



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: Commander Jeffery Taylor, NOAA
Commanding Officer, NOAA Ship *Henry B. Bigelow*

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

SUBJECT: Project Instruction for HB-17-02
Spring Multispecies Bottom Trawl Survey

Attached is the final Project Instruction for HB-17-02, Spring Multispecies Bottom Trawl Survey, which is scheduled aboard NOAA Ship *Henry B. Bigelow* during the period of March 6 – May 14, 2017. Of the 60 DAS scheduled for this project, 60 days are funded by a Line Office Allocation. This project is estimated to exhibit a Medium Operational Tempo. Acknowledge receipt of these instructions via e-mail to Opsmgr.MOA@noaa.gov at Marine Operations Center-Atlantic.






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

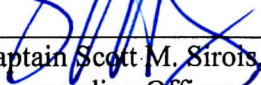
Project Instruction

Date Submitted: 6 February, 2017
Platform: NOAA Ship *Henry B. Bigelow*
Project Number: HB 17-02
Project Title: Spring Multispecies Bottom Trawl Survey
Project Dates: 6 March – 14 May 2017

Prepared by: Philip Politis
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Approved by: 
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Northeast Fisheries Science Center

Date: 2/8/17

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

Date: 2/17/17

I.**Overview****A. HB 17-02 Spring Multispecies Bottom Trawl Survey, 6 March – 14 May 2017****B. Days at Sea (DAS):**

Of the 60 DAS scheduled for this project, 0 DAS are funded by an OMAO allocation, 60 DAS are funded by a Line Office Allocation, 0 DAS are Program Funded, and 0 DAS are Other Agency funded. This project is estimated to exhibit a Medium Operational Tempo.

C. Operating Area:

The continental shelf and upper continental slope from north of Cape Lookout, NC, including Georges Bank and the Gulf of Maine, to the Western Scotia Shelf (including stations in Canada's Exclusive Economic Zone). Stations will be occupied in waters with depths ranging between 15 and 366 meters.

D. Objectives:

The objectives are to: 1) determine the spring distribution and relative abundance of fish and invertebrate species found on the continental shelf and upper slope, including the collection of additional biological information following the pre-established sampling plan at the direction of the Chief Scientist; 2) opportunistically evaluate survey gear efficiency, methods, or survey related equipment that may benefit the trawl survey and fish stock assessments; 3) collect oceanographic data including CTD casts and bongo tows at selected stations; 4) opportunistically collect acoustic data along cruise tracks with the EK-60 and ME-70 acoustic systems.

E. Participating Institutions:

National Marine Fisheries Service, Northeast Fisheries Science Center

F. Science Party:

Name	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
TBD	Chief Scientist	6 Mar	23 Mar		NMFS	
TBD	Chief Scientist	28 Mar	7 Apr		NMFS	
TBD	Chief Scientist	11 Apr	28 Apr		NMFS	
TBD	Chief Scientist	2 May	14 May		NMFS	

G. Administrative:1. Points of Contact

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	{PEMAD Division Chief}
jon.hare@noaa.gov	{NEFSC Science and Research Director}
Susan.Gardner@noaa.gov	{NEFSC Deputy S&R Director}
Jack.Moakley@noaa.gov	{OMI Chief}
Chad.Cary@noaa.gov	{Acting OMI Chief}
Nathan.Keith@noaa.gov	{NEFSC Vessel Coordinator}
Michael.Jones@noaa.gov	{Acting Oceanography Branch Chief}
Tamara.Holzwarth-Davis@noaa.gov	{Oceanography Branch}
Russell.Brown@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> }
OPS.Henry.Bigelow@noaa.gov	{Operations officer – <i>Henry B. Bigelow</i> }
Michael.S.Abbott@noaa.gov	{NEFSC Port Captain}
Teri.frady@noaa.gov	{Research Communications Branch Chief}

2. Diplomatic Clearances:

This project involves Marine Scientific Research in waters under the jurisdiction of Canada. Consent will be received from Canada prior to entering foreign waters.

