MassDEP Geographic Response Plan – 2016 Menemsha Pond (CI-24)

October 26, 2016

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.

Rev. April 2013
HSEEP-IP01

EXERCISE OVERVIEW

Exercise Name	2016 Menemsha Pond (CI-24) GRP Exercise
Exercise Dates	October 26, 2016
Scope	This exercise is a Full Scale Exercise, planned for approximately six hours in Aquinnah and Chilmark, MA and upon the waters of Menemsha Creek. Exercise play is limited to Menemsha Creek and Menemsha Basin, and the adjacent shoreline.
Mission Area(s)	Response
Core Capabilities	Environmental Response/Health and Safety, Operational Coordination, Operational Communications
Objectives	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 (GRP) tactics. Objective 2: Demonstrate the ability to assemble a spill response organization utilizing Incident Command System (ICS) principles through development and execution of an Assignment List (ICS 201) and implementation of on-site incident management and tactical operations. 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.
Threat or Hazard	Discharge of oil into a navigable waterway
Scenario	An oil spill has occurred that threatens Menemsha Pond. The Wampanoag Tribe, Aquinnah, Chilmark, and West Tisbury Fire Departments and Harbormasters staff will utilize GRP CI-24 to deploy protective booming to protect sensitive resources in Menemsha Creek and Menemsha Pond.
Sponsor	Massachusetts Department of Environmental Protection (MassDEP).

Participating Organizations

Participating organizations included:

- Wampanoag Tribe
- Aquinnah Fire Department
- Aquinnah Harbormaster
- Chilmark Fire Department
- Chilmark Harbormaster
- Massachusetts Department of Environmental Protection (MassDEP)
- Woods Hole and Martha's Vineyard Steamship Authority
- U.S. Coast Guard Sector Southeastern New England (USCG)
- Moran Environmental Recovery (MER)
- Nuka Research and Planning Group, LLC (Nuka Research)

Note: See Appendix B for participant count

Point of Contact

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Training being conducted in the Coast Guard Station Menemsha boathouse

Diversion boom tactic moving oil surrogate (peat moss) toward the south shore of the entrance to West Basin.

