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: Master David Nelson
Commanding Officer, NOAA Ship *Oregon II*

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

SUBJECT: Project Instruction for R2-13-05
SEAMAP Fall Groundfish

Attached is the final Project Instruction for R2-13-05, SEAMAP Fall Groundfish, which is scheduled aboard NOAA Ship *Oregon II* during the period of 8 October – 21 November, 2013. Of the 41 DAS scheduled for this project, 0 DAS are funded by OMAO and 41 DAS are funded by the program. This project is estimated to exhibit a High Operational Tempo. Acknowledge receipt of these instructions via e-mail to **OpsMgr.MOA@noaa.gov** at Marine Operations Center-Atlantic.

Attachment

cc:
MOA1

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
3209 Frederic St.
Pascagoula, MS 39567

Project Instructions

Date Submitted: 09/17/2013

Platform: NOAA Ship OREGON II

Cruise Number: R2 13-05 (306)

Project Title: SEAMAP Fall Groundfish

Cruise Dates: 10/08/2013 - 11/21/2013

Prepared by: DEBOSE.ANDRE.J.1365866097 Digitally signed by DEBOSE.ANDRE.J.1365866097 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=DEBOSE.ANDRE.J.1365866097 Date: 2013.09.17 14:53:27 -05'00' Date: 09/17/2013
Field Party Chief
SEFSC, Pascagoula, MS

Approved by: DESFOSSE.LISA.L.1365834519 Digitally signed by DESFOSSE.LISA.L.1365834519 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=DESFOSSE.LISA.L.1365834519 Date: 2013.09.18 11:31:21 -05'00' Date: 09/18/2013
Dr. Lisa Desfosse
Director, Mississippi Laboratory
NMFS, Pascagoula, MS

Approved by: Theo R. Brainerd Digitally signed by Theo R. Brainerd DN: cn=Theo R. Brainerd, o=NOAA/NMFS, ou=SEFSC, email=theo.brainerd@noaa.gov, c=US Date: 2013.09.18 13:05:25 -04'00' Date: 09/18/2013
Dr. Bonnie Ponwith
Director, SEFSC
NMFS, Miami, FL

Approved by: [signature] CDR/NOAA Date: 23 Sept 2013
Captain Anita L. Lopez, NOAA
Commanding Officer
Marine Operations Center - Atlantic

Commanding Officer
NOAA Ship: *Oregon II*

PROJECT INSTRUCTIONS
NOAA Ship *Oregon II* Project R2-13-05 (306)

I. Overview

A. Project Period: October 8 to November 21, 2013

B. Operating Area: United States northern Gulf of Mexico between 81°00' and 97°30' W in depths of 5 to 60 fm. A list of the station locations and a map of the area of operations are found in Figure 1. Approximate station locations will be provided to the Field Operations Officer on a CD for importing into Nobeltec Visual Navigation Suite software.

C. Summary of Objectives:

1. ***Primary Objectives***
   a. Sample the northern Gulf of Mexico with Southeast Area Monitoring and Assessment Program (SEAMAP) standard trawl sampling gear to determine the abundance and distribution of benthic fauna.
   b. Collect size measurements to determine population size structures.
   c. Record profiles through the water column of temperature, salinity, fluorescence, dissolved oxygen, and turbidity using a Conductivity/Temperature/Depth (CTD) unit at SEAMAP stations.
   d. Collect water samples daily and perform benchtop dissolved oxygen tests using a Orion 3 Star Portable D.O. meter.
   e. Assess the occurrence, abundance and geographical distribution of the early life stages of ichthyoplankton in the sampling using a bongo frame fitted with a 0.335 mm net and a neuston frame fitted with a 0.950 mm net at selected SEAMAP stations.

2. ***Secondary Objectives***
   a. Conduct additional ichthyoplankton samples with bongo and neuston samplers.
   b. Conduct additional trawl sampling.
   c. Conduct additional CTD casts.

D. Participating Institutions:
1. National Marine Fisheries Service (NMFS) – Pascagoula Laboratory
2. University of Miami
3. Texas A&M University – Corpus Christi

E. Personnel (Science Party)

Name	Title	Sex	Organization	Citizenship
LEG 1 (Oct. 8 – Oct. 22, 2013)				
Andre Debose	Field Party Chief	M	NMFS, Miss.	USA
Amy Schmitt	Fish. Bio.	F	IAP, Miss.	USA

Kristin Hannan	Fish. Bio.	M	IAP, Miss.	USA
James Barbour	FMES	M	IAP, Miss.	USA
Lee Saxon	Fish. Bio.	M	IAP, Miss.	USA
Joey Salisbury	Fish. Bio.	M	IAP, Miss.	USA
Jamie Nevin	Volunteer	F	TAMU	USA
Sandra Coughlan	Volunteer	F	Miss.	USA

Plus up to 4 additional scientists to be named later.

