



**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: LCDR Lindsay Kurelja, NOAA  
Commanding Officer, NOAA Ship *Gordon Gunter*

FROM: Captain Scott M. Sirois, NOAA  
Commanding Officer, NOAA Marine Operations Center-Atlantic

SUBJECT: Project Instruction for GU-17-02  
Bluefin Tuna Slope Sea Survey

Attached is the final Project Instruction for GU-17-02, Bluefin Tuna Slope Sea Survey, which is scheduled aboard NOAA Ship *Gordon Gunter* during the period of June 10 – June 26, 2017. Of the 17 DAS scheduled for this project, 17 DAS are Program funded by a Line Office Allocation. This project is estimated to exhibit a Medium Operational Tempo. Acknowledge receipt of these instructions via e-mail to [OpsMgr.MOA@noaa.gov](mailto:OpsMgr.MOA@noaa.gov) at Marine Operations Center-Atlantic.





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

### Final Project Instructions

**Date Submitted:** 12 May 2017

**Platform:** NOAA Ship *Gordon Gunter*

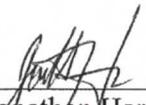
**Project Number:** GU 17-02

**Project Title:** Bluefin Tuna Slope Sea Survey

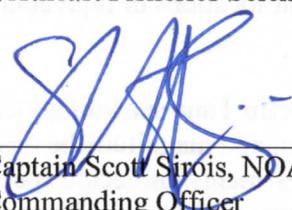
**Project Dates:** 10 June - 26 June 2017

Prepared by: Harvey Walsh  
Oceans and Climate Branch  
Northeast Fisheries Science Center  
Narragansett Laboratory

Dated March 29, 2017

Approved by:   
Jonathan Hare, Ph.D.  
Science and Research Director  
Northeast Fisheries Science Center

Date: 5/18/17

Approved by:   
Captain Scott Sirois, NOAA  
Commanding Officer  
Marine Operations Center – Atlantic

Date: 6/2/17

## I. Overview

### A. Brief Summary and Project Period

The principal objective of the survey is to collect Bluefin Tuna larvae and other highly migratory species (HMS), their prey, and predators, and information about their oceanographic environment in the Slope Sea (the area between the Northeast United States Continental Shelf and the Gulf Stream). Specifically we will be conducting adaptive sampling based on satellite sea surface temperature images to target potential spawning habitats of Bluefin Tuna adults. The secondary objective of the survey is to sample the hydrographic, planktonic and pelagic components of the Southeast U.S. Continental Shelf Ecosystem. Cross-shelf and along-shelf transects will be conducted on the transit between Cape Hatteras, North Carolina and Miami. The number of transects and number of stations per transect will be determined to cover the most amount of habitats in an efficient time period. Sampling during the entire cruise will collect data on: water currents, water properties, phytoplankton, microzooplankton, mesozooplankton, sea turtles and marine mammals. We will use traditional and novel techniques and instruments. A broad array of measurements of the pelagic ecosystem will be made during the 10 June - 26 June 2017 time period.

### B. Days at Sea (DAS)

Of the 17 DAS scheduled for this project, 17 DAS are funded by a Line Office Allocation. This project is estimated to exhibit a Medium Operational Tempo.

### C. Operating Area

The Slope Sea (including stations in Canada's Exclusive Economic Zone), area between the Northeast United States Continental Shelf and the Gulf Stream (Fig. 1) and the continental shelf from south of Cape Hatteras, NC, to Miami, Florida (Fig. 2). Stations will be occupied in waters with depths ranging between 15 and > 2000 meters.

### D. Summary of Objectives

Operational objectives are to: (1) collect underway data using TSG, SCS, and ADCP; (2) complete CTD, bongo, and frame net operations at stations throughout area, (3) collect marine mammal and seabird observations, and (4) release drifters at locations of high abundance of larvae.

Having identified a previously undocumented Atlantic Bluefin Tuna spawning location, it is critical for assessments that the spawning location, duration, and magnitude be described. Other components of the survey data will contribute to stock assessments, protected species assessments, ecosystem assessments, and climate assessments. Ichthyoplankton and hydrographic data are collected for stock assessments. A range of ecosystem observations are

made, from nutrients and ocean acidification to seabirds and marine mammals, and a number of the measurements are used in NEFSC ecosystem assessment products. The ocean acidification and hydrographic measurements are incorporated into the region's climate assessments.

This survey is multidisciplinary and as such will integrate all these operations. The cruise plan will evolve with input from scientists as well as the officers and crew of *Gordon Gunter*. A post-cruise meeting will focus on lessons learned and improvements to make for subsequent surveys of this type.

