



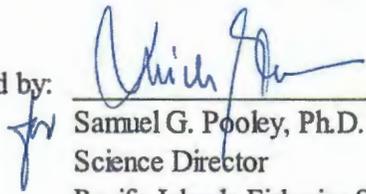
**U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric  
Administration  
NATIONAL MARINE FISHERIES SERVICE**

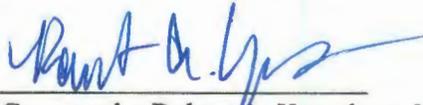
Pacific Islands Fisheries Science Center  
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**Final Project Instructions**

**Date Submitted:** June 17, 2013 (*revised 6/24/13*)  
**Platform:** NOAA Ship *Oscar Elton Sette*  
**Project Number:** SE-13-06 (PIFSC)  
**Project Title:** Comparison of Fishery-Independent Sampling Methods for Main Hawaiian Islands Bottomfish  
**Project Dates:** July 28, 2013 to August 11, 2013

Prepared by: \_\_\_\_\_ Dated: 6/24/13  
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Chief Scientist  
Pacific Islands Fisheries Science Center

Approved by:  Dated: 6/27/2013  
for Samuel G. Pooley, Ph.D.  
Science Director  
Pacific Islands Fisheries Science Center

Approved by:  Dated: 7/10/2013  
Commander Robert A. Kamphaus, NOAA  
Commanding Officer  
Pacific Islands Area Command



## **I. Overview**

### **A. Brief Summary and Project Period**

The NOAA Ship *Oscar Elton Sette* (hereafter referred to as *Sette*) will be engaged as support for a Pacific Islands Fisheries Science Center (PIFSC), National Marine Fisheries Service (NMFS), NOAA, project from 28 July to 11 August 2013 for a total of 15 sea days.

SE-13-02 is a continuation and expansion of the quantitative comparison of fishery-independent sampling methods project conducted during SE-11-02, SE-11-07, SE-12-08, and SE-13-02.

### **B. Service Level Agreements**

Of the 15 DAS scheduled for this project 0 DAS are funded by the program and 15 DAS are funded by OMAO. This project is estimated to exhibit a Medium Operational Tempo.

### **C. Operating Area**

The area of operations will be largely weather-dependent but will generally include waters off the lee coasts of the island of Maui, Molokai, Lanai, and Kaho'olawe. (see Appendix 1, Fig. 1).

### **D. Summary of Objectives**

This research project will target areas (grid cells) where density of Deep-7 bottomfish is expected to be high. Target areas will be selected based on spatial surveys conducted during prior research projects and in-situ sampling. During SE-13-06 areas with high bottomfish density will be resampled. Areas found to have low bottomfish density will not be resampled. This is a departure from the traditional stratified-random sampling protocol, and is being adopted to ensure that adequate data density to compare the selected sampling methods is achieved as quickly as possible. Once the among method comparison is complete, a subset of sampling methods will be selected for the full stratified-random survey.

The scientific objectives of the project are:

1. Conduct calibrations of the Simrad EK60 echosounder by the placement of a metallic calibration sphere at various locations underneath the ship's hull.
2. Research and development of methods to cross-compare or calibrate fishery-dependent (extractive) and fishery-independent (non-extractive) sampling methodologies for use in stock assessment.
3. Estimate size-structured abundance of Hawaii Deep-7 bottomfish using a variety of extractive and non-extractive methods including:
  - a. Baited and Un-baited underwater stereo-video camera systems
  - b. Seabed AUV

- c. EK60 Active acoustics
  - d. Phantom ROV
  - e. Research hook and line fishing
4. Conduct paired EK60/ROV/fishing surveys to ground-truth EK60 data.

**E. Participating Institutions**

NMFS Pacific Islands Fisheries Science Center (PIFSC), NMFS Northwest Fisheries Science Center (NWFSC), University of Hawaii at Manoa (UHM).

