H13023

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Service

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H13023

LOCALITY

State(s):	New York
General Locality:	Hudson River
Sub-locality:	Tappan Zee Bridge to Haverstraw

2017

CHIEF OF PARTY
LTJG Dylan Kosten

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H13023**

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(s):	**New York**
General Locality:	**Hudson River**
Sub-Locality:	**Tappan Zee Bridge to Haverstraw**
Scale:	**5000**
Dates of Survey:	**07/13/2017 to 08/09/2017**
Instructions Dated:	**05/31/2017**
Project Number:	**OPR-B396-NRT5BH2-17**
Field Unit:	**Navigation Response Team 5 and Bay Hydro II**
Chief of Party:	**LTJG Dylan Kosten**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	**Multibeam Echo Sounder Backscatter**
Verification by:	**Pacific Hydrographic Branch**
Soundings Acquired in:	**meters at Mean Lower Low Water**

Remarks:

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Any revisions to the Descriptive Report (DR) generated during office processing are shown in bold red italic text. The processing branch maintains the DR as a field unit product, therefore, all information and recommendations within the body of the DR are considered preliminary unless otherwise noted. The final disposition of surveyed features is represented in the OCS nautical chart update products. All pertinent records for this survey, including the DR, are archived at the National Centers for Environmental Information (NCEI) and can be retrieved via http://www.ncei.noaa.gov/.

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Descriptive Report to Accompany Survey H13023

Project: OPR-B396-NRT5BH2-17

Locality: Hudson River

Sublocality: Tappan Zee Bridge to Haverstraw

Scale: 1:5000

July 2017 - August 2017

Navigation Response Team 5 and Bay Hydro II

Chief of Party: LTJG Dylan Kosten

A. Area Surveyed

This survey was conducted at the request of the Hudson River Pilots Association to update nautical charts on the Hudson River. Acquisition for survey H13023 began south of Grassy Point near Haverstraw, NY, and ended near Scarborough, NY.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
41° 12' 57.6" N 73° 57' 39.6" W	41° 8' 13.2" N 73° 52' 37.2" W

Table 1: Survey Limits

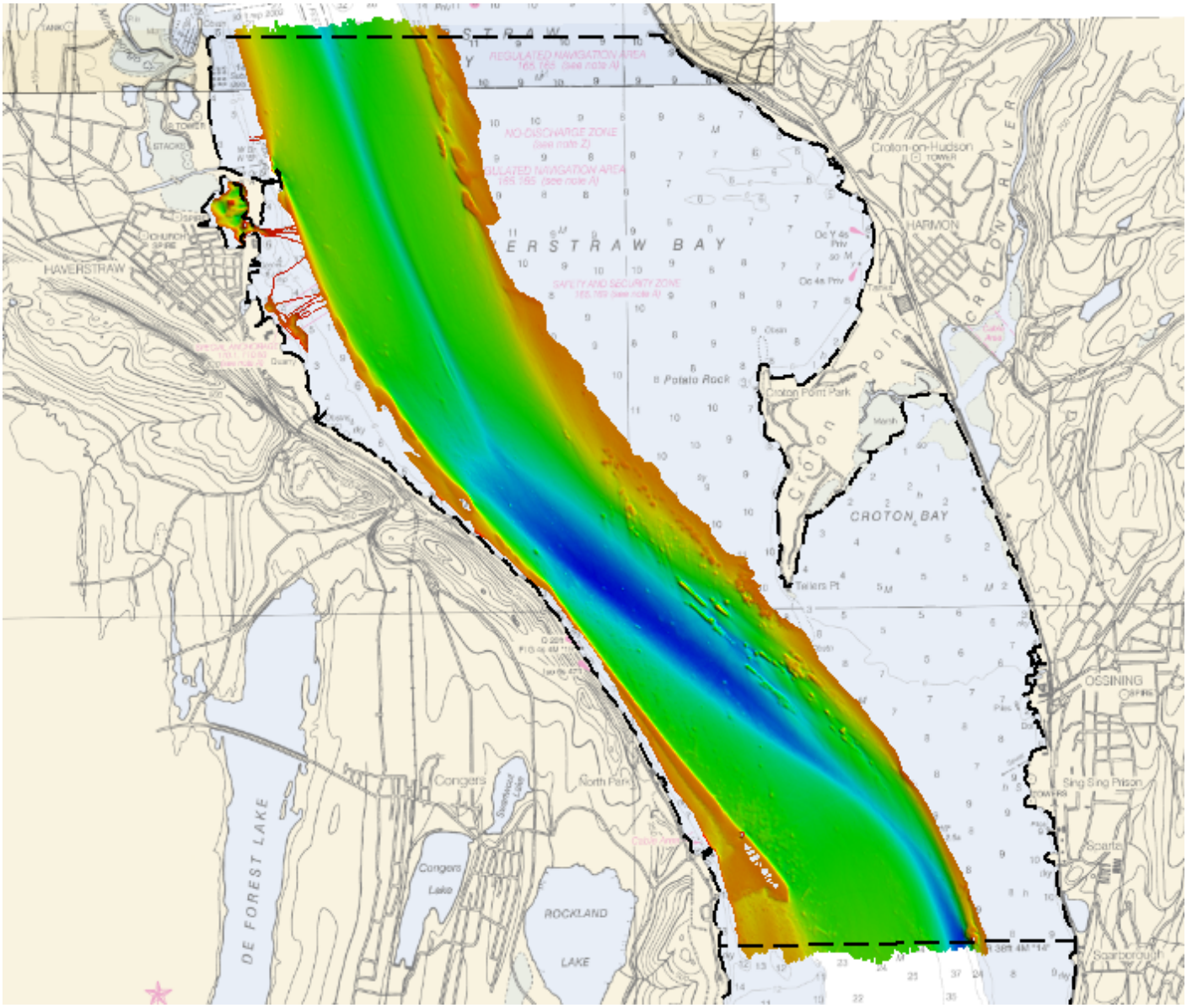

Figure 1: Extent of survey coverage with sheet limits shown in black.

Data were acquired within survey limits in accordance with the requirements in the Project Instructions and the HSSD.

A.2 Survey Purpose

The Hudson River Pilots Association is requesting updated survey data in the Hudson River from the Tappan Zee Bridge up to Albany, NY. Ship traffic to the facilities in Albany and along this section of the Hudson River is steadily increasing and the maximum draft of the vessels calling on the port is getting deeper. Existing chart data outside the federal channels in this area dates from prior to 1939 and in many cases pre-1900 surveys. The federal channel in this area is only 400-ft wide and the size of ships is exceeding

600-ft in length, which necessitates maneuvering outside of the federal channel. The pilots feel more recent survey data is warranted in this area, especially given the heavy storm activity that has occurred in the past several years, and the increased shipping traffic carrying hazardous cargoes, such as crude oil.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

The Finalized CSAR QA tool within Pydro Explorer was used to analyze multibeam echosounder (MBES) data density. The finalized surface met the HSSD data density requirement (Figure 2).

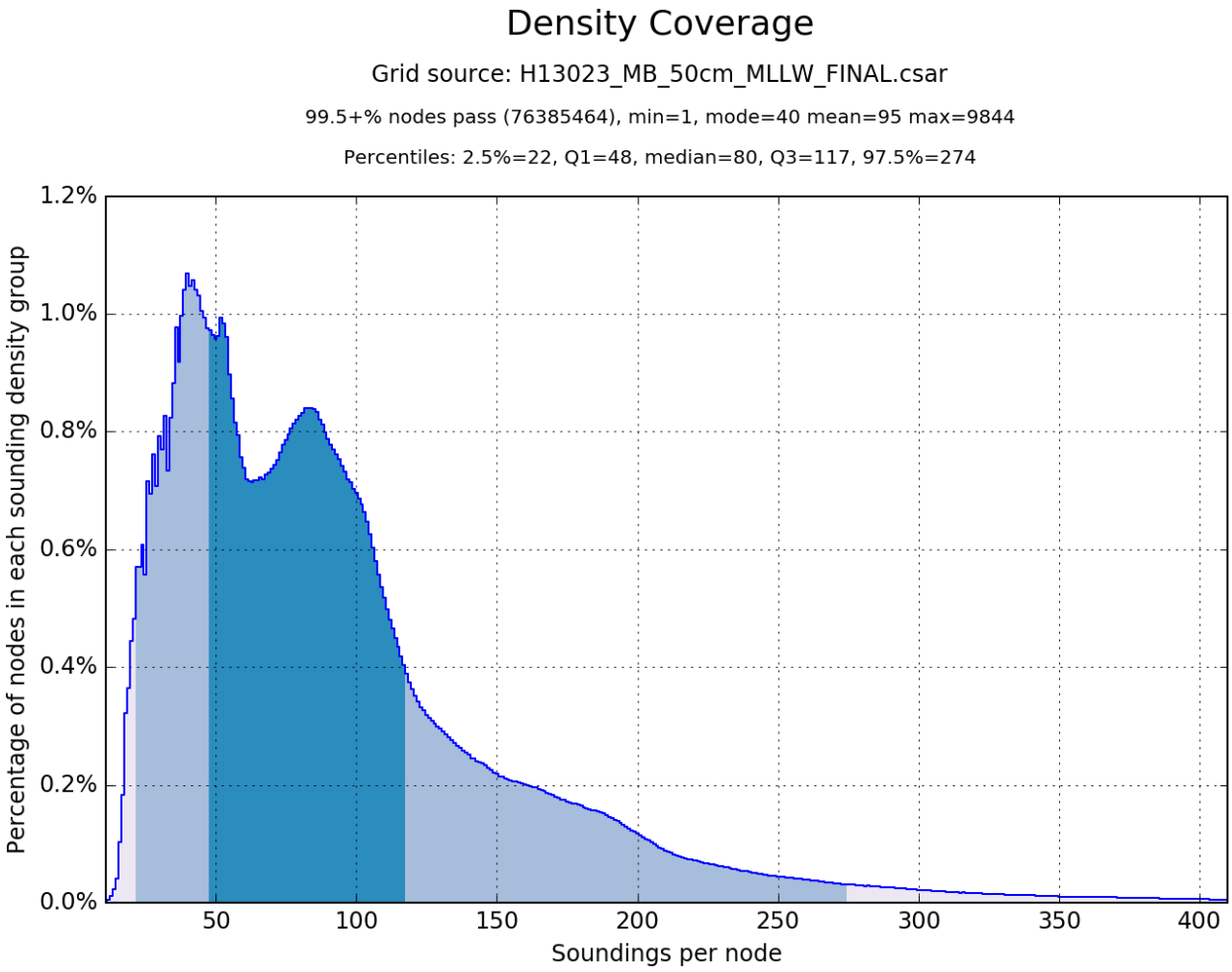

Figure 2: Pydro derived histogram plot showing HSSD object detection compliance of H13023 MBES data within the 50cm finalized CUBE surface.

A.4 Survey Coverage

The following table lists the coverage requirements for this survey as assigned in the project instructions:

Water Depth	Coverage Required
All waters in survey area	Object Detection Coverage (refer to HSSD Section 5.2.2.2)

Table 2: Survey Coverage

Complete multibeam coverage was achieved within the limits of hydrography as defined in the Project Instructions with some exceptions. The following are examples of areas that do not meet the coverage requirement.

