UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NOAA Marine and Aviation Operations
Marine Operations Center
439 W. York Street
Norfolk, VA 23510-1114

MEMORANDUM FOR: Lieutenant Commander Jeffrey Shoup, NOAA
Commanding Officer, NOAA Ship *Nancy Foster*

FROM: Captain Anne K. Lynch, NOAA
Commanding Officer, NOAA Marine Operations Center-Atlantic

SUBJECT: Project Instruction for NF-14-07
FKNMS Coral Reef Condition Assessment, Coral Reef Mapping, and Fisheries Acoustics Characterizations

Attached is the final Project Instruction for NF-14-07, FKNMS Coral Reef Condition Assessment, Coral Reef Mapping, and Fisheries Acoustics Characterizations Survey, which is scheduled aboard NOAA Ship *Nancy Foster* during the period of September 15 to September 30, 2014. Of the 16 DAS scheduled for this project, 16 days are funded by NOS. This project is estimated to exhibit a Medium Operational Tempo. Acknowledge receipt of these instructions via e-mail to **OpsMgr.MOA@noaa.gov** at Marine Operations Center-Atlantic.

Attachment

cc:
MOA1

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

Florida Keys National Marine Sanctuary
33 East Quay Road
Key West, FL 33040

FINAL Project Instructions

Date Submitted: August 22nd, 2014

Platform: NOAA Ship *Nancy Foster*

Project Number: NF-14-07 (OMAO)

Project Title: Florida Keys National Marine Sanctuary Coral Reef Condition Assessment, Coral Reef Mapping, and Fisheries Acoustics Characterizations.

Project Dates: September 15th, 2014 to September 30th, 2014

Prepared by: DONAHUE.SCOTT.L.1365853009 2014.08.22 16:00:38 -04'00' Dated: _____
Scott Donahue
Chief Scientist
NOS/ONMS/SEGOM/FKNMS

Approved by: MORTON.SEAN.A.1365891954 Digitally signed by MORTON.SEAN.A.1365891954 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=MORTON.SEAN.A.1365891954 Date: 2014.08.27 10:47:04 -04'00' Dated: _____
Sean Morton
Superintendent
NOS/ONMS/SEGOM/FKNMS

Approved by: GITTINGS.STEPHEN.R.DR.1365823754 Digitally signed by GITTINGS.STEPHEN.R.DR.1365823754 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=GITTINGS.STEPHEN.R.DR.1365823754 Date: 2014.08.27 09:54:59 -04'00' Dated: _____
Steve Gittings, PhD.
Science Coordinator
NOS/ONMS

Approved by: COPY /NOAA Dated: 9/12/2014
Captain Anne K. Lynch, NOAA
Commanding Officer
Marine Operations Center - Atlantic

I. Overview

A. Brief Summary and Project Period

Arrive: Key West, FL September 12th, 2014 (end of NF-14-06 cruise)

Load Vessel: Key West, FL September 14th, 2014

Depart: Key West, FL September 15th, 2014

Arrive: Key West, FL September 27th, 2014

Offload Vessel: Key West, FL September 27th, 2014

Depart: Key West, FL September 28th, 2014

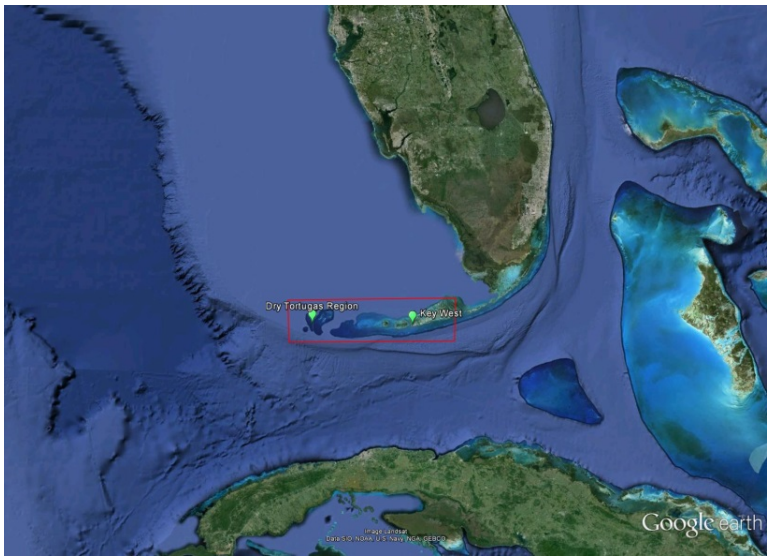
Arrive: Charleston, SC September 30th, 2014

B. Days at Sea (DAS)

The 16 DAS scheduled for this project are funded by NOS. Transit DAS are scheduled for September 28-30, 2014, departing Key West, FL and arriving in Charleston, SC. Key West, FL is the project port. This project is estimated to exhibit a Low Fuel and High Overtime operational tempo.

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

Florida Keys National Marine Sanctuary - from Tortugas Ecological Reserve (approx. 70 nm west of Key West, FL) to approximately 20 nm east of Key West, FL (Appendix 1).



D. Summary of Objectives

- The present project builds on past research and monitoring in the FKNMS by the Florida Fish and Wildlife Conservation Commission and focuses on connectivity between the network of marine reserves in the Dry Tortugas region, including the connections between populations of fish in the Dry Tortugas National Park (DRTO), the DRTO Research Natural Area (RNA), the Tortugas Ecological Reserve North and spawning habitat at Riley's Hump located within the Tortugas Ecological Reserve South.
- Deploy scuba divers to place fish traps, then acoustically tag cubera snapper and black grouper *in situ* at Riley's Hump in TER South (Appendix 4).
- Deploy scuba divers to recover, download and redeploy acoustic receivers (VR2s) at Riley's Hump, Western Dry Rocks, and Eyeglass bar using divers; thirty-eight receivers in total will be serviced (Appendix 4).
- Deploy scuba divers to install 'new' acoustic receivers, and associated stands, in deeper water of Riley's Hump (130').
- ROV operations –There will be two ROVs onboard during the first leg – the ship based 'Mohawk' from UNCW, and a small-boat based seabotix ROV from Florida Fish and Wildlife Commission. ROV surveys will target fish aggregations and be conducted in waters deeper than the maximum diving depth planned for this mission (125 ft). ROVs to be deployed either from the ship (Mohawk), or from small boats (seabotix), depending on environmental conditions.
- Drop camera (small boat based) and/or diver visual surveys over bathymetry habitat features of interest, or for habitat validation purposes.
- Dive and drop camera via small boat on cubera and mutton aggregation locations on Riley's Hump on/around September 16th (Appendix 4).
- Retrieve and replace one thermograph in Tortugas Ecological Reserve North, and one thermograph at New Grounds (North and West of Marquesas).
- Multibeam target areas in the vicinity of the Dry Tortugas. Appendix #2 & #3 show Tortugas Ecological Reserve coordinates and regulations, respectively. Appendix #8 shows general areas of interest for MBES surveys.