**F. Personnel/Science Party**

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Richards, Benjamin	Chief Scientist	7/28	8/11	Male	PIFSC	USA
Qin, Chuan-xin	Stock Assessment Scientist	7/28	8/11	Male	CAFS South China Sea Fisheries Research Institute	China
Li, Xiaoguo	Stock Assessment Scientist	7/28	8/11	Male	CAFS South China Sea Fisheries Research Institute	China
Yau, Annie	Stock Assessment Scientist	7/28	8/11	Female	PIFSC	USA
Rooney, John	AUV co-PI	7/28	8/11	Male	JIMAR	USA
Clarke, Elizabeth	AUV co-PI	7/28	8/11	Female	NWFSC	USA
Taylor, Jeremy	AUV technician	7/28	8/11	Male	JIMAR	USA
Anderson, Jeff	AUV technician	7/28	8/11	Male	JIMAR	USA
Cohen, Gabriel	Video analyst	7/28	8/11	Male	JIMAR	USA
Hoover, Aimee	EK60 Technician	7/28	8/11	Female	JIMAR	USA
Copeland, Adrienne	EK60 Technician	7/28	8/11	Female	JIMAR	USA
Giuseffi, Louise	Biological Science technician	7/28	8/11	Female	PIFSC	USA
Barlow, Jamie	Biological Science	7/28	8/11	Male	PIFSC	USA

	technician					
TBD <sup>1</sup>	PIFG Fisheries Observer	7/28	8/11	Male	PIFG	USA
TBD <sup>1</sup>	PIFG Fisheries Observer	7/28	8/11	Male	PIFG	USA
TBD <sup>1</sup>	PIFG Fisheries Observer	7/28	8/11	Male	PIFG	USA
Demarke, Chris <sup>2</sup>	BotCam technician	NA	NA	Male	UHM	USA
Friedman, Jason <sup>2</sup>	BotCam technician	NA	NA	Male	UHM	USA
Waterhouse, Matt <sup>2</sup>	BotCam technician	NA	NA	Male	UHM	USA

<sup>1</sup>These personnel will stay aboard the *Sette* each evening. During the day they will be aboard the PIFG commercial fishing vessels. They will disembark the *Sette* each morning and embark again each evening.

<sup>2</sup>These personnel will be aboard the RV *Huki Pono* but may come aboard the *Sette* for less than 24 hours. They will not require berthing.

## G. Administrative

### 1. Points of Contact

Benjamin L. Richards, Chief Scientist  
2570 Dole Street  
Honolulu, HI 96822  
Benjamin.Richards@noaa.gov

LT Justin Keese, NOAA, Operations Officer  
NOAA Ship *Oscar Elton Sette*  
1897 Ranger Loop, Building 184  
Honolulu, HI 96818  
Ops.Sette@noaa.gov

### 2. Diplomatic Clearances

This project involves Marine Scientific Research in waters under the jurisdiction of the United States. Diplomatic clearance is not required.

### 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. (PIFSC-2013xxxx--Memo for

the Record in process)

State of Hawaii: Research fishing for regulated deep-seven bottomfish and jacks in state waters (HAR Chapter 11-200) has been approved by a DLNR Special Activity Permit, SAP 2012-051. A copy of the SAP permit will be on board the research vessel during the regulated activities.

## 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 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. Based on a ship speed of 9.5 knots.

28 July	0730. All scientists aboard.
28 July	0800. Start of project. Embark science party. Depart Pearl Harbor and begin EK60 calibration.
28 July	Conduct EK60 calibration near Lahaina; Olowalu, Maui (20 49.057N x 156 39.107W) or alternate location determined by acoustics team lead, chief scientist, and Sette Command.
29 - 31 July	Conduct continued calibration of the EK60 system as necessary. Conduct paired EK60 acoustic and ROV operations for target strength identification.
1 - 10 August	Conduct coordinated bottomfish gear calibration surveys off the coast of Maui and/or surrounding islands. Coordinated vessels will include: NOAA Ship <i>Oscar Elton Sette</i> , RV <i>Huki Pono</i> , RV <i>Naomi K</i> , RV <i>Imua</i> , and RV <i>Hokuloa</i> . On-station morning or afternoon personnel transfers via RV <i>Huki Pono</i> may be conducted.
11 August	0800 Arrive Pearl Harbor. Upon arrival, disembark science party. End of project.

