U.S. DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: H12172

LOCALITY

State: U.S. Virgin Islands

General Locality: St. Thomas & St. Johns Islands

Sub-locality: St. Johns Shelf

2010

CHIEF OF PARTY
Timothy Battista

LIBRARY & ARCHIVES

DATE:

NOAA FORM 76-35A U.S. DEPARTMENT OF COMMERCE
(11-72) NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

REGISTRY NUMBER:

H12172

HYDROGRAPHIC TITLE SHEET

INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State:	**U.S. Virgin Islands**
General Locality:	**St. Thomas and St. Johns Islands**
Sub-Locality:	**St. Johns Shelf**
Scale:	**1:20,000** Date of Survey: **March 30 to April 5, 2010**
Instructions Dated:	**05 February 2010** Project Number: **M-I907-NF-10**
Vessel:	**NOAA Ship *Nancy Foster***
Chief of Party:	**Timothy Battista**
Surveyed by:	**CCMA Biogeography Branch**
Soundings by:	**Reson 7125 SV Kongsberg EM1002**
Graphic record scaled by:	**N/A**
Graphic record checked by:	**N/A**
Protracted by:	**N/A**
Automated Plot:	**N/A**
Verification by:	
Soundings in:	**Meters at MLLW**

Remarks:
1) All Times are in UTC.
2) This is a Coral Reef Mapping Project and Hydrographic Survey.

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Descriptive Report to Accompany Hydrographic Survey H12172
Project M-I907-NF-10
U.S. Virgin Islands
St. Johns Shelf
Scale 1:20,000
March 30th – April 5 th2010
NOAA Ship *Nancy Foster*

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions M-I907-NF-10, dated February 5, 2010. Data acquisition was conducted from March 30-April 05, 2010.

North Western Limit	South Western Limit	South Eastern Limit	North Eastern Limit
18°13'27.72" N 065°49'36.16" W	18°11'14.33" N 064°51'18.00" W	18°12'46.32" N 064°40'51.87" W	18°15'19.24" N 064°43'34.91" W

The purpose of this project is to map critical coral habitats and to update the nautical charts in the area. Most of the bathymetry is from surveys completed from 1970-1989 with partial bottom coverage. This project responds, in part, to the U.S. Coral Reef Task Force (USCRTF) that was established by Presidential Executive Order 13089. The USCRTF mission is to lead, coordinate, and strengthen U.S. government actions to better preserve and protect coral reef ecosystems. The National Oceanic and Atmospheric Administration's (NOAA) Center for Coastal Monitoring and Assessment (CCMA) Biogeography Team is supporting the USCRTF mandate. The Biogeography Team completed its seventh year of an ongoing scientific research mission on board the NOAA Ship *Nancy Foster*.

Table 1: Hydrographic Survey Statistics

	Linear Nautical Miles
LNM Single beam mainscheme only	N/A
Multibeam mainscheme only	337.76
LNM Lidar mainscheme only	N/A
Side Scan Sonar mainscheme only	N/A
Lineal nautical miles of any combination of the above techniques (specify methods	337.76
LNM Crosslines singlebeam and multibeam combined	18.21
LNM Lidar Crosslines	N/A
Development lines non mainscheme	0
LNM shoreline/nearshore investigations	
Number of Bottom Samples	0
Number of items investigated that required additional time/effort in the field beyond the above survey operations	0
Total number of square nautical miles	31.24

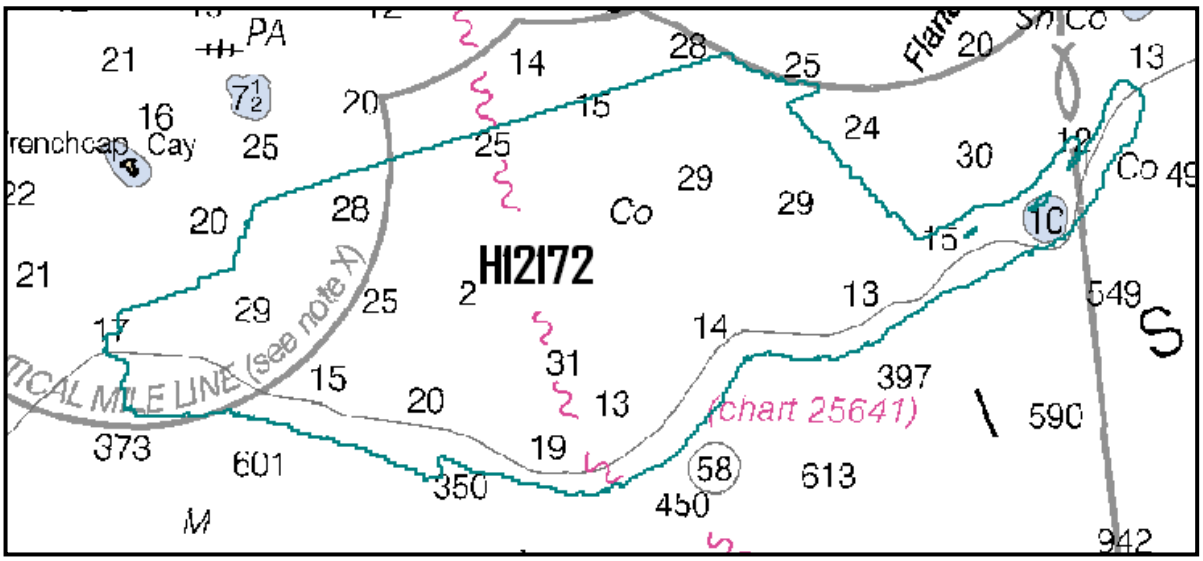


Fig. 1. H12172 Survey Area.

Table 2: MB Acquisition Dates

Calendar Date	Julian Day
30-March-2010	089
31-March-2010	090
1-April-2010	091
2- April -2010	092
3- April -2010	093
4- April -2010	094
5- April -2010	095

B. DATA ACQUISTION AND PROCESSING

Refer to *M-I907-NF-10 Data Acquisition and Processing Report* (DAPR) for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, as well as any deviations from the DAPR, are included in this descriptive report.

B1. EQUIPMENT AND VESSEL

The NOAA Ship *Nancy Foster* acquired Reson 7125 SV multibeam echosounder soundings and sound-velocity profiles. Vessel configurations, equipment operation and data acquisition and processing were consistent with specifications described in the DAPR.

B2. QUALITY CONTROL

B2.a System Certification and Calibration

Refer to NOAA Ship *Nancy Foster*'s DAPR for a complete description of system integration and initial calibration results for equipment and sensors used for this survey.

