecting man including AIDS (HIV) and Hepatitis B   Sigma-Aldrich (sigmaaldrich.com)</a>              | 1 gal     | \$ 93.90      | 1  | \$ 93.90    | 1              | 1         |  |
| Decontamination                  | N        | 1 & 2                               | Waste drum (30 gal, open top)                    | <a href="https://www.uline.com/Plastic-Drums-Plastic-Barrels-55-Gallon-Plastic-Drums-in-Stock">Plastic Drums, Plastic Barrels, 55 Gallon Plastic Drums in Stock - ULINE</a>   | 1         | \$ 91.00      | 1  | \$ 91.00    | 4              | 4         | For waste water  |

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|-----------------|----------|-------------------------------------|------------------------------------|---|-----------|---------------|----|-------------|----------------|-----------|---|
| Decontamination | N        | 1 & 2                               | Bung wrench                        | <a href="#">Drum Plug Opener H-1552 - Uline</a>   | 1         | \$ 60.00      | 1  | \$ 60.00    | 0.5            | 0.5       | For waste water drum, not sure really needed  |
| Decontamination | N        | 1                                   | Lint roller                        | <a href="https://www.uline.com/BL_172/3M-Scotch-Brite-Lint-Rollers?pricode=WX498&amp;utm_source=Bing&amp;utm_medium=cpc&amp;utm_term=lint%2broller&amp;utm_campaign=3M%2bTapes&amp;AdKeyword=lint%20roller&amp;AdMatchtype=e&amp;mclid=f8e2a129d2d0153e7f81c73a2e6721dd">https://www.uline.com/BL_172/3M-Scotch-Brite-Lint-Rollers?pricode=WX498&amp;utm_source=Bing&amp;utm_medium=cpc&amp;utm_term=lint%2broller&amp;utm_campaign=3M%2bTapes&amp;AdKeyword=lint%20roller&amp;AdMatchtype=e&amp;mclid=f8e2a129d2d0153e7f81c73a2e6721dd</a> | 1         | \$ 5.75       | 12 | \$ 69.00    | 0.1            | 1.2       |   |
| Decontamination | N        | 1 & 2                               | Boot brush                         | <a href="#">The Original Scrusher® (forestry-suppliers.com)</a>   | 1         | \$ 42.00      | 2  | \$ 84.00    | 1              | 2         |   |
| Decontamination | No       | 1                                   | Flashlights                        | <a href="#">Uline Flashlights in Stock - ULINE</a>  | 1         | \$ 24.00      | 4  | \$ 96.00    | 0.1            | 0.4       | For inspection  |
| Decontamination | No       | 1                                   | Hand mirrors                       | <a href="#">Copkim 2 Pcs Telescoping Inspection Mirror,29 Inch Mechanics Mirror Tool with Long Handle, Round Extendable Mirror on a Stick for Technicians Mechanics Contractors Checking Observation (Red): Amazon.com: Industrial &amp; Scientific</a>   | 2         | \$ 9.49       | 2  | \$ 18.98    | 0.1            | 0.2       | For inspection  |
| Decontamination | No       | 1                                   | Mud picks                          | <a href="#">Amazon.com: Weaver Leather Hoof Pick/Brush (Color May Vary) : Pet Supplies</a>  | 1         | \$ 4.99       | 12 | \$ 59.88    | 0.1            | 1.2       | To remove material; can buy in larger quantities from NAISMA and get a discount   |
| Decontamination | No       | 1                                   | Plastic Scrapers                   | <a href="#">Amazon.com: AllwayTools DS15, 1.5 Inch, 1-1/2" (6) : Tools &amp; Home Improvement</a>   | 6         | \$ 9.99       | 2  | \$ 19.98    | 0.1            | 0.2       | To remove material  |
| Decontamination | No       | 1                                   | Pump Spray (for potable water)     | <a href="#">Amazon.com : Chapin 20000 Made in USA 1 - Gallon Lawn and Garden Pump Pressured Sprayer, for Spraying Plants, Garden Watering, Weeds and Pests, Polypropylene, Translucent White : Patio, Lawn &amp; Garden</a>   | 1         | \$ 14.98      | 1  | \$ 14.98    | 2              | 2         | Low pressure useful for rinsing gear  |
| Decontamination | No       | 1 & 2                               | Plastic Truck Liners               | <a href="#">BedBag Disposable Truck Bed Liner – ThePaintStore.com</a>   | 1         | \$ 18.29      | 10 | \$ 182.90   | 0.5            | 5         | Materials disposal  |
| Decontamination | No       | 1 & 2                               | Water recapture mat                | Estimated - need a current bid  | 1         | \$ 3,000.00   | 1  | \$ 3,000.00 | 5              | 5         | Rody provided and invoice from <a href="https://benscleaner.com/">https://benscleaner.com/</a> so this is just a rough estimate |
| Decontamination | No       | 2                                   | 40° pressure washing nozzles       | <a href="#">40° Pressure Washer Spray Tip (White) – Sprayer Depot</a>   | 1         | \$ 13.51      | 2  | \$ 27.02    | 0.1            | 0.2       |   |
| Decontamination | No       | 2                                   | Bleach                             | <a href="#">Clorox® Bleach, Germicidal Bleach in Stock - ULINE</a>  | 3         | \$ 6.50       | 1  | \$ 6.50     | 0.5            | 0.5       | Option for Level 2 decontamination  |
| Decontamination | No       | 2                                   | Fake-A-Lakes                       | <a href="#">Amazon.com : Inboard Engine Motor Flusher Fake a Lake Ski Boat Mastercraft Malibu Nautique : Sports &amp; Outdoors</a>  | 1         | \$ 23.00      | 1  | \$ 23.00    | 1              | 1         | Inboard engine and ballast tank decontamination   |
| Decontamination | No       | 2                                   | Formula 409 Antibacterial Solution | <a href="#">409® Disinfectants, ULINE Disinfectants in Stock - ULINE</a>  | 12        | \$ 4.25       | 1  | \$ 4.25     |                | 0         | Option for Level 2 decontamination  |