Photos courtesy of Nuka Research & Planning Group

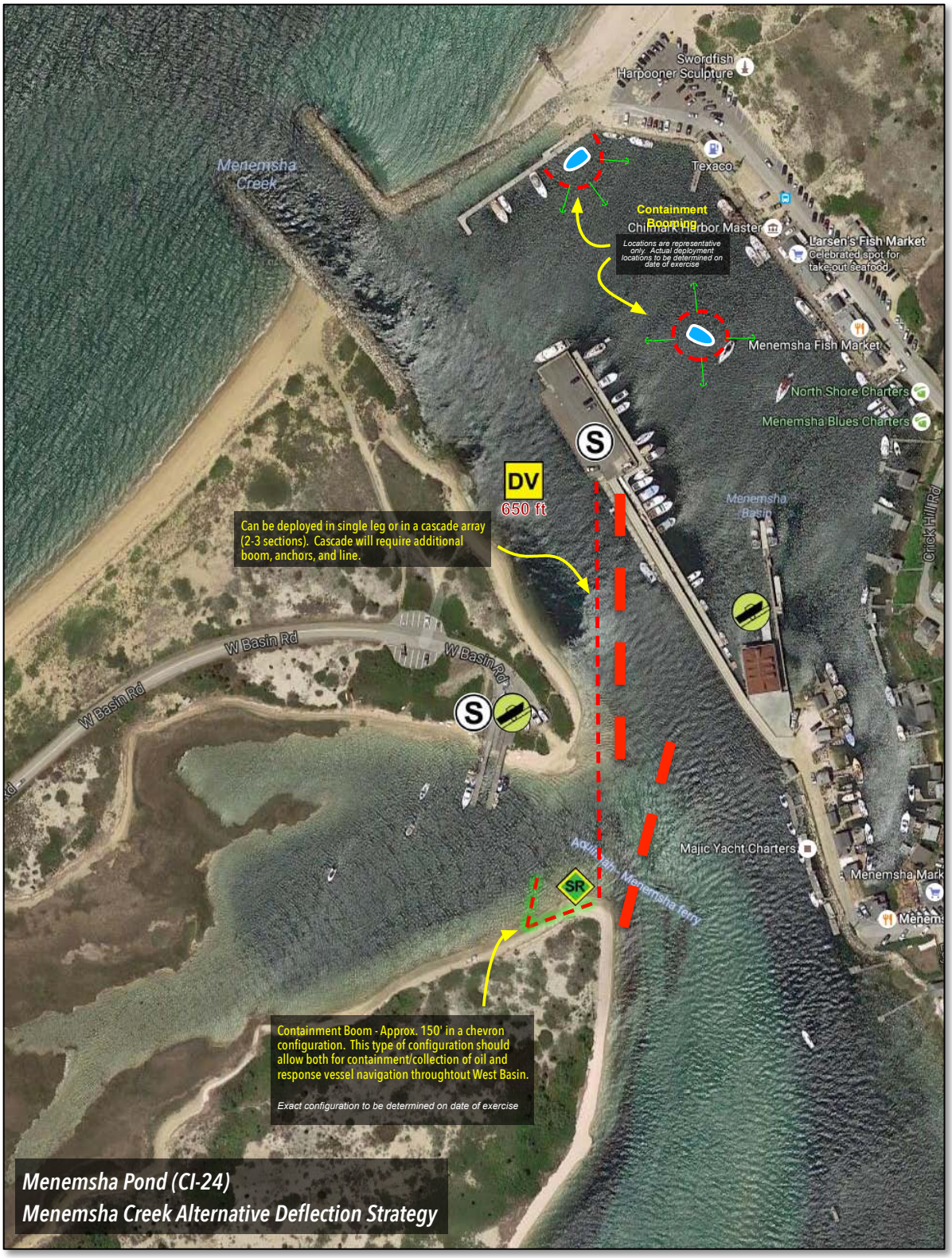


Figure 1. The Initial GRP Tactic was modified to a cascade array with 400 foot and 300-foot sections as depicted with the larger dashed lines.

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 Plan (GRP) tactics.	Environmental Response/ Health and Safety	P			
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.	Operational Coordination	P			
Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies including fire, police and harbormaster departments using VHF communications	Operational Communications	P			

Ratings Definitions:

- 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.
- 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.
- 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.
- 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).

Table 1. Summary of Core Capability Performance

Core Capability	Organizational Capability Target	Associated Critical Tasks	Observation Notes
Environmental Response/ Health and Safety	**Overview of Response Equipment**	• Access Mass DEP Trailer • Identify boom and sorbents • Connect boom together • Connect towing bridle to boom • Connect components of anchor system together	• **Performed without Challenges (P)** • All skills successfully demonstrated during the exercise • MassDEP trailers were readily accessible. All response equipment readily available and in good condition with some minor exceptions. • One section of 12-inch boom was noted to have torn near the slide connector during the exercise. **Recommendation**: MER repair during routine inspection cycle. • Aquinnah trailers missing nearly all floats. **Recommendation**: MER replace during routine inspection cycle. • There was no 12-inch boom in the Chilmark Trailer. **Recommendation**: MER replace during routine inspection cycle. • Slide hammers were not in any trailers on the island. **Recommendation:** Replace sledgehammers with slide hammers during the normal inspection cycle. • Small sections of boom and mock rebar shore anchor proved to be outstanding instructional aids. • All personnel had the opportunity to connect boom sections for familiarization. • All operations conducted in a safe manner. • MER provide excellent hands-on training for the equipment in the MassDEP trailer. Crews worked well on connecting boom and bridles.
	Basic Booming Operations	• Transport and tow boom. • Anchoring and Connecting boom to shore • Safe vessel and crew operations. (Refer to ICS-208)	• **Performed Without Challenges (P)** • All operations conducted in a safe manner. • 300' of 18-inch boom was staged on the south shore of the entrance to West Basin to serve as the second leg of the diversion tactic. This section of boom was anchored in the channel and tied off to a 100 lb. mushroom anchor on the south shore of the entrance to West Basin. • 300 feet of 12-inch and 100 feet of 18-inch boom was deployed as the first leg of the diversion tactic. This section of boom was tied off to the pier and anchored to a pile off the north side of the entrance to the West Basin. • Pier was ideal location for deploying boom. Large area and easy to offload and retrieve. • MER provided excellent hands-on training for the equipment in the MassDEP trailer. Crews worked well connecting boom and bridles. • While the current was slack and the 12-inch boom was deployed, some of it stayed flat when on the water, possibly due to insufficient ballast. **Recommendation**: 12-inch boom should be tested to see if this is an actual issue. • There were a lot of instances where lines needed to be passed over large

