



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Islands Fisheries Science Center
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Project Instructions

Date Submitted: July 3, 2013

Platform: NOAA Ship (*Oscar Elton Sette*)

Project Number: SE-13-07 (PIFSC)

Project Title: Life History Survey - Johnston Atoll

Project Dates: August 18, 2013 to September 5, 2013

Prepared by: *Robert L. Humphreys, Jr.* Dated: 7/11/2013
Robert L. Humphreys, Jr.
Chief Scientist
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Approved by: *for Samuel G. Pooley, Ph.D.* Dated: 7/15/2013
for Samuel G. Pooley, Ph.D.
Science Director
Pacific Islands Fisheries Science Center

Approved by: *Robert A. Kamphaus* Dated: 7/18/2013
Commander Robert A. Kamphaus, NOAA
Commanding Officer
Pacific Islands Area Command

I. Overview

A. Brief Summary and Project Period

The project period will start on August 18, 2013 and end September 5, 2013. The primary objectives of the project is to collect a sample size of $n=50$ adult individuals from each of the Deep-7 bottomfish species inhabiting Johnston Atoll. Pelagic stage larvae and juveniles of each of the Deep-7 bottomfish species will also be sampled using a midwater trawl. Pelagic stage sampling will include the offshore area adjacent to Johnston Atoll and in the intervening oceanic waters between Johnston Atoll and Hawaii during the return leg of this project.

B. Service Level Agreements

Of the 19 DAS scheduled for this project, 0 DAS are funded by the program and 19 DAS are funded by OMAO. This project is estimated to exhibit a High Operational Tempo.

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

The research operations at Johnston Atoll will be conducted during daylight hours along selected portions of the 100-400 m depth contours of Johnston Atoll and at night in adjacent waters some 25 nmi offshore. Operations each night will also be conducted during the return leg from Johnston Atoll to Ford Island.

D. Summary of Objectives

The scientific objectives of this project are:

1. Conduct daylight bottomfish sampling survey in the 100-400 m depth zone around Johnston Atoll to collect $n=50$ adult specimens of each of the Deep-7 species. Bottomfish specimens will be processed to extract either fin clip or muscle tissue samples for DNA-based population connectivity comparisons between Johnston Atoll and the Hawaiian Archipelago. Heads and gonads from select sizes will be removed and saved for future life history studies.
2. Conduct one night-time midwater Cobb trawl haul in waters ~25 nmi offshore each night during the entire stay at Johnston Atoll. Trawl operations will target successive depth zones of 175 m, 100 m, and 25 m trawling for 1-h at each of these depth zones during each trawl operation. During the return leg from Johnston Atoll to Ford Island, two nighttime trawl hauls will be performed each night.. Pelagic phase larvae and juveniles of the Deep-7 bottomfish species will be targeted; collected specimens will provide information on distribution, transport, pelagic duration, and will also be used in DNA-based population connectivity studies between Johnston Atoll and the Hawaiian Archipelago.
3. The ship will collect oceanographic data from routine conductivity-temperature-depth (CTD) casts, continuous acoustic Doppler current profiler (ADCP), and thermosalinograph (TSG) measurements while at Johnston Atoll and during the return leg

from Johnston Atoll to Ford Island. CTD casts will be conducted once each night at the location immediately prior to the start of the first midwater Cobb trawl of the evening. The CTD cast measurements will also include fluorometer measurements and laboratory determination of nutrients, chlorophyll and accessory pigment determinations from water samples collected from sample bottles mounted on the CTD rosette. These data will be used to assess the influence of the physical dynamics on the biological productivity in the region.

4. Conduct daylight 1.8-m Isaacs-Kidd (IK) tows in surface waters adjacent to daytime bottomfish sampling operations while at Johnston Atoll. Tows will target larval stage billfish and will be conducted on a time-available basis.

5. The ship will provide support for any needed transportation of items and supplies to Johnston Island for the Fish & Wildlife Service.

6. Drifting night-light dip-netting operations off the port side longline pit will be conducted when weather and current conditions are calm on a time available basis. These operations will be conducted after the 1st Cobb trawl operation of the night has been completed and would last some 1-3 hours.

E. Participating Institutions

Participating institutions during this cruise will include scientists from the Monterey Bay Aquarium (Monterey, California, USA) and Hawaii Pacific University (Kaneohe, Hawaii, USA).

