

H12149

NOAA FORM 76-35A	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
<i>Type of Survey:</i>	Basic Navigable Area
<i>Registry Number:</i>	H12149
LOCALITY	
<i>State:</i>	Pennsylvania and New Jersey
<i>General Locality:</i>	Delaware River
<i>Sub-locality:</i>	Billingsport Range to Chester Range
2009	
CHIEF OF PARTY Bert Ho, NOAA	
DATE	LIBRARY & ARCHIVES

NOAA FORM 77-28 (11-72)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		REGISTRY NUMBER: H12149	
HYDROGRAPHIC TITLE SHEET					
INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.					
State:	Pennsylvania and New Jersey				
General Locality:	Delaware River				
Sub-Locality:	Billingsport Range to Chester Range				
Scale:	1:10,000	Date of Survey:	09/28/09 to 12/09/09		
Instructions Dated:	10/02/09	Project	Number:	S-D903-NRT5-09	
Change No.1 Dated:	N/A				
Change No.2 Dated:	N/A				
Vessel:	NOAA NRT-5, S3002				
Chief of Party:	Bert Ho, NOAA				
Surveyed by:	NOAA Navigation Response Team 5 Personnel				
Soundings by:	Kongsberg Simrad EM 3002 multibeam echosounder Odom Echotrac CV/200 verticalbeam echosounder				
Graphic record checked by:	N/A				
Protracted by:	N/A	Automated Plot:	N/A		
Verification by:	Atlantic Hydrographic Branch Personnel				
Soundings in:	Meters at MLLW				

Remarks:

1) All Times are UTC.

2) This is a Basic Navigable Area Hydrographic Survey.

3) Projection is UTM Zone 18N.

H-Cell in chart units (Feet)

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DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SURVEY H12149

Scale of Survey: 1:10,000
Year of Survey: 2009
NOAA Navigation Response Team 5
Bert Ho, Team Lead

A. AREA SURVEYED

This hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions for project S-D903-NRT5-09, H12149, Delaware River, Pennsylvania, New Jersey, and Delaware. The original instructions are dated October 2, 2009.

This Descriptive Report pertains to an area of approximately 2.61 SNM, of Delaware River from Billingsport Range to Chester Range. The assigned registry number for this sheet is H12149, as prescribed in the Letter Instructions.

The purpose of the CY 2009-2010 operations in this area were to provide contemporary surveys to update National Ocean Service (NOS) nautical charts as the numerous ports on the Delaware River have been designated critical survey areas.

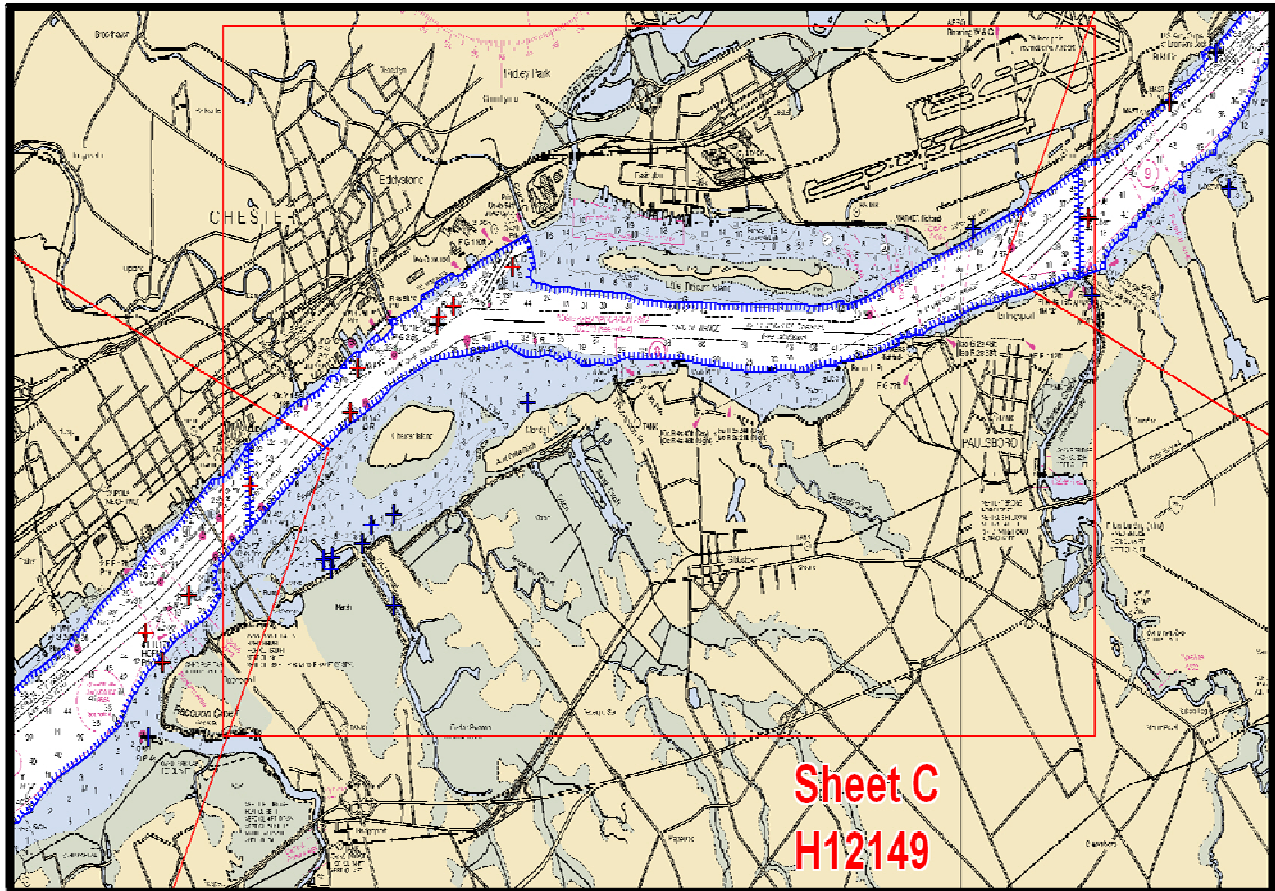
For complete survey limits, see figure A-1 on the following page.

Linear nautical miles of single beam only sounding lines - mainscheme only	70.9
Linear nautical miles of side scan sonar only lines - mainscheme only	68.6
Linear nautical miles of any combination of the above techniques	68.6
Linear nautical miles of crosslines from single beam and multibeam combined	11.4
Linear nautical miles of developments other than mainscheme lines	12.5
Linear nautical miles of shoreline/nearshore investigation	N/A
Number of bottom samples collected	0
Number of items investigated that required additional time/effort in the field beyond the above survey operations	1
	CEF file (submitted directly to MCD)
Total square nautical miles	2.61

Dates of acquisition: September 28, 2009 to December 9, 2009

Concur.

Figure A-1: Outline of survey area



B. DATA ACQUISITION AND PROCESSING

B.1 EQUIPMENT

Data were acquired by NOAA NRT-5 S3002. NOAA Survey Vessel S3002 is an approximately 9m aluminum SeaArk outboard driven vessel with an average multibeam transducer draft of 0.5 meters.

NOAA S3002 acquired both bathymetry and imagery data in the project area. Side scan sonar data were acquired with a towed Klein 3000 sonar system (SSS). Bathymetry data were acquired with both an Odom Echotrac C/V 200 verticalbeam echosounder (VBES), and a Kongsberg Simrad EM 3002 multibeam echosounder (MBES). Positioning and attitude were determined with a TSS POS/MV 320 (version 4) GPS aided inertial navigation system *Concur.*

B.2 QUALITY CONTROL

B.2.1 Side Scan Sonar Quality Control

Daily confidence checks were made by observing the outer ranges of the side scan sonar image trace. A good check consisted of distinguishing linear contacts across the entire range of the side scan trace. Navigation data were reviewed, fliers were rejected with interpolation. Significant sand waves were noted throughout bends in the Delaware River and were used for confidence checks.

In accordance with the project instructions, 200% SSS bottom coverage was collected for this survey at 75m range scale. A SSS image mosaic was created at 1m resolution for submission (Table B-2). *Concur.*

B.2.2 Multibeam Echosounder Quality Control

Multibeam echosounder data were acquired at 100% coverage for SSS contact development, and areas deemed navigationally significant by the hydrographer. In order to successfully operate the EM3002 with the SIS software, sound speed casts were completed at the start of the survey day (and every 4 hours afterwards) and manually entered into the SIS program as an ASVP file, which is a Simrad format created by Velocwin. Surface sound velocity was provided by a 2nd Odom Digibar and it was fed directly into the SIS program in real time. There were no faults with the MBES system which adversely effected data integrity. Navigation data were reviewed; any fliers were rejected with interpolation. A small variable Navigation Timing error was noted after review of the data in post-processing within Caris' subset editor. The Navigation error did not exceed the allowable horizontal error budget, but it should be noted that certain vertical

features may appear to have multiple peaks. Least depths were taken from the shallowest sounding. For detailed discussion of MBES system calibrations, data acquisition, and data processing refer to this project's DAPR*. *Concur.*

** Original data on file at the Atlantic Hydrographic Branch.*

B.2.3 Total Propagated Error

Total Propagated Error (TPE) parameters for sound speed and tide data for H12149 are shown in table B-1. The estimated tidal error contribution to the total survey error budget in the vicinity of Delaware River is included in the TCARI grid. Sound speed TPE values were used in accordance with HSTP guidelines regarding frequency of surface and water column sound speed measurements.

Table B-1. Total Propagated Error parameters as applied in Caris.

Total Propagated Error Values			
Tide Values		Sound Speed Values	
Measured	Zoning	Measured	Surface
0.0	0.07	4.0	0.2

B.2.4 Fieldsheets and Navigation Surfaces

Caris HIPS combined uncertainty weighted CUBE surfaces were created for this project. For MBES data surfaces were created and submitted at 0.50m resolution. A combined uncertainty weighted CUBE surface was created for VBES data at 4.00m resolution. The MBES CUBE surface finalized weighted grid is included in the PSS. *Concur with clarification. The 4m VBES CUBE surface was converted to a weighted uncertainty grid at the Atlantic Hydrographic Branch to adhere to hydrographic best practices.*

B.2.5 Single Beam Quality Control

Navigation data were reviewed, f liers were rejected with interpolation. There were no unusual events associated with the collection of VBES data for this project. *Concur.*

Refer to this project's DAPR* for detailed discussion of VBES system calibrations, data acquisition, and data processing. ** Original data on file at the Atlantic Hydrographic Branch.*

Table B-2: H12149 Bathymetry surfaces and Side Scan mosaic resolutions.

