H12573

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H12573

LOCALITY

State(s):	Delaware
General Locality:	Delaware Bay
Sub-locality:	Northeast Cape Henlopen - 5 ftm Bank Traffic Lane

2013

CHIEF OF PARTY
CDR Lawrence T. Krepp

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H12573**

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):	**Delaware**
General Locality:	**Delaware Bay**
Sub-Locality:	**Northeast Cape Henlopen - 5 ftm Bank Traffic Lane**
Scale:	**40000**
Dates of Survey:	**09/15/2013 to 09/30/2013**
Instructions Dated:	**05/03/2013**
Project Number:	**OPR-D332-TJ-13**
Field Unit:	**NOAA Ship *Thomas Jefferson***
Chief of Party:	**CDR Lawrence T. Krepp**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	**Multibeam Echo Sounder Backscatter Side Scan Sonar**
Verification by:	**Atlantic 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 Geophysical Data Center (NGDC) and can be retrieved via http:// www.ngdc.noaa.gov/.

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Descriptive Report to Accompany Survey H12573

Project: OPR-D332-TJ-13

Locality: Delaware Bay

Sublocality: Northeast Cape Henlopen - 5 ftm Bank Traffic Lane

Scale: 1:40000

September 2013 - September 2013

NOAA Ship *Thomas Jefferson*

Chief of Party: CDR Lawrence T. Krepp

A. Area Surveyed

This survey was conducted in the Approaches to Delaware Bay, DE and in the vicinity of Five Fathom Bank.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
38° 51" 38.44' N 74° 42" 33.23' W	38° 48" 34.46' N 74° 29" 24.48' W

Table 1: Survey Limits

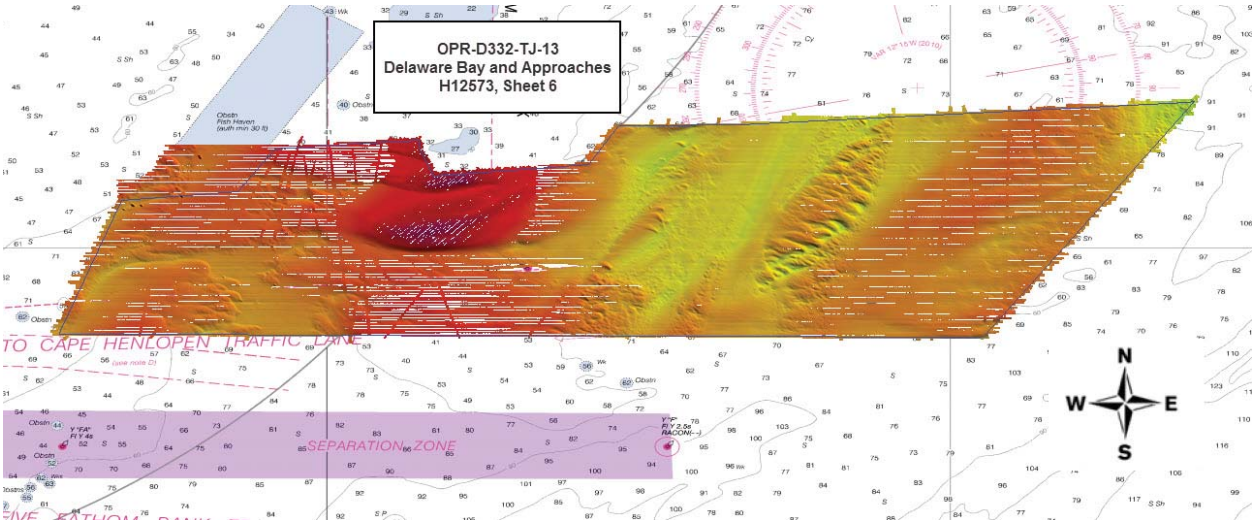


Figure 1: H12573 Survey Overview

Survey lines in the northwestern section of the sheet were extended beyond the sheet to cover the adjacent fish haven area. This extension was made by the field to avoid turning the ship with a deployed towfish in an area of potential obstructions.

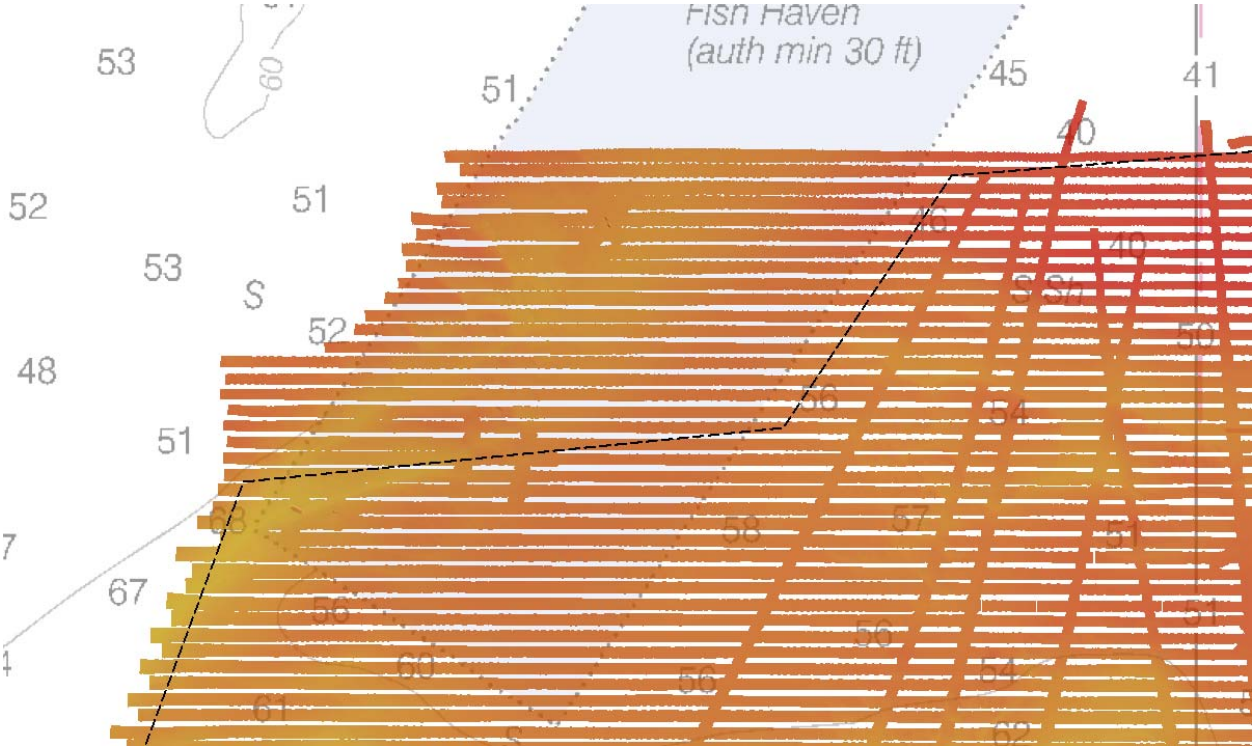


Figure 2: Assigned sheet boundary and actual survey coverage in NW corner of sheet

A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products in response to Hurricane Sandy. The project will cover approximately 385 square nautical miles addressing approximately 31 square nautical miles of the NHSP critical area and 273 square nautical miles of the NHSP of re-survey .

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

A.4 Survey Coverage

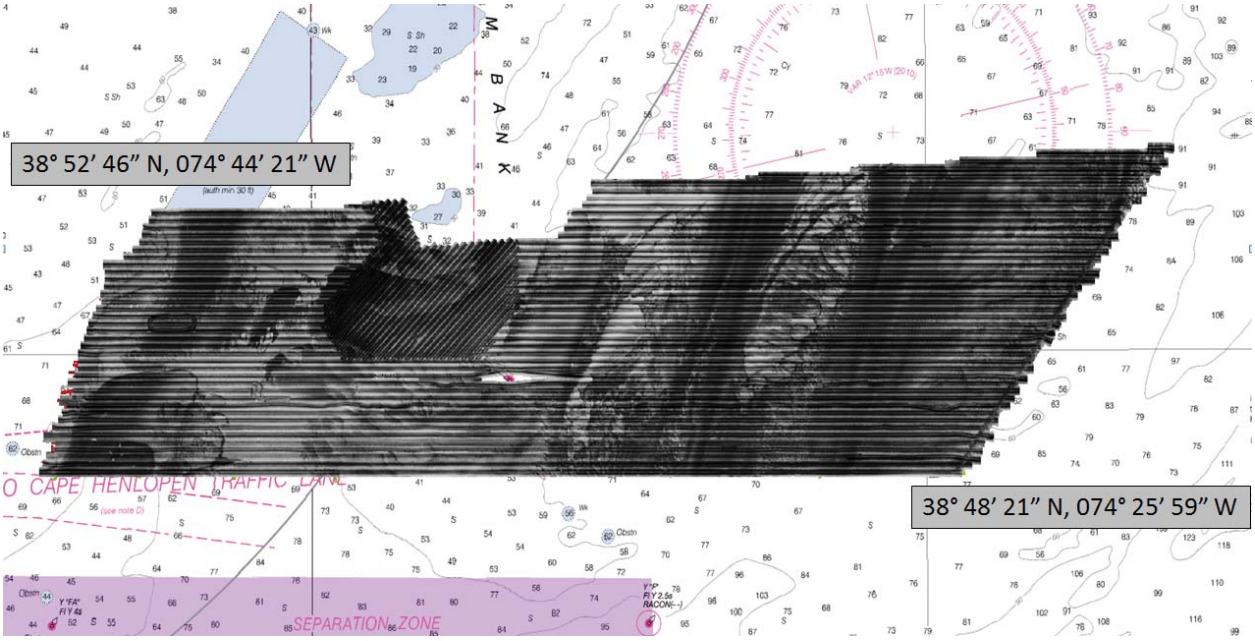


Figure 3: Survey H12573 200% Side Scan Sonar Coverage

Overall, survey coverage was in accordance with the requirements in the project instructions and the HSSD. However, figure 4 shows a small 100% SSS holdiay. There is coverage in the 200% SSS mosaic as well as MBES. Figure 5 and 6 show a 100% SSS, 200% SSS holiday in the vicinity of red bouy '4FB' in the center of the survey area. During acquisition it was determined to be to dangerous to get coverage closer to the bouy.

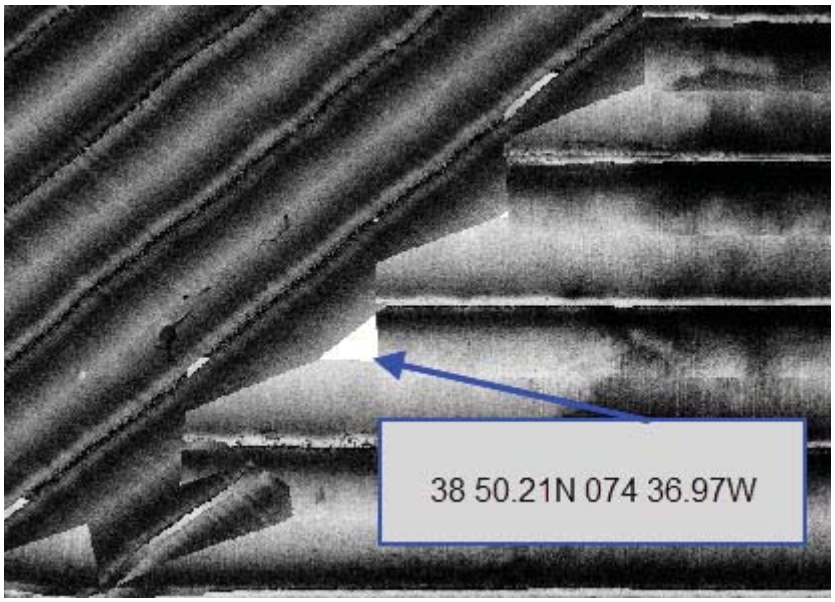


Figure 4: 100% SSS holiday

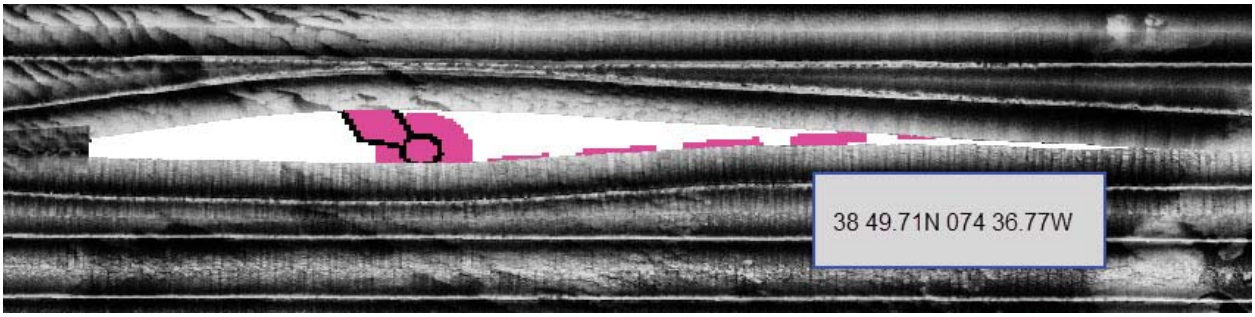


Figure 5: 100% SSS holiday

Figure 6: 200% SSS holiday

Branch Comment: Complete coverage object detection side scan coverage was not entirely achieved for survey H12573; refraction has rendered portions of the side scan data unusable. During chart compilation at the Atlantic Hydrographic Branch, the Category Zone of Confidence (CATZOC) was lowered to Category 'B' (full area search not achieved; uncharted features, hazardous to navigation are not expected but may exist) for these areas.

A.5 Survey Statistics

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

	Vessel	***S-222***	***3101***	***3102***	***Total***
LNM	**SBES Mainscheme**	0	0	0	0
	MBES Mainscheme	7.426	3.185	0	11.118
	Lidar Mainscheme	0	0	0	0
	SSS Mainscheme	0	0	0	0
	SBES/MBES Combo Mainscheme	0	0	0	0
	SBES/SSS Combo Mainscheme	0	0	0	0
	MBES/SSS Combo Mainscheme	919.611	97.670	0	1017.487
	SBES/MBES Combo Crosslines	78.14	7.302	3.30	88.74
	Lidar Crosslines	0	0	0	0
Number of Bottom Samples					0
Number AWOIS Items Investigated					7
Number Maritime Boundary Points Investigated					0
Number of DPs					0
Number of Items Items Investigated by Dive Ops					0
Total Number of SNM					40.44

Table 2: Hydrographic Survey Statistics

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

Survey Dates	Julian Day Number
09/15/2013	258
09/16/2013	259
09/17/2013	260
09/18/2013	261
09/19/2013	262
09/24/2013	267
09/25/2013	268
09/26/2013	269
09/27/2013	270
09/30/2013	273

Table 3: 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	*S-222*	*3101*	*3102*
LOA	208 feet	31 feet	31 feet
Draft	15 feet	5.2 feet	5.2 feet

Table 4: Vessels Used

S222 acquired multibeam sonar data, side scan sonar data, sound velocity data and attitude data. HSL 3101 acquired multibeam sonar data, side scan sonar data, sound velocity data and attitude data. HSL 3102 acquired multibeam sonar data, sound velocity data and attitude data.