E. Participating Institutions

NMFS-Northeast Fisheries Science Center  
 NMFS-Southeast Fisheries Science Center  
 Woods Hole Oceanographic Institute

F. Personnel/Science Party

<b>Name (Last, First)</b>	<b>Title</b>	<b>Date Aboard</b>	<b>Date Disembark</b>	<b>Gender</b>	<b>Affiliation</b>	<b>Nationality</b>
Walsh, Harvey	Chief Scientist	06/10/2017	06/27/2017	M	NMFS	US
Broughton, Elisabeth	Biol. Sci. Tech.	06/10/2017	06/27/2017	F	NMFS	US
White, Timothy	Seabird Observer	06/10/2017	06/27/2017	M	BOEM	US
Davis, Glen	Seabird Observer	05/29/2017	06/27/2017	M	Integrated Statistics	US
Hernandez, Christine	Volunteer	06/10/2017	06/27/2017	F	WHOI	US
Willis, Ciara	Volunteer	06/10/2017	06/27/2017	F	Dalhousie University	Canadian

TBD	Teacher-at-Sea	06/10/2017	06/27/2017	?	?	US
TBD	Teacher-at-Sea	06/10/2017	06/27/2017	?	?	US
TBD	Volunteer	06/10/2017	06/27/2017	?	?	?

G. Administrative

1. Points of Contact:

Chief Scientists – Harvey Walsh, NOAA Fisheries 28 Tarzwell Drive  
Narragansett, RI 02882, [harvey.walsh@noaa.gov](mailto:harvey.walsh@noaa.gov) 401 742-3313

- David Richardson NOAA Fisheries 28 Tarzwell Drive Narragansett, RI 02882,  
[david.richardson@noaa.gov](mailto:david.richardson@noaa.gov) 401 782-3222

Ops Officer- LT Elizabeth Mackie [ops.gordon.gunter@noaa.gov](mailto:ops.gordon.gunter@noaa.gov)

Agent- Nathan Keith, Vessel Coordinator

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

- [Thomas.Noji@noaa.gov](mailto:Thomas.Noji@noaa.gov) {EPD Chief}
- [Jon.Hare@noaa.gov](mailto:Jon.Hare@noaa.gov) {Science and Research Director}
- [Susan.Gardner@noaa.gov](mailto:Susan.Gardner@noaa.gov) {Deputy Science and Research Director}
- [Nathan.Keith@noaa.gov](mailto:Nathan.Keith@noaa.gov) {NEFSC Vessel Coordinator}
- [Paula.Fratantoni@noaa.gov](mailto:Paula.Fratantoni@noaa.gov) {Oceanography Branch Chief}
- [Tamara.Holzwarth-Davis@noaa.gov](mailto:Tamara.Holzwarth-Davis@noaa.gov) {Oceanography Branch}
- [CO.Gordon.Gunter@noaa.gov](mailto:CO.Gordon.Gunter@noaa.gov) {Commanding Officer – *Gordon Gunter*}
- [Michael.S.Abbott@noaa.gov](mailto:Michael.S.Abbott@noaa.gov) {NEFSC Port Captain}

2. Diplomatic Clearances

This project involves Marine Scientific Research in waters under the jurisdiction of Canada. Diplomatic clearance has been requested.

3. Licenses and Permits

Canada’s Foreign Fishing Vessel License has been requested. Pursuant to 50 CFR 600.745 a Scientific Research Permit exempts this vessel from federal fishing regulations. Active marine mammal and endangered species incidental take permits can be found at:

<http://www.nmfs.noaa.gov/pr/permits/incidental/research.htm#nefsc>. Dead sea birds can be salvaged under US Fish and Wildlife permit # MB043513-0.

## II. Operations

The Chief Scientist is responsible for ensuring the scientific staff are trained in planned operations and are knowledgeable of project objectives and priorities. The Commanding Officer is responsible for ensuring all operations conform to the ship's accepted practices and procedures.

### A. Project Itinerary:

10 June: Depart Naval Station Newport, RI and Narragansett Bay to commence survey.

24 ~~26~~ June: Arrive ~~Miami, FL~~ <sup>Cape Canaveral, FL</sup>, complete cruise operations and dock

### B. Staging and Destaging:

08-09 June: Begin cruise staging at Naval Station Newport. Load and set up scientific equipment and complete CTD and SCS installations.

22 ~~26~~ June: Dock at ~~Miami~~ <sup>Cape Canaveral, FL</sup>. Disembark scientific personnel. Off-load scientific equipment and samples and prepare for shipment to Narragansett, RI.

### C. Operations to be conducted:

The first part of the cruise will be conducted in the Slope Sea (Figure 1). The sample strategy will be adaptive in order to target potential spawning habitat of Bluefin Tuna and other HMS adults and to avoid sampling too far south of the Gulf Stream. Initial station positions will be determined as the vessel is underway by the chief scientist, in conjunction with the command, based on sea surface temperatures and satellite imagery. Transects will then be laid out to map habitats and collect samples for larval abundance estimates. Plankton will be collected by three different operations: 1) bongo tows to 200-m depth, 2) bongo tows to 25-m depth, and 3) frame net tows to 25-m depth. Hydrographic sampling will also be conducted at a subset of stations to collect water samples and additional oceanographic measurements. Finally, Expendable Bathythermographs (XBTs) will be used in transit between stations to collect water temperature profiles.

The second part of the cruise will collect plankton and hydrographic data on cross-shelf and along-shelf transects between Cape Hatteras, North Carolina and Miami (Figure 2). The number of transects and number of stations per transect will be determined to cover the most amount of habitats in an efficient time period. Plankton will be collected by bongo tows to within 5-m of the bottom or a maximum of 200-m depth. Hydrographic sampling will also be conducted at a sub-set of stations to collect water samples and additional oceanographic measurements.

