




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: Captain Michael Hopkins, NOAA
Commanding Officer, NOAA Ship *Pisces*

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

SUBJECT: Project Instruction for PC-15-05
SEAMAP Caribbean Reef Fish

Attached is the final Project Instruction for PC-15-05, SEAMAP Caribbean Reef Fish, which is scheduled aboard NOAA Ship *Pisces* during the period of October 10 – November 24, 2015. Of the 44 DAS scheduled for this project, 44 days are Program Funded. 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:
Karen Mitchell
Brandi Noble
Lisa Desfosse
Dr. Bonnie Ponwith





U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
3209 Frederic St
Pascagoula, MS 39567

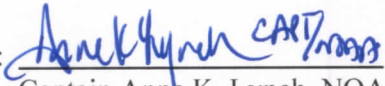

Project Instructions

Date Submitted: 09/01/2015 
Platform: NOAA Ship PISCES
Cruise Number: 15-05
Project Title: SEAMAP Caribbean Reef Fish
Cruise Dates: 10/10/2015  - 11/24/2015 

Prepared by: NOBLE.BRANDI.T Digitally signed by NOBLE.BRANDI.T RIGG.1381459728 728 Date: 2015.09.14 09:58:17 -0500
Field Party Chief **Date:** 09/14/2015 

Approved by: DESFOSSÉ.LISA Digitally signed by DESFOSSÉ.LISA.L.1365834519 .L.1365834519 Date: 2015.09.15 13:27:12 -0500
Lab Director **Date:** 09/15/2015 

Approved by: BRAINERD.THEOPHI Digitally signed by BRAINERD.THEOPHILUS.R.DR.1365819285 LUS.R.DR.1365819285 Date: 2015.09.16 09:56:42 -0500
Dr. Bonnie Ponwith
Director, SEFSC **Date:** 09/16/2015 

Approved by:  **Date:** 10/2/2015 
Captain Anne K. Lynch, NOAA
Commanding Officer
Marine Operations Center - Atlantic

I. Overview

A. Brief Summary and Project Period

SEAMAP Caribbean Reef Fish Survey on the continental shelf waters of Puerto Rico and the US Virgin Islands from October 10 to November 24, 2015.

B. Days at Sea (DAS)

Of the 44 DAS scheduled for this project, 0 DAS are funded by an OMAO allocation, DAS are funded by a Line Office Allocation, 44 DAS are Program Funded, and 0 DAS are Other Agency funded. This project is estimated to exhibit a Medium Operational Tempo.

C. Operating Area

The area of operation is the continental shelf waters of Puerto Rico and the US Virgin Islands (USVI) 17°30' N, 67°40'W; 18°45'N, 67°40'W; 18°45' N, 64°20' W; 17°30'N, 64°20' W in depths between 30 and 300 m (Figure 1).

D. Summary of Objectives

NOAA Ship *Pisces* will conduct a survey of reef fish in the above mentioned operating area using multiple video camera systems and acoustics. The ship's ME70 multibeam system will be used to map predetermined targeted areas on a nightly basis to increase the reef fish sample universe.

E. Participating Institutions

NOAA/NMFS/SEFSC Mississippi Laboratories, NOAA/NMFS/HCD Atlantic Branch and Puerto Rico, NMFS/NOS/NCCOS/CCFHR, Department of Planning and Natural Resources of the US Virgin Islands

F. Personnel/Science Party

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Campbell, Matthew	Fishery Biologist	10/15/2015	11/19/2015	M	NMFS/Pascagoula, MS	US
Ebert, Eric	Fishery Biologist	11/03/2015	11/19/2015	M	NOS/Beaufort, NC	US
Felts, Paul	Field Party Chief (Leg 3)	10/15/2015	11/19/2015	M	NMFS/Pascagoula, MS	US
Noble, Brandi	Field Party Chief (Leg 2)	10/15/2015	10/31/2015	F	NMFS/Pascagoula, MS	US

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Rademacher, Kevin	Fishery Biologist	10/15/2015	11/19/2015	M	NMFS/Pascagoula, MS	US
Rivera, Jose	Fishery Biologist	10/15/2015	10/30/2015	M	NMFS/Puerto Rico, USVI	US
Salisbury, Joseph	Fishery Biologist	10/15/2015	11/19/2015	M	NMFS/Pascagoula, MS	US
Taylor, Chris	Fishery Biologist	10/15/2015	10/31/2015	M	NOS/Beaufort, NC	US
Wilkinson, Kenneth	Electronics Tech.	10/15/2015	11/19/2015	M	NMFS/Stennis, MS	US
Wooden, Eric	Fishery Biologist	11/03/2015	11/19/2015	M	DPNR/USVI	US

G. Administrative

1. Points of Contacts:

Field Party Chief: Brandi Noble, NMFS, 3209 Frederic St., Pascagoula, MS 39567. 228-549-1636; Brandi.Noble@noaa.gov

Alternate Contact: Paul Felts, NMFS, 3209 Frederic St., Pascagoula, MS 39567. 228-549-1638; Paul.Felts@noaa.gov

Ops Officer: LT Rachel Kotkowski, OMAO, 151 Watts Ave, Pascagoula, MS 39567. 228-769-7905; Ops.Pisces@noaa.gov

2. Diplomatic Clearances

None Required.

3. Licenses and Permits

This cruise will be conducted under the following permits:

NMFS Southeast Regional Office Scientific Research Permit

NMFS HMS Scientific Research Permit

Puerto Rico DNR

US Virgin Islands DPNR

II. Operations

The Field Party Chief (FPC) is responsible for ensuring the scientific staff are trained in planned operations and are knowledgeable of project objectives and priorities. The Commanding Officer

(CO) is responsible for ensuring all operations conform to the ship's accepted practices and procedures.

