

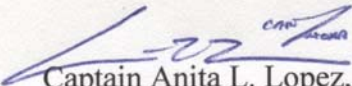


UNITED STATES DEPARTMENT OF COMMERCE

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

AUG 26 2013

MEMORANDUM FOR: Commander Kurt Zegowitz, NOAA
Commanding Officer, NOAA Ship *Henry Bigelow*

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

SUBJECT: Project Instruction for HB-13-04
Autumn Bottom Trawl Survey

Attached is the final Project Instruction for HB-13-04, Autumn Bottom Trawl Survey, which is scheduled aboard NOAA Ship *Henry B. Bigelow* during the period of 3 September –14 November, 2013. Of the 65 DAS scheduled for this project, 65 DAS are based funded by OMAO in support of NMFS. 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





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

Project Instruction

Date Submitted: 15 August, 2013
Platform: NOAA Ship *Henry B. Bigelow*
Project Number: HB 13-04
Project Title: Autumn Bottom Trawl Survey
Project Dates: 03 September – 14 November, 2013

AUG 26 2013

Approved by: Russell W. Berry Date: 8-14-2013
Dr. William A. Karp, Ph.D
Science and Research Director
Northeast Fisheries Science Center

Approved by: [Signature] Date: 26 AUG 2013
Captain Anita L. Lopez, NOAA
Commanding Officer
Marine Operations Center – Atlantic

COMMANDING OFFICER
NOAA Ship *Henry B. Bigelow*

PROJECT INSTRUCTION: HB 13-04 (I-IV), Autumn Multispecies Bottom Trawl Survey

Project Dates: 03 September – 14 November, 2013

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

Objectives: The objectives are to: 1) determine the autumn distribution and relative abundance of fish and invertebrate species found on the continental shelf, including variable amounts of additional biological information obtained through intensive sampling effort to be determined by the Field Party Chief with strategic guidance programmatically predetermined 2) opportunistically test trawl gear, methods, or survey related equipment that may benefit the trawl survey in the future 3) collect oceanographic data including CTD casts and bongo tows at selected stations, 4) collect acoustic data along cruise tracks, as well as test and conduct preliminary survey operations with acoustic systems including the EK-60 and ME-70.

Key Changes and Points of Emphasis:

- 1. The vessel's Simrad ME-70 is scheduled to be upgraded prior to the autumn bottom trawl survey and will require patch testing and calibration prior to use during the survey. In addition, the vessel's Simrad EK60 and Rapp Hydema auto-trawl system require calibration as well prior to the survey. These calibration efforts are estimated to take approximately 4 days of vessel time prior to the beginning of the survey. ESB personnel plan to participate and assist with these calibrations.**
- 2. Five days of autumn bottom trawl survey vessel time have been designated to complete a flatfish catchability study on Georges Bank. This study will take place when *Bigelow* arrives on Georges Bank during the normal survey operations. *Bigelow* will break from normal survey operations to complete the study before resuming bottom trawl survey operations and completing the survey. Two commercial fishing vessels will be participating in the study and it is critical that the**

vessels work contemporaneously on Georges Bank to ensure the success of the study. The other vessels involved will have sufficient flexibility to arrive on site when *Bigelow* is available, but this will require coordination between the vessels through the Chief Scientist and shore-based ESB personnel. During this effort *Bigelow* will perform assigned tows using the standard bottom trawl survey sampling gear and protocols, while the chartered vessel will perform tows using a 4-seam net with a cookie sweep. The third vessel will conduct HABCAM transects and use optical methods to estimate flatfish abundance in the study area. The study will focus on yellowtail flounder and winter flounder, but the project will broadly address flatfish catchability. Results will be used to calibrate a possible future flatfish pilot survey designed to improve sampling density and precision of flatfish biomass estimates on Georges Bank.

Planned Itinerary: The cruise will be divided into four parts:

26 – 30 August: Load scientific equipment and supplies.

Part I: Calibrations

03 – 06 Sept: Depart Newport Naval Station to conduct vessel systems calibrations; return to Newport Naval Station.

Part I, continued: Mid-Atlantic to Cape Lookout Sector, 06 – 19 September

06 Sept: Load scientific gear, embark scientific personnel and depart Newport Naval Station, Newport, RI.

06 – 19 Sept: Begin the autumn bottom trawl survey.

