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

MAY 20 2013

MEMORANDUM FOR: Lieutenant Commander Jeffrey Taylor, NOAA
Commanding Officer, NOAA Ship *Gordon Gunter*

FROM: Captain Anita L. Lopez, NOAA
Commanding Officer, NOAA Marine Operations Center-Atlantic

SUBJECT: Project Instruction for GU-13-02
Late Spring Ecosystem Monitoring Survey

Attached is the final Project Instruction for GU-13-02, Late Spring Ecosystem Monitoring Survey, which is scheduled aboard NOAA Ship *Gordon Gunter* during the period of 5 June – 24 June, 2013. Acknowledge receipt of these instructions via e-mail to **OpsMgr.MOA@noaa.gov** at Marine Operations Center-Atlantic.

Attachment

cc:
MOA1

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
166 Water Street
Woods Hole, MA 02543-1026

Project Instructions

MAY 20 2013

Date Submitted: 16 May 2013

Platform: NOAA Ship *Gordon Gunter*

Cruise Number: GU 13-02

Project Title: Late Spring Ecosystem Monitoring Survey

Cruise Dates: **5 – 24 June 2013**

Approved by: Russell W. Brown for Date: 5-16-2013
William A. Karp, Ph.D.
Acting Science and Research Director
Northeast Fisheries Science Center

Approved by: [illegible], CDR NOAA Date: 20 May 2013
Captain Anita L. Lopez, NOAA
Commanding Officer
Marine Operations Center - Atlantic

COMMANDING OFFICER
NOAA Ship *Gordon Gunter*

PROJECT INSTRUCTIONS: GU 13-02
Late Spring Ecosystem Monitoring Cruise

Project Dates: 5 – 24 June 2013

Service Level Agreements: Of the 20 DAS scheduled for this project, _0 DAS are funded by the program and 20 DAS are base funded by OMAO in support of NMFS. This project is estimated to exhibit a Medium Operational Tempo.

Area of Operation: The continental shelf from north of Cape Hatteras, NC, including Georges Bank and the Gulf of Maine, to the Nova Scotia Shelf (including stations in Canada's Exclusive Economic Zone). Stations will be occupied in waters with depths ranging between 15 and 500 meters.

Objectives: The principal objective of the survey is to assess the various components of the Northeast U.S. Continental Shelf Ecosystem from water currents to plankton, juvenile fishes, marine mammals, sea turtles, and seabirds. Specifically we will quantify the spatial distribution of the following parameters: water currents, water properties, phytoplankton, microzooplankton, mesozooplankton, juvenile fish and invertebrates, sea turtles, marine mammals, and sea birds.

Operational objectives are to: (1) collect underway data using TSG, SCS, EK-60 Scientific Sounder and ADCP;
(2) complete CTD and bongo operations at stations throughout area,
(3) collect marine mammal and seabird observations.

Planned Itinerary:

31 May:	Begin cruise staging. Load and set up equipment.
4 June:	Complete cruise staging: Load and set up remainder of scientific equipment.
5 June:	Depart Naval Station Newport, RI. Depending upon the weather either head out to Georges Bank, or through the Cape Cod Canal to the Gulf of Maine.
24 June:	Arrive MOC-A Norfolk, VA. Disembark scientific personnel, and begin off-loading scientific equipment and samples.
25 June:	Complete offload of scientific equipment and samples.

Operational Plans: The survey consists of 160 random-stratified and fixed Oceanography stations in the Middle Atlantic Bight, Southern New England, Georges Bank and the Gulf of Maine (Figure 1). CTD/Bongo and/or CTD Rosette Deployments will be made at each stations. Several of the ship's systems will be running and continuously logging: ADCP, TSG, and EK60 data from the entire trackline. Finally, marine mammal and seabird observers will be on the bridge making continual observations during daylight hours.

Oceanographic station locations and cruise track will be provided to the vessel prior to sailing to allow the navigation officer ample time to load this information into the navigational computer. The Commanding Officer and Chief Scientist will jointly modify the track during the cruise as weather conditions and time constraints vary to best achieve the cruise objectives. Highest reasonable cruising speeds should be employed to improve the potential to complete the cruise missions.

