UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Papahānaumokuākea Marine National Monument
NOAA DKIRC
NOS/ONMS/PMNM
1845 Wasp Blvd, Building 176
Honolulu, Hawaii 96818

Final MJW

~~Draft~~ Project Instructions

Date Submitted:	May 13, 2016
Platform:	NOAA Ship *Hi'ialakai*
Project Number:	HA-16-04
Project Title:	PMNM Biogeography
Project Dates:	May 22, 2016 to June 15, 2016

Prepared By: Randall Kosaki Dated: 13 May 2016
Randall Kosaki, Ph.D.
Chief Scientist
NOAA/NOS/ONMS/PMNM

Approved By: Dated: 16 May 2016
Athline Clark
Superintendent
NOAA/NOS/ONMS/PMNM

Approved By: Matt Wingate Dated: 18 MAY 2016
CDR Matthew Wingate, NOAA
Commanding Officer
Marine Operations Center – Pacific Islands

NOAA Ship Hi'ialakai
DRAFT PROJECT INSTRUCTIONS: HA-16-04

I. Overview

A. Brief Summary and Project Period

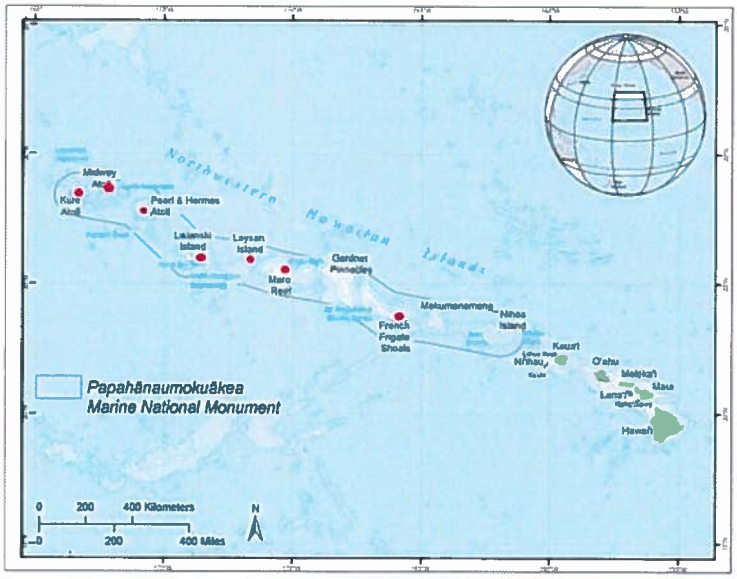
The NOAA ship *Hi`ialakai* will be engaged as support for a Papahānaumokuākea Marine National Monument (PMNM), National Ocean Service (NOS), NOAA project from May 22, 2016 until June 15, 2016 for a total of 25 sea days at Ni'ihau, French Frigate Shoals, Laysan, Lisianski, Pearl and Hermes Atoll, Midway Atoll, and Kure Atoll. The ship will support open-circuit SCUBA dives, closed-circuit rebreather (CCR) 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.. These studies allow Federal and State resource managers to better understand the resources under their jurisdictions.

B. Days at Sea (DAS)

Of the 25 DAS scheduled for this project, 25 DAS are funded by an NOS Line Office Allocation. This project is estimated to exhibit a High Operational Tempo.

C. Operating Area

The ship will conduct operations at Ni'ihau, French Frigate Shoals, Laysan, Lisianski, Pearl and Hermes Atoll, Midway Atoll, and Kure Atoll.



D. Summary of Objectives

- The ship will support SCUBA (including CCR 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. These studies allow Federal and State resource managers to better understand the resources under their jurisdictions.