3. Licenses and Permits:

Canada's Foreign Fishing Vessel License has been requested. Pursuant to 50 CFR 600.745 a Scientific Research Permit exempts this vessel from federal fishing regulations. Active marine mammal and endangered species incidental take permits can be found at: <http://www.nmfs.noaa.gov/pr/permits/incidental/research.htm#nefsc>. Dead sea birds can be salvaged under US Fish and Wildlife permit # MB043513-0. Research trawl activity is authorized in the Stellwagen Bank National Marine Sanctuary under permit # SBNMS-2015-003..

II. Operations:

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

The Ecosystems Surveys Branch requests calibration of the auto-trawl system prior to each bottom trawl survey cruise season with the participation of Ecosystems Surveys Branch representatives and a technical representative from Rapp-Hydema. This effort is estimated to take approximately 24 – 36 hours of vessel time prior to the beginning of the survey. To maximize the efficiency of the Rapp-Hydema tech rep's winter efforts, the spring 2017 auto-trawl calibration will be conducted prior to HB17-01 during the period 6-8 February, 2017. Necessary trawl gear will be loaded on the vessel 23-27 January, 2017. The vessel's EK60 calibration will occur following the auto-trawl calibration on 8 February, 2017.

A. Project Itinerary:

Pre-cruise:

- 23 Jan – 27 Jan: Load scientific equipment and supplies necessary for auto-trawl calibration.
- 6 Feb – 8 Feb: Depart Newport Naval Station, Newport, RI to conduct auto-trawl system and EK60 calibrations; return to Newport Naval Station, Newport, RI.
- 24 Feb – 3 Mar: Load remaining scientific equipment and supplies.

The cruise will be divided into four parts:

Part I: Mid-Atlantic to Cape Lookout Sector, 6 March – 23 March

- 6 Mar: Embark scientific personnel and depart Newport Naval Station, Newport, RI
- 6 Mar – 23 Mar: Begin the spring bottom trawl survey.
- 23 Mar: Arrive Newport Naval Station, Newport, RI, offload scientific collections and disembark scientific personnel.

Part II: Mid-Atlantic - Southern New England Sector, 28 March – 7 April

- 28 Mar: Load scientific gear, embark scientific personnel and depart Newport Naval Station, Newport, RI.
- 28 Mar – 7 Apr: Continue the spring bottom trawl survey.
- 7 Apr: Arrive Newport Naval Station, Newport, RI, offload scientific collections and disembark scientific personnel.

Part III: Southern New England - Georges Bank Sector, 11 April – 28 April

- 11 Apr: Load scientific gear, embark scientific personnel and depart Newport Naval Station, Newport, RI.
- 11-28 Apr: Continue the spring bottom trawl survey.
- 28 Apr: Arrive Newport Naval Station, Newport, RI., offload scientific collections and disembark scientific personnel.

Part IV: Georges Bank - Gulf of Maine Sector, 2 May – 14 May

- 2 May: On-load scientific gear, embark scientific personnel, Trawl Advisory Panel and industry participants and depart Newport Naval Station, Newport, RI.

- 2 May: Conduct daytime trawling operations then return to outer harbor for small boat transfer of Trawl Advisory Panel and industry participants.
- 2 May – 14 May: Continue and complete the spring bottom trawl survey.
- 14 May: Arrive Newport Naval Station, Newport, RI, offload gear, scientific collections and disembark scientific personnel.
- 14 May – 16 May: Offload scientific equipment and supplies.

A. Staging and Destaging:

Ecosystems Surveys Branch personnel will coordinate directly with the vessel command and deck department regarding specific staging and destaging activities. These efforts will require the use of the vessel's cranes to onload and offload equipment.

B. Operations to be Conducted:

Survey operations will be conducted 24 hours a day. A standard 20-minute tow will be made at the approximately 377 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 examine stations, identifying 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 the NOAA Ship *Henry B. Bigelow* (accessible online: <http://nefsc.noaa.gov/publications/crd/crd1406/>). Sampling will be conducted using the NEFSC standardized, 3 bridle, 4 seam, survey bottom 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 mensuration equipment will be used to monitor and validate trawl performance at all stations. Highest reasonable cruising speeds should be employed to improve the potential to complete the cruise missions. Transiting between stations at the highest reasonable and safest cruising speed possible can greatly improve the survey coverage area during the allotted time.

