



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric  
Administration  
Pacific Islands Fisheries Science Center  
1845 Wasp Blvd. Bldg. 176 • Honolulu, Hawaii  
96818

### Final Project Instructions

**Date Submitted:** March 14, 2016  
**Platform:** NOAA Ship *Oscar Elton Sette*  
**Project Number:** SE-17-03 (OMAO)  
**Project Title:** Leeward Oahu Pelagic Ecosystem Characterization (LOPEC)  
**Project Dates:** March 29 – April 7, 2017

Prepared by: Donald Kobayashi Dated: 14 March, 2017

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Commander Matthew J. Wingate, NOAA  
Commanding Officer  
Marine Operations Center – Pacific Islands



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## I. Overview

### A. Brief Summary and Project Period

NOAA Ship *Oscar Elton Sette* will be engaged as support for a Pacific Islands Fisheries Science Center (PIFSC), National Marine Fisheries Service (NMFS), project from March 29 – April 7, 2017, for a total of 10 days at sea (DAS).

The focus of this mission is to support a new PIFSC project called the “Leeward Oahu Pelagic Ecosystem Characterization”, henceforth LOPEC. This particular expedition of the LOPEC project has two primary components related to the survey of pelagic micronekton and plankton off the coast of leeward Oahu, as described below.

The first primary component of LOPEC on SE17-03 is to perform a midwater trawl and bongo net survey from the *Oscar Elton Sette* to compare to a series of trawl and bongo net surveys from 1951-1978 off leeward Oahu, henceforth referred to as the baseline surveys. The baseline surveys estimated fish composition and abundance for 4 different components of the pelagic community, notably the mesopelagic fish assemblage<sup>1,2,7</sup>, shorefish larvae<sup>3</sup>, tuna larvae<sup>4</sup>, as well as a suite of zooplankton taxa from 2 forage availability studies and an early trawl survey<sup>5,6,7</sup>. Comparison of current composition and abundances to the baseline composition and abundances after 39-66 years will be a valuable scientific finding to ascertain how the pelagic ecosystem has changed, or not, over that extended time period. The sampling gears used in the baseline surveys from 1951-1978 are 10’ Isaacs-Kidd midwater trawl (IKMT), Cobb trawl, and 70cm bongo nets, all of which are available and deployable on *Oscar Elton Sette*. A summary of the baseline surveys is shown in Appendix 3.

The second primary component of LOPEC on SE17-03 is to establish a time series of micronekton and plankton for the leeward Oahu area for ecosystem monitoring. Some operations from the baseline comparison component will be

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<sup>1</sup> Clarke, T. A. (1973). Some aspects of the ecology of lanternfishes (Myctophidae) in the Pacific Ocean near Hawaii. *Fishery Bulletin, U. S.*, 71: 401-434.

<sup>2</sup> Clarke, T. A., and P. J. Wagner (1976). Vertical distribution and other aspects of the ecology of certain mesopelagic fishes taken near Hawaii. *Fishery Bulletin, U. S.*, 74(3): 635-646.

<sup>3</sup> Clarke, T. A. (1991). Larvae of nearshore fishes in oceanic waters near Oahu, Hawaii. NOAA Technical Report NMFS 101: 1-19.

<sup>4</sup> Higgins, B. E. (1970) Juvenile tunas collected by midwater trawling in Hawaiian waters, July-September 1967. *Transactions of the American Fisheries Society* 99(1): 60-69.

<sup>5</sup> Clarke, T. A. (1980). Diets of fourteen species of vertically migrating mesopelagic fishes in Hawaiian waters. *Fishery Bulletin, U. S.* 78(3): 619-640.

<sup>6</sup> Clarke, T. A. (1982). Feeding habits of stomiatoid fishes from Hawaiian waters. *Fishery Bulletin, U. S.*, 80(2): 287-304.

<sup>7</sup> King, J. E. and R. T. B. Iversen (1962) Midwater trawling for forage organisms in the central Pacific 1951-1956. *Fishery Bulletin* 62: 271-321.

part of the new time series with additional surveys of plankton using other sampling gear such as ring nets and other configurations (different mesh sizes) of bongo nets during both the daytime and the nighttime.

