

H10952

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey Hydrographic/ Multibeam/
Side Scan Sonar
Field No. N/A
Registry No. H10952

LOCALITY

State Virginia
General Locality Chesapeake Bay
Locality Chesapeake Channel

2000

CHIEF OF PARTY
LCDR James S. Verlaque, NOAA

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DATE FEB 2 2001

HYDROGRAPHIC TITLE SHEET

H10952

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

FIELD NO.

State Virginia

General locality Southern Chesapeake Bay

Locality Chesapeake Channel

Scale 1:10,000

Date of survey February 16 - March 31, 2000

Instructions dated March 26, 1999, February 22, 2000

Project No. OPR-E350-RU-00

Vessel NOAA Ship RUDE S590, EDP # 9040

Chief of party Lieutenant Commander James S. Verlaque, NOAA

Surveyed by LCDR J. Verlaque, LT E. Berkowitz, ENS K. Slover, ST M. Chandler

Soundings taken by: (echo sounder, hand lead, pole) Reson SEABAT 9003 SWMB

Graphic record scaled by RUDE Personnel

Graphic record checked by RUDE Personnel

Protracted by N/A

Automated plot by N/A *HEWLETT PACKARD DESIGNJET 2500 CP PLOTTER*

Verification by Atlantic Hydrographic Survey Branch *PERSONNEL*

Soundings in (fathoms, feet, or meters at MLW or MLLW) *FEET*
meters at MLLW

REMARKS: Time zone used: 0 (UTC). Soundings corrected using unverified observed tides.

HAND WRITTEN NOTES IN THE DESCRIPTIVE REPORT WERE MADE DURING OFFICE PROCESSING.

AWOIS/SURFV 11/7/00 951

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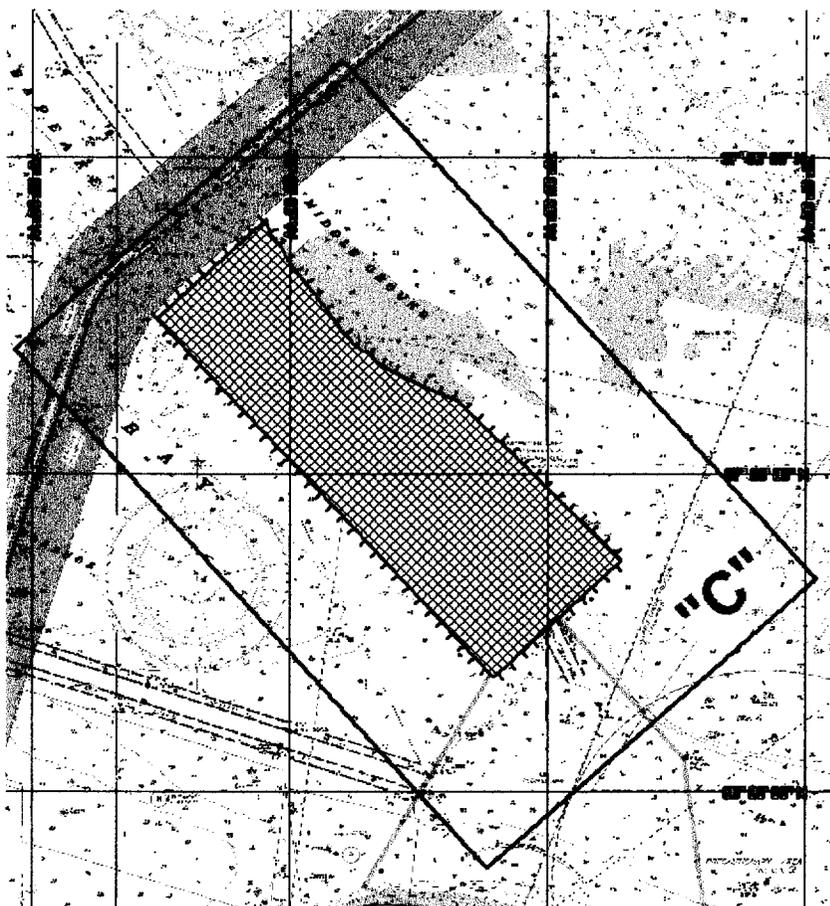
APPENDICES *

SEPARATES *

* DATA FILED WITH ORIGINAL FIELD RECORDS

Descriptive Report to Accompany Hydrographic Survey H-10952
Scale: 1:10,000 Year: 2000
NOAA Ship RUDE S590
LCDR James S. Verlaque, NOAA

A. AREA SURVEYED



The area surveyed is consistent with project instructions dated March 26, 1999, amended for Change No. 2 dated February 22, 2000. Additional graphics depicting which sonar systems were used in the survey area are attached in Appendix V, Supplemental Survey Records and Correspondence.