Towards the northwest of the sheet there is a facility with piers and dolphins that blocked access to the 12 foot contour (Figure 3). Efforts were made to collect data as close to the facility as possible.

There are multiple small areas that do not reach the 12 foot contour, primarily due to working right next to the shore. For these situations, safety was the concern.

There are some holidays in the sheet. The majority are surrounding ATONs, shoal areas, or between exploratory lines to or from an isolated deep spot (Figures 4 and 5). One holiday located towards the middle of the river does not fall under any of those categories (Figure 6).

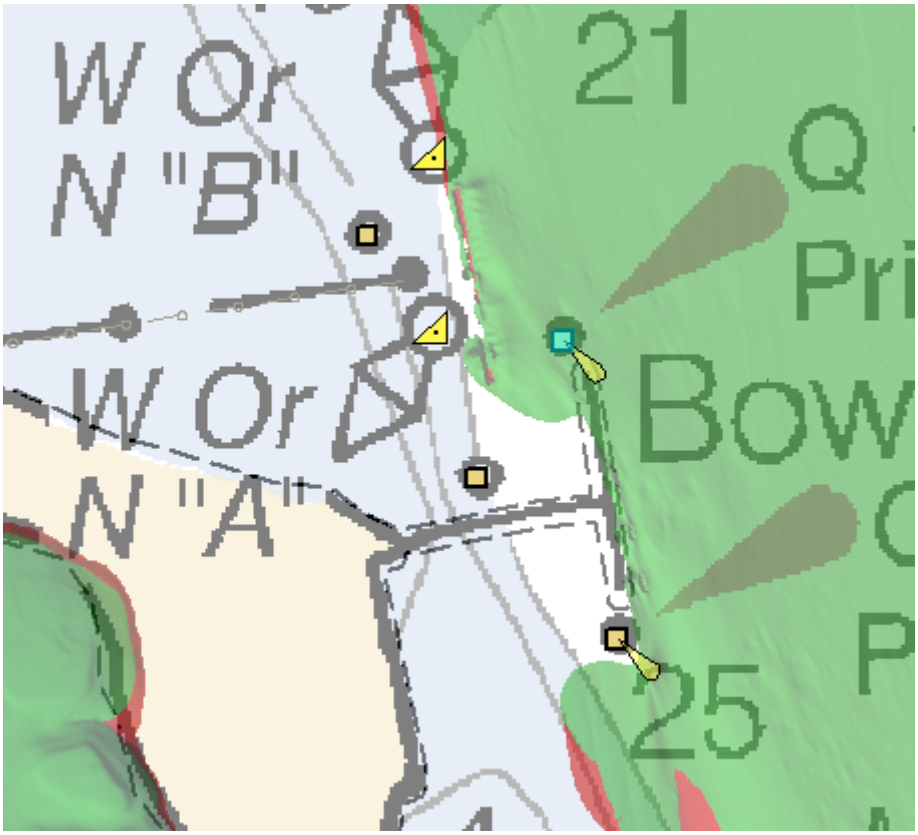

Figure 3: Lack of survey coverage due to facility on the water.

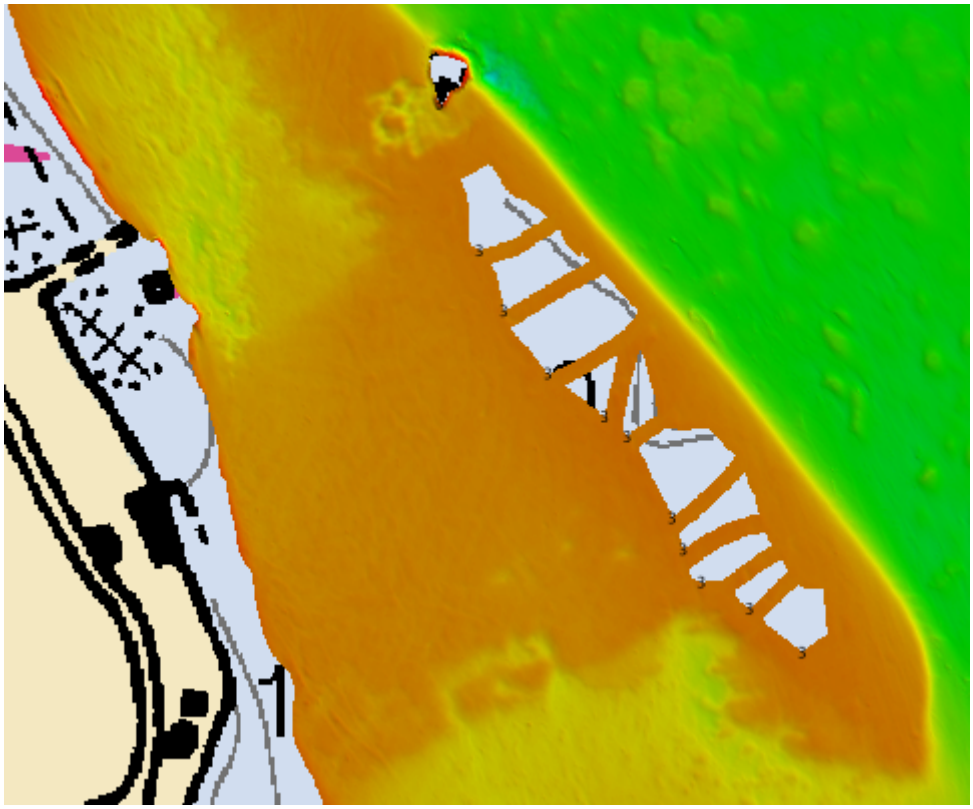

Figure 4: Holidays from a shoal area and an ATON.

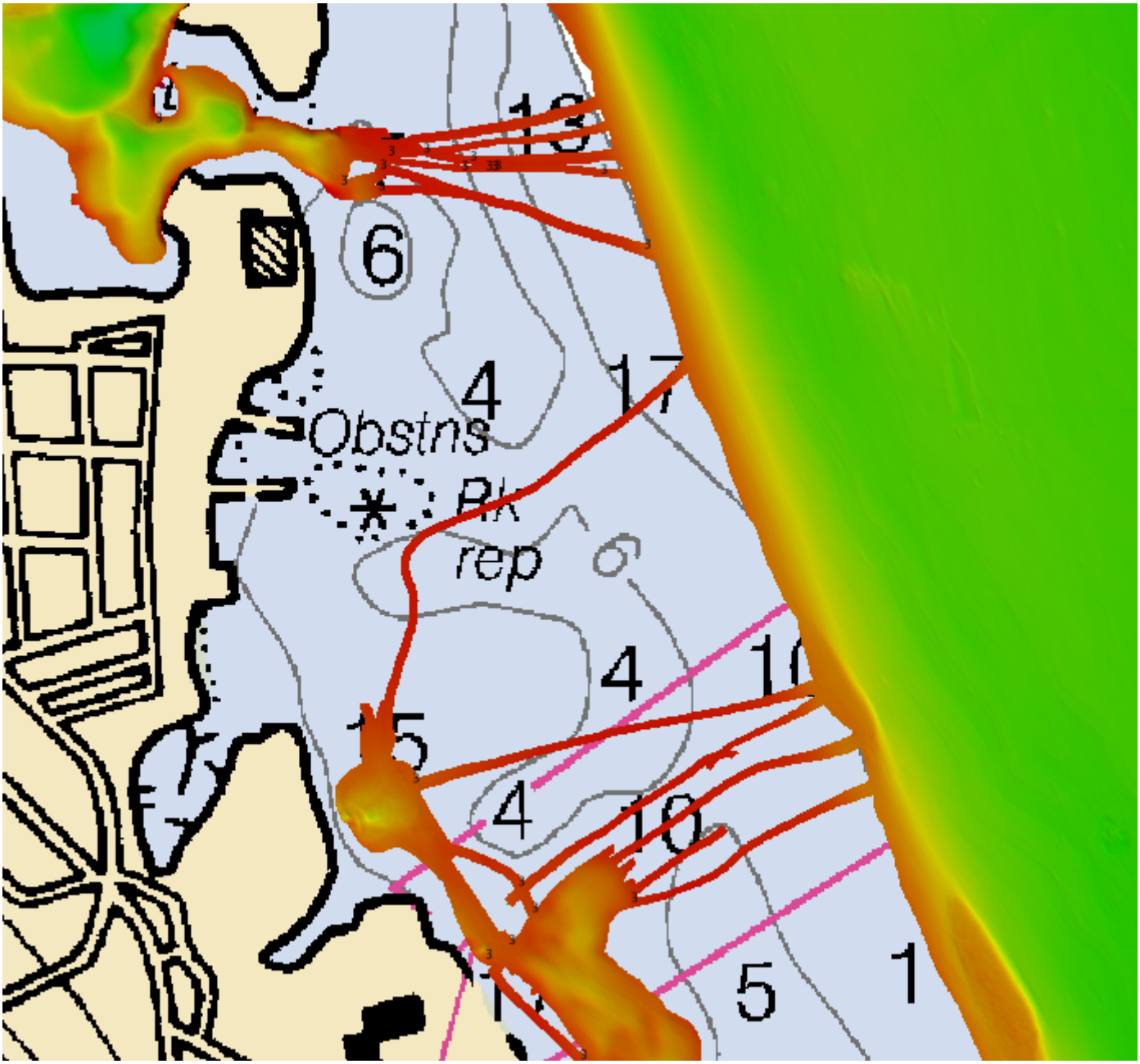

Figure 5: Holidays created from lines exploring transit paths to deeper areas.

