



Massachusetts Department of  
Environmental Protection

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# MassDEP Geographic Response Strategy –2021 Newburyport GRS Exercise

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## After Action Report

May 11, 2021

The After-Action Report/Improvement Plan (AAR/IP) aligns exercise objectives with preparedness doctrine to include the National Preparedness Goal and related frameworks and guidance. Exercise information required for preparedness reporting and trend analysis is included; users are encouraged to add additional sections as needed to support their own organizational needs.

COVID-19 Compliance - This exercise was conducted during the COVID 19 pandemic and all Commonwealth of Massachusetts Executive Orders and associated social distancing, face covering, and indoor and outdoor gathering requirements were strictly adhered to.

## EXERCISE OVERVIEW

<b>Exercise Name</b>	2021 Newburyport GRS Exercise
<b>Exercise Date</b>	May 11, 2021
<b>Scope</b>	This exercise was a Full-Scale Exercise, planned for approximately six hours in Newburyport, MA and upon the waters of the Merrimack River. Exercise play was limited to the Merrimack River in the vicinity of the North End Boat Club and the adjacent shoreline.
<b>Mission Area(s)</b>	Response
<b>Core Capabilities</b>	Environmental Response/Health and Safety, Operational Coordination, Operational Communications.
<b>Objectives</b>	<p>Objective 1: Demonstrate the ability to deploy oil spill equipment from one or more MassDEP pre-positioned oil spill response trailers utilizing common Geographic Response Strategy (GRS) tactics.</p> <p>Objective 2: Demonstrate the ability to assemble a spill response organization utilizing Incident Command System (ICS) principles through execution of an Incident Briefing (ICS 201) and implementation of on-site incident management and tactical operations.</p> <p>Objective 3: Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies including fire departments, police departments, harbormasters, and other state and federal first responders using VHF and UHF communications.</p>
<b>Threat or Hazard</b>	Discharge of oil into a navigable waterway
<b>Scenario</b>	An oil spill has occurred that threatens the Merrimack River and adjacent shoreline throughout Newburyport and Salisbury. The Newbury, Newburyport, Rowley, and Salisbury Fire Departments and Harbormaster staffs will utilize MassDEP GRS tactics to protect sensitive resources along the Newburyport shoreline and the surrounding area.
<b>Sponsor</b>	Massachusetts Department of Environmental Protection (MassDEP).

**Participating Organizations**

Participating organizations included:

- Newbury Fire Department (NFD)
- Newbury Harbormaster (NHM)
- Newburyport Fire Department (NBFD)
- Newburyport Harbormaster (NBHM)
- Rowley Fire Department (RFD)
- Salisbury Fire Department (SFD)
- Salisbury Harbormaster (SHM)
- MassDEP
- Moran Environmental Recovery (MER)\*
- Nuka Research and Planning Group, LLC (Nuka Research)\*

\* - Contractors for MassDEP

Note: See Appendix B for participant count

**Point of Contact**

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Newburyport and Salisbury Firefighters work together to deploy containment boom



Fire Department and Harbormaster personnel receive hands on instruction on how to connect containment boom



Photos courtesy of Nuka Research & Planning Group, LLC



Figure 1. Exercise Tactics Map

## ANALYSIS OF CORE CAPABILITIES

Aligning exercise objectives and core capabilities provides a consistent taxonomy for evaluation that transcends individual exercises to support preparedness reporting and trend analysis. Table 1 includes the exercise objectives, aligned core capabilities, and performance ratings for each core capability as observed during the exercise and determined by the evaluation team. Table 2 includes compiled data from the Exercise Evaluation Guide (EEG) including the organizational capability targets, associated critical tasks, and observations as observed during the exercise and determined by the evaluation team.

