



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 Stephen S. Meador, NOAA
Commanding Officer, NOAA Ship *Nancy Foster*
for *[Signature]*

FROM: Captain David A. Score, NOAA
Commanding Officer, NOAA Marine Operations Center—Atlantic

SUBJECT: Project Instruction for NF-11-01 USVI
Characterization of Seafloor Habitats of the U.S. Caribbean

Attached is the final Project Instruction for NF-11-01 USVI, which is scheduled aboard NOAA Ship *Nancy Foster* during the period of March 21 – April 16, 2011. Acknowledge receipt of these instructions via e-mail to OpsMgr.MOA@noaa.gov at Marine Operations Center—Atlantic.

Attachment

cc:
MOA1

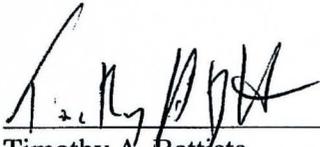


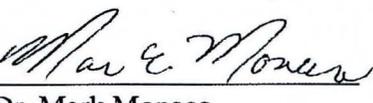


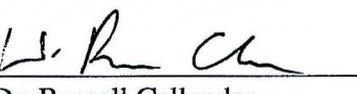
U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE
CENTER FOR COASTAL MONITORING AND ASSESSMENT
1305 East West Highway N/SCI1, 9th Floor
Silver Spring, MD 20910

FINAL Project Instruction

Date Submitted: March 9, 2011
Platform: NOAA Ship *Nancy Foster*
Project Number: NF-11-1 USVI
Project Title: Characterization of Seafloor Habitats of the U.S. Caribbean
Project Dates: 28 March – 16 April 2011

Prepared by:  Dated: 3/8/11
Timothy A. Battista
Chief Scientist
Center for Coastal Monitoring and Assessment

Approved by:  Dated: 3/8/11
Dr. Mark Monaco
Acting Director
Center for Coastal Monitoring and Assessment

Approved by:  Dated: 3/8/2011
Dr. Russell Callender
Acting Director
National Centers for Coastal Ocean Science

Approved by:  CD,3
next Dated: 3/16/11
Captain David A. Score, NOAA
Commanding Officer
Marine Operations Center - Atlantic

I. Overview

A. Project Period:

Eighteen (24) Operational Days have been allocated to this project.

Leg 1: Transit (6 days)

Leg 2: March 28 – April 5, 2011

Leg 3: April 8 – April 16, 2011

B. Service Level Agreement:

Of the 24 DAS scheduled for this project, 0 are funded by the program.

C. Operating Area:

Eastern Puerto Rico and the US Virgin Islands. See Figures 1a and 1b.

D. Summary of Objectives

The Center for Coastal Monitoring and Assessment (CCMA) will be conducting the eighth year of an ongoing scientific research mission onboard NOAA Ship *Nancy Foster* funded by NOAA's Coral Reef Conservation Program. The purpose of the cruise will be to collect swath bathymetry and acoustical backscatter, as well as fishery acoustics data in high priority areas in the U.S. Caribbean. Scientists will collect high resolution multibeam and acoustic fisheries data in mid-water depths approximately 30 to 1000 meters so as to continue to characterize seafloor habitats within all U.S. States, Territories, and Commonwealths. The objective of this project is to collect a multibeam bathymetry dataset with 100% seafloor ensonification, along with multibeam backscatter suitable for seafloor characterization. Fishery acoustics data will be collected to characterize broad-scale fish abundance, biomass, and utilization patterns, as well as to locate and document fish spawning aggregations. Multibeam data will be collected to conform to IHO Order 1 (<100m) and Order 2 (>100m) accuracy standards. The strategies developed for each survey area will take into account the minimum depths, general bathymetry, and time allotment. The delineation and identification of seafloor habitats will be assisted by the use of a moderate-depth Remotely Operated Vehicle (ROV) and drop camera. The vehicle has video and frame camera capability to depths of 300 meters and will be used to point sampling within areas mapped during this mission.

E. Participating Institutions

NOAA (NCCOS, OCS, CRCP), University of North Carolina at Wilmington-NURC, Solmar Hydro, and students from various academic institutions.

F. Personnel (Science Party)

Chief Scientist: Tim Battista

Lead Hydrographer: Mike Stetcher

Lead Communications/Outreach: Alicia Clarke

Scientist:	Gender	Nationality	Organization:	FA	GT	MBES	Date
Tim Battista	Male	U.S.	NOAA		X (b)		3/28-4/16
Mike Stetcher	Male	U.S.	Contractor			X	3/28-4/16
Megan Greenaway	Female	U.S.	NOAA			X	4/7-4/16
Will Sautter	Male	U.S.	NOAA			X	3/28-4/16
Ed Owens	Male	U.S.	NOAA			X	3/28-4/7
Paul Turner	Male	U.S.	NOAA			X	4/7-4/16
Sam Tormey	Male	U.S.	NOAA			X	3/28-4/16
Bryan Costa	Male	U.S.	NOAA		X (a)		3/28-4/16
Lance Horn	Male	U.S.	NURC		X (a)		3/28-4/16
Glenn Taylor	Male	U.S.	NURC		X (a)		3/28-4/16
Chris Taylor	Male	U.S.	NOAA	X			3/28-4/7
Erik Ebert	Male	U.S.	NOAA	X			4/8-4/16
Laura Kracker	Female	U.S.	NOAA	X			4/8-4/16
Marty Schnure	Male	U.S.	Middlebury			X	3/28-4/7
Meaghan Brown	Female	U.S.	Middlebury		X (b)		4/7-4/16
Nick Przyuski	Male	U.S.	UCSB		X (b)		3/28-4/7
Venessa Wright	Female	U.S.	UVA			X	4/7-4/16
Alicia Clark	Female	U.S.	NOAA	Communications			3/28-4/7
Tauna Rankin	Female	U.S.	NOAA	Communications			4/7-4/16
Fritz Faerber	Male	U.S.	Nat'l Geog.	Media Videographer			3/28-4/7

