



# MassDEP Geographic Response Strategy - 2022 Chel/Ev/Win First Responder Exercise – Winthrop, MA

## After-Action Report/Improvement Plan

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October 13, 2022

The After-Action Report/Improvement Plan (AAR/IP) aligns exercise objectives with preparedness doctrine 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.

## EXERCISE OVERVIEW

<b>Exercise Name</b>	2022 Chelsea/Everett/Winthrop First Responder Exercise
<b>Exercise Dates</b>	October 13, 2022
<b>Scope</b>	This is a full-scale first responder exercise, planned for approximately 6 hours in Winthrop Basin. First responder exercises include the same elements of a GRS exercise but focus broadly on deploying boom and testing common tactics instead of deploying a specific GRS tactic. Exercise play is limited to Winthrop Basin in the vicinity of Winthrop Town Landing and the adjacent shorelines.
<b>Mission Area(s)</b>	Response
<b>Capabilities</b>	Planning, 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 development and 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, harbor masters, and other state and federal first responders using UHF and/or VHF communications.</p>
<b>Threat/Hazard</b>	Discharge of oil into a navigable waterway
<b>Scenario</b>	An oil spill has occurred that threatens the area around Winthrop Basin. The Chelsea, Everett, and Winthrop Fire Departments and Harbor Masters will utilize various common Geographic Response Strategy (GRS) tactics to protect sensitive resources in Winthrop Basin and the surrounding area.
<b>Sponsor</b>	Massachusetts Department of Environmental Protection
<b>Participating Organizations</b>	See Appendix A: Exercise Participants
<b>Point of Contact</b>	<p>Julie Hutcheson, Program Coordinator Massachusetts Department of Environmental Protection Oil Spill Prevention and Response Program 100 Cambridge St. Boston, MA 02114 (617) 366-7424 <a href="mailto:julie.hutcheson@mass.gov">julie.hutcheson@mass.gov</a></p>

Participants practice setting up marine anchor systems



Participants practice connecting boom sections



Photos courtesy of Nuka Research

Participants practice tossing heaving line



Participants undergo instruction in setting up a shoreside anchor system



Photos courtesy of Nuka Research



Figure 1. Exercise Tactics Map

## ANALYSIS OF CAPABILITIES

Aligning exercise objectives and 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 capabilities, and performance ratings for each capability as observed during the exercise and determined by the evaluation team.

Objective	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	P			
<p>Ratings Definitions:</p> <p><b>Performed without Challenges (P):</b> 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.</p> <p><b>Performed with Some Challenges (S):</b> 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.</p> <p><b>Performed with Major Challenges (M):</b> 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.</p> <p><b>Unable to be Performed (U):</b> The targets and critical tasks associated with the core capability were not performed in a manner that achieved the objective(s).</p>					

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

Core Capability	Organizational Capability Target	Associated Critical Tasks	Exercise Observations
<p><b>Environmental Response/ Health and Safety</b></p>	<p><b>Overview of Response Equipment</b></p>	<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>• Both trailers were accessible and contained all the appropriate equipment</li> <li>• Participants were attentive and engaged during trailer overview sessions</li> <li>• Participants connected boom sections, towing bridle to boom, and all components of anchor systems</li> </ul>
	<p><b>Basic Booming Operations</b></p>	<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>• During deployment of the cascading diversion boom strategy, the shoreside strike team prepared approximately 30 ft of anchor line, attached the line and towing bridle to the eastern end of 200 ft of diversion boom and connected the western end to a shoreside anchor system on the southern side of the boat ramp</li> <li>• Participants loaded marine anchors, anchor line, and towing bridle from the boat ramp onto Winthrop FD Marine 2 for transport to Winthrop HM Marine 4. Marine 4 secured anchor line to the bow cleat, reverse towed diversion boom, then set eastern marine anchor</li> <li>• Participants tossed a heaving line from the boat ramp to Winthrop FD Marine 1. To counter strong wind/current conditions, Marine 1 secured both ends of the second section (200 ft) of diversion boom to a bow cleat, and reverse towed boom into mooring field</li> <li>• Anchor line from second diversion boom array became fouled around mooring buoy while in tow. FD Marine 2 assisted with releasing anchor line from mooring buoy</li> <li>• Marine 1 towed second diversion boom array to the south of the first boom array and dropped both the western and then the eastern marine anchors, successfully completing a cascading diversion tactic</li> </ul>
	<p><b>Implement Boom Tactics</b></p>	<ul style="list-style-type: none"> <li>• Deploy diversion boom (DV) to divert oil away from docks and shoreline</li> <li>• Deploy containment around a vessel at a mooring</li> <li>• Deploy containment around a vessel at a dock</li> </ul>	<ul style="list-style-type: none"> <li>• Command Staff arranged for Marine 4 to reposition eastern anchor of northern boom array to create a straighter diversion tactic</li> <li>• Winthrop FD Marine 1 repositioned this anchor a second time to avoid it getting wrapped around a nearby “no wake” buoy</li> </ul>