Objective	Core Capability	Performed without Challenges (P)	Performed with Some Challenges (S)	Performed with Major Challenges (M)	Unable to be Performed (U)
Demonstrate the ability to deploy oil spill equipment from one or more MassDEP pre-positioned oil spill response trailers utilizing common Geographic Response Strategy (GRS) tactics.	Environmental Response/ Health and Safety		S		
Demonstrate the ability to assemble a spill response organization utilizing Incident Command System (ICS) principles through execution of an Incident Briefing (ICS 201) and implementation of on-site incident management and tactical operations.	Operational Coordination	P			
Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies including fire, police and harbormaster departments using VHF and UHF communications	Operational Communications		S		
<p><b>Ratings Definitions:</b></p> <ul style="list-style-type: none"> <li>• Performed without Challenges (P): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws.</li> <li>• Performed with Some Challenges (S): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws. However, opportunities to enhance effectiveness and/or efficiency were identified.</li> <li>• Performed with Major Challenges (M): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s), but some or all of the following were observed: demonstrated performance had a negative impact on the performance of other activities; contributed to additional health and/or safety risks for the public or for emergency workers; and/or was not conducted in accordance with applicable plans, policies, procedures, regulations, and laws.</li> <li>• Unable to be Performed (U): The targets and critical tasks associated with the core capability were not performed in a manner that achieved the objective(s).</li> </ul>					

**Table 1. Summary of Core Capability Performance**

Core Capability	Organizational Capability Target	Associated Critical Tasks	Observation Notes
<b>Environmental Response/ Health and Safety</b>	<b>Overview of Response Equipment</b>	<ul style="list-style-type: none"> <li>Access Mass DEP Trailer</li> <li>Identify boom and sorbents</li> <li>Connect boom together</li> <li>Connect towing bridle to boom</li> <li>Connect components of anchor system together</li> </ul>	<ul style="list-style-type: none"> <li><b>Performed With Some Challenges (S)</b></li> <li>All equipment was readily available in both trailers.</li> <li>Participation during hands-on training at multiple stations was excellent.</li> <li>Bridle was not properly connected to anchor line (no pins were used), so the boat crew was forced to tie the anchor line directly to the boom.</li> </ul>
	<b>Basic Booming Operations</b>	<ul style="list-style-type: none"> <li>Transport and tow boom</li> <li>Anchoring and Connecting boom to shore</li> <li>Safe vessel and crew operations. (Refer to ICS-208)</li> </ul>	<ul style="list-style-type: none"> <li><b>Performed Without Challenges (P)</b></li> <li>Boom was safely deployed.</li> <li>All shore and vessel crews took care to watch for one another's safety.</li> <li>Shoreside anchoring system was well-done.</li> </ul>
	<b>Implement Tactics in GRS</b>	<ul style="list-style-type: none"> <li>Deploy diversion boom (DV) cascade array</li> </ul>	<ul style="list-style-type: none"> <li><b>Performed With Some Challenges (S)</b></li> <li>The overall deployment was difficult for all vessels due to the generally strong current (ebbing during the deployment) present along this section of the Merrimack River, as well as the fresh west/northwesterly breeze.</li> <li>The second 400' leg of boom was deployed on the wrong side of the first (shoreward) boom segment. This was a command decision based upon both space and safety concerns as it was noted that the presence and position of the floating dock complexes at the North End Boat Club would interfere with the safe deployment of the seaward boom leg and associated anchors.</li> </ul>
<b>Operational Coordination</b>	<b>Create and Execute an Assignment List (ICS 201)</b>	<ul style="list-style-type: none"> <li>Assignments in ICS 201 are followed and on-scene adjustments were made</li> <li>Participants demonstrate command and control of exercise</li> </ul>	<ul style="list-style-type: none"> <li><b>Performed Without Challenges (P)</b></li> <li>The IC outlined an intended operations plan and personnel assignments were made for shoreside and vessel teams. Of particular note was the fact that the Incident Commander (IC) clearly prepared for this exercise by pre-assigning an Operations Chief to directly oversee deployment activities while he maintained overall operational control and coordination and ensured the exercise objectives were met.</li> </ul>
<b>Operational Communications</b>	<b>Effectively Communicate Using VHF equipment</b>	<ul style="list-style-type: none"> <li>Create Communications Plan</li> <li>Communicate with other participants using organic VHF equipment</li> </ul>	<ul style="list-style-type: none"> <li><b>Performed With Some Challenges (S)</b></li> <li>The established communications plan was followed using VHF radio, as well as voice communications. It was noted during the exercise that the Salisbury Harbormaster vessel was only able to receive radio transmissions, not send, resulting in a one-sided communications scenario. The teams improvised with hand signals and relayed messages from shore to other vessels, but this resulted in a lag in communications and some confusion with directives from shoreside command.</li> <li>During the deployment, communication and instruction to shoreside and on-water strike teams originated from both the Operations Chief and the</li> </ul>