			distances. Heaving line balls would have been a useful addition to the trailer equipment inventory. **Recommendation**: Continue adding heaving balls to equipment inventory. • The forces involved in booming off the entrance to Menemsha Pond will require line with additional tensile strength. There were spools of line in the Chilmark Trailer that were reinforced line. No responders were aware that it existed. **Recommendation**: The availability of this rope should be listed on the GRP so responders are aware of its existence. • Response vessels did an excellent job of towing both sections of boom from the staging area. They were deployed seamlessly by pulling off the pier and over the dredge pipes tied off to the western side of the pier. This was done easily and safely and directed by the shore team leader on the pier. • The shore team on south shore of entrance to West Basin did an excellent job of establishing a shore anchor with a prepositioned mushroom anchor. **Best practice:** Prepositioned equipment greatly facilitates rapid deployment of boom. Add section to Tactics Guide on prepositioned anchor points. • Shore team on north shore of West Basin did an excellent job of securing south end of diversion boom to pile just offshore. Shore team was prepared with waders and was able to work near the pile effectively. • The boom tactic worked well until the pile connected to the south end of the diversion boom broke. When this happened, the Chilmark Shellfish boat did an excellent job of cutting the pile free from the boom and transferring it to the shore team to keep it from floating into the diversion boom on the south shore of the entrance to West Basin or becoming a hazard to navigation. • Wampanoag Tribe vessel did an excellent job of reconnecting loose end of the boom to the north end of the diversion leg with a carabiner and the tension members. This improvised boom connected the boom together but was difficult to break when the boom was being demobilized due to the tension on the boom from the strong flood current. It took another vessel to ease the tension on the boom to remove the carabiner. • Recovery of all boom conducted very safely. This was an extremely challenging evolution to pull all boom back on the pier against the flood current. All vessels worked well together and in unison with shore team on the pier to pull the boom onto the pier so it could be washed down and stored. An ATV was initially used to haul boom out of the water but it was not nearly as efficient as the shore team. • Trailer personnel showed great teamwork in getting boom out to boats from boat ramp.

	Implement Tactics in GRP	• Deploy Diversion Boom Tactic	• **Performed Without Challenges (P)** • Tactic was deployed as planned and modified during an operational brief held immediately following the classroom training. This tactic proved effective in the lighter currents 1-2 hours after low tide. Surrogate was diverted along the boom face, directed toward the western shore of the channel, and then captured by the diversion boom on the south side of the entrance to the West Basin. **Recommendation**: Modify CI-26 to include the cascading diversion strategy used in this exercise. Permanent anchor points for both tactics will require some further consideration. • There was some evidence of splash over/entrainment for the diversion leg on the south shore of West Basin. • The current eventually broke the pile that the southern end of the deflection boom was attached to. There is still some concern that at maximum flood, the strategy deployed would not remain in place and effectively collect oil entering Menemsha Pond. **Recommendation**: Additional testing with smaller boom (6-inch) be conducted and further consideration should be given to developing tactics inside the Pond in the event that this diversion/deflection strategy can hold up.
Operational Coordination	**Create and Execute An Assignment List (ICS 201)**	• Fill out ICS 201 • Assignments in ICS 201 are followed and on-scene adjustments. • Participants demonstrate command and control of exercise	• **Performed without Challenges (P)** • IC not established. Exercise planning team collaborated to develop final revisions to strategy upon completion of classroom training. This led to some confusion for shore teams that departed for previously discussed assignments. Plan was implemented on the fly and all departments worked well together to accommodate changes once they were communicated. • Strike teams managed to react well to plan changes and effectively carried out assigned tasks. • Shore teams and vessel crews performed exceptionally well together.
Operational Communications	**Effectively Communicate Using VHF equipment**	• Create Communications Plan • Communicate with other participants using organic VHF equipment	• **Performed without Challenges (P)** • Communications plan was followed as designed. All participants used the identified frequencies for exercise communications. • VHF communications were very effective overall. All strike teams used CH-17. Given the close proximity of strike teams, voice communications were often used. • **Recommendation**: 3 people in boats when working in strong currents.