** DATA FILED WITH ORIGINAL FIELD RECORDS*

B. DATA ACQUISITION AND PROCESSING *SEE ALSO THE EVALUATION REPORT***B.1 EQUIPMENT**

- B.1a** All H-10952 hydrography, side scan, and multi-beam investigations were conducted from the NOAA Ship RUDE (S-590, EDP# 9040). The RUDE is 90 feet in length, with a 22-foot beam, and a 7-foot draft.
- B.1b** Vertical-beam echo sounding data were acquired with an Odom Echo-Trac dual-beam echosounder (24 and 200 kHz) (S/N 9641).
- B.1c** Side scan sonar data were acquired using an Edgetech (EG&G) Model 272 towfish (S/N's 12106, 10884, 11591, and 11902). An Edgetech Model 260-TH slant range correcting side scan sonar recorder (S/N 12106) was used to produce the analog record. Side scan sonar data was recorded digitally using Triton ISIS software and archived in Extended Triton Format (*.XTF) format.
- B.1d** Single frequency (455 kHz) multi-beam data were acquired with a Reson SeaBat 9003 (S/N 10496-447020) shallow water sonar system. The 9003's combined transmit and receive beams yield forty (40) soundings per ping, each formed from a 3° cross track X 1.5° along-track bottom footprint.
- B.1e** Heave, pitch, and roll data were acquired using a Seatex Seapath Motion Reference Unit (MRU-5) (S/N 0544).
- B.1f** All positions for this survey were obtained from the NAVSTAR Global Positioning System (GPS) augmented with the U.S. Coast Guard Differential GPS service. GPS signals were acquired with a SeaPath 200 GPS receiver (S/N 0347). Differential correctors were acquired using a Starlink differential receiver (S/N 848).
- B.1g** Sounding velocity data throughout the water column was acquired utilizing a SeaBird SBE19 Seacat Profiler (S/N 196721-1251). Sound velocity casts were taken every 4 hours, or generally when surface velocity, determined by using the Odom Digibar Pro DB1200, (S/N 98013), differed by more than 2 meters/second.

B.2 QUALITY CONTROL

- B.2a** A total of 8.7 nautical miles of cross-lines were acquired during H-10952, equating to 10.5% of the total nautical miles of hydrography. Cross-lines were set at a spacing of 1,000 meters.

Multi-beam cross-line soundings were visually compared with single-beam cross-line soundings. The comparison yielded excellent results, with discrepancies of not more than one foot. The Quality Control Report within CARIS-HIPS was not utilized, as one

hundred percent multi-beam coverage was not acquired for H-10952.

- B.2b** * H-10952 junctions with F00450 on the northwest and D00129 to the northeast. F00450 is a 1:10,000 hydrographic survey completed by the RUDE in March 1999. D00129 is a reconnaissance survey completed by the NOAA vessel Bay Hydrographer in September of 1998. * *SEE ALSO THE EVALUATION REPORT*

Soundings between H-10952 and F00450 are in excellent agreement, with overall soundings variations of one foot. Soundings were also within one foot agreement between H-10952 and D00126, with the exception of soundings in the vicinity of Middle Ground, where soundings from H-10952 were 2-3 feet shoaler than D00129. The differences between the two surveys can be attributed to the migration of the shoal in a south-southwesterly direction.

The hydrographer recommends present survey soundings supercede all soundings from D00129 within common areas.

- B.2c** Multi-beam quality control checks were accomplished on-line. Multi-beam soundings were compared to single-beam soundings on-line using the Bathymetry Confidence program within ISIS. Differences of 0.2 to 0.5 meters were observed during data acquisition.

No faults were observed during data acquisition that would affect the quality or accuracy of the data.

B.3 DATA REDUCTION

- B.3a** No deviations from the prescribed methods for data reduction were used during H-10952.

C. VERTICAL AND HORIZONTAL CONTROL

C.1 VERTICAL CONTROL

Tide zoning for this survey is consistent with the Project Instructions. During data collection, tide station Chesapeake Bay Bridge Tunnel, Virginia (863-8863) was used as the reference station utilizing preliminary unverified tides.

Zone correctors were applied to the preliminary unverified tidal data from the Chesapeake Bay Bridge Tunnel, generating tide correctors during field evaluation. The conversion was generated within CARIS-HIPS, and resulting correctors were applied to all SeaBat data. Preliminary unverified tides were also computed with HP_Tools and applied to single beam data within HPS. Verified tides downloaded from the NOS CO-OPS web site have been applied to both multi-beam and single-beam data.

NOTE: Do not reapply any correctors to multi-beam data in HPS, including verified tides. Note that VERIFIED tidal values have been applied to all H-10952 data. Verified smooth tides must be applied to the entire multi-beam set in CARIS-HIPS prior to conversion to HPS. * APPROVED TIDES AND ZONES WERE CHECKED AND WERE NOT REQUIRED TO BE APPLIED DURING OFFICE PROCESSING

C.2 HORIZONTAL CONTROL *SEE ALSO THE EVALUATION REPORT*

C.2a The horizontal reference station for this survey in the North American Datum of 1983 (NAD83). Geodesy parameters during data collection used the Universal Transverse Mercator (UTM) Zone 18, WGS-84, Northern Hemisphere. No horizontal control stations were used for this survey.

C.2b The following USCG reference station beacon was used:

USCG DGPS Radio Beacon Broadcast Site						
Site	Freq.	Tran Rate (BPS)	Lat (N)	Long (W)	Range	Beacon ID
Driver, VA	289	100	36°56.6'	76°00.4'	130	806

D. RESULTS AND RECOMMENDATIONS *SEE ALSO THE EVALUATION REPORT*

D.1 AUTOMATED WRECK AND OBSTRUCTION INFORMATION SYSTEM (AWOIS)

AWOIS items 2901 and 2909 were assigned to H-10952. In addition to the two AWOIS items, three additional features were located within the survey limits. Copies of the completed AWOIS database records are included in Appendix V. **

*** DATA FILED WITH ORIGINAL FIELD RECORDS*

D.1a AWOIS NO 2901

ITEM DESCRIPTION: Obstruction
SOURCE: Compliance report H-9901
AWOIS POSITION: 36°59'30.09" N, 75°59'26.36" W
REQUIRED INVESTIGATION: SD, SWMB, S2, DI
CHARTS AFFECTED: 12221, 12222, 12208

INVESTIGATION

DATE(S) / DN(S): February 23-24, 2000 / 054-055
POSITION NUMBERS: 26 -558
INVESTIGATION USED: S2, SWMB
POSITION DETERMINED BY: DGPS

INVESTIGATION SUMMARY:

Side scan sonar operations were conducted on February 23-24, 2000. Two-hundred percent side scan sonar coverage was acquired within the 100-meter prescribed search radius. Shallow water multi-beam data was collected in conjunction with the side scan sonar operations. Review of side scan records show no indication of an obstruction, nor revealed any unusual soundings that would indicate an obstruction.