B.1.2 Equipment

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

Manufacturer	Model	Type
Reson	7125	MBES
Reson	7125 SV	MBES
Klein	5000	SSS
Applanix	POS M/V v4	Positioning and Attitude System
Trimble	SPS351	Positioning System
Sea-Bird Electronics	SBE 19+	Conductivity, Temperature, and Depth Sensor
Brooke Ocean Technology	Moving Vessel Profiler 100	Sound Speed System
AML Oceanographic	AML Smart SV&P Probe	Sound Speed System
AML Oceanographic	AML Smart SV&T Probe	Sound Speed System
Reson	SV70	Sound Speed System

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Crosslines, acquired for this survey, totalled 8.94% of mainscheme acquisition.

H12573 Multibeam echo sounder crosslines totaled 88.74 nautical miles, comprising 8.94% of mainscheme MBES bathymetry. Using the difference surface, every instance of overlap was evaluated. The mean was 0.029 meters and the standard deviation was 0.102 meters. Survey H12527 complies with section 5.2.4.3 of the HSSD (2013 ed).

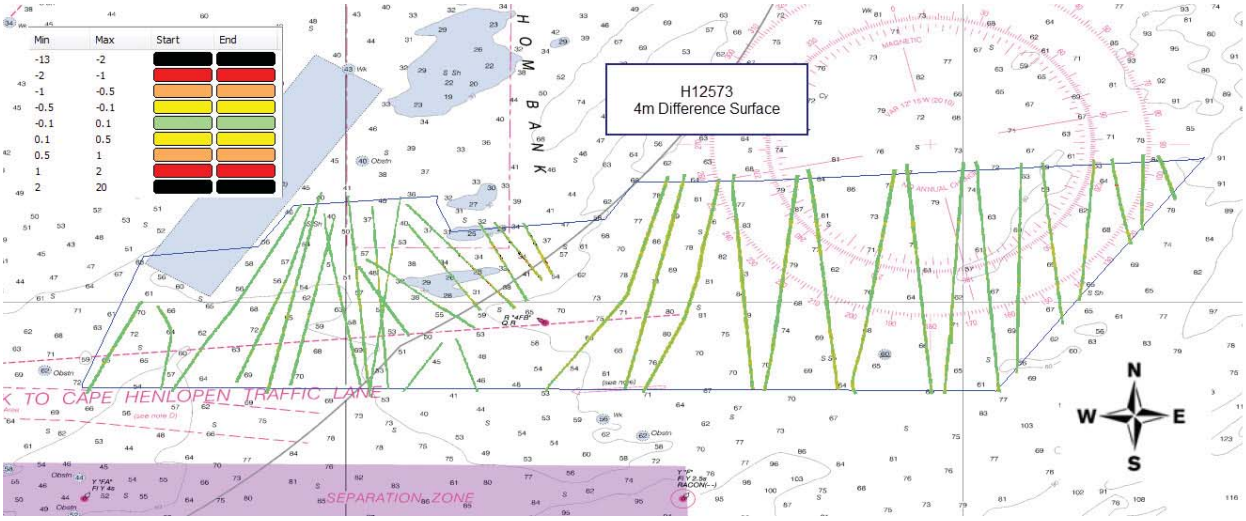


Figure 7: H12573 4m Difference surface. Red and Black areas show highest variation.

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Measured	Zoning
0 meters	0.085 meters
0 meters	0.140 meters

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
S222	1 meters/second	1 meters/second	0.2 meters/second
HSL 3101	4 meters/second	N/A meters/second	0.2 meters/second
HSL 3102	4 meters/second	N/A meters/second	0.2 meters/second

Table 7: Survey Specific Sound Speed TPU Values

The values used to calculate Total Propagated Uncertainty for survey H12573 varied based on the method used to reduce soundings to chart datum.

For data reduced via a separation mode, Total Propagated Uncertainties were derived using a combination of: real time uncertainties for vessel motion; a priori values for equipment and vessel characteristics; an a priori value for the separation model; and field assigned values for sound speed uncertainties. The real time uncertainties for vessel motion include roll, pitch, gyro, navigation, and elevation. The uncertainties in these measurements were recorded as part of the POSPac IAPPK 3D positional solution and were applied to the soundings via an SBET RMS file generated by Applanix POSPac. Uncertainties for sonar mounting

and vessel speed were assigned using the a priori values found in Appendix 4, table 4.9 of the NOAA Field Procedures Manual (FPM) (ed 2013), and applied to the data via the CARIS HIPS Hydrographic Vessel File. The uncertainty associated with the VDatum separation model was supplied by the Hydrographic Services Division's Operations Branch (see Table 6, row 2, column 2). Finally, the uncertainty associated with sound speed measurements were based on the frequency and location of CDT casts, in accordance with the guidance set by Appendix 4 of the FPM (ed 2013) (see Table 7).

For data reduced via water level modeling, Total Propagated Uncertainties again used a POSPac IAPPK solution for horizontal positioning, but used a zoned tide grid for vertical positioning. Uncertainty values for real time roll, pitch, gyro, and navigation remain the same, as do uncertainties from sonar mounting, vessel speed, and sound speed measurements. However, uncertainties for tide gauge measurement, tidal datum computation error, and tidal zoning error were provided by the Center for Operational Oceanographic Products and Services (CO-OPS) (see Table 6, row 1, column 2) The CO-OPS uncertainty value was provided at the 95% confidence interval. It was divided by 1.96 to provide the 1-sigma value needed by CARIS.

Total Propagated Uncertainty was then evaluated to ensure compliance with section 5.1.3 of NOAA's Hydrographic Survey Specification and Deliverables (HSSD). First the maximum allowable uncertainty for each node was calculated. Second the ratio between actual uncertainty and maximum allowed uncertainty is found for each node. The resulting 'IHO_ratio' layer was filtered using a color map to show any areas where actual uncertainty exceeded the maximum allowed uncertainty. For the 4m grid, 7,768,055 nodes were evaluated and 100% were within IHO uncertainty.

B.2.3 Junctions

There were a total of two contemporary surveys, from the same project, that junction with survey H12573. For both junction comparisons, overlapping areas of of the surveys were compared by the difference surface method in CARIS BASE Editior.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12572	1:40000	2013	NOAA Ship THOMAS JEFFERSON	S
H12571	1:20000	2013	NOAA Ship THOMAS JEFFERSON	W

Table 8: Junctioning Surveys

H12572

H12573 compared very well with H12572, with differences ranging from -0.532 meters to 0.833 meters. The standard deviation is 0.11 meters. Out of 123,860 nodes, 0 have a difference greater than 1 meter, for a 100% pass rate.

H12571

H12573 compared very well with H12571, with differences ranging from -0.698 meters to 0.359 meters. The standard deviation is 0.12 meters. Out of 66,363 nodes, 0 have a difference greater than 1 meter, for a 100% pass rate.

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

Variable Timing Offset Effecting Multiple Lines

For S-222, day number 268, lines 268_213_1647 and 268_213_1707 had a variable timing offset that could not be corrected. The timing error caused vertical offsets of greater than 1 meter, and the effected portions of these lines were rejected.

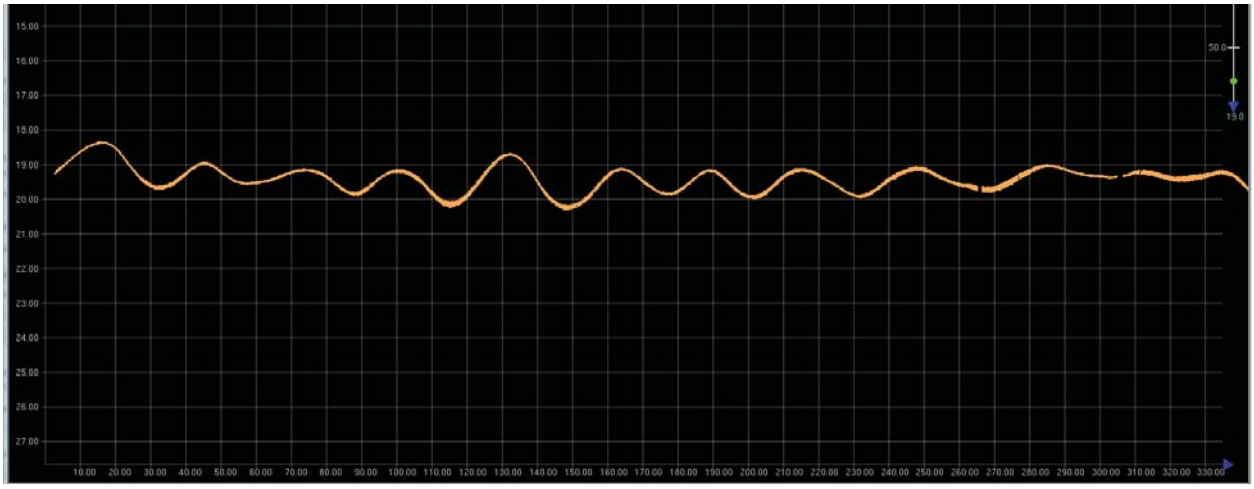


Figure 8: Timing offset found within H12573.

B.2.6 Factors Affecting Soundings

Vertical Errors due to ERS Anomaly

There was an artifact due to errors in the vertical element of IAPPK positional solutions applied to one line of multibeam data within the survey. This type of vertical offset manifests sporadically and is not specific to any individual survey, project or platform. No attempts to correlate these anomalies to SBET quality control information have proven successful. When present, the issue manifests itself during the application of GPS Tides. This reveals itself as MB data rising above or falling below the general trend of neighboring data. Where data was out of specification, ERS tides were removed and the data was reverted to zoned tides.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: S222 acquired sound velocity profiles every 30 to 60 minutes depending on the rate of change of the constantly monitored surface sound velocity. If surface sound velocity changed rapidly, casting frequency was increased. HSL 3101 and 3102 performed CTD casts approximately every 4 hours.

For all platforms, sound velocity was applied in CARIS HIPS using "nearest in distance within time 2 hours."

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

The following line exhibited a vertical offset when ERS tides were used. Reverting to zoned tides fixed the vertical offset issue. Vessel: 3101, day number: 269, line: 269_201_1920.

B.3.2 Calibrations

The following calibrations were conducted after the initial system calibration discussed in the DAPR:

Calibration Type	Date	Reason
HVF Modification	2014-03-10	Static timing error

Table 9: Calibrations not discussed in the DAPR.

During acquisition of survey H12573 on DN268 a static PPS timing error occured between 0922 and 1311. A correction of -1.150 second timing offest was entered in to the HVF, and applied to the MBES lines.

B.4 Backscatter

Raw Backscatter was logged as a 7k file and has been sent to the Processing Branch. Backscatter was not processed by the field unit. Due to performance issues with S-222's multibeam system, backscatter was not logged for this platform.

B.5 Data Processing

B.5.1 Software Updates

The following software updates occurred after the submission of the DAPR:

Manufacturer	Name	Version	Service Pack	Hotfix	Installation Date	Use
Caris	HIPS/SIPS	7.1.2	2	6	06/07/2012	Processing

Table 10: Software Updates

The following Feature Object Catalog was used: V5.3.2

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
H12573_MB_4m_MLLW_Final	CUBE	4 meters	7.99 meters - 63.21 meters	NOAA_4m	MBES TracklineSBES Set Line Spacing
H12573_MB_50cm_MLLW_combined_Final	CUBE	0.5 meters	-	NOAA_0.5m	Object Detection
H12573_SSS_100%.csar	SSS Mosaic	1 meters	-	N/A	100% SSS
H12573_SSS_200%.csar	SSS Mosaic	1 meters	-	N/A	200% SSS

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose

Table 11: Submitted Surfaces

Submitted CUBE surfaces follow the submission requirements outlined in the 2013 HSSD, section 5.2.2 for 200% SSS with concurrent MBES acquisition set line spacing with object detection.

C. Vertical and Horizontal Control

Per section 5.1.2.3 of the FPM, no Horizontal and Vertical Control Report has been generated for Survey H12573.

C.1 Vertical Control

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

Standard Vertical Control Methods Used:

Discrete Zoning

The following National Water Level Observation Network (NWLON) stations served as datum control for this survey:

Station Name	Station ID
Atlantic City, NJ	8534720
Cape May, NJ	8536110
Lewes, DE	8557380

Table 12: NWLON Tide Stations

File Name	Status
8534720.tid	Final Approved
8536110.tid	Final Approved
8557380.tid	Final Approved

Table 13: Water Level Files (.tid)

File Name	Status
D332TJ2013CORP.zdf	Final

Table 14: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 10/09/2013. The final tide note was received on 10/10/2013.

CO-OPS accepted preliminary zoning as final zoning for survey H12573.

Non-Standard Vertical Control Methods Used:

VDatum

Ellipsoid to Chart Datum Separation File:

2013_D332_VDatum_Ellip_MLLW.xyz

C.2 Horizontal Control

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

The projection used for this project is UTM-18N.

The following PPK methods were used for horizontal control:

Smart Base

The following CORS Stations were used for horizontal control:

HVCR Site ID	Base Station ID
VAWI	VAMI
MOR5	MOR5
COVX	COVX
LS03	LS03
NJCM	NJCM
NJGT	NJGT
NCBX	NCBX
DEMI	DEMI
NJBR	NJBR
MOR6	MOR6
DNRC	DNRC

Table 15: CORS Base Stations

Weather events and/or station outages resulted in occasional use of the Sandy Hook, NJ DGPS station.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Reedy Point, DE (309kHz)
Sandy Hook, NJ (286kHz)

Table 16: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

A chart comparison using a difference surface of the 4m final grid and an interpolated TIN of ENC soundings. The majority of the difference in soundings were deeper and no significant shoaler depths were seen.

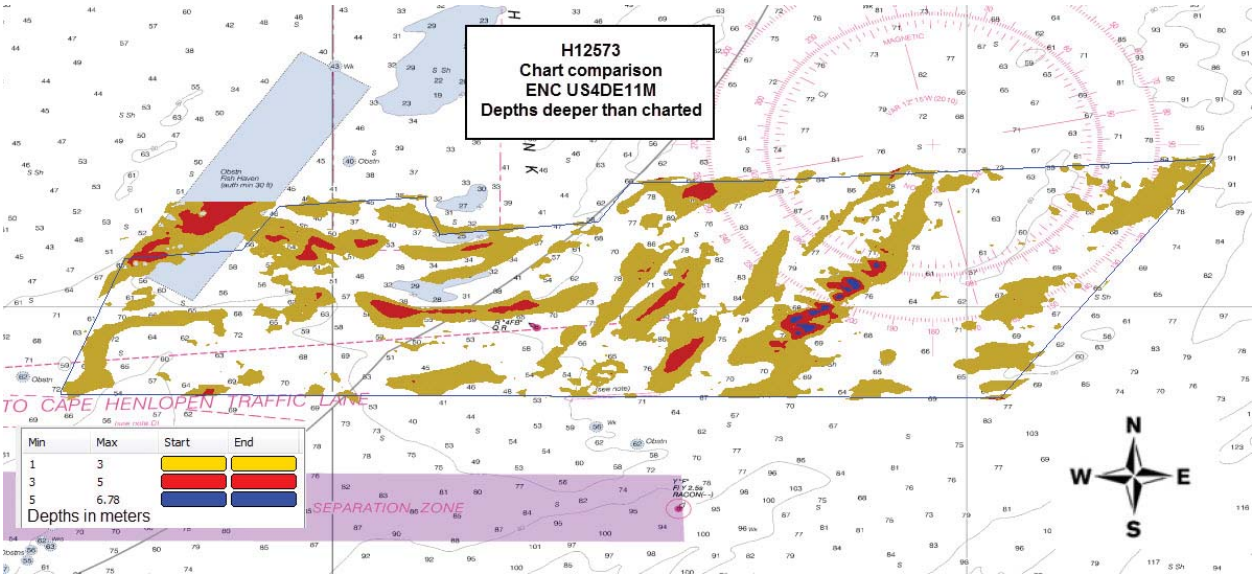


Figure 9: H12573 4m difference surface showing areas deeper than charted for ENC US4DE11M.

