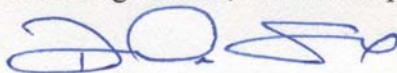




UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration
NOAA Marine and Aviation Operations
Marine Operations Center
439 W. York Street
Norfolk, VA 23510-1114

MEMORANDUM FOR: Lieutenant Commander Holly Jablonski, NOAA
Commanding Officer, NOAA Ship *Nancy Foster*

 *CAO/NMOP*

FROM: Captain David A. Score, NOAA
Commanding Officer, NOAA Marine Operations Center-Atlantic

SUBJECT: Project Instruction for NF-12-03
Gray's Reef National Marine Sanctuary (GRNMS) Regional
Development and Assessment Cruise (SERA)

Attached is the final Project Instruction for NF-12-03, GRNMS-SERA, which is scheduled aboard NOAA Ship *Nancy Foster* during the period of 14 May – 25 May 2012. Acknowledge receipt of these instructions via e-mail to OpsMgr.MOA@noaa.gov at Marine Operations Center-Atlantic.

Attachment

cc:
MOA1



CRUISE INSTRUCTIONS
NF-12-03-GRNMS

CI SUBMISSION DATE:

NOAA SHIP:

NOAA Ship *Nancy Foster*

CRUISE NUMBER:

NF-12-03-GRNMS

CRUISE TITLE:

Gray's Reef National Marine Sanctuary Regional Development
and Assessment Cruise

CRUISE DATES:

Depart May 14, 2012
Arrive May 25, 2012

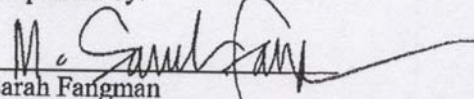
AREA OF OPERATIONS:

Gray's Reef National Marine Sanctuary (GRNMS)

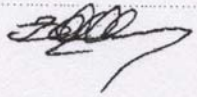
Chief Scientist:

Sarah Fangman, Program Coordinator
ONMS Southeast Region
10 Ocean Science Circle
Savannah, GA 31411
Phone: 912-598-2428
Cell: 912-220-5721
Email: sarah.fangman@noaa.gov

Requested by:


 5/10/12
Sarah Fangman
Office of National Marine Sanctuaries, Southeast Region

Approved by:

 5/09/12

Dr. Billy Causey

SEGOMCAR Regional Director, National Marine Sanctuary Program

 carr/nass

CAPT David A. Score

Commanding Officer, Marine Operations Center-Atlantic

Cruise Instructions

I. Overview

A. Cruise Period: Mobilization: May 14, 2012 – Charleston, SC
Departure: May 14, 2012
Return/Demobilization: May 25, 2012--Savannah, GA

B. Service Level Agreements

Of the 12 DAS scheduled for this project, 12 DAS are charter-funded by the National Ocean Service. This project is estimated to exhibit a Medium Operational Tempo.

C. Operating Area

Diving and sampling will be conducted in waters within Gray's Reef National Marine Sanctuary (GRNMS). Exact locations of these sites will be determined while at sea based on a variety of factors and will be provided to the ship's navigation crew the night before a site is to be visited. Multibeam mapping activities will occur near Gray's Reef NMS.

D. Summary of Objectives (not necessarily in order of priority)

1. Ship based mapping and characterization of benthic habitats in the waters around Gray's Reef National Marine Sanctuary
2. Collect a maximum of 20 *A. zebra* clusters from within Gray's Reef NMS for analysis of chemical contaminants in support of long term-monitoring of the sanctuary.
3. Assessment, monitoring and reduction of the causes and impacts of marine debris in Gray's Reef National Marine Sanctuary.
4. Initiate fine scale fish movement study.
5. Acoustic receiver array maintenance.
6. Photo and video documentation of benthic habitats and marine organisms.
7. Lionfish survey and removal.

