



UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration  
Office of Coast Survey  
R/V *Bay Hydro II*  
S-5401  
Solomons, MD

18 December, 2014

MEMORANDUM FOR: Commander Benjamin Evans, NOAA  
Chief, Pacific Hydrographic Branch

FROM: Lieutenant (junior grade) Bart Buessler, NOAA  
Officer in Charge, R/V *Bay Hydro II*

SUBJECT: DR Memo for S-E933-BH2-14, Sharkfin Shoal

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ABSTRACT:

This is the Descriptive Report (DR) memo for S-E933-BH2-14, Sharkfin Shoal sheet F00649. This DR memo takes the place of a written Descriptive Report and is being delivered along with all processed data. As this survey was exclusively imagery, tides and sound speed data were not required or used.

The purpose of this survey was the collection of 200% side scan sonar (SSS) imagery to investigate possible obstructions in the vicinity of Sharkfin Shoal Light, as requested by United States Coast Guard (USCG). Groundings were reported in the area, and USCG was concerned additional unmarked obstructions may exist in the vicinity.

*Bay Hydro II* personnel used a Mobile Integrated Survey Team (MIST) kit equipped with SSS on a USCG Trailerable Aids to Navigation Boat (TANB) vessel from Aids to Navigation Team (ANT) Crisfield, MD for acquisition. No uncharted obstructions were found, and the rip rap surrounding Sharkfin Shoal Light was confirmed as charted. The wreck PA within the survey area was disproved.

A GeoPDF showing data collected for F00649 was provided to Coast Survey Navigation Manager Steve Soherr for distribution to USCG personnel that included Side Scan Sonar Mosaics and preliminary data.

All survey systems and methods utilized during this survey were as described in the MIST DAPR for Sharkfin Shoal. The associated CARIS HIPS Vessel File (HVF) was updated accordingly for this project and is included in the files submitted with this survey.

The survey was not intended to meet full specs in accordance with NOAA HSSD, but the collected 200% SSS imagery is adequate to disprove the charted wreck PA (see FEATURES).





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### ACQUISITION:

The data was acquired on October 16<sup>th</sup> and 17<sup>th</sup>, 2014 with an Edgetech 4125-P Side Scan Sonar. No bathymetry was required or collected due to safety concerns of getting least depths over features given the shallow depths of the assigned survey area.

Acquisition was heavily influenced by the prevailing weather. In order to maintain data quality, line azimuth shifted by 90° between 100% and 200% SSS coverage to account for changing conditions.

Due to concerns of grounding the SSS towfish over obstacles, the towfish was mounted on a fixed, short stay off the bow of the vessel (see DAPR for more information). A range scale of 30 meters was selected for the survey area to maintain towfish altitude at 8% - 20% of range scale as recommended by FPM 2.5.3.1.2 based on charted depths. This configuration worked well, however for the shoaler areas of the survey altitude did fall to approximately 7% of range scale. This was not found to negatively impact survey quality.

This survey utilized a vessel of opportunity with a coxswain unfamiliar with proper survey technique, and the vessel did not have an advanced navigation system that facilitated the planning or driving of survey lines. All efforts were made to program the survey area into the navigation equipment onboard the vessel and to provide direction and feedback to the coxswain. However, even with these best efforts there were occasional negative impacts such as holidays (see COVERAGE) and some image distortion due to turning while logging.



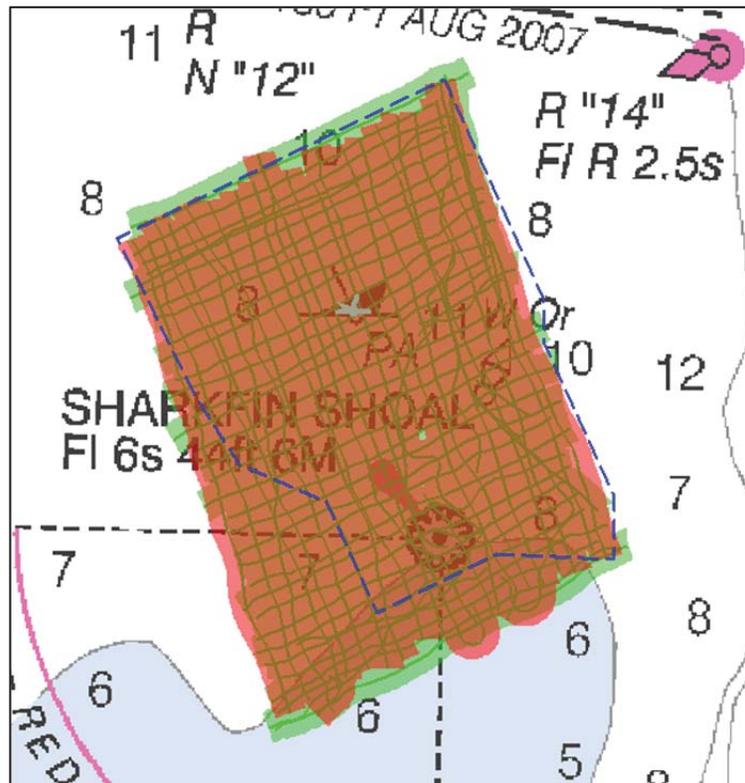


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COVERAGE:

The survey covered approximately one square nautical mile extending NNW from Sharkfin Shoal Light with 200% SSS coverage (*Figure 1*).