FA – Fishery Acoustics; GT – Ground-truthing (a)-ROV and (b) drop camera, MBES – Multibeam Acquisition

G. Administrative

1. Points of Contacts:

Chief Scientist: Tim Battista, 1305 East West Hwy, Silver Spring, MD 20910. 301-713-3028 x171, tim.battista@noaa.gov

2. Diplomatic Clearances:

This cruise involves Marine Scientific Research in waters under the jurisdiction of the United States. No diplomatic clearances are needed.

3. Licenses and Permits:

No licenses or permits are necessary for this cruise. A Notice to Mariners will be published by the U.S. Coast Guard of planned activities and operational areas.

II. Operations

A. Project Itinerary:

Actual survey and ground truthing locations will be made available to the Operations Officer during the daily operations meeting. The following are estimates of locations.

*Fisheries acoustics via the Simrad EK60 Suite will occur during all shifts (MBES Survey and Ground Truthing).

27 March (Sunday): NOAA Ship *Nancy Foster* berthed in San Juan, PR

Survey NF: Survey team readies system and completes acquisition line planning.

GT: Ground Truthing (GT) install team configures remaining camera gear and conducts USBL, POS/MV, GPS integration with Hypack; and installs hydrophone pole.

All: Remaining science party arrives. Team meeting 1800.

28 March (Monday):

Transit/Survey NF: (0900-1600) Ship transit from San Juan to Grammnik Bank MCD.

Safety briefing and drills *7hr transit.

Fish Acoustics and GT: (1600-2100). SPAG detection Grammanik Bank and ROV.

Survey NF: (1800-2400) Conduct MBES of St Thomas Area.

29 March (Tuesday):

Survey NF: (2400-0800) Conduct MBES of St Thomas Area.

GT: (0800-1600) Conduct ground truthing of Dog Is and French Cap DFT with ROV. Conduct launch GT in area between Dog Is and French Cap DFT.

Fish Acoustics and GT: (1600-2100). SPAG detection Grammanik Bank and ROV.

Survey NF: (2100-2400) Conduct MBES St John Area.

30 March (Wednesday):

Survey NF: (2400-0800) Conduct MBES of St John Area.

GT: (0800-1600) Conduct ground truthing of Wedge DFT with ROV.

Survey NF: (1600-2400) Conduct MBES St John Area.

31 March (Thursday):

Survey NF: (2400-0800) Conduct MBES of St John Area.

GT: (0800-1600) Conduct ground truthing of Shelf DFT and St John Project Area with ROV and launch.

Survey NF: (1600-2400) Conduct MBES St Thomas Area.

1 April (Friday):

Survey NF: (2400-0800) Conduct MBES of St Thomas Area.

GT: (0800-1600) Conduct ground truthing of St Thomas Project Area with ROV and launch.

Survey NF: (1600-2400) Conduct MBES St Thomas Area.

2 April (Saturday) to 3 April (Sunday):

Survey NF: (2400-0800) Conduct MBES of St Thomas Area.

GT: (0800-1600) Conduct ground truthing of St Thomas Project Area with ROV and launch.

Survey NF: (1600-2400) Conduct MBES St Thomas Area.

4 April (Monday):

Fish Acoustics and GT: (2400-2400). Conduct fish acoustics and ground truthing of College Shoal Project Area.

5 April (Tuesday):

Survey NF: (2400-0800) Conduct MBES of St Thomas Area.

GT: (0800-1100) Conduct ground truthing of St. Thomas Project Area with ROV and launch.

Transit NF: (1100-1400) Charlotte Amalie in Port.

Fish Acoustics: (1200-1300) Conduct Fish Acoustics calibration on Charlotte Amalie approach.
Need 15m of water below the keel, possibly anchoring, diver support unlikely.

6 April (Wednesday):

Education Event/Open House: (0900-1200) Run education day events in Charlotte Amalie.

7 April (Thursday):

Visitors: (USVI Graduate Students and St. Thomas Fishermen Association (9:30-11:00))

8 April (Friday):

GT: (1000-1600) Conduct ground truthing of St. Thomas Project Area with ROV..

Survey NF: (1600-2400) Conduct MBES of St Thomas Area.

*VIP Day –Transit to St Thomas project area and return to Charlotte Amalie for touch-and-go (0900-1400).

9 April (Saturday) through 13 April (Tuesday):

Survey NF: (2400-0800) Conduct MBES St. Thomas Project Area.

GT: (0800-1600) Conduct ground truthing of St. Thomas Project Area with NF and launch.

Survey NF: (1600-2400) Conduct MBES St. Thomas Project Area.

14 April (Wednesday):

Fish Acoustics and GT: (2400-2400) Conduct fish acoustics and ground truthing of St Thomas Project Area.

15 April (Friday):

Fish Acoustics and GT: (2400-2400) Conduct fish acoustics and ground truthing of St Thomas Project Area.