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

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Humphreys, Robert	Chief Scientist	8/18/2013	9/5/2013	M	PIFSC	USA
Barlow, Jamie	Biological Technician	8/18/2013	9/5/2013	M	PIFSC	USA
Breuer, Eric		8/18/2013	9/5/2013	M	PIFSC	USA
Giuseffi, Louise	Biological Technician	8/18/2013	9/5/2013	F	PIFSC	USA
Mooney, Eric	Biological Technician	8/18/2013	9/5/2013	M	PIFSC	USA
Sundberg,	Fisheries	8/18/2013	9/5/2013	F	JIMAR	USA

Meagan	Bio-Sampling Associate					
Kantor, Justin	Aquarist	8/18/2013	9/5/2013	M	Monterey Bay Aquarium	USA
Knowles, Tommy	Aquarist	8/18/2013	9/5/2013		Monterey Bay Aquarium	USA
Ebisui III, Eddie		8/18/2013	9/5/2013	M	Fisherman	USA
Pardee, Cassandra	Graduate Student	8/18/2013	9/5/2013	F	Hawaii Pacific University	USA

G. Administrative

1. Points of Contact

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Project Operations Lead, Small Boat Operations
 James Barlow
 Ford Island, 1875 Wasp Blvd., Inouye Regional Center, Bldg. 130
 Honolulu, HI 96818
 (808) 690-9645
James.Barlow@noaa.gov

Agent - NA

2. Diplomatic Clearances - NA

3. Licenses and Permits

NEPA: This project meets the requirements of NOAA Administrative Order (NAO) Series 216-6 Environmental Review Procedures, Sections 5.05 and 6.03c.3(a) for Categorical Exclusions (CE) for Research Programs.

II. Operations

A. Project Itinerary

The following operational plans can be considered only a guide as to how the Chief Scientist expects the surveys to progress without being able to predict the weather, operational and scheduling problems, and equipment failures. In particular, it should be noted that the transit time is approximate and may be altered based on weather or the progress of the survey. Based on a ship speed of 9.0 knots.

18 August 0900. All scientific field party aboard.

18 August 1000. Start of project. Depart Ford Island and begin outbound leg to Johnston Atoll.

18-21 August Underway to Johnston Atoll.

21 August ~1730. Arrive 25-nm offshore of Johnston Atoll. Conduct CTD cast; 1830-2230: Cobb trawl.

22 August 0500-0730: Conduct bottom survey for fishing grounds; 0800-1530: Bottomfish off small boats, processing fish on Sette, surface IK tows if time available; 1730: CTD cast; 1830-2230: Cobb trawl 25-nm offshore.

23 August 0500-0730: Conduct bottom survey for fishing grounds; 0800-1530: Bottomfish off small boats, processing fish on Sette, surface IK tows if time available; 1730: CTD cast; 1830-2230: Cobb trawl 25-nm offshore.

24 August 0500-0730: Conduct bottom survey for fishing grounds; 0800-1530: Bottomfish off small boats, processing fish on Sette, surface IK tows if time available; 1730: CTD cast; 1830-2230: Cobb trawl 25-nm offshore.

25 August 0500-0730: Conduct bottom survey for fishing grounds; 0800-1530: Bottomfish off small boats, processing fish on Sette, surface IK tows if time available; 1730: CTD cast; 1830-2230: Cobb trawl 25-nm offshore.