*Figure 1, F00649 coverage overlaid onto Chart 12231. Day one coverage shown in green, day two coverage shown in red. Survey lines shown in dark green, survey limits shown by blue dashed line.*

Due to complications with communicating and driving survey lines (see ACQUISITION), the survey limits were not met on the eastern edge leaving, at most, a 35 meter gap between coverage and assigned survey extents. This did not negatively impact the survey's objective. Furthermore, there are significant areas of only 100% coverage near the survey limits due to these difficulties. There are additional 100% coverage holidays in the interior of the survey. These holidays were carefully examined for any contacts, with none being found. All of the holidays in the survey are documented in the "F00649\_SSS\_Holidays.hob" file which is submitted with this survey.





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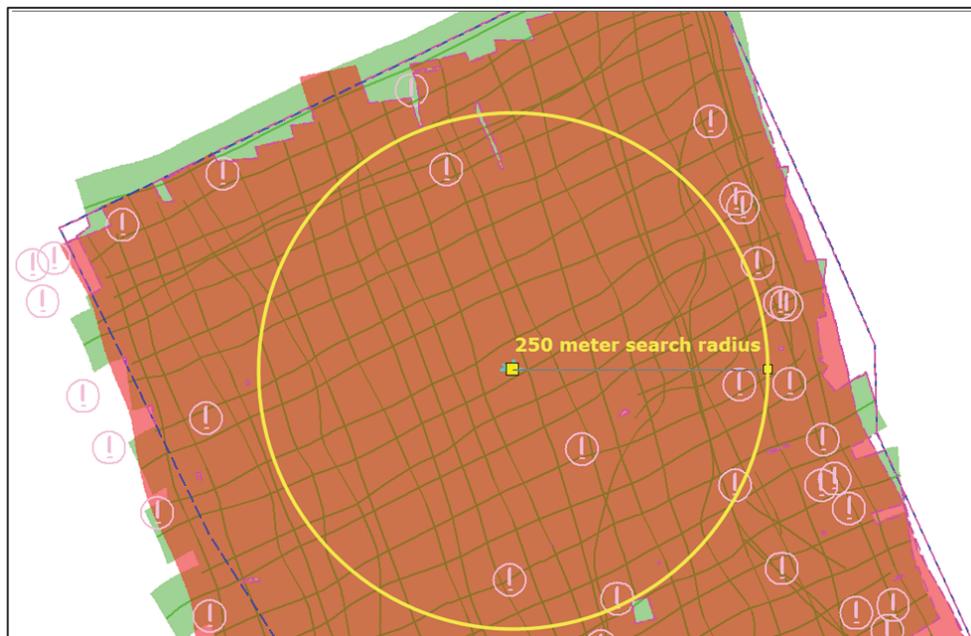
Solomons, MD

FEATURES:

There were four distinct features within the survey extents. These are detailed in the Final Feature File (FFF) submitted with this survey and outlined here.

The charted wreck PA in approximate position 38° 12' 21" North, 075° 59' 18" West was disproved with 200% SSS coverage over a 250 meter search radius (*Figure 2*). There was no visually conspicuous wreck in the area. The entire search radius was ensonified, but minor holidays consisting of only 100% coverage were present. However, in these areas, the 100% coverage did not show any contacts or image distortion. As such, the hydrographer recommends the wreck be removed from the chart.

**Office Note: Memo to the Nautical Data Branch specifying removal of the charted wreck is attached.**



*Figure 2, Charted wreck PA at center of 250 meter search radius with holidays of 100% coverage shown by polygons with corresponding exclamation points (!). Day one coverage shown in green, day two coverage shown in red.*

The charted warning buoy in approximate position 38° 12' 16" North, 075° 59' 08" West was confirmed with 200% SSS coverage as an accuracy check of the SSS system. The hydrographer recommends retaining the buoy as charted.





