W00232

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT

Type of Survey **Hydrographic Survey**
Field No. **NOAA NANCY FOSTER**
Registry No. **W00232**

LOCALITY

State **Florida**

General Locality **Gulf of Mexico**

Sub-locality **Vicinity of Tortugas Bank**

2009

CHIEF OF PARTY

NOAA FORM 77-28U.S. DEPARTMENT OF COMMERCE (11-72)NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION **HYDROGRAPHIC TITLE SHEET**	REGISTRY NUMBER: **W00232**

State/Territory: **Florida**

General Locality: **Gulf of Mexico**

Sub-Locality: **Vicinity of Tortugas Bank**

Scale: **1:10,000** Date of Survey: **09/12/2009-09/18/2012**

Instructions Dated: **08/24/2012** Project Number: **OSD-AHB-12**

Vessel: **NOAA Ship *Nancy Foster***

Soundings by: **Simrad EM1002**

Verification by: **Atlantic Hydrographic Branch**

Soundings in: **Meters at MLLW**

Remarks:

1) All Times are UTC.

2) All soundings corrected with verified tides.

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Revisions and Rednotes were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non-sequential. All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via http://www.ngdc.noaa.gov/.

UTM Zone 17N

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Florida Keys National Marine Sanctuary
33 East Quay Road
Key West, FL 33040

I. Final Cruise Instructions

Date Submitted:	24 August 2009
Platform:	NOAA Ship Nancy Foster
Cruise Number:	NF-09-09 FKNMS
Project Title:	Florida Keys Coral Disease Survey
Cruise Dates:	11 September – 18 September 2009

Prepared by: _____ Dated: _____
Scott Donahue
Chief Scientist
NOS/ONMS/FKNMS

Digitally signed by Scott Donahue
DN: cn=Scott Donahue, o=NOAA, ou=Florida Keys National Marine Sanctuary, email=scott.donahue@noaa.gov, c=US
Date: 2009.08.24 15:58:10 -04'00'

Approved by: _____ Dated: _____
Sean Morton
Superintendent (Acting)
NOS/ONMS/FKNMS

Sean Morton
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Date: 2009.08.28 10:55:40 -04'00'

Approved by: _____ Dated: _____
Steve Gittings, Ph. D.
Science Coordinator
NOS/ONMS

Harriet Sopher
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Approved by: _____ Dated: _____
Captain Michael S. Devany, NOAA
Commanding Officer
Marine Operations Center - Atlantic

II. CRUISE OVERVIEW

A. CRUISE PERIOD

Depart: Key West, FL September 11, 2009
Arrive: Key West, FL September 18, 2009

B. AREA OF OPERATIONS

Florida Keys National Marine Sanctuary - from Dry Tortugas Ecological Reserve to Carysfort Reef, Key Largo, FL

C. OBJECTIVES

The survey objectives are:

1. Quantitatively assess coral species abundance, disease prevalence, and bleaching frequency for established stations along the South Florida reef tract, by conducting dive operations from the ship.
2. Coral colonies will be sampled associated with geographically separated *Montastraea annularis* (complex) colonies that exhibit signs consistent with white plague type II (WPII), as well as coral colonies that appear to be healthy by conducting dive operations from the ship.
3. The coral tissue microflora will be analyzed using a combination of molecular fingerprinting, microbial culturing, and 16S rRNA gene sequencing.
4. Collection of multi-beam data at designated survey coordinates within survey area, yet to be determined by using the ship's multi-beam at designated survey sites.

D. PERSONNEL

1. Scott Donahue	NOAA FKNMS	Chief Scientist/ NOAA DM
2. Lauri MacLaughlin	NOAA, FKNMS, Key Largo	Co- Principal Investigator
3. Josh Voss	Harbor Branch Oceanographic Inst	Co- Principal Investigator
4. Geoff Cook	George Mason University, VA	Co- Principal Investigator
5. Sarah Fangman	NOAA NMSP SE Region	NOAA Divemaster (DM)
6. Cory Walter	Mote Marine Lab	AAUS Diver
7. Paul Chetirkin	NOAA, MBNMS	NOAA Working Diver
8. Lonny Anderson	FDEP, FKNMS, Key West	FDEP Diver
9. Kathy Morrow	Auburn University/NF Scholar	NOAA Scientific Diver
10. Jeff Anderson	NOAA Contractor	NOAA Working Diver
11. George Garrett	City of Marathon, FL	NOAA Scientific Diver
12. E. Michael Henley	Smithsonian Institute	AAUS Diver
13. Clare Wagstaff		NOAA Teacher at Sea
14. Vacant		
15. Vacant		