E. Participating Institutions

NOAA's National Ocean Service - Office of National Marine Sanctuaries

NOAA's National Ocean Service - National Center for Coastal Ocean Sciences

NOAA Fisheries - Southeast Fisheries Science Center

NOAA's Teacher at Sea Program

Florida Fish and Wildlife Conservation Commission

Florida Department of Environmental Protection

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

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Acosta, Alejandro	Principal Investigator	9/15/14	9/21/14	M	Florida FWC	US
Barbera, Paul	Scientist	9/15/14	9/27/14	M	Florida FWC	US
Binder, Ben	Scientist	9/15/14	9/21/14	M	Florida FWC	US
Clark, Cammy	Science party and OPS	9/14/14	9/21/14	F	AP & Miami Herald	US
Dieveney, Beth	FKNMS Dep. Sup.	9/21/14	9/27/14	F	NOS/ONMS	US
Donahue, Scott	Chief Scientist	9/15/14	9/27/14	M	NOS/ONMS	US
Horne, Lance	ROV Chief Pilot	9/14/14	9/21/14	M	UNCW	US
Kellison, Todd	Scientist	9/21/14	9/27/14	M	NOAA Fisheries	US
McCallister, Mike	Scientist	9/15/14	9/27/14	M	Florida FWC	US
Morley, Danielle	Scientist	9/15/14	9/27/14	F	Florida FWC	US
Morton, Sean	FKNMS Superintendent	9/15/14	9/21/14	M	NOS/ONMS	US
Nguyen, Linh	Scientist	9/15/14	9/21/14	F	NOAA Corps	US
Orchard, Amy	NOAA TAS	9/14/14	9/27/14	F	NOAA	US
Renchen, Jeff	Scientist	9/15/14	9/27/14	M	Florida FWC	US
Stafford, Brett	NOAA UDS & Dive Master	9/15/14	9/27/14	M	NOS/ONMS	US
Sympson, Bill	Scientist	9/21/14	9/27/14	M	Florida FWC	US
Tagliareni, Mary	FKNMS Dep. Sup.	9/21/14	9/27/14	F	NOS/ONMS	US
Tobin, Ariel	Scientist	9/15/14	9/27/14	F	Florida FWC	US
White, Jason	ROV Pilot	9/14/14	9/21/14	M	UNCW	US

G. Administrative

1. Points of Contacts:

Chief Scientist: Scott Donahue
Office: 305-809-4700 ext.239
Cell: 305-797-7223
Email: scott.donahue@noaa.gov

Ops Officer: LT Colin Kliewer
Cell: 843-991-6326
Iridium: 808-434-5653
Email: ops.nancy.foster@Noaa.gov

2. Diplomatic Clearances

None Required.

3. Licenses and Permits

This project will be conducted under the Scientific Research Permit (U.S.) issued by Florida Keys National Marine Sanctuary (U.S.) to Scott Donahue (Chief Sci.). This will be presented to the ship by the time it sails.

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	Time	Activity
9/14	???? 2000	Mobilize ROV Mohawk (crane pick)??? Key West - Select science team members to sleep on ship (e.g., NOAA Teacher at Sea, ROV pilots)
9/15	0700 morning after lunch evening	Mobilize rest of science crew and equipment Depart Key West and Transit to Sand Key <LT Kliewer> welcome aboard/safety discussion, drills with science crew Arrive Sand Key Commence scuba dive operations – scuba dive accident and safety drill – ship's crew also involved Begin multibeam and fisheries acoustics/sonar surveys Transit to Tortugas Ecological Reserve Continue multibeam and fisheries acoustics/sonar surveys

9/16	0600	CTD cast/ end multibeam operations
	0800	Deploy divers and drop camera to check the area where fish traps will be set.
	1000	Set fish traps.
	1400	Deploy drop camera or small ROV to determine if -any fish were caught that are appropriate for tagging.
	1500	Deploy scuba divers to surgically tag fish.
	1800	Secure from daytime operations
	2000	CTD cast/ Continue multibeam and fisheries acoustics/sonar surveys
9/17	0600	CTD cast/ end multibeam operations
	0800	Commence scuba dive operations to service VR2 receivers and to conduct visual assessment of reef fish; VR2 receivers approximate location: N 24 29.768', W 083 08.630; VR2 Station #1-7, 48, 49
	1300	Commence ROV (Mohawk and/or seabotix) operations
	1700	Secure from daytime operations
	2000	CTD cast/ Continue multibeam and fisheries acoustics/sonar surveys
9/18	0600	CTD cast/ end multibeam operations
	0800 – 1130	Commence ROV and/or scuba dives on targets of interest at Riley's Hump
	1300 - 1700	Continue ROV and/or scuba dives on targets of interest at Riley's Hump
	1800	CTD cast/ continue multibeam and fisheries acoustics/sonar surveys
9/19	0600	CTD cast/ end multibeam operations
	0800 – 1130	Commence ROV and/or scuba dives on targets of interest at Riley's Hump
	1300 - 1600	Continue ROV and/or scuba dives on targets of interest at Riley's Hump

		Transit to Dry Tortugas National Park
	1800	Liberty at Fort Jefferson until sundown
	2200	Transit to Tortugas Ecological Reserve North, Goliath Gouper aggregation site and MBES area (Appendix #8)
	2400	CTD cast/ continue multibeam and fisheries acoustics/sonar surveys
9/20	0600	CTD cast/ end multibeam operations
	0800 – 1130	Commence ROV and/or scuba dives on targets of interest
	1300 - 1700	Continue ROV and/or scuba dives on targets of interest
	1800	CTD cast/ continue multibeam and fisheries acoustics/sonar surveys
9/21	0200	**Transit** to Key West
		Continue multibeam and fisheries acoustics/sonar surveys on transit to Key West
	0600	CTD cast/ end multibeam operations
	Morning **(T and G)**	Demob large ROV (crane pick) Select science crew disembark, new team members embark
		Depart Key West;
	Afternoon	Transit to Marquesas
		<LT Kliewer> welcome aboard/safety discussion, drills with new science team members
	Evening	CTD cast/ Continue multibeam and fisheries acoustics/sonar surveys.
9/22	0600	CTD cast/ end multibeam operations
	0700	Arrive at Western Dry Rocks approximate location: N 24 26.071, W -081 56.134
	0800-1130	Commence scuba dive operations to service 20 VR2 receivers and to conduct visual assessment of reef fish;
	1300-1630	Continue scuba dive operations to service 20 VR2 receivers and to conduct visual assessment of reef fish;
	1700	Secure from daytime dive operations

	1800	CTD cast/ Continue multibeam and fisheries acoustics/sonar surveys
9/23	0600	CTD cast/ end multibeam operations
	0800 – 1130	Commence ROV and/or dives on targets of interest
	1300 - 1630	Continue ROV and/or dives on targets of interest
	1700	Secure from daytime dive operations
	1800	CTD cast/ continue multibeam and fisheries acoustics/sonar surveys
9/24	0600	CTD cast/ end multibeam operations
	0800 – 1130	Commence ROV and/or dives on targets of interest
	1300 - 1630	Continue ROV and/or dives on targets of interest
	1700	Secure from daytime dive operations
	1800	CTD cast/ continue multibeam and fisheries acoustics/sonar surveys
9/25	0600	CTD cast/ end multibeam operations
	0800 – 1130	Commence ROV and/or dives on targets of interest
	1300 - 1630	Continue ROV and/or dives on targets of interest
	1700	Secure from daytime dive operations
	1800	CTD cast/ continue multibeam and fisheries acoustics/sonar surveys
9/26	0600	CTD cast/ end multibeam operations
	0800 – 1130	Commence ROV and/or dives on targets of interest
	1300 - 1630	Continue ROV and/or dives on targets of interest

	1700 1800	Secure from daytime dive operations CTD cast/ continue multibeam and fisheries acoustics/sonar surveys
9/27	 0700 0800 1200 Afternoon	**Transit** to Eyeglass Bar (N 24 28.280', W 081 39.437') Arrive Eyeglass Bar Commence scuba dive operations to service 12 VR2 receivers Secure from daytime dive operations Secure from dive/ ROV ops **Transit** to Key West Arrive: Key West Demobilize equipment and science crew Chief Scientist to debrief with CO and OPS officers
9/28		Transit to Charleston, SC
9/29		Transit to Charleston, SC
9/30		Arrive: Charleston, SC

B. Staging and Destaging:

Staging TBD – We will need crane ops and a fork lift to load Mohawk ROV and science equipment sometime on 9/14/14, at ships discretion. Otherwise all staging will occur 9/15/14. There will be a science crew rotation on 9/21/14.

De-staging will occur twice: 1) on 9/21 to offload Mohawk ROV and select science crew (0800), 2) when back at port Key West on 9/27/14 (1700).