Name	Title	Sex	Organization	Citizenship
LEG 2 (Oct. 24 – Nov. 8, 2013)				
Brittany Palm	Field Party Chief	F	IAP, Miss.	USA
Lee Saxon	Watch Chief	M	IAP, Miss.	USA
Andy Millett	Fish. Bio	M	IAP, Miss.	USA
John Moser	Fish. Bio	M	NMFS, Miss.	USA
Joey Salisbury	Fish. Bio	M	NMFS, Miss.	USA
Sandra Coughlan	Volunteer	F	Miss.	USA
Holland McCandless	Fish. Bio	F	IAP, Miss.	USA
Rebeca Rosado	Fish. Bio	F	IAP, Miss.	USA

Plus up to 4 additional scientists to be named later.

Name	Title	Sex	Organization	Citizenship
LEG 3 (Nov. 12 – Nov. 21, 2013)				
Andre Debose	Field Party Chief	M	NMFS, Miss.	USA
Kenny Wilkinson	Electronics Tech.	M	NMFS, Miss.	USA
Amy Schmitt	Fish. Bio.	F	IAP, Miss.	USA
John Moser	Fish. Bio	M	NMFS, Miss.	USA
Sandra Coughlan	Volunteer	F	NMFS, Miss.	USA
Lindsay George	Volunteer	F	TAMU	USA
Cortney Lamar	Volunteer	F	Miss.	USA
Rebecca Riley	Volunteer	F	Miss.	USA
Kaela Gartman	Fish. Bio	F	IAP, Miss.	USA

Plus up to 3 additional scientists to be named later.

F. Administrative:

1. Points of Contact:
   a. Field Party Chief: Andre J. Debose; 3209 Frederic St., Pascagoula, MS 39567; (228) 549-1692; Andre.J.Debose@noaa.gov
   b. Operations Officer: Mathew Griffin; NOAA Ship *Oregon II*, 151 Watts Ave, Pascagoula, MS 39567; (228) 762-6422; OPS.Oregon@noaa.gov

2. Diplomatic Clearances: This cruise does not involve research under the jurisdiction of any other country. No diplomatic clearance has been requested.

3. Licenses and Permits:
   This cruise will be conducted under the following permits:
   a. Florida State Permit

b. Alabama State Permit
c. Mississippi State Permit
d. Louisiana State Permit
e. Texas State Permit
f. Southeast NMFS Regional Permit
g. Sea Turtle Permit
h. Marine Mammal Permit

II. Operations

A. Cruise Plan/Itinerary:

Leg	Date	Location	Days
1	Oct. 8, 2013	Depart Pascagoula, MS	15
	Oct. 22, 2013	Arrive Galveston, TX	
2	Oct. 24, 2013	Depart Galveston, TX	16
	Nov. 8, 2013	Arrive Pascagoula, MS	
3	Nov. 12, 2013	Depart Pascagoula, MS	10
	Nov. 21, 2013	Arrive Pascagoula, MS	
			41

B. Staging and Destaging: PASCAGOULA / PASCAGOULA

C. Operations to be conducted:

Operational Plans:

NOAA Ship *Oregon II* will depart Pascagoula, MS on October 8, 2013 to conduct the SEAMAP Bottomfish survey. The 41-day cruise will be conducted in 3 legs, requiring 24 hr operations with 2 scientific watches: 12 am – 12 pm, 12 pm – 12 am. The ship is requested to trawl at preselected stations between depths of 5 and 60 fm, from the south Texas coast eastward to south Florida (Figure 1). The Field Party Chief (FPC) will provide work charts (NOS Coast Survey Chart numbers 11300-Galveston to Rio Grande , 11340-Mississippi River to Galveston , 11360-Cape St. George to Mississippi Passes, 11400-Tampa Bay to Cape San Blas, and 11420-Havana to Tampa Bay) with colored dots representing station activities. Blue dots represent trawling stations and green dots represent ichthyoplankton stations. Hang locations (derived from past surveys) will also be identified on charts with yellow dots to assist OODs in determining non-trawlable bottom. Trawling stations will usually consist of CTD casts followed by trawling tows. Ichthyoplankton stations will consist of CTD casts followed by neuston and bongo tows. In some instances, trawl and ichthyoplankton sampling will be combined at one sampling site (at the discretion of the FPC). Such instances will consist of CTD casts, neuston tows, bongo tows then trawl tows. Trawling and/or plankton station locations are not to be moved without prior consultation with the Watch Leader on watch or the FPC.