B2.b Sounding Coverage

As per the Project Instructions, this survey was conducted using complete coverage multibeam specifications. Bathymetry coverage was monitored by creating a BASE surface with two-meter resolution, as per HSSD 5.2.2.2, "Complete Multibeam Coverage in depth ranges 20-44 meters." Data density in the two-meter grid generally meet the five soundings per node criteria, except in areas where multibeam data were shadowed by features of significant height from surrounding bathymetry.

B2.c Crosslines

Multibeam echosounder cross-lines totaling 18.21 lineal nautical miles, comprising 5.4 percent of multibeam hydrography, were acquired during the course of the survey. Crosslines were acquired at the beginning of the survey so that an efficient line plan could be developed.

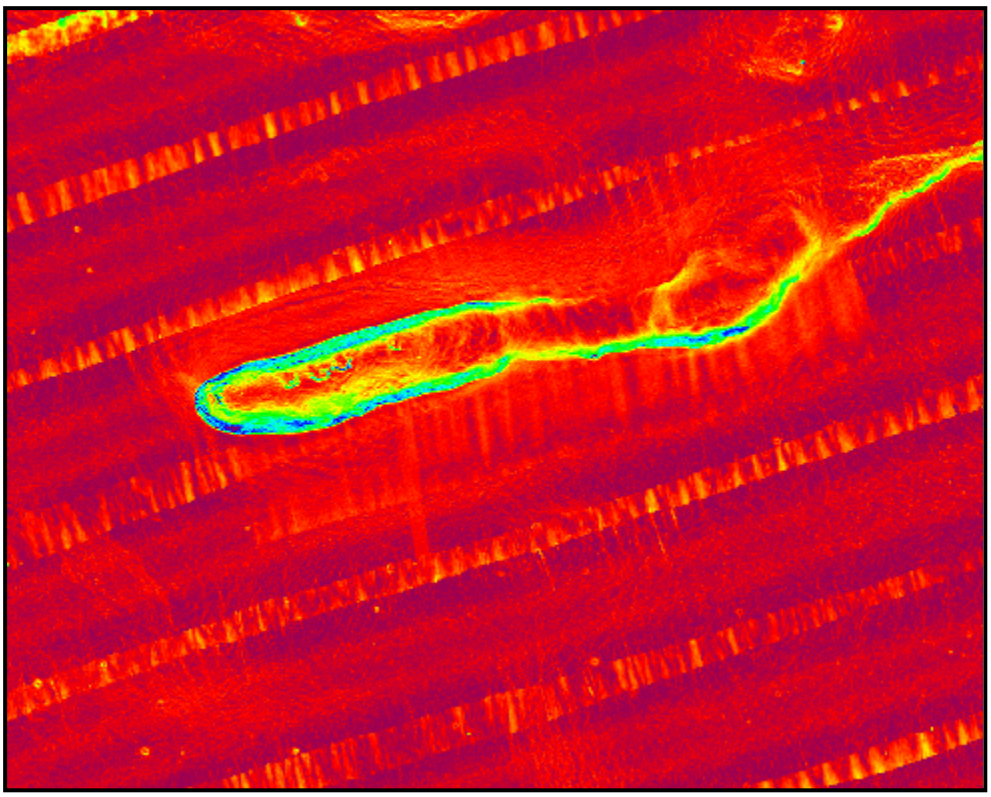
B2.d Junctions and Prior Surveys

No prior surveys or junction comparisons assigned in the project instructions.

B2.e Systematic Errors

No significant artifacts due to systematic errors were observed in the data. Areas of higher standard deviation can be found around significant reef structures. An area of overlapping mainscheme data shows the extent of standard deviations.

Fig. 2. Standard deviation example. Color map: dark red 0.01, blue 0.5 std deviation



B2.f Reson 7125 SV and EM1002 Sounding Comparison

Two sonar systems were used to complete the H12172 survey. The Reson 7125 SV was used to map out to the reef shelf (approx. 60m). The Kongsberg EM1002 was used to map from the reef shelf down to the sheet limits. A feature mapped with the 7125 was used as the patch test site for the EM1002. After the application of sound velocity, tides, draft, true heave and the appropriate vessel files the data was checked for vertical and horizontal agreement along and across track. General agreement vertically and horizontally was observed.

Fig. 3. Across track view EM1002 (yellow), 7125 (green)

