H13044

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H13044

LOCALITY

State(s):	Texas
General Locality:	Between Galveston Bay Entrance and Sabine Bank Channels, Texas and Louisiana
Sub-locality:	SE of Heald Bank

2018

CHIEF OF PARTY
Christiaan van Westendorp, CDR/NOAA

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Date:

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

REGISTRY NUMBER:

HYDROGRAPHIC TITLE SHEET

H13044

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):	**Texas**
General Locality:	**Between Galveston Bay Entrance and Sabine Bank Channels,**
Sub-Locality:	**SE of Heald Bank**
Scale:	**40000**
Dates of Survey:	**05/25/2018 to 07/02/2018**
Instructions Dated:	**03/08/2018**
Project Number:	**OPR-K371-TJ-18**
Field Unit:	**NOAA Ship *Thomas Jefferson***
Chief of Party:	**Christiaan van Westendorp, CDR/NOAA**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	**Side Scan Sonar Multibeam Echo Sounder Backscatter**
Verification by:	**Atlantic Hydrographic Branch**
Soundings Acquired in:	**meters at Mean Lower Low Water**

Remarks:

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Descriptive Report to Accompany Survey H13044

Project: OPR-K371-TJ-18

Locality: Between Galveston Bay Entrance and Sabine Bank Channels, Texas and Louisiana

Sublocality: SE of Heald Bank

Scale: 1:40000

May 2018 - July 2018

NOAA Ship *Thomas Jefferson*

Chief of Party: Christiaan van Westendorp, CDR/NOAA

A. Area Surveyed

Survey H13044 extends approximately 30-40 NM southeast of the Galveston Bay Entrance Channel, in the vicinity of Heald Bank and was conducted in accordance with coverage requirements set forth in the Project Instructions OPR-K371-TJ-18.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
29° 3' 36" N 94° 9' 36" W	28° 59' 51" N 93° 50' 4.56" W

Table 1: Survey Limits

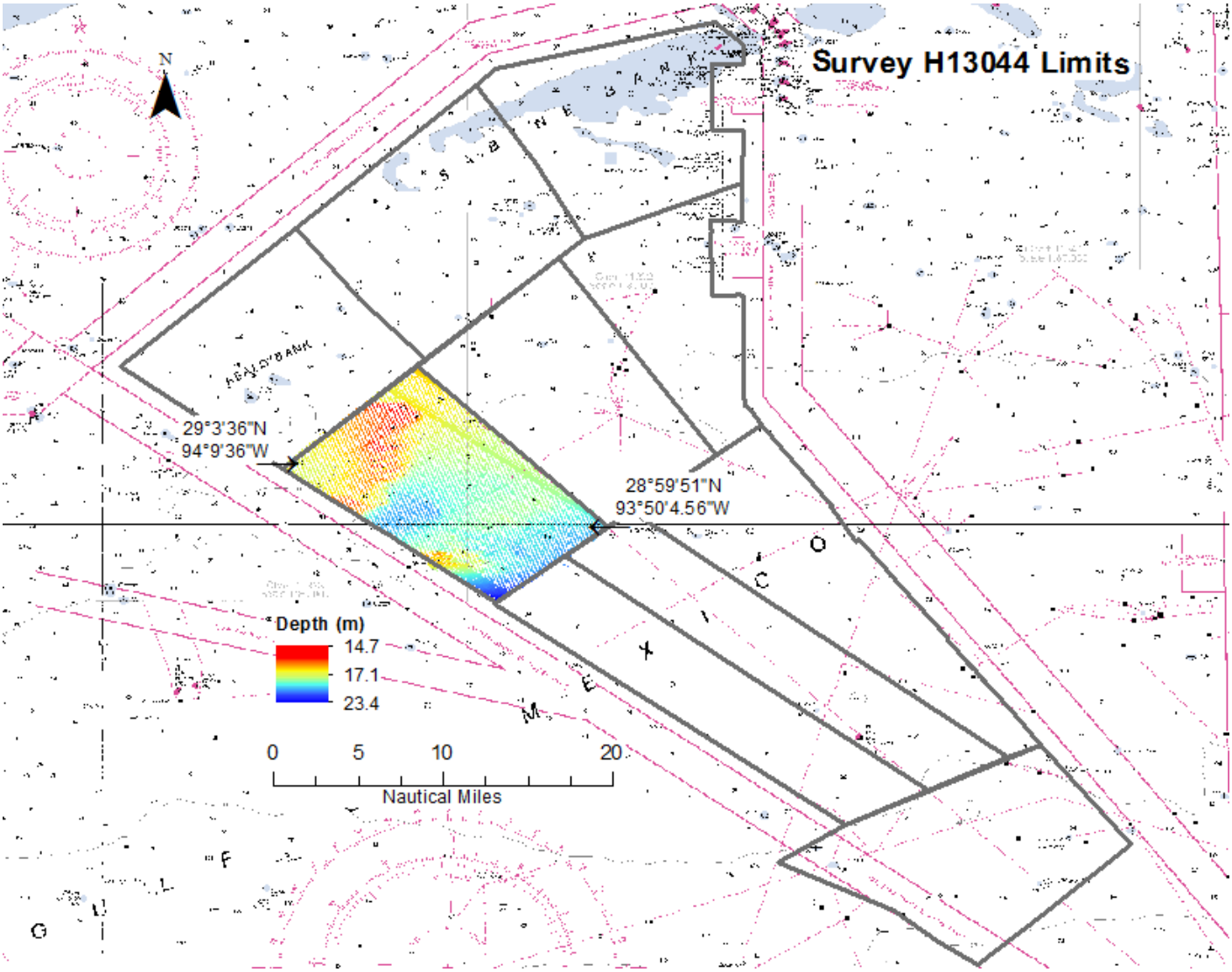

Figure 1: H13044 survey area plotted on NOAA chart 11330

NOAA Ship Thomas Jefferson extended survey operations of H13044 outside of its original sheet limits due to an irregularly shaped survey area and to complete a charted obstruction disproval radius.

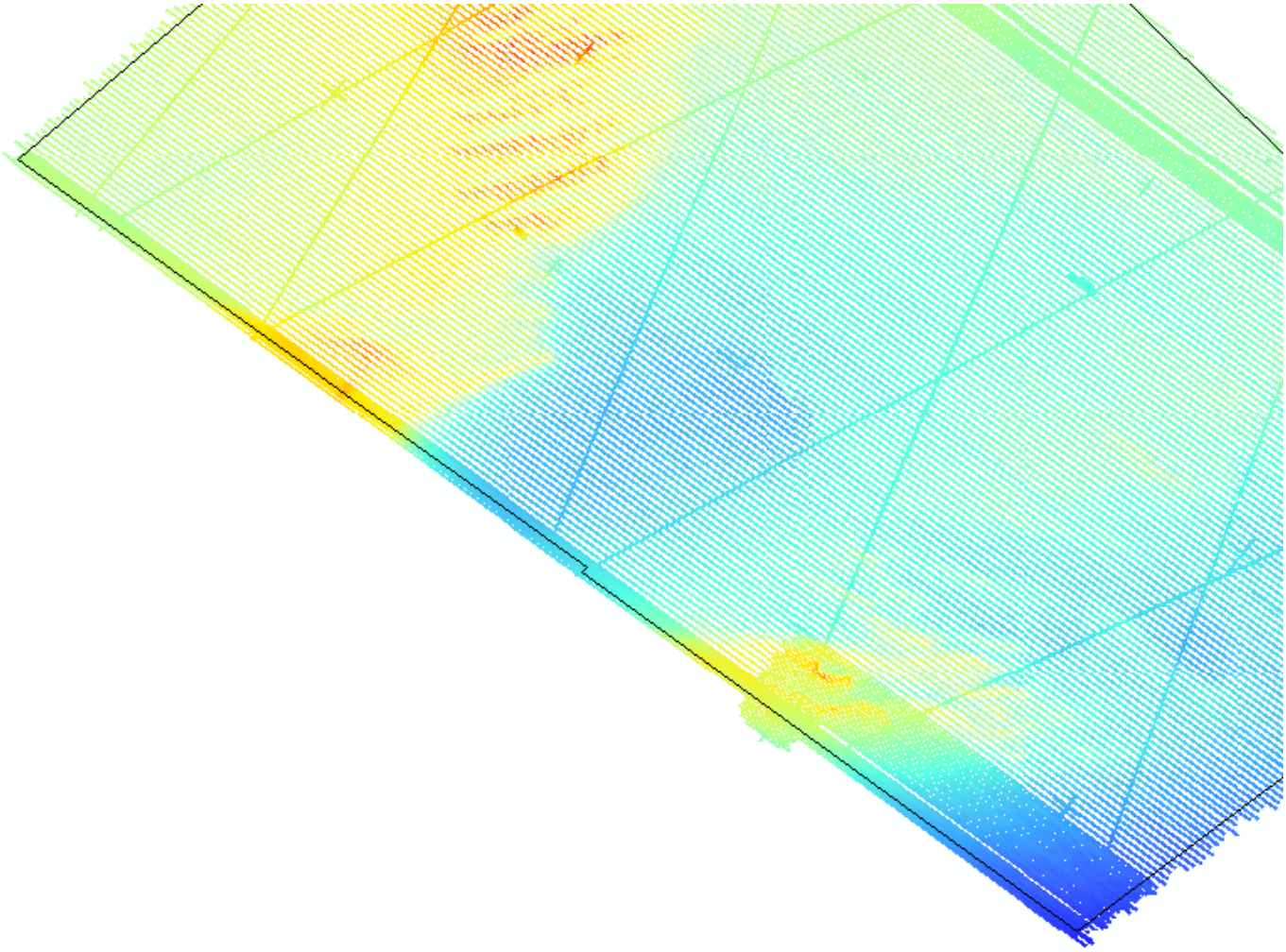

Figure 2: Original survey limits of H13044 overlaid on extents of data collected.

A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service nautical charts and products in an area critical to the nation's economy. In 2015, the Port of Houston supported $137 Billion in trade, ranked first in the nation for foreign tonnage, is the nation's largest importer/exporter of petroleum products and supported 509,000 jobs directly or indirectly. This survey covers approximately 1100 square nautical miles between the Galveston Bay and Sabine Bank Channels in an area which has not been surveyed since 1963. The current chart coverage shows numerous reported wrecks and obstructions with their positions reported to be approximate; these pose a risk to surface navigation. This survey will identify changes to the bathymetry and resolve position uncertainty in known hazards.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

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	Complete Coverage (refer to HSSD Section 5.2.2.3)

Table 2: Survey Coverage

Survey coverage was in accordance with the requirements listed above and in the HSSD.