Core Capability	Organizational Capability Target	Associated Critical Tasks	Exercise Observations
		<ul style="list-style-type: none"> <li>Deploy culvert block tactics</li> </ul>	<ul style="list-style-type: none"> <li>After multiple changes to the placement of anchors on the northern boom array, participants successfully deployed a cascading diversion tactic as depicted in Figure 1, but based on wind conditions, boom shifted and became located adjacent to the boat ramp</li> <li>Due to time constraints, containment booming arrays and culvert blocking tactics were not deployed or tested</li> </ul>
<p><b>Operational Coordination</b></p>	<p><b>Create and Execute an Assignment List (ICS 201)</b></p>	<ul style="list-style-type: none"> <li>Fill out ICS 201</li> <li>Assignments in ICS 201 are followed, and on-scene adjustments made as necessary</li> <li>Participants demonstrate command and control of exercise</li> </ul>	<ul style="list-style-type: none"> <li>The Incident Commander (IC), Safety Officer (SO), and Communications Officer (CO) worked well together, assigning personnel to the appropriate strike teams, overseeing the entire deployment, and adjusting the deployment plan based on on-scene conditions.</li> </ul>
<p><b>Operational Communications</b></p>	<p><b>Effectively Communicate Using VHF equipment</b></p>	<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>The CO established a communications plan and briefed participants on the appropriate radio channels (UHF central Ground Fire and VHF Marine 17) prior to on-water deployment</li> <li>Winthrop HM Marine 4 initially did not have access to VHF Marine 17. The CO provided the crew with a radio that had Marine 17 operability</li> <li>Command Staff displayed effective coordination with on-water and shoreside strike teams, effectively communicated each team's role in the exercise, and coordinated all deployment activity</li> <li>Radios were used with no issues</li> </ul>

**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 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 Strategy (GRS) tactics

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

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

#### Strengths

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

**Strength 1:** Participants were attentive during the classroom and hands-on training sessions, asking informed questions throughout and providing immediate feedback.

**Strength 2:** Vessel crews coordinated efforts to maximize the use of on-water resources available when local obstructions presented challenges to effectively carrying out the cascading diversion tactic.

**Strength 3:** Participants monitored on-water conditions throughout the duration of the exercise and adequately adjusted multiple marine anchors to maximize the effectiveness of the cascade diversion tactic.

#### Areas for Improvement

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

**Area for Improvement 1:** Participants needed to revise boom towing strategies prior to engaging in towing operations to properly adjust to and avoid local obstructions (i.e., mooring field)

**Reference:** MA Geographic Response Plan Tactics Guide

**Analysis:** Command Staff and vessel strike teams decided to initially tow the second section of diversion boom into a nearby mooring field to account for the likelihood that current would carry the boom further north from there, with the intent of avoiding the extra effort of directing the boom towards the location of the diversion tactic. While this was a good idea in theory, participants quickly learned of the challenges related to towing boom through a mooring field. Shortly after towing operations began, the boom anchor line became fouled in a nearby mooring buoy, forcing participants to pause towing operations until a support vessel could assist with untangling the line from the buoy. While vessel crews acted quickly in maximizing the use of support vessels to assist with resuming towing operations, this extra effort could have been avoided. For future exercises or actual deployment during an incident, vessel crews should designate personnel to monitor boom while it is in tow or, ideally, assign another support vessel to tend the boom while under tow and assist with issues if/when they arise. Boom monitoring personnel can then alert vessel operators before problems arise, enabling crews to adjust their towing strategies accordingly to avoid potential issues.

## 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

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



## Capability 2: Operational Coordination

### Strengths

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

**Strength 1:** Command Staff collaborated with vessel strike teams to appropriately assign on-water roles for vessel resources dependent on each vessel's capabilities (i.e., smaller vessels assist with anchor placement and operating close to shore, larger vessels tow boom, etc.).

**Strength 2:** All vessel and shoreside strike teams worked well together, independently coordinating on-water activity and actively providing instruction as needed to less experienced vessel operators.