| Category        | Powered? | Decon. Level equip. can be used for | Item   | Quote source  | Items per | Cost per item | # | Total cost | cu ft per item | Total vol | Note  |
|-----------------|----------|-------------------------------------|--|---|-----------|---------------|---|------------|----------------|-----------|---|
| Decontamination | No       | 2                                   | High-pressure wands (dual lance wands) - quick connect | <a href="#">Amazon.com: Erie Tools 40in. Stainless Steel Seamless Tube Vented 5000 PSI Dual Lance Wand Molded Grip for Power Pressure Washer : Patio, Lawn &amp; Garden</a>   | 1         | \$ 67.99      | 1 | \$ 67.99   | 0.5            | 0.5       | May be provided with pressure washer package but may want a spare             |
| Decontamination | No       | 2                                   | Hot water muffs (outer fit)                            | <a href="#">WEST MARINE Outboard Motor Flusher OB/IB Universal with Rectangular Cups   West Marine</a>  | 1         | \$ 11.99      | 1 | \$ 11.99   | 0.1            | 0.1       | Engine decontamination - should have multiple types                           |
| Decontamination | No       | 2                                   | Hot water muffs (through fit)                          | <a href="#">Amazon.com : Quicksilver 44357Q2 Through Gear Case Flushing Kit : Sports &amp; Outdoors</a>   | 1         | \$ 44.75      | 1 | \$ 44.75   | 0.1            | 0.1       | Engine decontamination  |
| Decontamination | No       | 2                                   | Instant read thermometer                               | <a href="#">Amazon.com: Yacumama Digital Water Thermometer for Liquid, Candle, Instant Read with Waterproof for Food, Meat, Milk, Long Probe: Home &amp; Kitchen</a>  | 1         | \$ 9.88       | 1 | \$ 9.88    | 0.1            | 0.1       |   |
| Decontamination | No       | 2                                   | Low-pressure hose attachments - quick connect          | <a href="#">Garden Hose Quick Connect Solid Brass Quick Coupler 3/4 in. (Pack of 4) B07T18NPPM - The Home Depot</a>   | 4         | \$ 80.08      | 1 | \$ 80.08   | 0.1            | 0.1       |   |
| Decontamination | No       | 2                                   | Pressure washer diffuser                               | <a href="#">Amazon.com: YAMATIC Short Pressure Washer Gun with Swivel, 5000 PSI Power Washer Wand Stubby Trigger Handle with 3/8" Plug &amp; M22-14mm Male Inlet, 1/4" Quick Connect Outlet for Foam Cannon Car Wash : Patio, Lawn &amp; Garden</a> | 1         | \$ 42.99      | 1 | \$ 42.99   | 0.1            | 0.1       | May be provided with pressure washer package but may want a spare             |
| Decontamination | No       | 2                                   | Spray guns with trigger                                | <a href="#">General Pump DG5010L16 5000 PSI Professional Spray Gun Hot/Cold Water (pressurewashersdirect.com)</a>   | 1         | \$ 45.99      | 2 | \$ 91.98   | 0.5            | 1         |   |
| Decontamination | No       | 2                                   | Sta-Bil Marine 360 Fuel Stabilizer                     | <a href="#">Grainger fuel stabilizer</a>  | 1         | \$ 14.84      | 1 | \$ 14.84   | 0.2            | 0.2       | Prevent damage to gasoline engine on pressure washers                         |
| Decontamination | No       | 2                                   | Virkon Dilution testing strips                         | <a href="#">Virkon Test Strips - Syndel</a>   |           |               |   | \$ -       |                | 0         |   |
| Decontamination | No       | 2                                   | Water Temperature guides for hot water decontamination | print p117 in Watercraft Inspection and Decontamination Manual from Western Regional Panel  |           |               |   | \$ -       |                | 0         | Guides for temperatures and pressures for boat and other gear decontamination |
| Decontamination | No       | NA                                  | Ear plugs  | <a href="#">Howard Leight® Maximum Earplugs in Stock - ULINE</a>  | 200       | \$ 41.00      | 1 | \$ 0.50    | 0.2            | 0.2       |   |
| Decontamination | No       | NA                                  | Heat resistant waterproof gloves                       | <a href="#">Amazon.com: 932°F Extreme Heat Resistant Gloves for Grill BBQ,Aillary Waterproof Long Sleeve Pit Grill Gloves for Fryer, Baking, Oven,Smoker,Fireproof, Oil Resistant Neoprene Coating (14-Inch ) : Patio, Lawn &amp; Garden</a>        | 1         | \$ 14.99      | 3 | \$ 0.50    | 0.1            | 0.3       |   |
| Decontamination | No       | NA                                  | Rain suits   | <a href="#">Rain Gear for Men, Yellow Rain Slicker in Stock - ULINE</a>   | 1         | \$ 19.00      | 5 | \$ 0.50    | 0.2            | 1         | For pressure washing, need various sizes                                      |
| Decontamination | No       | 1 & 2                               | Heat tolerant garden hose                              | <a href="#">Amazon.com: Guitrees 50FT 5/8 Heavy-Duty Rubber Garden Hose - 200psi Working, 1000psi Burst - Hot/Cold Water - Five-Layered Braiding for</a>  | 1         | \$ 49.99      | 1 | \$ 0.50    | 0.5            | 0.5       |   |

