Mississippi Canyon 252 Deepwater Horizon Oil Spill

NRDA Sampling Plan

MESOPHOTIC REEF FOLLOW-UP CRUISE PLAN ADDENDUM

Deepwater Benthic Communities Technical Working Group

Draft: June 16, 2014

Approval of this addendum is for the purposes of obtaining data for the Natural Resources Damage Assessment. Each Party reserves the right to produce its own independent interpretation and analysis of any data collected pursuant to this addendum.

APPROVED:

_____ _____

Department of Commerce Trustee Representative: **Date**

_____ _____

State of Louisiana Representative: **Date**

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Deepwater Benthic Communities Technical Working Group

DRAFT: June 16, 2014

CRUISE DATES: June 22, 2014- July 13, 2014

KEY PERSONNEL:
Dr. Kenneth J. Sulak, USGS, fish ecologist
Dr. Ian MacDonald, Florida State University, marine scientist
Dr. Peter Etnoyer, NOAA, coral scientist, chief scientist Leg 1
Michael Randall, USGS, fish biologist, chief scientist Leg 2

INTRODUCTION AND BACKGROUND: Two dedicated Natural Resource Damage Assessment (NRDA) cruises targeting mesophotic reef natural resources have been conducted to-date to assess injuries to natural resources stemming from the May 2010 Macondo Well blowout that led to the Deepwater Horizon oil spill. The first cruise was conducted in August 2010 aboard NOAA RV 'Nancy Foster' to deep, shelf-edge, mesophotic reefs located north and east of the Macondo wellhead site. This cruise was conducted pursuant to the "NRDA Tier 1 for Deepwater Communities" work plan. The second cruise was conducted in October 2011 aboard the MV Holiday Chouest, pursuant to the "Mesophotic Reef Follow-Up Cruise Plan". Targeted reefs included Alabama Alps Reef and Roughtongue Reef, both large high-relief platform reefs within the Pinnacles reef tract, northeastern Gulf of Mexico (NEGOM); Yellowtail Reef, a lower relief Pinnacles Trend reef near Roughtonge Reef; as well as Coral Trees Reef (CTR) located on the West Florida shelf edge, and Madison-Swanson South Ridge (MSSR). Latitudes and Longitudes for the targeted reefs are:

1) **MSSR:**	29.187170	-85.678480
2) **CTR**	29.505000	-85.146000
3) **YTR**	29.450830	-87.593333
3) **RTR:**	29.439039	-87.577317
4) **AAR:**	29.254919	-88.338933

This work plan serves as an addendum to the latter of these two work plans. Broadly, it covers the repetition of the 2011 follow-up cruise effort again during the 2014 field season, as well as the repetition of associated post-cruise analyses. Modifications to the approaches and methods used are detailed herein.

OBJECTIVES:
The objectives detailed in the 2011 work plan remain in place, with some minor exceptions. These and other anticipated deviations from the original work plan are detailed in the Methods section below.

METHODS:

The 2014 follow-up field effort will target the same four target mesophotic reefs which have been targeted for previous assessment efforts. The methods and approaches to be implemented pursuant to this addendum will be identical to those methods and approaches detailed in the original Mesophotic Reef Follow-up Work Plan, with a few minor exceptions, which are detailed below.

- No sediment cores will be collected due to the difficulty of collecting sediment within what is predominantly a reef-hash substrate.
- No coral samples will be collected for purposes of ageing and histology.
- Specific regions will be targeted for taking of 100 down-looking photos per region, in order to allow for comparison to photos collected as part of the MAPTEM studies conducted from 1996 to 1999 by Continental Shelf Associates and Texas A&M University. (Continental Shelf Associates, Inc and Texas A&M University 2001. Mississippi/Alabama Pinnacle Trend Ecosystem Monitoring, Final Synthesis Report. US Department of the Interior, Geological Survey, Biological Resources Division, USGS BSR 2001-0007 and Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA, OCS Study MMS 2001-080. 415 pp. + appendices)
- A set of coral colonies selected, extensively photo-documented, and marked with individually numbered markers during the 2011 cruise will be relocated and photo-documented.

All materials associated with the collection or analysis of samples under these protocols or pursuant to any approved work plan, except those consumed as a consequence of the applicable sampling or analytical process, must and will be retained unless and until approval is given for their disposal in accordance with the retention requirements set forth in paragraph 14 of Pretrial Order # 1, paragraph 6 of Pretrial Order #30, the entirety of Pretrial order 16 which details the retention of metadata, and any other applicable Court Orders governing tangible items that are or may be issued in MDL No. 2179 IN RE: Oil Spill by the Oil Rig "DEEPWATER HORIZON" (E.D. LA 2010). Such approval to dispose must be given in writing and by a person authorized to direct such action on behalf of the state or federal agency whose employees or contractors are in possession or control of such materials.

This addendum will be implemented consistent with existing Trustee regulations and policies. All applicable state and Federal permits must and will be obtained prior to conducting work.

Mobilization and Cruise Schedule: Proposed cruise dates are June 17th through July 17th, 2014, with at-sea days being between June 23rd and July 13th. Twenty-four hour operations, with twelve hours/day of ROV operations, are anticipated on board. Four days in-port mobilization/demobilization time is anticipated to be needed. Final pre-dive ROV configuration,

gear testing, computer set-up, communications linkages, and other at-sea sampling and data/specimen management details will be fine-tuned in transit to the first dive location. A total of 17 days of at-sea sampling time are anticipated. Scheduled cruise dates include an estimated eight days of ship transit time and two days of port call for resupply. Aside from any unexpected deviations due to weather or gear exigencies, the mission will follow the Daily Cruise Plan (Appendix A).

Digital and Shipboard Data: All data including imagery (to include navigation, photographic, ARC-GIS layers, and multibeam raw data files, instrument data, field logs and documentation) and all other electronic data will be saved to an on-board computer, and all data shall be migrated to several dedicated external hard drives, providing multiple copies for NRDA, backup, and use of data by project and collaborating PIs, only after the data are publicly disclosed following appropriate QA/QC procedures. The data will be controlled and managed under project protocols, including Chain-of-Custody tracking of the external hard-drives. Upon return to port, the vessel Operations Manager shall produce identical copies of the raw and processed electronic media generated during the cruise and deliver one of those copies each to NOAA (or its QA contractor) and co-Trustees, as requested. Additionally, all non-analytical data, including field reports and data sheets, will be made available via NOAANRDA.org.

Laboratory Data: Each laboratory shall simultaneously deliver raw data, including all necessary metadata, generated as part of this work plan as a Laboratory Analytical Data Package (LADP) to the Trustee Data Management Team (DMT) and the Louisiana Oil Spill Coordinator's Office (LOSCO) on behalf of the State of Louisiana. The electronic data deliverable (EDD) spreadsheet with pre-validated analytical results, which is a component of the complete LADP, will also be delivered to the secure FTP drop box maintained by the trustees' Data Management Team (DMT). Any preliminary data distributed to the DMT shall also be distributed to LOSCO. Thereafter, the DMT will validate and perform quality assurance/quality control (QA/QC) procedures on the LADP consistent with the authorized Quality Assurance Project Plan, after which time the validated/QA/QC'd data shall be made available simultaneously to all Trustees. Any questions raised on the validated/QA/QC results shall be handled per the procedures in the Quality Assurance Project Plan and the issue and results shall be distributed to all parties. In the interest of maintaining one consistent data set for use by all parties, only the validated/QA/QCed data set released by the DMT shall be considered the consensus data set. In order to assure reliability of the consensus data and full review by the parties, no party shall publish consensus data until 7 days after such data has been made available to the parties. Also, the LADP shall not be released by the DMT or LOSCO prior to validation/QA/QC absent a showing of critical operational need. Should any party show a critical operational need for data prior to validation/QA/QC, any released data will be clearly marked "preliminary/unvalidated" and will be made available equally to all Trustees. Data may be made available to BP and other potentially responsible parties at the discretion of NOAA or the U.S. Department of Justice.

Chain of Custody: All data collected pursuant to this scope of work must adhere to a strict Chain of Custody protocol to ensure the utmost integrity of all data, methods, control and documentation. All data will remain in the documented physical control of the selected contractors at all times. Complete documentation of this Chain of Custody must follow the standard NRDA Chain of Custody for seafloor imagery, including acceptance and release

signature for this physical control chain.[1] Original copies of all documentation will be provided to the signatories, or their designated representative in accordance with this section.

Safety Plans: A HASP binder containing all health and safety protocols will be provided to the vessel. The vessel-specific Health and Safety Plan (Appendix B) will be followed at all times, and made available on board the vessel.

Protection of Sensitive Marine Species: Best management practices for the protection of sensitive marine species will be employed at all times onboard the vessel. Best management practices are provided in Appendix C. If an accidental take of a protected species occurs, the accidental take procedures will be followed. Accidental take materials are included in Appendix D, and will be made available onboard the vessel.

At-Sea Transfer of Samples: No at-sea transfer of samples are anticipated for this study.

MILESTONES AND DELIVERABLES:

Within one month of the end of the field effort, the principle investigator will prepare a summary cruise report. Within six months of the end of the field effort the principle investigator will prepare a final report. The final report will provide both raw data and results of video transect and photograph analyses.

ESTIMATED BUDGET

LABOR, SUPPLIES, TRAVEL, ANALYSIS, AND REPORTING

1. COSTS (PRE-MISSION, AT-SEA, IN-LAB)[2]

Person	Role	Amount ($)
USGS	Fish Community Assessment	$400,000
FSU	Coral Health Assessment, Time-lapse Photography	$150,000
NOAA-NCCOS	Coral Health Assessment	$200,000
Vessel		$500,000
ROV		$500,000
TOTAL ESTIMATED COSTS		**$1,750,000**

[1] Refer to the Work Plan entitled "Technical Specifications and Scope of Work/Services for Aerial Image Acquisition and Image Processing in Support of the MC252 NRDA Process, Fall 2010 Through Spring 2012" (October 6, 2010 version) for more details and for a copy of the COC form.

[2] Budget is an estimate. Inclusion of this budget in this work plan does not constitute approval to incur costs or expend funds.

APPENDIX A

DAILY CRUISE PLAN

Sunrise/sunset during the cruise in the Northern Gulf of Mexico are anticipated to be ~0600 and ~2000 Central time, respectively. ROV operations will be 0700 to 1900. ROV operations will target:

1) Acquiring 5-minute transects across reef surface for fish enumeration and identification and coral health assessment;
2) Documentation of condition of tagged coral colonies.
3) Acquiring random down-looking photos for comparison with MAPTEM surveys for purposes of coral health assessment;
4) Deployment and retrieval of rotary time-lapse cameras for purposes of documentation of diurnal fish abundance.
5) Retrieval of coral samples for identification purposes; and
6) Photo documentation of coral conditions.

There will be three types of at-sea ROV work days: days with rotary time-lapse cameras deployed or retrieved; days with marked coral colony documentation, and days without either interval cameras or coral colony documentation.

The majority of the time, ROV operations will follow an hourly cycle, such that transects, random photos, and photo-documentation of coral conditions are accomplished within each hour of ROV operations. There will be four five-minute long transects conducted at the start of each hour, followed by 20 minutes each of random bottom photos and coral colony documentation. Random bottom photos and coral documentation will occur in the vicinity of the last transect endpoint, unless a point was marked during a transect that the Chief Scientist desires to navigate back to. Transect direction will be varied at the start of each transect such that the duration of the transect should continue across reef top biotope. The start of the next hourly set of transects will be from wherever the ROV is located at the end of the photo/documentation period. Normal days (without interval camera deployments or retrievals, or marked colony reconnaissance) will have 48 transects/day, evenly distributed between 0700 and 2000, plus four hours each of random bottom photos and coral documentation, at twelve randomly distributed regions.

