



# Massachusetts Department of Environmental Protection Three-Year Geographic Response Plan Testing Program

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## After-Action Report on Marblehead Harbor (NS-27) GRP Test

Testing Date: June 30, 2010

Developed by Nuka Research and Planning Group, LLC  
July 2010

### Project Background

MassDEP has initiated a three-year program to test GRPs at a variety of locations statewide. This long-term testing program will benefit ongoing and future GRP development throughout the state by documenting lessons learned for various oil spill response tactics under a range of conditions. The testing will also provide practical training opportunities for local responders and spill response organizations, and will improve the level of preparedness to respond to coastal oil spills statewide. The overall purpose of the testing program is to evaluate the *tactics and strategies* and not to test or challenge the spill responders (local or professional). However, the testing process often yields important information about areas where additional training or standardization is needed to improve overall response capabilities. For additional information on the MassDEP 3-Year GRP testing program, visit the project website at <http://grp.nukaresearch.com/testing.htm>.

### Testing Overview

The sixth GRP site tested as part of the 3-Year MassDEP program was NS-27, Marblehead Harbor. A full day of testing was conducted on June 30, 2010 to evaluate the draft tactics and strategies in GRP-NS-27. Due to a request for more in-depth training from responders in Swampscott and Nahant, the first half of the day was classroom training led by instructors from Moran Environmental and Nuka Research. During the afternoon, the group relocated to Marblehead Harbor and deployed boom to test the tactic DV-01b.

A planning team consisting of representatives of MassDEP, the towns of Swampscott, Marblehead, Nahant and Nuka Research (contractor) met periodically in the months prior to the deployment test to establish objectives, select the sites and develop a schedule.

The testing day began at 9:00 a.m., when participants gathered at the Veterans Middle School for the classroom training portion of the event. Lunch was provided at the training site and then the group moved to the parking lot at the

Harbormaster's building at 12:30 p.m. Testing concluded at approximately 2:25 p.m.

Training materials from the classroom portion are available to download at the GRP testing website.

### **GRP Site**

Marblehead Harbor (GRP site NS-27) is located on the eastern coast of northern Massachusetts.

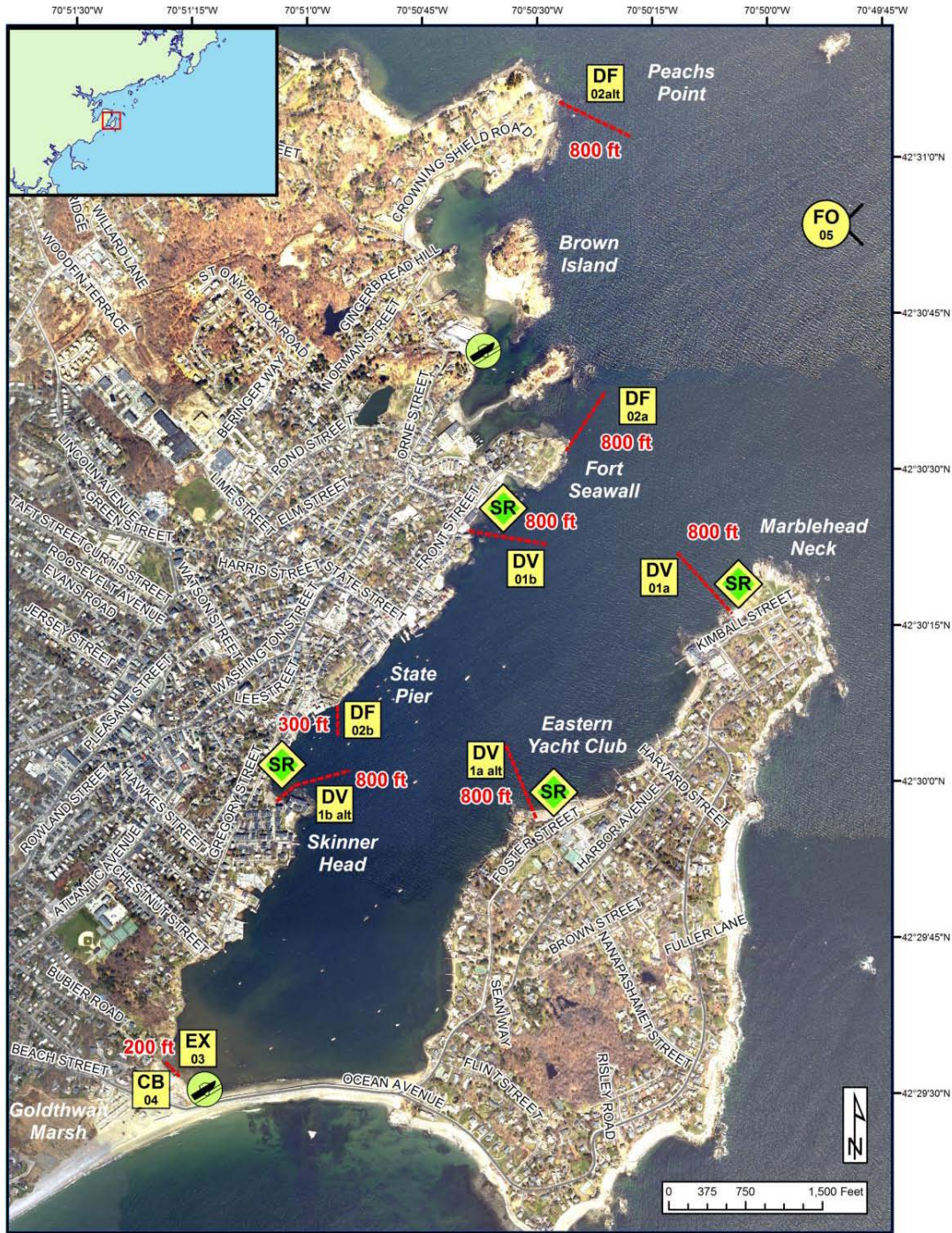
The focus of the GRP for Marblehead Harbor is preventing a spill in the outer harbor or offshore from entering the harbor by deploying boom to divert and recover as much oil as possible from the adjacent shoreline. Figure 1 shows a map of GRP-NS-27. The tactic tested is identified on the GRP map as DV-01b. Appendix A contains a copy of the full GRP for this site.