19 Sept: Arrive Newport Naval Station, offload scientific collections and disembark scientific personnel.

Part II: Mid-Atlantic - Southern New England Sector, 23 September – 04 October

23 Sept: Load scientific gear, embark scientific personnel and Newport Naval Station.

23 Sept – 04 Oct: Continue the autumn bottom trawl survey.

04 Oct: Arrive Newport Naval Station, offload scientific collections and disembark scientific personnel.

Part III: Southern New England - Georges Bank Sector, 07 – 25 October

07 Oct: Load scientific gear, embark scientific personnel and depart Newport Naval Station.

07 – 25 Oct: Continue the autumn bottom trawl survey.
Complete flatfish catchability study.

25 Oct: Arrive Newport Naval Station, offload scientific collections and disembark scientific personnel.

Part IV: Georges Bank - Gulf of Maine Sector, 29 October – 14 November

29 Oct: Load scientific gear, embark scientific personnel and depart Newport Naval Station.

29 Oct – 14 Nov: Continue and complete the autumn bottom trawl survey.

14 Nov: Arrive Newport Naval Station, Newport, RI, offload gear, scientific collections and disembark scientific personnel.

Operational Plans: A standard 20-minute tow will be made at the approximately 368 randomly pre-selected stations indicated on cruise charts which will be provided to the Commanding Officer prior to departure. **It is requested that the vessel's Navigation Officer plot and examine stations, and identify any stations that are problematic for the vessel in terms of depth, obstructions or other issues in advance of the cruise.** Specific sampling problems and requirements may necessitate the planning of additional stations during the actual operation of the cruise (e.g., special deep-water stations). Figure 1 shows the general area of operations. All survey tows will adhere to the NEFSC Bottom Trawl Survey Protocols for NOAA Ship *Henry B. Bigelow*. Sampling will be conducted using the NEFSC standardized, 3 bridle, 4 seam, bottom survey trawl, equipped with a rockhopper sweep. The trawl will be fished using 2.2 m² Poly-Ice oval trawl doors and 36.6 meter (20 fathom) bridles. In addition, net monitoring equipment will be used to monitor and validate trawl performance at all stations.

Vessel Sensor and Logging Requirements: *Henry B. Bigelow'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 log sheet recordings will be synchronized using the vessel's GPS master clock. The NEFSC is responsible for setting up FSCS hardware and software, and the NEFSC and *Henry B. Bigelow's* ET are responsible for ensuring data collection.

The ship's Scientific Computer System (SCS) will be required for logging data on a routine basis and data requirements will be coordinated with the Commanding Officer and Electronics Technician at the beginning of the cruise. **Any changes to the settings in the SCS system during the cruise should be immediately communicated to the Chief Scientist. Bridge officers will be requested to execute a new "Trawl Event" using FSCS 2.0 Operation Event Logger to capture SCS data streams during trawling operations. FSCS 2.0 will be set up and utilized to process catches from all tows. Documentation and support will be provided for each survey leg.** Collection of ship sensor data via trawl events is a critical requirement to

support this work. It is requested that the time server/time date be imbedded into the SCS files. Global Positioning System (DGPS or P-code GPS) provides data on vessel towing speed and direction to be recorded at a frequency of 1.0 Hz. A list of the requested SCS sensors is provided in Table 1. It is requested that the sensors be operational, calibrated and that logging capabilities be enabled.

Net Mensuration Integration Software: **ESB will utilize Scanmar net mensuration sensors and hydrophones as the primary net mensuration system that is logged to SCS.** It is still requested that the Simrad PI 32 net mensuration systems be enabled within the SCS system aboard *Henry B. Bigelow*, as well. We request that all net mensuration data to be logged by SCS at a frequency of 1.0 Hz. Also, where possible, tows with *Henry B. Bigelow's* Simrad ITI sensors may be requested to test the accuracy of the ITI trawl positioning system and its interface with the Olex software.

