



FINAL Project Instructions

Date Submitted: May 10, 2013
Platform: NOAA Ship *Hi 'ialakai*
Project Number: HA-13-01
Project Title: PMNM Biogeography
Project Dates: May 14, 2013 to June 8, 2013

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Commanding Officer
Marine Operations Center – Pacific Islands





May 10, 2013

Commanding Officer

NOAA Ship *HI'IALAKAI*
DRAFT PROJECT INSTRUCTIONS: HA-13-01

I. Overview

A. Brief Summary and Project Period

The NOAA ship *Hi'ialakai* will be engaged as support for a Papahānaumokuākea Marine National Monument, National Ocean Service (NOS), NOAA project from May 14, 2013 until June 8, 2013 for a total of 26 sea days at Nihoa, Mokumanamana (Necker), and Laysan in the Northwestern Hawaiian Islands (NWHI), and Johnston Atoll. The ship will support SCUBA and snorkeler collections of reef fish, corals, other invertebrates, and algae for population genetics analysis; surveying and monitoring reefs and associated reef fish, as well as searching for invasive/alien species of coral and algae. The ship may also support a SCUBA-based maritime archaeological survey. These studies allow Federal and State resource managers to better understand the resources under their jurisdictions.

B. Service Level Agreements

Of the 26 DAS scheduled for this project, 0 DAS are funded by the program and 26 DAS are funded by OMAO. This project is estimated to exhibit a High Operational Tempo.

C. Operating Area

The ship will conduct operations at Nihoa, Mokumanamana (Necker), French Frigate Shoals, and Laysan in the Northwestern Hawaiian Islands (NWHI), and Johnston Atoll.

D. Summary of Objectives

The ship will support SCUBA (including closed-circuit trimix technical dives, and open circuit dives) and snorkeler collections of reef fish, corals, other invertebrates, and algae for population genetics analysis; surveying and monitoring reefs and associated reef fish, as well as searching for invasive /alien species of coral and algae and survey of maritime heritage



resources. These studies allow Federal and State resource managers to better understand the resources under their jurisdictions.

The ship will support SCUBA diver surveys for the purpose of detecting the presence of Alien Species (AS) with an emphasis on the snowflake coral (*Carijoa riseii*) and a red algae (*Hypnea musciformis*). This portion of the cruise will involve surveys of habitats believed suitable for AS, collections of individuals believed to be AS, and a general evaluation of the sampling design and methods utilized to survey AS. This work is in direct response to PMNM's Alien Species Action Plan and will assist Federal and State resource managers to better protect, control, eradicate and prevent the introduction of AS into the monument.

The ship will support multibeam sonar operations in 40-100 m depth during non-diving hours to identify bathymetric features and locations as potential rebreather dive sites. The data will not be stored or processed; real-time screen grabs will suffice.

The ship will support SCUBA diver surveys for apex predator tagging with acoustic transmitters and servicing of underwater instrumentation; SCUBA and snorkeler collections of reef fish, corals, other invertebrates, and algae for population genetics analysis. These studies allow Federal and State resource managers to improve our broad understanding of Monument ecology and assist in achieving Monument management priorities.

The ship will help to support opportunistic maritime heritage survey and monitoring activities at Johnston Atoll. Maritime heritage survey will take place using SCUBA on shipwreck and sunken aircraft sites ranging in depths from 1-20 m.

The ship will support deployment of two Argo buoys near Laysan and Johnston Atoll which will record temperature and salinity in the upper 2000 m of the water column. These data contribute to an international effort to monitor these parameters globally.

Additionally, the ship will support an ancillary project to conduct opportunistic multibeam sonar activities secondary to the daily small boat operations.

The coral reef ecosystem assessments and specimen collections, and maritime heritage surveys will require support of diving operations (both SCUBA and snorkeling). Four small boats will be operating simultaneously during daylight hours to maximize productivity during the limited amount of time on site. A technical dive team consisting of 3-4 CCR divers and 2 non-diving topside support/divemasters will utilize HI-1, and a team of 2 safety support divers will utilize a 19 foot Safeboat to

be provided by Papahānaumokuākea Marine National Monument. Divers conducting SCUBA surveys and collections will utilize HI-2 and a program-supplied 19 foot Safeboat.