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.**

Plankton Stations: A Seabird CTD 19+ profiler attached to an array of two bongo nets (61 and 20 cm diameters) will be deployed (Figure 3). In addition, a Seabird CTD 19+ profiler will be deployed with a 1-m x 2-m frame net.

Oceanography Stations: The NOAA Ship *Gordon Gunter's* Seabird 911+ CTD will be deployed on a rosette frame with a carousel water sampling system (SBE32) and Niskin bottles at a subset of stations (Figure 4). This package will collect profiles of water temperature, salinity, chlorophyll-a and oxygen levels to within 5 meters of the bottom, or **to a maximum depth of 500 meters**. Water samples collected by the Niskin sampling bottles at multiple depths along the upcast will be processed for nutrients, dissolved inorganic carbon (DIC) analysis.

The deployments of the Seabird 19+ (with and without bongos and frame net) and 911+ CTD units will use the two oceanographic winches and the CTD computer located in the dry lab.

Acoustic Survey Operations: EK-60 operations will be conducted continuously throughout the cruise track at the highest safe transit speed possible, and during scientific gear deployments.

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 cruise. Date and time for data collections from computers, instrumentation, and logsheets recording will be synchronized using the vessel's GPS master clock and Dimension IV software. The NEFSC and *Gordon Gunter's* ET are responsible for ensuring data collection and logging.

## 1. Continuous Underway Sampling:

### 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**

1.1.1.1. SCS system should be running for duration of cruise

### 1.2. ADCP

**1.1.3.** Current speed and direction

**1.1.4.** Backscatter at 150 kHz

#### **1.1.5. Ship Requirements**

1.1.1.2. ADCP running during cruise and logging data

### 1.3. Flow-through system

**1.1.6.** TSG - salinity, temperature, density

**1.1.7.** pCO<sub>2</sub> system surface water and atmospheric CO<sub>2</sub>

**1.1.8.** Discrete samples – drawn from flow-through by scientists

- 1.1.1.3. DIC – dissolved inorganic carbon
- 1.1.1.4. salt – for salinity calibrations

#### **1.1.4. Ship Requirements**

- 1.1.1.5. Flowthrough system cleaned prior to cruise (freshwater flush)
- 1.1.1.6. Flowthrough system running during cruise and logging data

#### 1.4. Fisheries acoustics

##### **1.1.5. EK-60**

##### **1.1.6. Ship Requirements**

- 1.1.1.7. 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.

#### 1.6 Surface observations

1.6.1 Marine mammal and seabird observations made during daylight hours by two observers rotating on a 4 hour schedule flying bridge. Observations may be made from the bridge during inclement weather.

##### **1.1.2. Ship Requirements**

1.6.2.1 110 VAC and GPS data available either on the flying bridge or bridge for the observers' laptops.

- 1.7. Water Bottle Cast – deployed at subset of stations surface to **500 m maximum depth** or 5 m from bottom
  - 1.1.2. SBE19 – Temperature, conductivity, depth
  - 1.1.3. Water bottles – tripped manually with a messenger for salinity calibrations.

##### **1.1.4. Ship Requirements**

- 1.1.1.1. None

Data: At the end of the cruise the ship will provide the chief scientist with three copies of the data from the EK60 transducer, the ADCP unit and the SCS system. The chief scientist will provide a 1 terabyte drive for this. A copy of the SCS data should also be FTP'd to DMS personnel in Woods Hole.

#### D. Dive Plan

No dives are planned for this project.

## E. Applicable Restrictions

Conditions which would preclude normal operations may include the following:

Adverse weather – Marginal conditions such as high seas and winds that make deploying gear over the side hazardous to personnel, and secondarily to the equipment, warrant having operations suspended until the command deems conditions safe again. One way to mitigate such interruptions would involve coordination between the chief scientist and the command to adjust the cruise track to avoid the worst weather and continue operations in a more sheltered area where they can be conducted safely.

Equipment failures - if scientific, may involve the adjustment of sampling strategies to permit survey operations to continue with functional equipment. Vessel equipment failures will be worked out on an ad hoc basis between the scientists and command to permit survey operations to continue with the understanding that the safety of the vessel is always the top priority.

### **Protected Resource Requirements:**

The NEFSC is fully permitted under the MMPA and ESA to conduct research data collection activities. Active permits are effective September 12, 2016 through September 9, 2021. Permits and applicable information are available online at:

<http://www.nmfs.noaa.gov/pr/permits/incidental/research.htm#nefsc>

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 866-755-6622; 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](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. It is requested that this placard 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. To information regarding the WhaleALERT application

<http://stellwagen.noaa.gov/protect/whalealert.html>. For information on reporting a dead whale [http://www.nefsc.noaa.gov/psb/surveys/documents/20120919\\_Report\\_a\\_Dead\\_Whale.pdf](http://www.nefsc.noaa.gov/psb/surveys/documents/20120919_Report_a_Dead_Whale.pdf)

### III. Equipment

#### A. Equipment and Capabilities provided by the ship (itemized)

##### **Ship Requirements for Oceanography Stations**

Seabird 911+ CTD on a rosette frame with a carousel water sampling system (SBE32) and Niskin bottles

MK-21/ISA Bathythermograph Data Acquisition System

##### **Ship Requirements for Acoustics**

Simrad EK60 Scientific Sounder: The Simrad EK60 Scientific Sounder will be the primary sampling gear used during fisheries acoustic surveys for providing species-specific abundance estimates. EK60 data are logged to the EK60 data server, which is on the ship's 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 and ship's EK60 echo sounders. 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. If there still is some minor interference at 120kHz on the EK60, the ADCP may need to be turned off at times during the cruise.