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|-----------------------|----------|-------------------------------------|----------------------------|--|-----------|---------------|---|------------|----------------|-----------|---|
|                       |          |                                     |                            | <a href="#">Durability - Versatile for Gardening, Agriculture, Construction(Black) : Patio, Lawn &amp; Garden</a>  |           |               |   |            |                |           |   |
| Decontamination       | No       | 1 & 2                               | Magnifiers                 | <a href="#">Magnifiers, Handheld Magnifiers in Stock - ULINE</a>   | 1         | \$ 22.00      | 4 | \$ 88.00   | 0.1            | 0.4       | To remove material  |
| Decontamination       | N        | 1                                   | Rags                       | <a href="#">Standard White T-Shirt Rags - 10 lb box S-21353 - Uline</a>  | 60        | \$ 35.00      | 1 | \$ 35.00   | 2              | 2         |   |
| General supplies      | N        | N/A                                 | Zip ties                   | <a href="#">Cable Tie Assortment Kit   Gemplers</a>  | 400       | \$ 12.00      | 1 | \$ 12.00   | 0.1            | 0.1       |   |
| General supplies      | N        | N/A                                 | Duct Tape                  | <a href="#">Silver Duct Tape   Gemplers</a>  | 1         | \$ 10.99      | 1 | \$ 10.99   | 0.1            | 0.1       |   |
| General supplies      | N        | N/A                                 | Locking pliers             | <a href="#">Flat, Lever, Locking Plier - 4CHV6   102L3 - 10R - Grainger</a>  | 1         | \$ 17.00      | 2 | \$ 34.00   | 0.1            | 0.2       |   |
| General supplies      | N        | N/A                                 | Hose clamps                | <a href="#">Worm Gear Tube &amp; Hose Clamps - Grainger Industrial Supply</a>  | 10        | \$ 8.33       | 4 | \$ 33.32   | 0.1            | 0.4       | buy four sizes - 7/16-1, 11/16-1.5, 1-2, 2-4                              |
| General supplies      | N        | N/A                                 | Bungee cords               | <a href="#">Bungee Cords - Bungee Straps &amp; Balls - Grainger Industrial Supply</a>  | 10        | \$ 16.26      | 1 | \$ 16.26   | 0.2            | 0.2       | Assorted sizes  |
| General supplies      | No       | NA                                  | Pencils                    | <a href="#">BIC Xtra Smooth Mechanical Pencil, 0.7mm, #2 Medium Lead, 12/PK (90085/MP11)   Staples</a>   | 12        | \$ 7.09       | 1 | \$ 7.09    | 0.1            | 0.1       |   |
| General supplies      | No       | NA                                  | Pens                       | <a href="#">TRU RED™ Ballpoint Gripped Retractable Pen, Medium Point, 1.0mm, Black, Dozen (TR59161)   Staples</a>  | 12        | \$ 2.29       | 1 | \$ 2.29    | 0.1            | 0.1       |   |
| General supplies      | No       | NA                                  | Vise grips                 | <a href="#">Irwin Vise-Grip Pliers, 4-Pc. Set, Model# 71   Northern Tool</a>   | 4         | \$ 74.99      | 1 | \$ 74.99   | 0.5            | 0.5       |   |
| General supplies      | N        | N/A                                 | Ratchet straps             | <a href="#">Uline Retractable Ratchet Tie-Downs - S-Hook, 1" x 10', 1,200 lb Capacity H-9152 - Uline</a>   | 1         | \$ 16.00      | 5 | \$ 80.00   | 0.1            | 0.5       | To secure equipment in the trailer  |
| General supplies      | N        | N/A                                 | 19 gal bins for materials  | <a href="#">IRIS 4-Pack Heavy Duty Plastic Storage Box Large 19-Gallons (78-Quart) Black Heavy Duty Tote with Latching Lid in the Plastic Storage Containers department at Lowes.com</a> | 1         | \$ 82.39      | 4 | \$ 329.56  | 2.6            | 10.4      |   |
| General supplies      | Batt     | N/A                                 | GPS unit                   | <a href="#">Garmin eTrex® 10   Outdoor GPS</a>   | 1         | \$ 109.99     | 1 | \$ 109.99  | 0.1            | 0.1       | For when cell coverage is poor. Could consider more sophisticated system. |
| Generator             | Gas      | N/A                                 | Gas powered generator      | <a href="#">GENMAX GM3300i 30 Amp 3000W/3300W Recoil Start Gas Inverter Generator – FactoryPure</a>  | 1         | \$ 587.00     | 1 | \$ 587.00  | 2.5            | 2.5       |   |
| Inform the public     | N        | N/A                                 | Dry erase markers          | <a href="#">Uline Dry Erase Markers in Stock - ULINE</a>   | 4         | \$ 7.00       | 1 | \$ 7.00    | 0.1            | 0.1       |   |
| Inform the public     | Plug     | N/A                                 | Laminator                  | <a href="#">Laminators, Laminator Machines in Stock - ULINE</a>  | 1         | \$ 199.00     | 1 | \$ 199.00  | 2              | 2         |   |
| Inform the public     | Plug     | N/A                                 | Printer                    | <a href="#">EcoTank ET-2800 Wireless Color All-in-One Cartridge-Free Supertank Printer with Scan and Copy   Products   Epson US</a>  | 1         | \$ 200.00     | 1 | \$ 200.00  | 3              | 3         |   |
| Inform the public     | N        | N/A                                 | Sandwich boards            | <a href="#">Plastic A-Frame Sign - Standard, 24 x 36" H-6104 - Uline</a>   | 1         | \$ 110.00     | 2 | \$ 220.00  | 2              | 4         |   |
| Inform the public     | N        | N/A                                 | Velcro for sign components | <a href="#">VELCRO® Brand Combo Packs in Stock - ULINE</a>   | 100       | \$ 28.00      | 1 | \$ 28.00   | 0.5            | 0.5       |   |
| Inform the responders | Batt     | N/A                                 | Radio instructions         | NA   | 1         | \$ -          | 1 | \$ -       | 0.1            | 0.1       |   |