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 (GRP) 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: Participants from multiple agencies and contractors (Wampanoag Tribe, Chilmark, Aquinnah, Moran Environmental, MassDEP) worked well together to complete assigned tasks.

Strength 2: The shore team on south shore of entrance to West Basin did an excellent job of establishing a shore anchor with a prepositioned mushroom anchor.

Strength 3: All participants conducted the boom deployment safely.

Areas for Improvement

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

Area for Improvement 1: Modify CI-26 to include the cascading diversion strategy used in this exercise. Permanent anchor points for both tactics will require some further consideration.

Reference: Massachusetts Geographic Response Plan Tactics Guide

Analysis: Tactic was deployed as planned and modified during an operational brief held immediately following the classroom training. This tactic proved effective in the lighter currents 1-2 hours after low tide. Surrogate was diverted along the boom face, directed toward the western shore of the channel, and then captured by the diversion boom on the south side of the entrance to the West Basin.

Area for Improvement 2: Additional testing with smaller boom (6-inch) should be conducted and further consideration should be given to developing tactics inside Menemsha Pond in the event that this diversion/deflection strategy can hold up.

Reference: Massachusetts Geographic Response Plan Tactics Guide

Analysis: The forces placed against the boom tied to the piling eventually broke the pile that the southern end of the deflection boom was attached to (the piling had been in the eater for some time and showed outward signs of age and deterioration). There is still some concern that at maximum flood, the strategy deployed would not remain in place and effectively collect oil entering Menemsha Pond. An additional exercise should be conducted at some point in the

future to test the effectiveness of fast water booming techniques in this area that would allow boom to remain in the water for a longer period of time during maximum flood tide.

Area for Improvement 3: Replace the sledgehammers in the Aquinnah and Chilmark Fire Department trailers with slide hammers during the routine maintenance cycle.

Reference: MassDEP Trailer Inventory.

Analysis: Slide hammers are much safer than sledgehammers for driving rebar stakes into the ground. Some MassDEP trailers have already been outfitted with slide hammers. Sledgehammers should be replaced with slide hammers in all MassDEP trailers during upcoming routine maintenance cycles.

Area for Improvement 4: Replace the missing floats in the Aquinnah trailer.

Reference: N/A

Analysis: During the exercise, it was noted that there was only a few floats in the Aquinnah trailer. These floats are necessary to deploy the boom equipment and should be replaced during the routine maintenance cycle.

Area for Improvement 5: Add monkey fist or heaving lines to MassDEP trailer equipment inventory.

Reference: N/A

Analysis: There were instances during this drill where a heaving line of some sort would have been useful for passing towlines for boom from the shore team to a boat to keep the boat from being damaged on the concrete boat ramp.

Area for Improvement 6: Replace 12-inch boom in Chilmark trailer and repair the damaged 12-inch section in Aquinnah trailer.

Reference: N/A

Analysis: There was no 12-inch boom in the Chilmark Trailer. According to several exercise participants, the boom was used during the response to the Coast Guard boathouse fire and ended up not being replaced. It was also noted during the hotwash that a section of 12-inch boom in the Aquinnah trailer was damaged during the exercise near the slide connector.

Area for Improvement 7: The availability of steel fiber reinforced line should be listed on the GRP so responders are aware of its existence and can use it.

Reference: N/A

Analysis: The forces involved in booming off the entrance to Menemsha Pond will require line with additional tensile strength. There were spools of line in the Chilmark Trailer that were made of reinforced line. No responders were aware that it existed.

Area for Improvement 8: Evaluate 12-inch boom to identify potential improper ballasting issues.

Reference: N/A

Analysis: It was noted during the hotwash that while the current was slack and the 12-inch boom was deployed, some of it stayed flat when on the water, possibly due to insufficient ballast. The 12-inch boom should be tested to see if this is an actual issue.