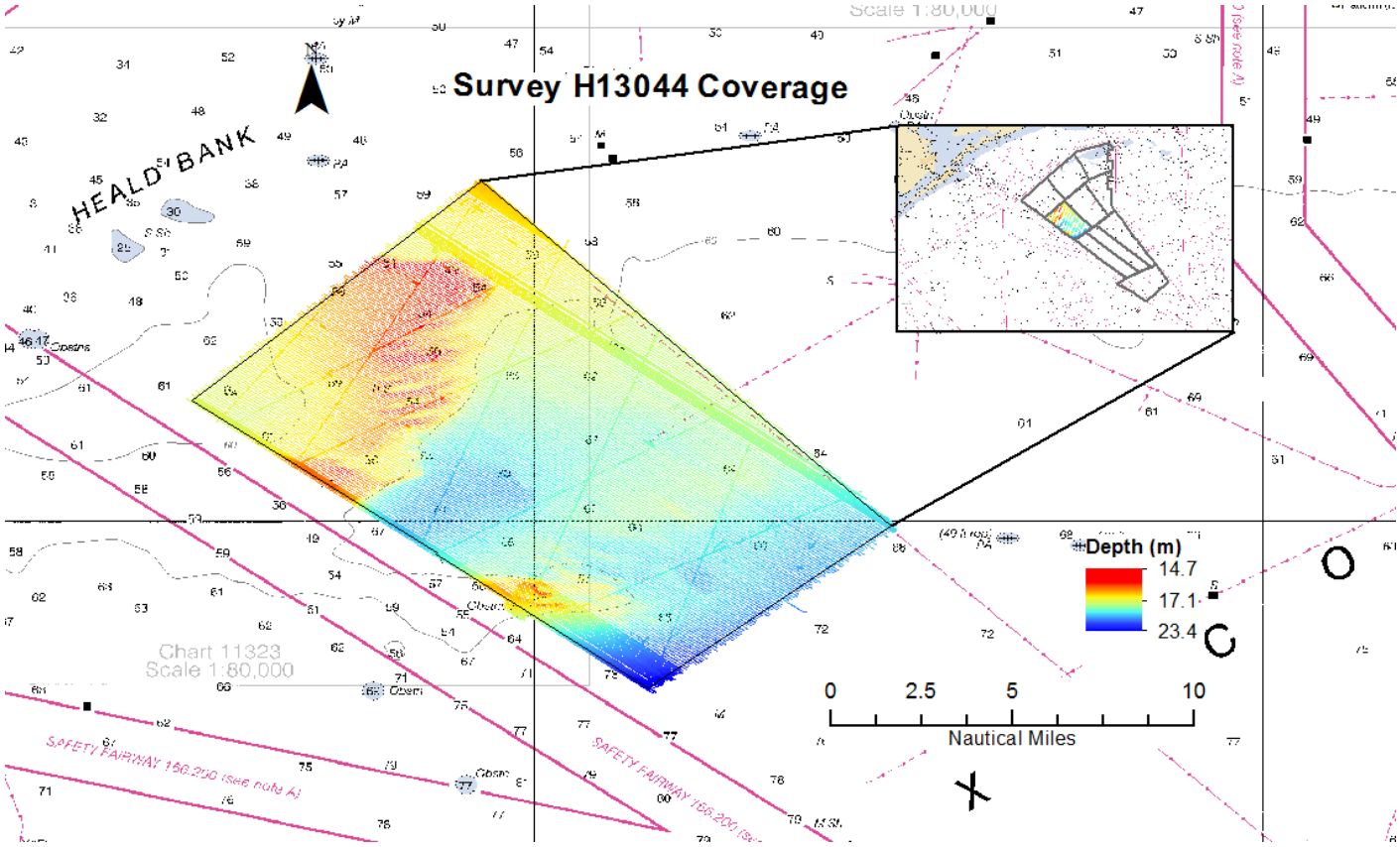

Figure 3: H13044 MBES coverage on chart 11330

A.5 Survey Statistics

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

	HULL ID	*S-222*	*HSL 2903*	*Total*
LNM	SBES Mainscheme	0	0	0
	MBES Mainscheme	0	108.46	108.46
	Lidar Mainscheme	0	0	0
	SSS Mainscheme	0	0	0
	SBES/SSS Mainscheme	0	0	0
	MBES/SSS Mainscheme	1792.31	0	1792.31
	SBES/MBES Crosslines	76.03	0	76.03
	Lidar Crosslines	0	0	0
Number of Bottom Samples				8
Number Maritime Boundary Points Investigated				0
Number of DPs				0
Number of Items Investigated by Dive Ops				0
Total SNM				114.6

Table 3: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
05/25/2018	145

Survey Dates	Day of the Year
05/26/2018	146
05/27/2018	147
05/28/2018	148
05/29/2018	149
05/30/2018	150
05/31/2018	151
06/01/2018	152
06/02/2018	153
06/07/2018	158
06/08/2018	159
06/09/2018	160
06/17/2018	168
06/26/2018	177
06/27/2018	178
06/28/2018	179
07/02/2018	183

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. Any deviations from the DAPR for this survey are noted in this report.

B.1.1 Vessels

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

Hull ID	***S-222***	***2903***
LOA	208 feet	28 feet
Draft	15 feet	5.2 feet

Table 5: Vessels Used

Refer to DAPR for OPR-K371-TJ-18 for a complete listing of equipment used.

B.1.2 Equipment

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

Manufacturer	**Model**	**Type**
Kongsberg Maritime	EM 710	MBES
Kongsberg Maritime	EM 2040	MBES
Klein Marine Systems	5000 V2	SSS
Applanix	POS MV 320 v5	Positioning and Attitude System
Rolls Royce	MVP100	Sound Speed System
Sea-Bird Scientific	SBE 19plus	Conductivity, Temperature, and Depth Sensor
AML Oceanographic	Micro-CTD	Conductivity, Temperature, and Depth Sensor
Valeport	Thru-Hull SVS	Sound Speed System

Table 6: Major Systems Used

Vessel configurations, equipment operations, and data acquisition and processing were consistent with specifications described in the DAPR.

B.2 Quality Control

B.2.1 Crosslines

Multibeam/single beam echo sounder/side scan sonar crosslines acquired for this survey totaled 4.00% of mainscheme acquisition.

MBES crossline data were collected by S-222 on DN145, DN146, DN178, and DN179. Thomas Jefferson collected 76.03 linear nautical miles of MBES crosslines, or 4% of mainscheme MBES data. A 1m CUBE surface of mainscheme data and a 1m CUBE surface of crossline data were differenced - the resulting mean was .02m and the standard deviation .10m.

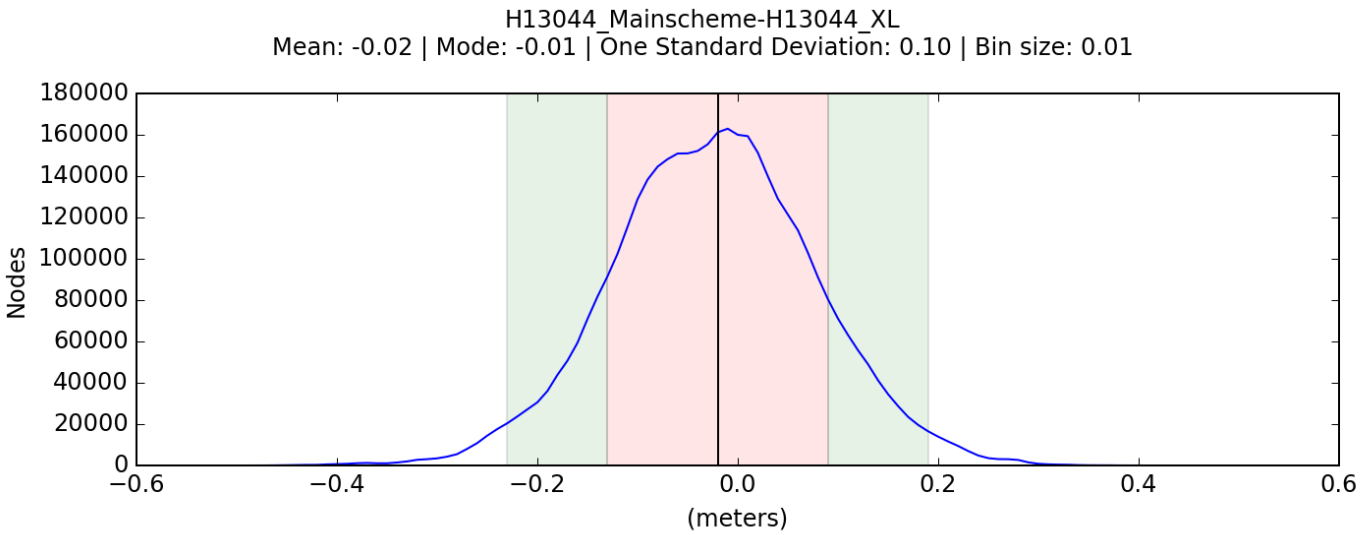

Figure 4: H13044 crossline/mainscheme comparison

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Method	Measured	Zoning
ERS via VDATUM	0.08 meters	0.13 meters

Table 7: Survey Specific Tide TPU Values.

Hull ID	Measured - CTD	Measured - MVP	Surface
S222	4 meters/second	2 meters/second	0.2 meters/second
2903	4 meters/second	–	0.2 meters/second

Table 8: Survey Specific Sound Speed TPU Values.

The bathymetric surface's uncertainty layer is compliant with HSSD 2018 uncertainty standards. Over 99.5% of all nodes pass uncertainty standards.

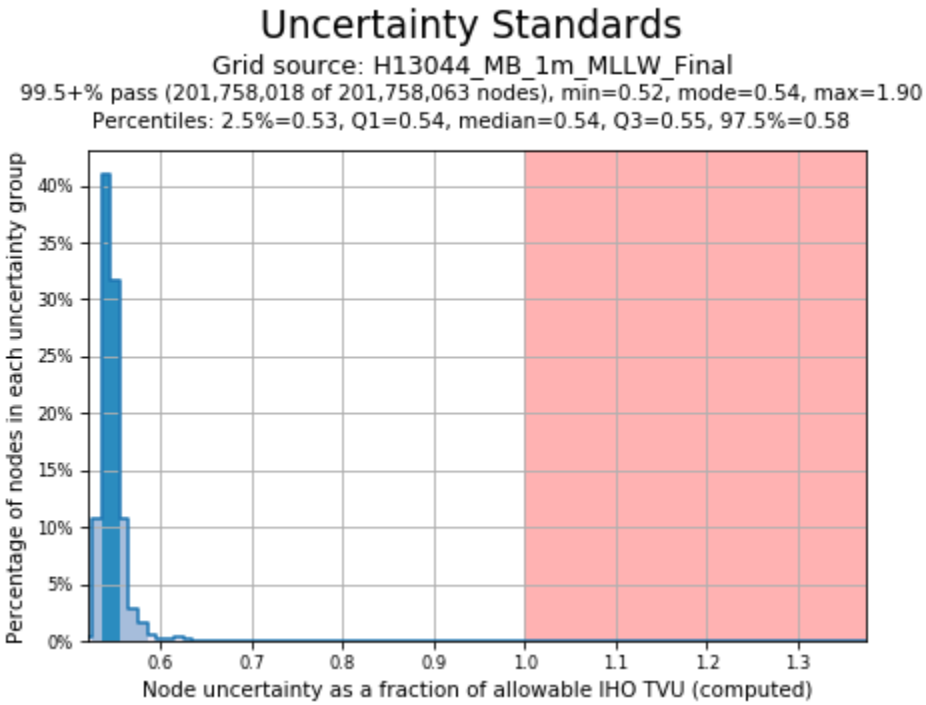

Figure 5: H13044 uncertainty standards

B.2.3 Junctions

Five contemporary surveys junction with H13044. At the time operations on H13044 were completed, Current Junction surveys H13045 and H13048 were still in progress. Analysis will be completed and provided in these respective surveys' Descriptive Report.

