

H12494

NOAA Form 76-35A

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

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: H12494

LOCALITY

State: Maine

General Locality: Portland, ME

Sub-locality: Portland Harbor

2012

CHIEF OF PARTY
LTjg Steven Loy

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

H12494

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: **Maine**

General Locality: **Portland, ME**

Sub-Locality: **Portland Harbor**

Scale: **10000**

Dates of Survey: **06/27/2012 to 07/19/2012**

Instructions Dated: **07/09/2012**

Project Number: **S-A906-NRT5-12**

Field Unit: **Navigation Response Team 5**

Chief of Party: **LTjg Steven Loy**

Soundings by: **Multibeam Echo Sounder**

Imagery by:

Verification by: **Pacific Hydrographic Branch**

Soundings Acquired in: **meters at Mean Lower Low Water**

H-Cell Compilation Units: ***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. Notes in red were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non-sequential. All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via <http://www.ngdc.noaa.gov/>.

Table of Contents

A. Area Surveyed.....	1
A.1 Survey Limits.....	1
A.2 Survey Purpose.....	3
A.3 Survey Quality.....	3
A.4 Survey Coverage.....	3
A.5 Survey Statistics.....	4
A.6 Shoreline.....	5
A.7 Bottom Samples.....	5
B. Data Acquisition and Processing.....	5
B.1 Equipment and Vessels.....	5
B.1.1 Vessels.....	6
B.1.2 Equipment.....	7
B.2 Quality Control.....	7
B.2.1 Crosslines.....	7
B.2.2 Uncertainty.....	8
B.2.3 Junctions.....	8
B.2.4 Sonar QC Checks.....	11
B.2.5 Equipment Effectiveness.....	11
B.2.6 Factors Affecting Soundings.....	11
B.2.7 Sound Speed Methods.....	12
B.2.8 Coverage Equipment and Methods.....	12
B.3 Echo Sounding Corrections.....	12
B.3.1 Corrections to Echo Soundings.....	12
B.3.2 Calibrations.....	12
B.4 Backscatter.....	12
B.5 Data Processing.....	12
B.5.1 Software Updates.....	12
B.5.2 Surfaces.....	12
C. Vertical and Horizontal Control.....	13
C.1 Vertical Control.....	13
C.2 Horizontal Control.....	14
D. Results and Recommendations.....	15
D.1 Chart Comparison.....	15
D.1.1 Raster Charts.....	15
D.1.2 Electronic Navigational Charts.....	15
D.1.3 AWOIS Items.....	16
D.1.4 Charted Features.....	16
D.1.5 Uncharted Features.....	16
D.1.6 Dangers to Navigation.....	16
D.1.7 Shoal and Hazardous Features.....	16
D.1.8 Channels.....	17
D.2 Additional Results.....	17
D.2 Construction and Dredging.....	18

D.2.1 Shoreline.....	17
D.2.2 Prior Surveys.....	17
D.2.3 Aids to Navigation.....	17
D.2.4 Overhead Features.....	17
D.2.5 Submarine Features.....	18
D.2.6 Ferry Routes and Terminals.....	18
D.2.7 Platforms.....	18
D.2.8 Significant Features.....	18
E. Approval Sheet.....	19
F. Table of Acronyms.....	20

List of Tables

Table 1: Survey Limits.....	1
Table 2: Hydrographic Survey Statistics.....	4
Table 3: Dates of Hydrography.....	5
Table 4: Vessels Used.....	6
Table 5: Major Systems Used.....	7
Table 6: Survey Specific Sound Speed TPU Values.....	8
Table 7: Junctioning Surveys.....	8
Table 8: CARIS Surfaces.....	13
Table 9: NWLON Tide Stations.....	14
Table 10: Water Level Files (.tid).....	14
Table 11: Tide Correctors (.zdf or .tc).....	14
Table 12: USCG DGPS Stations.....	14
Table 13: Largest Scale Raster Charts.....	15
Table 14: Largest Scale ENCs.....	15

List of Figures

Figure 1: Survey Limits.....	2
Figure 2: Extension of Survey Area.....	3
Figure 3: Survey Area.....	3
Figure 4: S3002.....	6
Figure 5: Crossline Comparison.....	8
Figure 6: H11467 Coverage.....	9
Figure 7: F00524 Coverage.....	10
Figure 8: W00177 Coverage.....	11

Descriptive Report to Accompany Survey H12494

Project: S-A906-NRT5-12

Locality: Portland, ME

Sublocality: Portland Harbor

Scale: 1:10000

June 2012 - July 2012

Navigation Response Team 5

Chief of Party: LTjg Steven Loy

A. Area Surveyed

The area surveyed includes the Portland Main Harbor east of Casco Bay Bridge, the outer harbor south to Portland Head, Whitehead Passage, the channel between House Island and Peaks Island, the Diamonds Island Roads Anchorage, and the area between Diamond Island Ledge and Fish Point.

A.1 Survey Limits

Data was acquired within the following survey limits:

Northeast Limit	Southwest Limit
43.6770025 N 70.1777172222 W	43.6248833333 N 70.2638830556 W

Table 1: Survey Limits

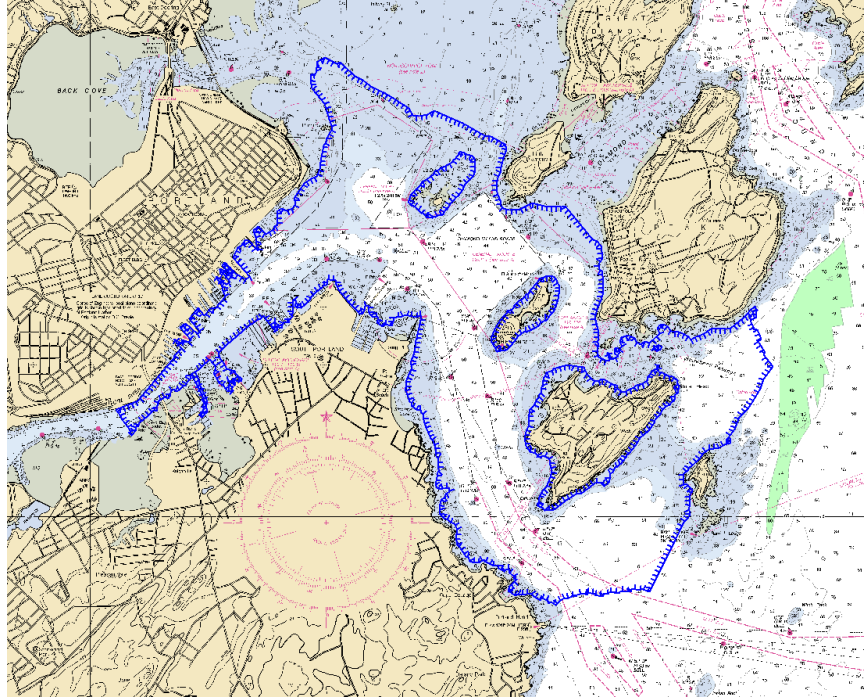


Figure 1: Survey Limits

At the request of The City of South Portland, the survey area was extended approximately 475 meters west of the Casco Bay Bridge on the Fore River.

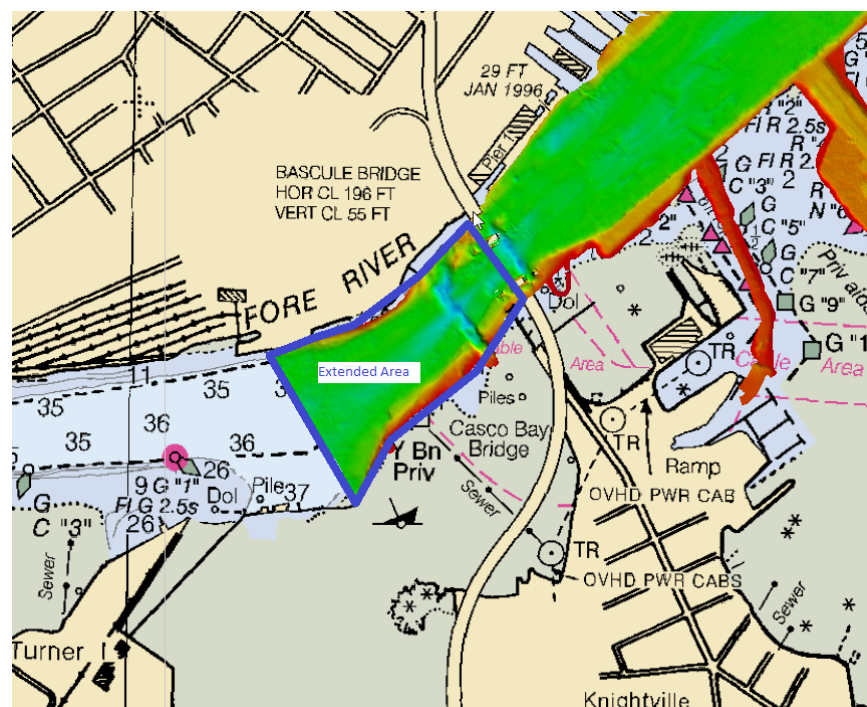


Figure 2: Extension of Survey Area

A.2 Survey Purpose

The purpose of the survey is to supersede all bathymetry, seafloor features, and bottom characteristics within the assigned survey area.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

A.4 Survey Coverage

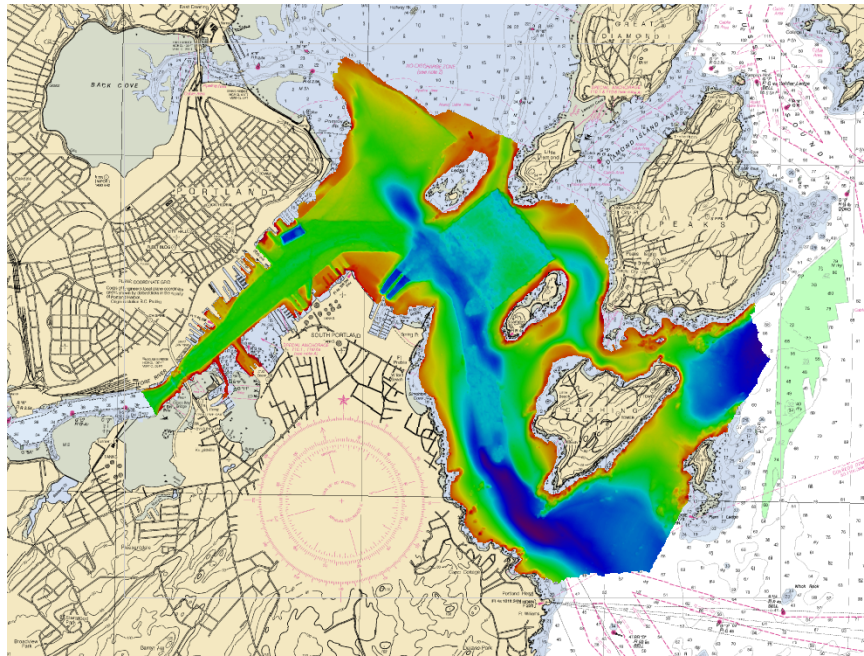


Figure 3: Survey Area

Survey Coverage was in accordance with the requirements in the Project Instructions and the HSSD.

A.5 Survey Statistics

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

	HULL ID	<i>s3002</i>	<i>Total</i>
LNM	SBES Mainscheme	0.00	0.00
	MBES Mainscheme	290.14	290.14
	Lidar Mainscheme	0.00	0.00
	SSS Mainscheme	0.00	0.00
	SBES/MBES Combo Mainscheme	0.00	0.00
	SBES/SSS Combo Mainscheme	0.00	0.00
	MBES/SSS Combo Mainscheme	0.00	0.00
	SBES/MBES Combo Crosslines	13.03	13.03
	Lidar Crosslines	0.00	0.00
	Number of Bottom Samples		
Number of DPs			0
Number of Items Items Investigated by Dive Ops			0
Total Number of SNM			3.787

Table 2: Hydrographic Survey Statistics

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

<i>Survey Dates</i>
06/27/2012
06/28/2012
06/29/2012
07/02/2012
07/03/2012
07/05/2012
07/09/2012
07/10/2012
07/11/2012
07/12/2012
07/16/2012
07/17/2012
07/19/2012

Table 3: Dates of Hydrography

A.6 Shoreline

Shoreline was investigated in accordance with the Project Instructions and the HSSD.

A.7 Bottom Samples

Bottom Samples were acquired in accordance with the Project Instructions or the HSSD.

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	<i>S3002</i>
LOA	30 feet
Draft	3.5 feet

Table 4: Vessels Used



Figure 4: S3002

S3002 is a 30 ft aluminum hulled SeaArk Commander, Powered by twin 200hp outboard engines.

B.1.2 Equipment

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

Manufacturer	Model	Type
Kongsberg	EM3002	MBES
Applanix	POS/MV	Positioning and Attitude System
Trimble	DSM212L	Positioning System
Seabird	Seacat 19+	Sound Speed System
Odom	Digibar Pro	Sound Speed System

Table 5: Major Systems Used

Positioning, attitude, and heading, are measured by the Applanix POS/MV inertial navigation system. The Trimble DSM212L receives Coast Guard beacon RTCM messages, and transmits them to the POS/MV via RS232 connection. The Seabird Seacat 19+ is typically used to collect SVP casts, while the Odom Digibar Pro measures surface sound speed in real time, transmitting the values to the EM3002 for beam forming via RS232 connection.

B.2 Quality Control

B.2.1 Crosslines

Thirteen lnm of crosslines were collected, which is approximately 4.5% of total mainscheme lnm. Visual crossline comparison was performed in Caris subset editor. In general, the agreement between crosslines and mainscheme is excellent, with no discernible difference between crosslines and mainscheme. A crossline comparison was also performed using Caris QC Report. A two meter reference surface was created using only mainscheme lines. QC Reports by beam number were then created considering all crosslines together, and for several individual lines. Most differences were less than 5 cm. A vertical offset, most likely a tide artifact, can be seen in a crossline taken in the Diamond Islands Roads anchorage, with a maximum difference of approximately 8 cm. An SVP artifact can be seen in the crossline taken in the Inner Harbor, with a maximum difference of approximately 6 cm. The magnitude of the crossline differences indicate data uncertainty exceeds IHO order 1 requirements.

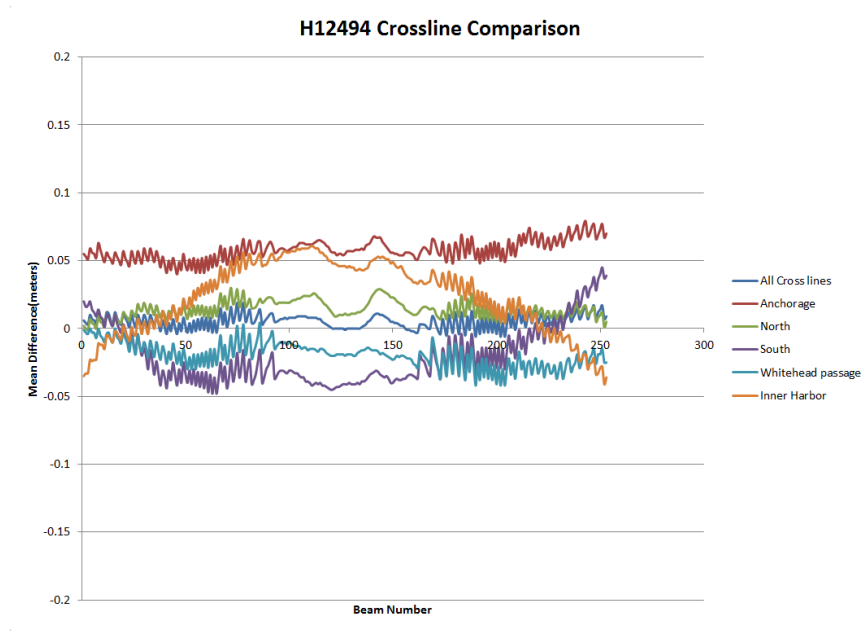


Figure 5: Crossline Comparison

B.2.2 Uncertainty

Hull ID	Measured - CTD	Measured - MVP	Surface
S3002	2meters/second		.5meters/second

Table 6: Survey Specific Sound Speed TPU Values

B.2.3 Junctions

No Junction Surveys were provided with this project, however, a comparison was made with three contemporary surveys: H11467(2005), F00524(2006), and W00177(2006).