E. Participating Institutions:

Gray's Reef Team Ocean Volunteer Divers (GRTO)
NOAA Gray's Reef National Marine Sanctuary (GRNMS)
Florida Fish and Wildlife Conservation Commission/Fish and Wildlife Research
Institute (FWRI)
NOAA's National Centers for Coastal Ocean Science (NCCOS)
NOAA's Office of National Marine Sanctuaries (ONMS)
ONMS Southeast Region (SER)
National Marine Fisheries Service (NMFS)
College of Charleston
NOAA Papahānaumokuākea Marine National Monument

F. Personnel

1. Greg McFall, NOAA GRNMS (NOAA Master Diver) (M, USA)
2. Fangman, Sarah, ONMS SER (Chief Scientist, NOAA diver) (F, USA)
3. Randy Rudd, GRTO (NOAA Scientific Diver) (M, USA)

4. Debbie Campbell, NOAA Teacher at Sea (F, USA)
5. JD Dubick, NOAA, NCCOS (NOAA diver) (M, USA)
6. Debbie Meeks, NOAA GRNMS (F, USA)
7. Paul Barbera, FWRI (FWC Diver) (M, USA)
8. Chris Gardner, NOAA, NMFS (NOAA Diver) (M, USA)
9. Andrew David, NOAA, NMFS (NOAA Diver) (M, USA)
10. Guy Davenport, NOAA, NMFS (NOAA Diver) (M, USA)
11. Steve Matthews, NOAA, NMFS (NOAA Diver) (M, USA)
12. Noelle Hawthorne, NOAA, GRNMS (F, USA)
13. Keith Borden, GRTO (NOAA Scientific Diver) (M, USA)
14. Mike Mullenix, GRTO (NOAA Scientific Diver) (M, USA)
15. Shannon McAteer, GRTO (NOAA Scientific Diver) (M, USA)
16. Kacey Johnson, College of Charleston (F, USA)
17. Kelly Gleason, NOAA PMNM (NOAA diver) (F, USA)

G. Administrative

1. Points of Contact:

Chief Scientist: Sarah Fangman
 Office: 912-598-2416
 Cell: 912-596-2464
 Email: Sarah.Fangman@Noaa.gov

Ops Officer: LT Josh Slater
 Cell: 843-991-6326
 Iridium: 808-434-5653
 Email: ops.nancy.foster@Noaa.gov

2. Diplomatic Clearances: N/A

3. Licenses and Permits: Manager's Permit – Gray's Reef National Marine Sanctuary.

II. Operations

A. Cruise Plan/Itinerary

For all activities, a Plan of the Day (POD) will be provided to the bridge that details the specifics of the projects and timelines related to operations and logistics for the following day. The POD will be delivered to the Operations Officer each evening.

Three primary projects are planned for the duration of this cruise: acoustic fish tracking, marine debris surveys, and collection of *A. zebra* samples. Two additional ancillary projects are also planned for the cruise: photo and video documentation and multibeam mapping. Lionfish surveys and removal may also occur, if other projects are completed and time permits. Diving operations will be planned to comply with ship's requirements for safety. Below is a proposed timeline of activities to be conducted. This is meant only to be a general guide for how these activities could occur and is not intended to be a binding daily schedule.

0730

Divers load small boats (3 boats with 2-4 divers per boat)

0750	Daily safety meeting
0800	Deploy small boats for diving operations
0900	Ship stands by to support diving operations occurring aboard small boats and GRNMS vessel; GRNMS vessel may come alongside to pick up divers
1100	Small boats return to NOAA Ship <i>Nancy Foster</i>
1100-1130	Recover small boats
1130	Lunch
1330	Load small boats (3 boats with 2-4 divers per boat)
1345-1415	Small boats redeploy for diving operations
1430	Ship stands by to support diving operations occurring aboard NOAA Ship <i>Nancy Foster</i> small boats and GRNMS vessels
1600	Small boats return to NOAA Ship <i>Nancy Foster</i> ; GRNMS vessel alongside to return divers
1600-1630	Recover small boats
1700	Secure from diving operations
1730	Begin transects for multibeam
0700	Complete nighttime operations

Special Activities in addition to above (all contingent on weather):

Personnel transfers are planned during the cruise and will be contingent on weather. Media and or VIP visits are planned during the cruise and will be coordinated with David Hall at OMAO. An Open House will be held on May 25th from noon to 4 p.m. GRNMS will provide at least six staff to support this effort. Two representatives from the ship are requested to assist with this activity. One would remain on the bridge and provide 5-10 minute introductions to the ship and the bridge, a second would be stationed in the dry lab to provide additional information on the ship and operations. GRNMS staff would be stationed at the dock to organize tours, and lead guests on those tours. No more than three tours would be aboard at any given time. Tours are expected to last 30-40 minutes each.