Acoustics are running during cruise at all frequencies and logging data.

##### **Ship Requirements for Side Sampling Station and Oceanographic Operations**

###### CTD Rosette Operations:

A CTD Rosette will be deployed at subset of stations surface to **500 m MAX DEPTH** or 5 m from bottom; at approximately 20-50 locations during the course of the cruise (Figure 4).

SBE911 – salinity, temperature, density.

Fluorometer – chlorophyll a concentration.

PAR – for light measurement.

Water bottles – tripped automatically from computer in CTD Lab.

Salt - for salinity calibrations.

Nutrients – N, P, Si, others.

Ocean Carbon – DIC, Total alkalinity.

Phytoplankton species composition.

Microzooplankton species composition

Chlorophyll-a – measured directly.

SBE911 connected to conducting cable on forward winch.

Slip rings are to be checked prior to cruise and redone if necessary.

New terminations will be done prior to the start of this cruise for both oceanographic winches.

SBE19 connected to conducting cable on aft winch for bongo deployments.

NEMA Data String for CTD Computer.

Disposal of waste water cannot happen before, during, or right after CTD rosette operations.

Smoking is not allowed on Oceanography deck due to nutrient and carbonate chemistry sampling.

NEMA Data String to Computer Lab.

Ultra-cold (-80°C) freezer (tested prior to embarkation) for storage of samples.

### **Ship Requirements for Continuous Underway Sampling**

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

SCS system should be running for duration of cruise.

ADCP - Running during cruise and logging data.

Flow-through system - TSG - salinity, temperature, density.

Fluorometer – chlorophyll-a concentration.

Imaging FlowCytobot – small amount of seawater drawn from the system to obtain phytoplankton images.

PCO2 system – operational during the entire cruise period

Discrete samples – drawn from flow-through by scientists.

DIC – dissolved inorganic carbon.

salt – for salinity calibrations.

Flowthrough system cleaned prior to cruise (freshwater flush).

Flowthrough system running during cruise and logging data.

## **Ship Requirements for visual survey observations**

NEMA Data String to flying bridge and bridge for the observers.  
110 VAC on the flying bridge and bridge for the observers.

### **B. Equipment and Capabilities provided by the scientists (itemized)**

#### Oceanographic Operations:

Expendable Bathythermograph Probes  
Drifters (WHOI)

#### Plankton Stations:

CTD/Bongo – deployed at most stations surface to **200 m max depth** or 5 m from bottom, with an SBE19 CTD unit to measure temperature, conductivity and depth and with bongo nets (Figure 3):

61 cm, 333 micron mesh– zooplankton and ichthyoplankton.

20 cm, 165 and 56 micron mesh – microzooplankton, zooplankton, ichthyoplankton.

45 kg depressor weight for bongo net deployments.

CTD/1-m x 2-m frame net – deployed at most stations surface to **25 m max depth**, with an SBE19 CTD unit to measure temperature, conductivity and depth and with a frame net:

1x2 m, 333 micron mesh– zooplankton and ichthyoplankton.

Depressor weights for deployment.

## **IV. Hazardous Materials**

### **A. Policy and Compliance**

The Chief Scientist is responsible for complying with FEC 07 Hazardous Materials and Hazardous Waste Management Requirements for Visiting Scientific Parties (or the OMAO procedure that supersedes it). 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 quantity, MSDS, appropriate spill cleanup materials (neutralizing agents, buffers, or absorbents) in amounts adequate to address spills of a size equal to the amount of chemical brought aboard, and chemical safety and spill response procedures. Documentation regarding those requirements will be provided by the Chief of Operations, Marine Operations Center, upon request.

Per OMAO procedure, the scientific party will include with their project instructions and provide to the CO of the respective ship 30 days before departure:

- List of chemicals by name with anticipated quantity
- List of spill response materials, including neutralizing agents, buffers, and absorbents
- Chemical safety and spill response procedures, such as excerpts of the program's Chemical Hygiene Plan or SOPs relevant for shipboard laboratories
- For bulk quantities of chemicals in excess of 50 gallons total or in containers larger than 10 gallons each, notify ship's Operations Officer regarding quantity, packaging and chemical to verify safe stowage is available as soon as chemical quantities are known.

Upon embarkation and prior to loading hazardous materials aboard the vessel, the scientific party will provide to the CO or their designee:

- An inventory list showing actual amount of hazardous material brought aboard
- An MSDS for each material
- Confirmation that neutralizing agents and spill equipment were brought aboard sufficient to contain and cleanup all of the hazardous material brought aboard by the program
- Confirmation that chemical safety and spill response procedures were brought aboard

Upon departure from the ship, scientific parties will provide the CO or their designee an inventory showing that all chemicals were removed from the vessel. The CO's designee will maintain a log to track scientific party hazardous materials. MSDS will be made available to the ship's complement, in compliance with Hazard Communication Laws.