Objectives of the cruise are to:

1. Collect specimens of reef fishes and invertebrates for characterization of genetic diversity and connectivity for the purpose of understanding biological linkages supporting and maintaining Monument island/atoll ecosystems.
2. Collect specimens of corals for genetic and morphological analysis to refine species presence. Recover temperature sensors from selected coral reefs to better understand small-scale changes on coral reefs.

Invasive algae surveys will be conducted with technical dive operations (closed-circuit rebreathers). Dive operations will include: visual surveys of the bottom for the selected AS, taking photographs and notes on the habitat and other species present, and the collection of specimens believed to be AS.

Conduct benthic surveys to determine baseline abundances of coral, algae and associated reef fishes at technical diving depths. Take photographs and notes to determine species presence and abundance of organisms.

6. Conduct multibeam activities for the purposes of ground truthing potential dive sites and searching for appropriate habitat for potential survey sites. Multibeam or echosounding activities will take place opportunistically during non-diving hours.
7. Conduct maritime archaeology survey work to identify, document and assess sites for the purposes of management and preservation. Assessments will include SCUBA and snorkeler dive surveys, as well as towboard surveys for new maritime heritage sites in areas of probable loss.
8. Collect reef fish and coral specimens at Johnston Atoll for aquarium display. These specimens will be maintained in an on-board aquarium monitored by scientific personnel.

E. Participating Institutions

The scientific party will consist of personnel from NOAA: NOS Office of National Marine Sanctuaries Papahānaumokuākea Marine National Monument (PMNM) and Gray's Reef National Marine Sanctuary

(GRNMS), the University of Hawaii (UH), the Hawaii Institute of Marine Biology (HIMB), Washington State University (WSU), and the Bernice P. Bishop Museum (BPBM).

F. Personnel/Science Party

Name	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Kosaki, Randall	Biologist	5/14/2013	6/12/2013	Male	NOAA/PMNM	USA
Gleason, Kelly	Maritime Archaeologist	5/14/2013	6/12/2013	Female	NOAA/PMNM	USA
Leonard, Jason	Biologist	5/14/2013	6/12/2013	Male	NOAA/PMNM	USA
Wagner, Daniel	Biologist	5/14/2013	6/12/2013	Male	NOAA/PMNM	Germany
McFall, Greg	Biologist	5/14/2013	6/12/2013	Male	NOAA/GRNMS	USA
Hauk, Brian	Biologist	5/14/2013	6/12/2013	Male	NOAA/PMNM	USA
Whitton, Robert	Biologist	5/14/2013	6/12/2013	Male	BPBM	USA
Copus, Joshua	Biologist	5/14/2013	6/12/2013	Male	UH/HIMB	USA
Lopes, Keolohilani	Biologist	5/14/2013	6/12/2013	Male	NOAA PMNM	USA
Burns, John	Biologist	5/14/2013	6/12/2013	Male	UH/HIMB	USA
Sziklay, Jamie	Biologist	5/14/2013	6/12/2013	Female	UH/HIMB	USA
Coleman, Richard	Biologist	5/14/2013	6/12/2013		UH/HIMB	
Royer, Mark	Biologist	5/14/2013	6/12/2013	Male	UH/HIMB	USA
Fernandez-Silva, Iria	Biologist	5/14/2013	6/12/2013	Female	UH/HIMB	Spain
Troller, Jackie	Biologist	5/14/2013	6/12/2013	Female	UH/HIMB	USA
Pence, David	Biologist	5/14/2013	6/12/2013		UH/HIMB	USA
Chang, Chantel	Biologist	5/14/2013	6/12/2013	Female	UH	USA
Cousins, Jasmine	Cox'n	5/14/2013	6/12/2013	Female	NOAA/PMNM (NOAA Corps)	USA
Bostick, James	Chamber Operator	5/14/2013	6/12/2013	Male	NOAA/OMAO	USA

G. Administrative

1. Points of Contacts: Chief Scientist Randall Kosaki can be reached at: Randall.Kosaki@noaa.gov, (808)694-3943 (desk), or (808) 295-0141 (cell).
2. Diplomatic Clearances
This project involves Marine Scientific Research in waters under the jurisdiction of the United States of America.