H12149 Bathymetry Surfaces and SSS Mosaic			
Fieldsheet	Surface/Mosaic Name	Grid Type	Resolution
H12149	H12149_MBES_CUBE_50cm	Cube, Order 1	0.50m
H12149	H12149_MBES_CUBE_50cm_Final	Cube, Order 1	0.50m
H12149	H12149_VBES_CUBE_4m	Cube, Order 1	4.00m
H12149	H12149_VBES_CUBE_4m_Final	Cube, Order 1	4.00m
H12149	H12149_SSS_1m	SSS Mosaic	1.00m

B.2.6 Crosslines

For this survey 11.4 linear NM of VBES crosslines were acquired. This is approximately 16% of the mainscheme VBES bathymetry linear NM*. A visual examination of approximately 10% of crossline-mainscheme common areas showed agreement between crosslines and mainscheme lines to within 1-2 feet. For a list of all crosslines acquired for this project, tabulated by DN and line file name, please refer to the processing logs located in the separates section of the DR submission package. **Do not concur. 8.36% crossline coverage was achieved over full survey extent.*

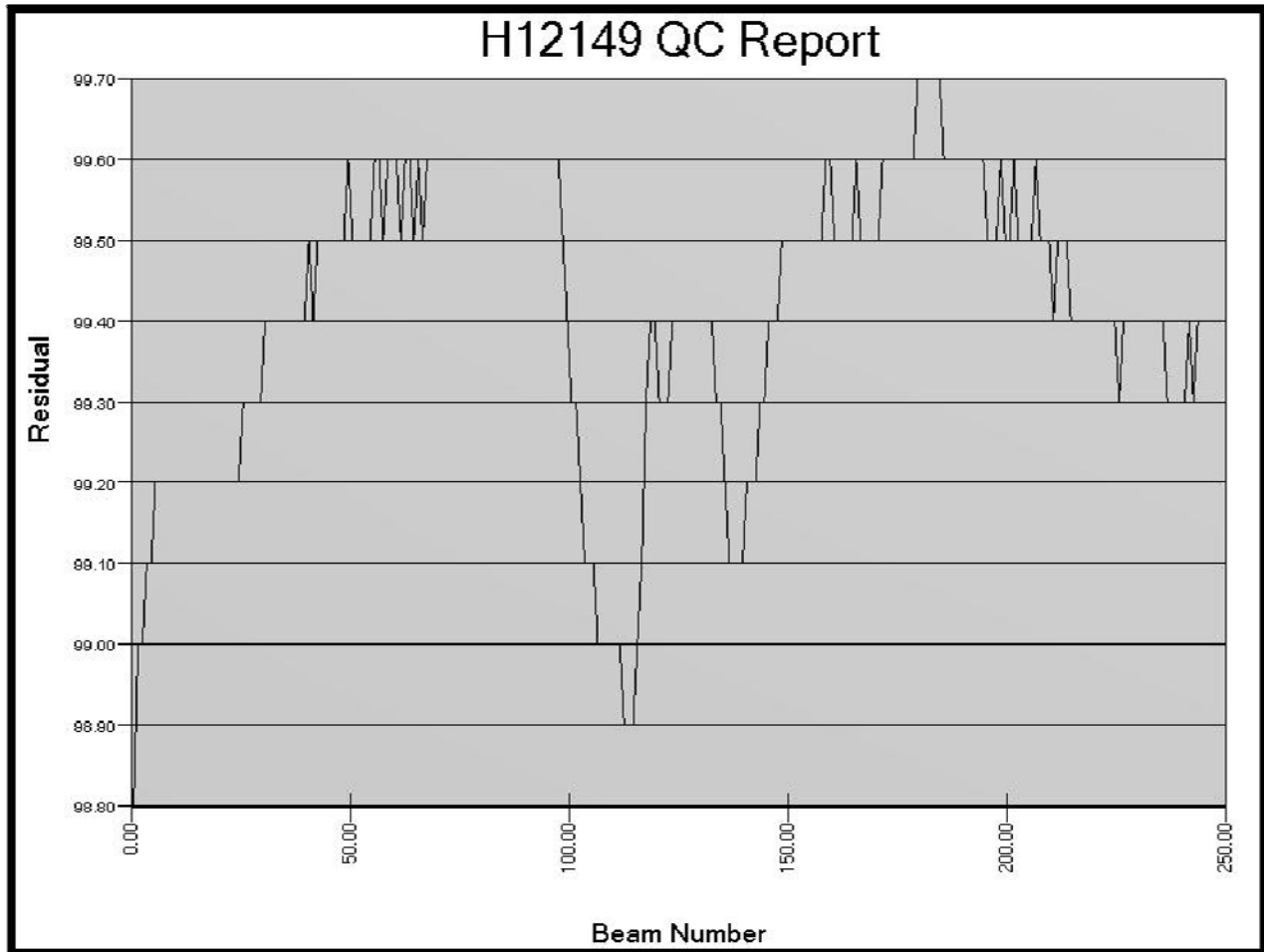
B.2.7 Junctions

Survey H12149 junctions with contemporary survey H12148 and H12150. Visual examination of all junction areas showed agreement between bathymetry data to within 1 foot.

B.3 CORRECTIONS TO ECHO SOUNDING

All methods or instruments used were as described in the project DAPR*. All sound velocity casts are included in the PSS. SV Casts were not used in post processing for MB data in Caris due to the acquisition software's (SiS) requirement to use an ASVP in real time. Post processing with an svp applied in Caris was found to create a double corrections of the data. See email correspondence with HSTP. *Concur. The application of the sound velocity profile cast was verified by the raw data HYPACK hsx files. *Original data on file at the Atlantic Hydrographic Branch.*

Figure B-1: Caris QC report, IHO order 1% vs Beam Number.



C. VERTICAL AND HORIZONTAL CONTROL

C.1 VERTICAL CONTROL

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating National Water Level Observation Network (NWLON) stations at Reedy Point, DE (8551910) and Philadelphia, PA (8545240) served as datum control for the survey area including determination at each subordinate station. The operating stations at Marcus Hook, PA (8540433), Tacony-Palmyra (8538886), Reedy Point, DE (8551910), and Philadelphia, PA (8545240) provided residuals for this project. A Request for Approved Tides was sent to N/OPS1 on October 29, 2009 (Appendix III). Verified tides from the N/OPS1 CO-OPS website were downloaded and applied to all sounding data via TCARI in Pydro. *Concur.*

C.2 HORIZONTAL CONTROL

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 18*N*.

Sounding positional control was determined using the Global Positioning System (GPS) corrected by U.S. Coast Guard differential GPS (DGPS) beacon stations. The DGPS beacon used for this survey was Reedy Point, DE. No horizontal control stations were established for this survey.

Horizontal dilution of precision (HDOP) was monitored during acquisition, and did not exceed 4.00. Adequate satellite coverage was maintained throughout the survey period. *Concur.*

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

The charts affected by this survey are:

<i>Chart Number</i>	<i>Edition</i>	<i>Edition Date</i>	<i>Scale</i>
12312	55 th	August 2009	1:40000

<i>ENC Cell Name</i>
US5PA12M

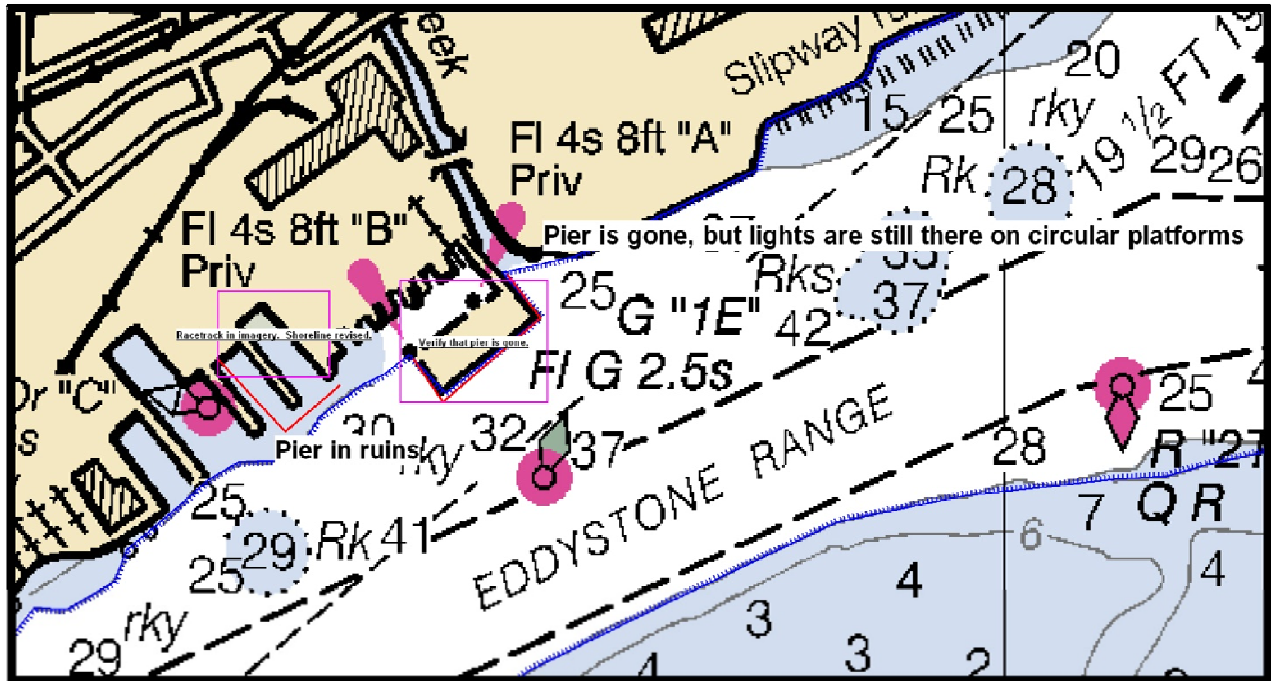
Concur with clarification. RNC #12313 and ENC US5PA11M was also affected by this survey.

D.1.1 General Agreement with Charted soundings

Sounding data generally agreed with charted depths to within 1-2 feet, navigationally significant differences from charted depths are addressed in Appendix II of this report. There was two area highlighted by RSD for visual inspection regarding a pier north of Eddystone Range on the Pennsylvania bank. RSD requested NRT5 to verify that the pier is no longer present. It has been confirmed that the pier is indeed gone, but the two charted lights are still in existence. The pier adjacent to the west of the lights is also confirmed to be in ruins. See image below regarding area in question. ***Concur. Changes applied to most current chart.***

Additional SB data was acquired at the request of the Delaware River Pilots via the Philadelphia Navigation Manager. See email regarding Additional_Anch_areas. Areas of survey included partial coverage at 100% of the Federal Channel. Comparisons were only made to ensure acquired depths met or were deeper than cleared depths for the channel.

Figure D-1: RSD Pier investigation area Eddystone, PA.