Prior to arrival at the first station the SBE 9/11 plus CTD and the SEACAT SBE 19 CTD (with a weight) will be deployed in order to test the functionality of the winches, hydraulics, CTD array, and SEACAT. The saltwater pump to the wet lab and the conveyor

belt will be turned on and ready prior to first station. Likewise, the freezers in the dry lab and the forward freezers will be turned on. Any problems encountered during the test can then be corrected prior to arriving on the first station. The Chief Engineer will be made aware of expected time of arrival at the first station so the salt water pumps can be turned on and ready.

Communication between the scientists and the bridge while on station will be accomplished via hand held radios. During rough weather, the watch leader with consultation from the ship's crew will determine which sampling gear can be deployed safely. The FPC should be notified of any delays to sampling due to mechanical, medical, or weather issues as well.

PRIMARY STATION OPERATIONS – At the Bridge's 10 min warning, scientists and deck personnel will proceed to duty stations and prepare for station. Scientists and deck personnel should be ready and standing by for bridge's call that the ship is on station and ready to proceed. Smoking is not permitted near or while handling any plankton nets due to the likelihood of burning holes in the nets.

CTD profiles and environmental data collection

After the CTD array is overboard, clear of all personnel and being lowered to just below the surface, the watch leader (lab scientist) will turn on the power to the unit and start the CTD recording. The unit must remain at the surface for 3 min to allow the unit to equilibrate to ambient temperature, after which time the unit is lowered to approximately 2 m above the bottom or a max depth of 200 m. After the cast, the CTD should be carefully set on deck, taking care not to jar the sensitive electronics. At least once a week, a water sample will be taken during a CTD cast. During these casts, the CTD protocol will be as described with the exception that the CTD unit will be held at depth for 1 min, a water sample collected, and then retrieved. The Watch Leader will clear the y-connections periodically throughout the cruise. Additional environmental data that will be collected during daylight hours are secchi disc depth, water color Forel-Ule, percent cloud cover, and sea condition. The TSG will be in use 24 hours/day. Dissolved oxygen concentrations from sensors on the CTD will be verified using an Orion 3 Star Portable D.O. meter made by Thermo Scientific at the beginning of each leg and then every 5 days by the FPC.

Trawl Sampling

One 30 min tow will be conducted with a standard SEAMAP 40-ft trawl towed at a speed of 2.5 kt. During deployment, the deck department will deploy the gear at a rate that allows the doors to properly spread just after being submerged. The net is to be kept moving across the bottom, so that the tickler chain is towed gently across the bottom, and the doors gently glide across the top of the substrate. Tow direction will be at the discretion of the OOD. Upon retrieval, the deck department will bring the gear shipboard at a rate that allows the doors to meet, without crossing. If, at any time, the deck department or OOD notices an issue with the gear, deployment or retrieval, they will notify the watch leader or FPC immediately. We ask that the gear not be streamed between stations when transit time is 1 hr or greater. The deck department is requested to shake down the net after each station to remove all organisms. The handling of the gear will be conducted by the deck department, unless otherwise instructed by the crew. After clearance from the deck department, the scientists will collect all the organisms in baskets and begin weighing, identifying, measuring, and sampling the biota. After the catch is

removed from the deck, the deck department will inspect the trawl net for any tears and holes in the net, report any findings to the watch leader, and repair the net as best as possible. The net is to be cleaned out of any debris, sargassum, or organisms and the cod end is to be tied closed by the deck department prior to arrival at the next station. They are also asked to inspect tickler chain length at approximately 24 hr intervals giving due consideration to weather conditions and work demands. If the net needs to be replaced, the deck department is to provide the watch leader with the net number of the damaged net and the replacement net. During legs with a Fisheries Methods and Equipment Specialist (FMES) aboard, the FMES and deck department will collaborate to evaluate the gear and with repairs. At any time that the trawl is not secure by the deck department, the scientific party will don personal protective equipment (PPE), which includes, but not limited to, work vest and hardhat. In case of extreme mud in the net, the deck department, OOD, and watch leader will determine the best way to wash down the gear before the catch is emptied from the net.