A. Project Itinerary:

<u>Leg</u>	<u>Date</u>	<u>Depart/Arrive Location</u>	<u>Sea Days</u>
Leg 1	10/10/2015	Depart Pascagoula, MS	6
	10/15/2015	Arrive San Juan, PR	
Leg 2	10/16/2015	Depart San Juan, PR	16
	10/31/2015	Arrive Frederiksted, St. Croix	
Leg 3	11/03/2015	Depart Frederiksted, St. Croix	17
	11/19/2015	Arrive San Juan, PR	
Leg 4	11/19/2015	Depart San Juan, PR	5
	11/24/2015	Arrive Pascagoula, MS	

B. Staging and Destaging:

Pascagoula, MS/Pascagoula, MS

C. Operations to be conducted (including mitigation measures):

NOAA Ship *Pisces* will conduct a survey of reef fish located on the continental shelf and shelf-edge of Puerto Rico and the US Virgin Islands from October 10 through November 24, 2015. Two hundred twenty two sites have been selected for sampling with cameras, bandit reels and CTD during daylight hours (Figure 1; Table 3).

Camera operations will utilize three systems, the stereo camera array, the Modular Optical Underwater Survey System (MOUSS) and the Spherical Underwater Micro-Observatory (SUMO). Video cameras will be deployed no earlier than 1 h after sunrise, with the last gear retrieval 1 h prior to sunset. Each camera array will be baited with squid and soak on the sea floor for 40 min. A CTD cast will be conducted after the camera array is deployed. Four stations will be selected daily to be sampled with the bandit reels after the site is sampled with the cameras and the CTD. During bandit reel operations, the reels are only to be deployed under the following conditions: 1) a member of the deck department and scientific party are both present at each reel, 2) the ship is in position and stable with the OOD having notified as such and 3) the FPC has given the all clear for the reels to be baited and deployed.

The stereo camera array consists of paired black-and-white Videre stereo cameras along with a color mpeg camera housed in cylindrical pressure housings. The camera array consists of four housings positioned orthogonally and center mounted 51 cm above the bottom of the array. The camera array weighs approximately 550 lb and the housings are rated to 150 m.

For deep water deployments (>150 and < 250 m) we will deploy MOUSS using the anchor and buoy system (Figure 2). The system is rated to 500 m (Table 1) and consists of a weight, weak link, cage with the stereo-camera system (cameras, cpu, and battery), and buoys (Table 1). The system is tethered to the bottom using a weight sufficient enough to counteract the floatation above and to maintain the intended deployment position. Two buoys are deployed above the system giving enough positive floatation to counteract the weight of the MOUSS system but not more than the anchor. The system is deployed such that the anchor is the only point of contact with the reef, the cameras float above the reef and orient into the current. Should the anchor become entrapped a weak link attached between the anchor and cage allows for retrieval of the system.

The SUMO array (Figure 3) will be deployed in the same areas as the stereo video cameras. At selected mapping priority areas (Figure 1) they will also be used for groundtruthing the previous night's acoustic data. SUMO is a camera array that allows for simultaneous, full-spherical video, thus enabling viewing in all directions at any given moment. The cameras housings, and thus the system, are rated to 1000 m (Table 2) and are capable of identification, enumeration of individuals and habitat at a range of 0.5-10m. The SUMO array consists of six cameras and a mounting bracket. The system is mounted within a bottom tending cage and tethered to surface floats (Table 2).

The fishing operations will be conducted using three electric (12V) bandit reels mounted on the side sampling station, starboard aft quarter, and starboard stern positions on the vessel. The aluminum spool on the bandit reel holds 275 m of 136.08 kg (300 lb) test monofilament line as the mainline. A detachable bandit gear section (backbone) attaches to the terminal end of the main line. The 6 m long backbone is constructed of 136.08 kg (300 lb) test monofilament line. Ten pairs of crimps are placed around every 0.61 m mark from the terminal ends of the backbone to secure the gangions in place. Each end of the backbone is fitted with a black anodized 2/0 swivel snap. Sufficient weight (5 or 10 kg) will be placed at the bottom terminal end of the backbone to anchor the gear to the site. Three sets of 10 gangions, one per reel, (30 cm of 45.4 kg test monofilament line, size 8/0, 11/0, and 15/0 circle hooks, and a 6/0 model 120, 308 stainless 5 in longline clamp with swivel) will be baited with squid and attached to the backbones between the paired crimps.

Gangions with the varying hooks will be rotated through the three bandit reels and stations in an alternating order starting with a hook size that will be randomly selected before deployment. A 3 lb can float will be affixed to the terminal end of the mainline above the backbone as the gear is deployed to the bottom. When the weight reaches the bottom, a surface float will be attached to the mainline. The mainline will be paid out or reeled in to allow the gear to soak unimpeded by the vessel for 5 min from the time the weight hits the bottom to the start of retrieval. At the end of 5 min the mainline will be reeled in, the floats detached and each gangion detached.

All fish captured on the bandit reel will be identified, measured, weighed, and have the sex and maturity determined. Select species will have otoliths and gonads collected for age and reproductive research. Select species may be retained whole for additional research.