3. Licenses and Permits

1. This cruise will be conducted under the (U.S.) Conservation and Management Permit no. PMNM-2013-005 issued by Papahānaumokuākea Marine National Monument on 6 February 2013 to CDR Michael F. Ellis.
2. This cruise will be conducted under the (U.S.) Research Permit no. PMNM-2012-025 issued by Papahānaumokuākea Marine National Monument on 14 August 2012 to Dr. Randall Kosaki.
3. This cruise will be conducted under the (U.S.) Research Permit no. PMNM-2012-030 issued by Papahānaumokuākea Marine National Monument on 28 June 2012 to Dr. Stephen Karl.
4. This cruise will be conducted under the (U.S.) Research Permit no. PMNM-2012-036 issued by Papahānaumokuākea Marine National Monument on 28 June 2012 to Dr. Kelly Gleason.
5. This cruise will be conducted under the (U.S.) Research Permit no. PMNM-2012-033 issued by Papahānaumokuākea Marine National Monument on 28 June 2012 to Dr. Megan Donahue.
6. This cruise will be conducted under the (U.S.) Research Permit no. PMNM-2012-045 issued by Papahānaumokuākea Marine National Monument on 27 Augusts 2012 to Dr. Brian Bowen.
7. This cruise will be conducted under the (U.S.) Research Permit no. PMNM-2012-050 issued by Papahānaumokuākea Marine National Monument on 24 August 2012 to Dr. Carl Meyer.
8. This cruise will be conducted under the (U.S.) Research Permit no. PMNM-2013-004 issued by Papahānaumokuākea Marine National Monument to Dr. Gregory Johnson.

II. Operations

A. Project Itinerary

DATE	PORT	TIME/ACTIVITY	DISTANCE
5/14/13	Pearl Harbor	Depart Pier F10 to fuel, 0800. Depart PH 1400. Conduct drills en route to Nihoa.	250 nm, 28 hr.
5/15/13	Nihoa	Transit, arr. Nihoa 1600	
5/16/13	Nihoa	Full day dive ops	
5/17/13	Nihoa	Full day dive ops	
5/18/13	Bank W. of Nihoa	Full day dive ops, depart for Mokumanamana 1700	150 nm, 16 hr.

5/19/13	Mokumanamana	Arr. 1000, full day dive ops	
5/20/13	Mokumanamana	Full day dive ops, depart for FFS 1700	102 nm, 11 hr.
5/21/13	FFS	Arr. FFS 0600, full day dive ops, depart 1700 for Laysan	325 nm, 36 hr.
5/22/13	Transit		
5/23/13	Laysan	Arr. Laysan 0500, full day dive ops	
5/24/13	Laysan	Full day dive ops	
5/25/13	Laysan	Full day dive ops, depart 1700 for FFS	330 nm, 36 hrs.
5/26/13	Transit		
5/27/13	FFS	Arr. FFS 0500, full day dive ops, depart 1700 for Johnston Atoll	458 nm, 56 hrs.
5/28/13	Transit		
5/29/13	Transit		
5/30/13	Johnston Atoll	Arr. Johnston Atoll 0100, full day dive ops	
5/31/13	Johnston Atoll	Full day dive ops	
6/1/13	Johnston Atoll	Full day dive ops	
6/2/13	Johnston Atoll	Full day dive ops	
6/3/13	Johnston Atoll	Full day dive ops	
6/4/13	Johnston Atoll	Full day dive ops, depart 1700 for PH	750 nm, 94 hr.
6/5/13	Transit		
6/6/13	Transit		
6/7/13	Transit		
6/8/13	Pearl Harbor	Arr PH 1500	

B. Staging and Destaging

May 14 Embark scientists at Pearl Harbor:

1. Randall Kosaki (Chief Scientist)
2. Kelly Gleason
3. Jason Leonard
4. Daniel Wagner
5. Greg McFall
6. Brian Hauk
7. Robert Whitton
8. Joshua Copus
9. Keolohilani Lopes
10. John Burns
11. Jamie Sziklay
12. Richard Coleman
13. Mark Royer
14. Iria Fernandez-Silva
15. Jackie Troller
16. David Pence

17. Chantel Chang
18. LTJG Jasmine Cousins
19. James Bostick (Chamber Operator/Divemaster)

- May 14 Scientific staff board ship at 0700. Muster in dry lab 0730. Departure from pier F10 0800. Depart Pearl Harbor. 1400 Transit to Nihoa.
- May 15 Arrive at Nihoa, Time allowing, launch/recover boats for practice. No diving. Conduct after-hours multibeam surveys in 40-80 m
- May 16 Conduct full day of dive operations at Nihoa. Conduct after-hours multibeam surveys in 40-80 m.
- May 17 Conduct full day of dive operations at Nihoa. Begin transit to bank west of Nihoa.
- May 18 Conduct full day of dive operations on bank west of Nihoa. Begin transit to Mokumanamana.
- May 19 Conduct full day of dive operations at Mokumanamana. Conduct after-hours multibeam surveys in 40-80 m.
- May 20 Conduct full day of dive operations at Mokumanamana. Begin transit to French Frigate Shoals.
- May 21 Conduct full day of dive operations at French Frigate Shoals. Begin transit to Laysan.
- May 22 Transit to Laysan.
- May 23 Conduct full day of dive operations at Laysan.
- May 24 Conduct full day of dive operations at Laysan
- May 25 Conduct full day of dive operations at Laysan. Begin transit to French Frigate Shoals.
- May 26 Transit to French Frigate Shoals.
- May 27 Conduct full day of dive operations at French Frigate Shoals. Begin transit to Johnston Atoll.
- May 28 Transit to Johnston Atoll.
- May 29 Transit to Johnston Atoll

- May 30 Arrive Johnston Atoll. Conduct full day of dive operations at Johnston Atoll
- May 31 Conduct full day of dive operations at Johnston Atoll.
- June 1 Conduct full day of dive operations at Johnston Atoll. Deploy Argo float with assistance of Survey Tech.
- June 2 Conduct full day of dive operations at Johnston Atoll.
- June 3 Conduct full day of dive operations at Johnston Atoll.
- June 4 Conduct full day of dive operations at Johnston Atoll. Begin transit to Pearl Harbor.
- June 5 Transit to Pearl Harbor.
- June 6 Transit to Pearl Harbor.
- June 7 Transit to Pearl Harbor.
- June 8 Arrive Pearl Harbor. Disembark scientific staff.

C. Operations to Be Conducted:

(1) Diving

- a. All diving operations will be conducted from small boats.
- b. Conventional single-cylinder open circuit SCUBA operations will be supported by HI-2 and a program-supplied 19 foot Safeboat. Activities include specimen collection, fish and benthic transects and surveys, and maritime archaeology surveys. Archaeological surveys may include snorkel-based towboarding to survey extensive areas of shallow reef at Johnston Atoll.
- c. Technical/rebreather operations will be conducted from HI-1. Per NOAA diving regulations, a chase boat (program-provided 19 foot Safeboat) will be available and on-site whenever technical or decompression dives are conducted. Additional support divers on conventional open-circuit scuba (required by NOAA regulations for technical diving) will dive from the chase boat. PMNM will provide technical divemasters approved by the NOAA Diving Program/Diving Control and Safety Board. These topside divemasters will oversee rebreather operations from HI-1.

- d. OMAO is requested to provide one ship's diver on each day of technical dive operations, to serve as a safety or support diver. The diver will perform two dives per day, to a maximum depth of 110 feet. Each dive will use a single 80 cu. ft. tank and standard scuba gear. Dives will be performed from the program-provided 19 foot Safeboat.