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H11467	1:10000	2005	Navigation Response Team 5	N
F00524	1:10000	2005	Navigation Response Team 5	S
W00177	1:20000	2006	R/V ECHO	S

Table 7: Junctioning Surveys

H11467

The MBES bag surface from H11467 was downloaded from NGDC, and compared to the current survey by creating a surface difference. The average difference is approximately 11 cm.

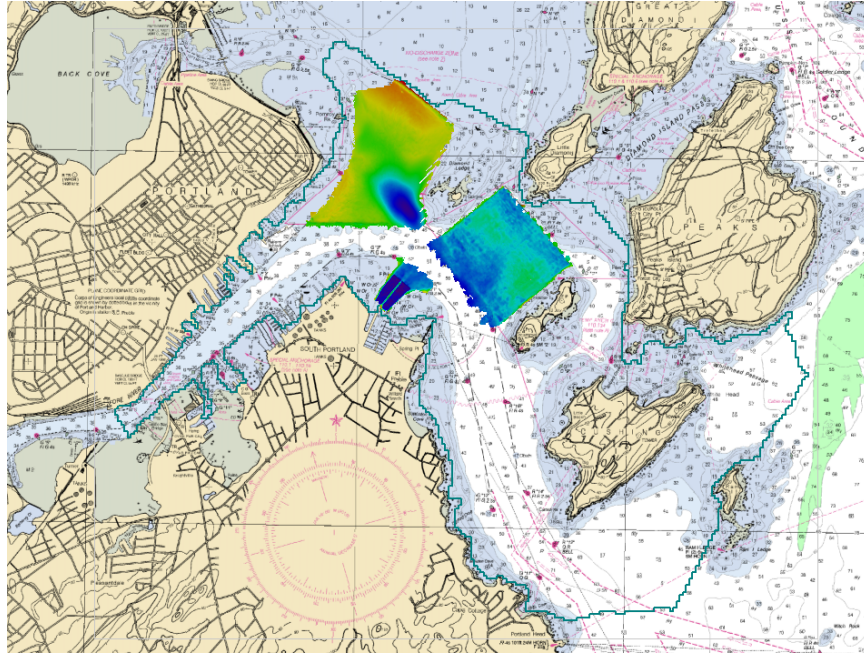


Figure 6: H11467 Coverage

For clarification, H11467 is a prior survey not a junction survey.

F00524

The MBES bag surface from F00524 was downloaded from NGDC, and compared to the current survey by creating a surface difference. The average difference is approximately 10 cm.

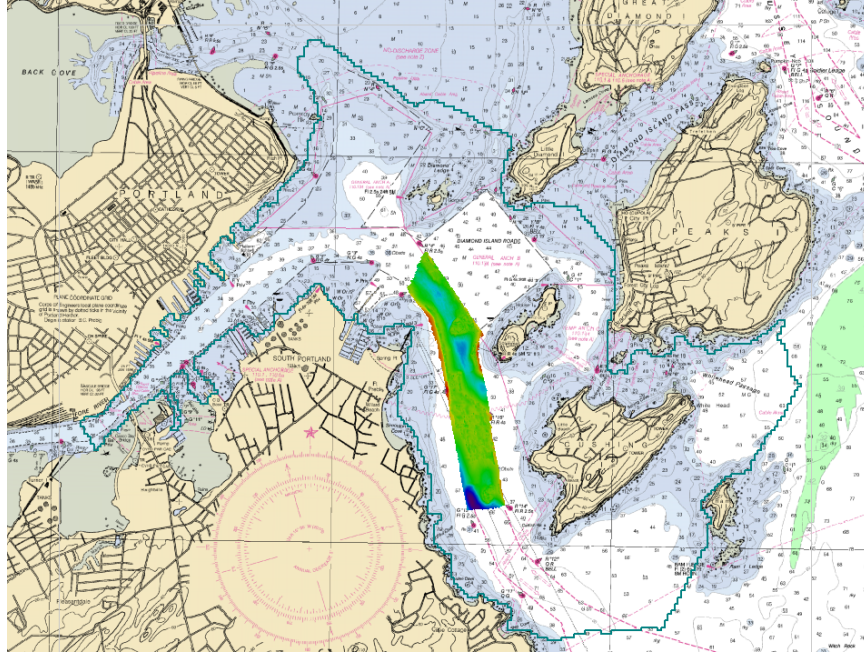


Figure 7: F00524 Coverage

The image for Figure 7 incorrectly depicts a different survey. Also, F00524 is a prior survey, not a junction survey.

W00177

The MBES bag surface from W00177 was downloaded from NGDC, and compared to the current survey by creating a surface difference. The average difference is approximately 4 cm.

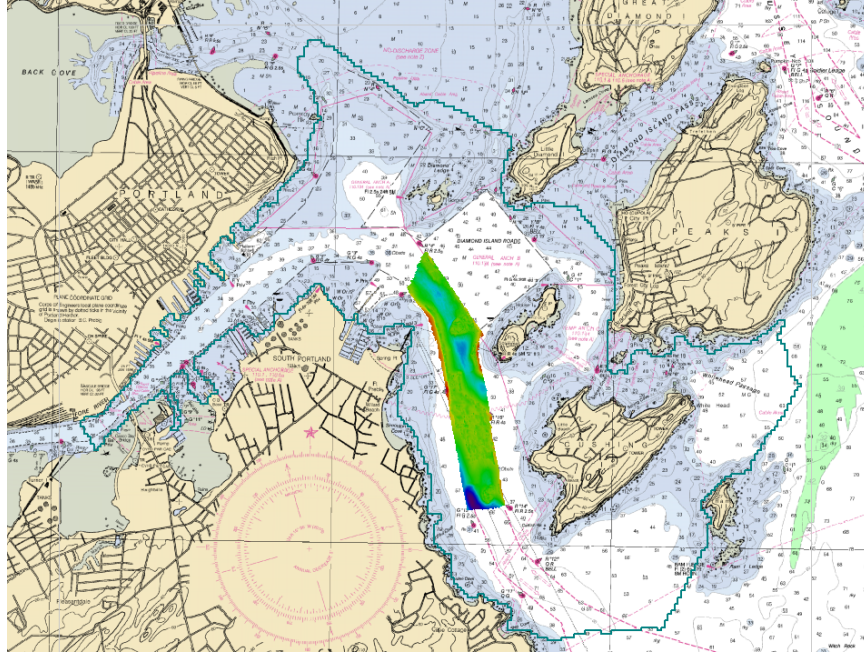


Figure 8: W00177 Coverage

For clarification, W00177 is a prior survey not a junction 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

B.2.5.1 None Exist

There were no conditions or deficiencies that affected equipment operational effectiveness.

B.2.6 Factors Affecting Soundings

B.2.6.1 None Exist

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: SVP casts were taken, at a minimum, every four hours, or when there was an indication that the sound velocity had changed, such as a change in the surface sound speed, or if smiling/frowning of the data was observed.

B.2.8 Coverage Equipment and Methods

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

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

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

B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

The Kongsberg Seabed Image Datagram was logged concurrently with bathymetry in the Kongsberg .ALL format, but was not processed.

B.5 Data Processing

B.5.1 Software Updates

There were no software configuration changes after the DAPR was submitted.

The following Feature Object Catalog was used: NOAA Profile

B.5.2 Surfaces

The following CARIS surfaces were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12494_1m	CUBE	1 meters	-	NOAA_1m	Complete MBES
H12494_1m_Final	CUBE	1 meters	-5 meters - 20 meters	NOAA_1m	Complete MBES
H12494_2m	CUBE	2 meters	-	NOAA_2m	Complete MBES
H12494_2m_Final	CUBE	2 meters	18 meters - 22 meters	NOAA_2m	Complete MBES

Table 8: CARIS Surfaces

A 0.5 meter surface was created at the branch to meet object detection requirement for the AWOIS investigation items. This surface more accurately represented AWOIS investigation areas, obstructions, and other shoal features. The 0.5 surface did not meet density requirements in depths greater than 15 meters therefore it was finalized from -2 to 14 meters. The 1 meter surface was finalized from 12 to 30 meters depth. (No depths in the survey were greater than 22 meters.)

C. Vertical and Horizontal Control

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying HVCR.

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
Portland	8418150

Table 9: NWLON Tide Stations

File Name	Status
8418150.tid	Final Approved

Table 10: Water Level Files (.tid)

File Name	Status
A906NRT52012CORP.zdf	Final

Table 11: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 12/11/2012. The final tide note was received on 12/17/2012.

Preliminary zoning was accepted as final zoning for this survey.

The Tide Note is appended to this report.

C.2 Horizontal Control

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

The following DGPS Stations were used for horizontal control:

DGPS Stations
Brunswick, ME, Station ID: 42, Frequency 316 kHz

Table 12: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

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
13292	1:20000	40	07/2010	06/22/2010	07/03/2010

Table 13: Largest Scale Raster Charts

13292

The agreement between charted soundings and survey depths are good in general across the survey area. There are notable exceptions in the area around Trotts Rock in Whitehead Passage, and between Cushing Island and Ram Island. In some places in these areas the charted contours do not match the survey data very well. There are also mischarted and uncharted shoals in these areas. There appears to be some slight shoaling in Diamond Islands Roads anchorage, with measured depths 1-2 feet shoaler than charted in some areas. Dredging has been performed around a cruise ship terminal approximately 400 meters northeast of the State Pier which has significantly altered the 30' depth contour. The spoils from the dredging appear to have been dumped in the deep area (charted 62 ft) in front of the pier, bringing the depth up to 54 ft. There is some slight shoaling in the inner harbor, with some survey depths 1-2 ft shoaler than charted depths.

D.1.2 Electronic Navigational Charts

The following are the largest scale ENC's, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5ME10M	1:20000	20	09/24/2012	09/24/2012	NO

Table 14: Largest Scale ENC's

US5ME10M

In general the ENC agrees with the raster chart, however, there is charted obstruction on the ENC located at 44-39-22.697N, 70-12-49.001W which does not appear on the Raster chart 13292.

D.1.3 AWOIS Items

Number of AWOIS Items Addressed: 5

Number of AWOIS Items Not Addressed: 0

All five assigned AWOIS items were investigated with full coverage MBES. Two AWOIS items (15011, and 15013) were disproved. Additional details and recommendations are contained in the Pydro PSS included in Appendix II.

D.1.4 Charted Features

Charted features are addressed in the Pydro PSS and Final Features File (H12494_FFF.000) included in Appendix II.

D.1.5 Uncharted Features

Approximately twenty-six uncharted features were recommended for charting, including two uncharted wrecks which were submitted as DTONs. Specific recommendations are given in the Pydro PSS and Final Features File (H12494_FFF.000) included in Appendix II.

D.1.6 Dangers to Navigation

Danger to Navigation Reports are included in Appendix I of this report.

Reports for AWOIS items, wrecks, and DTONs are appended to this report.

D.1.7 Shoal and Hazardous Features

The main approach between Portland Head and Portland Inner harbor is well charted. However, Several uncharted or poorly charted shoals were found in Whitehead passage, and between Cushing Island and Ram Island:

Near Ram Island there is a rock with a least depth of 28 ft on a charted 35 ft sounding, located at 43-38-2.789N, 70-11-30.092W.

There is an uncharted shoal with a least depth of 37 ft located at 43-38-2.92N, 70-12-6.43W, where the chart suggests a depth of between 45 and 50 ft.

There is a rock shoal with a depth of 29 ft seaward of the charted 36 ft contour located at 43-38-8.482N, 70-11-57.276W.

A least depth of 23 ft was found on a charted 27 ft shoal located at 43-38-33.72N, 70-11-25.511W.

There is an uncharted submerged rock with a least depth of 4 ft located at 43-39-1.807N, 70-11-27.811W in Whitehead Passage.

There is an uncharted 7 ft shoal located at 43-38-55.357N, 70-11-43.054W. This probably corresponds to a charted 5 ft shoal 70 meters to the North.

Correction: the 37 ft shoal is located 43-38-04.16N, 70-12-09.32W

D.1.8 Channels

The depths in the main approach from Portland Head to Ft Gorges are well charted, and everywhere deeper than the 45 ft controlling depth mentioned in the Coast Pilot section. Some slight shoaling appears to have occurred in the inner harbor, with survey depths 1-2 ft shoaler than charted depths found in some places. Depths were found in the southern portion of Diamond Island Roads anchorage that are approximately 1 ft shoaler than charted. An uncharted wreck with a least depth of 27 ft was found in a deep water berth with a reported depth of 32 ft, and submitted as a DTON.

D.2 Additional Results

D.2.1 Shoreline

Shoreline features were investigated with MBES where possible.

D.2.2 Prior Surveys

The survey data from H12494 was compared to prior overlapping surveys H11467(2005) , F00524(2006) , and W00177(2006). The correlation is good, with an average difference of approximately 10 cm for F00524 and H11467, and an average difference of 4 cm for W00177.

D.2.3 Aids to Navigation

All ATONS observed within the survey area appeared to be accurately charted, and serving their intended purpose.

D.2.4 Overhead Features

Overhead features exist for this survey, but were not investigated.

D.2.5 Submarine Features

Several cables and pipelines are visible in the MBES data inside charted pipeline and cable areas. No further investigation was performed.

D.2.6 Ferry Routes and Terminals

Ferry terminals and ferry traffic were noted on State Pier in Portland Harbor, and on Peaks Island near Forest City Lodge, but were not investigated.

D.2.7 Platforms

No platforms exist for this survey.

A charted platform is located at 43-39-28.8N, 70--14-39.7W.

D.2.8 Significant Features

No significant features exist for this survey.

D.2 Construction and Dredging


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

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, Standing and Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Approver Name	Approver Title	Approval Date	Signature
LTjg Steven Loy	Chief of Party	01/16/2013	 <small>Digitally signed by LOY, STEVEN. TENHET.1383970799 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=NOAA, cn=LOY, STEVEN.TENHET.1383970799 Date: 2013.01.17 13:49:09 -05'00'</small>

F. Table of Acronyms

Acronym	Definition
AFF	Assigned Features File
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 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
ERZT	Ellipsoidally Referenced Zoned Tides
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
HSSDM	Hydrographic Survey Specifications and Deliverables Manual

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 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
ZDA	Global Positioning System timing message
ZDF	Zone Definition File



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : December 12, 2012

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: S-A906-NRT5-2012
HYDROGRAPHIC SHEET: H12494

LOCALITY: Portland Harbor, ME
TIME PERIOD: June 27 - July 19, 2012

TIDE STATION USED: 841-8150 Portland, ME
Lat. 43° 39.4'N Long. 70° 14.8' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.886 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project S-A906-NRT5-2012, during the time period between June 27 - July 19, 2012.