Note: Small boats are requested to be aware of recreational vessels operating in Gray's Reef and to adjust location of activities if necessary so as not to conflict with users.

B. Staging and Destaging

Mobilization activities will occur in Charleston, SC on May 14th. The scientific party will require ship's assistance loading equipment. Demobilization will occur in Savannah, Georgia on May 25th.

C. Operations to be conducted:

Project 1: Multibeam mapping

Use Reson 7125 multi-beam system aboard NOAA Ship *Nancy Foster* to collect acoustic and backscatter data for preparation of maps of habitats around GRNMS. Multibeam operations will occur at night but could be conducted opportunistically during the daytime hours contingent on availability of survey tech. It is understood that the backscatter from the system may not be high quality but that the bathy should be fully functional.

Project 2: Arc shell collections

A maximum of 20 *A. zebra* clusters will be collected opportunistically by divers at various locations throughout sanctuary (Figure 1). Collections should be completed in as close proximity as possible to the 20 stations identified for benthic habitat sampling (Table 1). Individual clusters of Arc shells will be rinsed with ambient seawater, wrapped in heavy

aluminum foil, and collectively placed in double plastic Ziploc bags. Inside each bag, there is to be a label with information on collection date, station or site number, and number specimens in sample. Samples will be analyzed for chemical contaminants and contribute to the long-term monitoring of ecological conditions of GRNMS.

Project 3: *Marine debris monitoring*

Divers will survey nine long term monitoring sites within GRNMS to characterize the types, abundance, and accumulation rates of marine debris within the sanctuary (see Table 2 for site locations and Figure 2 for site map). Ledge sites were selected to compare debris metrics between regions with differing relative use (low, high) and among ledge height classes (tall, medium). Nine sites were previously marked and surveyed in September 2007 and May 2008; these sites will be revisited during the cruise to measure new debris accumulation. This will require a minimum of nine dives although additional dives may be needed to survey complex or heavily fouled sites, or if any sites need to be re-marked. Dives can be completed during the morning or afternoon. Dive time is expected to be ~30 minutes per site.

Project 4: *Fish telemetry – fine scale fish movement*

Scientists will initiate a fine scale movement study of gag and scamp grouper as well as red snapper at one site within Gray's Reef (near the position 31° 22.588 -80° 50.372). The GRNMS vessel *R/V Joe Ferguson* will transit out to the sanctuary each day to conduct fish capture activities. Depending on how fish are captured (underwater by divers, trapping or at the surface using hook and line), the rate of capture and the health of captured fish, we may or may not choose to transfer fish to the ship. If conditions permit, fish will be tagged and released either underwater or aboard *Joe Ferguson*, avoiding the need to transfer fish to/from the ship. Scientists will set up holding tanks aboard *Nancy Foster* in case they are needed as a backup, however our goal is to conduct all fish capture/tagging related activities aboard *Joe Ferguson*. The goal of this project is to collect 12 fish (maximum) at this select site. Fishing activities will cease after 12 fish have been captured at this site and the science team will focus on the other projects planned for the cruise. If chevron traps are to be used for the capture of grouper and snapper, they will need to be deployed from *Nancy Foster* as close to the coordinates as possible and will be moved into place by the divers. Once the trapping procedures have been completed (trap may soak overnight in some cases) the trap will need to be recovered using the J-frame .

Project 5: *Acoustic receiver deployment/maintenance*

Numerous acoustic receivers are deployed within Gray's Reef to track the movement of tagged fish. Divers will return to receiver sites to service the array which includes checking line, shackles and floats as well as removing deployed instruments and replacing with new receivers. In addition, divers may deploy new receiver arrays in the vicinity of the fine scale movement study (near the position 31° 22.588 -80° 50.372). Receiver arrays (float, line and anchor) may be recovered from other areas of the sanctuary to be deployed in the area of the fine scale movement study. This task would be considered a working dive and would be conducted according to all NOAA Dive Program working dive regulations and would be under the supervision of a NOAA dive master.