Bathymetry mapping will be conducted on a nightly basis in selected areas with the ME70 sonar (Figure 1; Table 3). An Edgetech 4125 side scan sonar will be used in the event the ME70 is inoperable. Mapping will commence at sunset, or when day operations have finished, in the general area of the block sampled that day or the area planned for the next day. Mapping will be concluded at sunrise, or whatever time is needed, in order to be on site for operations the next day. A CTD cast or XBT needs to be conducted prior to and after conducting acoustic transects to obtain speed-of-sound for proper processing of data. All other acoustic systems need to be turned off prior to and during acoustic transects to eliminate acoustic contamination of the mapping data. If other systems are required to ensure safe transit while mapping, ensure that the acoustic signals are offset and not interfering with each other. Transects for mapping will be composed in Hypack by the FPC and made available to the ship's bridge crew. The mapping goal is to locate features within and outside our current universe to expand the sampling universe as well as improve the ability for site selection by closing gaps created by mapping with inferior systems.

Side scan sonar deployments will be conducted using the stern A-frame. Prior to deployment a rub test will be performed to confirm system readiness. During deployment the ship should be underway at a slow speed (0-2 kt) or stopped in neutral depending on the situation and sea conditions. The towfish will be raised by the winch and lowered to the surface of the water by a member of the deck department. Once at surface, the cable counter will be zeroed and the towfish will be slowly lowered to the operating depth by the scientific party. The altitude of the towfish will be between 10-15% of the desired range. Vessel speed should be maintained at 5 kt and increased slightly during turns to prevent the towfish from lowering to the sea bed.

The DPNR/USVI has requested assistance in the deployment of a fish attracting device (FAD). The FAD is a modified 58 in steel sphere navy buoy (Figure 4.). It has a 6000 lb concrete anchor, 200 ft of chain, and depending on the deployment depth, a rope length of 1000 to 13000 ft. They are requesting help to deploy four of these FADs around St Croix and St Thomas (exact latitude and longitude has not been provided yet). Deployment is also conditional upon DPNR/USVI having correct permits and authorization for deployment.

Sampling protocol may be altered by the FPC or Watch Leader in order to optimize survey effort or to adhere to mitigation measures for protected resources. Mitigation measures are as follows:

Under the Preferred Alternative, the SEFSC will initiate a formalized "Move-on" Rule. If any marine mammals, sea turtles or other protected species are sighted around the vessel before setting the gear, the vessel may be moved away from the animals to a different section of the sampling area if the animals appear to be at risk of interaction with the gear at the discretion of the FPC (Chief Scientist) and Scientific Watch Leader. In most cases, fishing gear is not deployed if marine mammals or sea turtles have been sighted near the ship unless those animals do not appear to be in danger of interactions with the gear, as determined by the judgment of the FPC (Chief Scientist) and Scientific Watch Leader.

The SEFSC will initiate a process for its FPC (Chief Scientist), Scientific Watch Leaders and vessel officers to communicate with each other about their experiences with protected species interactions during research work with the goal of improving decision-making regarding

avoidance of adverse interactions. As noted in the Status Quo Alternative description of mitigation measures, there are many situations where professional judgment is used to decide the best course of action for avoiding protected species interactions before and during the time research gear is in the water. The intent of this mitigation measure would be to draw on the collective experience of people who have been making those decisions, provide a forum for the exchange of information about what went right and what went wrong, and try to determine if there are any rules-of-thumb or key factors to consider that would help in future decisions regarding avoidance practices. The SEFSC would coordinate not only among its staff but also with those from other fisheries science centers with similar experience.

Mitigation Measure for Protected Species during Research with Bandit Reel/Vertical Line Gear and Hook and Line Gear

- Monitoring methods: The officer on watch (or member of the Scientific Party), and crew standing watch on the bridge visually scan for marine mammals, sea turtles, and other ESA-listed species (protected species) during all daytime operations. Bridge binoculars are used as necessary to survey the area upon arrival at the station, during visual and sonar reconnaissance of the trawl line to look for potential hazards (e.g., commercial fishing gear, unsuitable bottom for trawling, etc.), and while the gear is deployed. If any marine mammals or sea turtles are sighted by the bridge or deck crew prior to setting the gear or at any time the gear is in the water, the bridge crew and/or Chief Scientist are alerted immediately. Environmental conditions (e.g., lighting, sea state, precipitation, fog, etc.) often limit the distance for effective visual monitoring of protected species.
- Operational procedures: If any marine mammals, sea turtles or other protected species are sighted around the vessel before gear deployment, in most cases, gear is not deployed unless those animals do not appear to be in danger of interactions with the gear, as determined by the judgment of the FPC/Scientific Watch Leader (Chief Scientist). The vessel may be moved or gear deployment may be delayed until the animals no longer appear to be at risk of interaction with the gear.
- Soak time is reduced and standardized to 5-10 min per gear deployment.
- If marine mammals, sea turtles or other protected species are detected during setting operations and are considered to be at risk, immediate retrieval or halting the setting operations may be warranted.
 - On the SEAMAP-Caribbean Reef Fish Survey (NMFS), if setting operations have been halted due to the presence of protected species, setting does not resume. The SEAMAP vertical line survey is piggy-backed onto the SEAMAP reef fish video survey, and only 50% of those video sites are subsampled, therefore the vessel simply moves to the next site rather than waiting.
- Plankton Nets, Fykes Nets, Bag Seines, Small-mesh Towed Nets, Oyster Dredges, Fish Traps, Oceanographic Sampling Devices, Video Cameras, and remotely Operated Vessels (ROV)

- The SEFSC deploys a wide variety of gear to sample the marine environment during all of their research cruises, such as plankton nets, oceanographic sampling devices, video cameras, and ROVs. These types of gear are not considered to pose any risk to protected species because of their small size, slow deployment speeds, and/or structural details of the gear and are therefore not subject to specific mitigation measures. However, the officer on watch and crew monitor for any unusual circumstances that may arise at a sampling site and use their professional judgment and discretion to avoid any potential risks to protected species during deployment of all research equipment.