Time-lapse rotary cameras will be deployed on June 24 (AAR), June 28 (RTR), July 6 (CTR), and July 9 (MSSR). They will be retrieved on June 26 (AAR), June 30 (RTR), July 8 (CTR), and July 11 (MSSR). Deployment of interval cameras will occur near the end of the working day. During the first day of ROV operations at a given reef, potential deployment locations for the four cameras will be noted while doing transects and photo-documentation. Beginning at 1600 hours on the day of camera deployment, transect operations will be ceased and the ROV retrieved. Two interval cameras will be loaded on the ROV, the ROV launched, and the cameras deployed at the selected locations. The ROV will be again recovered, reloaded with the second set of interval cameras, launched, and the cameras deployed. Retrieval will be conducted in a similar manner, again beginning at 1600.

There are 13 marked coral colonies; six on AAR and seven on RTR (Table 1). Marked coral reconnaissance will be conducted in a block of time from 1300 to 1500 on June 25 and 27 at AAR, and June 29 and July 1 at RTR. New markers will be distributed among the marked corals during that time, if appropriate (i.e., colony still exists). Temporary markers will be collected, stored in the biobox, and returned to the vessel for disposal. A few new markers will be carried on the ROV to be distributed at opportunistic sites during regular hourly coral documentation, with the intent of distributing new markers among the four primary reefs.

Table A1: Locations of existing coral markers to be revisited.

STATION DESCRIPTION	REEF	Local Lat(N)	Local Lon(W)
MP_HC2_AAR_DV055_ ST1794_M3	AAR	29.25332261 N	88.33952608 W
MP_HC2_AAR_DV055_ ST1795_M5	AAR	29.25309531 N	88.33942583 W
MP_HC2_AAR_DV055_ ST1796_M2	AAR	29.25281061 N	88.33932307 W
MP_HC2_AAR_DV055_ ST1797_M1	AAR	29.25468749 N	88.33913869 W
MP_HC2_AAR_DV055_ ST1798_M4	AAR	29.25478071 N	88.33913794 W
MP_HC2_AAR_DV055_ ST1799_M8	AAR	29.25489579 N	88.33920088 W
MP_HC2_RTR_DV053_ST1706_MU	RTR	29.43927811 N	87.57708365 W
MP_HC2_RTR_DV053_ST1707_MX	RTR	29.43933563 N	87.57725493 W
MP_HC2_RTR_DV053_ST1708_MA	RTR	29.44025008 N	87.57626829 W
MP_HC2_RTR_DV053_ST1709_MI	RTR	29.44040747 N	87.57611105 W
MP_HC2_RTR_DV053_ST1710_MB	RTR	29.43851763 N	87.57589347 W
MP_HC2_RTR_DV053_ST1712_MV	RTR	29.43858501 N	87.57567057 W
MP_HC2_RTR_DV023_ST1214_MARKER	RTR	29.43941991 N	87.57647065 W

Opportunistic observation: a dive at DTR in 2011 revealed a unique behavior by Amberjack. If the cruise is going well and the ROV crew is amenable, USGS would like to do a 1 hour dive the night of 27 June at DTR, during the transit from AAR to RTR, to observe Amberjack behavior.

Table A2. Location of Sampling Activities by Cruise Leg

Leg 1
Alabama Alps Reef (AAR)- 4 days sampling
Rough Tongue Reef (RTR)- 3 days sampling
Yellow Tail Reef (YTR)-1 day sampling

Leg 2
Yellow Tail Reef (YTR)-2 days sampling
Coral Trees Reef (CTR)-3 days sampling
Madison Swanson South Reef (MSSR)- 3 days sampling
Rough Tongue Reef (RTR)- 1 day sampling

Combined totals:

Alabama Alps Reef (AAR)- 4 days sampling
Rough Tongue Reef (RTR)- 4 days sampling
Yellow Tail Reef (YTR)-3 days sampling
Coral Trees Reef (CTR)-3 days sampling
Madison Swanson South Reef (MSSR)- 3 days sampling

Table A3. Cruise Narrative

- Vessel leaves Miami, FL, Tuesday 17 June. Three/four day transit to Gulfport
- Vessel arrives Gulfport, MS, 20/21 June.
- Global Explorer mobilization 21-23 June
- Science crew arrives 21 or 22 June

Leg 1

- Vessel departs Gulfport afternoon of 23 June. Checkout dive for GE. Transit to AAR (77 nm; 8.5 hours)
- Vessel arrives Alabama Alps 0600 24 June
- 24, 25, 26, 27 AAR sampling. Interval cameras deployed 24 June, retrieved 26 June
- 27 June @ 2100 leave AAR, transit to RTR (41 nm; 4.5 hours)
- 28, 29, 30 June RTR sampling. Interval cameras deployed 28 June, retrieved 30 June
- 30 June @ 2100 leave RTR, transit to YTR (1 nm; 15 minutes)
- July 1 YTR sampling
- July 1 @ 2100 leave YTR, transit to Gulfport (96 nm, 10.5 hrs)
- July 2 0600 arrive Gulfport, science crew change-out, boat resupply July 2/3

Leg 2

- July 3 When ship is ready, but NLT 1900 leave Gulfport, transit to YTR (96 nm, 10.5 hours)
- July 4 arrive YTR 0600 sampling
- July 4&5 YTR sampling

- July 5 2100 leave YTR; transit to CTR (75 NM, 8.3 hours)
- July 6,7,8 CTR sampling. Interval cameras deployed 6 July, retrieved 8 July
- July 8 @ 2100 leave CTR; transit to MSSR (30 nm, 3.3 hours)
- July 9,10, 11 MSSR sampling. Interval cameras deployed 9 July, retrieved 11 July
- July 11 @ 2100 leave MSSR; transit to RTR (100 nm, 11 hours)
- July 12 0800 arrive RTR
- July 12 RTR sampling
- July 12 @2100 leave RTR; transit to Gulfport (96 nm, 10.5 hours)
- July 13 0700 arrive Gulfport; demobilize
- 2 days demobilization, 3 days transit, vessel is back in Miami 17 July

Staffing

Leg 1: 22 June -2 July

Berth 1: DSSI ROV Team Toshinobu Mikagawa
Berth 2: DSSI ROV Team Mike Nicholson
Berth 3: DSSI ROV Team Jamie Sherwood
Berth 4: NRDA Data Manager Nick Bach
Berth 5: FSU Ian MacDonald. Co-PI
Berth 6: FSU Peter Lazarevich, Navigator
Berth 7: FSU Mauricio Silva
Berth 8: NOAA Peter Etnoyer. Chief Scientist, Leg 1
Berth 9: NOAA JD Dubick
Berth 10: USGS Ursula Nash
Berth 11: USGS Mike Randall
Berth 12: USGS Melissa Price

Leg 2: 3 July- 13 July

Berth 1: DSSI ROV Team Toshinobu Mikagawa
Berth 2: DSSI ROV Team Mike Nicholson
Berth 3: DSSI ROV Team Jamie Sherwood
Berth 4: NRDA Data Manager Nick Bach
Berth 5: FSU Eric Howarth, Navigator
Berth 6: FSU Mauricio Silva

Berth 7: FSU Caroline Johansen
Berth 8: NOAA Leslie Wickes
Berth 9: NOAA Janessy Frometa
Berth 10: USGS Ann Foster
Berth 11: USGS Mike Randall, Chief Scientist, Leg 2
Berth 12: USGS Jared Jacobini

Walton Smith
2014 Mesophotic Cruise
Project Specific Health and Safety Plan

Prepared for US Geological Service (USGS), National Oceanic and Atmospheric Administration (NOAA), and Florida State University Mesophotic Cruise personnel

20 June 2014

Site/Safety and Health Officer — Date 6/20/14

NOAA Incident Ops Lead — Date 6/20/14

DWH NRDA Field Ops Supervisor — Date 6/20/14

Science Safety Officer — Date 6/21/14

Director of Marine Operations, Univ. of Miami — Date 6/20/14

Table of Contents

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

Two dedicated Natural Resource Damage Assessment (NRDA) cruises targeting mesophotic reefs have been conducted to-date to assess injuries to natural resources stemming from the April 2010 Macondo Well blowout that led to the Deepwater Horizon oil spill. The first cruise was conducted in August 2010 aboard NOAA RV Nancy Foster to deep, shelf-edge, mesophotic reefs located north and east of the Macondo wellhead site. This cruise was conducted pursuant to the "NRDA Tier 1 for Deepwater Communities" work plan. The second cruise was conducted in September 2011 aboard the MV Holiday Chouest, pursuant to the "Mesophotic Reef Follow-Up Cruise Plan". Targeted reefs included Alabama Alps Reef (AAR) and Roughtongue Reef (RTR), both large high-relief platform reefs within the Pinknacles reef tract, northeastern Gulf of Mexico (NEGOM), Yellowtail Reef (YTR), a lower relief Pinnacles Trend reef near Roughtongue Reef, as well as Coral Trees Reef (CTR) located on the West Florida shelf edge, and Madison-Swanson South Ridge (MSSR). Latitudes and Longitudes for the targeted reefs are:

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5) **AAR:**	29.254919	-88.338933

The cruise detailed herein (the 2014 Mesophotic Cruise) is a follow-up to the two previous cruises, returning to the same reefs to survey coral and fish communities on the mesophotic reefs.

Fieldwork performed by all personnel, inclusive of any NOAA or USGS subcontractors, shall be performed in accordance with this Project-Specific Health and Safety Plan (HASP), and following industry-standard safe work practices.

A safety confirmation form is included in **Appendix A** to document that all field personnel will have received this safety plan and will have an opportunity to review the contents, and shall comply with all vessel safety rules and this Project-Specific HASP.

1.1 SAFETY OBJECTIVES

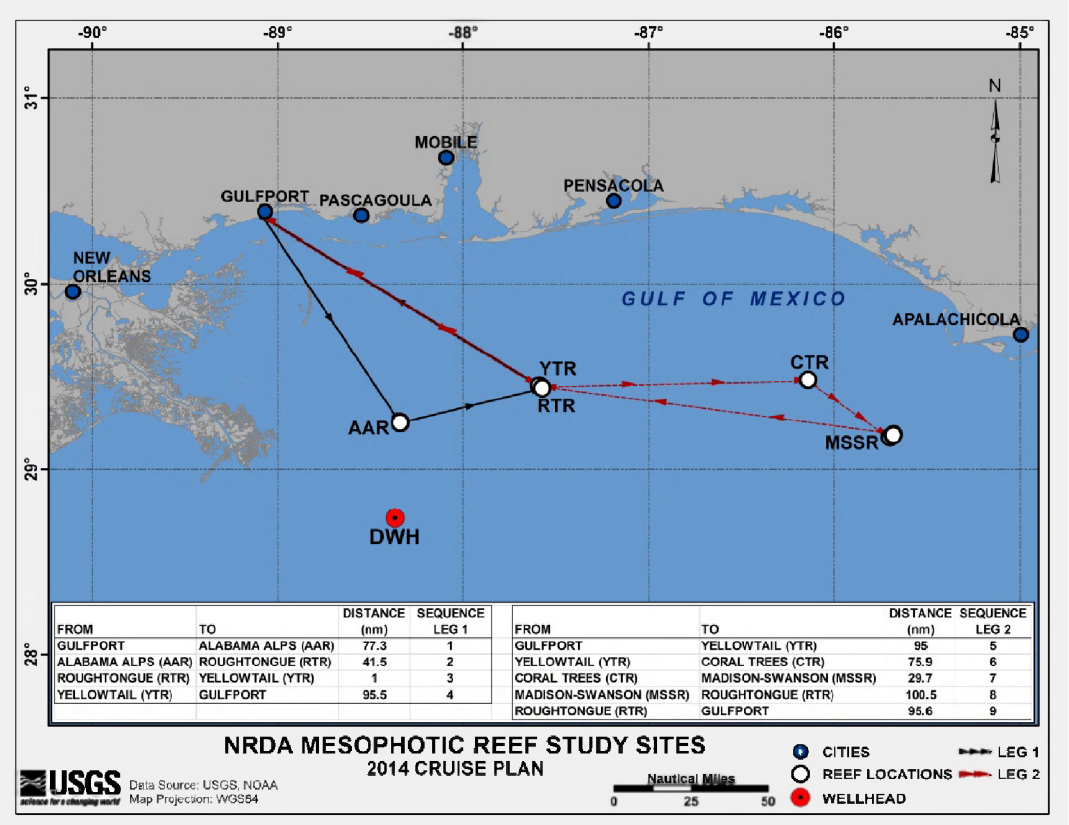
The goals of this safety plan are to ensure a safe and hazard-free workplace, and prevent all injuries and illnesses to employees and contractors. These policies are intended to create and maintain a safe working environment for all employees, subcontractors, and on-site personnel and to protect facilities, equipment, materials, and the environment from damage. Each employee and project team member should actively support and implement the Health, Safety, Security and Environment (HSSE) policies and procedures outlined in the Project-Specific HASP, as well as any other applicable policies and procedures, whether or not they are explicitly included in this HASP. In addition to this document, personnel are expected to follow the guidelines of the University-National Oceanographic Laboratory System (UNOLS) Research Vessel Safety Rules, which will be provided prior to the cruise and also available onboard the vessel. All employees and project team members are responsible for HSSE compliance.

