



Massachusetts Department of  
Environmental Protection

# MassDEP Geographic Response Strategy - 2022 Martha's Vineyard West First Responder Exercise – Chilmark, MA

## After-Action Report/Improvement Plan

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October 18, 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 Martha's Vineyard West First Responder Exercise
<b>Exercise Dates</b>	October 18, 2022
<b>Scope</b>	This is a full-scale exercise, planned for approximately 6 hours with classroom instruction held at U.S. Coast Guard Station Menemsha, and the exercise held in at the Menemsha Basin Pier in Chilmark. 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 Menemsha Pond, Chilmark, 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 in Vineyard Sound that threatens Menemsha Pond and the surrounding areas. The Chilmark and West Tisbury Fire Departments and Harbor Masters, as well as personnel from the Wampanoag Tribe's Natural Resource Dept. will utilize various common Geographic Response Strategy (GRS) tactics to protect sensitive resources in Menemsha Pond 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 undergo classroom instruction prior to the field exercise



Participants practice setting up marine anchor systems



Photos courtesy of Nuka Research

Participants practice connecting boom sections



Participants practice tossing heaving line



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		S		
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>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>• All trailers were accessible and contained the appropriate equipment</li> <li>• Participants were attentive and engaged during classroom and 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>• Chilmark FD personnel transited across the creek and prepared a shoreside anchor system on the land to the north of the opening to Menemsha Basin West</li> <li>• Pier side strike team loaded marine anchors from the pier onto the Chilmark HM vessel and Chilmark SF vessel</li> <li>• W. Tisbury FD unloaded 200 ft of diversion boom from Chilmark's trailer and connected a towing bridle to one end of boom, then used an anchor line and a figure eight knot to tie the other end of boom to a piling on the western side of the pier</li> <li>• W. Tisbury FD personnel assisted by loading anchor line and a towing bridle onto the Chilmark HM vessel</li> <li>• Chilmark HM vessel tied line to stern cleat, towed diversion boom to the middle of the creek, repositioned the anchor line to the bow cleat, then reverse towed boom further north through the creek to set the boom further away from the pier, and dropped the first marine anchor</li> </ul>
	<p><b>Implement Boom Tactics</b></p>	<ul style="list-style-type: none"> <li>• Deploy diversion boom (DV) at Menemsha Pond creek</li> </ul>	<ul style="list-style-type: none"> <li>• Pier side strike team notified on-water vessels of a twist in the section of boom nearest the pier piling, which was then adjusted by the Chilmark HM vessel</li> <li>• Shoreside strike team prepared anchor line and 200 ft of the second array of the cascading diversion boom for tow and loaded anchor line and towing bridle onto Chilmark HM vessel from the pier</li> <li>• Chilmark HM vessel tied the anchor line to a stern cleat and towed boom north through creek, but the towing bridle on the side of the boom closest to the pier became tangled</li> </ul>

Core Capability	Organizational Capability Target	Associated Critical Tasks	Exercise Observations
			<p>in the line that was used to tie the first diversion boom array to the pier</p> <ul style="list-style-type: none"> <li>• Chilmark SF vessel transited across the creek to the pier to assist with untangling the second section of boom, then Chilmark HM vessel continued towing boom further north through the creek</li> <li>• With both ends of the second section of boom under tow, the Chilmark HM and SF vessels worked together to position the second cascading diversion boom array to the west of the first boom array</li> <li>• Chilmark SF vessel transited to the opposite end of the creek near the shoreside anchor and handed one end of boom off to the shoreside strike team to connect to the shoreside anchor point</li> <li>• Chilmark HM vessel began reverse towing the other end of boom further north to create enough tension, then discovered that the gate on one of the carabiners used to connect part of the anchor system was stuck open (due to rust/corrosion) and became detached, releasing the boom from the anchor line</li> <li>• Chilmark FD Jet ski transited across the creek, secured the boom to a rear cleat, then towed the boom halfway across the channel and handed the boom to Chilmark HM vessel</li> <li>• Chilmark HM vessel reconnected the boom to the towing bridle, tied the boom to the bow cleat, then reverse towed the boom further north and dropped the marine anchor in the middle of the creek</li> <li>• Oil surrogate (peat moss) was successfully deployed, and while some of the surrogate was contained within the boom, entrainment did occur along the southernmost array of cascading diversion boom due to strong current</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> </ul>	<ul style="list-style-type: none"> <li>• IC did not assign a Safety Officer</li> <li>• Once the IC rejoined the group after mobilizing his vessel, he assigned all personnel to the appropriate strike teams, oversaw the entire deployment, and adjusted the</li> </ul>