16 April (Saturday)

Fish Acoustics and GT: (2400-0700) Conduct fish acoustics and ground truthing of St Thomas Project Area.

Transit: (0700-1400) Transit to San Juan Harbor. *7hr transit.

B. Staging and Destaging:

Gear will have been loaded on the vessel before departing for the USVI thus no staging will be necessary other than ROV equipment retrieved from the hold on March 26 AM in San Juan.

Upon transit/ return to San Juan April 16 AM, ROV equipment will be loaded in the hold for storage until it is retrieved by UNCW in Charleston, SC.

C. Operations to be Conducted

Multibeam Operations:

Survey Schedule/Personnel:

The Reson Seabat 7125 and Kongsberg EM1002 will be used for seafloor mapping efforts. Both units will be installed, operational, and readiness tested by OMAO prior to departure from Charleston to the Project Area.

Operations will be conducted in two regions: St Thomas Shelf, USVI, and St. John Shelf, USVI, (See Figure 1a).

Patch Test:

The patch test will be performed during sea trials. Unless these alignments prove to be unsatisfactory, an additional patch test will not be necessary. In the event an additional patch test is necessary, the patch test area used in 2010 in St. Thomas will be utilized

Data Acquisition Methodology:

See Hydrographic Project Instructions (M-I907-NF-11) in Appendix.

Due to the shoal depths along the USVI Shelf, a line spacing of 55 meters is required to provide sufficient coverage. Reducing the anticipated coverage area will be required. The line plan is generally orientated parallel with the contours to maximize swath coverage and improve acoustic returns. The line plan has taken into account water depths, swath width filters and overlap requirements (Table 2). Restricting the swath limit ensures the data will meet IHO standards, and make the data cleaning process more efficient. All deep survey areas will be accepting soundings 55° from nadir, port and starboard, with 10% swath overlap. Areas shoaler than 55 meters will accept 60° port and starboard with a 10% overlap. Surveying operations in the shallow water should ideally be performed during daylight hours at higher tides to maximize swath widths, and for vessel safety reasons. Surveying during calm waters and steady piloting of the vessel will improve data quality. All survey planning will be conducted by scientist.

The Seabat 7125 data packets will be logged in Hysweep navigation program to create real time coverage maps to ensure coverage. The EM 1002 data packets will be logged in Merlin navigation program to create real time coverage maps to ensure coverage. During line turns data will be transferred to CARIS processing stations where preliminary zoned tides, swath filters and SVP cast corrections will be applied. The preliminary data will be used to create preliminary sun-illuminated Base surfaces for QA/QC analysis and then exported into geo tiff format. These geo tiffs will be superimposed on top of the charts in Hypack for additional line planning and navigation purposes.

Data Quality Assurance/Quality Control Methodology:

To ensure that the data collected meets IHO Level 1 & 2 standards several quality assurance/quality control measures will be implemented. The velocity of sound through the

water column will be derived from conductivity, temperature, and depth measurements (CTD casts) collected no more than 4 hours apart. A CTD cast will be taken prior to the commencement of daily multibeam operations. Spatial variability will be taken into account as well as temporal variability when determining cast locations. These locations will be recorded and each cast will be compared to the previous to identify any significant changes in the water column. Turns will be limited and vessel speed will be adjusted to ensure that no less than 3.2 beam foot prints, center-to-center, fall within 3 m, or a distance equal to 10 percent of the depth, whichever is greater, in the track direction. System confidence checks prior to, and during, multibeam operations will be conducted. These include position checks, lead lines and bar checks. Cross lines totaling 5% of main scheme will also be collected across each of the survey areas. Comparison of single beam, priors' and multibeam data will be used as an independent verification of the survey.

Ground Truthing Operations:

Benthic habitats in moderate depth water (>10m and <250m) will be visually-characterized using a ROV and drop camera system. This data will be collected to train and validate an automated benthic habitat characterization technique which uses fine-scale (<5 m) multibeam data.

ROV (Nancy Foster):

The topside control system will be operated from the Wet Lab. The ROV will be deployed using the J-frame. A hydrophone pole will be mounted/deployed over the port side forward of the J frame. The pole can be easily retrieved before transiting to a new location.

The ROV sampling approach will be operated to conduct transects. The selection of ROV transects will largely be determined by assessing the results of the backscatter and bathymetry mapping occurring on preceding survey shifts. Ground truth sampling will be conducted using a modified stratified random sampling approach. Stratified "Regions" of homogeneous acoustical distinction will be identified for deployment based on visual and analytical assessment of the multibeam data. A number of samples station (2-5) will be randomly identified within the "region". The geodetic coordinates will be provided to the Bridge as well as targeted in Hypack for display on the Bridge. Once the ship is on station, the USBL hydrophone pole will be rotated into position, and the ROV powered up for deployment. Deployment of the ROV at the deepest depths (250m) will require the most time on station. Time estimates: 1) 15 minutes to deploy the ROV to the seafloor, 2) 2 hour transects, and 3) 20 minutes for retrieval. The scientists anticipate sampling between 3 to 4 transects per day for an 8 hour daylight shift. A ship deck hand will be required during recovery and deployment, but can otherwise be operated by the scientists. Dedicated ROV time will be utilized 3/29 to 3/31 to verify Derelict Fishing Gear Targets in French Cap, Dog Island, Wedge, and Shelf depicted in Figure 1a.

