**DESCRIPTIVE REPORT**

<table>
<thead>
<tr>
<th>Type of Survey</th>
<th>Hydrographic</th>
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<tbody>
<tr>
<td>Field No.</td>
<td>David Evans and Associates, Inc.</td>
</tr>
<tr>
<td>Registry No.</td>
<td>H12241</td>
</tr>
</tbody>
</table>

**LOCALITY**

<table>
<thead>
<tr>
<th>State</th>
<th>Maryland and Virginia</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Locality</td>
<td>Central Chesapeake Bay</td>
</tr>
<tr>
<td>Sublocality</td>
<td>3nm SW of Smith Island</td>
</tr>
</tbody>
</table>

**CHIEF OF PARTY**

Jonathan L. Dasler, PE (OR), PLS (OR, CA)

**DATE**

LIBRARY & ARCHIVES
**INSTRUCTIONS** – The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

<table>
<thead>
<tr>
<th>State</th>
<th>Maryland and Virginia</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Locality</td>
<td>Central Chesapeake Bay</td>
</tr>
<tr>
<td>Sub-Locality</td>
<td>3nm SW of Smith Island</td>
</tr>
<tr>
<td>Scale</td>
<td>1:10,000</td>
</tr>
<tr>
<td>Date of Survey</td>
<td>July 4, 2010 to November 13, 2010</td>
</tr>
<tr>
<td>Instructions dated</td>
<td>July 1, 2010</td>
</tr>
<tr>
<td>Project No.</td>
<td>OPR-E349-KR-10</td>
</tr>
<tr>
<td>Vessel</td>
<td>R/V Theory and R/V Chinook</td>
</tr>
<tr>
<td>Chief of party</td>
<td>Jonathan L. Dasler, PE (OR) , PLS (OR,CA)</td>
</tr>
<tr>
<td>Surveyed by</td>
<td>David Evans and Associates, Inc.</td>
</tr>
<tr>
<td>Soundings by echo sounder, hand lead, pole</td>
<td>RESON 7125, R2Sonic 2024, EdgeTech 4200-FS, EdgeTech 4200-HFL</td>
</tr>
<tr>
<td>Graphic record scaled by</td>
<td>N/A</td>
</tr>
<tr>
<td>Graphic record checked by</td>
<td>N/A</td>
</tr>
<tr>
<td>Automated Plot</td>
<td>N/A</td>
</tr>
<tr>
<td>Verification by</td>
<td>Atlantic Hydrographic Branch Personnel</td>
</tr>
<tr>
<td>Soundings in</td>
<td>Meters at MLLW</td>
</tr>
</tbody>
</table>

**REMARKS:** All times are UTC.

The purpose of this contract is to provide NOAA with modern, accurate hydrographic survey data with which to update nautical charts of the assigned area.

**SUBCONSULTANTS:** Zephyr Marine, P.O. Box 1575, Petersburg, AK 99833

John Oswald and Associates, LLC, 2000 E. Dowling Road, Suite 10, Anchorage, AK 99507

UTM Zone 18N

Bold, italic, red notes in the Descriptive Report were made during office processing.
TABLE OF CONTENTS

Acronyms and Abbreviations .................................................................................................... iii

A. AREA SURVEYED .................................................................................................................. 1

B. DATA ACQUISITION AND PROCESSING .............................................................................. 4
  B1. Equipment .............................................................................................................................. 4
  B2. Quality Control ...................................................................................................................... 6
    B2.a Crosslines ................................................................................................................................ 6
    B2.b Uncertainty ................................................................................................................................ 6
    B2.c Junctions .................................................................................................................................... 7
    B2.d Unusual Conditions or Data Degradation .................................................................................. 7
    B2.e Object Detection and Coverage Requirements .......................................................................... 7
  B3. Corrections to Echo Soundings ............................................................................................. 8
    B3.a Deviations from DAPR ............................................................................................................. 8
    B3.b Additional Calibration Tests .................................................................................................. 8
  B4. Data Processing (Data Representation) ..................................................................................... 8
    B4.a Multibeam .............................................................................................................................. 8

C. HORIZONTAL AND VERTICAL CONTROL .................................................................... 9
  C1. Vertical Control ..................................................................................................................... 9
  C2. Horizontal Control ............................................................................................................... 10

D. RESULTS AND RECOMMENDATIONS ........................................................................... 10
  D1. Chart Comparison ................................................................................................................ 10
    D1.a Survey Agreement with Chart ........................................................................................... 10
    D1.b Comparison to Significant Shoals ........................................................................................ 12
    D1.c Comparison to Charted Features .......................................................................................... 12
    D1.d Comparison of Soundings in Designated Anchorages and Along Channels ....... 12
    D1.e New Submerged Features ..................................................................................................... 12
    D1.f Dangers to Navigation (DtoN) .............................................................................................. 12
  D2. Additional Results ............................................................................................................... 13
    D2.a Shoreline Investigations ...................................................................................................... 13
    D2.b Comparison with Prior Surveys .......................................................................................... 13
    D2.c Aids to Navigation (AtoN) .................................................................................................... 13
    D2.d Overhead Clearance ............................................................................................................ 13
    D2.e Cables, Pipelines and Offshore Structures ......................................................................... 13
    D2.f Environmental Conditions Impacting the Quality of the Survey ...................................... 13
    D2.g Construction Projects ........................................................................................................... 13
    D2.h Bottom Characteristics ........................................................................................................ 13
E. LETTER OF APPROVAL

F. SUPPLEMENTAL REPORTS

List of Figures
Figure 1. H12241 Survey Area
Figure 2. Depth Difference Between H12241 and Combined ENCs

List of Tables
Table 1. H12241 Days of Acquisition
Table 2. H12241 Survey Statistics
Table 3. R/V Theory Equipment and Vessel Specifications
Table 4. R/V Chinook Equipment and Vessel Specifications
Table 5. CUBE Uncertainty
Table 6. H12241 Surfaces
Table 7. GPS Reference Stations Used During SmartBase Processing
Table 8. Charts Compared to H12241
Table 9. H12241 DtoN Charting Status

List of Appendices
Appendix I. Danger to Navigation Reports
Appendix II. Survey Feature Report
Appendix III. Reserved
Appendix IV. Tides and Water Levels
Appendix V. Supplemental Survey Records and Correspondence

List of Separates *
Separate I. Acquisition and Processing Logs
Separate II. Sound Speed Data
Separate III. Hydrographic Survey Letter Instructions/Statement of Work
Separate IV. Crossline Comparisons
Separate V. Side Scan Contact Listing and Images of Significant Contacts

*Data filed with original field records.
Descriptive Report to Accompany Hydrographic Survey H12241

Project OPR-E349-KR-10
Central Chesapeake Bay, Maryland and Virginia
3nm SW of Smith Island
Scale 1:10,000
July 2010 – November 2010
David Evans and Associates, Inc.
Lead Hydrographer: Jonathan L. Dasler

A. AREA SURVEYED

David Evans and Associates, Inc. (DEA) conducted hydrographic survey operations in the Central Chesapeake Bay, Maryland and Virginia. The survey area shown in Figure 1 is located approximately three nautical miles southwest of Smith Island. Concur.

Survey H12241 was conducted in accordance with the Statement of Work (April 2010) and Hydrographic Survey Project Instructions (July 2010) for OPR-E349-KR-10. On October 26, 2010, DEA was directed to use Ellipsoidal Referenced Survey (ERS) methods for the reduction of survey data to chart datum via a signed memo from the Chief, Hydrographic Surveys Division (HSD). Approval of these methods was granted based on recommendations included with DEA’s interim deliverables (submitted September 23, 2010) for the ERS/VDatum/Tide Buoy Validation components of OPR-E349-KR-10, specified in the Hydrographic Survey Project Instructions (July 2010). A copy of this memo is included in Appendix V Supplemental Records and Correspondence of each survey’s Descriptive Report. Concur.

The project instructions required 200% side scan sonar coverage of the survey area with multibeam sonar data acquired in conjunction with side scan sonar operations. The survey was conducted over 80 meters set line spacing and 130 meters set line spacing per 100% coverage (50 meters and 75 meters side scan sonar ranges, respectively). Automated Wreck and Obstruction Information System (AWOIS) items and significant side scan contact investigations were acquired to meet object detection coverage requirements for multibeam surveys. The inshore limit is defined as the most-seaward of either the surveyed 18-foot contour or the survey polygon OPR-E349-KR-10_Sheets_region.shp which was included with the Hydrographic Survey Project Instructions (July 2010). Concur.

As discussed with the Chief of the Operations Branch, additional multibeam crosslines were run on the edges of the H12241 survey area in order to better define the 18-foot depth curve in some areas where the survey polygon OPR-E349-KR-10_Sheets_region.shp did not fully capture the 18-foot depth curve. A copy of correspondence related to the acquisition of additional multibeam crosslines is included in Appendix V Supplemental Records and Correspondence. Concur.

Based on the new bottom sample specifications included in the 2010 National Ocean Service (NOS) Hydrographic Surveys Specifications and Deliverables (HSSD) bottom samples were not required for H12241. Interpretation of these new specifications was verified by the Chief of the Data Acquisition and Control Branch. No AWOIS items were assigned to this survey. Concur.
with Clarification. Project Instructions required Bottom Samples be collected but additional correspondence waived the requirement. See Appendix V.
Data acquisition was conducted from July 4, 2010 (DN 185) to November 13, 2010 (DN 317). Table 1 lists specific dates of acquisition.

<table>
<thead>
<tr>
<th>Month</th>
<th>Dates of Acquisition</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>4, 6</td>
</tr>
<tr>
<td>August</td>
<td>10-11, 14-15, 17-21, 23, 25-27,</td>
</tr>
<tr>
<td>October</td>
<td>13, 23, 28</td>
</tr>
<tr>
<td>November</td>
<td>3, 13</td>
</tr>
</tbody>
</table>

Detailed survey statistics of H12241 are provided in Table 2.

<table>
<thead>
<tr>
<th>Survey Statistics</th>
<th>Research Vessels (R/V) Theory and Chinook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combination MBES/SSS Mainscheme (nm)</td>
<td>850.6</td>
</tr>
<tr>
<td>Crosslines (MBES nm)</td>
<td>45.6</td>
</tr>
<tr>
<td>Number of Item Investigations that required additional survey effort</td>
<td>0</td>
</tr>
<tr>
<td>Total number of square nautical miles</td>
<td>20.3</td>
</tr>
</tbody>
</table>
B. DATA ACQUISITION AND PROCESSING

B1. Equipment

Equipment and vessels used for data acquisition and survey operations during this survey are listed below in Tables 3 and 4.

Table 3. R/V Theory Equipment and Vessel Specifications

<table>
<thead>
<tr>
<th>Equipment/Specification</th>
<th>R/V Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hull Registration Number</td>
<td>IAR34CATA808</td>
</tr>
<tr>
<td>Official Number (O/N)</td>
<td>1217549</td>
</tr>
<tr>
<td>Builder</td>
<td>Armstrong Marine</td>
</tr>
<tr>
<td>Design</td>
<td>Catamaran</td>
</tr>
<tr>
<td>Year Built</td>
<td>2008</td>
</tr>
<tr>
<td>Length Overall</td>
<td>36’</td>
</tr>
<tr>
<td>Beam</td>
<td>13’</td>
</tr>
<tr>
<td>Draft, Maximum</td>
<td>3’</td>
</tr>
<tr>
<td>Cruising Speed</td>
<td>26 knots</td>
</tr>
<tr>
<td>Max Survey Speed</td>
<td>9 knots</td>
</tr>
<tr>
<td>Primary Echosounder</td>
<td>RESON 7125</td>
</tr>
<tr>
<td>Side Scan Sonar</td>
<td>Edgetech 4200-HFL</td>
</tr>
<tr>
<td>Sound Velocity Equipment</td>
<td>Brooke Ocean MVP-30 with AML SVP Plus V2</td>
</tr>
<tr>
<td></td>
<td>Reson SVP-70</td>
</tr>
<tr>
<td></td>
<td>Sea-Bird SEACAT SB-19 Plus CTD Profiler</td>
</tr>
<tr>
<td>Positioning &amp; Attitude</td>
<td>Applanix POS/MV 320 v4</td>
</tr>
</tbody>
</table>
Table 4. R/V Chinook Equipment and Vessel Specifications

<table>
<thead>
<tr>
<th>Hull Registration Number</th>
<th>IAR28CATJ607</th>
</tr>
</thead>
<tbody>
<tr>
<td>Official Number (O/N)</td>
<td>AK-8018-AG</td>
</tr>
<tr>
<td>Builder</td>
<td>Armstrong Marine</td>
</tr>
<tr>
<td>Design</td>
<td>Catamaran</td>
</tr>
<tr>
<td>Year Built</td>
<td>2007</td>
</tr>
<tr>
<td>Length Overall</td>
<td>28'</td>
</tr>
<tr>
<td>Beam</td>
<td>10.5'</td>
</tr>
<tr>
<td>Draft, Maximum</td>
<td>2'</td>
</tr>
<tr>
<td>Cruising Speed</td>
<td>27 knots</td>
</tr>
<tr>
<td>Max Survey Speed</td>
<td>9 knots</td>
</tr>
<tr>
<td>Primary Echosounder</td>
<td>R2Sonic 2024</td>
</tr>
<tr>
<td>Side Scan Sonar</td>
<td>Edgetech 4200-FS and 4200-HFL</td>
</tr>
<tr>
<td>Sound Velocity Equipment</td>
<td>Applied Microsystems MicroSVX AML Smart SVPlus V2 Sea-Bird SEACAT SB-19 Plus CTD Profiler</td>
</tr>
<tr>
<td>Positioning &amp; Attitude</td>
<td>Applanix POS/MV 320 v4</td>
</tr>
</tbody>
</table>

There were no vessel or equipment configurations used during data acquisition that deviated from those described in the OPR-E349-KR-10 Data Acquisition and Processing Report (DAPR).
B2. Quality Control

Quality control is discussed in detail in Section B of the DAPR. The results from the positioning system comparison and bar-to-multibeam comparison are included in Separate I Acquisition and Processing Logs. The sound velocity profile (SVP) sensor weekly evaluation table can be found in Separate II Sound Speed Data section of this report. Data were reviewed at multiple levels of data processing including: CARIS Hydrographic Information Processing System (HIPS) conversion, subset editing, and analysis of anomalies revealed in combined uncertainty and bathymetry estimator (CUBE) surfaces. Submerged significant features identified during survey operations were noted in the acquisition logs and saved to Isis cursor log files, or Target Pro contact files, then displayed during HIPS editing to aid in the interpretation of data and act as a check during feature compilation.