Oceanography Stations: A Seabird CTD profiler attached to a bongo net will be deployed at approximately 130-150 stations. In addition, a Seabird CTD profiler will be deployed alone to collect data at deep stations (>200 m) and to collect water for salinity calibrations. Samples will be collected from the Continuous Underway Fish and Egg System (CUFES) during each plankton tow for comparison purposes. A 911 CTD will be deployed at a subset of stations for more detailed oceanographic data and water for numerous measurements. These deployments will use the two oceanographic winches and the CTD computer located in the dry lab.

Acoustic Survey Operations: EK60 operations will be conducted continuously throughout the cruise track at a constant ship speed of 10±1 knots, and during scientific gear deployments. EK60 data are logged to the EK60 data server, which is on the ships and scientific networks. RS232 connections are used for navigational (Differential GPS) input. The SCS Event Logger will be used to record all operational events (e.g., begin and end points of transects, stations, gear deployments, and other events that affect the track cruise and vessel speed) during the cruise.

The EK60 will be synchronized to the ADCP. All extraneous echo sounders need to be turned off to eliminate or at least minimize acoustic interference with the EK60. At the beginning of the cruise, it may be necessary to turn off sounders to determine sources of interference. The ADCP is set with an external trigger to be a slave with the EK60. There still is some minor interference at 120kHz on the EK60 and thus, the ADCP may need to be turned off at times during the cruise.

Scientific Computer System (SCS): *Gordon Gunter's* SCS system is a PC-based server, which continuously collects and distributes scientific data from various navigational, oceanographic, meteorological, and sampling sensors throughout the project. The SCS EventLog program will be used by the scientists to document all operational events (*e.g.*, begin and end of transects and deployments). Date and time for data collections from computers, instrumentation, and logsheets recording will be synchronized using the vessel's GPS, Commanding Officer clock and Dimension IV software. Scientists from the NEFSC will work with the ship's crew before the cruises to ensure that SCS system is developing the output needed to log the operational events.

The following operations will be conducted measuring the indicated parameters:

1.<u>Continuous Underway Sampling:</u>

1.1. SCS

1.1.1. Navigational, meteorological, and environmental data will be archived throughout the cruise using *Gordon Gunter's* Scientific Computer System (SCS).

1.1.2. Ship Requirements

1.1.2.1. SCS system should be running for duration of cruise

1.2. ADCP

1.2.1. Current speed and direction

1.2.2. Backscatter at 150 kHz

1.2.3. Ship Requirements

1.2.3.1. ADCP running during cruise and logging data

NOTE: The ADCP is set with an external trigger to be a slave with the EK60.

1.3. Flow-through system

1.3.1. TSG - salinity, temperature, density

1.3.2. pCO2 system – surface water and atmospheric CO2

1.3.3. Fluorometer – chlorophyll a concentration

1.3.4. Discrete samples – drawn from flow-through by scientists

1.3.4.1. DIC – dissolved inorganic carbon

1.3.4.2. chlorophyll a – measured directly

1.3.4.3. salt – for salinity calibrations

1.3.5. Ship Requirements

1.3.5.1. Flowthrough system cleaned prior to cruise (freshwater flush)

1.3.5.2. Flowthrough system running during cruise and logging data

1.3.5.3. Ability to draw water samples from system

1.3.6. Ship Requirements

1.3.6.1. Both acoustics running during cruise at all frequencies and logging data

NOTE: Extraneous echo sounders should be turned off to eliminate or at least minimize acoustic interference with the EK60

1.4. Surface observations

1.4.1. Large Pelagic, seabirds, sea turtles, and marine mammal – observations made during daylight hours by one observer on a 4 hour rotation

1.4.2. Ship Requirements

1.4.2.1. Space on flying bridge for observers to work in good weather

1.4.2.2. Space on bridge for observers to work in bad weather

1.5. PAR sensor

1.5.1. PAR sensor will be mounted in location least likely to be shadowed by vessel superstructure. Cable will be run to CTD lab