1. 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 ESB is responsible for setting up FSCS hardware and

software, and the ESB and *Henry B. Bigelow*'s Electronics Technician (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 ET at the beginning of the cruise. We request that all available SCS sensors be operational and calibrated as appropriate, with logging capabilities enabled.

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 provides data on vessel towing speed and direction to be recorded at a frequency of 1.0 Hz.

2. Net Mensuration Integration Software:

The Bottom Trawl Survey will utilize Scanmar net mensuration sensors and hydrophones as the primary net mensuration system that is logged to SCS. We request that all net mensuration data to be logged by SCS at a frequency of 1.0 Hz.

3. Trawl Winches and Towing Warps:

Henry B. Bigelow's auto-trawl system will be used during all survey trawling operations in tension based mode with weather effects set to one. 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 must 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.

4. 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 and marked with green tags. Sampling gear will be maintained and repaired by the vessel's deck crew, as practical, during the course of the survey so as to remain in certified condition. If repairs are not able to be performed to this condition aboard the vessel, the gear should be clearly labeled detailing the specific damage. The Chief Bosun and Lead Fisherman are requested to follow trawl tagging procedures previously developed jointly with net loft staff as follows:

All bottom trawls offloaded from the vessel **MUST HAVE** one of 3 colored tags attached and visibly displayed on the bundled Net:

Green - Original inspection tag, net unused and in standard condition

White - Used with no apparent damage and ***MUST include Net Number***

Red - Used and known to have damage or other issues with description of damage and ***MUST include Net Number***

Prior to the end of each cruise leg, the Chief Bosun should communicate all gear related supply needs to the NEFSC Net 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 Net Loft (NMFS.NEC.net_loft@noaa.gov).

5. 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 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.

6. 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.

7. Other Sampling:

- a) At a subset of the preselected stations, plankton sampling will be conducted using a bongo net following standard NEFSC protocols.
- b) Physical oceanographic parameters will be continually monitored through the ship's flow-through thermosalinograph and fluorometer instruments. Weather observations, surface salinity samples and bottom salinity samples will be collected at selected stations.
- c) There will be a continuation of the collection of specific samples requested by other NEFSC programs as well as separate academic and scientific organizations.
- d) 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.
- e) Conductivity, Temperature and Depth (CTD) sampling will occur at all stations. CTD deployments will be conducted by the ship's survey technicians with support from the ship's deck department. 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.

C. Dive Plan

All dives are to be conducted in accordance with the requirements and regulations of the NOAA Diving Program (<http://www.ndc.noaa.gov/dr.html>) and require the approval of the ship's Commanding Officer.

Dives are not planned for this project.

D. Applicable Restrictions, Conditions which preclude normal operations:

Please refer to the Northeast Fisheries Science Center Bottom Trawl Survey Protocols for the NOAA Ship *Henry B. Bigelow* available online at:

<http://nefsc.noaa.gov/publications/crd/crd1406/>.

Protected Resource Requirements:

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

Permits and applicable information are available online at:

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

North Atlantic right whale protection: The vessel is requested to adhere to right whale protection regulations. Information on Seasonal Management Area (SMA) and Dynamic Management Area (DMA) regulations and information for protecting right whales from collisions with vessels are provided through the NOAA Protected Resources website (<http://www.nmfs.noaa.gov/pr/shipstrike/>), Right Whale Sighting Advisory System (SAS) website (<http://www.nefsc.noaa.gov/psb/surveys/>), the U.S. Coast Guard’s “Notices To Mariners” and NOAA weather radio. Mariners are urged to use caution and proceed at safe speeds in areas where right whales occur. U.S. Law (50 CFR 224.105) prohibits operating vessels 65 feet (19.8 meters) or greater in excess of 10 knots in Seasonal Management Areas (SMAs) along the U.S. east coast. Mariners are also requested to route around voluntary speed restriction zones, Dynamic Management Areas (DMAs) or transit through them at 10 knots or less. Approaching within 500 yards of right whales is prohibited, unless the Chief Scientist is in possession of an ESA/MMPA permit allowing such approaches.