D.1.1 Raster Charts

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

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
12214	1:80000	49	11/2010	01/04/2014	01/04/2014

Table 17: Largest Scale Raster Charts

12214

It is recommended that the survey H12573 supersede all charted depth on chart 12214.

D.1.2 Electronic Navigational Charts

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

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US4DE11M	1:80000	27	01/10/2013	12/09/2013	NO

Table 18: Largest Scale ENCs

US4DE11M

It is recommended that the survey H12573 supersede all charted depths on chart US4DE11M.

D.1.3 AWOIS Items

All 7 assigned AWOIS items were investigated in survey H12573. For a full discussion, see the Final Feature File.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

A total of 2 charted features were found and investigated in survey H12573. For a full discussion, see the Final Feature File.

D.1.6 Uncharted Features

No uncharted features exist for this survey.

D.1.7 Dangers to Navigation

No Danger to Navigation Reports were submitted for this survey.

D.1.8 Shoal and Hazardous Features

Survey H12573 has 2 30 foot contour shoal areas. These areas were investigated and determined that the areas did not get shoaler and they did not move. The Fish haven was also investigated and determined that the authorized minimum of 30ft should retain as charted.

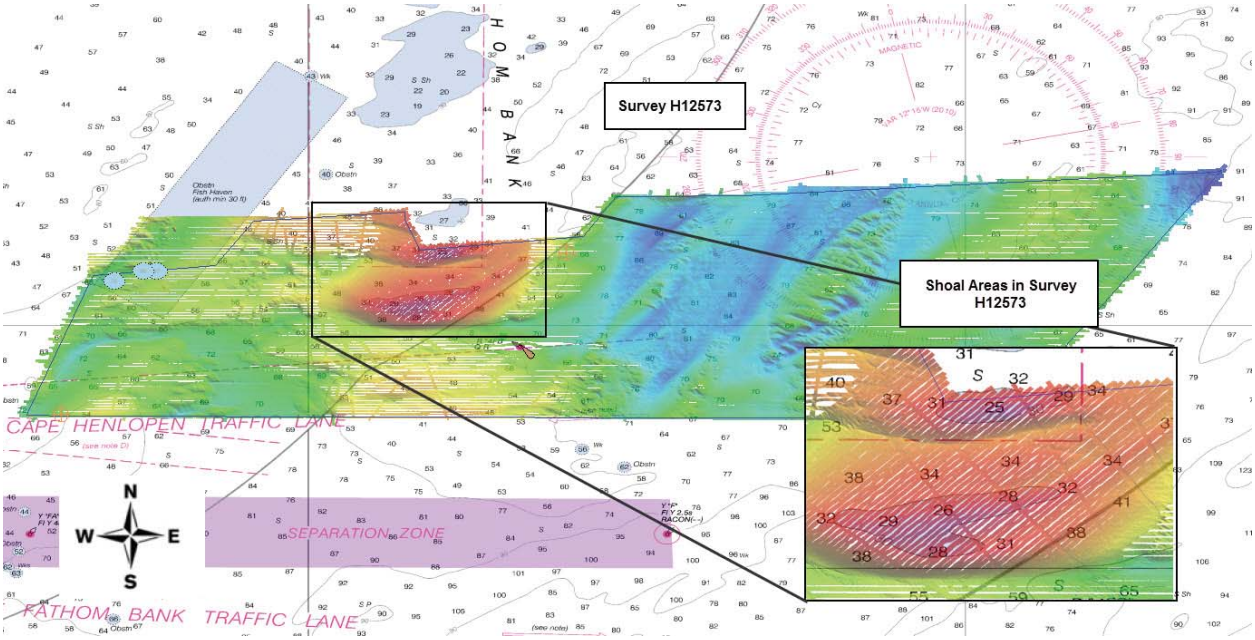


Figure 10: Shoal areas of survey H12573

D.1.9 Channels

The Fish haven in the Northwest corner of the survey has a controlling depth of 30 feet. The area was investigated and determined that the controlling depth should remain as charted.

The southern edge of survey H12573 contains a small part of Five Fathom Bank to Cape Henlopen traffic lane. The controlling depth of the traffic lane is 40 feet and after investigation the controlling depth should remain at 40ft.

D.1.10 Bottom Samples

No bottom samples were required for this survey.

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 Prior Surveys

Prior survey comparisons exist for this survey, but were not investigated.

D.2.3 Aids to Navigation

Survey H12573 included one (1) aid to navigation (ATON). The ATON's position was visually checked in the field against the digital raster chart. The ATON was found to serve its intended purpose.

D.2.4 Overhead Features

No overhead features exist for this survey.

D.2.5 Submarine Features

No submarine features exist for this survey.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Platforms

No platforms exist for this survey.

D.2.8 Significant Features

No significant features exist for this survey.

D.2.9 Construction and Dredging

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

D.2.10 New Survey Recommendations

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

D.2.11 New Inset Recommendations

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
ENS Casey S. Marwine	Sheet Manager	03/26/2014	Casey Marwine 2014.03.26 14:53:34 -04'00'
LT Megan R. Guberski	Field Operations Officer	03/26/2014	Megan R. Guberski LT/NOAA
CDR James M. Crocker	Commanding Officer	03/26/2014	Digitally signed by James Crocker DN: cn=James Crocker, o=CO, NOAA Ship Thomas Jefferson, ou=CDR/ NOAA, email=james.m.crocker@noaa.gov, c=US Date: 2014.03.26 16:11:34 -04'00'

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	Local Notice to Mariners
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

Acronym	Definition
PRF	Project Reference File
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
TPU	Total Porpagated 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

APPENDIX I

TIDES AND WATERLEVELS

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

October 09, 2013

MEMORANDUM FOR: Gerald Hovis, Chief, Products and Services Branch, N/OPS3

FROM: CDR Lawrence T. Krepp, NOAA Ship THOMAS JEFFERSON (MOA-TJ)

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 Ship THOMAS JEFFERSON (MOA-TJ)
439 West York St
Norfolk, VA 23510-1145

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

Project No.:	OPR-D332-TJ-13
Registry No.:	H12573
State:	Delaware
Locality:	Delaware Bay
Sublocality:	Northeast Cape Henlopen - 5 ftm Bank Traffic Lane

Attachments containing:

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

cc: MOA-TJ

Year_DOY	Min Time	Max Time
2013_258	13:20:37	23:46:02
2013_259	00:05:46	23:35:19
2013_260	00:05:52	23:52:25
2013_261	00:10:06	23:45:27
2013_262	00:14:05	19:01:22
2013_267	15:17:57	23:51:20
2013_268	00:09:39	23:51:41
2013_269	00:09:30	23:51:45
2013_270	00:07:15	05:03:03
2013_273	13:37:38	20:25:06

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : October 10, 2013

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-D332-TJ-2013
HYDROGRAPHIC SHEET: H12573

LOCALITY: Northeast Cape Henlopen - 5 ftm Bank Traffic Lane, Delaware Bay
TIME PERIOD: September 15 - September 30, 2013

TIDE STATION USED: 853-4720 Atlantic City
Lat. 39° 21.3'N Long. 74° 25.1' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.276 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is provisionally accepted as the final zoning for project OPR-D332-TJ-2013, H12573, during the time period between September 15 - September 30, 2013. Please use the zoning file D332TJ2013CORP submitted with the project instructions for OPR-D332-TJ-2013. Zones SA21 and SA26 are the applicable zones for H12573.

Refer to attachments for zoning information.

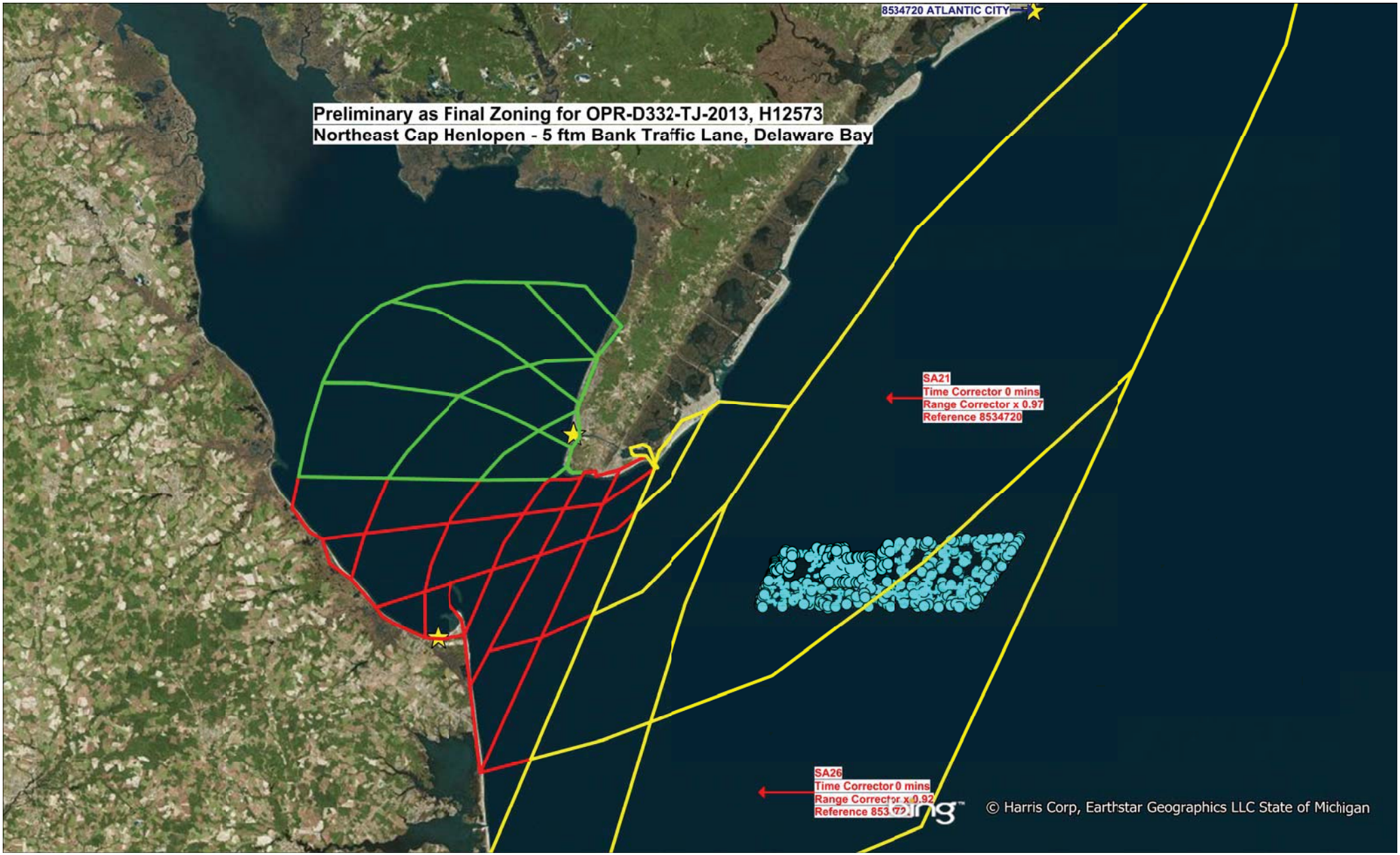
Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

Note 2: The FY13 Leveling documentation for Atlantic City, NJ (8534720) has not been received. A review of the verified leveling records from October 2002 - 2012 shows the tide station benchmark network to be stable within an allowable 0.009 m tolerance. This Tide Note may be used as final stability verification for the purposes of survey OPR-D332-TJ-2013, H12573. CO-OPS will immediately provide a revised Tide Note should subsequent leveling records indicate any benchmark network stability movement beyond the allowable 0.009 m tolerance.

HOVIS.GERALD.THOMAS.1365860250

Digitally signed by HOVIS.GERALD.THOMAS.1365860250
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOVIS.GERALD.THOMAS.1365860250
Date: 2013.10.10 14:34:02 -04'00'

CHIEF, PRODUCTS AND SERVICES BRANCH


8534720 ATLANTIC CITY
Preliminary as Final Zoning for OPR-D332-TJ-2013, H12573
Northeast Cap Henlopen - 5 ftm Bank Traffic Lane, Delaware Bay
SA21
Time Corrector 0 mins
Range Corrector x 0.97
Reference 8534720
SA26
Time Corrector 0 mins
Range Corrector x 0.92
Reference 853 72
© Harris Corp, Earthstar Geographics LLC State of Michigan

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

Megan Guberski - NOAA Federal <megan.guberski@noaa.gov>

D332 Requirements

Megan Greenaway - NOAA Federal <Megan.Greenaway@noaa.gov> Thu, Sep 5, 2013 at 11:08 AM
To: _OMAO MOA OPS Thomas Jefferson <OPS.Thomas.Jefferson@noaa.gov>
Cc: Marc Moser - NOAA Federal <Marc.S.Moser@noaa.gov>, Corey Allen - NOAA Federal <Corey.Allen@noaa.gov>

Megan,
I spoke with Marc and Corey regarding coverage requirements for D332. The 200% SSS coverage with MBES set line spacing is acceptable for the work you have already covered in waters deeper than 20m. OPS does not want the TJ to go back and pick up the splits.

As far as moving forward with the remainder of the project, how many more sheets do you have which would be affected by the greater than 20m requirement? OPS will let you decide if it is more efficient to conduct 100% complete MBES in these areas or if it is more efficient to conduct 200% SSS with MBES set line spacing as you have been doing. Keep in mind that 100% MBES with backscatter is more useful to a broader range of users. However, you should determine what is efficient for the TJ.

Let me know if you have any further questions.
Megan

Castle Parker - NOAA Federal

From: Megan Guberski - NOAA Federal
Sent: Thursday, April 10, 2014 4:13 PM
To: Castle Parker - NOAA Federal
Cc: Abigail Higgins - NOAA Federal; Jennifer Kist - NOAA Affiliate
Subject: Data Deliverable for H12573

Mr. Parker,

This email is to inform the Atlantic Hydrographic Branch that survey H12573, under project OPR-D332-TJ-13, was submitted without raw POS data. The data was submitted to NGDC in Nov 2013, then deleted from the Thomas Jefferson's servers.

