



MassDEP Geographic Response Strategy –2021 Marblehead GRS Exercise

After Action Report

April 15, 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

| | |
|--------------------------|---|
| Exercise Name | 2021 Marblehead GRS Exercise |
| Exercise Date | April 15, 2021 |
| Scope | This exercise is a Full-Scale Exercise, planned for approximately six hours in Marblehead, MA and upon the waters of Marblehead Harbor. Exercise play is limited to Marblehead Harbor in the vicinity of the Eastern Yacht Club and the adjacent shoreline. |
| Mission Area(s) | Response |
| Core Capabilities | Environmental Response/Health and Safety, Operational Coordination, Operational Communications. |
| Objectives | <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> |
| Threat or Hazard | Discharge of oil into a navigable waterway |
| Scenario | An oil spill has occurred that threatens the Marblehead Harbor. The Marblehead and Swampscott Fire Departments and Harbormaster staffs will utilize standard Massachusetts GRS booming tactics to protect sensitive resources in Marblehead Harbor and surrounding area. |
| Sponsor | Massachusetts Department of Environmental Protection (MassDEP). |

**Participating
Organizations**

Participating organizations will include:

- Marblehead Fire Department (MFD)
- Marblehead Harbormaster (MHM)
- Swampscott Fire Department (SFD)
- MassDEP
- U.S. Coast Guard Sector Boston (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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Marblehead and Swampscott Firefighters work together to assemble the boom during hands-on training



Marblehead Fire Department's acting Incident Commander gives deployment briefing



Photos courtesy of Nuka Research & Planning Group



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 | P | | | |
| <p>Ratings Definitions:</p> <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> Access Mass DEP Trailer Identify boom and sorbents Connect boom together Connect towing bridle to boom Connect components of anchor system together | <ul style="list-style-type: none"> Performed Without Challenges (P) All equipment was readily available in both trailers. Participation during hands-on training at multiple stations was excellent. |
| | Basic Booming Operations | <ul style="list-style-type: none"> Transport and tow boom. Anchoring and Connecting boom to shore Safe vessel and crew operations. (Refer to ICS-208) | <ul style="list-style-type: none"> Performed With Some Challenges (S) All equipment was readily available in both trailers. Crews took care to watch for one another's safety and spotted teammates when leaning overboard or handling lines Strike Teams had difficulty setting second boom leg. The lead towing strike team were able to successfully deploy their anchor but the trailing boom leg strike team deployed their anchor too close to the end of the shoreward boom leg, which, based on the conditions and the fact that the anchor line was too short for that particular location, allowed the shoreward end of the second boom leg to drift beyond the end of the first boom leg, thus leaving a gap (rather than an overlap) between boom legs. This also resulted in a significant belly in the second boom due leg which would have likely caused on-water pooling of oil. |
| | Implement Tactics in GRS | <ul style="list-style-type: none"> Deploy diversion boom (DV) cascade array | <ul style="list-style-type: none"> Performed With Some Challenges (S) Shoreward anchor for second boom leg did not catch and dragged, leaving gap in boom for oil surrogate (peat moss) to escape between boom legs. Some oil surrogate was captured by the shoreward boom leg and was slowly drifting shoreward along the boom face as intended. Due to time constraints and the fact that the tide had begun to change, the boom configuration was demobilized before the oil surrogate could be completely diverted to shore. Participants deployed 1,000ft of boom |
| Operational Coordination | Create and Execute an Assignment List (ICS 201) | <ul style="list-style-type: none"> Assignments in ICS 201 are followed and on-scene adjustments were made Participants demonstrate command and control of exercise | <ul style="list-style-type: none"> Performed Without Challenges (P) The IC clearly outlined an intended operations plan and personnel assignments were made for shoreside and vessel teams. The IC did a great job managing assets and communicating between strike teams. |

| Core Capability | Organizational Capability Target | Associated Critical Tasks | Observation Notes |
|----------------------------|---|---|--|
| Operational Communications | Effectively Communicate Using VHF equipment | <ul style="list-style-type: none"> • Create Communications Plan • Communicate with other participants using organic VHF equipment | <ul style="list-style-type: none"> • Performed without Challenges (P) • The established communications plan was followed using VHF radio, as well as voice communications. Communications were clear, concise, and timely throughout the exercise. Participants did note some comms confusion with the term "standing by" during their de-brief. FD uses standby to instruct someone to wait, and harbormaster uses standby term to mean ready for instruction. |

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 Marblehead Fire Department, Swampscott Fire Department and Marblehead Harbormaster staff was excellent and all worked well together.