Whale sightings: Sightings of right whales, or dead or entangled whales of any species, are extremely valuable and reports are urgently requested. Please report all right whale sightings north of the Virginia-North Carolina border to 866-755-6622; right whale sightings south of that border should be reported to 877-WHALE HELP. Right whale sightings in any location may be reported to the U.S. Coast Guard via VHF channel 16. Protocols for reporting sightings are described in the Guide to Reporting Whale Sightings placard. The placard is available online (http://www.nefsc.noaa.gov/psb/surveys/documents/20120919_Report_a_Right_Whale.pdf) and laminated copies will be provided by the Protected Species Branch upon request. It is requested that this placard be kept on the bridge for quick reference and to facilitate rapid reporting (via satellite phone if necessary). Opportunistic sightings of other marine mammal species that are live and well may be reported using the Platforms of Opportunity (POP) forms and protocols. To information regarding the WhaleALERT application <http://stellwagen.noaa.gov/protect/whalealert.html>. For information on reporting a dead whale http://www.nefsc.noaa.gov/psb/surveys/documents/20120919_Report_a_Dead_Whale.pdf

III.

Equipment

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

ITEM	QUANTITY	FURNISHED BY
1. Trawl Wires	1 set	<i>Henry B. Bigelow</i>
2. Pentagon AutoTrawl System	1	“ “
3. Simrad EK60 Scientific Sounder	1	“ “
4. Simrad ME70 Echo Sounder	1	“ “
5. Appleton Cranes	2	“ “
6. NOAA Shipboard Computer System (SCS)	1	“ “
7. Fish Processing Sorting Conveyor System	1	“ “
8. Marel electronic scales & backups	4	“ “
9. CTD Rosette	1	“ “

B. Equipment and Capabilities provided by the science crew (itemized)

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. Mending twine	Ample	" " " " "
4. Spare trawl and liner sections	Ample	" " " " "
5. Chain backstraps and idlers	4	" " " " "
6. Age and growth supplies (various)	ample	" " " " "
7. Feeding ecology supplies (various)	ample	" " " " "
8. Special sampling supplies (various)	ample	" " " " "
9. Plastic fish baskets, 2 bushel	24	" " " " "
10. Plastic 5 gal buckets	24	" " " " "
11. CTDs	3	" " " " "
12. Polyethylene specimen bags	1,000	" " " " "
13. Gloves, rubberized fish	ample	" " " " "
14. Specimen jars	ample	" " " " "
15. Clerical supplies (various)	ample	" " " " "
16. Reference books (various)	ample	" " " " "
17. 60 centimeter bongo net gear	2	" " " " "
18. Salinity bottles	ample	" " " " "
19. Computer	1	" " " " "
20. Electronic Fish Measuring Boards	4	" " " " "
21. FSCS system components	ample	" " " " "
22. Scanmar Distance Master Sensors	6	" " " " "
23. Scanmar Distance Remote Sensors	6	" " " " "
24. Scanmar Depth Sensors	3	" " " " "
25. Scanmar Trawl Sounders	3	" " " " "
26. Scanmar Height Sensors	1	" " " " "
27. Scanmar Trawl Speed Sensors	2	" " " " "
28. Scanmar Trawleye	1	" " " " "
29. Scanmar SS4 Door Sensor	2	" " " " "

IV.

Hazardous Materials

A. Policy and Compliance

The Chief Scientist is responsible for complying with FEC 07 Hazardous Materials and Hazardous Waste Management Requirements for Visiting Scientific Parties (or the OMAO procedure that supersedes it). By Federal regulations and NOAA Marine and Aviation Operations policy, the ship may not sail without a complete inventory of all hazardous materials by name and quantity, MSDS, appropriate spill cleanup materials (neutralizing agents, buffers, or absorbents) in amounts adequate to address spills of a size equal to the amount of chemical brought aboard, and chemical safety and spill response procedures. Documentation regarding those requirements will be provided by the Chief of Operations,

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

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

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

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

Upon departure from the ship, the Chief Scientist will provide the CO or their designee an inventory showing that all chemicals were removed from the vessel. The CO's designee will maintain a log to track scientific party hazardous materials. MSDS will be made available to the ship's complement, in compliance with Hazard Communication Laws. Scientific parties are expected to manage and respond to spills of scientific hazardous materials. Overboard discharge of hazardous materials is not permitted aboard NOAA ships.