B2.a Crosslines

A total of 45.6 nautical miles of crosslines, or 5.4% of all survey lines, were run for analysis of survey accuracy. Crosslines were run in a direction perpendicular to mainscheme lines across the entire surveyed area, providing a good representation for analysis of consistency. All crosslines were used for crossline comparisons.

Crossline analysis was performed using the CARIS HIPS QC Report tool, which compares crossline data to a gridded surface and reports results by beam number. Crosslines from both vessels were compared to a 1 meter CUBE surface encompassing the entire survey area. In addition, crosslines from each vessel were compared to a 1 meter CUBE surface encompassing the mainscheme data collected by that vessel. The QC Report tabular outputs and plots are included in Separate IV Crossline Comparisons. The results of the analysis meet the requirements as stated in the NOS HSSD (April 2010).

Additional crossline analysis was performed by computing a 1 meter CUBE surface from the crossline data from both survey vessels. The surface was then differenced from a 1 meter CUBE surface comprised of all mainscheme, fill, and investigation data. The crossline analysis included over 750,000 node comparisons and an average difference of 0.01 meters across all depths between the crossline surface and the mainscheme surface, with 0.13 meters of uncertainty at 95% confidence.

B2.b Uncertainty

During HIPS processing, the "greater of the two" option was selected, where the calculated uncertainty from total propagated uncertainty (TPU) is compared to the standard deviation (StdDev) of the soundings influencing the node and where the greater value is assigned as the final uncertainty of the node. The uncertainty of the finalized surface and associated Bathymetric Attributed Grids (BAGs) increased for nodes where the StdDev of the node was greater than the calculated uncertainty. The calculated uncertainty values of all nodes range from 0.20 to 0.43 meters. A software error in Caris resulted in abnormally low uncertainty values within the finalized surface at nodes corresponding to designated soundings. These abnormal uncertainty values were below both the depth TPU of the corresponding designated sounding and the minimum a priori uncertainty of 0.20 meters. As a result, these values were considered
erroneous and not included in the uncertainty analysis. This error affected only 10 nodes out of nearly 32 million.

To determine if surface grid nodes met specification, a ratio of the node uncertainty to the allowable uncertainty at that depth was determined. As a percentage, this value represents the amount of the error budget utilized by the uncertainty value at each node. Values over 100% exceed specification.

As shown in Table 5, both uncertainty and the allowable error utilized have low average values and a tight StdDev. All nodes meet specification for both the 1-meter and 2-meter CUBE surfaces.

<table>
<thead>
<tr>
<th>CUBE Uncertainty Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Uncertainty (m)</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1m CUBE</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>2m CUBE</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

B2.c Junctions
Survey H12241 junctions with surveys H12238 to the west, H12242 to the north, and prior survey H12041 to the south, at the time of writing, survey H12242 had not been completely processed. Junction analysis between H12241 and H12242 will be discussed in H12242 Descriptive Reports.

Survey junction analysis was performed between H12241 and H12238 to the west, by visually reviewing survey data in CARIS HIPS subset mode and by performing surface-to-surface comparisons in CARIS Bathy DataBASE. The surface-to-surface difference yielded 202,844 node comparison points, with an average difference of 0.04 meters and an uncertainty of 0.15 meters at the 95% confidence level. No anomalies were apparent in the visual review of the data.

B2.d Unusual Conditions or Data Degradation
No unusual conditions or significant data degradation was observed on survey H12241.

B2.e Object Detection and Coverage Requirements
Survey speeds were maintained to meet or exceed object detection requirements throughout the survey.

Demonstration of 200% side scan sonar coverage was achieved by producing two separate 100% 50-centimeter resolution mosaics. Mosaics were thoroughly reviewed for holidays and areas of poor quality coverage due to biomass, vessel wakes, or other factors. A fill plan was created for holidays and poor quality coverage areas in water depths greater than 18 feet.
Multibeam data were acquired in conjunction with side scan sonar collection. A fill plan was created for all holidays greater than three nodes long that extended across the entire multibeam track line. The sounding density requirement of 95% of all nodes, populated with at least five soundings per node, was verified by exporting the density child layer of each CUBE surface to an ASCII text file and compiling statistics on the density values. More than 98% of all final CUBE surface nodes contained five or more soundings. Density statistics of individual item investigation surfaces using Complete Coverage requirements were reviewed and all surpassed the 95% requirement.

**B3. Corrections to Echo Soundings**

Data reduction procedures for survey H12241 are detailed in the OPR-E349-KR-10 DAPR, submitted under separate cover. For detailed information pertaining to applied filters, refer to the multibeam processing logs in Separate I Acquisition and Processing Logs.

**B3.a Deviations from DAPR**

There are no deviations from the OPR-E349-KR-10 DAPR with the following exception: the default CARIS HIPS HIPSBASESURFACE316u.dll and HIPS_io316u.dll where replaced with files issued to DEA by CARIS in order to finalize surfaces created solely using Hot Fix 5. Both files have been included in the CARIS specific deliverables for this survey.

**B3.b Additional Calibration Tests**

The initial system calibration tests were performed for the R/V Theory on July 2, 2010 (DN 183) and for the R/V Chinook on July 6, 2010 (DN 187). Additional tests were performed periodically to verify the adequacy of the known system biases. Additional discussion on calibration tests can be found in the OPR-E349-KR-10 DAPR.

**B4. Data Processing (Data Representation)**

**B4.a Multibeam**

A BAG was created for each finalized CUBE using CUBE resolutions described in the NOS HSSD (April 2010). Depth thresholds were not used in CUBE creation. Table 6 lists the CUBE surfaces submitted with this survey. Surfaces named with “_INV”, are comprised of all investigation data at object detection resolutions. In addition to the sheets listed in Table 6, a field sheet was submitted for each individual investigation. The name of each individual investigation field sheet corresponds to the primary side scan sonar contact name.

<table>
<thead>
<tr>
<th>Surface Name</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>H12241_1m_MLLW_1of3</td>
<td>1.0m</td>
</tr>
<tr>
<td>H12241_2m_MLLW_2of3</td>
<td>2.0m</td>
</tr>
<tr>
<td>H12241_50cm_MLLW_INV_3of3</td>
<td>0.5m</td>
</tr>
</tbody>
</table>

*Concur with Section B.*
C. HORIZONTAL AND VERTICAL CONTROL

A complete description of the horizontal and vertical control for survey H12241 can be found under the OPR-E349-KR-10 Horizontal and Vertical Control Report, submitted under separate cover. A complete description of Global Positioning System (GPS) post-processing methodology for survey H12241 can be found in the OPR-E349-KR-10 DAPR, submitted under separate cover. A summary of horizontal and vertical control for this survey follows.

Real-time navigation logged during acquisition was overwritten with a post-processed navigation solution, created from Applanix POSPac MMS using the SmartBase option. A GPS base station with a dual frequency (L1/L2) receiver was established on Smith Island in Ewell, Maryland, and another in Airedale, Maryland, to enable post-processing using Single Base or SmartBase solutions. These two stations were augmented by GPS reference stations from the National Geodetic Survey (NGS) National and Cooperative Continually Operating Reference Stations (CORS) to form a GPS network for use in SmartBase processing. Table 7 lists the reference stations used in the network and their approximate distance from the survey area. North American Datum of 1983 (NAD83) coordinates of the base stations are included in the OPR-E349-KR-10 Horizontal and Vertical Control Report.

<table>
<thead>
<tr>
<th>Station</th>
<th>Data Provider</th>
<th>Approximate Distance to Survey Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRD</td>
<td>DEA</td>
<td>25km</td>
</tr>
<tr>
<td>EWELL</td>
<td>DEA</td>
<td>10km</td>
</tr>
<tr>
<td>MDSI</td>
<td>NGS</td>
<td>50km</td>
</tr>
<tr>
<td>HNPT</td>
<td>NGS</td>
<td>70km</td>
</tr>
<tr>
<td>VAWI</td>
<td>NGS</td>
<td>55km</td>
</tr>
<tr>
<td>VIMS</td>
<td>NGS</td>
<td>50km</td>
</tr>
<tr>
<td>VAGP</td>
<td>NGS</td>
<td>80km</td>
</tr>
<tr>
<td>CORB</td>
<td>NGS</td>
<td>115km</td>
</tr>
<tr>
<td>DEDS</td>
<td>NGS</td>
<td>100km</td>
</tr>
</tbody>
</table>

C1. Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). Soundings were reduced to MLLW using post-processed GPS derived water levels. The VDatum derived separation model, Potomac.bin, was used to reduce NAD83 ellipsoid heights to MLLW as described in the OPR-E349-KR-10 DAPR. The separation model has been included in the digital deliverables. When the model file was used in the tide reduction process in CARIS HIPS it was inadvertently misspelled. A query of the GPS Tide Datum in HIPS will show the file Potamic.bin.

Traditional zoning from water level stations was not used for sounding reduction in this survey, though zoning provided by the Center for Operational Oceanographic Products and Services
(CO-OPS) and verified water level files for the survey have been included with the digital deliverables.

C2. Horizontal Control
The horizontal datum for this project is NAD83. All of the real-time navigation data were collected in Differential GPS (DGPS) mode. DGPS corrections were received from the U.S. Coast Guard (USCG) beacon at Annapolis, Maryland (289 kHz) or from the secondary beacon at Driver, Virginia (301 kHz). During survey operations, some DGPS outages from the primary beacon occurred. The system was set up to automatically switch to the secondary beacon when the primary signal was lost. Real-time navigation data were overwritten by post-processed Smoothed Best Estimate Trajectory (SBET) data referenced to NAD83.

Concur with Section C.

D. RESULTS AND RECOMMENDATIONS

Refer to Appendix I and II Survey Features Reports for verified feature information and final feature disposition.

D1. Chart Comparison
D1.a Survey Agreement with Chart
During the course of data acquisition and processing, H12241 was compared to the largest scale raster and electronic navigation charts (ENC). Table 8 lists the charts and edition dates used for the chart comparison. The results of these comparisons are described below, as well as in Sections D1.b through D1.f of this report.

<table>
<thead>
<tr>
<th>Chart</th>
<th>Scale</th>
<th>Edition</th>
<th>Edition Date</th>
<th>Issue Date</th>
<th>Latest LNM</th>
<th>LNM Clear Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>12228</td>
<td>1:40,000</td>
<td>32</td>
<td>03/01/2008</td>
<td>---</td>
<td>50/10</td>
<td>12/14/2010</td>
</tr>
<tr>
<td>12231</td>
<td>1:40,000</td>
<td>28</td>
<td>06/01/2008</td>
<td>---</td>
<td>50/10</td>
<td>12/14/2010</td>
</tr>
</tbody>
</table>

The latest electronic and raster versions of the relevant charts were reviewed to ensure that all USCG Local Notice to Mariners (LNM) issued during survey acquisition, impacting the survey area, were applied and addressed by this survey. A surface was generated from the ENCs using the ENC sounding layer, contour layer, and depth features. A difference surface was produced using the ENC and a 50-meter product surface to conduct the chart comparison.