Trawl Winches and Towing Warps: *Henry B. Bigelow's* tension based auto-trawl system will be used during all survey trawling operations. National bottom trawl survey standards require redundant measurement of tension during all survey bottom trawling operations. The Ecosystems Surveys Branch requests the vessel calibrate the auto-trawl system prior to each bottom trawl survey cruise season according to the document "Rapp Hydema Auto-Trawl Winch System and Block Load Cell Calibration Procedure" prepared by vessel crew, ESB staff and Rapp Hydema technicians. Both the winch calculated tensions, based on system pressures, and turning block load cells should be calibrated simultaneously to ensure each measuring device is calibrated to an equal magnitude. ESB requires that ship power be available during calibrations so that the system can be operated in "AUTOTRAWL MODE". ESB also requires that the settings of all programmable winch parameters be reported to the ESB after each calibration procedure. Per the current national protocol for trawl surveys, physical markings need not be inserted into the warps if an auto-trawl system is employed. However, the protocols do require redundant measurement of warp length. *Henry B. Bigelow's* trawl warp measuring systems are required to be operational during all NEFSC bottom trawl survey operations.

EK60 Data Acquisition: The Simrad EK60 echo sounder, (18-, 38-, 70-, 120-, and 200-kHz with split-beam transducers mounted on the retractable center-board) will acquire data continuously throughout the survey. The EK60 will be interfaced to the SCS to record bottom depth and vessel log values. The EK60 will be interfaced to the POSMV motion sensor. When operational, the EK60 will be synchronized with the Simrad ES60 bridge sounder, Simrad ME70 multibeam, and the ship's ADCP. The EK60 is not synchronized with the other sounders and Doppler speed log on the vessel. To minimize acoustic and electrical interference, whenever possible we request deactivating other sounders on the vessel. The survey technicians will be responsible for EK60 data acquisition and storage. The EK60 shall be calibrated prior to the cruise.

Fisheries Scientific Computer System (FSCS): Catches will be sorted to species. The catch of each species will then be weighed and a length frequency obtained. In addition to these basic catch data, biological samples and data will be collected for age and growth, feeding ecology and special studies. Both station and biological data will be recorded using the Fisheries Scientific Computer System (FSCS) 2.0. Whole fish and parts of fish will be collected, and either

preserved or frozen. Standard bottom trawl procedures will be used to collect these samples throughout the survey.

Concurrent with the bottom trawl survey operations there will be additional sampling:

1. At selected stations, bongo plankton net tows will be made using the standard NEFSC protocol.
2. Physical oceanographic parameters will be continually monitored through CTD casts, and the ship's flow-through thermosalinograph and fluorometer instruments. Weather observations, surface salinity samples and bottom salinity samples will be collected at selected stations.
3. There will be a continuation of the collection of specific samples requested by other programs as well as academic and scientific organizations.
4. Throughout the cruise, particularly during transit to and from operations areas and between bottom trawl stations, a hydroacoustic survey using the ship's Simrad EK60 system (concurrent use of 18, 38, 120 and 200 kHz frequencies) will be conducted. Transducer calibrations may be required.

CTD Support: CTD operators will be trained and certified by the NEFSC Oceanography Branch. CTD operator training requires two hours and must be completed prior to the beginning of the cruise unless a trainer is included in the scientific complement. In the event that CTD difficulties are encountered during the cruise, shore based support is available. Requests for support should be forwarded NEFSC.CTDHelp@noaa.gov which is monitored daily. Once contact has been established via email, to assure continuous support, the CTD help address above should be copied on *all* email communications.

Protected Resources:

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

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

Whale sightings: Sightings of right whales, or dead or entangled whales of any species, are extremely valuable and reports are urgently requested. Please report all right whale sightings north of the Virginia – North Carolina border to **866-755-NOAA**; right whale sightings south of that border should be reported to **877-WHALE-HELP**. Right whale sightings in any location may be reported to the U.S. Coast Guard via VHF channel 16. Protocols for reporting sightings are described in the Report a Right Whale Sighting and Report a Dead Whale placards. The placards are 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_Dead_Whale.pdf

If requested, laminated copies are available through the NEFSC Protected Species Branch. These placards are to 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 alive and well may be reported using the Platforms of Opportunity (POP) forms and protocols.

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

Stellwagen Bank: Any artifacts brought aboard the vessel due to fishing in the National Marine Sanctuary Stellwagen Bank must be discarded over the side and returned to the sanctuary. An artifact is defined as anything of man-made origin with the exception of modern fishing gear. Stations located within Stellwagen Bank will be identified prior to the cruise and reported to the chief scientist.

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 ship's network must complete NOAA's IT Security Awareness Course within 3 days of embarking.