1.5.2. Ship Requirements

1.5.2.1. None

<u>Oceanography Stations:</u>

CTD/Bongo – deployed at most stations surface to 200 m or 5 m from bottom
SBE19 – Temperature, conductivity, depth deployed with rosette having 10 ten-liter bottles, fluoroprobe and LISST unit.
61 cm 333 micron mesh + 20 cm 333 micron mesh – zoo- and ichthyoplankton
20 cm, 165 micron mesh – microzooplankton and zooplankton (20 stations)
45 kg depressor weight for bongo net deployments

Ship Requirements

Terminations be redone prior to cruise
Slip rings be checked prior to cruise and redone if necessary
Deployments will be as during bottom trawl survey using same winch
SBE19 connected to conducting cable on aft winch at side sampling station
NEMA Data String for CTD Computer

Water Bottle Cast - deployed at subset of stations surface to 500 m or 5 m from bottom

SBE19 – Temperature, conductivity, depth
Water bottles – tripped manually with a messenger
Salt - for salinity calibrations

Ship Requirements

None

CTD Rosette – deployed at subset of stations surface to 500 m or 5 m from bottom; approximately 20-50 locations during the course of the cruise

SBE911 – salinity, temperature, density
LISST – biomass size spectrum
Fluoroprobe – distinguishes among groups of phytoplankton
Fluorometer – chlorophyll a concentration
PAR – light
Water bottles – tripped automatically from computer in CTD Lab
Salt - for salinity calibrations
Nutrients – N, P, Si, others
Ocean Carbon – DIC, TAlk
Phytoplankton species composition
Microzooplankton species composition

Ship Requirements

SBE911 connected to conducting cable on forward winch at side sampling station.
Terminations be redone prior to cruise
Slip rings be checked prior to cruise and redone if necessary
Disposal of waste water cannot happen before, during, or right after CTD rosette operations
Smoking is not allowed on Oceanography deck owing to nutrient collections and carbonate chemistry collections
NEMA Data String to Computer Lab

Data: At the end of the cruise the ship will provide the chief scientist with three copies of data from the EK60 transducer, the ADCP unit and the SCS system. A copy of the SCS data should also be provided to DMS personnel in Woods Hole.

Protected Resources:

North Atlantic right whale protection: The vessel is requested to adhere to right whale protection regulations. Information on Seasonal Management Area (SMA) and Dynamic Management Area (DMA) regulations and information for protecting right whales from collisions with vessels are provided through the NOAA Protected Resources website (http://www.nmfs.noaa.gov/pr/shipstrike/), Right Whale Sighting Advisory System (SAS) website (http://www.nefsc.noaa.gov/psb/surveys/), the U.S. Coast Guard's "Notices To Mariners" and NOAA weather radio.

Mariners are urged to use caution and proceed at safe speeds in areas where right whales occur. U.S. Law (50 CFR 224.105) prohibits operating vessels 65 feet (19.8 meters) or greater in excess of 10 knots in Seasonal Management Areas (SMAs) along the U.S. east coast. Mariners are also requested to route around voluntary speed restriction zones, Dynamic Management Areas (DMAs) or transit through them at 10 knots or less. Approaching within 500 yards of right whales is prohibited, unless the Chief Scientist is in possession of an ESA/MMPA permit allowing such approaches.

Whale sightings: Sightings of right whales, or dead or entangled whales of any species, are extremely valuable and reports are urgently requested. Please report all right whale sightings north of the Virginia-North Carolina border to 866-755-NOAA; right whale sightings south of that border should be reported to 877-WHALE-HELP. Right whale sightings in any location may be reported to the U.S. Coast Guard via VHF channel 16. Protocols for reporting sightings are described in the Guide to Reporting Whale Sightings placard. The placard is available online: http://www.nefsc.noaa.gov/psb/surveys/documents/20120919_Report_a_Right_Whale.pdf and laminated copies will be provided by the Protected Species Branch upon request. These placard will be kept on the bridge for quick reference and to facilitate rapid reporting (via satellite phone if necessary). Opportunistic sightings of other marine mammal species that

are live and well may be reported using the Platforms of Opportunity (POP) forms and protocols