Since the survey has already been submitted to AHB, I would be grateful if you could place a copy of this email in Appendix II of the Descriptive Report for the survey. Please let me know if you have any questions or concerns.

Very Respectfully,
LT Guberski

--
LT Megan Guberski, NOAA
Operations Officer, NOAA Ship *Thomas Jefferson*
439 W. York Street
Norfolk, VA 23510
cell: 757 647-0187
land: 757 451-6322

UNITED STATES DEPARTMENT COMMERCE
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations
NOAA Ship Thomas Jefferson S-222
439 West York Street
Norfolk, VA 23510-1114

27 March 2014

MEMORANDUM TO: Jeffrey Ferguson
Chief, Hydrographic Surveys Division

FROM: Commander James M. Crocker, NOAA
Commanding Officer, NOAA Ship *Thomas Jefferson*

James Crocker
cn=James Crocker, o=CO, NOAA Ship Thomas Jefferson, ou=CDR/NOAA, email=james.m.crocker@noaa.gov, c=US

SUBJECT: H12573 Interim Deliverables

As per the project instructions for OPR-D332-TJ-13, NOAA Ship *Thomas Jefferson* was tasked with providing a recommendation on the vertical transformation technique to be used for each sheet. This recommendation is based upon an analysis of crossline data processed with zoned tides and VDatum ERS. This analysis was performed using Pydro's Post Acquisition Tools.

Crossline Analysis
Crosslines from H12573 were parallel processed with one set of depths reduced to MLLW via zoned tides and the other set reduced via VDatum ERS. Pydro's Post Acquisition Tool "Compare Time Series Data" yielded the following results:

Table 1: File-wise Stastics:

Vessel	Comparison Method	Number	Mean	StdDev (m)
HSL 3101	ERS - Zoned	59736	0.098	0.055
HSL 3102	ERS - Zoned	18437	0.035	0.018
S222	ERS - Zoned	389930	0.022	0.064

Table 2: Sensor-Wise Stastics

Number	Mean	StdDev (m)
468103	0.032	0.061

Discussion
Results of the analysis showed that the mean difference between ERS and Zoned tidal corrections was: 9.8cm for HSL 3101; 3.5cm for HSL 3102; and 2.2cm for S222. The overall average is less than the uncertainty associated with the separation model.

Recommendation
Our recommendation is to utilize ERS VDatum for tidal corrections on survey H12573, with some exceptions. The Time Series analysis indicates that the uncertainty associated with the separation model is less than the water level uncertainties supplied by CO-OPS. We also feel that ERS better accounts for differences seen in static draft and dynamic draft and provides us with more accurate depths. Some isolated areas, however, exhibited poor post-processing positioning solution. For these areas alone, we recommend the data be reduced with discrete zoned tides, resulting in the submission of a hybrid survey.

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

March 28, 2014

MEMORANDUM FOR: CDR James M. Crocker, NOAA
Commanding Officer, NOAA Ship *Thomas Jefferson*

FROM: Jeffrey Ferguson
Chief, Hydrographic Surveys Division

SUBJECT: Vertical Datum Transformation Technique,
OPR-D332-TJ-13, Approaches to Delaware Bay, DE

Hydrographic survey H12573 is approved for vertical reduction to chart datum, Mean Lower Low Water (MLLW), using the NOAA Vertical Datum Transformation (VDatum) (http://vdatum.noaa.gov) derived separation (SEP) model provided on the project CD/DVD.

Approval of VDatum, in lieu of the NOAA Center for Operational Oceanographic Products and Services (CO-OPS) TCARI package as per the Project Instructions, is based on your recommendation and the review of comparison results you included in your memos from March 27, 2014, Subject "H12573 Interim Deliverables".

The results of the data analysis show that ellipsoidally referenced survey (ERS) techniques with VDatum used as the vertical datum reducer to MLLW in this area indicate a better internal consistency of the survey data and produces final sounding values that meet or exceed horizontal and vertical specifications for hydrographic surveys.

The comparison techniques are in line with the procedures that were developed and approved as part of the CSDL Ellipsoidally Referenced Survey (ERS) project. These procedures and deliverables in the NOS Hydrographic Surveys Specifications and Deliverables Manual and Field Procedures Manual documents.

You shall include a description of your ERS processing procedures and the comparisons you conducted between ERS and traditional tides in the appropriate Descriptive Report (DR), Horizontal and Vertical Control Report and/or Data Acquisition and Processing Report.

This memo and your memo, shall be included in the supplemental correspondence Appendix of the DR.

APPENDIX III

FEATURES REPORT

DTONS - 0
AWOIS - 7
WRECKS - 1 (see also AWOIS section)
MARITIME BOUNDARIES - 0

H12573 Feature Report

Registry Number: H12573
State: Delaware
Locality: Delaware Bay
Sub-locality: Northeast Cape Henlopen -- Five Fathom Bank Traffic Lane
Project Number: OPR-D332-TJ-13
Survey Dates: 09/15/2013 - 09/30/2013

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12214	49th	11/01/2010	1:80,000 (12214_1)	USCG LNM: 10/28/2014 (10/28/2014) NGA NTM: 1/10/1998 (11/8/2014)
12300	49th	06/01/2012	1:400,000 (12300_1)	USCG LNM: 10/14/2014 (10/14/2014) CHS NTM: None (9/26/2014) NGA NTM: 1/8/2011 (10/25/2014)
12200	49th	06/01/2007	1:419,706 (12200_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?

* Correction(s) - *source: last correction applied (last correction reviewed--"cleared date")*

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	32.6ft WRECKS	Wreck	9.96 m	38° 51' 28.2" N	074° 42' 01.8" W	---
2.1	AWOIS #8603	Obstruction	18.82 m	38° 48' 38.6" N	074° 43' 46.1" W	8603
2.2	AWOIS #12090	Wreck	15.24 m	38° 50' 40.6" N	074° 42' 57.4" W	12090
2.3	AWOIS #12089	Wreck	18.35 m	38° 50' 49.7" N	074° 42' 30.8" W	12089
2.4	AWOIS #12088	Wreck	14.27 m	38° 50' 49.6" N	074° 42' 18.7" W	12088
2.5	AWOIS #2764	GP	[None]	38° 51' 06.4" N	074° 36' 04.6" W	2764
2.6	AWOIS #1154	Shoal	18.20 m	38° 49' 10.0" N	074° 31' 15.9" W	1154
2.7	AWOIS #1153	GP	[None]	38° 49' 02.5" N	074° 31' 14.1" W	1153

1 - New Features

1.1) 32.6ft WRECKS

Survey Summary

Survey Position:	38° 51' 28.2" N, 074° 42' 01.8" W
Least Depth:	9.96 m (= 32.69 ft = 5.449 fm = 5 fm 2.69 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-273.00:00:00.000 (09/30/2013)
Dataset:	H12573_Feature_Report.000
FOID:	0_ 0000809889 00001(FFFE000C5BA10001)
Charts Affected:	12214_1, 12200_1, 13003_1

Remarks:

[None]

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12573_Feature_Report.000	0_ 0000809889 00001	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

32ft (12214_1)

5 ½fm (12200_1, 13003_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	QUASOU - 6:least depth known
	SORDAT - 20130930
	SORIND - US,US,graph,H12573
	TECSOU - 3,2:found by multi-beam,found by side scan sonar
	VALSOU - 9.965 m
	WATLEV - 3:always under water/submerged

Office Notes

SAR: Two wrecks verified via 200% side scan sonar and object detection multibeam.

COMPILE: No charting action taken. WRECKS are within charted OBSTRN area (fish haven).