| Category                       | Powered? | Decon. Level equip. can be used for | Item  | Quote source   | Items per | Cost per item | #  | Total cost | cu ft per item | Total vol | Note  |
|--------------------------------|----------|-------------------------------------|---|--|-----------|---------------|----|------------|----------------|-----------|---|
| Inform the responders          | N        | N/A                                 | Printed Identification resources            | NA   |           |               |    |            |                |           |   |
| Inform the responders          | N        | N/A                                 | ICS booklet - Forms                         | <a href="#">Emergency Management Institute   ICS Fillable Forms (fema.gov)</a>   | 1         | \$ -          | 1  | \$ -       | 0.1            | 0.1       |   |
| Inform the responders          | N        | N/A                                 | ICS booklet - Glossary                      | <a href="#">Glossary of Related Terms (fema.gov)</a>   | 1         | \$ -          | 1  | \$ -       | 0.1            | 0.1       |   |
| Inform the responders          | N        | N/A                                 | ICS booklet - Overview                      | <a href="#">ICS Review Document (fema.gov)</a>   | 1         | \$ -          | 1  | \$ -       | 0.1            | 0.1       |   |
| Inform the responders          | N        | N/A                                 | Numbers to call                             | State, Federal, Local  | 1         | \$ -          | 1  | \$ -       | 0.1            | 0.1       |   |
| Inform the responders          | Batt     | N/A                                 | Radios                                      | <a href="#">Mountain Radio - Rugged Backcountry Radio   Rocky Talkie</a>   | 2         | \$ 220.00     | 2  | \$ 440.00  | 0.1            | 0.2       |   |
| Inform the responders          | N        | N/A                                 | Dry erase board                             | <a href="#">Frameless Dry Erase Boards in Stock - ULINE</a>  | 1         | \$ 135.00     | 1  | \$ 135.00  | 0.5            | 0.5       |   |
| Manual application - treatment | N        | N/A                                 | 36" razor rake with removable float         | <a href="#">Jenlis Collapsible Razer Rake   Folding Rake   The Pond Guy</a>  | 1         | \$ 129.99     | 2  | \$ 259.98  | 3              | 6         |   |
| Manual application - treatment | N        | N/A                                 | Net - 9' telescoping pole and two nets      | <a href="#">Pond Skimmer Net   Heavy Duty Pond Skimmer   The Pond Guy</a>  | 1         | \$ 99.99      | 2  | \$ 199.98  | 3              | 6         |   |
| Manual application - treatment | N        | N/A                                 | Hand tools (Ratchets, screwdrivers, wrench) | <a href="#">DEWALT 1/4 in. x 3/8 in. Drive Polished Chrome Mechanics Tool Set (142-Piece) DWMT73802 - The Home Depot</a>                             | 1         | \$ 103.00     | 1  | \$ 103.00  | 1              | 1         |   |
| Safety - personal              | N        | 1                                   | Hand soap                                   | <a href="#">Grainger hand soap</a>   | 6         | \$ 24.19      | 1  | \$ 24.19   | 1              | 1         |   |
| Safety - personal              | N        | 1                                   | Hand wash water                             | <a href="#">Grainger water cooler</a>  | 1         | \$ 65.58      | 1  | \$ 65.58   | 8              | 8         | 5 gallon drinking container for use on hands only |
| Safety - personal              | N        | N/A                                 | Ear muffs                                   | <a href="#">Safety Earmuffs - Grainger Industrial Supply</a>   | 1         | \$ 25.55      | 4  | \$ 102.20  | 0.2            | 0.8       |   |
| Safety - personal              | N        | N/A                                 | Drinking water jug                          | <a href="#">IGLOO, 5 gal Cooler Capacity, 20 11/32 in Exterior Ht, Beverage Dispenser - 5DDA9 48153 - Grainger</a>                                   | 1         | \$ 82.22      | 1  | \$ 82.22   | 3              | 3         |   |
| Safety - personal              | N        | N/A                                 | Emergency blanket                           | <a href="#">HONEYWELL, Yellow, 80 in Blanket Lg, Disposable Emergency Blanket - 3PAJ9 551003 - Grainger</a>  | 1         | \$ 12.30      | 5  | \$ 61.50   | 0.1            | 0.5       |   |
| Safety - personal              | N        | N/A                                 | First aid kit                               | <a href="#">Amazon.com: First Aid Only 6060 10-Person Emergency First Aid Kit for Office, Home, and Worksites, 57 Pieces : Sports &amp; Outdoors</a> | 1         | \$ 20.99      | 1  | \$ 20.99   | 0.2            | 0.2       |   |
| Safety - personal              | No       | NA                                  | Safety Vests                                | <a href="#">Safety Vests with Pockets, Surveyor Vests in Stock - ULINE</a>   | 1         | \$ 19.00      | 10 | \$ 0.50    | 0.1            | 1         | Need various sizes                                |
| Safety - personal              | No       | NA                                  | Sunscreen                                   | <a href="#">Sun-X® SPF 50 Broad Spectrum Sunscreen (forestry-suppliers.com)</a>  | 1         | \$ 26.95      | 1  | \$ 0.50    | 0.1            | 0.1       |   |
| Safety - personal              | N        | N/A                                 | Life rings                                  | <a href="#">KENT SAFETY, Polyethylene, USCG Approved, Ring Buoy, Orange, 24" - 59MD25 152200-200-024-13 - Grainger</a>                               | 1         | \$ 105.55     | 1  | \$ 105.55  | 2              | 2         |   |
| Safety - personal              | N        | N/A                                 | PFDs  | <a href="#">Life Jackets and PFDs - Life Vests - Grainger Industrial Supply</a>  | 1         | \$ 42.40      | 4  | \$ 169.60  | 2              | 8         |   |
| Safety - site                  | N        | N/A                                 | Shovel (round nose)                         | <a href="#">Razor-Back® Long Handle Round Point SuperSocket® Shovel (forestry-suppliers.com)</a>   | 1         | \$ 35.95      | 1  | \$ 35.95   | 0.5            | 0.5       |   |
| Safety - site                  | N        | N/A                                 | Shovel (square nose)                        | <a href="#">UnionTools® Model 40184 Long Handle Square Point Shovel (forestry-suppliers.com)</a>   | 1         | \$ 17.95      | 1  | \$ 17.95   | 0.5            | 0.5       |   |
| Safety - site                  | Plug     | N/A                                 | Lights                                      | <a href="#">LED Work Light H-9276 - Uline</a>  | 1         | \$ 150.00     | 2  | \$ 300.00  | 4              | 8         |   |