CHARTING RECOMMENDATION: The hydrographer recommends the removal of the obstruction symbol and label from position 36°59'30.09" N, 75°59'26.36" W. The hydrographer further recommends using soundings from H-10952 to update the chart in common areas.

RECOMMENDED POSITION: N/A
RECOMMENDED LEAST DEPTH: N/A

COMPILATION NOTES: *CONCUR*

*DELETE OBSTN
(25 ft rep)*

D.1b AWOIS NO 2909**ITEM DESCRIPTION:** Sounding**SOURCE:** OPR-D103-PE-80**AWOIS POSITION:** 36°59'27.02" N, 075°59'20.34" W**REQUIRED INVESTIGATION:** S2, SWMB, DI**CHARTS AFFECTED:** 12221, 12222, 12208

INVESTIGATION**DATE(S) / DN(S):** February 23- 24, 2000 / 054-055**POSITION NUMBERS:** 26 - 558**INVESTIGATION USED:** S2, SWMB**POSITION DETERMINED BY:** DGPS

INVESTIGATION SUMMARY:

Side scan sonar operations were accomplished on February 23-24, 2000. Two-hundred percent side scan sonar with multi-beam data acquired during sonar operations was deemed sufficient to determine the validity of the AWOIS item. Depths drawn in MapInfo clearly depicted a ridge of 31-foot soundings, originating at 36°59'26.68" N, 075°59'19.65" W and, running south-southwest approximately 200 meters. There were no 29- or 30-foot soundings observed in the prescribed 100-meter search radius.

CHARTING RECOMMENDATION: The hydrographer recommends removing the charted 30-foot sounding in position 36°59'19.83" N, 075°59'21.84" W and the 29-foot sounding at 36°59'24.65" N, 075°59'17.82" W. The hydrographer further recommends updating the charts with survey data from H-10952 in the common area.

RECOMMENDED POSITION: N/A**RECOMMENDED LEAST DEPTH:** N/A**COMPILATION NOTES:** *CONCUR*

D.1c**ITEM DESCRIPTION:** Submerged Wreck**SOURCE:** New Feature**AWOIS POSITION:** 37°00'47.4" N, 076°03'09.2"W**REQUIRED INVESTIGATION:** SD, S2, MB, DI**CHARTS AFFECTED:** 12221, 12222, 12208, 12254

INVESTIGATION**DATE (S) / DN (S):** March 15, 2000 / 075**POSITION NUMBERS:** 9000**INVESTIGATION USED:** S2, SWMB, DI**POSITION DETERMINED BY:** DGPS

INVESTIGATION SUMMARY:

A submerged wreck was located using side scan sonar in position 37°00'47.4" N, 076°03'09.2"W. Two hundred percent side scan sonar coverage was acquired over the wreckage. Multi-beam development lines were acquired on March 29, 2000 (DN 089). Two investigative dives were conducted on March 15 and March 30, 2000 (DN 075 and 090). Divers located the remains of a wreck. The wreckage consisted of two large metal boxes, wooden remains of a ship, and a metal 3-4" diameter pole protruding out of a sand bottom. The pole was determined to have a verified tide corrected least depth of 40 feet. A diver least depth gauge was used on both dives and depths compared between the two dives with similar results. Copies of the dive report are included in Appendix V.*

CHARTING RECOMMENDATION:

The hydrographer recommends the addition of "wreck, least depth known" to charts 12221, 12208, 12222, 12254.

RECOMMENDED POSITION: 37°00'47.4" N, 076°03'09.2"W**RECOMMENDED LEAST DEPTH:** 40 feet**COMPILATION NOTES:** CONCUR- SUBMITTED BY HYDROGRAPHER
AS A DANGER TO NAVIGATION WITH A DEPTH OF 36 FEET

CHART : 40 : WK

* DATA FILED WITH ORIGINAL FIELD RECORDS

D.1d**ITEM DESCRIPTION:** Obstruction**SOURCE:** New Feature**AWOIS POSITION:** 37°01'02.9"N, 076°02'46.2"W**REQUIRED INVESTIGATION:** MB, S2, DI**CHARTS AFFECTED:** 12221, 12222, 12208, 12254

INVESTIGATION**DATE(S)/DN(S):** March 9, 2000 / 069**POSITION NUMBERS:** 4628**INVESTIGATION USED:** S2, SWMB, DI**POSITION DETERMINED BY:** DGPS

INVESTIGATION SUMMARY:

A submerged obstruction was located using side scan sonar in position 37°01'02.9"N, 076°02'46.2"W. One-hundred percent side scan sonar and one-hundred percent multi-beam sonar coverage was acquired over the obstruction. Multi-beam development lines were acquired on March 29, 2000 (DN 089). An investigative dive on March 9, 2000 (DN 069) determined a verified tide corrected least depth of 50 feet by diver least depth gauge. The obstruction is a large metal box, 30 feet long and 6 feet wide, open on top with three evenly spaced compartments. The north side of the box was buried in sand and the south side stands three feet off the sea floor. A copy of the dive report is included in Appendix V. *

CHARTING RECOMMENDATION:

The hydrographer recommends the addition of "obstruction" to charts 12221, 12208, 12222, 12254.