DROP CAMERA (Launch):

Drop camera operations will be conducted from a *Nancy Foster* Marine Dive Boat using handheld SeaViewer camera. Two scientists will be utilized to operate the system: one to deploy/retrieve the camera and the second to record GPS and video operations. A ship coxswain will be needed to navigate to location.

The Drop camera sampling approach will be to conduct numerous but rapid point assessments at

locations previously mapped. These operations will occur during daylight hours. The ship's work boat will be operated in accordance with OMAO Operational Risk Management requirements.

Fishery Acoustics Operations: Fish distribution and fish spawning aggregations sites will be mapped using the Simrad EK60 suite, including the ES38-12 38 kHz, ES120-7C 120kHz, and ES200-7C 200kHz frequencies. Transducers and echosounders will collect data on fish in the water column and near bottom. Data collected with these sonars will provide estimates of fish density and approximate size distributions of fishes (based on magnitude of target echo strength). Coupled with the ship's navigation and positioning system, locations of individual fishes and aggregations will be overlaid on bathymetry and habitat maps.

From March 28 to April 12 fisheries sonar will be used to survey opportunistically during multibeam habitat mapping operations, and during ROV operations, when conditions permit. Survey lines during this component will be dictated by the hydrographic survey design. During transit from San Juan to St. Thomas survey area on March 28 (and possible on March 29), fish acoustics will be used to survey Grammanik spawning aggregation site from 1600 to 2100h, targeting crepuscular to sunset (1830h). On April 4, and April 13 to 16th, 24 hours per day will be dedicated to collecting fishery sonar data in high-priority habitats or collecting ROV data to help with groundtruthing fishery sonar data at College Shoal and within the St Thomas Project Area. A drop camera deployed from the J-frame will also be tested to provide video images of fish detected in acoustics. If drop camera is used, the ship will drift with minimal maneuvering to bring the camera or ROV in line with the path followed by ship-board transducers. Dedicated fishery sonar or ROV data will be collected in a time slot between map ground validation and multibeam operations to minimize crew disturbance and transit times. Dedicated surveys using fishery sonar will assess day-night differences in fish distribution and abundance over a range of habitat features identified during multibeam habitat mapping (component 1 above) and may include areas south of St John where a benthic habitat map already exists (see Figure 1b). ROV fishery sonar groundtruthing will be used to identify fish communities observed during the course of fishery sonar data collection. High priority survey areas will be identified during habitat mapping, and survey lines will follow from hydrographic surveying described above.

On March 28, April 4, and again from April 13 to April 16 fisheries acoustics data will be collected with a focus on detecting and mapping the presence, distribution and abundance of reef fish and particularly reef fish spawning aggregations. Opportunistic multibeam watercolumn data will be collected during hours possible. For this component, in addition to the splitbeam fishery echosounders, we will collect mid-water data with the Reson 7125 multibeam system. Reson 7125 data will be logged as .S7K format on the Reson processing unit. Two survey designs will be used for this component. For one, we will target known spawning aggregation locations (see Figure 1b) and adopt a survey design such as a grid star-pattern to provide a complete image of the 3-dimensional distribution and spatial structure of the aggregation. A second survey design will follow a depth contour (20-40m depth) near the shelf edge to search for additional fish aggregations.

D. Dive Plan:

Ship's divers may be needed to support calibration of the EK-60 split beam sonar system on April 5th.

E. Applicable Restrictions:
No applicable restrictions are known.

III. Equipment

A. Equipment and Capabilities Provided by the Ship

- 1) Hand held radios for communication between bridge and deck.
- 2) CTD's 100m and 1000 m depth rating.
- 3) 12V Marine Battery
- 4) EM 1002 and Reson Seabat 7125 Multibeam, and Kongberg Split-beam
- 5) Launch with DC electrical output.
- 6) Dynamic Positioning System.

B. Equipment and Capabilities Provided by the Scientists

- 1) Underwater video + camera equipment + tow bodies (Phantom 2 ROV)
- 2) USBL Underwater tracking system and hydrophone pole
- 3) 6 Tb Network Server (CCMA).
- 4) Five high end laptops and two flat screen monitors.
- 5) CARIS, ArcGIS, Hypack/Hysweep

IV. Hazardous Materials

A. Policy and Compliance

The Chief Scientist is responsible for complying with MOCDOC 15, Fleet Environmental Compliance #07, Hazardous Material and Hazardous Waste Management Requirements for Visiting Scientists, released July 2002. Documentation regarding those requirements will be provided by the Chief of Operations, Marine Operations Center, upon request.

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. The amount of hazardous material arriving and leaving the vessel shall be accounted for by the Chief Scientist.

B. Radioactive Isotopes

N/A

C. Inventory

N/A

V. Additional Projects

A. Supplementary ("Piggyback") Projects:

No supplementary projects are planned for this mission.

B. NOAA Fleet Ancillary Projects

No NOAA Fleet Ancillary Projects are planned for this mission.

VI. Disposition of Data and Reports

A. Data Responsibilities

The science party will be responsible for all data storage and archiving.

B. Pre and Post Cruise Meeting

Pre-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. The Operations Officer will present safety and general ship's information at meeting to all science party members at the beginning of the project, prior to sailing

Daily safety meetings will be held with the ship's command, department heads, and the Chief Scientist to review potential safety issues and discuss any upcoming items of concern. The time of the safety meeting will be determined to avoid impact on daily operations as much as possible.