| Category                         | Powered? | Decon. Level equip. can be used for | Item  | Quote source  | Items per | Cost per item | #  | Total cost | cu ft per item | Total vol | Note  |
|----------------------------------|----------|-------------------------------------|---|---|-----------|---------------|----|------------|----------------|-----------|---|
| Safety - site                    | N        | N/A                                 | Extension cord (exterior)                             | <a href="#">Heavy Duty Extension Cord - 50', 12 Gauge S-13799 - Uline</a> | 1         | \$ 56.00      | 1  | \$ 56.00   | 1              | 1         |   |
| Safety - site                    | N        | N/A                                 | Pig mats  | <a href="#">Easy-Size Sorbents in Stock - ULINE</a>                       | 1         | \$ 73.00      | 1  | \$ 73.00   | 0.5            | 0.5       | 10 gallon absorption capacity   |
| Safety - site                    | N        | N/A                                 | Spill kit - terrestrial                               | <a href="#">Universal Bucket Spill Kit - 6.5 Gallon S-23399 - Uline</a>   | 1         | \$ 110.00     | 1  | \$ 110.00  | 1              | 1         | 9 gallon absorption capacity  |
| Safety - site                    | N        | N/A                                 | Cones   | <a href="#">Traffic Cones (forestry-suppliers.com)</a>                    | 1         | \$ 24.25      | 10 | \$ 242.50  | 0.2            | 2         |   |
| Safety - site                    | N        | N/A                                 | Yellow tape   | <a href="#">Lowes Safety tape</a>   | 1         | \$ 12.98      | 1  | \$ 12.98   | 0.1            | 0.1       |   |
| Chemical application - PPE       | N        | 2                                   | Positive pressure full face mask                      | User provided   |           |               |    |            |                |           | For rotenone when applying powder; must be fit to user                                |
| Chemical application - treatment | N        | 2                                   | Pesticides  | User provided   |           |               |    |            |                |           | Most be stored properly   |
| Chemical application - treatment | N        | N/A                                 | Dye   | User provided   |           |               |    |            |                |           |   |
| Decontamination                  | N        | N/A                                 | non-potable water for mixing pesticides (over 15 gal) | User provided   |           |               |    |            |                |           |   |
| Decontamination                  | N        | N/A                                 | Drums for wash water                                  | User provided   |           |               |    |            |                |           |   |
| Decontamination                  | No       | 1                                   | Potable rinse water                                   | User provided   |           |               |    |            |                |           | WA regs require potable water for decon.  |
| Decontamination                  | No       | 2                                   | Diesel for hot water pressure washer burner           | User provided   |           |               |    |            |                |           |   |
| Decontamination                  | No       | 2                                   | Gasoline  | User provided   |           |               |    |            |                |           | Pressure washer, trash pump, generator  |
| General supplies                 | N        | N/A                                 | Laptop  | User provided   |           |               |    |            |                |           |   |
| Generator                        | N        | 2                                   | Fuel for generator                                    | User provided   |           |               |    |            |                |           | Must be stored properly   |
| Inform the public                | N        | N/A                                 | Media briefing packages                               | User provided   |           |               |    |            |                |           | for initial detection, response, demobilization                                       |
| Inform the public                | N        | N/A                                 | Pre-made information to add to the sandwich board     | User provided   |           |               |    |            |                |           | What is happening here? Why can't I access this area? How can I get more informaiton? |
| Inform the public                | N        | N/A                                 | Press release examples                                | User provided   |           |               |    |            |                |           |   |
| Inform the public                | N        | N/A                                 | Talking points  | User provided   |           |               |    |            |                |           |   |
| Inform the responders            | N        | N/A                                 | Printed Rapid Response plan in a binder               | User provided   |           |               |    |            |                |           |   |
| Safety - personal                | N        | N/A                                 | Drinking water  | User provided   |           |               |    |            |                |           |   |
| Decontamination unit parts       | No       | 2                                   | Spare parts for hot water pressure washer             | User provided or borrowed   |           |               |    | \$ -       |                | 0         | Some parts are notorious for breaking (ex. water filter on PowerJet unit)             |



| Category                          | Powered?     | Decon. Level<br>equip. can<br>be used for | Item                          | Quote source              | Items<br>per | Cost per item | # | Total cost | cu ft<br>per<br>item | Total<br>vol | Note |
|-----------------------------------|--------------|---|-------------------------------|---------------------------|--------------|---------------|---|------------|----------------------|--------------|------|
| <b>Decontamination unit</b>       | diesel + gas | 2   | Decontamination unit          | User provided or borrowed |              |               |   | \$ -       |                      | 0            |      |
| <b>Air curtains</b>               | N            | N/A                                       | Air curtains                  | User provided or borrowed |              |               |   | \$ -       |                      | 0            |      |
| <b>Booms</b>                      | N            | N/A                                       | Booms                         | User provided or borrowed |              |               |   | \$ -       |                      | 0            |      |
| <b>Diving equipment</b>           | No           | N/A                                       | Diving equipment              | User provided or borrowed |              |               |   | \$ -       |                      | 0            |      |
| <b>eDNA samplers</b>              | TBD          | N/A                                       | eDNA samplers                 | User provided or borrowed |              |               |   | \$ -       |                      | 0            |      |
| <b>Lab Services</b>               | N            | N/A                                       | Lab Services                  | User provided or borrowed |              |               |   | \$ -       |                      | 0            |      |
| <b>Remotely Operated vehicles</b> | Batt         | N/A                                       | Remotely Operated<br>vehicles | User provided or borrowed |              |               |   | \$ -       |                      | 0            |      |
| <b>Waders</b>                     | N            | N/A                                       | Waders                        | User provided or borrowed |              |               |   | \$ -       |                      | 0            |      |
| <b>Watercraft</b>                 | TBD          | N/A                                       | Watercraft                    | User provided or borrowed |              |               |   | \$ -       |                      | 0            |      |

## Appendix D- Chemical Shelf Life and Availability

Many chemical pesticides have long shelf lives (or none are stated on the label) but some of the key chemicals that are used for mussel treatment do not have long shelf lives. This table includes the primary chemicals that could be used for the control of aquatic invasive animals, however specific species and site considerations as well as environmental compliance and permitting need to be considered.

| <b>Product</b>           | <b>Shelf life</b>                                  | <b>Availability</b>                                     |
|--------------------------|--|---|
| <b>Muriate of Potash</b> | 5+ years   | Available in small batches as fertilizer, need guidance |
| <b>EarthTec QZ™</b>      | indefinite if never frozen (per company)           | Suppliers exist   |
| <b>Nautique</b>          | none stated on label                               | Days - Available in many places                         |
| <b>Zequanox®</b>         | 6 months from manufactured date                    | 6-8 weeks <sup>3</sup>                                  |
| <b>Rhodamine dye</b>     | 6 months in liquid form; indefinite in powder form | Varies by product                                       |
| <b>Bayluscide 70% WP</b> | none stated on label                               | Limited availability - need details                     |
| <b>CFT Legumine</b>      | none stated on label                               | Days - Available in many places                         |

<sup>3</sup> The sole manufacturer (Invasive Species Corporation) reports that they typically have some on hand in the middle of the summer and that additional materials take 6-8 weeks to be produced.