Core Capability	Organizational Capability Target	Associated Critical Tasks	Observation Notes
			<p>Harbormaster, instructing individual crews on what tasks to complete. Aside from the hardware-based communications issue mentioned above, this arrangement worked well and highlighted the fact the close working relationship between these first responders</p>

Table 2. Summary of Organizational Capability Targets and Associated Critical Tasks

The following sections provide an overview of the performance related to each exercise objective and associated core capability, highlighting strengths and areas for improvement.

## **Objective 1: Demonstrate the ability to deploy oil spill equipment from one or more MassDEP pre-positioned oil spill response trailers utilizing common Geographic Response Plan (GRS) tactics.**

The strengths and areas for improvement for each core capability aligned to this objective are described in this section.

### **Core Capability 1: Environmental Response/Health and Safety**

#### **Strengths**

The full capability level can be attributed to the following strengths:

**Strength 1:** Participation and coordination by the seven departments was excellent and all worked well together, especially for such a large group.

**Strength 2:** Participants were engaged during hands-on training and asked pertinent questions.

**Strength 3:** Shoreside Anchoring Strike Team applied skills taught during shoreside anchoring hands-on training and installed very secure double rebar anchor point for the 400' shoreside boom segment.

#### **Areas for Improvement**

The following areas require improvement to achieve the full capability level:

##### **Area for Improvement 1:** Bridle/Boom Connection

**Reference:** Massachusetts Geographic Response Plan Tactics Guide (April 2012 version)

**Analysis:** During deployment of the boom, one of the vessel teams noted that a bridle was connected to the boom but was not secured in place with pins, causing it to slide out of place. The vessel team did not have pins, so they improvised by securing the anchor line directly to the boom. For the purposes of this exercise, this improvisation worked. However, in a real scenario where the boom may be deployed for an extended period and subject to tide and wind, a bridle would need to be installed correctly to reduce the likelihood of boom failure and/or damage.

##### **Area for Improvement 2:** Boom Configuration

**Reference:** MassDEP Geographic Response Strategies-2021 Newburyport GRS Exercise/Newburyport, MA (May 11, 2021)

**Analysis:** Once the first boom leg (anchored to shore) was deployed, the Operations Chief made the decision to deploy the second boom leg on the downstream side vs the upstream side because there was concern that the presence and position of the floating dock complexes at the North End Boat Club would interfere with the safe deployment of the seaward boom leg and associated anchors. Because the cascade diversion strategy was not deployed correctly, testing the strategy could not be completed. However, the deployment in general did afford vessel crews the



opportunity to safely tow, position, and deploy boom and marine anchor systems, validating the skills required by the GRS. River conditions including generally strong current and a moderate breeze on the day of the exercise also contributed to a difficult deployment for all participating vessels. Brief discussions between MassDEP, MER, and Nuka Research took place immediately following the exercise centered on the need to re-evaluate the NS-01 and NS-02 GRS and consider modifying all or some of the tactics/strategies due to the prevailing strong tidal and river current in this section of the Merrimack River.