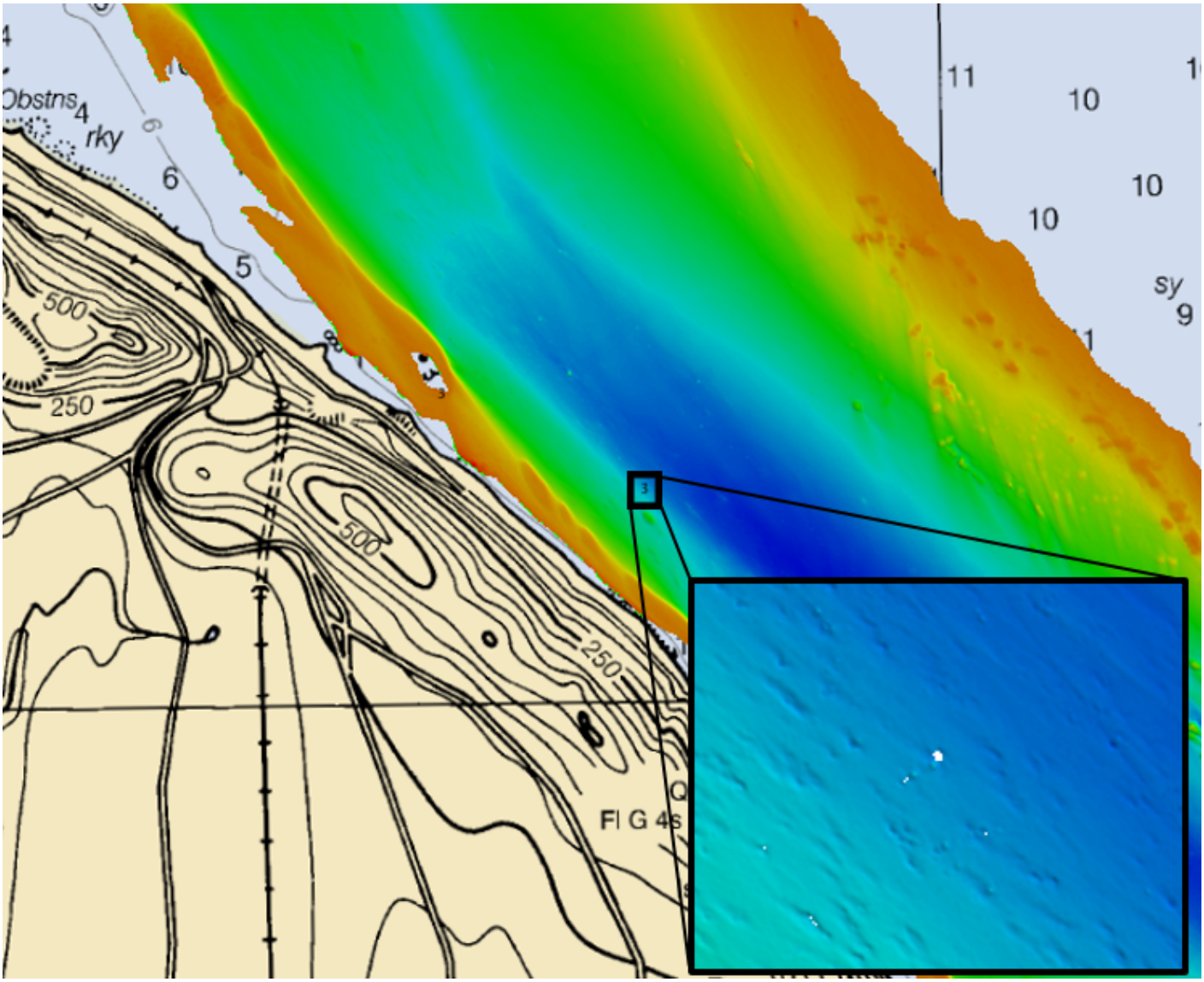

Figure 6: Holiday located in deeper waters.

A.6 Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey:

	HULL ID	*S3002*	*S5401*	*Total*
LNM	**SBES Mainscheme**	0	0	0
	MBES Mainscheme	274.058	309.365	583.423
	Lidar Mainscheme	0	0	0
	SSS Mainscheme	0	0	0
	SBES/SSS Mainscheme	0	0	0
	MBES/SSS Mainscheme	0	0	0
	SBES/MBES Crosslines	24.919	0	24.919
	Lidar Crosslines	0	0	0
Number of Bottom Samples				9
Number Maritime Boundary Points Investigated				0
Number of DPs				0
Number of Items Investigated by Dive Ops				0
Total SNM				5.57

Table 3: Hydrographic Survey Statistics

The following table lists the specific dates of data acquisition for this survey:

Survey Dates	Day of the Year
07/13/2017	194
07/14/2017	195

Survey Dates	Day of the Year
07/17/2017	198
07/18/2017	199
07/19/2017	200
07/25/2017	206
07/26/2017	207
07/27/2017	208
07/28/2017	209
07/31/2017	212
08/01/2017	213
08/02/2017	214
08/03/2017	215
08/07/2017	219
08/08/2017	220
08/09/2017	221

Table 4: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the 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, and any deviations from the DAPR are discussed in the following sections.

B.1.1 Vessels

The following vessels were used for data acquisition during this survey:

Hull ID	*S3002*	*S5401*
LOA	33 feet	57 feet
Draft	2.5 feet	6 feet

Table 5: Vessels Used

All data for survey H13023 was acquired by S3002 and S5401. The vessels acquired multibeam depth soundings, backscatter data, sound speed profiles, and bottom samples.

B.1.2 Equipment

The following major systems were used for data acquisition during this survey:

Manufacturer	Model	Type
Applanix	POS M/V V5	Positioning and Attitude System
AML	Micro X	Sound Speed System
Kongsberg	EM3002	MBES
SonTek	Castaway-CTD	Conductivity, Temperature, and Depth Sensor
Trimble	SPS361	Positioning System
Valeport	miniSVS	Sound Speed System
Kongsberg	EM 2040	MBES

Table 6: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Multibeam/single beam echo sounder/side scan sonar crosslines acquired for this survey totaled 4.27% of mainscheme acquisition.

Multibeam crosslines were acquired by S3002. A 50cm CUBE surface was created using only mainscheme lines, and a second 50cm CUBE surface was created using only crosslines. A difference surface was generated from these two surfaces in CARIS HIPS and SIPS, and then statistics computed using the Diff sublayer (Figure 7). The mean was 0.12m and the standard deviation was 0.08m. The areas of highest difference were typically between the crosslines, which were acquired solely by S3002, and mainscheme data acquired by S5401 (Figure 8).

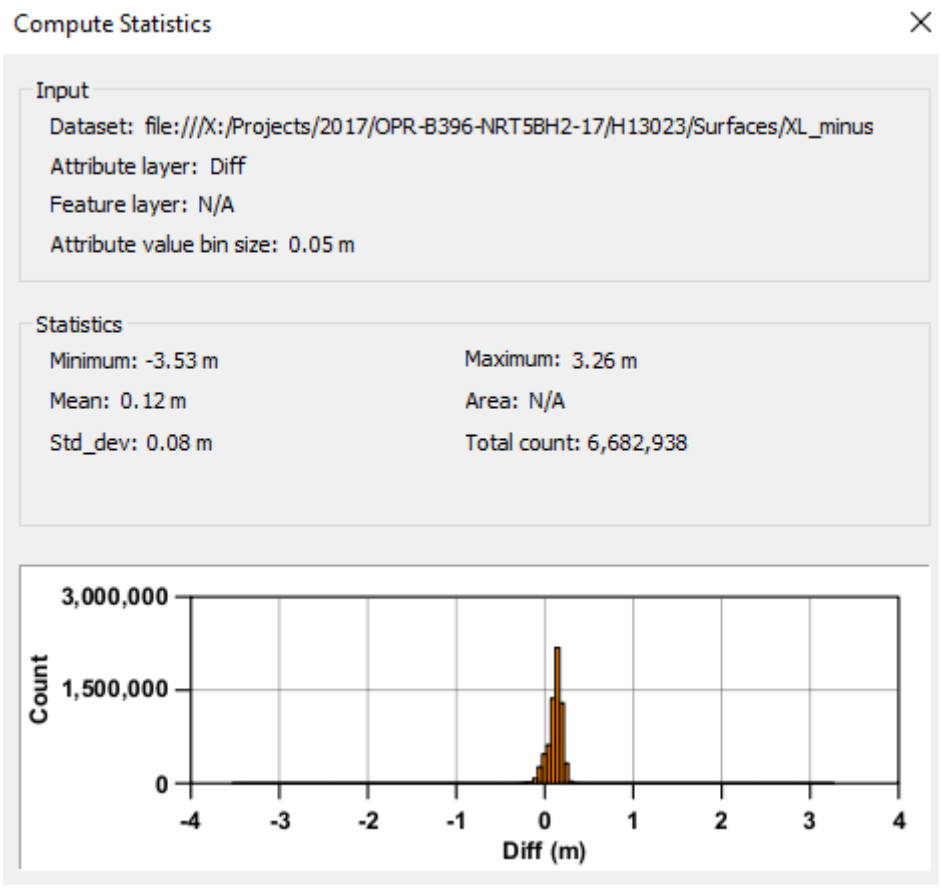

Figure 7: Statistics from the difference between the crosslines and mainscheme lines.

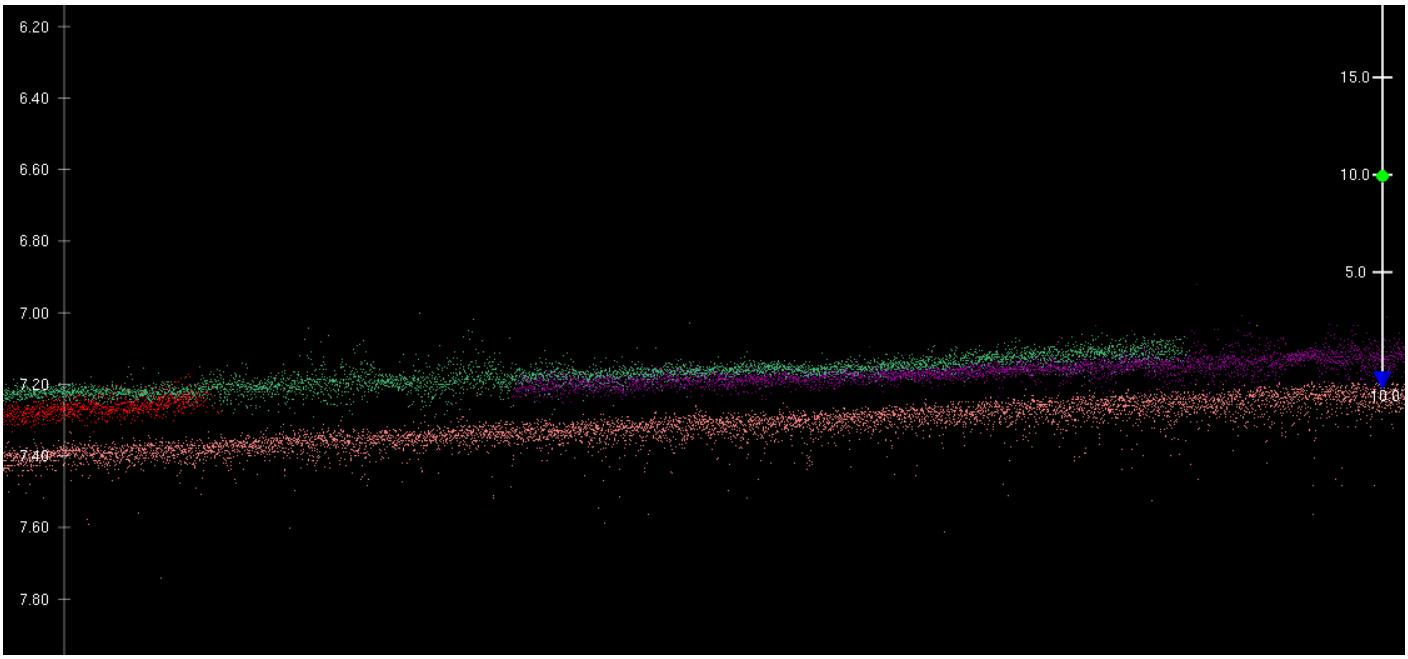

Figure 8: Subset showing roughly 0.2m offset between NRT5 crossline and BHII mainscheme line.

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Method	Measured	Zoning
ERS via VDATUM	0 meters	0.094 meters

Table 7: Survey Specific Tide TPU Values.

Hull ID	Measured - CTD	Measured - MVP	Surface
S3002	2 meters/second	0 meters/second	0.5 meters/second
S5401	2 meters/second	0 meters/second	0.5 meters/second

Table 8: Survey Specific Sound Speed TPU Values.

The uncertainty statistics (Figure 9) were calculated using Pydro Explorer's Finalized CSAR QA tool.