C. Operations to be Conducted:

1. <u>Fish Tagging:</u>

Logistics for trapping and diving are weather specific, and will be coordinated between the CO and Chief Scientists on site. Ideally, the divers and drop cameras will be deployed first to check the area where fish traps will be set, and again following the trap soak period. Traps will be equipped with GoPro cameras. After a soak time of -/+ 4 hrs, the ROV, the drop camera, or divers (depending on site conditions) will be deployed to determine if any fish were caught that are appropriate for tagging. The acoustic tagging will be conducted underwater using a team of divers.

Additionally, divers will video tape their dives and record fish and habitat information. Based on the fish tagged, we will deploy new VR2s if necessary.

2. VR2 Downloads:

Teams of 2 divers will replace the existing VR2 receivers. Divers will bring down a newly programmed VR2, remove the existing VR2 and place the new one in the station and secure it. The previous VR2 will be brought to the surface for downloading and reprogramming.

3. ROV Operations:

Fish (spawning) aggregations will be observed and filmed around Riley's Hump, Tortugas Ecological Reserve South. ROV operations will be conducted from the ship, and/or using small boat operations. The exact area for this survey will be provided during daily operations meetings.

a) Mohawk ROV - deployment of this ROV will be conducted from the Nancy Foster. We anticipate deployments of 2 to 4 hours depending on current and wind conditions. A team of at least two people will be needed to operate the ROV. No nighttime surveys are required or scheduled.
b) Seabotix ROV – Live boat deployment of this small ROV will be conducted from the small tender vessels launched from the Foster. We anticipate deployments of 1 to 2 hours depending on current and wind conditions. A team of three people will be needed to operate the ROV. Dive operations can co-occur when this ROV is deployed, because it is launched from a small boat. No nighttime surveys are required or scheduled.

Dive operations will not be conducted while the Mohawk is deployed, however diving can occur during the Seabotix surveys because both activities can be accomplished from the same small boat.

4. Multibeam Sonar Operations:

Multibeam survey areas will be provided to the Operations Officer. Polygons will be provided as maps and as ArcGIS shapefiles for use by ship Survey department for planning. Actual survey polygons for all proposed mulitbeam coverage during cruise operations will be provided or modified during daily operation meetings.

Multibeam operations will be conducted in two general areas, south of Key West and in the Dry Tortugas region. Multibeam operations will be conducted at night.

The Reson 7125 Seabat will be used for multibeam operations. Ship's Survey Department will determine appropriate frequency for operations given depth of the survey area. CTD casts will be taken at the beginning of each survey and as appropriate to ensure high data quality.

5. Fishery Splitbeam Sonar Operations

Fish distribution will be simultaneously mapped during multibeam sonar surveys using the Simrad EK60 suite. Additional areas 'of opportunity' for this survey will be provided during daily operations meetings.

6. Dives to Service Acoustic Tag Receivers

Up to 36 VR2 acoustic tag receivers will be serviced during the mission. Each unit will be retrieved, data downloaded, batteries replaced, reprogrammed, then redeployed. Dive depths could range from 20 fsw to 125 fsw. Dive operations will occur from ship's small boats.

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 Plans encompassing all legs of NF-14-07 are presented in Appendix #13, and associated Dive Emergency Assisstance Plan (DEAP) in Appendix #14.

E. Applicable Restrictions

Conditions which preclude normal operations:

Poor field conditions:

1. Tropical cyclone activity is possible during this mission – the CO will determine best mitigation practice for the ship in this scenario.
2. Summertime thunderstorms could influence dive ops periodically– teams will deploy/retreat at the direction of the CO and/or Chief Sci.
3. Oceanic currents could be too strong for safe ROV or diving operations – Chief Sci to advise CO

Equipment failure:

1. ROV failure will not jeopardize the primary objectives of this mission – an attempt to correct an issue with either ROV will be made, but not at the expense of our field schedule.
2. Nitrox compressor failure will jeopardize the mission – in this case, the ship could do a touch-and-go in Key West for delivery of enough scuba tanks to complete the mission (to be coordinated by Chief Sci).
3. Dive equipment failure – spare parts will be on hand to fix the most common problems.

Safety concerns:

1. Dive related injuries – Brett Stafford will serve as the NOAA Dive Master on board to supervise all dive operations while underway. A diving safety drill will also be

coordinated with the CO on the first day of diving operations to prepare all teams for an unlikely dive injury scenario. The most likely dive emergency situation will be AGE or DCS.

2. General deck operations – CO (or their designee) can relay safety issues surrounding deck ops to Chief Sci and party.
3. Exposure – Coxswains and science crew will need to stay hydrated and protected from sun/rain exposure.

Unforeseen circumstances: The CO and/or the Chief Sci will determine best mitigation for unforeseen circumstances with a 'safety first' approach.

III. Equipment

A. Equipment and Capabilities provided by the ship (itemized)

1. Two small boats (launches).
2. Dry laboratory space with access to two ship computers.
3. Wet laboratory space with electrical outlets (i.e., 120V), and running fresh and salt water.
4. Air compressor to fill scuba cylinders.
5. Nitrox compressor with NN 32% capability.
6. 15 Nitrox tanks.
7. Multibeam and fishery sonar systems (e.g., Reson and Simrad systems), and supporting equipment (e.g., CTD).

B. Equipment and Capabilities provided by the scientists (itemized)

1. One emergency oxygen kit.
2. One oxygen analyzer for verifying nitrox mixtures.
3. One small ROV (i.e., small enough to operate from a small boat).
4. One large ROV (i.e., operate from ship)
5. 18 scuba tanks, along with 3 storage racks for them.
6. Appropriate number of RASS pony bottles for all science dives > 100fsw.
7. 3 handheld GPS units for small boat ops.
8. VR2 sonic receivers.
9. Up to 15 laptop computers (possibly one per scientist).
10. One or two trained science party members to mix breathing gas and/or fill scuba cylinders (the *Nancy Foster* crew will train them at start of project).

IV. Hazardous Materials

A. Policy and Compliance

No Hazardous Materials are being loaded onto the ship for this project.

B. Inventory

No Hazardous Materials are being loaded onto the ship for this project.

C. Chemical safety and spill response procedures

No Hazardous Materials are being loaded onto the ship for this project.

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.

All sonar data collected during this cruise are non-sensitive in nature. We request that the Ship's data storage be made available during the cruise to store all digital data. The Chief Scientist will provide a single hard drive (2 TB) to the ship's survey technicians at the end of the cruise to transfer those data. The Chief Scientist will be responsible for providing data archives to NGDC and AHB as part of R2R within 12 months of the completion of the survey objectives or in consultation with AHB and research partners.

A. Data Classifications: *Under Development*

a. OMAO Data

b. Program Data

B. Responsibilities: *Under Development*

VII. Meetings, Vessel Familiarization, and Project Evaluations

A. Pre-Project Meeting: The Chief Scientist and Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship's crew to discuss required equipment, planned operations, concerns, and establish mitigation strategies for all

concerns. This meeting shall be conducted before the beginning of the project with sufficient time to allow for preparation of the ship and project personnel. The ship's Operations Officer usually is delegated to assist the Chief Scientist in arranging this meeting.

B. Vessel Familiarization Meeting: The Commanding Officer is responsible for ensuring scientific personnel are familiarized with applicable sections of the standing orders and vessel protocols, e.g., meals, watches, etiquette, drills, etc. A vessel familiarization meeting shall be conducted in the first 24 hours of the project's start and is normally presented by the ship's Operations Officer.

C. Post-Project Meeting: The Commanding Officer is responsible for 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

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

Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the Chief Scientist. The Chief Scientist and Commanding Officer will work together on a detailed berthing plan to accommodate the gender mix of the scientific party taking into consideration the current make-up of the ship's complement. The Chief Scientist is responsible for ensuring the scientific berthing spaces are left in the condition in which they were received;

for stripping bedding and linen return; and for the return of any room keys which were issued. The Chief Scientist is also responsible for the cleanliness of the laboratory spaces and the storage areas utilized by the scientific party, both during the project and at its conclusion prior to departing the ship.