Scientific parties are expected to manage and respond to spills of scientific hazardous materials. Overboard discharge of hazardous materials is not permitted aboard NOAA ships.

#### B. Inventory

<b>Common Name of Material</b>	<b>Qty</b>	<b>Notes</b>	<b>Trained Individual</b>	<b>Spill control</b>
Acetone (90%)	2 x 500 ml.	Alkalinity, Located in chem lab.	Harvey Walsh, Elisabeth Broughton	A
Formaldehyde solution (37%)	2 x 20 liters	Alkalinity, Stored in ship chem. locker. 20 liters will be in dispensing carboy in Preservation Area hood.	Harvey Walsh, Elisabeth Broughton	F
Ethanol (95%)	4 x 20 liters	Flammability, Stored in ship chem. locker.	Harvey Walsh, Elisabeth Broughton	E
Mercuric Chloride	1 x 50 ml.	Located in ship chem. locker.	Harvey Walsh	M

#### C. Chemical safety and spill response procedures

##### **Mercuric Chloride (M)**

- Use aspirator in mercury spill cleanup kit to pick up as much mercuric chloride solution as possible and place into mercury waste bottle.
- Mix water, CINNASORB Mercury Absorbent Base and Activator as per directions in mercury spill kit to form a paste which is placed on contaminated area, and scraped up with wooden spatulas to be placed into mercury waste jar. Allow paste to dry before sealing jar with cap.
- Wipe down contaminated area with warm soapy water on sponge from mercury spill kit.

**CINNASORB Elemental Mercury Absorbent Base**  
**CINNASORB elemental Mercury Absorbent Activator**  
**Mercury aspirator, spatulas, sponge, gloves, mercury waste bottle and jar**

**Formalin/Formaldehyde/Ethanol/Acetone (A, E and F)**

- Ventilate area of leak or spill. Remove all sources of ignition.
- Wear appropriate personal protective equipment.
- Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible.
- Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container.
- Do not use combustible materials, such as saw dust.

**Neutralizer and Absorbent Materials**  
**Spill-X-FP, Formaldehyde Eater and Spillyter (Trade Marks) will be brought in sufficient quantities – (two 5-gallon buckets and several 2 lb. containers) to neutralize 40 liters of 37% Formaldehyde solution.**

**Absorbent ground clay containment material will be brought along to absorb spilled chemicals – (three 14 lb. containers).**

#### **D. Radioactive Materials**

No Radioactive Isotopes are planned for this project.

#### **V. Additional Projects**

- A. Supplementary (“Piggyback”) Projects  
No Supplementary Projects are planned.
  
- B. NOAA Fleet Ancillary Projects  
No NOAA Fleet Ancillary Projects are planned.

## **VI. Disposition of Data and Reports**

Disposition of data gathered aboard NOAA ships will conform to NAO 216-101 *Ocean Data Acquisitions* and NAO 212-15 *Management of Environmental Data and Information*. To guide the implementation of these NAOs, NOAA’s Environmental Data Management Committee (EDMC) provides the *NOAA Data Documentation Procedural Directive* (data documentation) and *NOAA Data Management Planning Procedural Directive* (preparation of Data Management Plans). OMAO is developing procedures and allocating resources to manage OMAO data and Programs are encouraged to do the same for their Project data.

- A. Data Classifications: *Under Development*
  - a. OMAO Data
  - b. Program Data
  
- B. Responsibilities: *Under Development*

## **VII. Meetings, Vessel Familiarization, and Project Evaluations**

- A. Pre-Project Meeting: The Chief Scientist and Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship’s crew to discuss required equipment, planned operations, concerns, and establish mitigation strategies for all concerns. This meeting shall be conducted before the beginning of the project with sufficient time to allow for preparation of the ship and project personnel. The ship’s Operations Officer usually is delegated to assist the Chief Scientist in arranging this meeting.
  
- B. Vessel Familiarization Meeting: The Commanding Officer is responsible for ensuring scientific personnel are familiarized with applicable sections of the standing orders and

vessel protocols, e.g., meals, watches, etiquette, drills, etc. A vessel familiarization meeting shall be conducted in the first 24 hours of the project's start and is normally presented by the ship's Operations Officer.

C. Post-Project Meeting: The Commanding Officer is responsible for conducted a meeting no earlier than 24 hours before or 7 days after the completion of a project to discuss the overall success and shortcomings of the project. Concerns regarding safety, efficiency, and suggestions for future improvements shall be discussed and mitigations for future projects will be documented for future use. This meeting shall be attended by the ship's officers, applicable crew, the Chief Scientist, and members of the scientific party and is normally arranged by the Operations Officer and Chief Scientist.

D. Project Evaluation Report

Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the Chief Scientist. The form is available at <http://www.oma.noaa.gov/fleeteval.html> and provides a "Submit" button at the end of the form. Submitted form data is deposited into a spreadsheet used by OMAO management to analyze the information. Though the complete form is not shared with the ships', specific concerns and praises are followed up on while not divulging the identity of the evaluator.

