



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Alaska Fisheries Science Center
Resource Assessment and Conservation Engineering
7600 Sand Point Way NE
Seattle, WA 98115

FINAL Project Instructions

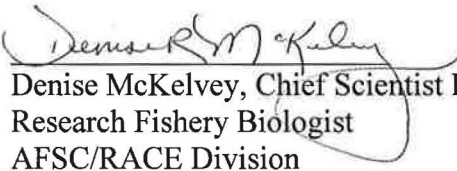
Date Submitted: January 16, 2014

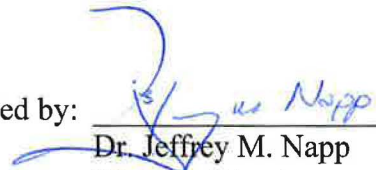
Platform: NOAA Ship *Oscar Dyson*

Project Number: DY-14-02 (OMAO)

Project Title: acoustic-trawl survey of the southeast Aleutian Basin region near Bogoslof Island

Project Dates: ~~2-9 March 2014~~ Modified dates: March 3-13, 2014

Prepared by:  Dated: 1-16-2014
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Approved by:  Dated: 1/17/14
Dr. Douglas P. DeMaster,
Science and Research Director
Alaska Fisheries Science Center

Approved by: _____ Dated: _____
Captain Wade J. Blake, NOAA
Commanding Officer
Marine Operations Center – Pacific



I. Overview

- A. Brief Summary and Project Period: acoustic-trawl survey, 3-13 March, 2014
- B. Days at Sea (DAS): Of the 11 DAS scheduled for this project, 0 DAS are funded by the program and 11 DAS are funded by OMAO. This project is estimated to exhibit a High Operational Tempo.
- C. Operating Area: Southeast Aleutian Basin near Bogoslof Island (see Appendix A). and Chirikof Shelf Break (see Appendix B)
- D. Summary of Objectives: (1) collect acoustic trawl (AT) data necessary to determine the distribution, biomass, and biological composition of walleye pollock; (2) collect target strength data using hull-mounted transducers for use in scaling acoustic data to estimates of absolute abundance; (3) collect physical oceanographic data (temperature and salinity profiles) at selected sites, and continuously collect sea surface temperature and salinity data; (4) conduct trawl hauls (AWT, PNE, and Methot) to ground truth multi-frequency acoustic data collection; and (5) deploy a stereo-camera system (Cam-Trawl) in the midwater trawl to optically sample fish.
- E. Participating Institutions: Alaska Fisheries Science Center, Seattle, WA
- F. Personnel/Science Party:

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
McKelvey, Denise	Chief Scientist	Feb 28	March 14	Female	AFSC	USA
Honkalehto, Taina	Fish Biologist	Mar 1	March 14	Female	AFSC	USA
Towler, Rick	IT Specialist	Mar 1	March 14	Male	AFSC	USA
Floering, William	Fish Biologist	Mar 1	March 14	Male	AFSC	USA
Stienessen, Sarah	Fish Biologist	Mar 1	March 14	Female	AFSC	USA
Jorgensen, Elaina	Fish Biologist	Mar 1	March 14	Female	AFSC	USA
Neidetcher, Sandi	Fish Biologist	Mar 1	March 14	Female	AFSC	USA

G. Administrative

- 1. Point of Contact Denise McKelvey (Chief Scientist), 7600 Sand Point Way NE, Seattle, WA. 98115, 206-526-4167, denise.mckelvey@noaa.gov
- 2. Diplomatic Clearances: None Required
- 3. Licenses and Permits: This Project will be conducted under a Scientific Research Permit issued by the Alaska Regional Office, National Marine

Fisheries Service (SRP #2014-B1), and a Fish Resource Permit (No. CF-13-002) issued by the State of Alaska (CF-13-002). The Chief Scientist will be included as an authorized participant on both permits.

II. Operations

A. Project Plan/Itinerary:

8 days planned for surveying the Southeast Aleutian Basin near Bogoslof Island Area

- March 1 Embark scientists in Kodiak, AK
- March 3 Depart Kodiak, AK at 0900
- March 3-4 Transit to transect 1.0 in the southeast Aleutian Basin near Bogoslof Is.
- March 5-10 AT survey of southeast Aleutian Basin near Bogoslof Is.
- March 10 Southeast Aleutian Basin near Bogoslof Island Area Project ends during passage into the Gulf of Alaska heading to the Chirikof Island shelf break

3 days planned for surveying the Chirikof Shelf Break area

- March 11-13 AT survey of Chirikof Island shelf break during transit from Bogoslof (DY1402) to Kodiak.