Strength 2: Participants were engaged and active during hands-on training at all stations.

Strength 3: Shoreside Anchoring Strike Team applied skills taught during shoreside anchoring hands-on training and installed a third rebar stake at the shoreside anchor point due to the amount of boom (600 ft) that was going to be anchored and deployed at that location.

Areas for Improvement

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

Area for Improvement 1: Marine Anchoring

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

Analysis: During deployment of the second (seaward) boom leg (which required marine anchors at both ends), the anchor was released too close to the end of the shoreward boom leg, which, based on the conditions and the fact that the anchor line was too short for that particular location, allowed the shoreward end of the second boom leg to drift beyond the end of the first boom leg, thus leaving a gap (rather than an overlap) between boom legs. This also resulted not only in a gap between the boom legs, but also in a significant belly in the second boom leg which would have likely caused on-water pooling of oil. These two issues ultimately negated the effectiveness of the cascade array. To prevent this from happening water depth should be verified prior to deploying anchors to ensure that anchor and trip lines are adequate in length and deployment procedures for cascade booming should be reviewed and discussed during training and operational briefs.

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: Incident Commander was direct and coordinated the players well.

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, harbor masters, 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: The Incident Commander clearly and specifically assigned strike teams and leads for each team, and all communicated effectively. Communications were clear, concise, and direct. Teams did note that some departmental variations in terminology presented some brief confusion. Specifically, regarding the term “stand by.” Fire department personnel use this term to direct someone to wait for orders (and hold off from acting or speaking), whereas the harbor master department uses this term to indicate they are available and waiting for command. Teams quickly got through this minor issue but identified it as something to be aware of for future drills.

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

Shoreside deployment teams coordinate boom staging along a beach in Marblehead Harbor.



Firefighters assemble anchor trip lines as part of the hands-on learning module.



Diversion boom being deployed.



Photos courtesy of Nuka Research & Planning Group

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for the towns of Marblehead and Swampscott, MA following the MassDEP GRS Exercise conducted on April 15, 2021.

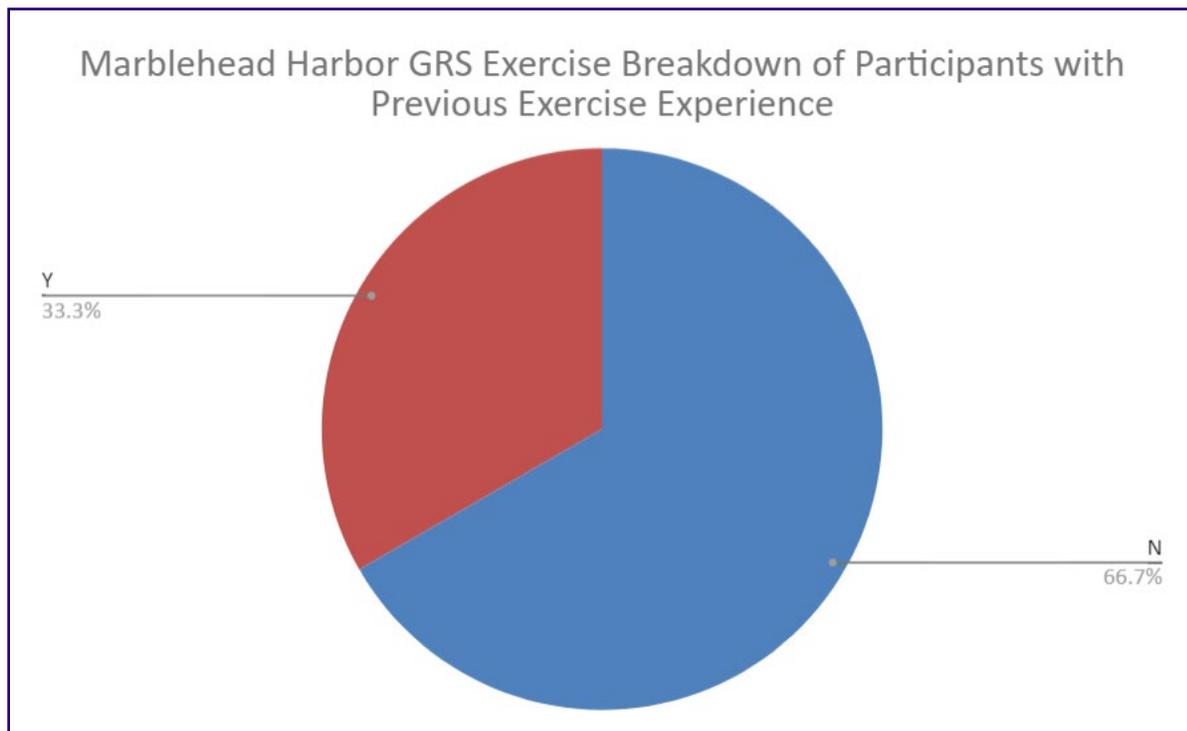
| Core Capability | Issue/Area for Improvement | Corrective Action | Capability Element ¹ | Primary Responsible Organization | Organization POC | Start Date | Completion Date |
|---|----------------------------|--|---------------------------------|----------------------------------|------------------|------------|-----------------|
| Core Capability 1: Environmental Response/Health and Safety | Marine Anchoring* | During future exercises, instructors will provide more detailed instruction in this area | Exercise, Training | Nuka Research | M. Popovich | 05/11/2021 | 12/31/21 |
| 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 may consider these options as this exercise, testing, and training program evolves.