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 CO.

Scientific dives are not planned for this project. If the ship must conduct dive ops while at sea the CO will confer with the FPC as to when the dive ops will occur so the dive will have the least impact on the scientific work.

E. Applicable Restrictions

Conditions which preclude normal operations: ME70 hardware or software failure. Adverse weather conditions such as hurricanes, tropical storms and lightning.

III. Equipment

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

1. Hydrographic winch for deploying CTD to a depth of 500 m
2. Hydraulic pot hauler
3. Two SBE9+ CTDs with calibrated sensors
 - a. one Digiquartz depth sensor
 - b. two SBE 3 Premium temperature sensor
 - c. two SBE 4 conductivity sensor (items b. & c. connected w/ TC ducts)
 - d. two SBE 43 dissolved oxygen sensor
 - e. two SBE 5T pump
 - f. one WetStar fluorometer
 - g. one transmissometer
 - h. one SBE water sampler
4. Freezer space for frozen squid and biological samples
5. Scientific Computer System (SCS)
6. Side Sampling A-frame

7. Stern A-frame
8. Mounting and power supply (230/460 VAC, 3 phase, 50/60 HZ) for one side scan winch
9. (3) 12V marine batteries and (3) trickle chargers for the (3) bandit reels at side-sampling station, starboard aft quarter, and starboard stern
10. Power supply (12V) for 1 bandit reel at each side-sampling station
11. Mounting for three bandit reels; one at side-sampling station, one on starboard aft quarter, and one on starboard stern.
12. ME70 multibeam with spare cards and other pertinent parts for repairs
13. Simrad ES60 systems

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

1. Stereo camera array with buoy retrieval system
2. (4) Stereo cameras and underwater housings
3. Digital cameras with Gates underwater housings
4. MOUSS stereo video camera, battery unit and digital video recorder
5. MOUSS camera array with floatation and anchor
6. (6) GoPro Hero+ Black edition cameras with Golem deep water housings
7. SUMO camera array
8. (2) Edgetech 4125 dual frequency side scan sonar
9. (2) Edgetech topside box
10. (2) ORE topside box
11. (2) ORE hydrophone
12. (2) ORE multibeacon with charger
13. (2) tow winch with 500m of cable
14. Winch control extension lever
15. (2) Deck cable for side scan sonar
16. (2) power cable for side scan sonar and hydrophone
17. (2) Ethernet cable for side scan sonar and hydrophone
18. External 2TB fathom drives (6) for stereo data storage
19. Specialized computer systems for stereo data downloads
20. Blu-ray discs and miniDVs
21. TDRs (Temp/Depth Recorder) with associated software and pen reader.
22. (6) 12V Electric Bandit Reels, monofilament, hooks, floats and hardware.
23. (8) Poly Floats
24. (2) High-Flyers
25. Buoy line (½") for deploying the video array at depths between 30 and 300 m
26. 500 lb squid bait for camera array and bandit reels
27. One large/small capacity motion compensating scales
28. (4) Plastic fish baskets
29. (2) Grappling hooks with 10 m of attached rope

30. (1) Rib release hook
31. Hammer locks
32. VCR/monitor/cords
33. Back-up spool for buoy retrieval system
34. Triton X

IV. Hazardous Materials

A. Policy and Compliance

The FPC 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 quantity, MSDS, appropriate spill cleanup materials (neutralizing agents, buffers, or absorbents) in amounts adequate to address spills of a size equal to the amount of chemical brought aboard, and chemical safety and spill response procedures. . 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 showing that all chemicals were 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. If the spill is severe enough to require a respirator the scientific party will act as support. Overboard discharge of hazardous materials is not permitted aboard NOAA ships.

B. Inventory

Common Name of Material	Qty	Notes	Trained Individual	Spill control
Formaldehyde solution (10%)	1 x 1 gallon	Stored under hood in Chemical Lab	Brandi Noble	F
Ethanol	1 x 1 gallon	Stored under hood in Chemical Lab	Brandi Noble	E

C. Chemical safety and spill response procedures

F: Formalin/Formaldehyde

- Ventilate area of leak or spill. Remove all sources of ignition.
- Wear appropriate personal protective equipment.
- Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible.
- Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container.
- Do not use combustible materials, such as saw dust.

E: Ethanol

- Ventilate area of leak or spill. Remove all sources of ignition.
- Wear appropriate personal protective equipment.
- Isolate hazard area. Keep unnecessary and protected personnel from entering. Contain and recover liquid when possible.
- Use non-spark tools and equipment. Dilute liquid with water and mop up, or absorb with an inert material (e.g., vermiculate, dry sand, earth), and place in a chemical waste container.
- Do not use combustible materials, such as sawdust.

Inventory of Spill Kit supplies

Product Name	Amount	Chemicals it is useful against	Amount it can clean up
Formaldehyde Neutralizer	5 gallon bucket	Formaldehyde	30 gallon per 5 gallon bucket
Universal Spill Cleanup	5 gallon kit	Ethanol	5 gallons per kit
Formalin Spill Control	11 oz. bottle	Formaldehyde	40 oz of 10% or 9 oz of 37%

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.

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 FPC and CO 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 FPC in arranging this meeting.

- B. Vessel Familiarization Meeting: The CO 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 CO 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 FPC, and members of the scientific party and is normally arranged by the Operations Officer and FPC.
- D. Project Evaluation Report

Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the FPC. The form is available at <http://www.oma.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 three 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 FPC. The FPC and CO 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 FPC 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 FPC 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 FPC will ensure that all non NOAA or non Federal scientists aboard also have proper orders. It is the responsibility of the FPC 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 CO. 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 FPC or the NOAA website <http://www.corporateservices.noaa.gov/noaforms/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 four 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

Email MOA.Health.Services@noaa.gov

Prior to departure, the FPC 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

Hard hats are 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.