1.2 STOP WORK AUTHORITY AND RESPONSIBILITY

All project personnel, including subcontractors, client representatives, and trustees have Stop Work Authority and Responsibility, and field activities are to be suspended if the safety of personnel cannot be ensured.

1.3 SCOPE OF WORK

The scope of work involves surveying reefs using a remotely operated vehicle (ROV). Survey work includes transects, still photos, and collections. Sampling will be conducted during two cruise legs (Leg 1 and 2) from the vessel RV Walton Smith, a UNOLS vessel operated by the University of Miami. The ROV will be the DSSI/Oceaneering Global Explorer. Cruise participants include ship's crew from University of Miami, ROV crew from DSSI/Oceaneering, and science personnel from US Geological Survey, Florida State University, and NOAA. Mobilization/demobilization and mid-cruise changeover will occur in Gulfport, MS. The ship will arrive in Gulfport and mobilization will begin on June 21-23, returning to port July 2-3, and departing again July 3-4 with a final return to port on July 13th. There will be 17 days of sampling, with science operations occurring for a single 12-hour shift during daylight hours only. Cruise track is shown in Figure 1.



FROM	TO	DISTANCE (nm)	SEQUENCE LEG 1
GULFPORT	ALABAMA ALPS (AAR)	77.3	1
ALABAMA ALPS (AAR)	ROUGHTONGUE (RTR)	41.5	2
ROUGHTONGUE (RTR)	YELLOWTAIL (YTR)	1	3
YELLOWTAIL (YTR)	GULFPORT	95.5	4

FROM	TO	DISTANCE (nm)	SEQUENCE LEG 2
GULFPORT	YELLOWTAIL (YTR)	95	5
YELLOWTAIL (YTR)	CORAL TREES (CTR)	75.9	6
CORAL TREES (CTR)	MADISON-SWANSON (MSSR)	29.7	7
MADISON-SWANSON (MSSR)	ROUGHTONGUE (RTR)	100.5	8
ROUGHTONGUE (RTR)	GULFPORT	95.6	9

Figure 1. 2014 Mesophotic cruise track

1.4 CONTACT INFORMATION

Contact information for project personnel, the project vessel, and vessel personnel is included in **Table 1.**

Table 1. Contact Information for Field Ops and Vessel Personnel

NOAA Contact Information		
Position	**Name**	**Email/Phone Number**
NOAA Incident Ops Lead	Jennifer Kunzelman	Jennifer.kunzelman@noaa.gov 727-551-5713
DWH NRDA Site Safety and Health Officer	Jodi Holewka	jholewka@css-dynamac.com 508-642-7426
DWH NRDA Field Ops Supervisor	Katie Fedeli	Dwhnrdafieldops@gmail.com 504-303-2086
Vessel Contact Information		
Walton Smith general number	Capt. Shawn Lake	Cell: 305-898-5786 SAT: 011881631831065

2.0 EMERGENCY PREPAREDNESS

The Walton Smith follows UNOLS Research Vessel Safety Standards. As such, the vessel is fully equipped with first aid kits, eye wash, fire extinguishers, an Automated External Defibrillator (AED), ring life buoys, life rafts, and U.S. Coast Guard-compliant Type I Personal Flotation Devices (PFDs) for every person on board the vessel. Type I PFDs are distributed throughout the crew's and scientists' quarters, providing one lifejacket per bunk, and stowed so that they are readily accessible. All lifejackets are provided with a light, whistle, and reflective tape. When working on deck and over the side operations are underway all personnel are required to wear hard hats and work vests (Type V PFD).

All USGS field personnel, as well as the Captain and Marine Technician, are trained and certified in First Aid and Cardiopulmonary Resuscitation (CPR) as well as AED. The Captain and Marine Technician are qualified MCPIC (Medical Care Person in Charge)

The ship's personnel are trained in fire extinguisher use and fire response, and USGS personnel are trained in fire extinguisher use.

2.1 EMERGENCY DRILLS

There will be an all hands safety briefing before departing on each leg of the cruise. There will be one fire drill conducted during each leg of the cruise. Other drills may be conducted at the discretion of the Captain, who will serve as the Vessel Safety Officer. All shipboard personnel are required to participate in all ship drills, under the direction of the vessel Captain. Vessel passengers will be shown the location of the safety equipment and their muster stations in the event of an emergency.

2.2 ENVIRONMENTAL EMERGENCIES

In the event of an environmental emergency (e.g., chemical, oil, fuel spill), the vessel's Captain and crew will direct the environmental response, and vessel passengers are to follow the instructions of the Captain and crew.

2.3 FIRE EMERGENCIES

In the event of a fire emergency, the vessel's Captain and crew will direct the fire response, and vessel passengers are to follow the instructions of the Captain and crew.

In the event of a fire emergency, the Captain shall investigate the fire incident and make verbal notification to University of Miami Walton Smith Operations Coordinator, who will complete a written Initial HSSE Incident Report form. Incident reports are to be submitted as soon as possible, and in all cases, within 24 hours after the incident. This form will be to be submitted to Field Ops and any other appropriate parties.

2.4 ILLNESS OR INJURY TO PERSONNEL

Regardless of severity, in the event of an illness or injury to any project personnel including all subcontractors, client representatives, and trustees, follow the procedure outlined in **Table 2**.

Table 2. Illness or Injury Procedure

Illness or Injury Procedure	
1	Treat/Stabilize the Patient; mitigate safety hazards; notify Captain, Ships Medical Officer, Science Safety Officer, and Chief Scientist
2	Captain to notify the University of Miami Walton Smith Operations Coordinator, who will in turn immediately notify the Injured Party's company HSSE Manager and Field Ops **(Table 3).**
3	Determine (in consultation with Injured Party's HSSE/Case Manager) if MedEvac will be necessary. If so, Captain to initiate MedEvac.
4	Ships Medical Officer or Chief Scientist to notify University of Miami Walton Smith Operations Coordinator in the event of MedEvac, or as soon as possible for non-MedEvac injuries and incidents.
5	Ships Medical Officer to investigate incident and complete *Initial HSSE Incident Report* form. Incident Report to be submitted directly to University of Miami Walton Smith Operations Coordinator , to be forwarded to Field Ops and other appropriate parties.

Incident reports are to be submitted as soon as possible, and in all cases, within 24 hours after the incident.

For all illnesses and injuries, the Ships Medical Officer shall contact the Injured Party's HSSE Manager (Table 3) for Case Management.

Table 3. Emergency Contact Information

Contractor/Subcontractor Emergency Contact Information		
Company/Organization	HSSE Manager or Case Manager	Phone/Email
DWH NRDA Field Ops Supervisor	Katie Fedeli	Dwhnrdafieldops@gmail.com 504-303-2086
University of Miami Walton Smith Operations Coordinator	Miguel McKinney	mmckinnev@rsmas.miami.edu 305-421-4880

2.5 FIRST AID

In the event that First Aid is required, and the ill worker is unable to self-administer First Aid effectively, any on-site personnel who are trained in First Aid may assist or administer First Aid to the injured or ill worker.

First Aid is defined as: Any one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and so forth that do not ordinarily require additional medical care. Such treatment and observation are considered first aid even when provided by a physician or registered professional person. The U.S. Occupational Safety and Health Administration (OSHA) further defines First Aid as:

- using a non-prescription medication at non-prescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed

health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes);

- administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);
- cleaning, flushing, or soaking wounds on the surface of the skin;
- using wound coverings such as bandages, Band-Aids™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, etc., are considered medical treatment);
- using hot or cold therapy;
- using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes);
- using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, etc.);
- drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister;
- using eye patches;
- removing foreign bodies from the eye using only irrigation or a cotton swab;
- removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs, or other simple means;
- using finger guards;
- using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes); and/or
- drinking fluids for relief of heat stress.

2.6 MEDICAL TREATMENT BEYOND FIRST AID

Medical Treatment is defined as: The medical treatment of injuries or illnesses, beyond First Aid, administered by physicians, registered professional medical personnel (e.g., paramedic or nurse), or lay persons (i.e., non-medical personnel). Medical treatment does not include First Aid treatment, even if the First Aid is provided by a physician or other registered medical professional.

If medical treatment beyond First Aid is required, the Captain, Ships Medical Officer, and Chief Scientist as listed in **Table 3**, in consultation with shore based medical specialists, will determine if MedEvac is warranted and how to proceed. Options will include small boat transfer, return to port, or Coast Guard helicopter evacuation, depending on situation, severity, and possible response time, in the event of any of the following imminent danger/medical emergency conditions, or any other condition that is, or could become, life-threatening in the time that it would take for the vessel to return to port:

- Excessive bleeding;
- Shock;
- Airway obstruction;
- Critical injury; loss of limb;
- Unconsciousness (without regaining consciousness);
- Severe allergic reaction; or
- Immediate life-sustaining needs.

2.7 MedEvac

In the event it is determined that a patient is in imminent danger, and that MedEvac of the patient is necessary, contact the U.S. Coast Guard (USCG) for MedEvac by USCG helicopter or boat. Contact information for three USCG Air Operations Bases is included in **Table 4 (Option 3).**

Table 4. MedEvac Options

U.S. Coast Guard Contact Information		
U.S. Coast Guard	New Orleans, LA	800-874-2153 504-365-2390
U.S. Coast Guard	Mobile, AL	251-441-6211

The vessel Captain has the ultimate authority and responsibility for personnel safety. Therefore, when deciding which MedEvac method to use, the Captain shall consider all pertinent factors, such as the patient's condition, the time required for each method of medevac, the wind/water conditions at the time (and at time of medevac), the safety of all other personnel, and any other relevant factors.

In all cases of MedEvac, a USGS representative (or designee) shall escort the patient during transport to the emergency medical facility and shall remain with the patient until such time as the patient is either evaluated and released or admitted to a medical facility (hospital).