RECOMMENDED POSITION: 37°01'02.9"N, 076°02'46.2"W**RECOMMENDED LEAST DEPTH:** 50 feet

COMPILATION NOTES: *DO NOT CONCUR - SEE SECTION D.1d OF THE EVALUATION REPORT - N/C531 does not concur with eval. decision. See section D.1d of the Evaluator Report 55V 2/1/01*

D.1e

ITEM DESCRIPTION: Submerged wreck
SOURCE: New Feature
AWOIS POSITION: 36°58'52.4"N, 075°59'37.7"W
REQUIRED INVESTIGATION: S2, SWMB, DI
CHARTS AFFECTED: 12221, 12222, 12208

INVESTIGATION

DATE(S)/DN(S): March 9, 2000 / 069
POSITION NUMBERS: 4630
INVESTIGATION USED: S2, SWMB, DI
POSITION DETERMINED BY: DGPS

INVESTIGATION SUMMARY:

A submerged wreck was located using side scan sonar in position 36°58'52.4"N, 075°59'37.7"W. Two-hundred percent side scan sonar was acquired over the wreck. Development lines were acquired on March 29, 2000 (DN 089). An investigative dive using a diver least depth gauge on March 9, 2000 (DN 069) revealed a verified tide corrected least depth of 37 feet. Divers located a 30- to 35- meter wooden wreck. The frame and two rails were covered with soft corals. These features stand 1-2 feet above a sandy bottom. A copy of the dive report is included in Appendix V. *

CHARTING RECOMMENDATION:

The hydrographer recommends the addition of "wreck, least depth known by sounding" to charts 12221, 12208, 12222.

RECOMMENDED POSITION: 36°58'52.4"N, 075°59'37.7"W

RECOMMENDED LEAST DEPTH: 37 feet

COMPILATION NOTES: - CONCUR - SUBMITTED BY HYDROGRAPHER
AS A DANGER TO NAVIGATION WITH A DEPTH OF 35 FEET.

CHART : 37 WK

* DATA FILED WITH ORIGINAL FIELD RECORDS

D.2 COMPARISON WITH THE CHART *SEE ALSO THE EVALUATION REPORT***D.2a** Four charts are affected by H-10952:

Chart 12221	70 th Edition	September 12, 1998	1:80,000
Chart 12208	7 th Edition	December 5, 1998	1:50,000
Chart 12222	40 th Edition	November 27, 1999	1:40,000
Chart 12254	41 st Edition	October 23, 1999	1:20,000

D.2b Chart 12221 contains 30 charted soundings within the survey limits. Comparison between charted soundings and survey soundings are good. Eleven charted soundings are in agreement with H-10952 soundings. Five charted soundings are one foot shoaler than survey soundings. Six charted soundings are 1-2 feet deeper than present survey soundings. The remaining nine charted soundings are 3-4 feet deeper than present survey soundings.

An isolated 35-foot charted sounding is located at $36^{\circ}59'27''$ N, $075^{\circ}59'43.07''$ W. Although one hundred percent multi-beam coverage was not acquired in this area, three separate development lines were run over the charted sounding to determine the validity of the charted sounding. Line number 870_1105, 871_1112, 874_1117 were run on March 30, 2000 (DN 089). Survey soundings revealed 36-foot soundings. The hydrographer recommend removing the 35-foot charted sounding and the surrounding 36-foot contour and replacing them with present survey soundings in the common area. *CONCUR*

A shoal located south-southeast of buoy G"5" is encroaching on Cape Henry Channel. Survey depths of 40-feet were located on the western edge of the channel in the vicinity of $36^{\circ}58'37.12''$ N, $076^{\circ}00'06.94''$ W. The hydrographer recommends updating Chart 12221 with survey data from H-10952 in common areas. *CONCUR*

Shoaling in proximity of Middle Ground in position $37^{\circ}01'28.3''$ N, $076^{\circ}02'05.4''$ W was observed during survey operations. Multi-beam soundings in this general location show a migration of the 18-and 30-foot contours in a south-westerly direction, 400 meters toward Chesapeake Channel. The hydrographer recommends updating Chart 12221 with survey data from H-10952 in common areas. *CONCUR*

A submerged wreck was located using side scan sonar in position $37^{\circ}00'47.4''$ N, $076^{\circ}03'09.2''$ W. See Section D.1c for more detailed information and the hydrographer's recommendation.

A submerged obstruction was located using side scan sonar in position $37^{\circ}01'02.9''$ N, $076^{\circ}02'46.2''$ W. See Section D.1d for more detailed information and the hydrographer's recommendation.

A submerged wreck was located using side scan sonar in position 36°58'52.4"N, 075°59'37.7"W. See Section D.1e for more detailed information and the hydrographer's recommendation.

- D.2c** Chart 12208 contains 41 soundings within the survey limits. Comparison between survey and charted soundings yield excellent agreement. Thirty-three charted soundings were within one foot of present survey soundings. One charted sounding four feet shoaler than present survey soundings. Seven charted soundings were 3 to 15 feet deeper than present survey soundings.