Data Management: Trawl catches will be processed on shipboard as specified in the Operational

Plans. All station and biological data will be electronically recorded. At the completion of the cruise, all data will be electronically transmitted to the NEFSC data management system based in Woods Hole, MA. Samples and data collected for specific individuals, agencies or organizations will be processed by same. Plankton samples will be processed through the NEFSC laboratory in Narragansett, RI. Data from the CTD will be processed at the NEFSC Woods Hole Laboratory.

Foreign National Access and Deemed Export Controls:

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

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

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

1. Written notification identifying the NOAA Program individual who is responsible for ensuring compliance with NOAA and export regulations for the foreign national (see Foreign National Sponsor responsibilities below).
2. A copy of the DOC/OSY clearance authorization for access by the foreign national.
3. A copy of Appendix B of NAO 207-12 with NOAA Chief Administrative Officer concurrence endorsement.
4. Written notification that the foreign national has been cleared against the State, Commerce and Treasury departments' Lists to Check.
<http://www.bis.doc.gov/ComplianceAndEnforcement/ListsToCheck.htm>
5. Provide the NOAA Foreign National List spreadsheet for each foreign national in the scientific party.
6. Escorts – The Chief Scientist is responsible to provide escorts to comply with NAO 207-12 Section 5.10, or as required by the vessel's DOC/OSY Regional Security Officer.
7. Ensure all non-foreign national members of the scientific party receive the briefing on Espionage Indicators (NAO 207-12 Appendix A) at least annually or as required by the servicing Regional Security Officer.
8. Export Control - The Chief Scientist is responsible for complying with NAO 207-12 and the development of Technology Access Control Plans for items they bring aboard. The Chief Scientist must notify the Commanding Officer of any export controlled items they bring aboard and any access restrictions associated with these items. [*NOTE: The NEFSC currently neither possesses nor utilizes technologies that are subject to Export Administration Regulations (EAR).*]

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

Responsibilities of the Commanding Officer:

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

Responsibilities of the Foreign National Sponsor:

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

Communications: Routine communications will be conducted between the *Henry B. Bigelow* and Woods Hole via email. Satellite based voice communication is available; the Command shall accommodate the Chief Scientist when requested. The ship's primary means of communication with the Marine Operations Center is 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.

Hazardous Material: The Chief Scientist is responsible for complying with MOCDOC 15, Fleet Environmental Compliance #07, Hazardous Material and Hazardous Waste Management

Requirements for Visiting Scientists, released July 2002. Details regarding those requirements will be provided by the Chief of Operations, Marine Operations Center – Atlantic upon request and may be reached at 757-441-6716.

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

Hazardous Materials Inventory

The following chemicals will be placed aboard *Henry B. Bigelow* prior to departure:

<u>ITEM</u>	<u>QUANTITY</u>	<u>FURNISHED BY</u>
90% Ethyl alcohol (ethanol)	3 gal	NMFS, NEFSC, Woods Hole, MA

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

Accident/Illness Reporting: Mishaps, injuries and near misses must be reported to the vessel's Executive Officer and Medical Person in Charge so that appropriate reporting can be made through the OMAO chain of command. In addition, all work-related mishaps involving scientific staff that result in an employee injury or illness, or any work related mishap or near miss, including those that do not require first aid or medical attention, must be reported within 24 hours of occurrence to the NOAA Fisheries Deputy Assistant Administrator for Operations. The reporting will be accomplished using a Mishap Reporting Form, via email, originating from the Chief Scientist, through the OMI Facility Operations and Safety (FOS) Branch (Jack.Emberg@noaa.gov with copies sent to Linda.Arlen@noaa.gov and Joseph.Finnegan@noaa.gov)

Gear repair/inventory: A list of the survey sampling gear put aboard will be presented to the Chief Bosun along with detailed sampling gear plans prior to sailing. All sampling gear provided to the vessel shall be in standard condition and configuration as certified by the detailed ESB survey gear inspection process. Sampling gear will be maintained and repaired by the vessel's deck crew, as practical, during the course of the survey. If repairs are not able to be performed, the gear should be labeled detailing the specific damage. The Chief Bosun and Lead Fisherman are requested to follow trawl tagging procedures previously developed jointly with warehouse staff involving Green, White and Red waterproof tags. All bottom trawls delivered to the vessel should have Green tags indicating that gear has been certified by ESB staff. Bottom trawls that are used but not damaged (deemed to be in acceptable condition by the Chief Bosun at the time of bundling) should be tagged with a white tag indicating the last date of use. Bottom trawls that are used and are known to have damage or other issues should be tagged with a Red tag with a description of the damage or issues with sufficient detail to allow gear specialists to make a

reasonable estimate of repair time and required materials without unbundling the gear.