- The ship will support CCR diver surveys for the purpose of characterizing mesophotic reefs in the 50-100 m depth range. Fish and benthic surveys will be conducted, along with observations aimed at 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 project 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 apex predator tagging with acoustic transmitters and servicing of underwater instrumentations. 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 support SCUBA surveys of coral disease and coral health in the 5-30 m depth range. These observations will allow Federal and State resource managers to monitor recovery from the 2014 mass coral bleaching event in the NWHI. These observations will also document any damage resulting from a National Weather Service data buoy that ran aground on a shallow reef at Lisianski in November 2015. The buoy is scheduled to be removed by contract salvors in May 2015.

- The ship will support opportunistic use of the multibeam sonar to fill gaps in existing bathymetric data. The focus will be in the 50-150 m depth range.

- PMNM will host a magazine writer and photographer, who will document the natural, cultural, and historic resources of the NWHI. The journalists are a piggyback mission and will rotate between projects and small boats.

- The coral reef ecosystem assessments and specimen collections 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 4 CCR divers and 2 non-diving topside support/divemasters will utilize MetalShark, and a team of 2 safety support divers will utilize a 19 foot SAFEboat to be provided by PMNM. Divers conducting SCUBA surveys and collections will utilize HI-2 and a second program-supplied19 foot Safeboat.

E. Participating Institutions

The scientific party will consist of personnel from:

- NOAA NOS Office of National Marine Sanctuaries Papahānaumokuākea Marine National Monument (PMNM)
- University of Hawaii -- Hawaii Institute of Marine Biology (UH/HIMB)
- Washington State University (WSU)
- University of Hawai'i at Hilo (UHH)
- Bernice P. Bishop Museum (BPBM).

F. Personnel/Science Party

Name	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Kosaki, Randall	Chief Scientist	5/22/2016	6/15/2016	Male	NOAA/PMNM	USA
Leonard, Jason	Biologist	5/22/2016	6/15/2016	Male	NOAA/PMNM	USA
Wagner, Daniel	Biologist	5/22/2016	6/15/2016	Male	NOAA/PMNM	Germany (USA Perm Res)
Hauk, Brian	Biologist	5/22/2016	6/15/2016	Male	NOAA/PMNM	USA
Greene, Brian	Biologist	5/22/2016	6/15/2016	Male	Bishop Museum	USA
Pyle, Richard	Biologist	5/22/2016	6/15/2016	Male	BPBM	USA
Hansen, John	Biologiest	5/22/2016	6/15/2016	Male	NOAA/PMNM	USA
Burns, John	Biologist	5/22/2016	6/15/2016	Male	UH/HIMB	USA
Fukunaga, Atsuko	Biologist	5/22/2016	6/15/2016	Female	NOAA/PMNM	Japan (USA Perm Res)
Bahr, Keisha	Biologist	5/22/2016	6/15/2016	Female	UH/HIMB	USA
Coffey, Daniel	Biologist	5/22/2016	6/15/2016	Male	UH/HIMB	USA
Ogden-Fung, Cameron	Biologist	5/22/2016	6/15/2016	Female	NOAA/PMNM	USA
Zill, Julie	Biologist	5/22/2016	6/15/2016	Female	UH/HIMB	USA
LTJG Owen, Hadley	Cox'n	5/22/2016	6/15/2016	Female	NOAA/PMNM (NOAA Corps)	USA
Lopes, Ke'olohilani	Biologist	5/22/2016	6/15/2016	Male	NOAA PMNM	USA
Brown, Tim	Biologist	5/22/2016	6/15/2016	Male	NOAA PMNM	USA
Jeremiah, Nicholas	Chamber Operator	5/22/2016	6/15/2016	Male	NOAA/OMAO	USA
Weiss, Kenneth	Scientific writer	5/22/2016	6/15/2016	Male	NOAA/PMNM	USA
Duffy, Maureen	Biologist	5/22/2016	6/4/2016	Female	NOAA NMFS	USA

Brack, Jon	Biologist	6/1/2016	6/2/2016	Male	NOAA NMFS	USA

G. Administrative

1. Points of Contacts: Chief Scientist Randall Kosaki

Randall Kosaki, Deputy Superintendent, Research Coordinator
NOS-ONMS-PMNM
1845 Wasp Blvd., Bldg. 176
Honolulu, HI 96818
Phone: 808-725-5805
Cell: 808-295-0141
Fax: 808-455-3093
Randall.Kosaki@noaa.gov