- 26 August 0500-0730: Conduct bottom survey for fishing grounds; 0800-1530: Bottomfish off small boats, processing fish on Sette, surface IK tows if time available; 1730: CTD cast; 1830-2230: Cobb trawl 25-nm offshore.
- 27 August 0500-0730: Conduct bottom survey for fishing grounds; 0800-1530: Bottomfish off small boats, processing fish on Sette, surface IK tows if time available; 1730: CTD cast; 1830-2230: Cobb trawl 25-nm offshore.
- 28 August 0500-0730: Conduct bottom survey for fishing grounds; 0800-1530: Bottomfish off small boats, processing fish on Sette, surface IK tows if time available; 1730: CTD cast; 1830-2230: Cobb trawl 25-nm offshore.
- 29 August 0500-0730: Conduct bottom survey for fishing grounds; 0800-1530: Bottomfish off small boats, processing fish on Sette, and surface IK tows if time available; 1730: CTD cast; 1830-2230: Cobb trawl 25-nm offshore.
- 30 August 0500-0730: Conduct bottom survey for fishing grounds; 0800-1530: Bottomfish off small boats, processing fish on Sette, and surface IK tows if time available. Depart Johnston Atoll on return course to Ford Island
- 31 August-
1 September Conduct CTD cast at 1730 position. Conduct 1st night Cobb trawl from 1830 to 2230. Conduct 2nd Cobb trawl from 0130 to 0530. Resume transit to Ford Island.
- 1-2 September Conduct CTD cast at 1730 position. Conduct 1st night Cobb trawl from 1830 to 2230. Conduct 2nd Cobb trawl from 0130 to 0530. Resume transit to Ford Island.
- 2-3 September Conduct CTD cast at 1730 position. Conduct 1st night Cobb trawl from 1830 to 2230. Conduct 2nd Cobb trawl from 0130 to 0530. Resume transit to Ford Island.
- 3-4 September Conduct CTD cast at 1730 position. Conduct 1st night Cobb trawl from 1830 to 2230. Conduct 2nd Cobb trawl from 0130 to 0530. Resume transit to Ford Island.
- 4-5 September Conduct CTD cast at 1730 position. Conduct 1st night Cobb trawl from 1830 to 2230. Conduct 2nd Cobb trawl from 0130 to 0530. Resume transit to Ford Island.

5 September 0800. Arrive Ford Island; end of project. Disembark all 11 scientists.

B. Staging and Destaging

1. Staging

Prior to sailing on 18 August, the ship's crew will inspect the port- and starboard-side J-frames and associated oceanographic winches, install right angle baffle for port side A/C water outflow, conducting cable and DESH-5 winch for CTD operations, the trawl net reel and stern trawl winches, the Netmind net mensuration system, the RD Instruments ADCP and associated computer and software, the thermosalinograph, the flow-through Turner 10-AU fluorometer, the Simrad EK60 echosounder, the Scientific Computing System (SCS), the Global Positioning System (GPS) navigational systems, and the scientific freezer to ensure that they are in proper working order. The SeaBird 9/11+CTD system and frame, and the SEACAT portable CTD will be installed and inspected ensuring that they are fully operational. Electrical continuity of the J-frame conducting cable, the winch's slip ring assembly, and connections to the electronic laboratory will be confirmed by the Chief Electronics Technician before sailing. The scientific small boat will be operational and ready to be deployed prior to sailing. The ship should also plan to provide Survey technician Robert Spina to participate in CTD & Cobb trawl operations or as needed to augment research duties.

Six-55 gal barrels of fuel for use by the two NOAA small boats (SE-4 and SE-6) during bottomfishing operations at Johnston Atoll will be provided by PIFSC and stored onboard the Sette for the duration of the cruise. It also appears that the FWS may request the Sette transport an unconfirmed amount of additional fuel barrels to be offloaded at Johnston Island upon arrival. The location of these fuel barrels and the safety jettison racks to which these will be mounted remains to be determined in consultation with the ship's CO and OPS officer.

Prior to departing Ford Island on 18 August, scientists and crew will load the PIFSC SE-6 SafeBoat and six-55 gal barrels of fuel for the operation of the two small boats during the cruise.

Three days prior to departing Pearl Harbor on 18 August, the ship's crew will load the Cobb midwater trawl onto the trawl net reel.

One to two large (5-ft. x 4-ft.) plastic bins will be situated adjacent and to the port side of the trawl net reel. These bins will be supplied by the Monterey Bay Aquarium staff. During the project, the bins will be filled with seawater and serve as captivity tanks for maintaining any viable, small deep-water sharks captured during Cobb midwater trawl hauls.

Dates and equipment/personnel needed for loading of scientific equipment will be provided to the ship no later than 30 days prior to sailing.

2. Destaging

Dates and equipment/personnel needed for off-loading scientific equipment will be provided to the ship no later than 30 days prior to sailing.

C. Operations to be Conducted

Conduct bottomfish handline sampling operations from two small boats and possibly the Sette to obtain scientific specimens of eteline snappers and epinepheline grouper species for genetic and life history studies.