Contours and soundings generated from combined HIPS product surfaces were used to aid in the chart comparison. Soundings and contours were generated from a 50-meter HIPS product surface of the entire survey area, which was compiled from all finalized CUBE surfaces for the survey. The product surfaces, contours, and soundings were created solely for the chart comparison and have not been submitted as a final deliverable.
Surveyed H12241 depths are generally in agreement with charted depths (Figure 2). The difference surface also shows areas of significant difference, from over 11 feet deeper to 9 feet shallower. These more significant differences are mostly a byproduct of comparing a dense dataset to a surface produced from a triangulated irregular network (TIN), of a smaller scale ENC composed of sparse soundings and contours. The significant variations occur along steep slopes and are not considered navigationally significant. Concur.
Figure 2. Depth Difference Between H12241 and Combined ENCs
D1.b Comparison to Significant Shoals
The H12241 survey area contains no significant shoals. **Concur.**

D1.c Comparison to Charted Features
No AWOIS items were assigned for investigation within survey H12241. **Concur.**

The obstruction PA charted at 37/58/06.04N, 76/05/35.99W was disproved by 200% side scan coverage. The hydrographer recommends removing the obstruction from the charts. **Concur.**

D1.d Comparison of Soundings in Designated Anchorages and Along Channels
H12241 survey area does not contain any anchorage areas, maintained navigation channels or channel lines. However, the southwest corner of survey H12241 extends into a charted recommended traffic separation scheme. The soundings within the one-way traffic lane are generally in agreement with charted depths. **Concur.**

D1.e New Submerged Features
New submerged features are listed in tabular format in Appendix II *Survey Feature Report* and in the S-57 feature file. **Concur.**

D1.f Dangers to Navigation (DtoN)
Eight (8) Dangers to Navigation (DtoN) and three (3) anti-DtoNs were located during survey H12241 and have been submitted to AHB. All DtoNs were reviewed by AHB and forwarded on to the Marine Chart Division (MCD). **Concur.**

All DtoNs are included in the S-57 feature file and should be charted as depicted in the file and listed in Table 9 below. **Concur.**

<table>
<thead>
<tr>
<th>DtoN</th>
<th>Feature</th>
<th>Applied to Raster Chart</th>
<th>Applied to ENC</th>
<th>AHB Submitted to MCD</th>
</tr>
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<tbody>
<tr>
<td>1.4</td>
<td>VA-MD State Line Buoy</td>
<td>No</td>
<td>No</td>
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<tr>
<td>1.5</td>
<td>VA-MD State Line Buoy</td>
<td>No</td>
<td>No</td>
<td>No-Yes</td>
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<tr>
<td>1.6</td>
<td>VA-MD State Line Buoy</td>
<td>No</td>
<td>No</td>
<td>No-Yes</td>
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<tr>
<td>1.7</td>
<td>VA-MD State Line Buoy</td>
<td>No</td>
<td>No</td>
<td>No-Yes</td>
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<tr>
<td>1.8</td>
<td>VA-MD State Line Buoy</td>
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<td>No</td>
<td>No-Yes</td>
</tr>
<tr>
<td>1.9</td>
<td>VA-MD State Line Buoy</td>
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<td>No</td>
<td>No-Yes</td>
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<tr>
<td>2.1</td>
<td>VA-MD State Line Buoy</td>
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<td>No</td>
<td>No-Yes</td>
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<tr>
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<td>VA-MD State Line Buoy</td>
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<td>No</td>
<td>No-Yes</td>
</tr>
<tr>
<td>2.3</td>
<td>VA-MD State Line Buoy</td>
<td>No</td>
<td>No</td>
<td>No-Yes</td>
</tr>
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</table>
D2. Additional Results

D2.a Shoreline Investigations
Shoreline investigation was not required for OPR-E349-KR-10. Concur.

D2.b Comparison with Prior Surveys
Survey H12241 junctions with project OPR-E349-KR-09 to the south. Survey junction analysis was performed between H12241 and prior survey H12041, by visually reviewing survey data in CARIS HIPS subset mode and by performing surface to surface comparisons in CARIS Bathy DataBASE. Concur.

The surface-to-surface difference for the junction with H12041 yielded over two hundred thousand comparison points, with an average difference between the surfaces of 0.08 meters and an uncertainty of 0.21 meters at 95% confidence level. Concur.

D2.c Aids to Navigation (AtoN)
No USCG Aids to Navigation (AtoN) are charted within the H12241 survey limits. Concur.

D2.d Overhead Clearance
There are no overhead bridges, cables, or other structures which would impact overhead clearance in the survey area. Concur.

D2.e Cables, Pipelines and Offshore Structures
There were no charted or observed drilling structures, production platforms, well heads, submarine cables or pipelines within the survey area. Concur.

D2.f Environmental Conditions Impacting the Quality of the Survey
There were no environmental conditions that had a significant impact on the quality of the survey. Concur.

D2.g Construction Projects
No active construction projects were observed in H12241 survey area. Concur.

D2.h Bottom Characteristics
As discussed in Section A, bottom samples were not required for survey H12241. Concur with Clarification. Project Instructions required Bottom Samples be collected but additional correspondence waived the requirement. See Appendix V.

E. LETTER OF APPROVAL
The letter of approval for this report and accompanying data follows on the next page.
F. SUPPLEMENTAL REPORTS

Listed below are supplemental reports submitted separately that contain additional information relevant to this survey:

<table>
<thead>
<tr>
<th>Title</th>
<th>Submittal Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPR-E349-KR-10 Horizontal and Vertical Control Report</td>
<td>TBD</td>
</tr>
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</table>
LETTER OF APPROVAL

OPR-E349-KR-10
REGISTRY NO. H12241

This report and the accompanying data are respectfully submitted.

Field operations contributing to the accomplishment of survey H12241 were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report and associated data have been closely reviewed and are considered complete and adequate as per the OPR-E349-KR-10 Statement of Work Statement (April 2010) and Hydrographic Survey Project Instructions dated July 2010.

_____________________________________________
Jonathan L. Dasler, PE (OR), PLS (OR, CA)
ACSM/THSOA Certified Hydrographer
Chief of Party

_____________________________________________
Jason Creech
Lead Hydrographer

David Evans and Associates, Inc.
November 2010
APPENDIX I

DANGERS TO NAVIGATION
H12241_DToNs

Charts Affected

<table>
<thead>
<tr>
<th>Number</th>
<th>Edition</th>
<th>Date</th>
<th>Scale (RNC)</th>
<th>RNC Correction(s)*</th>
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<tr>
<td>12285</td>
<td>39th</td>
<td>03/01/2008</td>
<td>1:40,000 (12285_18)</td>
<td>[L]NTM: ?</td>
</tr>
<tr>
<td>12231</td>
<td>28th</td>
<td>06/01/2008</td>
<td>1:40,000 (12231_1)</td>
<td>[L]NTM: ?</td>
</tr>
<tr>
<td>12228</td>
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<td>03/01/2008</td>
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<td>[L]NTM: ?</td>
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<tr>
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<td>57th</td>
<td>05/01/2008</td>
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<tr>
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<td>64th</td>
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<td>03/01/2008</td>
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<tr>
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<td>49th</td>
<td>04/01/2007</td>
<td>1:1,200,000 (13003_1)</td>
<td>[L]NTM: ?</td>
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</tbody>
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* Correction(s) - source: last correction applied (last correction reviewed--"cleared date")

Features

<table>
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<tr>
<th>No.</th>
<th>Name</th>
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<th>Survey Latitude</th>
<th>Survey Longitude</th>
<th>AWOIS Item</th>
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<td>1.1</td>
<td>Add MD-VA State Line Buoy H</td>
<td>GP</td>
<td>[None]</td>
<td>37° 55' 52.4&quot; N</td>
<td>076° 06' 51.7&quot; W</td>
<td>---</td>
</tr>
<tr>
<td>1.2</td>
<td>Add MD-VA State Line Buoy G</td>
<td>GP</td>
<td>[None]</td>
<td>37° 56' 01.8&quot; N</td>
<td>076° 06' 26.3&quot; W</td>
<td>---</td>
</tr>
<tr>
<td>1.3</td>
<td>Add MD-VA State Line Buoy F</td>
<td>GP</td>
<td>[None]</td>
<td>37° 56' 17.2&quot; N</td>
<td>076° 05' 43.2&quot; W</td>
<td>---</td>
</tr>
<tr>
<td>1.4</td>
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<td>GP</td>
<td>[None]</td>
<td>37° 56' 27.6&quot; N</td>
<td>076° 05' 13.6&quot; W</td>
<td>---</td>
</tr>
<tr>
<td>1.5</td>
<td>Add MD-VA State Line Buoy D</td>
<td>GP</td>
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<td>37° 56' 40.6&quot; N</td>
<td>076° 04' 39.9&quot; W</td>
<td>---</td>
</tr>
<tr>
<td>1.6</td>
<td>Add MD-VA State Line Buoy C</td>
<td>GP</td>
<td>[None]</td>
<td>37° 56' 51.2&quot; N</td>
<td>076° 04' 08.6&quot; W</td>
<td>---</td>
</tr>
<tr>
<td>1.7</td>
<td>Add MD-VA State Line Buoy B</td>
<td>GP</td>
<td>[None]</td>
<td>37° 57' 02.3&quot; N</td>
<td>076° 03' 37.5&quot; W</td>
<td>---</td>
</tr>
<tr>
<td>1.8</td>
<td>Add MD-VA State Line Buoy A</td>
<td>GP</td>
<td>[None]</td>
<td>37° 57' 12.7&quot; N</td>
<td>076° 03' 07.7&quot; W</td>
<td>---</td>
</tr>
</tbody>
</table>
1.1) Add MD-VA State Line Buoy H

DANGER TO NAVIGATION

Survey Summary

Survey Position: 37° 55' 52.4" N, 076° 06' 51.7" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2010-317.00:00:00.000 (11/13/2010)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010665 00001(0226000029A90001)
Charts Affected: 12228_1, 12285_18, 12225_1, 12230_1, 12280_2, 13003_1

Remarks:
BOYSPP/remrks: DtoN #1.8 _ BOYSPP/remrks: Private aid found. Located at 37-55-52.342N, 76-06-51.520W.

Feature Correlation

<table>
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<th>Source</th>
<th>Feature</th>
<th>Range</th>
<th>Azimuth</th>
<th>Status</th>
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<td>000.0</td>
<td>Primary</td>
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</tbody>
</table>

Hydrographer Recommendations

Recommend to chart a private navigational aid at the survey position.

S-57 Data

Geo object 1: Buoy, special purpose/general (BOYSPP)
Attributes: BOYSSH - 2:can (cylindrical)
CATSPM - 27:general warning mark
COLOUR - 1,11:white,orange
COLPAT - 1:horizontal stripes
INFORM - MD/VA line
NINFOM - Add Special Purpose Buoy
OBJNAM - MD-VA State Line Buoy H
SORDAT - 20101113
Office Notes

SAR: Private aid found in present survey location.

COMPILATION: Concur. Add private aid MD-VA State Line Buoy H at present survey location.
Feature Images

Figure 1.1.1
1.2) Add MD-VA State Line Buoy G

DANGER TO NAVIGATION

Survey Summary

Survey Position: 37° 56’ 01.8” N, 076° 06’ 26.3” W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2010-317.00:00:00.000 (11/13/2010)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010668 00001(0226000029AC0001)
Charts Affected: 12228_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
BOYSPP/remrks: DtoN #1.7 - BOYSPP/remrks: BOYSPP/remrks: Private aid found. Located at 37°56’01.630N”, -076°06’26.543W”.

Feature Correlation

<table>
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<th>Source</th>
<th>Feature</th>
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</table>

Hydrographer Recommendations

Recommend to chart a private navigational aid at the survey position.

S-57 Data

Geo object 1: Buoy, special purpose/general (BOYSPP)
Attributes:
BOYSHP - 2:can (cylindrical)
CATSPM - 27:general warning mark
COLOUR - 1,11:white,orange
COLPAT - 1:horizontal stripes
INFORM - MD/VA line
NINFOM - Add Special Purpose Buoy
OBJNAM - MD-VA State Line Buoy G
SORDAT - 20101113
Office Notes

SAR: Private aid found in present survey location.

COMPILATION: Concur. Add private aid MD-VA State Line BuoyG at present survey location.
Feature Images

Figure 1.2.1
1.3) Add MD-VA State Line Buoy F

**DANGER TO NAVIGATION**

**Survey Summary**

Survey Position: 37° 56' 17.2" N, 076° 05' 43.2" W  
Least Depth: [None]  
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]  
Timestamp: 2010-317.00:00:00.000 (11/13/2010)  
Dataset: H12241_Features for PYDRO Export.000  
FOID: US 0000010663 00001(0226000029A70001)  
Charts Affected: 12228_1, 12285_18, 12230_1, 12280_2, 13003_1  
Remarks: BOYSPP/remrks: DtoN #1.6 - BOYSPP/remrks: BOYSPP/remrks: Private aid found. Located at 37°56'16.674N" , -076°05'42.839W".

**Feature Correlation**

<table>
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<th>Azimuth</th>
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</table>

**Hydrographer Recommendations**

Recommend to chart a private navigational aid at the survey position.

**S-57 Data**

Geo object 1: Buoy, special purpose/general (BOYSPP)  
Attributes: BOYSHP - 2:can (cylindrical)  
CATSPM - 27:general warning mark  
COLOUR - 1,11:white,orange  
COLPAT - 1:horizontal stripes  
INFORM - MD/VA line  
NINFOM - Add Special Purpose Buoy  
OBJNAM - MD-VA State Line Buoy F  
SORDAT - 20101113
Office Notes

SAR: Private aid found in present survey location.

COMPILATION: Concur. Add private aid MD-VA State Line Buoy F at present survey location.
Feature Images

Figure 1.3.1
1.4) Add MD-VA State Line Buoy E

DANGER TO NAVIGATION

Survey Summary

Survey Position: 37° 56' 27.6" N, 076° 05' 13.6" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None]; TVU (TPEv) [None]
Timestamp: 2010-317.00:00:00.000 (11/13/2010)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010666 00001(0226000029AA0001)
Charts Affected: 12228_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
BOYSPP/remrks: DtoN #1.5 - BOYSPP/remrks: BOYSPP/remrks: Private aid found. Located at 37°56'27.625N", -076°05'13.715W".

Feature Correlation

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Hydrographer Recommendations

Recommend to chart a private navigational aid at the survey position.

S-57 Data

Geo object 1: Buoy, special purpose/general (BOYSPP)
Attributes: BOYSHIP - 2:can (cylindrical)
           CATSPM - 27:general warning mark
           COLOUR - 1, 11:white, orange
           COLPAT - 1:horizontal stripes
           INFORM - MD/VA line
           NINFOM - Add Special Purpose Buoy
           OBJNAM - MD-VA State Line Buoy E
           SORDAT - 20101113
Office Notes

SAR: Private aid found in present survey location.