Post-Project Meeting: Upon completion of the project, a meeting will be and attended by the ship's Commanding Officer and Operations Officer, 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 Commanding Officer and Chief of Operations, Marine Operations Center.

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 fifteen 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 twenty-one 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: 08/08) must be completed in advance by each participating scientist. The NHSQ can be obtained from the Chief Scientist or the NOAA website at http://www.oma.noaa.gov/medical/NHSQ_Final_wi_Instructions_fill.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 – Atlantic
439 W. York Street

Norfolk, VA 23510
Telephone 757.441.6320
Fax 757.441.3760
E-mail MOA.Health.Services@noaa.gov

The day before departure, the Chief Scientist must provide a listing of emergency contacts to the Executive Officer for all members of the scientific party, with the following information: 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* prior to establishing a direct connection to the NOAA WAN. Requirements include, but are not limited to:

- (1) Installation of the latest virus definition (.DAT) file on all systems and performance of a virus scan on each system.
- (2) Installation of the latest critical operating system security patches.
- (3) No external public Internet Service Provider (ISP) connections.

Completion of these requirements prior to boarding the ship is required.

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

F. Foreign National Guests Access to OMAO Facilities and Platforms

No Foreign Nationals are planned for this mission.

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 (<http://deemedexports.noaa.gov/contacts.html>).

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

Figure 1a: Mapping Project Areas

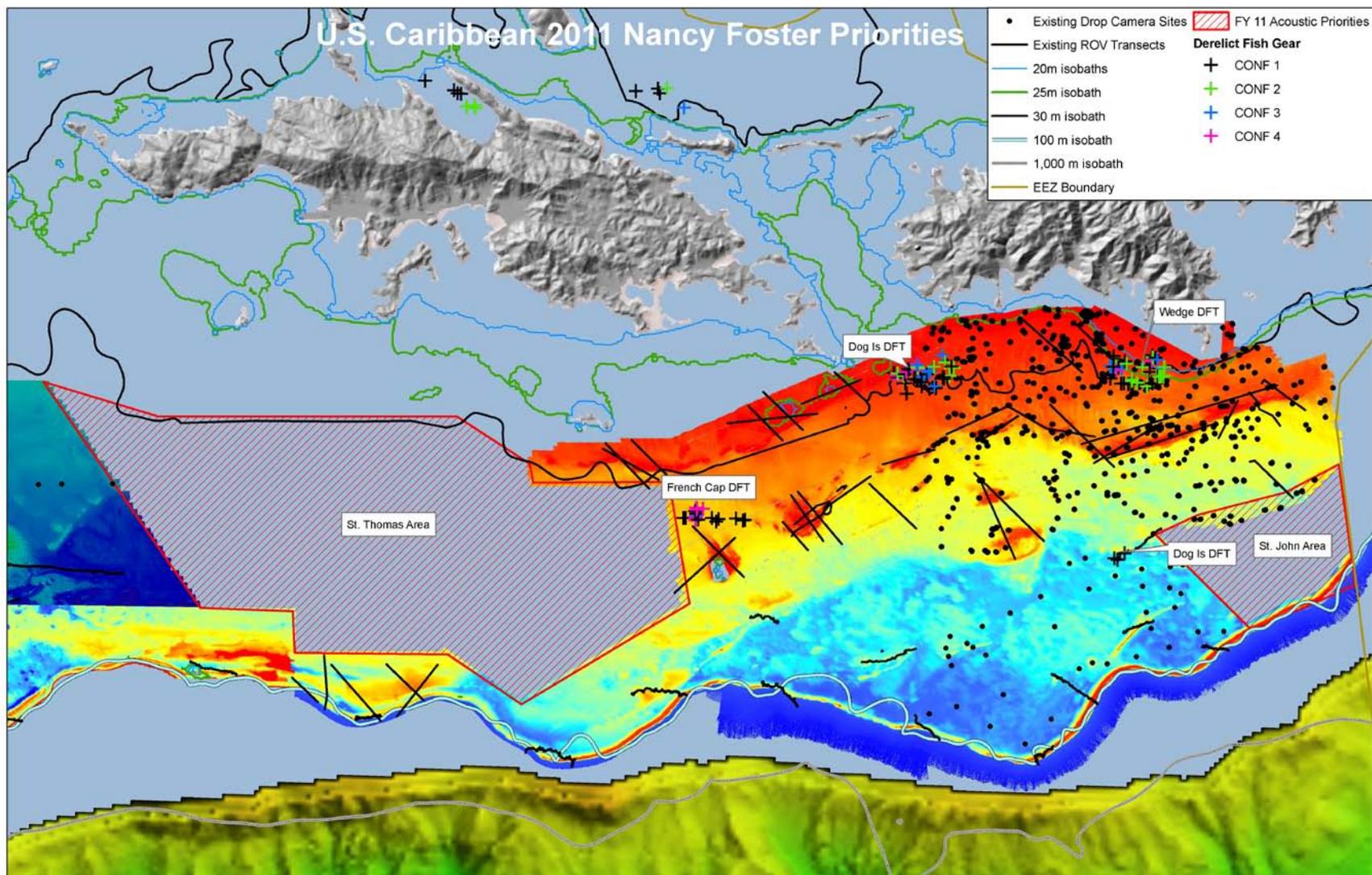
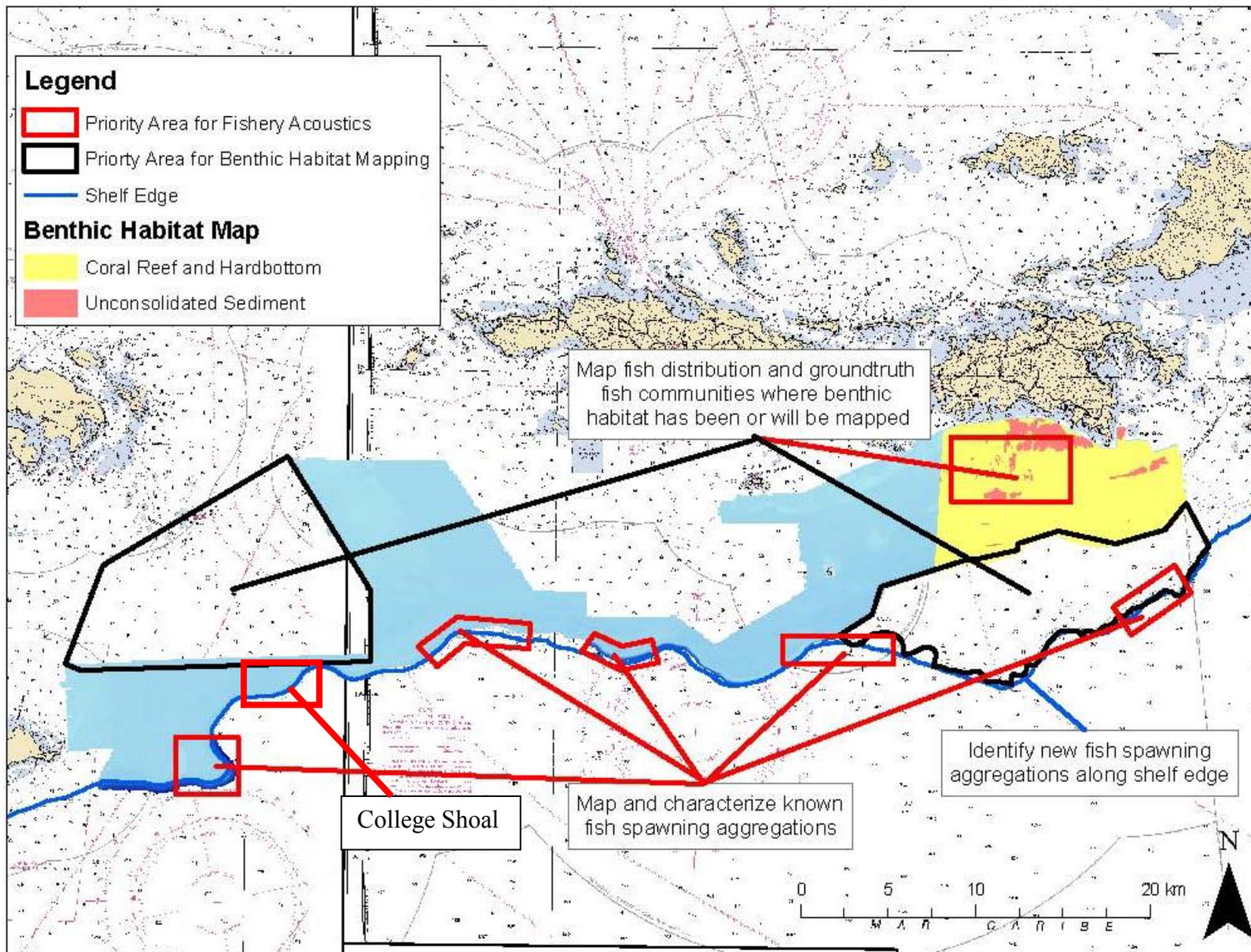


