



MassDEP Geographic Response Plan – 2017 Herring River (CI-12) Exercise

June 12, 2017

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.

EXERCISE OVERVIEW

Exercise Name	2017 Herring River GRP Exercise
Exercise Dates	June 12, 2017
Scope	This exercise was a Full Scale Exercise, planned for approximately six hours at Dennis and Harwich, MA and upon the waters of the lower Herring River. Exercise play was limited to the Herring River 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 Plan (GRP) 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 Assignment List (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 communications.</p>
Threat or Hazard	Discharge of oil into a navigable waterway
Scenario	An oil spill has occurred that threatens the Herring River. Participating agencies will utilize GRP CI-12 to deploy protective booming to protect sensitive resources in the Herring River.
Sponsor	Massachusetts Department of Environmental Protection (MassDEP).
Participating	Participating organizations included:

Organizations

- Harwich Fire Department
- Harwich Harbormaster
- Dennis Fire Department
- Dennis Harbormaster
- Chatham Harbormaster
- Barnstable County All Hazards Incident Management Team
- Barnstable County Sheriff's Office
- Massachusetts Department of Environmental Protection (MassDEP)
- 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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Exercise participants are being trained to prepare anchors for the exercise.



A Chatham Harbormaster boat anchors boom in the Herring River.



Photos courtesy of Nuka Research & Planning Group

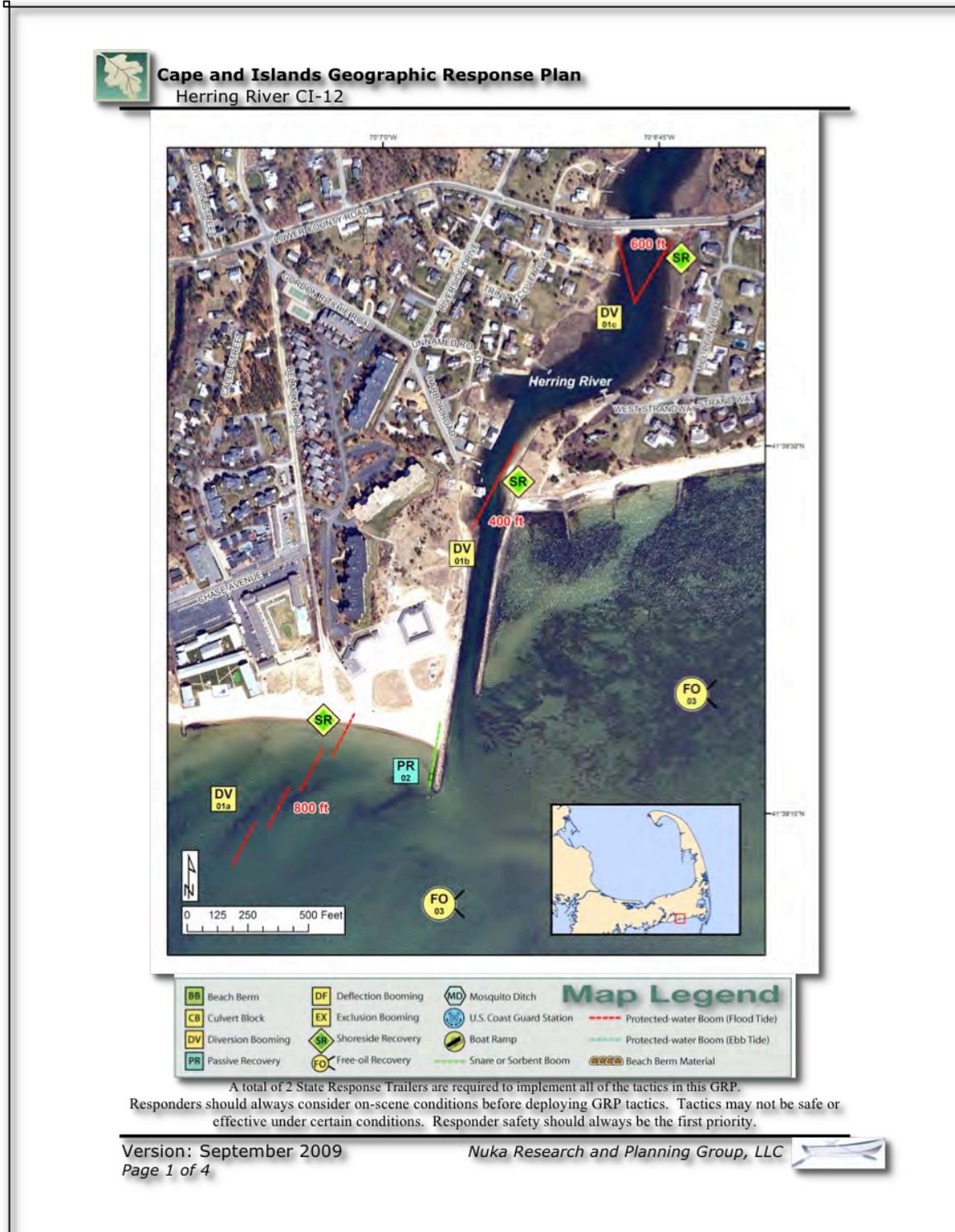


Figure 1. Herring River GRP (CI-12)