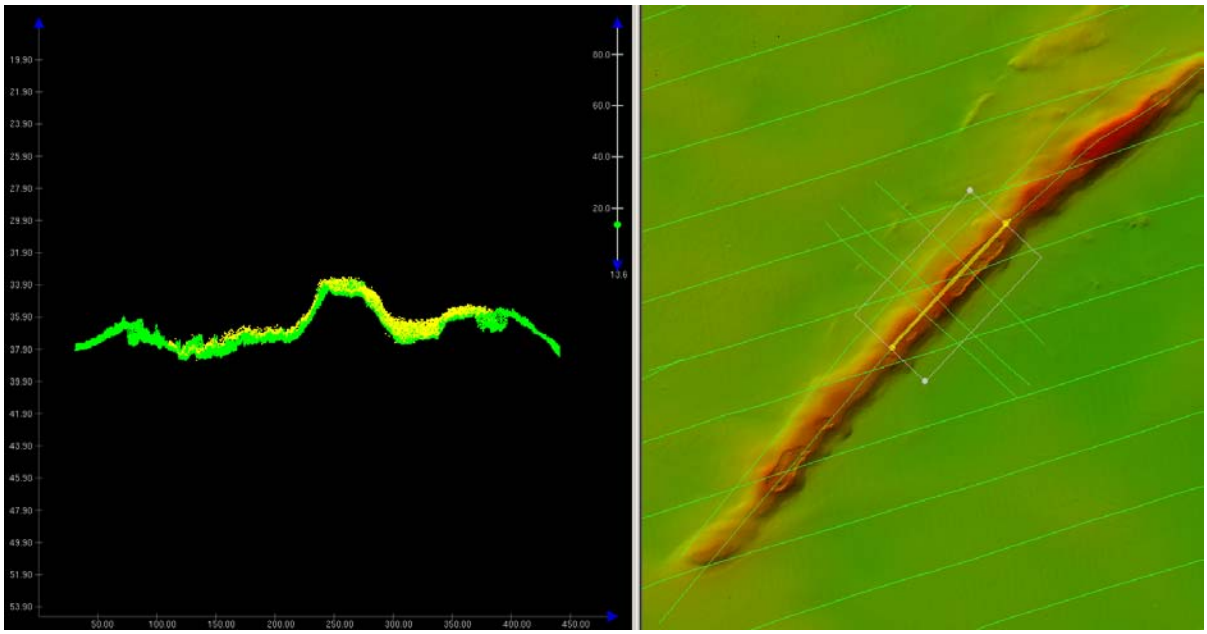
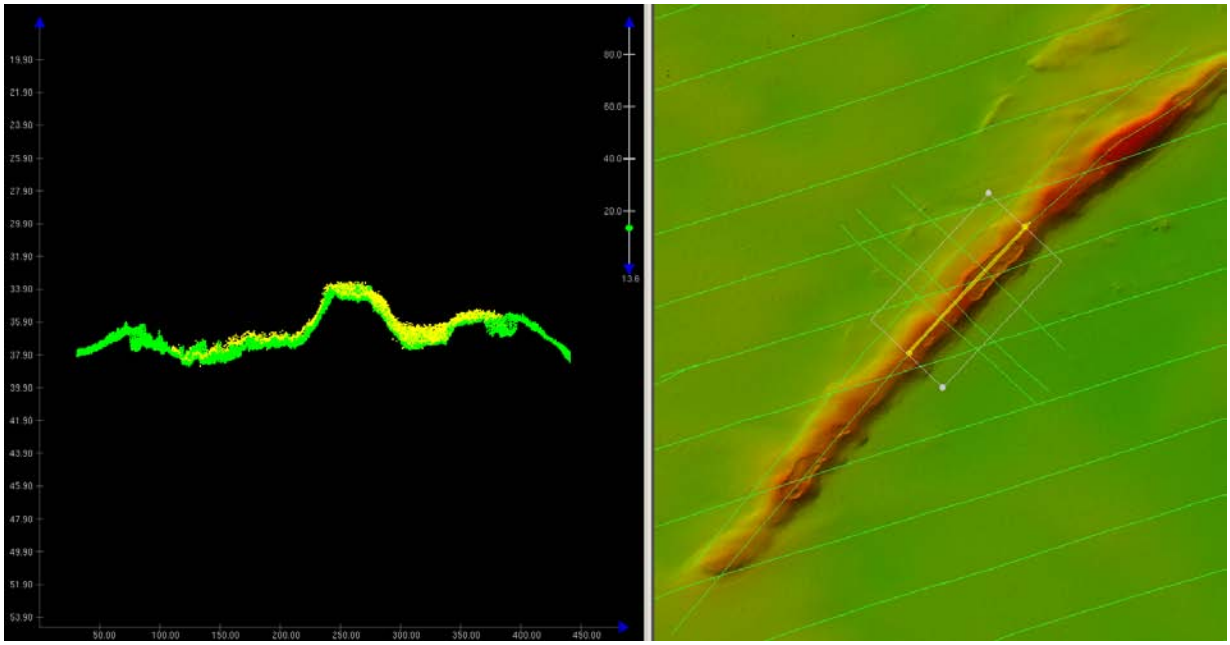


Fig. 4. Along track view EM1002 (yellow), 7125 (green)



B3. CORRECTIONS TO ECHO SOUNDINGS

HDCS sounding data were reduced to mean lower-low water (MLLW 83-01 Tidal Epoch) using final tidal zoning supplied by CO-OPS and verified water levels from the tide gauges located at Lameshur Bay, USVI and Charlotte Amalie, U.S.V.I.

All datum reduction procedures conform to those outlined in the DAPR**.**

All methods and instruments used for sound velocity correction were as described in the DAPR.

Sound velocity corrections for this survey were applied using only data from the ship's SBE 19 *Plus*. Application in CARIS HIPS was nearest in distance within time (six hours) for all data.