NOAA Ship *Hi'ialakai* Operations Officer:
LT Faith Knighton, NOAA, Operations Officer
NOAA Ship *Hi'ialakai*
1897 Ranger Loop, Building 184
Honolulu, HI 96818
In-Port: (808) 725-5780
At Sea: 808-684-3235
OPS.Hiialakai@noaa.gov

2. Diplomatic Clearances

This project involves Marine Scientific Research in waters under the jurisdiction of the United States of America; therefore no diplomatic clearance is required.

3. Licenses and Permits

1. This project will be conducted under the (U.S.) Conservation and Management Permit no. PMNM-2016-006 issued by Papahanaumokuakea Marine National Monument to CDR Elizabeth I. Kretovic, NOAA and NOAA Ship *Hi'ialakai*.

2. This project will be conducted under the (U.S.) Research Permit no. PMNM-2015-029 issued by Papahānaumokuākea Marine National Monument to Dr. Randall Kosaki.

3. This project will be conducted under the (U.S.) Research Permit no. PMNM-2015-030 issued by Papahānaumokuākea Marine National Monument to Dr. Brian Bowen.

4. This project will be conducted under the (U.S.) Research Permit no. PMNM-

2015-020 issued by Papahānaumokuākea Marine National Monument to Dr. Carl Meyer.

5. This project will be conducted under the (US) Research Permit no. PMNM-2016-014 issued by Papahānaumokuākea Marine National Monument to Dr. Megan Donahue.

II. Operations

The Chief Scientist is responsible for ensuring the scientific staff are trained in planned operations and are 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

DATE	PORT	TIME/ACTIVITY	DISTANCE/TIME
May 22	Pearl Harbor	All scientists aboard at 0800 to complete pre-ops small boat & dive stations, ETD 1300 Transit to Ni'ihau.	130 nm, 14 hrs.
May 23	Ni'ihau	Full day dive ops. Transit to FFS	354 nm, 39 hrs.
May 24	Transit	Diver rest day.	
May 25	FFS	Arr. FFS. Full day dive ops. Evening multibeam ops.	
May 26	FFS	Full day dive ops. Begin transit to Maro Reef.	268 nm, 30 hrs.
May 27	Transit	Diver rest day. Arr. Maro .	
May 28	Maro Reef	Full day dive ops. Evening multibeam ops.	
May 29	Maro Reef	Full day dive ops. Transit to Laysan.	60 nm, 7 hrs.
May 30	Laysan	Full day dive ops. Transit to Lisianski.	132 nm, 15 hrs.
May 31	Lisianski	Full day dive ops. Begin transit to P&H.	144 nm, 16 hrs.
June 1	P&H	Arr. P&H . Full day dive ops. Transit to Midway.	80 nm, 9 hrs.
June 2	Midway	Full day dive ops.	
June 3	Midway	Diver rest day. Transit to Kure.	60 nm, 7 hrs.
June 4	Kure	Full day dive ops.	
June 5	Kure	Full day dive ops. Begin transit to P&H.	130 nm, 15 hrs.
June 6	P&H	Arr. P&H . Full day dive ops.	
June 7	P&H	Full day dive ops. Begin transit to Lisianski.	144 nm, 17 hrs.
June 8	Lisianski	Arr. Lisianski . Full day dive ops. Evening multibeam ops. Begin transit to Laysan.	132 nm, 16 hrs.
June 9	Laysan	Arr. Laysan . Full day dive ops.	60 nm, 7 hrs.

		Evening multibeam ops. Transit to Maro Reef.	
June 10	Maro Reef	Full day dive ops. Begin transit to FFS.	268 nm, 32 hrs.
June 11	Transit	Diver rest day.	
June 12	FFS	Full day dive ops. Begin transit to Ni'ihau.	354 nm, 41 hrs.
June 13	Transit	Diver rest day.	
June 14	Ni'ihau	Arr. . Full day dive ops. Transit to Pearl Harbor	130 nm, 15 hrs.
June 15	Pearl Harbor	Arr. Pearl Harbor .	