As the catch is being processed, the conveyor belt and salt water will be in use in the wet lab. The scientific party will secure the gear to avoid it from falling down the fish chute. Likewise, they will monitor the discharge chute to avoid backups into the wet lab. After the catch is processed, any specimens being kept will be frozen or preserved in ethanol or formalin. The remaining catch will be removed from the vessel via the conveyor belt, unless sampling gear is in the water. If sampling gear is in the water, the catch is to remain onboard until the gear is secured on deck again to avoid it being caught in the net and contaminating the new catch. The scientific party will wash equipment and the wet lab down as often as possible given work demands and weather conditions. To avoid damage to any other equipment, areas under the work benches and conveyor belts in the wet lab will be kept clear, unless it is in waterproof containers or can be wet.

Bongo sampling

The SEAMAP bongo plankton sampler is comprised of two 61 cm diameter collars with two 0.335 mm mesh nets. Prior to deployment of the bongo sampler, the watch leader must run software programs and prepare them for the bongo cast. The watch leader (lab scientist) will inform the deck when to power up the SBE-19 SEACAT, at which time the deck scientist will turn on the magnetic switch at the appropriate time. The bongo sampler is towed in an oblique path from near bottom, or 200 m maximum, to the surface. The SBE-19 SEACAT which is mounted above the bongo array on the sea cable will be used to monitor the tow path of the bongo net. Vessel speed should be adjusted during the bongo tow to maintain a 45° wire angle in order to uniformly sample throughout the water column. If angle exceeds 55°, falls below 35° or if the combined variation exceeds 15°, then the tow must be repeated (the samples will be saved until a better tow is completed). The net depth will be monitored by the watch leader. The deck scientist (or winch operator) will report wire angles periodically during downcast. On the watch leader's command at maximum depth, the winch operator will stop payout of cable and immediately start retrieval (do not allow net to settle). At that time, the wire angle and wire out should be reported to the watch leader from the deck. The watch leader will ask the winch operator to slowly retrieve the bongo array at 20 m per min for tow depths of 100 m or deeper; for shallower stations the retrieval rate will be determined at each station based on station depth. The wire angle and remaining wire out should be reported from the deck to the watch leader regularly or as requested (on upcast or downcast).

The deck personnel should report when the bongo array breaks the surface. Time will be recorded to the second (by the lab scientist) when the net breaks surface and flowmeters stop turning, at which time the winch operator immediately pulls the frame from the water; taking care not to let the bongo array continue to fish once it breaks the surface. When possible, the sample will be rinsed into the cod end of the net with a seawater hose while the net hangs over the side. In high winds, the scientist may request that the net is brought directly on board and rinsed down completely on deck. The bongo frame and net are finally placed on deck.

Great care must be taken not to rest the frame on the nets, scrape the net with the frame against the deck, or walk on the plankton nets. The abrasions can easily cause holes in the nets requiring repair or replacement of these expensive sampling devices.

If bottom sediment is present in both samples, the tow must be repeated. Any marginal sample will be saved until completion of the next tow. If bottom sediment (no more than 2 Tb) is present in only 1 sample the tow need not be repeated. Right bongo samples will be preserved in 95% Ethyl alcohol (ETOH) and transferred to new 95% ETOH after 24 h. Left bongo samples will be preserved in 10% formalin initially and transferred to 95% ETOH after 36 h.

Neuston sampling

The neuston net is a 1 x 2 m frame outfitted with a 0.947 mm mesh net. Each neuston tow will be conducted for 10 min at a vessel speed of approximately 2 kt to keep half the frame submerged in the water (i.e., maintain a sampling depth of 0.5 m). If necessary, the ship will steam forward in a wide arc to keep the neuston net (mouth opening) out of the influence of the prop wash. The duration of a neuston tow may be shortened to no less than 5 min when high concentrations of jellyfish, ctenophores, *Sargassum*, floating weed and/or debris are present in the water, or weather requires it. After retrieval, the sample is rinsed into the cod end with seawater while the net hangs over the side (if windy, deck scientist may request net to be brought directly on board and rinsed on deck). Neuston samples will be preserved in 95% ETOH initially and transferred to new 95% ETOH after 24 h.

Modifications to Field Operations

Sampling protocol may be altered by the FPC or watch leader in order to optimize sampling for time conservation. The FPC may alter the project instructions in order to accomplish mission objectives but will do so only after consulting with the CO. If additional time becomes available during a leg, the FPC will provide the ship with further station locations at that time, after consulting with the CO.