### B. Staging and De-staging

#### 1. Staging

Prior to sailing on 28 July, the ship's crew will inspect

- boat-deck crane
- fan-tail crane
- stern anchoring equipment
- port and starboard-side J-frames and associated oceanographic winches, conducting cable and DESH-5 winch for conductivity-temperature-depth (CTD) operations
- port oceanographic winch cable has lifting thimble ready to accept ROV clump

weight

- the RD Instruments acoustic Doppler current profiler (ADCP) and associated computer and software
- thermosalinograph
- Simrad EK60 echosounder
- Scientific Computing System (SCS)
- Global Positioning System (GPS) navigational systems
- scientific freezer

to ensure that they are in proper working order. The SeaBird 9/11+CTD system, and backup 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 ship's crew will also ensure that a gyro-gps feed is provided to the wet lab and that a video feed (VGA) is provided from the wet lab to the bridge (such that the bridge officers can reference the AUV position during operations). Further, the ship's crew will make sure that the bridge's display of the EK60 38 kHz frequency is working properly as the EK60 will provide depth information for the bridge throughout the cruise.

Prior to departing Pearl Harbor on 28 July, scientists and crew will load all scientific equipment. The Over-the-Side-Pole (OTSP) will also need to be mounted on the starboard quarter (Ship will need to be port side to). OTSP installation needs to occur at least 4 days prior to departure (5 days prior to departure if crane support will not be available on Saturday July 27, the day prior to departure). It is requested that the ship budget 4 hour overtime on Sat July 27 AM, for deck personnel to assist with final testing of AUV. Ship's crane and small boat operations will be required for the installation of the OTSP. After the installation of the OTSP is completed the AUV will be assembled and tested, which may require up to 3 full days. Testing will require crane support, which we request be available during normal working hours during the 3 days of AUV assembly and testing. Berthing aboard the ship for an AUV team member from the Northwest Fisheries Science Center is requested during AUV assembly for as much as 5 days prior to departure.

Other 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. De-staging**

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**

Operations will support comparison and calibration between different methodologies used to assess coral reef and bottomfish populations within the Maui-Molokai-Lanai-Big Island complex (Appendix 1).

The *Sette* will serve as the command and control center for all operations. EK60 active acoustics survey ROV, AUV, and fishing operations will be conducted by the *Sette*. Baited and Un-baited stereo-video camera operations will be conducted off the contract RV *Huki Pono* in coordination with the *Sette*. Hook and line fishing activities will be conducted off three contract fishing vessels in coordination with the *Sette*.

It is requested that the Chief Survey Technician be available 12 hours per day and a coxswain for the *Sette* Northwind boat (SE-4) be available 8 hours per day.

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. Calibration of the EK60 system**

Calibration of the EK60 system will take place in a manner similar to that undertaken during SE1202. If it is not possible to conduct the calibration without anchoring, a suitable anchoring location will be sought in the vicinity of Olowalu Maui (20 49.057N x 156 39.107W). Upon reaching the area, an attempt will be made using the Phantom ROV to locate an area devoid of coral for anchoring. Anchoring location will be determined through consultation between the acoustics team, Chief Scientist, and *Sette* command. The ship will deploy a bow and stern anchor in waters not shallower than 35 m at the lee of Maui. Before calibration, a CTD cast will be conducted at the calibration location to collect environmental data necessary for the calibration of the

EK60 system. The calibration sphere will be attached to three fishing lines guided by 3 outriggers forming a triangle that centers on the transducers. The position of the sphere will be electronically controlled from the electronics lab or by manual adjustments of each downrigger with the help of radio communication. As calibration requires calm waters with minimal currents, it is imperative to start calibration at night or in the early morning hours as conditions tend to deteriorate, making the calibration impossible in the afternoon. During calibration, only one generator should be running, propellers should be secured (unless doing so would risk the vessel safety), other acoustics systems on the *Sette* shall be turned off, and small-boat operations will cease so as not to interfere with the calibration.

## 2. Underway Operations

Surface temperature, salinity, and chlorophyll-*a* will be continuously monitored with a hull-mounted thermosalinograph and flow-through fluorometer throughout the duration of the project, while current velocity and direction will be monitored with an ADCP if it is determined by the Acoustics PI that it does not interfere with the EK60 recordings.

General ship husbandry operations that have the potential to harm or interfere with sensitive scientific equipment but which are not required for the immediate safety of the ship (including but not limited to acid washing and needle gunning) shall be conducted in consultation with the Chief Scientist.

