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: CDR 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-17-05
Gulf of Maine 2017 Cyst Cruise

Attached is the final Project Instruction for GU-17-05, Gulf of Maine 2017 Cyst Cruise, which is scheduled aboard NOAA Ship *Gordon Gunter* during the period of October 15 – October 28, 2017. Of the 11 DAS scheduled for this project, 11 DAS are Program funded by a Line Office Allocation. This project is estimated to exhibit a High Operational Tempo. Acknowledge receipt of these instructions via e-mail to **Deputyops.MOA@noaa.gov** at Marine Operations Center-Atlantic.

Project Instructions

Date Submitted: September 14, 2017

Platform: NOAA Ship *Gordon Gunter*

Project Number: GU-17-05

Project Title: Gulf of Maine 2017 Cyst Cruise

Project Dates: October 15, 2017 to October 28, 2017

Prepared by: MCTIGUE.TERESA.A.1365896930 Digitally signed by MCTIGUE.TERESA.A.1365896930 Date: 2017.10.02 13:20:22 -04'00' Dated: _____

Teresa McTigue, PhD
Chief Scientist
NOAA/NOS/NCCOS/CCMA

Approved by: MONACO.MARK.EUGENE.DR.1365855150 Digitally signed by MONACO.MARK.EUGENE.DR.1365855150 Date: 2017.10.02 13:25:32 -04'00' Dated: _____