Project 6: *Photo and video documentation of benthic habitats and marine organisms*

Divers will collect video and photo documentation of habitats and marine life for use with education and outreach activities. In addition, divers will conduct 360° video surveys of select locations to identify habitat changes over time.

Project 7: *Lionfish surveys and removal efforts.* If the above mentioned projects are completed, the science party may undertake lionfish survey and removal efforts. These tasks would likely be conducted in areas outside the sanctuary, where lionfish are regularly observed.

These areas include Savannah's Snapper Banks and the US Navy towers, located offshore of Gray's Reef NMS.

D. Dive Plan:

Diving operations will be conducted as required to support fish telemetry studies, marine debris monitoring, invertebrate collections, photography, habitat characterization, and recovery of lost gear. Three small boats will be needed simultaneously to support these various projects. Each small boat will carry 2-4 divers and will conduct 2-4 dives before returning to the ship. Individuals who will function as divers are identified above in the list of scientific crew. A Divemaster from the science party will be provided for all dive operations on this cruise and will follow all NOAA diving policies and regulations. A minimum of two divers will work together on all dives. Dives may be conducted in teams of 2-6 people. Each team will dive between one and five times daily as allowed under "No Decompression" limits of 36% NITROX except where working dives will occur. Night or early morning dives may be conducted during the cruise as need, time and logistics allow. Night dives would be conducted aboard GRNMS vessels to avoid exceeding wage mariner maximum daily working hours. As of March 13, 2012 the NOAA Diving Control and Safety Board (NDCSB) unanimously approved the Innerspace Systems Corporation "Megalodon" Closed Circuit Rebreather (CCR) for NOAA use. Greg McFall, NOS Line Office Diving Officer and NDCSB member, has been spearheading the effort to secure approval of the use of these CCRs and will have completed NDCSB-approved training prior to its planned use during this cruise. Because the CCR unit will only be used for dives not requiring decompression, there will be no requirement to have a hyperbaric chamber or hyperbaric stretcher (Hyperlite) on board the Nancy Foster. The presence and use of a qualified technician or crewmember to assist with the mixing of NITROX is respectfully requested.

E. Applicable Restrictions: N/A

III. Equipment

A. Equipment and Capabilities Provided by the Ship

- A trained technician / crew member to mix breathing gas
- 15 NITROX scuba tanks and means of refilling tanks at sea to support dive operations
- 1 small boat for deployment of up to 6 divers **AND**
- 2 small boats for deployment of up to 4 divers
- One operator for each of the small boats (projects require three small boats to be operated simultaneously)
- J-frame/winch for deployment/recovery of equipment
- Freezer space for at least 40 cu. ft.
- Refrigerator (2-3 cu. ft.)
- Electronic feed into dry lab of ship's GPS and fathometer
- CTD
- Crane and operator for mobilizing and demobilizing equipment and gear and for launching boats
- Clean 110v power from the wet lab
- Continuous running seawater to supply 3 large tanks (project provided) on back deck
- EK-60 Split Beam Sonar System
- Reson 7125 Multibeam Sonar

B. Equipment and Capabilities Provided by the Scientists (itemized)

- 40 NITROX Tanks
- Sample containers and miscellaneous sampling supplies; three large tanks for holding fish
- Various redundant diving equipment
- Various lab supplies and equipment
- HAZMAT spill kit

IV. Hazardous Materials

A. HAZMAT – Policy and Compliance

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, upon request.

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. The amount of hazardous material arriving and leaving the vessel shall be accounted for by the Chief Scientist.

B. HAZMAT – Radioactive Isotopes

No radioisotope work will be conducted on this cruise.