**Strength 3:** Command Staff adequately identified the roles and responsibilities of all on-scene personnel to ensure participants were actively engaged in exercise operations.

### Objective 3: Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies including fire, police and harbor master departments using VHF and UHF communications

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

## Capability 3: Operational Communications

### Strengths

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

**Strength 1:** A Communications Officer (CO) was assigned, and a communications strategy was developed and distributed prior to exercise start, ensuring all participants were on the same page.

**Strength 2:** Participants utilized radios adequately to communicate deployment tactics and adjustments.

**Strength 3:** Command Staff utilized the safety and operations brief to adequately communicate exercise tactics prior to deployment.

Participants prepare boom for towing to the deployment site



Participants from the shore-side strike team toss heaving line to the boom towing vessel



Vessel crews reposition marine anchors on the southern boom section to avoid entanglement in a "No Wake" buoy



Vessel crews deploy oil surrogate to test the effectiveness of the cascade diversion array



Photos courtesy of Nuka Research

## APPENDIX A: IMPROVEMENT PLAN

The Improvement Plan lists each area for improvement observed during exercise conduct and identifies the measurable corrective actions that can be taken to strengthen each associated capability. The purpose of an Improvement Plan is to help shape each organization’s preparedness priorities and support continuous improvement. As shown in the table below, each area for improvement is accompanied by a corrective action and the most relative capability element. The table also lists each corrective action’s primary responsible organization and POC. The primary responsible organization and POC provide the oversight to ensure each corrective action is initiated by the start date and completed by the completion date listed in the table.

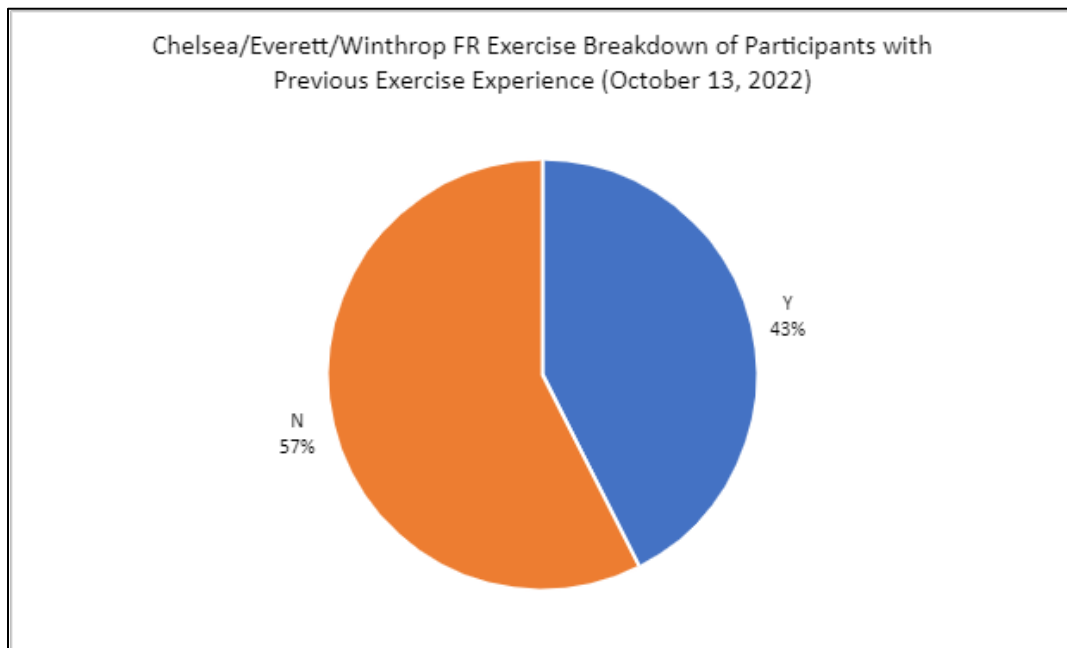
Capability	Issue/Area for Improvement	Corrective Action	Capability Element <sup>1</sup>	Primary Responsible Organization	Organization POC	Start Date	Completion Date
Capability 1: Environmental Response/Health and Safety	Participants needed to revise boom towing strategies prior to engaging in towing operations to properly adjust to and avoid local obstructions (i.e., mooring field)	During future exercises, exercise controllers will direct participants to designate personnel to monitor boom while it is in tow or assign another support vessel to tend the boom and assist with issues if/when they arise	Organization and Leadership	Nuka Research	M. Popovich	Spring 2023	Spring 2023

This IP is developed specifically for MassDEP, MER, Nuka Research and Chelsea, Everett, and Winthrop as a result of the 2022 Chelsea/Everett/Winthrop FR Exercise conducted on October 13, 2022.