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The Chief Scientist will ensure that all non NOAA or non Federal scientists aboard also have proper orders. It is the responsibility of the Chief Scientist to ensure that the entire scientific party has a mechanism in place to provide lodging and food and to be reimbursed for these costs in the event that the ship becomes uninhabitable and/or the galley is closed during any part of the scheduled project.

All persons boarding NOAA vessels give implied consent to comply with all safety and security policies and regulations which are administered by the Commanding Officer. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must comply with OMAO's Drug and Alcohol Policy dated May 17, 2000 which forbids the possession and/or use of illegal drugs and alcohol aboard NOAA Vessels.

B. Medical Forms and Emergency Contacts

The NOAA Health Services Questionnaire (NHSQ, NF 57-10-01 (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 – Atlantic
439 W. York Street
Norfolk, VA 23510
Telephone 757-441-6320
Fax 757-441-3760
E-mail MOA.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 and it must be arranged at least 30 days in advance.

E. IT Security

Any computer that will be hooked into the ship's network must comply with the *OMAO 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 the above requirements prior to boarding the ship is required.

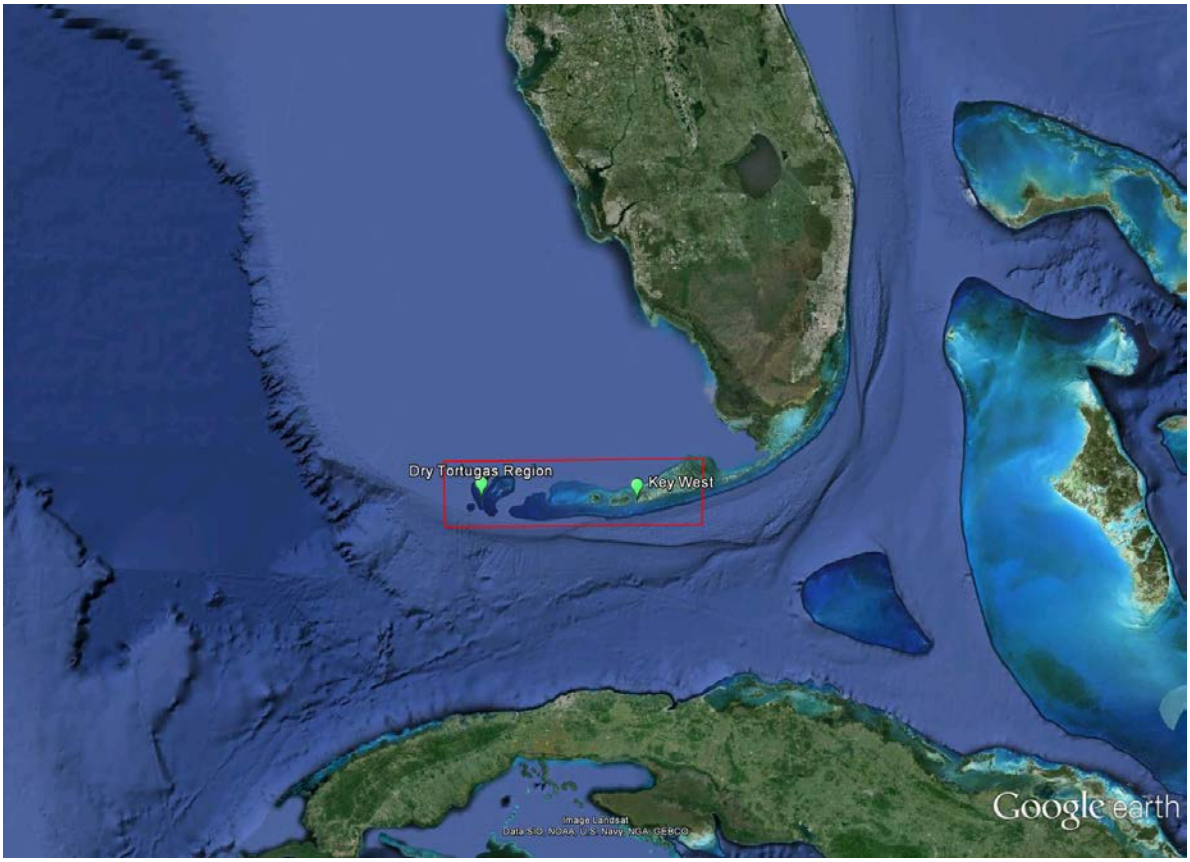
Non-NOAA personnel using the ship's computers or connecting their own computers to the ship's network must complete NOAA's IT Security Awareness Course within 3 days of embarking.

F. Foreign National Guests Access to OMAO Facilities and Platforms

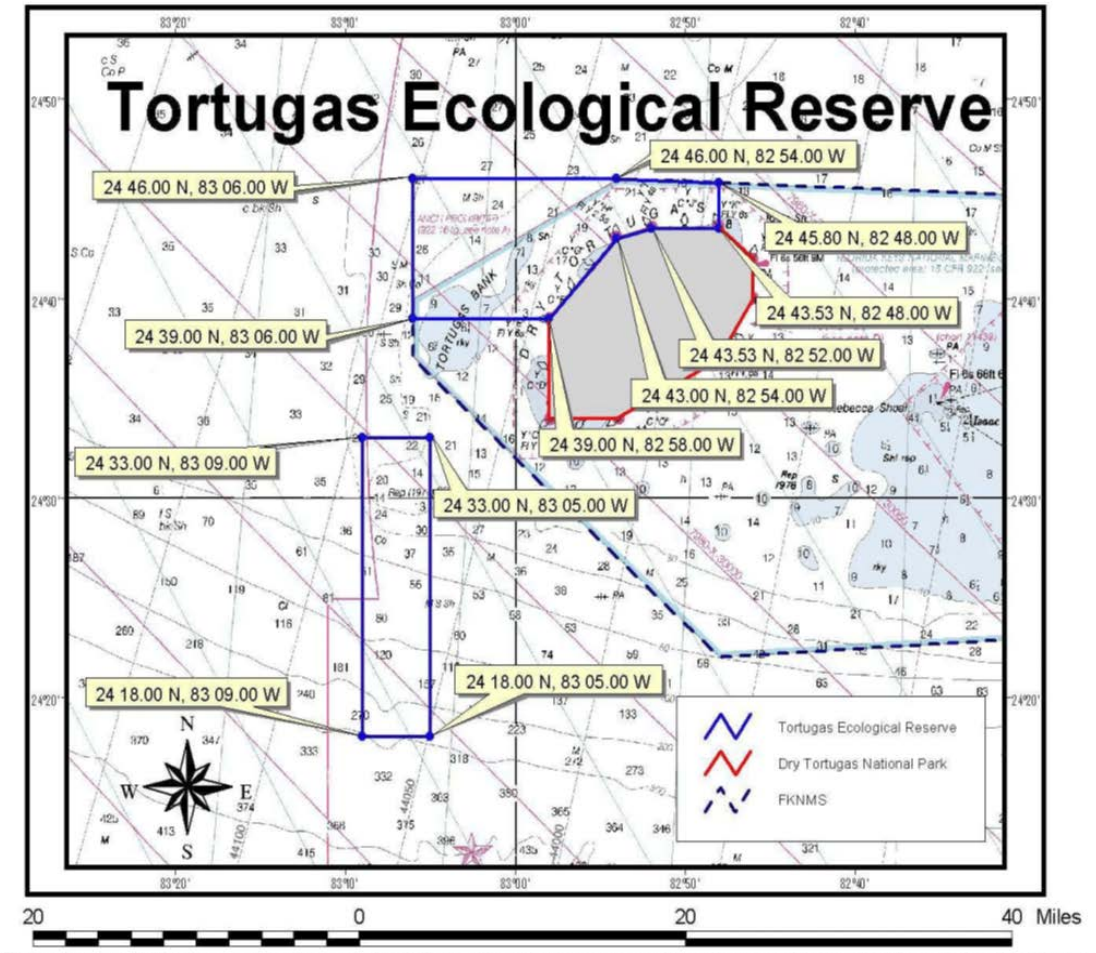
Foreign National access to the NOAA ship or Federal Facilities is not required for this project.