B. Staging and Destaging

PMNM's 10 x 8 foot Conex storage container with a cradle for a 19 foot SAFE Boat was loaded prior to the departure of HA-16-03, and will remain on board for HA-16-04.

On May 16, 2016, 19' SAFEBoat *Kaku* will be off-loaded for maintenance.

On May 17, 2016, USFWS and State DLNR personnel will stage pallets of gear on Pier F9. They have requested transport of this gear to Midway and Kure respectively, on a space-available basis. Cargo is itemized in Section III (Equipment).

On May 18, 2016, small boat gas delivery scheduled between 0800-1000.

On May 19, 2016, the pre-project meeting is scheduled for 1000 at MOC-PI Conf Rm . Small boat hook training and walk-throughs are scheduled for 1200. Divers' neurological exams will be scheduled opportunistically.

Beginning May 19, 2016, scientific gear will be hand-carried by science participants, or palletized and loaded by the ship's crane. This will include two 19 foot SAFEBoats brought pier-side on trailers by the scientific party for loading by the ship's crane once the cradles have been secured (one cradle is already on board). Two pallet tubs (4 x 4 foot) for extra gear storage and SAFEBoat maintenance will be staged on the winch deck railing outside the wet lab.

Beginning on May 19, 2016, scientific staff will begin loading personal gear into their assigned staterooms.

On Sunday, May 22, 2016, small boat hook training and walk-throughs for late-arriving scientists will occur. All scientists will participate in dive station (O_2, backboard, DEAP, gear check, and chamber walk-through).

On June 15, 2016, members of the science party will hand-carry scientific gear off. Beginning June 15, 2016, through June 17, 2016, the 10 x 8 foot Conex container, both SAFEBoats, and thw two 4 x 4 foot pallet tubs will be removed from the ship using the ship's crane.

Prior to sailing, the ship's crew will inspect the after deck crane, SCUBA air compressor and delivery systems, scientific freezer, wet lab eyewash station and exhaust fan, recompression chamber, and ship's small craft and davits for all launches to ensure that they are in proper working order.

May 25 Embark scientists at Pearl Harbor:

1. Randall Kosaki (Chief Scientist)
2. Jason Leonard
3. Daniel Wagner
4. Brian Hauk
5. Brian Greene
6. Richard Pyle
7. John Hansen
8. John Burns
9. Atsuko Fukunaga
10. Keisha Bahr
11. Daniel Coffey
12. Cameron Ogden-Fung
13. Julie Zill
14. Keolohilani Lopes
15. Tim Brown
16. Kenneth Weiss
17. LTJG Hadley Owen
18. Maureen Duffy
19. Nick Jeremiah (Chamber Operator/Divemaster)

May 22 Scientific staff board ship to begin small boat & dive stations, muster in dry lab NLT 0800. Transit from Pearl Harbor to Ni'ihau.

May 23 Arrive at Ni'ihau, Conduct full day of "shakedown" boating and dive operations. Recover and replace tagging receivers. Begin transit to French Frigate Shoals.

May 24 Transit to French Frigate Shoals.

May 25 Conduct full day of dive operations at French Frigate Shoals. Evening multibeam operations (~9 nm trackline on E side).

May 26 Conduct full day of dive operations at French Frigate Shoals. Begin transit to Maro Reef.

May 27 Transit to Maro Reef.

May 28 Conduct full day of dive operations at Maro Reef. Evening multibeam operations (~6 nm trackline in NW side).

May 29 Conduct full day of dive operations at Maro Reef. Transit to Laysan.

May 30 Conduct full day of operations at Laysan. Journalist ashore. Transit to Lisianski.