III. OPERATIONS

A. BACKGROUND INFORMATION

Over the last several decades there has been extensive coral mortality reported in the Caribbean and the Florida Keys. An increase in the reported incidence of coral diseases within the Florida Keys National Marine Sanctuary (FKNMS) has accompanied these events. Most of the disease processes and contributing factors are not well understood. Little information on the broad scale distribution, frequency, and intensity is available. Many believe that the decline in environmental health and increase in coral diseases is related to decreasing environmental quality. Therefore, there is a need to qualitatively and quantitatively assess the prevalence of coral disease and bleaching in the FKNMS. EPA's Gulf Ecology Division, in collaboration with NOAA FKNMS, has established a coral health assessment as part of the Florida Keys Coral Disease Reef Assessment Program (CDRAP). Reef sites throughout the Florida Keys were established in 1997. Locations assessed in 1998 and 1999 were in the Upper, Middle, and Lower Keys, Dry Tortugas and the Tortugas Ecological Reserve. It has been presumed that reefs in the Dry Tortugas and Tortugas Ecological Reserve are 'pristine' or unaffected by the land-based stresses found in the Florida Keys. In 2009, NOAA Ship *Nancy Foster*, will be used to assess the coral health in all locations where permanent stations have been established. The assessment will be compared to past years surveys to evaluate patterns and trends in coral health throughout South Florida. These data will be used in support of the coral disease and bleaching monitoring project, development of assessment tools, bio-criteria for reefs, and predictive models to be provided for resource managers to make policies and decisions to protect and conserve coral reefs.

B. SURVEY JUSTIFICATION AND RATIONALE

U.S. EPA Gulf Ecology Division in cooperation with NOAA FKNMS has established a series of permanent stations in the Florida Keys National Marine Sanctuary (FKNMS), Biscayne National Park (BNP), Dry Tortugas National Park (DTNP), and the Tortugas Ecological Reserve (TER) to assess coral health. This work provides support for implementation of the FKNMS and EPA Water Quality Protection Program. The FKNMS has responsibility for conservation, protection and stewardship of the Florida Keys reef tract. Stations located in the Lower Keys and DTNP have been assessed by this group at least annually since 1998. Sites in the Middle and Upper Keys, and BNP have been assessed by this group and Mote Marine Laboratory over several years, although not annually. This year the Coral Disease and Condition Cruise (CDC) will attempt to assess all permanent stations established in the past years at all the sites.

NOAA Ship *Nancy Foster* provides a safe and effective platform to deploy survey teams in small boats to SCUBA dive on reefs at these locations. NOAA Ship *Nancy Foster* is equipped to support benthic surveys, disease sampling, water quality sampling and data processing without interruption. The ship is equipped with full diver support including a Nitrox filling station, Nitrox tanks, with wet and dry lab facilities. Multiple small boat launching capability allows small team diving at established survey sites. The ship also has the capacity for water sampling from the deck with a flow through thermo-

salinograph, CTD and rosette water sampler.

Multi-beam surveys will be conducted at locations and times to be determined and entered into the daily operations plan.

C. CRUISE PLAN ELEMENTS AND ORDER OF OPERATIONS

All objectives of the survey which include disease surveys, diseased coral sampling, videography, and photo documentation will be conducted concurrently and according to the dive plan, under the supervision of NOAA divemasters.

The cruise will begin on September 11, 2009 at Sand Key, Rock Key and Eastern Dry Rocks Reefs south of Key West. During the first night at sea, the ship will steam to the Dry Tortugas arriving early the morning of September 12th. Thenceforth, spend an additional three nights in the Dry Tortugas, then steam eastward towards Looe Key on the evening of September 15th. The ship will continue to follow the above Survey Itinerary (Section 4.0), assessing the reefs during the day, transiting during the day and/or night to the next location. The Survey Station Coordinates are provided in Appendix B. The ship will provide general support near each dive site with daily small boats transiting survey teams to specific station coordinates, using Differential Global Positioning System (DGPS) units and local FKNMS staff navigation expertise.