COMPILATION: Concur. Add private aid MD-VA State Line Buoy E at present survey location.
Feature Images

Figure 1.4.1
1.5) Add MD-VA State Line Buoy D

DANGER TO NAVIGATION

Survey Summary

Survey Position: 37° 56' 40.6" N, 076° 04' 39.9" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2010-317.00:00:00.000 (11/13/2010)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010661 00001(0226000029A50001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
BOYSPP/remrks: DtoN #1.4 - BOYSPP/remrks: BOYSPP/remrks: Private aid found. Located at 37°56'39.768N" , -076°04'39.626W".

Feature Correlation

<table>
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<th>Status</th>
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Hydrographer Recommendations

Recommend to chart a private navigational aid at the survey position.

S-57 Data

Geo object 1: Buoy, special purpose/general (BOYSPP)
Attributes: BOYSHP - 2:can (cylindrical)
CATSPM - 27:general warning mark
COLOUR - 1,11:white,orange
COLPAT - 1:horizontal stripes
INFORM - MD/VA line
NINFOM - Add Special Purpose Buoy
OBJNAM - MD-VA State Line Buoy D
SORDAT - 20101113
Office Notes

SAR: Private aid found in present survey location.

COMPILATION: Concur. Add private aid MD-VA State Line Buoy D at present survey location.
Feature Images

Figure 1.5.1
1.6) Add MD-VA State Line Buoy C

DANGER TO NAVIGATION

Survey Summary

Survey Position: 37° 56' 51.2" N, 076° 04' 08.6" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2010-317.00:00:00.000 (11/13/2010)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010664 00001(0226000029A80001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
BOYSPP/remrks: DtoN #1.3 - BOYSPP/remrks: BOYSPP/remrks: Private aid found. Located at 37°56'51.158N", -076°04'08.584W".

Feature Correlation

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Hydrographer Recommendations

Recommend to chart a private navigational aid at the survey position.

S-57 Data

Geo object 1: Buoy, special purpose/general (BOYSPP)
Attributes:
- BOYSHP - 2:can (cylindrical)
- CATSPM - 27:general warning mark
- COLOUR - 1,11:white,orange
- COLPAT - 1:horizontal stripes
- INFORM - MD/VA line
- NINFOM - Add Special Purpose Buoy
- OBJNAM - MD-VA State Line Buoy C
- SORDAT - 20101113
Office Notes

SAR: Private aid found in present survey location.

COMPILATION: Concur. Add private aid MD-VA State Line Buoy C at present survey location.
Feature Images

Figure 1.6.1
1.7) Add MD-VA State Line Buoy B

DANGER TO NAVIGATION

Survey Summary

Survey Position: 37° 57' 02.3" N, 076° 03' 37.5" W  
Least Depth: [None]  
TPU (±1.96σ): THU (TPEh) [None]; TVU (TPEv) [None]  
Timestamp: 2010-317.00:00:00.000 (11/13/2010)  
Dataset: H12241_Features for PYDRO Export.000  
FOID: US 0000010667 00001(0226000029AB0001)  
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12280_2, 13003_1


Feature Correlation

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Hydrographer Recommendations

Recommended to chart a private navigational aid at the survey position.

S-57 Data

Geo object 1: Buoy, special purpose/general (BOYSPP)  
Attributes: BOYSHP - 2:can (cylindrical)  
CATSPM - 27:general warning mark  
COLOUR - 1,11:white,orange  
COLPAT - 1:horizontal stripes  
INFORM - MD/VA line  
NINFOM - Add Special Purpose Buoy  
OBJNAM - MD-VA State Line Buoy B  
SORDAT - 20101113
Office Notes

SAR: Private aid found in present survey location.

COMPILATION: Concur. Add private aid MD-VA State Line Buoy B at present survey location.
Feature Images

Figure 1.7.1
1.8) Add MD-VA State Line Buoy A

**DANGER TO NAVIGATION**

**Survey Summary**

Survey Position: 37° 57' 12.7" N, 076° 03' 07.7" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2010-317.00:00:00.000 (11/13/2010)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010662 00001(0226000029A60001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
BOYSPP/remrks: DtoN #1.1 - BOYSPP/remrks: Private aid found. Located at 37-57-12.697N, 76-03-07.736W.

**Feature Correlation**

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**Hydrographer Recommendations**

Recommend to chart a private navigational aid at the survey position

**S-57 Data**

**Geo object 1:** Buoy, special purpose/general (BOYSPP)
**Attributes:**
- BOYSHP - 2:can (cylindrical)
- CATSPM - 27:general warning mark
- COLOUR - 1,11:white,orange
- COLPAT - 1:horizontal stripes
- INFORM - MD/VA line
- NINFOM - Add Special Purpose Buoy
- OBJNAM - MD-VA State Line Buoy A
- SORDAT - 20101113
Office Notes

SAR: Private aid found in present survey location.

COMPILATION: Concur. Add private aid MD-VA State Line Buoy A at present survey location.
Feature Images

Figure 1.8.1
APPENDIX II

SURVEY FEATURES REPORT
H12241_Charted Features Report

Registry Number: 
State: 
Locality: 
Sub-locality: 
Project Number: 
Survey Dates: 01/01/1981 - 10/01/2011

Charts Affected

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<th>Scale (RNC)</th>
<th>RNC Correction(s)*</th>
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<td>12285</td>
<td>39th</td>
<td>03/01/2008</td>
<td>1:80,000 (12285_1)</td>
<td>[L]NTM: ?</td>
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<td>12231</td>
<td>28th</td>
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<td>1:80,000 (12230_1)</td>
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* Correction(s) - source: last correction applied (last correction reviewed--"cleared date")

Features

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<td>GP [None]</td>
<td>37° 58' 05.8&quot; N</td>
<td>076° 08' 48.6&quot; W</td>
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<td>Retain charted Seabed Characteristic - sand</td>
<td>GP [None]</td>
<td>37° 56' 13.4&quot; N</td>
<td>076° 08' 38.2&quot; W</td>
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<td>1.3</td>
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<td>GP [None]</td>
<td>37° 59' 12.7&quot; N</td>
<td>076° 07' 59.9&quot; W</td>
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<td>1.4</td>
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<td>GP [None]</td>
<td>37° 57' 11.5&quot; N</td>
<td>076° 07' 43.3&quot; W</td>
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1.1) Retain charted Seabed Characteristic - sand, mud

Survey Summary

Survey Position: 37° 58' 05.8" N, 076° 08' 48.6" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010469 00001(0226000028E50001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12285_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes:
NATSUR - 4,1:sand,mud
NINFOM - Retain charted Seabed Characteristic - sand, mud
SORDAT - 20111001
SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic
Compilation: Concur. Retain charted Seabed Characteristic
1.2) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 56' 13.4" N, 076° 08' 38.2" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None]; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010484 00001(0226000028F40001)
Charts Affected: 12228_1, 12285_18, 12230_1, 12285_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes:
- NATSUR - 4:sand
- NINFOM - Retain charted Seabed Characteristic
- SORDAT - 20111001
- SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic
Compilation: Concur. Retain charted Seabed Characteristic
1.3) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 59' 12.7" N, 076° 07' 59.9" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010466 00001(0226000028E20001)
Charts Affected: 12228_1, 12231_1, 12230_1, 12285_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATSUR - 4:sand
NINFOM - Retain charted Seabed Characteristic
SORDAT - 20111001
SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic
Compilation: Concur. Retain charted Seabed Characteristic
1.4) Retain charted Seabed Characteristic - hard, sand

Survey Summary

Survey Position: 37° 57' 11.5" N, 076° 07' 43.3" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None]; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010474 00001(0226000028EA0001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12285_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes:
- NATQUA - 10:hard
- NATSUR - 4:sand
- NINFOM - Retain charted Seabed Characteristic
- SORDAT - 20111001
- SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic
Compilation: Concur. Retain charted Seabed Characteristic
1.5) **Retain charted Seabed Characteristic - hard, sand**

**Survey Summary**

Survey Position: 37° 56' 02.5" N, 076° 07' 32.4" W  
Least Depth: [None]  
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]  
Timestamp: 2011-274.00:00:00.000 (10/01/2011)  
Dataset: H12241_Features for PYDRO Export.000  
FOID: US 0000010483 00001(0226000028F30001)  
Charts Affected: 12228_1, 12285_18, 12230_1, 12285_1, 12280_2, 13003_1

Remarks:  
SBDARE/remarks: Seabed Characteristic

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**Feature Correlation**

**Hydrographer Recommendations**

Retain charted Seabed Characteristic

**S-57 Data**

Geo object 1: Seabed area (SBDARE)  
Attributes:  
NATQUA - 10:hard  
NATSUR - 4:sand  
NINFOM - Retain charted Seabed Characteristic  
SORDAT - 20111001  
SORIND - US,US,graph,chart 12228

**Office Notes**

SAR: Retain charted Seabed Characteristic  
Compilation: Concur. Retain charted Seabed Characteristic
1.6) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 58' 01.2" N, 076° 07' 25.4" W
Least Depth: [None]
TPU (±1.96c): THU (TPEh) [None], TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010471 00001(0226000028E70001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12285_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATSUR - 4:sand
            NINFOM - Retain charted Seabed Characteristic - sand
            SORDAT - 20111001
            SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic
Compilation: Concur. Retain charted Seabed Characteristic
1.7) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 57' 12.4" N, 076° 06' 47.3" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None]; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010473 00001(0226000028E90001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12285_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATSUR - 4:sand
NINFOM - Retain charted Seabed Characteristic
SORDAT - 20111001
SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic
Compilation: Concur. Retain charted Seabed Characteristic
1.8) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 54' 06.4" N, 076° 06' 20.1" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None]; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010476 00001(0226000028EC0001)
Charts Affected: 12228_1, 12285_18, 12225_1, 12230_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes:
   NATSUR - 4:sand
   NINFOM - Retain charted Seabed Characteristic
   SORDAT - 20111001
   SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic

Compilation: Concur. Retain charted Seabed Characteristic
1.9) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 56' 59.3" N, 076° 06' 03.0" W
Least Depth: [None]
TPU (±1.96\sigma): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010489 00001(0226000028F90001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATSUR - 4:sand
            NINFOM - Retain charted Seabed Characteristic
            SORDAT - 20111001
            SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic

Compilation: Concur. Retain charted Seabed Characteristic
1.10) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 57' 42.3" N, 076° 06' 00.8" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010472 00001(0226000028E80001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12285_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATSUR - 4:sand
NINFOM - Retain charted Seabed Characteristic - sand
SORDAT - 20111001
SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic
Compilation: Concur. Retain charted Seabed Characteristic
1.11) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 58' 33.7" N, 076° 05' 55.5" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010467 00001(0226000028E30001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12285_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATSUR - 4:sand
            NINFOM - Retain charted Seabed Characteristic
            SORDAT - 20111001
            SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic

Compilation: Concur. Retain charted Seabed Characteristic
1.12) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 56' 14.7" N, 076° 05' 43.8" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010488 00001(0226000028F80001)
Charts Affected: 12228_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATSUR - 4:sand
NINFOM - Retain charted Seabed Characteristic
SORDAT - 20111001
SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic
Compilation: Concur. Retain charted Seabed Characteristic
1.13) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 55' 25.5" N, 076° 05' 39.3" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010481 00001(0226000028F10001)
Charts Affected: 12228_1, 12285_18, 12225_1, 12230_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATSUR - 4:sand
NINFOM - Retain charted Seabed Characteristic
SORDAT - 20111001
SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic
Compilation: Concur. Retain charted Seabed Characteristic
1.14) Delete Obstruction PA

Survey Summary

Survey Position: 37° 58' 06.0" N, 076° 05' 36.0" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 1981-001.00:00:00.000 (01/01/1981)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010465 00001(0226000028E10001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12285_1, 12280_2, 13003_1

Remarks:
$CSYMB/remrks: OBSTRN/remrks: The obstruction PA charted at 37/58/06.04N, 76/05/35.99W was disproved by 200% side scan coverage.