Prior to the end of each cruise leg, the Chief Bosun should communicate all gear related supply needs to the NEFSC gear loft and arrange the offload of damaged gear and delivery of new gear supplies for the following leg. All gear supply related communications should be communicated to the NEFSC warehouse staff Robert Alexander, Richard Raynes and TK Arbusto:

Robert.Alexander@noaa.gov, Richard.Raynes@noaa.gov, Tk.Arbusto@noaa.gov.

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

nmfs.nec.survey.branch@noaa.gov	{Ecosystem Surveys Branch}
Wendy.Gabriel@noaa.gov	{FEMAD Division Chief}
Fred.Serchuk@noaa.gov	{Senior Scientist}
Bill.Karp@noaa.gov	{NEFSC Science and Research Director}
Russel.Brown@noaa.gov	{NEFSC Deputy Science and Research Director}
Jack.Moakley@noaa.gov	{OMI Chief}
Nathan.Keith@noaa.gov	{NEFSC Vessel Coordinator}
Jon.Hare@noaa.gov	{Oceanography Branch Chief}
Tamara.Holzwarth-Davis@noaa.gov	{Oceanography Branch}
Paul.Rago@noaa.gov	{Population Dynamics Branch Chief}
Richard.McBride@noaa.gov	{Population Biology Branch Chief}
CO.Henry.Bigelow@noaa.gov	{Commanding Officer – <i>Henry B. Bigelow</i> }
Michael.S.Abbott@noaa.gov	{NEFSC Port Captain}

Watches: Vessel operations will be conducted 24 hours per day. The scientific watch schedule will be determined and submitted as part of the Addendum one week prior to sailing. Scientific personnel will be on duty for 12 hour watches each day.

Meals and Berthing: Meals and berthing are required for up to 16 scientists. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the cruise, and ending two hours after the termination of the cruise. The Chief Scientist is responsible for determining the rosters of scientific watch parties and assigning scientific staterooms/berths. On behalf of the Chief Scientist, the Ecosystem Surveys Branch Cruise Staffing Coordinator, Katie Sowers (508-495-2342, Katherine.Sowers@noaa.gov) will communicate those assignments to the ship's command not less than 7 days prior to the beginning of the survey.

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 two weeks prior to the survey.

All NOAA Scientists will have proper travel orders when assigned to a NOAA ship. The Chief Scientist will ensure that all non-NOAA and/or non-Federal employee scientists aboard will also have proper orders or the means to support themselves in the event that the ship becomes

uninhabitable and/or the galley is closed during a port call during any part of the scheduled project.

Pre-Cruise Meeting: Prior to departure the Chief Scientist will conduct a meeting of the scientific party to train them in sample collection and inform them of cruise objectives. Some vessel protocols, e.g., meals, watches, etiquette, etc., will be presented by the ship’s Operations Officer.

Post Cruise Reporting Requirements: Upon completion of each cruise leg, a post-cruise meeting will be held (unless prior alternate arrangements are made) and attended by the ship’s officers, the Chief Scientist, members of the scientific party, the Vessel Coordinator and the Port Captain to review the cruise. Concerns regarding safety, efficiency, and suggestions for improvements for future cruises should be discussed. Minutes of the post-cruise meeting will be distributed to all participants via email and to the CO.MOC.Atlantic@noaa.gov and ChiefOps.MOA@noaa.gov. The Port Captain, if attending, is responsible for the recording and distributing the minutes. In his/her absence, the Operations Officer shall be responsible for the minutes.

Within 20 days of the completion of each cruise leg, a Ship Operation Evaluation form is to be completed by the Chief Scientist and submitted to NOAA’s Office of Marine and Aviation Operations.