D. SURVEY ITINERARY

DATE	TIME	ACTIVITY
9/10		**MOBILIZATION DAY** Scientific crew to load scientific gear and personal items, berthing available PM. Request *Nancy Foster* crane operators to load scientific containers & dive gear.
9/11		**Eleven Station Surveys Planned; (5 at Sand Key, 3 at Rock Key, 3 at Eastern Dry rocks)** **NOTE**: FKNMS to provide 3rd small day boat and captain, to pull alongside NF by 0745 hrs to load equipment and sci team
	Late PM	Transit to **Dry Tortugas /** multibeam survey of Tortugas Bank (plan to be submitted to survey techs)
9/12		**Eight Station Surveys Planned; (BK01, BK03, BK04, BK05, BKO6, BK07, BK08, BK09)**
	TBD	Conduct multi-beam survey on Tortugas Bank

9/13		**Eight Station Surveys Planned; (WH01, WH02, LR01, LR03, LR04, LR05, LR06, LR07)**
	TBD	Conduct multi-beam data collection

9/14		**Three Station Surveys Planned; (LR08, PS01; SFO1 or SFO2)**
	Late AM	NOAA Ship *Nancy Foster* begins transits **to Sherwood Forest, FKNMS Ecological Reserve (ER)**
	TBD	Conduct multi-beam data collection

9/15		**Two Deep Stations Surveyed; (two from SF01, SF02, or SF03)**

*************NF officer/crew divers could participate this day, searching for station markers prior to SCI team**

	Late PM	NOAA Ship *Nancy Foster* departs and transits to **Looe Key Reef /** nighttime multibeam surveys

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9/16		**Six Survey Stations Planned; (LK01, LK02, LK03, LK04, SR01, SR02)**
	Late AM	NOAA Ship *Nancy Foster* departs and transits to **Sombrero Reef**, Marathon
	Late PM	NOAA Ship *Nancy Foster* departs and transits to **Carysfort Reef**, Key Largo / Multibeam survey at night

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9/17		**Five Survey Stations Planned (3 at Carysfort Reef, 2 at Molasses Reef)**
	Late AM	NOAA Ship *Nancy Foster* departs and transits to **Molasses Reef**
	Late PM	NOAA Ship *Nancy Foster* departs and transits to **Eastern Sambos Reef**, Lower Keys and nighttime multibeam surveys

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9/18		**Six Survey Stations Planned (3 at Eastern Sambos Reef, 3 (poss. 4) at Western Sambos Reef)**

	Late AM	NOAA Ship *Nancy Foster* departs and transits to **Western Sambos Reef,** Lower Keys
	Early PM	**NOAA Ship *Nancy Foster* transits into port,** (Trumbo Point Annex, USCG Pier?)
	TBD	Requesting Crane Operations for an hour or so, once in port to demob heavy gear
9/19		**Final DEMOBILIZATION & TRAVEL Day**
	1100	**ALL Scientific Crew off *Nancy Foster***

This schedule is a tentative schedule and may change due to the complexity, logistics, and weather during this survey. SCI crew will conduct evening planning sessions, as required by *Nancy Foster* crew, and present timely (daily) notification of any changes to this plan.

E. SURVEY STATIONS TO BE ASSESSED

See Appendix A.

NOAA Ship *Nancy Foster* may anchor near survey station coordinates, well clear of reefs, and in accordance with the FKNMS ATBA permit and National Park Service official's guidance. Small boats will be deployed to conduct daily dive operations.

F. SAMPLING METHODOLOGIES

Sci team specific – to be provided if necessary

G. QA/QC PROCEDURES

Sci team specific – to be provided if necessary

H. DIVE OPERATIONS PLAN

Dive Masters: Sarah Fangman and Scott Donahue

<u>SCIENCE PARTY DIVE TEAM</u>:

Scott Donahue	NOAA, FKNMS, Key West	NOAA Divemaster
Geoff Cook	George Mason University, VA	AAUS Diver
Josh Voss	Harbor Branch Oceanographic Inst	AAUS Diver

Sarah Fangman	NOAA NMSP SE Region	NOAA Divemaster
Lauri MacLaughlin	NOAA, FKNMS, Key Largo, FL	NOAA Divemaster
Kathy Morrow	Auburn University	NOAA Scientific Diver
Cory Walter	Mote Marine Lab**,** Summerland,	AAUS Diver
Lonny Anderson	FDEP/FKNMS	FDEP DSO
George Garrett	City of Marathon, FL	NOAA Scientific Diver
Paul Chetirkin	NOAA, MBNMS	NOAA Working Diver
Jeff Anderson	Contractor	NOAA Working Diver
E. Michael Hensley	Smithsonian Institute	AAUS Diver

All divers are NOAA or AAUS certified with an agreement of reciprocity between NOAA and AAUS University units.