B. Staging and de-staging: Scientific gear will be loaded and mounted onto the vessel in Seattle, WA prior to departure for the gear trials in Puget Sound on February 5, 2014. One AWT net and a set of fishbuster doors stored in the warehouse in Kodiak will be loaded aboard the ship prior to DY1401 Shumagin Islands survey.

C. Operations to be conducted

1. Underway Operations:

1A. Survey operations will be conducted 24 hours per day. Acoustic data will be collected continuously along a series of parallel transects with a Simrad EK60 scientific echo integration system incorporating five centerboard-mounted transducers (18-, 38-, 70-, 120-, and 200-kHz). Unless the safe navigation of the vessel otherwise dictates, the vessel must avoid operating the following as their operation degrades the quality of the acoustic data:

- Other echosounders or acoustic equipment including the Doppler speed log and bridge Furuno depth sounder.
- The bow thruster.

At infrequent times this equipment may be operated to ensure the safe navigation and control of the vessel as determined by the ship's OOD. These times will be noted in the ship's SCS/electronic MOA Parallel transect spacing will be 3.0 nm throughout the survey (Appendix A). Trackline start and end points will be provided in an electronic file to the Navigation Officer. Because the start point of the first trackline of each survey is selected randomly, tracklines will not necessarily match those from prior surveys. Ship speed is expected to average 11 to 12 knots in favorable conditions.

Acoustic trawl survey operations require that an Aleutian wing trawl (AWT) midwater and poly Nor'easter (PNE) bottom trawl with roller gear be loaded onto the net reels. A spare AWT and PNE will serve as backups. Codend liner mesh size will be 0.5" for both the AWT and the PNE. Fishbuster doors will be used with all trawls. Typically, the AWT will be fished using 500 lb tom weights, however in the Samalga Pass region, we will fish the trawl with 750 lb tom weights. We request that the Chief Boatswain keep a trawl gear logbook to record any modifications made to trawl gear during the Project. Although we have no plans to deploy the Methot net during DY1402, we would like to maintain the option to use this net for sampling small fishes or zooplankton.

Trawl hauls will be made to identify acoustic backscatter and provide pollock samples and other biological data. Haul duration will be kept to the minimum necessary to ensure an adequate sample. We anticipate that on average 2-3 tows will be conducted during a 24-hour period. Biological data collected from each haul will include species composition, sex composition, length frequencies, whole fish and ovary weights, maturities, and otoliths. Walleye pollock tissue samples will be taken from selected hauls for fecundity studies.

A Cam-Trawl camera system will be deployed in the intermediate of the midwater trawl to optically sample fish. Prior to being loaded, the AWT will have been modified with an opening in the starboard side panel allowing the attachment of the camera. When the Cam-Trawl is not attached, the opening can be sewn shut to prevent fish escapement.

The Scientific Computing System (SCS) will run continuously throughout the Project and will be configured to log data from various sensors at a rate of 1-Hz.

During retrieval, nets should be visually inspected for damage and any debris still entangled in webbing should be removed. When necessary, trawl nets should be streamed behind the vessel with the codend open to ensure nets are clean and free of fish and other debris.

1B. Target strength data collection will occur on an opportunistic basis. These data are used to validate the relationship between fish length and target strength. Data will be collected when certain conditions (i.e., low fish densities, single species) are encountered. Collecting target strength data typically involves repeated passes over an aggregation of fish at a vessel speed of less than 3 knots. One or two trawl hauls are made to provide species composition and biological data.

1C. Conductivity-temperature-depth (CTD) data may be collected with a Seabird SeaCat system at selected locations. Temperature and depth profile data will be collected with a Seabird SBE39 micro-bathythermograph attached to the trawl headrope. Sea surface temperature and salinity will be collected continuously throughout the Project and logged with the vessel's Scientific Collection System (SCS).

1E. If single-species aggregations are encountered (e.g. rockfish, euphausiid, capelin), then opportunistic trawl hauls (AWT, PNE, or Methot) may be conducted to ground truth multi-frequency acoustic data collection.

