

**MC252 Deepwater Horizon Oil Spill  
MARU & HARPS Recovery  
February 20 – March 9 Mission Plan  
February 10, 2012**

**Originated as a requirement by:**

Chris Tessaglia-Hymes (Cornell Bioacoustics Research Program, Cornell University)  
Josh Jones (Whale Acoustics Laboratory, Scripps Institution of Oceanography)

**Amended plan by:**

Robert Mulcahy (CSA), Mark Schroeder (CSA)

**Background and Scope of Work**

The following describes the proposed field operations to support the bioacoustics monitoring program for the Cornell Bioacoustics Research Program, Cornell University and the Whale Acoustics Laboratory Scripps Institution of Oceanography. Both projects involve the passive acoustic monitoring of marine mammals utilizing passive autonomous recording units (MARUs & HARPS). The MARU and HARPs *autonomous recording units (ARU)* are digital audio recorders that can be programmed to record on a desired daily schedule and deployed for periods of weeks or months in a remote environment. The ARUs used in these projects are positively buoyant arrays and are deployed by being dropped to the seafloor with an anchor such that the floats are a few meters above the bottom. Underwater sounds are recorded through a hydrophone (underwater microphone). These analog sound data are conditioned, digitized, and stored on electronic storage media. At the conclusion of the deployment, a ship is sent to the station and the ARU is sent an acoustic command to release itself from its anchor, and then floats to the surface for recovery. After the device is recovered, its recorded audio data are extracted and stored. The objective of this mission is to recover the 18 previously deployed MARUs and the 4 HARPS in the northern Gulf of Mexico (**see the MARU figure 1 & MARU/HARP table 1 below**).