## **Objective 2: Demonstrate the ability to assemble a spill response organization utilizing Incident Command System (ICS) principles through development and execution of an Incident Briefing (ICS 201) and implementation of on-site incident management and tactical operations.**

The strengths and areas for improvement for each core capability aligned to this objective are described in this section.

### **Core Capability 2: Operational Coordination**

#### **Strengths**

The full capability level can be attributed to the following strengths:

**Strength 1:** The IC clearly prepared for this exercise by pre-assigning an Operations Chief (Ops Chief) to directly oversee deployment activities while he maintained overall operational control and coordination and ensured the exercise objectives were met. Additionally, both the Ops Chief and the Harbormaster communicated with shoreside and on-water strike teams during the evolution, instructing individual crews on what tasks to complete. Aside from the hardware-based communications issue mentioned above, this arrangement worked well and highlighted the close working relationship between these first responders. The IC, Ops Chief, and Harbormaster effectively coordinated the participants from all seven different departments.

#### **Areas for Improvement**

The following areas require improvement to achieve the full capability level:

**Area for Improvement 1:** N/A

**Reference:** N/A

**Analysis:** N/A

## **Objective 3: Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies including fire departments, police departments, harbormasters, and other state and federal first responders using VHF communications.**

The strengths and areas for improvement for each core capability aligned to this objective are described in this section.

## Core Capability 3: Operational Communications

### Strengths

The full capability level can be attributed to the following strengths:

**Strength 1:** While there was a hardware-based communications issue encountered (noted below), the command staff and shoreside strike teams improvised with hand signals and relayed messages from shore to other vessels to complete certain tasks.

### Areas for Improvement

The following areas require improvement to achieve the full capability level:

**Area for Improvement 1:** VHF Radio Communications

**Reference:** Exercise Plan/ICS 201

**Analysis:** Once vessels were deployed it was discovered that the Salisbury Harbormaster vessel, operated by Salisbury Fire Department personnel, was only able to receive radio transmissions, not send, resulting in one-sided communications. Crews improvised with hand signals and by using other boats as messengers. During an actual emergency, replacement of the vessel may be required until these specific communication hardware issues are resolved/repared, especially during night operations when visual/hand signals cannot be used.

Peat Moss is used as an oil surrogate to test the efficacy of the modified booming tactic on the Merrimack River in Newburyport, MA



The shoreside deployment team passes a heaving line to the towing boat.



“Textbook” double rebar shoreside anchor point was installed by the shoreside anchor team.



Photos courtesy of Nuka Research & Planning Group, LLC

## APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for the towns of Newbury, Newburyport, Rowley, and Salisbury, MA following the MassDEP GRS Exercise conducted on May 11, 2021.