DOCUMENTATION REQUIRED TO PARTICIPATE IN DIVING OPERATIONS:

- Δ Letter of authorization to dive from NDC (NOAA divers)
- Δ Letter of authorization to dive from Dive Safety Officer (non-NOAA divers)
  This should include documentation of current dive physical or physician's statement of medical qualifications and documentation of certifications (NITROX, CPR, First Aid, and Oxygen Administration)
- Δ Accident insurance/workman's compensation coverage (non-NOAA)

OBJECTIVES:

The survey objectives are:

1. Quantitatively assess coral species abundance, disease prevalence, and bleaching frequency for established stations along the South Florida reef tract.
2. Collection of multi-beam data at designated survey coordinates, to be provided.

DIVE SURVEY STATIONS

Approach:

All survey operations will be conducted either using SCUBA equipment or snorkel gear and limited to depths of 90' or less. Diving operations will be conducted from small boats, and according to NOAA diving regulations. When practicable, deep dives will be conducted early followed by shallow dives later in the day. **All dives are justified as science dives.**

The initial task will be to address QA in the Key West area, with an overall task to assess the frequency of different disease conditions on specific coral species along the Florida Reef Tract, including major reefs from Biscayne National Park to the Tortugas Ecological Reserve.

The corals will be surveyed using the circle swim (radial belt) method. Briefly, line tenders will attach a line to a fixed point, while scientific observers swim in an arc to record coral species and types of coral disease for each coral colony observed within an 8-10 meter radius. Once the end of the transect is anchored to the center point, snorkelers or divers swim the transect side by side, with the line tender adjacent to the scientists. This survey will be conducted using snorkel from the surface when water clarity and station depth allow. Alternatively, the same method will be used employing SCUBA under all other conditions. The observers will record their observations

of coral species, bleached and diseased conditions. The data will be recorded underwater on waterproof data sheets. Representative examples of each disease or tissue loss condition will be recorded via underwater video or still photography for future reference. Specimen collections and station installation operations will be conducted on an as needed basis.

Supervision:
The Commanding Officer of *Nancy Foster* has complete authority over all dive operations. However, under normal circumstances the science party Divemasters will take charge of planning daily survey operations. Divemaster responsibilities include record keeping, regular wellness checks, decisions regarding diving procedures, proper equipment, individual diver fitness for diving, vessel operations as they affect diving, and weather related decisions. The Divemasters also have the authority to terminate diving operations or disqualify divers whom they feel are unsafe and/or not operating according to NOAA diving guidelines or the Diving Safety Plan.

Dive Planning:
Each day a dive plan will be formulated, reviewed and discussed by all diving participants in a pre-dive briefing. This briefing will review the diving safety issues, sites, maximum depth, tasks, bottom time, underwater currents or tides, and any anticipated hazardous conditions. Pre- and Post-dive briefings will follow the Pre- and Post-Dive Briefing Template and the Pre- and Post-Dive Checklist, as per NOAA Diving Program protocols established in May 2008.

Bottom Time:
During this cruise, bottom time will be calculated as the total elapsed time from surface to surface rounded up to whole minutes. In so doing, an additional safety factor is added to the dive (NOAA normally considers bottom time to be the time the diver leaves the surface until s/he begins a direct ascent to the surface).

Ascent Rates:
NOAA Diving Regulations require that ascent rates do not exceed 30'/min.

Safety Stops: Safety stops are required on repetitive dives and dives greater than 60 feet. Safety stops should be between 15 and 20 feet for 3 to 5 minutes.

Surface Intervals:
For surface intervals less than 10 minutes, the total bottom time of the previous dive shall be added to that of the next dive. The diver shall then use a non-decompression schedule for the total time and the greatest depth.

Surface interval after multiple repetitive dives:
NOAA no-decompression tables will be used to calculate repetitive group designations and minimum surface interval required to perform the next planned dive. At any time, divers may refrain from diving to allow for additional surface interval (off-gassing). In addition, Divemasters have discretion to require additional surface interval for individual divers.

Breathing gas and NITROX Diving:
NOAA NITROX 36 (36% Oxygen) will be used as the primary breathing gas during this mission. It is the responsibility of the divers to analyze the gas mixture in the scuba cylinders they use for

each dive, and to have that information recorded on the cylinder sign-out sheet. Air will be used as the primary breathing gas should the ship be unable to provide NITROX at the preferred oxygen mixture (36%).