Core Capability	Organizational Capability Target	Associated Critical Tasks	Exercise Observations
		<ul style="list-style-type: none"> <li>Participants demonstrate command and control of exercise</li> </ul>	deployment plan based on on-scene conditions <ul style="list-style-type: none"> <li>Vessel crews and shoreside strike teams collaborated effectively to work through deployment issues and coordinate alterations to the boom deployment strategy</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>All participating organizations were able to effectively communicate via a common radio channel (VHF - 9)</li> <li>Participants displayed a willingness and a commitment to communicating with one another to ensure situational awareness was maintained by all parties</li> <li>Participants shared several suggested improvements as the exercise progressed and once again during the exercise debrief, learning lessons as the operation progressed</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:** Participants adequately connected boom sections, towing bridle to boom, and all components of anchor systems.

**Strength 3:** Despite encountering several on-water challenges, personnel from vessel crews and shoreside/pier side crews were engaged throughout the on-water deployment, working together to identify and carry out corrective actions.

#### Areas for Improvement

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

**Area for Improvement 1:** Participating vessels and vessel crews struggled towing boom because of limited horsepower, affecting the placement and angle of the sections of cascading diversion boom relative to the operating area and the on-water conditions.

**Reference:** MA GRP Tactics Guide

**Analysis:** Exercise observers noted that all three exercise vessels did not have adequate horsepower to properly tow boom. This resulted in vessels struggling to tow and direct boom to the appropriate diversion locations. Although participants were eventually able to successfully anchor both sections of cascading diversion boom, the oil surrogate (peat moss) became entrained under the shoreside anchor point of the southern section of boom due both to the boom angle being perpendicular to the current, and the strong current in the creek. Because of the training's time constraints, exercise controllers decided not to continue repositioning the diversion boom to try and achieve a more effective booming configuration. For future trainings, it is suggested that participants utilize vessels with at least 150 horsepower to effectively tow and anchor boom.

**Area for Improvement 2:** Pier side strike teams struggled to offload boom to on-water vessels due to their location in the middle of the pier, causing boom to become tangled/twisted and resulting in added efforts to reposition boom accordingly.

**Reference:** MA GRP Tactics Guide

**Analysis:** Because the sections of diversion boom were offloaded from the middle of the pier, current pushed the boom closer to several docked vessels along the side of the pier. This required extra efforts from vessel crews to redirect the boom because the original location and angle was not conducive to diverting peat moss towards the shoreside anchor point. This also resulted in the second boom array getting caught in the anchor line of the first boom array during offloading operations. For future trainings in this location, participants suggested that offloading boom from the northern end of the pier would result in the current pushing the boom further south without it

encroaching on nearby docked vessels and allowing more operating room for the pier side strike team to properly offload the second boom array without entanglement 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 partial capability level can be attributed to the following strengths:

**Strength 1:** Vessel crews worked well together to identify primary and support roles for each on-water vessel while conducting boom towing and anchor repositioning operations.

**Strength 2:** Vessel crews effectively maintained coordination with one another and the pier side strike team throughout boom towing and anchoring operations.