Conduct a shipboard CTD cast prior to each night's first Cobb trawl.

Conduct nighttime Cobb trawl tows targeting pelagic stage larval and juvenile specimens eteline snappers species.

On a time available basis, conduct daylight one-hour surface IK tows deployed from the longline pit.

On a time and weather available basis, conduct drifting night-light operations from the longline pit.

It is requested that the Chief Survey Technician (Robert Spina) be available 12 hours per night during the return transit leg and 6 hours per night while at Johnston Atoll to provide technical expertise and assistance during the CTD and Cobb trawl operations.

Supplies, fuel, and other items may be disembarked onto Johnston Island upon the ship's arrival.

The following operational plans can be considered only a guide as to how the Chief Scientist expects the surveys to progress without being able to predict the weather, operational and scheduling problems, and equipment failures. In particular, it should be noted that the amount of time required at each of the working areas is approximate and may be altered based on weather or the progress of the survey.

The Chief Scientist has the authority to revise or alter the technical portion of the instructions as work progresses, provided that, after consultation with the Commanding Officer, it is ascertained that the proposed changes will not (1) jeopardize the safety of personnel or the ship, (2) exceed the overall time allotted for the project, (3) result in undue additional expenses, and (4) alter the general intent of the project instructions. In addition, the Chief Scientist must notify the Office of the Director of the Pacific Islands Fisheries Science Center at the earliest opportunity prior to making: (1) deviations from the general project track or area of operations noted in the project instructions, (2) significant changes or additions of research operations to those specified in the project instructions, or (3) port calls not specifically identified in the project instructions.

1. Underway Operations

Current velocity will be continuously monitored with an ADCP, while surface temperature, salinity, and chlorophyll-a will be monitored with a hull-mounted thermosalinograph and flow-through fluorometer throughout the duration of the project.

2. Station Operations

Small boat operations of SE-4 and SE-6 will be conducted when weather permits and in adhering to GAR assessments. Each day of bottomfishing operations will be preceded (0500-0700) with a bathymetric survey of the 100-400 m depth zone to identify likely bottomfish habitat to be targeted. Following the survey work, a daily meeting at 0730 will be held to discuss that days small boat operations and to assess the conditions likely to be encountered on the water that day. Small boat deployments will be scheduled for 0800 daily while at Johnston Atoll and return at around 1530.

For night operations, one CTD cast will be conducted as the first operation starting at about 1730. The CTD will be equipped with both a WetLab profiling and Seapoint flow-through fluorometer (for comparison between flow-through and non-flow-through sensors), redundant dissolved oxygen sensors, and a 12-Niskin water bottle carousel rosette sampler. Water samples will be collected for nutrients, chlorophyll-*a*, and chloropigments. All chloropigment samples including discrete chlorophyll-*a* samples will be filtered at sea. Chlorophyll-*a* samples will be analyzed at-sea post-filtration while chloropigments and nutrient samples will be stored in the ship's walk-in scientific freezer. CTD casts will go down to a maximum of 1000 meters in depth. Current velocity will be continuously monitored with an ADCP, while surface temperature, salinity, and chlorophyll-*a* will be monitored with a hull-mounted thermosalinograph and flow-through fluorometer throughout the duration of the project.

Cobb midwater trawl operations will begin after the completion of the CTD cast each evening. While at Johnston Atoll, one Cobb trawl will be conducted each night beginning at 1830 and ending at 2230. During the return transit leg, two Cobb trawl hauls will be conducted nightly at predefined start coordinates to be selected by the Chief Scientist. The first Cobb trawl will start at 1830 and end at 2230 while the second Cobb trawl will start at the same position beginning at 0130 and ending at 0530. At each trawl operational site, trawls will be conducted at a speed of 3.0 knots SOG. Each Cobb trawl operation will target three depth strata of 170-175 m (500-m wire out), 100-125 m (330-m wire out) and 20-25 m (100-m wire out) with a tow time of 60 minutes at each depth interval following net equilibration. A drifting night-light station will be conducted (weather and time permitting) in-between the two nightly Cobb trawls or after each trawl haul at Johnston Atoll during the time interval 2330-0100. During each Cobb trawl haul, net depth will be monitored using the Northstar Electronics Netmind mensuration system. Additionally, two time depth recorder (TDR) units will be attached to the net mouth; one on the headrope and the other on the footrope.