## 3. Station Operations

Station operations will consist of coordinated multiple daytime fishery-independent methodologies for near-simultaneous surveys of or bottomfish resources. These methods will include:

Sampling Method	Deployment Platform
EK60	<i>Sette</i>
AUV	<i>Sette</i>
ROV	<i>Sette</i>
Stereo-Video camera stations	<i>RV Huki Pono</i>
Fishing	Contract Fishing Vessels and <i>Sette</i>

Survey effort will generally be focused in the survey boxes shown in Appendix 1 and described in Appendix 2. Specific survey areas will be chosen shortly before or during the project based on weather conditions. The exact EK60 survey track lines as well as equipment deployment sites will be based on weather conditions.

- Multiple stereo-video camera units will be deployed and recovered by the RV *Huki Pono*.
- Fishing surveys will be conducted by 2-4 PIFG contract fishing vessels.
- *Sette* will conduct EK60 transects, not to interfere with operations being conducted by the smaller vessels.
- *Sette* will conduct simultaneous EK60/AUV/ROV/fishing operations to ground-truth EK60 data.
- The Seabed AUV will be deployed each morning at coordinates determined by the AUV team in consultation with the Chief Scientists and *Sette* OPS Officer. After running its mission, the AUV will be recovered by the ship and will be refitted for a second mission. Each AUV mission will last approximately 2.5 hours. It is expected that a maximum of 2 missions per day will be conducted. Prior to the first AUV deployment on the cruise a walkthrough with the AUV team, deck department, officers and others that will be involved with AUV operations will be conducted. A pre-launch safety discussion and risk assessment will be conducted prior to each AUV launch and will also cover AUV recovery. Operations will generally follow methods used during cruise SE-13-02 and delineated in the standard operating procedures for the SeaBED AUV (Appendix 3).
- The Phantom ROV will be used primarily to optically ground-truth EK60 acoustic targets. For this mission, high-density schools of likely bottomfish will be identified by EK60. The ROV will then be deployed into the schools to verify their species identity. Operations will generally follow methods used during cruise SE-13-02 and delineated in the standard operating procedures for the SeaBED AUV (Appendix 4).

The *Sette* will serve as the command center for the coordination of all operations. Each sampling methodology requires a standard residence time within each grid cell. Therefore, it is requested that the *Sette* work around these operations and not ask the smaller vessels to leave their grid cells prematurely unless there is a safety issue.

Each morning and evening the RV *Huki Pono* will contact the *Sette* via VHF or telephone to report safe departure from and return to port.

Each morning the contract commercial fishing vessels will contact the *Sette* via VHF or telephone to report safe initiation of daily project work.

Each survey grid cell will be iteratively sampled by each of the sampling gears. Each morning, the RV *Huki Pono* will arrive on station to begin deployment and recovery of the stereo-video camera units. Contract fishing surveys will arrive on station to begin

fishing operations.

Each evening the contract commercial fishing vessels will contact the *Sette* via VHF or telephone to report safe completion of daily project work.

While the primary objective of SE-13-06 is the paired sampling operations, additional operations may include daytime and nighttime paired EK60/ROV, and *Sette*-based morning/evening paired fishing/EK60 operations.

During EK60 operations, all depth sounders will remain turned off and needle gunning or other onboard operations that transmit sound to the hull of the ship will cease as they interfere with EK60 data collection.

Routine operation of the *Sette* small boats may be required to assist in equipment deployment/recovery or personnel transfer. Approximately 200 gallons of program-provided fuel for the small craft will be carried in the ship's fuel tanks. The ship should plan to provide a coxswain and crew for *Sette* small boats as required during daylight operations for personnel and equipment transfer and other operations as directed by the Chief Scientist.

#### **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.

Diving operations are not planned. However, diving operations may be required to recover equipment that cannot be recovered using normal means and which is deployed within standard safe no-decompression SCUBA depths. Diving operations also may be required to facilitate EK60 calibration. Dives may be conducted by science personnel or a combination of science personnel and ship's divers.

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

Conditions which preclude normal operations:

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.