#### Areas for Improvement

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

**Area for Improvement 1:** The Incident Commander was not present to assign roles and responsibilities during the Safety and Operational Brief, leaving some participants confused as to what their initial roles were during the exercise.

**Reference:** Incident Command System (ICS) 201

**Analysis:** After the conclusion of the Safety and Operational Brief and before on-water deployment activities commenced, the Incident Commander (IC) who played an integral role in on-water activities, departed to stage his vessel. Although his absence during the preparatory phase of the exercise did not impact its overall success, it did result in a brief period where many participants were unsure of the exercise directives and their roles/responsibilities. Once he staged his vessel, the IC then returned to a central location to relay directions to all participants. For future exercises, exercise controllers will ensure that the assigned IC is not responsible for multiple roles. Assigned Incident Commanders should remain shoreside with the rest of the Command Staff to focus solely on overall command and control of both on-water and shoreside operations.

**Area for Improvement 2:** A Safety Officer (SO) was not identified or assigned.

**Reference:** Incident Command System (ICS) 201

**Analysis:** Exercise observers noted that a Safety Officer was never identified, therefore a safety brief was never performed. This could have had negative impacts on the safety of participants and the overall success of the operation regardless of the fact that all participants were observed following the necessary safety protocols throughout the duration of the exercise. For future exercises, a Command Staff should consist of, at the very least, an Incident Commander and a Safety Officer to ensure all participants have a point of contact for all safety

related issues and to maintain command and control throughout operations, especially since exercises expose participants to a multitude of safety hazards.

### **Objective 3: Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies including fire, police and harbormaster 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 partial capability level can be attributed to the following strengths:

**Strength 1:** Participants from all agencies identified a common radio frequency (VHF 9) and utilized radios adequately to communicate deployment tactics and adjustments.

**Strength 2:** Pier side participants were actively engaged in communication throughout the exercise, offering assistance and guidance to vessel crews as issues arose.

#### **Areas for Improvement**

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

**Area for Improvement 1:** Communications between vessel strike teams and the shoreside and pier side strike teams occurred without radios at times, making it difficult for all participants to maintain awareness of operational and situational updates.

**Reference:** Incident Command System (ICS) 201 Communication Strategy

**Analysis:** At times, exercise observers noticed personnel with various roles and responsibilities communicating to each other without the use of a radio. Although this form of communication was made possible due to the proximity of each party at the time the message was sent and received, ideally all communications in future exercises should occur over the established radio frequency or channel. By ensuring all communication occurs over these pre-established mediums, all personnel, regardless of their location, will be able to maintain situational awareness.

Vessel crews unload and prepare boom for deployment



Shore-side strike team creates a shoreside anchor system



Vessel crews reposition an anchor on the western side of Menemsha creek



Participants conduct the exercise debrief



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	Participating vessels and vessel crews struggled towing boom because of limited horsepower, affecting the placement and angle of the sections of cascading diversion boom relative to the operating area and the on-water conditions.	During future planning phases, facilitators will verify that all participating organizations plan to mobilize and utilize vessels with at least 150 horsepower	Planning	Nuka Research	M. Popovich	Spring 2023	Spring 2023
Capability 2: Operational Coordination	The Incident Commander was not present to assign roles and responsibilities during the Safety and Operational Brief, leaving some participants confused as to what their initial roles were during the exercise.	During future exercises, exercise controllers will ensure that the assigned IC is not responsible for multiple roles so they can be present and able to provide direction/control as assigned	Organization and Leadership	Nuka Research	M. Popovich	Spring 2023	Spring 2023
Capability 2: Operational Coordination	A Safety Officer (SO) was not identified or assigned.	During future exercises, exercise controllers will ensure	Organization and Leadership	Nuka Research	M. Popovich	Spring 2023	Spring 2023