Emergency Oxygen:
An oxygen resuscitator with oxygen supply sufficient to get an injured diver back to the NOAA Ship *Nancy Foster* shall be immediately available at each dive site with divers and support personnel trained in the use of the equipment.

Minimum cylinder pressure:
Divers must be on the surface with a minimum tank pressure of 500 psig. Failure to comply will lead to diving restrictions.

Depth Limitations:
NOAA NITROX 36 (36% Oxygen) has a maximum operational depth of 110 feet sea water (fsw). No dives will occur in waters greater than 100 fsw, and divers shall not exceed the depth limits prescribed by the Divemasters (during the pre-dive briefings) for the stations being surveyed.

Redundant Air Supply System:
Because all dives will be "science dives," divers are not required to have an redundant air supply system for any dives less than 100 fsw.

Diving Flag:
A legal size dive flag shall be flown at all times and is the responsibility of the coxswain, standby diver, or Divemaster. If a team does not have a dive flag they will return to *Nancy Foster* to secure the equipment prior to initiating any dive operations.

Dive Tables:
NOAA NITROX 36 no-decompression dive tables will be used in the Dry Tortugas, in order to maximize bottom times at those deeper stations. In all other locations, the NOAA no-decompression Air table will be used for dive planning and repetitive group calculations/designations.

Dive Computers:
Divemasters will calculate repetitive group designations based on the aforementioned no-decompression dive tables. However, dive computers (including NITROX) are authorized provided that NOAA divers have filled out a Dive Computer User Agreement form and filed it with NDC. Reciprocity divers will demonstrate knowledge of computer proficiency prior to use.

Dive Teams: (Minimum requirements)
The dive team shall consist of at least three divers and a boat operator. These teams will stay in radio contact with the ship and the dive supervisor.

Current:
Dive operations will be suspended if current is predicted to be over one knot.

Emergency Procedures:

Dive Accident Management plans for the Tortugas, Lower Keys and Upper Keys will be in effect during this cruise (depending on location of diving operations). These plans are separate attachments to this Operation Plan. All diving personnel will review emergency procedures before diving. The appropriate plan for a given dive location will be posted in the wet lab, on board the dive boats and on the bridge.

Emergency Equipment:
First aid equipment and Oxygen will be available on each dive site.

Record Keeping:
All diving operations will be logged in accordance with the NOAA diving directives and copies of the log will be provided to the divers, no more than five working days after the operations are complete. Logs will be entered as soon as possible into the NOAA database for NOAA Divers.

Flying After Diving:
Before flying, a diver will consult NOAA's "Flying after diving" table

IV. FACILITIES

Equipment Specifications, Special Requests for September 10-18, 2009 FKNMS Survey aboard NOAA Ship *Nancy Foster*

1. All prospective boat operators should attend the evening science team briefings, or coordinate with the Chief Scientist prior to small boat operations. We would like to ensure coordination/orientation to DGPS units, station locations and approaches, mooring/anchoring among reefs, and scientific crew needs on small vessels. Polarized glasses are recommended for use by all coxswains as they enable the operator to see through the surface glare into the water. This clear vision allows for safe approach into the shallow fore reefs, back reefs and patch reefs where there is not much room for error. They must be able to see ecologically sensitive, underwater structures such as large coral heads which take centuries to grow, and may destroy an outboard engine lower unit.

2. All small vessels must have a designated FKNMS/DTNP staff with local boating knowledge aboard during all operations. FKNMS crew will coordinate for this provision. Vessels without a designated FKNMS/DTNP staff will not be permitted to operate independently, due to instances of vessel groundings occurring on past cruises.

3. Scientific crew members understand that meals are served at certain times of the day. We will do our best to complete surveys in order to eat during these scheduled meal times. However, due to the nature of our surveys and extended work schedule during summer daylight hours, our schedule may require that we work through meal times. We will attempt to anticipate these instances, and will inform the ops officer and/or Stewards promptly. We understand that dives after dinner hours may be permitted.

4. It is crucial to the success of the mission to keep the RHIBs/launches fully operational.

5. It will be necessary to provide for VHF radios and DGPS units on all RHIBs/launches for the duration of this mission. The science party will provide two hand-held DGPS units.

6. Due to the number of SCUBA cylinders required for this mission, we will provide additional tank storage racks. These will be placed adjacent to the filling station for ease of refilling. If the *Nancy Foster* can provide 28 Nitrox tanks (25 @ 80cf, 3 @ 100cf), the scientific crew will provide an additional 15 @ 80 cf, for a total of 40 @ 80 cf. The scientific crew understands that all tanks to be brought on must have current VIPs and hydros. If possible, it would be ideal to have one tank rack in each RHIB/launch. The scientific party will assist with tank filling ops. If the ship can provide three 6-pack Pelican racks on deck, the science crew will bring 3 additional 6-pack Pelican tank racks. FKNMS staff will provide one emergency oxygen kit and one oxygen analyzer, per the ship's crew request.