On a time available basis, surface IK tows targeting billfish larvae will be conducted from the port side longline pit during daylight hours. Surface tows will be 1-h in duration at a ship's speed of 3.5 to 4.0 knots.

3. Mitigation Measures for Protected Species during Trawl Operations

3.1. Monitoring methods

The officer on watch, Chief Scientist (CS) (or other designated member of the Scientific Party), and crew standing watch visually scan for marine mammals, sea turtles, and other ESA-listed species (protected species) during all trawl operations. The member of the crew designated to stand watch for marine mammals is dedicated to that function and visually scans the waters surrounding the vessel at least 30 minutes prior to the planned start of putting the trawl net into the water. This occurs either during transit leading up to arrival at the trawl sampling station or may also include time on station if other gears or equipment (e.g., CTD casts) are deployed before the trawl is deployed.

3.2. Operational procedures

“Move-On” Rule. If any marine mammals or sea turtles are sighted anywhere around the vessel in the 30 minutes before setting the gear, the vessel may be moved away from the animals to a different section of the sampling area if the animals appear to be at risk of interaction with the gear at the discretion of the officer on watch in consultation with the CS. Small moves within the sampling area can be accomplished without leaving the sample station. After moving on, if marine mammals or sea turtles are still visible from the vessel and appear to be at risk, the officer on watch may decide, in consultation with the CS, to move again or to skip the station. The officer on watch will first consult with the CS or other designated scientist and other experienced crew as necessary to determine the best strategy to avoid potential takes of these species based on those encountered, their numbers and behavior, position and vector relative to the vessel, and other factors. For instance, a whale transiting through the area and heading away from the vessel might not require any move or only require a short move from the initial sampling site while a pod of dolphins gathered around the vessel may require a longer move from the initial sampling site or possibly cancellation of the station if they follow the vessel. In most cases, trawl gear is not deployed if marine mammals have been sighted from the ship in the previous 30 minutes unless those animals do not appear to be in danger of interactions with the trawl, as determined by the judgment of the CS and officer on watch. The efficacy of the “move-on” rule is limited during night time or other periods of limited visibility; although operational lighting from the vessel illuminates the water in the immediate vicinity of the vessel during gear setting and retrieval.

Once the trawl net is in the water, the officer on watch, CS or other designated scientist, and/or crew standing watch continue to monitor the waters around the vessel and maintain a lookout for marine mammal and sea turtle presence as far away as environmental conditions allow (as

noted previously, visibility is very limited during night trawls). If these species are sighted before the gear is fully retrieved, the most appropriate response to avoid incidental take is determined by the professional judgment of the officer on watch, in consultation with the CS or other designated scientist and other experienced crew as necessary. These judgments take into consideration the species, numbers, and behavior of the animals, the status of the trawl net operation (net opening, depth, and distance from the stern), the time it would take to retrieve the net, and safety considerations for changing speed or course. Most marine mammals have been caught during haul-back operations, especially when the trawl doors have been retrieved and the net is near the surface and no longer under tension. Acoustic pingers and excluder devices are not operational under these conditions so great care must be taken to limit the risk to the animals. It may sometimes be safer to continue trawling until the marine mammals and/or sea turtles have lost interest or transited through the area before beginning haul-back operations. In other situations, swift retrieval of the net may be the best course of action. The appropriate course of action to minimize the risk of incidental take of protected species is determined by the professional judgment of the officer on watch and appropriate crew based on all situational variables, even if the choices compromise the value of the data collected at the station.

If trawling operations have been delayed because of the presence of marine mammals or sea turtles, the vessel resumes trawl operations (when practicable) only when these species have not been sighted within 30 minutes or else otherwise determined to no longer be at risk. This decision is at the discretion of the officer on watch and is situationally dependent.

Care is taken when emptying the trawl, including opening the cod end as close to the deck as possible in order to avoid damage to protected species that may be caught in the gear but are not visible upon retrieval. The gear is emptied as quickly as possible after retrieval in order to determine whether or not protected species are present.