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. At the discretion of the ship CO, safety shoes (i.e. steel or composite toe protection) may be required to participate in any work dealing with suspended loads, including CTD deployment and recovery. The ship does not provide safety-toed shoes/boots. The ship's Operations Officer should be consulted by the FPC to ensure members of the scientific party report aboard with the proper attire.

D. Communications

A progress report on operations prepared by the FPC may be relayed to the program office. Sometimes it is necessary for the FPC to communicate with another vessel, aircraft, or shore facility. Through various means of communications, the ship can usually accommodate the FPC. 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 email 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 through the ship's Commanding Officer 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. Figures, maps, tables, images, etc.

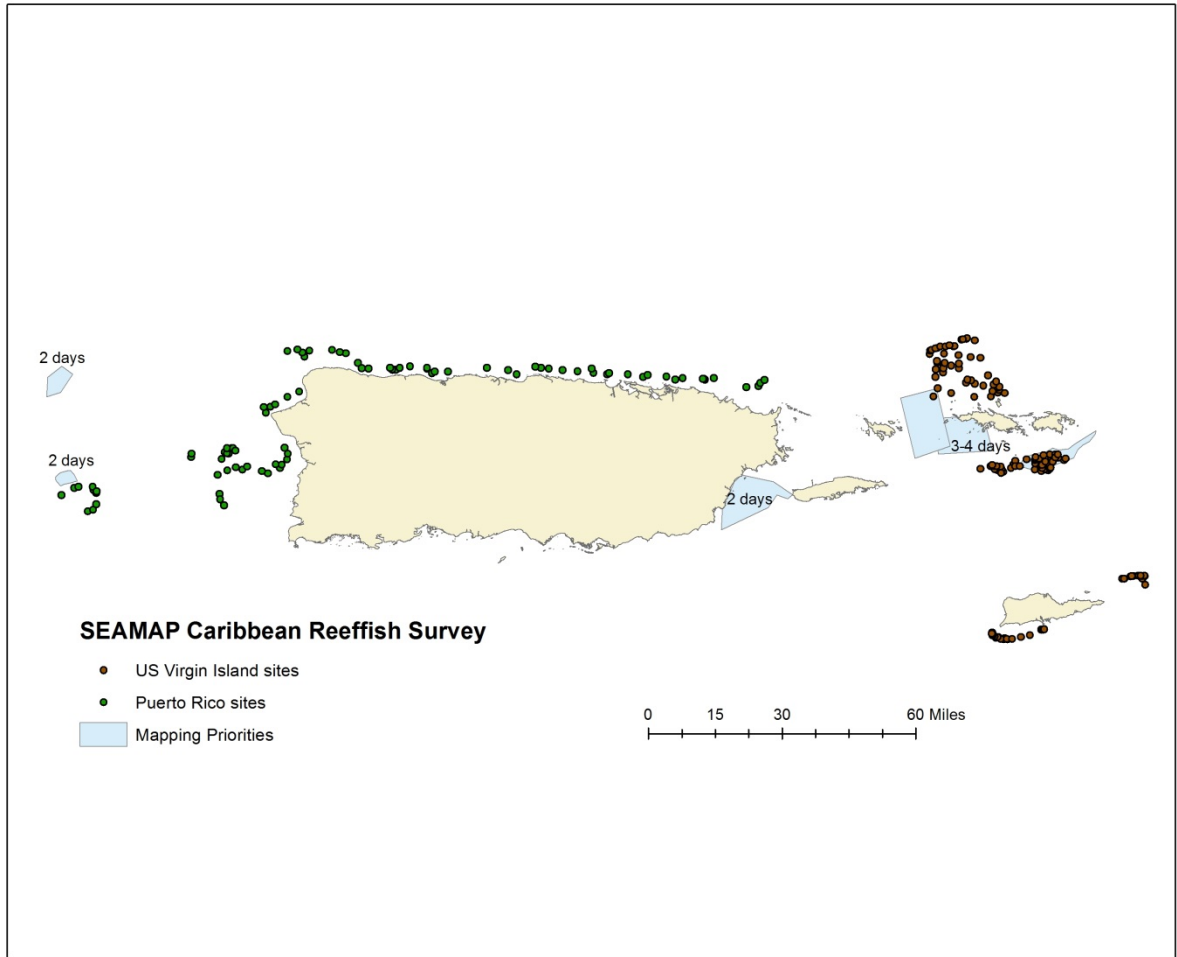


Figure 1. Sites selected for sampling and mapping during NOAA Ship *Pisces* PC-15-05, SEAMAP Caribbean Reeffish survey.