D. Dive Plan: N/A

E. Applicable Restrictions: N/A

III. Equipment

A. Equipment and Capabilities Provided by the Ship:

1. SCS version 451.1063
2. Because of the importance of the CTD equipment package to record environmental data and the need for the Scientific Computing System (SCS), an Electronics Technician is

imperative.

3. Trawl winch with sufficient wire to fish in 60 fm depths and meter readouts to determine warp length
4. Hydrographic winch with wire and meter readout to accomplish CTD/bottle casts and bongo tows up to a 200 m depth. Winch speed should be variable to include 50 m/min during pay-out and 20 m/min during haul back (for bongo tows). Spare slip rings for each winch. Fully functional wire readouts for each winch.
5. Winch, crane, and wire for deploying neuston net.
6. Three (3) touch screen monitors for the FSCS.
7. One (1) Primary SBE 9plus CTD configured as follows;
   a. Unit should be mounted horizontally and mounted in the water sampling frame. The frame should be examined to ensure it is in good physical condition and there are no breaks present in any of the welds supporting the frame.
   b. The standard 12 position SBE 32 Carousel should be properly mounted in the water sampler section of the frame and tested to ensure that all 12 bottle positions are working properly and respond to software requests for firing.
   c. The internal Digiquartz pressure sensor should be in good working order and have a calibration/service date not to exceed 365 days.
   d. The primary sensor suite should be installed and consist of the following (the sensors should have a calibration date as recent as possible, not to exceed 365 days):
      i. One (1) SBE 3 Premium Temperature sensor
      ii. One (1) SBE 4 Conductivity sensor
      iii. One (1) SBE 43 Dissolved Oxygen sensor
      iv. One (1) "Y" air bleeder valve. Valve should be checked to ensure it is not clogged.
      v. One (1) Wetlabs Wetstar pumped fluorometer
      vi. One (1) SBE 5T pump that has been checked by Seabird within the last 365 days for proper operation
      vii. One (1) Wetlabs C-Star transmissometer
      viii. Proper plumbing. Tubing should be checked to ensure it meets Seabird's recommended method of plumbing and is free from cracks and holes. With red end caps for proper storage between stations.
   e. The secondary sensor suite should be installed and consist of the following (the sensors should have a calibration date as recent as possible, not to exceed 365 days):
      i. One (1) SBE 3 Premium Temperature sensor
      ii. One (1) SBE 4 Conductivity sensor
      iii. One (1) SBE 43 Dissolved Oxygen sensor
      iv. One (1) "Y" air bleeder valve. Valve should be checked to ensure it is not clogged
      v. One (1) Wetlabs Wetstar pumped fluorometer
      vi. One (1) SBE 5T pump that has been checked by Seabird within the last 365 days for proper operation
      vii. One (1) Wetlabs C-Star transmissometer
      viii. Proper plumbing. Tubing should be checked to ensure it meets Seabird's recommended method of plumbing and is free from cracks and holes.
   f. The unit should be properly terminated and connected to a properly functioning SBE 11 Deck Unit. The deck unit should be connected to allow the following:
      i. Proper control of the SBE Water Sampler Carousel via the SEASAVE application
      ii. Integration of a proper NMEA signal from a GPS unit.