Please use the zoning file A906NRT52012CORP submitted with the project instructions for S-A906-NRT5-2012. Zones NA159, NA163, NA164 NA165 and NA166 are the applicable zones for H12494.

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).

HOVIS.GERALD.T
HOMAS.136586
0250

Digitally signed by
HOVIS.GERALD.THOMAS.1365860250
DN: c=US, o=U.S. Government,
ou=DoD, ou=PKI, ou=OTHER,
cn=HOVIS.GERALD.THOMAS.13658602
50
Date: 2012.12.17 11:56:47 -05'00'

CHIEF, PRODUCTS AND SERVICES BRANCH



Preliminary as Final Tidal Zoning for S-A906-NRT5-2012, H12494 Portland Harbor, ME

Recommended vessel traffic for release, entering, and departing the Sheepscot River, Maine. While not mandatory, vessels are requested to follow the designated route. See U.S. Coast Pilot Volume 1, Chapter 6.

NOTE B
PRECAUTIONARY AREA
Traffic within the Precautionary Area may consist of vessels operating between Portland and Casco Bay, ME, and other vessels operating in the area. Recommended traffic lanes have been established or the approaches to Portland Harbor. See charts 13200 and 13266.

WARNING
The prudent mariner will not rely solely on any single aid to navigation, particularly on any one side. See U.S. Coast Guard Light List.

NA163
Time Corrector 0 mins
Range Corrector x1.00
Reference 8418150

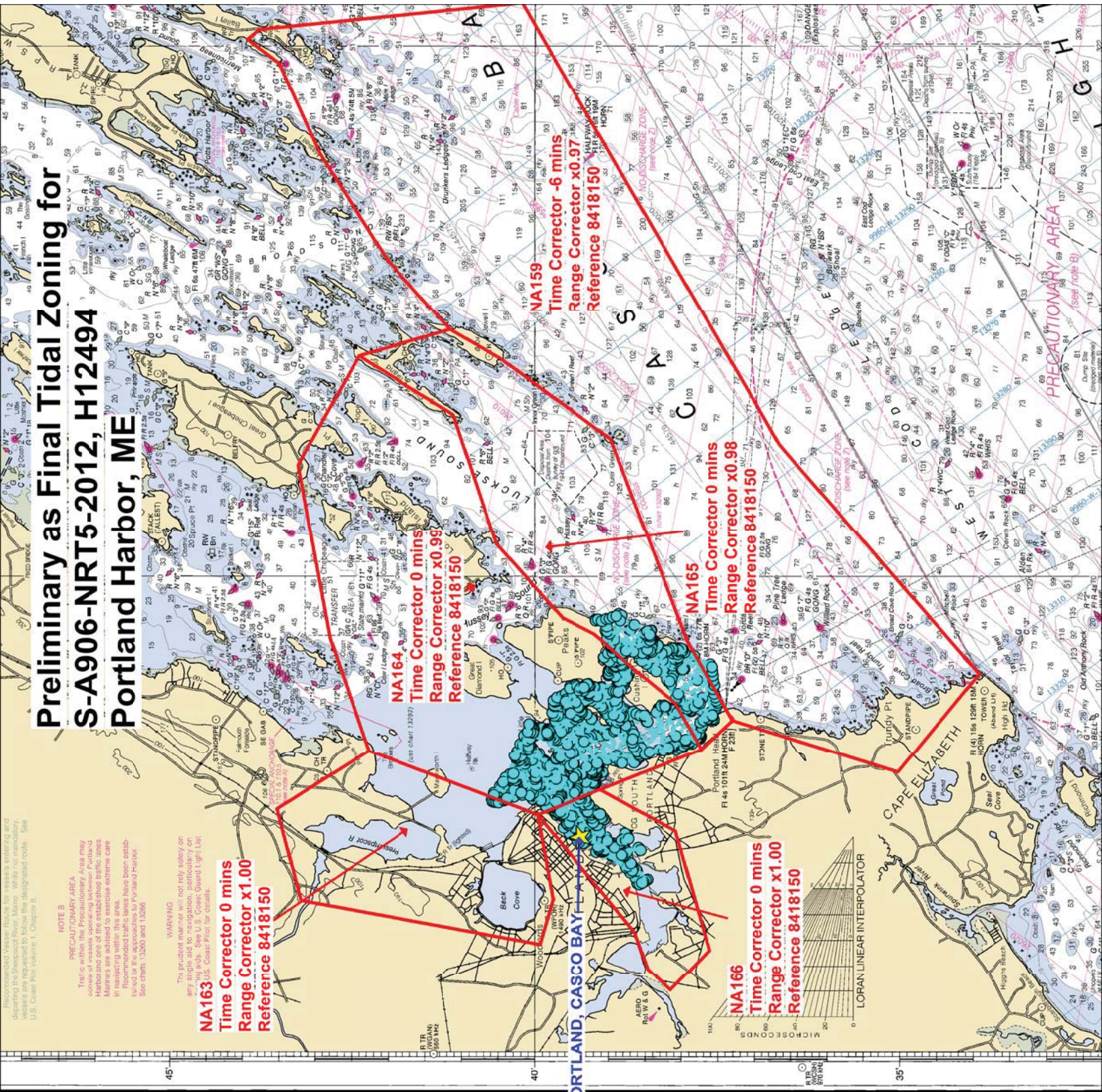
NA164
Time Corrector 0 mins
Range Corrector x0.99
Reference 8418150

NA159
Time Corrector -6 mins
Range Corrector x0.97
Reference 8418150

NA165
Time Corrector 0 mins
Range Corrector x0.98
Reference 8418150

NA166
Time Corrector 0 mins
Range Corrector x1.00
Reference 8418150

8418150 PORTLAND, CASCO BAY



PRECAUTIONARY AREA
(see note B)

H12494 Danger to Navigation Report 1

Registry Number: H12494
State: Maine
Locality: Portland, ME
Sub-locality: Portland Harbor
Project Number: S-A906-NRT5-12
Survey Dates: June 27, 2012 - TBD

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13292	38th	02/01/2007	1:20,000 (13292_1)	[L]NTM: ?
13290	37th	03/01/2007	1:40,000 (13290_1)	[L]NTM: ?
13288	42nd	04/01/2007	1:80,000 (13288_1)	[L]NTM: ?
13260	40th	05/01/2007	1:378,838 (13260_1)	[L]NTM: ?
13009	33rd	05/01/2007	1:500,000 (13009_1)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_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.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Wreck	1.00 m	43° 39' 01.7" N	070° 12' 33.2" W	---

1 - Dangers To Navigation

1.1) 2294/177**DANGER TO NAVIGATION****Survey Summary**

Survey Position: 43° 39' 01.7" N, 070° 12' 33.2" W
Least Depth: 1.00 m (= 3.28 ft = 0.547 fm = 0 fm 3.28 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.965 m ; **TVU (TPEv)** ± 0.179 m
Timestamp: 2012-192.19:35:05.552 (07/10/2012)
Survey Line: h12494 / nrt5_s3002_em3002 / 2012-192 / 0814_20120710_193335_shipname
Profile/Beam: 2294/177
Charts Affected: 13292_1, 13290_1, 13288_1, 13260_1, 13009_1, 13006_1, 13003_1

Remarks:

Uncharted submerged wreck discovered with MBES Determined 3.28ft least depth on charted 18 ft contour with preliminary zone tides applied. Wreck located 0.15NM west of Ft Scammel in vicinity of pipeline and anchorage area. NRT5 observed regular commercial fishing, recreational traffic and anchored vessels in immediate vicinity.

Wreck appears to have length of 48 ft, beam of 18 ft with apparent wheelhouse and vertical protrusions including least depth at the stern. Wreck is centered in position 43-39-01.801208N 070-12-32.910396W and has apparent bow facing ENE. Possible drag or scour in line with wreck extending approx. 95ft WNW from vessel position

Feature Correlation

Source	Feature	Range	Azimuth	Status
0814_20120710_193335_shipname	2294/177	0.00	000.0	Primary

Hydrographer Recommendations

Chart new DTON as submerged wreck or obstruction with surveyed sounding. Notify SHPO or other appropriate persons and add to AWOIS database.

Cartographically-Rounded Depth (Affected Charts):

3ft (13292_1, 13290_1, 13288_1)

0 ½fm (13260_1, 13009_1, 13006_1, 13003_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: VALSOU - 1.000 m