C. Inventory

70% Ethanol 40 L Flammable
Formalin (10%) 4 L Caustic
Bleach 1 L Non-caustic

V. Additional Projects

A. Supplementary (“Piggyback”) Projects: N/A

B. NOAA Fleet Ancillary Projects: N/A

VI. Disposition of Data and Reports

A. Data Responsibilities

Under NAO 216-101, managers of programs are responsible for ensuring that data and related information are available in a timely manner (within 1 year) at the national processing centers and national data centers. Because of the large quantity of multibeam data collected by NOAA Ship *Nancy Foster*, and to ease the data burden on the program managers, the ship will coordinate archival of all multibeam data collected on this project. The ship survey department, under the direction of the Operations Officer, will ensure the multibeam data is archived at the National Geophysical Data Center within one year. This archival will be conducted in consultation with the

Principal Investigator(s) to ensure there is no unintentional release of sensitive data. The Chief Scientist retains responsibility for management of all other data collected, including habitat and biologic assessments, fish movement, marine debris, and data downloaded from the acoustic receivers and CO2/water quality sensors.

B. Pre- and Post-Cruise Meeting

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. Safety and vessel protocols, e.g., meals, watches, etiquette, etc. will be presented by the ship's Operations Officer.

A daily safety meeting will be held prior to the commencement of boat operations to review and correct any observed safety issues. Ship's officers, department heads, and the Chief Scientist will be in attendance.

Post-Cruise Meeting: Upon completion of the cruise, a meeting will normally be held at 0830 (unless prior alternate arrangements are made) and attended by the CO, OPS, and the Chief Scientist to review the cruise. Concerns regarding safety, efficiency, and suggestions for improvements for future cruises should be discussed.

C. Ship Operation Evaluation Report

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.Satisfaction@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

VII. Miscellaneous

A. Meals and Berthing

Meals and berthing are required for up to 15 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.

Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the Chief Scientist. The Chief Scientist and Command 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 that 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 Forms and Emergency Contacts

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.oma.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. 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 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 participant 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

The business day before 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.

C. Shipboard Safety

Wearing open-toed footwear or shoes that do not completely enclose the foot (such as sandals or clogs) outside of private berthing areas is not permitted. "Crocs" sandal style footwear is not permitted for any deck or small boat operations. Hard hats are also required when working with suspended loads. Work vests are required when working near open railings and during small boat launch and recovery operations. Hard hats and work vests will be provided by the ship when required.

D. Communications

A progress report on operations prepared by the Chief Scientist may be relayed to the program office. Sometimes it is necessary for the Chief Scientist to communicate with another vessel, aircraft, or shore facility. Through various means of communications, the ship can usually accommodate the Chief Scientist. Special radio voice communications requirements should be listed in the project instructions. The ship's primary means of communication with the Marine Operations Center is via e-mail and the Very Small Aperture Terminal (VSAT) link. Standard VSAT bandwidth at 128kbs is shared by all vessels staff and the science team at no charge. Increased bandwidth in 30 day increments is available on the VSAT systems at increased cost to the scientific party. If increased bandwidth is being considered, program accounting is required it must be arranged at least 30 days in advance.

E. IT Security

Any computer that will be hooked into the ship's network must comply with the *OMAO 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.

Completion of these requirements prior to boarding the ship is preferable.

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 Guests Access to OMAO Facilities and Platforms