D.1.2 AWOIS Items and Significant Contacts

There were 7 full investigation AWOIS items assigned within the survey limits of H12149. The search area was covered with 200% SSS and 100% MBES when confirmed. The updates to the AWOIS database were made in Pydro in the remarks and recommendations and were added to the feature reports. See appendix II. *Concur.*

D.1.3 Dangers to Navigation

There were no DToNs submitted for survey H12149. *Concur.*

D.1.4 Charted Features

Hydrographer recommended changes to charted items are listed in Appendix II of this report as well as in the PSS. All charted items not specifically addressed in Appendix II are recommended to be retained as charted by the hydrographer.

D.1.5 Charting Recommendations

Hydrographer recommendations for discreet items are included in Appendix II of this report as well as in the PSS. Survey H12149 is complete and adequate to supersede charted soundings in their common areas. *Concur with clarification. It is recommended to retain some charted soundings and features in the common area.*

D.2 ADDITIONAL RESULTS

D.2.1 Aids to Navigation

The hydrographer recommends no modifications to any aids to navigation to note. All were verified as accurate. *Concur.*

D.2.2 Bridges and Overhead Cables

There are no bridges and no overhead cables in the survey area. *Concur.*

D.2.3 Submarine Cables and Pipelines

There is one charted submarine cable and three pipeline areas within the survey area. *Concur.*

E. APPROVAL SHEET

S-D903
Delaware River
Pennsylvania, New Jersey, Delaware

Delaware River
Survey Registry No. H12149

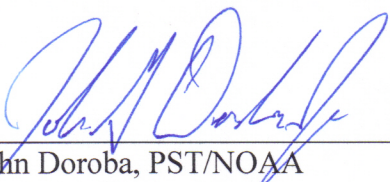
Field operations for this survey were conducted under my daily supervision with frequent checks of progress and adequacy. All fieldsheets, bathymetry models, this Descriptive Report, and all accompanying records and data are approved.

Submitted in association with this descriptive report has been a series of reports and data:

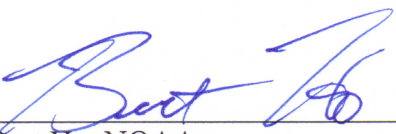
2009 Data Acquisition and Processing Report (submitted with this report)
2009 HSRR Memo (submitted with this report)

This survey is adequate to supersede all prior surveys in common areas, and for application to the relevant NOS nautical charts.

Respectfully,

 1/19/10

John Doroba, PST/NOAA
NRT-5

 1-19-10

Bert Ho, NOAA
Team Lead NRT-5

APPENDIX I

DANGERS TO NAVIGATION REPORT

There were no DToN's submitted for survey H12149.

APPENDIX II

SURVEY FEATURES REPORT

H12149 AWOIS Items

Registry Number: H12149
State: Pennsylvania
Locality: Philadelphia
Sub-locality: Delaware River
Project Number: S-D903-NRT5-09
Survey Date: 10/29/2009

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12313	52nd	12/01/2008	1:15,000 (12313_2)	[L]NTM: ?
12312	54th	07/01/2006	1:40,000 (12312_1)	USCG LNM: 04/28/2009 (07/21/2009) NGA NTM: 01/24/1998 (08/01/2009)
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?
14500	27th	10/01/2002	1:1,500,000 (14500_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	Rock	10.57 m	39° 50' 59.0" N	075° 20' 07.7" W	14661
1.2	Rock	9.09 m	39° 50' 41.3" N	075° 20' 55.0" W	14662
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]	---
1.6	AWOIS	[no data]	[no data]	[no data]	---
1.7	AWOIS	[no data]	[no data]	[no data]	---
1.8	AWOIS	11.27 m	39° 50' 56.1" N	075° 20' 08.4" W	---

1 - DR_AWOIS

1.1) AWOIS # 14661 34ft Rk

Primary Feature for AWOIS Item #14661

Search Position: 39° 50' 58.9" N, 075° 20' 07.7" W
Historical Depth: 10.67 m
Search Radius: 50
Search Technique: S2,MB,ES
Technique Notes: [None]

History Notes:

S-D903-RU-03, F00490; Contact found, chart as 35 ft Rks, 39-50-58.92N, 75-20-7.71W. (Entered 8/11/09 KAK)

S-D903-NRT5-09, H12149, Hydrographer recommends remain as charted. (11/13/09, BSH)

Survey Summary

Survey Position: 39° 50' 59.0" N, 075° 20' 07.7" W
Least Depth: 10.57 m (= 34.68 ft = 5.780 fm = 5 fm 4.68 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 1.966 m ; TVU (TPEv) ± 0.227 m
Timestamp: 2009-302.14:49:35.139 (10/29/2009)
Survey Line: h12149_sheetc / nrt5_s3002_em3002_mbes / 2009-302 / 057_1449
Profile/Beam: 148/138
Charts Affected: 12312_1, 13003_1, 14500_1

Remarks:

Area was covered with 200% SSS and 100% MBES. TCARI verified tides have been applied. Rock.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12149_sheetc/nrt5_s3002_em3002_mbes/2009-302/057_1449	148/138	0.00	000.0	Primary
h12149_sheetc/nrt5_s3002_klein3000_sss/2009-271/sonar_data090928133800	0004	0.21	179.5	Secondary
S-D903-NRT5-09awois	AWOIS # 14661	0.97	346.4	Secondary
h12149_sheetc/nrt5_s3002_klein3000_sss/2009-271/sonar_data090928131000	0005	2.39	004.1	Secondary

Hydrographer Recommendations

Hydrographer recommends remain as charted. -bsh

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: SORDAT - 20091029
VALSOU - 10.570 m
WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Delete dangerous UWTROC, least depth known 35ft. Chart dangerous UWTROC at the present survey position with new least depth.

1.2) AWOIS #14662; 226/117

Primary Feature for AWOIS Item #14662

Search Position: 39° 50' 41.3" N, 075° 20' 55.1" W
Historical Depth: 8.84 m
Search Radius: 50
Search Technique: S2,MB,ES
Technique Notes: [None]

History Notes:

S-D903-RU-03, F00490; Contact found, chart as 29 ft Rk, 39-50-41.26N, 75-20-55.07W. (Entered 8/11/09 KAK)

S-D903-NRT5-09, H12149, Hydrographer recommends remain as charted. (11/13/09, BSH)

Survey Summary

Survey Position: 39° 50' 41.3" N, 075° 20' 55.0" W
Least Depth: 9.09 m (= 29.84 ft = 4.973 fm = 4 fm 5.84 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.965 m ; **TVU (TPEv)** ± 0.225 m
Timestamp: 2009-302.15:03:10.000 (10/29/2009)
Survey Line: h12149_sheetc / nrt5_s3002_em3002_mbes / 2009-302 / 070_1502
Profile/Beam: 226/117
Charts Affected: 12312_1, 13003_1, 14500_1

Remarks:

Area was covered with 200% SSS and 100% MBES. TCARI verified tides have been applied. Rock.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12149_sheetc/nrt5_s3002_em3002_mbes/2009-302/070_1502	226/117	0.00	000.0	Primary
S-D903-NRT5-09awois	AWOIS # 14662	1.16	100.8	Secondary
h12149_sheetc/nrt5_s3002_klein3000_sss/2009-271/sonar_data090928133800	0002	1.20	230.6	Secondary
h12149_sheetc/nrt5_s3002_klein3000_sss/2009-271/sonar_data090928133800	0007	1.67	271.7	Secondary

Hydrographer Recommendations

Hydrographer recommends remain as charted. -bsh

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: SORDAT - 20091029
VALSOU - 9.094 m
WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. This is AWOIS #14662. Delete UWTROC, least depth known 29 ft. Chart dangerous UWTROC least depth known 30 feet at the present survey position.

1.3) AWOIS #11406 - AWOIS #11406; Sewer

No Primary Survey Feature for this AWOIS Item

Search Position: 39° 51' 16.1" N, 075° 19' 23.8" W
Historical Depth: [None]
Search Radius: 100
Search Technique: S2,MB,ES
Technique Notes: [None]

History Notes:

HISTORY

NOTE: AWOIS POSITION PROVIDED REFERS TO SOUTHERN END OF SEWER PIPE.

CL1043/72--07/05/72, ACOE; PLANS FOR AN 18 INCH WASTE WATER DISCHARGE PIPE EXTENDING TO PIER HEAD AND BULK HEAD LINE. PROPOSED DISCHARGE TROUGH FOR PIPE TO BE EXCAVATED TO 46 FEET BELOW MLW (ELEVATION 45.3 FEET).

CL983/74--NOS; WORK PLANNED IN CL1043/72 COMPLETED. CURRENTLY CHARTED AS BLACK DASHED AND DOTTED LINE LABELED SEWER EXTENDING FROM LAT39-51-24.16N, LONG 075-19-28.88W TO LAT 39-51-16.13N, LONG 075-19-23.81W (NAD 83). (ENT 03/02, PSH)

S-D903-NRT5-09 (11/13/09)--No sewer pipe visible in SSS data.

Survey Summary

Charts Affected: 12312_1, 13003_1, 14500_1

Remarks:

No bathy acquired, no feature found.

Feature Correlation

Address	Feature	Range	Azimuth	Status
S-D903-NRT5-09awois	AWOIS # 11406	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

Concur with clarification. This is AWOIS #11406. This feature was not adequately addressed. Retain as charted.

1.4) AWOIS #1450 - AWOIS #1450 Wk PD

No Primary Survey Feature for this AWOIS Item

Search Position: 39° 50' 00.4" N, 075° 21' 58.7" W
Historical Depth: [None]
Search Radius: 200
Search Technique: S2,MB,ES
Technique Notes: [None]

History Notes:

HISTORY

LN44/73--A 30 FT L VESSEL WAS INVOLVED IN A COLLISION AND SANK IN 35 FT OF WATER AT POS.39-50N, 75-22W. SUBSEQUENT CONTACT WITH THE CG HAS ESTABLISHED THAT THE COLLISION OCCURRED WITH THE CHESTER FERRY DURING ITS REGULAR CROSSING AND THAT MAJOR PORTIONS OF THE WK WERE RECOVERED PRIOR TO SINKING. COE THINKS REMAINING PORTIONS OF WK HAVE MIGRATED AN UNKNOWN DISTANCE DOWNSTREAM AS A RESULT OF CURRENTS AND ICE. THE REPORTED POSITION IS DOUBTFUL NOT ONLY BECAUSE OF SHIFTING, BUT BECAUSE IT IS APPROX 1000 METERS UPSTREAM FROM THE FERRY ROUTE. PROBABLE COLLISION SITE IS POS.39-49-40N, 75-22-33W. H9964/81--D218-HSB-80; MRS KABAKSIAN STATED THAT THE 30 FT VESSEL'S HULL SPLIT IN HALF DURING COLLISION; REMAINS OF THE VESSEL WERE NEVER FOUND; AREA WAS DEVELOPED WITH HALF SPACING FOR 1000 M UPSTREAM FROM COLLISION SITE AND FROM THE CHANNEL INSHORE TO THE HARBOR LINE; NEGATIVE RESULTS; STRONG RIVER CURRENTS; THE EVALUATOR CONSIDERS THAT WK NEITHER VERIFIED NOR DISPROVED AND RECOMMENDS RETENTION AS CHARTED (UPDATED MSM 5/86)

DESCRIPTION

**** OWNER LISTED WITH NJ MARINE POLICE AS MR. W. KABAKSIAN, 17 LEWIS AVE, EAST LANSLOWNE PA; IT WAS LEARNED BY THE FIELD PARTY THAT MR KABKASIAN WAS KILLED IN THE COLLISION.