VIII. Appendices

1. Operational area in the Florida Keys, outlined in red. The city of Key West and the Dry Tortugas Region are displayed for geographic reference.

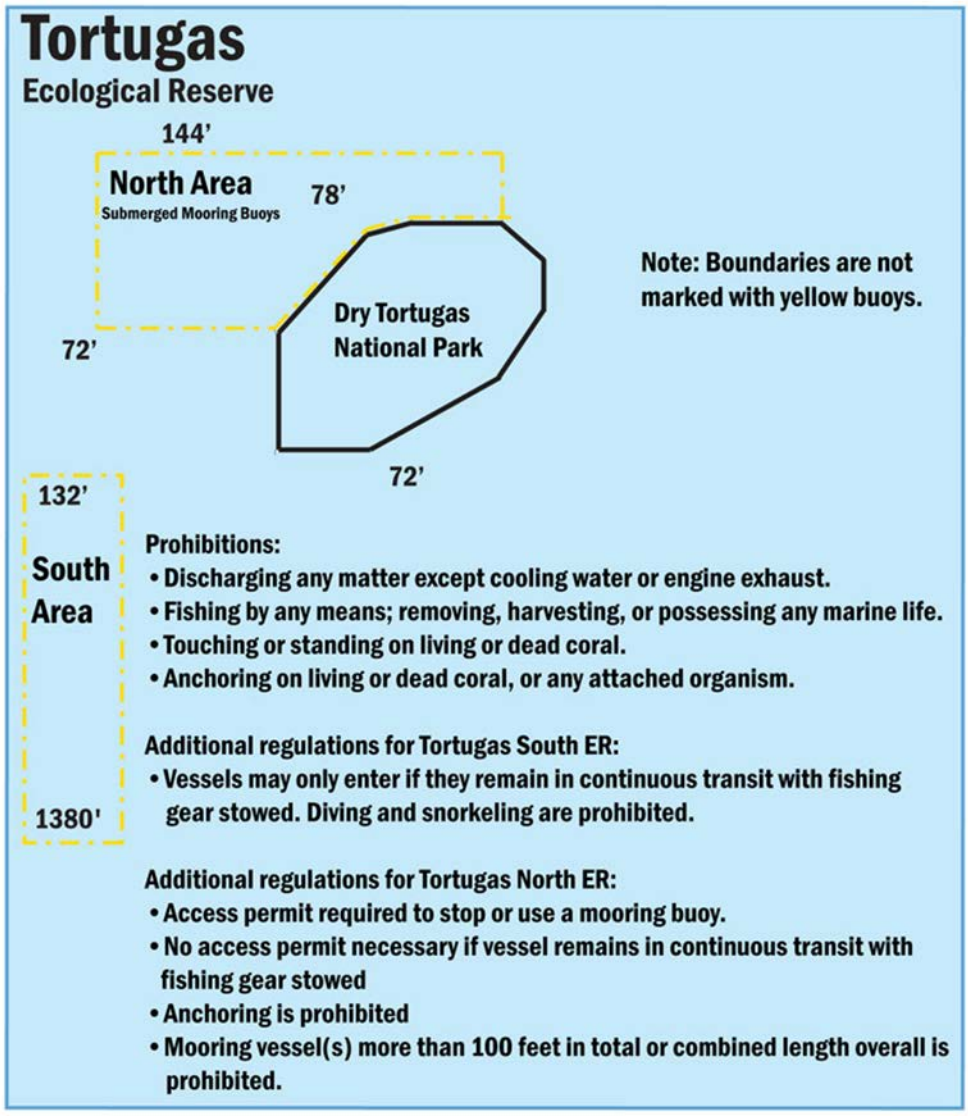


2. Tortugas Ecological Reserve boundary coordinates

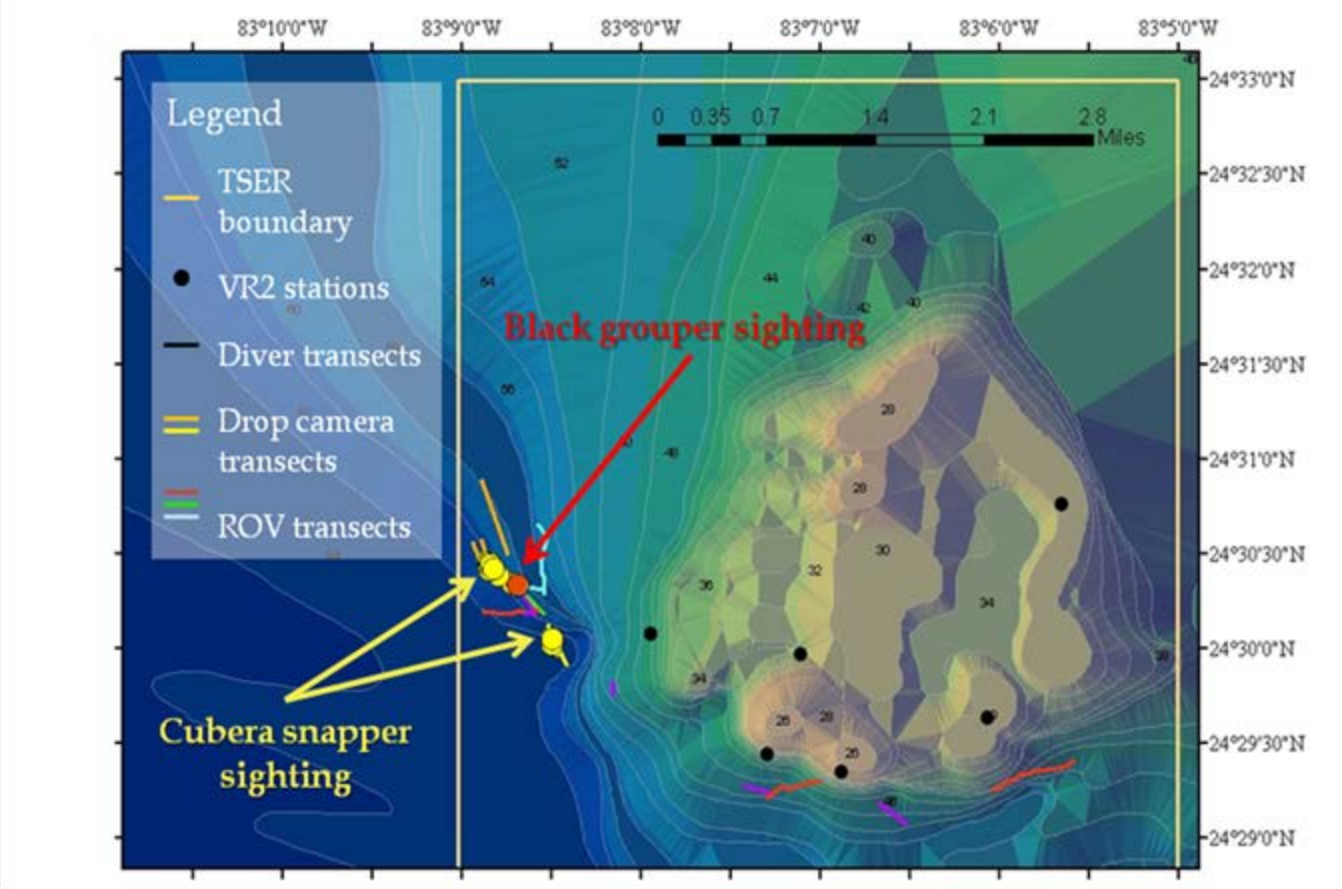


This chart and these coordinates are for informational purposes only and are not intended for navigational use.

3. Tortugas Ecological Reserve regulations



4. General map of Riley's Hump showing approximate locations of fish aggregation surveys, as well as locations for acoustic receivers.