Endangered Species Act and Marine Mammal Protection Act reporting requirements: This reporting is required and is in addition to the reports in the above two sections. If the ship has an interaction with an Atlantic sturgeon, Atlantic salmon, whale, dolphin, porpoise, marine turtle, or seal (e.g., collision with a whale or bycatch of a sea turtle) including the dead body or parts thereof, the NMFS Northeast Regional Office must be notified within 24 hours of the interaction. If an interaction with any of those species occurs or if the vessel's company notices an animal that is entangled, injured, in distress, or dead, they should contact the Northeast Regional Office's 24-hour hotline at 866-755-6622 to report the incident and receive further instructions.

Marine mammal bycatch: All marine mammals taken incidental to fishing activities must 1) be clearly photographed (multiple views if possible, including at least one photograph of the head, 2) be identified to the species level, 3) have body length (snout to tail (seals), beak to the notch in the fluke/tail (whales, dolphins and porpoises)), measured in centimeters, 4) have supporting data recorded including GPS or Loran coordinates recorded describing the location of the interaction; time of interaction; date of interaction; condition of the animal upon retrieval (alive uninjured, alive injured, fresh dead, decomposed, comatose or unresponsive). Live animals shall then be returned to the sea. Dead animals shall, if feasible, be frozen and returned to the Woods Hole Laboratory.

Marine turtle bycatch: All marine turtles taken incidental to fishing activities must 1) be handled and resuscitated according to established procedures, 2) be clearly photographed (multiple views if possible, including at least one photograph of the head scutes), 3) be identified to the species level, 4) have width and length (carapace notch to notch, and notch to tip) measured in centimeters, 5) have supporting data recorded including GPS or Loran coordinates recorded describing the location of the interaction; time of interaction; date of interaction; condition of the animal upon retrieval (alive uninjured, alive injured, fresh dead, decomposed, comatose or unresponsive); the condition of the animal upon return to the water; GPS or Loran coordinates of the location at which it was released; and a description of the care or handling provided. Live animals shall then be returned to the sea. Dead animals shall, if feasible, be frozen and returned to the Woods Hole Laboratory.

Stellwagen Bank: Any artifacts brought aboard the vessel due to fishing in the National Marine Sanctuary Stellwagen Bank must be returned, as near as possible, to the location where it/they were intercepted. An artifact is defined as anything of man-made origin with the exception of modern fishing gear. Stations located within Stellwagen Bank will be identified by the program and confirmed by the CO prior to the cruise and reported to the chief scientist.

CTD Support: CTD operators will be trained and certified by the Center's Oceanography Branch. CTD operator training requires two hours and must be completed prior to the beginning of the cruise unless a trainer is included in the scientific complement. In the event that CTD difficulties are encountered during the cruise, shore based support is available. Requests for support should be forwarded to ctdhelp@mercury.wh.whoi.edu which is monitored daily. Once

contact has been established via email, to assure continuous support, the ctd help address above should be copied on ***all*** email communications.

IT Security: Any computer that will be hooked into the ship's network must be scanned by either by the ship's Electronics Technician or NEFSC's Data Management Support Staff for viruses before being brought aboard the vessel. 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.

Data Management: All station and biological data will be electronically recorded. Plankton samples will be processed through the NEFSC laboratory in Narragansett, RI. Data from the CTD will be processed at the NEFSC Woods Hole Laboratory. Samples and data collected for specific individuals, agencies or organizations will be processed by same.

ROSCOP 3 forms (IOC SC-90/WS-23) will be completed and forward to NODC, Washington, D.C. In addition to the "Ship Operation Evaluation Form" referenced below a Cruise Report will be completed will be completed and submitted by the Chief Scientist to the NEFSC Vessel Coordinator within 20 days following the completion of the cruise.

Foreign National Access and Deemed Export Controls:
All foreign national access to the vessel shall be in accordance with NAO 207-12 and RADM De Bow's March 16, 2006 memo (http://deemedexports.noaa.gov). The foreign national's sponsor is responsible for obtaining clearances and export licenses required and for providing for required escorts by the NAO. Programs sponsoring foreign nationals should consult with their designated line office personnel to assist with the process.