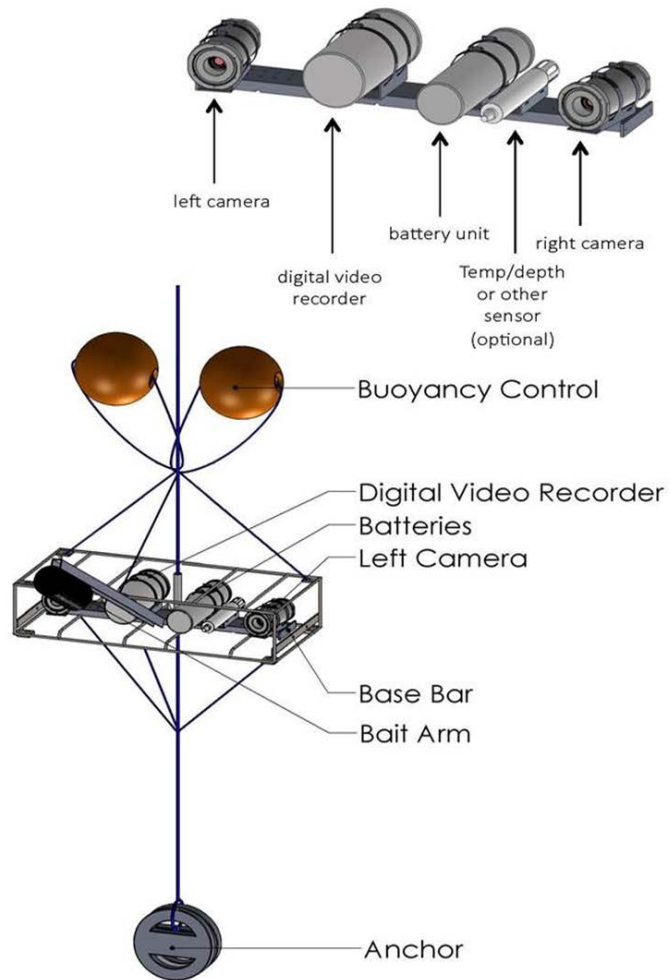


Figure 2. Diagram of the MOUSS stereo-video camera showing the main bar mounting components (top) and a visualization of a midwater deployment.



Figure 3. Picture of the SUMO video camera array showing the camera mount (top) and the cage system in which the system is deployed (bottom).

APPENDIX A FAD DESIGNS

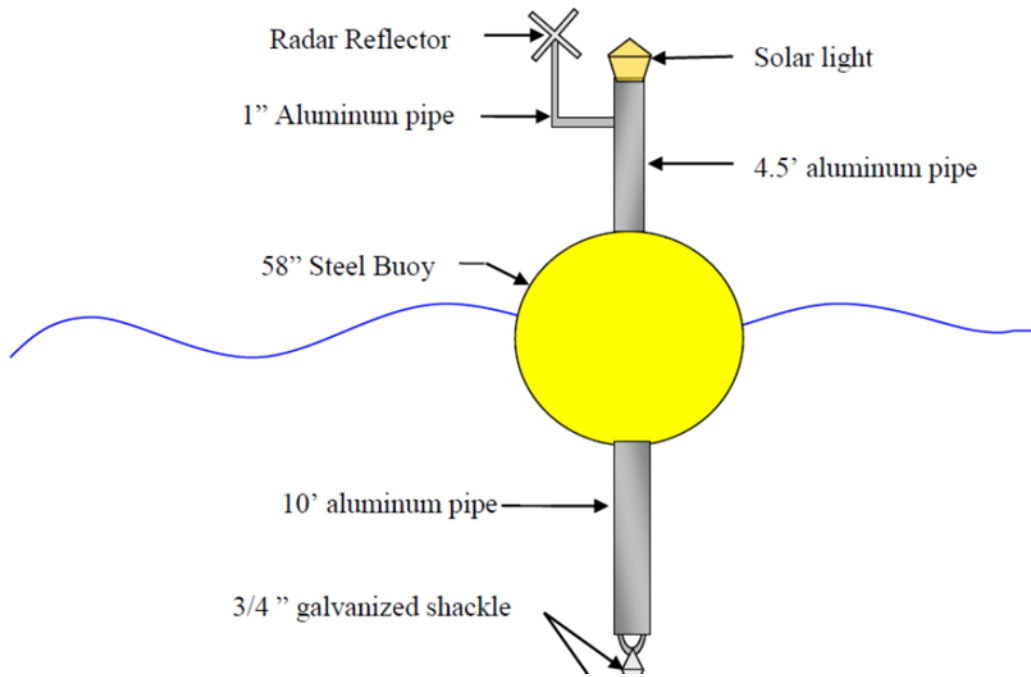


Figure 4. Diagram of the DPNR/USVI FAD design to be deployed around St Croix and St Thomas.

Table 1. MOUSS system specs.

Component	Specification
Depth rating	500 m
Total weight	58.12 lb
...Electronics	37.97 lb
...Base bar	3.45 lb
...Cage	16.7 lb
Base bar metal	Aluminum
Cage metal	Stainless steel
Cage dimensions	18.5 x 8.5 x 40.35 in
Base bar dimensions	4 x 1 x 38.6 in
Spectra/Amsteel Blue Line (various lengths)	Minimum - 3/16" (4900 lb test)
Anchor	10 lb

Hard buoys (deep water)	60-65 lb of lift
Weak link	n/a
Emergency release	Galvanic timed release (24 hr)

Table 2. SUMO system specs

Component	Specification
Cameras	GoPro Hero+ Black edition
Housings	Golem deep water housings
Depth rating	1000 m
Working depth	250 m and less
Total weight	20 lb
Cage metal	Stainless steel
Cage dimensions	18.5 x 8.5 x 40.35 in
Spectra/Amsteel Blue Line (various lengths)	Minimum - 3/16" (4900 lb test)
Buoys	2 surface floats
Harness and shackle	Spectra and closed shackles
Deployment	Well deck A-frame
Retrieval	Well deck pot hauler

2. Station/Waypoint List (coordinates in Latitude, Longitude: degree-minutes)

Table 3. Sites selected for sampling during NOAA Ship *Pisces* Cruise PC-15-05, SEAMAP Caribbean Reefish survey. Additional sites are to be selected after mapping in the areas designated in Fig 1.