5. Riley's Hump Cubera snapper aggregation sightings (2011 – 2012)

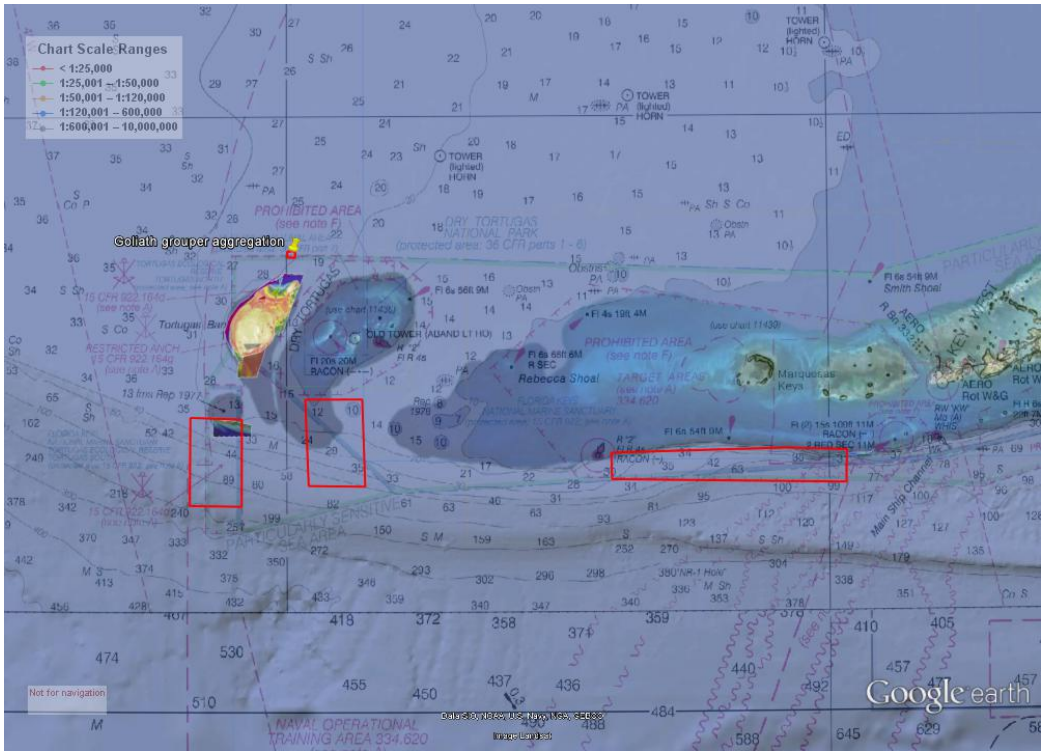
Latitude (min.dec)	Longitude (min.dec)	Date	Transect	Time	Depth	Device
24 30.3360	-83 08.7170	8/2/2012	1	845	182	ROV
24 30.3330	-83 08.6830	8/2/2012	2	917	180	ROV
24 30.3820	-83 08.7910	8/2/2012	3	958	200	ROV
24 30.4239	-83 08.8470	8/3/2012	5	908	193	DropCam
24 30.4102	-83 08.8432	8/3/2012	5	909	195	DropCam
24 30.4536	-83 08.8525	8/3/2012	6	926	200	DropCam
24 30.4392	-83 08.8473	8/3/2012	6	927	200	DropCam
24 30.4472	-83 08.8394	8/3/2012	7	938	179	DropCam
24 30.4373	-83 08.8356	8/3/2012	7	939	180	DropCam
24 30.0200	-83 08.4920	9/2/2012	10	1606	?	DropCam
24 30.0468	-83 08.4912	9/2/2012	15	1500	210	Divers
24 30.4190	-83 08.8242	3/21/2011	25	1010	197	Divers

6.

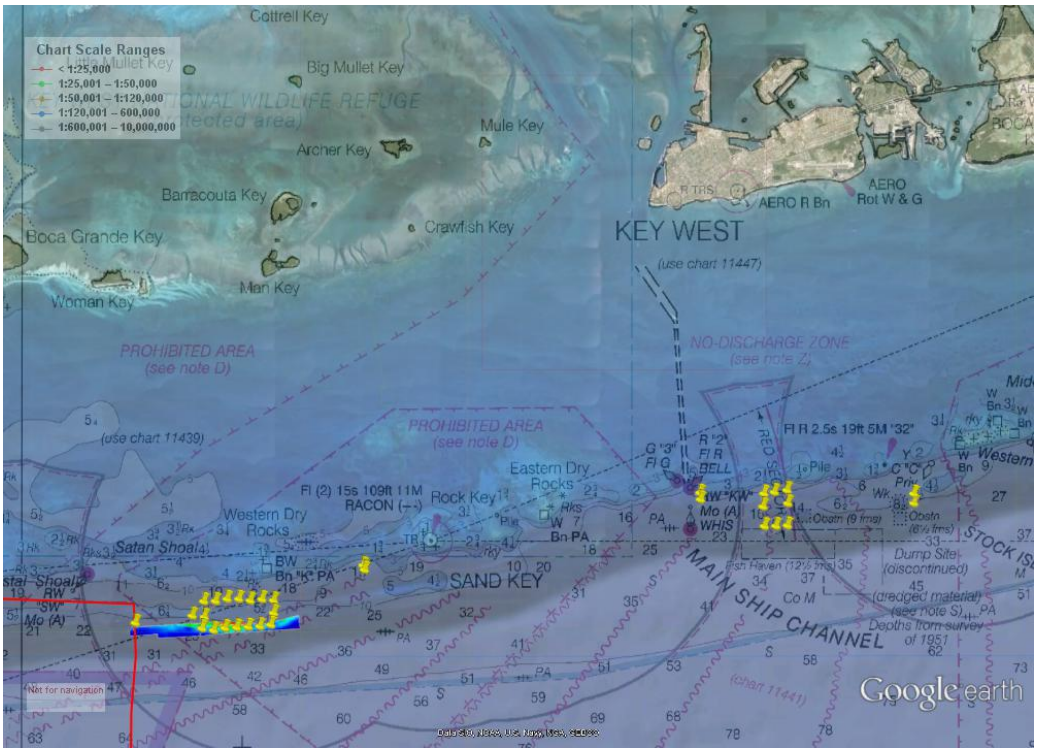
7. Riley's Hump VR2 Stations

Station	Latitude	Longitude
1	24.5013	-83.1324
2	24.4906	-83.1215
3	24.4995	-83.1184
4	24.4939	-83.1011
5	24.5080	-83.1239
6	24.5235	-83.1122
7	24.5237	-83.0988
48	24.4891	-83.1146
49	24.5127	-83.0941