7. Lab space/Lab equipment- All available lab space in interior labs and wet lab will be utilized, running water requested in all.
   Access to freezer space, for potential sample collections
   4EC food free refrigerator (temperatures of 37 C and 28 C)
   Lab desk or table tops

V. DISPOSITION OF DATA AND REPORTS

Pre-Cruise Meeting: Prior to departure the Chief Scientist will conduct a meeting of the scientific party to train them in sample collection and inform them of cruise objectives. Some vessel protocols, e.g., meals, watches, etiquette, etc., will be presented by the ship=s Operations Officer.

Post-Cruise Reporting Requirements: Within seven days of the completion of the cruise, a Ship Operation Evaluation form is to be completed by the Chief Scientist. The preferred method of transmittal of this form is via email to OMAO.Customer.Satisfation@noaa.gov . If email is not an option, a hard copy may be forwarded to:

Director, NOAA Marine and Aviation Operations
NOAA Office of Marine and Aviation Operations
8403 Colesville Road, Suite 500
Silver Spring, MD 20910

Upon completion of the cruise, a post-cruise meeting will normally be held at 08:30 (unless prior alternate arrangements are made) and attended by the ship's officers, the Chief Scientist and members of the scientific party, the Vessel Coordinator and the Port Captain to review the cruise. Concerns regarding safety, efficiency, and suggestions for improvements for future cruises should be discussed. Minutes of the post-cruise meeting will be distributed to all participants with email to the CO.MOC.Atlantic@noaa.gov and ChiefOps.MOA@noaa.gov

VI. HAZARDOUS MATERIALS

The Chief Scientist is responsible for complying with MOCDOC 15, Fleet Environmental Compliance #07, Hazardous Material and Hazardous Waste Management Requirements for Visiting Scientists, released July 2002. Documentation regarding those requirements will be provided by the Chief of Operations, Marine Operations Center Atlantic, upon request and can be reached at ChiefOps.MOA@noaa.gov or 757-441-6842.

By Federal regulations and NOAA Marine and Aviation Operations policy, the ship may not sail without a complete inventory of all hazardous materials by name and the anticipated quantity brought aboard, MSDS and appropriate neutralizing agents, buffers, and/or absorbents in amounts adequate to address spills of a size equal to the amount of chemical brought aboard and a chemical hygiene plan. The amount of hazardous material arriving and leaving the vessel shall be accounted for by the Chief Scientist.

VII. MISCELLANEOUS

A. Meals and Berthing:
Meals and berthing are required for up to thirteen scientists. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the cruise, and ending two hours after the termination of the cruise. **Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours.** Special dietary requirements for scientific participants will be made available to the ship's command at least seven days prior to the survey (e.g., Chief Scientist is allergic to fin fish).

Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the Chief Scientist. The Chief Scientist and Commanding Officer will work together on a detailed berthing plan to accommodate the gender mix of the scientific party taking into consideration the current make-up of the ship's complement. The Chief Scientist is responsible for ensuring the scientific berthing spaces are left in the condition in which they were received; for stripping bedding and linen return; and for the return of any room keys which were issued. The Chief Scientist is also responsible for the cleanliness of the laboratory spaces and the storage areas utilized by the scientific party, both during the cruise and at its conclusion prior to departing the ship.

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The Chief Scientist will ensure that all non NOAA or non Federal scientists aboard also have proper orders. It is the responsibility of the Chief Scientist to ensure that the entire scientific party has a mechanism in place to provide lodging and food and to be reimbursed for these costs in the event that the ship becomes uninhabitable and/or the galley is closed during any part of the scheduled project.

All persons boarding NOAA vessels give implied consent to comply with all safety and security policies and regulations which are administered by the Commanding Officer. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must

comply with OMAO's Drug and Alcohol Policy dated May 7, 1999 which forbids the possession and/or use of illegal drugs and alcohol aboard NOAA Vessels.