Region	Latitude (DD.DDDD)	Longitude (DD.DDDD)	Site	Stratum
Mona	18.1250	-67.9117	98	5
Mona	18.1183	-67.8483	130	5
Mona	18.1083	-67.8400	138	5

Mona	18.0717	-67.8400	160	5
Mona	18.0483	-67.8667	181	6
Mona	18.1017	-67.9527	239	6
Mona	18.1283	-67.8983	316	6
Mona	18.1283	-67.8517	466	6
Mona	18.1133	-67.8383	518	6
Mona	18.0533	-67.8500	622	6
PRN1	18.5083	-66.8767	817	5
PRN1	18.5083	-66.8667	823	5
PRN1	18.5500	-67.1633	3990	5
PRN1	18.4967	-66.7483	42	6
PRN1	18.5100	-66.8783	1046	6
PRN1	18.5117	-66.9550	1231	6
PRN1	18.5150	-66.8533	1833	6
PRN1	18.5150	-66.5700	1949	6
PRN1	18.5617	-67.0283	5087	6
PRN1	18.5650	-67.0483	5372	6
PRN1	18.5683	-67.2183	5558	6
PRN1	18.5067	-66.5017	725	9
PRN1	18.5117	-66.7650	1340	9
PRN1	18.5150	-66.8850	1814	9
PRN1	18.5150	-66.7650	1886	9
PRN1	18.5300	-66.9900	3381	9
PRN1	18.5633	-67.1700	5152	9
PRN1	18.5017	-66.7400	245	12
PRN1	18.5017	-66.6967	271	12
PRN1	18.5133	-66.9767	1488	12

PRN1	18.5200	-66.8200	2603	12
PRN1	18.5700	-67.1467	5745	12
PRN1	18.5717	-67.0733	5932	12
PRN1	18.5733	-67.1867	6006	12
PRN2	18.4767	-65.8617	1477	5
PRN2	18.4983	-66.2233	4400	5
PRN2	18.5150	-66.3950	6273	5
PRN2	18.4550	-65.6883	108	6
PRN2	18.4783	-65.8667	1613	6
PRN2	18.4817	-65.9333	2035	6
PRN2	18.4850	-66.0633	2563	6
PRN2	18.4867	-65.9867	2878	6
PRN2	18.4933	-66.1800	3758	6
PRN2	18.4967	-66.1733	4185	6
PRN2	18.5033	-66.2750	5061	6
PRN2	18.4650	-65.6816	497	9
PRN2	18.4783	-65.8684	1612	9
PRN2	18.4817	-65.8333	2080	9
PRN2	18.5117	-66.3683	5945	9
PRN2	18.5117	-66.2300	5998	9
PRN2	18.5183	-66.4133	6533	9
PRN2	18.4517	-65.7267	68	12
PRN2	18.4750	-65.6683	1278	12
PRN2	18.4767	-65.9584	1502	12
PRN2	18.4917	-66.0483	3622	12
PRN2	18.4933	-66.4733	3729	12
PRN2	18.4933	-66.1117	3799	12

PRN2	18.5067	-66.3250	5393	12
PRW	18.1717	-67.2817	2050	5
PRW	18.1833	-67.3650	2625	5
PRW	18.1883	-67.2433	2985	5
PRW	18.2400	-67.4217	7560	5
PRW	18.3883	-67.2733	9725	5
PRW	18.1783	-67.3017	2320	6
PRW	18.1917	-67.3867	3329	6
PRW	18.1933	-67.3500	3511	6
PRW	18.2000	-67.2367	4087	6
PRW	18.2350	-67.4100	7125	6
PRW	18.2367	-67.4150	7233	6
PRW	18.2533	-67.3983	8328	6
PRW	18.2533	-67.3950	8330	6
PRW	18.3683	-67.2883	9339	6
PRW	18.3950	-67.2583	9945	6
PRW	18.0683	-67.4250	250	9
PRW	18.1050	-67.4400	747	9
PRW	18.2167	-67.2200	5825	9
PRW	18.2250	-67.5317	6505	9
PRW	18.2350	-67.2167	7148	9
PRW	18.2350	-67.5300	7188	9
PRW	18.2450	-67.3883	7829	9
PRW	18.2533	-67.4150	8318	9
PRW	18.0883	-67.4367	506	12
PRW	18.1667	-67.4450	1914	12
PRW	18.1817	-67.4133	2483	12

PRW	18.2017	-67.2567	4363	12
PRW	18.2183	-67.4317	6021	12
PRW	18.2550	-67.2283	8445	12
PRW	18.3867	-67.2950	9667	12
PRW	18.4200	-67.2183	10561	12
PRW	18.4367	-67.1800	10856	12
St Croix	17.6367	-64.8884	812	1
St Croix	17.6400	-64.9083	897	1
St Croix	17.6400	-64.8350	898	1
St Croix	17.6467	-64.8050	962	1
St Croix	17.6550	-64.9284	995	1
St Croix	17.6649	-64.7683	1005	1
St Croix	17.6650	-64.7633	1009	1
St Croix	17.6667	-64.7583	1010	1
St Croix	17.8100	-64.4300	1013	1
St Croix	17.8299	-64.4983	1055	1
St Croix	17.8299	-64.5050	1057	1
St Croix	17.8300	-64.4999	1060	1
St Croix	17.8300	-64.4400	1062	1
St Croix	17.8366	-64.4783	1078	1
St Croix	17.8383	-64.4717	1082	1
St Croix	17.8383	-64.4316	1084	1
St Croix	17.8383	-64.4701	1085	1
St Croix	17.8384	-64.4750	1088	1
St Croix	17.8388	-64.4433	1089	1
St Croix	17.8400	-64.4483	1091	1
St Croix	17.8400	-64.4533	1095	1