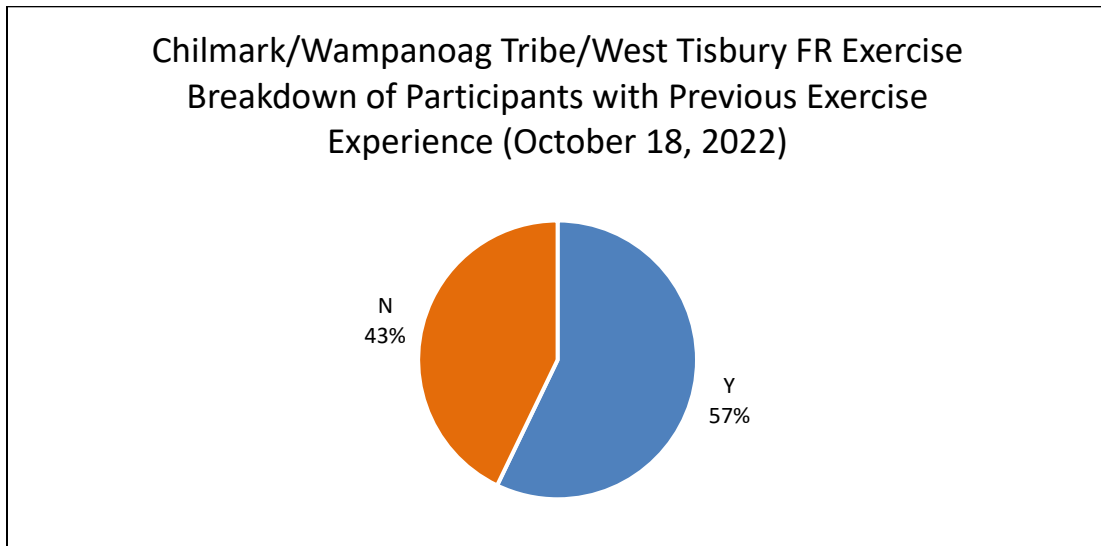
<sup>1</sup> Capability Elements are: Planning, Organization and Leadership, Personnel, Equipment and Systems, Training, or Exercise

Capability	Issue/Area for Improvement	Corrective Action	Capability Element <sup>1</sup>	Primary Responsible Organization	Organization POC	Start Date	Completion Date
		that a Command Staff includes a Safety Officer so that all participants have a point of contact for on-site safety related issues					
Capability 3: Operational Communications	Communications between vessel strike teams and the shoreside and pier side strike teams occurred without radios at times, making it difficult for all participants to maintain awareness of operational and situational updates.	During future exercises, exercise controllers will ensure all communications occur over pre-established radio mediums, so that all personnel can maintain situational awareness throughout the duration of the exercise	Equipment and Systems	Nuka Research	M. Popovich	Spring 2023	Spring 2023

This IP is developed specifically for MassDEP, MER, Nuka Research, Chilmark, W. Tisbury, and the Wampanoag Tribe as a result of the 2022 Chilmark, W. Tisbury, and the Wampanoag Tribe FR Exercise conducted on October 18, 2022.

## APPENDIX B: PARTICIPANTS & RESOURCES

Participating Organizations	
Organization	Participant Count
<b>Wampanoag Tribe of Gay Head/Aquinnah</b>	
Wampanoag Tribe Natural Resources Department	1
<b>Town of Chilmark, MA</b>	
Chilmark Fire Department	3
Chilmark Harbormaster	1
Chilmark Shellfish Department	2
<b>Town of West Tisbury, MA</b>	
West Tisbury Fire Department	6
Tisbury Harbormaster	1
<b>State</b>	
Massachusetts Department of Environmental Protection (MassDEP)	2
Moran Environmental Recovery (MER) *	1
Nuka Research and Planning Group, LLC (Nuka Research) *	3
<b>Federal</b>	
United States Coast Guard	3
<b>TOTAL</b>	<b>23</b>



List of Resources			
Agency	Resource	Kind	Exercise Function
Chilmark SF	Carolina Skiff		Multiple roles
Chilmark HM	Maritime Skiff/20'		Multiple roles
Chilmark FD	Jet ski		Support
Chilmark	Oil spill response trailer		Boom deploy and trailer familiarization