## Appendix E- Pesticide Suppliers

This is a list of suppliers of the relevant pesticides who work nation-wide. Many more suppliers will be available locally. The list of pesticides is divided into 1) the table on this page that includes chemicals that might be used for invasive plant work and 2) a table on the next page listing chemicals that might be used for invasive animal work. An X indicates the Supplier is able to supply that material. A blank indicates they do not supply that material. A “?” indicates uncertainty based on the Supplier’s response.

|                                     | Product examples  | ACTIVE INGREDIENT | 2,4-D    | SODIUM CARBONATE | ENDOTHALL | DIQUAT            | COPPER SULFATE | FLURIDONE | GLYPHOSATE | TRICLOPYR | IMAZAMOX  | BISPYRIBAC | FLUMIOXAZIN | IMAZAPYR | PENOXULAM  |
|-------------------------------------|---|-------------------|----------|------------------|-----------|-------------------|----------------|-----------|------------|-----------|-----------|------------|-------------|----------|------------|
|                                     |   |                   | Navigate | PAK 27 Algaecide | Hydrothol | NUFARM DIQUAT 2 L | Copper sulfate | Sonar AS  | Aquaneat   | Renovate  | Clearcast | Tradewind  | Clipper     | Habitat  | Galleon SC |
| <b>ARBORCHEM</b>                    | <a href="https://www.arborchem.com/">https://www.arborchem.com/</a>                           |                   | X        |                  |           | X                 |                | X         | X          | X         | X         |            | X           | X        |            |
| <b>INVASIVE SPECIES CORPORATION</b> | <a href="https://invasivespeciescorporation.com/">https://invasivespeciescorporation.com/</a> |                   |          |                  |           |                   |                |           |            |           |           |            |             |          |            |
| <b>DOMYOWN</b>                      | <a href="https://www.domyown.com/">https://www.domyown.com/</a>                               |                   | X        |                  |           | X                 | X              | X         | X          | X         | X         |            | X           | X        | X          |
| <b>BWI COMPANIES INC.</b>           | <a href="http://www.bwicompanies.com/">http://www.bwicompanies.com/</a>                       |                   | X        | X                | X         | X                 | X              | X         | X          | X         | X         | ?          | X           | X        | X          |
| <b>TARGET SPECIALTY PRODUCTS</b>    | <a href="https://www.target-specialty.com/">https://www.target-specialty.com/</a>             |                   |          | X                | X         | X                 | X              | X         | X          | X         | X         |            | X           | X        | X          |
| <b>NUTRIEN AG SOLUTIONS</b>         | <a href="https://nutrienagsolutions.com/">https://nutrienagsolutions.com/</a>                 |                   | ?        | ?                | ?         | ?                 | ?              | ?         | ?          | ?         | ?         | ?          | ?           | ?        | ?          |

|   |   |                | ACTIVE INGREDIENT |                    |                 |                 |                         |               |                   |              |
|---|---|----------------|-------------------|--------------------|-----------------|-----------------|-------------------------|---------------|-------------------|--------------|
|   |   |                | Product examples  | POTASSIUM CHLORIDE | CHELATED COPPER | CHELATED COPPER | PSUEDOMONAS FLUORESCENS | RHODAMINE DYE | NICLOSAMIDE       | ROTENONE     |
|   |   |                | Muriate of Potash |                    | EarthTec QZ™    | Nautique        | Zequanox®               |               | Bayluscide 70% WP | CFT Legumine |
| <b>ARBORCHEM</b>                          | <a href="https://www.arborchem.com/">https://www.arborchem.com/</a>                           | (717) 766-6661 |                   |                    | X               | X               |                         |               |                   |              |
| <b>INVASIVE SPECIES CORPORATION</b>       | <a href="https://invasivespeciescorporation.com/">https://invasivespeciescorporation.com/</a> | (415) 306-2945 |                   |                    |                 |                 | X                       |               |                   |              |
| <b>DOMYOWN</b>                            | <a href="https://www.domyown.com/">https://www.domyown.com/</a>                               | (866) 581-7378 | X                 |                    |                 | X               |                         |               |                   | X            |
| <b>BWI COMPANIES INC.</b>                 | <a href="http://www.bwicompanies.com/">http://www.bwicompanies.com/</a>                       | (903) 838-8561 | X                 | X                  | X               |                 |                         | X             | X                 | ?            |
| <b>TARGET SPECIALTY PRODUCTS</b>          | <a href="https://www.target-specialty.com/">https://www.target-specialty.com/</a>             | (800) 352-3870 | X                 | X                  | X               |                 |                         |               |                   |              |
| <b>NUTRIEN AG SOLUTIONS</b>               | <a href="https://nutrienagsolutions.com/">https://nutrienagsolutions.com/</a>                 | (970) 685-3300 | X                 | ?                  | ?               | ?               | ?                       | ?             | ?                 | ?            |
| <b>INTREPID POTASH</b>                    | <a href="https://www.intrepidpotash.com">https://www.intrepidpotash.com</a>                   | (800) 451-2888 | X                 |                    |                 |                 |                         |               |                   |              |
| <b>MICHIGAN POTASH &amp; SALT COMPANY</b> | <a href="https://mipotash.com/potash/">https://mipotash.com/potash/</a>                       | (231) 577-9616 | X                 |                    |                 |                 |                         |               |                   |              |
| <b>PARCHEM</b>                            | <a href="https://parchem.com/">https://parchem.com/</a>                                       | (914) 654-6800 | X                 |                    |                 |                 |                         |               |                   |              |

## Appendix F- Chemical Personal Protective Equipment

This table covers those chemicals that might be used for controlling aquatic animals and is for information purposes. Consult the label for your product to determine required personal protective equipment.