(2) Snorkeling

- a. All snorkeling shall be conducted in accordance with the NOAA Scientific Diving Manual, para. 4.13

(3) Small Boat

- a. Scuba diving and snorkeling from small boats are fundamental to accomplishing the goals of this cruise. The ship is requested to provide coxswains for 3 small boats (both ship's launches, and the program-provided 19 foot Safeboat) for all 20 days of diving operations. *Hi`ialakai* is responsible for providing fuel for HI-1 and HI-2. PMNM will provide fuel for PMNM Safeboats (2) and HI-3 and any *Hi`ialakai* inflatable boat that may be used. Adequate fuel for the small craft, including the 19 foot Safeboats, will be carried in the ship's tank. OMAO is requested to provide a NOAA recompression chamber operator. OMAO will provide divemaster Jim Bostick. ONMS NOAA Corps officer LTJG Jasmine Cousins will serve as coxswain for the second program-provided 19 foot Safeboat, but will require a ship's coxswain for training in the ship's procedures during initial days of field operations prior to solo field operations. LTJG Cousins has all required NOAA certifications for small boat operations.
- b. Per OMAO Supplement to the NOAA Small Boat Standards and Procedures Manual, March 2010, Section 4.03a2, the program understands that a program certified Operator in Charge (OIC) must "earn the full confidence of both the Commanding Officer and Designated Examiner, and has successfully completed the shipboard training requirements." As part of the program OIC evaluation, it is understood a ship OIC will be designated to accompany and evaluate the program OIC. The program is aware this may limit the number of small boats the ship can deploy during this evaluation period, and while every effort should be made to limit any impact to operations, the program is also aware that said program OIC is not guaranteed to be qualified by the CO and DE during a cruise.
- c. The scientists' abilities as small boat crew members may be a limiting factor in small boat deployment and recovery operations and they must meet the confidence of the CO. Small boat crew must wear hardhats with chin straps.

- d. While minimizing impact to science, diver/coxswain training and proficiency regulations may require the use of a ship's small boat during an extended cruise. CO will work with Chief Scientist to plan and minimize impacts to fulfill such requirements. Wherever possible, the CO will fulfill these proficiency dive requirements by rotating ship's divers through the safety/support diver position or other roles in support of the scientific divers.

(4) OMAO

To be consistent with the mission objectives, the ship will employ all methods feasible to minimize damage to coral reef habitats during anchoring operations.

Cruise Scientific Objectives Are:

1. Collection of specimens of reef fishes and invertebrates for characterization of genetic diversity and connectivity for the purpose of understanding biological linkages supporting and maintaining Monument island/atoll ecosystems.
2. Collect specimens of corals for genetic and morphological analysis to refine species presence. Recover temperature sensors from selected coral reefs to better understand small-scale changes on coral reefs.
3. Invasive algae surveys will be conducted with technical dive operations. Dive operations will include: visual surveys of the bottom for the selected AS, taking photographs and notes on the habitat and other species present, and the collection of specimens believed to be AS.

Conduct benthic surveys to determine baseline abundances of coral, algae and associated reef fishes at technical diving depths. Search for presence of large deepwater algal beds that were discovered in 2009. Take photographs and notes to determine species presence and abundance of organisms.

Conduct multibeam mapping activities for the purposes of ground truthing potential dive sites and searching for appropriate habitat for potential survey sites. Multibeam or echosounding activities will take place opportunistically. Real-time screen grabs are adequate; data storage will not be required.

6. Conduct maritime archaeology survey work at known maritime heritage resource sites to identify, document and assess sites for the purposes of management and preservation. Assessments will include SCUBA and snorkeler dive surveys.
7. Deploy Argo floats at Laysan and Johnston Atoll. The Argo float program is an international effort to monitor the temperature and salinity of the upper 2000 m of the oceans in real time.

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.

The Dive Plan for HA-13-01 is presented in Appendix A. (PENDING)
New NOAA dive regulations for rebreathers are attached in Appendix B.

E. Applicable Restrictions

The following operational plans can be considered only a guide as to how the Chief Scientists expect the surveys to progress without being able to predict the weather, operational and scheduling problems, and equipment failures.