Mark Monaco, PhD
Division Chief
NOAA/NOS/NCCOS/MSE

Approved by: _____ Dated: 10/3/17

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

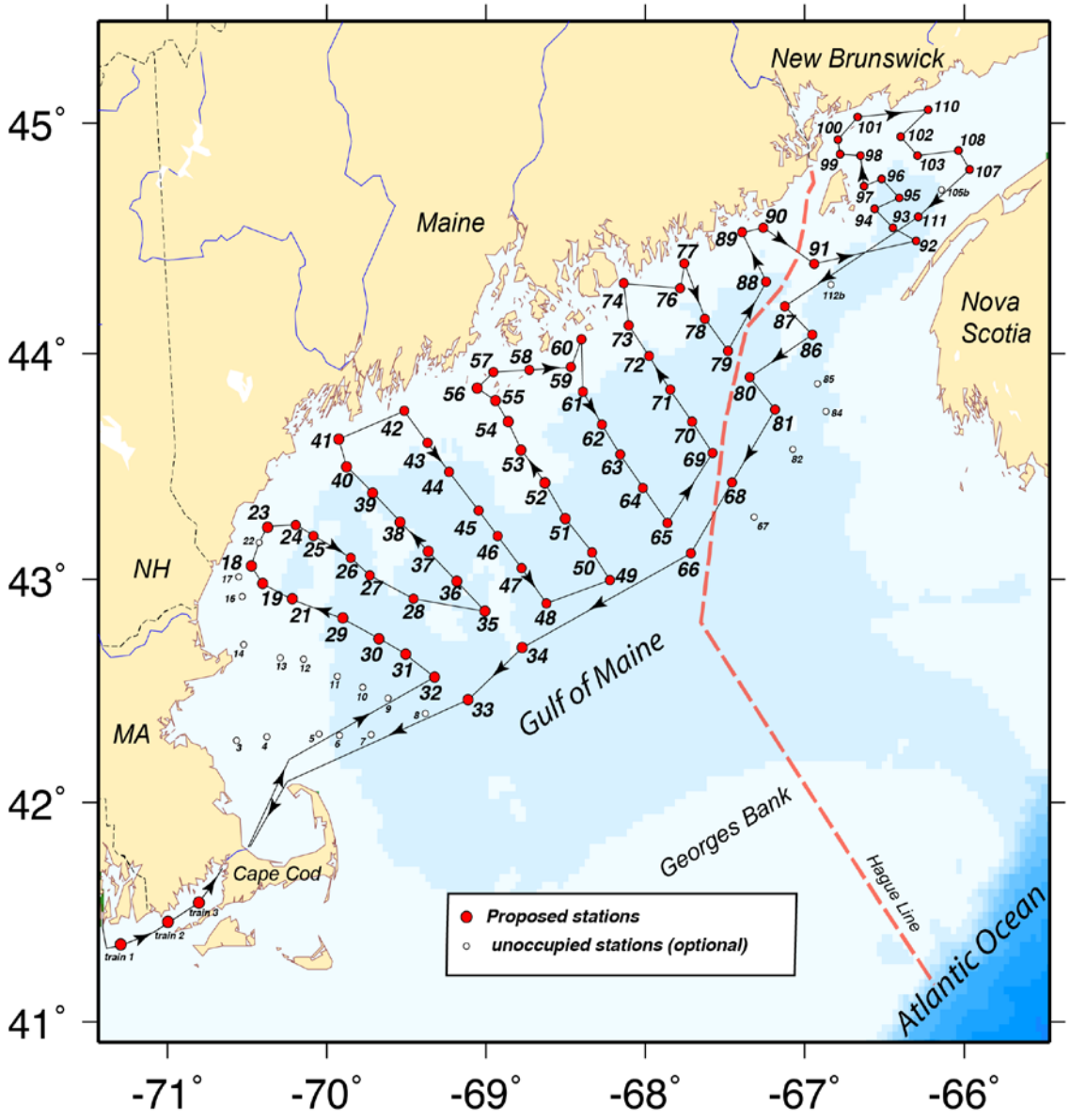
I. Overview

A. Brief Summary and Project Period

B. Service Level Agreements

Of the 11 DAS scheduled for this project, 11 DAS are funded by a Line Office allocation. This project is estimated to exhibit a High Operational Tempo.

C. Operating Area (include optional map/figure showing op area)



D. Summary of Objectives

Alexandrium fundyense, commonly referred to locally as the New England "red tide" organism, is a Harmful Algal Bloom (HAB) species that requires careful management of shellfish resources to prevent Paralytic Shellfish Poisoning (PSP) in New England and Canadian coastal waters. This algae species produces cysts that overwinter in the sediments of the Gulf of Maine. The abundance of these cysts in the sediment during the fall and winter is a strong predictor of the magnitude of HAB bloom events during the following year. During this cruise, sediment cores will be collected and samples preserved to allow for the enumeration of *A. fundyense* cysts across a broad area of the Gulf of Maine in support of an accurate prediction of the potential red tide conditions along the northern New England coasts in the spring and summer of 2018.

E. Participating Institutions

NOAA National Centers for Coastal Ocean Science, Woods Hole Oceanographic Institution

F. Personnel/Science Party: name, title, gender, affiliation, and nationality

Name (Last, First)	**Title**	**Date Aboard**	**Date Disembark**	**Gender**	**Affiliation**	**Nationality**
McTigue, Teresa	Chief Scientist	10/15/17	10/28/17	F	NOAA	US
Keafer, Bruce	Scientist	10/15/17	10/28/17	M	WHOI	US
Alex, Christine	Scientist	10/15/17	10/28/17	F	NOAA	US
Apeti, Dennis	Scientist	10/16/17	10/28/17	M	NOAA	US
Irwin, Leslie	Scientist	10/16/17	10/28/17	F	NOAA (contractor)	US
Kidwell, David	Scientist	10/16/17	10/28/17	M	WHOI	US
Kibler, Steven	Scientist	10/15/17	10/28/17	M	NOAA (contractor)	US
Li, Yizhen	Scientist	10/16/17	10/28/17	M	NOAA (contractor)	China
Meredith, Andrew	Scientist	10/15/17	10/28/17	M	NOAA (contractor)	US
Olesin, Emily	Scientist	10/15/17	10/28/17	F	Fla Fish & Wildlife Conserv. Comm.	US
Thomas, Maura	Scientist	10/16/17	10/28/17	F	Univ of Maine	US
Trainer, Suzanne	Scientist	10/15/17	10/28/17	F	WHOI	US
Wickham, John	Scientist	10/16/17	10/28/17	M	NOAA	US
Vidal, Prian	Student	10/15/17	10/28/17	M	Florida A&M Univ	US

G. Administrative

1. Points of Contacts:

Teresa McTigue
NOAA/NOS/NCCOS/MSE
1305 East West Hwy, N/SCI1, Station 8409
Silver Spring, MD 20910
Phone: 240-533-0323
Email: Terry.McTigue@noaa.gov

Bruce Keafer
Mail Stop 32
Woods Hole Oceanographic Institution
Woods Hole, MA 02543
Phone: 508-289-2509
Email: bkeafer@whoi.edu

2. Diplomatic Clearances

This project involves Marine Scientific Research in waters under the jurisdiction of both the United States and Canada. An application for diplomatic clearance has been submitted via the US State Department. If clearance is not received by the date of the cruise, the stations located in Canadian waters will be dropped from the project.