Total Propagated Uncertainty (TPU) values for H13023 were derived from a combination of fixed values for equipment and vessel characteristics, as well as field assigned values for sound speed uncertainties. The uncertainty for the VDatum model was provided to the field units. A visual inspection of the Uncertainty layer revealed the areas of higher uncertainty occur in the outer beams, and a visual inspection of the Density layer revealed the areas of lowest density are on the outside border of the survey coverage.

In addition to the usual a priori estimates of uncertainty, some real time and post processed uncertainty sources were also incorporated into the depth estimates of the survey. Real-time uncertainties from the Kongsberg MBES sonars were incorporated and applied during post processing. Uncertainties associated with vessel roll, pitch, gyro, and navigation were applied real-time, because H13023 used a real-time kinematic (RTK) positioning service. The recorded delayed heave Applanix files included an estimate of the heave uncertainty and were applied during post-processing. All of the aforementioned uncertainties were applied in CARIS. As stated, H13023 is an ellipsoidally referenced survey (ERS) and the tidal component was accomplished with a separation model. Additional information about RTK and the separation model is located in section C.1 and C.2 of this document.

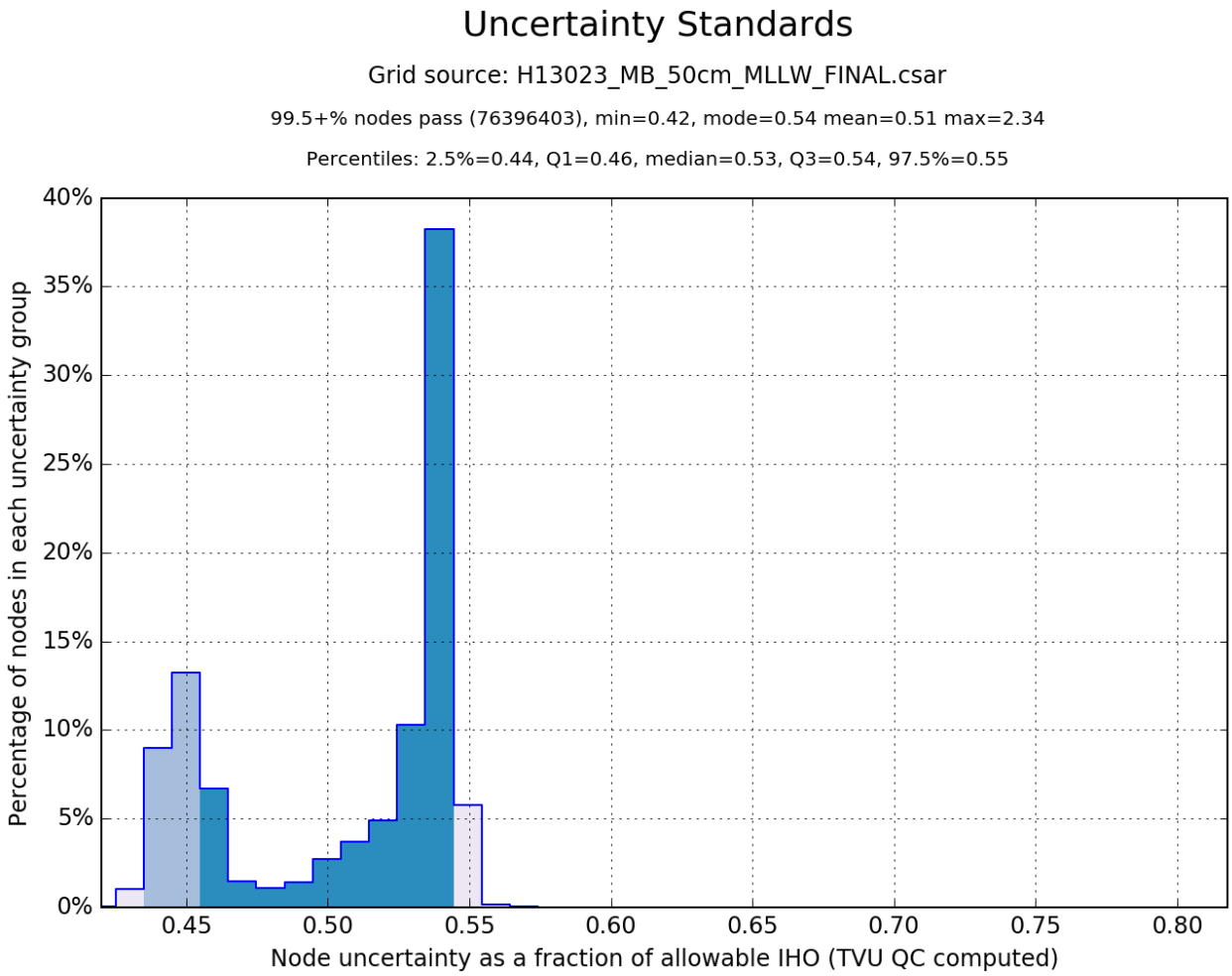

Figure 9: Pydro derived histogram plot showing HSSD uncertainty standards compliance of H13023 0.5m finalized surface.

B.2.3 Junctions

There are two surveys that junction with H13023, both acquired in the same season as part of the same project. To the north, H13022 was processed by Bay Hydrographer II and consisted of data from S5401 and S3002. To the south, H13092 was processed by NRT5 and consisted of data from S5401, S3002, and S3007.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H13022	1:5000	2017	NOAA R/V BAY HYDRO II	N
H13092	1:5000	2017	Navigation Response Team 5	S

Table 9: Junctioning Surveys

H13022

Overlap between H13022 and H13023 was approximately 200 meters. In CARIS HIPS a difference surface was made using 50cm surfaces and statistics computed (Figure 10). The mean difference was 0.077, with a standard deviation of 0.059. An area of greater disagreement was present on the east side of the river (Figure 11)

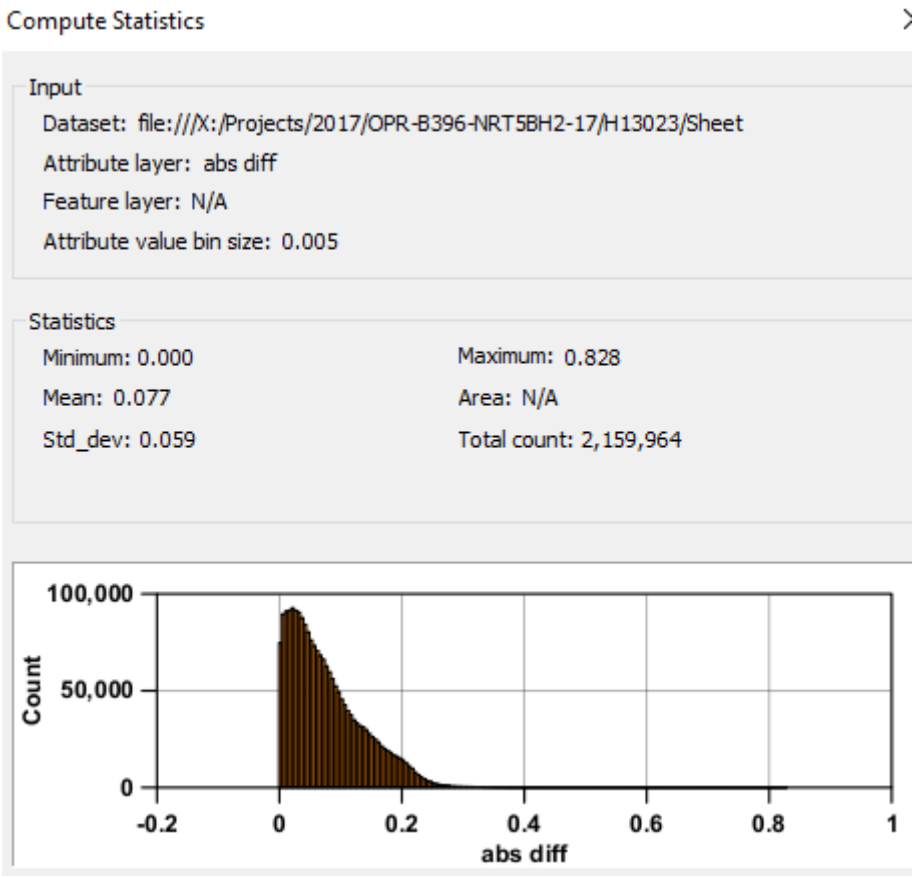

Figure 10: Absolute difference statistics between H13023 and H13022.

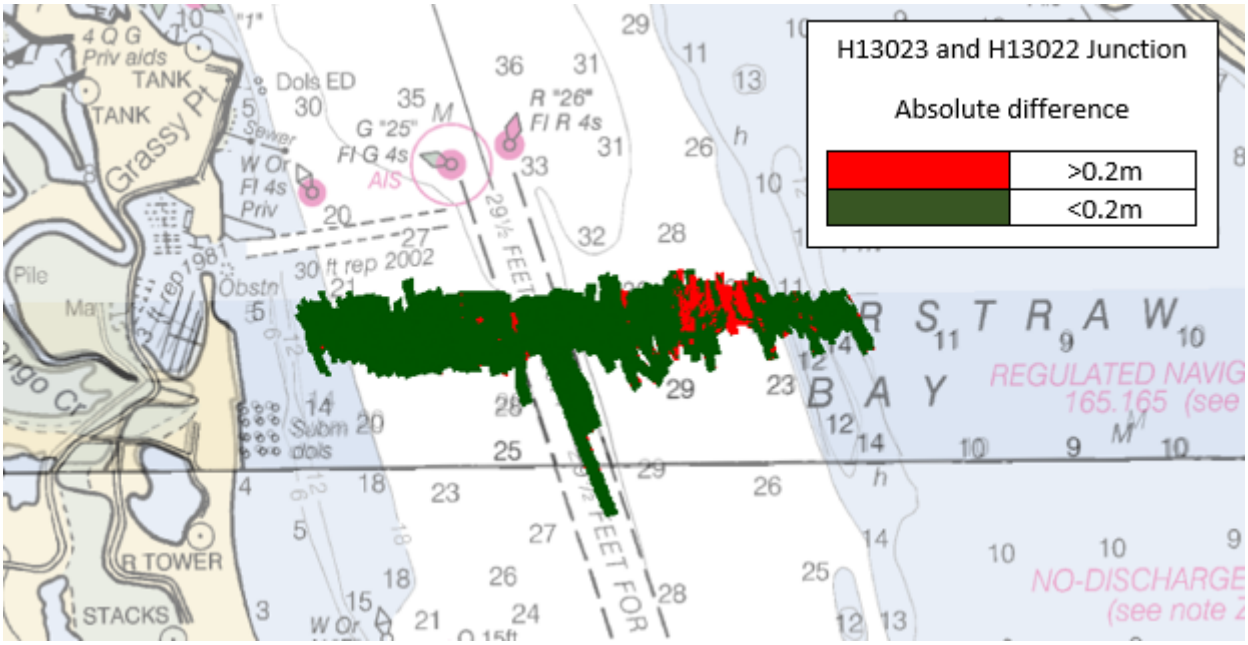

Figure 11: A region of greater vertical difference between H13023 and H13022 occurs toward the eastern side of the river.

H13092

Junction analysis between H13023 and H13092 is located in the DR of H13092.

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in the quality control section of the DAPR.