B. Inventory

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

Common Name of Material	Qty	Notes	Trained Individual(s)	Spill control
10% Formalin	30.3 l	Alkalinity	Chief Scientist/Watch Chiefs	F
Formaldehyde solution (37%)	40 l	Alkalinity	Chief Scientist/Watch Chiefs	F
Ethanol (95%)	500 x 1.8ml	Flammable	Chief Scientist/Watch Chiefs	E

C. Chemical safety and spill response procedures:

F: Formalin/Formaldehyde

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

E: Ethanol

- Small Spill:
 - Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
- Large Spill:
 - Contain spill
 - Flammable liquid. Ventilate area of leak or spill. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk.
 - Absorb with dry earth, sand or other non-combustible material. Do not touch spilled material.
 - Use proper personal protective equipment
 - Dike if needed.

D. Radioactive Materials:

No Radioactive Isotopes are planned for this project.

E. Inventory of Spill Kit supplies

Product Name	Amount	Chemicals it is useful against	Amount it can clean up
Spill-X-FP	4.2 kg	Formalin, Formaldehyde	36.6 l
Spill-X-FP	3.4 kg	Formalin, Formaldehyde	29.6 l
Kitty litter	44 kg	liquids	

V.

Additional Projects

A. Supplementary Projects

Trawl Advisory Panel and Industry Participation during Survey Operations

In an effort to improve understanding and transparency of the NEFSC bottom trawl survey, members of the Trawl Advisory Panel and fishing industry participated on a one-day trip aboard Bigelow during the 2016 autumn bottom trawl survey. The primary objective of the day trip was for participants to observe and experience the bottom trawl survey first hand to better understand survey operations aboard Bigelow. Feedback regarding the experience was very positive and the NEFSC plans to conduct a similar one-day event during the 2017 spring bottom trawl survey. The plan is to conduct this event on May 2nd, the first day of leg IV. A total of 8-10 participants (in addition to the full scientific party) will depart aboard the ship on the morning of May 2nd and be transported back to land at the end of the day via small boat transfer. During the period aboard the ship, Bigelow will perform survey tows (or similar tows if logistics dictates) and participants will observe operations, interact with the scientific and vessel crew, and experience the bottom trawl survey first hand aboard Bigelow. The exact number and names of the participants will be provided to the vessel in an addendum no later than 2 weeks prior to the sailing date. We do not anticipate any participants staying overnight aboard the vessel.

B. NOAA Fleet Ancillary Projects

No NOAA Fleet Ancillary Projects are planned.

VI.

Disposition of Data and Reports

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

A. Data 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, including all SCS 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.

VII. Familiarization, and Project Evaluations

Meetings,

Vessel

A. Pre-Project Meeting:

The Chief Scientist and Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship's crew to discuss required equipment, planned operations,

concerns, and establish mitigation strategies for all concerns. This meeting shall be conducted before the beginning of the project with sufficient time to allow for preparation of the ship and project personnel. The ship's Operations Officer usually is delegated to assist the Chief Scientist in arranging this meeting.

B. Vessel Familiarization Meeting:

The Commanding Officer is responsible for ensuring scientific personnel are familiarized with applicable sections of the standing orders and vessel protocols, e.g., meals, watches, etiquette, drills, etc. A vessel familiarization meeting shall be conducted in the first 24 hours of the project's start and is normally presented by the ship's Operations Officer.

C. Post-Project Meeting:

The Commanding Officer is responsible for conducting 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. 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.

D. Project Evaluation Report

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

VIII.