Figure 2. Herring River GRP (CI-12) Revised DV-01b Deployment Map



Figure 3. DV-01b Tactic as Deployed

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			
<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) • Both Harwich and Dennis DEP trailers in good condition and readily accessible. • All skills successfully demonstrated during the exercise • Full participation by students in classroom and demonstration portion of the instruction. Students set up the anchors correctly. • Deployment of trailers at the Harwich Public Safety Facility and at Wixon Dock afforded hands on demonstration and rapid deployment of equipment for the exercise. Special appreciation goes to Mr Francis Zarette, owner of the fish house on Wixon Dock, for allowing the use of his private property during the conduct of this exercise. This location is by far the best staging area at the mouth of the Herring River.
	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) • Outstanding job by all participants. Strong currents made boom deployment extremely challenging but the modified GRP tactic was accomplished in an exemplary manner. • The shore team did an outstanding job of deploying boom from the Harwich trailer. Boom was expertly towed into position by Chatham HM "H25B" and Harwich Harbormaster "Marine 77" vessels. • The south end of DV-01b was anchored in proximity to the jetty for safety considerations. Participants recognized that in an actual event, it would have been more effective to put a shore team on the jetty and establish a shore anchor. • Several attempts were required to anchor the north end of the first section of boom in the middle of the channel. H25B showed outstanding seamanship by adjusting the length of the anchor line but the current was too strong and the anchor dragged to the east side of the channel, necessitating abandoning the cascade approach in favor of a single leg of diversion boom. The lack of a trip line on this anchor made adjusting it more difficult. • At one point, boom was towed by the tension member without a bridle in anticipation of connecting boom in the middle of the channel where environmental conditions required a quick connection. It may have been more effective to use some polypropylene line as a bridle to provide a more even strain on the boom and it could have been quickly cut away when the time came to connect boom. • The shore team at Wixon Dock secured the boom to the west bank of the Herring River with a shore anchor well above the high tide mark. • Safety officer did an excellent job. Corrected PFD issues on the spot. No

			<p>other safety issues noted.</p> <ul style="list-style-type: none"> Towing of boom was completed in a safe and effective manner. Current was as strong as advertised. Tow vessels used strong current to their advantage in and showcased skills normally seen in professional crews. Strong currents made recovery/ demobilization of boom extremely difficult. Breaking boom into shorter pieces was an excellent idea. Assets on scene likely would not have been able to pull entire length of boom back to boat ramp for demobilization. Dennis FD provided safety vessel "118" which kept area free of vessels. Dennis HM vessel "Marine 57" did an outstanding job of deploying peat moss as an oil surrogate.
	Implement Tactics in GRP	Diversion Boom	<ul style="list-style-type: none"> Performed Without Challenges (P) DV-01b configuration was modified during the pre-exercise planning as depicted in Figure 2. Shifting location was attempted to utilize a better shore side recovery location and a cascade approach was thought to be more effective against the strong current while allowing the harbor to remain open. Anchoring in the middle of the river channel proved problematic as the anchor dragged after being set. A revised plan was implemented to have a single section of diversion boom. Both sections were connected in the river and the north end anchored to shore on the west bank. This plan was extremely effective in moving surrogate along the length of the boom and to the shore side recovery location. Recommendation: DV-01b should be modified to reflect the tactic used in this exercise.
Operational Coordination	Create and Execute An Assignment List (ICS 201)	<ul style="list-style-type: none"> Fill out ICS 201 Assignments in ICS 201 are followed and on-scene adjustments. Participants demonstrate command and control of exercise 	<ul style="list-style-type: none"> Performed without Challenges (P) IC was very effective in directing the exercise, which involved multiple assets and multiple towns. All units operated in a safe manner. Assignments were followed and adjustments made as necessary by boat crews and shore teams. Contingency planning was considered and communicated to strike teams with skill. The decision to shift from a cascade array to a single leg of boom across the river was made seamlessly. The Barnstable County All Hazards IMT participated in the exercise and did an outstanding job of coordinating check in, facilitating BF/OT paperwork, providing communications plan and medical plan. They also prepared and presented an outstanding brief for the next operational period including IC goals. Their participation greatly contributed to the success of this exercise. It also provided a unique look at what the challenges would be beyond the initial operational period. The Barnstable County Sheriff's Office provided a command vehicle and a drone to capture video of the exercise. This is the third exercise in which a drone has been used. They have proven useful in documenting exercises from a different perspective and would have been extremely valuable in an actual event to identify locations of oil on the water to better inform response operations. Recommendation: Adding a section in the Massachusetts GRP Tactics Guide on the use of drones to support oil spill response operations.