Feature Images

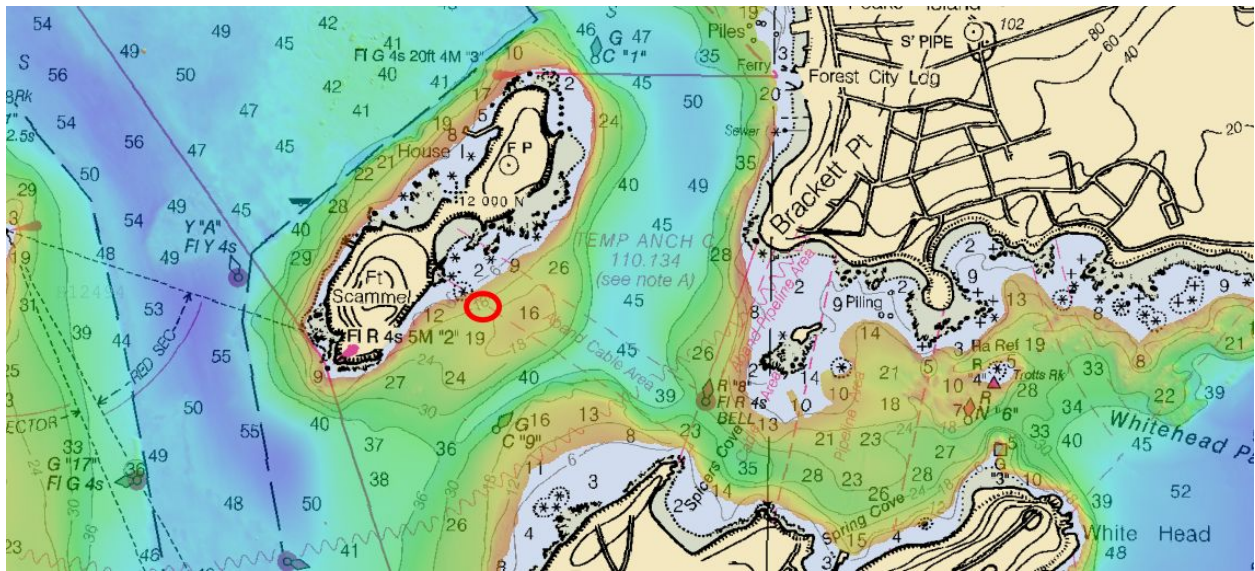


Figure 1.1.1

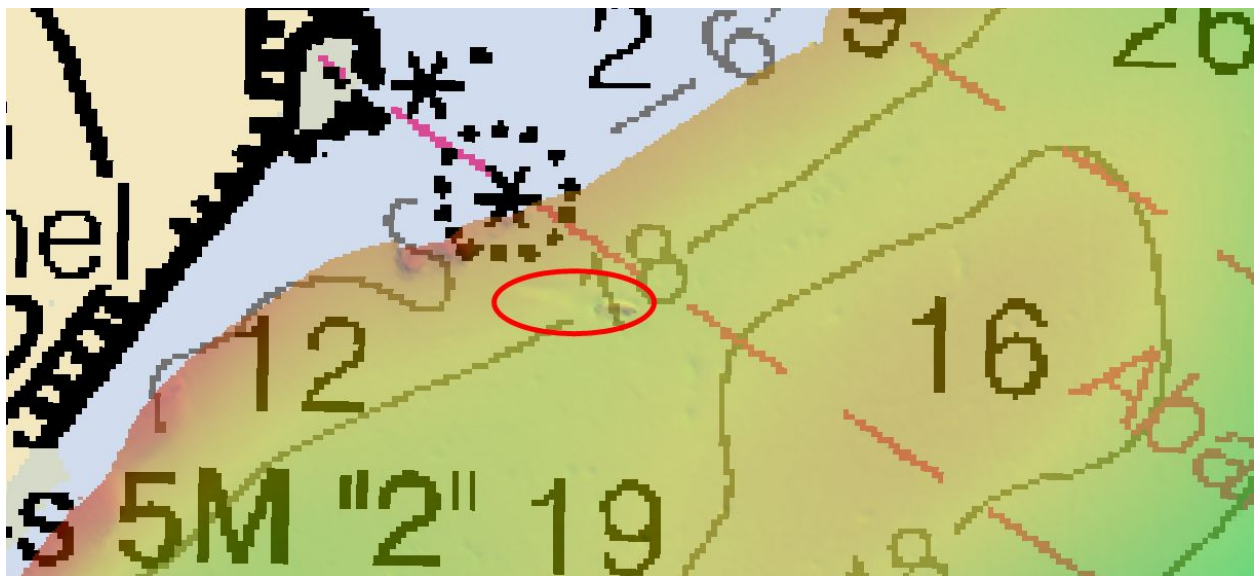


Figure 1.1.2

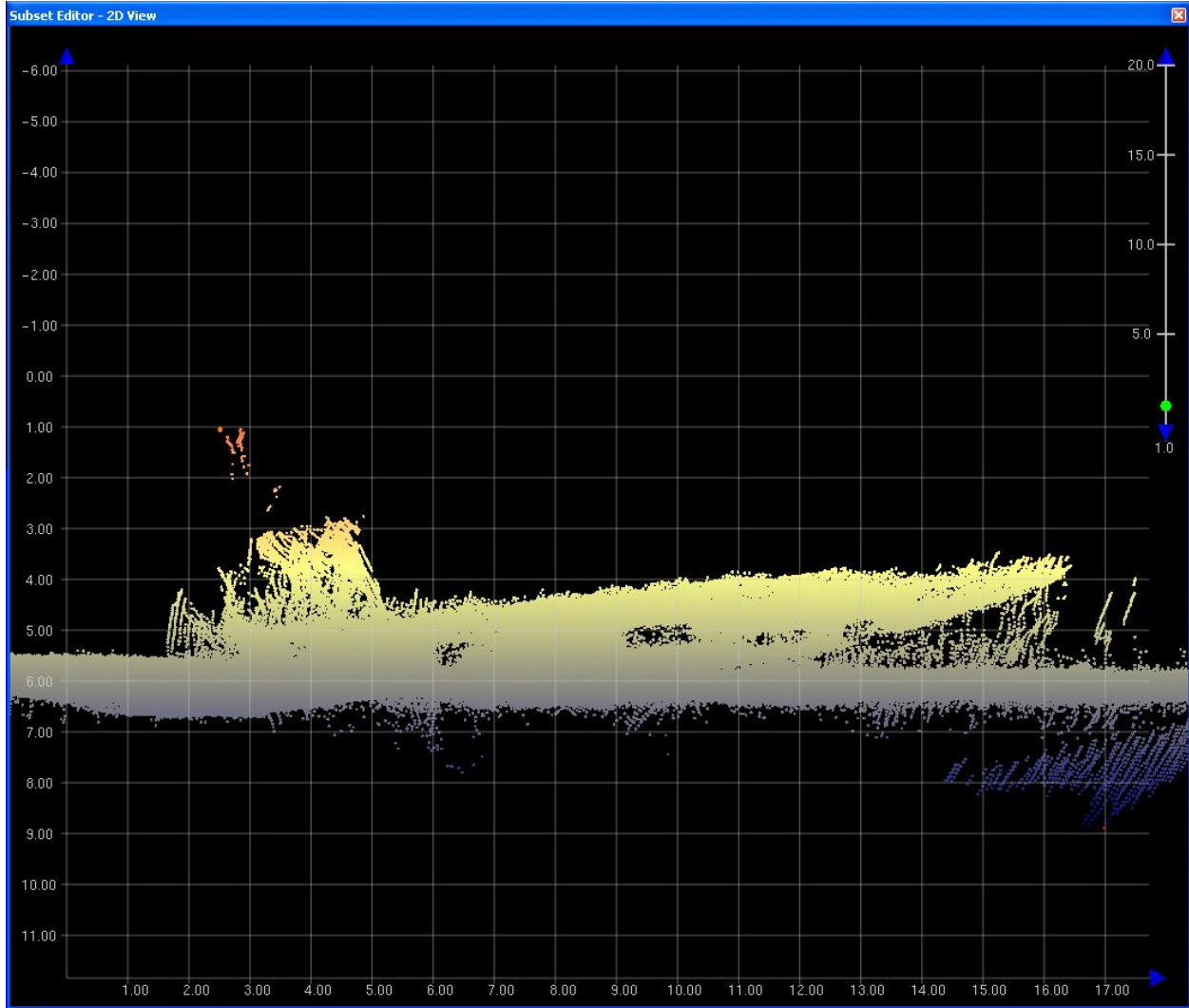


Figure 1.1.3

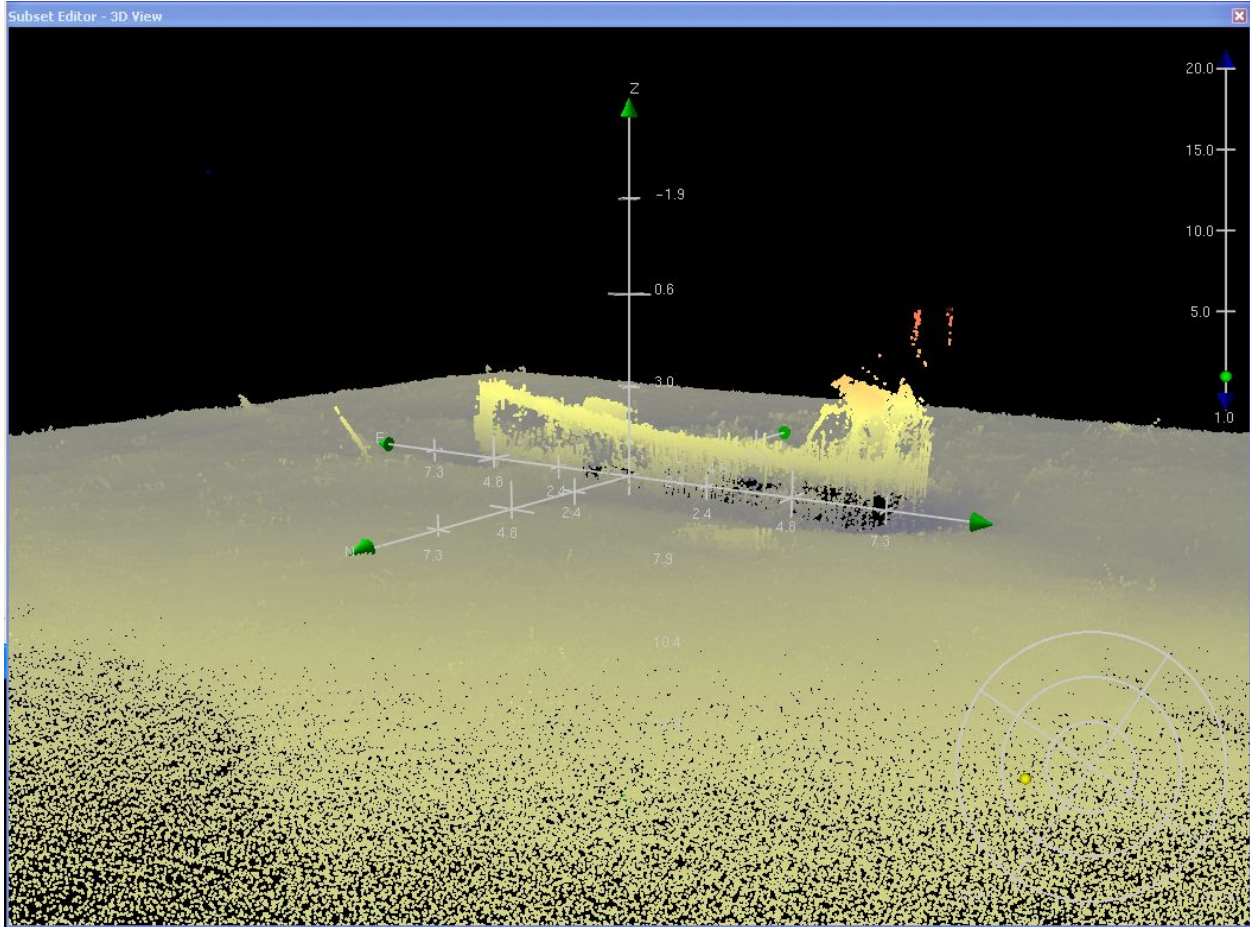


Figure 1.1.4

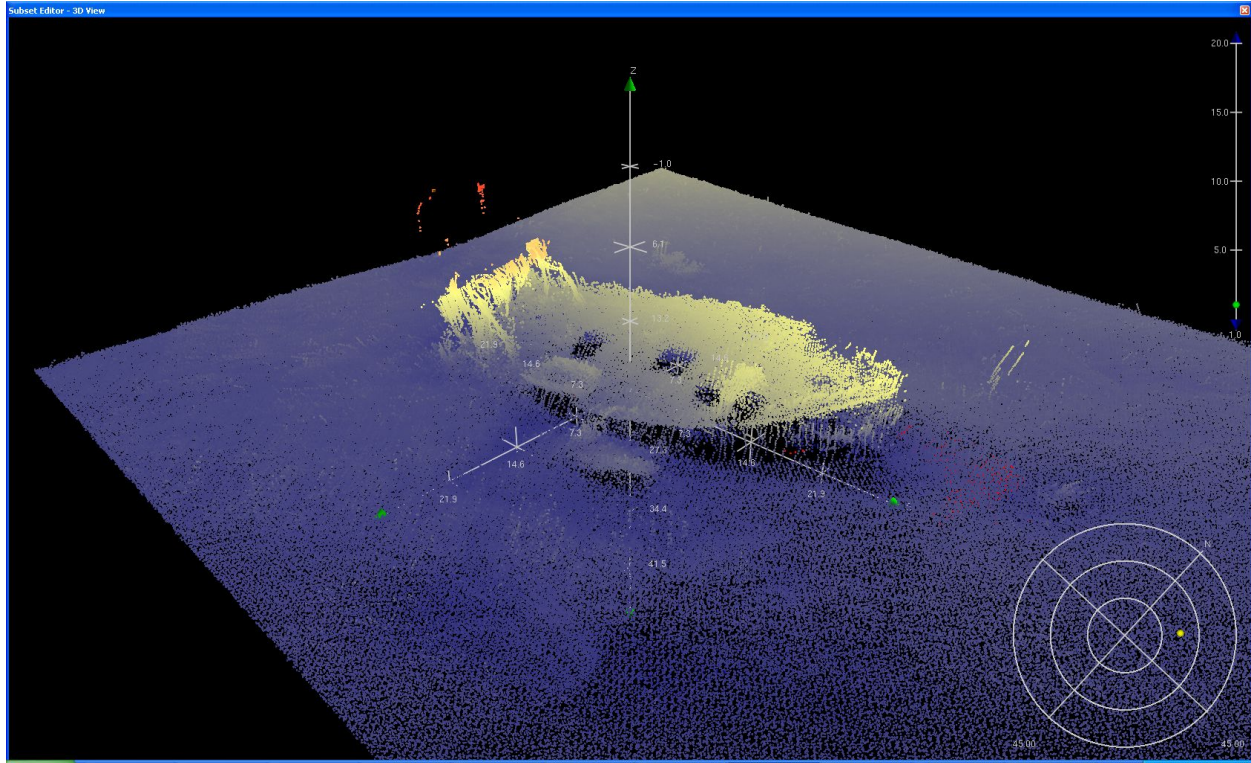


Figure 1.1.5

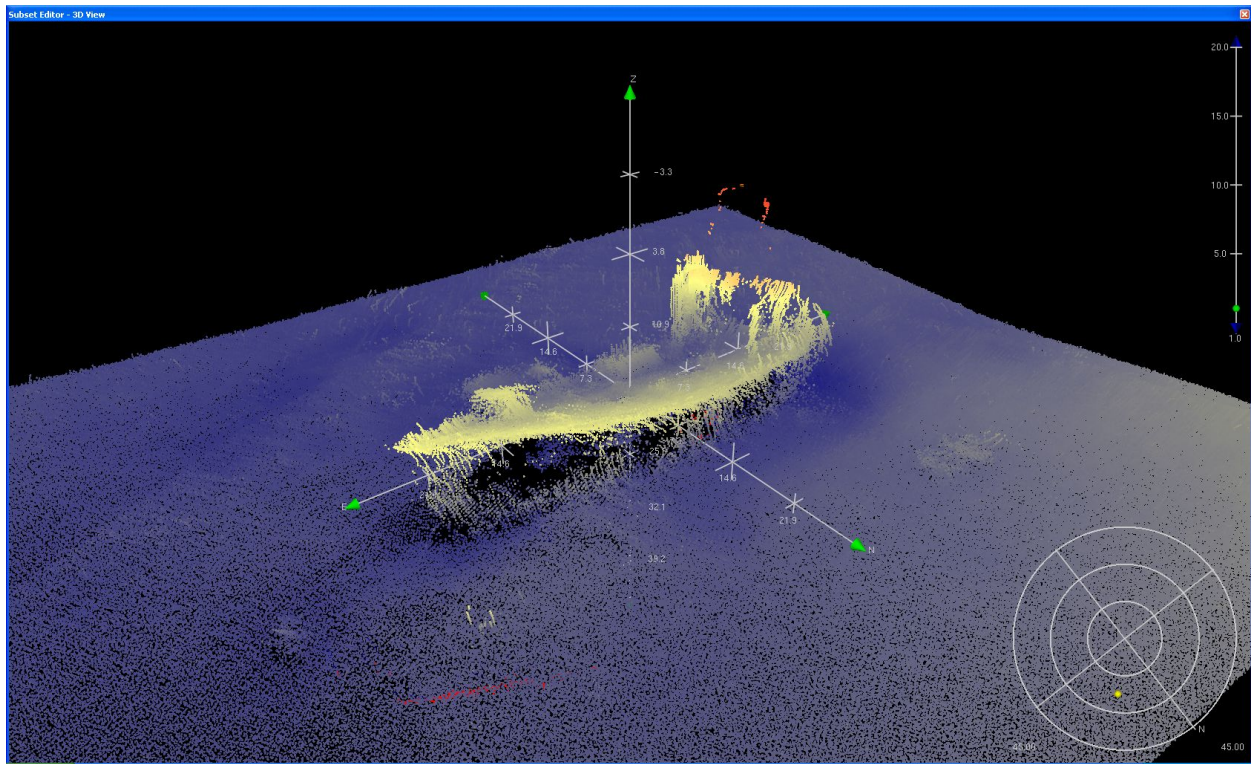


Figure 1.1.6

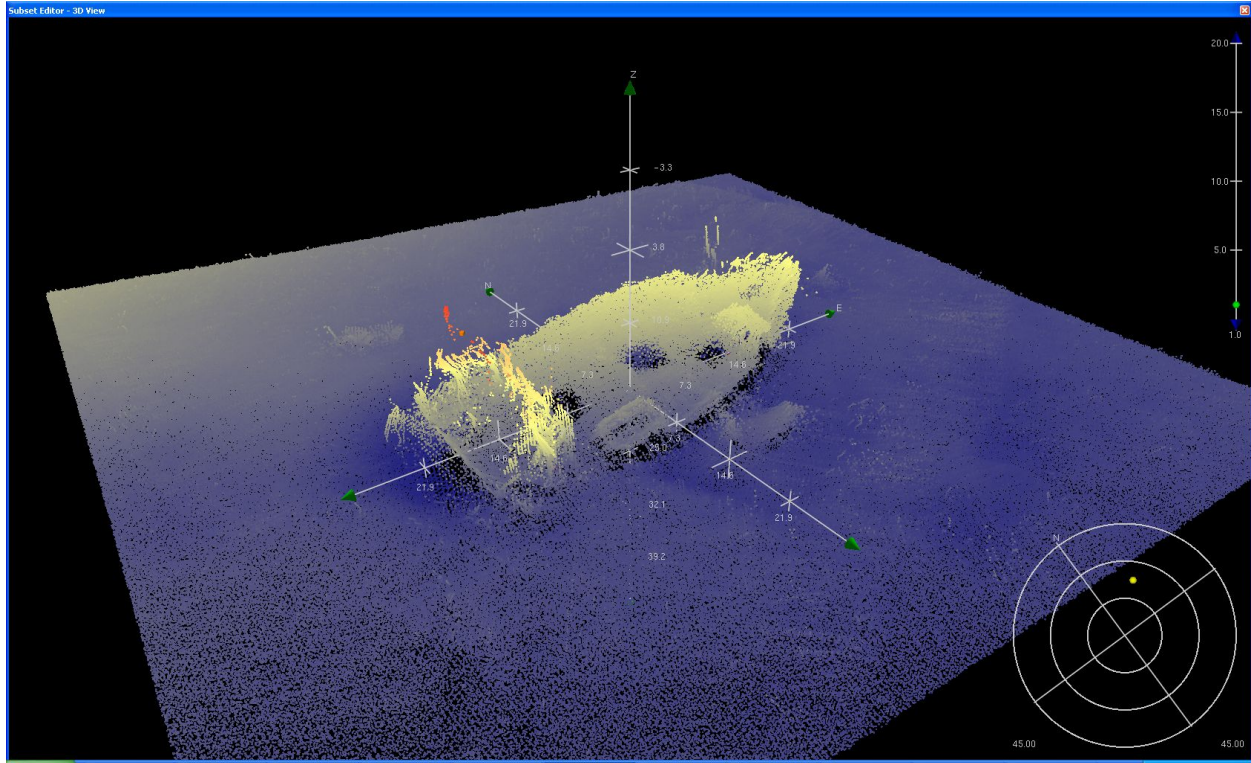


Figure 1.1.7

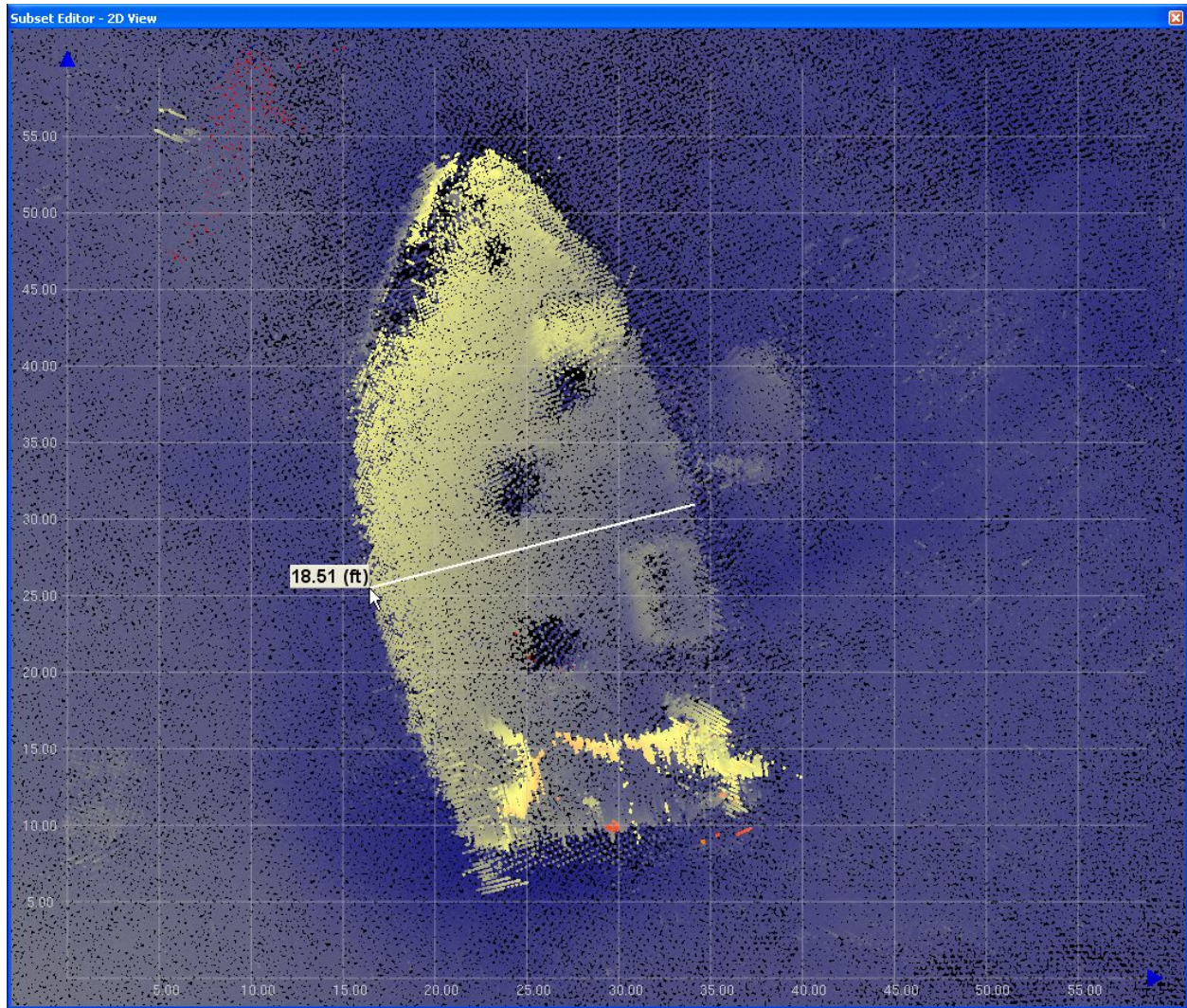


Figure 1.1.8

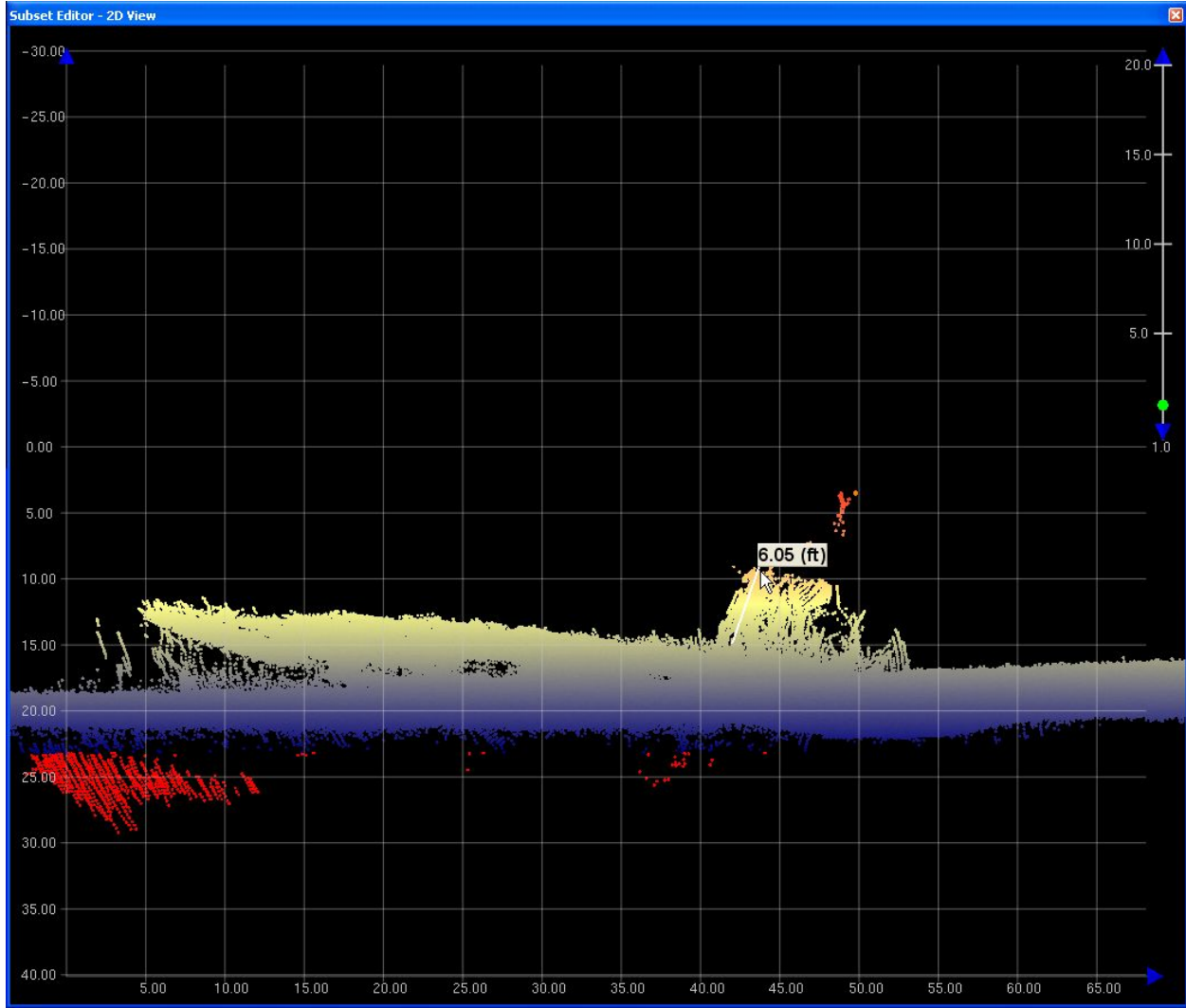


Figure 1.1.9

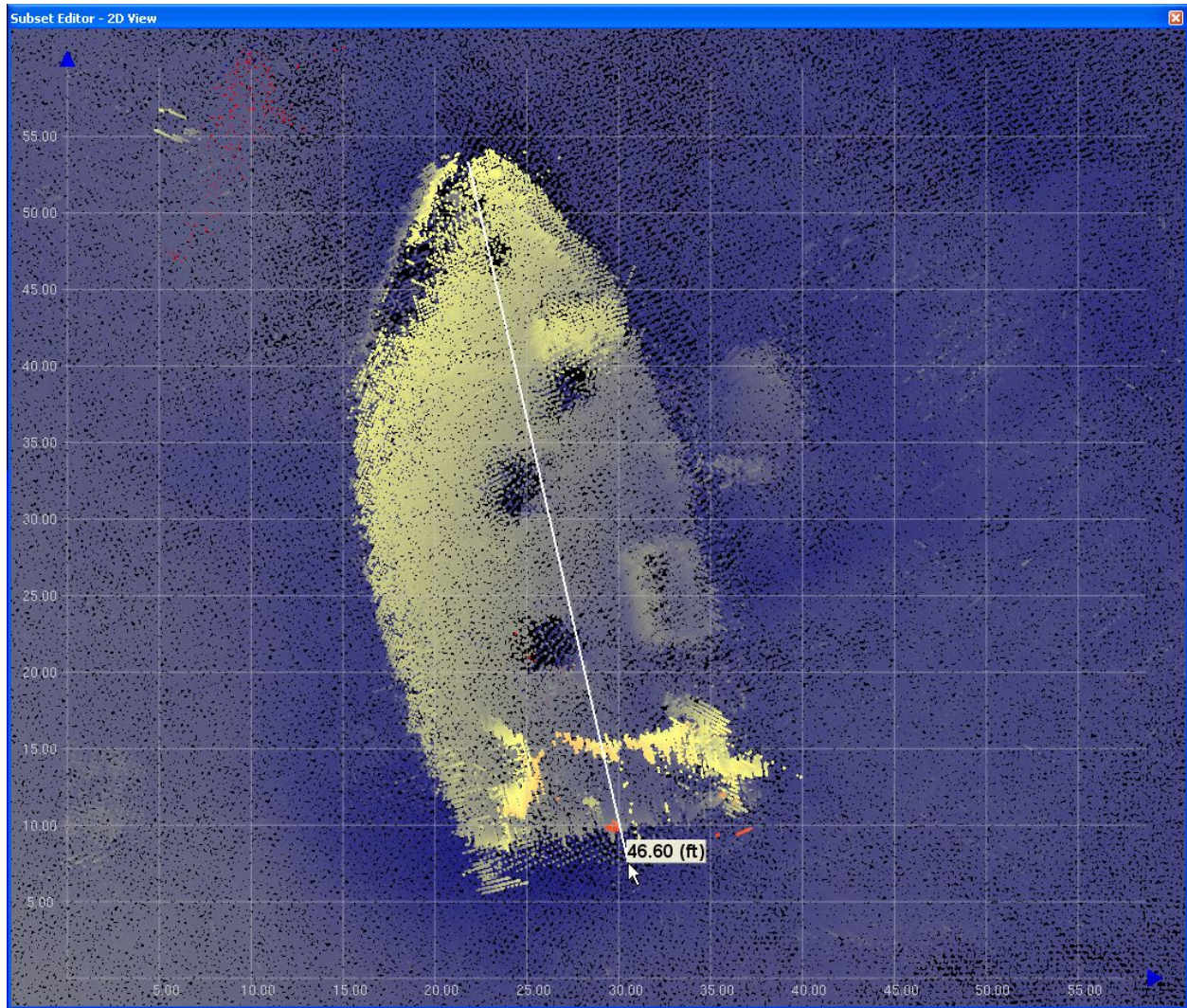


Figure 1.1.10

H12494 Uncharted Wreck

Registry Number: H12494
State: Maine
Locality: Portland, ME
Sub-locality: Portland Harbor
Project Number: S-A906-NRT5-12
Survey Date: 07/02/2012

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13292	40th	07/01/2010	1:20,000 (13292_1)	USCG LNM: 9/18/2012 (11/20/2012) CHS NTM: None (10/26/2012) NGA NTM: 7/17/2004 (11/24/2012)
13290	37th	03/01/2007	1:40,000 (13290_1)	[L]NTM: ?
13288	42nd	04/01/2007	1:80,000 (13288_1)	[L]NTM: ?
13260	40th	05/01/2007	1:378,838 (13260_1)	[L]NTM: ?
13009	33rd	05/01/2007	1:500,000 (13009_1)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_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.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Wreck	8.21 m	43° 39' 11.3" N	070° 14' 33.2" W	---