B.2.5 Equipment Effectiveness

Cellular network dropouts

The use of the New York State Spatial Reference Network (for RTK corrections) required a stable internet connection, which the field units (BHII and NRT5) connected to using a Sierra Wireless cellular Internet Wi-Fi modem. Both teams had RTK dropouts when internet connection failed. If the dropout was noticed quickly, the teams would reacquire the data once RTK corrections were once again being fed to the POS MV5. In the cases where data could not be reacquired, SBETs were created. Vertical offsets could be partly reduced once SBETs were applied and meet HSSD specifications.

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: SVP casts were taken at least once every four hours in the deepest water nearest to the survey area being worked on. The SVP casts were applied to the MBES lines in CARIS using the "nearest in distance within time of 4 hours" method.

B.2.8 Coverage Equipment and Methods

All equipment and survey methods were used as detailed in the DAPR.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All data reduction procedures conform to those detailed in the DAPR.

B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Raw Backscatter was logged in the .all file and will be sent to the Processing Branch. Backscatter was processed by the field unit for the purpose of bottom sample classification (Figure 12).

Figure 12: Coverage of backscatter mosaics.

B.5 Data Processing

B.5.1 Primary Data Processing Software

The following software program was the primary program used for bathymetric data processing:

Manufacturer	Name	Version
CARIS	HIPS/SIPS	10.3.3

Table 10: Primary bathymetric data processing software

The following Feature Object Catalog was used: NOAA Profile V_5_6.

B.5.2 Surfaces

The following surfaces and/or BAGs were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H13023_MB_50cm_MLLW	CARIS Raster Surface (CUBE)	0.5 meters	0.02 meters - 15.93 meters	NOAA_0.5m	Object Detection
H13023_MB_50cm_MLLW_FINAL	CARIS Raster Surface (CUBE)	0.5 meters	0 meters - 15.9 meters	NOAA_0.5m	Object Detection

Table 11: Submitted Surfaces

The survey was carried out to meet the Object Detection MBES Coverage requirements as defined by section 5.2.2.2 of the Hydrographic Surveys Specifications and Deliverables (2017 ed).

QC Tools in PydroExplorer was used to analyze the surfaces for fliers. There were 19 fliers, and upon review were found to be located on a man-made pipe feature and piles from a pier. The pipe is well defined by other soundings and the pier is charted, so no fliers were found to be of concern.

C. Vertical and Horizontal Control

Field installed tide or GPS stations were not utilized for this survey, so no HVCR report is included.

C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

ERS Methods Used:

ERS via VDATUM

Ellipsoid to Chart Datum Separation File:

OPR-B396-NRB-17_xyNAD83-MLLW_geoid12b.csar

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD83).

The projection used for this project is Universal Transverse Mercator (UTM) Zone 18 North.

The following PPK methods were used for horizontal control:

Smart Base

Real Time Kinematic (RTK) corrections were used using CORS stations maintained by the New York Department of Transportation (NYDOT) as part of the New York State Spatial Reference Network (NYSNet). Horizontal network datum for NYSNet correctors is NAD83 (CORS96). Additional information regarding the NYSnet system can be found at http://cors.dot.ny.gov/spiderweb/frmIndex.aspx.

To receive the corrections, a stable internet connection using NTRIP (Network Transport of RTCM data over IP) software was used on a laptop. A serial connection was then connected to the POS MV5 to transmit the corrections. The program could be visually monitored on the laptop to watch for connection dropouts, and if that happened the survey line could either be re-run or have an SBET applied during post processing.

Two CORS stations were used, which were NEWBURGH (NYNB) and VALHALLA (NYVH).

C.3 Additional Horizontal or Vertical Control Issues

C.3.1 Lack of VDatum Coverage in Bay

A bay on the west side of the Hudson River lacked sufficient coverage from the VDatum model OPR-B396-NRB-17_xyNAD83-MLLW_geoid12b (Figure 13). The lines in the bay could not use the provided model when computing GPS tides. The project manager and NRB approved of applying a static value of to those lines using the nearest value provided by the model (-32m). See the Hudson River VDatum Coverage Fix email discussion in the Supplemental Correspondence for futher information. Once applied, a visual inspection of the data confirmed the fix resulted in a better solution.

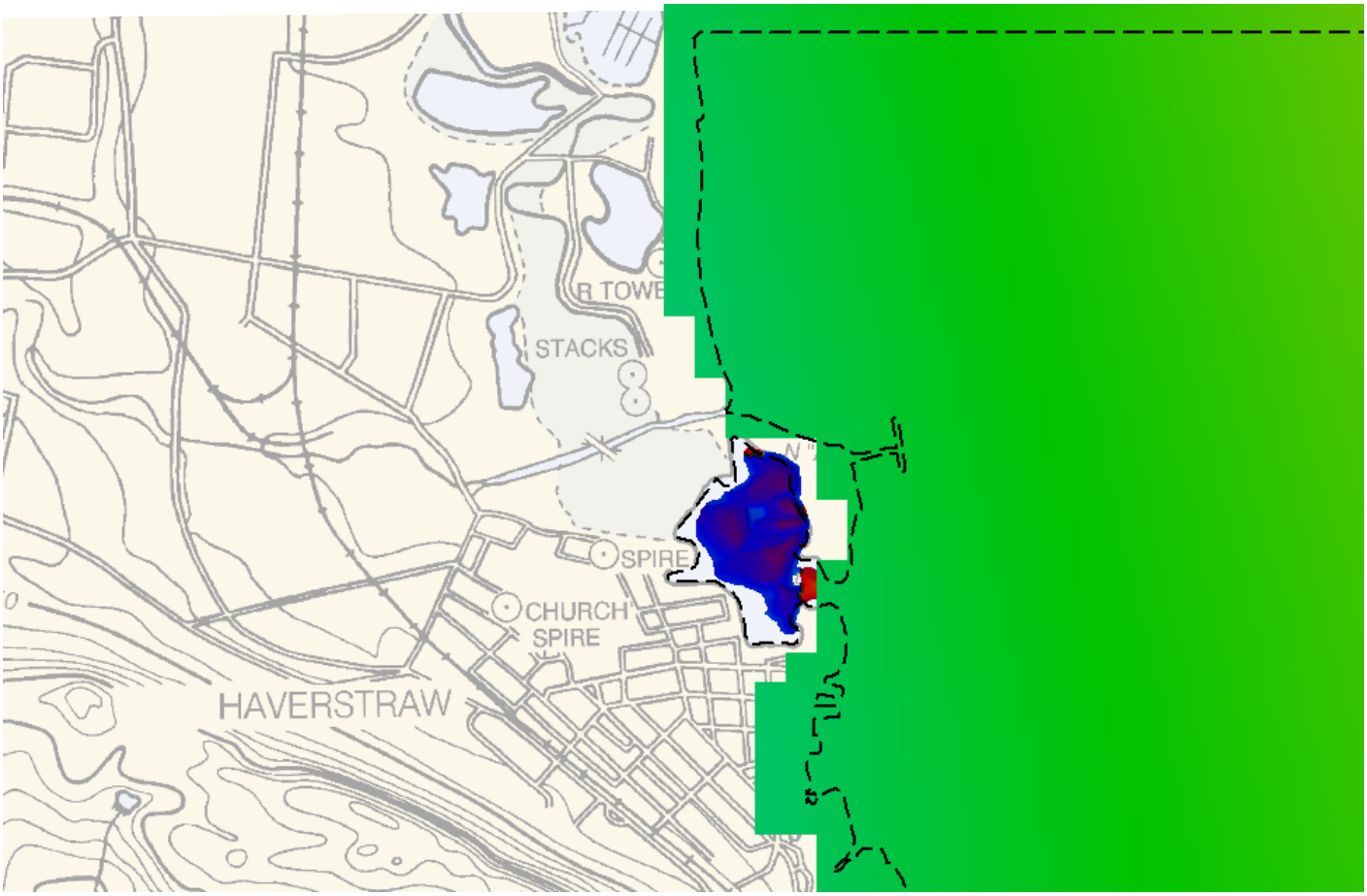

Figure 13: A small bay on the western side of the Hudson River lacked coverage by the VDatum model provided.

C.3.2 RTK Signal Dropouts

During survey operations internet connection sometimes cut out, resulting in the loss of CORS corrections being fed to the POS MV5. Once noticed, the field unit would stop logging, regain internet connection and CORS feeding corrections to the POS MV5, and start surveying where connection was first lost. On days that had connection issues, SBETs were created and applied to the data. The application of SBETs

resolved much of the vertical drift between RTK and PPK applied lines, but not completely. These areas were examined for hazards and contacts and none were found.

C.3.3 Vertical offset between NRT5 DN200 and other days

There is a 0.2m offset between lines acquired on DN200 by NRT5 and adjacent lines from DN198 and 195 from BHII, and DN206, 207, and 221 from NRT5. Several tests were done, including applying a SBET and applying TCARI tides. The application of these other methods either made the data appear worse or had no significant effect. The lines used in testing had GPS Tides recomputed, some have SBETs still applied, and the offset remains.

D. Results and Recommendations

D.1 Chart Comparison

The chart comparison was made using a CARIS sounding and contour layer derived from a 50cm CUBE surface. The contours and soundings were overlaid on the chart and compared for general agreement and to identify areas of significant change.

D.1.1 Electronic Navigational Charts

The following are the largest scale ENCs, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5NY40M	1:40000	14	12/06/2016	03/08/2017	NO

Table 12: Largest Scale ENCs

US5NY40M

H13023 and ENC US5NY40M show general agreement between soundings and contours in most areas. The largest differences are near the shore on the northwest side of the sheet, where some H13023 soundings are shoaler than charted by around 7-10 feet and the 12ft and 6ft contours are further offshore. One bay had no

charted soundings (see Figure 14), and has charted soundings outside its entrance of 16ft and 13ft, about 7 feet different than H13023 soundings. A ferry terminal (see Figure 15) has multiple charted soundings that differ by 6 to 10 feet from H13023 soundings, and another sounding further north (Figure 16) differs by 7 feet between the two sets of data.