### **Goals and Objectives**

The goal of this exercise was to provide training on basic boom deployment and conduct a field deployment in Marblehead Harbor to reinforce classroom instruction. The following testing objectives were established:

- Familiarization with MassDEP response trailers
- Learn basics of protective booming tactics
- Practice handling equipment
- Deploy GRP - simulated incident
- Coordinate among multiple towns/agencies
- Demobilize boom
- Hot wash/identify additional preparedness needs

Figure 1. Map of NS-27 (GRP for Marblehead Harbor).



Map Legend					
BB Beach Berm	DF Deflection Booming	MD Mosquito Ditch	Protected-water Boom (Flood Tide)		
CB Culvert Block	EX Exclusion Booming	U.S. Coast Guard Station	Protected-water Boom (Ebb Tide)		
DV Diversion Booming	SR Shoreside Recovery	Boat Ramp	Snare or Sorbent Boom	Beach Berm Material	
PR Passive Recovery	FO Free-oil Recovery				



## Participation in GRP Deployment

Staff members from the Marblehead Fire Department, the Swampscott Fire Department, the Nahant Fire Department, the Marblehead Harbormaster Department, the Nahant Harbormaster Department, and the Swampscott Harbormaster Department were the primary responders for this deployment test (see Figures 2 and 3). They transported, deployed, demobilized, and stored the boom and anchors used in the test. A professional spill responder from Moran Environmental provided assistance and direction to the town responders. It was emphasized throughout the testing that these tests were designed to test the strategies and provide experience to the responders.

*Figure 2. Gathering at staging area for deployment briefing*



Photo by Ian Hurley, Marblehead Reporter

Figure 3. Deploying/towing boom from the staging area



Photo by Ian Hurley, Marblehead Reporter

Personnel from Nuka Research acted as the facilitator, providing direction, answering questions, and keeping the process moving. Moran Environmental provided hands-on training and instruction to responders.

There was a group of observer/evaluators who observed part or all of the day's deployment and were asked to fill out evaluation forms online, or participate in the debrief. The observers included representatives from the Swampscott Fire Department, Marblehead Fire Department, Nahant Fire Department, Nahant Harbormaster Department, Swampscott Harbormaster Department, Marblehead Harbormaster Department, and the MassDEP.

A list of participants from the June 30, 2010 Marblehead Harbor GRP Test is included in the data forms in Appendix B. Due to the large number of participants and the fact that the deployment site could not be viewed from the staging area, the column for observer/responder was left blank if their role was unknown to the data recorder.

### **Equipment**

The equipment (boom, anchor system, lines, floats) deployed during this test came from the MassDEP oil spill response trailer from the Town of Swampscott. Vessels



were provided by the Marblehead Fire Department and the Marblehead Harbormaster Department.

### **Summary of Testing Day**

The testing portion was run based on the principals of the Incident Command System (ICS), although the ICS portion of the exercise was not the prime objective. Lt. Cerrutti from Marblehead Fire Dept served as Incident Commander. After meeting at the Marblehead Harbormaster parking lot on Ferry Street for a review of the day's objectives by Elise DeCola, a safety briefing by Safety Officer Breen, and assignments for the incident by Incident Commander Cerrutti, the group unloaded boom from the Swampscott oil spill response trailer. They deployed three sections of boom, towed by two vessels, for one version of DV-01b, a diversion boom array (see Figure 4). There were many moorings in the harbor which made it difficult to maneuver while towing the boom. The smaller vessel (zodiac) was used solely to set anchors (see Figure 5). There was access from the street to set the shoreline anchor. An iron bolt in the rocks was ultimately used as a permanent anchor after some difficulty using the rebar.