## **VIII. Miscellaneous**

**A. Meals and Berthing**

The ship will provide meals for the scientists listed above. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the project, and ending two hours after the termination of the 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 project.

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 makeup 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 project 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 17, 2000 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, NF 57-10-01 (3-14)) must be completed in advance by each participating scientist. The NHSQ can be obtained from the Chief Scientist or the NOAA website <http://www.corporateservices.noaa.gov/noaforms/eforms/nf57-10-01.pdf>.

All NHSQs submitted after March 1, 2014 must be accompanied by [NOAA Form \(NF\) 57-10-02 - Tuberculosis Screening Document](#) in compliance with [OMAO Policy 1008](#) (Tuberculosis Protection Program).

The completed forms should be sent to the Regional Director of Health Services at the applicable Marine Operations Center. The NHSQ and Tuberculosis Screening Document should reach the Health Services Office no later than 4 weeks prior to the start of the project to allow time for the participant to obtain and submit additional information should health services require it, before clearance to sail can be granted. Please contact MOC Health Services with any questions regarding eligibility or completion of either form. Ensure to fully complete each 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.

The participant can mail, fax, or email the forms to the contact information below. Participants should take precautions to protect their Personally Identifiable Information (PII) and medical information and ensure all correspondence adheres to DOC guidance ([http://ocio.os.doc.gov/ITPolicyandPrograms/IT\\_Privacy/PROD01\\_008240](http://ocio.os.doc.gov/ITPolicyandPrograms/IT_Privacy/PROD01_008240)).

The only secure email process approved by NOAA is [Accellion Secure File Transfer](#) which requires the sender to setup an account. [Accellion's Web Users Guide](#) is a valuable aid in using this service, however to reduce cost the DOC contract doesn't provide for automatically issuing full functioning accounts. To receive access to a "Send Tab", after your Accellion account has been established send an email from the associated email account to [accellionAlerts@doc.gov](mailto:accellionAlerts@doc.gov) requesting access to the "Send Tab" function. They will notify you via email usually within 1 business day of your approval. The "Send Tab" function will be accessible for 30 days.

#### 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  
Email [MOA.Health.Services@noaa.gov](mailto:MOA.Health.Services@noaa.gov)

Prior to departure, the Chief Scientist must provide an electronic listing of emergency contacts to the Operations Officer for all members of the scientific party, with the following information: contact name, address, relationship to member, and telephone number.

#### C. Shipboard Safety

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.

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. At the discretion of the ship CO, safety shoes (i.e. steel or composite toe protection) may be required to participate in any work dealing with suspended loads, including CTD deployment and recovery. The ship does not provide safety-toed shoes/boots. The ship's Operations Officer should be consulted by the Chief Scientist to ensure members of the scientific party report aboard with the proper attire.

#### 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 email 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 and it must be arranged through the ship's Commanding Officer 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* 1.1 (November 4, 2005) 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 the above requirements prior to boarding the ship is required.

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

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>). National Marine Fisheries Service personnel will use the Foreign National Registration System (FNRS) to submit requests for access to NOAA facilities and ships. The Departmental Sponsor/NOAA (DSN) is responsible for obtaining clearances and export licenses and for providing escorts required by the NAO. DSNs should consult with their designated Line Office Deemed Export point of contact to assist with the process.

Foreign National access must be sought not only for access to the ship involved in the project but also for any Federal Facility access (NOAA Marine Operations Centers, NOAA port offices, USCG Bases) that foreign nationals might have to traverse to gain access to and from the ship. The following are basic requirements.

Full compliance with NAO 207-12 is required.

Responsibilities of the Chief Scientist:

1. Provide the Commanding Officer with the email generated by the Servicing Security Office granting approval for the foreign national guest's visit. (For NMFS-sponsored guests, this email will be transmitted by FNRS.) This email will identify the guest's DSN and will serve as evidence that the requirements of NAO 207-12 have been complied with.
2. 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.
3. 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 Security Office.
4. Export Control - Ensure that approved controls are in place for any 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 approval from the Director of the Office of Marine and Aviation Operations 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 or the DSN of the FNRS or Servicing Security Office email granting approval for the foreign national guest's visit.
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 project, 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 Security Office.

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 DSN 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 and a 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