S-D903-NRT5-09 (11/13/09)--NRT5 conducted 200% SSS over the area of the AWOIS, no wreck or remnants of a wreck were identified in the imagery. -bsh

Survey Summary

Charts Affected: 12312_1, 13003_1, 14500_1

Remarks:

Area was covered with 200% SSS. No wreck found.

Feature Correlation

Address	Feature	Range	Azimuth	Status
S-D903-NRT5-09awois	AWOIS # 1450	0.00	000.0	Primary

Hydrographer Recommendations

Hydrographer recommends the removal of this wreck from the chart and the removal of the AWOIS item from the database. No wreck found in imagery. -bsh

S-57 Data

[None]

Office Notes

Do not Concur. This is AWOIS #1450. Full AWOIS radius not covered by this survey. Defer to juncton survey H12150 for charting recommendations.

1.5) AWOIS #13807 - AWOIS #13807; 40 ft OBSTRN**No Primary Survey Feature for this AWOIS Item**

Search Position: 39° 51' 33.3" N, 075° 13' 44.3" W
Historical Depth: 12.27 m
Search Radius: 50
Search Technique: S2,MB,ES
Technique Notes: [None]

History Notes:

S00004/02 -- S-D602-RU-02 (HLS);

Survey Position: 039° 51' 33.310" N, 75° 13' 44.307" W

Least Depth: 12.27 m

Timestamp: 2002-169.23:39:06.062 (06/18/2002)

Hydrographer Recommendations: chart sounding on obstr....PS Lund. 200% Side Scan Sonar coverage and SWMB was acquired over the item. The Hydrographer recommends charting the sounding on the obstruction.

UPDATED 9/27/2006 JCM

Survey Summary

Charts Affected: 12313_2, 12312_1, 13003_1, 14500_1

Remarks:

Area was surveyed as part of Sheet H12148.

Feature Correlation

Address	Feature	Range	Azimuth	Status
S-D903-NRT5-09awois	AWOIS # 13807	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

Do not Concur. This is AWOIS Item #13807. The AWOIS radius was not fully covered by this survey. Defer to junction survey H12148 for charting recommendations.

1.6) AWOIS #14660 - Retain 28ft Rk**No Primary Survey Feature for this AWOIS Item**

Search Position: 39° 51' 02.6" N, 075° 19' 58.8" W
Historical Depth: 8.53 m
Search Radius: 50
Search Technique: S2,MB,ES
Technique Notes: [None]

History Notes:

S-D903-RU-03, F00490; Contact found, chart as 28 ft Rk, 39-51-02.59N, 75-19-58.80W. (Entered 8/11/09 KAK)

S-D903-NRT5-09, H12149, Hydrographer recommends remain as charted. -bsh

Survey Summary

Charts Affected: 12312_1, 13003_1, 14500_1

Remarks:

Area was covered with 200% SSS and 100% MBES. TCARI verified tides have been applied. Rock, charted obstruction.

Feature Correlation

Address	Feature	Range	Azimuth	Status
S-D903-NRT5-09awois	AWOIS # 14660	0.00	000.0	Primary

Hydrographer Recommendations

Hydrographer recommends remain as charted. -bsh

S-57 Data

[None]

Office Notes

Concur with clarification. Office processing determined that this feature was insufficiently disproved. Retain 28ft Rock at survey position.

1.7) AWOIS #14663 - Retain 38ft Rk**No Primary Survey Feature for this AWOIS Item**

Search Position: 39° 50' 25.9" N, 075° 20' 59.7" W
Historical Depth: 11.58 m
Search Radius: 50
Search Technique: S2,MB,ES
Technique Notes: [None]

History Notes:

S-D602-RU-02, DD3686; One danger to navigation was discovered during mainscheme hydrography, rock, depth 38ft, 39-50-25.9N, 75-20-59.7W. (Entered 8/11/09 KAK)

S-D903-NRT5-09, H12149--Hydrographer recommends remain as charted. (11/13/09, BSH)

Survey Summary

Charts Affected: 12312_1, 13003_1, 14500_1

Remarks:

Area was covered with 200% SSS. No rock was seen in imagery.

Feature Correlation

Address	Feature	Range	Azimuth	Status
S-D903-NRT5-09awois	AWOIS # 14663	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

Do not concur. AWOIS #14663. Office processing determined that the 38 ft dangerous rock was not disproved. Retain as charted at current position.

1.8) AWOIS #13808 - AWOIS #13808

Primary Survey Feature is Profile/Beam - 168/117 from h12149_sheetc / nrt5_s3002_em3002_mbes / 2009-302 / 059_1451

Search Position: 39° 50' 56.1" N, 075° 20' 08.5" W
Historical Depth: 11.56 m
Search Radius: 50
Search Technique: S2,MB,ES
Technique Notes: [None]

History Notes:

S00004/02 -- S-D602-RU-02 (HLS);

Survey Position: 039° 50' 56.069" N, 75° 20' 08.504" W

Least Depth: 11.56 m

Timestamp: 2002-169.22:41:03.055 (06/18/2002)

Hydrographer Recommendations: chart sounding on obstr....PS Lund. 200% Side Scan Sonar coverage and SWMB was acquired over the item. The Hydrographer recommends charting the sounding on the obstruction.

UPDATED 9/27/2006 JCM

S-D903-NRT5-09 (11/13/09)--The hydrographer recommends remain as charted. -bsh

Survey Summary

Survey Position: 39° 50' 56.1" N, 075° 20' 08.4" W
Least Depth: 11.27 m (= 36.97 ft = 6.161 fm = 6 fm 0.97 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.967 m ; **TVU (TPEv)** ± 0.228 m
Timestamp: 2009-302.14:51:58.690 (10/29/2009)
Survey Line: h12149_sheetc / nrt5_s3002_em3002_mbes / 2009-302 / 059_1451
Profile/Beam: 168/117
Charts Affected: 12312_1, 13003_1, 14500_1

Remarks:

Area was covered with 200% SSS and 100% MBES. TCARI verified tides have been applied. Rocks.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12149_sheetc/nrt5_s3002_em3002_mbes/2009-302/059_1451	168/117	0.00	000.0	Primary

h12149_sheetc/nrt5_s3002_klein3000_sss/2009-271/sonar_data090928125300	0007	1.24	353.8	Secondary
S-D903-NRT5-09awois	AWOIS # 13808	2.83	100.9	Secondary

Hydrographer Recommendations

Hydrographer recommends not charting this rock. -bsh

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: SORDAT - 20091029
VALSOU - 11.267 m
WATLEV - 3:always under water/submerged

Office Notes

Do not concur. This is AWOIS Item #13808. Item was found within charted symbol. Delete charted rock 37 ft.
Chart rock in survey position.

H12149 Uncharted Items

Registry Number: H12149
State: Pennsylvania
Locality: Philadelphia
Sub-locality: Delaware River
Project Number: S-D903-NRT5-09
Survey Date: 10/29/2009

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12313	52nd	12/01/2008	1:15,000 (12313_2)	[L]NTM: ?
12312	54th	07/01/2006	1:40,000 (12312_1)	USCG LNM: 04/28/2009 (07/21/2009) NGA NTM: 01/24/1998 (08/01/2009)
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?
14500	27th	10/01/2002	1:1,500,000 (14500_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	10.00 m	39° 51' 10.8" N	075° 14' 12.1" W	---
1.2	Rock	6.33 m	39° 51' 02.8" N	075° 15' 59.6" W	---
1.3	Shoal	10.39 m	39° 50' 45.4" N	075° 16' 36.8" W	---

1 - DR_UnCharted

1.1) 33 ft Wk

Survey Summary

Survey Position: 39° 51' 10.8" N, 075° 14' 12.1" W
Least Depth: 10.00 m (= 32.81 ft = 5.469 fm = 5 fm 2.81 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.966 m ; **TVU (TPEv)** ± 0.226 m
Timestamp: 2009-302.11:48:35.072 (10/29/2009)
Survey Line: h12149_sheetc / nrt5_s3002_em3002_mbes / 2009-302 / 004_1148
Profile/Beam: 135/129
Charts Affected: 12313_2, 12312_1, 13003_1, 14500_1

Remarks:

Area was covered with 200% SSS and 100% MBES. TCARI verified tides have been applied. Small wreck.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12149_sheetc/nrt5_s3002_em3002_mbes/2009-302/004_1148	135/129	0.00	000.0	Primary
h12149_sheetc/nrt5_s3002_klein3000_sss/2009-271/sonar_data090928180400	0003	1.38	120.7	Secondary
h12149_sheetc/nrt5_s3002_klein3000_sss/2009-271/sonar_data090928180400	0001	2.59	116.1	Secondary
h12149_sheetc/nrt5_s3002_klein3000_sss/2009-271/sonar_data090928180400	0002	3.18	100.8	Secondary

Hydrographer Recommendations

Hydrographer recommends charting as a submerged wreck with LD from data at location in data. -bsh

Cartographically-Rounded Depth (Affected Charts):

33ft (12313_2, 12312_1)

5 ½fm (13003_1, 14500_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
 QUASOU - 6:least depth known
 SORDAT - 20091029
 TECSOU - 3:found by multi-beam

VALSOU - 10.002 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Chart dangerous wreck, least depth 33 feet at the survey position.