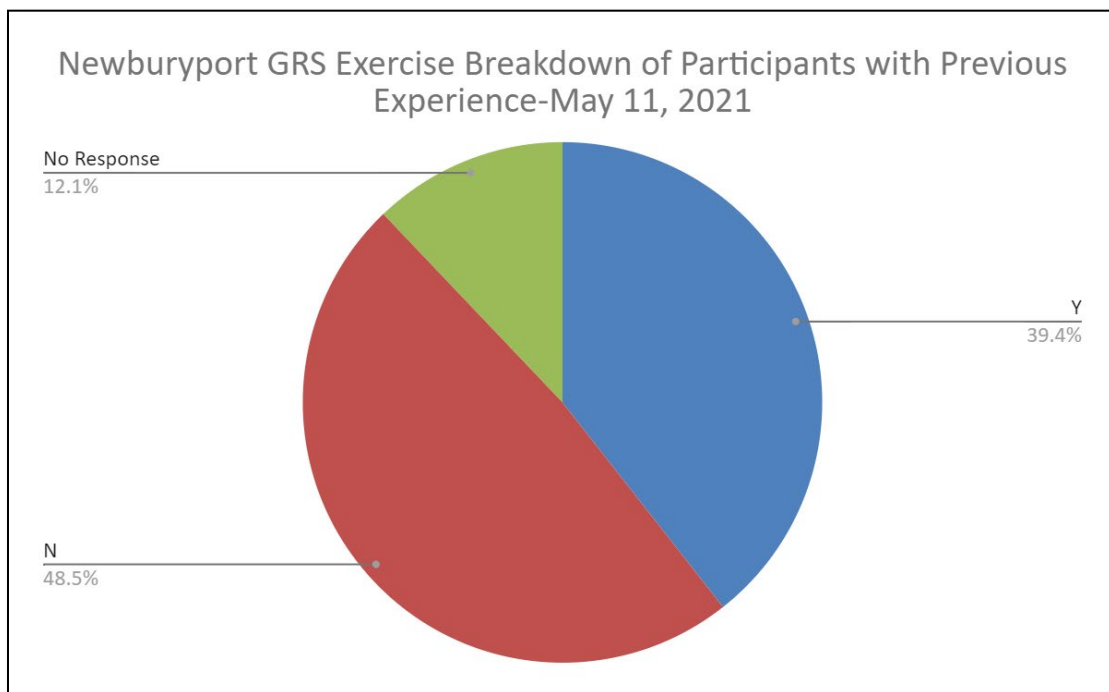
Core Capability	Issue/Area for Improvement	Corrective Action	Capability Element <sup>1</sup>	Primary Responsible Organization	Organization POC	Start Date	Completion Date
Core Capability 1: Environmental Response/Health & Safety	Boom Deployment/Configuration	Review/Re-evaluate overall GRS tactics/strategies	Planning	MassDEP, Nuka Research, MER	Mike Popovich	06/01/2021	12/31/2021
Core Capability 2: Operational Coordination	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Core Capability 3: Operational Communications	N/A	N/A	N/A	N/A	N/A	N/A	N/A

\*NOTE: These types of deployment issues can also be minimized by increasing the frequency of first responder training and/or encouraging each town to conduct their own stand-alone training and drills to improve and maintain proficiency. MassDEP will consider these options as this exercise, testing, and training program evolves.

<sup>1</sup> Capability Elements are: Planning, Organization, Equipment, Training, or Exercise.

## APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations	
Town of Newburyport, MA	Participant Count
Newburyport Fire Department	13
Newburyport Harbormaster	4
Town of Newbury, MA	
Newbury Fire Department	4
Newbury Harbormaster	1
Town of Rowley, MA	
Rowley Fire Department	4
Town of Salisbury, MA	
Salisbury Fire Department	6
<b>TOWN PARTICIPANTS</b>	<b>32</b>
Federal	
United States Coast Guard	0
State	
Massachusetts Department of Environmental Protection (MassDEP)	1
Nuka Research and Planning Group, LLC (contractor for MassDEP)	4
Moran Environmental Recovery (contractor for MassDEP)	2
<b>TOTAL</b>	<b>39</b>



## APPENDIX C: EXERCISE EVALUATION FORM



### MassDEP Geographic Response Plan (GRP) Exercise and Testing Program

#### Participant Feedback Form

<b>1</b> Strongly disagree	<b>2</b> Mildly disagree	<b>3</b> Neutral	<b>4</b> Mildly agree	<b>5</b> Strongly agree
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Please use the above rating scale to answer the questions for each of the following topics.