## 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

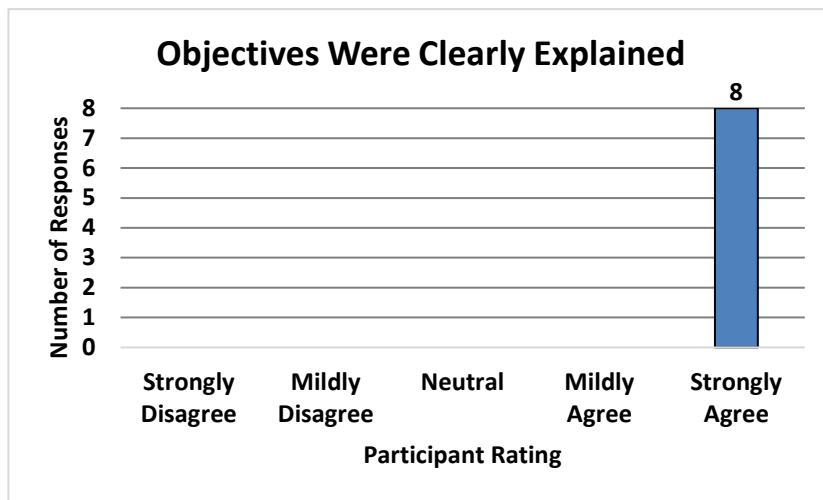
Participant feedback questions included the following:

- 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

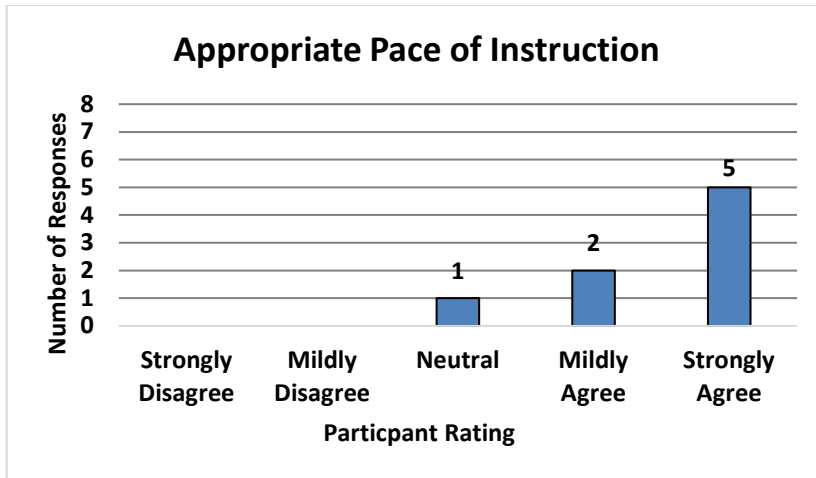
After each question above is ranked, participants are then asked to provide their open text responses to identify both the best thing about the training and any suggested improvements. A summary of this exercise’s participant feedback is listed on the succeeding pages.

### Participant Feedback Summary

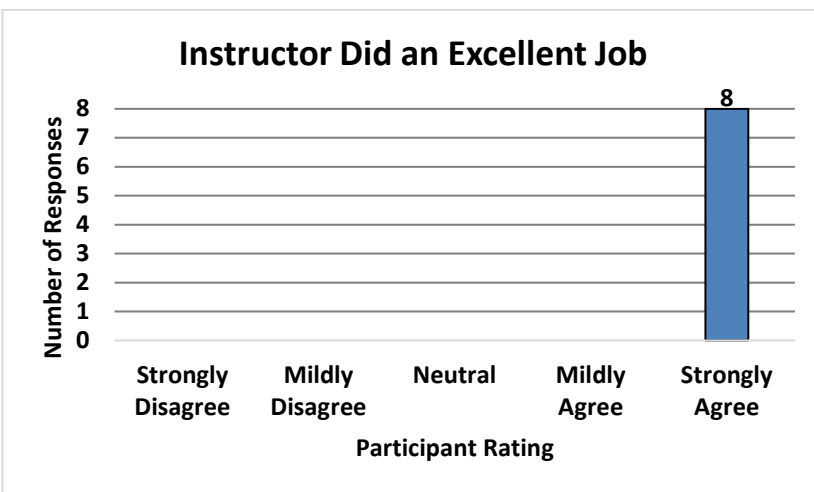
The following feedback was received from 8 of the 23 participants.