May 31	Conduct full day of dive operations at Lisianski. Transit to Pearl and Hermes Atoll.
June 1	Conduct full day of dive operations at Pearl and Hermes Atoll. Embark Jon Brack for transport to Midway.
June 2	Conduct full day of dive operations at Midway. Disembark Jon Brack.
June 3	Diver rest day. Journalist ashore at Midway. Transit to Kure
June 4	Conduct full day of dive operations at Kure. Disembark Maureen Duffy.
June 5	Conduct full day dive operations at Kure. Begin transit to P&H.
June 6	Arrive P&H. Full day dive ops.
June 7	Conduct full day of dive operations at Pearl and Hermes Atoll. Transit to Lisianski.
June 8	Arrive Lisianski. Conduct full day of dive operations at Lisianski. Transit to Laysan.
June 9	Conduct full day of dive operations at Laysan. Evening multibeam operations (large gaps all around). Transit to Maro Reef.
June 10	Conduct full day of dive operations at Maro Reef. Begin transit to French Frigate Shoals.
June 11	Transit to French Frigate Shoals. Diver rest day.
June 12	Conduct full day of dive operations at French Frigate Shoals. Begin transit to Ni'ihau.
June 13	Transit to Ni'ihau.
June 14	Conduct full day of dive operations at Ni'ihau. Transit to Pearl Harbor.
June 15	Arrive Pearl Harbor. Disembark all scientists.

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, equipment servicing, and benthic coral health surveys.

c. Rebreather dive operations will be conducted from MetalShark. 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 MetalShark.

(2) Snorkeling

a. All snorkeling shall be conducted in accordance with the NOAA Scientific Diving Manual, para. 4.13 and NOAA ONMS Snorkeling and Breath-hold Diving Best Management Practices and Guidelines.

(3) Small Boat

a. Scuba diving and snorkeling from small boats are fundamental to accomplishing the goals of this project. The ship is requested to provide coxswains for 3 small boats (MetalShark, HI-2, and program supplied 19 foot SAFEboat) for all 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 Nick Jeremiah. ONMS NOAA Corps Officer LTJG Hadley Owen will serve as coxswain for the second program-provided 19 foot SAFEBoat. LTJG Owen has all required NOAA certifications for small boat operations, including approval for operations off *Hi'ialakai*.

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 project.

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 operations, ship's diver/coxswain training and proficiency regulations may require the use of a ship's small boat during an extended project. The CO will work with the Chief Scientist to plan and minimize impacts to fulfill such requirements.

(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.

Project 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. Mesophotic reef characterization and invasive algae surveys will be conducted with technical dive CCR operations. Dive operations will include: visual fish surveys, benthic photoquadrat surveys, and visual surveys for alien species. Voucher specimens will be collected of any organisms which cannot be identified at the species level.

3. VEMCO acoustic receivers will be recovered and deployed by scuba divers as a part of a study on the large-scale movement patterns of apex predators and other large fishes.

4. Coral disease and coral health surveys will be conducted on shallow reefs to document recovery from a 2014 mass coral bleaching event.

5. An assessment of benthic damage will be conducted at the site of a weather buoy grounding at Lisianski. The weather buoy will have been retrieved in May 2016.

6. Journalists (writer, photographer) will accompany science teams in the small boats to document both the research and the natural, cultural, and historic resources of the NWHI.

7. Opportunistic operation of the multibeam sonar to fill gaps in existing bathymetric data.

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-16-04 is presented in Appendix A.

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 project 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 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.