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: An Incident Commander was not established for this exercise. The exercise planning team collaborated to develop the final revisions to the strategy upon completion of classroom training. This led to some confusion for shore teams that departed for previously discussed assignments. Despite this, the revised plan was implemented and all departments worked well together to accommodate changes once they were communicated.

Areas for Improvement

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

Area for Improvement 1: Appoint an Incident Commander for the next exercise.

Reference: National Response Framework

Analysis: Having a designated Incident Commander would have addressed the initial problems with communication by having one voice to communicate revisions to the plan, direct assets and ensure personnel accountability.

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:

Communications was a strong point of the exercise.

Strength 1: Clear and effective communications between all participants was maintained throughout the exercise. VHF communications were very effective overall. All strike teams used CH-17. Given the close proximity of strike teams, voice communications were often used.

Areas for Improvement

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

Area for Improvement 1: In areas where fast current is expected, anticipate the need to have 3 people in the boat to ensure one person can man the radio while the other 2 are engaged in working with the equipment and driving the boat.

Reference: N/A

Analysis: Each vessel had 2 personnel assigned. This proved to hamper communications due to task overload, as the challenges of driving the boat and working with the boom didn't allow a free hand to talk on the radios.

Shore team deploying boom off the pier and over dredge pipes.

Photo courtesy of Nuka Research & Planning Group

Boom being pulled over dredge pipes and toward the south shore of the entrance to West Basin.

Photo courtesy of Nuka Research & Planning Group

Pile used as an anchor point for the north leg of the diversion tactic breaks. Chilmark Shellfish boat and shore team cut the pile from t the boom and retrieve it.

Boom is reconnected by Wampanoag Tribe vessel.

Photos courtesy of Nuka Research & Planning Group

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for the Wampanoag Tribe, Chilmark and Aquinnah Fire Departments and Harbormasters following the MassDEP Menemsha Pond GRP Exercise conducted on October 26th, 2016.

Core Capability	Issue/Area for Improvement	Corrective Action	Capability Element[1]	Primary Responsible Organization	Organization POC	Start Date	Completion Date
Core Capability 1: Environmental Response/Health and Safety	1. Implement Tactics in GRP	Modify CI-26 to include the cascading diversion strategy used in this exercise.	Planning	Nuka Research	Mike Popovich	11/1/16	2/1/17
Core Capability 1: Environmental Response/Health and Safety	2. Implement Tactics in GRP	Additional testing with smaller (6-inch) boom be conducted and further consideration should be given to developing tactics inside Menemsha Pond in the event that this diversion/deflection strategy can hold up.	Planning	Nuka Research	Mike Popovich	11/1/16	2/1/17
Core Capability 1: Environmental Response/Health and Safety	3. Overview of Response Equipment	Replace the sledgehammers in the Aquinnah and Chilmark Fire Department trailers with slide hammers during the routine maintenance cycle.	Equipment	MER	John Duponte	11/1/16	4/1/17
Core Capability 1: Environmental Response/Health and Safety	4. Overview of Response Equipment	Replace the missing floats in the Aquinnah trailer.	Equipment	MER	John Duponte	11/1/16	4/1/17
Core Capability 1: Environmental Response/Health and Safety	5. Overview of Response Equipment	Add monkey fist or heaving lines to MassDEP trailer equipment inventory.	Equipment	MER	John Duponte	11/1/16	4/1/17

[1] Capability Elements are: Planning, Organization, Equipment, Training, or Exercise.

Core Capability 1: Environmental Response/Health and Safety	6. Overview of Response Equipment	Replace 12-inch boom in Chilmark trailer and repair the damaged 12-inch section in Aquinnah trailer.	Equipment	MER	John Duponte	11/1/16	4/1/17
Core Capability 1: Environmental Response/Health and Safety	7. Overview of Response Equipment	The availability of steel fiber reinforced line should be listed on the GRP so responders are aware of its existence and can use it.	Equipment	Nuka/MER	Mike Popovich/ John Duponte	11/1/16	4/1/17
Core Capability 1: Environmental Response/Health and Safety	8. Overview of Response Equipment	Evaluate 12-inch boom for proper ballasting.	Equipment	MER	John Duponte	TBD	TBD
Core Capability 2: Operational Coordination	1. Participants demonstrate command and control of exercise	Appoint an Incident Commander for the next exercise.	Exercise	Wampanoag Tribe/ Aquinnah/ Chilmark	N/A	TBD	TBD
Core Capability 3: Operational Communications	N/A	Use a 3-person response crew for boats when deploying boom in areas where fast current is anticipated.	Exercise	Wampanoag Tribe/ Aquinnah/ Chilmark	N/A	TBD	TBD