The following are basic requirements. Full compliance with NAO 207-12 is required.

Responsibilities of the Chief Scientist: Ensure the following is provided to the Commanding Officer before any foreign national will be allowed on board for any reason:

1. Written notification identifying the NOAA Program individual who is responsible for ensuring compliance with NOAA and export regulations for the foreign national (see Foreign National Sponsor responsibilities below).
2. A copy of the DOC/OSY clearance authorization for access by the foreign national.
3. A copy of Appendix B of NAO 207-12 with NOAA Chief Administrative Officer concurrence endorsement.
4. Written notification that the foreign national has been cleared against the State, Commerce and Treasury departments' Lists to Check. http://www.bis.doc.gov/ComplianceAndEnforcement/ListsToCheck.htm
5. Provide the NOAA Foreign National List spreadsheet for each foreign national in the scientific party.
6. Escorts – The Chief Scientist is responsible to provide escorts to comply with NAO 207-12 Section 5.10, or as required by the vessel's DOC/OSY Regional Security Officer.
7. Ensure all non-foreign national members of the scientific party receive the briefing on Espionage Indicators (NAO 207-12 Appendix A) at least annually or as required by the servicing Regional Security Officer.

8. Export Control - The Chief Scientist is responsible for complying with NAO 207-12 and the development of Technology Access Control Plans for items they bring aboard. The Chief Scientist must notify the Commanding Officer of any export controlled items they bring aboard and any access restrictions associated with these items. [*NOTE: The NEFSC currently neither possesses nor utilizes technologies that are subject to Export Administration Regulations (EAR).*]

The Commanding Officer and the Chief Scientist will work together to implement any access controls necessary to ensure no unlicensed export occurs of any controlled technology onboard regardless of ownership.

Responsibilities of the Commanding Officer:

1. Ensure only those foreign nationals with DOC/OSY clearance are granted access.
2. Deny access to OMAO platforms and facilities by foreign nationals from countries controlled for anti-terrorism (AT) reasons and individuals from Cuba or Iran without written NMAO approval and compliance with export and sanction regulations.
3. Ensure foreign national access is permitted only if unlicensed deemed export is not likely to occur.
4. Ensure receipt from the Chief Scientist of the NOAA Foreign National List spreadsheet for each foreign national in the scientific party.
5. Ensure Foreign Port Officials, e.g., Pilots, immigration officials, receive escorted access in accordance with maritime custom to facilitate the vessel's visit to foreign ports.
6. Export Control - 8 weeks in advance of the cruise, provide the Chief Scientist with a current inventory of OMAO controlled technology onboard the vessel and a copy of the vessel Technology Access Control Plan (TACP). Also notify the Chief Scientist of any OMAO-sponsored foreign nationals that will be onboard while program equipment is aboard so that the Chief Scientist can take steps to prevent unlicensed export of Program controlled technology. The Commanding Officer and the Chief Scientist will work together to implement any access controls necessary to ensure no unlicensed export occurs of any controlled technology onboard regardless of ownership.
7. Ensure all OMAO personnel onboard receive the briefing on Espionage Indicators (NAO 207-12 Appendix A) at least annually or as required by the servicing Regional Security Officer.

Responsibilities of the Foreign National Sponsor:

1. Export Control - The foreign national's sponsor is responsible for obtaining any required export licenses and complying with any conditions of those licenses prior to the foreign national being provided access to the controlled technology onboard regardless of the technology's ownership.
2. The Departmental Sponsor/NOAA of the foreign national shall assign an on-board Program individual, who will be responsible for the foreign national while on board. The identified individual must be a U.S. citizen, NOAA (or DOC) employee. According to DOC/OSY, this requirement cannot be altered.
3. Ensure completion and submission of Appendix C (Certification of Conditions and Responsibilities for a Foreign National Guest) as required by NAO 207-12 Section 5.03.h.