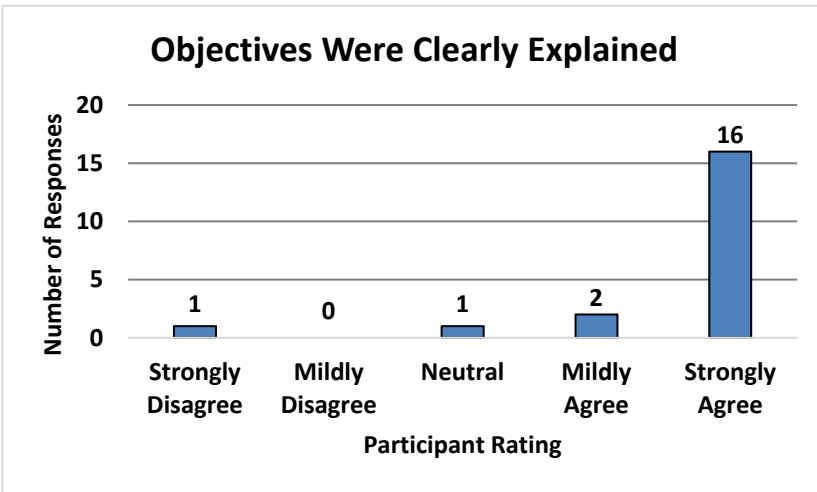
<b>The objectives were clearly explained and the exercise met those objectives.</b>	<b>1   2   3   4   5</b>
<b>Comments:</b>	
<b>The material appropriately challenged me and the pace of instruction was correct.</b>	<b>1   2   3   4   5</b>
<b>Comments:</b>	
<b>The instructor(s) did an excellent job.</b>	<b>1   2   3   4   5</b>
<b>Comments:</b>	
<b>I found the classroom to be a comfortable learning environment.</b>	<b>1   2   3   4   5</b>
<b>Comments:</b>	
<b>I feel more prepared to respond to an oil spill than I did before this exercise.</b>	<b>1   2   3   4   5</b>
<b>Comments:</b>	
<b>The best thing about this training was _____.</b>	
<b>This training could have been improved by _____.</b>	

Please use the back of the sheet if you need more room for comments.

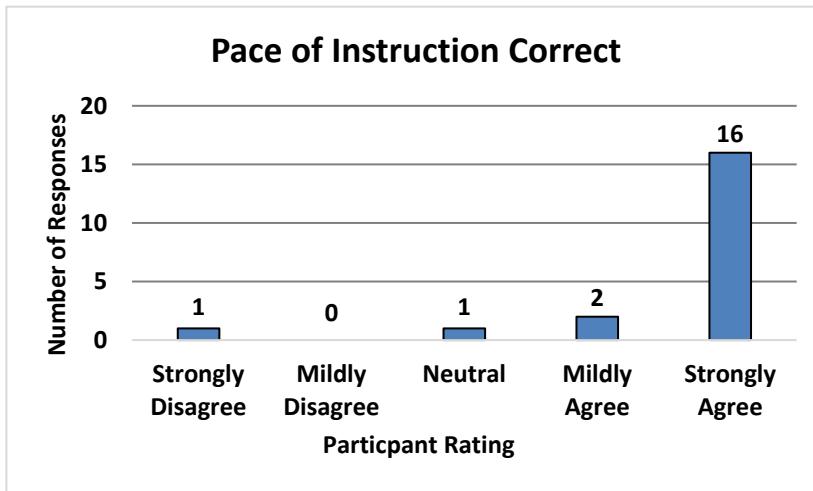
(Rev 2016)