St Croix	17.8400	-64.4517	1096	1
St Croix	17.8400	-64.4333	1102	1
St Croix	17.8401	-64.4450	1103	1
St Croix	17.6332	-64.8783	646	2
St Croix	17.6333	-64.8916	681	2
St Croix	17.6349	-64.9000	723	2
St Croix	17.6350	-64.8800	750	2
St Croix	17.6350	-64.8633	752	2
St Croix	17.6384	-64.9166	864	2
St Croix	17.6398	-64.9150	870	2
St Croix	17.6400	-64.9117	891	2
St Croix	17.6433	-64.9200	938	2
St Croix	17.6450	-64.9267	947	2
St Croix	17.6484	-64.9266	972	2
St Croix	17.6517	-64.9300	984	2
St John	18.1767	-64.8933	60	1
St John	18.1783	-64.7683	117	1
St John	18.1817	-64.9100	188	1
St John	18.1817	-64.7467	236	1
St John	18.1833	-64.8967	255	1
St John	18.1833	-64.7900	336	1
St John	18.1850	-64.9200	373	1
St John	18.1850	-64.7567	430	1
St John	18.1867	-64.9667	445	1
St John	18.1883	-64.7667	596	1
St John	18.1933	-64.9000	887	1
St John	18.1950	-64.9333	986	1

St John	18.1950	-64.9200	994	1
St John	18.1950	-64.9133	998	1
St John	18.1983	-64.9283	1188	1
St John	18.1983	-64.7700	1264	1
St John	18.1983	-64.7667	1266	1
St John	18.2000	-64.8600	1300	1
St John	18.2000	-64.8583	1301	1
St John	18.2000	-64.7383	1362	1
St John	18.2000	-64.7417	1425	1
St John	18.2033	-64.7883	1554	1
St John	18.2033	-64.7450	1580	1
St John	18.2100	-64.7550	1933	1
St John	18.2117	-64.8533	1969	1
St John	18.2150	-64.7900	2195	1
St John	18.2167	-64.8167	2364	1
St John	18.2167	-64.7867	2382	1
St John	18.2167	-64.7800	2386	1
St John	18.2167	-64.7350	2413	1
St John	18.2200	-64.7750	2571	1
St John	18.2233	-64.7367	2776	1
St John	18.2250	-64.7867	2832	1
St John	18.2300	-64.7617	3085	1
St John	18.2333	-64.7400	3243	1
St John	18.2333	-64.7233	3253	1
St John	18.1733	-64.8983	8	2
St John	18.1867	-64.7400	520	2
St John	18.1883	-64.8667	566	2

St John	18.1900	-64.7383	728	2
St John	18.1950	-64.8533	1015	2
St John	18.1950	-64.8383	1024	2
St John	18.2100	-64.7317	1947	2
St John	18.2150	-64.6950	2252	2
St John	18.2200	-64.6900	2622	2
St John	18.2217	-64.7133	2699	2
St John	18.2233	-64.7233	2784	2
St John	18.2333	-64.7150	3258	2
USVI north	18.4200	-64.9867	314	1
USVI north	18.4217	-65.1183	353	1
USVI north	18.4217	-64.9317	465	1
USVI north	18.4317	-65.0617	1274	1
USVI north	18.4317	-64.8883	1378	1
USVI north	18.4333	-64.9100	1516	1
USVI north	18.4383	-64.9267	1965	1
USVI north	18.4417	-64.9067	2281	1
USVI north	18.4483	-65.1050	2774	1
USVI north	18.4500	-64.9100	3044	1
USVI north	18.4533	-64.9050	3354	1
USVI north	18.4567	-64.9567	3621	1
USVI north	18.4600	-64.9233	3951	1
USVI north	18.4633	-64.9850	4226	1
USVI north	18.4667	-65.0133	4523	1
USVI north	18.4700	-64.9150	4897	1
USVI north	18.4733	-64.9967	5166	1
USVI north	18.4767	-65.0083	5479	1

USVI north	18.4850	-65.1133	6227	1
USVI north	18.4900	-64.9417	6824	1
USVI north	18.5000	-65.0883	7744	1
USVI north	18.5100	-65.1117	8750	1
USVI north	18.5133	-65.0867	9099	1
USVI north	18.5133	-65.0367	9129	1
USVI north	18.5217	-65.0617	9825	1
USVI north	18.5283	-65.0367	10270	1
USVI north	18.5300	-65.0817	10364	1
USVI north	18.5317	-65.1067	10469	1
USVI north	18.5367	-65.1083	10828	1
USVI north	18.5467	-64.9667	11655	1
USVI north	18.5483	-64.9983	11766	1
USVI north	18.5550	-65.0383	12073	1
USVI north	18.5583	-65.1317	12217	1
USVI north	18.5600	-65.0850	12345	1
USVI north	18.6033	-64.9850	14402	1
USVI north	18.6083	-65.0117	14507	1
USVI north	18.5783	-65.1067	13405	1
USVI north	18.6100	-65.0100	14543	1
USVI north	18.5700	-65.1300	12917	2
USVI north	18.5717	-65.1250	13017	2
USVI north	18.5767	-65.1133	13310	2
USVI north	18.5833	-65.0967	13660	2
USVI north	18.5833	-65.0800	13670	2
USVI north	18.5833	-65.0533	13686	2
USVI north	18.5850	-65.0517	13754	2

USVI north	18.5867	-65.0667	13811	2
USVI north	18.6050	-65.0283	14419	2
USVI north	18.6067	-65.0233	14463	2