Feature Correlation

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Hydrographer Recommendations

The hydrographer recommends removing the obstruction from the charts.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)
Attributes: NINFOM - Delete Obstruction PA
           NTXTDS - H12241,Chart#12228,Edition 33,20101113

Office Notes

SAR: Concur. Feature disproved with 200% SSS.
COMPIILATION: Concur. Delete charted Obstruction PA.
1.15) Retain charted Seabed Characteristic - sand, shells

Survey Summary

Survey Position: 37° 58' 33.5" N, 076° 04' 27.5" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010468 00001(0226000028E40001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATSUR - 4,17:sand,shells
NINFOM - Retain charted Seabed Characteristic
SORDAT - 20111001
SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic
Compilation: Concur. Retain charted Seabed Characteristic
1.16) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 57′ 48.0″ N, 076° 04′ 25.1″ W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None]; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010470 00001(0226000028E60001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATSUR - 4:sand
            NINFOM - Retain charted Seabed Characteristic - sand
            SORDAT - 20111001
            SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic
Compilation: Concur. Retain charted Seabed Characteristic
1.17) Retain charted Seabed Characteristic - sand

Survey Summary

Survey Position: 37° 54’ 15.6” N, 076° 04’ 18.1” W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None]; TVU (TPEv) [None]
Timestamp: 2011-274.00:00:00.000 (10/01/2011)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010479 00001(0226000028EF0001)
Charts Affected: 12228_1, 12285_18, 12225_1, 12230_1, 12280_2, 13003_1

Remarks:
SBDARE/remrks: Seabed Characteristic

Feature Correlation

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Hydrographer Recommendations

Retain charted Seabed Characteristic

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes:
- NATSUR - 4:sand
- NINFOM - Retain charted Seabed Characteristic
- SORDAT - 20111001
- SORIND - US,US,graph,chart 12228

Office Notes

SAR: Retain charted Seabed Characteristic

Compilation: Concur. Retain charted Seabed Characteristic
H12241_AToN Report

Registry Number: 
State: 
Locality: 
Sub-locality: 
Project Number: 
Survey Date: 01/01/1981

Charts Affected

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

Features

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<th>Survey Longitude</th>
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<td>1.1</td>
<td>Delete State Boundary Line Buoy - W Or S &quot;K&quot;</td>
<td>GP</td>
<td>[None]</td>
<td>37° 56' 24.5&quot; N</td>
<td>076° 05' 21.7&quot; W</td>
<td>---</td>
</tr>
<tr>
<td>1.2</td>
<td>Delete State Boundary Line Buoy - W Or S &quot;H&quot;</td>
<td>GP</td>
<td>[None]</td>
<td>37° 56' 43.7&quot; N</td>
<td>076° 04' 30.3&quot; W</td>
<td>---</td>
</tr>
<tr>
<td>1.3</td>
<td>Delete State Boundary Line Buoy - W Or S &quot;G&quot;</td>
<td>GP</td>
<td>[None]</td>
<td>37° 56' 57.9&quot; N</td>
<td>076° 03' 52.3&quot; W</td>
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</table>
1.1) Delete State Boundary Line Buoy - W Or S "K"

Survey Summary

Survey Position: 37° 56' 24.5" N, 076° 05' 21.7" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 1981-001.00:00:00.000 (01/01/1981)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010462 00001(0226000028DE0001)
Charts Affected: 12228_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
$CSYMB/remrks: BOYSPP/remrks: Charted navigation aid is disproved. Existing private aid not found at the charted location. Recommend to delete from chart.

Feature Correlation

<table>
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</table>

Hydrographer Recommendations

Charted navigation aid is disproved. Existing private aid not at location. Recommend to delete from the chart.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)
Attributes: NINFOM - Delete State Boundary Line Buoy - W Or S "K"
            NTXTDS - H12241,Chart#12228,Edition 33,20101113

Office Notes

SAR: Concur. Delete charted aid to navigation. Feature disproved with 200% SSS.

COMPILATION: Concur. Delete charted aid to navigation.
1.2) Delete State Boundary Line Buoy - W Or S "H"

Survey Summary

Survey Position: 37° 56' 43.7" N, 076° 04' 30.3" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None]; TVU (TPEv) [None]
Timestamp: 1981-001.00:00:00.000 (01/01/1981)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010459 00001(0226000028DB0001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
$CSYMB/remrks: BOYSPP/remrks: Charted navigation aid disproved. Existing private aid not at location. Recommend to leave from chart.

Feature Correlation

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Hydrographer Recommendations

Charted navigation aid is disproved. Existing private aid not at location. Recommend to delete from the chart.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)
Attributes: NINFOM - Delete State Boundary Line Buoy - W Or S "H"
            NTXTDS - H12241,Chart#12228,Edition 33,20101113

Office Notes

SAR: Concur. Delete charted aid to navigation. Feature disproved with 200% SSS.

COMPILATION: Concur. Delete charted aid to navigation.
1.3) Delete State Boundary Line Buoy - W Or S "G"

Survey Summary

Survey Position: 37° 56' 57.9" N, 076° 03' 52.3" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None]; TVU (TPEv) [None]
Timestamp: 1981-001.00:00:00.000 (01/01/1981)
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010461 00001(0226000028DD0001)
Charts Affected: 12228_1, 12231_1, 12285_18, 12230_1, 12280_2, 13003_1

Remarks:
$CSYMB/remrks: BOYSPP/remrks: Charted navigation aid is disproved. Existing private aid not found at the charted location. Recommend to delete from chart.

Feature Correlation

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Hydrographer Recommendations

Charted navigation aid is disproved. Existing private aid not at location. Recommend to delete from the chart.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)
Attributes: NINFOM - Delete State Boundary Line Buoy - W Or S "G"
NTXTDS - H12241,Chart#12228,Edition 33,20101113

Office Notes

SAR: Concur. Delete charted aid to navigation. Feature disproved with 200% SSS.

COMPILATION: Concur. Delete charted aid to navigation.
H12241_UnCharted Features Report

Registry Number:
State:
Locality:
Sub-locality:
Project Number:
Survey Date: 10/23/2010

Charts Affected

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

Features

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<th>Survey Latitude</th>
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<tr>
<td>1.1</td>
<td>Add 38 ft dangerous obstruction</td>
<td>Obstruction</td>
<td>11.74 m</td>
<td>37° 55' 48.9&quot; N</td>
<td>076° 07' 34.1&quot; W</td>
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</table>
1.1) Add 38 ft dangerous obstruction

Survey Summary

Survey Position: 37° 55' 48.9" N, 076° 07' 34.1" W
Least Depth: 11.74 m (= 38.50 ft = 6.417 fm = 6 fm 2.50 ft)
TPU (±1.96σ): THU (TPEh) [None]; TVU (TPEv) [None]
Dataset: H12241_Features for PYDRO Export.000
FOID: US 0000010490 00001(0226000028FA0001)
Charts Affected: 12228_1, 12285_18, 12225_1, 12230_1, 12285_1, 12280_2, 13003_1

Remarks:
OBSTRN/remrks: FS 227-165350-S. Item observed in MBES rising approximately 1.39m above the natural bottom.

Feature Correlation

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</table>

Hydrographer Recommendations

Chart dangerous obstruction in present survey location.

Cartographically-Rounded Depth (Affected Charts):
38ft (12228_1, 12285_18, 12225_1, 12230_1, 12285_1, 12280_2)
6 ¼fm (13003_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: CATOBS - 1:snag / stump
EXPSOU - 2:shoaler than range of depth of the surrounding depth area
NINFOM - Add dangerous Obstruction
QUASOU - 6:least depth known
SORDAT - 20101113
SORIND - US,US,graph,H12241
Office Notes

SAR: Concur. Feature is real, verified by 200% SSS and multibeam.

Compilation: Concur. Chart a 38 foot dangerous obstruction in the present survey location.

AHB sent item in as DTON, but MCD rejected it. MCD does not consider this feature (38ft Obstn) to rise to the definition of dangers to surface navigation and will not be treating this source as DToN's. As per NCM Volume 1, Section 4.2.4 Danger to Navigation Reports: "NOS field units (vessels, contractors and navigation response teams) are required to submit a Danger to Navigation Report for: Significant uncharted rocks, shoals, wrecks and obstructions. Depths which are found to be significantly shoaler than charted depths and features. Uncharted or inadequately charted clearances for bridges and overhead cables or pipes. Other submerged or visible features, or conditions considered dangerous to navigation." This source should be de-registered and the items applied when the hydro survey is received at MCD for compilation. Attached are screen shots of the 38ft Obstn and the 15ft Obstn plotted as green cross hairs on the current edition of the largest scale chart 12228 for a frame of reference of the objects on the current street edition. JB
Feature Images

Figure 1.1.1
Figure 1.1.2
Figure 1.1.4
No Progress Sketch was submitted with this survey.
APPENDIX IV

TIDES AND WATER LEVELS
Jason Creech

From: J. Corey Allen [Corey.Allen@noaa.gov]
Sent: Thursday, October 28, 2010 12:18 PM
To: Jason Creech; Jon Dasler
Cc: Jeffrey Ferguson; 'Lori Knell'; 'James M Crocker'; Mike.Brown@noaa.gov; 'Benjamin K Evans'; 'Rick Brennan'
Subject: Re: E349 Report

Jason/Jon,
A copy of the NOAA_Interim_VDatum_QC_Report.pdf can be downloaded at ftp://ftpnos.woc.noaa.gov/outgoing/CoreyA/OPR-E349-KR-10_VDatum_Validation.zip. Recommend download using a web browser, if ftp client then enter anonymous for user id and your full email address as password. Please let me know if have problems accessing the files or questions about their content.

Regards, Corey

Jeffrey Ferguson wrote:
> Jason/Jon,
> 
> The attached memo grants your permission to submit the Chesapeake Bay
> surveys using ERS/VDatum to reduce the soundings to chart datum. Please
> note, that it still requires you to properly close out all subordinate
> water level gages and submit the package to CO-OPS.
> 
> If the final tides package indicates any problems with the ERS/VDatum
> solution, we may require additional analysis and/or processing,
> however, that would be negotiated as part of an additional work package.
> 
> Feel free to contact me if you have any questions/concerns.
> 
> Regards,
> 
> Jeff
> 
> ----
> Jeffrey Ferguson
> Chief, Hydrographic Surveys Division
> Office of Coast Survey
> ph: 301-713-2700 x124
> cell: 240-753-4729
> 
> 
> -----Original Message-----
> From: Jason Creech [mailto:Jasc@deainc.com]
> Sent: Tuesday, October 26, 2010 10:39 AM
> To: Jeffrey Ferguson; J. Corey Allen
> Cc: Lori Knell; Jon Dasler
> Subject: RE: E349 Report
> 
> Jeff
> 
> Yes Ewell has been running for the duration of the project (we hope to
> finish survey operations in the next week or so). Would applying zoned
tides from Ewell to the Interim VDatum lines on the east side of the
survey area (H12241, H12242) be a sufficient analysis? We'll also look
> at how the final datum comp at Ewell impacts the CO-OPS zoning scheme
> for Lewisetta. Based on the results from the preliminary datum at
> Ewell CO-OPS zoning from Lewisetta would not change.
> 
> We do intend to submit Ewell data to CO-OPS. All methods and
> procedures at Ewell have followed Chapter 4 of the HSSD in preparation
> of this submittal.
> 
> I think there may have been a misunderstanding on our end about the
> use of Ewell for the Interim deliverables. Given the requested
> timeline for deliverables it would not have been possible to
> incorporate the results from the preliminary datum into Ewell zoning.
> We assumed that the "traditional zoning package provided by CO-OPS"
> mentioned in the Project Instructions referenced the Lewisetta zoning
> scheme also provided by CO-OPS.
> 
> Do the Ewell zoning analysis methods above sound acceptable? We'll
> wait until we perform the analysis to make the final call, but I doubt
> that this will impact our suggested approach. Zoning and ERS methods
> both worked well for the VDatum lines run under optimal conditions,
> but ERS has the advantage of measuring localized tidal events directly
> at the survey vessel which may not even be picked up at a shore side
> station as well as reducing the effects of settlement and squat.
> 
> Thanks,
> Jason
> 
> -----Original Message-----
> From: Jeffrey Ferguson [mailto:Jeffrey.Ferguson@noaa.gov]
> Sent: Tuesday, October 26, 2010 5:23 AM
> To: Jason Creech; 'J. Corey Allen'
> Cc: 'Lori Knell'; Jon Dasler
> Subject: RE: E349 Report
> 
> Jason,
> 
> Can I assume that Ewell was/is running for the entire project?
> 
> At this point, I think we can approve the submission via ERS/VDatum,
> with the stipulation that at the end of the project the Ewell data is
> analyzed to see if the final zoning would have changed and a quick
> comparison of soundings reduced by ERS vs Ewell on the east side of
> the Bay. If the comparison is good (wx affects, etc., didn't cause
> any problems), than continue. If not, we would pay you to reprocess
> and resubmit using traditional tides.
> 
> We would still expect the Ewell data to be submitted to CO-Ops so that
> it would become part of the permanent record/archived and in the
> database, etc., etc. (and may be used to "update" VDatum in that
> area, if needed).
> 
> One of CO-Ops' comments was that Ewells was required for final zoning,
> but the main comparison was done from Lewisetta (although you did
> several ERS comparisons to Ewells as noted below). The above approach
> allows you to continue with ERS/VDatum, and provide the extra analysis
> on the back end.
> (which we all assume will show that the ERS is still the best solution).
> 
> Comments?
> 
> Jeff
> 
> ----
> Jeffrey Ferguson
> Chief, Hydrographic Surveys Division
> Office of Coast Survey
> ph: 301-713-2700 x124
> cell: 240-753-4729
> 
> -----Original Message-----
> From: Jason Creech [mailto:Jasc@deainc.com]
> Sent: Friday, October 22, 2010 5:09 PM
> To: Jeffrey Ferguson; J. Corey Allen
> Cc: Jack Riley; Lori Knell; Jon Dasler
> Subject: RE: E349 Report
> 
> Jeff
> 
> We did compare Ewell directly to GPS water levels in Section 4.1.c. We show that the GPS water levels are approximately 8.5 cm lower than Ewell tides when using the 30 day preliminary MLLW datum. This is essentially comparing GPS water levels to zoned water levels from Ewell in the primary zone (0 time corrector, x1.0 range corrector).
> 
> As part of the datum comp at Ewell we computed the mean range (MN A/B) of 1.212 using monthly means. This value is included in Appendix C of the report. In addition during internal quality review we computed mean range as well as high water and low water index values (HWI and LWI) using TBYT which can be used to determine an average time corrector for Ewell. We computed an ATC of -31.2 min.
> 
> The Ewell gauge lies within CO-OPS zone NCB8 which uses Lewisetta and has an ATC of -30 and range corrector of 1.21.
> 
> If needed we can supply additional information in support of our report.
> 
> Thanks,
> Jason
> 
> -----Original Message-----
> From: Jeffrey Ferguson [mailto:Jeffrey.Ferguson@noaa.gov]
> Sent: Friday, October 22, 2010 11:58 AM
> To: Jason Creech; 'J. Corey Allen'
> Cc: 'Jack Riley'; 'Lori Knell'; Jon Dasler
> Subject: RE: E349 Report
> 
> Jason,
> 
> Thanks for the update.
One other question. CO-OPS has provided some preliminary comments and they mention that the project instructions required that Ewell be used for final tide reduction. So they have some concern that the comparisons used Lewisetta instead of Ewell.