Communications: Routine communications will be conducted between NOAA FSV *Gordon Gunter* and Woods Hole via email. Satellite based voice communication are available (INMARSAT B, Iridium) and cellular phone, if needed.

Hazardous Material: 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. Details regarding those requirements will be provided by the Chief of Operations, Marine Operations Center – Atlantic upon request and may be reached at 757-441-6716.

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.

The following Hazardous Materials may be brought onboard to support science operations.

Manganous sulfate	500 ml	NEFSC, Oceanography Branch
Ethanol 95%	40 liters	NEFSC, Oceanography Branch
Ethanol 95%	40 liters	Woods Hole Oceanographic Institution
Formalin concentrated 37%	40 liters	NEFSC, Oceanography Branch
Acetone	5 liters	NEFSC, Oceanography Branch

Medical Clearances: NOAA Fleet Medical Policy requires all personnel embarking on NOAA vessels to furnish a completed copy of the NOAA Health Services Questionnaire (NHSQ) to the Health Services Office of the Marine Operations Center. This form should be submitted 30 days in advance of sailing, but no later than 7 days in advance of sailing. The Chief Scientist is responsible for the timely submission of NHSQs for scientific personnel to the Health Services Office.

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. Hard hats are 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.

A safety meeting will be held daily. The ship's command, department heads, and the Chief Scientist will attend.

A safety stand-down may be held at the discretion of the Commanding Officer prior to or at the first station to discuss operations.

Accident/Illness Reporting: All work-related mishaps involving scientific staff that result in an employee injury or illness, or any work related mishap or near miss, including those that do not require first aid or medical attention, must be reported within 24 hours of occurrence to the NOAA Fisheries Deputy Assistant Administrator for Operations. The reporting will be accomplished using a Mishap Reporting Form, via email, originating from the Chief Scientist, through the OMI Facility Operations and Safety (FOS) Branch (Jack.Emberg@noaa.gov with copies sent to Linda.Arlen@noaa.gov and Joseph.Finnegan@noaa.gov).

Email Contact: The following should be included as recipients of the daily e-mail message:

Thomas.Noji@noaa.gov	(EPD Division Chief)
Wendy.Gabriel@noaa.gov	(FEMAD Division Chief)
Fred.Serchuk@noaa.gov	(Acting READ Division Chief)
Russ Brown@noaa.gov	(Deputy Science and Research Director)
Bill.Karp@noaa.gov	(Science and Research Director)
Rich.Langton@noaa.gov	(Acting Deputy Center Director)
Nathan.Keith@noaa.gov	(NEFSC Vessel Coordinator)
Jon.Hare@noaa.gov	(Oceanography Branch Chief)
Tamara.Holzwarth-Davis@noaa.gov	(Oceanography Branch)
CO.Gordon.Gunter@noaa.gov	(Commanding Officer – *Gordon Gunter*)
Michael.S.Abbott@noaa.gov	(NEFSC Port Captain)
Apryl.Corey@noaa.gov	(NEFSC Port Office)
OPS.Gordon.Gunter@noaa.gov	(Operations Officer – *Gordon Gunter*)

Watches: Vessel operations will be conducted 24 hours per day. The scientific watch schedule will be determined and submitted to the command by the Chief Scientist prior to sailing. Scientific personnel will be on duty for 12 hour watches each day.

Meals and Berthing: Meals and berthing are required for up to 8 scientists. Meals will be served three times daily beginning one hour before scheduled departure, extending throughout the cruise, and ending two hours after the termination of the cruise. Berthing requirements, including number and gender of the science crew, 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. All NOAA Scientists will have proper travel orders when assigned to a NOAA ship. The Chief Scientist will ensure that all non-NOAA and/or non-Federal employee scientists aboard will also have proper orders or the means to support themselves in the event that the ship becomes uninhabitable and/or the galley is closed during a port call during any part of the scheduled project. 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.