| Product                  | Eye   | Hand   | Shoe                                    | Body  | Airway               | For concentrate          |
|--------------------------|---|--|---|---|----------------------|--------------------------|
| <b>Muriate of Potash</b> | Eye protection  | Chemical resistant gloves                          | Appropriate footwear                    | Cotton or cotton/synthetic overalls or coveralls are normally suitable.   | NA                   | NA                       |
| <b>EarthTec QZ™</b>      | Eye/face protection                                   | Chemical resistant gloves                          | NA                                      | Wear long-sleeved shirt, long pants, and shoes plus socks.  | NA                   | NA                       |
| <b>Nautique</b>          | Eye protection  | Chemical resistant gloves                          | Socks under chemical resistant footwear | Coveralls worn over long sleeves and long pants   | NA                   | chemical-resistant apron |
| <b>Zequanox®</b>         | Safety goggles or glasses with side shields advisable | Gloves made of Latex or other impervious material. | NA                                      | Clothing to prevent prolonged skin contact as needed such as long-sleeved shirt, long pants and shoes with socks. | NA                   | NA                       |
| <b>Rhodamine dye</b>     | Eye protection  | appropriate gloves                                 | NA                                      | Appropriate clothes   | NA                   | NA                       |
| <b>Bayluscide 70% WP</b> | NA  | Chemical resistant gloves                          | Socks and shoes                         | Long-sleeve shirt and long pants  | NA                   | NA                       |
| <b>CFT Legumine</b>      | Eye protection  | Chemical-resistant gloves                          | Chemical resistant footwear plus socks  | Coveralls, over long-sleeved shirt and long pants   | Dust/mist respirator | chemical-resistant apron |

## Appendix G- Agreements Information

### Agreement types

Federal entities have several agreement options to facilitate collaboration and resource sharing. Some of the agreement types relevant for this project are:

- Memorandum of Understanding (MOU): MOUs outline the terms of cooperation between federal agencies. They are flexible and can cover a range of collaborative efforts without creating legally binding obligations.
- Memorandum of Agreement (MOA): Similar to MOUs, MOAs are more formal and may include specific commitments and responsibilities. They often serve as a framework for operational collaboration.
- Interagency Agreements (IAAs): These agreements facilitate resource sharing and coordination among federal agencies. They often include cost-sharing arrangements for specific projects or initiatives.
- Intra-Department of the Interior Agreements (IDAs): A subset of inter-agency agreements in which both parties to the agreement are Department of the Interior entities/offices.
- Master Cooperative Wildland Fire Management and Stafford Act Response Agreement: This agreement allows for coordinated responses to wildfires and other emergencies, enabling resource sharing between federal agencies and state entities.
- Emergency Management Assistance Compact (EMAC): The Compact only applies to federally declared emergencies. It enables state-to-state resource sharing. Neither the federal government nor federally-recognized tribes are part of EMAC. (<https://www.emacweb.org/>)
- General Agreements: Formal agreements used primarily for establishing procedures and guidelines for collaboration among federal entities. They do not include funds transfers.
- Cooperative Agreements: Formal federal agreements used to facilitate collaboration between federal agencies and other entities, including state and local governments, non-profit organizations, and educational institutions.

### Existing Agreements

The existing agreements that are most directly relevant to this project are:

- 1) [Columbia River Basin Interagency Invasive Species Response Plan: Zebra Mussels and Other Dreissenid Species](#)
- 2) [Mutual Aid Agreement for Combating Aquatic Invasive Species Threats to the Great Lakes - St. Lawrence River Basin](#)
- 3) [Interagency Memorandum of Understanding \(MOU\) to Support Rapid Response Actions for Invasive Zebra and Quagga Mussels in Western Waters of the United States](#)

These three examples establish the basics of cooperation but do not go into the details about how equipment and other resources would be shared.

## Incident Response Agreements

Although incidents may be large and require extensive resources, they may also be small. One way to organize responses regardless of size and scale is the use of an Incident Command System (ICS)<sup>4</sup>. ICS often includes agreements. Many larger incidents have extensive agreements and materials sharing systems in place. Although those conditions may never apply to EDRR it is worth providing some additional information on how they operate using agreements.

For declared disasters under the Stafford Act, there are Interagency Agreements established to transfer funds between agencies and support cooperation. For incidents not covered by the Stafford Act, agencies must develop their own procedures to efficiently, effectively, and economically manage agreements related to national disaster relief.

Wildfire response provides illustrative information on coordinated federal and nonfederal response efforts. In Hawaii, a "[Master Cooperative Wildland Fire and Stafford Act Agreement](#)" is currently being developed among the state of Hawaii, the U.S. Fish and Wildlife Service (US FWS), and the National Park Service (NPS). Notably, the Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), and U.S. Forest Service (USFS) are not directly involved in this specific agreement. However, resources from USFS, BIA, or BLM can still be mobilized to assist in any incidents within Hawaii due to an overarching [Master Agreement](#) among the five federal land management agencies.

Wildland Fire Management is organized by Geographic Areas, each with coordination bodies that follow established standards. Typically, there is only one Master Cooperative Wildland Fire and Stafford Act Agreement between a state and federal agencies. Washington state is part of the Northwest Interagency Coordination Center ([PNW GA](#)), which manages an Incident Business Page and a warehouse cache stocked with supplies to support multiple responses annually, highlighting the collaborative efforts in effectively managing wildland fire incidents.

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<sup>4</sup> The Incident Command System (ICS) provides a structured framework for any incident, including rapid response to invasive species. It is meant to provide clear roles and enhance coordination among various stakeholders. The system's flexibility allows for the integration of diverse expertise, ensuring that management strategies are tailored to specific species and contexts. Overall, its systematic approach helps streamline efforts to control and mitigate the impacts of invasive species effectively. For more, see [The incident command system: a framework for rapid response to biological invasion | Biological Invasions \(springer.com\)](#)

## Appendix H – Agreement Template

The type of agreement to enable resource sharing and the format of that agreement will be defined by the parties to that agreement. The following sections are meant to provide 1) suggestions on sections to include and 2) useful text for populating those sections. This template is adapted from many different sources but relied heavily on the cooperative agreement between Washington Department of Fish and Wildlife and Vista Recreation covering the “U.S. Army Corps of Engineers Chief Timothy Interpretive Center” and its use for an Aquatic Invasive Species Watercraft Inspection Station.

### Purpose

The purpose of this agreement is to enable resource sharing among entities to facilitate an efficient response when aquatic invasive species are detected.

### PARTNER 1 responsibilities

#### Supplying property

To fulfill PARTNER 1 responsibilities under this agreement, PARTNER 1 loans the following equipment to PARTNER 2 for aquatic invasive species containment and control. Materials and equipment will be supplied in safe and clean proper order.

| Item Description | License Plate # | Serial #     | Property # | Estimated Value |
|------------------|-----------------|--------------|------------|-----------------|
| EXAMPLE TRAILER  | XYZ             | ABCDEFGHIJKL | ABC123     | \$7,000         |

#### Property ownership

PARTNER 1 will maintain ownership of all designated property.