Feature Images



Figure 1.1.1

1.2) 21 ft Shoal; 162/133

Survey Summary

Survey Position: 39° 51' 02.8" N, 075° 15' 59.6" W
Least Depth: 6.33 m (= 20.76 ft = 3.460 fm = 3 fm 2.76 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.964 m ; **TVU (TPEv)** ± 0.221 m
Timestamp: 2009-302.12:20:02.118 (10/29/2009)
Survey Line: h12149_sheetc / nrt5_s3002_em3002_mbes / 2009-302 / 029_1219
Profile/Beam: 162/133
Charts Affected: 12313_2, 12312_1, 13003_1, 14500_1

Remarks:

Area was covered with 200% SSS and 100% MBES. TCARI verified tides have been applied. Shoal.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12149_sheetc/nrt5_s3002_em3002_mbes/2009-302/029_1219	162/133	0.00	000.0	Primary
h12149_sheetc/nrt5_s3002_klein3000_sss/2009-271/sonar_data090928164400	0001	2.85	301.7	Secondary

Hydrographer Recommendations

Hydrographer recommends updating the soundings or draw this shoal onto the chart at the location from data with the LD in data. -bsh

Cartographically-Rounded Depth (Affected Charts):

21ft (12313_2, 12312_1)

3 ½fm (13003_1, 14500_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: SORDAT - 20091029
 VALSOU - 6.327 m
 WATLEV - 3:always under water/submerged

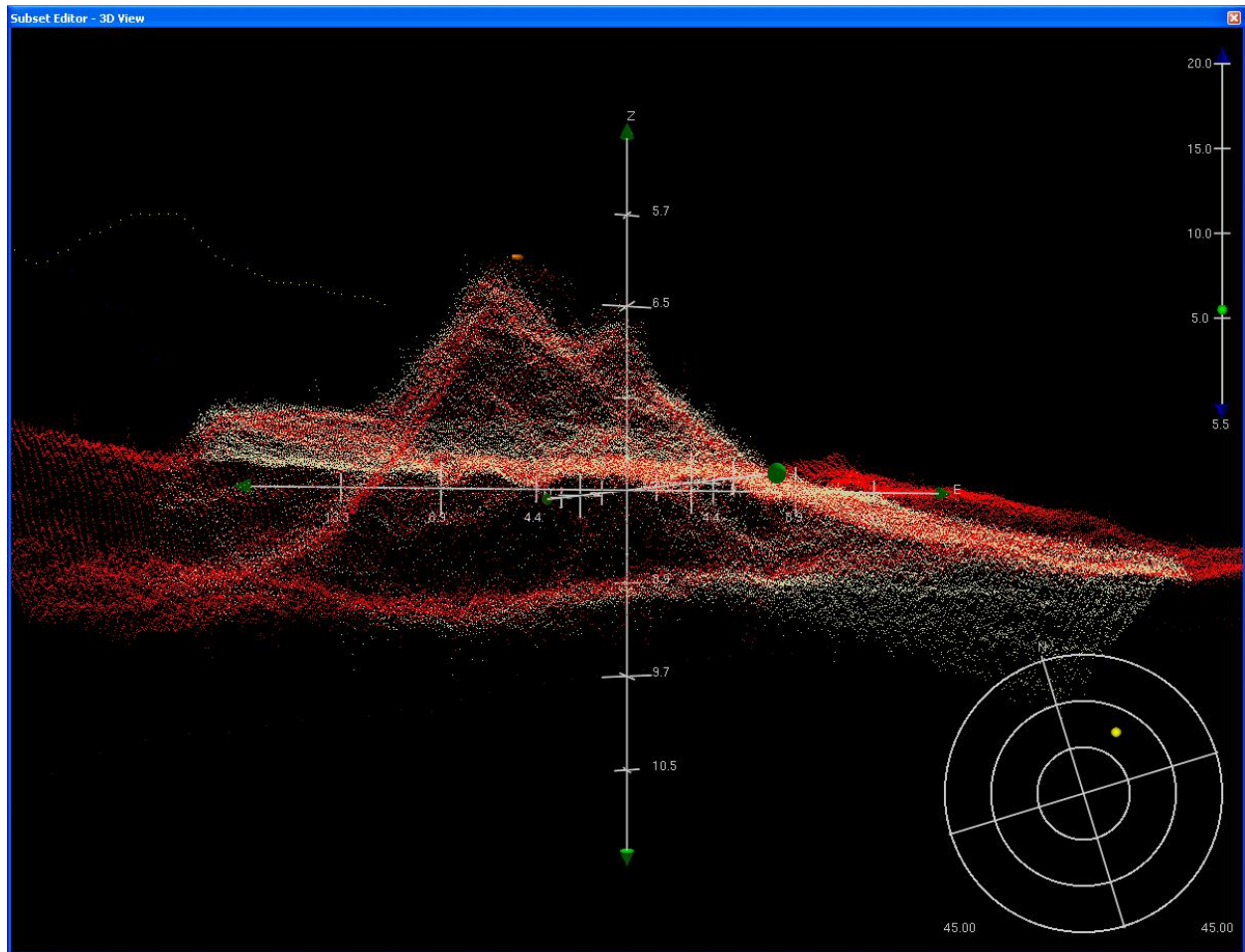
Office Notes

Concur with clarification. Shoal will be charted with a representative sounding.

Feature Images



Figure 1.2.1

*Figure 1.2.2*

1.3) 34 ft Shoal; 262/15

Survey Summary

Survey Position: 39° 50' 45.4" N, 075° 16' 36.8" W
Least Depth: 10.39 m (= 34.07 ft = 5.679 fm = 5 fm 4.07 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.975 m ; **TVU (TPEv)** ± 0.270 m
Timestamp: 2009-302.14:01:48.326 (10/29/2009)
Survey Line: h12149_sheetc / nrt5_s3002_em3002_mbes / 2009-302 / 031_1401
Profile/Beam: 262/15
Charts Affected: 12312_1, 13003_1, 14500_1

Remarks:

Area was covered with 200% SSS and 100% MBES. TCARI verified tides have been applied. Shoal.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12149_sheetc/nrt5_s3002_em3002_mbes/2009-302/031_1401	262/15	0.00	000.0	Primary
h12149_sheetc/nrt5_s3002_klein3000_sss/2009-272/sonar_data090929135900	0001	23.68	220.6	Secondary
h12149_sheetc/nrt5_s3002_klein3000_sss/2009-272/sonar_data090929135900	0002	24.23	218.4	Secondary

Hydrographer Recommendations

Hydrographer recommends remain as charted. LD correlates well with charted depths. -bsh

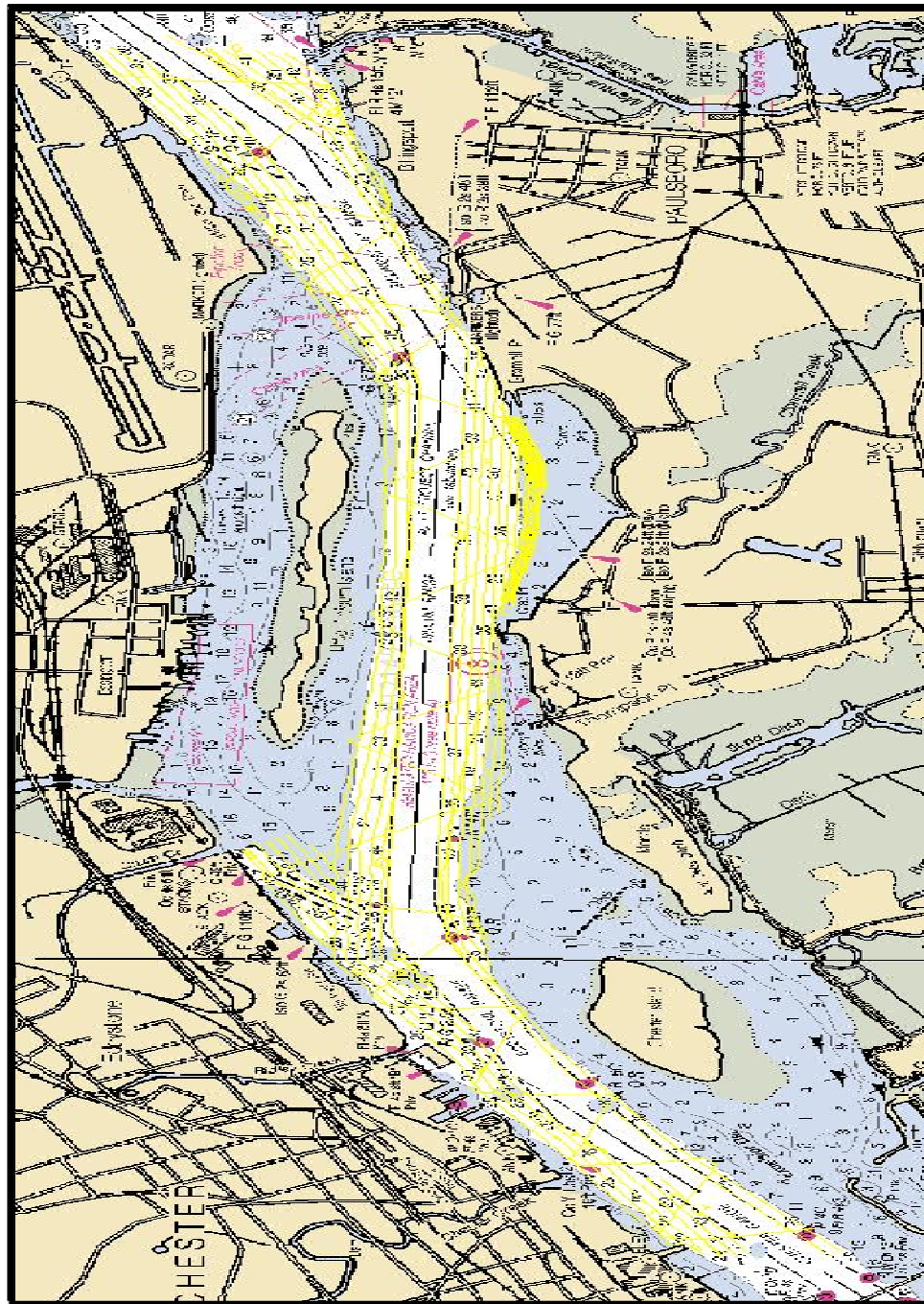
S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: SORDAT - 20091029

Office Notes

Concur with clarification. Shoal will be charted with a representative sounding as shoaler soundings are near by.

PROGRESS SKETCH



APPENDIX IV

TIDES AND WATER LEVELS



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : December 29, 2009

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: S-D903-NRT5-2009
HYDROGRAPHIC SHEET: H12149

LOCALITY: Delaware River, Philadelphia, PA
TIME PERIOD: September 28 - December 9, 2009

TIDE STATION USED: Tacony-Palmyra Bridge, NJ 853-8886
Lat. 40° 0.7' N Long. 75° 2.6' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.028 meters

TIDE STATION USED: Marcus Hook, PA 854-0433
Lat. 39° 48.7' N Long. 75° 24.6' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.720 meters

TIDE STATION USED: Philadelphia, PA 854-5240
Lat. 39° 56.0' Long. 75° 8.5'

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.887 meters

TIDE STATION USED: Reedy Point, DE 855-1910
Lat. 39° 33.5' Long. 75° 34.4'

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.683 meters

REMARKS: RECOMMENDED Grid

Please use the TCARI grid "D903NRT52009Final" as the final grid for project S-D903-NRT5-2009, H12149, during the time period between September 28 - December 9, 2010.

Refer to attachments for grid 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:

Peter J. Stone

CHIEF, OCEANOGRAPHIC DIVISION

Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=Oceanographic Division, ou=NOAA/
NOS/CO-OPS, email=peter.stone@noaa.gov, c=US
Date: 2009.12.29 11:23:21 -05'00'



APPENDIX V
SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCES

V.1. COAST PILOT REPORT, NOAA FORM 77-6

No corrections or additions required.

V.2. BOTTOM SAMPLE, NOAA FORM 75-44

No bottom samples were taken. Concur.