8. Possible areas for multibeam and fishery sonar surveys (red polygons).



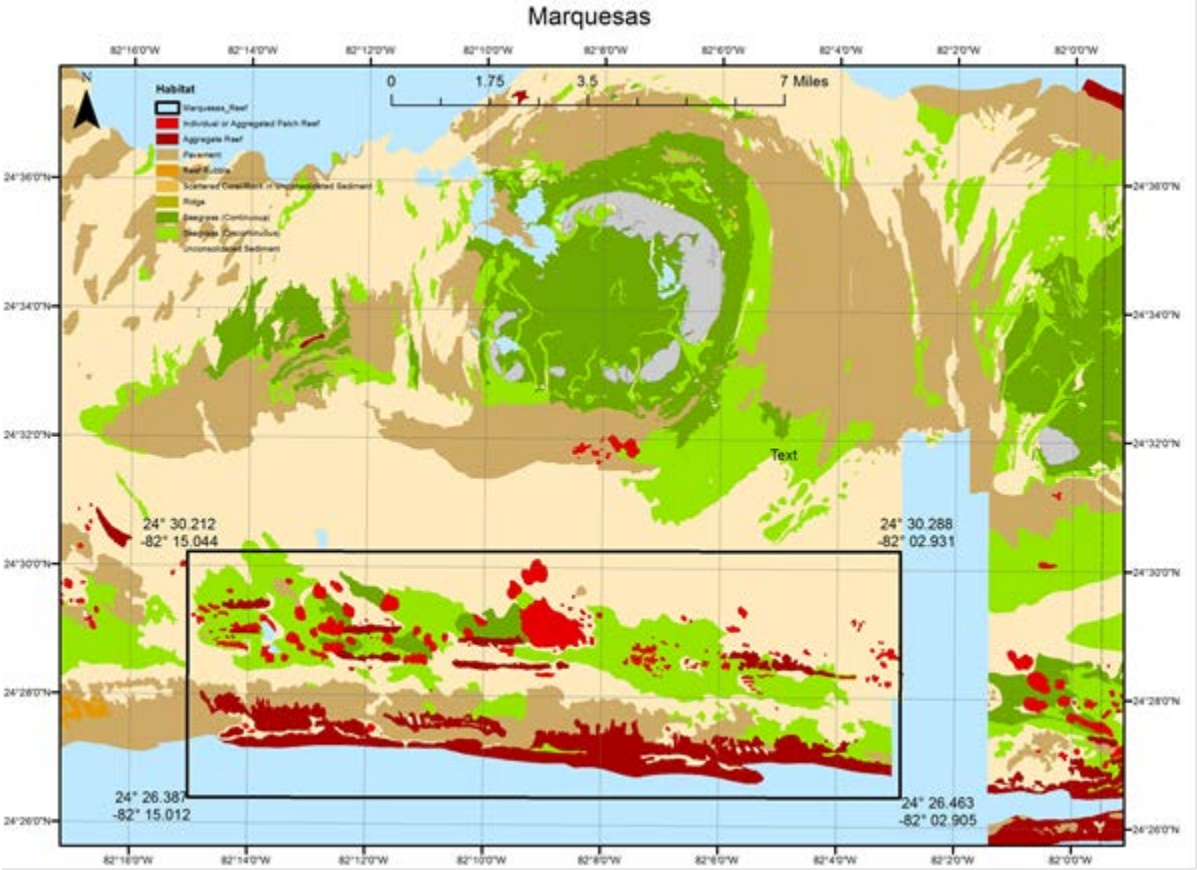
9. Map of VR2 stations at Western Dry Rocks and Eyeglass Bar.



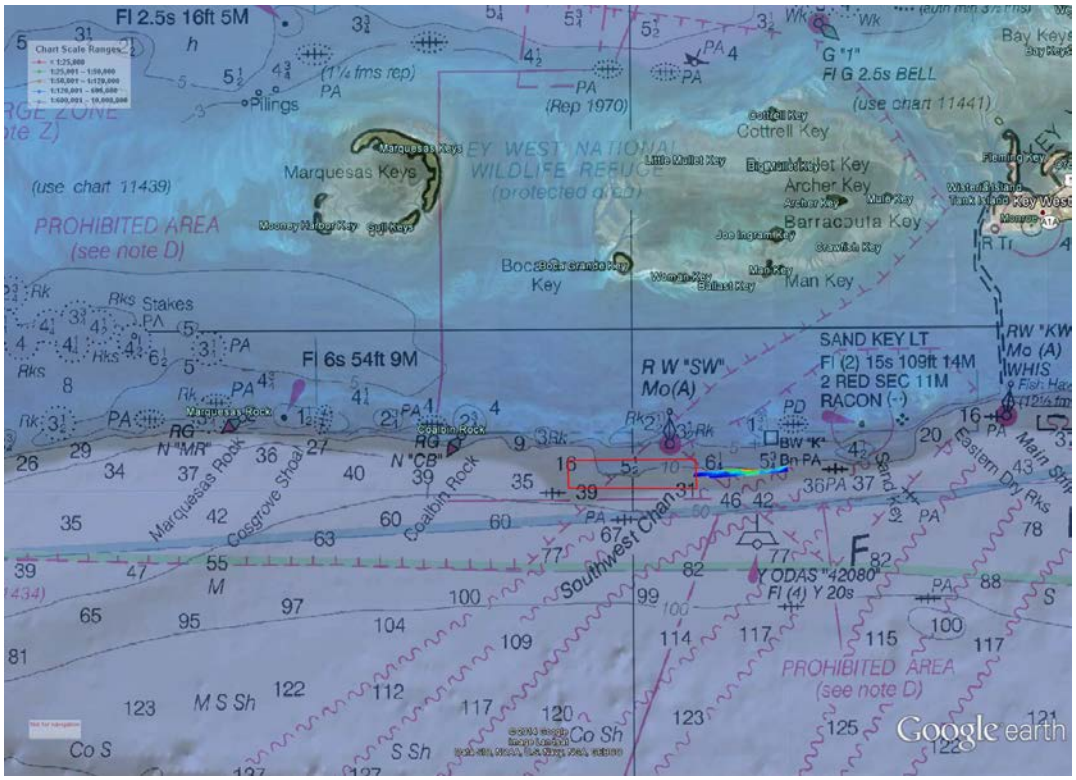
10. VR2 station coordinates at Western Dry Rocks and Eyeglass Bar.

Station	Latitude	Longitude
1	24º 26.022	81º 56.913
2	24º 25.903	81º 57.935
3	24º 26.002	81º 56.697
4	24º 25.816	81º 56.737
5	24º 25.785	81º 56.530
6	24º 25.822	81º 56.326
7	24º 25.830	81º 56.115
8	24º 25.842	81º 55.908
9	24º 25.852	81º 55.701
10	24º 25.876	81º 55.504
11	24º 26.068	81º 55.454
12	24º 26.274	81º 55.456
13	24º 26.293	81º 55.663
14	24º 26.271	81º 55.874
15	24º 26.297	81º 56.078
16	24º 26.297	81º 56.288
17	24º 26.260	81º 56.496
18	24º 26.257	81º 56.705
19	24º 26.847	81º 53.852
20	24º 26.777	81º 53.826
21	24º 28.032	81º 47.813
22	24º 27.925	81º 47.802
23	24º 28.022	81º 46.666
24	24º 27.808	81º 46.682
25	24º 27.488	81º 46.656
26	24º 27.491	81º 46.450
27	24º 27.500	81º 46.244
28	24º 27.861	81º 46.237
29	24º 28.076	81º 46.252
30	24º 28.044	81º 46.478
31	24º 28.017	81º 43.975
32	24º 27.865	81º 43.977
33	24º 30.395	81º 34.483
34	24º 30.345	81º 34.484

11. Proposed area of diving exploration around Marquesas region.



12. Possible area for multibeam surveries in Western Dry Rocks area (red polygon).



NOAA Form 57-03-20
(7-14)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

DIVE OPERATIONS PLAN

DIVE OPERATIONS

DATE(S) of DIVE OPERATIONS	9/15/14 to 9/27/14	DIVE OPS START TIME	0800	DIVE OPS STOP TIME	1700
LOCATION of DIVE OPERATIONS	Florida Keys and Dry Tortugas	DISTANCE FROM SHORE	80	EVAC TIME to CHAMBER	5-10hrs
PLATFORM or FACILITY	NOAA Ship Nancy Foster	DEPTH RANGE	20-125	NUMBER of DIVERS	15
PLANNED NUMBER of DIVE EVOLUTIONS PER DAY	26	MAXIMUM NUMBER of DIVES to be LOGGED PER DAY	36	NUMBER of CONSECUTIVE DIVE DAYS	13

SAFE SHIP CHECKLIST REQUIRED	YES ☐ NO ☑	DIVE MODE	OPEN CIRCUIT SCUBA ☑ REBREATHER ☐	DIVE PURPOSE	SCIENTIFIC DIVE ☑ WORKING DIVE ☐
FLOAT PLAN REQUIRED	YES ☐ NO ☑	DECOMPRESSION CALCULATION	DIVE COMPUTER ☑ DECOMPRESSION TABLES ☐	DIVE DUTY	ON-DUTY DIVE ☑ OFF-DUTY DIVE w/SEP GEAR ☐

DIVERS (Attach additional sheets if more than 12 divers participate in the dive)

DIVEMASTER Brett Stafford	LEAD DIVER Scott Donahue	DIVER Sean Morton, Lonny Anderson
DIVER Bill Sympson, Paul Barbera	DIVER Dani Morley, Jeff Renchen	DIVER Ben Binder, Alejandro Acosta
DIVER Ariel Tobin, Mike McCallister	DIVER Bob Glazer, Einat Sandbank	DIVER Linh Nguyen
DIVER Cammy Clark	DIVER	DIVER

DESCRIPTION

PURPOSE of DIVES and TASKS to be PERFORMED

Assess, remove, interrogate, and replace VR2 sonic receivers at Riley's Hump, Western Dry Rocks, and possibly Western Sambo Ecological Reserve; Acoustic tagging of live fin-fish; Reef Visual Census (RVC) fish surveys on select targets from multibeam operations; Florida Reef Resilience DRM benthic surveys of opportunity; Queen Conch demographic surveys using belt transects; service in-situ temperature recorders at two locations.