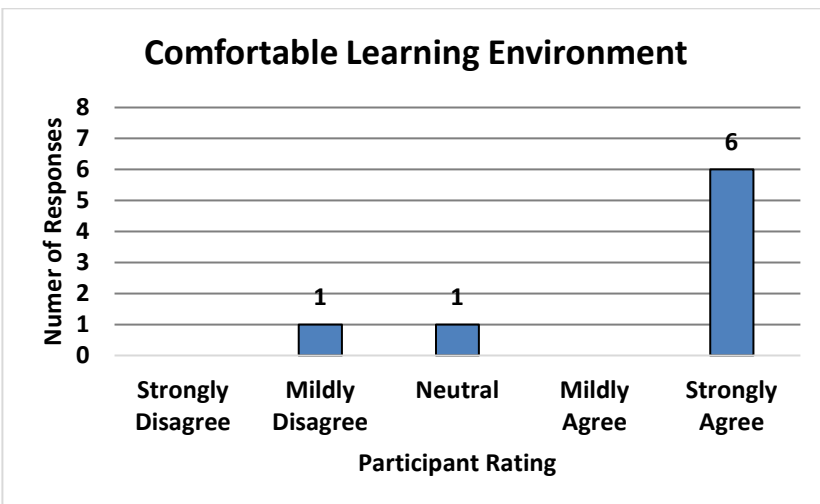
Comments: None



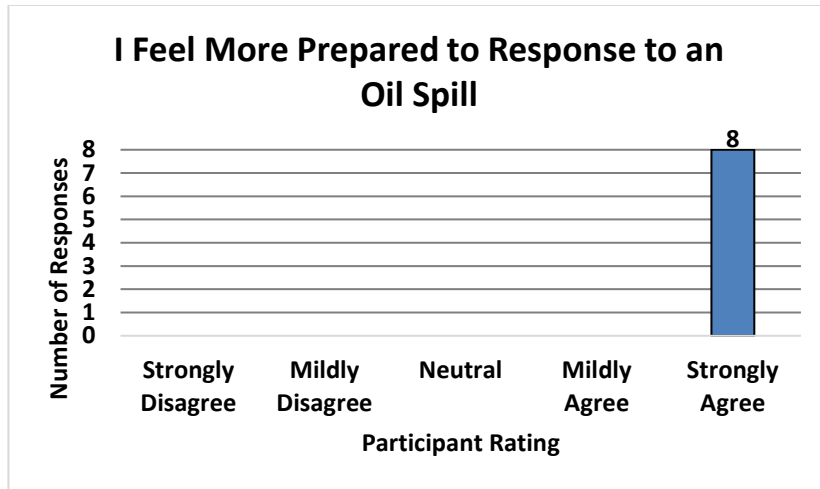
Comments: None



Comments: None



Comments: None



Comments: None

The best thing about this training was...	This training could be improved by...
The practical exercise	Including a geographical specific plan before practical exercise
Being able to observe strengths and deficits in equipment used to deploy response gear/booms etc.	Better organization on the participants part and more information days before
Communication	Better communication
Hands on portion	More guidance or at least more options or ideas to help guide us
Use of the equipment	Providing student handouts for us to review over time
	Printed hand out to go with the PowerPoint