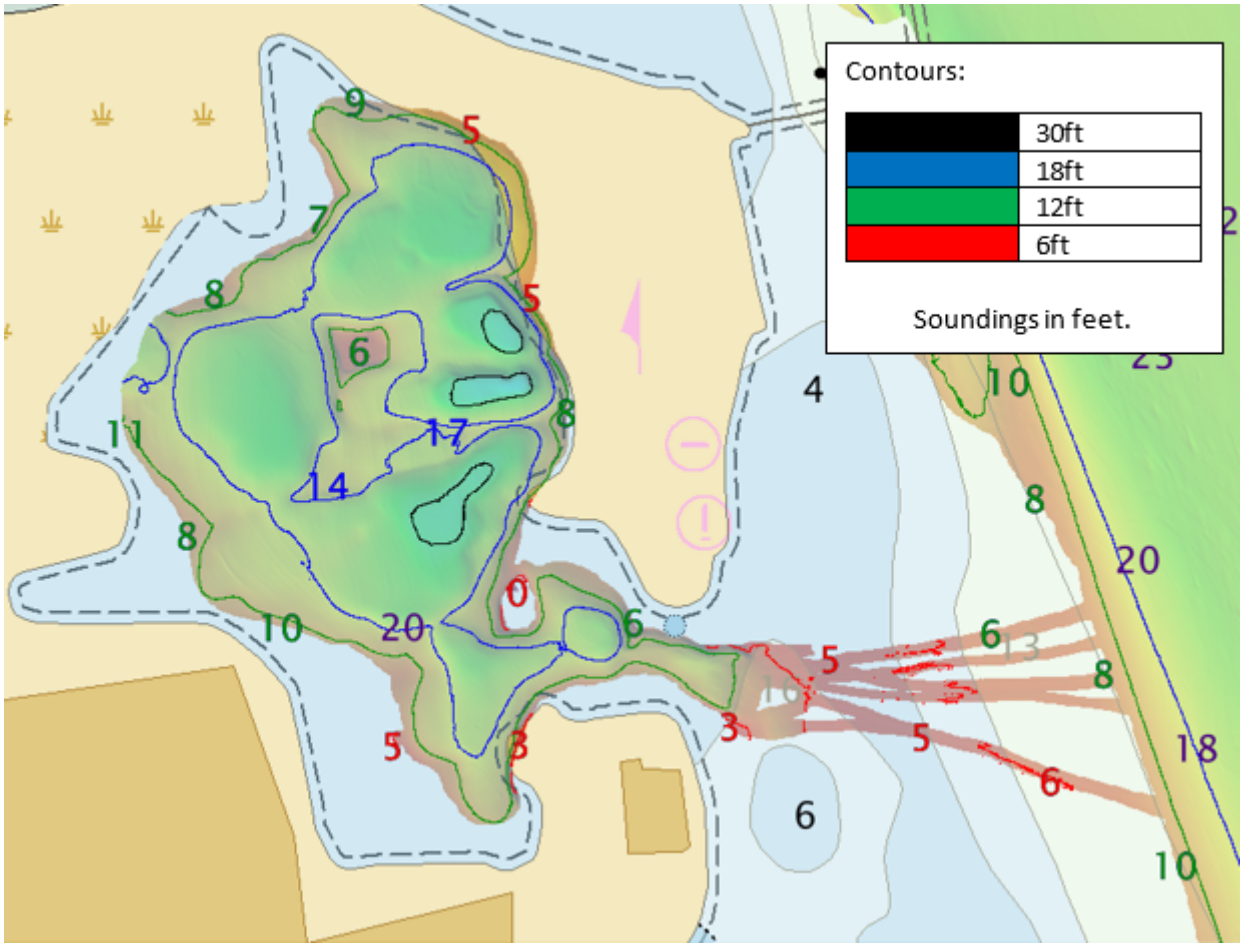

Figure 14: Bay with no soundings was surveyed.

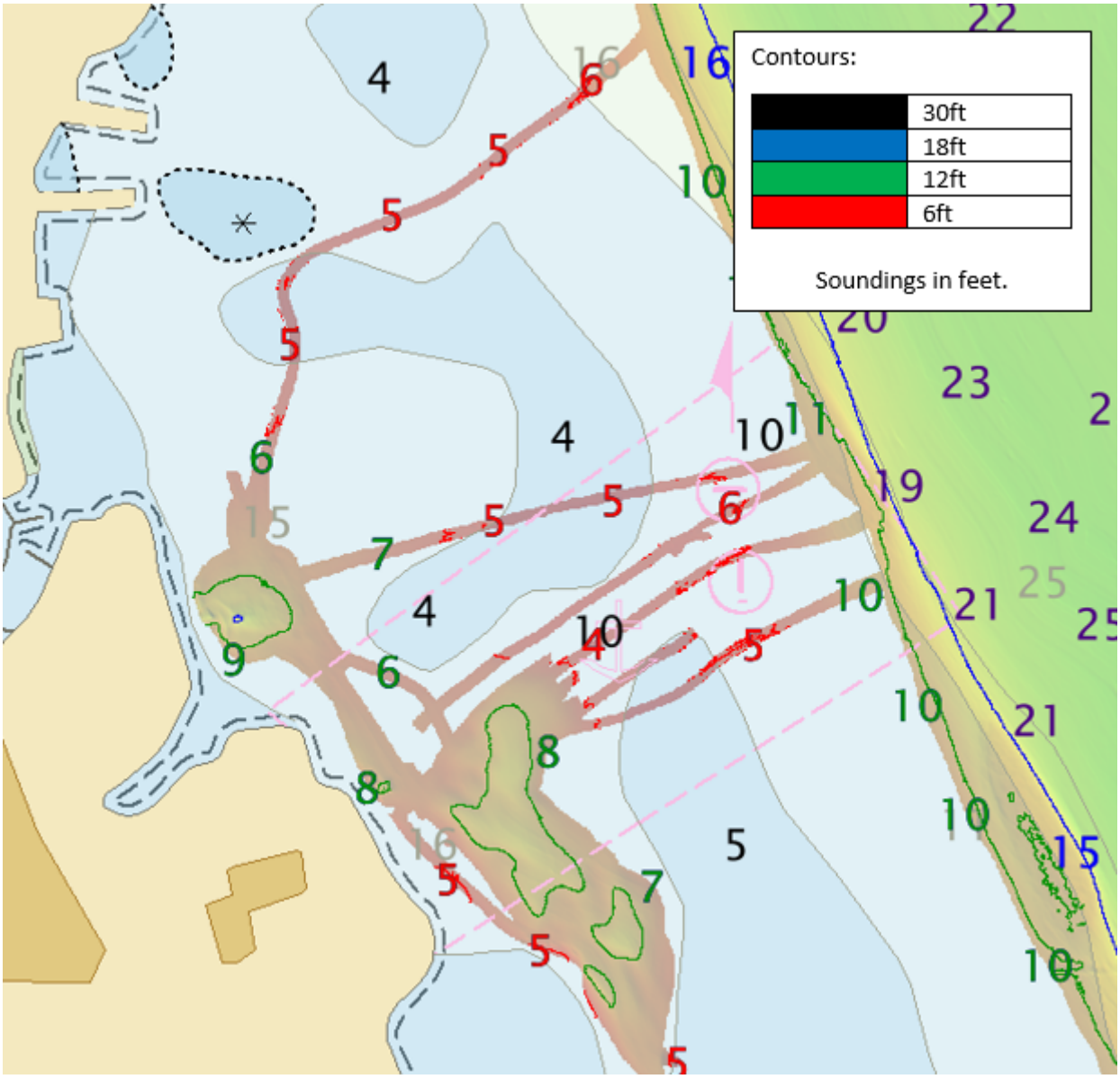

Figure 15: Ferry terminal with multiple sounding discrepancies.

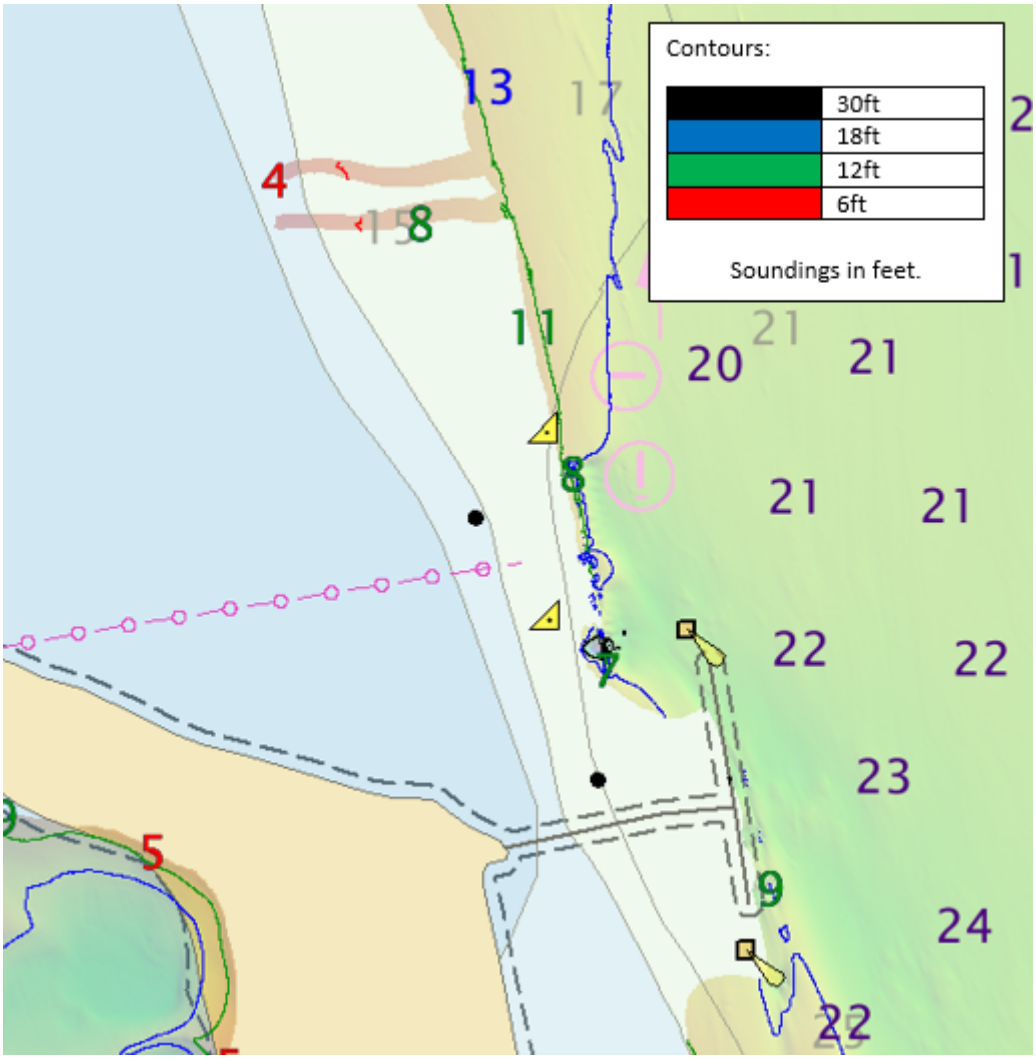

Figure 16: Charted 15ft sounding is seven feet different than the H13023 sounding.

D.1.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.3 Charted Features

There were two charted features for this survey. The Rock Reported feature (see Figure 17) was found to be correctly placed and is attributed as part of the Final Feature File. The Position Doubtful feature, which was assumed to be referencing the charted 11ft shoal (see Figure 18), was not seen in the data and should be removed.