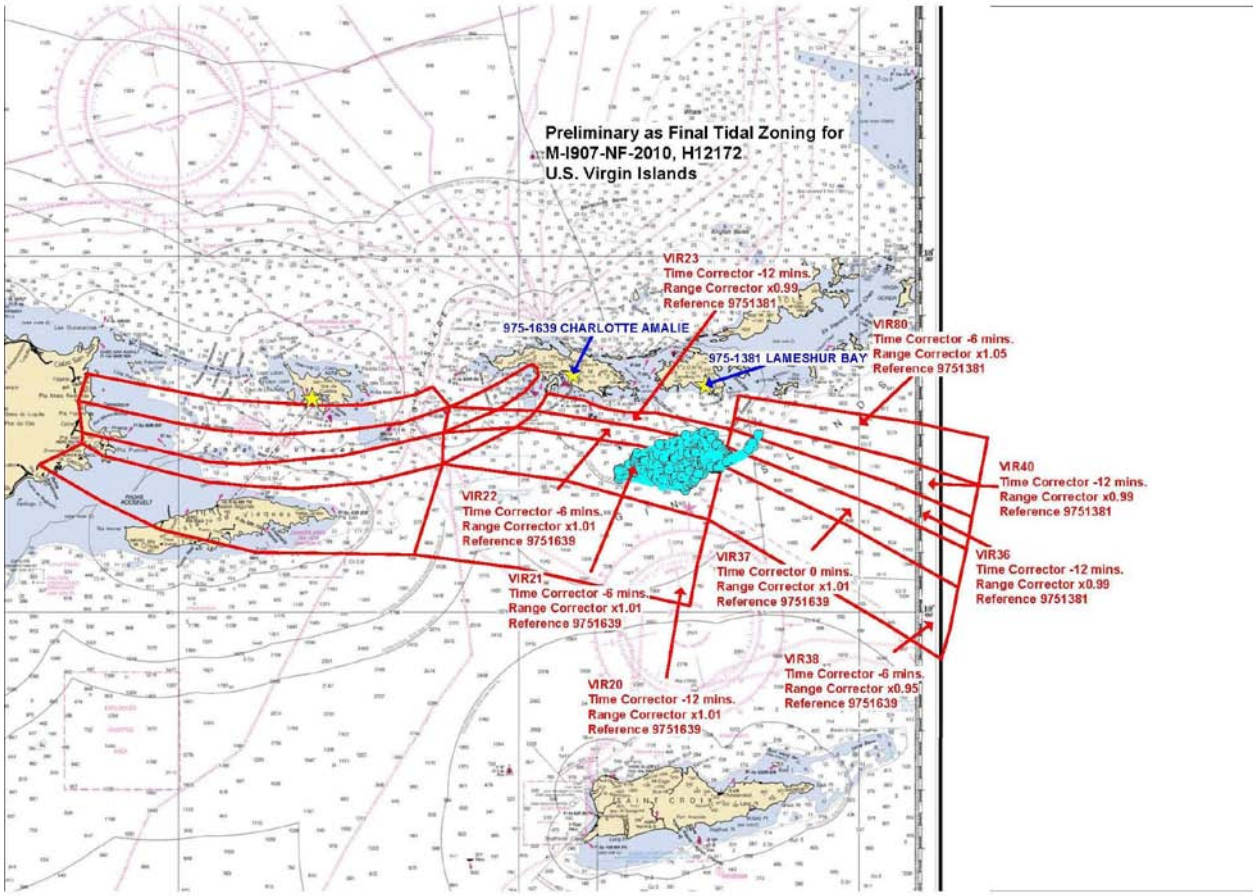


Fig 5. Final Tide Zoning H12172

B4. DATA PROCESSING

B4.a Total Propagated Error

For this project, Total Propagated Error (TPE) parameters for sound speed (HTD 2007-10, Table 4-10) and tides were calculated separately. The estimated tidal error contribution to the total survey error budget in the vicinity of U.S. Virgin Islands was not computed due to a lack of available water level time series data. The project-specific parameters for M-I907-NF-10, Survey H12172 are as follows:

Table 3: TPE Parameters

Project	Vessel	Tide Values		Sound Speed Values	
		Measured	Zoning	Measured	Surface
H12172	NF	N/A	N/A	4.0	0.5

These values were calculated for all MBES data immediately following CARIS Merge.

B4.b BASE Surfaces and Mosaics

Table 4 describes all BASE Surfaces submitted as part of Survey H12172:

Table 4: BASE Surfaces

Field Sheet H12172	*Resolution*	*Type*	*Description*
NOAA_2m	2m	CUBE	Bathy/Coverage
NOAA_4m	4m	CUBE	Bathy/Coverage
NOAA_8m	8m	CUBE	Bathy/Coverage
NOAA_16m	16m	CUBE	Bathy/Coverage
NOAA_2m_Final	2m	CUBE	Bathy/Coverage
NOAA_4m_Final	4m	CUBE	Bathy/Coverage
NOAA_8m_Final	8m	CUBE	Bathy/Coverage
NOAA_16m_Final	16m	CUBE	Bathy/Coverage
NOAA_1m_Final_CCMA	1m	CUBE	Bathy/Coverage/Hab
NOAA_8m_Final_CCMA	8m	CUBE	Bathy/Coverage/Hab
Field Sheet H12172	*Resolution*	*Type*	*Description*
NOAA_2m	2m	CUBE	Bathy/Coverage
NOAA_1m	1m	CUBE	Bathy/Coverage/Hab
NOAA_2m_Final	2m	CUBE	Bathy/Coverage
NOAA_1m_Final_CCMA	1m	CUBE	Bathy/Coverage/Hab
Field Sheet AWOIS	*Resolution*	*Type*	*Description*
0P5	0.5	Swath	Object Detection

This survey was processed using the Combined Uncertainty and Bathymetry Estimator (CUBE) algorithm and parameters contained in the NOAA Cubeparams.xml file as provided with HTD 2009-2. Refer to the 2009 DAPR, 2009 *Field Procedures Manual*, and CARIS HIPS and SIPS *User Guide* for further discussion.

B4.c Data Cleaning

The survey data was cleaned using the swath and subset editor tools in CARIS. All areas of the BASE Surface that indicated a high standard deviation were examined and cleaned as required such that no residual errors exist in the surface that exceed the IHO Order 1 and Order 2 depth accuracy requirements.

C. VERTICAL AND HORIZONTAL CONTROL

As per *FPM* Section 5.2.3.2.3, an HVCR report was not filed, as no horizontal and vertical control stations were established by the field party for this survey. A summary of horizontal and vertical control for this survey follows.

C1.a Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83), Zone 20 North. Differential GPS (DGPS) was the sole method of positioning. Differential corrections from a U.S. Coast Guard beacon located at Isabel, Puerto Rico (295 kHz) were used during this survey.

C1.b Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) station at Culebra, PR (9752235) and Charlotte Amalie (9751639) served as datum control for H12171. A request for delivery of final approved tides for this survey was forwarded to N/OPS1 in accordance with the *FPM* and project letter instructions. Verified tides were applied to all sounding data on September 6, 2010.

D. RESULTS AND RECOMMENDATIONS

D1. CHART COMPARISON

According to the project instructions a comparison between the current H12172 survey and the charted depths is required. The survey area overlays raster chart number 25641 at a scale of 1:1000000 and the electronic ENC Cell US4PR11M, also at a scale of 1:1000000. The current charted depths generally agree with the current survey. Some deviations of up to two fathoms are present in areas that are insignificant to surface navigation. Larger discrepancies are noted though were shoaling is charted and should be superseded with the current survey data.

Charted 23.7m shoaling at 18°11'11.19" N 064°45'04.36" W

Surveyed at 56.15m

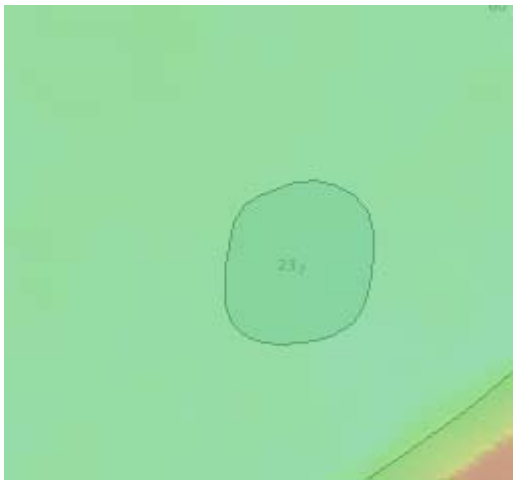


Fig 6. Charted Shoal

Charted 18.2m shoaling at 18°12'46.85" N 064°44'19.34" W

Surveyed at 51.48m

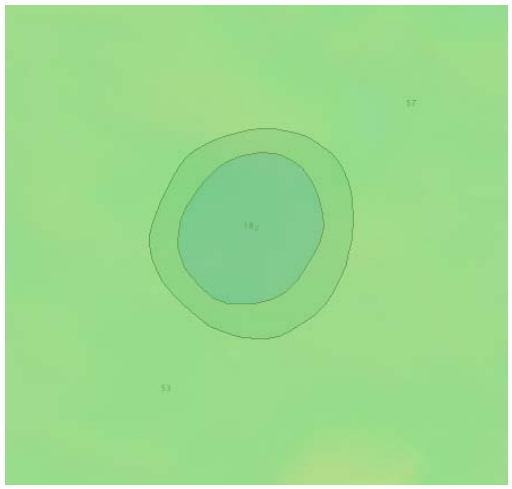


Fig 7. Charted Shoal

D1.a Prior and Junctions

No prior surveys or junction comparisons were assigned in the project instructions.