As a supplementary project on SE17-03, to further our understanding of the role of surface slicks in the pelagic ecosystem, PIFSC scientists will be conducting oceanographic measurements and plankton surveys of surface slicks off leeward Oahu using the small boat *SE-4* and possibly a PIFSC-supplied small boat. For all samples with plankton and micronekton survey gear there additionally will be detailed workup of plastic marine debris, with primary focus on microplastics and microbeads. Nightlighting and dipnetting are another supplementary project.

**B. Days at Sea (DAS)**

Of the 10 DAS scheduled for this project, 10 DAS are funded by a Line Office Allocation. This project is estimated to exhibit a High Operational Tempo.

**C. Operating Area**

The area of scientific operations encompasses waters around leeward Oahu as shown on a map in Appendix 1 and listed on a table in Appendix 2. Daily site selection for surveys will be weather dependent and may be modified at discretion of science party in coordination with ship staff.

**D. Summary of Objectives**

The objectives of the project are:

1. Deploy 10' IKMT, Cobb trawl, and 70-cm bongo nets from *Oscar Elton Sette* for quantitative micronekton and plankton collection for purposes of comparison to the baseline surveys.
2. Deploy other plankton and micronekton sampling gear such as ring nets (1-meter and 2-meter diameter), smaller and larger bongo nets, and a 10' Tucker trawl from *Oscar Elton Sette* for quantitative collections both day and night towards establishment of biologically meaningful time series in addition to methodologies of the prior objective.
3. As time and conditions allow, conduct small boat work in surface slicks off leeward Oahu.
4. As time and conditions allow, conduct nightlighting and dipnetting operations at night.

## E. Participating Institutions

- NOAA Pacific Islands Fisheries Science Center (PIFSC):
  - Ecosystem Sciences Division (ESD)
  - Science Operations Division (SOD)
  - Protected Species Division (PSD)
- NOAA Pacific Islands Regional Office (PIRO)
- Joint Institute for Marine and Atmospheric Research (JIMAR)
- University of Hawaii Department of Oceanography (UHM OCEAN)
- Hawaii Institute of Marine Biology (HIMB)
- American Museum of Natural History (AMNH)
- San Francisco State University Romberg Tiburon Center (SFSU)

## F. Personnel / Science Party

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Kobayashi, Donald	Chief Scientist	3/29/17	4/7/17	M	PIFSC/ESD	USA
Wren, Johanna	Trawl Lead	3/29/17	4/7/17	F	JIMAR	USA
Whitney, Jonathan	TBD	3/29/17	4/7/17	M	JIMAR	USA
Humphreys, Robert	Trawl Team	3/31/17	4/2/17	M	Volunteer	USA
Goetze, Erica	Plankton Team	3/29/17	4/7/17	F	UHM OCEAN	USA
Ossolinski, Justin	Trawl Team	3/29/17	4/7/17	M	JIMAR	USA
Denton, John	Trawl Team	3/29/17	4/7/17	M	AMNH	USA
McGinnis, Zora	Plankton Team	3/29/17	4/7/17	F	PIRO	USA
Lal, Shilpa	Small Boat Team	3/29/17	4/7/17	F	UHM OCEAN	Fiji
Jungbluth, Michelle	Plankton Team	3/29/17	4/7/17	F	SFSU	USA
Niimi, Yuuki	Trawl Team	3/31/17	4/7/17	M	UHM OCEAN	USA
Driskell, Rory	Small Boat Team	3/29/17	4/7/17	M	PIFSC/SOD	USA
Bennington-Castro, Joseph	Science Communications	4/1/17	4/2/17	M	PIRO	USA

## **G. Administrative**

### **1. Points of Contact**

Chief Scientist:

Dr. Donald Kobayashi

[Donald.Kobayashi@noaa.gov](mailto:Donald.Kobayashi@noaa.gov)

1845 Wasp Blvd, Building 176, Honolulu, HI 96818

808-725-5394

Ship Operations Officer:

LT Anthony Imberi

[OPS.Sette@noaa.gov](mailto:OPS.Sette@noaa.gov)

NOAA Ship *Oscar Elton Sette*

1897 Ranger Loop, Building 184, Honolulu, HI 96818

808-389-5695 (cell)

### **2. Diplomatic Clearances**

None Required.