Prior to sailing, the ship's crew will inspect the 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 (MetalShark)
8-m launch and davit (HI-2)
HI-3 as a backup small boat
1 SCUBA compressor (Nitrox or Air)
Recompression chamber
Dive locker space for 18 divers
Scientific freezer, storage racks installed (needed 2d prior to departure)
Scientific Computer System
Adequate fresh water for gear washdown and disinfection
Gear washdown tank
VHF radios for ship's small boats
GPS for ship's small boats
Depth sounders capable of reading bottom in 100 m for ship's small boats
Large flat-screen monitor in dry lab
Capstan and working line
Tag lines for small boat ops alongside
Crane to load equipment
Vessel Monitoring System
Field lunches for scientists in small boats

B. Equipment and Capabilities Provided by the Scientists

PMNM will provide:

20	80 cu. ft. scuba cylinders and dive gear
24	80 cu. ft. O_2-clean scuba stage bottles, packed in two ½ size pallet tubs
2	½ size pallet tub with double scuba cylinders
4	pallet tub storage containers for scuba tanks
3	Nitrox/O_2 gas analyzer
3	Trimix/O_2/He gas analyzer
2	DAN emergency oxygen kits
2	first aid kits for small boats
3	rescue floats for dive operations
4	portable GPS units for backup
2	19 foot SAFEboat with lifting bridles and cradles
2	pallet tubs, small boat maintenance gear
20	desktop and laptop computers for use by scientists
10	1 gallon jugs Clorox for disinfection of dive gear in gear washdown tank
1	pallet tub washdown tank for freshwater rinse of gear after disinfection
2	hand-held VHF radios for Safeboats
1	Low-heat specimen drying oven, 110v
2	Masterline Booster Pump (electric powered)in full-size pallet tub
1	Haskel Booster Pump (compressed gas powered)
12	K-Cylinders O2
4	K-Cylinders He
1	steel rack, holds 16 K-cylinders
2	K-cylinders 50/50 for chamber
25	44 lb. kegs of Sofnolime CO2 absorbent for rebreathers
1	10' Baby box to be placed on aft deck
4	Megalodon closed-circuit rebreather units
2	AP Inspiration closed-circuit rebreather units
2	Poseidon SE7EN closed-circuit rebreather units
21	PFD and hardhats for all science personnel
1	Hand-deployed CTD

FWS has requested transport to Midway for the following items:

1	palletized flood light, 80"L x 40"W x 17"H, 140 lbs.
1	palletized water bladders (6 ea.), 60"L x 45"W x 76"H, 695 lbs.
1	palletized Grainger aluminum sheets, 9"L x 50"W x 6"H
2	palletized RSI roofing materials, 48"L x 40"W x 48"H, 2400 lbs. ach
1	palletized engine, 50"L x 33"W x 48"H, 870 lbs.
1	palletized communications equipment, 92"L x 32"W x 24"H, 429 lbs.

State of Hawaii DLNR has requested transport to Kure for the following items;

2	100 quart coolers, frozen food, 2.5'L x 1.5'H x 1.5'H
4	buckets of supplies
2	non-toxic salt water ion battery, 250 lbs.

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

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

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

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

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

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

B. Inventory

Inventory (itemized):

Common Name of Material	Qty	Notes	Trained Individuals	Spill control
Ethanol	6 x 1000ml	Flammable	Jason Leonard, Brian Hauk, Daniel Wagner	A
Formalin (100%)	2 x 1000ml	Alkalinity, corrosive	Jason Leonard, Brian Hauk, Daniel Wagner	B
Sodium Hypochlorite (6%)	10 x 1 gallon	Alkalinity, Stored in ship chem. locker	Jason Leonard, Brian Hauk, Daniel Wagner	C
Soda lime (Sofnolime brand)	22 x 44 lb. kegs	Located in Sci Van; NOT considered hazmat	Jason Leonard, Brian Hauk, Daniel Wagner	D
Povidone Iodine (Betadine brand)	1 x 1 gallon	Located in Sci Van; NOT considered hazmat	Jason Leonard, Brian Hauk, Daniel Wagner	E
RNAlater	5 gallons	Alkalinity	Jason Leonard, Brian Hauk, Daniel Wagner	F
Z-fix (zinc-buffered formalin)	1 gallon	Alkalinity, corrosive	Jason Leonard, Brian Hauk, Daniel Wagner	G
Glyo-Fixx RT	1000 ml	Flammable (alcohol-based)	Jason Leonard, Brian Hauk, Daniel Wagner	H
Aqueous Hybrid Ion Rechargeable Battery	1 x 260 lb	Will be placed in a 50 gallon overpack. Classified as a non-hazardous article.	Jason Leonard, Brian Hauk, Daniel Wagner	I

C. Chemical safety and spill response procedures

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/Formaldehyde

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

formaldehyde/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. **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.