V.3. AIDS TO NAVIGATION, NOAA FORM 76-40

The hydrographer recommends no modifications to any aids to navigation to note. All were verified as accurate.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NOAA NRT-5 (N/CS53x5)
3 Chapel Ave, Port Liberte, c/o USACE
Jersey City, NJ 07305

October 29, 2009

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

FROM: LT Matthew Jaskoski, NOAA NRT-5 (N/CS53x5)

SUBJECT: Request for Approved Tides/Water Levels

Please provide the following data:

1. Tide Note
2. Final TCARI grid
3. Six Minute Water Level data (Co-ops web site)

Transmit data to the following:

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

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

Project No.: S-D903-NRT5-09
Registry No.: H12149
State: Pennsylvania
Locality: Philadelphia
Sublocality: Delaware River

Attachments containing:

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

cc: N/CS33



Year_DOY	Min Time	Max Time
2009_271	11:34:16	18:14:44
2009_272	11:27:46	16:47:22
2009_288	12:49:00	12:49:00
2009_302	11:26:00	15:30:26

DISCREPANCY INSPECTION

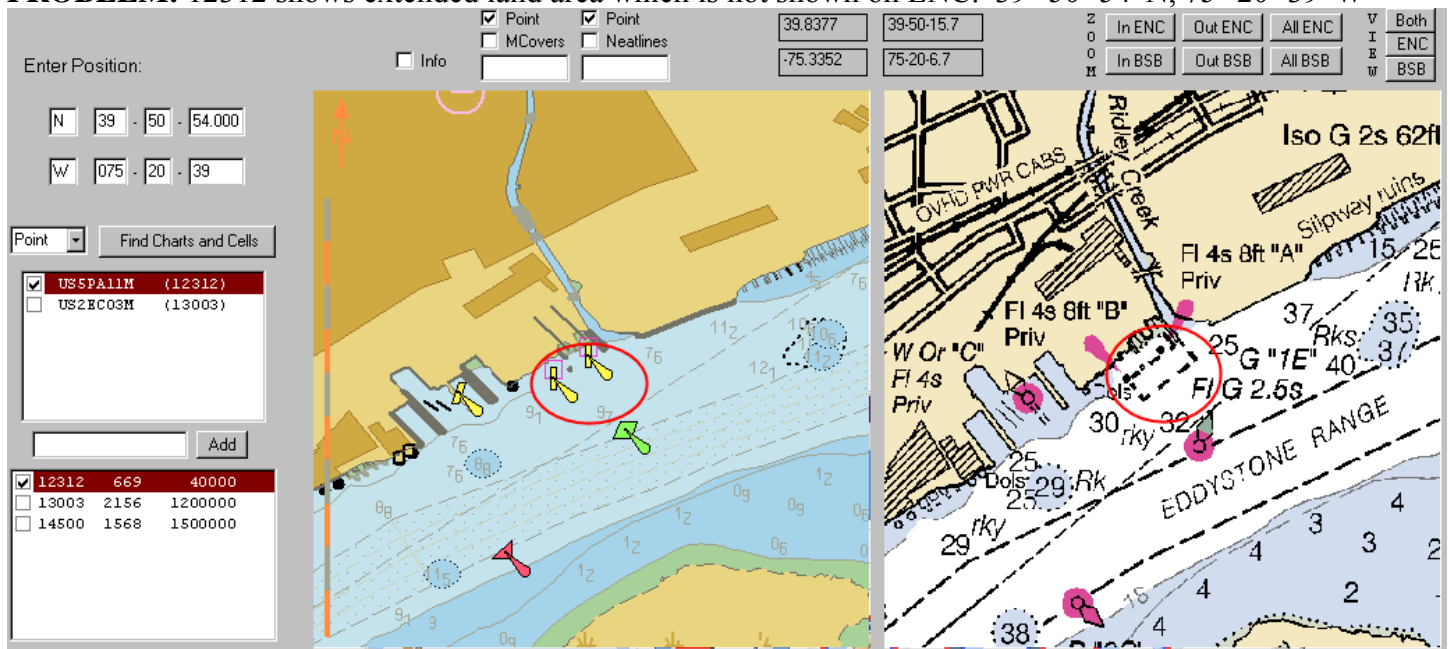
Date: 9/9/09

REPORTED BY: Don Lipscomb

SOURCE: 12312, US5PA11M, Inquiry 13125

CHART(S) AFFECTED: US5PA11M

PROBLEM: 12312 shows extended land area which is not shown on ENC. 39° 50' 54"N, 75° 20' 39"W



RESOLUTION:

Apply submerged ruins to US5PA11. This area was revised by GC-10626.

EM 3002 and SVP cast application.eml.txt

Subject:

EM 3002 and SVP cast application

From:

Olivia.Hauser@noaa.gov

Date:

Thu, 05 Nov 2009 10:13:45 -0500

To:

Richard.T.Brennan@noaa.gov, CO.Thomas.Jefferson@noaa.gov,

Edward.J.Vandenameel@noaa.gov, Michael.J.Annis@noaa.gov, Bert Ho <Bert.Ho@noaa.gov>

CC:

Jack.Riley@noaa.gov, Caryn.Arnold@noaa.gov, Eric.M.Moore@noaa.gov,

Kathryn.Simmons@noaa.gov, Stephen.Kuzirian@noaa.gov

Hello all,

I had a conversation with LCDR Brennan about the below question. Normally, NOAA has only accepted data where SV casts can be applied post acquisition. The current configuration of the EM3002 requires you to apply the SV cast prior to acquisition, and with the way the data is currently recorded, you are unable to post apply the SV cast. If you do post apply the cast, the data takes on a chevron shape. Basically it does not apply correctly. The question is, is it OK for the NRTs to submit data that does not have SV data applied in post processing. LCDR Brennan states that this puts us in a bind, because if there is ever an SVP issue, you cannot back the data out. You need to re-acquire it.

The question becomes whether you can record the correct information from Simrad that when Caris ingests it, it can have an SV cast applied to it. What sort of information is being recorded from the Simrad? Is it two way travel time and arrival angle, or something else? Can we work with Simrad and Hypack to change what information is being saved so SVP can be applied to the data once in Caris?

Mike and Jack, any ideas?

Thanks.

Olivia

----- Original Message -----

From: Bert Ho <Bert.Ho@noaa.gov>

Date: Wednesday, November 4, 2009 10:07 am

Subject: Re: NRT5's mbcs data

To: "Olivia.Hauser@noaa.gov" <Olivia.Hauser@noaa.gov>

> > Thanks, keep in mind that this will affect any NRT that has an EM3002

> >

> > running SiS.

> >

> >

> > Sent from my mobile device.

> >

> > On Nov 4, 2009, at 9:27 AM, Olivia.Hauser@noaa.gov wrote:

> >

> > > Bert,

> > > Sorry it has taken so long to get back to you. Things got crazy and

> >

> > > I dropped a couple of emails. I need to get up with Rick Brennan

> > > about this one. I think we were OK last time we talked about it

> > with

> > > Shep and EJ, but I will confirm for you. Thanks.

> >

> > > Olivia

> >

> > > ----- Original Message -----

> > > From: Bert <Bert.Ho@noaa.gov>

EM 3002 and SVP cast application.eml.txt

> > > Date: Wednesday, October 28, 2009 5:51 pm
> > > Subject: NRT5's mbes data
> > > To: Olivia Hauser <Olivia.Hauser@noaa.gov>
> > > Cc: Matthew Jaskoski <Matthew.Jaskoski@noaa.gov>, Lawrence T Krepp
> > <Lawrence.T.Krepp@noaa.gov>
> > >, Pig Pen <John.Doroba@noaa.gov>
> > >
> > >
> > >> Hi Olivia,
> > >>
> > >> I think we talked to you about this some time earlier this year...but
> > >> is
> > >> there any reason why our MB data would not be accepted without SVP's
> > >>
> > >> applied during post-processing? Right now, the SiS system requires
> > an
> > >>
> > >> ASVP to be applied during acquisition. I've post-processed data both
> > >>
> > >> with and without an SVP and it appears that applying an SVP during
> > >> post-processing doubles the SVP and creates a "Chevron" shape in the
> > >>
> > >> base surface. The data looks better without the SVP added in
> > >> post-processing.
> > >>
> > >> Please let me know if AHB or HSTP has any issue with accepting data
> > >> without SVP's added in post-processing...in reality, its not data
> > >> without SVP, its just data with SVP corrections in real-time, and
> > not
> > >>
> > >> corrected in post-processing. I will be adding this correspondence
> > >> and
> > >> your reply into all DR's for 2009-2010.
> > >>
> > >> Thanks for your time and help.
> > >>
> > >> -Bert
> > >> NRT5

Subject: Anch areas
From: Howard Danley <Howard.Danley@noaa.gov>
Date: Tue, 10 Nov 2009 14:58:14 -0500
To: Bert Ho <Bert.Ho@noaa.gov>

See the graphics below

----- Original Message -----
Date: Mon, 08 Jun 2009 10:12:59 -0400
From: Stephen Roberts <s.a.roberts@comcast.net>
To: Howard.Danley@noaa.gov

Howard,

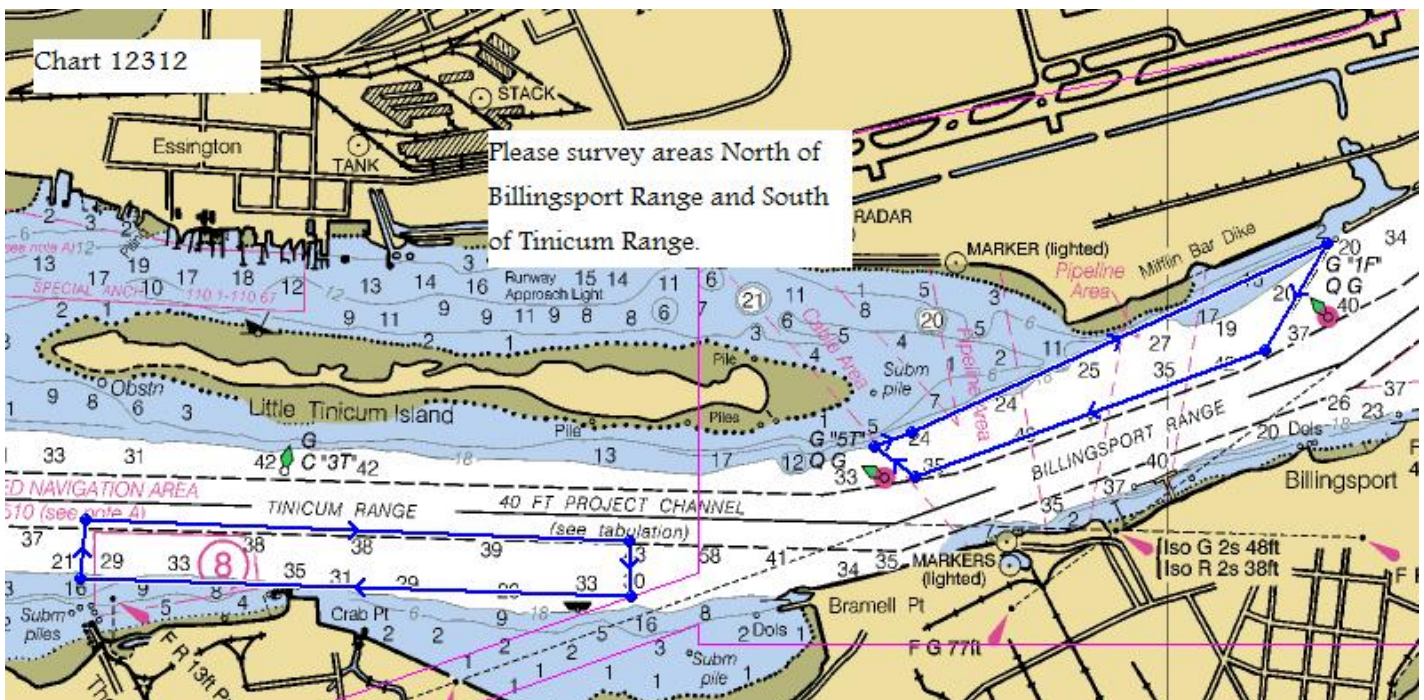
It was good to see you the other day at the Mariner's Advisory Committee meeting in Philadelphia. We really appreciate NOAA's and your support for our area. With the resignation of Tom Sharp as Chairman, I was appointed to the position by Capt. Jim Roche. It should be announced sometime this week.