D2. ADDITIONAL RESULTS

D2.a Automated Wreck and Obstruction Information Service (AWOIS) Items

No AWOIS item investigations were assigned in the project instructions for H12172.

D2.b Shoreline

There is no shoreline within the sheet limits of survey H12172.

D2.c Charted Features

There are no charted features within the sheet limits of survey H12172.

D2.d Charted Pipelines and Cables

Several charted cables transect the survey area. None of these cables are visible in the multibeam data. The Hydrographer has no recommendation on these cables.

D2.e Bridges, Ferry Routes, and Overhead Cables

There are no ferry routes, bridges, or overhead cable crossings within the limits of the survey.

D3. DANGERS TO NAVIGATION AND SHOALS

D3.a Dangers to Navigation

No dangers to navigation were found or reported to the NOAA's Office of Coast Survey.

D3.b Shoals

Shoals are adequately depicted as currently charted, though updating charts with the current survey to better delineate these shoals is recommended.

D4. AIDS TO NAVIGATION

There are no charted Aids to Navigation (ATON) within the limits of H12172.

D5. COAST PILOT INFORMATION

The Hydrographer has no recommendations for changes or addenda to the Coast Pilot.

D6. MISCELLANEOUS BOTTOM SAMPLES

No bottom samples were collected for H12172.

D7. ENVIRONMENTAL CONDITIONS AND NOTES

No environmental conditions or notes are required for H12172.

D8. ADEQUACY OF SURVEY

This survey is considered complete and adequate to supersede charted depths within the common area as per requirements specified in the Project Letter Instructions.

Summary and Recommendations for Additional Work

No additional work is needed to complete this survey. No changes significant to navigation have been noted and it is recommended that this survey receive normal processing priority.

E. APPROVAL

As Lead Hydrographer, I have ensured that standard field surveying and processing procedures were followed in producing this examination in accordance with the Office of Coast Survey Hydrographic Surveys Division's *Field Procedures Manual*, and NOS *Hydrographic Surveys Specifications and Deliverables*. Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to N/CS33, Atlantic Hydrographic Branch.

The Data Acquisition and Processing Report for M-I907-NF-10 is submitted separately and contains additional information relevant to this survey.

Michael Stecher

NOAA Contractor

Lead Hydrographer

CCMA Biogeography Branch

MichaeL Stecher

Digitally signed by MichaeL Stecher
DN: CN = MichaeL Stecher, C = US, O = SHI
Reason: I am approving this document
Date: 2010.11.08 14:58:56 -08'00'

Appendix I

DANGERS TO NAVIGATION

No dangers to navigation were reported for survey H12172.

Appendix II

SURVEY FEATURES REPORT

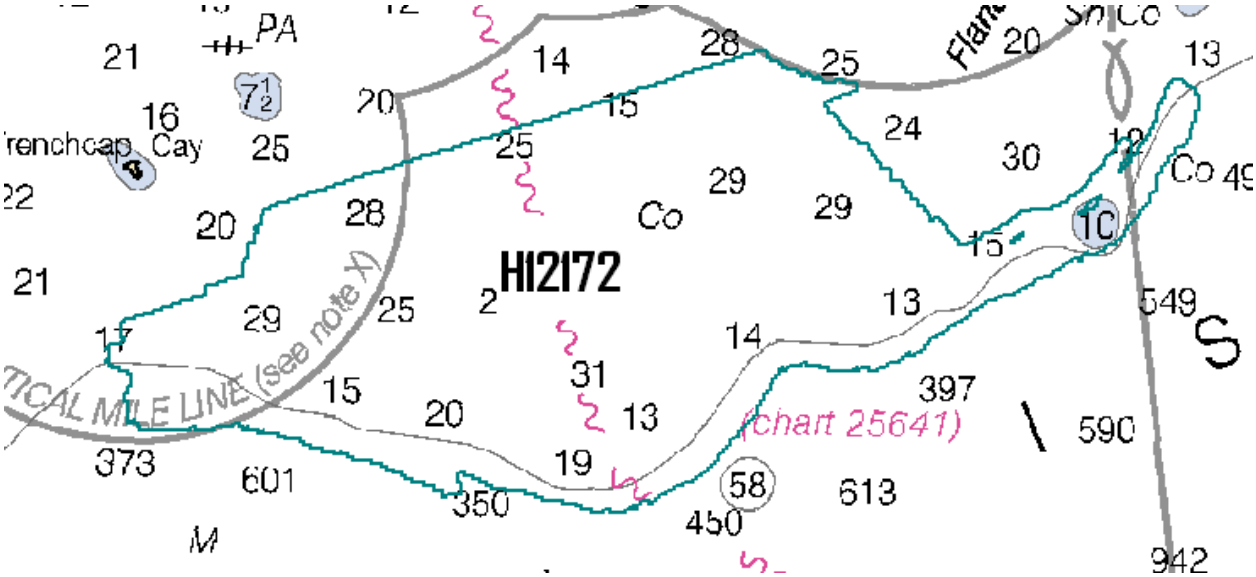
1. AWOIS Items – none

2. Charted Features – none

3. Uncharted Features – none

Appendix III

FINAL PROGRESS SKETCH AND OUTLINE



Appendix IV

TIDES AND WATER LEVELS

1. Tide Notes

2. Request for Approved Tides

3. Final Tide Notes

WATER LEVEL INSTRUCTIONS

M-I907-NF-2010 US Virgin Islands

(01/26/2010 CFL)

1.0. TIDES AND WATER LEVELS

1.1. Specifications

Tidal data acquisition, data processing, tidal datum computation and final tidal zoning shall be performed utilizing sound engineering and oceanographic practices as specified in National Ocean Service (NOS) Hydrographic Surveys Specifications and Deliverables (HSSD), dated April 2008, and OCS Field Procedures Manual (FPM), dated May 2008. Specifically reference Chapter 4 of the HSSD and Sections 1.5.8, 1.5.9, 2.4.3, and 3.4.2 of the FPM.

1.2. Vertical Datums

The tidal datums for this project are referenced to Chart Datum, Mean Lower Low Water (MLLW) and Mean High Water (MHW). Soundings are referenced to MLLW and heights of overhead obstructions (bridges and cables) are referenced to MHW.