No foreign nationals will be participating in this cruise

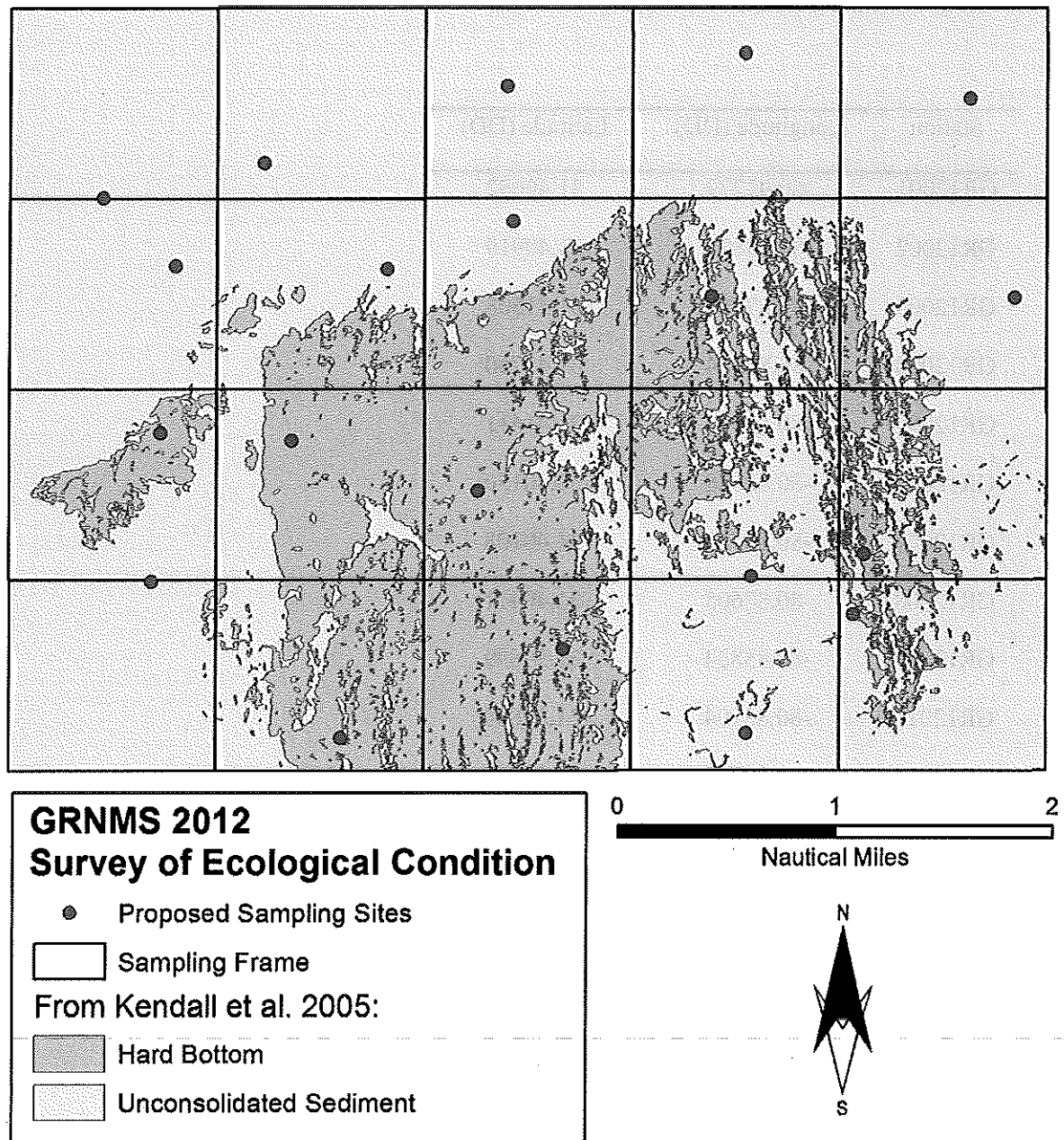


Fig. 1. Station locations within GRNMS for the summer 2012 survey. Arc shells will be collected at some of these sites.

Table 1. Potential locations of sampling arc shells.

Station	Longitude (DD)	Latitude (DD)
GR12001	-80.91279	31.40652
GR12002	-80.89833	31.40919
GR12003	-80.87660	31.41508
GR12004	-80.85524	31.41760
GR12005	-80.83507	31.41411
GR12006	-80.90628	31.40130
GR12007	-80.88732	31.40108
GR12008	-80.87605	31.40471
GR12009	-80.85824	31.39899
GR12010	-80.83104	31.39884
GR12011	-80.90762	31.38857
GR12012	-80.89586	31.38798
GR12013	-80.87911	31.38413
GR12014	-80.85459	31.37757
GR12015	-80.84448	31.37927
GR12016	-80.90840	31.37717
GR12017	-80.89140	31.36524
GR12018	-80.87146	31.37198
GR12019	-80.85504	31.36560
GR12020	-80.84547	31.37465

Table 2. Site coordinates of marine debris monitoring locations.

Site ID	X (Long)	Y (Lat)
HM1	-80.869749	31.387953
HMALT1	-80.862573	31.397819
HMALT2	-80.861127	31.399873
HT2	-80.886675	31.395251
HT3	-80.860281	31.405431
HTALT2	-80.856932	31.403933
LT2	-80.839535	31.376462
LT3	-80.891009	31.375283
LTALT1	-80.866389	31.369041

Fig 2. Map of marine debris survey locations