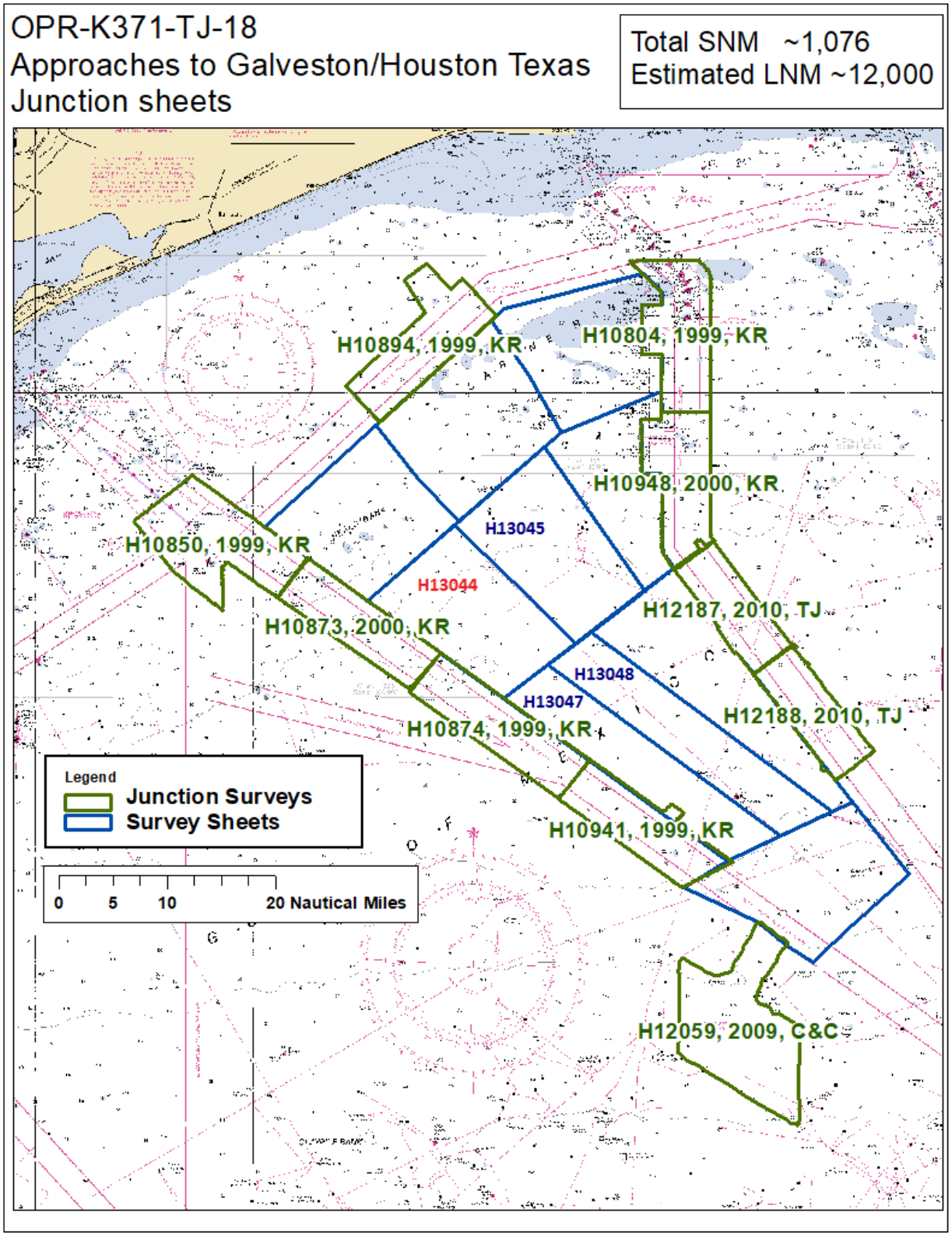

Figure 6: Junctioning surveys of H13044

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H10873	1:20000	1999	SAIC	SW
H10874	1:20000	1999	SAIC	SW
H13045	1:40000	2018	NOAA Ship THOMAS JEFFERSON	E
H13047	1:40000	2018	NOAA Ship THOMAS JEFFERSON	SE
H13048	1:40000	2018	NOAA Ship THOMAS JEFFERSON	SE

Table 9: Junctioning Surveys

H10873

The difference between survey H13044 and H10873 ranged from -0.75m to 0.2m. The mean was -0.25m, and the standard deviation 0.14m

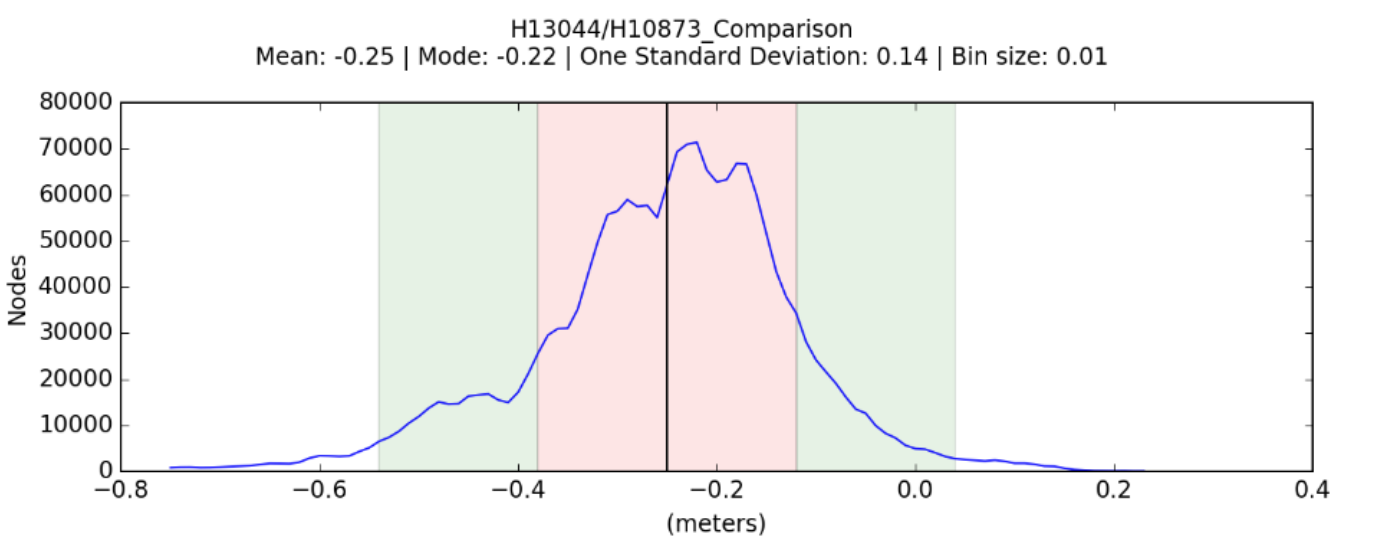

Figure 7: H13044 and H10873 surface difference comparison statistics

H10874

The junction data provided for H10874 was a point cloud file and could not be used in the Pydro QC Tools Compare Grids feature. The two surfaces were differenced in Caris HIPS and SIPS 10.4 instead. The difference between survey H13044 and H10874 ranged from -1.7m and 0.3m. The mean was -0.5m, and the standard deviation 0.2m.

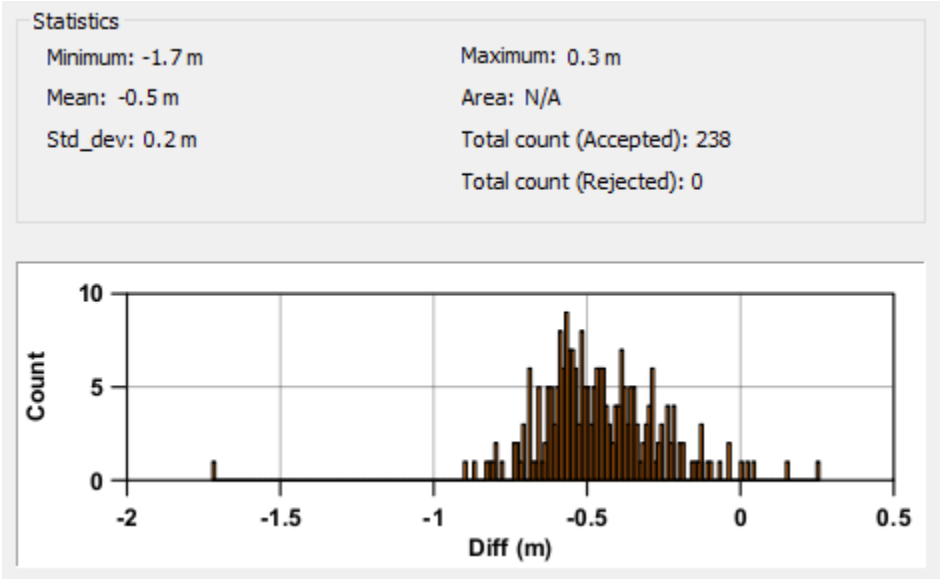

Figure 8: H13044 and H10874 surface difference comparison statistics

H13045

Junction comparison will be conducted upon completion of survey

H13047

The difference between survey H13044 and H13047 ranged from -0.4m to 0.5m. The mean was -0.01m, and the standard deviation 0.12m

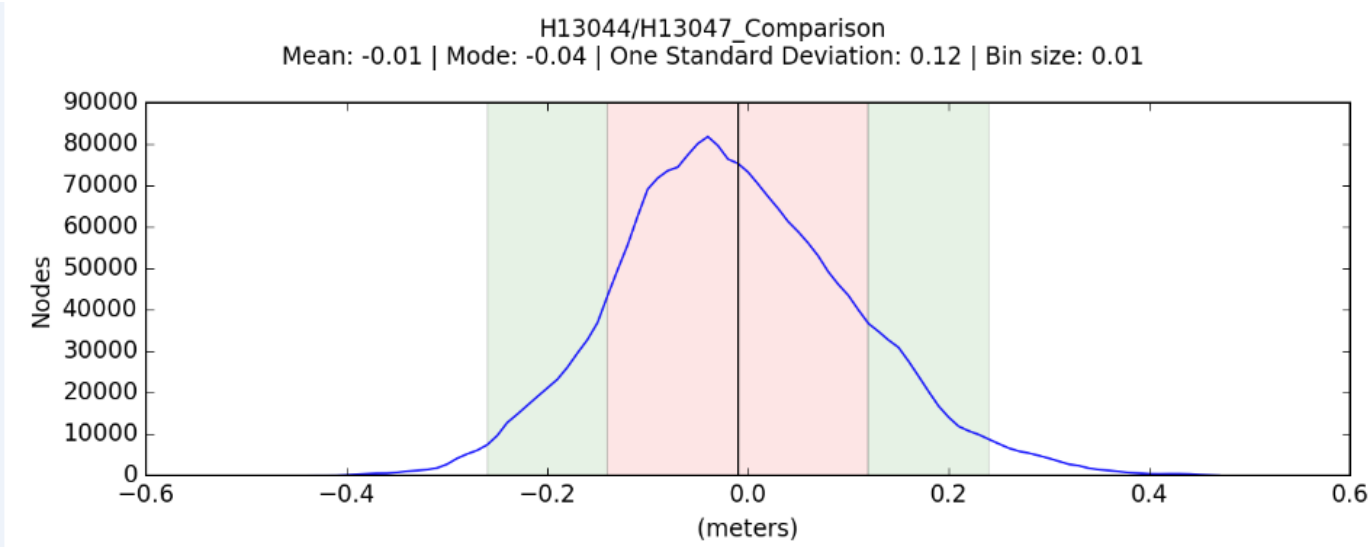

Figure 9: H13044 and H13047 surface difference comparison statistics

H13048

Junction comparison will be conducted upon completion of survey

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

MBES Artifact

Details regarding MBES artifact is outlined in the DAPR

Loss of POS/MV

A MBES holiday in DN178 HSL 2903 data is attributed to a loss of positioning input from the HSL's POS/MV.