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 cruise instructions. In addition, the Chief Scientist must notify the Manager of Papahānaumokuākea Marine National Monument at the earliest opportunity prior to making: (1) deviations from the general cruise track or area of operations noted in the cruise instructions, (2) significant changes or additions of research operations to those specified in the cruise instructions, or (3) port calls not specifically identified in the cruise instructions.

Prior to sailing, the ship's crew will inspect the J-frame, aft deck crane, TSG, VMS, scuba air compressor and delivery systems, scientific freezers, recompression chamber, and ship's small craft to ensure that they are in proper working order.

III. Equipment

A. Equipment and Capabilities Provided by the Ship

All mission equipment must be operational at the time of departure.
The ship will provide the following:

Aft Deck Crane
10-m launch and davit (HI-1)
8-m launch and davit (HI-2)
HI-3
1 SCUBA compressor (Nitrox or Air)
Recompression chamber
Dive locker space for 18 divers
Scientific freezer (needed 2d prior to departure)
Scientific Computer System
Adequate fresh water for gear washdown
Gear washdown tank
VHF radios for ship's small boats
GPS for ship's small boats
Depth sounders for ship's small boats
Large flat-screen monitor in dry lab
Capstan and working line
Tag lines
Crane to load equipment
VMS
Field lunches for scientists in small boats

B. Equipment and Capabilities Provided by the Scientists

PMNM will provide:

30	80 cu. ft. scuba cylinders and dive gear
12	80 cu.ft. O ₂ -clean scuba stage bottles
4	pallet tub storage containers for scuba tanks
3	Nitrox/O ₂ gas analyzer
3	Trimix/O ₂ /He gas analyzer
2	DAN emergency diving oxygen kits
2	first aid kits for small boats
3	rescue floats for dive operations
4	portable GPS units for backup
2	portable depth sounders
2	19 foot SAFEboat (R/V <i>Kaku</i> and PMNM SAFEboat) dive boat and lifting bridles and cradles
20	desktop and laptop computers for use by scientists
10	1 gallon jugs Clorox for disinfection of dive gear in gear washdown tank
1	washdown tank for freshwater rinse of gear after disinfection
2	hand-held VHF radios for Safeboat
1	Low-heat specimen drying oven, 110v

2	Masterline Booster Pump
1	Haskel Booster Pump
14	K-Cylinders O2
14	K-Cylinders He
2	K-cylinders 50/50 for chamber
2	Metal tank racks to secure Helium and Oxygen cylinders
22	44 lb. kegs of Sofnolime CO2 absorbent for rebreathers
1	10' Baby box to be placed on aft deck
8	Megalodon closed-circuit rebreather units
21	PFD and hardhats for all science personnel
1	pallet of misc. USFWS gear for transport to Johnston Atoll
1	cooler of USFWS frozen goods for transport to Johnston Atoll
2	crated Argo floats, 6 ft. x 17 inches x 14 inches; 110 lbs. each
1	aquarium rack with two coolers for live fishes (needs 110 VAC power, access to TSG seawater hose)

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, and/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 cruise 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.

The Monument will provide the following chemicals:

- 1 gallon of 95% EtOH
- 1 gallons of formaldehyde
- 5 gallons Clorox
- 22 44 lb. kegs, Sofnolime brand soda lime
- 1 gallon, povidone iodine
- 20 pounds, rotenone powder (fish anesthetic)
- 1 liter, Quinaldine (fish anesthetic)

B. Radioactive Isotopes

No radioactive isotopes will be brought on board for this project.

C. Hazardous Material and Chemical Spill Control

PMNM will bring a Spill Containment Kit on board and store it in the wet lab. The kit contains absorbent materials, formaldehyde absorbent, acid absorbent, respirators, gloves, protective clothing, etc. Three personnel in the scientific party have HAZWOPER training (Leonard, Hauk, Wagner). MSDS for all chemicals are attached (Appendix C).

A. Ethanol

Small spill: dilute with water and mop up, or absorb with an inert dry material and place in appropriate waste disposal container. Keep away from sources of ignition. Keep away from heat.