Feature Images

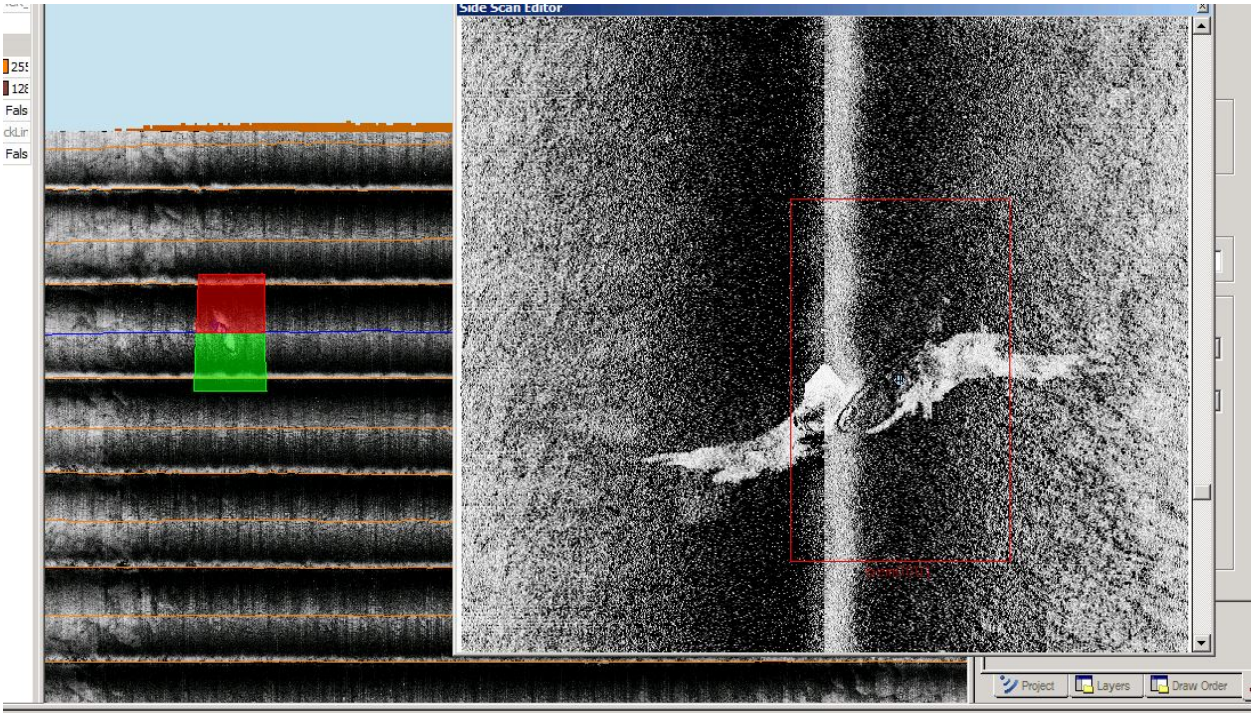


Figure 1.1.1

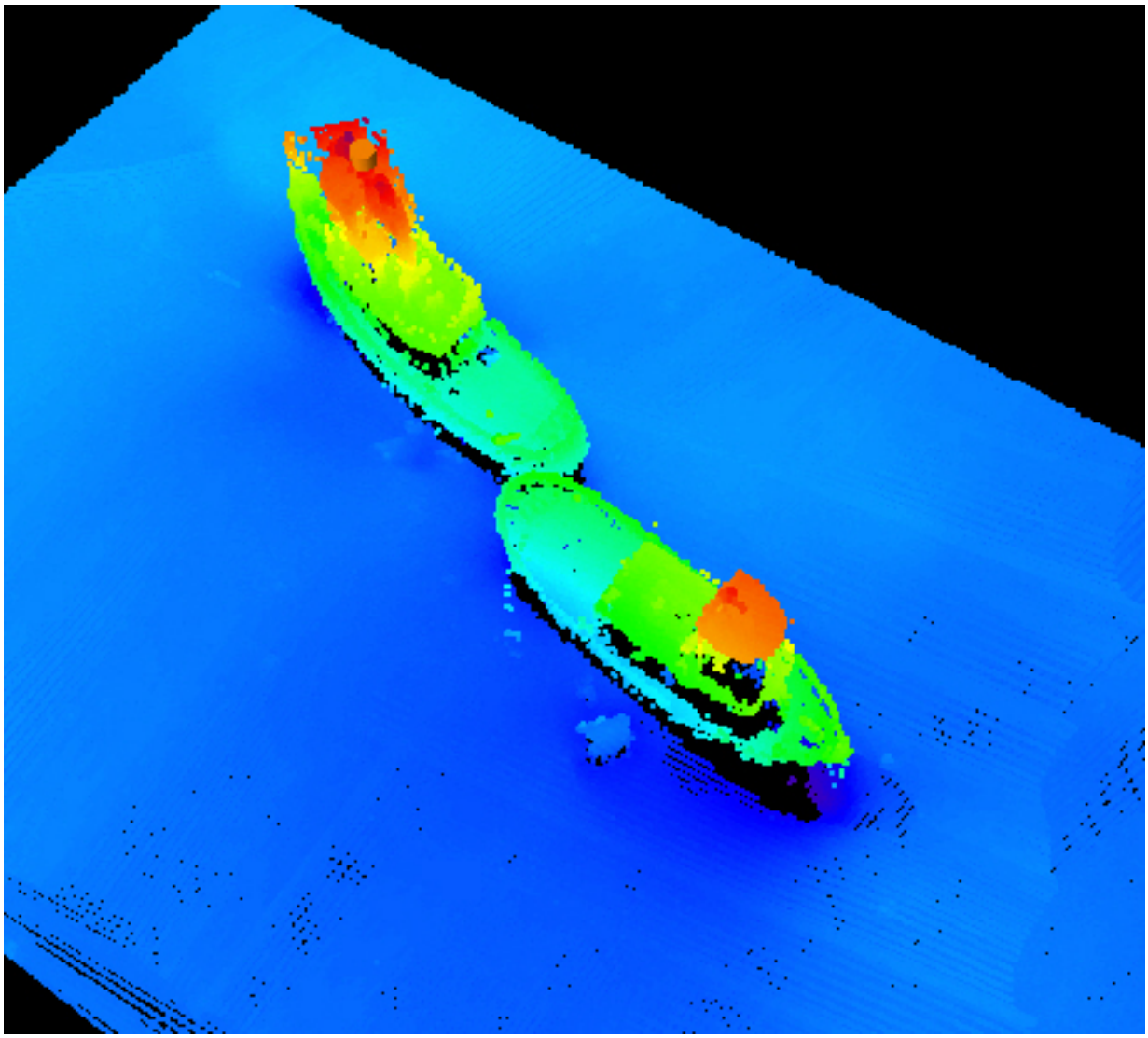


Figure 1.1.2

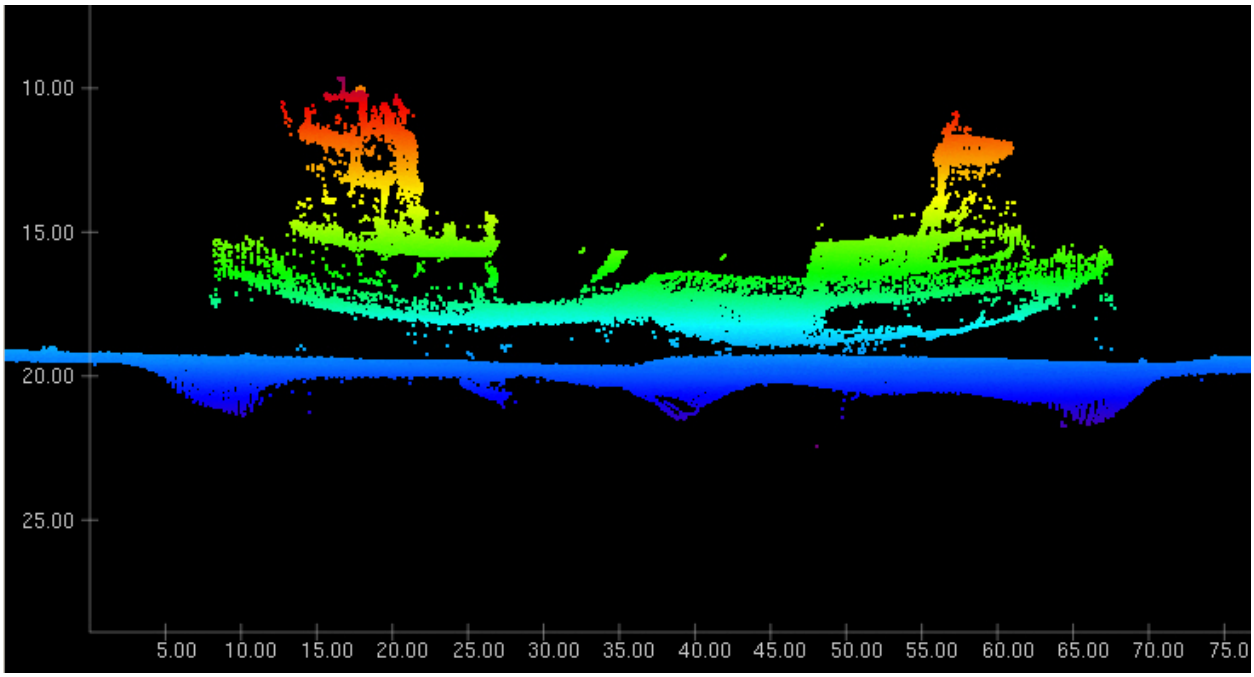


Figure 1.1.3

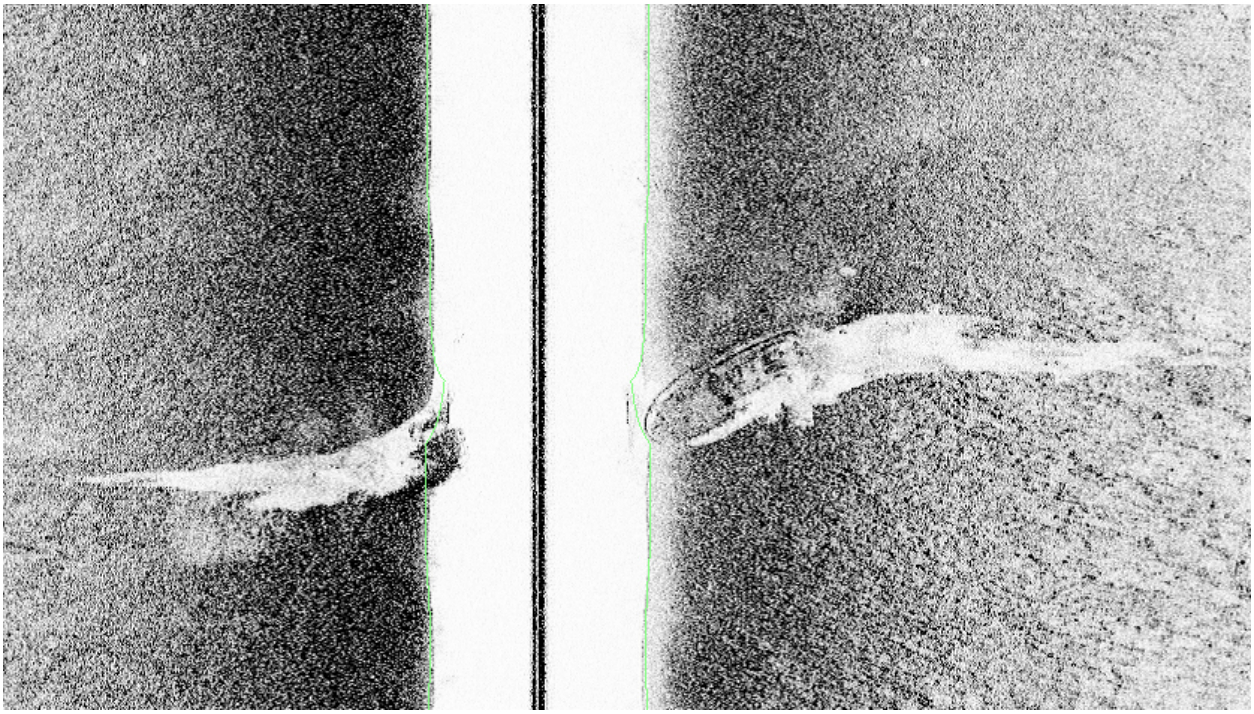


Figure 1.1.4

2 - AWOIS Features

2.1) AWOIS #8603

Feature for AWOIS Item #8603

Search Position:	38° 48' 38.6" N, 074° 43' 46.1" W
Historical Depth:	18.82 m
Search Radius:	100
Search Technique:	Type: OBSTRUCTION, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES
Technique Notes:	

History Notes:

History

ITEM NOT CHARTED H10440/92-- OPR-D368-WH; SIGNIFICANT SIDE SCAN SONAR CONTACT NOTED DURING OFFICE PROCESSING IN LAT. 38-48-38.90N LONG. 74-43-45.85W. ESTIMATED DEPTH OF 18.0 METERS (59 FEET). EVALUATOR RECOMMENDS ADDITIONAL WORK DURING THE 1993 FIELD SEASON. (ENT 6/22/93 SJV)

Survey Summary

Survey Position:	38° 48' 38.6" N, 074° 43' 46.1" W
Least Depth:	18.82 m (= 61.75 ft = 10.292 fm = 10 fm 1.75 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-273.00:00:00.000 (09/30/2013)
Dataset:	H12573_Feature_Report.000
FOID:	0_ 0000809886 00001(FFFE000C5B9E0001)
Charts Affected:	12214_1, 12200_1, 13003_1

Remarks:

OBSTRN/remrks: AWOIS item #8603 was found on survey OPR-D332-TJ-13, H12572, with a least depth of 63ft. The same item was not found to be significant on H12573, and was not developed using object detection MB.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12573_Feature_Report.000	0_ 0000809886 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update AWOIS status to disproved.

Cartographically-Rounded Depth (Affected Charts):

62ft (12214_1)

10 ¼fm (12200_1, 13003_1)

S-57 Data

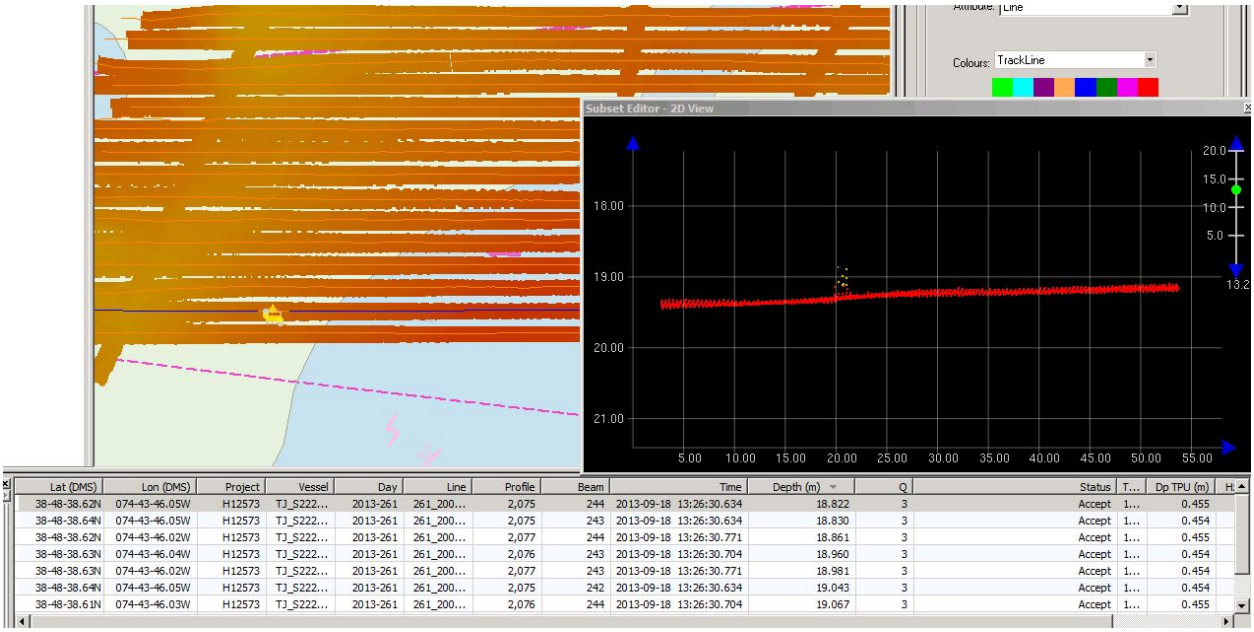
Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 6:least depth known
	SORDAT - 20130930
	SORIND - US,US,graph,H12573
	TECSOU - 3,2:found by multi-beam,found by side scan sonar
	VALSOU - 18.822 m
	WATLEV - 3:always under water/submerged

Office Notes

SAR: Obstruction verified via 200% side scan sonar and set line spacing multibeam. OBSTRN not currently charted. Defer to AHB Compiler.

COMPILE: Insignificant obstruction. Chart soundings as surveyed.

Feature Images



Lat (DMS)	Lon (DMS)	Project	Vessel	Day	Line	Profile	Beam	Time	Depth (m)	Q	Status	T...	Dp TPU (m)	H
38-48-38.62N	074-43-46.05W	H12573	TJ_S222...	2013-261	261_200...	2,075	244	2013-09-18 13:26:30.634	18.822	3	Accept	1...	0.455	
38-48-38.64N	074-43-46.05W	H12573	TJ_S222...	2013-261	261_200...	2,075	243	2013-09-18 13:26:30.634	18.830	3	Accept	1...	0.454	
38-48-38.62N	074-43-46.02W	H12573	TJ_S222...	2013-261	261_200...	2,077	244	2013-09-18 13:26:30.771	18.861	3	Accept	1...	0.455	
38-48-38.63N	074-43-46.04W	H12573	TJ_S222...	2013-261	261_200...	2,076	243	2013-09-18 13:26:30.704	18.960	3	Accept	1...	0.454	
38-48-38.63N	074-43-46.02W	H12573	TJ_S222...	2013-261	261_200...	2,077	243	2013-09-18 13:26:30.771	18.981	3	Accept	1...	0.454	
38-48-38.64N	074-43-46.05W	H12573	TJ_S222...	2013-261	261_200...	2,075	242	2013-09-18 13:26:30.634	19.043	3	Accept	1...	0.454	
38-48-38.61N	074-43-46.03W	H12573	TJ_S222...	2013-261	261_200...	2,076	244	2013-09-18 13:26:30.704	19.067	3	Accept	1...	0.455	

Figure 2.1.1

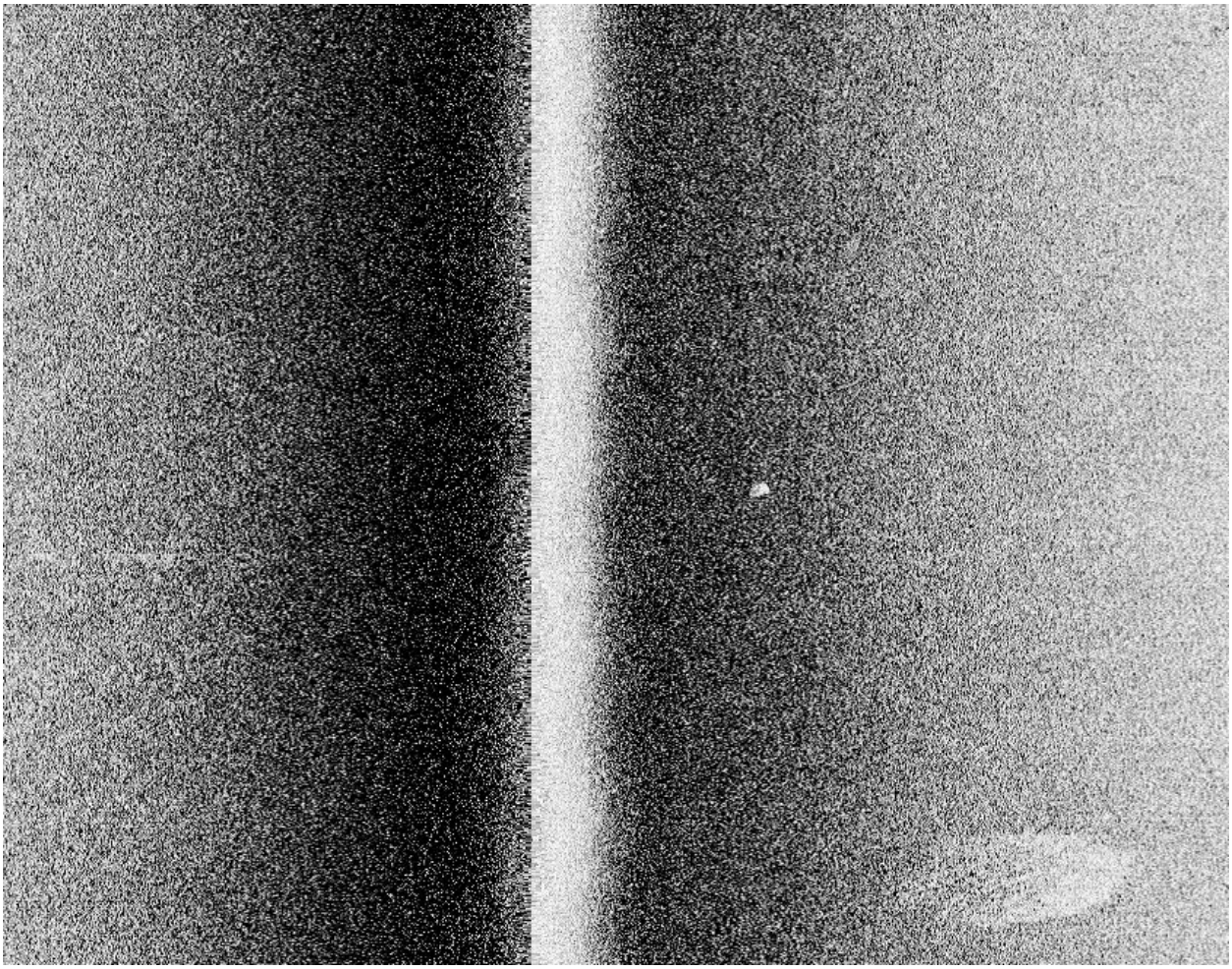


Figure 2.1.2

2.2) AWOIS #12090

Feature for AWOIS Item #12090

Search Position:	38° 50' 40.6" N, 074° 42' 57.4" W
Historical Depth:	15.24 m
Search Radius:	[unknown]
Search Technique:	Type: UNKNOWN, Itemstatus: COMPLETED, Searchtype: INFORMATION, Technique: S2 MBES
Technique Notes:	

History Notes:

History

H11104/02--OPR-C303-KR; FOUND A SUNKEN WRECK IN LAT. 38/50/40.78N LONG. 074/42/57.25W (NAD83) WITH A LEAST DEPTH OF 47.9 FT. MLLW. THIS ITEM IS PART OF FISH HAVEN AWOIS # 11187. (ENTERED 12/03 BY MBH)

Survey Summary

Survey Position:	38° 50' 40.6" N, 074° 42' 57.4" W
Least Depth:	15.24 m (= 49.99 ft = 8.332 fm = 8 fm 1.99 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-273.00:00:00.000 (09/30/2013)
Dataset:	H12573_Feature_Report.000
FOID:	0_ 0000809887 00001(FFFE000C5B9F0001)
Charts Affected:	12214_1, 12200_1, 13003_1

Remarks:

WRECKS/remrks: AWOIS wreck confirmed using 200% SSS and ODMB. Soundings reduced to MLLW via ellipsoid heights and a VDatum seperation model.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12573_Feature_Report.000	0_ 0000809887 00001	0.00	000.0	Primary

Hydrographer Recommendations

Hydrographer recommends not charting wreck found within fish haven. Feature does not violate the authorized 30 foot minimum depth within the fish haven.