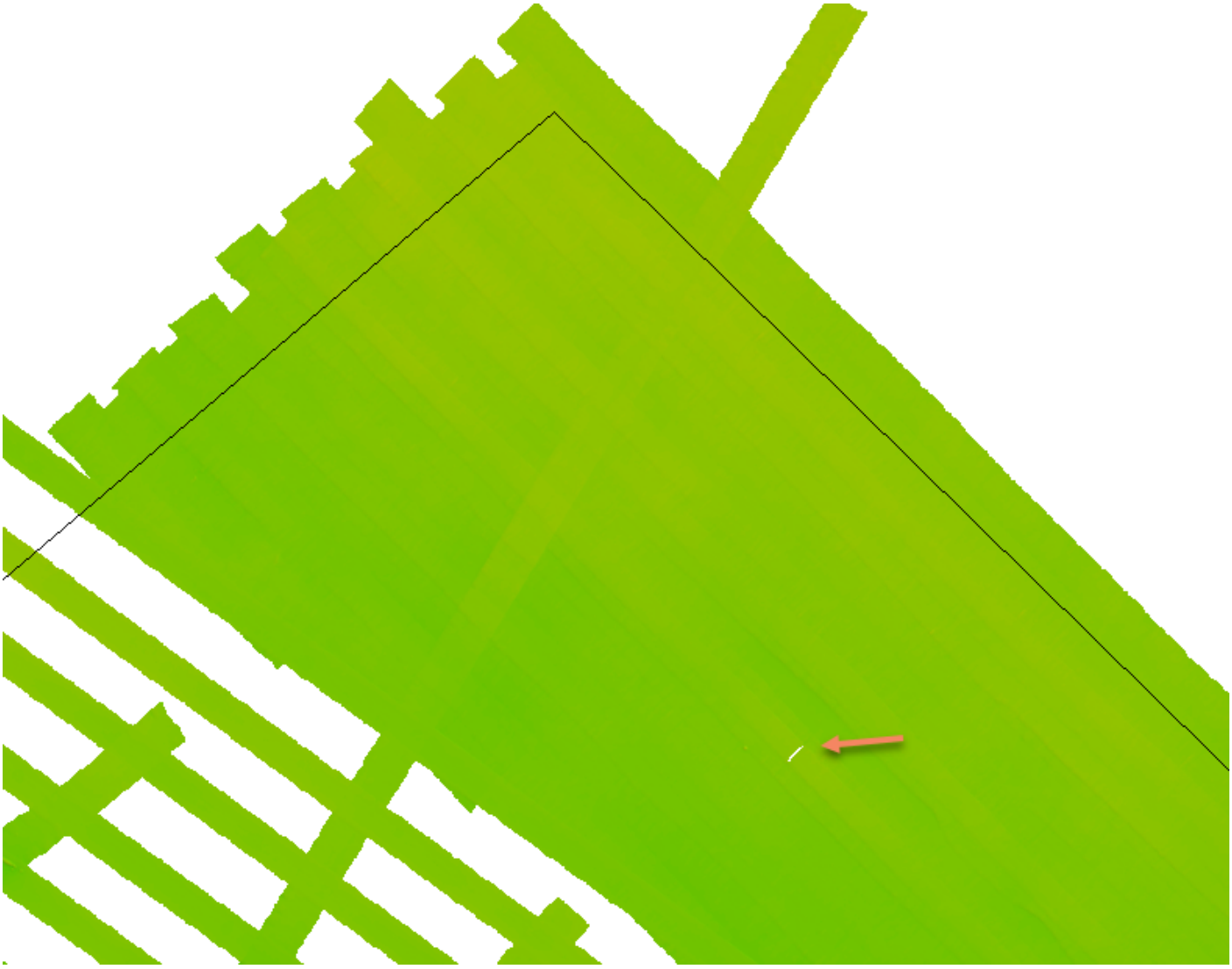

Figure 10: HSL 2903 MBES data holiday

B.2.6 Factors Affecting Soundings

SSS Refraction

Presence of a sound speed gradient is evident from refraction artifacts seen throughout H13044 SSS data. Refraction affected the SSS return signal and 200% SSS lines were required in areas where refraction degraded overall data quality. Variation in intensity in the SSS imagery can be attributed to changes in pulse length settings during acquisition to account for refraction and sea floor bottom type.

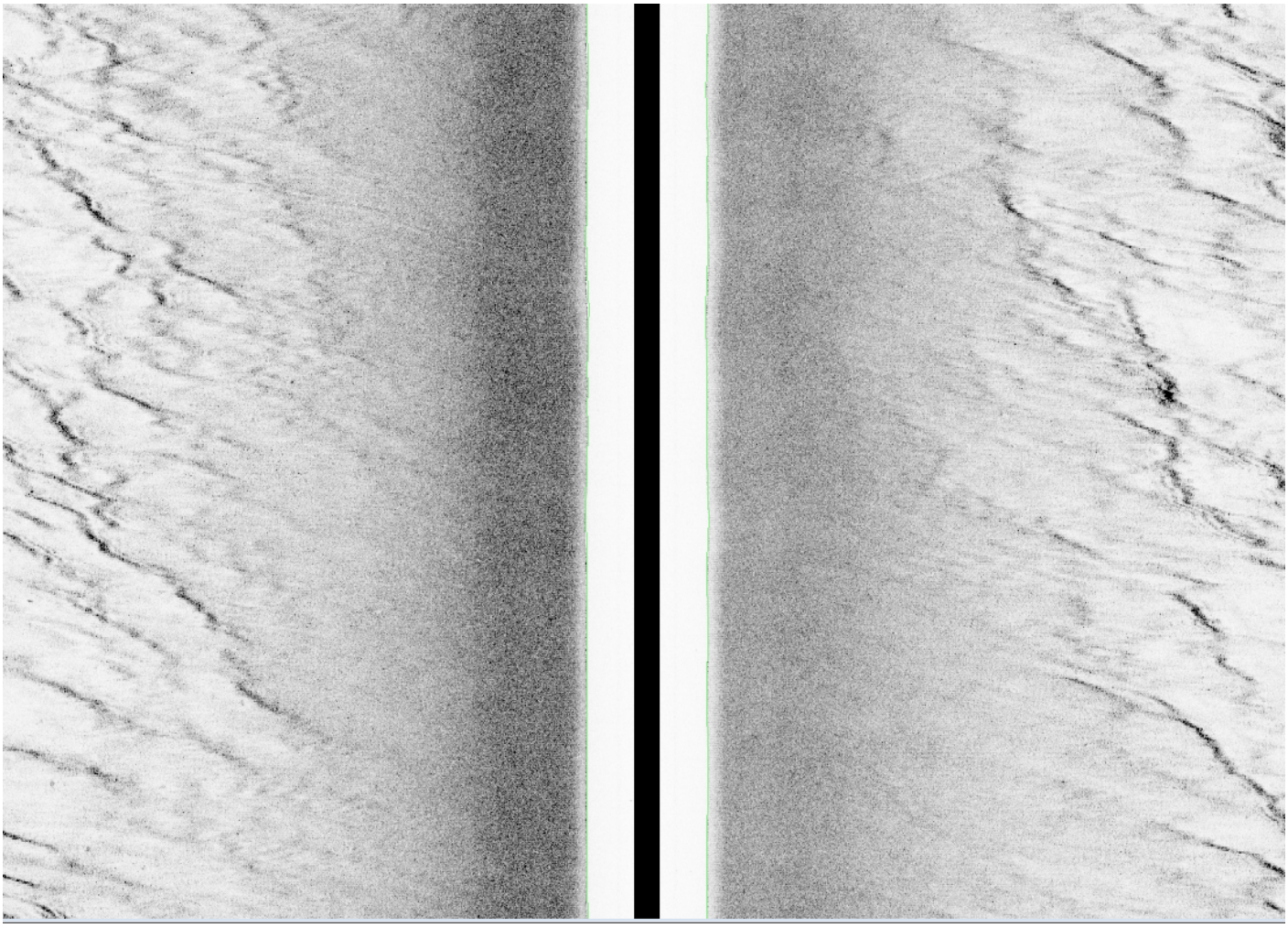

Figure 11: SSS refraction on survey H13044

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: No more than 4 casts per hour

Moving Vessel Profiler casts were conducted no more than 4 times per hour. CTD's were collected once every 2 hours on DN159 following a malfunction of the MVP sensor. Sound speed profiles were acquired from S222 in accordance with HSSD 2018 standards using a Rolls Royce Brooke Ocean MVP 100 and Sea-Bird SBE 19plus CTD. Efforts were made to evenly distribute casts spatially and temporally across the entire survey area. Sound speed was monitored by the survey watch to assess sound speed variation in the water column and conduct casts accordingly. A total of 230 sound velocity measurements were collected within the survey limits of H13044; four additional measurements were collected outside the data extents.

Sound speed profile data were concatenated into a vessel master file and applied to S222 MBES data in real time. HSL 2903 data were corrected by applying S222 sound speed profiles nearest in distance in time (4hrs).