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations	Participant Count
Wampanoag Tribe*	**2**
Town of Aquinnah, MA	
Aquinnah Fire Department*	**7**
Town of Chilmark, MA	
Chilmark Fire Department*	**7**
Chilmark Shellfish/Harbormaster*	**4**
Chilmark Board of Selectmen*	**1**
TOWN PARTICIPANTS	**21**
Federal	
United States Coast Guard (USCG)	**2**
State	
Massachusetts Department of Environmental Protection (MassDEP)	**2**
Massachusetts Steamship Authority	**1**
Nuka Research and Planning Group, LLC (contractor for MassDEP)	**2**
Moran Environmental Recovery (contractor for MassDEP)	**2**
TOTAL	**30**

40% of first responders reported having previous GRP exercise experience.

Special appreciation is warranted for Coast Guard Station Menemsha for providing the boathouse used as a classroom and a venue for the exercise hot wash. Of special note, FS1 Mark Seawell did an outstanding job of providing food for the exercise.

APPENDIX C: EXERCISE EVALUATION FORM

MassDEP
Geographic Response Plan (GRP)
Exercise and Testing Program

Participant Feedback Form

1	2	3	4	5
Strongly disagree	Mildly disagree	Neutral	Mildly agree	Strongly agree

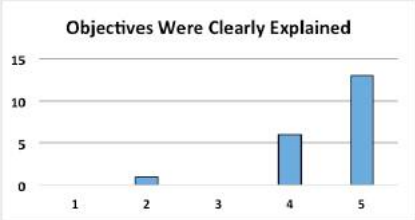
Please use the above rating scale to answer the questions for each of the following topics.

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

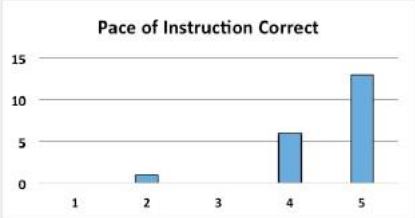
Please use the back of the sheet if you need more room for comments.

(Rev 2016)

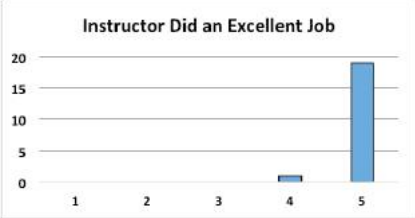
Student Feedback Summary



Student Comments: "There were some last minute changes I wasn't aware of. The details of the exercise changed several times, appreciate the clear communication."

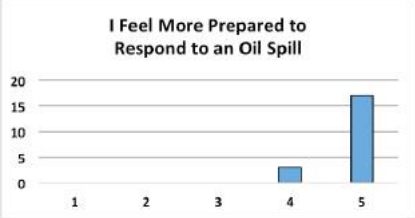


Comments: None.



Comments: "Great insight and experience!"

Comments: "Comfy chairs?; Great location; Sometimes hard to hear due to HVAC unit; Loud."



Comments: "This was a wonderful exercise that brings new options for emergency response; Waders in trailers; Professional Training."

The best thing about this training was… "Hands-on is always the best way to learn; The exercise and mutual response from tribal/town; Experience; Field exercise; Lunch; Hands-on (X2); Deploying booms; Deployment & recovery exercise was good; It didn't go according to plan and we had to figure it out; Deploying equipment; Seeing drill function; Cooperation; Hands-on training; Learning the components and limitations of the boom; Deployment."

This training could be improved by…. "Spend more time going over best idea for de-mobilization; Better communication; Warmer weather (X2); More handouts to take away; Experience; More people; Less wind; Pre-drill trailer inspections to make sure we had everything we needed; More people."