B. Medical:
The NOAA Health Services Questionnaire (NHSQ, Revised: 08/08) must be completed in advance by each participating scientist. The NHSQ can be obtained from the Chief Scientist or the NOAA website at http://www.omao.noaa.gov/medical/NHSQ_Final_wi_Instructions_fill.pdf The completed form should be sent to the Regional Director of Health Services at Marine Operations Center – Atlantic (MOC-A). The participant can mail, fax, or scan the form into an email using the contact information below. The NHSQ should reach the Health Services Office no later than 4 weeks prior to the cruise to allow time for the participant to obtain and submit additional information that health services might require before clearance to sail can be granted. Please contact MOC-A Health Services with any questions regarding eligibility or completion of the NHSQ. Be sure to include proof of tuberculosis (TB) testing, sign and date the form, and indicate the ship or ships the participant will be sailing on. The particpant will receive an email notice when medically cleared to sail if a legible email address is provided on the NHSQ.

Contact information:

Regional Director of Health Services
Marine Operations Center - Atlantic
439 W. York Street
Norfolk, VA 23510
Telephone 757.441.6320 Fax 757.441.3760
E-mail MOA.Health.Services@noaa.gov

C. Emergency Contacts
Prior to departure, the Chief Scientist must provide a listing of emergency contacts to the Executive Officer for all members of the scientific party, with the following information: name, address, relationship to member, and telephone number.

D. IT Security:
Any computer that will be hooked into the ship's network must comply with the *NMAO Fleet IT Security Policy* prior to establishing a direct connection to the NOAA WAN. Requirements include, but are not limited to:

(1) Installation of the latest virus definition (.DAT) file on all systems and performance of a virus scan on each system.
(2) Installation of the latest critical operating system security patches.
(3) No external public Internet Service Provider (ISP) connections.

Non-NOAA personnel using the ship's computers or connecting their own computers to the ship's network must complete NOAA's IT Security Awareness Course within 3 days of embarking.

F. Foreign National Access and Deemed Export Controls:
No Foreign National guests are expected on this cruise

APPENDIX A

Survey Station Coordinates

AUGUST 2005

	Coral Disease & Condition Survey - Florida Keys Region						
Region	Station		Common Name	Reef	Depth	Location	
	Name	Code		Type	(ft)	Latitude	Longitude
DT	Loggerhead Reefs 2	LR02	Grouper Ledge	TR	10-15	24° 37.799'	82° 56.172'
	Loggerhead Reefs 3	LR03	Little Africa	PR	4-7	24° 38.0877'	82° 55.3679'
	Loggerhead Reefs 4	LR04	Cervicornis Patch	BR	8-11	24° 38.107'	82° 54.980'
	Loggerhead Reefs 5	LR05	Roy's Reef	PR	10	24° 39.031'	82° 54.899'
	Loggerhead Reefs 6	LR06	Roy's Reef	PR	10	24° 39.148'	82° 54.847'
	Loggerhead Reefs 7	LR07	Roy's Reef	PR	9-10	24° 39.276'	82° 54.786'
	White Shoals 1	WH01		TR	20-35	24° 38.532'	82° 53.807'
	White Shoals 2	WH02		TR	15-16	24° 38.518'	82° 53.812'
	Bird/Bush Key Reef 1	BK01	Deep Reef	FR	29-38	24° 36.703'	82° 52.239'
	Bird/Bush Key Reef 3	BK03		FR	11-15	24° 37.204'	82° 52.004'
	Bird/Bush Key Reef 4	BK04	Palmata Patch	BR	8	24° 37.237'	82° 52.042'
	Bird/Bush Key Reef 5	BK05	Palmata Patch	BR	8	24° 37.236'	82° 52.039'
	Bird/Bush Key Reef 6	BK06	Backside Bird Key	FR	10	24° 37.868'	82° 51.706'
	Bird/Bush Key Reef 7	BK07	Back Bird Key	FR	10	24° 37.865'	82° 51.706'
	Bird/Bush Key Reef 8	BK08	Prolifera Patch	BR	9	24° 37.225'	82° 52.146'
	Bird/Bush Key Reef 9	BK09	Prolifera Patch	BR	9	24° 37.216'	82° 52.146'
	Pulaski Shoals 1	PS01		TR	27	24° 41.645'	82° 46.293'
KW	Sand Key 1	SK01		FR	20	24° 27.141'	81° 52.591'
	Sand Key 2	SK02		FR	11	24° 27.1190'	81° 52.6500'
	Sand Key 3	SK03		TR	29-35	24° 27.087'	81° 52.799'
	Sand Key 4	SK04		TR	30-35	24° 27.087'	81° 52.799'
	Sand Key 5	SK05		BR	4	24° 27.18'	81° 52.718'
	Rock Key 1	RK01		TR	30-37	24° 27.211'	81° 51.602'
	Rock Key 2	RK02		FR	15-19	24° 27.298'	81° 51.582'
	Rock Key 3	RK03		BR	4	24° 27.353'	81° 51.526'
	Eastern Dry Rocks 1	ED01		FR	8-18	24° 27.575'	81° 50.755'
	Eastern Dry Rocks 3	ED03	Hammerhead Nursery	BR	4	24° 27.680'	81° 50.632'
	Eastern Dry Rocks 4	ED04		TR	30	24° 27.728'	81° 50.338'
	Western Sambo 2	WS02		BR	4	24° 28.8577'	81° 43.0774'
	Western Sambo 3	WS03		TR	24-30	24° 28.776'	81° 42.861'
	Western Sambo 4	WS04		FR	7-9	24° 28.799'	81° 42.968'
	Western Sambo 5	WS05		BR	3	24° 28.842'	81° 43.069'