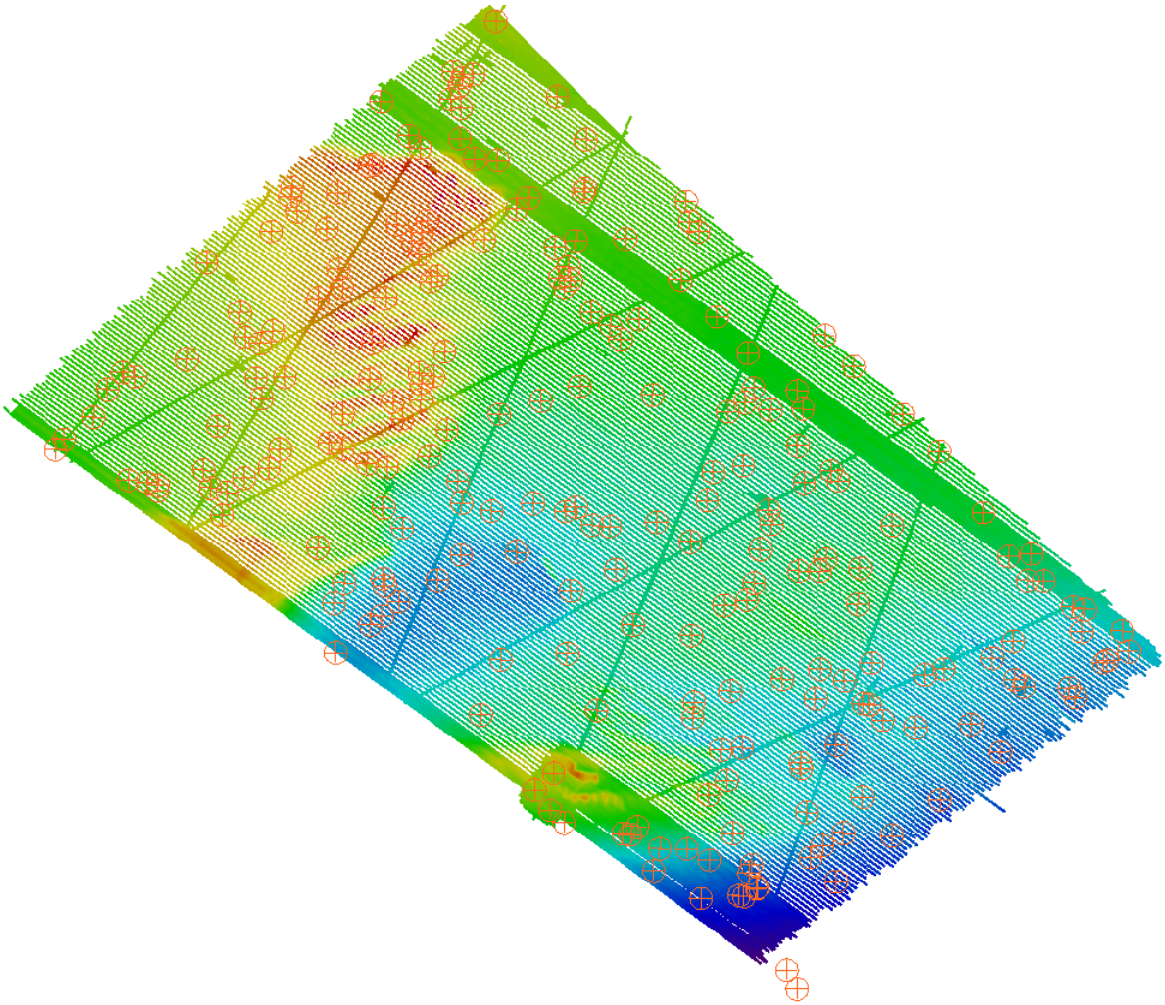

Figure 12: Distribution of SVP data on survey H13044

B.2.8 Coverage Equipment and Methods

To meet full coverage requirements on survey H13044, S222 acquired 100% side scan coverage with concurrent MBES data and used HSL 2903 to acquire 100% 2040 MBES coverage. Feature disprovals were conducted with either full coverage multibeam or 200% side scan coverage; reference the Final Feature File for further information.

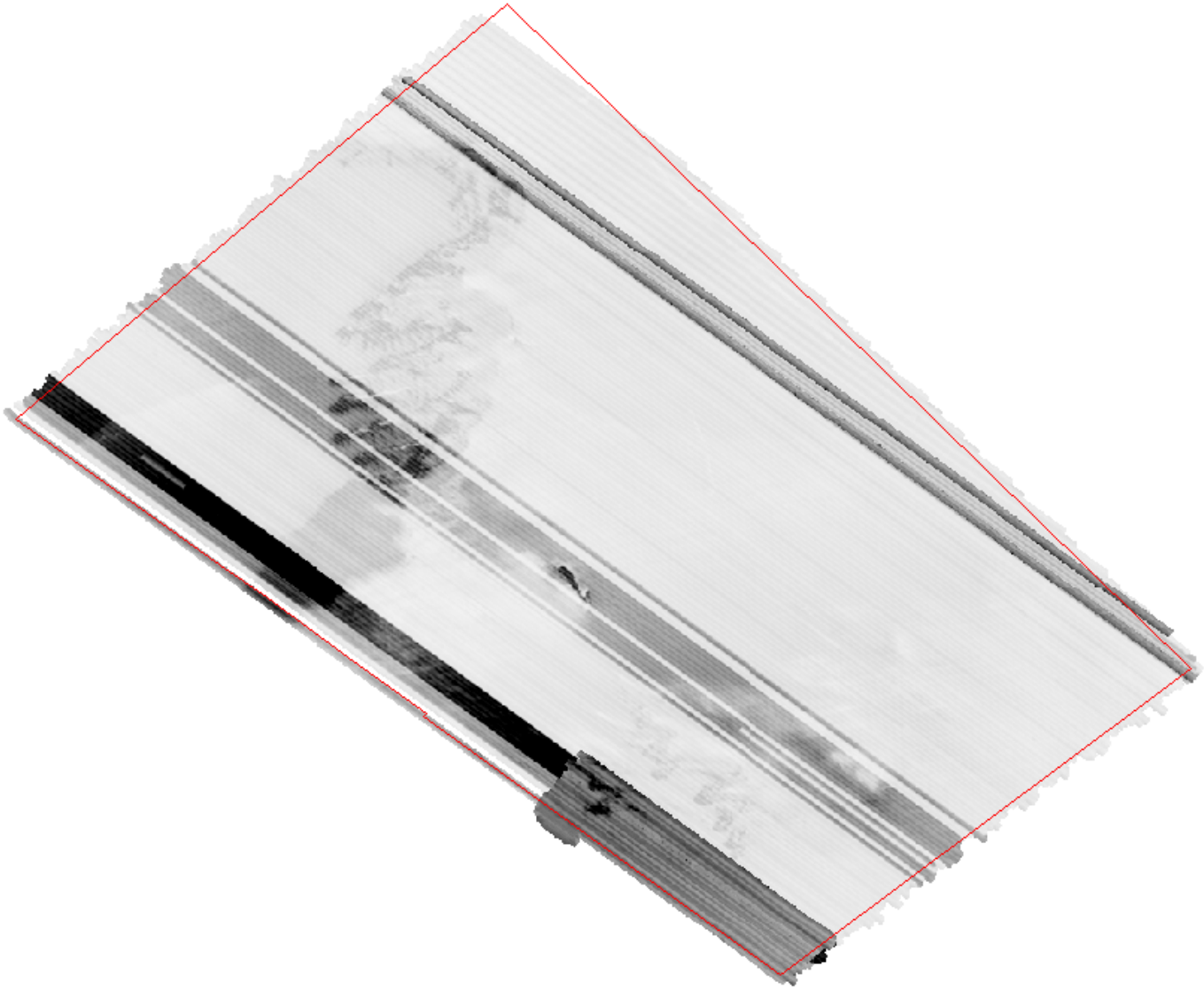

Figure 13: H13044 Klein 5000 v2 Side Scan Sonar coverage mosaic. Intensity fluctuations are due to settings changes during acquisition.

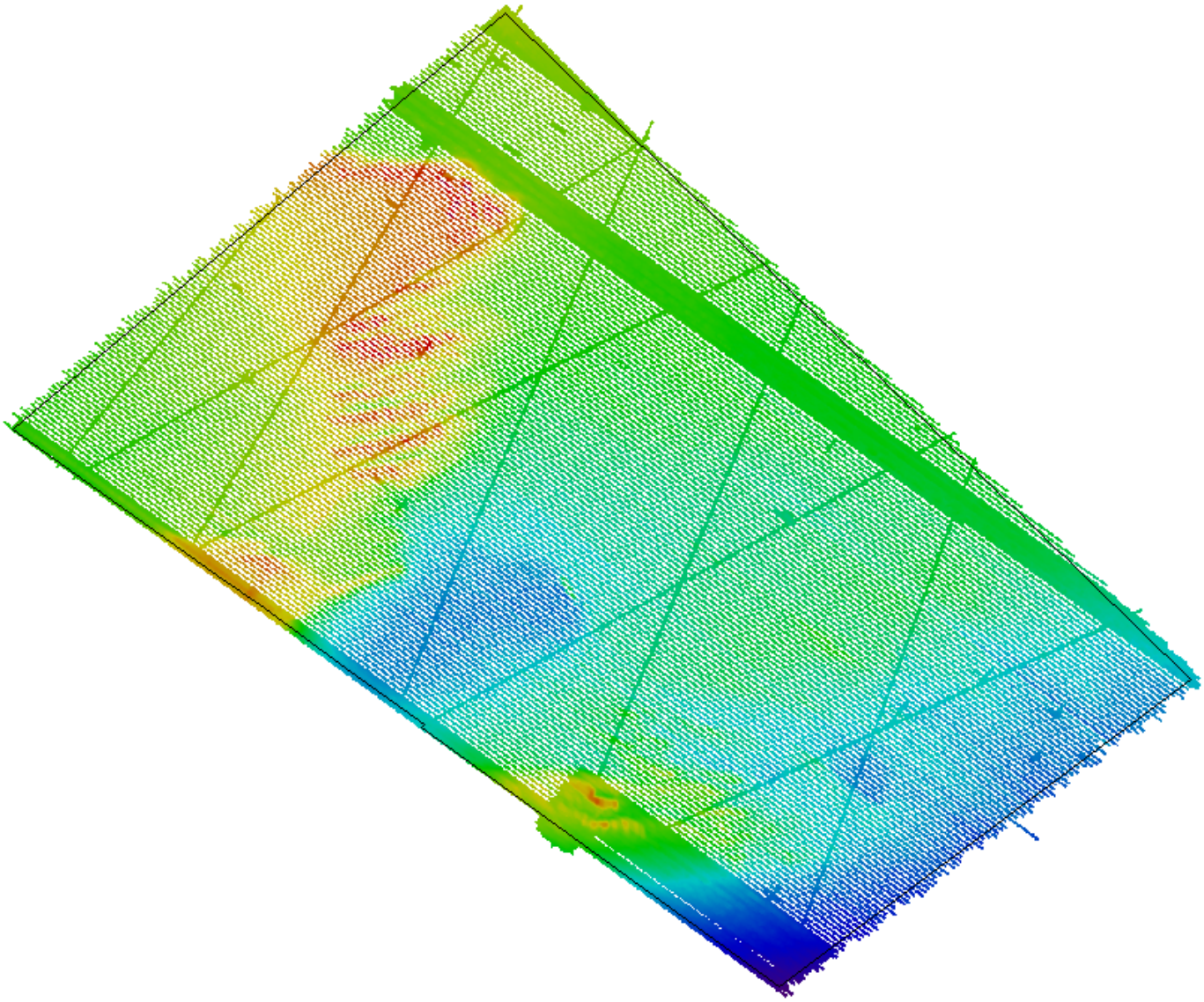

Figure 14: EM2040 and EM710 MBES coverage CUBE surface.

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 MBES backscatter was logged as part of the .all file of the Kongsberg EM710 and EM2040 systems. Backscatter was processed in QPS FMGT software and the exported geotiff is included in the final processed data package.

Gaps in along track backscatter coverage exist in the individual backscatter mosaics, however, full along-track backscatter coverage was obtained when both mosaics are combined.