<sup>1</sup> Capability Elements are: Planning, Organization and Leadership, Personnel, Equipment and Systems, Training, or Exercise

## APPENDIX B: PARTICIPANTS & RESOURCES

Participating Organizations	
City of Chelsea, MA	Participant Count
Chelsea Fire Department	12
Chelsea OEM	1
City of Everett, MA	
Everett Fire Department	9
City of Winthrop, MA	
Winthrop Fire Department	13
Winthrop Harbormaster	5
State	
Moran Environmental Recovery (MER) *	2
Nuka Research and Planning Group, LLC (Nuka Research) *	3
Massachusetts Water Resource Authority	5
Federal	
United States Coast Guard	2
<b>TOTAL</b>	<b>52</b>



List of Resources			
Agency	Resource	Kind	Exercise Function
Winthrop FD	Safeboat/27'	Marine 1	Boom Tow
Winthrop FD	Whaler/13'	Marine 2	Support
Winthrop HM	Alumacraft/25'	Marine 4	Boom Tow
Winthrop HM	Metal Shark/25'	Marine 2	Safety
Winthrop	Oil spill response trailer		Equipment Demo
Everett	Oil spill response trailer		Boom deployment

## APPENDIX C: PARTICIPANT FEEDBACK

Participant feedback was solicited from the group using the combination of online and paper feedback forms. Participants were asked to rate each question using the scale listed below:

- 1 = Strongly Disagree
- 2 = Mildly Disagree
- 3 = Neutral
- 4 = Mildly Agree
- 5 = Strongly Agree

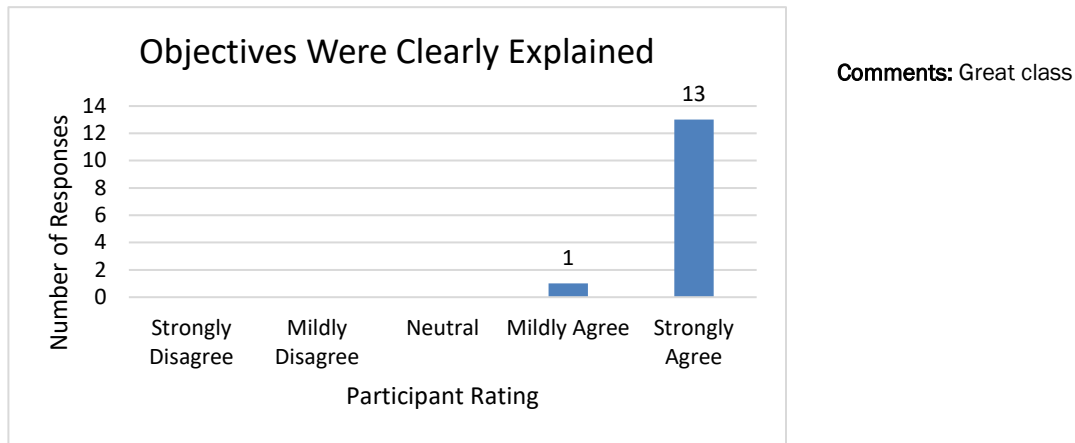
Participant feedback questions included the following:

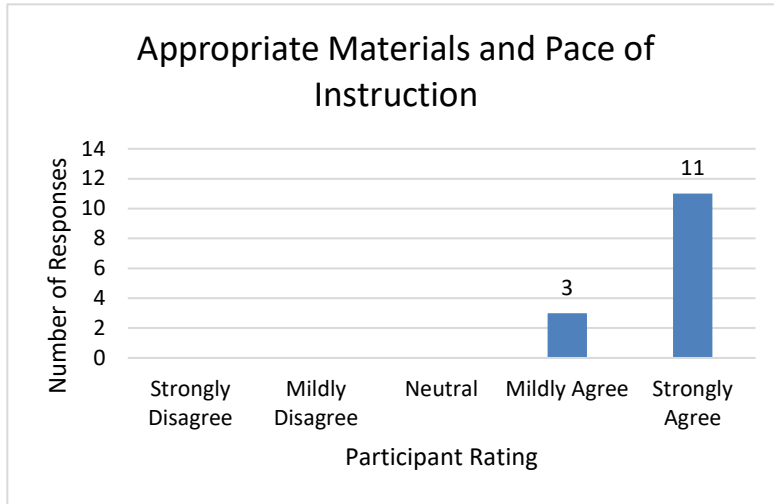
- The objectives were clearly explained, and the exercise met those objectives
- The material appropriately challenged me, and the pace of instruction was correct
- The instructor(s) did an excellent job
- I found the classroom to be a comfortable learning environment
- I feel more prepared to respond to an oil spill than I did before this exercise

After each question above is ranked, participants are then asked to provide their open text responses to identify both the best thing about the training and any suggested improvements. A summary of this exercise’s participant feedback is listed on the succeeding pages.