An isolated 18-foot sounding is charted in position 37°00'56.8" N, 076°02'10.3" W. Survey soundings in the general vicinity are 16 feet. The hydrographer recommends removing the 18-foot sounding and 18-foot contour. The hydrographer further recommends updating the chart with survey soundings in the common area. *CONCUR*

A shoal located south-southeast of buoy G"5" is encroaching on Cape Henry Channel. Survey depths of 40-feet were located on the western edge of the channel in the vicinity of 36°58'37.12" N, 076°00'06.94" W. The hydrographer recommends updating Chart 12221 with survey data from H-10952 in common areas. *CONCUR*

Shoaling in proximity of Middle Ground in position 37°01'28.3" N, 076°02'05.4" W was observed during survey operations. Multi-beam soundings in this general located show a migration of the 18-and 30-foot contours in a south-westerly direction, 400 meters toward Chesapeake Channel. The hydrographer recommends updating Chart 12221 with survey data from H-10952 in common areas. *CONCUR*

A submerged wreck was located using side scan sonar in position 37°00'47.4" N, 076°03'09.2" W. See Section D.1c for more detailed information and the hydrographer's recommendation.

A submerged obstruction was located using side scan sonar in position 37°01'02.9"N, 076°02'46.2" W. See Section D.1d for more detailed information and the hydrographer's recommendation.

A submerged wreck was located using side scan sonar in position 36°58'52.4"N, 075°59'37.7"W. See Section D.1e for more detailed information and the hydrographer's recommendation.

- D.2d** Chart 12222 contains 87 charted soundings within the survey limits. Comparisons between survey soundings and charted soundings are good. Fifty-nine charted soundings are within one to two feet of present survey soundings. The remaining charted soundings are 3 to 17 feet deeper than present survey soundings in the common area. The 3- to 17- foot differences are noticeable in two shoal regions; in the northeast

region of the survey area in the vicinity of Middle Ground, and, south-southeast of G"5". Refer to section D.3 for a more detailed description.

An isolated 35-foot charted sounding is located at $37^{\circ}59'28.83''$ N, $075^{\circ}59'43.07''$ W. Although one hundred percent multi-beam coverage was not acquired in this area, three separate development lines were run over the charted sounding to determine the validity of the charted sounding. Line number 870_1105, 871_1112, 874_1117 were run on March 30, 2000 (DN 089). Survey soundings revealed 36-foot soundings. The hydrographer recommend removing the 35-foot charted sounding and the surrounding 36-foot contour and replacing them with present survey soundings in the common area. *CONCUR*

A shoal located south-southeast of buoy G"5" is encroaching on Cape Henry Channel. Survey depths of 40-feet were located on the western edge of the channel in the vicinity of $36^{\circ}58'37.12''$ N, $076^{\circ}00'06.94''$ W. The hydrographer recommends updating Chart 1222~~1~~ with survey data from H-10952 in common areas. *CONCUR*

Shoaling in proximity of Middle Ground in position $37^{\circ}01'28.3''$ N, $076^{\circ}02'05.4''$ W was observed during survey operations. Multi-beam soundings in this general located show a migration of the 18-and 30-foot contours in a south-westerly direction, 400 meters toward Chesapeake Channel. The hydrographer recommends updating Chart 1222~~1~~ with survey data from H-10952 in common areas. *CONCUR*

A submerged wreck was located using side scan sonar in position $37^{\circ}00'47.4''$ N, $076^{\circ}03'09.2''$ W. See Section D.1c for more detailed information and the hydrographer's recommendation.

A submerged obstruction was located using side scan sonar in position $37^{\circ}01'02.9''$ N, $076^{\circ}02'46.2''$ W. See Section D.1d for more detailed information and the hydrographer's recommendation.

A submerged wreck was located using side scan sonar in position $36^{\circ}58'52.4''$ N, $075^{\circ}59'37.7''$ W. See Section D.1e for more detailed information and the hydrographer's recommendation.

- D.2e** Chart 12254 contains approximately 180 charted soundings within the survey limits. One hundred thirty-one charted soundings were within one foot of present survey soundings. The remaining charted soundings are 3 to 21 feet deeper than present survey soundings. These soundings are in the vicinity of Middle Ground, and are discussed in Section D.3 of this report.

Shoaling in proximity of Middle Ground in position $37^{\circ}01'28.3''$ N, $076^{\circ}02'05.4''$ W was observed during survey operations. Multi-beam soundings in this general located show a migration of the 18-and 30-foot contours in a south-westerly direction, 400

meters toward Chesapeake Channel. The hydrographer recommends updating Chart 12221 with survey data from H-10952 in common areas. *CONCUR*

A submerged wreck was located using side scan sonar in position 37°00'47.4" N, 076°03'09.2" W. See Section D.1c for more detailed information and the hydrographer's recommendation.

A submerged obstruction was located using side scan sonar in position 37°01'02.9"N, 076°02'46.2" W. See Section D.1d for more detailed information and the hydrographer's recommendation.

A submerged wreck was located using side scan sonar in position 36°58'52.4"N, 075°59'37.7"W. See Section D.1e for more detailed information and the hydrographer's recommendation.

D.2f There are seven floating aids to navigation within the survey limits. The charted positions of these aids were confirmed by selecting the anchor block on side scan sonar records for each aid, computing the survey position within HPS, and comparing the survey position to the charted position. All seven floating aids adequately serve their intended purpose.