*Figure 4. Attaching the boom to tow to the deployment site*



Photo by Ian Hurley, Marblehead Reporter

Figure 5. Vessels working with boom in Marblehead Harbor



Photo by Ian Hurley, Marblehead Reporter

The wind did pick up towards the end of the deployment, but it did not prove to be a major challenge. After the group returned, rinsed, and stowed the boom a culvert plug was brought out of the trailer and semi-inflated for informational purposes, since there had been a culvert at the shoreside recovery area. It was noted that a culvert plug should be added to the GRP tactics for this site, to ensure that, if the beach were used for recovery, oil would not enter the large culvert/outfall. The entire deployment was completed in about two hours.

### **Documentation**

Since on-site conditions have an impact on deployment, data was compiled on tide cycles, wind speed and direction, sea state, precipitation, and any other environmental conditions or on-scene factors. The completed site data collection form is included in Appendix B.

Standard evaluation forms were posted online for the day's testing, with standard evaluation criteria. To date four written evaluations have been submitted (see Table 1); some participants provided verbal comments during the debrief.

Photographs were also used as documentation. Appendix C contains a copy of Evaluation Forms.

Table 1: Participants' Evaluation Responses

Participant	General Comments/Suggestions	Logistics/Staging Area	Anchor	Boom	Boats	Personnel
Charles Cerrutti	<p>Hand-outs were helpful in the classroom.</p> <p>Shorten classroom time; need more time devoted to practical exercises. Would like to see more practical exercises incorporated into the training.</p> <p>Would like to see clearer roles between the DEP and the rest of the instructors (exercise design and facilitation).</p> <p>Equipment was sufficient. We used Swampscott's trailer. MFD set up the trailer the week prior of the drill so as not to waste time during the exercise as we did two years ago.</p> <p>GRP needs to have launching ramp locations and culvert locations.</p>	Worked fluidly.	Sufficient.	Problems with mooring field in harbor.	There were enough vessels with adequate power to deploy the boom. I would have liked the other towns that participated in the drill to bring their own boats. This would allow more personnel out on the water to observe.	Responders effectively deployed DV-01b.
Mike Kairevich	Objectives were helpful during the classroom training portion.	Staging area: fair to good.	Sufficient.	Challenges/setbacks encountered in towing boom: Allowing for tide set.	Sufficient.	Responders effectively deployed DV-01b.
Andrew Puleo	The classroom portion provided a good understanding with regards to the boom system with regards to oil spills. One change would be possibly to gear it to the shores of the North Shore.	The staging went well considering the location, where an incident could happen.	Sufficient.	To setting and retrieving the boom where buoys were in the area.	Sufficient.	Responders effectively deployed DV-01b.
F. Webb Russell	<p>The classroom portion was helpful in explanation of all the trailer equipment and the new GRP plan.</p> <p>A boat ramp icon should be added to SR by the Eastern Yacht Club. Otherwise I feel we have a great GRP.</p>	Staging area worked sufficient for training. In a real incident I believe we would deploy at specific GRP locations.	Sufficient.	Going through the mooring field was challenging.	Sufficient.	Responders effectively deployed DV-01b.

## Communications

For the testing day, marine Channel 72 was assigned for those responders on the water. Although it was a training exercise, an Incident Commander was assigned (Lt. Cerrutti, Marblehead Fire Department) and a Safety Officer (Deputy Chief Kevin Breen, Swampscott Fire Department). Both were at the staging site on Ferry Street.

## Safety

Throughout the deployment test, facilitators emphasized that safety was the highest priority. An initial safety briefing was given, and participants were also



encouraged to abide by the safety policies of their agency or organization. All participants who were on vessels were required to wear a personal flotation device at all times. Participants were instructed to dress in work clothes appropriate for the weather conditions.

The testing cycle was successfully completed with no safety incidents or injuries.

### **Observations**

The GRP test yielded specific information about the tactic tested, the staging area, and the equipment at the site. The major observations and lessons learned are summarized here by theme/issue, and recommendations for how to address these issues are included where appropriate.

- The Harbormaster building parking lot was too confined for a staging area and there was no line of vision from there to the deployment site. The boom had to be walked down a gangplank to the dock and then towing it to the site through the mooring field proved challenging.
- The shoreline anchor (rebar) was difficult to set due to the rocky shoreline. After reviewing the area many permanent anchor points were found, of varied effectiveness.
- The smaller vessel (zodiac) was very helpful in setting the anchors and being able to maneuver effectively.
- The responders demonstrated that they could successfully deploy a diversion boom array.

### **Recommendations**

Several recommendations came out of this testing day, related both to the GRP itself and to the testing process:

- Change the staging area to a site more conducive to off-loading the boom.
- Add culvert plug to DV-01b.
- Consider loading boom onto vessels if approaching through the mooring fields.
- Make a note of permanent anchors along the shoreline.
- Revise GRP to add boat ramp and culvert.
- Continue to look for opportunities to use field exercises to test and work with neighboring towns.

## **Appendices**

- Appendix A: GRP (as written)
- Appendix B: Site Data Collection Form (completed)
- Appendix C: Evaluation Form (blank)

## **Appendix A**



## **Appendix B**

## **Appendix C**