Cartographically-Rounded Depth (Affected Charts):

50ft (12214_1)

8 ¼fm (12200_1, 13003_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	QUASOU - 6:least depth known
	SORDAT - 20130930
	SORIND - US,US,graph,H12573
	TECSOU - 3:found by multi-beam
	VALSOU - 15.237 m
	WATLEV - 3:always under water/submerged

Office Notes

SAR: Wreck verified via 200% side scan sonar and object detection multibeam.

COMPILE: No charting action taken. Feature is within charted OBSTRN area (fish haven).

Feature Images

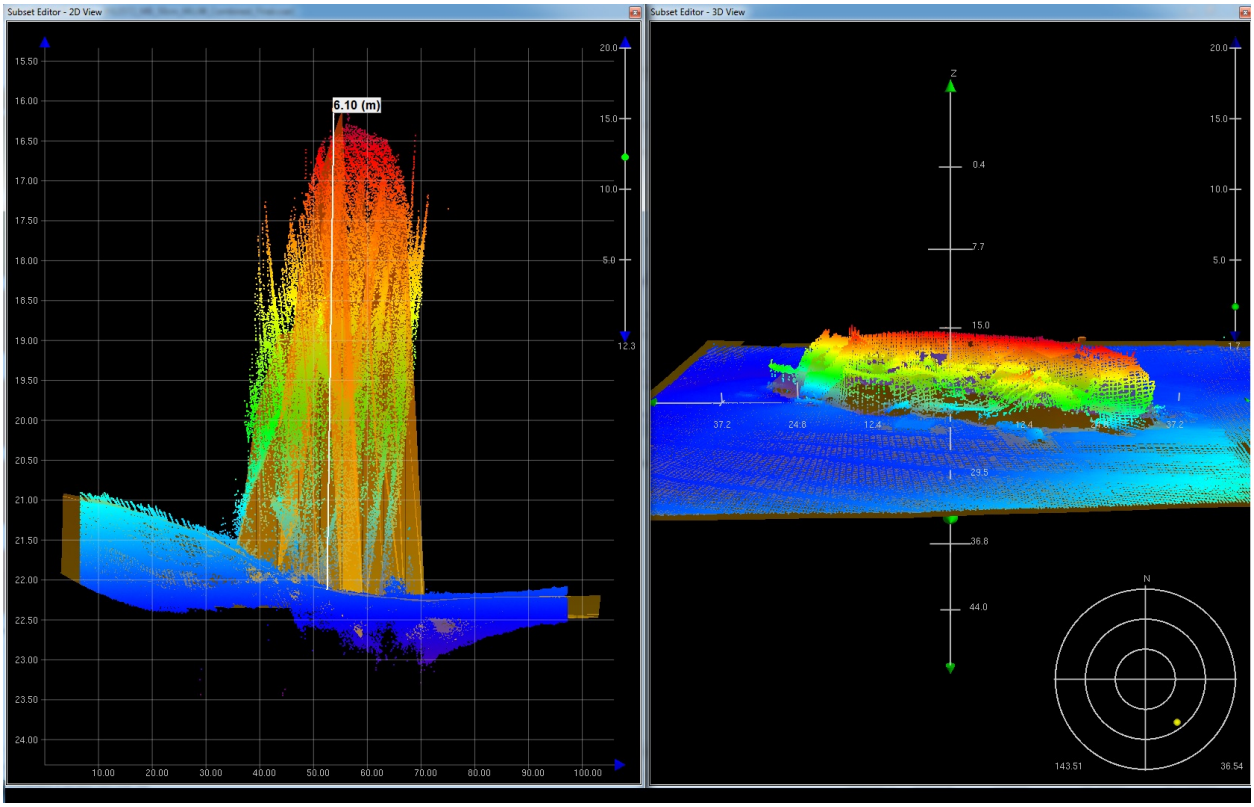


Figure 2.2.1

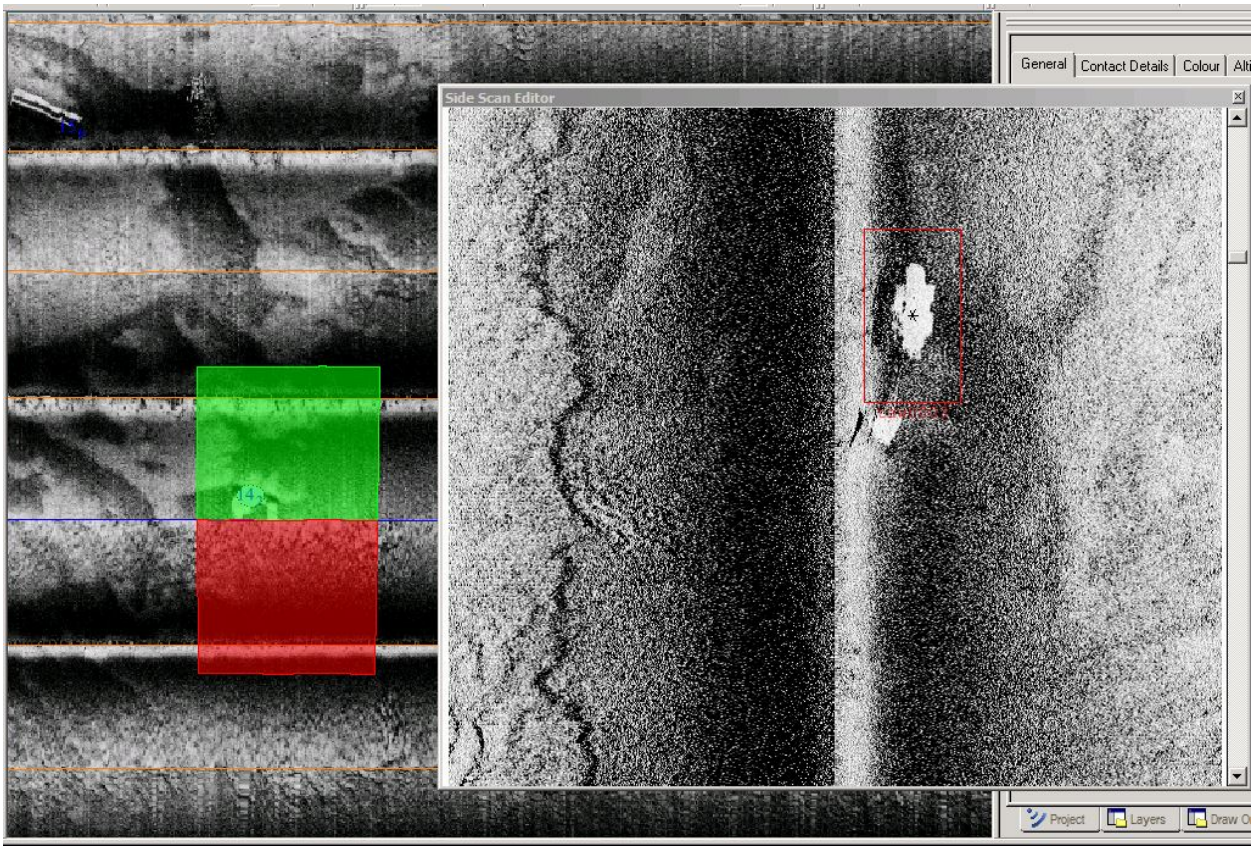

Side Scan Editor
General
Contact Details
Colour
Project
Layers

Figure 2.2.2

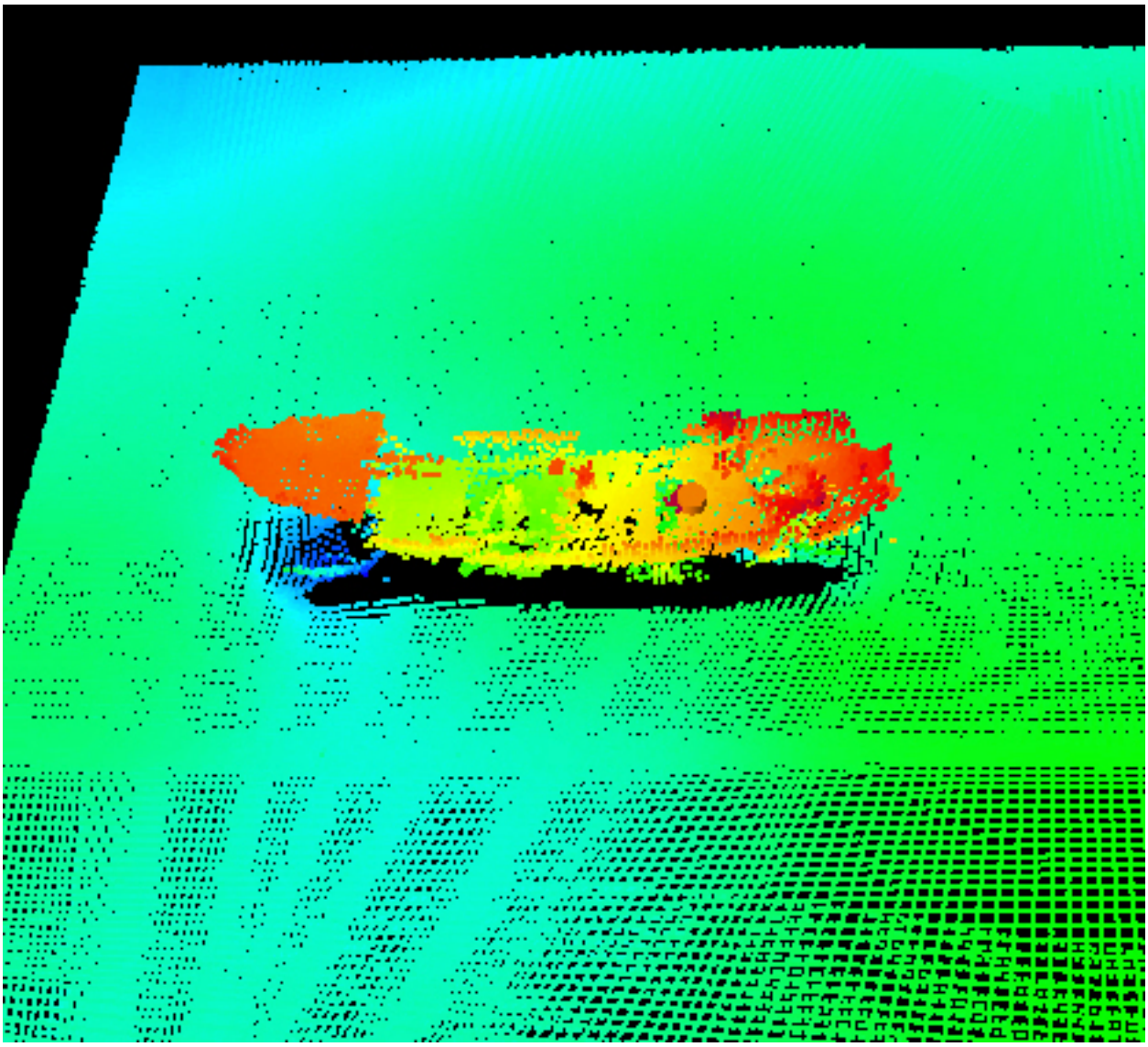
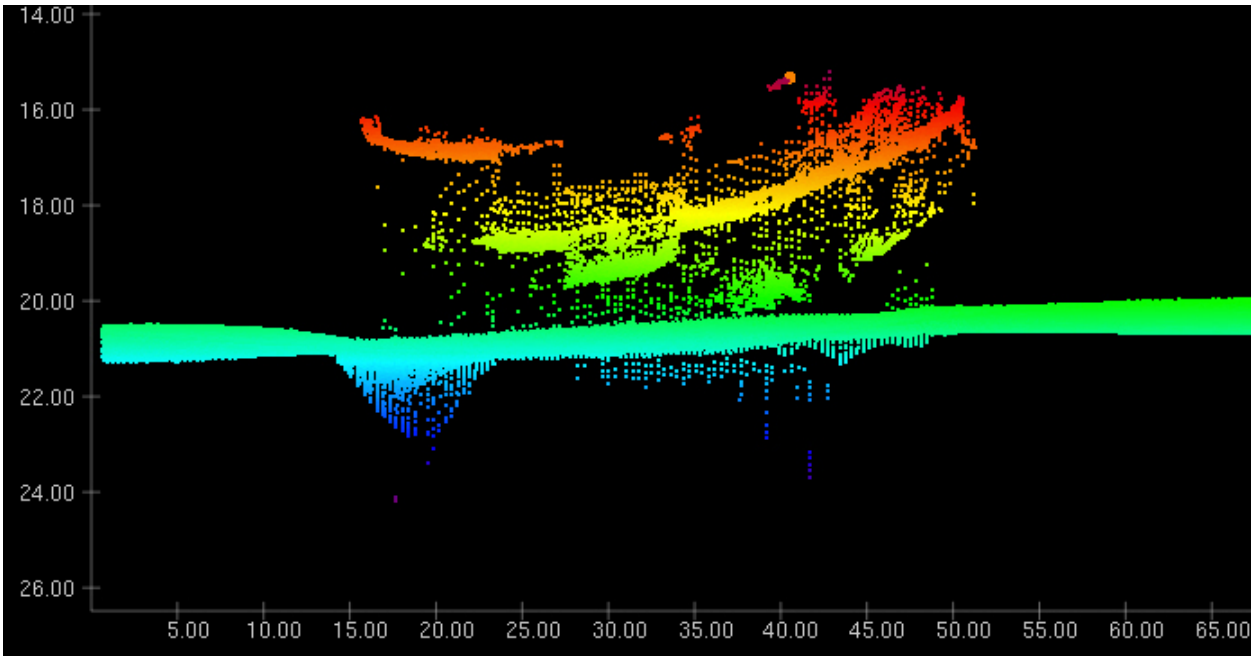


Figure 2.2.3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16.00
18.00
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26.00
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50.00
55.00
60.00
65.00

Figure 2.2.4

2.3) AWOIS #12089

Feature for AWOIS Item #12089

Search Position:	38° 50' 49.7" N, 074° 42' 30.8" W
Historical Depth:	18.35 m
Search Radius:	[unknown]
Search Technique:	Type: UNKNOWN, Itemstatus: COMPLETED, Searchtype: INFORMATION, Technique: S2 MBES
Technique Notes:	

History Notes:

History

H11104/02--OPR-C303-KR; FOUND A SUNKEN WRECK IN LAT. 38/50/49.76N LONG. 074/42/30.85W (NAD83) WITH A LEAST DEPTH OF 60.14 FT. MLLW. THIS ITEM IS PART OF FISH HAVEN AWOIS # 11187. (ENTERED 12/03 BY MBH)

Survey Summary

Survey Position:	38° 50' 49.7" N, 074° 42' 30.8" W
Least Depth:	18.35 m (= 60.19 ft = 10.032 fm = 10 fm 0.19 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-273.00:00:00.000 (09/30/2013)
Dataset:	H12573_Feature_Report.000
FOID:	0_ 0000809894 00001(FFFE000C5BA60001)
Charts Affected:	12214_1, 12200_1, 13003_1

Remarks:

WRECKS/remrks: AWOIS wreck confirmed using 200% SSS and ODMB. Soundings reduced to MLLW via ellipsoid heights and a VDatum seperation model.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12573_Feature_Report.000	0_ 0000809894 00001	0.00	000.0	Primary

Hydrographer Recommendations

Hydrographer recommends not charting wreck found within fish haven. Feature does not violate the authorized 30 foot minimum depth within the fish haven.