Miscellaneous

A. Watches:

Vessel operations will be conducted 24 hours per day. The scientific watch schedule will be determined by the Chief Scientist and provided to the Operations Officer by the Chief Scientist one week prior to sailing. Scientific personnel will stand 12 hour watches.

B. Meals and Berthing:

The ship will provide meals for the scientists listed above. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the project, and ending two hours after the termination of the project. Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours. Special dietary requirements for scientific

participants will be made available to the ship's command at least seven days prior to the project.

Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the Chief Scientist. The Chief Scientist and Commanding Officer will work together on a detailed berthing plan to accommodate the gender mix of the scientific party taking into consideration the current 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 ESB to ensure that the entire scientific party has a mechanism in place to provide lodging and food and to be reimbursed for these costs in the event that the ship becomes uninhabitable and/or the galley is closed during any part of the scheduled project.

All persons boarding NOAA vessels give implied consent to comply with all safety and security policies and regulations which are administered by the Commanding Officer. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must comply with OMAO's Drug and Alcohol Policy dated May 17, 2000 which forbids the possession and/or use of illegal drugs and alcohol aboard NOAA Vessels.

C. 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
Email MOA.Health.Services@noaa.gov

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

D. Shipboard Safety

Hard hats are required when working with suspended loads. Work vests are required when working near open railings and during small boat launch and recovery operations. Hard hats and work vests will be provided by the ship when required.

Wearing open-toed footwear or shoes that do not completely enclose the foot (such as sandals or clogs) outside of private berthing areas is not permitted. At the discretion of the ship CO, safety shoes (i.e. steel or composite toe protection) may be required to participate in any work dealing with suspended loads, including CTD deployment and recovery. The ship does not provide safety-toed shoes/boots. The ship's Operations Officer should be consulted by the Chief Scientist to ensure members of the scientific party report aboard with the proper attire.

E. 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 vessels staff and the science team at no charge. Increased bandwidth in 30 day increments is available on the VSAT systems at increased cost to the scientific party. If increased

bandwidth is being considered, program accounting is required and it must be arranged at least 30 days in advance.

F. IT Security

Any computer that will be hooked into the ship's network must comply with the *OMAO Fleet IT Security Policy* 1.1 (November 4, 2005) prior to establishing a direct connection to the NOAA WAN. Requirements include, but are not limited to:

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

Completion of the above requirements prior to boarding the ship is required.

Non-NOAA personnel using the ship's computers or connecting their own computers to the ship's network must complete NOAA's IT Security Awareness Course within 3 days of embarking.

G. Foreign National Guests Access to OMAO Facilities and Platforms

All foreign national access to the vessel shall be in accordance with NAO 207-12 and RADM De Bow's March 16, 2006 memo (<http://deemedexports.noaa.gov>). National Marine Fisheries Service personnel will use the Foreign National Registration System (FNRS) to submit requests for access to NOAA facilities and ships. The Departmental Sponsor/NOAA (DSN) is responsible for obtaining clearances and export licenses and for providing escorts required by the NAO. DSNs should consult with their designated Line Office Deemed Export point of contact to assist with the process.

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

Full compliance with NAO 207-12 is required.

Responsibilities of the Chief Scientist:

1. Provide the Commanding Officer with the e-mail generated by the Servicing Security Office granting approval for the foreign national guest's visit. (For NMFS-sponsored guests, this e-mail will be transmitted by FNRS.) 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 Security Office.
4. Export Control - Ensure that approved controls are in place for any technologies that are subject to Export Administration Regulations (EAR).

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

Responsibilities of the Commanding Officer:

1. Ensure only those foreign nationals with DOC/OSY clearance are granted access.
2. Deny access to OMAO platforms and facilities by foreign nationals from countries controlled for anti-terrorism (AT) reasons and individuals from Cuba or Iran without written approval from the Director of the Office of Marine and Aviation Operations and compliance with export and sanction regulations.
3. Ensure foreign national access is permitted only if unlicensed deemed export is not likely to occur.
4. Ensure receipt from the Chief Scientist or the DSN of the FNRS or Servicing Security Office 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 Security Office.