## **VIII. Appendices**

### **Appendix 1.**

Figures

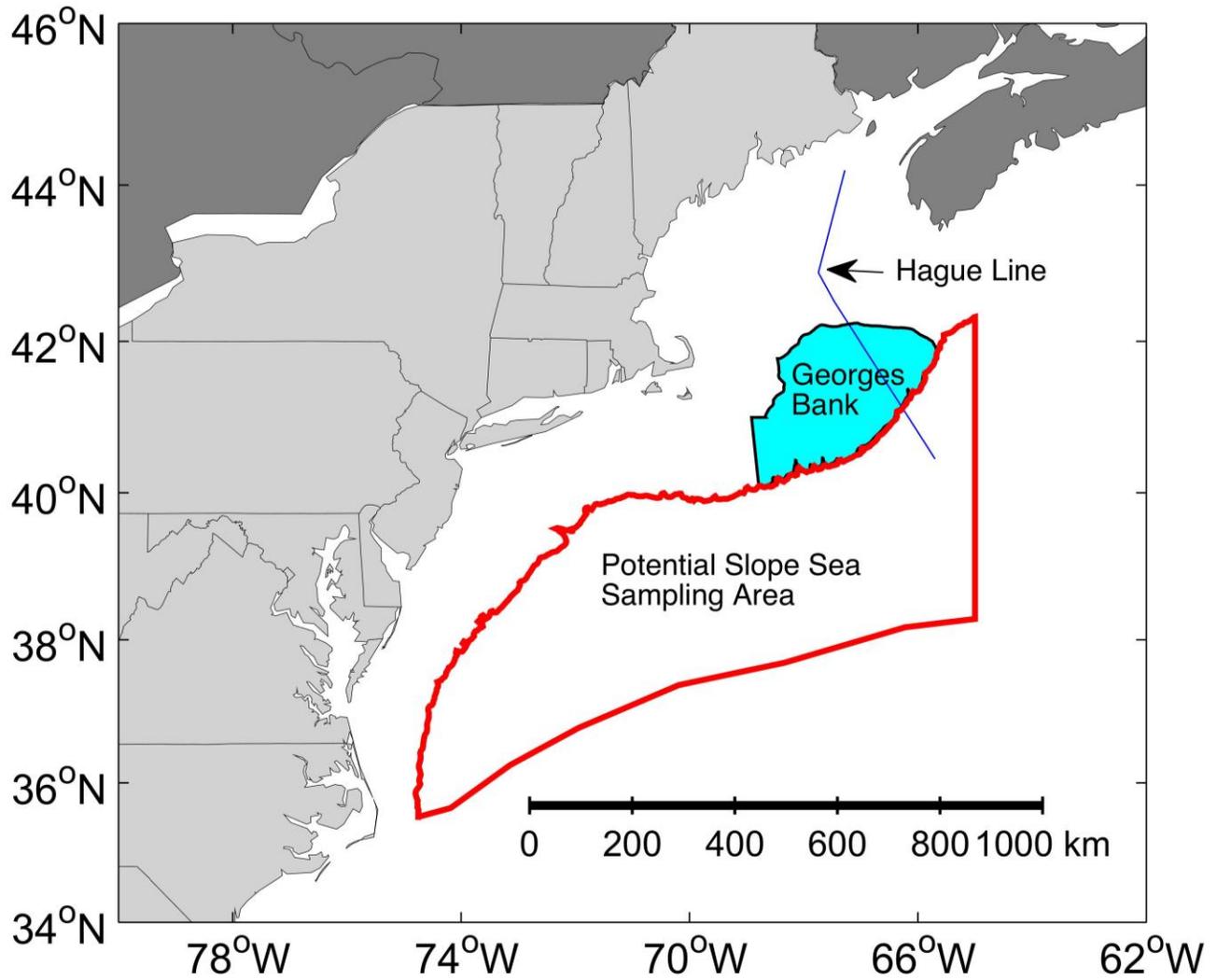


Figure 1. Adaptive sampling based on satellite sea surface temperature images to target potential spawning habitats of Bluefin Tuna adults will be conducted in the area outlined in red.