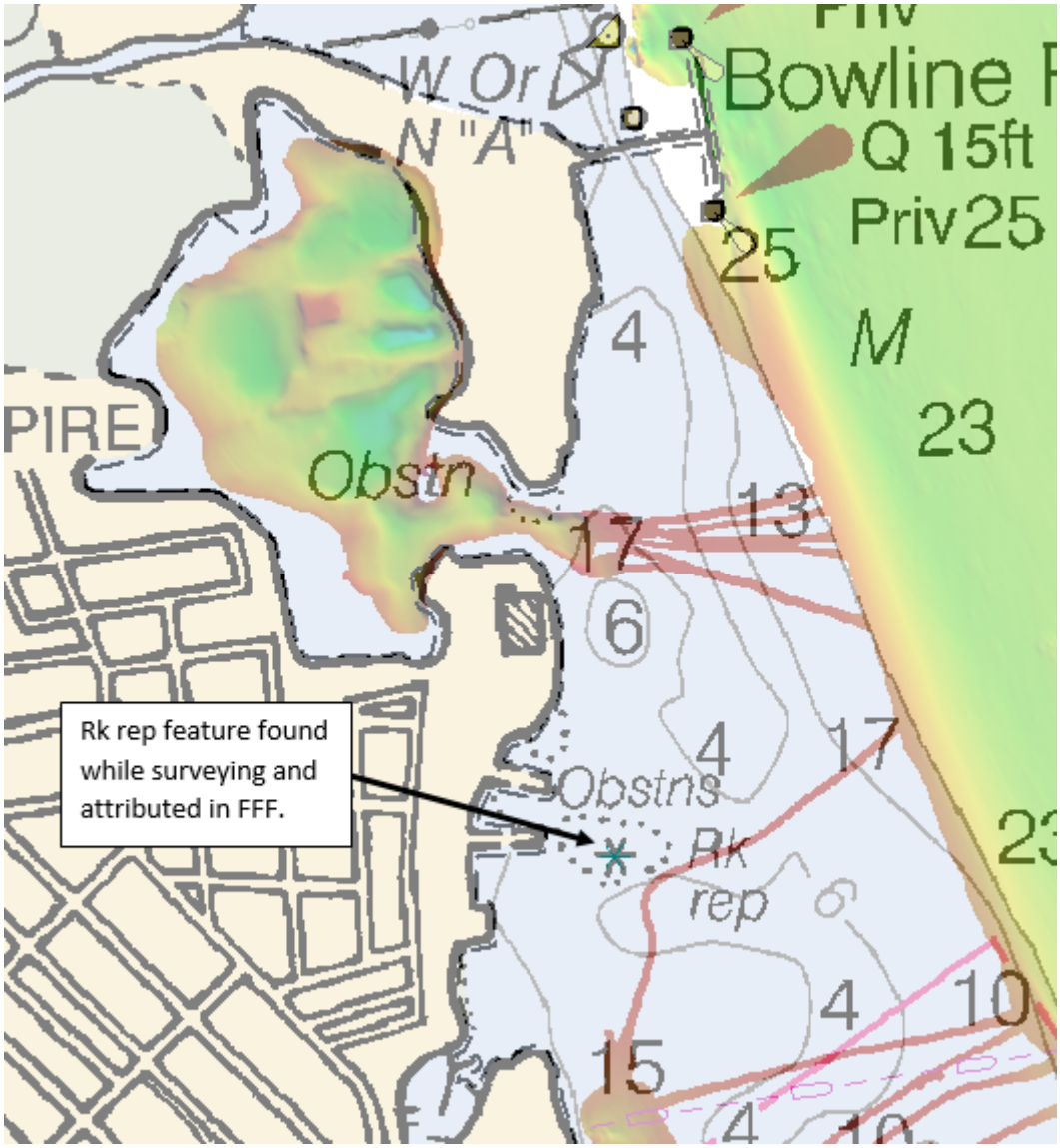

Figure 17: Rk rep feature found to be correctly located (Chart 12343_1) .

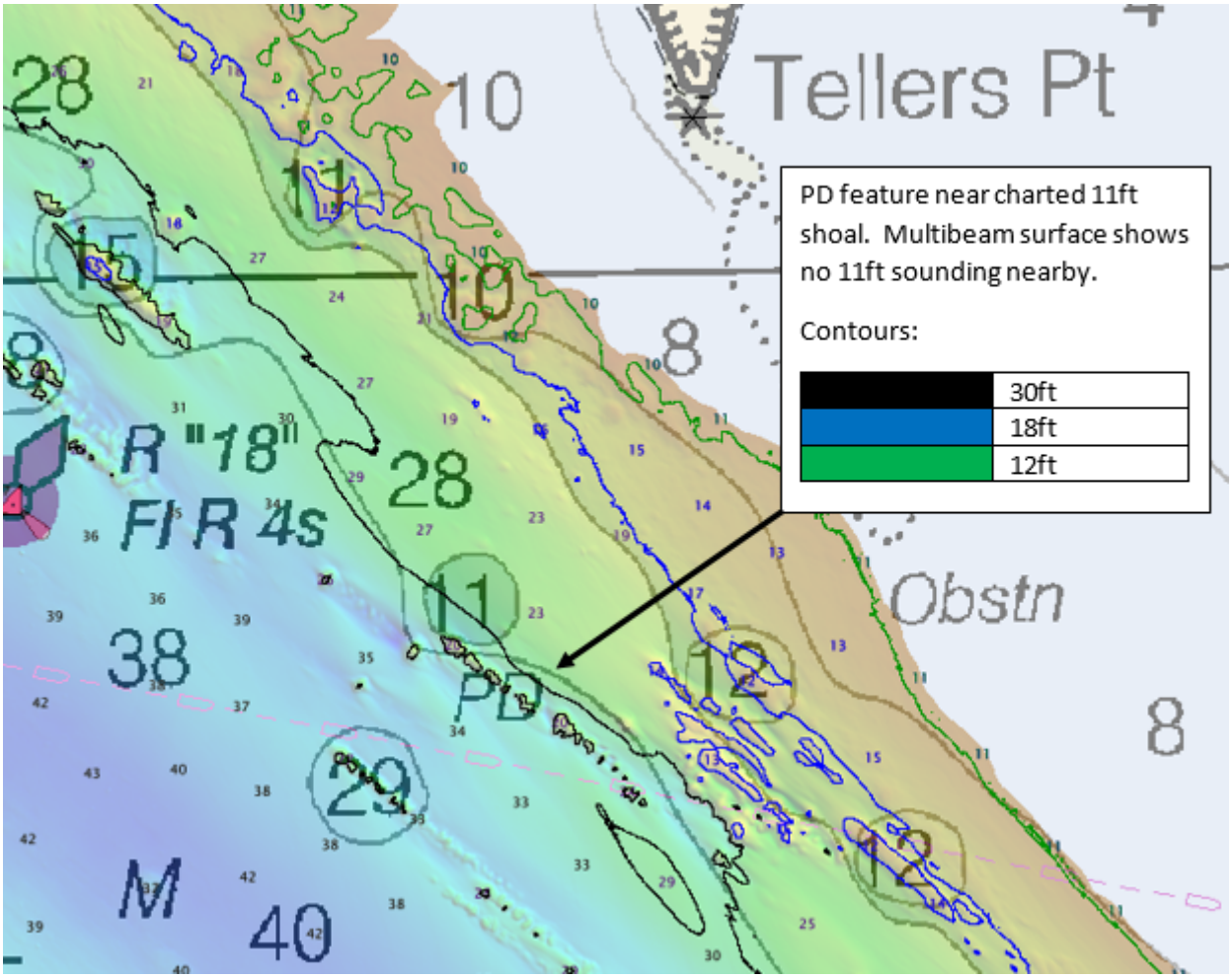

Figure 18: PD feature not seen (Chart 12343_1).

D.1.4 Uncharted Features

Several new features were found and are detailed in the Final Feature File.

D.1.5 Shoal and Hazardous Features

No shoals or potentially hazardous features exist for this survey.

SAR: Though documented in section DR section D1.1, the three Dangers to Navigation submitted on Dec 18th are shoals and hazardous. The chart containing these three shoals have been updated with the surveyed least depths as of May 22, 2018

D.1.6 Channels

The northern portion of the sheet has a maintained channel. Soundings from H13023 data found the channel depth to be greater than or equal to the stated channel depth on the chart.

D.1.7 Bottom Samples

The field processed backscatter to create mosaics, which were examined to determine areas of similar and different seafloor bottom types. Nine sample sites were selected and acquired. While backscatter can't tell the user exactly what the bottom type is, it's ability to differentiate between different bottom types proved successful in selecting bottom sample locations and should be used for future surveys.

D.2 Additional Results

D.2.1 Shoreline

Shoreline investigation was conducted for this entire survey area. At low tide, the vessel operator transited slowly along the shoreline while the hydrographer took photographs and notes of visible shoreline features. These notes and photographs were compared to the assigned features found in the Composite Source File. Additionally, efforts were made to confirm (photograph) any assigned features inshore of the NALL. These results were compiled to the Final Feature File submitted with this survey.

Feature Scan within QC Tools was used to verify features had correct attributions. Of note is a missing picture for Hudson River light 21. The hydrographer recalls seeing the light, working as intended, and a holiday is associated with the location of the light. There are some features that were tagged as redundant. Upon review these features were located by ATONs, and are due to environmental conditions that require the USCG to switch out the equipment during the winter months. These features were provided to the field units in the CSF and were not removed. Lastly, there is an obstruction that is missing a VALSOU. The height of the obstruction was not noted in the field.

D.2.2 Prior Surveys

No prior survey comparisons exist for this survey.

D.2.3 Aids to Navigation

No aids to navigation (ATONs) were assigned for positioning. Over the course of the survey, all ATONs were observed to be on station and serving their intended purpose.

D.2.4 Overhead Features

No overhead features exist for this survey.

D.2.5 Submarine Features

A submerged pipe exists by the facility on the west side of the Hudson River. There are a couple of buoys that warn mariners of dangers nearby. See the Final Feature File for more details.

D.2.6 Platforms

No platforms exist for this survey.

D.2.7 Ferry Routes and Terminals

A ferry exists that goes from Haverstraw, NY to Ossining, NY. The route the ferry takes was observed visually in the field and found online, see http://web.mta.info/mnr/html/raillink/schedules/haverstraw_start.htm. The route has been attributed in the final feature file.

Figure 19: Ferry at Haverstraw, NY.

D.2.8 Abnormal Seafloor and/or Environmental Conditions

Abnormal seafloor and/or environmental conditions were not observed for this survey.

D.2.9 Construction and Dredging

Present and/or planned construction or dredging exists within the survey limits, but was not investigated.

D.2.10 New Survey Recommendation

No new surveys or further investigations are recommended for this area.

D.2.11 Inset Recommendation

No new insets are recommended for this area.

E. Approval Sheet

As Chief of Party, field operations for this hydrographic survey were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to the Processing Branch.