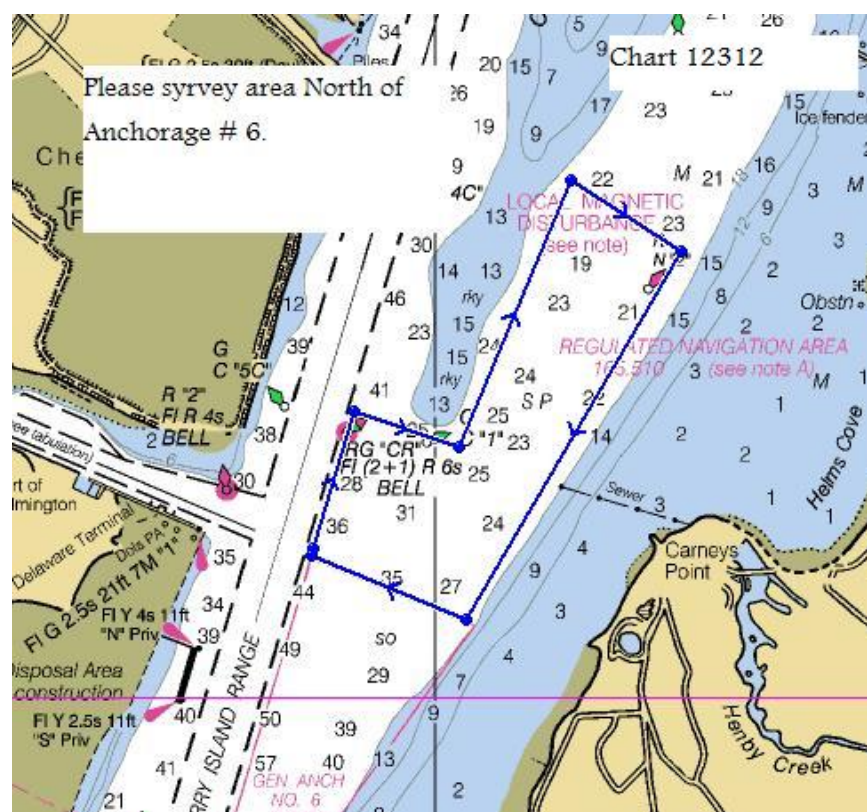
Thank you for your offer of tasking some out of channel surveying in our area. I have attached some images of charts with areas outlined in blue that we are interested in for the creation of new anchorages. We are also interested in a couple of areas to create emergency turning basins off of Tioga Marine Terminal and below the Tacony-Palmyra Bridge.

I look forward to a long and fruitful relationship with all of our friends at NOAA. Please feel free to contact me with any questions or if there is anything we can do for you.

Best regards,

Steve Roberts





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Content-Encoding:	base64

General Anchorage #5.jpg	Content-Type: image/jpeg Content-Encoding: base64
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Navy Yard Anchorage.jpg	Content-Type: image/jpeg Content-Encoding: base64
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New Castle Cherry Island.jpg	Content-Type: image/jpeg Content-Encoding: base64
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Petty Island 2.jpg	Content-Type: image/jpeg Content-Encoding: base64
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Tacony.jpg	Content-Type: image/jpeg Content-Encoding: base64
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Tinicum 2.jpg	Content-Type: image/jpeg Content-Encoding: base64
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Tinnicum Billingsport.jpg	Content-Type: image/jpeg Content-Encoding: base64
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wilmington anchorage.jpg	Content-Type: image/jpeg Content-Encoding: base64
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Subject:
[PwP: D903NR152009 Error Correction]
From:
"christopher.hare" <Christopher.Hare@noaa.gov>
Date:
Mon, 16 Nov 2009 10:28:25 -0500
To:
Bert.Ho@noaa.gov

What do you think?

Subject:
D903NR152009 Error Correction
From:
David Wolcott <David.Wolcott@noaa.gov>
Date:
Fri, 13 Nov 2009 15:40:57 -0500
To:
Christopher Hare <Christopher.Hare@noaa.gov>
CC:
Gerald Hovis <Gerald.Hovis@noaa.gov>

Hi Chris,

I have a question for you.
There is an issue with the D903 project and it might mean that the final tides will be a few days late. When I created the error model for the Project Instructions TCAR1 grid, the units used for the datum error were feet instead of meters. Unless it would cause a processing headache, a modified grid with the corrected datum error values can be created and we could send it with the smooth tides by the end of next week. Would you have an issue with making the correction and sending it with the final tides or have you already started processing the data?
Let me know what you think.

Thanks,
David

--

David Wolcott
Hydrographic Planning Team
NOS/CO-OPS
p. (310) 713-2890 x.153

Chris Hare <christopher.hare@noaa.gov>
Physical Scientist
Navigation Services Division
Office Of Coast Survey
D903NR152009 Error Correction.eml

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AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	H12149
PROJECT No.	S-D903-NRT5-09
FIELD UNIT	NRT5
DATE OF SURVEY	09/28/09- 12/09/09
LARGEST SCALE CHART	<i>12313, edition 55, 20090801, 1:15,000</i>
ADDITIONAL CHARTS	<i>12312, edition 52, 20081201, 1:40,000</i>
SOUNDING UNITS	feet
COMPILER	Rosemary P. Abbitt

Source Grids	File Name
	H:\Compilation\H12149_D903_NRT5\AHB_H12149\
	E-SAR Final Products\GRIDS\H12149_MBES_CUBE_50cm_Final.csar
	E-SAR Final Products\GRIDS\H12149_VBES_UNCERT_Shoal_4m.csar
Surfaces	File Name
	H:\Compilation\H12149_D903-NRT5\AHB_H12149\COMPILE\Working
<i>Combined</i>	H12149_4m_Combined.csar
<i>Interpolated TIN</i>	\Interpolated TIN\H12149_12m_InterpTIN.csar
<i>Shifted Interpolated TIN</i>	\Shifted Surface\H12149_12m_InterpTIN_Shifted.csar
<i>Product Surface</i>	\Product Surface\H12149_12m_Product_Surface.csar
Final HOBs	File Name
	H:\Compilation\H12149_D903-NRT5\AHB_H12149\COMPILE\Final_Hobs\
<i>Survey Scale Soundings</i>	H12149_SS_Soundings.hob
<i>Chart Scale Soundings</i>	H12149_CS_Soundings.hob
<i>Contour Layer</i>	H12149_Contours.hob
<i>Feature Layer</i>	H12149_Features.hob
<i>Meta-Objects Layer</i>	H12149_MetaObjects.hob
<i>Blue Notes</i>	H12149_BlueNotes.hob
<i>ENC Retain Soundings</i>	N/A

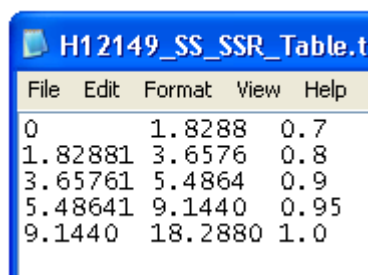
Meta-Objects Attribution	
Acronym	Value
M_COVR	
CATCOV	1 - Coverage available
SORDAT	20091209
SORIND	US,US,graph,H12149
M_QUAL	
CATZOC	6 – Zone of confidence U (data not assessed)
INFORM	H12149, S-D903-NRT5-09, NOAA NRT5; S3002
POSACC	10m
SORDAT	20091209
SORIND	US,US,graph,H12149
SUREND	20091209
SURSTA	20090928
DEPARE	
DRVALV 1	3.8100 ft

[Type text]

DRVALV2	62.3589
SORDAT	20091209
SORIND	US,US_graph,H12149
M_CSCL	
CSCALE	N/A
SORDAT	20091209
SORIND	US,US_graph,H12149

SPECIFICATIONS:

- I. COMBINED SURFACE:
 - a. Number of ESAR Final Grids: 2
 - b. Resolution of Combined (m): 4m
- II. SURVEY SCALE SOUNDINGS (SS):
 - a. Radius
 - b. Shoal biased
 - c. Use Single-Defined Radius (mm at Map Scale): ; Radius Value = 1
 - d. Queried Depth of All Soundings
 - i. Minimum: 3.8100 ft
 - ii. Maximum: 62.3589



File	Edit	Format	View	Help
0	1.8288	0.7		
1.82881	3.6576	0.8		
3.65761	5.4864	0.9		
5.48641	9.1440	0.95		
9.1440	18.2880	1.0		

- III. INTERPOLATED TIN SURFACE:
 - a. Resolution (m): 12m
 - b. Linear
 - c. Shifted value: -0.75 ft [-0.229m (-0.75feet)]
- IV. CONTOURS:
 - a. Use a Depth List: H12149_Depth_Contours_Feet.txt
 - b. Line Object: DEPCNT
 - c. Value Attribute: VALDCO
- V. FEATURES:
 - a. Total Number of Features: 12
 - b. Number of Insignificant Features: 6
- VI. CHART SURVEY SOUNDINGS (CS):
 - a. Number of ENC CS Soundings: 193
 - b. Radius
 - c. Shoal biased
 - d. Use Single-Defined Radius: m on the ground
 - i. Radius Value (m): 200m
 - ii. Or use a Sounding Space Range Table:

H12149_15K_CS_SSR..			
File	Edit	Format	View Help
0		1.8288	70
1.82881		3.6576	80
3.65761		5.4864	90
5.4864		9.1440	95
9.14401		18.288	100

H12149_40K_CS_SSR..			
File	Edit	Format	View Help
0		1.8288	100
1.82881		3.6576	120
3.65761		5.4864	140
5.4864		18.288	165

- e. Filter: Interpolated != 1
- f. Number Survey CS Soundings: 213

VII. Notes:

**ATLANTIC HYDROGRAPHIC BRANCH
H-CELL REPORT to ACCOMPANY
SURVEY H12149 (2009)**

This H-Cell Report has been written to supplement and/or clarify the original Descriptive Report (DR) and pass critical compilation information to the cartographers in the Marine Chart Division. Sections in this report refer to the corresponding sections of the Descriptive Report.