Responsibilities of the Foreign National Sponsor:

1. Export Control - The foreign national's sponsor is responsible for obtaining any required export licenses and complying with any conditions of those licenses prior to the foreign national being provided access to the controlled technology onboard regardless of the technology's ownership.
2. The DSN of the foreign national shall assign an on-board Program individual, who will be responsible for the foreign national while on board. The identified individual must be a U.S. citizen and a NOAA or DOC employee. According to DOC/OSY, this requirement cannot be altered.

3. Ensure completion and submission of Appendix C (Certification of Conditions and Responsibilities for a Foreign National).

VIII. Appendices

A. Figures:

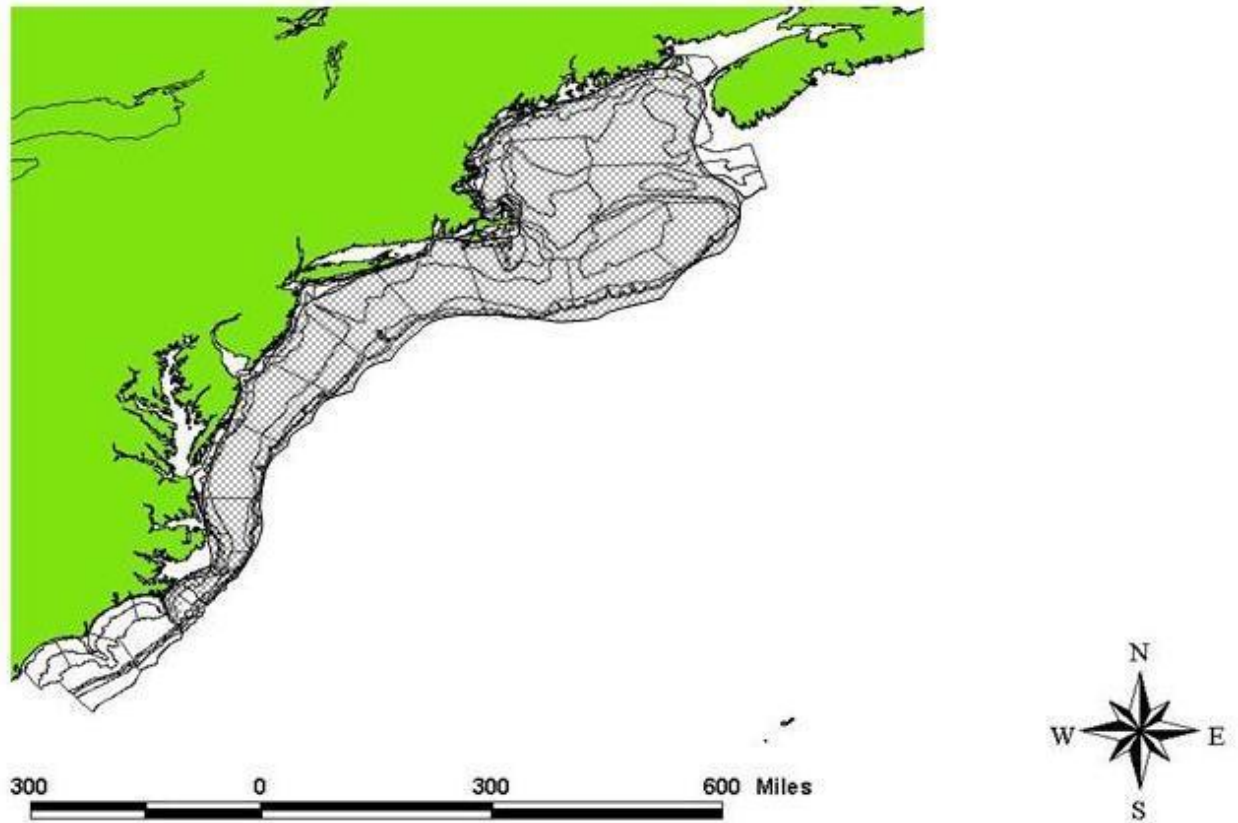


Figure 1. General planned area of operations for *Henry B. Bigelow*, Cruise HB17-02 (Parts I-IV), Spring Bottom Trawl Survey.