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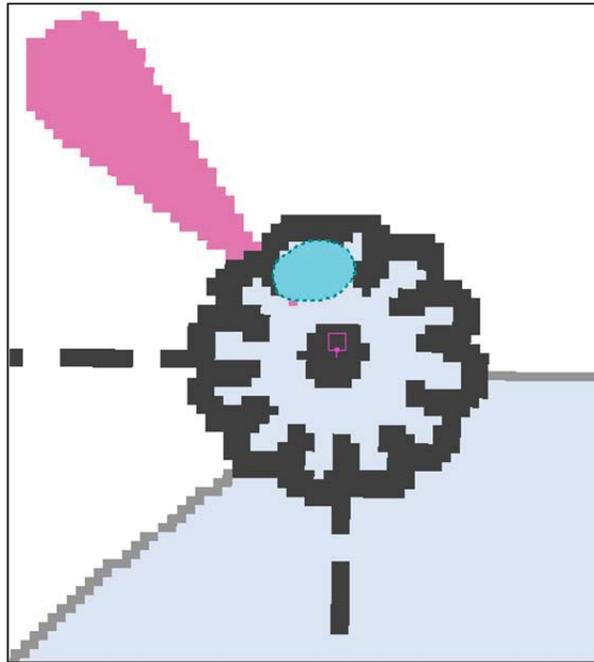
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As a result of this survey, the obstruction reported by USCG was confirmed to be the rip rap surrounding Sharkfin Shoal Light (*Figure 3*). The hydrographer recommends retaining the charted obstruction surrounding Sharkfin Shoal Light.



*Figure 3, Confirmed obstruction (bright blue oval) within charted rip-rap surrounding Sharkfin Shoal Light on Chart 12231.*

Sharkfin Shoal Light structure was confirmed with 200% SSS coverage as an accuracy check of the SSS system. The hydrographer recommends retaining the light as charted.





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| <b>Meta Data for F00649</b> |   |
|-----------------------------|---|
| Project                     | S-E933-BH2-14                           |
| Survey                      | F00649                                  |
| State                       | Maryland                                |
| Locality                    | Chesapeake Bay                          |
| Sub Locality                | Sharkfin Shoal                          |
| Scale of Survey             | 1:10000                                 |
| Sonars Used                 | Edgetech 4125-P Side Scan Sonar         |
| Horizontal Datum            | North American Datum of 1983 (NAD83)    |
| Vertical Datum              | N/A                                     |
| Vertical Datum Correction   | N/A                                     |
| Projection                  | Latitude-Longitude (NAD83) UTM Zone 18N |
| Field Unit                  | MIST                                    |
| Survey Dates                | 16-Oct -2014 to 17-Oct-2014             |
| Chief of Party              | LTJG Bart O. Buesseler, NOAA            |
| Submission Date             | 19-Dec-2014                             |

cc: Lieutenant Michael Davidson, NOAA  
Chief, Navigation Response Branch





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**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SERVICE  
OFFICE OF COAST SURVEY  
Pacific Hydrographic Branch  
Seattle, Washington 98115-6349

April 7, 2015

MEMORANDUM FOR: Tara Wallace  
Chief, Nautical Data Branch

THROUGH:   
CDR Benjamin K Evans, NOAA  
Chief, Pacific Hydrographic Branch

FROM: Adam Argento  
Physical Scientist, Pacific Hydrographic Branch

SUBJECT: Recommendation of wreck removal

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Survey F00649 disproved a charted wreck PA using 200% side scan sonar (SSS). The disproved wreck is located at (38-12-21.689781N / 75-59-18.933777W) on RNCs 12231 and 12261 as well as ENC US5VA21M. This wreck should be removed from all affected chart products.

Survey F00649 is not intended for compilation but rather was acquired to fulfill a United States Coast Guard request to survey for possible obstructions in the area of Sharkfin Shoal, MD. Bay Hydro II utilized the Mobile Integrated Survey Team (MIST) for this project which consisted solely of a SSS system, and there are no bathymetric data. 200% SSS was achieved but, alone, SSS data is insufficient for HCell compilation to update the charts in this area.

F00649 will be archived at NGDC. No additional processing or products will be generated.



APPROVAL PAGE

F00649

Data did not meet current specifications as determined by the OCS survey acceptance review process. The survey did not meet specifications because it was an investigation survey containing only imagery from side scan sonar and no bathymetry. The survey will not be applied to NOAA charting products.

The following products will be sent to NGDC for archive:

- F00649\_DR\_Memo.pdf
- Processed survey data and records
- F00649\_GeoImage.pdf

The survey evaluation and verification has been conducted according to current OCS specifications and procedures.

Approved: \_\_\_\_\_

**Peter Holmberg**

Cartographic Team Lead, Hydrographic Branch

The survey has not been approved for chart updates. The data will be archived at NGDC so that it can be made available for other uses.

Approved: \_\_\_\_\_

**CDR Benjamin K. Evans, NOAA**

Chief, Hydrographic Branch