Figure 1b: Fish Acoustics Sampling Areas



Appendix:



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Coast Survey
Silver Spring, Maryland 20910-3282

14 February 2011

MEMORANDUM FOR: Timothy A. Battista
NOAA, National Center for Coastal and Ocean Science

FROM: Jeffrey Ferguson
Chief, Hydrographic Surveys Division

SUBJECT: Hydrographic Survey Project Instructions,
M-1907-NF-11, U.S. Virgin Islands Mapping Project

Hydrographic Project Instructions are forwarded for concurrence and issue as a supplemental to the Primary Investigator during the NF-11-01-USVI, Coral Reef Mapping Project aboard the NOAA Research Vessel *Nancy Foster*. All hydrographic data being considered for submission to the Office of Coast Survey (OCS) for nautical charting purpose's must be acquired, processed, and delivered according to the OCS specifications and requirements stated in the accompanying hydrographic project instructions.



Hydrographic Survey Project Instructions

Project Name:	US Virgin Island Mapping Cruise
Project Number:	M-I907-NF-11
Assigned Field Unit:	NOAA Ship Nancy Foster
Assigned Processing Branch:	Atlantic Hydrographic Branch

Signed Date:	2011-02-14
Project Instructions Version:	Final
Planned Acquisition Time:	March 2011
Delivery Dates:	July 2011

Purpose and Location:

This project is being conducted in support of the National Center for Coastal Ocean Science (NCCOS) to provide shallow water bathymetric data of critical benthic habitats in select areas off the coasts of St. Thomas and St. Johns Island in the U.S. Virgin Islands. Bathymetric data from this project will be collected with a multibeam echosounder and further utilized by the Office of Coast Survey (OCS) to update the nautical charts in this area. An OCS representative may assist with data acquisition.