The operating National Water Level Observation Network (NWLON) stations at Culebra (975-2235), Charlotte Amalie (975-1639), and Lameshur Bay (975-1381) serve as datum control for the survey area including determination at each subordinate station.

1.2.1 Water Level Data Acquisition Monitoring

The Commanding Officer (or Team Leader) and the Center for Operational Oceanographic Products and Services (CO-OPS) are jointly responsible for ensuring that valid water level data are collected during periods of hydrography. The Commanding Officer (or Team Leader) is required to monitor the pertinent water level data via the CO-OPS Web site at http://tidesandcurrents.noaa.gov/hydro.shtml, email data transmissions through TIDEBOT, or through regular communications with CO-OPS/Engineering Division (ED) personnel before and during operations. During traditional non duty hours, the Commanding Officer/Team Leader may contact the Continuous Operational Real-Time Monitoring System (CORMS) watch stander who is available 24 hours/day - 7 days/week for assistance in assessing the status of applicable water level station operation. The CORMS watch stander may be contacted either by phone at 301-713-2540 or by Email: CORMS@noaa.gov. Problems or concerns regarding the acquisition of valid water level data identified by the Commanding Officer/Team Leader shall be communicated with CO-OPS/ED (Tom Landon, 301-713-2897 ext. 191, Email: nos.coops.oetteam@noaa.gov on) to coordinate the appropriate course of action to be taken such as gauge repair and/or developing contingency plans for hydrographic survey operations. In addition, CO-OPS is required to coordinate with the Commanding Officer (or Team Leader) before interrupting the acquisition of water level data for any reason during periods of hydrography.

1.2.b NWLON Water Level Station Operation and Maintenance

The operating water level stations at Culebra (975-2235), Charlotte Amalie (975-1639), and Lameshur Bay (975-1381) will also provide water level reducers for this project. Therefore it is critical that they remain in operation during the survey. See Sections 1.1. and 1.2. concerning responsibilities.

No leveling is required at Culebra (975-2235), Charlotte Amalie (975-1639), and Lameshur Bay (975-1381) by NOAA Ship Nancy Foster personnel.

CO-OPS/FOD is responsible for the operation and maintenance of all NWLON primary control stations. If a problem is identified at an NWLON primary control station, FOD shall make all reasonable efforts to repair the malfunctioning station. However, CO-OPS may request assistance from the NOAA ship or NRT personnel in the actual repair of the water level station to facilitate a rapid repair. CO-OPS/FOD and the Commanding Officer (or Team Leader) shall maintain the required communications until the repairs to the water level station have been completed.

1.3. Tide Reducer Stations

1.3.1. No subordinate water level stations are required for this project, however, supplemental and/or back-up water level stations may be necessary depending on the complexity of the hydrodynamics and/or the severity of the environmental conditions of the project area. The installation and continuous operation of water level measurement systems (tide gauges) at subordinate station locations is left to the discretion of the Commanding Officer (or Team Leader), subject to the approval of CO-OPS. If the Commanding Officer (or Team Leader) decides to install additional water level stations, then a 30-day minimum of continuous data acquisition is required. For all subordinate stations, data must be collected throughout the entire survey period for which they are applicable, and not less than 30 continuous days. This is necessary to facilitate the computation of an accurate datum reference as per NOS standards.

Tide Component Error Estimation

The estimated tidal error contribution to the total survey error budget in the vicinity of U.S. Virgin Islands cannot be computed due to a lack of available water level time series data.

1.3.2. GOES Satellite Enabled Subordinate Stations

This section is not applicable for this project.

1.3.3. Benchmark Recovery and GPS Requirements

This section is not applicable for this project.

1.3.4. This section is not applicable for this project.

1.4 Discrete Tidal Zoning

1.4.1. The water level stations Culebra (975-2235), Charlotte Amalie (975-1639), and Lameshur Bay (975-1381) are the reference stations for preliminary tides for hydrography in the US Virgin Isalnds. The time and height correctors listed below for applicable zones should be applied to the preliminary data at Culebra (975-2235), Charlotte Amalie (975-1639), and Lameshur Bay (975-1381) during the acquisition and preliminary processing phases of this project. Preliminary data may be retrieved in one month increments over the Internet from the CO-OPS SOAP web services at **http://opendap.co-ops.nos.noaa.gov/axis/text.html.** The Commanding Officer (or Team Leader) must notify CO-OPS/ED personnel immediately of any problems concerning the preliminary tides. Preliminary data are six-minute time series data relative to MLLW in metric units on Greenwich Mean Time. For the time corrections, a negative (-) time correction indicates that the time of tide in that zone is earlier than (before) the preliminary tides at the reference station. A positive (+) time correction indicates that the time of tide in that zone is later than (after) the predicted tides at the reference station. For height corrections, the water level heights **relative to MLLW** at the reference station are multiplied by the range ratio to estimate the water level heights relative to MLLW in the applicable zone.

Zone	Time Corrector (mins)	Range Ratio	Predicted Reference Station
VIR2	-12	x0.96	9752235
VIR3	-12	x0.88	9752235
VIR3A	-6	x1.2	9751639
VIR3B	-12	x1.2	9751639
VIR4	-12	x1.08	9751639
VIR4A	-12	x1.08	9751639
VIR4B	-6	x1.08	9751639
VIR5	-12	x1.01	9751639
VIR20	-12	x1.01	9751639
VIR21	-6	x1.01	9751639
VIR22	-6	x1.01	9751639
VIR23	-12	x0.99	9751381
VIR36	-12	x0.99	9751381
VIR37	0	x1.01	9751639
VIR38	-6	x0.95	9751639
VIR40	-12	x0.99	9751381
VIR80	-6	x1.05	9751381

1.4.2. Polygon nodes and water level corrections referencing Culebra (975-2235), Charlotte Amalie (975-1639), and Lameshur Bay (975-1381) are provided in CARIS® format denoted by a *.zdf extension file name.

NOTE: Tide corrector values referenced to Culebra (975-2235), Charlotte Amalie (975-1639), and Lameshur Bay (975-1381) are provided in the zoning file "I907NF2010CORP" for this project and are in the fourth set of correctors designated as TS4. Longitude and latitude coordinates are in decimal degrees. Negative (-) longitude is a MapInfo® representation of West longitude.

"Preliminary" data for the control water level stations, Culebra (975-2235), Charlotte Amalie (975-1639), and Lameshur Bay (975-1381), are available in near real-time and verified data will be available on a weekly basis for the previous week. These water level data may be obtained

from CO-OPS SOAP web services at http://opendap.co-ops.nos.noaa.gov/axis/text.html.