3. Licenses and Permits

This project involves the collection of sediment and water samples in US and Canadian waters. No permits are required in US waters and clearance has been requested for sampling in Canada. We will take precautions to discard all extra sediment overboard in the area in which it was collected as not to risk spreading cysts to new areas.

II. Operations

A. Project Itinerary

October 14, 2017: In port. Travel from WHOI (two scientists) with all gear in rental truck including 2 Craib Corers and 1 Van Veen grab sampler and lab equipment. Truck will arrive at RI dock by late morning. Following direction and help from chief boatswain and ship's crew, loading will commence using forklift and winch/crane. The WHOI staff and the rental truck will return to Woods Hole, MA same day after initial organization of equipment and set-up onboard.

October 15, 2017: Five scientists will arrive (two by car, three by airplane) during the afternoon and work to set up the wet and dry lab areas. The two WHOI staff will return to the ship. All staff will stay aboard the ship that night.

October 16, 2017: In port. The remaining science staff will arrive from Silver Spring via van and assist in the completion of set up of the wet and dry labs.

October 17, 2017: Leave port, heading north via the Cape Cod Canal, depending on weather, traffic, and currents. Collect sediment cores at three stations just north of Cape Cod Bay as training for crew and new science members. Depending on the tides at the Cape Cod Canal, the training stations may be taken in Buzzard's Bay or another location south of the Canal.

October 18-26, 2017: Sample at 82 locations along nine transects in the Gulf of Maine including entering Canadian waters offshore and the Bay of Fundy (see map in Section 1.C.). Samples will be collected moving from south to north unless weather dictates otherwise. The order in which the stations are visited can be modified as needed, depending on conditions. The proposed track attempts to place the ship in the nearshore waters during the daylight hours to avoid lobster pots along the coast. Clearance for entering Canadian waters is currently pending. Sampling stations in Canadian waters will be dropped from the cruise is clearance is not given before the date of the trip. If all goes to plan, then we will finish sampling by the evening of October 26, returning to the dock on October 27.

October 27: If weather conditions or equipment problems slow progress, then stations will be dropped as necessary to complete the highest priority stations located in US waters of the cruise plan, so that the ship will return to the dock no later than Oct 27. If the ship arrives at the dock late in the day, the science staff will spend the night on the ship and set out in the morning.

B. Staging and Destaging

Two scientists from WHOI will bring all the equipment to the ship on the morning of October 14 for loading. Ship's crew is needed for forklift and winch/crane ops. Five scientists including the chief scientist will arrive in the afternoon of the same day to assist. The scientists will remain onboard for the afternoon to organize the lab equipment into their various work stations including bringing chemicals onboard for the sample processing, so a working hood is required. A small group of the science staff, including the chief scientist, will arrive during the afternoon of October 15 to continue setting up the lab spaces. They will spend the night on the ship. The remaining science staff will arrive at the ship during the afternoon of the next day (October 16), driving from Silver Spring. Sample processing equipment will be set up and a small refrigerator will be placed in the wet lab to expand upon the storage space available on the ship. Chemical Hood will be set-up for safe use of formalin and methanol at sea with spill kits provided (see below). One primary Craib corer will be secured where the CTD ops normally take place alongside the CTD. The other corer and grabs can be secured to the aft deck and used only when needed if the primary unit fails.

Upon the return to port, all samples, sampling and processing equipment, and the small refrigerator will be removed from the ship. The wet lab will be thoroughly cleaned. If the ship arrives early back to dock early on October 27, all equipment will be off loaded and the science staff will leave that day. If the ship returns to the dock late in the day, the science staff may request to spend the night and leave early the next morning.