### **3. Licenses and Permits**

The Chief Scientist will ensure the appropriate authorizations are secured for all planned scientific operations prior to the start of the project. These authorizations include renewing/updating the following:

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 for Research Programs. (PIFSC-20160059) Categorical Exclusion signed on October 5, 2016.

ESA: Section 7 consultation for deployment and operation of survey equipment initiated with the NMFS Pacific Islands Regional Office (PIRO) on ... and Letter of Concurrence signed by PIRO on ....

A copy of necessary research permits will be provided to the Command prior to commencing scientific operations.

## **II. Operations**

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

## A. Project Itinerary

Weather, equipment failures, and scheduling problems are unpredictable. As such, the following planned itinerary should be considered as only a guide for survey progression. Operations may be altered as appropriate based on weather, sea conditions, or the progress of the survey itself.

- 22 MAR Begin staging large gear throughout the week. Loading fuel, final gear, and hand carry items.
- 29 MAR **Start of project.** Embark scientific complement (except for Humphreys, Niimi, Bennington-Castro) at Ford Island as per ship's sailing board. *Oscar Elton Sette* departs Pearl Harbor and transits to the first leeward Oahu survey site. Conduct Welcome Aboard Brief, safety drills and operational planning. Conduct 10' IKMT stepped tow to maximum depth (~2500m wire out) for establishing wire out and depth relationship.
- 30 MAR Early morning opportunistic CTDs. Conduct morning safety brief, small boat safety meeting, and commence morning small boat operations. Conduct morning trawl safety meeting, commence trawl operations (Cobb/IK). Afternoon secure trawl operations, recover small boat(s). Conduct evening operations planning meeting, commence net tows (Bongo/Plankton).
- 31 MAR Early morning opportunistic CTDs. Conduct morning safety brief, small boat safety meeting, and launch small boat for personnel transfer (embark Humphreys and Niimi). Commence scientific small boat operations. Conduct morning trawl safety meeting, commence trawl operations (Cobb/IK). Afternoon secure trawl operations, recover small boat(s). Conduct evening operations planning meeting, commence net tows (Bongo/Plankton).
- 1 APR Early morning opportunistic CTDs. Conduct morning safety brief, small boat safety meeting, and launch small boat for personnel transfer (embark Bennington-Castro). Commence scientific small boat operations. Conduct morning trawl safety meeting, commence trawl operations (Cobb/IK). Afternoon secure trawl operations, recover small boat(s). Conduct evening operations planning meeting, commence net tows (Bongo/Plankton).
- 2 APR Early morning opportunistic CTDs. Conduct mid-day safety meeting, small boat safety meeting, and commence afternoon small boat operations. Commence afternoon net tows (Bongo/Plankton).

Conduct small boat personnel transfer (disembark Humphreys and Bennington-Castro). Secure towing operation and recover small boat(s). Conduct evening operations planning meeting and trawl safety meeting, commence night trawling operations through early morning.

3-4 APR Early morning opportunistic CTDs. Conduct mid-day safety meeting, small boat safety meeting, and commence afternoon small boat operations. Commence afternoon net tows (Bongo/Plankton). Secure towing operation and recover small boat(s). Conduct evening operations planning meeting and trawl safety meeting, commence night trawling operations through early morning.

5 -6 APR Buffer days for remedial surveys or continue with additional replicates of night Cobb/IKMT trawls.

7 APR *Oscar Elton Sette* returns to Pearl Harbor at a time deemed appropriate by the Command, disembarking scientific personnel aboard the ship. **End of project.**

## **B. Staging and Destaging**

Staging: Assistance from ship personnel for craning aboard other large gear and for loading small boat fuel will be necessary. Staging and loading is anticipated to occur 22-28 March. Transfer of small boat fuel is anticipated to occur that week if necessary. Hand carried items will be loaded by 28 March

Destaging: Full off-load of all program-provided gear will begin in coordination with the Command upon return to Pearl Harbor, 7 April.

Berthing: It is requested that berthing on ship be provided for John Denton (male) and Michelle Jungbluth (female) for 3 days, 2 nights prior to and 3 days, 2 nights after the project. They are flying in as JIMAR visiting scientists and are needed for cruise mobilization and demobilization. They will not expect food aboard ship.