Region	Station			Reef	Depth	Location	
	Name	Code		Type	(ft)	Latitude	Longitude
LK	Eastern Sambo 1	ES01		TR	25	24° 29.513'	81° 39.674'
	Eastern Sambo 2	ES02		FR	15-20	24° 29.552'	81° 39.687'
	Eastern Sambo 3	ES03		BR	4	24° 29.532’	81° 39.9192'
	Looe Key 1	LK01		TR	45	24° 32.543'	81° 24.877'
	Looe Key 2	LK02		FR	10-25	24° 32.747'	81° 24.349'
	Looe Key 3	LK03		BR	5	24 32.819'	81 24.361'
MK	Sombrero Reef 1	SR01		TR	23-25	24° 37.550'	81° 06.508'
	Sombrero Reef 2	SR02		FR	9-23	24° 37.573'	81° 06.568'
	Alligator Reef 1	AR01		TR	25	24° 50.788'	80° 37.248'
	Alligator Reef 2	AR02		FR	15-20	24° 50.762'	80° 37.286'
UK	Molasses Reef 1	MR01		TR	55-75	25° 01.057'	80° 21.840'
	Molasses Reef 2	MR02		FR	12-22	25° 01.104'	80° 22.062'
	Carysfort Reef 1	CR01		TR	15-22	25° 13.461'	80° 12.493'
	Carysfort Reef 2	CR02		FR	15-25	25° 13.318'	80° 12.607'
	Carysfort Reef 3	CR03		BR	5-8	25° 13.496'	80° 12.562'
BP	Elkhorn Reef 1	ER01		BR	10	25° 21.807'	80° 09.925'
	Pacific Reef 1	PR01		TR	45	25° 21.735'	80° 08.370'
	Pacific Reef 2	PR02		FR	15-22	25° 22.225'	80° 08.387'

TORTUGAS ECOLOGICAL RESERVE

Station ID		Lat. (ship)	Long. (ship)	Depth @ stk (max)	Description
FLK-TR-SF01-DR	Sherwood Forest	24° 41.689 (24.69335)	83 ° 01.472 (83.02377)	75' (79')	Mixed sand & hard bottom, gorg & corals.Good survey station.Mac says still low cover for SF, Installed
FLK-TR-SF02-DR	Sherwood Forest	24° 41.913 (24.69867)	83° 02.600 (83.04399)	70' (80')	Hard bottom, patchy sand; gorg & corals cover similar to Site 3. Installed & surveyed.
FLK-TR-SF03-DR	Sherwood Forest	24° 40.750 (24.67909)	83° 02.226 (-83.03599)	51' (65')	Impressive sight, looks more like Bahamas, Mac says typical of SF type reef. Installed & surveyed.

Appendix I: Tides and Water Levels

-none

Appendix II: Supplemental Survey Records and Correspondence

-none

Appendix III: Feature Report

AWOIS: none

DtoNs: none

Maritime Boundary: none

Wrecks: none

APPROVAL PAGE

W00232

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NGDC for archive

- W00232_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- W00232_GeoImage1.pdf
- W00232_GeoImage2.pdf
- W00232_GeoImage3.pdf

The survey evaluation and verification has been conducted according current OCS Specifications, and the survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Digitally signed by Edward Owens
DN: cn=Edward Owens, o=NOAA, ou=AHB, email=Edward.Owens@noaa.gov, c=US
Date: 2012.07.31 13:34:06 -04'00'

Approved For: _____

LT Abigail Higgins
Chief, Atlantic Hydrographic Branch