D.2g Shoaler survey depths than the tabulated channel depths within Cape Henry Channel were located during H-10952. Survey depths of 48-feet were located mid-channel in the vicinity of 36°59'13.4" N, 076°00'26.57" W. These survey depths are shoaler than the tabulated depths of 49 ½ feet for the channel. The hydrographer recommends revising the tabulated controlling depth of Cape Henry Channel to 48 feet. *DO NOT CONCUR SEE SECTION D.2g OF THE EVALUATION REPORT*

D.3 DANGERS TO NAVIGATION

Five Dangers to Navigation were forwarded to U.S. Coast Guard Fifth District, in Portsmouth, Virginia on April 12, 2000. A copy of the letter is included in Appendix I.

This report and accompanying field sheets are respectfully submitted.



Ensign Kevin Slover, NOAA
Field Operations Officer
NOAA Ship RUDE

APPENDIX I

DANGER TO NAVIGATION REPORTS

Danger to Navigation Reports submitted within the limits of the survey area for H-10952 are included.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship RUDE S-590
439 W. York Street
Norfolk, VA 23510-1114

April 12, 2000

Commander
 Fifth Coast Guard District
 Federal Building
 431 Crawford Street
 Portsmouth, VA 23704-5004

REPORT OF DANGERS TO NAVIGATION

Dear Sir:

The NOAA Ship RUDE has recently completed hydrographic survey operations in Chesapeake Channel, Southern Chesapeake Bay, Virginia, in the vicinity of Middle Ground.

Hydrographic Survey Registry No. H-10952
 State Virginia
 General Locality Southern Chesapeake Bay
 Sublocality Chesapeake Channel
 Project Number OPR-E350-RU-00

During the course of side scan and multibeam sonar operations, five Dangers to Navigation were discovered. This new depth information merits immediate publication in the Local Notice to Mariners. The updated depths¹ affect the following chart(s):

Chart 12221	70 th Edition	September 12, 1998	1:80,000
Chart 12208	7 th Edition	December 5, 1998	1:50,000
Chart 12222	40 th Edition	November 27, 1999	1:40,000
Chart 12254	41 st Edition	October 23, 1999	1:20,000

Feature	Depth	Latitude (NAD83)	Longitude (NAD83)	Charts Affected
Wk	36	37°00'47.4" N	076°03'09.2" W	12221, 12222, 12254, 12208
Obs	50	37°01'02.9" N	076°02'46.2" W	12221, 12222, 12254, 12208
Wk	35	36°58'52.4" N	075°59'37.7" W	12221, 12222, 12208

Survey depths at the edges of Cape Henry Channel are shoaler than tabulated controlling depths. A shoal is migrating toward the left side of the channel in the vicinity of G"5", where 40 foot soundings were observed. Survey depths of 48 feet were located in the center of the channel in the vicinity of R"6" and G"7".

The shoal in the vicinity of 37°01'28.3"N, 076°02'05.4"W has migrated 400 meters west-southwest toward Chesapeake Channel.

¹ Updated depths are reduced to FEET at MLLW using predicted tides and should be viewed as preliminary information, subject to office review.

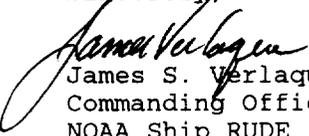


Contact either of the following personnel for further information:

Commanding Officer
NOAA Ship RUDE
439 West York Street
Norfolk, VA 23510-1145

Chief, Atlantic Hydrographic Branch
Marine Operations Center - Atlantic
439 W. York Street
Norfolk, VA 23510-1145
(757) 441-6746

Sincerely,


James S. Verlaque, LCDR, NOAA
Commanding Officer
NOAA Ship RUDE

Attachment

cc: Maryland Pilots
NIMA
N/CS31
N/CS33

OPR-E350-RU-00
H-10952
Locality: Southern Chesapeake Bay
Sublocality: Chesapeake Channel

Dangers to Navigation
LCDR James S. Verlaque, NOAA
Commanding Officer, NOAA Ship RUDE