6. A second SBE 9plus profiler should be available as well. Unit does not have to be configured as a complete functioning ready-to-install on the sea cable unit; however, it should have the following components available:
    a. Sensors for a Primary suite (with a calibration date as recent as possible, not to exceed 365 days):
        i. One (1) SBE 3 Premium Temperature sensor
        ii. One (1) SBE 4 Conductivity sensor
        iii. One (1) SBE 43 Dissolved Oxygen sensor
        iv. One (1) "Y" air bleeder valve. Valve should be checked to ensure it is not clogged.
        v. One (1) Wetlabs Wetstar pumped fluorometer
        vi. One (1) SBE 5T pump that has been checked by Seabird within the last 365 days for proper operation.
        vii. One (1) Wetlabs C-Star transmissometer
        viii. Proper plumbing. Tubing should be checked to ensure it meets Seabird's recommended method of plumbing and is free from cracks and holes.
    b. Sensors for a complete Secondary suite (with a calibration date as recent as possible, not to exceed 365 days):
        i. One (1) SBE 3 Premium Temperature sensor
        ii. One (1) SBE 4 Conductivity sensor
        iii. One (1) SBE 43 Dissolved Oxygen sensor
        iv. One (1) "Y" air bleeder valve. Valve should be checked to ensure it is not clogged.
        v. One (1) Wetlabs Wetstar pumped fluorometer
        vi. One (1) SBE 5T pump that has been checked by Seabird within the last 365 days for proper operation.
        vii. One (1) Wetlabs C-Star transmissometer**.**
        viii. Proper plumbing. Tubing should be checked to ensure it meets Seabird's recommended method of plumbing and is free from cracks and holes.
7. A second SBE 11 Deck Unit should be on the ship to be put into service if needed.
8. Two (2) fully operational SBE 19 Seacat profilers should be available. One of the units should be installed on the sea cable. Both units should have calibration dates not to exceed 365 days.
9. Two (2) functional SBE 36 Deck units should be available, 1 for backup, which are configured for the model Seacat being supplied.
10. Two (2) PDIM units should be available for use with the SBE 19 units. One of these PDIM units should be installed on the primary SBE19 on the sea cable. These PDIM units should also be the proper units that are used with the model Seacat being used.
11. A fully functional SBE 21 thermosalinograph should be available for the survey. The unit should have calibrations that do not exceed 365 days. The calibration data must be verified/entered into the SEABIRD-TSB.CAL file in the Ship Directory of SCS.
12. The Turner 10-AU Fluorometer associated with the flow-through system should be verified as working. Proper spare bulbs should be made available to the rotating ET so they can be replaced as needed during the survey.
13. It is highly desirable to have the following additional spare sensors on-board if possible:
    a. One (1) SBE 43 DO Sensor
    b. One (1) SBE 3 Temperature Sensor
    c. One (1) SBE 4 Conductivity Sensor
    d. One (1) Wetlabs Wetstar pumped fluorometer

e. One (1) Wetlabs C-Star Transmissometer
f. One (1) SBE 5T Pump

14. Copies of all calibration sheets for CTD profilers, TSG, and spare sensors should be provided to the laboratories' Shipboard System Specialist prior to sailing.
15. CTD capable winch and J-frame for CTD casts, with sufficient electromechanical cable for casts to 200 m.
16. NMEA GPS input to CTD header file.
17. Inside and outside conveyor belts for processing catches.
18. Freezer space for preserving scientific specimens.

SCS data requested: The SCS system should be fully operational for the duration of the survey. Due to the nature of the survey work, we request that all the events (CTD, Bongo, Neuston, and trawls) be conducted from the dry lab. A listing of any sensors that will not be functional for the survey should be provided prior to sailing to the FPC, taking into consideration that event templates will have to be checked by the Shipboard System Specialists to ensure there will be no impact or an alternative sensor can be selected.

a. SIMRAD - primary
    i. UTC time
    ii. Latitude
    iii. Longitude
    iv. Speed over ground
    v. Course over ground
b. SIMRAD - secondary
    i. Latitude
    ii. Longitude
    iii. Speed over ground
    iv. Course over ground
c. Furuno doppler speed log
    i. Speed through the water
    ii. Speed over ground
d. OLEX- HT system
    i. Latitude
    ii. Longitude
    iii. Depth
    iv. Percent hardness
d. EQ50 and EK60 depth in meters
e. Gyro-heading
f. Air temperature (°C)
g. Corrected barometric pressure
h. True wind speed
i. True wind direction
j. Information should be passed to the Rotating ET to ensure the following:
    v. The Automatic Logger Control on the SCS Server must be enabled anytime ACQ is started and should use the default of 0:00:00 (Midnight GMT).
    vi. The contents of the Eventdata folder should be allowed to remain present for the duration of the survey (they should not be deleted between legs). This will ensure that event IDs do not restart for the respective events during the survey.
k. SEASAVE SOFTWARE: Prior to sailing, the proper .CON files should be built in

SEASAVE. The software should be set to look for the proper .CON file for the respective instrument.

l. It is also highly desirable that the ASCII Out function be allowed to feed CTD data into SCS via serial cable.

20. DRYLAB REMOTE COMPUTERS - Due to the nature of the work involved with data collection for this survey, it is recommended that all three (3) FSCS Remote units be verified for the following prior to sailing:
    a. All 3 computers are 100% operational
    b. All 3 computers are properly setup to interface as SCS clients
    c. Two (2) of the units have a functioning copy of Microsoft Office XP Professional. The Office suite must provide at minimum the following programs: Word, Excel, PowerPoint and Access.
    d. All 3 computers must be able to print to a functioning printer.
21. FPC COMPUTER - It is requested the following software be installed on the computer in the FPC's stateroom:
    a. Microsoft Office XP Professional or Microsoft Office 2003 Professional consisting of the following minimum components
        i. Microsoft Word 2002 or Greater
        ii. Microsoft Excel 2002 or Greater
        iii. Microsoft Access 2002 or Greater
        iv. PowerPoint 2002 or Greater
        v. Nobeltec Visual Navigation Suite
        vi. SAS (Statistical Analysis System) – It is recommended that the lab's Shipboard Systems Specialist be permitted to install this software to ensure the latest version of the software is installed. This software is licensed for installation on the ship. The *Oregon II* domain user Admin.Science has sufficient permissions to perform installation.