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.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

Upon completion of the cruise, a post-cruise meeting will normally be held at 10:15 (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

Personnel List (Scientific):

Name	Title	Organization
Jerome Prezioso (m)	Chief Scientist	NMFS, NEFSC, Narragansett, RI
Cristina Bascunan (f)	Oceanography Ops	NMFS, NEFSC, Narragansett, RI
Chris Taylor (m)	Oceanography Contractor	Consolidated Safety Services, Fairfax, VA
Tamara Holzwarth-Davis (f)	Oceanography Ops	NMFS, NEFSC, Woods Hole, MA
Cathleen Turner (f)	Student Volunteer	URI Graduate School of Oceanography, Narragansett, RI
Holly Goyert (f)	Mammal/Bird Observer	College of Staten Island CUNY
Tom Johnson (m)	Mammal/Bird Observer	College of Staten Island CUNY

Equipment and Supply List: The following sampling and scientific equipment will be placed aboard NOAA Ship *Gordon Gunter* prior to departure:

Item	**Quantity**	**Source**
Flowthrough Sampling		
Salinity bottles	2 cases	NEFSC, Oceanography Branch
DIC/TAlk bottles	2 cases	NEFSC, Oceanography Branch
Chlorophyll extraction apparatus	1	NEFSC, Oceanography Branch
Turner Designs discrete sample fluorometer	1	NEFSC, Oceanography Branch
Surface Observations		
Computer for logging observations	2	BOEMRE Contractor
Binoculars	2 pairs	BOEMRE Contractor
Oceanography Stations		
SBE19 and SBE19+CTDs	3	NEFSC, Oceanography Branch
Spare CTD Computer	1	NEFSC, Oceanography Branch
CTD Supplies	ample	NEFSC, Oceanography Branch
61 cm bongo nets w/335 micron mesh	2	NEFSC, Oceanography Branch
61 cm bongo nets w/335 and 505 micron mesh	1	NEFSC, Oceanography Branch
20 cm bongo nets w/165 micron mesh	2	NEFSC, Oceanography Branch
45 kg depressor weight	3	NEFSC, Oceanography Branch
Plankton sieves 4 millimeter	2	NEFSC, Oceanography Branch
Plankton sieves 200 micron	2	NEFSC, Oceanography Branch
Plankton sieves 100 micron	2	NEFSC, Oceanography Branch
Plastic buckets for large plankton samples	2	NEFSC, Oceanography Branch
Sample quart jars	38 boxes	NEFSC, Oceanography Branch
Sample pint jars	4 boxes	Woods Hole Oceanographic Institution
Sample jar holder for sink	1	NEFSC, Oceanography Branch
Label printer	2	NEFSC, Oceanography Branch
Label printer supplies	ample	NEFSC, Oceanography Branch
Net washdown hose w/nozzle	1	NOAA Ship Gordon Gunter
Net washdown hose w/nozzle	1	NEFSC, Oceanography Branch
Messengers	3	NEFSC, Oceanography Branch
Niskin Bottles, 1.7 liter	2	NEFSC, Oceanography Branch

Salinity bottles	2 cases	NEFSC, Oceanography Branch
SBE 911 Carousel, Rosette, and CTD	1	NEFSC, Oceanography Branch
Seabird 911 deck unit	1	NEFSC, Oceanography Branch
Niskin Bottles, 10 liters	12	NEFSC, Oceanography Branch
Niskin Bottles, 3 liters	1	NEFSC, Oceanography Branch
LISST	1	NEFSC, Oceanography Branch
Computer for LISST	1	NEFSC, Oceanography Branch
Fluoroprobe	1	NEFSC, Oceanography Branch
Computer for Fluoroprobe	1	NEFSC, Oceanography Branch
Fluorometer	1	NEFSC, Oceanography Branch
PAR	1	NEFSC, Oceanography Branch
dO2 sensor	1	NEFSC, Oceanography Branch
Filters for Seawater	ample	NEFSC, Oceanography Branch
Nutrient filters, bottles, syringes	ample	University of Maine
Salinity bottles	2 cases	NEFSC, Oceanography Branch
DIC/TAlk sample bottles	2 cases	NEFSC, Oceanography Branch
Sample bottles for phyto- and micro-zooplankton	2 cases	NEFSC, Oceanography Branch
Clerical supplies (various)	ample	NEFSC, Oceanography Branch