Please contact the Hydrographic Planning Team at NOS.COOPS.HPT@noaa.gov and the Operational Engineering Team NOS.COOPS.OETTEAM@noaa.gov before survey operations begin and once survey operations are completed so that the appropriate CO-OPS water level stations are added to or removed from the CO-OPS Hydro Hot List (http://tidesandcurrents.noaa.gov/hydro).

1.4.3 Zoning Diagram(s)

Zoning diagrams, created in MapInfo® and Adobe PDF, are provided in digital format to assist with the zoning in section 1.4.1.

1.4.4 Final Zoning

Upon completion of project M-I907-NF-2010, submit a Pydro generated request for smooth tides, with times of hydrography abstract and mid/mif tracklines attached. Forward this request to smooth.tides@noaa.gov. Provide the project number, as well as a sheet number, in the subject line of the email.

CO-OPS will review the times of hydrography, final tracklines, and six-minute water level data from all applicable water level gauges. After review, CO-OPS will send a notice indicating that the tidal zoning scheme sent with the project instructions has been approved for final zoning. If there are any discrepancies, CO-OPS will make the appropriate adjustments and forward a revised tidal zoning scheme to the field group and project manager for final processing.

1.5 TideBot

Preliminary and verified six minute water level time series data may be retrieved from the CO-OPS database via TideBot application. TideBot delivers timely preliminary/verified tidal and Great Lakes six-minute water level observations via email to users on a scheduled, recurring basis. To access TideBot through an email account, send an email to TideBot@noaa.gov with the word “help” as the subject. An email reply will be sent with instructions on how to subscribe to TideBot for time series data retrieval.

1.6 Water Level Records

Submit water level data, such as leveling records, field reports, and any other relevant data/reports, including the data downloaded onto diskette/CD within 1 week after the end of each month or the end of hydrography to CO-OPS/ED. Refer to Section 1.1.

1.6.1 Water level records should be forwarded to the following address:

NOAA/National Ocean Service/CO-OPS
Chief, Engineering Division
N/OPS1 - SSMC4, Station 6531
1305 East-West Highway
Silver Spring, MD 20910

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NOAA Ship NANCY FOSTER (MOA-NF)
439 West York St
Norfolk, VA 23510-1145

August 11, 2010

MEMORANDUM FOR: Chief, Requirements and Development Division, N/OPS1

FROM: Michael Stecher, NOAA Ship NANCY FOSTER (MOA-NF)

SUBJECT: Request for Approved Tides/Water Levels

Please provide the following data:

1. Tide Note
2. Final zoning in MapInfo and .MIX format
3. Six Minute Water Level data (Co-ops web site)

Transmit data to the following:

NOAA/NOS/Atlantic Hydrographic Branch
N/CS33, Building #2
439 West York Street
Norfolk, VA 23510
ATTN: Chief AHB

These data are required for the processing of the following hydrographic survey:

Project No.:	NF-10-03-USVI
Registry No.:	H12172
State:	Virgin Islands
Locality:	
Sublocality:	St Johns Shelf

Attachments containing:

1) an Abstract of Times of Hydrography,
2) digital MID MIF files of the track lines from Pydro

cc: N/CS33

Generated by Pydro v8.7 (r2666) on Wed Aug 11 23:40:50 2010 [UTC]

Request for Approved Tides — Times of Hydrography

Year_DOY	Min Time	Max Time
2010_089	02:10:27	23:57:20
2010_090	00:01:11	23:59:57
2010_091	00:00:03	23:59:58
2010_092	00:00:03	23:59:57
2010_093	00:00:03	15:31:47
2010_094	05:14:33	18:23:13
2010_095	03:59:03	08:12:47

Page 2

UNITED STATES DEPARMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : August 19, 2010

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: M-I907-NF-2010
HYDROGRAPHIC SHEET: H12172

LOCALITY: St. Johns Shelf, Virgin Islands
TIME PERIOD: March 30 - April 5, 2010

TIDE STATION USED: 975-1639 Charlotte Amalie, VI
Lat. 18° 20.2′ N Long. 64° 55.2' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.227 meters

TIDE STATION USED: 975-1381 Lameshur Bay, VI
Lat. 48° 19.1' N Long. 64° 43.5' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.238 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project M-I907-NF-2010, H12172, during the time period between March 30 and April 5, 2010.

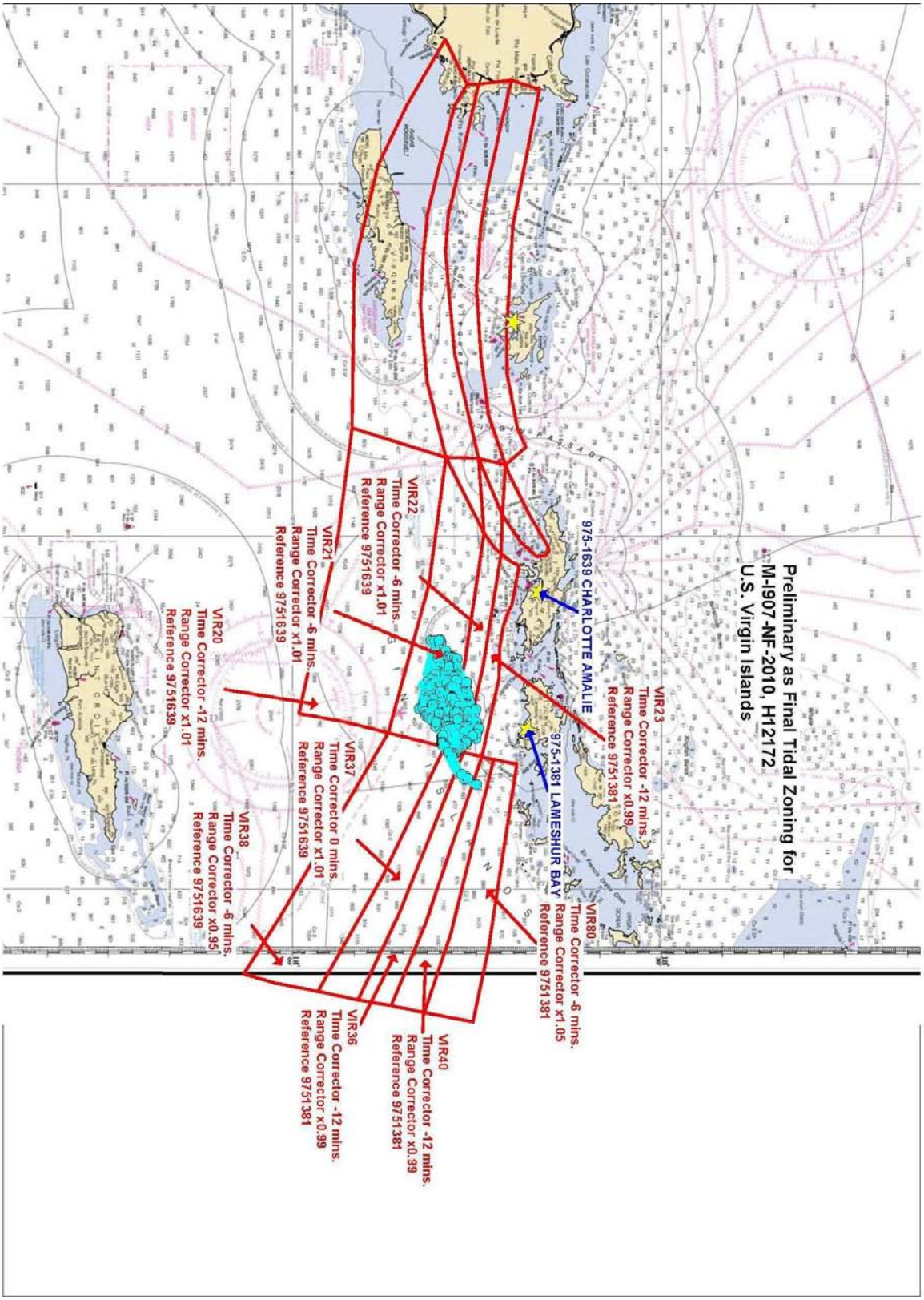
Please use the zoning file "I907NF2010CORP" submitted with the project instructions for M-I907-NF-2010. Zones VIR20, VIR21, VIR22, VIR23, VIR36, VIR37, VIR38, VIR40 and VIR80 are the applicable zones for H12172.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