Supporting Documents:

Hydrography shall be evaluated in accordance with the following support documents. Data from surveys is intended to supersede all prior survey data in the common area.

NOS Hydrographic Surveys Specifications and Deliverables Manual (HSSDM), April 2010

NOS Field Procedures Manual for Hydrographic Surveying (FPM), April 2010

PERSONNEL SAFETY AND DATA QUALITY SHALL ALWAYS BE EMPHASIZED OVER DATA QUANTITY! THE HYDROGRAPHER SHALL NEVER SUBJECT PERSONNEL OR BOATS TO UNDUE RISKS AND HAZARDS.

Registry Details:**General Locality:**

<i>Registry Number</i>	<i>Sheet ID</i>	<i>Sublocality</i>	<i>State or Territory</i>	<i>Estimated SNM</i>	<i>Scale</i>	<i>Instructions</i>
W00216	1	5nm SE St. Johns Island	US Virgin Islands	6	40000	
W00217	2	5 nm South of St. Thomas	US Virgin Islands	35	40000	
W00218	3	US Virgin Islands Southern Shelf	US Virgin Islands	64	40000	

Required Coverage:

Complete Coverage

Inshore Limit:

There is no inshore limit assigned to this survey.

<i>Coverage Water Depth</i>	<i>Coverage Required</i>
> 10 meters	Multibeam with backscatter

Assigned Tasks**Acknowledgement:**

Acknowledge receipt of these instructions and submit any comments or questions via email to Paul Turner at Paul.Turner@noaa.gov.

AWOIS Items:

There are no AWOIS items assigned for this survey.

Bottom Samples:

There is no bottom sample requirement for this survey.

Chart Comparison:

There is no chart comparison for this survey.

Coast Pilot:

There is no Coast Pilot requirement for this survey.

Dangers to Navigation (DTONs):

Generate DTON reports in accordance with the HSSDM, section 8.1.3. DTON reports should be sent to ocs.ndb@noaa.gov. It is of paramount importance that DTONs be reported as soon as possible.

Data Directory Size Report:

There is no data directory size report submission required for this survey.

Junctions:

There are no junctioning surveys for this project.

Progress Reports:

There is no progress report required for this survey.

Survey Outlines:

After completion of all field work for a survey, the hydrographer shall provide a survey outline in MapInfo compatible format, Latitude/Longitude coordinate system, NAD 83, that shows the extent of hydrography completed for the registered survey. This outline shall bound the extent of continuous survey data judged by the hydrographer to be adequate to supersede the chart. Along shore, the survey outline shall be coincident

with the NALL as surveyed in accordance with the project instructions. Careful attention should be paid in the near shore area to ensure that features and bathymetry inshore of the NALL are not included. The only exception to this direction is coverage acquired pursuant to investigation of assigned AWOIS items, which should be inscribed by the Survey Outline. Email the outline to survey.outlines@noaa.gov.

Horizontal Control Requirements:

Horizontal control shall meet requirements in Section 3 of the HSSDM.

Vertical Control Requirements:

Tides

Comply with the requirements from CO-OPS which are included with the project data from the Operations Branch. Submit surveys with final approved water levels applied. Contact the Operations Branch if this causes the survey to miss a submission deadline.

Tide Zoning: Discrete

<i>Operating Water Level Station</i>	<i>Station ID</i>	<i>Leveling Required</i>	<i>Installation Required</i>	<i>Pre-Existing Benchmarks</i>
Vieques, PR	975-2695	NO	NO	NO
Charlotte Amalie, VI	975-1639	NO	NO	NO

Orthometric Imagery:

There is no Orthometric Imagery provided for this project.

Shoreline and Nearshore Features:

No composite source file (CSF) will be provided for this survey. See section 3.5.5.2.2 of the FPM.

User Contacts

The following primary offices and persons shall be contacted at or near the beginning and end of the field operations to discuss survey objectives and accomplishment (Mandatory) or are listed for contact at the discretion of the Commanding Officer (Reference).

Title: NOAA Navigation Manager, Southeast Region
Name: Michael E. Henderson
Address: NMFS Route: F/SE
263 13th Avenue South
St. Petersburg, FL 33701
Phone: 727-824-5396
Fax:
E-mail: Michael.Henderson@noaa.gov
Obligation: Mandatory

Title: Virgin Islands Port Authority
Name: Mr. Dale A. Gregory, Director of Engineering
Address: P.O. Box 301707
St. Thomas, VI 00802
Phone: 340-774-1629*689
Fax: 340-776-3491
E-mail: dgregory@viport.com
Obligation: Reference

Title: U.S Coast Guard - Sector San Juan
Name: LCDR Felix Rivera
Address: #5 Calle La Puntilla
San Juan, PR00901
Phone: 787-729-2062
Fax: 787-729-6618
E-mail: Felix.s.rivera@uscg.mil
Obligation: Reference