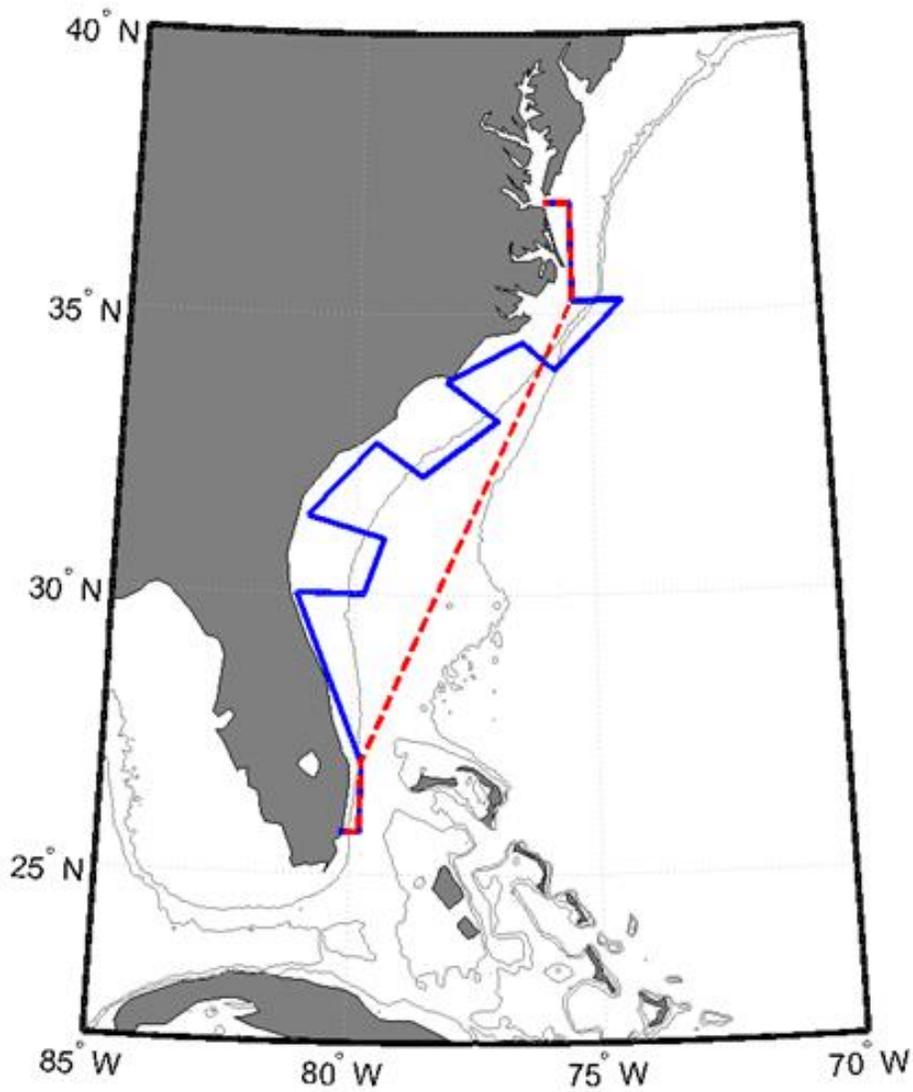


Figure 2. Plankton and hydrographic data will be collected on cross-shelf and along-shelf transects between Cape Hatteras, North Carolina and Miami (blue line). The number of transects and number of stations per transect will be determined to cover the most amount of habitats in an efficient time period.

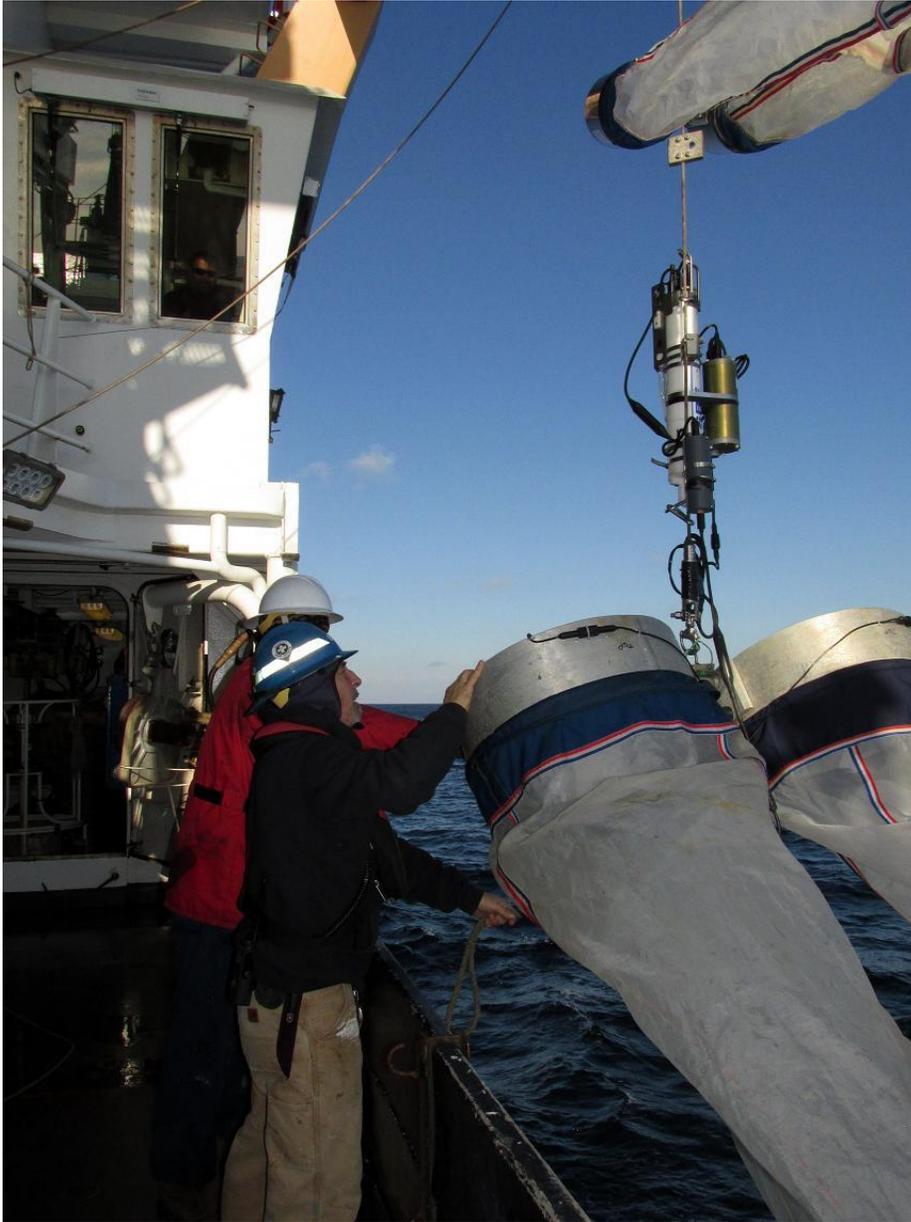


Figure 3. Plankton net sampling array, showing 61 and 20 cm bongo frames, and CTD unit.



Figure 4. A Niskin bottle rosette sampler equipped with 10 liter Niskin bottles.