PRINCIPAL DIVER WORN EQIUPMENT and BREATHING MEDIA

Standard scuba equipment (SEP gear for NOAA divers). All divers will use NN32% as main breathing gas, with air filled RASS on those dive that require them.

TOOLS and SPECIALIZED EQUIPMENT to be USED — Tethered comms dive? YES ☐ NO ☑

Small hand tools (e.g., wrench, small hand saw, scraper, screwdriver, pliers)

POTENTIAL HAZARDS and MITIGATIONS (Certain hazards are present on all dives (AGE, DCS, drowning, etc.). The hazards listed below are unique to this operation.)

Boats and down lines (topside support making other vessels aware, knife for entanglement) Cuts, scrapes, fire coral, marine life, spiny sea urchins, stinging organisms such as jellyfish, sea lice, fire worms, lionfish, and stonefish (protective dive wear, attention to surroundings, first aid kit stocked and ready).

PRIMARY MEANS of EVACUATION for EMERGENCIES

Florida Fish and Wildlife Conservation Commission (law enforcement) and US Coast Guard.

AUTHORIZATION

SUBMITTED BY (DIVEMASTER/LEAD DIVER) Scott Donahue	SIGNATURE	DATE 09/08/14
APPROVED BY (UNIT DIVING SUPERVISOR/DESIGNEE) Brett Stafford	SIGNATURE	DATE 09/09/14

RESET

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(10-12) Page 1 of 2

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

DIVING EMERGENCY ASSISTANCE PLAN

NOAA DIVING UNIT	DIVE LOCATION	CALENDAR YEAR
FKNMS - Key West	Florida Keys - Key West	2014

INSTRUCTIONS:

Complete a Diving Emergency Assistance Plan (DEAP) for each unique diving location and submit the plan to NDP.Diveplans@noaa.gov with the initial dive plan of each calendar year and every time any information on the DEAP changes.

GENERAL PROCEDURES:

A. Evaluate the victim's Circulation, Airway, and Breathing (CABs). If necessary, begin cardiopulmonary resuscitation (CPR) using a manually triggered ventilator (MTV) or bag-type oxygen resuscitator.

B. If the victim is breathing, but unconscious, place the victim in the recovery position and administer oxygen using a non-rebreather type mask.

C. If the victim is awake and alert, place the victim in a position of comfort and administer 100% oxygen using an MTV/demand oxygen resuscitator or non-rebreather type mask. If the victim is not nauseated, give clear non-alcoholic/non-caffeinated fluids to drink.

D. If the victim's condition is life threatening or urgent, call the local Emergency Medical System (EMS) or U. S. Coast Guard (USCG) for transport to the nearest medical treatment facility.

E. If the victim's condition is not urgent, contact the NOAA Dive Medical Officer (DMO) for guidance. If unable to reach the NOAA DMO with 15 minutes, contact the Divers' Alert Network (DAN).

F. Use the Dive Accident Management Field Reference Guide to document a neurological exam and dive history information.

G. Gather additional information about the incident and prepare the victim for transport.

H. Secure the diver's gear for inspection. **DO NOT DISASSEMBLE GEAR OR EXHAUST AIR FROM THE SYSTEM.** Close the cylinder valve ONLY. Count and record number of turns required to secure the valve.

I. Call and speak to the NOAA DMO, (855) 822-DIVE (3483), to report the incident.

J. Call the Line Office Diving Officer (LODO) to report incident. If unable to reach the LODO, call the Deputy LODO. Continue calling until positive contact is made. Speak to a person, don't just leave a message.

EMERGENCY TRANSPORTATION CONTACTS:

Primary Shore Based Emergency Transportation	
NAME of TRANSPORTATION PROVIDER	Any EMS
POINT of CONTACT	Dial 911
PHONE NUMBER	911

Secondary Shore Based Emergency Transportation	
NAME of TRANSPORTATION PROVIDER	N/A
POINT of CONTACT	
PHONE NUMBER	

At Sea Vessel Emergency Transportation	
NAME of TRANSPORTATION PROVIDER	USCG or FL. Fish and Wildlife
POINT of CONTACT	Hail on VHF ch 16 or 22a
PHONE NUMBER	305-292-8727; 305-289-2320(FWC)

At Sea Aviation Emergency Transportation	
NAME of TRANSPORTATION PROVIDER	N/A
POINT of CONTACT	
PHONE NUMBER	

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(10-12) Page 2 of 2

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

DIVING EMERGENCY ASSISTANCE PLAN

NOAA DIVING UNIT	DIVE LOCATION	CALENDAR YEAR
FKNMS - Key West	Florida Keys - Key West	2014

EMERGENCY CONTACTS:

Primary Operational Hyperbaric Chamber

NAME of FACILITY	Mariners Hospital
ADDRESS of FACILITY	91500 Overseas Highway (mm91.5) Tavernier
POINT of CONTACT	Dennis Holstein
PHONE NUMBER	305-434-1603

Secondary Operational Hyperbaric Chamber

NAME of FACILITY	Special Forces Underwater Operations
ADDRESS of FACILITY	Flemming Key, Key West
POINT of CONTACT	24 hour Duty Cell - 305-797-2699
PHONE NUMBER	305-293-4157, 305-797-2704 (duty cell)

Primary Hospital Emergency Room

NAME of FACILITY	Lower Keys Medical Center
ADDRESS of FACILITY	5900 College Road
POINT of CONTACT	Emergency Room
PHONE NUMBER	305-294-5531

Secondary Hospital Emergency Room

NAME of FACILITY	Fisherman's Hospital
ADDRESS of FACILITY	3301 Overseas Highway, Marathon, FL
POINT of CONTACT	Emergency Room
PHONE NUMBER	305-743-5533

USCG, Area Search and Rescue (SAR) Coordinator

NAME of FACILITY	Atlantic Area SAR Coordinator
PHONE NUMBER	(757) 398-6700 (Atlantic)

USCG, Rescue Coordination Center (RCC)

NAME of FACILITY	RCC Miami, FL
PHONE NUMBER	(305) 415-6800 (Miami)

NOAA DIVING PROGRAM CONTACTS:

Unit Diving Supervisor

NAME	Brett Stafford
EMERGENCY CELL PHONE NUMBER	305-360-2713

Divers Alert Network (DAN)

PRIMARY PHONE NUMBER	(919) 684-9111
TOLL FREE PHONE NUMBER	(800) 446-1615

Line Office Diving Officer

NAME	Kimberly Roberson
EMERGENCY CELL PHONE NUMBER	(240) 997-8040
OFFICE PHONE NUMBER	(301) 713-3028

Deputy Line Office Diving Officer

NAME	Tane Casserely
EMERGENCY CELL PHONE NUMBER	(989) 657-9951
OFFICE PHONE NUMBER	(989) 356-8805, x.17

NOAA Diving Safety Officer

EMERGENCY CELL PHONE NUMBER	(206) 619-1615
OFFICE PHONE NUMBER	(206) 526-6223

NOAA Diving Medical Officer

EMERGENCY CELL PHONE NUMBER	(855) 822-3483
OFFICE PHONE NUMBER	(206) 526-6474

RESET