2. Station Operations: N/A

D. Dive Plan

It may be requested to deploy divers during the survey if it is suspected that the propeller has been fouled, at the discretion of the Commanding Officer. If deemed necessary, the ship may return to port or safe anchorage to conduct dive.

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.

E. Applicable Restrictions: N/A

III. Equipment

A. Equipment and Capabilities Provided by the Ship (number is 1 unless specified)

1. Acoustic Equipment
 - GPS with NEMA 183 to ER60 (2)
 - 50/200 kHz ES60 Bridge sounder
 - Furuno FE-700 fathometer
2. Trawling Equipment
 - 3rd wire FS-70 net sonar with winch and accessories (2)
 - Simrad ITI net mensuration system (2)
 - Furuno CN24 headrope transducer
3. Oceanographic Equipment
 - Seabird SBE 911plus CTD System
4. Biological Sampling Equipment
 - Fish lab conveyor system
 - Catch sorting and weighing table
5. Computing equipment
 - Scientific Computing System

B. Equipment and Capabilities Provided by the Scientists (number is 1 unless specified)

1. Acoustic Equipment
 - Simrad ER60 system (2)
 - Simrad ES18 transducer (2)
 - Simrad ES38B transducer (2)
 - Simrad ES38DD transducer
 - Simrad ES70 transducer
 - Simrad ES120-7C transducer (2)
 - Simrad ES200-7C transducer (3)
 - Standard target & suspension assembly
 - Simrad ME70 system
2. Trawling Equipment
 - Aleutian wing trawl w/accessories (e.g., 0.5 in mesh liners) (2)
 - Poly nor'easter trawl w/accessories (e.g., 0.5 in mesh liners) (2)
 - Methot net with accessories (2)
 - Marinovich trawl w/accessories
 - Dandylines (10 fm x ½ in.)
 - Dandylines (30 fm x 5/8 in.)
 - Fishbuster door with accessories (2 sets)

- Spare webbing & twine
 - Spare 0.5" mesh cod end liners (2)
 - Spare hardware
 - 500 lb. tom weights (4)
 - 250 lb. tom weights (4)
 - Cam-trawl system
 - Miscellaneous supplies*
 - 3. Oceanographic Equipment
 - Seabird SBE39 (2)
 - Seabird SBE 19plus CTD
 - 4. Biological Sampling Equipment
 - Dynamometer
 - Marel M60 60 kg scale (2)
 - Marel M60 6 kg scale (2)
 - Fish baskets (30)
 - Glycerin/Thymol*
 - Formalin*
 - Misc. biological supplies*
 - 5. Computing equipment
 - IBM compatibles w/XP Op.System*
 - Dell PowerEdge MACEBASE Server
 - Printers*
- Note: * indicates amount not specified.

IV. Hazardous Materials

A. Policy and Compliance

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

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

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

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

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

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

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

B. Inventory

Chemical Inventory and Spill Plan

Common Name of Material	Qty	Notes	Trained Individual	Spill control
Glycerol (50%) / Thymol (1%)	5 gal. (18.9 L)	Non-Hazardous in quantities used	Darin Jones	G
Formaldehyde solution (37%)	4.2 gal. (16 L)	Stored in ship chem. locker	Darin Jones	F

C. Chemical safety and spill response procedures (also see Appendix C)

G: Glycerol/Thymol

- Rinse affected area with copious amounts of water.

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.

Inventory of Spill Kit supplies

Product Name	Amount	Chemicals it is useful against	Amount it can clean up
Neutrex	5 gal. (18.9 L)	Formaldehyde solution (37%)	5 gal. (18.9 L)

D. Radioactive Isotopes: N/A

V. Additional Projects

A. Supplementary (“Piggyback”) Projects: Secondary objectives of the Project include scientific research requested by AFSC and other investigators. Anticipated projects include specimen collections from standard trawl hauls such as ovary collection from pre-spawning walleye pollock and rockfish. Detailed descriptions of additional ancillary projects will be provided as soon as received. Significant changes to these projects that affect vessel operations will be communicated as soon as they are known.