- c. 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 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/home/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

- CTD system and heavy duty cage assembly
- J-frames(port and starboard) and blocks for CTD and ROV
- Oceanographic winches and cables (port and starboard)
- SEACAT portable CTD with backup
- Deck crane
- A-frame with 600-lb lift block
- 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 one retermination of the J-frame conducting cable

- Small boat with coxswain
- Adequate fresh water for gear wash down
- Iridium phone
- VHF radios for ship's small boat
- Global Positioning System (GPS) for ship's small boat
- fuel tank for unleaded gasoline
- Three hydraulic reef fishing stations along portside rail
- Stern anchor
- Ice for refrigeration of food on small boats

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

- SeaBED AUV and associated equipment
- Phantom ROV and associated equipment
- 1 BotCam frame as backup for the RV *Huki Pono*
- Small amount of produce and bait for RV *Huki Pono* re-supply
- Gasoline

The following BotCam bait, ice, and food items are to be transported from Oahu to Maui aboard the *Sette* and transferred to the R/V *Huki Pono* on or about Aug 5.

To be stored in SE Refrigerator:

- Salad mix: 3lbs
- Head lettuce: 2lbs
- Refrigerated food will be stored in 1 storage containers, 13 in x 22 in x 16 in, ~10 lbs ea.
- Bait and ice can be stored in the scientific freezer. It is requested that some food can be stored in the ship's refrigerator in a single container.

### **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.

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.

MSDS will be provided in hardcopy or electronic PDF as well as via MSDS-online.

## **B. Radioactive Isotopes**

No radioactive isotopes will be used during SE-13-06.

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.
7. 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

<u>Group</u>	<u>Mfg</u>	<u>Item</u>	<u>Packaging</u>	<u>Qty</u>	<u>MSDS</u>
	Ancor Marine Co.	DIELECTRIC SILICONE COMPOUND # 70015	0.33 oz tube	1	Y
Fish		10% neutrally-buffered Formalin	20 L carboy	1	Y
Fish		37% formaldehyde	1 L jug	1	Y
Fish	Pharmco Products Inc	Ethanol	1 gallon	1	Y
AUV	Kinetronics, Corp	Isopropyl Alcohol	1 gallon	1	Y
AUV	Dow Corning	111 Valve Lubricant & Sealant	25 ml	2	Y
AUV	Parker	Parker O-Ring Lube	10 oz.	2	Y
AUV	Share Corporation	Aqualube/Aquashield Grease #1846	14 oz.	3	Y
AUV	Corrosion Technologies Corp.	CORROSIONX #1011	16 oz. Aerosol Can	1	Y
AUV	LPS	Electro Contact Cleaner #03116	11 oz. Aerosol Can	1	Y
ROV	ChevronTexaco Global Lubricants	Chevron Hydraulic Oil AW	12 oz.	1	Y

### 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**

**Marine Observations Log:** A Marine Observations Log will be maintained during the project. Other forms required by the Chief Scientist for each of the operations will be integrated into the Marine Operations Log.

**Station Plot:** The position of each operation and station will be plotted on charts generated by Nobletec navigation software. Ship's personnel will supply the Chief Scientist with copies of these charts at the end of the project.

**Data Disposition:** The Chief Scientist shall be considered to be the representative of the NMFS PIFSC Science Director for purpose of data disposition. A single copy of all data gathered by the vessel will be delivered to the Chief Scientist upon request for forwarding to the Science Director, who in turn shall be responsible for distribution of data to other investigators desiring copies.

### **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. **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 Operations 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](mailto: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 occasionally split between day and night (e.g. during EK60 calibration), 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. It is requested that bagged lunches be provided for small-boat crews (approximately 5 persons). A list of crew members will be provided to the galley 24 hours prior to their departure.

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:**

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. Steel-toed shoes are required to participate in any work dealing with suspended loads, including CTD deployments and recovery. The ship does not provide steel-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.