A. AREA SURVEYED

B. DATA ACQUISITION AND PROCESSING

B.2 QUALITY CONTROL

The AHB source depth grids for the survey's nautical chart update were 4m, and .5m resolution BASE surfaces (*.CSAR), which were combined at 4m resolution. The survey scale soundings were created from the combined surface using a sounding spacing range (SSR) file. A TIN was created from the survey scale soundings, from which an interpolated surface of 12m resolution was generated. The chart scale soundings were derived from only the non-interpolated nodes of this surface to preserve absolute continuity between the charted depths, the survey scale soundings, and the original source grid. The chart scale soundings were selected using a single defined radius of 200m (on the ground) and using a sounding spacing range (SSR) files. The chart scale soundings are a subset of the survey scale soundings. The surface model was referenced when selecting the chart scale soundings, to ensure that the selected soundings portray the bathymetry within the common area.

The interpolated TIN surface of 12m resolution was shifted by the NOAA sounding rounding value of -0.75 feet. The shifted interpolated TIN was used to generate depth contours in feet (6, 12, 18, 30, 36 feet). The depth contours are forwarded to MCD for reference only. The contours were utilized during chart scale sounding selection and quality assurance efforts at AHB. The depth contours are incorporated into the SS H-Cell product as per 2009 H-Cell Specifications.

The compilation products (Final *.HOB files) for this survey are detailed in the H12149 AHB Compilation Log contained within this document. The Final HOB files include depth areas (DEPARE), depth contours (DEPCNT), soundings (SOUNDG), meta-objects (M_COVR, M_QUAL, and M_CSCL), cartographic Blue Notes (\$CSYMB), and features (OBSTRN, SOUNDG, UWTROC, WRECKS, SBDARE).

As dictated by Hydrographic Technical Directive 2008-8, the Final HOB files were combined into two separate H-Cell files in S-57 format. Both S-57 files were exported from CARIS Bathy DataBase in meters, and then converted from metric units into feet using CARIS HOM ENC 3.3. Quality assurance and topology checks were conducted using CARIS S-57 Composer 2.1 and DKART Inspector 5.1 validation tests.

The final H-Cell products are two S-57 files, in Lat/Long NAD-83. The contents of these two H-Cell deliverables are listed in the table below:

TABLE 1 - Contents of H-Cell Files			
H12149_CS.000		Scale 1:15,000	
Object Class Types	Geographic	Cartographic	Meta
S-57 Object Acronyms	DEPARE	\$CSYMB	M_COVR
	UWTROC		M_QUAL
	WRECKS		M_MSCL
	SOUNDG		
	SBDARE		
	OBSTRN		
H12149_SS.000		Scale 1:10,000	
Object Class Types	Geographic		
S-57 Object Acronyms	DEPCNT		
	SOUNDG		

B.2.4 Junctions and Prior Surveys

Survey H12149 (2009) junctions with survey H12148 (2009) to the east and H12150 (2009) to the west. Most present survey depths compare within 1 foot of junctioning survey depths to the east, and within 1 foot of junctioning survey depths to the west.

B.4 DATA PROCESSING

The following software was used to process data at the Atlantic Hydrographic Branch:

CARIS Bathy DataBase version 3.0/HF10

CARIS HIPS/SIPS version 7.0/SP2/HF6

CARIS S-57 Composer version 2.1/HF4

CARIS HOM ENC version 3.3/SP3/HF8

DKART Inspector version 5.1

HSTP Pydro version 10.11 (r3191)

C. HORIZONTAL AND VERTICAL CONTROL

The hydrographer makes adequate mention of horizontal and vertical control used for this survey in section C of the DR. The sounding datum for this survey is Mean Lower Low Water (MLLW), and the vertical datum is Mean High Water (MHW). Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83), UTM projection zone 18 North.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

12313 (52nd Edition, 12/2008)

Delaware River Philadelphia and Camden
Waterfronts

Corrected through NM 03/19/2011

Corrected through LNM 03/01/2011

Scale 1:15,000

12312 (55th Edition, 08/2009)

Delaware River Wilmington to Philadelphia

Corrected through NM 03/19/2011

Corrected through LNM 03/01/2011

Scale 1:40,000

ENC COMPARISON

US5PA11M

Delaware River Wilmington to Philadelphia
Edition 18

Application Date 2010/03/12

Issue Date 2010/03/12

Chart 12312

US5PA12M

Philadelphia and Camden Waterfront
Edition 22

Application Date 2011/02/02

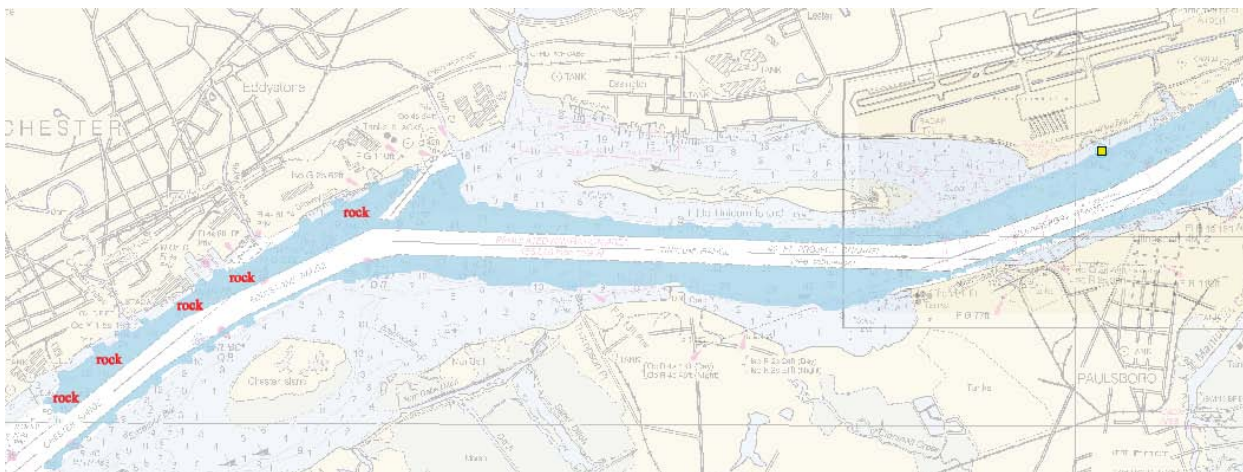
Issue Date 2011/02/02

Chart 12313

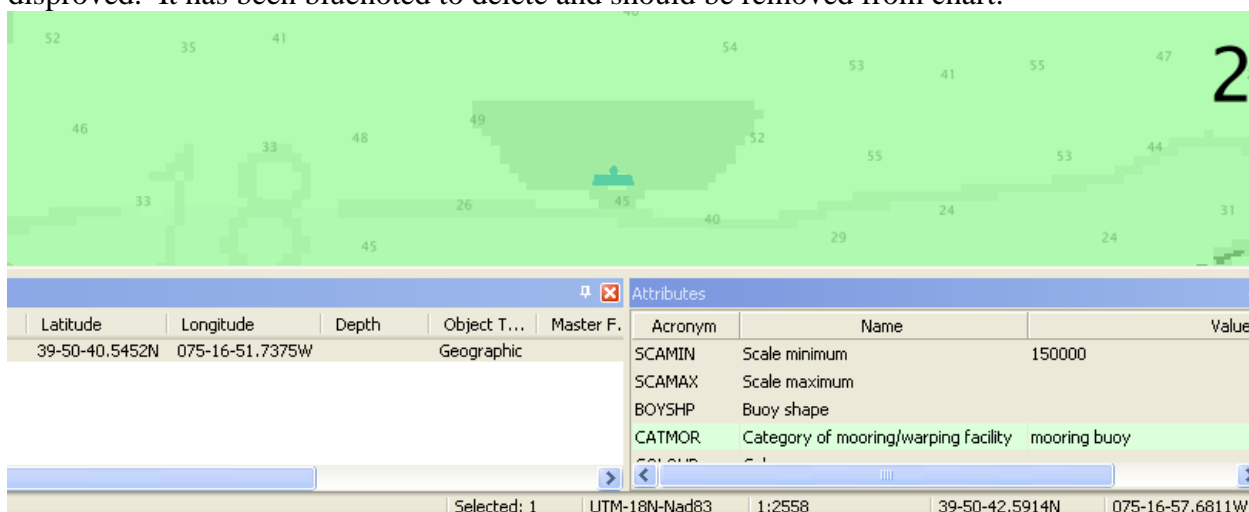
D.2 ADDITIONAL RESULTS

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section D and Appendix I and II of the DR. The hydrographer recommends that any charted features not specifically addressed either in the H-Cell files or the Blue Notes should be retained as charted. The following exceptions are noted:

- a. The field unit did not collect bottom samples, therefore six charted seabed characteristics were retained as charted.



- b. The field unit did not mention the MORFAC. After careful investigation using Orthoimagery, Side Scan Data and ENC (US5PS11M), this feature is considered disproved. It has been bluenoted to delete and should be removed from chart.



D.6 MISCELLANEOUS

Chart compilation was completed by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compilation data will be forwarded to the Marine Chart Division in Silver Spring, Maryland. See section D.1 of this report for a list of the Raster Charts and Electronic Navigation Charts (ENC) used for compiling the present survey.

D.7 ADEQUACY OF SURVEY

The present survey is not adequate to supersede the charted bathymetry within the common area. Any features not specifically addressed either in the H-Cell files or the Blue Notes should be retained as charted. Refer to section D and Appendix I and II of the DR for further recommendations by the hydrographer.

**APPROVAL SHEET
H12149**

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth contours, disposition of critical depths, cartographic symbolization, and verification or disproval of charted data. All revisions and additions made to the H-Cell files during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with National Ocean Service and Office of Coast Survey requirements except where noted in the Descriptive Report and the H-Cell Report.

All final products have undergone a comprehensive review per the Hydrographic Surveys Division Office Processing Manual and are verified to be accurate and complete except where noted.

Rosemary P. Abbitt
Hydrographic Survey Intern
Atlantic Hydrographic Branch

I have reviewed the H-Cell files, accompanying data, and reports. This survey and accompanying Marine Chart Division deliverables meet National Ocean Service requirements and standards for products in support of nautical charting except where noted.

Approved: _____
CDR Richard T. Brennan, NOAA
Chief, Atlantic Hydrographic Branch