C. Operations to be Conducted

Approximately 82 sites will be sampled over a period of nine days, the first three of which will be used to train crewmembers and assure consistency of techniques across each of the three watch teams. At each station, a Craib corer will be deployed and a relatively undisturbed surface sediment core collected with a penetration depth of about 6-10 cm deep. The core will be extruded onboard and sectioned into two layers; the top 0-1 cm and the underlying 1-3 cm layers. After two 5cc replicates for cyst counting are collected from both sediment layers, an additional subsample from the remaining sediment samples will be processed and stored @ -80C for later analysis using a qPCR method for cyst enumeration. Sediment below 3 cm deep in the core will be discarded. The sediment samples will be processed onboard using standard cyst techniques, including protocols for dilution of the raw sediment, sonifying and sieving the sample to yield a 20-100 μm particulate fraction that is initially preserved in 2% formalin and exchanged onboard into 100% methanol for long-term storage until counting can begin.

At each station, a CTD will be deployed to measure parameters such as salinity and temperature from the surface of the water to the bottom in order to characterize water masses moving within the Gulf of Maine. A rosette containing Niskin bottles will be used to collect water at 3 to 6 depths at each site. The water will be filtered on board in the wet lab and samples preserved and returned to the lab for identification of algal species.

D. Dive Plan

No diving will occur on this cruise.

E. Applicable Restrictions

Severe weather may prohibit the safe use of the Craib corer. In that case, the sampling will be called off until conditions improve. If weather delays are substantial, the number of sites sampled can be reduced. Often during storms in the Gulf of Maine, the Bay of Fundy in Canadian waters provides a refuge to continue working on the plan that would otherwise be impossible in the open waters of the Gulf. If severe weather persists, the highest priority stations are those that were sampled during the NOAA cyst cruise in 2016 which are shown as large red circles on the station map above.

F. Protected Resources

The transit route of this cruise crosses the Cape Cod Bay – Gulf of Maine Critical Habitat Area of the North Atlantic right whale (*Eubalaena glacialis*). While the seasonal management areas for this species during the month of November are located in the waters of the mid-Atlantic and southeastern US, sightings of this species in Cape Cod and the Gulf of Maine have been recorded. During this cruise, we will follow the best management practices laid out in Deputy Under Secretary for Operations VADM Michael S. Devany's August 2014 regarding compliance with NOAA's environmental statues. These include maintaining watch for

protected species and attempting to remain parallel to the course of any large whales sighted. Distances of at least 91.44 m (100 yds.) will be maintained from large whales and 45.72 (50 yds.) or greater from any small marine mammals or turtles when possible. North Atlantic right whales, if seen, will be given a distance of at least 460 m. All activities will follow the Compliance Guide for Right Whale Ship Strike Reduction Rule (50 CFR 224.105)

III. Equipment

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

Wet lab: Fume Hood, 2 sinks with tap water, chemical locker for formalin and methanol storage, flowing seawater in the Wet lab, Benches for processing sediment. Ship will supply 1 refrigerator and 1 freezer to store cyst count samples and a -80 C freezer for processed qPCR samples.

Dry lab: GPS serial cable (NMEA 0183) for science provided Nav computer used to track ship, revise station plan, etc. Science will need access to Ship's data (e.g. meteorology, depth, position).

Deck: winch/cable for Corer and CTD deployment, all tag lines and recovery poles. Wash down seawater for deck ops. NOAA ship crew will be responsible for over the side deployment and recovery. Science crew will be responsible for prepping Corer for each deployment and removal of all cores upon recovery.

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

Science will provide:

-Two Craib Corers (1 primary and 1 back-up); One Van Veen Grab

-Core cutting station at sink #1- Ring stand and clamps to hold Craib Cores with all supplies for that task.

-Sediment processing at sink #2- Sonifier, centrifuge, sieves and all other supplies to process sediments

-Distilled water will be provided in 5 gal containers (6) since the *Gunter* does not have the capability to distill water on board the ship.

-1 under-the-counter- refrigerator will be placed in the wet lab for extra sample storage.

-Plywood boards (1/2") will be cut to fit on stainless benches, allowing equipment to be tied down easily.