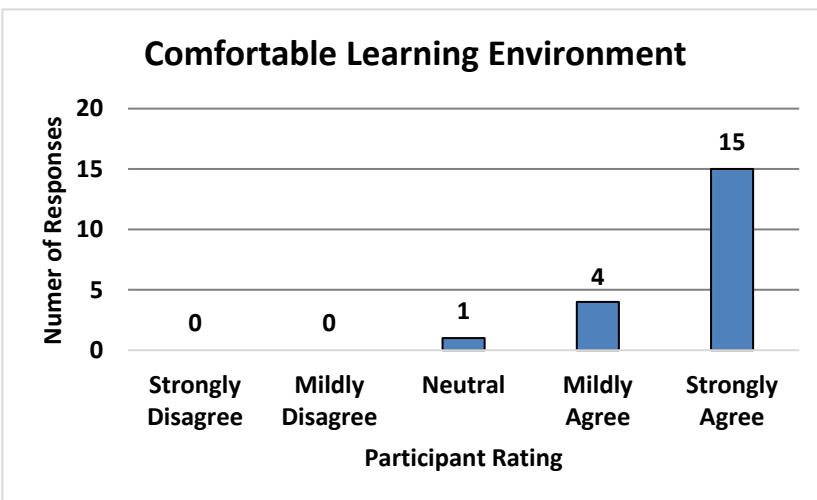
## STUDENT FEEDBACK SUMMARY



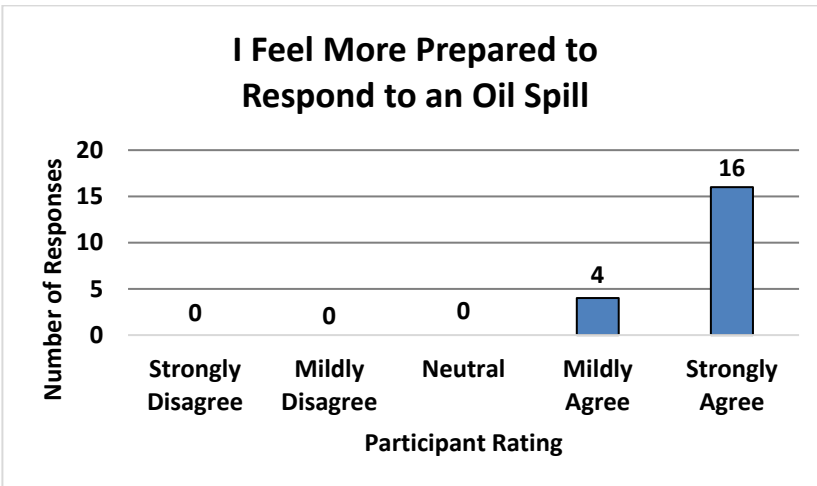
Comments: None



Comments: None

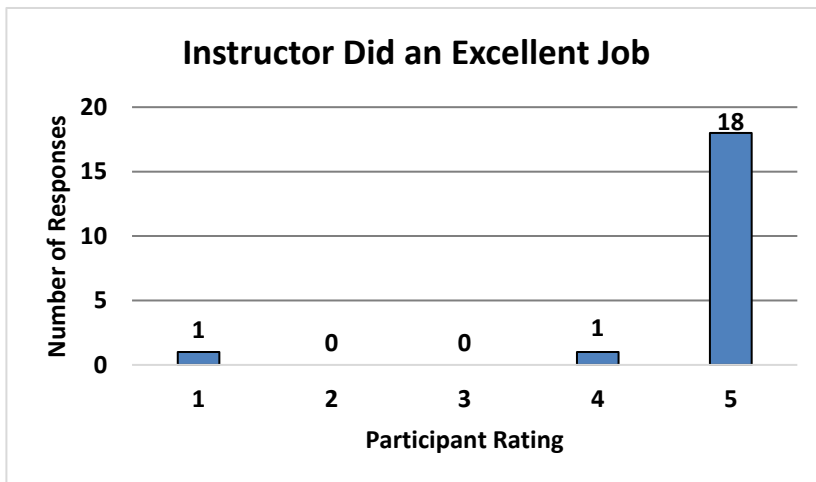


Comments: None



Comments: "Hands on was 100% useful,"

Comments: None



**The best thing about this training was...** "hands on," "hands on practical," "boat life," "being on the water," "actually deploying the boom," "instructor,"

**This training could be improved by...** "less classroom, more training," "more hands-on boom deployment," "radio transmissions to boats could be clearer," "These trailers should be set up with some type of quick connections to connect the lines to the anchors. In an emergency situation playing with knots is a waste of time and recipe for failure.