## **C. Operations to be Conducted**

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 or scientific integrity of the project. In addition, the Chief Scientist must notify the Office of the Science 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) changes or additions of research operations to those specified in the project instructions, or (3) port calls not specifically identified in the project instructions.

Micronekton and plankton survey gear will be deployed from *Oscar Elton Sette* in both the daytime and nighttime. Cobb trawling protocols are already well established. The 10' IKMT deployment and retrieval is anticipated to occur off the stern through the A-frame using the CTD winch rotated towards the stern. A small CTD unit may be attached to the IKMT and conducting cable to allow real-time depth monitoring and oceanographic profiles to be accomplished during the tow. Bongo (and other) towed net deployment and retrieval is also anticipated to occur off the stern. All tows are anticipated to be stepped oblique tows in the upper 800m. Each tow will have a unique wire-out schedule depending on which of the historical studies is being targeted at that time, and the wire-schedule will be made jointly developed with ship staff at least 6 hours in advance of each tow.

Research efforts will require opportunistic small boat operations from Oscar Elton Sette. An Oscar Elton Sette small boat coxswain will be required to support opportunistic survey efforts from SE-4. It is requested that the deck department be staffed adequately to allow nighttime trawling operations (Cobb or IKMT) followed by daytime launch of SE-4 with Sette coxswain (with science party crew). Three small boat science personnel transfers are requested for 3/31, 4/1, and 4/2.

Recommended daily schedule 30 MAR to 01 APR 2017:  
0000-0830: Opportunistic CTDs with qualified watchstander  
0830-0900: Daily Safety Meeting  
0900-1000: Small Boat Safety Meeting and SE-4 Deployment  
1000-1030: Trawl Safety Meeting  
1030-1630: Cobb Trawl or 10' IK Trawl Ops  
1630-1700: Small Boat Recovery  
1700-1800: Dinner Break (Can discuss CTD if necessary)  
1800-1830: Ops Planning Meeting  
1830-2400: Bongo Nets or 2m Plankton Net Tows

Recommended daily schedule 02-06 APR 2017:  
0200-1130: Opportunistic CTDs with qualified watchstander  
1130-1200: Daily Safety Meeting  
1200-1300: Small Boat Safety Meeting and SE-4 Deployment  
1300-1630: Bongo Nets or 2m Plankton Net Tows  
1630-1700: Small Boat Recovery  
1700-1800: Dinner Break (Can discuss CTD if necessary)  
1800-1900: Ops Planning Meeting and Trawl Safety Meeting  
1900-0200: Cobb Trawl or 10' IK Trawl Ops

#### **D. 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.

There are no dives planned for this project.

#### **E. Applicable Restrictions**

Conditions which preclude normal operations: Poor weather and sea conditions, equipment failure, safety concerns, heavy local vessel traffic, and/or unforeseen circumstances, may alter or prohibit operations as planned. At these times, the Chief Scientist and Commanding Officer will determine the appropriate plan of action.

NMFS employees are not exempt from the requirements of the Marine Mammal Protection Act (MMPA) or the Endangered Species Act (ESA). PIFSC has developed mitigation measures for its fisheries and ecosystem research projects to avoid take and to comply with the Lecky, Murawski, and Merrick guidance. A copy of these documents is available at <https://sites.google.com/a/noaa.gov/pifsc-science-operations/nepa-permits/protected-species-mitigation-measures> and on the ship's bridge.

1. "Take" of Protected Species
  - a. Under the MMPA and ESA 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 is 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 project, the Chief Scientist will report the incident to the ship's Commanding Officer then 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.
  - c. PIFSC has developed mitigation measures for its fisheries and ecosystem research cruises to avoid take and comply with the

Lecky, Murawski, and Merrick guidance. A copy of these documents is 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.

2. Activities in the Hawaiian Islands Humpback Whale National Marine Sanctuary
  - a. The humpback whale season in Hawaii is November through May.
  - b. Unless otherwise authorized under the MMPA and ESA, it is unlawful to approach, or cause a vessel or other object to approach, within 100 yards of any humpback whale within the Sanctuary. Please reference the complete list of prohibited activities and boundary maps at <https://sites.google.com/a/noaa.gov/pifsc-science-operations/nepa-permits/protected-species-mitigation-measures>. A copy of these materials will also be available on the ship's bridge.