Peter J. Stone

Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=NOAA/NOS/CO-OPS, ou=Oceanographic Division, email=peter.stone@noaa.gov, c=US
Date: 2010.08.24 11:53:29 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION


Preliminary as Final Tidal Zoning for
M-I907-NF-2010, H12172
U.S. Virgin Islands
975-1639 CHARLOTTE AMALIE
975-1381 LAMESHUR BAY
VIR23
Time Corrector -12 mins.
Range Corrector x0.99
Reference 9751381
VIR80
Time Corrector -6 mins.
Range Corrector x1.05
Reference 9751381
VIR22
Time Corrector -6 mins.
Range Corrector x1.01
Reference 9751639
VIR21
Time Corrector -6 mins.
Range Corrector x1.01
Reference 9751639
VIR37
Time Corrector 0 mins.
Range Corrector x1.01
Reference 9751639
VIR20
Time Corrector -12 mins.
Range Corrector x1.01
Reference 9751639
VIR38
Time Corrector -6 mins.
Range Corrector x0.95
Reference 9751639
VIR36
Time Corrector -12 mins.
Range Corrector x0.99
Reference 9751381
VIR40
Time Corrector -12 mins.
Range Corrector x0.99
Reference 9751381

Appendix V

SUPPLEMENTAL SURVEY RECORDS & CORRESPONDENCE

---------- Forwarded message ----------
From: Casie Carrott <Casie.Carrott@noaa.gov>
To: Matthew.Wilson@noaa.gov
Date: Fri, 26 Mar 2010 06:40:03 -0400
Subject: Re: HSTD #?
Hello Matt,

I attached the document... the table is on the third or so page... let me know if this is what you need.

FYI... we are getting the new windows in so be prepared when you come back!

Casie

Matthew.Wilson@noaa.gov wrote:

Hello all,

I wasn't sure who was in the office on this particular Friday...
could one of you send me the HSD Technical Directive that has the recommended Caris TPE Standard Deviation values? I think it is HSTD 2007-10 on the R: drive.

I think last time I was out on a ship I had to ask somebody to send this same document to me, which begs the question why don't I just take it with me when I go? Next time!!

Thanks,
Matt

HSTP response is below.
If you can do a 16m grid down to the bottom without any data density issues, I'd just do that. Otherwise let me know, and I'll get you "clearance" for the 32m CUBE grid, as explained below.

Matt

-------- Original Message -------- Subject: Re: 32m Cube surface
Date: Thu, 09 Sep 2010 21:26:44 -0700
From: Olivia.Hauser@noaa.gov
To: Ryan Wartick <Ryan.Wartick@noaa.gov>, Glen.Rice@noaa.gov
CC: Caryn Arnold <Caryn.Arnold@noaa.gov>, Matthew Wilson <Matthew.Wilson@noaa.gov>, "Edward.J.Vandenameele" <Edward.J.Vandenameele@noaa.gov>
References: <4C8936E6.7030800@noaa.gov>

Ryan,

If you read the cube parameters section of the FPM (pgs 132 and 133) it discusses the parameters that are changed in the Cube Parameters XML for each resolution. The only change should be the Minimum capture distance. This should be the desired grid resolution divided by the square root of 2. For a 32 meter grid the min capture distance should be 22.6 meters. Graphically, that means the corners of the square that defines the grid just touch the circle describes the capture distance. All you need to do is create another entry in the XML by copying the 16 meter resolution parameters and pasting it at the end. Make the text state it is the 32 meter resolution and change the min capture distance to 22.6 meters. If you want me to look at it when you are done, feel free to email it to me. Let me know if you have questions.

Before you do this, I would make sure that AHB has spoken with HSD about it. As far as I know, they need to run it by HSD before making a grid of that resolution. Not my business, I know, but I thought I should mention it.

R/ Olivia

----- Original Message -----
From: Ryan Wartick <Ryan.Wartick@noaa.gov>
Date: Thursday, September 9, 2010 12:35 pm
Subject: 32m Cube surface
To: Olivia Hauser <Olivia.Hauser@noaa.gov>, Caryn Arnold <Caryn.Arnold@noaa.gov>, Matthew Wilson <Matthew.Wilson@noaa.gov>, "Edward.J.Vandenameele" <Edward.J.Vandenameele@noaa.gov>

Quick question, here at AHB the question came up how do you create a
> 32m cube surface? The noaa parameters only go to 16m. I noticed that the
> only difference between the different resolutions is the Capture
> distance minimum, can we just interpolate at come up with something
> for 32 meter?