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

APPENDIX B: EXERCISE PARTICIPANTS

| Participating Organizations | |
|--|-------------------|
| Town of Marblehead, MA | Participant Count |
| Marblehead Fire Department | 11 |
| Marblehead Harbormaster | 2 |
| Marblehead Health Department | 1 |
| Town of Swampscott, MA | |
| Swampscott Fire Department | 9 |
| TOWN PARTICIPANTS | 23 |
| Federal | |
| United States Coast Guard | 5 |
| State | |
| Massachusetts Department of Environmental Protection (MassDEP) | 3 |
| Nuka Research and Planning Group, LLC (contractor for MassDEP) | 5 |
| Moran Environmental Recovery (contractor for MassDEP) | 2 |
| TOTAL | 37 |



APPENDIX C: EXERCISE EVALUATION FORM



MassDEP Geographic Response Plan (GRP) Exercise and Testing Program

Participant Feedback Form

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

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

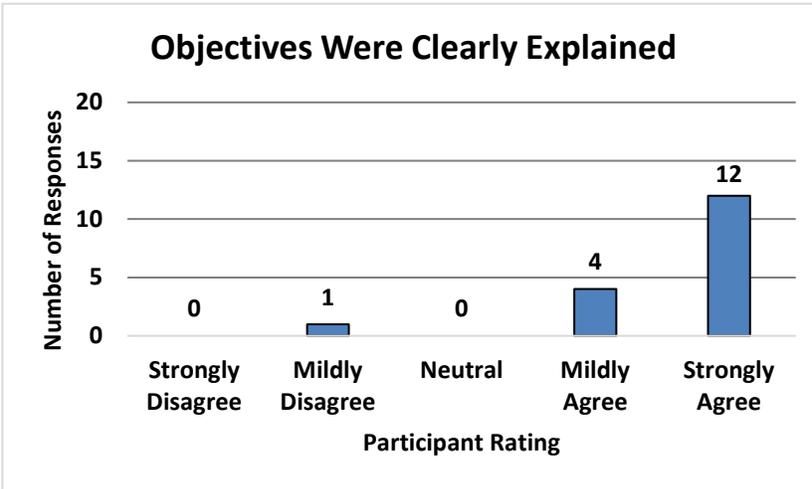
| | |
|--|--------------------------|
| The objectives were clearly explained and the exercise met those objectives. | 1 2 3 4 5 |
| Comments: | |
| The material appropriately challenged me and the pace of instruction was correct. | 1 2 3 4 5 |
| Comments: | |
| The instructor(s) did an excellent job. | 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.

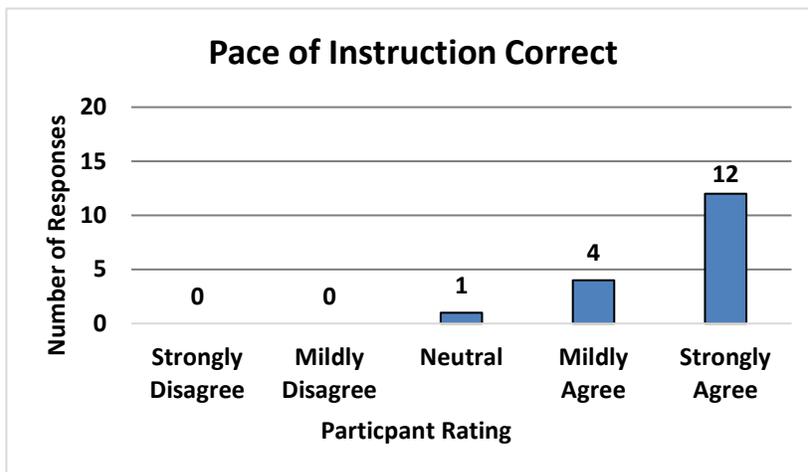
(Rev 2016)