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

Responsibilities for 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 PIFSC currently neither possesses nor utilizes technologies that are subject to Export Administration Regulations (EAR).*

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

**Responsibilities of the Commanding Officer:**

1. Ensure only those foreign nationals with DOC/OSY clearance are granted access.
2. Deny access to OMAO platforms and facilities by foreign nationals from countries controlled for anti-terrorism (AT) reasons and individuals from Cuba or Iran without written NMAO approval and compliance with export and sanction regulations.
3. Ensure foreign national access is permitted only if unlicensed deemed export is not likely to occur.
4. Ensure receipt from the Chief Scientist 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 Guest) as required by NAO 207-12 Section

5.03.h

## Appendix 1 Sampling locations

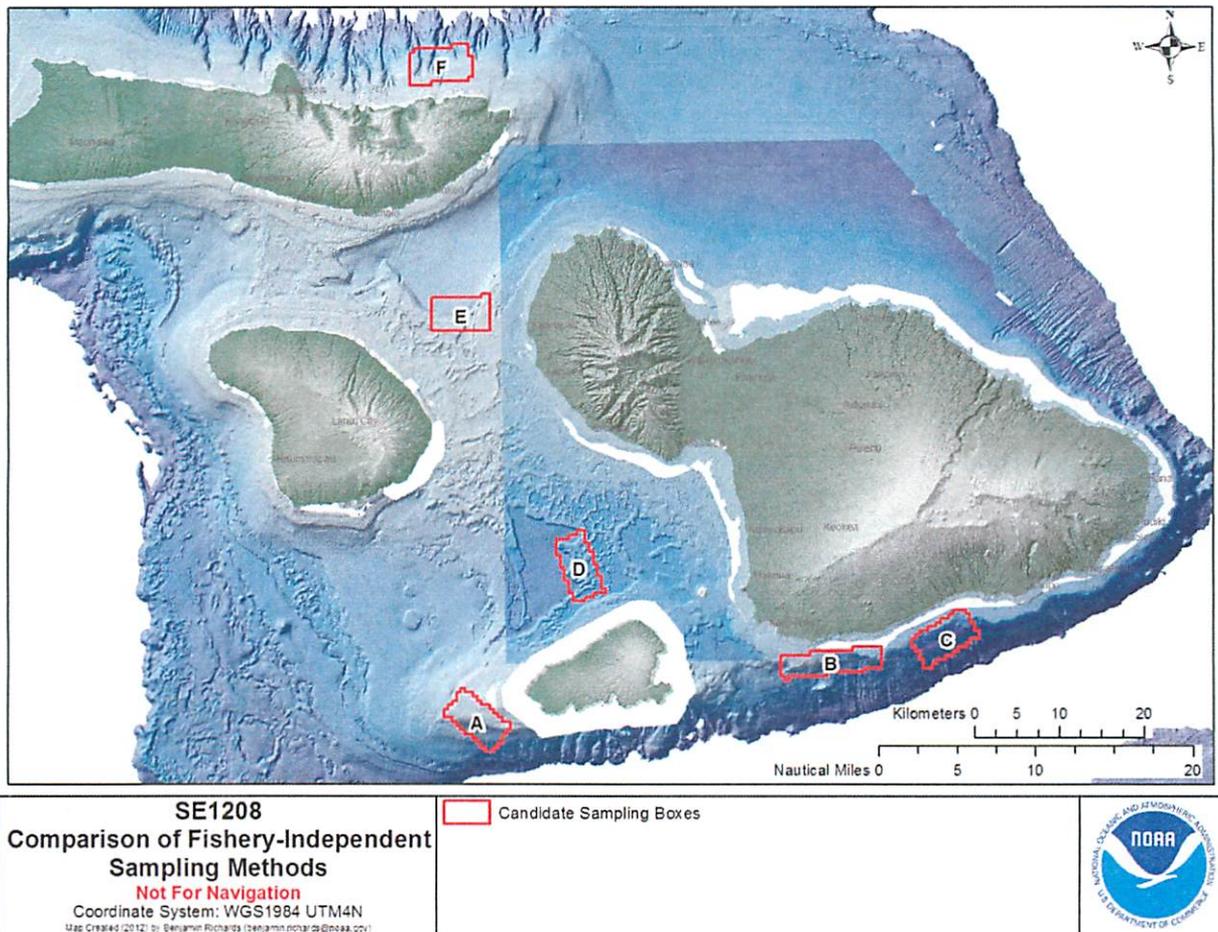
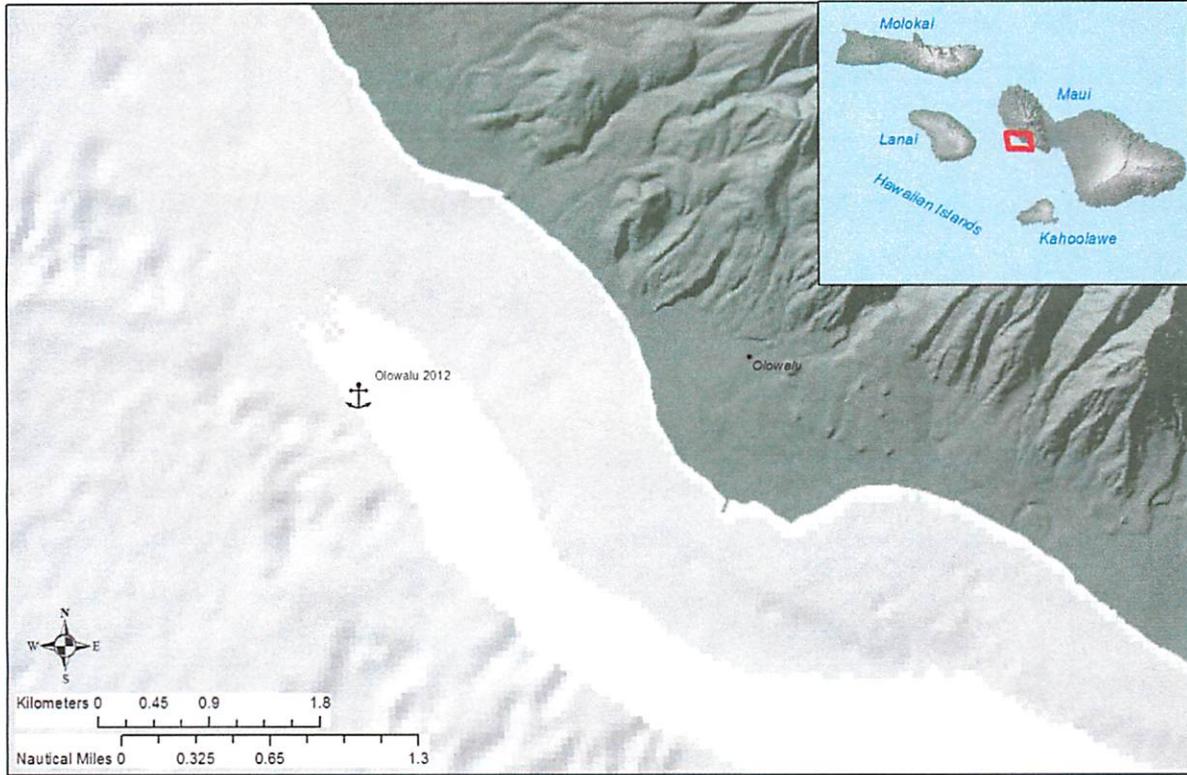