1 - Dangers To Navigation

1.1) Profile/Beam 47/187 / 0326_20120702_173644_shipname

DANGER TO NAVIGATION

Survey Summary

Survey Position: 43° 39' 11.3" N, 070° 14' 33.2" W
Least Depth: 8.21 m (= 26.95 ft = 4.492 fm = 4 fm 2.95 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 1.966 m ; TVU (TPEv) ± 0.344 m
Timestamp: 2012-184.17:36:48.061 (07/02/2012)
Survey Line: h12494 / nrt5_s3002_em3002 / 2012-184 / 0326_20120702_173644_shipname
Profile/Beam: 47/187
Charts Affected: 13292_1, 13290_1, 13288_1, 13260_1, 13009_1, 13006_1, 13003_1

Remarks:

Appears to be a wreck with a least depth of 27 feet rising approximately 5 feet above seafloor, located in a dredged area with rep least depth of 32 feet. The wreck is approximately 10 meters long, and three meters wide. Final tides have been applied.

Feature Correlation

Source	Feature	Range	Azimuth	Status
0326_20120702_173644_shipname	47/187	0.00	000.0	Primary

Hydrographer Recommendations

Chart wreck.

Cartographically-Rounded Depth (Affected Charts):

27ft (13292_1, 13290_1, 13288_1)

4 ½fm (13260_1, 13009_1, 13006_1, 13003_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 2:dangerous wreck
 QUASOU - 1:depth known
 SORDAT - 20120719
 SORIND - US,US,graph,H12494