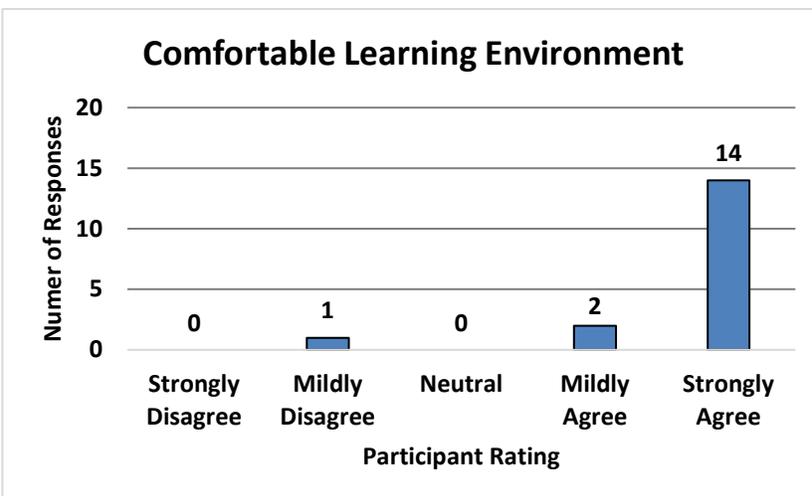
STUDENT FEEDBACK SUMMARY



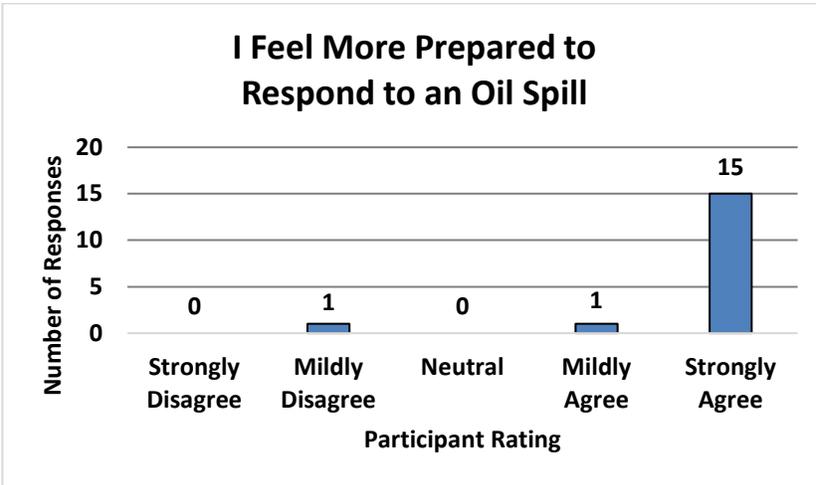
Comments: "visual satellite image was a great depiction of what & where we were actually setting up"



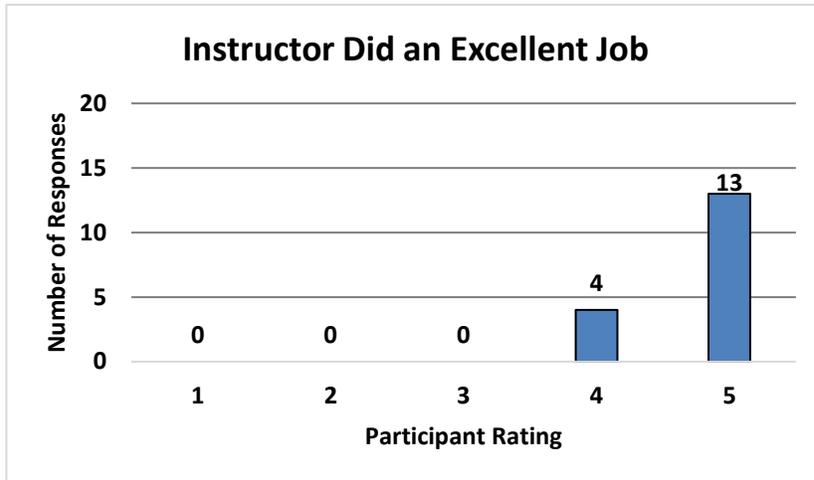
Comments: None



Comments: None



Comments: "great training, went well & felt organized"



Comments: None

The best thing about this training was... "hands on," "hands on learning," "hands on deployment," "being on the water," "we learned something"

This training could be improved by... "longer anchor lines," "less moorings," "more hands on"