3.0 DOCUMENTATION

3.1 HEALTH, SAFETY, SECURITY, AND ENVIRONMENTAL DOCUMENTATION

This following HSSE documentation may be utilized during the project:

- Next-of-Kin Information
- Job Hazard Analyses
- Incident Report (if necessary)

The Captain shall have copies of all appropriate HSSE documents available for use during fieldwork.

4.0 HAZARD IDENTIFICATION

4.1 GENERAL

Hazard Identification and Risk Assessment (HIRA) is the process of identifying foreseeable hazards and assessing risk in order to enable advance planning for the mitigation of risk to a level as low as reasonably practicable (ALARP).

4.2 HAZARD IDENTIFICATION

There are multiple safety hazards present while at sea. Primary dangers include falling overboard, shifting, swinging or falling gear, shock, slip, trip and fall hazards. The ship operates under the UNOLS Research Vessel Safety Standards, while the ROV contractor operates under OSHA and their internal safety guidelines. The Science Party will operate under USGS safety rules, as well as the ship and ROV rules.

Identified potential hazards associated with project fieldwork include the following, in alphabetical order:

- Blood borne pathogens;
- Chemical handling/storage/hazard communication;
- Cold stress;
- Compressed air;
- Electrical;
- Fatigue and complacency;

- Fire prevention/response;
- Flammables/combustibles;
- Food safety and sanitation;
- Hand and power tools;
- Heat stress/sun exposure;
- Ladders;
- Lifting operations;
- Lightning/severe weather;
- Management of change;
- Manual lifting;
- Personal hygiene;
- Personal protective equipment (PPE);
- Remotely operating vehicle (ROV)
- Slips, trips, and falls;
- Vessel/on-water hazards; and
- Wildlife and insects.

4.3 JOB HAZARD ANALYSIS

Task-specific Job Hazard Analyses (JHAs) are provided in **Appendix B**.

4.4 HAZARD MITIGATIONS, SAFE WORK PRACTICES, AND POLICIES

Below are summary briefs of hazard mitigations, safe work practices, and safety policies applicable to the project. All personnel shall adhere to these safe work practices, mitigations, and policies, in addition to any other safe practices that will ensure that the project is completed in a safe manner with zero accidents, incidents, and injuries.

Allergies and Medications: Project personnel shall notify the Ship's Medical Officer and the vessel Captain of any known allergies, medications that may cause impairment on the job, and if they carry a prescribed epinephrine auto-injector (Epi-Pen) or other prescription medicines (e.g., insulin, nitroglycerin, blood pressure medication, etc.). The location of the prescription medicines related to potential medical emergency conditions (e.g., diabetes, high/low blood pressure, heart conditions, etc.) should be provided to the Ships Medical Officer and vessel Captain if permission is granted to assist with administering the medication in the event of emergency.

Blood Borne Pathogens: In the event of an injury that results in bleeding, practice universal precautions with respect to providing First Aid or medical treatment to others.

Chemical Handling / Storage / Hazard Communication: All chemicals are to have a Safety Data Sheet (SDS, formerly Material Safety Data Sheet [MSDS]), which is to be located in a readily accessible location in the area where chemicals are used or stored. Practice safe handling practices, including proper labeling and storage of chemicals, wearing all appropriate PPE (including splash protection), using the smallest necessary size containers, having adequate ventilation during chemical use, preventing spills and waste, closing containers when not in use, and properly disposing of any chemical waste in accordance with all applicable regulations. The boat crew will point out the correct lockers for chemical storage prior to departure. Maintain a First Aid kit and eye wash in proximity to chemical use.

Cold Stress: Cold stress is unlikely during the project. To protect against cold stress, wear rain gear in the event of rain and dress warmly if the temperature drops during rain squalls or unseasonably cold weather.

Compressed Air: Ensure that whip-checks are used on compressed air hoses. Visually inspect air hoses daily before use to monitor for excessive wear or weakness in hoses. If worn or weak hoses are found, remove from service immediately and destroy or mark "Do Not Use." Never stand in the line of fire where an air hose could whip if it were to break. Always relieve residual air pressure in hoses upon completion of the task. Do not step on air hoses, to avoid causing unnecessary wear. Do not use compressed air to blow dirt or dust off a person.

Designated Smoking Areas: Project personnel shall adhere to designated smoking areas on the vessel and shall dispose of all smoking-related waste in appropriate receptacles (no littering, on or off the vessel). No smoking is allowed anywhere inside the vessel.

Electrical Hazards: Ensure all electrical cords, plugs, and outlets are in good condition prior to use. Do not overload electrical outlets.

Fatigue and Complacency: Long work hours, particularly under stressful conditions (such as high heat and humidity, or performing hard physical work), and interrupted sleep schedules can lead to fatigue. To combat fatigue, get a minimum of 7 to 8 hours of sleep when not on shift, and take periodic breaks from hard work or hot/humid work during work shifts to allow the body to rest. Vary the type or position of the work in order to reduce the risk of repetitive motion injuries and reduce complacency due to boredom and routine. Adjust work schedules if necessary to allow for fatigue management. To recover from fatigue, a minimum of 8 hours of sleep are needed for a minimum of 3 days in a row. It is each person's responsibility to remain fit for duty, which includes self-management of fatigue and complacency. Supervisors and managers are responsible to monitoring work crews and adjusting the work schedule as necessary to manage fatigue and complacency.

Fire Prevention and Response: The vessel crew is responsible for fighting fires on board the vessel. Passengers are responsible for following the directives of the fire response team.

Flammables/Combustibles: Only properly trained personnel shall use or work with flammables/combustibles.

Food Safety: When serving food, use utensils, not your hands. Wash hands prior to eating food or touching serving utensils.

Hand and Power Tools: Project personnel shall follow safe work practices regarding the use of hand and power tools, including the completion of a JHA prior to using tools.

Heat Stress Management: Project personnel shall practice heat stress management daily, including the following practices: drink plenty of water, avoid or minimize caffeine intake, take rest breaks in a cool location to reduce body temperature, adjust work schedules if possible to avoid the hottest times of the day, wear light-colored lightweight clothing made of natural fibers, wear a sun hat and long-sleeve shirt, if necessary drink low-sugar electrolyte replacement fluids (ERF) at a rate of 1 ERF to every 3 waters, and use the buddy system and monitor each other closely for signs of heat stress. Additional heat stress management techniques include installing temporary shade structures, utilizing misting systems, using a fan or air conditioning if available, and minimizing excessive PPE. Sufficient quantities of water and ERF shall be available in the work area at all times. Accommodations shall be available for field treatment of heat stress. In the event of a heat-related emergency, emergency response procedures should be followed.

Ladders: Only properly trained personnel are to use ladders. Follow safe work practices, including ensuring the ladder is placed at a proper angle (minimum angle 4:1), the ladder feet are stable, a spotter is assigned to hold the ladder, the ladder is visually inspected and is in good condition, tools are

raised/lowered in a bucket (or equivalent) or carried on a tool belt not held in hands while climbing, use three points of contact, and if working at heights above 5 feet, use fall protection.

Lifting Operations: All lifting operations shall follow safe practices, including: maintain lift as low to the vessel deck as possible; keep the load's center of gravity low and stable through proper rigging; reduce swinging loads by utilizing tag lines; for additional leverage and stability, wrap tag lines through fixed shackles or around cleats; never wrap tag lines around a body part; always wear abrasion-resistant gloves when handling tag lines; if the load begins swinging too much; lower the load and wait for it to stabilize before starting the lift again; review hand and/or voice signals with the signalman and the winch/A-frame operator prior to conducting the lift; always notify the vessel Captain prior to conducting any lift (or any work on the back deck) so the Captain can position the vessel appropriately; no unnecessary personnel in the work area during the lift; stay out of the line of fire of lines under tension (ropes, cables, wires, slings); and never disable machine guarding.

Lightning/Severe Weather: Lightning can strike as far as 10 miles from a thunder cloud, and frequently strikes behind a storm cloud. Because of this, lightning can strike even when there is blue sky overhead. Therefore, no work shall be conducted on the back deck of the vessel if lightning is detected within 10 miles of the vessel. The Captain and Operations Managers shall monitor weather radar, weather forecasts, and any other means available (e.g., lightning detector, radio communication with other vessels in the area, etc.) to ensure that work is discontinued if lightning approaches within 10 miles of the vessel. Thunder can be heard up to 8 miles away from a lightning strike. Therefore, if thunder is heard, it indicates lightning is within 10 miles of your position. If thunder is heard, discontinue operations on the back deck immediately. Remain on lightning stand-down with respect to back deck operations until the storm clouds (lightning) are at least 10 miles away or 30 minutes has passed since the last thunder. Indoor work tasks can be completed during lightning stand-down events.

Lone Worker Policy: Project personnel are required to follow the buddy system. When working, do so in teams of two or more persons at all times.

Management of Change: Changes in equipment, materials, systems, procedures, or safety-critical personnel, etc., can introduce safety and project risk. Risk shall be assessed by the appropriate parties (e.g., Captain, Ships Medical Officer, Chief Scientist, Client Representative, etc.) prior to making any material changes to the scope of work, safety- or quality-critical equipment, materials, systems, procedures, or safety-critical personnel. The risk assessment shall be documented, including updating the project's hazard identification if appropriate. Any new or increased hazards shall be mitigated to reduce risk to a level ALARP.

Manual Lifting: Use proper lifting techniques when conducting manual lifting, including: proper positioning of the load close to the body; bend at the knees and lift with the legs, not the back; obtain assistance with loads weighing over 25 pounds; use mechanical lifting devices whenever possible; clear the pathway prior to initiating the carry; and never carry the load so high that you cannot see where you are walking.

Personal Hygiene: Communal/close-quarters living requires all personnel to practice good personal hygiene, including frequent hand-washing using soap and/or hand sanitizer, covering one's coughs and sneezes with an elbow or shoulder (not a hand), and cleaning up after oneself after using the restroom, shower, and/or laundry facilities.

Personal Protective Equipment (PPE): PPE shall be required as listed in the project-specific PPE Matrix, included in **Appendix D.** Project personnel shall wear appropriate and professional work clothing, including long pants, appropriate footwear, safety glasses, and head covering that provides protection from sun while working. Full PPE is required at all times while on the back deck of vessel. All PFDs

shall be properly worn, and fully zipped and clipped while in use. Improperly worn or improperly sized PFDs are insufficient protection of your life. Type I PFDs are to include whistle and safety light. Additional task-specific PPE may be required, as listed the PPE Matrix.

Pre-Incident and Incident Reporting: All incidents and pre-incidents (unsafe conditions, unsafe acts, and near misses) are to be reported to the vessel Captain and Science Safety Officer immediately.

Remotely Operating Vehicle (ROV): Unless part of the ROV handling crew, stay in the safe zone during ROV launch and retrieval. Do not attempt to obtain samples until the ROV operator clears the scene.

Slips, Trips, and Falls: Slips, trips, and falls are extremely common hazards on vessels. It is critical that all personnel maintain extreme vigilance in watching out for and mitigating all slip, trip, and fall hazards. The best mitigation is to eliminate the hazard entirely (e.g., pick up and properly stow a broom that was left on the floor). If the hazard cannot be eliminated, install a barrier or barricade to prevent people from encountering the hazard. If barricades/barriers are not possible, then mark or flag the hazard with caution tape, bright yellow paint, or other means of warning personnel of the hazard. Always be aware of your surroundings and watch where you are walking. Use three points of contact (two hands and one foot, or two feet and one hand) for stability when walking. Pick up your feet higher than usual as you walk, due to the uneven surfaces of the boat deck/floors. In all cases, if you see a hazard, attempt to mitigate the hazard immediately. If you cannot personally mitigate the hazard, report it immediately to your supervisor, to the Operations Manager, or to the Captain, to be mitigated as quickly as possible.