Obstn'
Lat- 37°01'02.9" N
Lon- 076°02'46.2" W

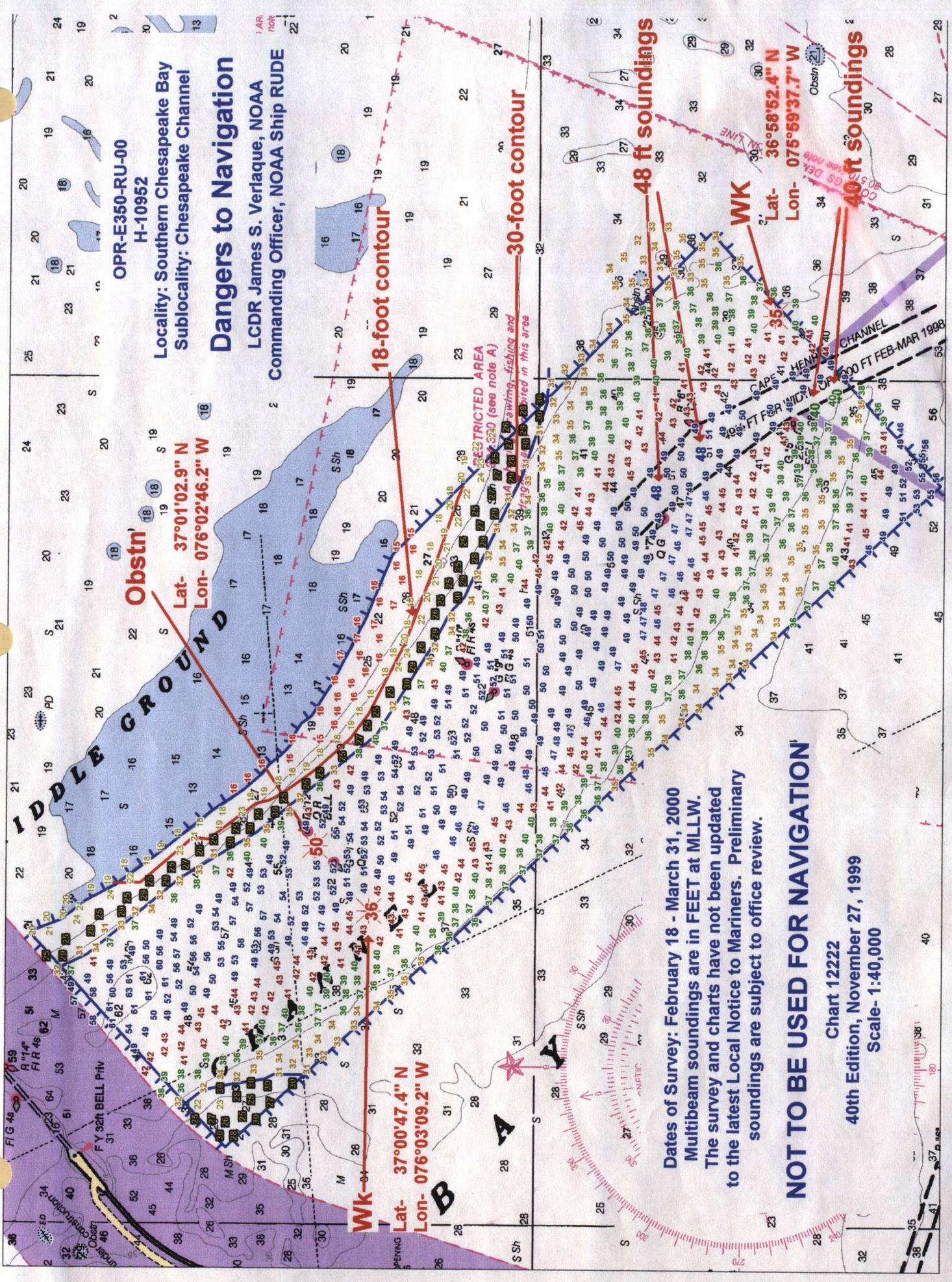
18-foot contour

30-foot contour

48 ft soundings

**Lat- 36°58'52.4" N
Lon- 075°59'37.7" W**

40 ft soundings



Dates of Survey: February 18 - March 31, 2000
Multibeam soundings are in FEET at MLLW.
The survey and charts have not been updated
to the latest Local Notice to Mariners. Preliminary
soundings are subject to office review.

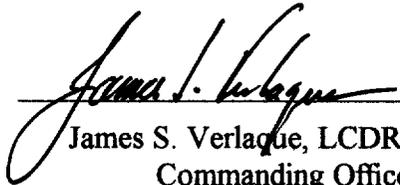
NOT TO BE USED FOR NAVIGATION!

Chart 12222
40th Edition, November 27, 1999
Scale- 1:40,000

E. APPROVAL SHEET**LETTER OF APPROVAL****REGISTRY NO. H-10952**

Field operations contributing to the accomplishment of this Navigable Area survey were conducted under my direct supervision with frequent personal checks of progress and adequacy. All field sheets and reports were reviewed in their entirety and all supporting records were checked as well.

This survey is more than adequate to supersede ALL prior surveys in common areas. This survey is considered complete and adequate for nautical charting.



James S. Verlaque, LCDR, NOAA
Commanding Officer
NOAA Ship RUDE



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: June 21, 2000

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-E350-RU-2000
HYDROGRAPHIC SHEET: H-10952

LOCALITY: Chesapeake Channel, Southern Chesapeake Bay, VA
TIME PERIOD: February 16 - March 31, 2000

TIDE STATION USED: 863-8863 Chesapeake Bay Bridge Tunnel
Lat. 36° 58.0'N Lon. 76° 6.8'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.829 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: SCB1, SCB1A, SCB2, SCB6, SCB7,
SCB8, SCB9, SCB10 & SCB15.

Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units
(meters), relative to MLLW and on Greenwich Mean Time.

Thomas V. Mero 6/21/00

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



GEOGRAPHIC NAMES

H-10952

Name on Survey

A ON CHART NO. 12221, 12222, 12254
B ON PREVIOUS SURVEY NO.
C ON U.S. QUADRANGLE MAPS
D FROM LOCAL INFORMATION
E ON LOCAL MAPS
F P.O. GUIDE OR MAP
G GRAND MCNALLY ATLAS
H U.S. LIGHT LIST
K

Name on Survey	A	B	C	D	E	F	G	H	K
CAPE HENRY CHANNEL	X		X						1
CHESAPEAKE BAY	X		X						2
CHESAPEAKE CHANNEL	X		X						3
MIDDLE GROUND	X		X						4
VIRGINIA (title)	X		X						5
									6
									7
									8
									9
									10
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Dennis J. Kameshine
Chief Hydrographer
JUL 26 2000

N/CS33-74-00

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY
(Check):

ORDINARY MAIL AIR MAIL

REGISTERED MAIL EXPRESS

GBL (GIVENumber) _____

TO:

Chief, Data Control Group, N/CS3x1
NOAA/National Ocean Service
Station 6815, SSMC3
1315 East-West Highway
Silver Spring, MD 20910-3282