TECSOU - 3:found by multi-beam

VALSOU - 8.215 m

Feature Images

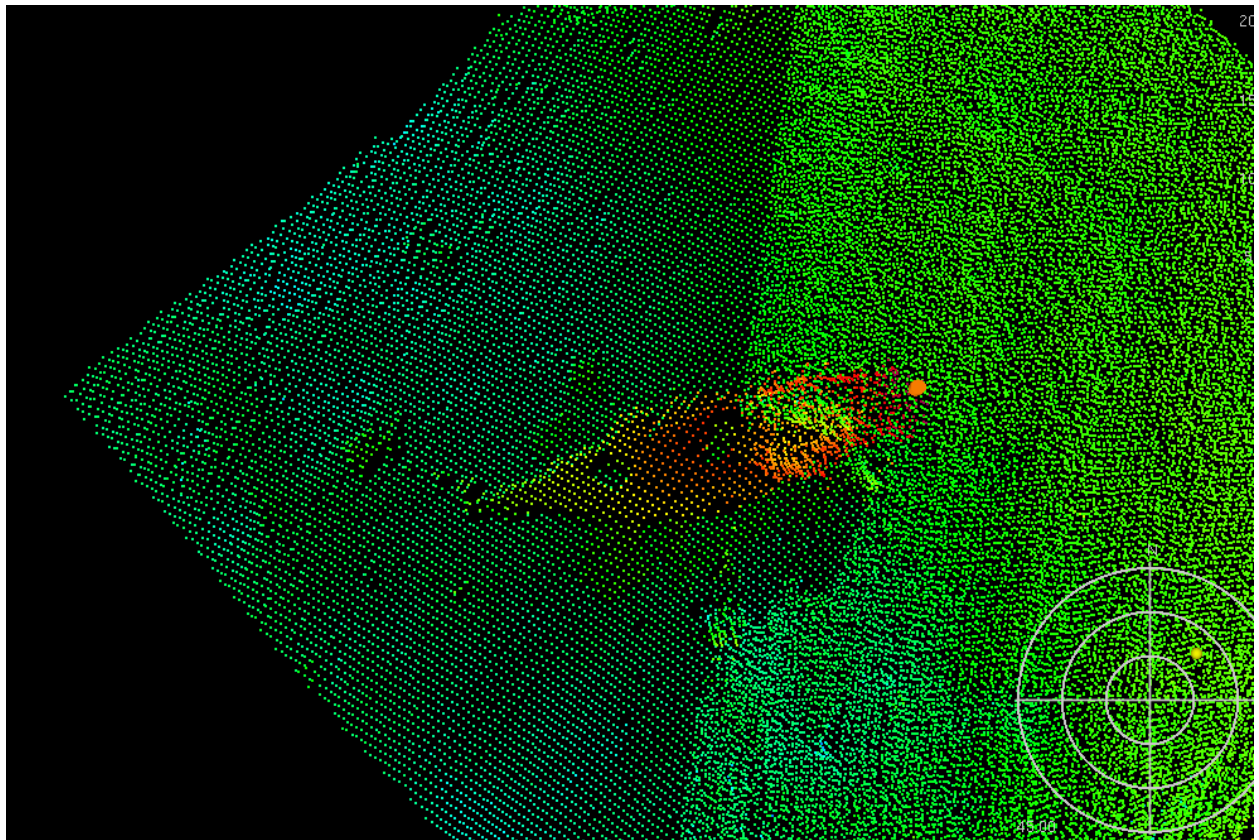


Figure 1.1.1

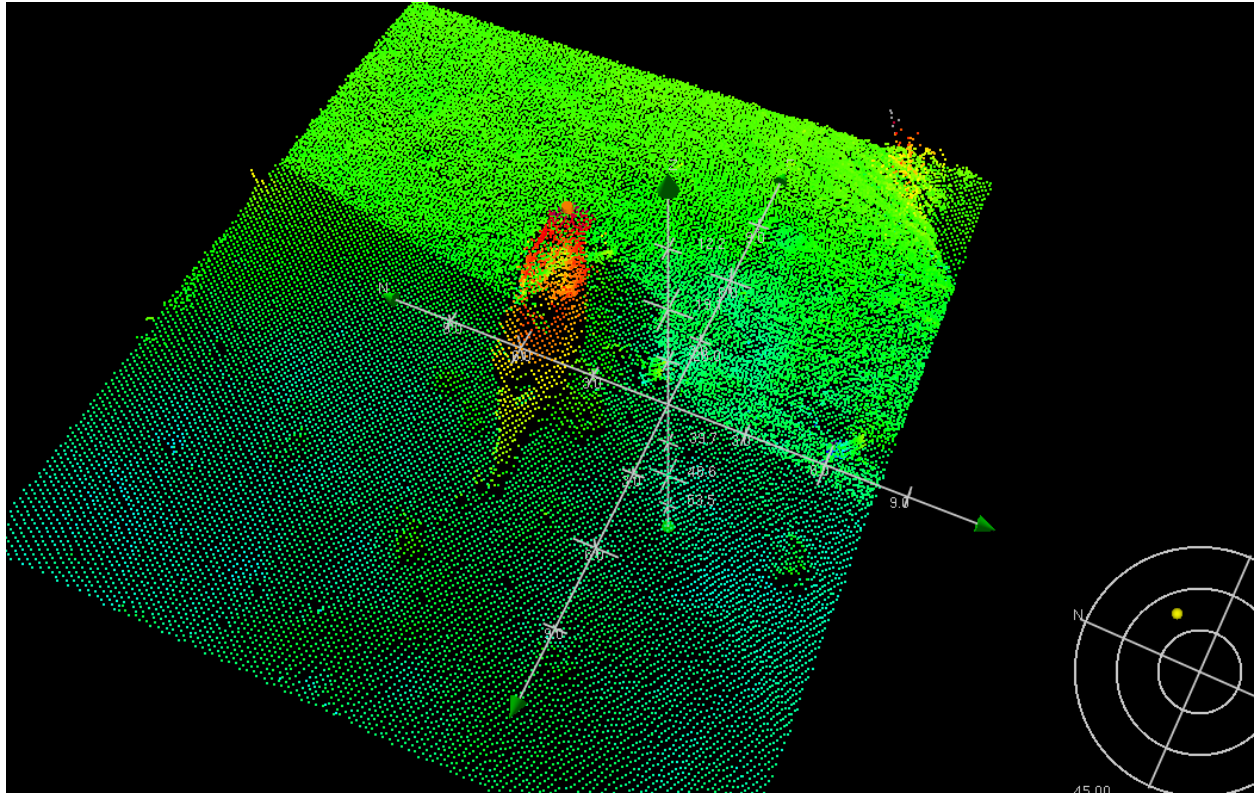


Figure 1.1.2

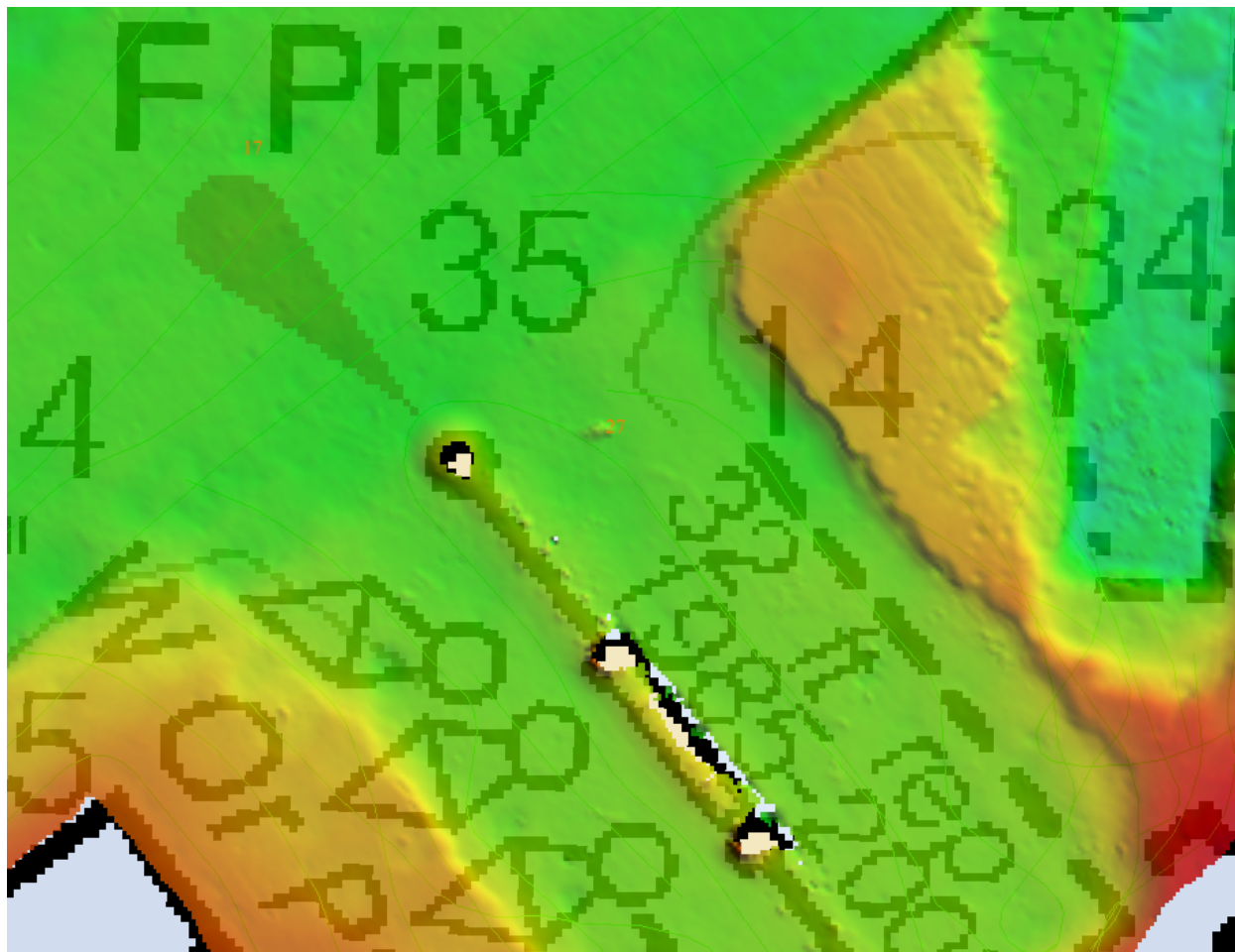


Figure 1.1.3

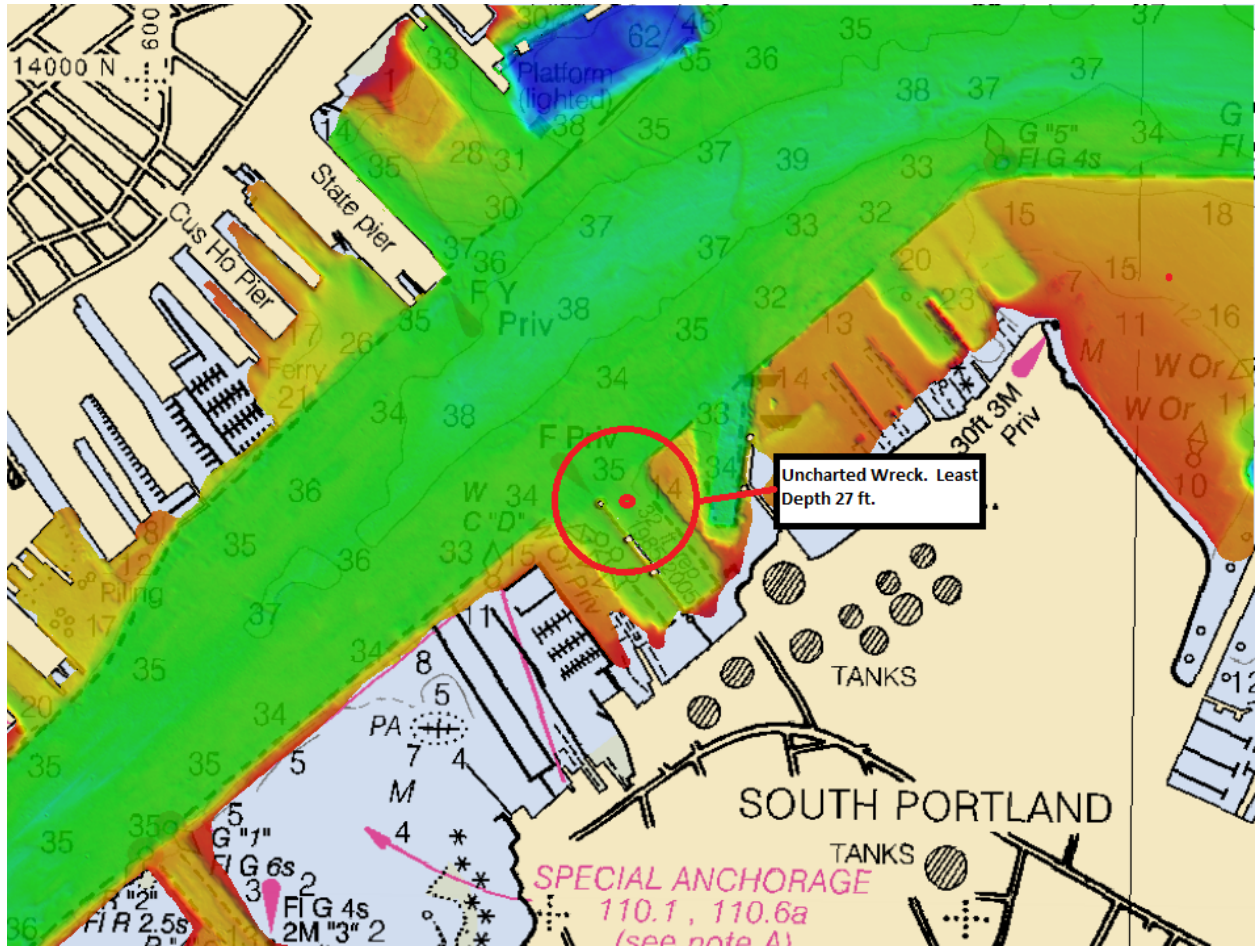


Figure 1.1.4

H12494 AWOIS Items

Registry Number: H12494
State: Maine
Locality: Portland, ME
Sub-locality: Portland Harbor
Project Number: S-A906-NRT5-12
Survey Date: 07/05/2012

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13292	40th	07/01/2010	1:20,000 (13292_1)	USCG LNM: 9/18/2012 (11/20/2012) CHS NTM: None (10/26/2012) NGA NTM: 7/17/2004 (11/24/2012)
13290	37th	03/01/2007	1:40,000 (13290_1)	[L]NTM: ?
13288	42nd	04/01/2007	1:80,000 (13288_1)	[L]NTM: ?
13260	40th	05/01/2007	1:378,838 (13260_1)	[L]NTM: ?
13009	33rd	05/01/2007	1:500,000 (13009_1)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_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.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Wreck	-0.31 m	43° 40' 08.5" N	070° 13' 08.3" W	10551
1.2	Wreck	7.01 m	43° 40' 07.6" N	070° 13' 15.2" W	11126
1.3	AWOIS	[no data]	[no data]	[no data]	---
1.4	AWOIS	[no data]	[no data]	[no data]	---
1.5	AWOIS	[no data]	[no data]	[no data]	---

1 - DR_AWOIS

1.1) Profile/Beam 737/198 / 0520_20120705_154630_shipname

Primary Feature for AWOIS Item #10551

Search Position: 43° 40' 08.5" N, 070° 13' 08.7" W
Historical Depth: [None]
Search Radius: 50
Search Technique: VS,ES, MB, S2
Technique Notes: [None]

History Notes:

[None]

Survey Summary

Survey Position: 43° 40' 08.5" N, 070° 13' 08.3" W
Least Depth: -0.31 m (= -1.01 ft = -0.169 fm = 0 fm 4.99 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.334 m
Timestamp: 2012-187.15:46:57.205 (07/05/2012)
Survey Line: h12494 / nrt5_s3002_em3002 / 2012-187 / 0520_20120705_154630_shipname
Profile/Beam: 737/198
Charts Affected: 13292_1, 13290_1, 13288_1, 13260_1, 13009_1, 13006_1, 13003_1

Remarks:

AWOIS Item 10551. Least Depth on charted wreck. Wreck is approximately 90 meters long and 15 meters wide, with a drying height of 1 ft at MLLW. Reported by locals to be the wreck of a three masted schooner.

Feature Correlation

Source	Feature	Range	Azimuth	Status
0520_20120705_154630_shipname	737/198	0.00	000.0	Primary
AWOIS_EXPORT	AWOIS # 10551	8.06	099.0	Secondary
Original_CSF_H12494.000	0_ 1340820946 00058	12.02	145.5	Secondary (grouped)

Hydrographer Recommendations

Update wreck position.

Branch Comment: Concur.