Personnel List (Scientific):¹

Part I: Calibration: 03 – 05 September

<u>Name</u>	<u>Title</u>	<u>Organization</u>
<u>ME70 Calibration Only (9/3-9/5)</u>		
Paul Kostovick	Supervisory IT Specialist	NMFS, NEFSC, Woods Hole, MA
Heidi Marotta	IT Specialist	NMFS, NEFSC, Woods Hole, MA
<u>EK60 Calibration Only (9/6-9/6)</u>		
Michael Jech	Research Fish Biologist	NMFS, NEFSC, Woods Hole, MA
Joseph Godlewski	Electronics Engineer	NMFS, NEFSC, Woods Hole, MA
Michael Ryan	Electronics Engineer	Integrated Statistics, Woods Hole, MA

Part I, (Continued): 06 – 19 September

<u>Name</u>	<u>Title</u>	<u>Organization</u>
John Galbraith	(9/3-15) Chief Scientist	NMFS, NEFSC, Woods Hole, MA
Jakub Kircun (9/3-15)	Watch Chief	Integrated Statistics, Woods Hole, MA
Cook – FN (9/3-15)	Watch Chief	Integrated Statistics, Woods Hole, MA
Brian Schulman (9/3-15)	Volunteer	Woodstock, GA
Katherine Bemis (9/3-15)	Volunteer	Freeville, NY
Robert Alexander	Equipment Specialist	NMFS, NEFSC, Woods Hole, MA
Larry Brady	Biological Science Technician	NMFS, NEFSC, Woods Hole, MA
Joshua Dayton	Biological Science Technician	NMFS, NEFSC, Woods Hole, MA

David Chevrier	GIS Specialist/Software Engineer	NMFS, NEFSC, Woods Hole, MA
William Duffy	Biological Science Technician	NMFS, NEFSC, Woods Hole, MA
Mark Wuenschel	Research Fishery Biologist	NMFS, NEFSC, Woods Hole, MA
Nicole Charriere	Survey Technician	Integrated Statistics, Woods Hole, MA
Chris Tholke	Survey Technician	Integrated Statistics, Woods Hole, MA
Catherine Fillo	Survey Technician	Integrated Statistics, Woods Hole, MA
Tasha O'Hara	Survey Technician	Integrated Statistics, Woods Hole, MA

Part II: 23 September – 04 October

<u>Name</u>	<u>Title</u>	<u>Organization</u>
TO BE DETERMINED	Chief Scientist	NMFS, NEFSC, Woods Hole, MA

Part III: 07 – 25 October

<u>Name</u>	<u>Title</u>	<u>Organization</u>
TO BE DETERMINED	Chief Scientist	NMFS, NEFSC, Woods Hole, MA

Part IV: 29 October – 14 November

<u>Name</u>	<u>Title</u>	<u>Organization</u>
TO BE DETERMINED	Chief Scientist	NMFS, NEFSC, Woods Hole, MA

¹The remainder of the list of scientific personnel will be provided in leg-specific Addendums.

Equipment and Supply List: The following sampling and scientific equipment will be placed aboard *Henry B. Bigelow* prior to departure:

ITEM	QUANTITY	FURNISHED BY
1. NEFSC 4 seam, 3 bridle trawls	4	NMFS, NEFSC, Woods Hole, MA
2. 2.2 m ² PolyIce oval trawl doors	2 pairs	" " " " "
3. Trawl wires	1 set	<i>Henry B. Bigelow</i>
4. Mending twine	Ample	NMFS, NEFSC, Woods Hole, MA
5. Spare trawl and liner sections	Ample	" " " " "
6. Chain backstraps and idlers	4	" " " " "
7. Age and growth supplies (various)	ample	" " " " "
8. Feeding ecology supplies (various)	ample	" " " " "
9. Special sampling supplies (various)	ample	" " " " "