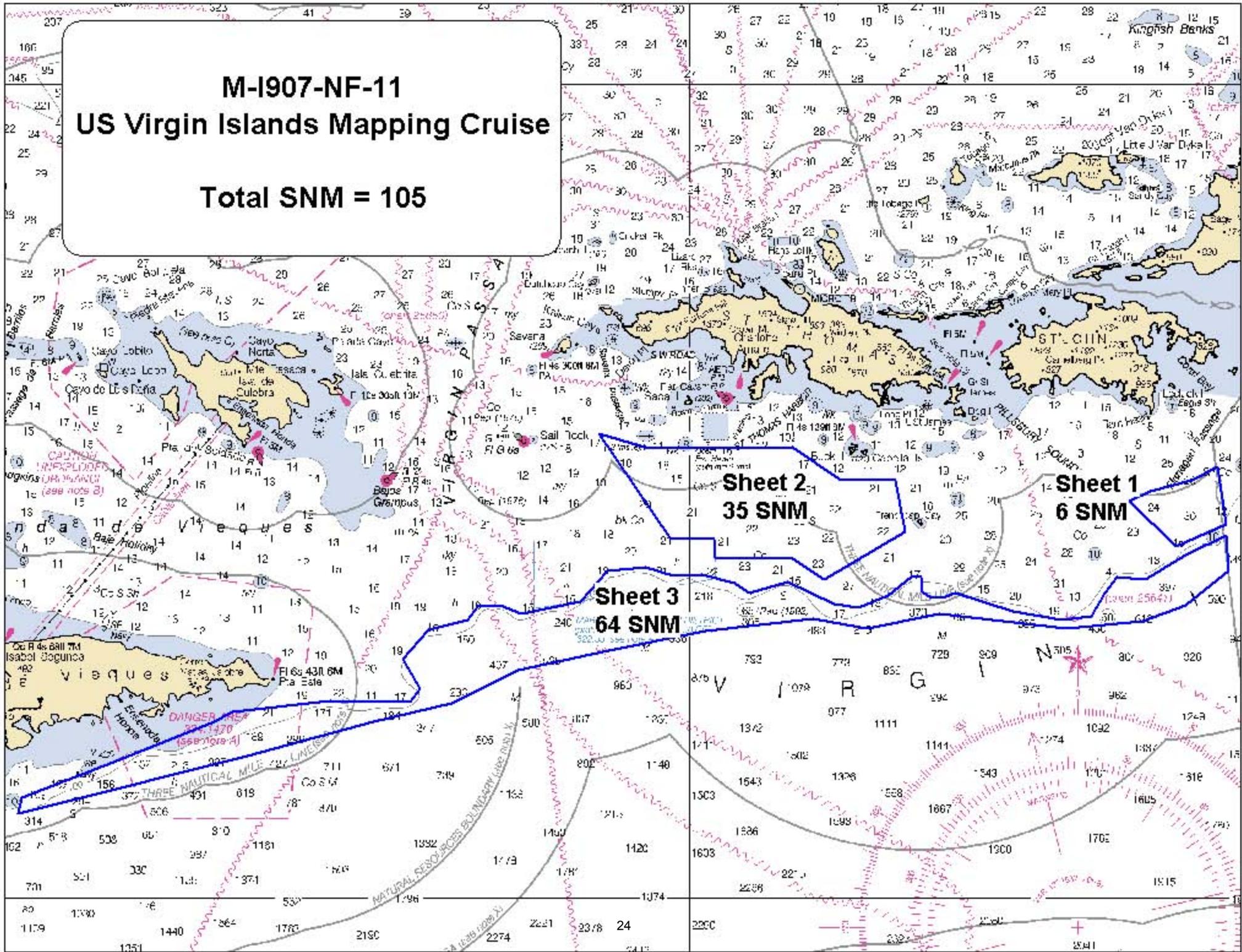
Title: US Army Corps of Engineers, Jacksonville District
Name: Jerry Scarborough
Address: Coastal/Navigation Branch
P.O. Box 4970
Jacksonville, FL 32232-0019
Phone: 904-232-1600
Fax:
E-mail: Jerry.W.Scarborough@usace.army.mil
Obligation: Reference

Title: State Historic Preservation Officer, US Virgin Islands
Name: Lorna Thomas, Deputy Director
Address: 17 Kongens Gade

Charlotte Amalie
St. Thomas, VI 00802
Phone: 340-776-8605
Fax: 340-776-7236
E-mail: Lorna_Thomas@vishpo.com
Obligation: Reference

M-1907-NF-11
US Virgin Islands Mapping Cruise

Total SNM = 105



Preliminary Zoning for M-1907-NF-2011 St Thomas, USVI

975-1639 CHARLOTTE AMALIE

VIR4B
Time Corrector -5 mins.
Range Corrector x1.08
Reference 975-1639

VIR3B
Time Corrector -12 mins.
Range Corrector x1.20
Reference 975-1639

VIR40
Time Corrector 0 mins.
Range Corrector x1.01
Reference 975-1639

VIR5
Time Corrector +6 mins.
Range Corrector x1.08
Reference 975-2695

VIR4A
Time Corrector -12 mins.
Range Corrector x1.08
Reference 975-1639

VIR23
Time Corrector 0 mins.
Range Corrector x1.01
Reference 975-1639

VIR36
Time Corrector 0 mins.
Range Corrector x1.01
Reference 975-1639

VIR21
Time Corrector -6 mins.
Range Corrector x0.95
Reference 975-1639

VIR22
Time Corrector -6 mins.
Range Corrector x1.01
Reference 975-1639

VIR37
Time Corrector 0 mins.
Range Corrector x1.01
Reference 975-1639

VIR20
Time Corrector -12 mins.
Range Corrector x0.95
Reference 975-1639

VIR6
Time Corrector +6 mins.
Range Corrector x1.08
Reference 975-2695

VIR38
Time Corrector -5 mins.
Range Corrector x0.95
Reference 975-1639

975-2695 VIEQUES