DATE FORWARDED

27 October 2000

NUMBER OF PACKAGES

One Tube

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

H10952

Virginia, Chesapeake Bay, Chesapeake Bay

(One) Tube Containing The Following:

- 1 Original Descriptive Report
- 1 Drawing History Form (NOAA Form #76-71) for NOS Chart 12222
- 1 Drawing History Form (Noaa Form #76-71) for NOS Chart 12254
- 1 Record of Application To Charts Form (NOAA FORM #75-96) for survey H10952
- 1 Composite Drawing for NOS Chart 12222
- 1 H-Drawing for NOS Chart 12222
- 1 Composite Drawing for NOS Chart 12254
- 1 H-Drawing for NOS Chart 12254
- 1 Smooth Sheet Drawing for H10952

FROM: (Signature)

Richard Blevins
Richard Blevins

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Richard Blevins
Atlantic Hydrographic Branch
N/CS33
439 West York Street
Norfolk, VA 23510-1114

10/26/2000

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H10952

NUMBER OF CONTROL STATIONS		2
NUMBER OF POSITIONS		15130
NUMBER OF SOUNDINGS		15130
	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	16.0	07/11/2000
VERIFICATION OF FIELD DATA	41.0	09/21/2000
QUALITY CONTROL CHECKS	24.0	
EVALUATION AND ANALYSIS	4.0	
FINAL INSPECTION	3.0	09/22/2000
COMPILATION	70.0	10/25/2000
TOTAL TIME	158.0	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		09/29/2000

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H10952 (2000)**

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

B. AUTOMATED DATA ACQUISITION AND PROCESSING

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

Hydrographic Processing System
NADCON, version 2.10
MicroStation 95, version 5.05
I/RAS B, version 5.01

The smooth sheet was plotted using a Hewlett Packard DesignJet 2500CP plotter.

B.2b JUNCTIONS

D00129 (1998) to the northeast
F00450 (1999) to the northwest

A standard junction could not be effected between the present survey and D00129 (1998) and F00450 (1999). The junctional surveys are archived at NOS headquarters, Silver Spring, Maryland. Any adjustments to the depth curves in the junctional areas will have to be made on the chart during compilation.

There are no junctional surveys to the southeast or to the southwest. Present survey depths are in harmony with the charted hydrography to the southeast and to the southwest.

C.2 CONTROL STATIONS

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). Office processing of this survey is based on these values. The smooth sheet has been annotated with ticks showing the computed mean shift between the NAD 83 and the North American Datum of 1927 (NAD 27).

To place this survey on the NAD 27, move the projection lines 0.524 seconds (16.165 meters or 1.62 mm at the scale of

the survey) north in latitude, and 1.245 seconds (30.776 meters or 3.08 mm at the scale of the survey) east in longitude.

D. RESULTS AND RECOMMENDATIONS

2.1d

An obstruction with a depth of 50 feet (15² m), in Latitude 37°01'02.93"N, Longitude 076°02'46.21"W, was located by the hydrographer. This feature was submitted in a Danger To Navigation Report. This feature was examined during office processing and was found to be in error. During office processing an obstruction with a depth of 55 feet (16⁸ m), in Latitude 37°01'03.22"N, Longitude 076°02'45.21"W, was noted and is shown on the smooth sheet. This item is located in an area with depths ranging from 54 to 55 feet and is considered insignificant. It is recommended that this feature not be charted.

n/c531 Does not concur. Recommend Charting a 55 Obstrn as shown on

- D.2 COMPARISON WITH CHART 12208 (7th Edition, DEC 5/98) *smooth sheet*
12221 (70th Edition, SEP 12/98)
12222 (40th Edition, NOV 27/99)
12254 (41st Edition, OCT 23/99) *ESV 2/1/01*

Hydrography

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section D. of the Descriptive Report.

D.2g

A conflict exists between the charted controlling depth and the present survey in the vicinity of latitude 36°58'35"N, longitude 076°00'05"W. The present survey shows depths of 46 feet with a controlling depth of 49.5 feet.

The present survey is adequate to supersede the charted hydrography within the common area.

D.3 Dangers to Navigation

Five Dangers to Navigation were submitted in a report to Commander(oan), Fifth Coast Guard District, Federal Building,

Portsmouth, VA. for inclusion in the Local Notice to Mariners, and to the Marine Chart Division, N/CS3x1, Silver Spring, Maryland. A copy of this report is appended to the Descriptive Report.

MISCELLANEOUS

Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland. The following NOS Charts was used for compilation of the present survey:

12222 (40th Edition, NOV 27/99)
12254 (41st Edition, OCT 23/99)

COMPARISON WITH PRIOR SURVEYS

A comparison with prior surveys was not done during office processing in accordance with section 4. of the memorandum titled "Changes to Hydrographic Survey Processing", dated May 24, 1995.

ADEQUACY OF SURVEY

This is an adequate hydrographic/side scan sonar/multibeam survey. No additional work is recommended.

H10952

Robert Snow

Robert Snow
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H10952

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disapproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Richard W. Blevins Date: 25 SEPT 2000
Richard W. Blevins
Cartographer
Atlantic Hydrographic Branch

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Andrew L. Beaver Date: 29 SEP 2000
Andrew L. Beaver
Lieutenant Commander, NOAA
Chief, Atlantic Hydrographic Branch

Final Approval:

Approved: Samuel P. De Bow Date: February 2, 2001
Samuel P. De Bow, Jr.
Captain, NOAA
Chief, Hydrographic Surveys Division