Did you conduct any comparison between zoning from Lewisetta to zoning from Ewell? A simple comparison between the two in the eastern most zone that shows little difference may be enough to alleviate the CO-OPS comment.

If there is some discussion of this in the report that I missed, let me know.

Comments?

Jeff

-----
Jeffrey Ferguson
Chief, Hydrographic Surveys Division
Office of Coast Survey
ph: 301-713-2700 x124
cell: 240-753-4729

-----Original Message-----
From: Jason Creech [mailto:Jasc@deainc.com]
Sent: Friday, October 22, 2010 2:10 PM
To: J. Corey Allen
Cc: Jack Riley; Lori Knell; Jeffrey Ferguson; Jon Dasler
Subject: RE: E349 Report

Corey

I have attached the revised report that you requested. We have edited Sections 1 and 6 which incorrectly stated that using ERS methods would produce soundings that would be conservative (slightly shoaler) than soundings corrected through the application of zoned tides.

Please let me know if you have any other comments.

Thanks,
Jason

-----Original Message-----
From: J. Corey Allen [mailto:Corey.Allen@noaa.gov]
Sent: Friday, October 22, 2010 7:39 AM
To: Jason Creech
Cc: Jack Riley; Lori Knell
Subject: E349 Report

Jason,
I think I may have a bad cell phone number for you (804-516-7829). I was hoping to get some clarification before we submitted our official decision memo. In the report, you guys mention zoned tides were greater, therefore creating shoaler overall depths. In my notes we
confirmed this at the meeting, and our analysis indicated the same. However, the last sentence of your report says, "The resultant soundings will be conservative (slightly shoaler) than soundings corrected through the application of zoned tides."

Cheers,

Corey

J. Corey Allen
Physical Scientist, Operations Branch
Hydrographic Surveys Division
Office of Coast Survey
NOAA
Corey.Allen@noaa.gov
301.713.2777 x103 (Office)
301.713.4533 (Fax)
301.717.7271 (Cell)
301.717.4533 (Fax)
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</table>
Final Tide Zoning
*Reference Only*

H12241
OPR-E349-KR-10
Central Chesapeake Bay, MD and VA
David Evans and Associates, Inc.
Jon Dasler, Lead Hydrographer
Chart 12230
**FINAL TIDE ZONING**

**H12241**

**OPR-E349-KR-10**

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<td>8635750</td>
</tr>
</tbody>
</table>

**NOTE:** These values are provided for information only. Final sounding reduction used Global Positioning System (GPS) water levels acquired directly at the survey vessel. Zoning and verified water level files were provided by CO-OPS.
NOTE

Final soundings were reduced to chart datum using Global Positioning System (GPS) water levels acquired directly at the vessel. Tidal zoning information provided by CO-OPS is included for information only.
APPENDIX V

SUPPLEMENTAL SURVEY RECORDS
AND CORRESPONDENCE
MEMORANDUM FOR: Jonathan L. Dasler, PE (OR), PLS (OR, CA)
David Evans and Associates, Inc.
2100 SW River Parkway
Portland, OR 97201

FROM: Jeffrey Ferguson
Chief, Hydrographic Surveys Division (HSD)

SUBJECT: Vertical Datum Transformation Technique,
OPR-E349-KR-10, Central Chesapeake Bay, MD

Hydrographic surveys H12238, H12239, H12240, H12241, and H12242, OPR-E349-KR-10, Central Chesapeake Bay, MD are approved for vertical reduction to chart datum, Mean Lower Low Water (MLLW), using the NOAA published Vertical Datum Transformation (VDatum) toolset (http://vdatum.noaa.gov). However, this approval does not remove the requirement to submit all water level data for subordinate gauges as required by the Statement of Work and Chapter 4 of the NOS Hydrographic Surveys Specifications and Deliverables.

Approval of VDatum, in lieu of the NOAA Center for Operational Oceanographic Products and Services (CO-OPS) discrete zoning package as per the Statement of Work, is based on review of David Evans and Associates (DEA) recommendations in their Interim VDatum Report (see OPRE349KR10 Interim VDatum Report – Sept 2010 Rev.pdf) and results from an internal review of current and previous year data indicating agreement within acceptable limits. Consult HSD, if computation of datums at the Ewell subordinate gauge site upon completion of the project significantly changes the final discrete zoning schema or comparison values to that of data reduced via VDatum.

Internal CARIS Ping-Vessel-Day-Line (PVDL) or “ping-to-ping” quality control comparison of DEA data acquired in 2010 across the OPR-E345-KR-10 survey area indicate MLLW referenced data reduced via discrete tide zones agree within 5.0 cm ± 4.4 cm, 1σ, to MLLW referenced data reduced via VDatum (see NOAA_Interim_VDatum_QC_Report.pdf). The 5.0 cm “ping-to-ping” findings are consistent with DEA’s analysis results computed using an alternate method of differencing CARIS swath-angle derived one meter surfaces of MLLW referenced data via discrete zones against VDatum reduced data (see Table 26: OPRE349KR10 Interim VDatum Report – Sept 2010 Rev.pdf). A positive 5.0 cm difference indicates that VDatum derived depths are slightly deeper than discrete tide zone derived depths.

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

Reports and documents referenced in this memorandum may be made available upon request and will be archived with the survey data.
Jon Dasler wrote:
> Thanks Ben. On another front we would like clarification on the new
> Set Lining Spacing specification in the 2010 HSSD which allows "the
> hydrographer to narrow the swath width to a minimum of +/- 45 degrees
> if necessary to meet minimum sounding density requirements." Is it
> allowable to filter all of our MBES skunk stripe data to +/- 45 or 50
> degrees in order to maintain quality mainscheme data? Our intent is to
> develop least depths of all significant side scan contacts with
> additional multibeam even if crossed with mainscheme lines. Least
> depths will be created from designated soundings from the independent
> MBES developments that have multiple crossings. Let us know if this is
> acceptable.
> >
> > Jon
> >
> > Jon Dasler, P.E., P.L.S.
> > Vice President, Director of Marine Services
> >
> > David Evans and Associates, Inc. | Marine Services Division
> > 2801 SE Columbia Way, Ste. 130 | Vancouver, WA 98661 jld@deainc.com |
> > Office: 360.314.3202 | Cell: 503.799.0168 | Fax:
> > 360.314.3250
> >
> > www.deainc.com
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> > misdirected, then erase it from your computer system.
> >
> > Please consider the environment before printing this email.
> >
> > -----Original Message-----
> > From: Ben Evans [mailto:Benjamin.K.Evans@noaa.gov]
> > Sent: Friday, July 02, 2010 2:45 PM
> > To: Jon Dasler
Lori may have already passed this to you - but if not, just wanted to let you know that we are satisfied with this test line plan. Please proceed with this as per the project instructions. We look forward to seeing the data and analysis.

Lori - please file this correspondence with the survey records.

Ben

Jon Dasler wrote:

Thanks Ben. FYI...we hope to be running these later this week or over the weekend.

Jon Dasler, P.E., P.L.S.
Vice President, Director of Marine Services
David Evans and Associates, Inc. | Marine Services Division
2801 SE Columbia Way, Ste. 130 | Vancouver, WA 98661 jld@deainc.com |
Office: 360.314.3202 | Cell: 503.799.0168 | Fax: 360.314.3250
www.deainc.com

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-----Original Message-----
From: Ben Evans [mailto:Benjamin.K.Evans@noaa.gov]
Sent: Wednesday, June 30, 2010 1:39 PM
To: Jon Dasler
Cc: Jack.Riley@noaa.gov; Jason Creech; Lori.Knell
Subject: Re: XL for Chesapeake

Jon,

Thanks. I've asked Lori to review this with Jack; we hope to get back to you by the end of the week.

Ben

Jon Dasler wrote:
Attached is our proposed VDatum verification line plan (red lines) similar to what we discussed today. This is a subset of our planned cross-lines (green lines) and some of our mainscheme lines (north-south lines). Let us know if you are OK with this plan or if you have any recommended changes.

Jon

Jon Dasler, P.E., P.L.S.
Vice President, Director of Marine Services
David Evans and Associates, Inc. | Marine Services Division
2801 SE Columbia Way, Ste. 130 | Vancouver, WA 98661 jld@deainc.com
| Office: 360.314.3202 | Cell: 503.799.0168 | Fax: 360.314.3250
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Please consider the environment before printing this email.

-----Original Message-----
From: Ben Evans [mailto:Benjamin.K.Evans@noaa.gov]
Sent: Tuesday, June 29, 2010 6:09 AM
To: Jon Dasler
Subject: XL for Chesapeake

Jon,

Got your message - I want to talk this over with Jack Riley, and will get back to you, hopefully today.

Ben

--
LCDR Ben Evans, NOAA
Chief, Data Acquisition and Control Branch (N/CS35) NOAA Office of Coast Survey SSMC3, Station 6815
1315 East West Highway
Silver Spring, MD 20910
voice: (301) 713-2700 x111
fax: (301) 713-4533
cell: (240) 687-4602

--------------------
LCDR Ben Evans, NOAA
Chief, Data Acquisition and Control Branch (N/CS35) NOAA Office of Coast Survey SSMC3, Station 6815
1315 East West Highway
Silver Spring, MD 20910
voice: (301) 713-2700 x111
fax: (301) 713-4533
cell: (240) 687-4602
Jason Creech

From: Lori.Knell@noaa.gov
Sent: Thursday, September 30, 2010 4:54 AM
To: Jason Creech
Subject: FW: FW: OPR-E349-KR-10 Splits
Attachments: Castle_E_Parker.vcf

Jason,

I am sorry I didn’t respond sooner to this, I was waiting to get input from Rick Brennan. The comments/answers below are from Ben and Gene. If you have any questions feel free to email or call. We did not hear back from Rick on this so I assume he is ok with Gene’s response.

Thanks,
Lori

From: Gene Parker [mailto:Castle.E.Parker@noaa.gov]
Sent: Friday, September 24, 2010 3:45 PM
To: Ben Evans
Cc: Lori Knell
Subject: Re: FW: OPR-E349-KR-10 Splits

Good afternoon,
A day of issues...
If there are no trends of shoaling or depth values becoming shoaler in the current data located in outer beam areas of two adjacent lines with a charted depth between the two lines, then I would not run the splits. The split should be run if the current survey data (grid) indicates a general rising trend from the adjacent bathy lines. This general rise could be only the difference of one to two feet. A lot would depend on the depth values in the grid compared to the charted depth and the difference. If we need complete coverage to supersede all survey depths, then we wouldn’t be using 200% SSS and skunk striped MB.

Having complete coverage would provide AHB with a definitive answer with regard to replacing charted depths, but it would cost more.

Final answer... I concur with DEA’s and DACB’s interpretation. Rick might have some thoughts about this topic, as the topic is one that is considered during H-cell content review; whether or not the charted sounding should be superseded.

I'll stick with my final answer until over-ruled.
Have a good weekend.
Gene

Ben Evans wrote:
Gene,

See below for DEA. I think the decision here should be yours – but my thinking is as follows:

If the overall trend of the survey bathymetry is deeper than charted depths, and a charted depth which agrees with this trend falls between the bathy lines (and there is no indication of a feature, sand wave, etc. in the SSS), then no need...
to split lines and disprove the charted sounding. E.g., if charted depths covered by the skunk stripe swath are all 1-3’ shoaler than the survey soundings, then it would not be necessary to split the multibeam lines to cover charted depths falling between the bathy lines which appear consistent with this trend.

However, if the survey bathy and charted depths are in general agreement, and a charted depth falling between the bathy lines is substantially shoaler (or deeper) than the trend of the survey data, a split would be required. Splits/developments would obviously be required if there was any indication of a feature or shoaling in the SSS.

Thoughts?

Ben

--
Lcdr Ben Evans, NOAA
Chief, Data Acquisition and Control Branch (N/CS35)
NOAA Office of Coast Survey
Stn. 6815 SSMC3
1315 East-West Hwy.
Silver Spring, MD 20901
voice: (301) 713-2700 x111
fax: (301) 713-4533
mobile: (240) 687-4602

From: Lori.Knell@noaa.gov
Sent: Thursday, September 23, 2010 4:14 PM
To: 'Benjamin K Evans'
Subject: FW: OPR-E349-KR-10 Splits

Ben,

Do you think this request sounds reasonable? I see they had a similar situation last year and it was suggested not to do collect such data.

Can I give them the ‘go-ahead’?

Thank you,
Lori

From: Jason Creech
Sent: Wednesday, September 22, 2010 1:29 PM
To: Lori.Knell@noaa.gov
Cc: Ben Evans; Jon Dasler
Subject: OPR-E349-KR-10 Splits

Lori

We have another waiver request. Depths from our Chesapeake survey (OPR-E349-KR-10) are consistently deeper than charted by 1-3 feet. Therefore there are charted soundings which fall between skunk stripe swaths that are shoaler than surveyed. The 2010 HSSD request that splits be run in this case.