<p>Operational Communications</p>	<p>Effectively Communicate Using VHF equipment</p>	<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) • Communications plan was effectively followed as designed. All participants used the identified frequencies for exercise communications. Both UHF and VHF frequencies were used. Marine 77 had transmitters for both frequencies and were able to manually crosspatch communications between strike teams and the IC. Despite this minor issue, communications were extremely effective.
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Table 2. Summary of Organizational Capability Targets and Associated Critical Tasks

An operational and safety briefing is conducted prior to beginning the exercise at Wixon Dock.



Boom is deployed across the Herring River.



Photos courtesy of Nuka Research & Planning Group

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: Exercise participants from Harwich, Dennis and Chatham, along with MassDEP, Nuka Research and Moran Environmental worked well together to complete assigned tasks.

Strength 2: The use of stations during the trailer demonstration was effective in facilitating increased student participation during the trailer equipment demonstration.

Strength 3: All vessels did an excellent job of towing sections of boom and setting anchors. Shore teams were outstanding in deploying boom and setting a shore anchor.

Areas for Improvement

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

Area for Improvement 1: Tactic DV-01b should be modified to reflect the tactic used in this exercise.

Reference: Massachusetts GRP Tactics Guide.

Analysis: The DV-01b configuration was modified during the pre-exercise planning as depicted in Figure 2. During the operations brief a cascade approach was thought to be more effective against the strong current while allowing the harbor to remain open. Anchoring in the middle of the river channel proved problematic as the anchor dragged after being set. A revised plan (Figure 3) was implemented to have a single section of diversion boom. Both sections were connected in the river and the north end anchored to shore on the west bank. This configuration was extremely effective in moving surrogate along the length of the boom and to the shore side recovery location.

Area for Improvement 2: Continue with use of trip lines for all anchors during exercises.

Reference: Massachusetts GRP Tactics Guide.

Analysis: In the initial attempt to deploy cascade boom, exercise participants had difficulty adjusting the anchor holding the boom in the middle of the Herring River. Adjusting the anchor location in the strong current would have been much easier with a trip line.

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: The Incident Commander did an outstanding job of controlling the exercise and all response efforts. All tasking was clear and concise. Personnel were used effectively to accomplish all tasks

Strength 2: The Barnstable County All Hazards Incident Management Team participated in the exercise and did an outstanding job of coordinating check in, facilitating BF/OT paperwork, providing communications plan and medical plan. They also prepared and presented an outstanding brief for the next operational period including IC goals. Their participation greatly contributed to the success of this exercise. It also provided a unique look at what the challenges would be beyond the initial operational period.

Strength 3: The Barnstable County Sheriff's Office provided a command vehicle and a drone to capture video of the exercise. This is the third exercise in which a drone has been used. They have proven useful in documenting exercises from a different perspective and would have been extremely valuable in an actual event to identify locations of oil on the water to better inform response operations. It would be useful to have a section in the Massachusetts GRP Tactics Guide that addresses the use of drones to support oil spill response operations.

Areas for Improvement

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

Area for Improvement 1: Prepare some guidance for the use of drones during oil spill response operations.

Reference: Massachusetts GRP Tactics Guide

Analysis: This is the third exercise in which a drone has been used. They have proven useful in documenting exercises from a different perspective and would have been extremely valuable in an actual event to identify locations of oil on the water to better inform response operations. It would be useful to have a section in the Massachusetts GRP Tactics Guide that addresses the use of drones to support oil spill response 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

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 communications plan was followed as designed in the final planning meeting and in the operational brief preceding the exercise. All participants used the identified frequencies or voice communications when appropriate for exercise communications.

Areas for Improvement

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

Area for Improvement 1: Exercise participants did not exclusively use VHF Channel 17.

Reference: US Coast Guard VHF Channels (<https://www.navcen.uscg.gov/?pageName=mtvhf>).

Analysis: All participants used the identified frequencies for exercise communications. Both UHF and VHF frequencies were used. Marine 77 had transmitters for both frequencies and were able to manually crosspatch communications between strike teams and the Incident Commander. Despite this minor issue, communications were extremely effective.

Boom is deployed from a MassDEP oil spill response trailer assigned to Harwich, MA.

Vessels from Harwich, Dennis and Chatham deploy boom across the Herring River.