Cartographically-Rounded Depth (Affected Charts):

60ft (12214_1)

10fm (12200_1, 13003_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	QUASOU - 6:least depth known
	SORDAT - 20130930
	SORIND - US,US,graph,H12573
	TECSOU - 3:found by multi-beam
	VALSOU - 18.347 m
	WATLEV - 3:always under water/submerged

Office Notes

SAR: Wreck verified via 200% side scan sonar and object detection multibeam. Wreck has barge like appearance.

COMPILE: No charting action taken. Feature is within charted OBSTRN area (fish haven).

Feature Images

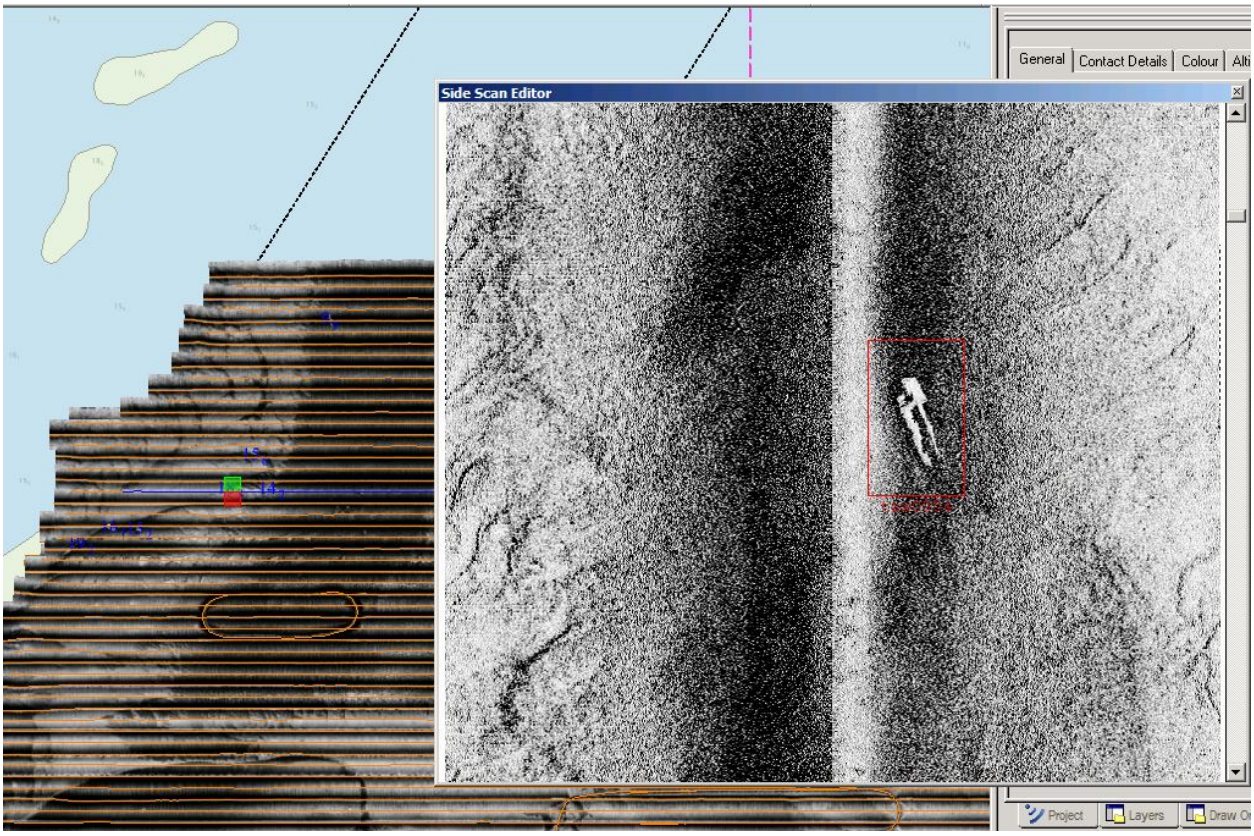


Figure 2.3.1

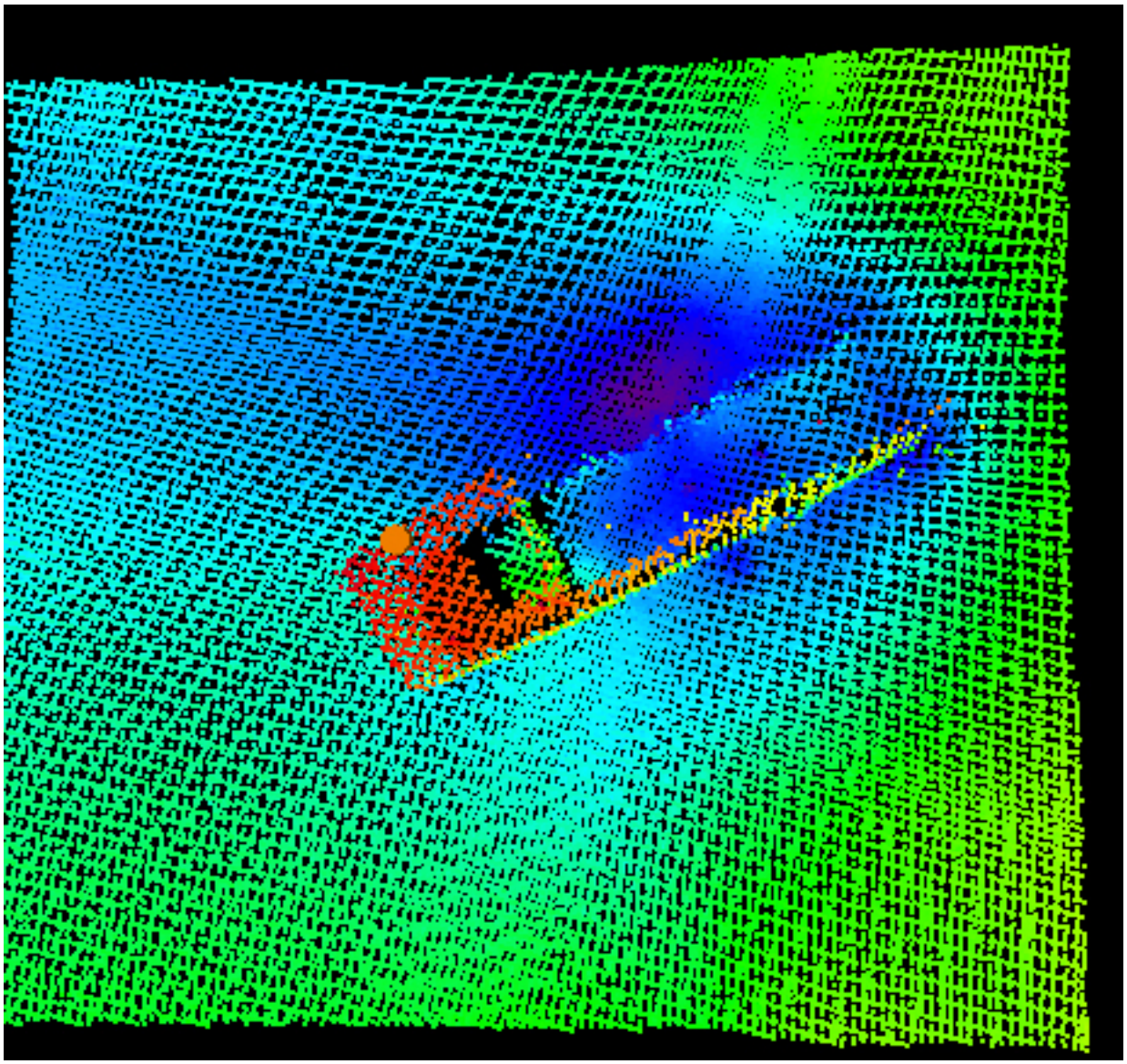


Figure 2.3.2

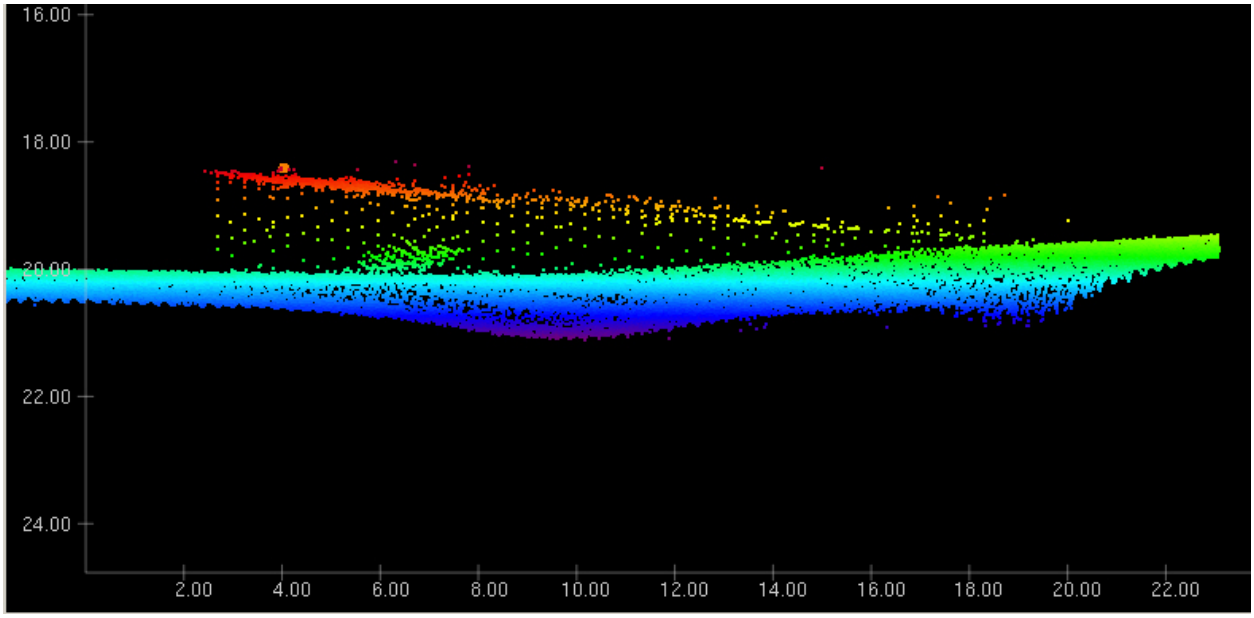


Figure 2.3.3

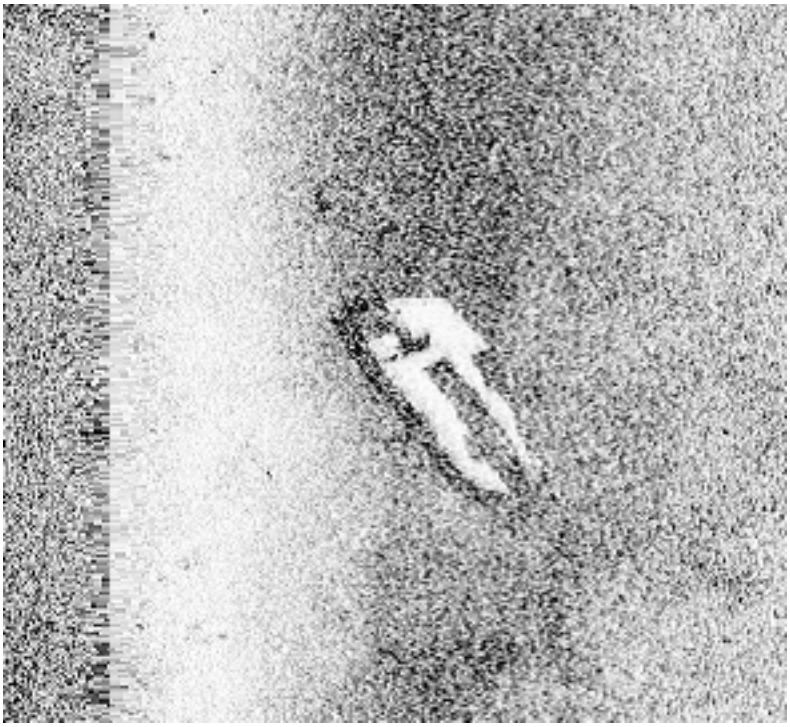


Figure 2.3.4

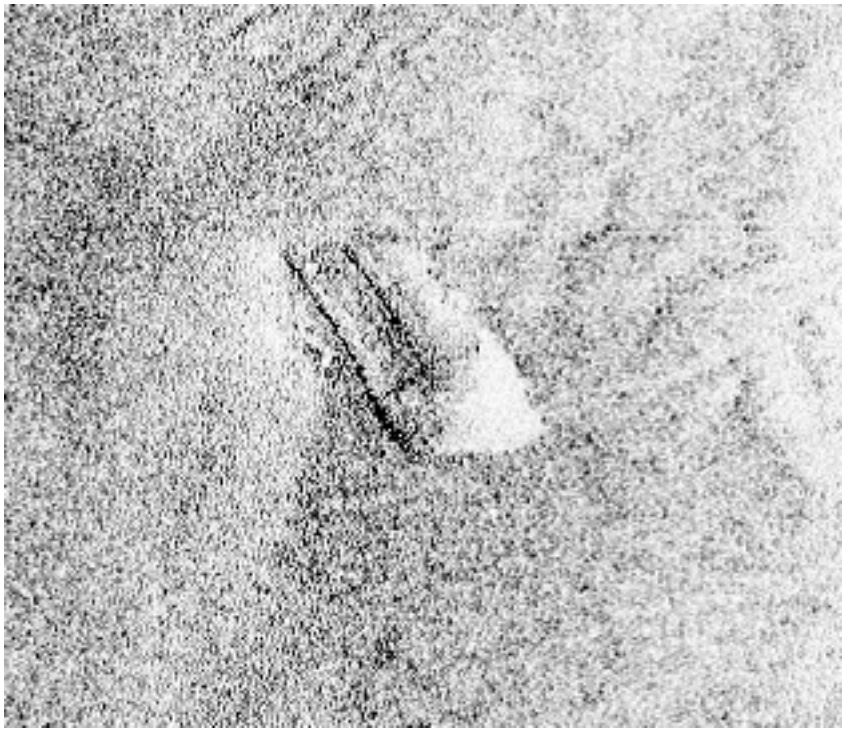


Figure 2.3.5

2.4) AWOIS #12088

Feature for AWOIS Item #12088

Search Position:	38° 50' 49.6" N, 074° 42' 18.7" W
Historical Depth:	14.27 m
Search Radius:	[unknown]
Search Technique:	Type: UNKNOWN, Itemstatus: COMPLETED, Searchtype: INFORMATION, Technique: S2 MBES
Technique Notes:	