-All sample tubes and chemicals for processing sediments

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 the anticipated quantity brought aboard, MSDS and appropriate neutralizing agents, buffers, or absorbents in amounts adequate to address spills of a size equal to the amount of chemical brought aboard, and a chemical hygiene plan. Documentation regarding those requirements will be provided by the Chief of Operations, Marine Operations Center, upon request.

Per FEC 07, the scientific party will include with their project instructions and provide to the CO of the respective ship 60 to 90 days before departure:

- A list of hazardous materials by name and anticipated quantity
- Include a chemical spill plan the addresses all of the chemicals the program is bringing aboard. This shall include:
    - Procedures on how the spilled chemicals will be contained and cleaned up.
    - A complete inventory (including volumes/amounts) of the chemical spill supplies and equipment brought aboard by the program. This must be sufficient to clean and neutralize all of the chemicals brought aboard by the program.
    - A list of the trained personnel that will be accompanying the project and the training they have completed.

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.

Upon departure from the ship, scientific parties will provide the CO or their designee an inventory of hazardous material indicating all materials have been used or 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 scientific chemicals is not permitted during projects aboard NOAA ships.

B. Inventory

Common Name of Material	**Qty**	**Notes**	**Trained Individual**	**Spill control**
Formaldehyde solution (37%)	4 x 500ml	Alkalinity, Stored in ship chem lkr	Bruce Keafer	F
Methanol (100%)	3 x 4L	Flammable, Stored in ship chem lkr	Bruce Keafer	M
Lugol's iodine	500ml	Irritant, Stored in ship chem lkr	Maura Thomas	L

C. Spill Control Plan

M: Methanol or Methyl Alcohol

· All use of methanol will be contained in the fume hood located in the Wetlab
· Cold methanol will be dispensed from a 4L glass jug using a 30ml repipette set to dispense 10ml each stroke. The glass jug is protected in a plastic bucket that is iced down and secured in the hood area.
· Wear appropriate personal protective equipment during use (gloves and safety glasses)
· In case of small spills, wipe up with a paper towel and discard into a "dry" waste Ziploc container for later disposal on shore (WHOI). If medium spill, use absorbent "blanket" to contain the spill (located in the spill kit).
· In case of large spills, contain spill within hood area if possible; ventilate area of leak or spill. Remove all sources of ignition.
· 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 sawdust.

F: Formalin/Formaldehyde

· All use of formalin will be contained in the fume hood located in the Wet lab
· It will be dispensed from a 500ml glass bottle using a 10ml repipette set to dispense 0.75ml each stroke. The glass bottle is protected in a PVC case and secured in the hood area.
· Wear appropriate personal protective equipment during use (gloves and safety glasses)
· In case of small spills in the hood (ml), the spill will be neutralized with _____, wiped up with a paper towel and discarded into a dry waste Ziploc container for later disposal on shore (WHOI).
· In case of large spills, ventilate area of leak or spill. Remove all sources of ignition.
· 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 sawdust.

L: Lugol's Iodine

- All use of Lugol's iodine will be contained in the fume hood located in the Wet Lab.
- It will be dispensed from a 500ml glass bottle using a pipette.
- Wear appropriate personal protective equipment during use (gloves and safety glasses)
- In case of a spill, a non-combustible absorbent material will be use used to contain and collect the spill. The material will be placed in an appropriate chemical waste container and removed from the ship for proper disposal.

Inventory of Spill Kit supplies

Product Name	**Amount**	**Chemicals it is useful against**	**Amount it can clean up**
Spill-X-FP polymerizer	4 x 1.85lbs	Formalin	4 x 500ml formalin (37%)
3"x4" socks	3	Universal for liquid spills	Unknown
17" x 19" pads	12	Universal for liquid spills	Unknown
3" x 10' socks	2	Universal for liquid spills	Unknown
Pair of goggles	1	Universal for liquid spills	Unknown
Nitrile gloves	3	Universal for liquid spills	Unknown
Disposable bags and ties	10	Universal for liquid spills	Unknown
Stardust superabsorbent	8 oz.	Universal for liquid spills	Unknown
Spill-X-S Solvent Adsorbent	19 lb. container	Universal for solvents	3 gallons ~ 12 liters

D. Radioactive Isotopes

No Radioactive Isotopes are planned for this cruise.