Photo courtesy of Nuka Research & Planning Group



Photo courtesy of Nuka Research & Planning Group

Barnstable County All Hazard IMT conducts a briefing for the next operational period.



Photo courtesy of Nuka Research & Planning Group

Peat moss, used to simulate spilled oil, is collected by the boom and moving toward shore for recovery.



Photo courtesy of Nuka Research & Planning Group

Harwich Harbormaster boat crew connects boom in the middle of the Herring River.



Boom is retrieved by the shore team and anchored to the shore by the fish house at Wixon Dock.



Photos courtesy of Nuka Research & Planning Group

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for the towns of Harwich and Dennis following the MassDEP GRP Exercise conducted on June 12th, 2017.

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	Tactic DV-01b should be modified to reflect the tactic used in this exercise.	Planning	Nuka Research	Mike Popovich	7/1/17	10/15/17
Core Capability 2: Operational Coordination	2. Demonstrate command and control of exercise	Prepare some guidance for the use of drones during oil spill response operations and include in new revision to MassDEP GRP Tactics Guide.	Planning	Nuka Research	Mike Popovich	TBD	TBD
Core Capability 3: Operational Communications	None	None	N/A	N/A	N/A	N/A	N/A

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

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations	
Town of Harwich, MA	Participant Count
Harwich FD	11
Harwich HM	2
Town of Dennis, MA	
Dennis FD	5
Dennis HM	3
Town of Chatham, MA	
Chatham HM	5
Barnstable County	
Barnstable County All-Hazards Incident Management Team (BCAHIMT)	14
Barnstable County Sherriff's Office	2
TOWN/COUNTY PARTICIPANTS	42
Federal	
United States Coast Guard Sector Southeastern New England	1
State	
Massachusetts Department of Environmental Protection (MassDEP)	2
Nuka Research and Planning Group, LLC (contractor for MassDEP)	3
Moran Environmental Recovery (contractor for MassDEP)	2
GRAND TOTAL	50

50% of first responders reported having previous GRP exercise experience.

Special appreciation goes to Mr. Francis Zarette, owner of the fish house on Wixon Dock, for allowing the use of his private property during the conduct this exercise. This location is by far the best staging area on the Herring River.

APPENDIX C: EXERCISE EVALUATION FORM

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

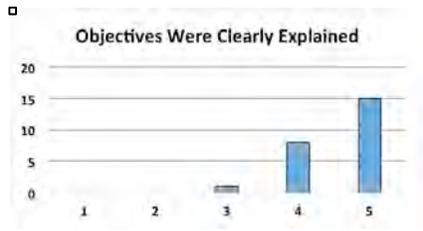
The objectives were clearly explained and the exercise met those objectives.	1 2 3 4 5
Comments:	
The material appropriately challenged me and the pace of instruction was correct.	1 2 3 4 5
Comments:	
The instructor(s) did an excellent job.	1 2 3 4 5
Comments:	
I found the classroom to be a comfortable 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.

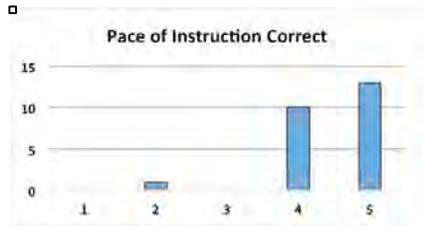
(Rev 2016)



Student Feedback Summary



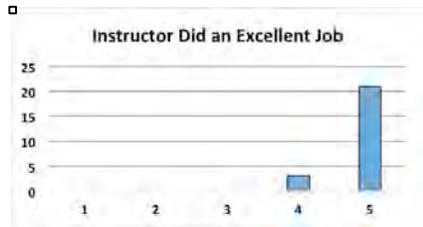
Student Comments: "Clear 201 and associated brief" "great presentation"



Student Comments: "Was introduced and required to fill out ICS forms w/ given info."



Student Comments: None



Student Comments: "Classroom went a little long and cut into field ops"



Student Comments: "Similar to real life had to modify plan 1/2 way"

The best thing about this training was... "Involvement w/ the incident command system" "Knowledge" "hands on experience" "U/W" "Practical Evolution" "As real as possible" "clear goals" "trailer familiarization & deployment of boom/equipment" "communication" "hands on" "hands on w/ great weather" "actually using boats and equipment" "the weather, it was great learning hands on" "weather. Team effort. Hands on" "Actual area of responsibility" "the great training team + environment. Pizza was also good." "the hands on deployment experience." "weather" "field ops"

This training could be improved by.... "Providing more preparatory information prior to training" "better perimeter security" "longer time available for manipulative drill portion." "better comms" "less talk, more hands-on" "brainstorming" "more prep" "a larger area for multiple deployment points." "n/a" "N/A" "none" "nothing" "speed of the exercise" "longer period"