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual, Field Procedures Manual, Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Approver Name	Approver Title	Approval Date	Signature
LTJG Dylan Kosten	Chief of Party	12/20/2017	Dylan Kosten Digitally signed by KOSTEN.DYLAN.ANDREW.1504527405 Date: 2017.12.20 12:27:21 -05'00'
PST Michael Bloom	Sheet Manager	12/20/2017	BLOOM.MICHAEL.GRAHAM.1029463049 Digitally signed by BLOOM.MICHAEL.GRAHAM.1029463049 Date: 2017.12.20 11:32:59 -05'00'

F. Table of Acronyms

Acronym	Definition
AHB	Atlantic Hydrographic Branch
AST	Assistant Survey Technician
ATON	Aid to Navigation
AWOIS	Automated Wreck and Obstruction Information System
BAG	Bathymetric Attributed Grid
BASE	Bathymetry Associated with Statistical Error
CO	Commanding Officer
CO-OPS	Center for Operational Products and Services
CORS	Continually Operating Reference Staiton
CTD	Conductivity Temperature Depth
CEF	Chart Evaluation File
CSF	Composite Source File
CST	Chief Survey Technician
CUBE	Combined Uncertainty and Bathymetry Estimator
DAPR	Data Acquisition and Processing Report
DGPS	Differential Global Positioning System
DP	Detached Position
DR	Descriptive Report
DTON	Danger to Navigation
ENC	Electronic Navigational Chart
ERS	Ellipsoidal Referenced Survey
ERZT	Ellipsoidally Referenced Zoned Tides
FFF	Final Feature File
FOO	Field Operations Officer
FPM	Field Procedures Manual
GAMS	GPS Azimuth Measurement Subsystem
GC	Geographic Cell
GPS	Global Positioning System
HIPS	Hydrographic Information Processing System
HSD	Hydrographic Surveys Division
HSSD	Hydrographic Survey Specifications and Deliverables

Acronym	Definition
HSTP	Hydrographic Systems Technology Programs
HSX	Hypack Hysweep File Format
HTD	Hydrographic Surveys Technical Directive
HVCR	Horizontal and Vertical Control Report
HVF	HIPS Vessel File
IHO	International Hydrographic Organization
IMU	Inertial Motion Unit
ITRF	International Terrestrial Reference Frame
LNM	Linear Nautical Miles
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NAIP	National Agriculture and Imagery Program
NALL	Navigable Area Limit Line
NM	Notice to Mariners
NMEA	National Marine Electronics Association
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NRT	Navigation Response Team
NSD	Navigation Services Division
OCS	Office of Coast Survey
OMAO	Office of Marine and Aviation Operations (NOAA)
OPS	Operations Branch
MBES	Multibeam Echosounder
NWLON	National Water Level Observation Network
PDBS	Phase Differencing Bathymetric Sonar
PHB	Pacific Hydrographic Branch
POS/MV	Position and Orientation System for Marine Vessels
PPK	Post Processed Kinematic
PPP	Precise Point Positioning
PPS	Pulse per second
PRF	Project Reference File

Acronym	Definition
PS	Physical Scientist
PST	Physical Science Technician
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
TPE	Total Propagated Error
TPU	Topside Processing Unit
USACE	United States Army Corps of Engineers
USCG	United Stated Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDA	Global Positiong System timing message
ZDF	Zone Definition File

Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov>

H13023 DTON Report

5 messages

Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov> Mon, Dec 18, 2017 at 4:04 PM
To: OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>
Cc: Dylan Kosten - NOAA Federal <dylan.kosten@noaa.gov>, Christopher Hare - NOAA Federal <christopher.hare@noaa.gov>, Chief NRB OCS - NOAA Service Account <chief.nrb.ocs@noaa.gov>, Michael Davidson - NOAA Federal <michael.davidson@noaa.gov>, PHB Chief - NOAA Service Account <phb.chief@noaa.gov>

All,

Please see the attached for a DTON report concerning shoaler depths than charted for the entrances to a bay and a ferry terminal.

Respectfully,
-Michael

--
Michael G. Bloom
Physical Science Technician
Navigation Response Team 5
(Primary) Cell: (503) 347-3456
(Secondary) Work: (202) 597-4041

H13023_DTON.zip
1358K

OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov> Tue, Dec 19, 2017 at 6:23 PM
To: Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov>
Cc: Dylan Kosten - NOAA Federal <dylan.kosten@noaa.gov>, Christopher Hare - NOAA Federal <christopher.hare@noaa.gov>, Chief NRB OCS - NOAA Service Account <chief.nrb.ocs@noaa.gov>, Michael Davidson - NOAA Federal <michael.davidson@noaa.gov>, PHB Chief - NOAA Service Account <phb.chief@noaa.gov>

Michael,

The shapefiles sent with the DtoN package don't have a coordinate system assigned to them. Would you please correct the files and re-send them?

Thank you,
Diane

Nautical Data Branch/Marine Chart Division/
Office of Coast Survey/National Ocean Service/
Contact: ocs.ndb@noaa.gov
NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

[Quoted text hidden]

Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov> Wed, Dec 20, 2017 at 8:14 AM
To: OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>
Cc: Dylan Kosten - NOAA Federal <dylan.kosten@noaa.gov>, Christopher Hare - NOAA Federal <christopher.hare@noaa.gov>, Chief NRB OCS - NOAA Service Account <chief.nrb.ocs@noaa.gov>, Michael Davidson - NOAA Federal <michael.davidson@noaa.gov>, PHB Chief - NOAA Service Account <phb.chief@noaa.gov>

Hello Diane,

I just reopened the shapefiles I sent and they appear correct to me. As long as the SHP_RXL file is in the same folder as the SHP file it opens in NAD83, UTM zone 18N. I opened it on a couple computers to make sure it would open correctly. If it continues to not work is there a different file type that would work better for you?

Thanks,
-Michael
[Quoted text hidden]

OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov> Wed, Dec 20, 2017 at 2:16 PM
To: Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov>
Cc: Dylan Kosten - NOAA Federal <dylan.kosten@noaa.gov>, Christopher Hare - NOAA Federal <christopher.hare@noaa.gov>, Chief NRB OCS - NOAA Service Account <chief.nrb.ocs@noaa.gov>, Michael Davidson - NOAA Federal <michael.davidson@noaa.gov>, PHB Chief - NOAA Service Account <phb.chief@noaa.gov>

Michael,

I definitely have the all of the files in the same folder but Arc still isn't recognizing a coordinate system. I'm unfamiliar with the .rxl extension so I searched for "rxl" on ESRI's website and no results were returned. Not sure what the story is with that, but now that I know that the files are in NAD83, UTM zone 18N, I was able to use ESRI's "Project" tool to reproject them to geographic NAD83, which is preferred for registration in DREG. Now they open in the correct spot in Arc, so I think I have what I need to continue processing the DtoN.

Thanks,
Diane

Nautical Data Branch/Marine Chart Division/
Office of Coast Survey/National Ocean Service/
Contact: ocs.ndb@noaa.gov
NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov> Wed, Dec 20, 2017 at 2:51 PM
To: Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov>
Cc: Dylan Kosten - NOAA Federal <dylan.kosten@noaa.gov>, Christopher Hare <Christopher.Hare@noaa.gov>, Chief NRB OCS - NOAA Service Account <chief.nrb.ocs@noaa.gov>, Michael Davidson <michael.davidson@noaa.gov>, PHB Chief <PHB.Chief@noaa.gov>, _NOS OCS PBA Branch <ocs.pba@noaa.gov>, _NOS OCS PBB Branch <ocs.pbb@noaa.gov>, _NOS OCS PBC Branch <ocs.pbc@noaa.gov>, _NOS OCS PBD Branch <ocs.pbd@noaa.gov>, _NOS OCS PBE Branch <ocs.pbe@noaa.gov>, _NOS OCS PBG Branch <ocs.pbg@noaa.gov>, Castle E Parker <Castle.E.Parker@noaa.gov>, Charles Porter - NOAA Federal <charles.porter@noaa.gov>, James M Crocker <James.M.Crocker@noaa.gov>, Ken Forster <Ken.Forster@noaa.gov>, Kevin Jett - NOAA Federal <kevin.jett@noaa.gov>, Matt Kroll <Matt.Kroll@noaa.gov>, Michael Gaeta <Michael.Gaeta@noaa.gov>, Nautical Data Branch <OCS.NDB@noaa.gov>, NSD Coast Pilot <coast.pilot@noaa.gov>, Tara Wallace <Tara.Wallace@noaa.gov>

DD-29109 has been registered by the Nautical Data Branch and directed to Products Branch C for processing.

The DtoNs reported are three shoal soundings in the Hudson River, NY.

The following chart is affected:
12343 kapp 2230

The following ENC is affected:
US5NY40M

References:
H13023
OPR-B396-NRT5BH2-17

This information was discovered and submitted by the crew of NRT 5.

Nautical Data Branch/Marine Chart Division/
Office of Coast Survey/National Ocean Service/
Contact: ocs.ndb@noaa.gov

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE

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1358K

Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov>

OPR-B396-NRT5BH2-17, H13023 Survey Outline

2 messages

Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov> Wed, Nov 22, 2017 at 6:29 AM
To: _NOS OCS Survey Outlines <survey.outlines@noaa.gov>
Cc: _NOS OCS HSD OPS <hsd.ops@noaa.gov>, Dylan Kosten - NOAA Federal <dylan.kosten@noaa.gov>

Good morning all,

I have attached the survey outline for sheet 2 (H13023) of OPR-B396-NRT5BH2-17.

Respectfully,
-Michael

--
Michael G. Bloom
Physical Science Technician
Navigation Response Team 5
(Primary) Cell: (503) 347-3456
(Secondary) Work: (202) 597-4041

H13023_Survey_Outline.000
2052K

Brian Mohr - NOAA Federal <brian.mohr@noaa.gov> Tue, Nov 28, 2017 at 9:55 AM
To: Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov>

Got them, Thanks.

Brian Mohr
Physical Scientist - Data Manager
Hydrographic Surveys Division
brian.mohr@noaa.gov
[Quoted text hidden]

Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov>

Hudson River VDatum Coverage Fix

2 messages

Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov> Tue, Aug 15, 2017 at 7:55 AM
To: Christopher Hare - NOAA Federal <christopher.hare@noaa.gov>, Michael Davidson - NOAA Federal <michael.davidson@noaa.gov>

Chris and Mike,

I recomputed GPS tides for the lines in that bay using the static value option of -32 and it worked. All I need to do now is make the surfaces and combine them.

Thanks for your help!
-Michael

--
Michael G. Bloom
Physical Science Technician
Navigation Response Team 5
Cell: (503) 347-3456
Work Phone: (202) 597-4041

Michael Davidson - NOAA Federal <michael.davidson@noaa.gov> Tue, Aug 15, 2017 at 8:55 AM
To: Michael Bloom - NOAA Federal <michael.g.bloom@noaa.gov>
Cc: Christopher Hare - NOAA Federal <christopher.hare@noaa.gov>

Bloom,

Glad that it worked out. Once you get your surfaces done, pay close attention in the area of overlap to make sure that any differences that may exist are honored properly during combine. Hopefully the transition is seamless, but if not 100% seamless, please make sure that the shoalest nodes between the two surfaces are preserved in the combined surface.

The steps taken to correct the Haverstraw marina and any other areas that may require the same action need to be documented in the DR. This is probably best done in section C.3 Additonal Horizontal or Vertical Control Issues. If you have any questions when you go to write it up, feel free to give me a call or shoot me an email with your draft language and we can discuss.

Great work!

R,
Davidson

[Quoted text hidden]

--
Michael C. Davidson
Operations Manager
NOAA Office of Coast Survey
Navigation Response Branch
1315 East West Hwy, SSMC3, Sta 6216 ***new station number***
Silver Spring, MD 20910
240-533-0058 office ***new office number***
757-771-5305 work cell
michael.davidson@noaa.gov

APPROVAL PAGE

H13023

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NCEI for archive

- Descriptive Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Collection of backscatter mosaics
- Processed survey data and records
- Bottom samples
- GeoPDF of survey products

The survey evaluation and verification has been conducted according current OCS Specifications, and the survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved: Digitally signed by Peter Holmberg
Reason: signing for Olivia Hauser
Date: 2018.10.01 10:28:55 -07'00'

Lieutenant Commander Olivia Hauser, NOAA
Chief, Pacific Hydrographic Branch