...verify currently-charted depths that are shoaler than any adjacent echosounder coverage. If a charted depth falls between 2 sounding lines and is shoaler than the adjacent survey depths, the field unit must “split” the lines to verify or disprove the charted sounding.
We’d like to request a waiver to preclude us from running splits over shoaler charted soundings. We have not run splits to disprove soundings between skunk stripe swaths on our prior Chesapeake surveys which have also been consistently deeper than charted. Our SARs from OPR-E349-KR-09 reference informal guidance from the processing branch directing us not to undertake the excessive work necessary to disprove these soundings. Given a waiver we still intend to run splits over any anomalous features (mounds, sandwaves, etc) seen in the side scan sonar record which appear to be shoaler than the adjacent swaths.

Please let me know if you have any questions.

Thanks,
Jason

Jason Creech
Lead Hydrographer
David Evans and Associates, Inc. | Marine Services Division
2801 SE Columbia Way, Ste. 130 | Vancouver, WA 98661
jasc@deainc.com | Phone: 804.516.7829 | Fax: 360.314.3250

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Good Afternoon,

My name is Deborah Bland and I am starting the review of survey H12241. I don't foresee any problems with the survey, but should I run into any problems, I will contact you for more information.

Deborah A. Bland, Cartographer, NOAA
757-441-6746 EXT 207
Good morning Lori,

AHB has started to reviewing E349 for DEA's 2010 surveys, H12240 and H12241. Upon opening the project files I find that the AWOIS items don't really have common coverage with the assigned surveys. There are charted features within the sheet limits that don't have any AWOIS items. Is the project files correct with the assigned AWOIS items? The Letter Instructions indicate 5 items for information and 8 items for full investigation. Upon selecting the items common to the sheet layouts I only get 7 items from the AWOIS table. Would you list the items as assigned in the LI for me so that we can ensure that the features were investigated as assigned? I strongly feel that OPS needs to list the specific items for investigations in the Letter Instructions. There is a disconnect between the LI and the project files.

I've selected the items that are located within the project's sheet limits. The items include 3425 assigned, 3426 unassigned, 4512 assigned, 7332 unassigned, 10486 completed, 10675 completed, 10676 completed. If items are unassigned, and some of the seven selected items was completed, what was assigned to include the 8 items for full investigation?

AHB copied the project files from the following OCS directory path:
O:\CY Project Packages\2010\OPR-E349-KR-10 Central Chesapeake Bay MD
O: drive is the same as the full path of \ocs-vs-nas01.nos.noaa\CY Project Packages\2010\OPR-E349-KR-10

The bottom line is that I don't see parity with the Letter Instructions and the AWOIS items as included in the project files. Can you understand our dilemma? Downloading AWOIS items from the database using geographic limits and project number indicates a different set of items.... I'm confused.

Thanks for the clarification.
Gene

Reference image below: (MI tables from project files)
These are the items from the project files... the record numbers don't match...?
AWOIS database download of items based upon project limits:

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<th>VESSTERMS</th>
</tr>
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<td>9,194</td>
<td>10,676</td>
<td>UNKNOWN</td>
</tr>
<tr>
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Filter Results by Project: OPR-E349-KF

Records per page: 10

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View Detail | 14803 | WRECK       | Enabled    | OPR-E349-KR-10 Assigned | 38.042208N 76.154781W | 04/01/2010 | LLK |

Castle Eugene Parker <castle.e.parker@noaa.gov>

Physical Scientist - Hydrographic Team Lead  
Atlantic Hydrographic Branch

3 of 4
Deb,

We should talk when you return. There is an answer to your vertical correction dilemma listed below in the DR, page 1; DEA was directed to submit as an ERS survey. This was an HSD approved deviation for the correction of depth data to MLLW.

The prime intent of the SAR is to verify the submitted feature file and grids. A second question is why you were updating the field sheet grids? Did you find something that makes the submitted grids invalid? Talk to me when you get back to the office.

Good luck with the plumbing issues!

Gene

On 10/7/2011 2:20 PM, Debbie Bland wrote:

Gene,

According to the DR and Appendix V correspondance, these surveys were done using GPS derived water levels. According to Vanessa a routine hasn't been established for processing surveys with GPS Tides applied, yet. We need some guidance.

C1. Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). Soundings were reduced to MLLW using post-processed GPS derived water levels. The VDatum derived separation model, /Potomac.bin/, was used to reduce NAD83 ellipsoid heights to MLLW as described in the OPR-E349-KR-10 DAPR. The separation model has been included in the digital deliverables. When the model file was used in the tide reduction process in CARIS HIPS it was inadvertently misspelled. A query of the GPS Tide Datum in HIPS will show the file /Potamic.bin/.

Traditional zoning from water level stations was not used for sounding reduction in this survey, though zoning provided by the Center for Operational Oceanographic Products and Services (CO-OPS) and verified water level files for the survey have been included with the digital deliverables.
Jason Creech

From: james.m.crocker [James.M.Crocker@noaa.gov]  
To: Jason Creech  
Cc: Jon Dasler; Lori.Knell@noaa.gov  
Subject: Re: Chesapeake 18' Curve beyond survey limits  
Attachments: james_m_crocker.vcf(399B)

Jason,

While it is difficult to determine the distance between 18 ft soundings on the inshore edge of the survey, the sheet limit line, from the graphic provide it looks sufficient to define the surveyed 18 ft contour with the exception of where you have added 8 additional line planned. At the location where the charted W OR S "H" buoy is whereone additional line my be needed. If the north south distance between the inshore mist 18 ft sounding is greater than 400m you may want to add a line to split the difference. Aside from this minor suggestion your assumptions are correct. Lines 5 and 6 may not be necessary if they are over areas that appear in the graphic to be shoaler than 18 ft or within 200 meter of an 18 ft sounding.

Best Regards,
Jim

Jason Creech wrote:
> Jim
> We have created new line plans to extend our coverage inshore to
> better define the 18ft contour and have a question on our plan for
> H12241. I've attached an image showing our proposed cross lines. This
> area contains numerous small finger shoals where we hit the 18ft
> contour with our MS bathymetry only to find that the shoals drop off
> again to depths deeper than 18ft. Based on our earlier conversation we
> are under the assumption that hitting the 18ft contour on the seaward
> side of these shoals is sufficient and that we do note need to acquire
> additional data in order to chase down the shoals.
> Is this assumption correct?
> Thanks again for you guidance on this issue.
> Jason
> Jason Creech
> Lead Hydrographer
> > David Evans and Associates, Inc. | Marine Services Division
> > 2801 SE Columbia Way, Ste. 130 | Vancouver, WA 98661
> > jasc@deainc.com | Office: 804.516.7829 | Cell: 804.516.7829 | Fax: 360.314.3250
> > 
> >-----------------------------------------------
> >*From:* james.m.crocker [mailto:James.M.Crocker@noaa.gov]
> >*Sent:* Fri 11/12/2010 7:10 AM
> >*To:* Jon Dasler
> >*Cc:* Lori.Knell@noaa.gov; Jason Creech
> >*Subject:* Re: Chesapeake 18' Curve beyond survey limits
> >
> >Good Morning Jon,
I have discussed this with Ben and reviewed the statement of work and project instructions. The contract requirement is to define the surveyed 18 foot contour for the inshore limit of the surveys assigned.

Best Regards,
Jim

Jon Dasler wrote:

> We are finding that the 18’ depth curve extends beyond our contracted survey limits on OPR-E349-KR-10. As you may recall in our earlier discussions with Ben Evans, it was mentioned that the survey limits may not extend to the 18’ curve and concern was raised by MCD about continuous mapping of the 18’ curve. It was decided at that time to survey to the contract sheet limits and notify HSD if it looked like a modification would be required to extend mapping efforts for continuous charting of the 18’ curve. Attached are jpeg images of MBES coverage with the transition from green to red representing the 18’ depth curve. Red polygons outline areas of possible expanded survey coverage to chart the 18’ curve outside of the survey limits. Please call to discuss options to address these areas. We are scheduled to demobilize from the area by this weekend.

Jon

*Jon Dasler, P.E., P.L.S.*
Vice President, Director of Marine Services*

*David Evans and Associates, Inc. | Marine Services Division**
*2801 SE Columbia Way, Ste. 130 | Vancouver, WA 98661*
*jld@deainc.com | Office: 360.314.3202 | Cell: 503.799.0168 | Fax: 360.314.3250*


This email is intended only for the addressee and contains information that is privileged and confidential. If you receive this email in error, please do not read, copy, or disseminate it. Please reply to the sender immediately to inform the sender that the email was misdirected, then erase it from your computer system.

* * *

Please consider the environment before printing this email.
Good Day,

Please find attached a zip file for survey H12241 DtoN Report #2; a 38ft Obstruction and a 15ft Obstruction, for submission to Marine Chart Division (MCD). The contents of the attached WinZip file were generated at Atlantic Hydrographic Branch. The attached zip file contains a DtoN Letter (PDF) and a Pydro XML file.

If you have any questions, please direct them back to me; email me or call 757-441-6746 x207

Thank you for your assistance with this matter,

Deborah Bland

---

Attachments:

H12241_DtoN#2_AHB.zip 27 bytes
Subject: H12241 DtoN Submission to NDB
From: Gene Parker <Castle.E.Parker@noaa.gov>
Date: 11/22/2011 9:09 AM
To: Deborah Bland <Deborah.A.Bland@noaa.gov>

Deb,
Below is text for an example verbiage for Danger submission to NDB. Be sure to edit and use your name and your telephone extension. The Danger submission ZIP file info is detailed below.

I have updated the two features with the time of acquisition and the Danger submission zip file is located at the following path:
T:\SarsInWork\H12241_E349_DEA\AHB_H12241\DtoN\H12241-OPR-E349-KR-10-DEA\AHB DtoN\AHB DtoN to MCD\H12241_DtoN#2_AHB.zip

The submission zip file to attach to the email is named: H12241_DtoN#2_AHB.zip

The email will be sent to the following recipients:
OCS.NDB@noaa.gov

CC the following:
Rick Brennan
Gene Parker
James Crocker
Lori Knell
Jason Creech jasc@deainc.com
Jon Dasler jld@deainc.com

DtoN submission email example:
/Good Day,
Please find attached a zip file for survey H12331_DtoN report #2, 36ft Obstruction, for submission to Marine Chart Division (MCD). The contents of the attached WinZip file were generated at Atlantic Hydrographic Branch. The attached zip file contains a DtoN Letter (PDF) and a Pydro XML file.

If you have any questions, please direct them back to me; email me or call 757-441-6746 x104

Thank you for your assistance with this matter,
Rosemary Abbitt /

Castle Eugene Parker <castle.e.parker@noaa.gov>
Physical Scientist - Hydrographic Team Lead
Atlantic Hydrographic Branch
NOAA Office of Coast Survey
Re: H12241 Danger to Navigation Report #2

Subject: Re: H12241 Danger to Navigation Report #2
From: "ocs.ndb" <OCS.NDB@noaa.gov>
Date: 11/22/2011 3:40 PM
To: Debbie Bland <Deborah.A.Bland@noaa.gov>, Allen Taylor <Allen.Taylor@noaa.gov>, Andrew Kampia <Andrew.Kampia@noaa.gov>, Brent Pounds <Brent.Pounds@noaa.gov>, Coast Pilot <coast.pilot@noaa.gov>, Craig Winn <Craig.Winn@noaa.gov>, David Merke <David.Merke@noaa.gov>, Howard Danley <Howard.Danley@noaa.gov>, Gerald Koehl <Gerald.Koehl@noaa.gov>, John Barber <John.Barber@noaa.gov>, Ken Forster <Ken.Forster@noaa.gov>, Kevin Shaw <Kevin.Sawh@noaa.gov>, Mark Griffin <Mark.Griffin@noaa.gov>, Mike Gaeta <Michael.Gaeta@noaa.gov>, NDB e-Mailbox <OCS.NDB@noaa.gov>, Robert Ramsey <Robert.Ramsey@noaa.gov>, Tara Wallace <Tara.Wallace@noaa.gov>, Travis Newman <Travis.Newman@noaa.gov>
CC: "LCDR Rick Brennan, NOAA" <Richard.T.Brennan@noaa.gov>, Parker Castle <Castle.E.Parker@noaa.gov>, James M Crocker <James.M.Crocker@noaa.gov>, Lori Knell <Lori.Knell@noaa.gov>, jasc@deainc.com, jld@deainc.com

L-1465/11 and DD-21168 have been registered by the Nautical Data Branch and directed to PBC for processing.

The DtoNs reported two dangerous obstructions in Chesapeake Bay, 3 NM SW of Smith Island, MD

The following charts are affected:
12231 kapp 569
12228 kapp 566
12230 kapp 567
12225 kapp 563
12285 kapp 644
12280 kapp 2975

The following ENCs are affected:
US5VA16M
US4VA40M
US4MD20M
US3EC08M

References:
H-12241
OPR-E349-KR-10

This information was discovered by a NOAA Contractor and submitted by AHB during survey acceptance review.

On 11/22/2011 12:16 PM, Debbie Bland wrote:

Good Day,

Please find attached a zip file for survey H12241_DtoN Report #2; a 38ft Obstruction and a 15ft Obstruction, for submission to Marine Chart Division (MCD). The contents of the attached WinZip file were generated at Atlantic Hydrographic Branch. The attached zip file contains a DtoN Letter (PDF) and a Pydro XML file.