### III. Equipment

#### A. Equipment and Capabilities Provided by the Ship

1. **Equipment:** To successfully meet the project objectives, the scientific compliment aboard will need the ship to provide the items listed below. Prior to sailing, the ship's crew will inspect these items to ensure they are in proper working order for the project:
  - Operational Scientific Computing System (SCS)
  - Acoustic Doppler Current Profiler (ADCP)
  - Simrad EK-60 full functionality and calibrated on all frequencies
  - ThermoSalinoGraph (TSG)
  - Adequate fresh water for gear and small boat wash-down
  - Boat Deck and Aft deck (knuckle) cranes
  - A-Frame, block and winch (for towed gear deployment)
  - J-frame (port) (for CTD use)
  - Scientific freezer (maintained -30°C to -20°C)
  - Working Wet Lab faucets and drains
  - Iridium phone
  - Ice for food and water jugs on small boats
  - GPS navigational system
  - Depth sounders and recorders
  - Drum rack for 4 gasoline drums
  - Northwind launch, *SE-4*

- Hydraulic gurdies for bottomfishing

2. **Capabilities:** It is requested that the ship provide the following:

- a. A Survey Technician that is available 8 hours per day and 4 hours per night to assist with operations.
- b. A small boat coxswain for *SE-4* to support opportunistic oceanographic and plankton survey operations.
- c. Deck personnel for the deployment and recovery of small boats.
- d. Permission for Scientists to ready scientific work spaces (e.g. computer/camera stations) prior to departure.
- e. Assistance from the ship's Deck Department in craning and staging large gear during loading and off-loading.
- f. Support from the Engineering and Deck departments prior to sailing to transfer either program-provided gasoline or leftover gasoline from SE17-02 hip tanks into program drums to be used as outboard engine fuel: four drums (2000 gallons) to be staged in the racks on the boat deck.
- g. Support from the Engineering department to fuel small boats after scientific boat operations are completed.
- h. Lunches and water jugs provided from the Steward Department for small boat operations.
- i. It is requested that the Simrad EK-60 transducer faces be cleaned no earlier than 1-week prior to sailing using the recommended procedure, e.g. a soft wooden block.

**B. Equipment and Capabilities Provided by the Scientists**

1. **Equipment:**

- Cobb trawl and accessories
- 10' IKMT and accessories
- 70cm bongo nets and accessories
- 2m ring net and accessories
- 10' Tucker trawl and accessories
- Miscellaneous other micronekton and plankton survey gears
- 2 microscopes
- 4 computers (1 desktop, 3 laptop)
- Trawl catch sorting supplies
- Preservatives for micronekton/plankton samples

2. **Capabilities:** In addition to scientific expertise, the program may provide an experienced coxswain for small boat operation and outboard engine maintenance.

#### **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 SDS 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 showing that all chemicals were removed from the vessel. The CO's designee will maintain a log to track scientific party hazardous materials. SDS 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 of Hazardous Materials**

*See Appendix 4.*

**C. Chemical Safety and Spill Response Procedures**

*See Appendix 5.*

**D. Radioactive Materials**

No Radioactive Isotopes are planned for this project.

**V. Additional Projects**

Supplementary (piggyback) and ancillary projects are secondary to the objectives of the project and should be treated as additional investigations. The difference between the two types of secondary projects is that an ancillary project does not have representation aboard and is accomplished by the ship's force.

**A. Supplementary ("Piggyback") Projects**

To further the current understanding of the basic life history of commercially and recreationally important fisheries in the MHI, science party staff will be conducting pelagic fish sampling surveys including collection of Carangidae samples, and dipnet/nightlight operations. These operations are supplementary in nature and not to interfere with the primary objectives of SE-17-03. Sampling operations will be conducted from Oscar Elton Sette utilizing hand-held pole and Template Template DDaattee:: 0033JJUUNN22001166 line sampling gear. All fish specimens will be processed aboard Sette to extract and preserve relevant samples for future life history analysis

**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 Classifications: *Under Development*

1. OMAO Data
2. Program Data - *Under Development*  
The project will follow the current PIFSC data management plans, which comply with NOAA requirements. Contact Nori Shoji ([noriko.shoji@noaa.gov](mailto:noriko.shoji@noaa.gov)), Director, PIFSC Science Operations Division, for PIFSC data policy updates.