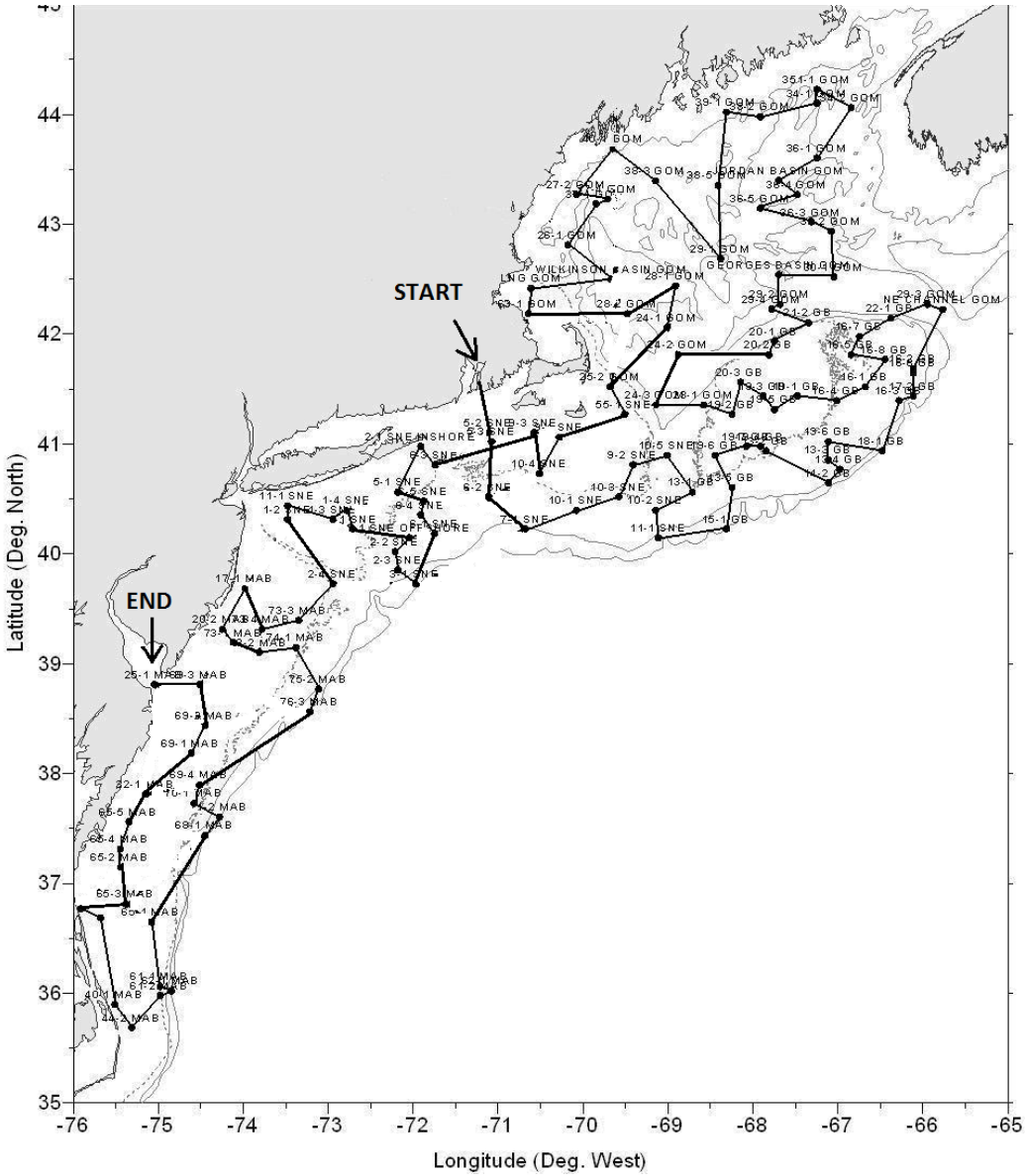

Figure 1. Area of operations and a generalized proposed cruise track for GU 13-02 Late Spring Ecosystem Monitoring Survey.