Sunscreen: Project personnel should utilize sunscreen for protection against sunburn, even if the sky is overcast. A sun protection factor (SPF) of 20 or greater is recommended. Check the expiration date of sunscreen prior to use, and if expired, discard and replace.

Vessel/On Water Hazards: Use three points of contact at all times when standing/walking throughout the vessel (e.g., two hands and one foot, or two feet and one hand). Hold handrails and guardrails when walking up or down stairs. Only one person on a stairway at a time. Walk, don't run. Wear traction-soled shoes as floors/decks are often slippery. Keep egress routes clear of trip hazards and obstructions. Do not block safety equipment or life-saving appliances. Stow and secure all gear to avoid shifting gear during rough water. If prone to seasickness, take anti-seasickness medication several hours prior to encountering rough water. If seasick, watch the horizon (do not look down at the water), get outside or otherwise breathe fresh air, eat light foods.

Waste Management and Recycling: Project personnel shall strive to minimize generation of project-related household hazardous waste and shall recycle when possible.

Wildlife Avoidance: The project and the vessel are to avoid all contact with wildlife, including but not limited to marine mammals, birds, sea turtles, rodents, snakes, and insects. Workers may encounter threatened, endangered, or dangerous wildlife while conducting work on the project.

APPENDICES

APPENDIX A

MS Canyon 252 Site Safety Confirmation

MS CANYON 252 SAFETY CONFIRMATION FORM – Offshore Cruises

NAME: _____

CELL PHONE NUMBER: _____

EMAIL ADDRESS: _____

I AGREE TO ABIDE BY THE GUIDELINES SET FORTH IN THE OFFSHORE CRUISE HEALTH, SAFETY AND ENVIRONMENT SAFETY (HSE) PLAN:

_____**SIGNATURE**

_____**DATE**

I HAVE REVIEWED AND UNDERSTAND THE LITIGATION HOLD TRAINING POWERPOINT PRESENTATION:

_____**SIGNATURE**

_____**DATE**

EMERGENCY CONTACT INFORMATION

NAME: _____

PHONE NUMBER: _____

Please return this form, completed in its entirety, to dwhnrdafieldops@gmail.com or fax to (504) 523-4778

APPENDIX B

Job Hazard Analyses

JHA Task	Boat Operations	**Prepared by**	Jodi Holewka
Location	Offshore areas within the Gulf of Mexico	**Reviewed by**	
Date Prepared	06/18/14	**PPE Requirements**	PFD with floating signal whistle
Date Last Revised			Safety glasses or sunglasses
			Sturdy, slip resistant shoes

Issue of Concern / Activity	**Potential Hazards**	**Control Measures**
Entering / Departing Boat	Wet surfaces, change in stability,	Watch where you step; use available handrails; assistance by others. Wear proper footwear (sturdy, slip resistant) to maintain balance and footing. Always maintain three points of contact.
Vessel in Transit/ Working on Deck	Man Overboard	Wear personal flotation device (PFD). Know location and proper use of lifesaving devices (throw ring, throw bag, reach poles, cargo net, ladder).
	Collision, Allision, or Grounding	Follow navigational rules of the road, maintain awareness, know location; maintain communications. Follow orders of vessel crew and captain.
	Airborne Particulates and Insects	Wear safety glasses, safety goggles or sunglasses and insect repellant.
	Heat Stress	Stay hydrated using 3:1 water/electrolyte replacement fluids. Take cool down breaks as appropriate for the conditions. Monitor each other. Know symptoms of heat stress and how to address them. Wear lightweight, light colored, loose fit clothing. Utilize shade when possible.
	Sun Burn	Apply sunscreen to exposed skin. Wear a hat with a brim to shade face.
	Pinch Points	Maintain control of doors/hatches; Keep fingers and feet clear of lines/ropes, piers and docks.
	Slips/Trips/Falls, Entanglement in lines	Maintain Situational awareness. Visually inspect walkway/deck to ensure they are clear. Remove, mark, or mitigate any slip/trip hazards. Keep vessel deck clear and properly coil and stow lines. Designate working areas and stay clear of lines under strain. Maintain 3 points of contact. Be aware of water on deck, motion of vessel, sea/wave conditions.

JHA Task	ROV Operations	**Prepared by**	Jodi Holewka
Location	Offshore areas within the Gulf of Mexico	**Reviewed by**	
Date Prepared	06/17/14	**PPE Requirements**	Steel toe shoes, hard hat, PFD, work gloves, safety glasses, sunscreen
Date Last Revised			

Issue of Concern / Activity	**Potential Hazards**	**Control Measures**
Confirm with Captain to deploy and recover ROV	Miscommunication	Two way communication using clear and established language/terms; Task shall not begin until Crane operator has authorized work; Crane operator to work directly with the Captain to ensure the vessel positioning and clearance to work.
Prepare equipment for deployment/recovery: Turn on winch, compressors; prepare tag-lines	Pinch points - fingers Caught between – body/fingers Hydraulic leak Struck by	Use caution where placing hands/fingers; wear appropriate gloves, Avoid positioning body between objects that could swing or shift during operation; visually inspect hydraulic and air hoses; have spill kit readily accessible; use whip-checks on compressed air hoses.
Confirm all personnel are ready to deploy/recover (winch, tag-line holders, deck chief, Captain)	Miscommunication	Use standard, clear and established signals/terms to signal readiness; Deck Chief to make eye contact with each person to confirm readiness. Task shall not begin until all personnel are ready. Ensure good line of sight.
Launch/recover equipment	Pinching injury Caught between: impact/crushing injury Line of fire / stored energy Slip/trip/fall Man Overboard	Review comms/signals with all personnel; use clear and established signals; use only one Signalman (usually the Deck Chief); ensure good line of sight; wear appropriate gloves to handle tag lines; wrap tag lines around shackle or other appropriate anchor point to assist with stabilization and leverage; avoid positioning body between objects that could swing or shift during operation; never stand in line with rope/cable under tension; position vessel in safest direction relative to wind/waves (Captain's judgment); if equipment begins to swing excessively, lower equipment to deck/water to stabilize and re-start; wear PFD and fall arrest equipment if appropriate; all personnel to know location of readily accessible throwable flotation devices (e.g., throw rings);

		review Man Overboard procedure with everyone.
Equipment is staged in water near surface prior to submersion/recovery onto vessel	Equipment damage/loss; entanglement of cable in prop	Clear and complete communication between Deck Ops, and Captain regarding vessel positioning, wind/water conditions, and procedure of deck ops when equipment is at or near surface; Review emergency communication/signal, and procedure for various emergencies; Remind all personnel that it is better to start over 10 times than to rush and damage the equipment or the vessel.
Unsafe weather/sea conditions	Equipment damage/loss Personnel injury Man overboard	Conduct Continuous weather monitoring. Cancel/postpone work operations if weather is predicted to exceed working limits. Secure equipment and follow Captain and crew orders.
Secure equipment to deck, stand, or frame using tie-downs/safety straps; and turn off winch	Pinching injury – fingers/hands Caught between: Impact/crushing injury Slip/trip/fall	Wear slip-resistant gloves; avoid placing hands/fingers between pinch points; avoid placing body between potentially moving objects; use appropriate tie-downs; beware of and mitigate slip/trip/fall hazards; use 3 points of contact; notify Captain when work is finished and back deck is secure and clear of personnel.

JHA Task	Chemical Handling	**Prepared by**	Jodi Holewka
Location	Offshore areas within the Gulf of Mexico	**Reviewed by**	
Date Prepared	06/18/14	**PPE Requirements**	Safety glasses or goggles, face shield (if necessary), gloves (appropriate type for specific chemical), protective clothing
Date Last Revised			
Issue of Concern / Activity	**Potential Hazards**	**Control Measures**	
Handling/working with chemicals	Eye/Face Injury Contact irritation, burn or absorption Ingestion	Wear appropriate PPE (gloves, safety glasses, goggles, face shield, apron, respirator) for the chemical(s) being used. This information is found on the Material Safety Data Sheet for each chemical. Do not perform work requiring PPE until proper PPE is available and used. Read and understand Material Safety Data Sheet for chemical(s) being handled. Know where the nearest eye wash/shower is located and ensure the path is clear. Wash hands thoroughly after handling chemicals and before smoking, eating or drinking	

APPENDIX C

Personal Protective Equipment Matrix

PPE Matrix for Field Operations

X = Minimum Requirement

Task Title		Task Description & Requirements	HEAD		EYES		EARS	HANDS		FEET			SKIN				BODY		COMMENTS
			Sun Hat	Hard Hat	Safety Glasses (1)	Safety Goggles	Hearing Protection	Nitrile Gloves	Abrasion Resistant Work Gloves	Closed-toe Shoes	Steel/Safety-Toe Boots	Rubber Boots	Sunscreen	Long Pants; Shirt with Sleeves (i.e., no tank tops)	Face Shield	Chemical Apron	Fall / Man Overboard Protection	USCG Approved PFD	
1	Mobilization / Demobilization	All Operations tasks conducted on the dock and/or back deck of the ship during mobe/demobe	---	X	X	---	(2)	---	X	---	X	---	X	X	---	---	(2)	X	Footwear to have appropriate traction soles.
2	Work on Back Deck of Vessel - Operations	Operations work (other than sample handling), including launch and recovery of equipment.	---	X	X	---	---	---	X	---	X	---	X	X	---	---	(2)	X	Footwear to have appropriate traction soles.
3	Work on Back Deck of Vessel - Sample Handling	Sample handling work conducted on the back deck.	---	X	X	(2)	---	X	---	---	X	---	X	X	(2)	(2)	---	X	Footwear to have appropriate traction soles.
4	Exterior of Vessel, other than Back Deck	Exterior areas of the vessel, while not engaged in Operations work.	X	---	X	---	---	---	---	X	(2)	(2)	X	---	---	---	---	(2)	Footwear to have appropriate traction soles.
5	Laboratory Work	All laboratory and/or sample processing work that includes chemical handling.	---	---	---	X	---	X	---	X	---	(2)	---	X	(2)	(2)	---	---	Protect skin from liquid chemicals; work in well-ventilated area or under fume hood.
6	Interior of Vessel	All interior areas of the vessel, other than bathrooms/showers.	---	---	---	---	---	---	---	X	---	---	---	---	---	---	---	---	Closed-toe shoes required at all times, other than to/from shower rooms. No bare feet in common areas of the ship.

FOOTNOTES:
(1) Shaded lenses with UV protection preferred during daylight hours; only clear lenses shall be used at night.
(2) Wear when a specific hazard associated with the task exists and warrants wearing of this PPE. This will be determined onsite by conducting a field JHA prior to starting the task. The JHA is to be completed by personnel engaged in the task who are trained in completing JHAs.

Protected Species Interaction Prevention Procedures for No-impact Gear Types

For data collection efforts involving a number of gear types that are routinely deployed for measuring physical properties of the ocean or collecting plankton samples, the trustees and BP have determined that there will be no effect on protected species (endangered and threatened species, and marine mammals) under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) if deployed according to standard protocols.

Endangered and threatened species considered to potentially occur in the sampling area.

Common Name	Scientific Name	Status
leatherback sea turtle	*Dermochelys coriacea*	endangered
loggerhead sea turtle	*Caretta caretta*	threatened
Kemp's ridley sea turtle	*Lepidochelys kempii*	endangered
green sea turtle	*Chelonia mydas*	threatened
hawksbill sea turtle	*Eretmochelys imbricata*	endangered
sperm whale	*Physeter macrocephalus*	endangered

In depths greater than 200 m, Kemp's ridley, green, and hawksbill sea turtles are expected to occur in such low abundances that they are discounted from any potential effects occurring to these species. Leatherback and loggerhead sea turtles, and sperm whales are considered further for potential adverse effects. In addition, non-listed species of marine mammals are also considered for the potential of incidental capture and entanglement occurring.