### B. Responsibilities: *Under Development*

## 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 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 hours before or 7 days after the completion of a project to discuss the overall success and shortcomings 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 <https://sites.google.com/a/noaa.gov/omao-intranet-dev/operations/marine/customer-satisfaction-survey> and provides a “Submit” button at the end of the form. It is also located at [https://docs.google.com/a/noaa.gov/forms/d/1a5hCCkgIwaSII4DmrHPudAehQ9HqhRqY3J\\_FXqbJp9g/viewform](https://docs.google.com/a/noaa.gov/forms/d/1a5hCCkgIwaSII4DmrHPudAehQ9HqhRqY3J_FXqbJp9g/viewform). 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 three times daily beginning one hour before scheduled departure, extending throughout the project, and ending two hours after the termination of the project. Packed lunches and water jugs will be required for scientists on all full-day small boat operations. 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 17, 2000 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, NF 57-10-01 (03-14)) 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](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](mailto: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 – Pacific  
2002 SE Marine Science Dr.  
Newport, OR 97365  
Telephone 541-867-8822  
Fax 541-867-8856  
Email [MOP.Health-Services@noaa.gov](mailto: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. 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.

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 program and worn when required.

All scientists will comply with standing safety regulations of PIFSC and that of the vessel’s standing orders from the Commanding Officer.

### **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 and 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 prior to embarking. Arrangements to take the Course and/or achieve security clearance for any non-NOAA computers should be coordinated with PIFSC administration well in advance of the project.

#### **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 (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.

Full compliance with NAO 207-12 is required.

Responsibilities of the Chief Scientist:

1. Provide the Commanding Officer with the email generated by the Servicing Security Office granting approval for the foreign national guest's visit. (For NMFS-sponsored guests, this email will be transmitted

- by FNRS.) This email 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 email 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 Guest) as required by NAO 207-12 Section 5.03.h.

**IX. APPENDICES**

*Appendix 1:* Operating Area for SE-17-03

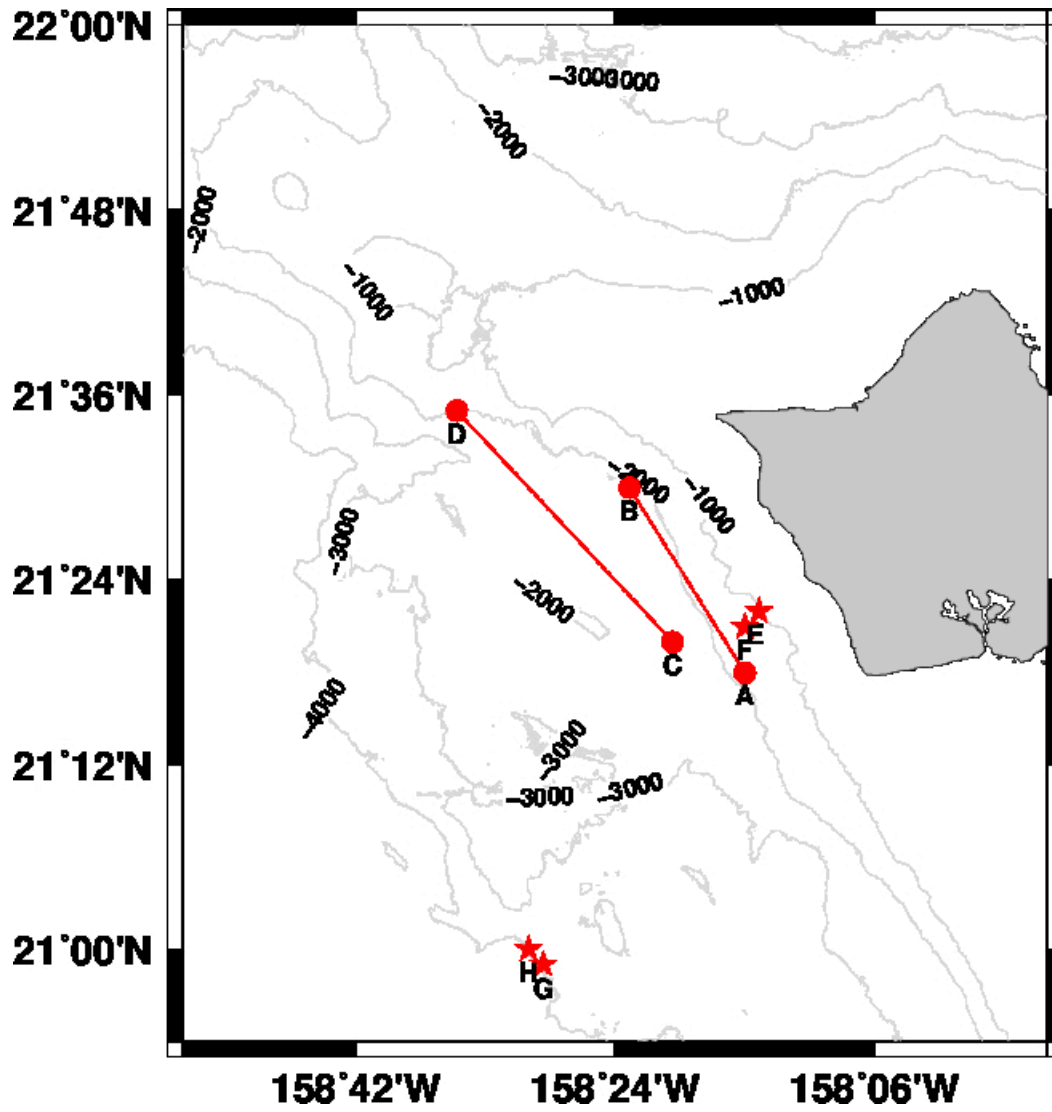
*Appendix 2:* Station/Waypoint List (Coordinates in Longitude, Latitude: Degree-Minutes)