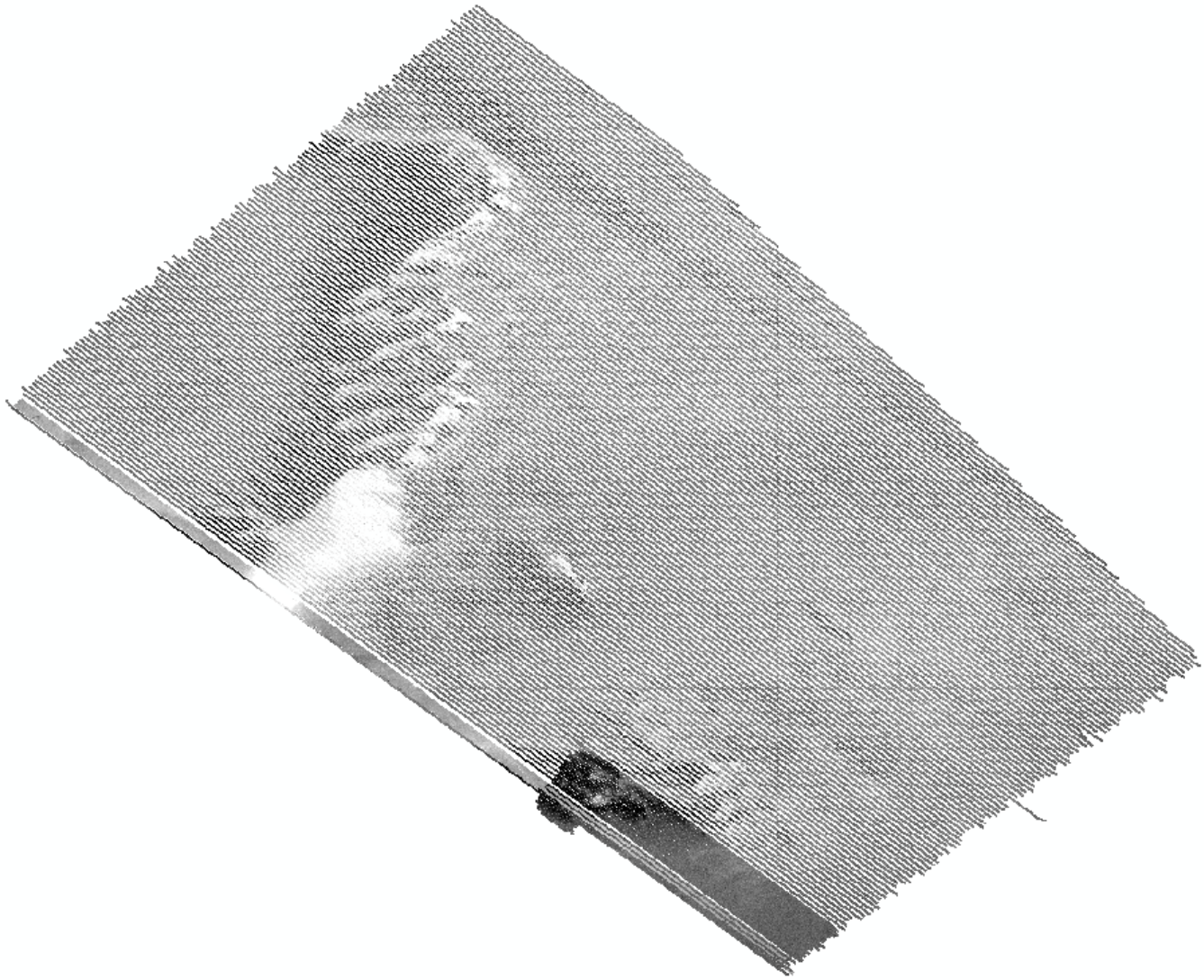

Figure 15: Backscatter GeoTiff from EM710 and EM2040 data

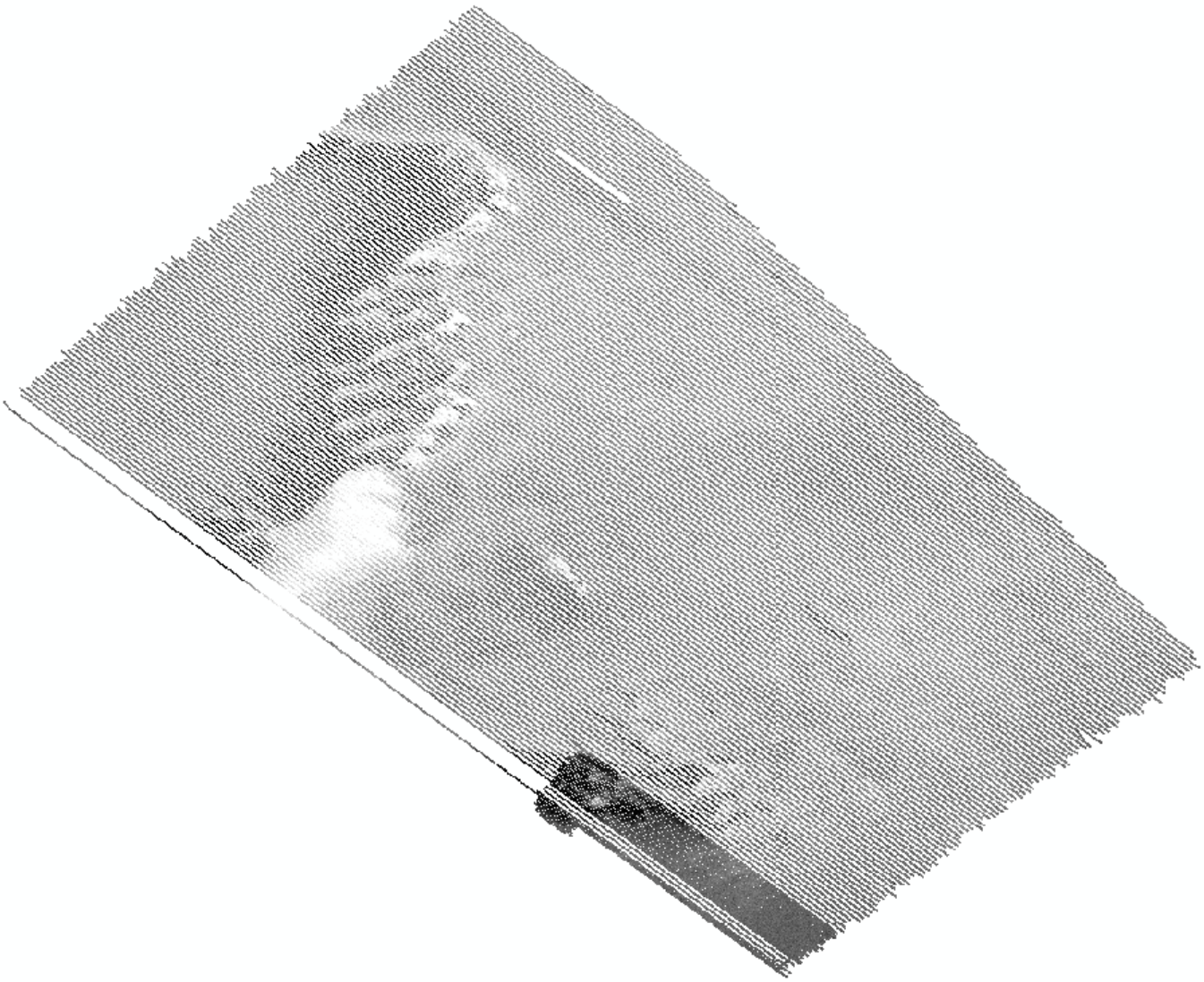

Figure 16: Backscatter coverage provided from EM710 system

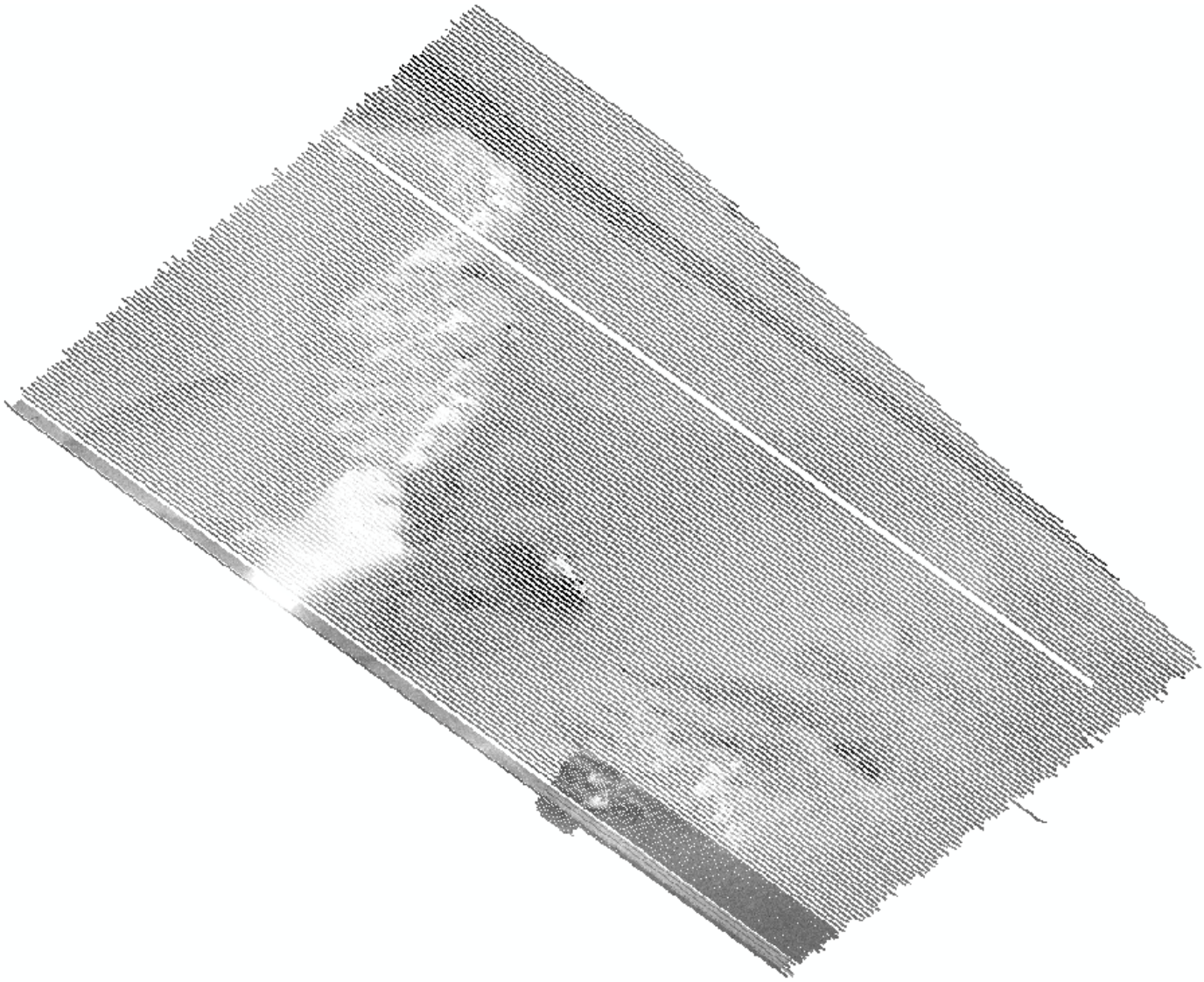

Figure 17: Backscatter coverage provided from EM2040 system

B.5 Data Processing

B.5.1 Primary Data Processing Software

The following Feature Object Catalog was used: NOAA Profile V_5_7.

The appropriate NOAA profile was used when processing the data in CARIS HIPS and SIPS 10.4.