The gear types considered for their potential to incidentally capture or entangle protected species include:

- CTD and rosette samplers and instruments attached to these arrays
- Radiometers
- Bongo nets
- Neuston nets
- Vertically deployed or towed imaging systems
- $1m^2$ MOCNESS
- $10m^2$ MOCNESS

CTD and rosette samplers (with associated instrument packages) and radiometers are typically deployed in a vertical cast. The instruments are deployed on a cable and have no loose lines or other entanglement hazards for protected species.

Bongo nets are typically deployed on a cable down to a depth of up to 200 m and neuston nets are deployed in the upper 1 m of the water column. The small size of these nets (neuston net 2 square meters, 2 bongo nets of 0.5 square meters each) and the lack of a loose line makes the likelihood of capture or entanglement of a marine mammal or sea turtle exceedingly small. In more than two decades of the SEAMAP program conducting bongo and neuston tows, no incidental captures of marine mammals or sea turtles have occurred.

Imaging systems such as the Digital Automatic Video Plankton Recorder (DAVPR) are either lowered vertically through the water column or towed on a conducting cable. The overall footprint of the instrument package is small and the wire is kept tight for proper deployment. No loose lines are present.

Neuston net – 2square meters
Bongos are each ½ square meter for a total of 1 square meter
Manta Neuston net – approximately 0.5 square meter

$1m^2$ MOCNESS and $10m^2$ MOCNESS nets are deployed up to 2000m or more in depth (typically targeting 1500m). The net system is mounted on a rigid frame and no loose lines are hanging in the water. Although larger than bongo and neuston nets, these nets are still relatively small and only sweep a very small percentage of the water volume. The heavy, rigid frame results in a sinking rate of approximately 20m/s and thus the net is descending through the upper water column quickly. The nets are towed at 1.5 to 2.5 knots and tows last about 4 – 6 hours. Thus, for the 10m MOCNESS, the average volume swept in a deployment (assuming 1500m descent and a 5 hour tow at 2 knots) is approximately 215,000 cubic meters of water. Since sampling stations are on 30 nautical mile centers, the percentage of volume swept by a $10m^2$ MOCNESS, not including the volume below 1500m is 0.0000046% or approximately 1 in 215,165. Given that the most abundant turtle species, the leatherback has approximately 1 animal per 417 sq km of ocean in waters greater than 200m depth, if it is assumed that this density remains the same for waters in excess of 1500m, there are approximately 7.4 leatherbacks per 30 nm x 30 nm cell. Thus, if the animals were randomly distributed within the water volume and did not move, the probability of capturing one in the $10m^2$ MOCNESS is 1 in approximately 29,000 tows. Similarly, loggerheads are expected to be present at a density of about 1 animal per 500 square km and have a catch probability of 1 in 34,900 tows. However, since much of the tow time of the MOCNESS net is well below the foraging depth of turtles, the probability of capture is in fact, much lower.

Although a no impact determination on endangered species from these gear types has been made, and the likelihood of capture or entanglement of marine mammals in these gear types is exceedingly small during the deployment and retrieval of the nets from deep water tows, the following precautionary mitigating measures will be taken.

1. **Marine mammal and sea turtle observers.** Prior to deploying any sampling equipment, at least one observer shall be established to keep dedicated watch for marine mammals and sea turtles. The observer's sole purpose shall be to scan for marine mammals or sea turtles, with a focus of monitoring 180 degrees in front of the vessel's course, prior to the deployment of sampling gear. Since the intent of scanning for marine mammals and turtles is to assure that the gear is not deployed if marine mammals or turtles are shipside, a visual scan of the deployment area should be conducted for at least 30 minutes prior to deploying sampling gear. During night deployments night-vision binoculars or deck lighting with the naked eye may be used for monitoring. If marine mammals or turtles are observed in the vicinity of the vessel, deployment of sampling gear should not occur until protected species are verified to be clear of the area, or if not resighted, 30 minutes

after the initial sighting, until the chief scientist, in consultation with the captain deem that it is safe to do so.

2. **Keep all cables tight on sampling gear.** Protected species may become entangled in loose lines associated with sampling gear. Dolphins are known to become entangled in lazy lines on shrimp trawl nets, float lines of trap/pot gear, and buoy lines of gillnet gear, etc. Although none of the gear types under consideration here have lazy lines or other rope types, and cables are unlikely to entangle protected species, lines should not be allowed to become slack.

3. **If protected species are observed during sampling.** It is possible that marine mammals or turtles will be observed after sampling gear has been deployed but before sampling is complete. Given the small size of nets, the slow ship speeds, and the other factors outlined above for these sampling gears, any injurious interaction between the sampling gear and a turtle or marine mammal is still extremely small. However, if an observation is made while gear is in the water, the proximity of the observed animal to the sampling gear should be closely monitored and the gear should be removed from the water if there appears to be any potential for capture or entanglement.

If a protected species take occurs, the following measures shall be conducted:

1. **Report any marine mammal capture/entanglement immediately.** Marine mammal entanglements (live or dead) must be reported immediately to 1-877-WHALE HELP (1-877-942-5343).

2. **Report any sea turtle capture/entanglement immediately.** Immediately report any sea turtle takes to takereport.nmfsser@noaa.gov or Bob Hoffman at the NMFS Southeast Regional Office (727-403-2641). In the event of any unauthorized takes of sea turtles, sampling should cease until the harm avoidance measures can be reviewed with NMFS Southeast Regional Office, Protected Resources Division, and modified as needed.

3. **In the event of a live animal capture/entanglement within sampling gear,** work from the vessel as quickly and carefully as possible to disentangle the animal for prompt release. Ensure the marine mammal's blowhole and sea turtle's mouth are kept at the surface to ensure it can continue to breathe while disentangling. If possible, the animal shall be identified, photographed, and released directly back into the water to avoid further injury from being brought aboard the ship. If the animal is not able to be released directly back into the water, the animal and sampling gear shall be carefully placed on the deck of the ship, preventing the animal from falling on the deck and becoming further injured. For turtles, follow the turtle resuscitation guidelines (attached). For marine mammals, ensure the animal's blowhole is free of obstructions and work quickly and carefully to return the animal to the water.

4. **In the event of a mortality,** the animal shall be retained and guidance shall be given on how to maintain the carcass. The Principal Investigator or Chief Scientist shall seek

guidance from Wendy Teas (305-361-4595) for sea turtles and Blair Mase (305-361-4586) for marine mammals at the NMFS, Southeast Fisheries Science Center on how to retain the carcasses (i.e., whether they should be put in the cooler and immediately brought back to shore for sampling, or frozen for future sampling). Photos, measurements, and entanglement information shall also be documented per "NMFS' Protocol For Dead Entangled Small Cetaceans" (attached) or a sea turtle stranding form (attached) filled out and sent to Wendy Teas. Reports should also include whether mitigation measures were followed, and if not, an explanation provided.

Sea Turtle Resuscitation Guidelines

If a turtle appears to be unconscious or comatose, attempt to revive it before release. Turtles can withstand lengthy periods without breathing; a living comatose sea turtle may not move, breathe voluntarily, or show reflex responses or other signs of life. In other cases, a lightly comatose turtle may show shallow breathing or reflexes such as eyelid or tail movement when touched. Use the following method of resuscitation in the field if veterinary attention is not immediately available:

- Place the turtle on its plastron (lower shell) and elevate the hindquarters approximately 15 - 30 degrees to permit the lungs to drain off water for a period of 4 up to 24 hours. A board, tire or boat cushion, etc. can be used for elevation.

- Periodically, rock the turtle gently left to right and right to left by holding the outer edge of the carapace and lifting one side about 3 inches, then alternate to the other side.

- Keep the turtle in the shade, at a temperature similar to water temperature at capture. Keep the skin (especially the eyes) moist while the turtle is on deck by covering the animal's body with a wet towel, periodically spraying it with water, or by applying petroleum jelly to its skin and carapace. Do not put the turtle into a container with water.

- Do not put the turtle on its carapace (top shell) and pump the plastron (breastplate) or try to compress the turtle to force water out, as this is dangerous to the turtle and may do more harm than good.

- Periodically, gently touch the corner of the eye or eyelid and pinch the tail near the vent (reflex tests) to monitor consciousness.

- Sea turtles may take some time to revive; do not give up too quickly. Turtles that are successfully resuscitated benefit from being held on deck as long as possible (up to 24 hours) to fully recover from the stress of accidental forced submergence.

- Release successfully resuscitated turtles over the stern of the boat, when fishing or scientific collection gear is not in use, the engine is in neutral, and in areas where they are unlikely to be recaptured or injured by vessels. A turtle that has shown no sign of life after 24 hours on deck may be considered dead and returned to the water in the same manner.

NMFS/SEFSC Photos

References:

Federal Register, December 31, 2001. Government Printing Office, Washington DC 66 (250), pp. 67495- 67496.

July 2009

Vessel Strike Avoidance Measures and Reporting for Mariners NOAA Fisheries Service, Southeast Region

Background
The National Marine Fisheries Service (NMFS) has determined that collisions with vessels can injure or kill protected species (e.g., endangered and threatened species, and marine mammals). The following standard measures should be implemented to reduce the risk associated with vessel strikes or disturbance of these protected species to discountable levels. NMFS should be contacted to identify any additional conservation and recovery issues of concern, and to assist in the development of measures that may be necessary.

Protected Species Identification Training
Vessel crews should use an Atlantic and Gulf of Mexico reference guide that helps identify protected species that might be encountered in U.S. waters of the Atlantic Ocean, including the Caribbean Sea, and Gulf of Mexico. Additional training should be provided regarding information and resources available regarding federal laws and regulations for protected species, ship strike information, critical habitat, migratory routes and seasonal abundance, and recent sightings of protected species.

Vessel Strike Avoidance
In order to avoid causing injury or death to marine mammals and sea turtles the following measures should be taken when consistent with safe navigation:

1. Vessel operators and crews should maintain a vigilant watch for marine mammals and sea turtles to avoid striking sighted protected species.

2. When whales are sighted, maintain a distance of 100 yards or greater between the whale and the vessel.

3. When sea turtles or small cetaceans are sighted, attempt to maintain a distance of 50 yards or greater between the animal and the vessel whenever possible.

4. When small cetaceans are sighted while a vessel is underway (e.g., bow-riding), attempt to remain parallel to the animal's course. Avoid excessive speed or abrupt changes in direction until the cetacean has left the area.

5. Reduce vessel speed to 10 knots or less when mother/calf pairs, groups, or large assemblages of cetaceans are observed near an underway vessel, when safety permits. A single cetacean at the surface may indicate the presence of submerged animals in the vicinity; therefore, prudent precautionary measures should always be exercised. The vessel should attempt to route around the animals, maintaining a minimum distance of 100 yards whenever possible.

6. Whales may surface in unpredictable locations or approach slowly moving vessels. When an animal is sighted in the vessel's path or in close proximity to a moving vessel and when safety permits, reduce speed and shift the engine to neutral. Do not engage the engines until the animals are clear of the area.

Additional Requirements for the North Atlantic Right Whale

1. If a sighted whale is believed to be a North Atlantic right whale, federal regulation requires a minimum distance of 500 yards be maintained from the animal (50 CFR 224.103 (c)).

2. Vessels entering North Atlantic right whale critical habitat are required to report into the Mandatory Ship Reporting System.