Standard tow durations for midwater Cobb trawls are 3-4 hours as target species (such as pelagic stage eteline snappers) are relatively rare and longer haul times to acquire samples numbers. However, trawl hauls will be terminated and the trawl retrieved upon the determination and professional judgment of the officer on watch, in consultation with the CS or other designated scientist and other experienced crew as necessary, that this action is warranted in order to avoid an incidental take.

Vessel speeds are restricted on research cruises in part to reduce the risk of ship strikes with marine mammals. Transit speeds vary from 6-11 knots (kts), but average 10 kts. The vessel's speed during active sampling is typically 2-4 kts due to sampling design. Thus, these much

slower speeds essentially eliminate the risk of ship strikes.

As noted above, if marine mammals are sighted near the vessel within 30 minutes prior to deployment of the trawl net, the vessel will be moved away from the animals to a new station. At any time during a survey or in transit, any crew member that sights marine mammals that may intersect with the vessel course immediately communicates their presence to the bridge for appropriate course alteration or speed reduction as possible to avoid incidental collisions, particularly with large whales (e.g., blue whales).

D. Dive Plan – N/A

E. Applicable Restrictions

1. “Take” of Protected Species

a. Under the Marine Mammal Protection Act and Endangered Species Act it is unlawful to take a protected species. The MMPA defines take as "harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect." The ESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." An incidental take is one that incidental to, but not the purpose of, otherwise lawful activities.

b. In the event of an incidental take of a marine mammal or federally listed threatened or endangered species during the cruise, the chief scientist will report the incident to the PIFSC Director and Deputy Director IMMEDIATELY via IRIDIUM, INMARSAT, and email. Samples should not be collected from any incidentally taken marine mammals, sea turtles, or seabirds. Photos of the incidentally caught animal should be taken to properly identify the species, but the process of taking the photos must not contribute to the further injury of the animal. These photos are for the purposes of internal NMFS verification only, and must not be shared outside of PIFSC or the Office of Protected Resources (i.e., do not post the photos on the internet).

c. As described at II. C. 3. (above), PIFSC has developed mitigation measures for our fisheries and ecosystem research cruises to avoid take and comply with the Lecky, Murawski, and Merrick guidance. A copy of these documents is also available at <https://sites.google.com/a/noaa.gov/pifsc-science-operations/home/nepa-permits/protected-species-mitigation-measures> and on the ship's bridge.

III. Equipment

A. Equipment and Capabilities Provided by the Ship

- CTD system and heavy duty cage assembly
- 12 complete Niskin bottles, with at least enough spare parts to replace 4 bottles
- Port and starboard J-frames and blocks for 1.8-m IK and CTD, respectively
- Stern trawl winches
- Oceanographic winches and cables (port and starboard)
- SEACAT portable CTD with backup
- Deck cranes with 600-lb static-lift block (for BotCam deployment/recovery)
- Thermosalinograph
- RD Instruments ADCP and associated computer and software
- EK60 and ES60 echosounder system at the frequencies of 38 kHz, 70 kHz, 120 kHz, and 200 kHz
- GPS navigational system
- Depth sounders and recorders
- Scientific freezer, kept between -30° and -20°C at all times
- Two-way radios for communication from the electronics lab to the winch operator
- Operational Scientific Computing System (SCS)
- Navigational equipment and course plotter
- Supplies necessary for at least two reterminations of the J-frame conducting cable
- Adequate fresh water for gear wash down
- Iridium phone
- A minimum of 2 terabyte shared network space
- Sette hydraulic handline fishing gurdies (3) for bottomfish sampling along the port side
- SE-4 and coxswain

B. Equipment and Capabilities Provided by the Scientists

- Weight scales and measuring calipers
- Water filtration equipment (vacuum pump, filtering ring, filters, forceps, etc.)
- WetLabs profiling and SeaPoint flow-through fluorometers
- Redundant dissolved oxygen sensors
- Cobb (Stauffer) trawls and bridles
- 5 ft × 7 ft “V” doors
- IK trawl gear, plankton nets
- Northstar Netmind trawl mensuration system
- Time-depth recorders (TDRs) for net monitoring
- Sample collection jars
- Trays and other supplies for sorting trawl catches
- Trawl sample scale