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
H13044_MB_1m_MLLW_Final	CARIS Raster Surface (CUBE)	1 meters	14.7 meters - 23.3 meters	NOAA_1m	Complete MBES
H13044_MB_1m_MLLW	CARIS Raster Surface (CUBE)	1 meters	14.7 meters - 23.3 meters	NOAA_1m	Complete MBES
H13044_SSSAB_1m_455kHz_1of2	SSS Mosaic	1 meters	0 meters - 0 meters	N/A	100% SSS
H13044_SSSAB_1m_455kHz_2of2	SSS Mosaic	1 meters	0 meters - 0 meters	N/A	200% SSS
H13044_MBAB_1m_S222_70kHz_1of3	GeoTiff	1 meters	0 meters - 0 meters	N/A	MBES Backscatter
H13044_MBAB_1m_S222_300kHz_2of3	GeoTiff	1 meters	0 meters - 0 meters	N/A	MBES Backscatter
H13044_MBAB_1m_2903_300kHz_3of3	GeoTiff	1 meters	0 meters - 0 meters	N/A	MBES Backscatter

Table 10: Submitted Surfaces

Per section 5.2.2.3 of the NOAA HSSD (ed 2018), 100% side scan with concurrent multibeam and complete coverage multibeam were acquired to meet complete coverage requirements. All MBES data for H13044 were gridded at 1m per a single grid resolution waiver (see Project Correspondence). SSS data was mosaicked at 1m resolution.

B.5.3 Mixed Used of EM710/EM2040 Data to Create MBES Surface

DN168, EM2040 lines 0275 and 0276 were not included in the generation of the MBES surface. The data associated with the lines were of poor quality due to rough sea state. These lines were reacquired on DN178 as line 0245. EM2040 data was not used to create the MBES surface for DN146, lines 0033 and 0034; DN149, lines 111 and 112; DN158, line 0217; DN 177, line 0317; and DN178, line 0246. EM710 data covers the alongtrack coverage requirements of SSS nadir for these lines instead. A holiday between DN149, line 089 and DN150, line 090 in the EM2040 data was covered by DN150, line 0130 of EM710 data.

Concur with clarification. The primary source of the H13044 bathymetric grid is the EM2040 MBES. EM710 data was substituted for three lines not listed in section B.5.3:
EM710 HIPS 1:

Vessel=S222_EM710_2018;Day=2018-149;Line=0111_20180529_095401_S222_EM710
Vessel=S222_EM710_2018;Day=2018-149;Line=0112_20180529_104014_S222_EM710
EM710 HIPS 4
Vessel=S222_EM710_2018;Day=2018-150;Line=0130_20180530_001134_S222_EM710

Specific lines listed as not included in the grid DN168 EM2040 Lines 0275 and 0276 were submitted. DN168 lines 0272 and 0273 were not included in the parent grid, these two lines were submitted and was not included in the list of excluded lines.

EM2040 DN177 line 0317 and DN178 line 0246 were documented as not being added to the grid, yet the grid's XML export documents that they were included in the grid. DN178 line 0246 was included as two separate lines.

EM2040 lines for DN146 Line 033 and 034, DN149 Lines 111 and 112, and DN158 line 0217 were not incorporated in the grid nor submitted, nor included in the excluded list.

C. Vertical and Horizontal Control

No HVCR accompanies this survey

C.1 Vertical Control

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

<u>ERS Datum Transformation</u>

The following ellipsoid-to-chart vertical datum transformation was used:

Method	Ellipsoid to Chart Datum Separation File
ERS via VDATUM	OPR-K371-TJ-17_WGS84-MLLW_Geoid12B

Table 11: ERS method and SEP file

All soundings submitted for H13044 are reduced to MLLW using VDatum techniques as outlined in the DAPR.

C.2 Horizontal Control

The horizontal datum for this project is World Geodetic System (WGS) 1984.

The projection used for this project is Universal Transverse Mercator (UTM) Zone 15.

Horizontal datum was revised to NAD83 UTM 15N.

D. Results and Recommendations

D.1 Chart Comparison

A chart comparison was conducted between survey H13044 soundings and previously charted ENC soundings using the DtoN Scanner tool of Pydro QC Tools 2 v.2.5.21. No sounding differences between the existing ENC's and H13044 data were significant or considered DtoNs.

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?
US4TX52M	1:80000	24	12/26/2017	12/26/2017	NO
US3GC02M	1:250000	31	03/01/2018	03/01/2018	NO

Table 12: Largest Scale ENCs

US4TX52M

US3GC02M

D.1.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.3 Charted Features

A total of 27 charted obstructions and pipelines were investigated. Reference the Final Feature File for further information.

D.1.4 Uncharted Features

A designated sounding of 18.1m was selected for an obstruction detected in the MBES data approximately 90m west of an assigned feature's charted position. The original feature was recommended for the deletion in the Final Feature File and this new feature added in its place.

D.1.5 Shoal and Hazardous Features

No shoals or potentially hazardous features exist for this survey.

D.1.6 Channels

No channels exist for this survey. There are no designated anchorages, precautionary areas, safety fairways, traffic separation schemes, pilot boarding areas, or channel and range lines within the survey limits.

D.1.7 Bottom Samples

After an analysis of the backscatter mosaics, the number and distribution of bottom samples were adjusted from the original sample plan provided. A total of 8 bottoms were collected by S222. The revised sample plan was appropriate to cover the distinct bottom types within the survey sheet limits. Reference the Final Feature File for further information. Images accompany each bottom sample except for bottom sample 6, whose media was lost.

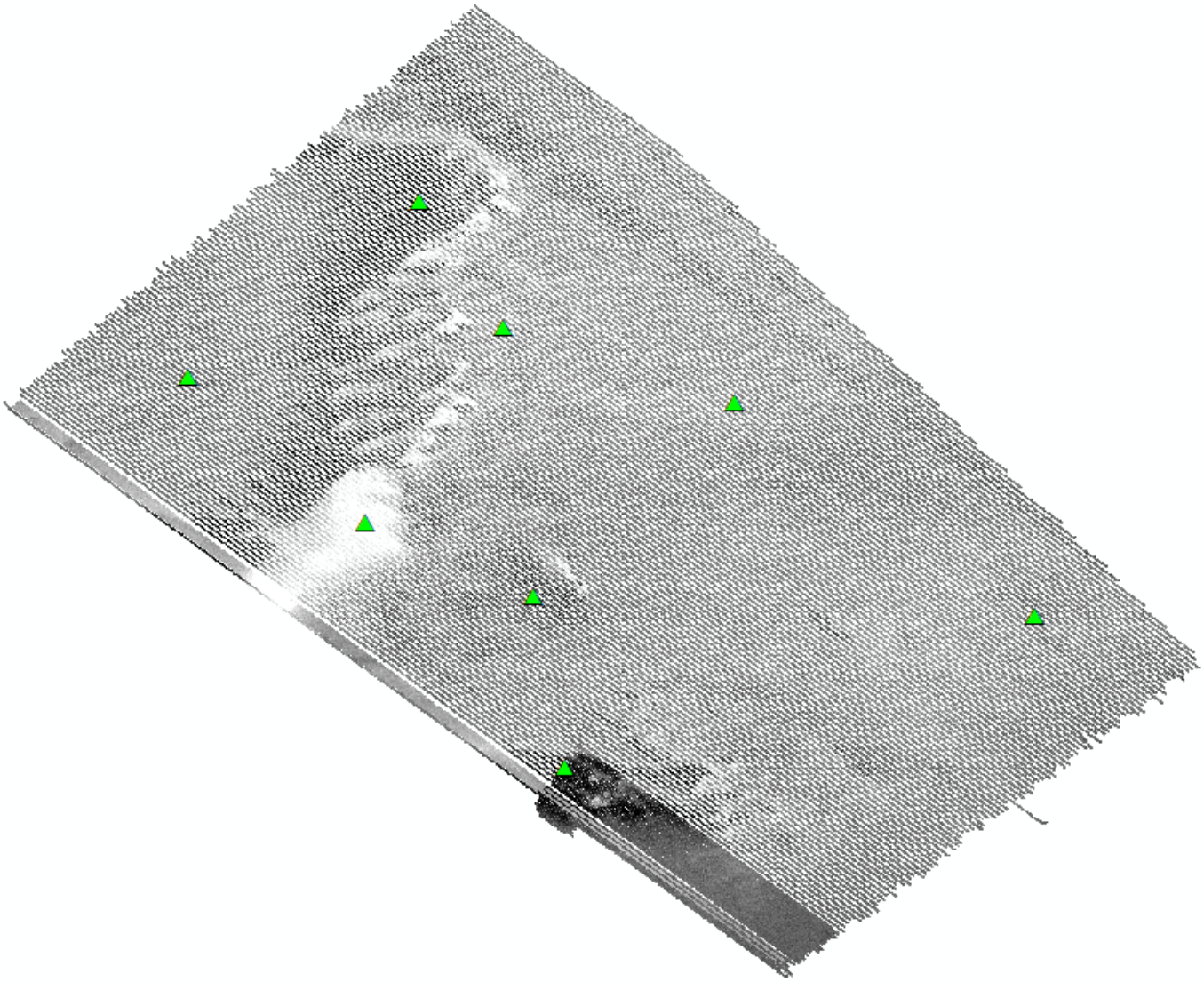

Figure 18: H13044 revised bottom sample plan based on backscatter data

D.2 Additional Results

D.2.1 Shoreline

Shoreline was not assigned in the Hydrographic Survey Project Instructions or Statement of Work.

D.2.2 Aids to Navigation

No Aids to Navigation (ATONs) exist for this survey.

D.2.3 Overhead Features

No overhead features exist for this survey.

D.2.4 Submarine Features

8 pipeline features were assigned for investigation. MBES data collection found three areas of exposed pipeline positioned as charted. Reference Final Feature File for further information.

D.2.5 Platforms

All charted platforms and wellheads within survey limits were found to not exist. Reference Final Feature File for further information.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Abnormal Seafloor and/or Environmental Conditions

No abnormal seafloor and/or environmental conditions exist for this survey.

D.2.8 Construction and Dredging

No present or planned construction or dredging exist within the survey limits.

D.2.9 New Survey Recommendation

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

D.2.10 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, 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
Christiaan van Westendorp, CAPT/NOAA	Chief of Party	10/01/2018	VAN WESTENDORP.CHRISTIAAN.HENRY.1012828175 c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=NOAA, cn=VAN WESTENDORP.CHRISTIAAN.HENRY.1012828175 2018.10.01 18:33:43 -04'00'
Anthony Klemm, LT/NOAA	Field Operations Officer	10/01/2018	Digitally signed by KLEMM.ANTHONY.ROSS.1392701601 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=NOAA, cn=KLEMM.ANTHONY.ROSS.1392701601 Date: 2018.10.01 18:42:32 -04'00'
Charles Wisotzkey, LT/NOAA	Fourth Officer	10/01/2018	Digitally signed by WISOTZKEY.CHARLES.JUSTIN.1300819660 Date: 2018.10.03 18:58:18 Z
Jacquelyn Putnam, ENS/NOAA	Sheet Manager	10/01/2018	PUTNAM.JACQUELYN.MARIE.1034131666 Digitally signed by PUTNAM.JACQUELYN.MARIE.1034131666 Date: 2018.10.02 21:14:40 Z

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	Continuously Operating Reference Station
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
ERTDM	Ellipsoidally Referenced Tidal Datum Model
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

Acronym	Definition
HSSD	Hydrographic Survey Specifications and Deliverables
HSTB	Hydrographic Systems Technology Branch
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
MBAB	Multibeam Echosounder Acoustic Backscatter
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NALL	Navigable Area Limit Line
NTM	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

Acronym	Definition
PRF	Project Reference File
PS	Physical Scientist
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
RTX	Real Time Extended
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
SSSAB	Side Scan Sonar Acoustic Backscatter
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 States Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDF	Zone Definition File

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations
NOAA Ship *Thomas Jefferson* (S222)
439 West York St, Norfolk, VA 23510

3/29/2018

MEMORANDUM FOR: Corey Allen
Acting Chief, Operations Branch
Hydrographic Surveys Division

FROM: Commander Christiaan van Westendorp, NOAA
Commanding Officer, NOAA Ship *Thomas Jefferson*

SUBJECT: Waiver request – WGS84 Datum, CY2018 Projects

Thomas Jefferson requests a waiver of the HSSD 2017 and HSSD 2018 Section 2.2 Horizontal Datum requirement to acquire and submit survey data in WGS84 rather than NAD83 for all projects in calendar year 2018.