B. Equipment and Capabilities Provided by the Scientists:

1. Ten 40-ft semi-balloon trawls
2. Four sets of 8' x 40" wooden doors
3. Four 30-fm trawl bridles
4. Four 18-fm lazy lines
5. Equipment and materials for repair and maintenance of trawl gear
6. 12 plastic fish baskets
7. Four deck shovels
8. Sorting rakes and trays
9. Latex and Titrile puncture resistant work gloves, and goggles
10. Five Marel 1100 electronic weighing scales
    a. Two 30-kg capacity
    b. Three 3-kg capacity
11. Three electronic fish measuring boards
12. Handheld Orion 3 star meter and equipment box
13. 3 ICOM VHF Marine handheld radios (IC-M72)
14. Five hundred plastic specimen bags
15. Flowmeters (6)
16. 2- 61 cm bongo frames, chain and weight, (6) 0.335 mm nets, (2) 0.947 mm nets, (2)

0.505 mm nets
17. 2- 1 x 2 m neuston frames, (4) 0.947 mm nets
18. Bongo/neuston gear and equipment box
19. Plankton sampling supplies box
20. Plankton preserving jars, lids and labels
21. Chemical transfer pumps
22. Formalin and ethyl alcohol
23. Triton (R) X-100
24. 6 Niskin bottles
25. 4 Garden hoses for washing down nets, nozzles, and hose repair parts
26. Plankton transfer table
27. 5 gallon buckets
28. Various clerical supplies
29. Spare batteries for the SBE 19 Seacat profilers
30. Spent chemical collection drum
31. 30 ml glass burette and stand
32. 10 ml disposable pipettes and dispenser
33. Magnetic stirrer and stir bar
34. 100 ml glass beakers
35. Fish and Invertebrate identification reference materials
36. Vermiculite or kitty litter (chemical absorbent)

III. Hazardous Materials

A. Policy and Compliance:

The FPC shall be responsible for complying with MOCDOC 15, Fleet Environmental Compliance #07, Hazardous Material and Hazardous Waste Management Requirements for Visiting Scientists, released July 2002. Documentation regarding those requirements will be provided by the Chief of Operations, Marine Operations Center, upon request.

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

B. Radioactive Isotopes: N/A

C. Inventory: Expected hazardous materials to be brought on board for this cruise are:
1. Ethanol (190 proof, 95% pure) – 55 gal
2. Formalin (37%) – 10 gal
3. Triton-X – 1 pint concentrate & 2 gallon carboy of 1% dilution

V. Additional Projects

A. Supplementary ("Piggyback") Projects: N/A

B. NOAA Fleet Ancillary Projects: N/A

V. Disposition of Data and Reports

A. Data Responsibilities:

The ship's ET Department is requested to provide the FPC with copies of SCS folders, "EventData" and "SCS_Datalog", as well as the raw data files associated with both the SBE 9-11 profiler and SBE-19 SEACAT at the end of each survey leg (on CD or DVD). The ET Department is also asked to collect and archive the SCS Datalog in the following manner:

1. The contents of the Primary SCS **EventData** folder should be emptied prior to the start of the survey and should not be erased between legs of the survey. All other Datalog folders should be emptied in accordance to the guideline specified in the SCS Documentation. That is, at the start of a survey all data files should be deleted from the **Datalog** and from its sub-folders prior to the survey with the exception of the **Coastline** sub-folder. The contents of the **Coastline** folder and the folder itself should never be deleted. All other sub-folders in the **Datalog** may have their contents deleted. If the **EventData** sub-folder contains sub-folders for each event that was previously run, these folders should be deleted along with their data files as the Event Logger will recreate the folders for the respective events the first time they are run.
2. The Automatic Logger Control on the Logger Control form of SCS should be set to **Enable Logging for Auto Start/Stop** each time acquisition (ACQ) is started. The time value should be set to the default of 0 Hours, 0 Minutes, 0 Seconds GMT.
3. The raw data files, *.RAW in the **Datalog** folder may be deleted between legs if space for logging is needed provided the data have been backed up to CD and the CD verified prior to deletion.
4. The entire **Datalog** should be backed up to the Backup SCS server for the duration of the cruise at a frequency of at least once per hour. Prior to sailing, this **Datalog** should be reset in accordance to the directions as specified above, and as is done on the Primary SCS ACQ computer.
5. Prior to sailing, the current SCS software on the primary SCS server will be mirrored on the backup SCS server. Thus, the same version of the executables for SCS along with all templates, events, real-time displays, gauges, and sensor.scf configuration files should be present on the Backup SCS server in the event of a Primary SCS system failure.
6. Prior to sailing, the lab's Shipboard Systems Specialist will be provided with copies of all calibration data for each sensor installed on the ship associated with the primary and secondary SBE 9-11 profiler and SBE19 SEACAT. This information is useful to track problems in the .CON files should they arise.