3. Mariners should check with various communication media for general information regarding avoiding ship strikes and specific information regarding North Atlantic right whale sighting locations. These include NOAA weather radio, U.S. Coast Guard NAVTEX broadcasts, and Notices to Mariners. Commercial mariners calling on United States ports should view the most recent version of the NOAA/USCG produced training CD entitled "A Prudent Mariner's Guide to Right Whale Protection" (contact the NMFS Southeast Region, Protected Resources Division for more information regarding the CD).

4. Injured, dead, or entangled right whales should be immediately reported to the U.S. Coast Guard via VHF Channel 16.

Injured or Dead Protected Species Reporting

Vessel crews should report sightings of any injured or dead protected species immediately, regardless of whether the injury or death is caused by your vessel.

Report marine mammals to the Southeast U.S. Stranding Hotline: 877-433-8299
Report sea turtles to the NMFS Southeast Regional Office: 727-824-5312

If the injury or death of a marine mammal was caused by a collision with your vessel, responsible parties should remain available to assist the respective salvage and stranding network as needed. NMFS' Southeast Regional Office should be immediately notified of the strike by email (takereport.nmfsser@noaa.gov) using the attached vessel strike reporting form.

For additional information, please contact the Protected Resources Division at:

NOAA Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701
Tel: (727) 824-5312
Visit us on the web at http://sero.nmfs.noaa.gov

Appendix D

Protected Species Best Management Practices for 2014 NRDA Deepwater Benthic Cruise to Collect Soft Bottom Sediment Samples
M/V Irish
May 28 – June 11, 2014

NOAA NMFS, Southeast Regional Office

General Harm Avoidance Measures

If a protected species is seen within 100 yards of the vessel, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment within 100 yards of a protected species and taking reasonable precautions to maintain a safe distance from the animal. Activities may not resume until the protected species has departed the project area of its own volition.

Protected Species Take Response Protocols

In the event of a protected species take (i.e., entanglement, vessel strike, etc), the following measures shall be conducted:

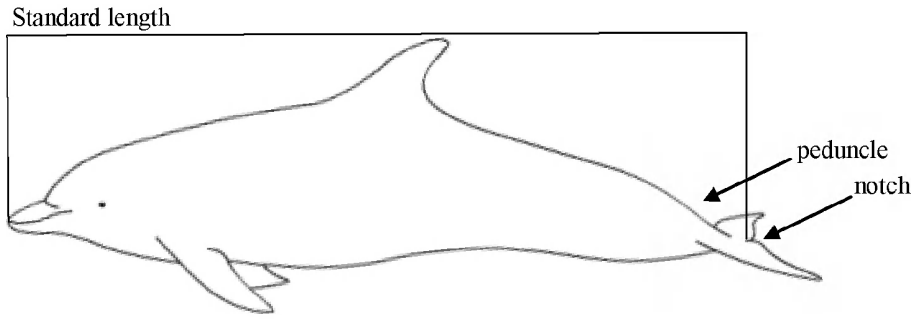
1. **Report any take immediately and cease research.** Marine mammal takes (live or dead) must be reported immediately to stranding network at 1-877-WHALE HELP (1-877-942-5343). Immediately report any sea turtle takes to takereport.nmfsser@noaa.gov or Bob Hoffman at the NMFS Southeast Regional Office (727-403-2641). In the event of any unauthorized takes of sea turtles, research should cease until the harm avoidance measures can be reviewed with NMFS Southeast Regional Office, Protected Resources Division, and modified as needed. Research activities should also cease for any marine mammal takes until further discussions on the nature of the take and outcomes can be discussed.

2. **In the event of mortality**, the animal should be hauled aboard the vessel, if possible, and retained for pickup by a Stranding Network member.
    a. For marine mammals, if the animal is unable to be hauled aboard for any reason, call the marine mammal stranding hotline for guidance at 1-877-WHALE HELP (1-877-942-5343). Photos, measurements, and entanglement information shall also be documented per "NMFS' Protocol For Dead Entangled Small Cetaceans" (Appendix B), as well as mitigation measures followed or not followed and why.
    b. For sea turtles, consult with Wendy Teas (305-361-4595) on guidance for carcass pick-up and submitting a sea turtle stranding report (*see* http://www.sefsc.noaa.gov/species/turtles/strandings.htm).

NMFS' PROTOCOL FOR DEAD ENTANGLED SMALL CETECEANS

In the event of a small cetacean mortality from an incidental take (i.e. entanglement, capture, etc), please document the following items:

1. Latitude and longitude of entanglement/interaction.
2. Photograph entire animal before removing from gear (with a scale bar if possible).
3. Photograph lateral view of dorsal fin (for photo-identification) with no gear (with a scale bar if possible).
4. Measure standard length (from tip of upper jaw to notch in the tail; see picture below).



5. Photograph ventrum, including genital slits so sex can be determined (with a scale bar if possible).
6. After removal of gear, photograph any obvious signs of net impressions/lacerations or rope wounds (with a scale bar if possible).
7. Document where in the gear the animal was entangled/caught and how gear was wrapped around animal.

Please return form to:
Stacey Horstman
NMFS Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701
Stacey.Horstman@noaa.gov
Fax: 727-824-5309

Compiled by: Barbie L. Byrd, NNFS/SEFSC, Beaufort, NC and Stacey Horstman, NMFS/SERO, St. Petersburg, FL.

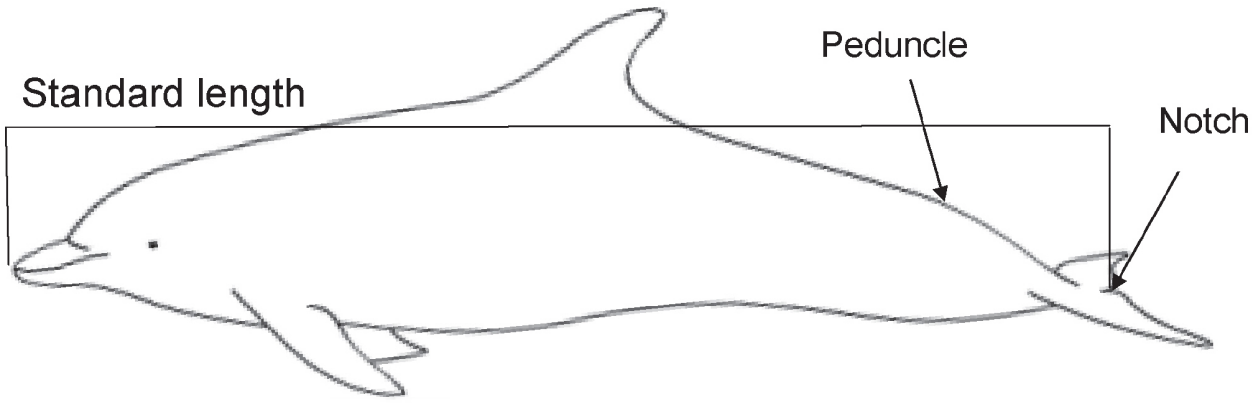
Appendix A.
NMFS' PROTOCOL FOR DEAD ENTANGLED SMALL CETECEANS

In the event of a small cetacean mortality that is incidentally captured, please document the following items in addition to Title and Report Submitter.

1. Date of Incident.
2. Time of Incident.
3. Vessel name.
4. (a) Latitude of incident.
   (b) Longitude of incident.
5. (a) Describe where in the gear the animal was entangled.
   (b) Describe how the gear was wrapped around the animal.
6. (a) Indicate (yes or no) if animal was hauled onto vessel.
   (b) If no, briefly describe reason.

Provide Images

1. Photograph entire animal before removing from gear (with a scale bar if possible).
2. Photograph lateral view of dorsal fin (for photo-identification) with no gear (with a scale bar if possible).
3. Measure standard length (from tip of upper jaw to notch in the tail).
4. Photograph ventrum, including genital slits so sex can be determined (with a scale bar if possible).
5. After removal of gear, photograph any obvious signs of net impressions/lacerations or rope wounds (with a scale bar if possible).
6. Document where in the gear the animal was entangled/caught and how gear was wrapped around animal.



Please return this form to:
Stacey Horstman
NOAA NMFS
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701

NATIONAL OCEANS AND ATMOSPHERIC ADMINSTRATION
NATIONAL MARINE FISHERIES SERVICE
PROTECTED RESOURCES

DEAD ENTANGLED SMALL CETECEANS REPORT

Title: | Report Submitted by:

1) Date of Incident | 2) Time of Incident

3) Vessel Name

4) (a) Latitude | 4) (b) Longitude

5) (a) Describe where in the gear the animal was entangled.

5) (b) Describe how the gear was wrapped around the animal.

6 (a) Could the entangled animal be hauled aboard the vessel? ☐ YES ☐ NO

6 (b) If NO, indicate the reason.

Provide Images as Indicated Below with this Report

☐ 1. Photograph entire animal before removing from gear (with a scale bar if possible).

☐ 2. Photograph lateral view of dorsal fin (for photo-identification) with no gear (with a scale bar if possible).

☐ 3. Measure standard length (from tip of upper jaw to notch in the tail).

☐ 4. Photograph ventrum, including genital slits so sex can be determined (with a scale bar if possible)

☐ 5. After removal of gear, photograph any obvious signs of net impressions/lacerations or rope wounds.

☐ 6. Document where in the gear the animal was entangled/caught and how gear was wrapped around animal.

Return this form to:
Stacey Horstman
NOAA NMFS
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701

Print Form | Submit by Email

NOAA Fisheries Service

Southeast Region Ship Strike Report

Reporter Information

Reporting Vessel/Aircraft Name or # | Reporter's Name | Reporter's phone | Date of Report

Strike Vessel Information *(complete all that apply)*

TYPE OF VESSEL: Check all that apply

- ☐ Container
- ☐ Tanker
- ☐ Freight
- ☐ Research
- ☐ Fishing
- ☐ Towing
- ☐ Government
- ☐ Whale watch
- ☐ Ferry
- ☐ Recreational
- ☐ Other

Specify _____

Draft _____ ○ Feet ○ Meters

Forward _____

Aft _____

Mean _____

Name of Vessel involved in Strike | Gross Tonnage | Vessel Length ○ Feet ○ Meters

Vessel Make | Vessel Model | Propulsion | Engine Make

Distance between shafts | Horsepower | Prop Diameter | Prop Pitch

Observed or Noted Strike Information *(strike was noted visually or impact felt)*

Date of Strike | Time of Strike ○ Local ○ GMT | General Location | North Latitude | West Longitude

ENVIRONMENTAL CONDITIONS AT TIME OF STRIKE

Lighting | Weather | Visibility | Distance of Visibility ○ Kilometers ○ Miles | Air Temperature ○ Degrees F ○ Degrees C

Wind Speed | Direction (degrees) | Current Speed | Direction (degrees) | Water depth

Wave Height ○ Feet ○ Meters | Swell Height ○ Feet ○ Meters | Water Depth ○ Feet ○ Meters

NOAA Fisheries Service

Southeast Region Ship Strike Report - Continued

NAVIGATION INFORMATION AT TIME OF STRIKE

Vessel Activity	Engine RPMs	Engine Speed (Knots)	Vessel Course (Degrees)	Autopilot ON / Autopilot OFF

Total # of watchstanders	# on Navigation Bridge	# on Observation Bridge	# on Bow	Other

INCIDENT INFORMATION

Part of vessel struck by whale

Describe what was seen, felt, heard, etc.

Was avoidance action taken

Describe action taken, or reasons why avoidance not possible

Comments on damage to vessel

NOAA Fisheries Service

Southeast Region Ship Strike Report - Continued

ANIMAL INFORMATION

Time elapsed between sighting and collision

Distance from vessel when first sighted

Animal's orientation to the vessel

Estimated size/species of whale

Other marine mammals present?