Justification

Retaining the current procedure and configurations will reduce the possibility of errors.

Decision

Waiver is: Granted _____ Denied _____

cc: OPS, *Thomas Jefferson*
HCST, *Thomas Jefferson*

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations
NOAA Ship *Thomas Jefferson* (S222)
439 West York St, Norfolk, VA 23510

19 June 2018

MEMORANDUM FOR: Doug Wood
Project Manager, OPR-K371-TJ-18
Hydrographic Surveys Division Operations Branch

FROM: Commander Chris van Westendorp, NOAA
Commanding Officer, NOAA Ship *Thomas Jefferson*

SUBJECT: Waiver request – Submission of single resolution depth surface

Thomas Jefferson requests a waiver of the HSSD 2018 Section 5.2.2.3: Complete coverage multibeam surface grid-resolution thresholds requirement. *Thomas Jefferson* requests approval to submit a single 1m resolution CUBE multibeam surface for surveys in Project OPR-K371-TJ-18, in spite of depths ranging both shallower and deeper than 20m.

Justification

The grid nodes with a depth greater than 20m in sheet H13047 have an average sounding density of 84 soundings per node, with 99.5% having greater than or equal to 5 soundings per node, which is sufficient to meet minimum required sounding density requirements at the 1m grid size.

Decision

PRIDGEN.KATHRYN.GRABOWSKI.1392550549
Digitally signed by PRIDGEN.KATHRYN.GRABOWSKI.1392550549
Date: 2018.06.20 09:06:12 -04'00'

Waiver is: Granted _____ Denied _____

cc: Chief, HSD OPS
OPS, *Thomas Jefferson*
HCST, *Thomas Jefferson*

Charles Wisotzkey - NOAA Federal <charles.j.wisotzkey@noaa.gov>

Waiver request for HTD issued after commencement of data acquisition and processing

1 message

Charles Wisotzkey - NOAA Federal <charles.j.wisotzkey@noaa.gov> Sun, Aug 5, 2018 at 8:09 PM
To: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>
Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>

Doug,

Please see attached.

--

LT Charles J. Wisotzkey, NOAA
NOAA Ship Thomas Jefferson (S-222)

OPR-K371-TJ-18 HTD 2018-5 waiver request.pdf
163K

Charles Wisotzkey - NOAA Federal <charles.j.wisotzkey@noaa.gov>

Environmental compliance letter for Approaches to Galveston

1 message

Douglas Wood - NOAA Federal <douglas.wood@noaa.gov> Tue, Mar 6, 2018 at 8:30 AM
To: "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, "ChiefST.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>

Hi *TJ*,

I just received the signed environmental review for OPR-K371.
Please take some time to review it.

Thank you

Doug

--

Douglas Wood
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey
National Oceanic and Atmospheric Administration
1315 East West Highway
Silver Spring, MD 20910
240-533-0042

Env Review - Houston-Galveston 2018.pdf
3048K

Joshua Hiteshew - NOAA Federal <joshua.hiteshew@noaa.gov>

Coast pilot review

3 messages

Joshua Hiteshew - NOAA Federal <joshua.hiteshew@noaa.gov> Thu, Aug 16, 2018 at 5:44 PM
To: OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>, _NOS OCS NSD Coast Pilot <coast.pilot@noaa.gov>
Cc: _OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>, Charles Wisotzkey - NOAA Federal <charles.j.wisotzkey@noaa.gov>, Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>

To whom it may concern,

Attached is the Coast Pilot review for project OPR-K371-TJ-18.

V/r,

Josh

--
HSST Joshua Hiteshew, NOAA
NOAA ship Thomas Jefferson
439 W York St, Norfolk, VA 23510

OPR-K371-TJ-18_Coast_pilot review.pdf
2099K

Richard Powell - NOAA Federal <richard.powell@noaa.gov> Thu, Aug 16, 2018 at 6:17 PM
To: Joshua Hiteshew - NOAA Federal <joshua.hiteshew@noaa.gov>

Josh,

Thanks for the report and noting that you were not able take any current velocity readings.

Sincerely,
Richard

Richard Hodge Powell
Cartographer / Marine Information
Nautical Publications Branch
240-533-0060

National Oceanic and Atmospheric Administration
National Ocean Service
Office of Coast Survey
[Quoted text hidden]

Douglas Wood - NOAA Federal <douglas.wood@noaa.gov> Mon, Aug 20, 2018 at 9:20 PM
To: Joshua Hiteshew - NOAA Federal <joshua.hiteshew@noaa.gov>

Thanks Josh!

On Thu, Aug 16, 2018 at 1:44 PM, Joshua Hiteshew - NOAA Federal <joshua.hiteshew@noaa.gov> wrote:
[Quoted text hidden]

--

Douglas Wood
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey
National Oceanic and Atmospheric Administration
1315 East West Highway
Silver Spring, MD 20910
240-533-0042

Joshua Hiteshew - NOAA Federal <joshua.hiteshew@noaa.gov>

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To: OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>, _NOS OCS NSD Coast Pilot <coast.pilot@noaa.gov>
Cc: _OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>, Charles Wisotzkey - NOAA Federal <charles.j.wisotzkey@noaa.gov>, Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>

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Josh

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National Ocean Service
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[Quoted text hidden]

--

Douglas Wood
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey
National Oceanic and Atmospheric Administration
1315 East West Highway
Silver Spring, MD 20910
240-533-0042

Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>

H13044 assigned features clarification

2 messages

Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov> Wed, May 16, 2018 at 9:54 PM
To: Douglas Wood <douglas.wood@noaa.gov>
Cc: Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>, _OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>

Hi Doug,

We are working up an acquisition plan for H13044, and had a few questions about some assigned features. There is a charted 53ft obstn on the SW boarder of the sheet limits. Can you provide a disproval radius? I didn't see one encoded in the CSF.

Best,
Anthony

LT Anthony Klemm, NOAA
Field Operations Officer
NOAA Ship *Thomas Jefferson*
439 W York Street
Norfolk, VA 23510
757-647-0187

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H13044.png
102K

Douglas Wood - NOAA Federal <douglas.wood@noaa.gov> Thu, May 17, 2018 at 1:08 PM
To: Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>
Cc: Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>, _OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Hi LT Klemm,

oops, I missed a circle on this one. Actually, it's importance is somewhat questionable because it is not significantly shoal of the seabed immediately east of it but it is near the edge of the channel, and I guess that I did assign it. I looked at junction survey H10874 from 1999 and it doesn't show anything.

Well, Martha and I deliberated and decided that we probably should give it the respect that it deserves with a **480m disproval radius**. Any prior coverage probably goes back to the '20s meaning that positioning will probably not be up to our current expectation (see survey H04333, 1923; or possibly H08739, 1963, USC&GS Ship *Hydrographer*), (see attached).

Bet that you won't find anything...

Doug

[Quoted text hidden]

--

Douglas Wood
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey
National Oceanic and Atmospheric Administration
1315 East West Highway
Silver Spring, MD 20910
240-533-0042

OPR-K371-TJ-17-surveyHistory.jpg
1505K

Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>

Exposed charted pipeline found in NOAA Survey in Western Gulf of Mexico

1 message

Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov> Mon, Aug 27, 2018 at 1:20 PM
To: pipelines@bsee.gov
Cc: Douglas Wood <douglas.wood@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>

Good morning,

NOAA Hydrographic Survey H13044 by the NOAA Ship *Thomas Jefferson* indicates there are three areas of exposed pipeline at the following locations:

- 29-03-26.4N, 093-54-41.9W; found 28 JUN 2018 at 0344 UTC; positioned as charted (see attached H13044_PipelineI for reference)

- 29-08-47.7N, 094-01-54.7W; found 09 JUN 2018 at 0245 UTC; positioned 10m from charted pipeline (see attached H13044_PipelineII for reference)

- 29-08-37.2N, 094-01-34.1W; found 27 JUN 2018 at 2158 UTC; positioned 14m from charted pipeline (see attached H13044_PipelineIII for reference)"

Please let me know if you have any questions.

Best regards,

LT Anthony Klemm, NOAA
Field Operations Officer
NOAA Ship *Thomas Jefferson*
439 W York Street
Norfolk, VA 23510
757-647-0187
541-867-8928

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3 attachments

H13044_PipelineIII.png
164K

H13044_PipelineI.png
146K

H13044_Pipelinell.png
159K

H13044 assigned features clarification

2 messages

Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov> Wed, May 16, 2018 at 5:54 PM
To: Douglas Wood <douglas.wood@noaa.gov>
Cc: Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>, _OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>

Hi Doug,

We are working up an acquisition plan for H13044, and had a few questions about some assigned features. There is a charted 53ft obstn on the SW boarder of the sheet limits. Can you provide a disproval radius? I didn't see one encoded in the CSF.

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Anthony

LT Anthony Klemm, NOAA
Field Operations Officer
NOAA Ship *Thomas Jefferson*
439 W York Street
Norfolk, VA 23510
757-647-0187

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H13044.png
102K

Douglas Wood - NOAA Federal <douglas.wood@noaa.gov> Thu, May 17, 2018 at 9:08 AM
To: Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>
Cc: Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>, _OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

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Bet that you won't find anything...

Doug
[Quoted text hidden]
--

Douglas Wood
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey
National Oceanic and Atmospheric Administration
1315 East West Highway
Silver Spring, MD 20910
240-533-0042

OPR-K371-TJ-17-surveyHistory.jpg
1505K

Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>

H13044 Survey Outline

1 message

Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov> Sun, Jul 1, 2018 at 7:15 PM
To: _NOS OCS Survey Outlines <survey.outlines@noaa.gov>, Douglas Wood <douglas.wood@noaa.gov>
Cc: _OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>

Good afternoon,

Attached is a compressed folder containing the H13044 survey outline in shapefile format. Please let us know if you have any questions.

Best regards,
Anthony

LT Anthony Klemm, NOAA
Field Operations Officer
NOAA Ship *Thomas Jefferson*
439 W York Street
Norfolk, VA 23510
757-647-0187

Learn about NOAA nautical charts - www.nauticalcharts.noaa.gov

H13044_Survey_Outline.zip
3686K

APPROVAL PAGE

H13044

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
- GeoImage 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 WARTICK.RYAN.AUGUSTUS.1100903608 Date: 2019.08.30 10:20:57 -04'00'

Lieutenant Commander Ryan Wartick, NOAA
Chief, Atlantic Hydrographic Branch