B. NOAA Fleet Ancillary Projects: N/A

VI. Disposition of Data and Reports

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

A. Data Classifications: *Under Development*

a. OMAO Data

b. Program Data

B. Responsibilities:

1. An electronic Marine Operations Abstract (MOA) will be created to log all operations via daily transfers of position data from the ship's SCS system to MACE. An appropriate logging interval will be chosen for automated track position data. Specific events (and frequency) to be recorded will be decided at the beginning of the project. Globe software will be available to log operations data as a backup. All times should be recorded as Greenwich Mean Time (GMT)
2. The data sets requested by the Chief Scientist from the ship will include the following: electronic files (MOA) from the SCS of all operations logged during the project, and backup media (e.g., DVDs) with all sensor data logged to the Scientific Computer System (SCS).
3. The Chief Scientist will represent the AFSC lab director for data disposition. A single copy of all data gathered by the vessel will be delivered to the Chief Scientist, who in turn will be responsible for distributing data to other investigators desiring copies.

VII. Meetings, Vessel Familiarization, and Project Evaluations

- A. Pre-Project Meeting: The Chief Scientist and Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship's crew to discuss required equipment, planned operations, concerns, and establish mitigation strategies for all concerns. This meeting shall be conducted before the beginning of the project with sufficient time to allow for preparation of the ship and project personnel. The ship's Operations Officer usually is delegated to assist the Chief Scientist in arranging this meeting.
- B. Vessel Familiarization Meeting: The Commanding Officer is responsible for ensuring scientific personnel are familiarized with applicable sections of the standing orders and vessel protocols, e.g., meals, watches, etiquette, drills, etc. A vessel familiarization meeting shall be conducted in the first 24 hours of the project's start, per OMAO Procedure 1201-08, NOAA Ship Vessel Familiarization, 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.

D. Project Evaluation Report

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

VIII. Miscellaneous

A. Meals and Berthing

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

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

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The Chief Scientist will ensure that all non-NOAA or non-Federal scientists aboard also

have proper orders. It is the responsibility of the Chief Scientist to ensure that the entire scientific party has a mechanism in place to provide lodging and food and to be reimbursed for these costs in the event that the ship becomes uninhabitable and/or the galley is closed during any part of the scheduled project.

All persons boarding NOAA vessels give implied consent to comply with all safety and security policies and regulations which are administered by the Commanding Officer. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must comply with OMAO's Drug and Alcohol Policy dated May 7, 1999 which forbids the possession and/or use of illegal drugs and alcohol aboard NOAA Vessels.

B. Medical Forms and Emergency Contacts

The NOAA Health Services Questionnaire (NHSQ, Revised: 02 JAN 2012) 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: [Include only the Pacific OR Atlantic Office as applicable.](#)

Regional Director of Health Services
Marine Operations Center – Pacific
2002 SE Marine Science Dr.
Newport, OR 97365
Telephone 541-867-8822
Fax 541-867-8856
Email MOP.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.

C. Shipboard Safety

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

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

D. Communications

A progress report on operations prepared by the Chief Scientist may be relayed to the program office. Sometimes it is necessary for the Chief Scientist to communicate with another vessel, aircraft, or shore facility. Through various means of communications, the ship can usually accommodate the Chief Scientist. Special radio voice communications requirements should be listed in the project instructions. The ship's primary means of communication with the Marine Operations Center is via 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.