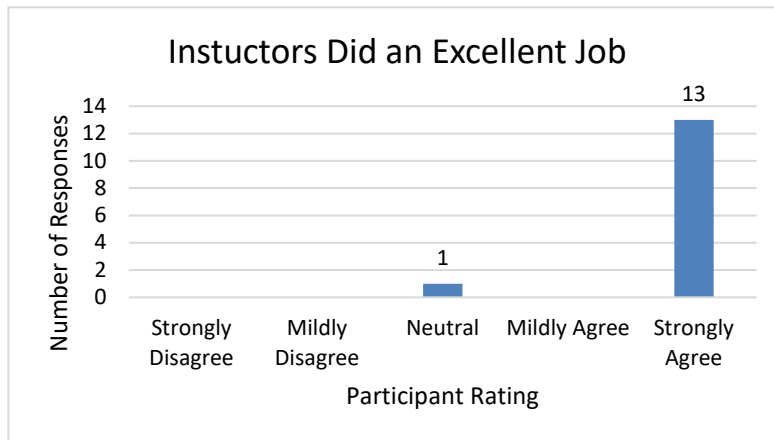
### Participant Feedback Summary

The following feedback was received from 14 of the 52 participants.

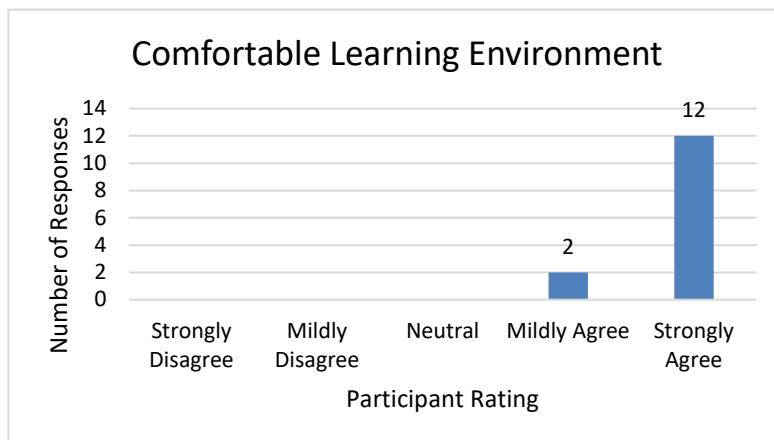




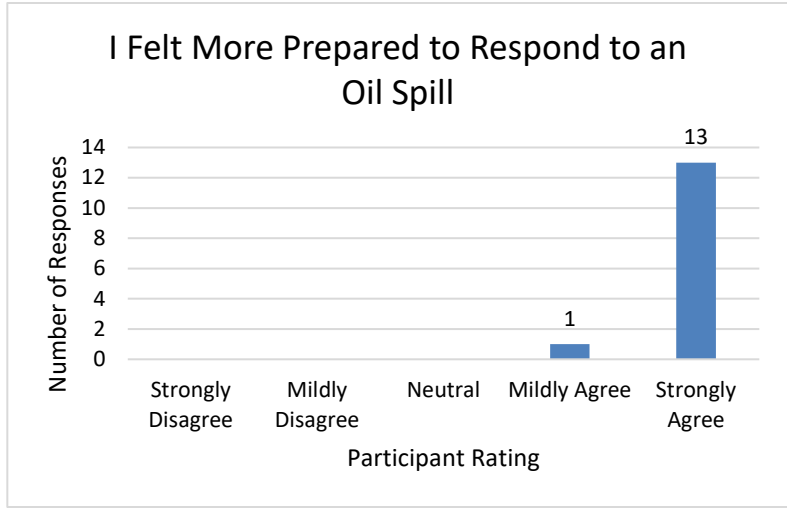
Comments: None



Comments: None



Comments: None



Comments: None

The best thing about this training was...	This training could be improved by...
The hands-on experience	More boat-to-boat communication
Learning different knots	
Interagency training and working with other departments	
The evolutionary aspect of the training	
The opportunity to deploy resources	
Learning general oil spill response tactics	