History Notes:

History

H11104/02--OPR-C303-KR; FOUND A SUNKEN WRECK IN LAT. 38/50/49.63N LONG. 074/42/18.59W (NAD83) WITH A LEAST DEPTH OF 41.43 FT. MLLW. THIS ITEM IS PART OF FISH HAVEN AWOIS # 11187. (ENTERED 12/03 BY MBH)

Survey Summary

Survey Position:	38° 50' 49.6" N, 074° 42' 18.7" W
Least Depth:	14.27 m (= 46.82 ft = 7.804 fm = 7 fm 4.82 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-273.00:00:00.000 (09/30/2013)
Dataset:	H12573_Feature_Report.000
FOID:	0_ 0000809888 00001(FFFE000C5BA00001)
Charts Affected:	12214_1, 12200_1, 13003_1

Remarks:

WRECKS/remrks: AWOIS wreck confirmed using 200% SSS and ODMB. Soundings reduced to MLLW via ellipsoid heights and a VDatum seperation model.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12573_Feature_Report.000	0_ 0000809888 00001	0.00	000.0	Primary

Hydrographer Recommendations

Hydrographer recommends not charting wreck found within fish haven. Feature does not violate the authorized 30 foot minimum depth within the fish haven.

Cartographically-Rounded Depth (Affected Charts):

47ft (12214_1)

7 ¾fm (12200_1, 13003_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	QUASOU - 6:least depth known
	SORDAT - 20130930
	SORIND - US,US,graph,H12573
	TECSOU - 3:found by multi-beam
	VALSOU - 14.272 m
	WATLEV - 3:always under water/submerged

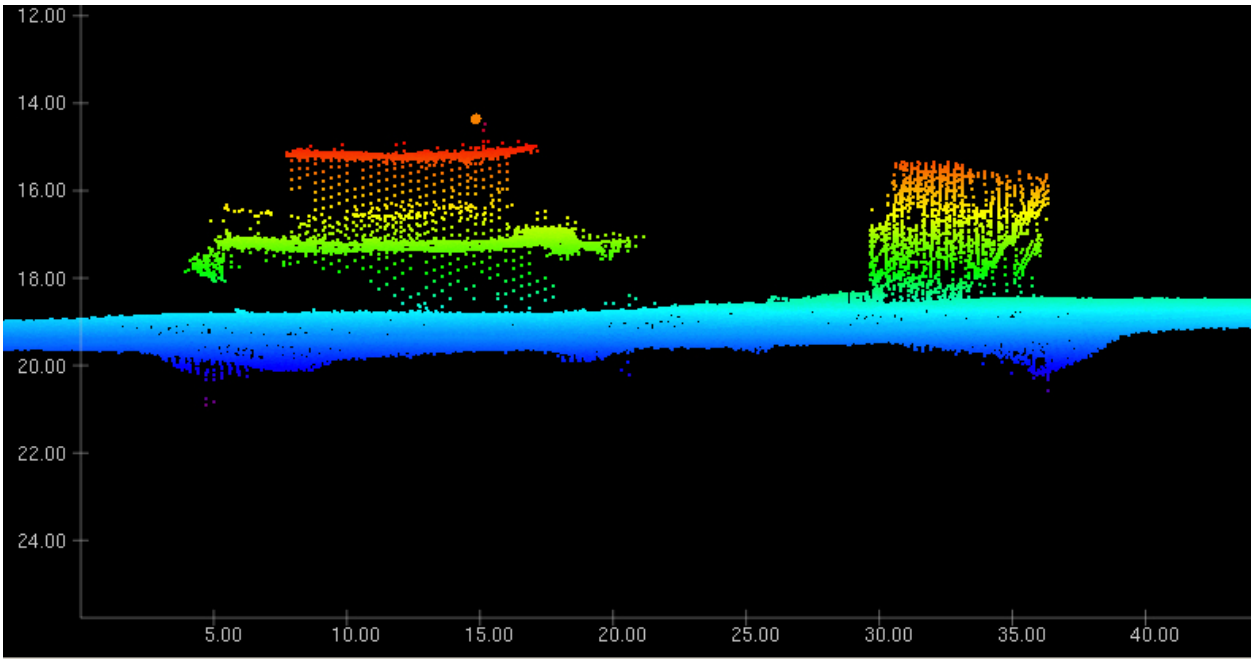
Office Notes

SAR: Wreck verified via 200% side scan sonar and object detection multibeam.

COMPILE: No charting action taken. Feature is within charted OBSTRN area (fish haven).

Feature Images

Figure 2.4.1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40.00

Figure 2.4.2

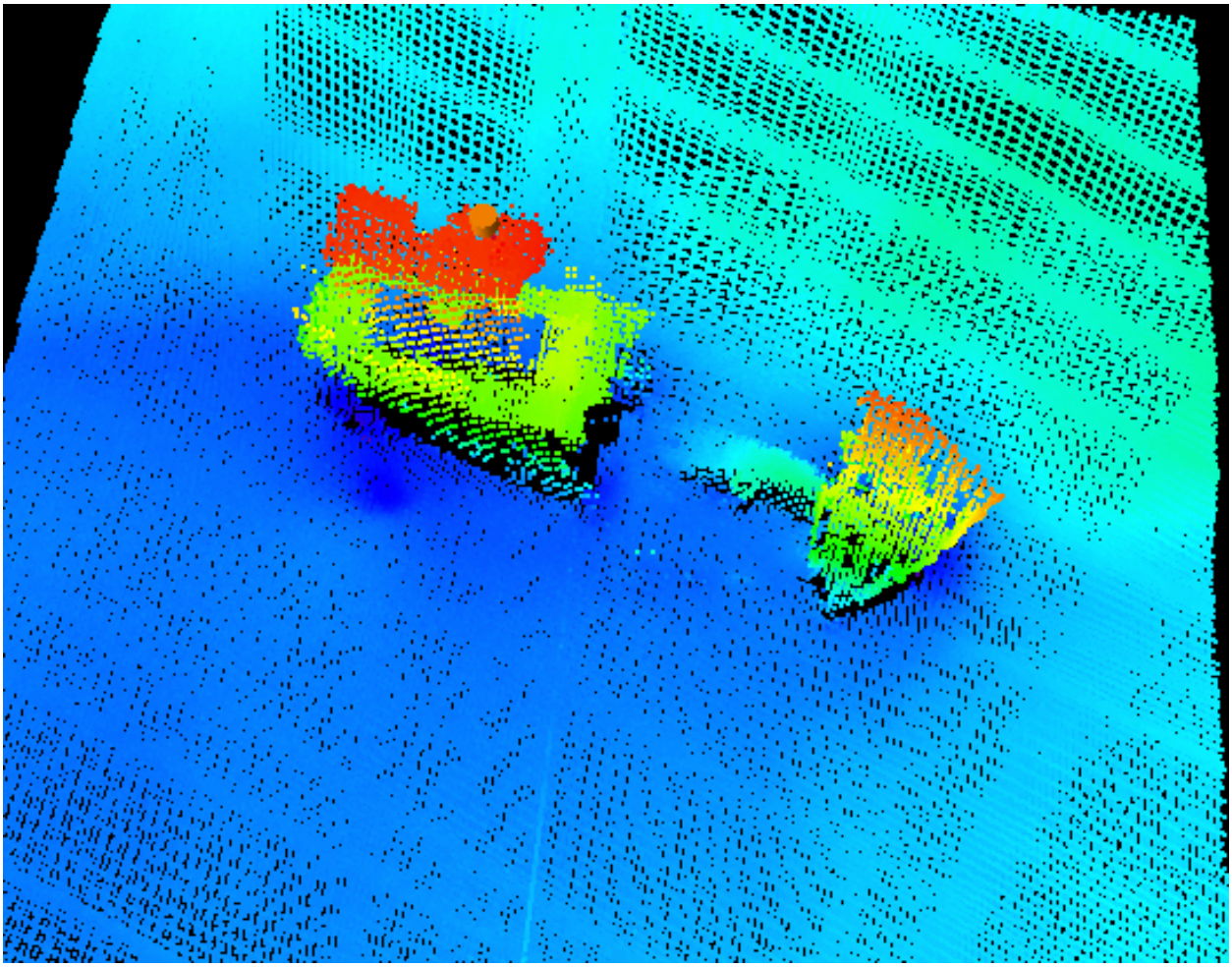

Figure 2.4.3

2.5) AWOIS #2764

Feature for AWOIS Item #2764

Search Position:	38° 51' 06.4" N, 074° 36' 04.6" W
Historical Depth:	[None]
Search Radius:	400
Search Technique:	Type: EVENING STAR, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES
Technique Notes:	

History Notes:

History

ITEM NOT CHARTED. SANK IN 1942 No further history.

Survey Summary

Survey Position:	38° 51' 06.4" N, 074° 36' 04.6" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-273.00:00:00.000 (09/30/2013)
Dataset:	H12573_Feature_Report.000
FOID:	0_ 0000809893 00001(FFFE000C5BA50001)
Charts Affected:	12214_1, 12300_1, 12200_1, 13003_1

Remarks:

$CSYMB/remrks: AWOIS item #2764 disproven using 200% SSS.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12573_Feature_Report.000	0_ 0000809893 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update AWOIS item, disproven.

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Attributes:	NINFOM - Disproved AWOIS item #2764
	NTXTDS - AWOIS #2764
	SORDAT - 20130930
	SORIND - US,US,graph,H12573

Office Notes

SAR: AWOIS disproved at the AWOIS location by 200% side scan sonar and object detection multibeam. Feature is not currently charted.

COMPILE: No charting action taken. Feature is uncharted and is considered as disproved.

2.6) AWOIS #1154

Feature for AWOIS Item #1154

Search Position:	38° 49' 10.0" N, 074° 31' 15.9" W
Historical Depth:	18.20 m
Search Radius:	200
Search Technique:	Type: HAMPSHIRE, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES
Technique Notes:	

History Notes:

History

NM11/18--3/16/18; REPORTS THE WRECK OF THE BARGE HAMPSHIRE WITH SPARS SHOWING ABOVE WATER SUNK IN 12½ FM 3½ MILES 054° FROM FIVE FATHOM BANK LIGHT VESSEL. 24 NO.3928; IN LAT 38/49/11N LONG 074/31/17W (NAD 27) POSITION ACCURACY WITHIN 1 MILE; SUBSEQUENTLY FAILED TO LOCATE (SOURCE UNK) F00092/49--FORMERLY FE NO. 1 1951 WD; CLEARED THIS CHARTED WRECK BY AN EFFECTIVE DEPTH OF 60' MLW. NO HANGS WERE ENCOUNTERED DURING THE INVESTIGATION OF THIS CHARTED WRECK. (ENTERED 12/01 BY MBH)

Survey Summary

Survey Position:	38° 49' 10.0" N, 074° 31' 15.9" W
Least Depth:	18.20 m (= 59.71 ft = 9.952 fm = 9 fm 5.71 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2010-138.00:00:00.000 (05/18/2010)
Dataset:	H12573_Feature_Report.000
FOID:	0_ 0000809891 00001(FFFE000C5BA30001/1)
Charts Affected:	12214_1, 12300_1, 12200_1, 13003_1

Remarks:

SOUNDG/remrks: Wire dragged 60ft SOUNDG disproven using 200% SSS.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12573_Feature_Report.000	0_ 0000809891 00001	0.00	000.0	Primary

Hydrographer Recommendations

Remove charted wire dragged 60ft SOUNDG.

Cartographically-Rounded Depth (Affected Charts):

59ft (12214_1)

10fm (12300_1, 12200_1, 13003_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	QUASOU - 1:depth known
	SORDAT - 20100518
	SORIND - US,US,reprt,L-574/10

Office Notes

SAR Note: Charted 60ft wire drag sounding is disproven by set line spaced MBES data and 200% SSS coverage.

COMPILE: Concur. Charted 60ft wire drag is considered as disproved. Remove from chart.

2.7) AWOIS #1153

Feature for AWOIS Item #1153

Search Position:	38° 49' 02.5" N, 074° 31' 14.1" W
Historical Depth:	[None]
Search Radius:	[unknown]
Search Technique:	Type: UNKNOWN, Itemstatus: COMPLETED, Searchtype: INFORMATION, Technique: S2 MBES
Technique Notes:	

History Notes:

History

ITEM NOT CHARTED; HOWEVER IT MAY BE THE SAME AS AWOIS 1154. SEE AWOIS 1154 (UPDATED 12/01 BY MBH) 19 FISHING OBSTR. OLD LORAN A 3H4-3533.0 3H5-3118.0=LORAN C 9960W-15678.2 9960Z-59326.9 (1980 COMPUTED VALUE) NAD-27 GP CONVERTED FROM ORIGINAL DATA USING 1980 CORRECTIONS.

Survey Summary

Survey Position:	38° 49' 02.5" N, 074° 31' 14.1" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-273.00:00:00.000 (09/30/2013)
Dataset:	H12573_Feature_Report.000
FOID:	0_ 0000809892 00001(FFFE000C5BA40001)
Charts Affected:	12214_1, 12300_1, 12200_1, 13003_1

Remarks:

$CSYMB/remrks: AWOIS item #1153 disproven using 200% SSS.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12573_Feature_Report.000	0_ 0000809892 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update AWOIS item, disproved.

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Attributes:	NINFOM - Disproved AWOIS item #1153.
	NTXTDS - AWOIS #1153
	SORDAT - 20130930
	SORIND - US,US,graph,H12573

Office Notes

SAR: AWOIS 1153 disproved via 200% side scan sonar and set line spacing multibeam at the AWOIS location. Feature not currently charted.

COMPILE: No charting action taken. Feature is uncharted and is considered as disproved.

APPROVAL PAGE

H12573

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 NGDC for archive

- H12573_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12573_GeoImage.pdf

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

Approved: _____

Lieutenant Commander Matthew Jaskoski, NOAA
Chief, Atlantic Hydrographic Branch