E. IT Security

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

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

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

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

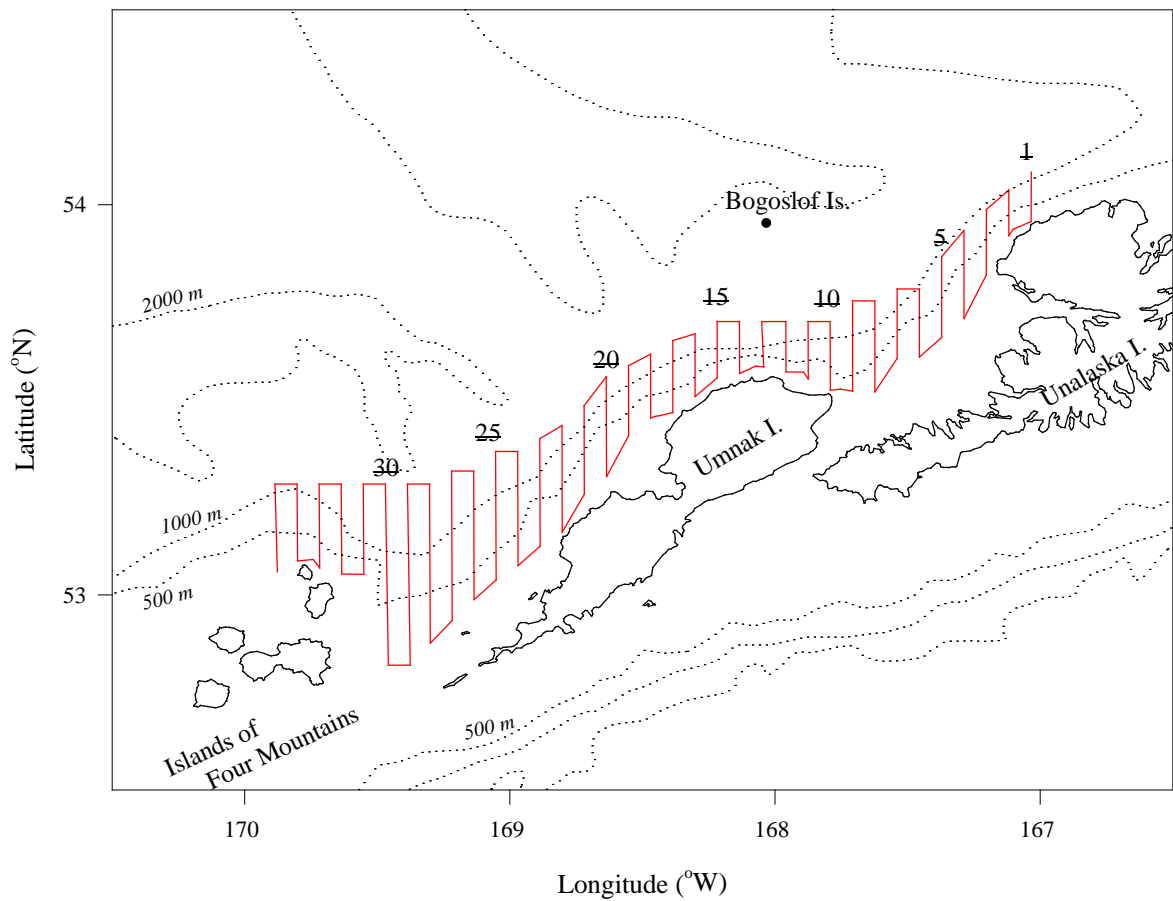
F. Foreign National Guests Access to OMAO Facilities and Platforms

Foreign National access to the NOAA ship or Federal Facilities is not required for this project.