Figure 1.—NOAA Ship *Oscar Elton Sette* project SE-13-06, proposed operation locations. Boxes A-F indicate possible survey regions, but surveys may also occur in areas outside of the survey boxes. Final survey locations will be selected based on conditions.



<p><b>SE1208 - EK60 Calibration</b>  <b>Comparison of Fishery-Independent</b>  <b>Sampling Methods</b>  <b>Not For Navigation</b>          Coordinate System: WGS1984 UTM4N  <small>Map Created (2012) by Benjamin Richards (benjamin.richards@noaa.gov)</small></p>	<p><b>Project Report</b>   EK60 Calibration Site  </p>	
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Figure 2 – Location of potential EK60 calibration site (20 49.057N x 156 39.107W) southwest of Olowalu, Maui.

## **Appendix 2 Station/Waypoint List**

List of approximate station locations:

Due to the large number of sampling locations and waypoints covered by this mission, an electronic file of waypoints will be provided to the NOAA Ship *Oscar Elton Sette* Operations Officer at the start of the mission. This file will be formatted for direct upload to the Nobeltech system aboard the NOAA Ship *Oscar Elton Sette*.

**Appendix 3    SeaBED AUV Deployment/Recovery SOP and Risk Assessment**

The document:

**STANDARD OPERATING PROCEDURES FOR THE LAUNCH AND RECOVERY OF A  
SEABED CLASS AUTONOMOUS UNDERWATER VEHICLE**

**VERSION 2.0 - MARCH 2013**

is provided as a separate document.

**Appendix 4 Phantom Deployment/Recovery SOP and Risk Assessment**