10. Plastic fish baskets, 2 bushel	24	"	"	"	"	"
11. Plastic 5 gal buckets	24	"	"	"	"	"
12. Marel electronic scales & backups	4	<i>Henry B. Bigelow</i>				
13. CTDs	3	NMFS, NEFSC, Woods Hole, MA				
14. Electronic Fish measuring boards	4	<i>Henry B. Bigelow</i>				
15. Polyethylene specimen bags	1,000	NMFS, NEFSC, Woods Hole, MA				
16. Gloves, rubberized fish	ample	"	"	"	"	"
17. Specimen jars	ample	"	"	"	"	"
18. Clerical supplies (various)	ample	"	"	"	"	"
19. Reference books (various)	ample	"	"	"	"	"
20. 60 centimeter bongo net gear	2	"	"	"	"	"
21. Salinity bottles	ample	"	"	"	"	"
22. Computer	1	"	"	"	"	"
23. FSCS system components	ample	"	"	"	"	"
(Electronic measuring boards, barcode readers, label printers, touch screen monitors, computers & backups, etc)						
24. Simrad EK60 Scientific Sounder	1	<i>Henry B. Bigelow</i> (12, 38 & 120 kHz)				
25. Simrad PI-32 Deck Unit	2	NMFS, NEFSC, Woods Hole, MA				
26. Simrad PI-32 Spread Sensors	3 pair	"	"	"	"	"
27. Simrad PI-32 Height Sensors	2	"	"	"	"	"
28. Simrad PI-32 Depth Sensors	3	"	"	"	"	"
29. Simrad PI-32 Catch Sensors	0	"	"	"	"	"
30. Scanmar Distance Master Sensors	6	"	"	"	"	"
31. Scanmar Distance Remote Sensors	6	"	"	"	"	"
32. Scanmar Depth Sensors	3	"	"	"	"	"
33. Scanmar Trawl Sounders	3	"	"	"	"	"
34. Scanmar Height Sensors	1	"	"	"	"	"
35. Scanmar Trawl Speed Sensors	2	"	"	"	"	"
36. 90% Ethyl alcohol (ethanol)	3 gal	"	"	"	"	"
37. Ethanol handling and spill cleanup supplies	ample	"	"	"	"	"

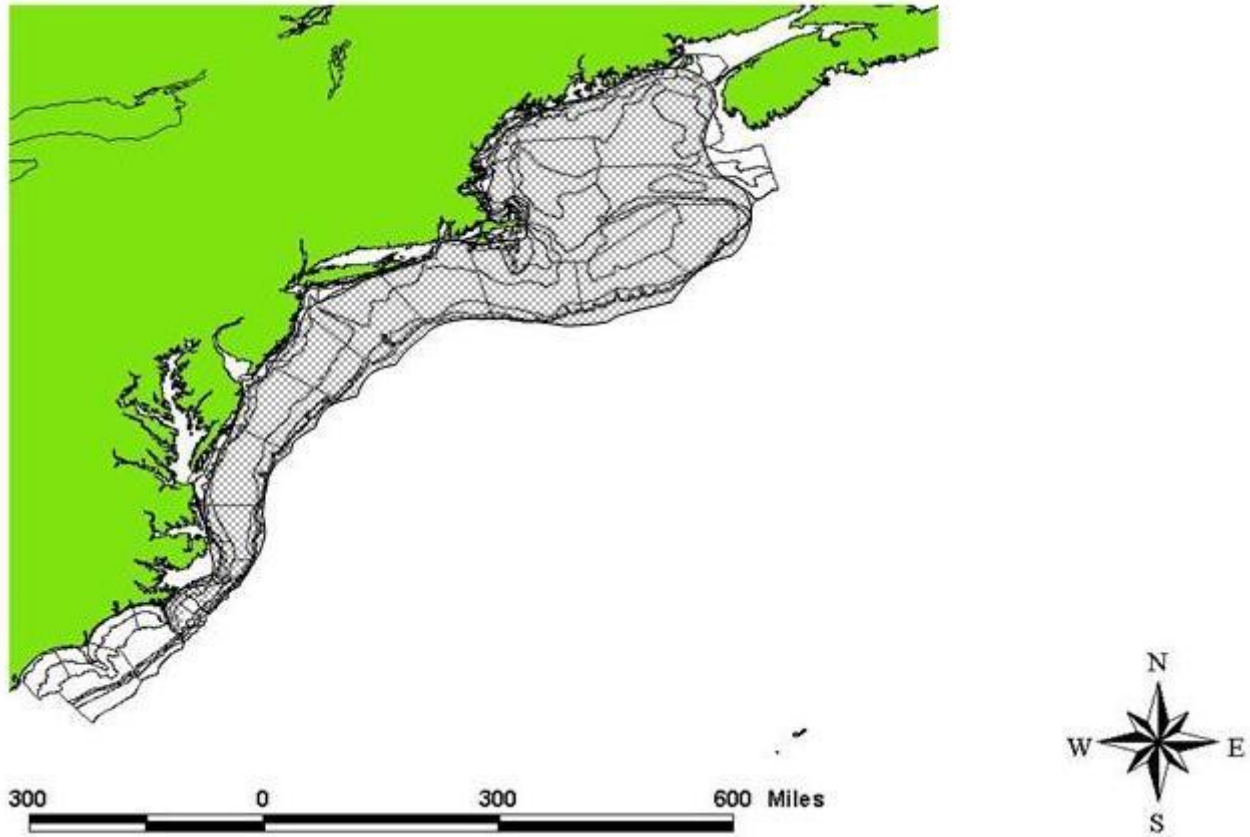


Figure 1. General planned area of operations for *Henry B. Bigelow*, Cruise 13-04 (Parts I-IV), Autumn Bottom Trawl Survey, during 03 September – 14 November 2013.