Approximate number

Species

What direction was the whale traveling

Briefly describe whale's behavior prior to strike

Briefly describe whale's behavior after collision *(if seen)*

Portion of animal struck

Condition post-strike

Blood seen in water after strike

Description of wounds on animal. Use drawings to mark the location of wound(s). Include estimates of length and depth of wounds.

SEA TURTLE STRANDING AND SALVAGE NETWORK
Stranding Report

Observer's Name, address, phone #:

Stranding Date: | **Turtle number by day:** | **Coordinator notified within 24 hrs by:**

Stranding Location: | **Description of location: (be specific)**

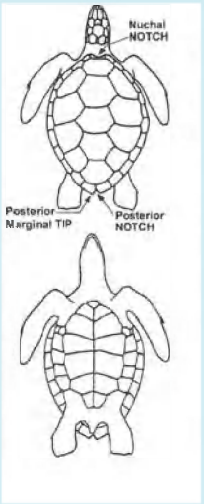
State:

County/Parish: | **Latitude:** | **Longitude:**

Turtle Condition: | **Yes** ☐ **No** ☐ **Carcass necropsied?** **Yes** ☐ **No** ☐ **Photos taken?**

Turtle Species: | **Yes** ☐ **No** ☐ **Species verified by coordinator?**

Sex: | **How was sex determined?** | **If tail extends beyond carapace enter amount in centimeters:**



CARAPACE MEASUREMENTS

Using calipers --

Straight length (NOTCH-TIP) ☐ cm ☐ in ☐

Min length (NOTCH-NOTCH) ☐ cm ☐ in ☐

Straight width (Widest Point) ☐ cm ☐ in ☐

Using non-metal measuring tape --

Curved length (NOTCH-TIP) ☐ cm ☐ in ☐

Min length (NOTCH-NOTCH) ☐ cm ☐ in ☐

Curved width (Widest Point) ☐ cm ☐ in ☐

Weight: ☐ kg ☐ lb ☐ est ☐ actual ☐

TAGS: *Contact coordinator before disposing of any tagged animal!!!*

Checked for flipper tags? Yes ☐ No ☐

Check all 4 flippers. Record tag numbers(s) /tag location / return address.

PIT tag scan? Yes ☐ No ☐

If found record number / tag location

Coded wire tag scan? Yes ☐ No ☐

If yes, record location (flipper).

Checked for living tag? Yes ☐ No ☐

If yes record location.

Mark wounds / abnormalities on diagrams at left and describe below. (note tar or oil, gear or debris entanglement, propeller damage, epibiota, papillomas, emaciation, etc.) **Please note if no wounds /abnormalities are found.**

FINAL DISPOSITION:

☐ 1. Left on beach where found: If painted indicate color below (8).

☐ 2a. Buried on beach. ☐ 2b. Off beach. ☐ 2c. Painted before buried.

☐ 3a. Parts salvaged. What, Why?

☐ 3b. Salvaged all.

☐ 4. Pulled up on beach dune: If painted indicate color below (8).

☐ 5a. Found alive, taken to rehab. Where?

☐ 5b. Found alive, released.

☐ 6. Left floating : If painted indicate color below (8).

☐ 7. Disposition unknown; explain:

☐ 8. Color painted:

INSTRUCTIONS FOR COMPLETING STSSN STRANDING REPORT FORMS

OBSERVER'S NAME/ADDRESS/PHONE#:
This is the person who handled the turtle in the field. Please give an address and phone number where you can be reached in the event we need to contact you for clarification of the reported data.

STRANDING DATE:
This is the date the stranded turtle was first reported or encountered. If you did not investigate until a later date, please note that in the remarks section at the bottom of the form. "Turtle Number by Day" is used to keep track of more than one turtle investigated on a single day by the same volunteer - your first turtle of the day is 0 I , second of the same day is 02, etc. Please notify the state coordinator within 24 hours for any stranding you document and check the box describing how the coordinator was notified.

STRANDING LOCATION:
Check "Offshore" if the turtle was found on an ocean beach or "Inshore" if the turtle was in a bay, river, sound, inlet, etc. Give a detailed descriptive location of the stranding using a reference point that can be found on a NOAA navigation chart. Local names or landmarks not found on most charts do not help pinpoint a location. Good reference points are inlets, fishing piers, light houses, water tanks, etc. Latitude/Longitude - if you have a GPS unit or are familiar with latitudes and longitudes and you have a navigation chart, please include the latitude/longitude of the stranding location. If you cannot provide accurate I at/longs, please leave this space blank. It then becomes even more important to provide a location description than can be pinpointed on a chart.

CONDITION:
Check the box that best describes the stranding. If the turtle seems intermediate between two stages of decomposition, pick the one that fits best. Fresh dead turtles should have no foul smell; moderately decomposed turtles smell bad, but skin and scutes are intact or are only beginning to peel, internal organs are still distinguishable; severely decomposed turtles smell very bad with scutes lifting or gone and skin beginning to peel or liquefy, internal organs beginning to liquefy, hard to distinguish individual organs; dried carcasses, leathery, internal organs completely decomposed.

TURTLE SPECIES:
Use the species identification key on the back of the form to positively determine species. If you are not positive of the species identification, check "Unidentified", please do not guess. Check boxes to indicate if photos were taken and if the state coordinator verified species. The state coordinator may verify species based on photos taken and submitted with the stranding report form.

SEX:
Check appropriate box(es). Sea turtles cannot be sexed externally until they are mature adults. If the turtle is not adult-sized (generally at least 92 em straight length for loggerheads and green turtles, 60 em straight length for Kemp's ridleys, 80 em straight length for hawksbills and 130 em curved length for leatherbacks) then you should check "immature, undetermined" if the turtle is not necropsied. Some males may begin to mature at slightly smaller sizes than those listed above and tail length should be documented if it is being used to externally sex a turtle.

CARAPACE MEASUREMENTS:
Use calipers to obtain straight measurements and /or flexible, non-metal measuring tape to obtain curved measurements. Measurement points are noted on drawings on left side of form. Circle units of measure -centimeters or inches; if units are not circled we cannot include measurements in the database.

FINAL DISPOSITION:
Check the box(es) next to the number that best describes what was done with the stranding after it was documented on the beach. Provide additional information regarding salvaged specimens. Record what rehabilitation facility live turtles were taken to.

TAGS: Contact state coordinator before disposing of any tagged animal!!

Flipper tags- check all flippers on all species and record information; note also if tag scars are seen.

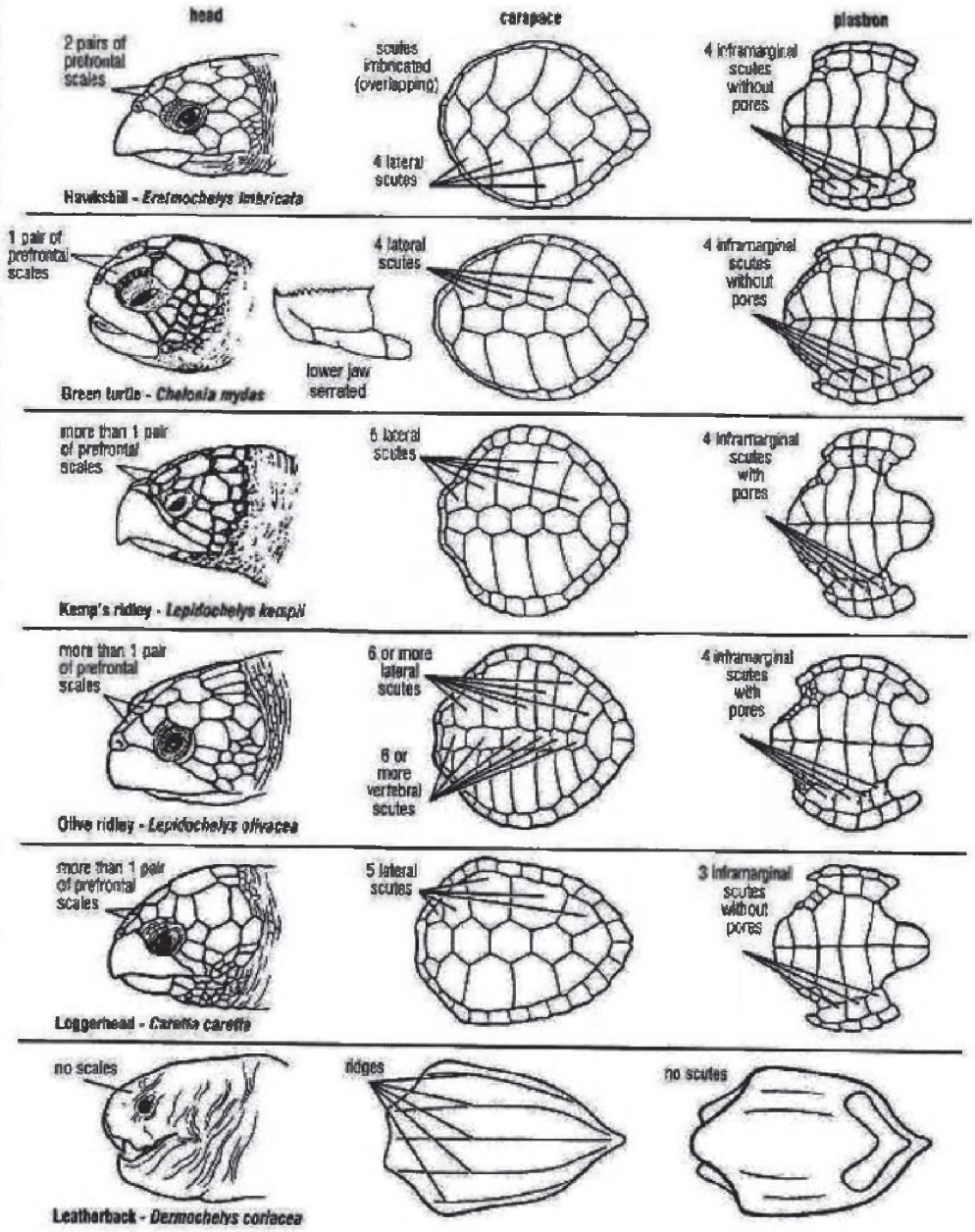
PIT tags -scan front flippers and shoulder areas of all species (see PIT tag scanning protocol for Specific instructions).

Coded wire tag scan -currently only being placed in front flipper region of Kemp's ridleys (see wire tag scanning protocol or specific instructions). Both front flippers and associated shoulder and "armpit" areas of all Kemp's ridleys should be salvaged for later scanning if a magnetometer is not available).

Living tags - check all Kemp's ridleys for light-colored areas on the dark carapace. Living tags are tissue transplants of the plastron onto the carapace which grow with the turtle and were used to mark head started turtles to distinguish between different ages. If you suspect a living tag is present the entire carcass should be salvaged. In most cases, Kemp's ridleys with living tags were also marked with external flipper tags, PIT tags and coded wire tags as well. The Cayman Turtle Farm has also used living tags on some green turtles to distinguish age and a couple of these have been documented by the STSSN; these turtles should have external flipper tags or tag scars as well.

REMARKS SECTION AT BOTTOM OF FORM:
Mark wounds/abnormalities on the diagrams at left and describe in detail. The more information you include, the easier it will be for us to code the record. Use the back of the data sheet to continue your remarks if needed. Always note anything unusual about a stranding event.

SPECIES IDENTIFICATION



Please use an envelope and mail original form to:

APPROPRIATE STATE STSSN COORDINATOR

A list of these state coordinators can be found at:

http://www.sefsc.noaa.gov/seaturtleSTSSN.jsp