The FPC is responsible for submission of a ROSCOP II form (NOAA, Form 2423) to the National Oceanographic Data Center within 30 days after cruise termination.

B. Cruise Meetings:

Welcome aboard Meeting: On the ship prior to departure, the FPC 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, etiquette, etc. will be presented by the ship's Operations Officer.

Post-Cruise Meeting: If need be, upon completion of the cruise, a post-cruise meeting will be held and attended by the ship's officers, the FPC and members of the scientific party, the

Vessel Coordinator, and the Port Captain to review the cruise. Concerns regarding safety, efficiency and suggestions for improvement for future cruises should be discussed. Minutes of the post-cruise meeting will be taken by the Pascagoula Port Captain and distributed to all participants with e-mail to the CO.MOC.Atlantic@noaa.gov and ChiefOps.MOA@noaa.gov . A cruise report will be prepared by the FPC and submitted to the Director, SEFSC, within 30 days after the cruise is completed.

C. Ship Operation Evaluation Report:

Within 7 days of the completion of the cruise, a Ship Operation Evaluation form is to be completed by the FPC. 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

A file copy of each completed evaluation form will be sent to the SEFSC Mississippi Laboratory Director and the SEFSC Vessel Coordinator.

VI. Miscellaneous

A. Meals and Berthing:

Meals and berthing are required for up to 12 scientists per leg. Meals will be served 3 times daily beginning 1 hour before scheduled departure, extending throughout the cruise, and ending 2 hours after the termination of the cruise. Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours. Special dietary requirements for scientific participants will be made available to the ship's command at least 7 days prior to the survey.

Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the FPC. The FPC and CO 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 FPC 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 FPC is also responsible for the cleanliness of the laboratory spaces and the storage areas utilized by the scientific party, both during the cruise and at its conclusion prior to departing the ship.

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The FPC will ensure that all non NOAA or non Federal scientists aboard also have proper orders. It is the responsibility of the FPC 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 CO. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must comply with

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

B. Medical Forms and Emergency Contacts:

The NOAA Health Services Questionnaire (NHSQ, Revised: 12/11) must be completed in advance by each participating scientist. The NHSQ can be obtained from the FPC or the NOAA website at http://www.corporateservices.noaa.gov/~noaaforms/eforms/nf57-10-01.pdf The completed form should be sent to the Regional Director of Health Services at Marine Operations Center. The participant can mail, fax, or scan the form into an email using the contact information below. The NHSQ should reach the Health Services Office no later than 4 weeks prior to the cruise to allow time for the participant to obtain and submit additional information that health services might require before clearance to sail can be granted. Please contact MOC Health Services with any questions regarding eligibility or completion of the NHSQ. Be sure to include proof of tuberculosis (TB) testing, sign and date the form, and indicate the ship or ships the participant will be sailing on. The participant will receive an email notice when medically cleared to sail if a legible email address is provided on the NHSQ.

Contact information:

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

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

C. Shipboard Safety:

Wearing open-toed footwear or shoes that do not completely enclose the foot (such as sandals or clogs) outside of private berthing areas is not permitted. 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.

D. Communications:

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

party. If increased bandwidth is being considered, program accounting is required it must be arranged at least 30 days in advance. Communication between the bridge, the dry lab, and the deck during plankton operations will be by VHS radio. We request 30 min and 10 min notification prior to arriving at stations.

E. IT Security:

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

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

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 ships network must complete NOAA’s IT Security Awareness Course within 3 days of embarking.

F. Foreign National Guests Access to OMAO Facilities and Platforms: N/A

Figure 1. Cruise track with standard SEAMAP shrimp/bottomfish stations for NOAA Ship *Oregon II* cruise R2-13-05 (306), 8 October – 21 November 2013.