Table 1. Scientific Computer Sensors, and logging rates of those sensors, required during *Henry B. Bigelow* cruise 13-04, Autumn Bottom Trawl Survey, scheduled to be conducted during 03 September – 14 November 2013. Additional sensors may be requested.

Sensor Name	Units	Log Rate (secs)
ADCP-Depth	(Meters)	1
ADCP-F/A-GroundSpeed	(Knots)	1
ADCP-F/A-WaterSpeed	(Knots)	1
ADCP-P/S-GroundSpeed	(Knots)	1
ADCP-P/S-WaterSpeed	(Knots)	1
Air-Temp	(Degrees C)	1
Baro-Press	(Millibars)	1
CenterBoardPos-Value	(Position)	1
Date	(Date)	1
Doppler-Depth	(Meters)	1
Doppler-KeelOffset	(Meters)	1
Doppler-P/S-BottomSpeed	(Knots)	1
Doppler-P/S-WaterSpeed	(Knots)	1
EK60-18kHz-Depth	(Meters)	1
EK60-38kHz-Depth	(Meters)	1
ES60-200hz-Depth	(Meters)	1
ES60-50hz-Depth	(Meters)	1
GYRO	(Degrees)	1
ITI-BearingToTarget	(Degrees)	1
ITI-Depth	(Meters)	1
ITI-DoorSpread	(Meters)	1
ITI-HdRopeBottomDist	(Meters)	1
ITI-HdRopeFtRopeDist	(Meters)	1
ITI-HorizRange	(Meters)	1
ITI-RangeToTarget	(Meters)	1
ITI-SlantRange	(Meters)	1
ITI-Time	(Time)	1
ITI-TrawlDepth	(Meters)	1
ITI-TrawlWaterTemp	(Degrees C)	1
ME70-Depth	(Meters)	1
Mid-SeaTemp-C	(Degrees C)	1
MX420-COG	(Degrees)	1
MX420-Lat	(DEGMIN)	1
MX420-Lon	(DEGMIN)	1
MX420-SOG	(Knots)	1
MX420-Time	(Time)	1

Sensor Name	Units	Log Rate (secs)
PASHR-Hdg-Qual	(Value)	1
PASHR-Hdg-True	(Degrees)	1
PASHR-Heave	(Centimeters)	1
PASHR-Pitch	(Degrees)	1
PASHR-Pitch-Qual	(Value)	1
PASHR-Roll	(Degrees)	1
PASHR-Roll-Qual	(Value)	1
PASHR-Time	(Time)	1
PI32-Depth1000-VAL	(Meters)	1
PI32-DEPTH300-VAL	(Meters)	1
PI32-DS-VAL	(Meters)	1
PI32-HR-VAL	(Meters)	1
PI32-WS-VAL	(Meters)	1
PORTTrawlWinchLineOut	(Meters)	1
PORTTrawlWinchLinespeed	(Meters/sec)	1
PORTTrawlWinchTension	(Kilos)	1
POSMV-COG	(Degrees)	1
POSMV-Elevation	(Value)	1
POSMV-hdops	(Value)	1
POSMV-Heading	(Degrees)	1
POSMV-Lat	(DEGMIN)	1
POSMV-Lon	(DEGMIN)	1
POSMV-Quality	(Value)	1
POSMV-Sats	(Value)	1
POSMV-SOG	(Knots)	1
POSMV-Time	(Time)	1
SAMOS-AirTemp-Value	(Degrees C)	1
SAMOS-TRUE-WIND-DIR-Value	(Degrees)	1
SAMOS-TRUE-WIND-Spd-Value	(Knots)	1
SCANMAR-DEPTH-VAL	(Meters)	1
SCANMAR-DOOR-SPREAD	(Meters)	1
SCANMAR-Height	(Meters)	1
SCANMAR-WING-SPREAD	(Meters)	1
Shaft-RPM-Value	(Value)	1
STBDTrawlWinchLineOut	(Meters)	1
YOUNG-TWIND-Speed	(Knots)	1