*Appendix 3:* Summary of Baseline Surveys.

*Appendix 4:* Hazardous Materials Inventory

*Appendix 5:* Chemical Safety and Spill Response Procedures

Appendix 1: Operating Area for SE-17-03: Leeward Oahu



**Appendix 2: Station/Waypoint List (Coordinates in Latitude, Longitude: Degree-Minutes)**

<b>Station</b>	<b>Longitude</b>	<b>Latitude</b>	<b>Description</b>
A	158°15' W	21°18' N	Southerly point of sampling line from Clarke (1991) baseline survey of shorefish larvae with IKMT.
B	158°23' W	21°30' N	Northerly point of sampling line from Clarke (1991) baseline survey of shorefish larvae with IKMT.
C	158°20' W	21°20' N	Southerly point of sampling line from Clarke (1973), Clarke & Wagner (1976) baseline surveys of mesopelagic fishes with IKMT.
D	158°35' W	21°35' N	Northerly point of sampling line from Clarke (1973), Clarke & Wagner (1976) baseline surveys of mesopelagic fishes with IKMT.
E	158°14' W	21°22' N	Inshore point 1 from Higgins (1970) baseline survey of tuna larvae with Cobb trawl.
F	158°15' W	21°21' N	Inshore point 2 from Higgins (1970) baseline survey of tuna larvae with Cobb trawl.
G	158°29' W	20°59' N	Offshore point 1 from Higgins (1970) baseline survey of tuna larvae with Cobb trawl.
H	158°30' W	21°0' N	Offshore point 2 from Higgins (1970) baseline survey of tuna larvae with Cobb trawl.