Cartographically-Rounded Depth (Affected Charts):

-1ft (13292_1, 13290_1, 13288_1)

0fm (13260_1, 13009_1, 13006_1, 13003_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 5:wreck showing any portion of hull or superstructure
QUASOU - 1:depth known
SORDAT - 20120719
SORIND - US,US,graph,H12494
TECSOU - 3:found by multi-beam
VALSOU - -0.309 m
WATLEV - 4:covers and uncovers

Feature Images

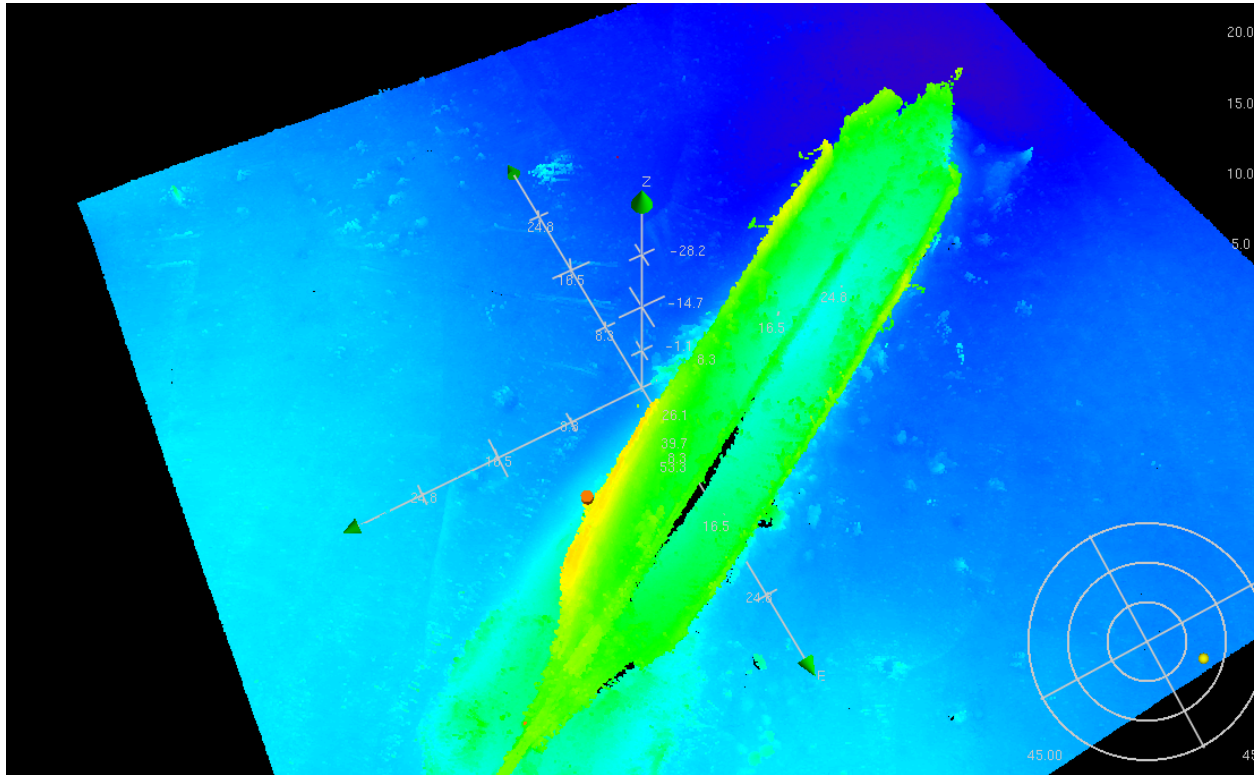


Figure 1.1.1

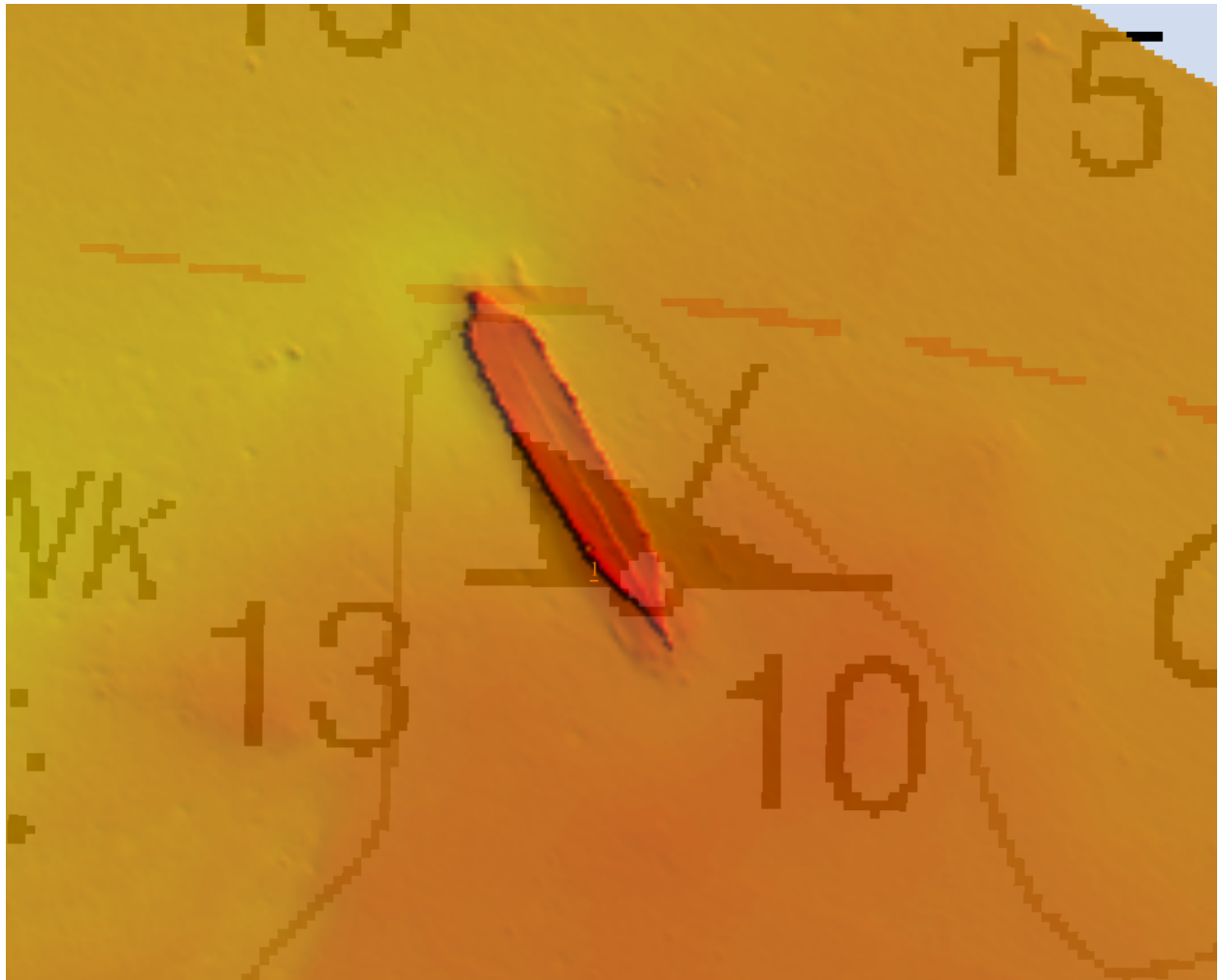


Figure 1.1.2

1.2) Profile/Beam 1455/43 / 0527_20120705_171635_shipname

Primary Feature for AWOIS Item #11126

Search Position: 43° 40' 07.2" N, 070° 13' 14.9" W
Historical Depth: 4.88 m
Search Radius: 50
Search Technique: S2,MB,ES,SD
Technique Notes: Get Least Depth

History Notes:

H10963/00-- OPR-A329; UNCHARTED SUBMERGED WRECK LOCATED DURING SIDE SCAN SONAR OPS. DIVERS DESCRIBE A SQUARE WOODEN BARGE MOSTLY BURIED IN THE SAND. LD OF 16 FEET IN LAT. 43-40-07.22N, LONG. 70-13-14.87W. EVALUATOR RECOMMENDS CHARTING A 16WK AS SURVEYED. (ENT 9/26/01, SJV)

H11467/05-- S-A911-NRT5-05; WRECK WAS LOCATED AT 43/40/07.172 - 70/13/15.205, WITH SSS. BATHYMETRY WAS NOT CONDUCTED BY FIELD, SO IT IS RECOMMENDED FOR THE LEAST DEPTH OF 16 FEET REMAIN. (ENTERED 1/2007 CEH)

Survey Summary

Survey Position: 43° 40' 07.6" N, 070° 13' 15.2" W
Least Depth: 7.01 m (= 22.99 ft = 3.832 fm = 3 fm 4.99 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 1.970 m ; TVU (TPEv) ± 0.352 m
Timestamp: 2012-187.17:17:58.961 (07/05/2012)
Survey Line: h12494 / nrt5_s3002_em3002 / 2012-187 / 0527_20120705_171635_shipname
Profile/Beam: 1455/43
Charts Affected: 13292_1, 13290_1, 13288_1, 13260_1, 13009_1, 13006_1, 13003_1

Remarks:

AWOIS item 11126. Some debris is visible, but is not discernible as a wreck. Located on the sloping edge of a dredged area. No part of debris rises above surrounding seafloor. Depth of surrounding seafloor is approximately 16 ft. Dredge scars are visible in the base surface. Wreck may have been broken up during dredging operations.

Feature Correlation

Source	Feature	Range	Azimuth	Status
0527_20120705_171635_shipname	1455/43	0.00	000.0	Primary
Original_CSF_H12494.000	0_1340820946 00059	14.21	357.2	Secondary (grouped)

AWOIS_EXPORT	AWOIS # 11126	15.13	327.3	Secondary
--------------	---------------	-------	-------	-----------

Hydrographer Recommendations

Update wreck position and chart as not dangerous to surface navigation. Update charted soundings with current survey data. **Branch Comment: Least depth of wreck debris was found to be 3.895m (12.780ft). Wreck is dangerous to navigation. The updated position is 43-40-06.8N, 070-13-14.7W)**

Cartographically-Rounded Depth (Affected Charts):

23ft (13292_1, 13290_1, 13288_1)

3 ¾fm (13260_1, 13009_1, 13006_1, 13003_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 1:non-dangerous wreck
 QUASOU - 1:depth known
 SORDAT - 20120719
 SORIND - US,US,graph,H12494
 TECSOU - 3:found by multi-beam
 VALSOU - 7.008 m
 WATLEV - 3:always under water/submerged

Feature Images

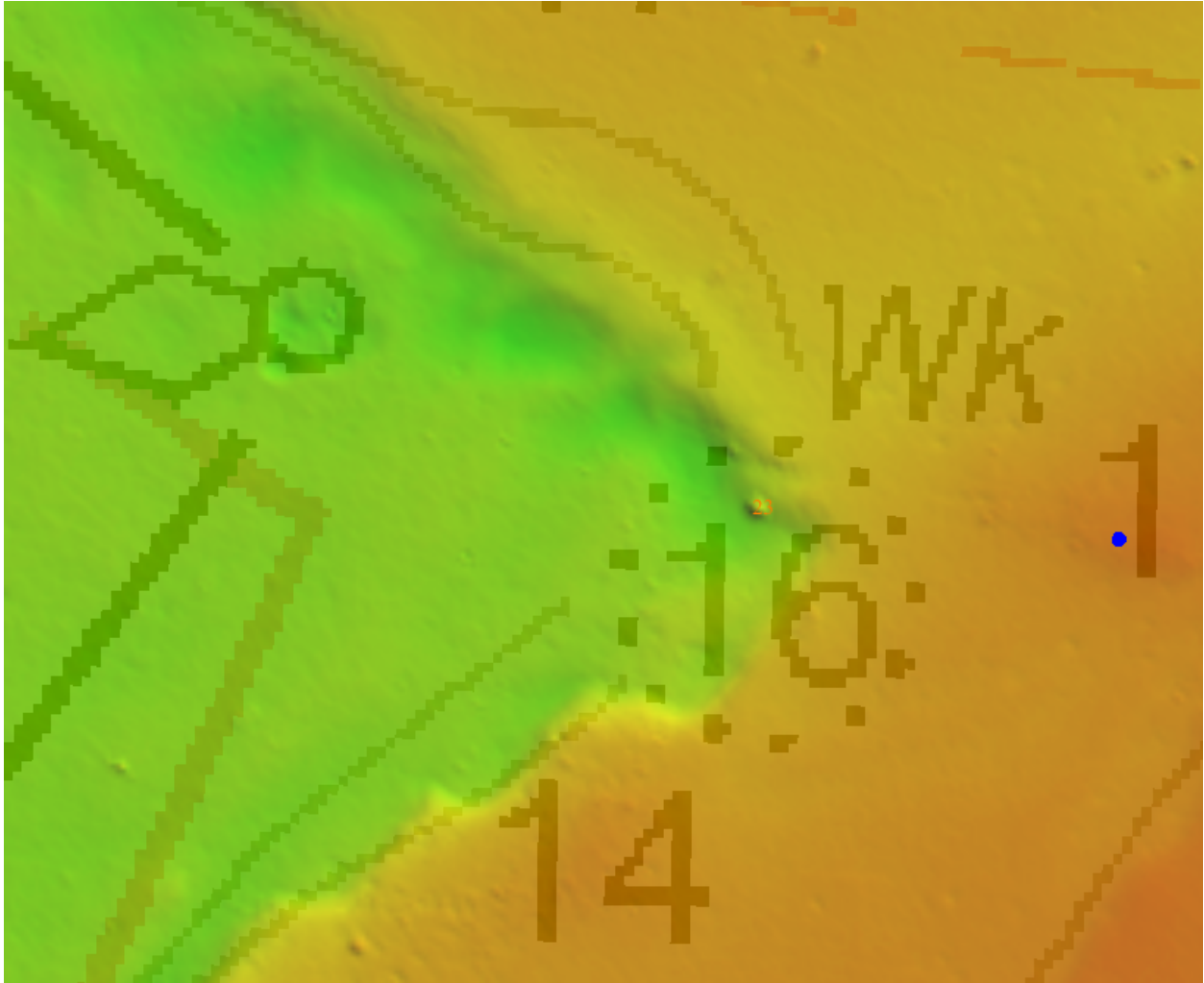


Figure 1.2.1

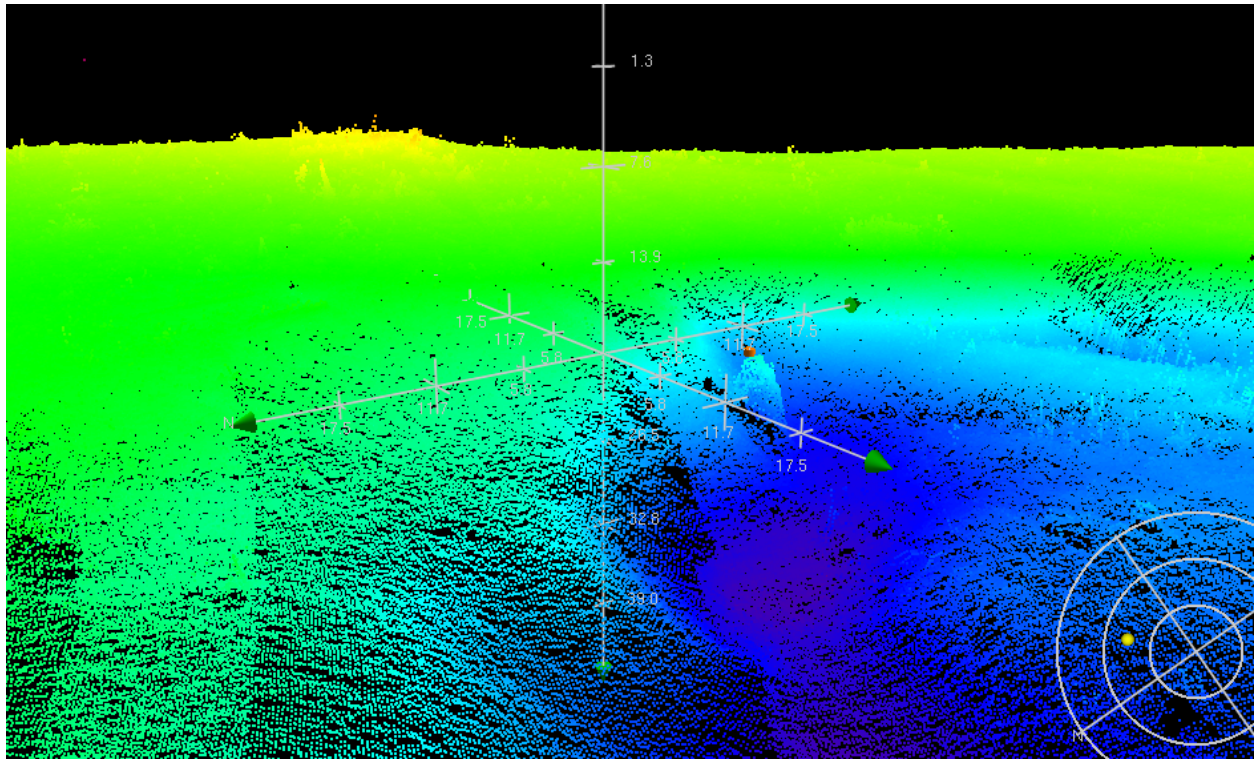


Figure 1.2.2

1.3) AWOIS #15011 - OBSTRUCTION

No Primary Survey Feature for this AWOIS Item

Search Position: 43° 38' 23.3" N, 070° 12' 49.1" W
Historical Depth: 14.33 m
Search Radius: 50
Search Technique: S2, ES, MB
Technique Notes: [None]

History Notes:

****Unknown Source-- A 47 ft Obstn is charted at 43/38/23.35-70/12/49.07.

Survey Summary

Charts Affected: 13292_1, 13290_1, 13288_1, 13260_1, 13009_1, 13006_1, 13003_1

Remarks:

AWOIS item 15011. No features found within AWOIS search radius.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 15011	0.00	000.0	Primary
Original_CSF_H12494.000	0_ 1340820944 00075	5.48	203.9	Secondary (grouped)

Hydrographer Recommendations

Delete charted 47 ft obstruction. Note AWOIS Item 15011 as disproved.