V. Additional Projects

A. Supplementary ("Piggyback") Projects

1. An Imaging Flow Cytobot will sample autonomously from the flowing seawater in the chemistry lab. This instrument takes microscopic pictures of single cells lined up in a small flow stream. It has been tested onboard the *Okeanos Explorer* as part of the ECOMON cruise and during the 2013-2016 NOAA cyst cruises. Additional water samples will be collected from the flow if *Pseudonitzschia* sp, a toxic diatom, is observed by the IFCB.
2. Microscopic "live' counts of the phytoplankton will be performed at each of the cyst stations to ID potential toxic algae present in the Gulf of Maine.
3. Water samples may be collected at stations via the flow through seawater system and the CTD rosette. The samples will be filtered on board and refrigerated for transport to a laboratory for examination for *Pseudonitzschia*.
4. Additional sediment may be collected at station 54M to determine the settling rate of cysts under experimental conditions in the lab. We anticipate that effort will require 4 hours of additional wire time to collect those replicate cores using the Craib Corer. If lobster traps are too numerous to sample at this site, then an alternative site (#40 or #43) will be considered at sea. Any alternative sites must be located within the highest concentration of cysts within the mid-Maine cyst patch to obtain sufficient cysts for those experiments.
5. A limited amount of remaining sediment (about 2.5cc) from each the two layers will be saved for storage and later analysis targeting the *Alexandrium fundyense* cysts. Estimates of the cyst concentration from the sediment sample will use a molecular-based method modified from Erdner et al (Deep-Sea Research II: 57: (2010) 279-287). This collection will require separate onboard processing of sediment samples and storage at -80C, so the -80C freezer onboard OE will be needed for short-term storage of these samples. Removal of the samples from the ship will require either dry ice and/or liquid nitrogen for transport back to the lab until analyzed. Additional raw mud may be collected and stored for use in laboratory projects at NOAA or WHOI related to cyst settlement rates or other research projects.

B. NOAA Fleet Ancillary Projects

None.

VI. Disposition of Data and Reports

A. Data Responsibilities

B. Pre and Post Project 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 project objectives. Some vessel protocols, e.g., meals, watches, etiquette, etc. will be presented by the ship's Operations Officer.

VII. Meetings, Vessel Familiarization, and Project Evaluations

A. Shipboard Meetings

Daily Operations Briefing meetings will be held at 1430 in the forward lounge to review the current day, and define operations, associated requirements, and staffing needs for the following day. A Plan of the Day (POD) will be posted each evening for the next day in specified locations throughout the ship. A safety brief will be held each day at 12:30 on the mess deck with the department heads. Daily Situation Reports (SITREPS) will be posted as well and shared daily through e-mail and/or the EX PLONE site (http://tethys.gso.uri.edu/OkeanosExplorerPortal).

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.

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.

Post-Project Meeting: The Commanding Officer is responsible for conducted a meeting no earlier than 24 hrs before or 7 days after the completion of a project to discuss the overall success and short comings 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.

C. Ship Operation 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.omao.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.

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

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 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
E-mail: MOA.Health.Services@noaa.gov

Please make sure the medical.explorer@noaa.gov email address is cc'd on all medical correspondence.

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

The emergency contact form can be found at the following link:

https://docs.google.com/forms/d/1pcoSgPluUVxaY64CM1hJ75l1iIYirTk48G-lv37Am_k/viewform

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. Steel-toed shoes are required to participate in any work dealing with suspended loads, including CTD deployments and recovery. The ship does not provide steel-toed boots. 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 vessel 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 at least 30 days in advance.

E. IT Security

Any computer that will be hooked into the ship's network must comply with the *NMAO 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 these 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 (FRNS) 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 NMFS Deemed Exports 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, it must also be sought and approved for the dates of any DOC facilities (marine centers or port offices) that foreign nationals might have to traverse to 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 e-mail generated by the FRNS granting approval for the foreign national guest's visit. This e-mail 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 Regional Security Officer.
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 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 or the DSN of the FRNS e-mail 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 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 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, 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

Appendices

1. Map of sampling stations
   File name: NOAA_Gunter_cyststationmap_2017_proposed.png

2. Station/Waypoint List
   File name: NOAA cyst cruise coordinates_BOFplan_2017v1.xlsx