- Turner 10-AU Fluorometer
- Two laboratory dissecting microscopes
- Laboratory glassware (e.g., Erlenmeyer flasks, graduated cylinders)
- External hard drives (at least 1-2 TB) for data common storage and backup capabilities.
- PIFSC 5-m SafeBoat, cradle and stand, and coxswain
- Electric handline gurdies for small boats
- Hooks, line, weights, and other fishing supplies for small boat handline bottomfishing
- Frozen squid and fish bait
- Fuel (6-55 gal barrels) for small boats
- Weight scales and measuring calipers
- Knives and other tools for processing and measuring fish
- Fish release kits and tags

IV. Hazardous Materials

A. Policy and Compliance

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

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

- A list of hazardous materials by name and anticipated quantity
- A list of neutralizing agents, buffers, and/or absorbents required for these hazardous materials, if they are spilled
- A chemical hygiene plan.

A chemical hygiene plan is a written document establishing procedures, equipment, personal protective equipment and work practices to protect employees from the health hazards from chemicals used in that particular workplace. This document is usually managed by the laboratory or science center personnel. On most projects, the program doesn't bring the entire hygiene plan, just the relevant portions about PPE; spills, etc for underway operations. For reference:

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10106

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

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. Radioactive Isotopes - N/A

The Chief Scientist is responsible for complying with OMAO 0701-10 Radioactive Material aboard NOAA Ships. Documentation regarding those requirements will be provided by the Chief of Operations, Marine Operations Center, upon request.

At least three months in advance of a domestic project and eight months in advance of a foreign project start date the shall submit required documentation to MOC-CO, including:

1. NOAA Form 57-07-02, Request to Use Radioactive Material aboard a NOAA Ship
2. Draft Project Instructions
3. Nuclear Regulatory Commission (NRC) Materials License (NRC Form 374) or a state license for each state the ship will operate in with RAM on board the ship.
4. Report of Proposed Activities in Non-Agreement States, Areas of Exclusive Federal Jurisdiction, or Offshore Waters (NRC Form 241), if only state license(s) are submitted).
5. MSDS
6. Experiment or usage protocols, including spill cleanup procedures.

Scientific parties will follow responsibilities as outlined in the procedure, including requirements for storage and use, routine wipe tests, signage, and material disposal as outline in OMAO 0701-10. All radioisotope work will be conducted by NRC or State licensed investigators only, and copies of these licenses shall be provided per OMAO 0701-10 at least three months prior to the start date of domestic projects and eight months in advance of foreign project start dates.

C. Inventory (itemized)

Sort the completed table by common name (in WORD: Click in the table, select Tab "Layout", select "Sort" (upper right), select "Common Name" and ensure "has header row" is checked .

Common Name	Concentration	Amount	Notes
Formalin	10%	5-gal	Stored in Wet Lab Chem Locker
Ethanol	95%	25-gal	Stored in Wet Lab Chem Locker

V. Additional Projects

A. Supplementary (“Piggyback”) Projects

The PIFSC bird, aquatic marine mammal, and fish school sightings log, per Chief Scientist instructions. No take is associated with any of the above operations.

B. NOAA Fleet Ancillary Projects

Ancillary tasks will be accomplished in accordance with the NOAA Fleet Standing Ancillary instructions as long as they do not interfere with primary mission objectives.

VI. Disposition of Data and Reports

A. Data Responsibilities

The bridge will keep track of all scientific operations (each fish operation boat launch and retrieval, IK tow, Cobb trawl, CTD cast, and drifting night-light). Each of these station operations will be assigned a unique station number using a sequential number sequence starting with Station #1 for the first scientific operation. Each station will have a start and end position, date, time, and depth over water. The Bridge will use the SCS system to event mark the start and end time of each station operation. For small boat fish sampling operations, the same station number will be used for both launch and recovery. The Survey Tech and scientists will collect the more detailed primary data associated with each of the station operations.

Data Disposition: The Chief Scientist shall be considered to be the representative of the NMFS PIFSC Science Director for purposes of data disposition. A single copy of all data gathered by the vessel will be delivered to the Chief Scientist upon request who will be responsible for checking in a complete copy of this data to the PIFSC Scientific Information Services (SIS) Data Services group.