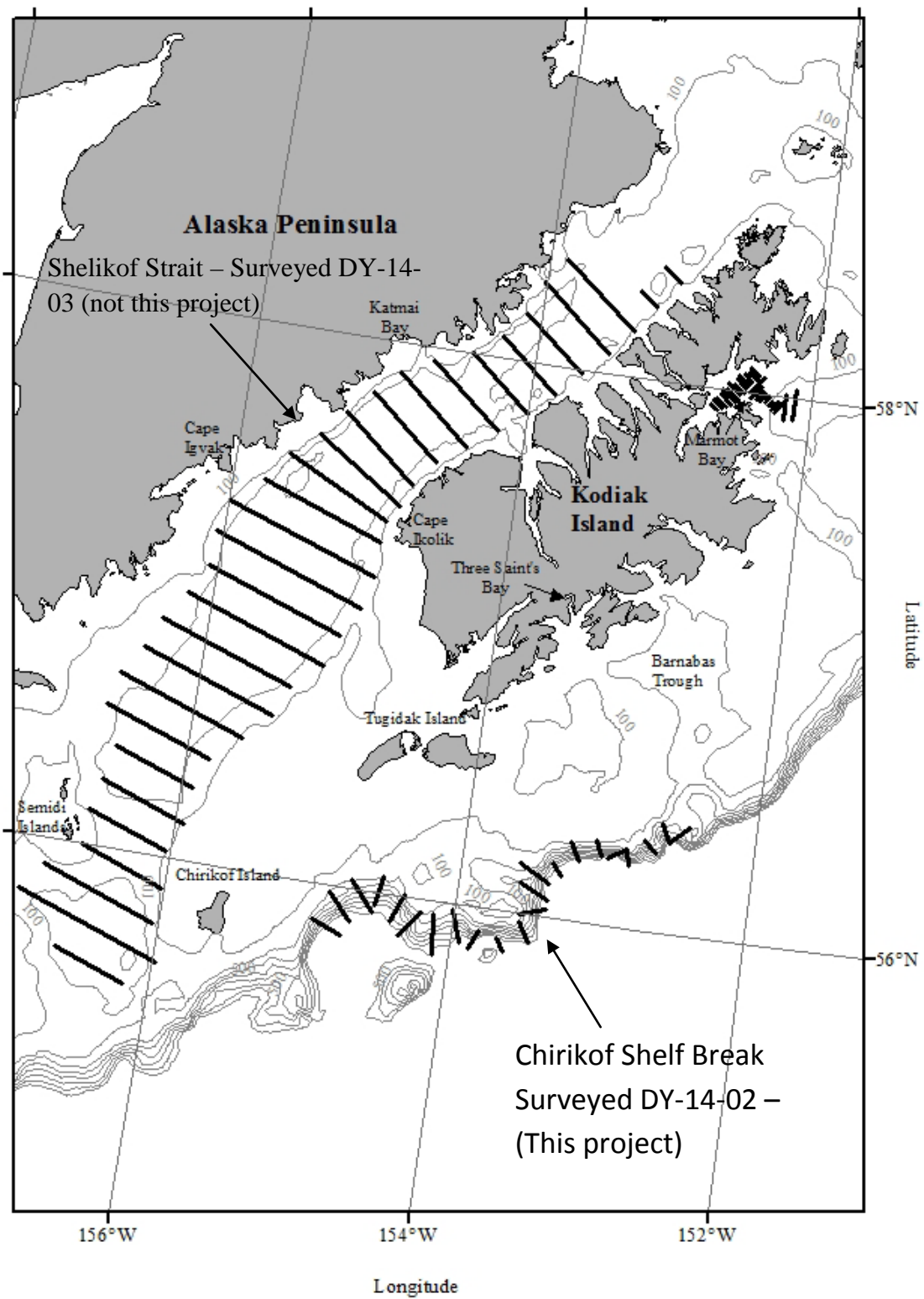
Appendices

- A. Proposed survey area Southeast Aleutian Basin near Bogoslof Island
- B. **Proposed survey area Chirikof Shelf Break**
- C. Chemical Hygiene Plan

Appendix A - Proposed survey area Southeast Aleutian Basin near Bogoslof Island.



Appendix B – Proposed survey area Chirikof Shelf Break



Appendix C – Chemical Hygiene Plan

Following is a list of hazardous materials by name and anticipated quantity. Chemicals will be transported, stored and used in a manner that will avoid spills and adequate containment, absorbents, and cleanup materials will be available in the event of a spill.

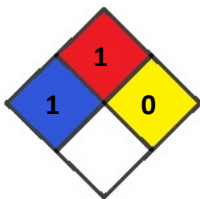
The scientific chemicals to be used for this project are: 1) glycerin\Thymol; 2) formaldehyde (37%). Dilutions of scientific chemicals will be used to preserve tissues collected from trawl samples as described in the Operations section of these Project instructions. Use of these chemicals and the specified dilutions will only occur in areas away from air intakes. Scientific chemicals shall not be disposed of over the side.

Standard Operating Procedures and Information Sheets are provided for the scientific chemicals. Included are details concerning personal protective equipment, work area precautions, special handling and storage requirements, spill and accident procedures/first aid, waste disposal and other pertinent information. Spills are of particular concern and should first be contained and then neutralized. In all cases, the first responder should evaluate the risks of personal exposure versus potential impacts of a delayed response. A large formaldehyde spill (>1L) is extremely hazardous and individuals at risk of exposure should immediately leave the area. The CO or OOD should be notified immediately so that a response team with self-contained breathing apparatus can be deployed to complete the cleanup operation or dispense the hazard with a fire hose directed overboard. The vessel's course should be adjusted to minimize exposure of personnel to wind-driven vapors and to limit spread of the spill due to vessel motion.