Branch Comment: Concur.

S-57 Data

[None]

1.4) AWOIS #15012 - OBSTRUCTION

No Primary Survey Feature for this AWOIS Item

Search Position: 43° 38' 04.8" N, 070° 13' 00.7" W
Historical Depth: 9.45 m
Search Radius: 35
Search Technique: S2, ES, MB
Technique Notes: [None]

History Notes:

F00524-- 2005, NRT5; With 100% SSS and complete MB, an obstruction was found at 43/38/04.799 - 70/13/00.705. Charted as submerged obstruction with least depth of 31 feet and labeled "Rk".

Survey Summary

Charts Affected: 13292_1, 13290_1, 13288_1, 13260_1, 13009_1, 13006_1, 13003_1

Remarks:

Covered with complete MBES. Charted position and depth are accurate. Current survey data shows gridded least depth of 31 ft.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 15012	0.00	000.0	Primary
Original_CSF_H12494.000	0_ 1340820945 00063	0.06	000.0	Secondary (grouped)

Hydrographer Recommendations

Retain as charted.

Branch Comment: Do not concur. The least depth is different from charted position. Remove Rk and chart per chart update product.

S-57 Data

[None]

Feature Images

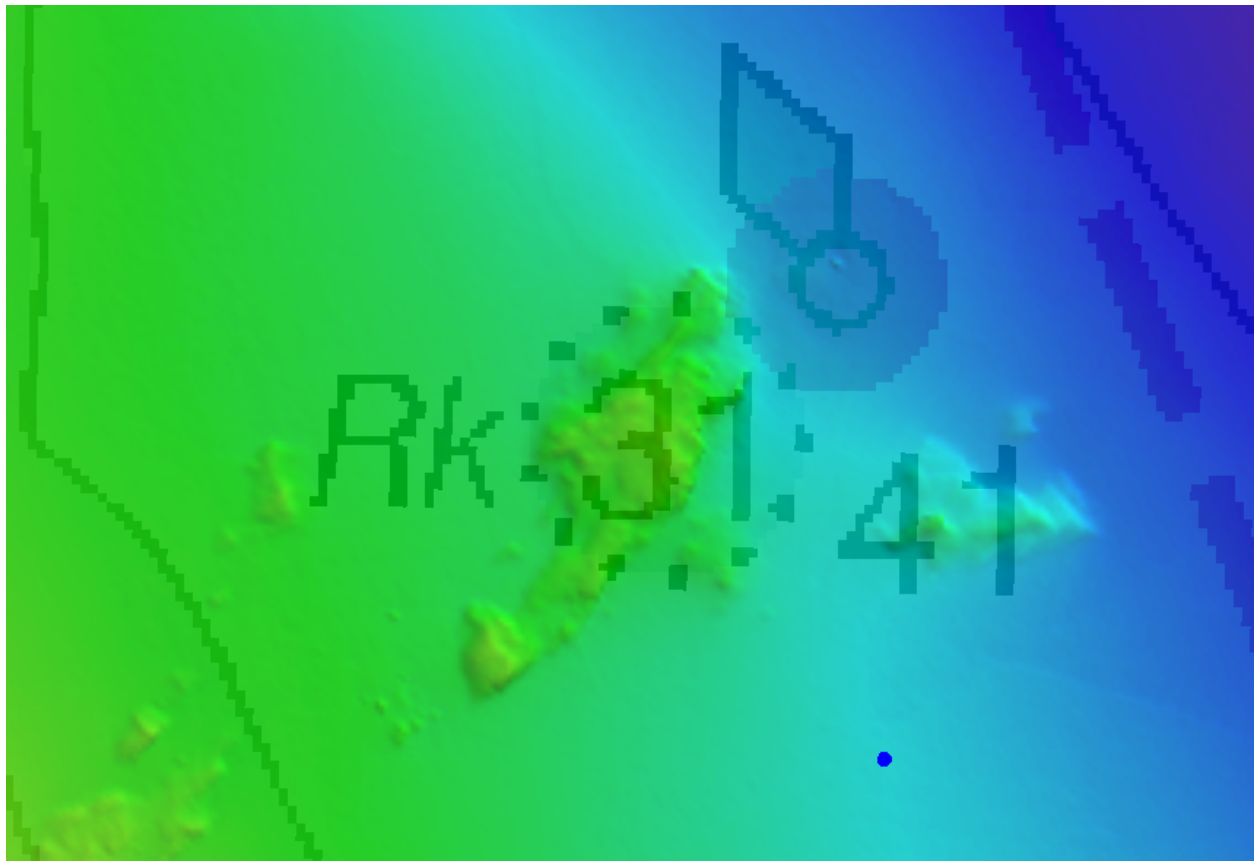


Figure 1.4.1

1.5) AWOIS #15013 - OBSTRUCTION

No Primary Survey Feature for this AWOIS Item

Search Position: 43° 39' 30.4" N, 070° 13' 37.1" W
Historical Depth: 11.58 m
Search Radius: 35
Search Technique: MB, S2, ES
Technique Notes: [None]

History Notes:

F00524-- 2005, NRT5; An obstruction found with SSS and SB at 43/39/30.421 - 70/13/37.145, with least depth of 38 feet.

Survey Summary

Charts Affected: 13292_1, 13290_1, 13288_1, 13260_1, 13009_1, 13006_1, 13003_1

Remarks:

AWOIS item 15013. No features found withing AWOIS search radius.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 15013	0.00	000.0	Primary
Original_CSF_H12494.000	0_ 1340820944 00076	0.04	000.0	Secondary (grouped)

Hydrographer Recommendations

Delete charted obstruction. Update AWOIS item 15013 as disproved.

Branch comment: Concur

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: CATOBS - 1:snag / stump
 QUASOU - 1:depth known
 SORDAT - 20120719
 SORIND - US,US,graph,H12494
 TECSOU - 3:found by multi-beam

VALSOU - 11.5824 m

WATLEV - 3:always under water/submerged

2.43) Profile/Beam 102/220 / 0938_20120711_184902_shipname

Survey Summary

Survey Position: 43° 39' 42.1" N, 070° 12' 35.5" W
Least Depth: 6.72 m (= 22.04 ft = 3.674 fm = 3 fm 4.04 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 1.972 m ; TVU (TPEv) ± 0.346 m
Timestamp: 2012-193.18:49:07.828 (07/11/2012)
Survey Line: h12494 / nrt5_s3002_em3002 / 2012-193 / 0938_20120711_184902_shipname
Profile/Beam: 102/220
Charts Affected: 13292_1, 13290_1, 13288_1, 13260_1, 13009_1, 13006_1, 13003_1

Remarks:

Least depth of 6.72 meters on uncharted wreck approximately 5.5 meters in length, 2.5 meters in width.

Feature Correlation

Source	Feature	Range	Azimuth	Status
0938_20120711_184902_shipname	102/220	0.00	000.0	Primary

Hydrographer Recommendations

Chart new wreck.

Cartographically-Rounded Depth (Affected Charts):

22ft (13292_1, 13290_1, 13288_1)

3 ½fm (13260_1, 13009_1, 13006_1, 13003_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: QUASOU - 6:least depth known
 TECSOU - 1:found by echo-sounder
 VALSOU - 6.719 m
 WATLEV - 3:always under water/submerged

Feature Images

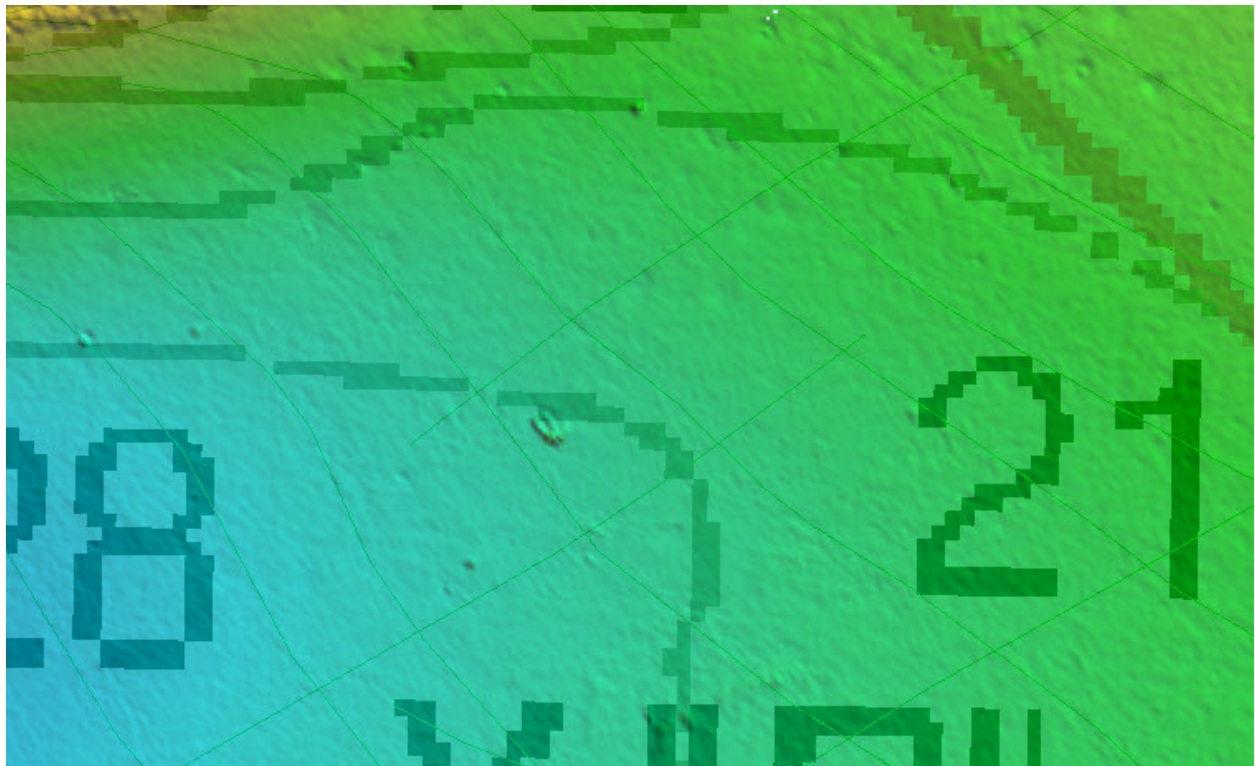


Figure 2.43.1

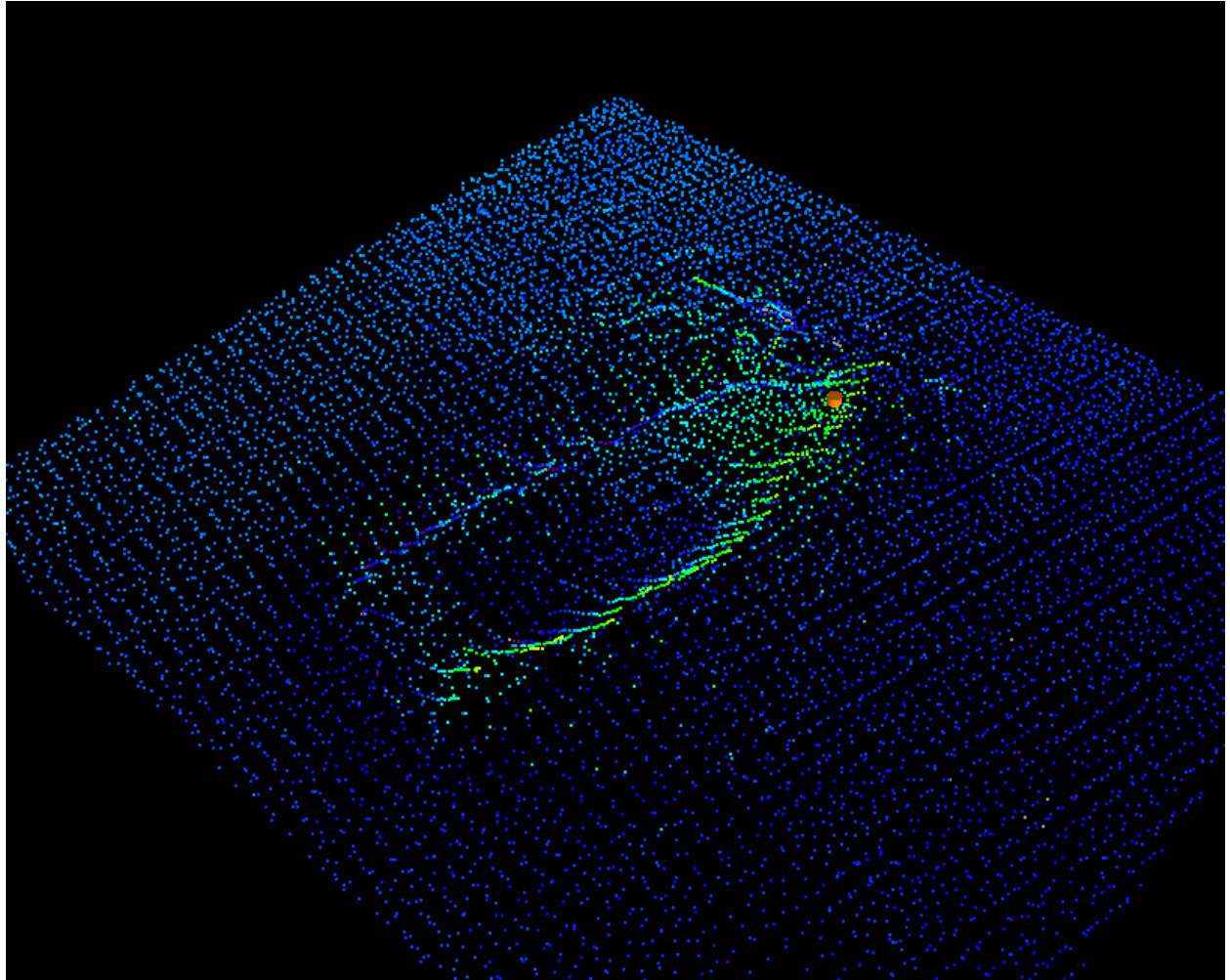


Figure 2.43.2

APPROVAL PAGE

H12494

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

- H12494_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12494_GeoImage.pdf

The survey evaluation and verification has been conducted according current OCS Specifications.

Approved: _____

Peter Holmberg

Cartographic Team Lead, Pacific Hydrographic Branch

The survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved: _____

LCDR Benkamin K. Evans, NOAA

Chief, Pacific Hydrographic Branch