B. Formalin

Small spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Three cartons of pre-packaged ormaldehyde/formalin absorbent are located in the ship's Spill Containment Kit in the wet lab (where all formalin use will occur).

C. Clorox (sodium hypochlorite)

Containerize liquid and use absorbents on residual liquid. Wash area with water and let dry. Breathing protection should be worn in enclosed or poorly ventilated

areas. The ship's Spill Containment Kit in the wet lab contains respirators; however, all anticipated use of Clorox will be outdoors on weather decks (for dilution and disinfection of dive gear).

D. Povidone Iodine

Povidone iodine is NOT considered hazmat. Spills should be absorbed with absorbent paper or similar material and placed in an appropriate waste disposal container. Wash area down with excess water.

E. Sofnolime brand Soda Lime

Soda lime (rebreather "sorb") is NOT considered hazmat. In case of spill, avoid breathing dust. Contain material. Sweep or vacuum up.

F. Rotenone powder

Avoid breathing dust. Wear protective gloves. Sweep up and shovel. Sweep up, shovel, or vacuum. Keep in suitable sealed container for disposal.

G. Quinaldine fish anesthetic

Small spill: Dilute with water and mop up, or absorb with an inert dry material and place in appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface.

V. Additional Projects

A. Supplementary ("Piggyback") Projects

Any other work done during the cruise period will be subordinate to the main project and performed so as not to interfere with that outlined in these instructions. The Chief Scientists will be responsible for determining the priority of additional work relative to the main project.

Definition: Ancillary and piggyback projects are secondary to the objectives of the cruise 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.

Piggyback Projects:

The ship will help to support opportunistic maritime heritage survey and monitoring activities. Maritime heritage survey will take place using SCUBA and snorkeling on shipwreck sites ranging in depths from 10'-50'.

- B. *Ancillary Projects*: Ancillary tasks will be accomplished in accordance with the NOAA Fleet Standing Ancillary Instructions.

Argo floats will be deployed at Laysan and Johnston Atoll (one float at each island). To deploy, the float is uncrated and inspected for damage. The ship slows to 1-3 knots, and the float is lowered over the side and released. Each float weighs 42 lbs. and can be hand-deployed using a line, or deployed using a block on a boom.

Additionally, the ship will support an ancillary project to conduct opportunistic multibeam activities secondary to the daily small boat operations.

VI. Disposition of Data and Reports

A. Data Responsibilities

Observations Log: Marine Observations Log will be maintained during the cruise. Other forms required by the Chief Scientists 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 Nobeltec navigation software. Ship's personnel will supply the Chief Scientist with copies of these charts at the end of the cruise.

Data Disposition: The Chief Scientists will be considered to be the representative of the Monument Superintendent 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 Manager.

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 cruise 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-cruise meeting will be distributed to all participants by email, and to the Operations Officer, Marine Operations Center – Pacific Islands (ops.moc.piac@noaa.gov).

C. Ship Operation Evaluation Report

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

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

VII. Miscellaneous

A. Meals and Berthing

Meals and berthing are required for up to 21 scientists. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the project, and ending two hours after the termination of the project. Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours. Special dietary requirements for scientific participants will be made available to the ship's command at least seven days prior to the survey.

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 cruise 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 cruise 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.

(4) Provide the Electronics Technician a spreadsheet with the following information:

<u>Device Name</u>	<u>Operating System</u>	<u>LAN MAC Address</u>	<u>WAN MAC Address</u>
<i>Iphone Randy Kosaki</i>	<i>MAC OS</i>	<i>21:34:6K:P8:W6:77</i>	<i>21:34:6K:P8:W6:78</i>
<i>Laptop Randy Kosaki</i>	<i>Windows XP</i>	<i>23:34:6K:P8:M6:77</i>	<i>23:34:6K:P8:M6:78</i>

F. Foreign National Guests Access to OMAO Facilities and Platforms

Two foreign national guests are scheduled aboard for HA-13-01.

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 of the Chief Scientist:

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

APPENDIX A. Dive Plan
(submitted separately)