Chemical Inventory

Chemical Name	Concentration	Quantity	Notes
Glycerin/Thymol	50% Glycerin/1% Thymol	5 gal. (18.9 L)	For otolith preservation.
Formaldehyde	37%	4.2 gal. (16 L)	For ovary preservation

FOR HAZARDOUS CHEMICALS



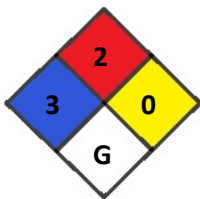
Glycerin (50%)/Thymol(0.3%)
solution

#1 Process	General use in the field or on research vessels for otolith preservation
#2 Hazardous Chemicals/Class of Hazardous Chemicals	100% Glycerin may cause eye or skin irritation
#3 Personal Protective Equipment/ Decontamination	Gloves, splash goggles, lab coat or rain gear. For small spills dilute with water and mop up. For larger spills, absorb with inert material. In case of skin/eye contact: flush with running water for at least 15 min. In case of ingestion: Do not induce vomiting. In case of inhalation: move to fresh air.
#4 Engineering/ Ventilation Controls	Provide exhaust venilation to keep airborne concentrations of vapors low.
#5 Special Handling Procedures and Storage Requirements	Store at room temp in tightly closed container.
#6 Waste Disposal	Dispose of waste and residues in accordance with local authority requirements. Incinerate. When released into water, this material is expected to readily biodegrade and is not expected to significantly bioaccumulate.

**ALASKA FISHERIES SCIENCE CENTER STANDARD OPERATING PROCEDURES
RACE/MACE
January 2014**

FOR HAZARDOUS CHEMICALS

Formaldehyde Solution – 37%



#1 Process	General use of 37% formaldehyde in the field or on research vessels.
#2 Hazardous Chemicals/Class of Hazardous Chemicals	37% formaldehyde Carcinogen; very harmful by absorption through skin/eyes, inhalation and ingestion. If you smell formaldehyde, you may be overexposed. Odor and eye irritation becomes less sensitive with time as one adapts to formaldehyde. Possible irreversible effects.
#3 Personal Protective Equipment/ Decontamination	<p>Nitrile or rubber gloves, goggles, apron or rain gear, rubber boots are required. Get a co-worker to stand by as an observer.</p> <p>For small spills spray on NeutraleX and wipe up with formalin spill pads. For larger spills, circle the spill with Spill-X for formaldehyde to contain spill to one area. Fill circle with Spill-X or NeutraleX and sweep, wipe up, or hose down. For spills on deck, attempt to pour NeutraleX on spill before hosing down deck. This reduces vapors and creates a safer environment for co-workers (i.e. neutralizes splash). Wear protective clothing and full face respirator with a formaldehyde cartridge.</p> <p>In case of skin/eye contact: flush with running water for at least 15 min. Toxic, exposure may cause irritation and possible burns.</p> <p>In case of ingestion: Do not induce vomiting. Rinse mouth with water. Ingestion may cause severe abdominal pain, vomiting, headache, diarrhea.</p> <p>In case of inhalation: move to fresh air. Exposure may cause sore throat, coughing, and shortness of breath. If difficult breathing give oxygen. If not breathing, administer CPR. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Call a physician.</p> <p>***For large spills or extreme exposure of formalin contact FPC & CO or OOD***</p>

<p>#4 Engineering/ Ventilation Controls</p>	<p>All work should be performed outside in plenty of fresh air or in lab (i.e. Oscar Dyson wet lab) with good ventilation and accessible water hoses. While working, have Neutrex nearby or easily accessible. Fume hoods when present, must be tested and certified regularly.</p>
<p>#5 Special Handling Procedures and Storage Requirements</p>	<p>Store in cool place away from strong oxidizing or reducing agents. When making 10% formalin, prepare solution BEFORE Project while in port. This reduces chance of spill and injury. If you must prepare solution at sea have 37% formaldehyde in small containers, 1 L, rather than 5 gallon jugs.</p>
<p>#6 Waste Disposal</p>	<p>Pour waste 37% formaldehyde into a container and mix 1:1 with Neutrex. Let sit for 2 hr or until reaction is complete and wash down the scupper with hose. If formalin spill pads are used, spray Neutrex in excess of spill.</p>
<p>#8 Designated Area</p>	<p>Special storage is required – Must be stored within flammable cabinet or on deck away from living quarters. Make certain that container is well labeled.</p>