### Appendix 3: Summary of Baseline Surveys

Baseline Survey	Notes (as relevant to LOPEC)	Standard bongo	Big bongo	6' IKMT	10' IKMT	Cobb	Year	Month	Depths (night)	Location
King & Iversen (1962)	Quantified fish and invertebrate micronekton catch with a 6' and 10' IKMT around Hawaii			19	24		1951-1956	Varied, all	Upper 400m	Leeward Oahu and vicinity
Higgins (1970)	Quantified tuna species larval catch with a Cobb trawl towed from NOAA ship Townsend Cromwell.					83	1967	July-September	Upper 100m	Oahu lat/lon are in paper for 2 inshore and 2 offshore west of Oahu
Clarke (1973)	Quantified myctophid species composition and abundance from IKMT towed from UH ships and Cobb trawl towed from NOAA ship Townsend Cromwell.			54	157	10	1969-1971	Varied, all	Primarily upper 200m	Line between 21° 20' N 158° 20' W and 21° 35' N 158° 35' W
Clarke & Wagner (1976)	Quantifies composition and abundance of ~15 families of mesopelagic fishes using trawl data described in 1973 paper.			"	"	"	"	"	"	"
Clarke (1980)	Quantified zooplankton composition and abundance from nighttime bongo tows.	6			7		1973-1974	September, November	70m-170m	20km west of Oahu
Clarke (1982)	Quantified zooplankton composition and abundance from daytime bongo tows.	4			12		1973-1974	September, November	70m-800m for trawls, 400m-500m for bongo daytime tows.	20km west of Oahu
Clarke (1991)	Quantified abundances for shorefish larvae using a variety of gears (IKMT and 2 types of bongo nets) towed from UH ships.	50	28	55			1977-1978	Varied, all	Primarily upper 325m	Line between 21° 18' N 158° 15' W and 21° 30' N 158° 23' W



#### **Appendix 4: Hazardous Materials Inventory**

Common Name	Quantity	Notes	Trained Individual	Spill Control*
Ethyl Alcohol (EtOH 95%)	19L (25 gal)	Highly Volatile, Flammable  Preserved samples stored in secondary containment in Scientific freezer.	Donald Kobayashi	AL
Formaldehyde solution (3.7%)	19L (5 gal)	Toxic; Carcinogenetic	Donald Kobayashi	F
Gasoline, unleaded	0.95 kL (150 gal)	Volatile, Flammable Stored in drum rack	Ship's Chief Engineer	Ship SOP

\* Spill Control Key is presented in *Appendix 5*.

## Appendix 5: Chemical Safety and Spill Response Procedure

### AL: Alcohols

- Remove all sources of ignition.
- Wear appropriate PPE and clothing during clean-up.
- Ventilate closed spaces before entering them.
- Use absorbent socks to surround spills or to divert fluid flow.
- Use vermiculite or kitty litter to soak up and absorb fluid.
- Do not use combustible materials, such as saw dust.
- Use absorbent pads/diapers to wipe up the spill or a dust pan to sweep up vermiculite/kitty litter.
- Place used absorbents in plastic bag or pail.
- Clean surface thoroughly to remove residual contamination.
- Bags containing used absorbents will be properly disposed of once the ship returns to port.

### F: Fixatives/Formalin/Formaldehyde

- Wear appropriate PPE (gloves, goggles, wet breathing mask).
- Ventilate area of leak or spill. Remove all sources of ignition.
- Isolate hazard area. Keep unnecessary and unprotected personnel from entering.
- Contain to minimize evaporation; 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, kitty litter, absorbent pads), and place in a chemical waste container. A dust pan and plastic bags are available to aid in cleanup and disposal.
- Do not use combustible materials, such as saw dust.

### Inventory of Spill Kit Supplies

Product Name	Qty	Chemicals useful against	Amount of clean up possible
<b>Chemical Spill Kit Contents:</b>			
- Acid Neutralizer (1qt)	1	<b>BAT (NiMH)</b> <b>BAT (LA)</b>	Amount neutralized varies with concentration.
- Base Neutralizer (1qt)	1		
- Halogen Neutralizer (1qt)	1	Neutralizes the following into Non-Toxic Organic Salts and Water:	pH indicating neutralizers eliminate need for pH meters or strips to determine appropriate amount.
- Hydrofluoric Neutralizer (1qt)	1		
- Surface Cleaner (1qt)	1	Acids, Hydrofluoric Acid, Caustics, Halogens and Solvents	
- Goggles	2		
- Safety Gloves	2		
- Vinyl Apron	1		
- Sponge	1		
- Sprayer Applicator	1		
- Instructions	1		

<b>HazMat Spill Kit Contents:</b> - 20 Gallon Overpack - HazMat Socks (48") - HazMat Pillows - Yellow HazMat Bonded Pads - Safety Gloves - Goggles - Light Stick - Response Guide Book - Disposal Bags w/ Hazardous Waste Labels	1 6 7 20 5 1 1 1 3	<b>AL</b> <b>BAT (NiMH)</b> <b>BAT (LA)</b> <b>F</b>  Chemical & HazMat Fluids	  64 L (17 gal) collectively
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