### PARTNER 2 responsibilities

#### Property use

PARTNER 2 will accept the materials and equipment listed above from PARTNER 1 at a time and place mutually agreed upon between PARTNER 1 and PARTNER 2. PARTNER 2 will secure and maintain the materials and equipment in safe and clean proper order at the SITE ONE and use the materials and equipment towards its response to incursions of aquatic invasive species. PARTNER 2 will return the EXAMPLE TRAILER to PARTNER 1 at the SITE ONE within 90 days of borrowing.

PARTNER 2 will follow the Implementation Protocols in **Attachment 1** or as otherwise agreed to by the PARTNERS 1 AND 2.

#### Property management

PARTNER 2 will perform the following actions related to routine maintenance while EXAMPLE TRAILER is in their possession.



- Repairing damages such as tears, worn fittings, broken handles and other normal wear and damage from field work.
- Weekly visual inspections, cleaning, organizing, and performing inspections for damage.
- Reporting observed equipment wear and tear to PARTNER 1.

PARTNER 2 will notify PARTNER 1 of any extensive damages to gear and equipment. PARTNER 2 will convene a meeting with PARTNER 1 to determine actions and costs to address extraordinary maintenance and repairs.

PARTNER 2 will replace gear or equipment that is irreparable due to misuse or mishandling.

PARTNER 2 will purchase consumable materials to replace any consumed.

### **Property use or loss liability**

PARTNER 2 will assume all liability associated with the use or loss of loaned materials and equipment.

### **Compliance**

PARTNER 2 will assume all requirements for compliance with applicable federal, state, or local laws and policies.

### **Period of performance**

The period of performance of this Agreement is from XXX to YYY [*a five year period of performance is recommended*].

### **Changes, Modifications and Amendments**

This Agreement may be changed, modified, or amended by written agreement executed by all parties.

### **Points of Contact**

PARTNER 1:

PARTNER 2:

### **Disputes**

In the event that a dispute arises under this Agreement, it shall be determined by a Dispute Board in the following manner: Each party to this agreement shall appoint one member to the Dispute Board. The members so appointed shall jointly appoint an additional member to the Dispute Board. The Dispute Board shall review the facts, agreement terms and applicable statutes and rules and make a determination of the dispute. The determination of the Dispute Board shall be final and binding on the parties hereto.

### **Legal Authority**

This Agreement is entered into pursuant to and under the authority granted by the laws of the state of XXX [*insert your state, if applicable*] and any applicable federal laws. The provisions of this agreement shall be construed to conform to those laws. In the event of an inconsistency in the terms of this agreement, or between its terms and any applicable statute or rule, the inconsistency shall be resolved by giving precedence in the following order:

- Applicable state and federal statutes and rules;
- The terms and conditions in this agreement; and
- Any other provisions of the agreement, including materials incorporated by reference.

### Independent capacity

The employees or agents of each party who are engaged in the performance of this agreement shall continue to be employees or agents of that party and shall not be considered for any purpose to be employees or agents of the other party.

### Hold harmless

Each party to this agreement will be assigned and assume responsibility for any damages to third parties that are attributable to the negligent acts or omissions of the individual party. The parties agree, to the extent permitted by law, to defend, protect, save, and hold harmless the other parties, its officers, agents, and employees from any and all claims, costs, damages, and expenses suffered due to each party's own actions or those of its agents or employees in the performance of this agreement.

### Severability

If any provision of this agreement or any provision of any document incorporated by reference shall be held invalid, such invalidity shall not affect the other provisions of this agreement, which can be given effect without the invalid provision if such remainder conforms to the requirements of applicable law and the fundamental purpose of this agreement, and to this end the provisions of this agreement are declared to be severable.

### Termination

Either party may terminate this agreement upon 30-days' prior written notification to the other party. If this agreement is so terminated, the parties shall be liable only for performance rendered or costs incurred in accordance with the terms of this agreement prior to the effective date of termination.

### Waiver

A failure by either party to exercise its rights under this agreement shall not preclude that party from subsequent exercise of such rights and shall not constitute a waiver of any other rights under this agreement unless stated to be such in a writing signed by an authorized representative of the party and attached to the original agreement.

### Attachment 1: Implementation Protocols

This section lays out the major steps the user agrees to carry out.

1. Review the Response Plan for your area. To proceed, some of the key information the plan will require:
  - a. Confirmed species identity
  - b. Defined infestation extent
  - c. Understood high risk of spread
  - d. Agreement on high impact species
  - e. Determination that a response is feasible
  - f. Legal authorities permit response

- g. Confirmed property ownership
- 2. Get ready to use the cache, review the basics
  - o What is the goal of response?
  - o Who is responding?
  - o When is the response planned?
  - o Who needs to approve?
  - o Who needs to know?
  - o Will you need power for pumps, printers, laminator, lights etc.?
  - o Will you need water for washing, mixing chemicals, cleaning vehicles, decontamination etc.?
  - o Will you need watercraft?
  - o How many vehicles are needed to collect and transport the cache and to carry out the response safely?
- 2. Create a site safety plan
  - o Map
  - o Emergency Room locations
- 3. Secure the cache
  - o Where is it?
  - o Is it available?
  - o Retrieve the cache
  - o Identify items that the response will need that are not in the cache
  - o Complete the check-out process
- 4. Pre-Use Decontamination
  - o Follow Washington Department of Fish and Wildlife (DFW) guidelines: [Invasive Species Management Protocols \(Version 4\) \(wa.gov\)](#)
- 5. Respond, based on Response Plan and Best Management Practices
- 6. Post-Use Decontamination
  - o Follow DFW guidelines: [Invasive Species Management Protocols \(Version 4\) \(wa.gov\)](#)
- 7. Return/Replenish the cache
  - o Complete the check-in process. This may include:
    - Log of hours used by equipment
    - Description of cleaning and drying process
    - Tagging equipment used
  - o Replace materials consumed in the response
  - o Ensure all material is dry and clean
  - o Dispose of wash water
  - o Dispose of waste