B. Pre and Post Project Meeting

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

Pre-Project Meeting: A pre-project meeting between the Chief Scientist, the Commanding Officer, the Chief Marine Engineer, the Science Center Director’s Office (or their designated representative) and their respective staffs will be held prior to commencement of operations to identify operational and logistic requirements. Additionally, prior to departure, the Chief Scientist will conduct a meeting of the scientific party for training in sample collection and to inform them of project objectives. General vessel protocols (e.g., meals, watches, etiquette, etc.) will be presented by the ship’s Operations Officer on the first day of sailing.

Post-Project Meeting: Upon completion of the project, a meeting will normally be held at 0830 (unless prior alternate arrangements are made) and attended by the ship’s officers, the Chief Scientist and members of the scientific party to review the project. Concerns regarding safety,

efficiency, and suggestions for improvements for future projects should be discussed. Minutes of the post-project meeting will be distributed to all participants by email, and to the Commanding Officer and Chief of Operations, Marine Operations Center.

C. Ship Operation Evaluation Report

Within seven days of the completion of the project, a Ship Operation Evaluation form is to be completed by the Chief Scientist. The preferred method of transmittal of this form is via email to omao.customer.satisfaction@noaa.gov. If email is not an option, a hard copy may be forwarded to:

Director, NOAA Marine and Aviation Operations
NOAA Office of Marine and Aviation Operations
8403 Colesville Road, Suite 500
Silver Spring, MD 20910

VII. Miscellaneous

A. Meals and Berthing

The ship will provide meals for the scientists listed above. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the project, and ending two hours after the termination of the project. Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours. Special dietary requirements for scientific participants will be made available to the ship's command at least seven days prior to the survey. Lunches will be provided for small boat crews while at Johnston Atoll. Two boats of 3-5 personnel in each boat.

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>. The completed form should be sent to the Regional Director of Health Services at Marine Operations Center. The participant can mail, fax, or scan the form into an email using the contact information below. The NHSQ should reach the Health Services Office no later than 4 weeks prior to the project to allow time for the participant to obtain and submit additional information that health services might require before clearance to sail can be granted. Please contact MOC Health Services with any questions regarding eligibility or completion of the NHSQ. Be sure to include proof of tuberculosis (TB) testing, sign and date the form, and indicate the ship or ships the participant will be sailing on. The participant will receive an email notice when medically cleared to sail if a legible email address is provided on the NHSQ.

Contact information for Pacific Office:

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

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. Close-toed shoes are required to participate in any work dealing with suspended loads, including CTD deployments and recovery. The ship does not provide close-toed boots. Hard hats are also required when working with

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

D. Communications

A progress report on operations prepared by the Chief Scientist may be relayed to the program office. Sometimes it is necessary for the Chief Scientist to communicate with another vessel, aircraft, or shore facility. Through various means of communications, the ship can usually accommodate the Chief Scientist. Special radio voice communications requirements should be listed in the project instructions. The ship's primary means of communication with the Marine Operations Center is via e-mail and the Very Small Aperture Terminal (VSAT) link. Standard VSAT bandwidth at 128kbs is shared by all 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 *NMAO Fleet IT Security Policy* 1.1 (November 4, 2005) prior to establishing a direct connection to the NOAA WAN. Requirements include, but are not limited to:

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

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

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

F. Foreign National Guests Access to OMAO Facilities and Platforms

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

No foreign nationals are scheduled to participate in SE 13-07.

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

Responsibilities of the Chief Scientist:

1. Provide the Commanding Officer with the e-mail generated by the FRNS granting approval for the foreign national guest's visit. This e-mail will identify the guest's DSN and will serve as evidence that the requirements of NAO 207-12 have been complied with.
2. Escorts – The Chief Scientist is responsible to provide escorts to comply with NAO 207-12 Section 5.10, or as required by the vessel's DOC/OSY Regional Security Officer.
3. Ensure all non-foreign national members of the scientific party receive the briefing on Espionage Indicators (NAO 207-12 Appendix A) at least annually or as required by the servicing Regional Security Officer.
4. Export Control - Ensure that approved controls are in place for any technologies that are subject to Export Administration Regulations (EAR).

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

Responsibilities of the Commanding Officer:

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

Officer.

Responsibilities of the Foreign National Sponsor:

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

Appendices

Fig. 1 - Cruise track for SE 13-07.

Fig. 2 - Bathymetry surrounding Johnston Atoll. Area in red represents potential handline bottomfishing grounds to be sampled during SE 13-07.