If you have any questions, please direct them back to me; email me or call 757-441-6746 x207

Thank you for your assistance with this matter,
Deborah Bland

Attachments:
**Subject:** Re: H12241 Danger to Navigation Report #2  
**From:** John Barber <John.Barber@noaa.gov>  
**Date:** 11/23/2011 10:29 AM  
**To:** "ocs.ndb" <OCS.NDB@noaa.gov>, Tara Wallace <Tara.Wallace@noaa.gov>, Chris Libeau <Chris.Libeau@noaa.gov>  
**CC:** Debbie Bland <Deborah.A.Bland@noaa.gov>, Allen Taylor <Allen.Taylor@noaa.gov>, Andrew Kampa <Andrew.Kampa@noaa.gov>, Brent Pounds <Brent.Pounds@noaa.gov>, Coast Pilot <coast.pilot@noaa.gov>, Craig Winn <Craig.Winn@noaa.gov>, David Merke <David.Merke@noaa.gov>, Gerald Koehl <Gerald.Koehl@noaa.gov>, Ken Forster <Ken.Forster@noaa.gov>, Kevin Shaw <Kevin.Shaw@noaa.gov>, Mark Griffin <Mark.Griffin@noaa.gov>, Mike Gaeta <Michael.Gaeta@noaa.gov>, Robert Ramsey <Robert.Ramsey@noaa.gov>, Travis Newman <Travis.Newman@noaa.gov>, "LCDR Rick Brennan, NOAA" <Richard.T.Brennan@noaa.gov>, Parker Castle <Castle.E.Parker@noaa.gov>, James M Crocker <James.M.Crocker@noaa.gov>, Lori Knell <Lori.Knell@noaa.gov>, jasc@deainc.com, jld@deainc.com, Leonard Arkenau <Leonard.Arkenau@noaa.gov>, "Capt. Doug Baird" <Doug.Baird@noaa.gov>

All,

MCD does not consider these two features (38ft Obstn and 15ft Obstn) to rise to the definition of dangers to surface navigation and will not be treating this source as DToN's.

As per NCM Volume 1, Section 4.2.4 Danger to Navigation Reports:

"NOS field units (vessels, contractors and navigation response teams) are required to submit a Danger to Navigation Report for:

- Significant uncharted rocks, shoals, wrecks and obstructions.
- Depths which are found to be significantly shoaler than charted depths and features.
- Uncharted or inadequately charted clearances for bridges and overhead cables or pipes.
- Other submerged or visible features, or conditions considered dangerous to navigation."

This source should be de-registered and the items applied when the hydro survey is received at MCD for compilation.

Attached are screen shots of the 38ft Obstn and the 15ft Obstn plotted as green cross hairs on the current edition of the largest scale chart 12228 for a frame of reference of the objects on the current street edition.

JB

On 11/22/2011 3:40 PM, ocs.ndb wrote:

I-1465/11 and DD-21168 have been registered by the Nautical Data Branch and directed to PBC for processing.

The DToNs reported two dangerous obstructions in Chesapeake Bay, 3 NM SW of Smith Island, MD

The following charts are affected:

- 12231 kapp 569
- 12228 kapp 566
- 12230 kapp 567
- 12225 kapp 563
- 12285 kapp 644
- 12280 kapp 2975

The following ENCs are affected:

- US5VA16M
- US4VA40M
- US4MD20M
- US3EC08M

References:

- H-12241
- OPR-E349-KK-10

This information was discovered by a NOAA Contractor and submitted by AHB during survey acceptance review.

On 11/22/2011 12:16 PM, Debbie Bland wrote:

Good Day,

Please find attached a zip file for survey H12241 DToN Report #2; a 38ft Obstruction and a 15ft Obstruction, for submission to Marine Chart Division (MCD). The contents of the attached Winzip file were generated at Atlantic Hydrographic Branch. The attached zip file contains a DToN Letter (PDF) and a Hydro XML file.

If you have any questions, please direct them back to me; email me or call 757-441-6746 x207

Thank you for your assistance with this matter,

Deborah Bland
Castle Parker

From: Lori Knell  
Sent: Thursday, January 12, 2012 10:58 AM  
To: Castle E Parker  
Subject: Bottom Sample Spec removed for OPR-E349-KR-10

Gene,

This is the email I found that mentions that we removed the bottom sample spec. I guess the conversation on our end, where we approve it is not in here but this is the new cost proposal mentioning that they took it out 'per our conversation'.

Hope this is all you need.

Thanks,
Lori

---------- Forwarded message ----------
From: Jason Creech <Jasc@deainc.com>  
Date: Tue, May 4, 2010 at 9:18 AM  
Subject: Revised OPR-E349-KR-10 Cost Proposal  
To: "Lori.Knell" <Lori.Knell@noaa.gov>  
Cc: Jon Dasler <Jld@deainc.com>, Jennifer Mendiola <JMendiola@deainc.com>

Lori,

I have attached our revised cost proposal and work plan for OPR-E349-KR10. We were able to keep the original survey extents and reduced the cost through the removal of the bottom sampling requirement. As I mentioned during our conversation last week the cost and work plan are contingent on their being no access restrictions within the charted danger zone and bombing area. I'll let you know as soon as we hear back from the Navy.

Please let us know if you have any questions.

Thanks,
Jason

Jason Creech  
Lead Hydrographer
This email is intended only for the addressee and contains information that is privileged and confidential. If you receive this email in error, please do not read, copy, or disseminate it. Please reply to the sender immediately to inform the sender that the email was misdirected, then erase it from your computer system.

--
Lori Knell
Physical Scientist
Hydrographic Surveys Division
lori.knell@noaa.gov
301-713-2700 x120
MEMORANDUM FOR: Distribution
FROM: Jeffrey Ferguson, Chief, Hydrographic Surveys Division
TITLE: Hydrographic Survey Report Naming Conventions
EFFECTIVE DATE: July 13, 2010

SECTION 1. PURPOSE

The Descriptive Report (DR), (including Separates and Appendices), Data Acquisition and Processing Report (DAPR), and Horizontal and Vertical Control Report (HVCR) are critical products of NOAA hydrographic surveys. They are submitted to the Hydrographic Surveys Division (HSD) in digital format in accordance with Section 8 of the Hydrographic Surveys Specifications and Deliverables (2010 Edition). However, the Specs are silent on the naming convention to be utilized by NOAA field units (contract and in-house) when submitting these reports. This has the potential to create confusion downstream in NOAA’s hydrographic survey review, compilation, archival, and public distribution workflow.

This Directive addresses this issue through establishment of a standard naming convention for survey report digital files submitted to and handled by HSD. In addition, this directive establishes a process whereby updated document versions can be identified and previous versions superseded when necessary.

SECTION 2. POLICY

Naming Convention
Henceforth, hydrographic survey reports shall be named as follows:

Descriptive Reports:
- Main Body (Sections A through D) in MS Word format:
  Format: <Survey Registry Number>_DRBody.docx
  Example: “H12345_DRBody.docx”
- Full Report (Cover Sheet, Title Sheet, Sections A through E, and Appendices) in Portable Document Format (PDF):
  Format: <Survey Registry Number>_DR.pdf
  Example: “H12345_DR.pdf”
Separates:
Format: <Survey Registry Number>_Separates.pdf
Example: “H12345_Separates.pdf”

Data Acquisition and Processing Reports
Format: <Project Number>_DAPR.pdf
Example: “OPR-A123-KR-10_DAPR.pdf”

Horizontal and Vertical Control Reports
Format: <Project Number>_HVCR.pdf
Example: “OPR-A123-KR-10_HVCR.pdf”

Supercession
In rare instances it may be necessary for a field unit to submit a revised version of a report. This occurs most often when the DAPR submitted with the first survey of a long project (as required by Section 8.1.5.1 of the Hydrographic Surveys Specifications and Deliverables) does not include all information required for later surveys.

Field Units shall take all practical steps possible to avoid revision and resubmission of reports. However, when revisions are necessary, the following guidance shall apply:

- The revised report shall fully supersede all previous versions.
  - For example, if a DAPR is submitted with the first survey of a project, and subsequently revised for the second survey, the revised DAPR shall apply to both surveys and replace the original submission.
- Revised reports shall be identified by inclusion of a revision number in the name as follows:
  Format: <Report Base Name>_rev<revision number>.<suffix>
  Examples:
    (the first revision of the DAPR for OPR-A123-KR-10; fully supersedes “OPR-A123-KR-10_DAPR.pdf”)
  - “H12345_DRBody_rev2.docx”
    (the second revision of the DR Body file for H12345; fully supersedes “H12345_DRBody_rev1.docx” and “H12345_DRBody.docx”)

Introduction of Policy
All NOAA field units (in-house and contract) shall adhere to this policy for reports submitted after the effective date of this Directive. Reports already submitted using non-standard naming need not be resubmitted unless other revisions are required, in which case the policy above shall apply.

HSD office units (Atlantic Hydrographic Branch, Pacific Hydrographic Branch, and Data Acquisition and Control Branch) shall rename all report files in current inventory as of the effective date of this policy prior to transmittal to the next unit in the survey workflow.
SECTION 3. RESPONSIBILITIES

Field Unit Chiefs of Party (NOAA in-house and contractors) are responsible for ensuring that their submissions to HSD follow the naming convention described above.

The Chiefs of the Atlantic and Pacific Hydrographic Branches (AHB and PHB) are responsible for ensuring verification of correct naming convention in all submissions from field units, and seeking clarification and/or correction when non-compliant files are delivered. In addition, AHB and PHB are responsible for revising all non-compliant file names for reports in their inventory as of the effective date of this Directive prior to submission to the Data Acquisition and Control Branch (DACB).

The Chief of the Data Acquisition and Control Branch is responsible for ensuring verification of correct naming conventions in all submissions from the Hydrographic Branches, and seeking clarification and/or correction when non-compliant files are delivered. In addition, DACB is responsible for revising all non-compliant file names for reports in its inventory as of the effective date of this Directive prior to submission to the National Geophysical Data Center.

SECTION 4. EFFECT ON OTHER ISSUANCES

This directive complements guidance in Section 8 of the Hydrographic Surveys Specifications and Deliverables (2010 Edition), and supersedes naming report naming guidance in Section 5 of the Field Procedures Manual (2010 Edition).

Please contact Brian Mohr at brian.mohr@noaa.gov of the Data Acquisition and Control Branch with any questions or comments on this Directive.

Distribution:

(1) All Hydrographic Survey Division Employees
(2) NOAA Ship Rainier
(3) NOAA Ship Fairweather
(4) NOAA Ship Thomas Jefferson
(5) Chief, Marine Chart Division
(6) Chief, Coast Survey Development Laboratory
(7) Chief, Navigation Services Division
(8) Chief, Marine Geology and Geophysics Division, National Geophysical Data Center
# AHB COMPILATION LOG

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<td>Shifted Interpolated TIN\H12241_12m_InterpTIN_Shifted.csar</td>
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## Final HOBs

<table>
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<tbody>
<tr>
<td>H12241_SS_Soundings.hob</td>
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<tr>
<td>H12241_CS_Soundings.hob</td>
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<tr>
<td>H12241_Consours.hob</td>
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<tr>
<td>H12241_Features.hob</td>
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<tr>
<td>H12241_MetaObjects.hob</td>
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<td>H12241_BlueNotes.hob</td>
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<td>ENC Retain Soundings</td>
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## Meta-Objects Attribution

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<td>M_COVR</td>
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<td>20101113</td>
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<td>US,US,graph,H12241</td>
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<td>M_QUAL</td>
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Version Updated 07/28/11
SPECIFICATIONS:

I. COMBINED SURFACE:
   a. Number of SAR Final Grids: 3
   b. Resolution of Combined (m): 4 m

II. SURVEY SCALE SOUNDINGS (SS):
   a. Attribute Name: Depth
   b. Selection criteria: Radius, Shoal bias
   c. Radius value is: mm at map scale
      i. Use single-defined radius: X.XX
      ii. And/Or use radius table file: H12241_SS_SSR_40k.txt [XXk = chart scale]
   d. Queried Depth of All Soundings
      i. Minimum: 3.682 m
      ii. Maximum: 25.057 m

III. INTERPOLATED TIN SURFACE:
   a. Resolution (m): 12 m
   b. Interpolation method: Natural Neighbor
   c. Shift value: -0.75 ft [-0.75 feet (And/Or) -0.75 fathoms]

IV. CONTOURS:
   a. Attribute Name: Depth
   b. Use a Depth List: H12241_depth_contours.txt
   c. Output Options: Create contour lines
      i. Line Object: DEPCNT
      ii. Value Attribute: VALDCO

V. FEATURES:
   a. Number of Chart Features: 25 [all features included in H-Cell]
   b. Number of Non-Chart Features: 9 [all features submitted by field & not included in H-Cell]

VI. CHART SURVEY SOUNDINGS (CS):
   a. Number of ENC CS Soundings: 467
   b. Attribute Name: Depth
   c. Selection criteria: Radius, Shoal bias
   d. Radius value is: Distance on the ground (m)
      i. Use single-defined radius: N/A
      ii. And/Or use radius table file: H12241_CS_SSR_40k.txt [XXk = chart scale]
This Document is for Office Process use only and is intended to supplement, not supersede or replace, information/recommendations in the Descriptive or H-Cell Reports.

### VII. NOTES:

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**e. Number Survey CS Soundings:** 376

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