E. **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.

F. **RNAlater**
Ensure adequate ventilation. Avoid contact with skin. Avoid breathing vapor. Spills should be absorbed with inert dry material. Dilute and mop up with water.

G. **Z-fix (zinc-buffered 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 formaldehyde/formalin absorbent are located in the ship's Spill Containment Kit in the wet lab (where all formalin use will occur).

H. **Glyo-Fixx RTU**
Small spill: Remove all sources of ignition. Soak up with absorbent material. Keep in suitable closed container for disposal.

I. **Aqueous Hybrid Ion**
Small spill: Vacuum and avoid raising dust. Collect the spilled material in containers and prevent them from contaminating water.

Inventory of Spill Kit supplies (Located in wet lab)

Product Name	Contents	Chemicals it is useful against	Amount it can clean up
Cary Company 37WSP2	2 -5 gal Bags of Teal-Sorb EQ, 20 - 15"x18" Universal Heavy Weight	Universal	20 gal

Pads, 6 - 4'
Universal Socks , 5
Pair - Nitrile
Gloves, 1 - Pair of
Goggles, 3 -
Disposal Bags, 1 -
1 gal Empty
Shaker

D. Radioactive Materials

No Radioactive Isotopes are planned for this project.

V. Additional Projects

A. Supplementary ("Piggyback") Projects
No Supplementary Projects are planned.

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.

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 conducted a meeting no earlier than 24 hrs before or 7 days after the completion of a project to discuss the overall success and short comings of the project. Concerns regarding safety, efficiency, and suggestions for future improvements shall be discussed and mitigations for future projects will be documented for future use. This meeting shall be attended by the ship's officers, applicable crew, the Chief Scientist, and members of the scientific party and is normally arranged by the Operations Officer and Chief Scientist.

D. Project Evaluation Report

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

VIII. Miscellaneous

A. Meals and Berthing

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. Two scientists are vegetarian but consume eggs and dairy.

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 (3-14)) 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).
The only secure email process approved by NOAA is Accellion Secure File Transfer which requires the sender to setup an account. Accellion's Web Users Guide is a valuable aid in using this service, however to reduce cost the DOC contract doesn't provide for automatically issuing full functioning accounts. To receive access to a "Send Tab", after your Accellion account has been established send an email from the associated email account to accellionAlerts@doc.gov requesting access to the "Send Tab" function. They will notify you via email usually within 1 business day of your approval. The 'Send Tab" function will be accessible for 30 days.

Contact information:
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 program 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 to the Electronics Technician a spreadsheet with the information per example below to connect personal devices to LAN/, prior to embarking.

Devices/ Names/ Operating Systems/LAN MAC Address/ WAN MAC Address		
Iphone	*Randy Kosaki MAC*	
OS	*21:34:6K:P8:W6:77*	*21:34:6K:P8:W6:78*
Laptop	*Randy Kosaki Windows*	
XP	*23:34:6K:P8:M6:77*	*23:34:6K:P8:M6:78*

F. Foreign National Guests Access to OMAO Facilities and Platforms

Two foreign nationals (Germany, Japan) are scheduled to be aboard HA-16-04. They are both permanent residents of the USA and possess green cards and NOAA CAC cards.

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.

Foreign National access must be sought not only for access to the ship involved in the project but also for any Federal Facility access (NOAA Marine Operations Centers, NOAA port offices, USCG Bases) that foreign nationals might have to traverse to gain access to and from the ship. 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 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

APPENDIX A. Dive Plan

Currently under review by NOAA Diving Control and Safety Board

APPENDIX B. Material Safety Data Sheets (MSDS)

Submitted Separately