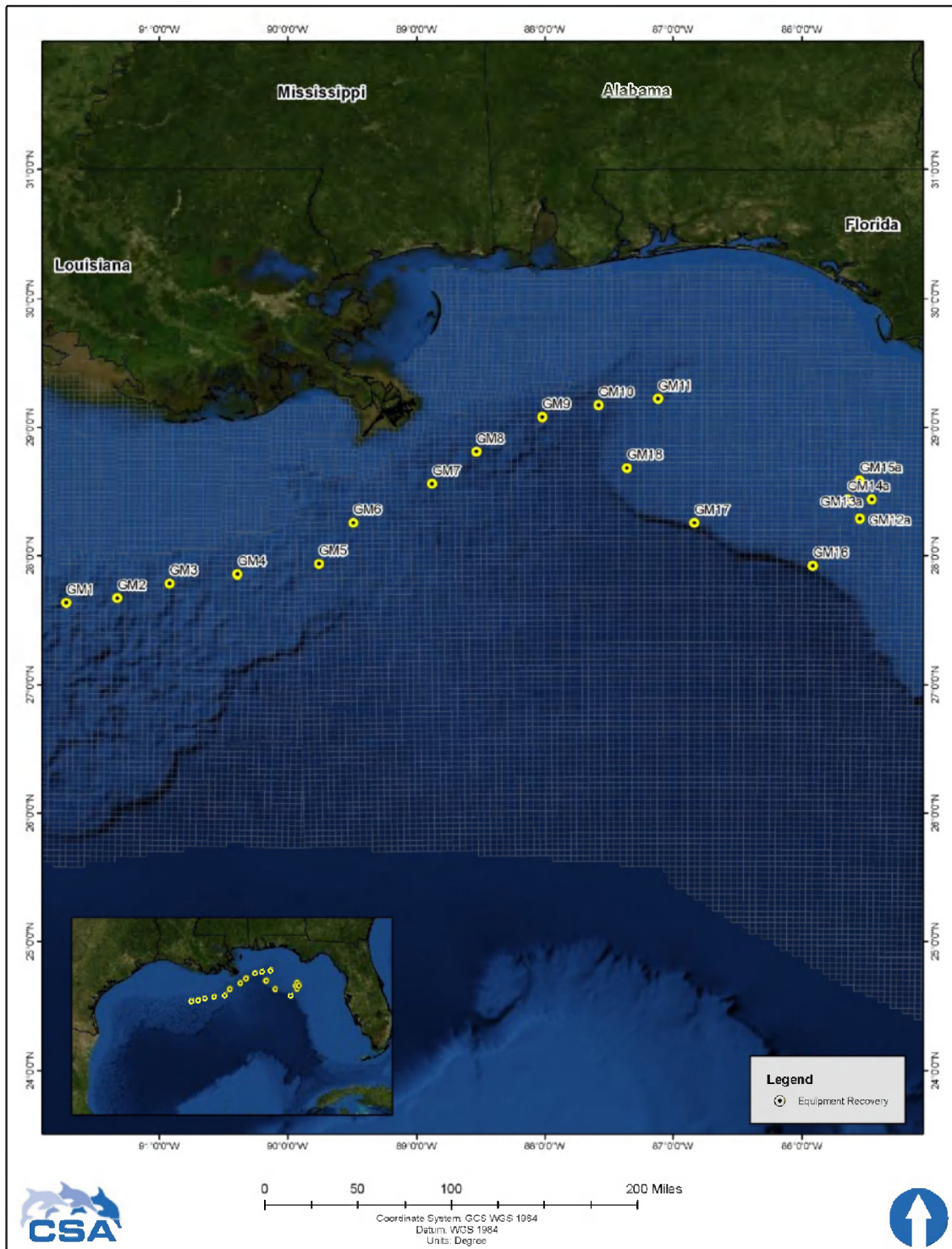


Figure 1 – MARU Deployment Stations in the Northern Gulf of Mexico

***Table 1 – MARU & HARPS Station Locations***

<b>PU #</b>	<b>Site ID</b>	<b>Latitude (dd° mm.mmm')</b>	<b>Longitude (dd° mm.mmm')</b>	<b>Site Plan</b>
PU48	GM1	[REDACTED]	[REDACTED]	Recovery
PU62	GM2	[REDACTED]	[REDACTED]	Recovery
PU191	GM3	[REDACTED]	[REDACTED]	Recovery
PU153	GM4	[REDACTED]	[REDACTED]	Recovery
PU218	GM5	[REDACTED]	[REDACTED]	Recovery
PU151	GM6	[REDACTED]	[REDACTED]	Recovery
PU190	GM7	[REDACTED]	[REDACTED]	Recovery
PU192	GM8	[REDACTED]	[REDACTED]	Recovery
PU202	GM9	[REDACTED]	[REDACTED]	Recovery
PU140	GM10	[REDACTED]	[REDACTED]	Recovery
PU229	GM18	[REDACTED]	[REDACTED]	Recovery
PU80	GM11	[REDACTED]	[REDACTED]	Recovery
PU166	GM17	[REDACTED]	[REDACTED]	Recovery
PU136	GM16	[REDACTED]	[REDACTED]	Recovery
PU138	GM14a	[REDACTED]	[REDACTED]	LF Array Synchronization and Recovery
PU184	GM15a	[REDACTED]	[REDACTED]	LF Array Synchronization and Recovery
PU200	GM12a	[REDACTED]	[REDACTED]	LF Array Synchronization and Recovery
PU171	GM13a	[REDACTED]	[REDACTED]	LF Array Synchronization and Recovery
<b><u>HARPS STATIONS</u></b>				
MC118		[REDACTED]	[REDACTED]	HARPS
Main Pass		[REDACTED]	[REDACTED]	HARPS
Desoto Canyon		[REDACTED]	[REDACTED]	HARPS
Green Canyon		[REDACTED]	[REDACTED]	HARPS

## **MARU & HARPS Recovery**

### ***Vessel Mobilization and Mission***

Vessel mobilization involves arrival of Cornell, Scripps and CSA personnel and equipment and configuration of the survey vessel to meet the mission requirements. Two technicians from Cornell and two technicians from Scripps will accompany the mission in order to provide direction and support for the ARU recovery operation. CSA will provide an HSSE manager and vessel manager to oversee safety and navigation parameters. During the vessel mobilization phase of the operation, it is anticipated that the CSA staff will communicate with Cornell, Scripps and BP personnel to establish HSSE operational parameters and communications protocols required during the recovery. The vessel being utilized for this project is the M/V Emily Bordelon and will be supplied by BP. Mobilization and demobilization of the vessel and equipment will be completed in Houma, La.

### ***Recovery Procedures***

- 1) Following mobilization, and once at sea, the vessel will arrive on-site and shut propulsion down to protect submersible equipment.
- 2) Technicians will submerge a transducer disk to communicate with the ARU, along with a hydrophone to monitor the ARU's acoustic responses. This equipment is connected to a transponder box and laptop computer.
- 3) The ARU's individual acoustic release signal will be played through the computer and into the water while the technician listens for a response. When the unit is verified to be on location, a second release signal is played and the release sequence is activated. The time of the ARU's second response to the release signal will be recorded.
- 4) The submerged equipment (transducer disk and hydrophone) will be removed from the water to facilitate the vessel's repositioning back on-site if necessary during the watch process.
- 5) All available eyes will scan the surface for the ARU. At the current depths, the ARU should reach the surface in approximately 20 minutes.
- 6) While searching for the ARU, the technician will have a VHF radio tuned to the released ARU's individual radio signature, which will emit a signal upon surfacing. This is an indicator that the ARU has surfaced, even if it has not been spotted yet.
- 7) When the ARU is spotted on the surface, the vessel will position for retrieval in accordance with a pre-discussed plan of action between the field team and ship crew. The time that the ARU surfaces will be recorded. The ARUs are easily retrievable by hand using a long boathook and more than one person lifting. Grappling hooks have also been utilized during retrieval. The ARU should typically be approached and retrieved from the lowest point on the vessel to minimize lifting and possible damage to the unit.
- 8) Once on board, the ARU will be powered down, and that time will be recorded. The ARU will also be visually inspected and conditions documented.
- 9) Following the successful recovery of the ARU the vessel will continue to the next station and repeat the sequence for recovery until all the MARUs and HARPS have been recovered.

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Schedule

Feb 20 to 22 - Mobilization

Feb 22 - Departure

Feb 23 to March 7 - MARU and HARPS Recovery

March 8 to 9 - Demobilization

Approvals

Approval of this work plan is for the purposes of obtaining data for the Natural Resource Damage Assessment. Parties each reserve its right to produce its own independent interpretation and analysis of any data collected pursuant to this work plan.

BP Approval:

Joyce Meloy  
Printed Name

Joyce Meloy  
Signature

4/06/2012  
Date

Federal Trustee Approval:

Jessica White for Lisa DiPinto  
Printed Name

Jessica White  
Signature

4/02/2012  
Date

Louisiana Trustee Approval:

KAROLICH DEBUSSATONIC  
Printed Name

[Signature]  
Signature

4/19/2012  
Date