8407

Diag. Cht. No. 78-3.

Form 504

U. S. DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

# DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. CO-2156 Office No. H-8407

LOCALITY

State Virginia

General locality Chesapeake Bay

Locality South of Tangier Island

1956-57

CHIEF OF PARTY

R. A. Earle

LIBRARY & ARCHIVES

DATE January 12, 1960

USCOMM-DC 5087

8407

Form 537
(Ed. June 1946)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

# HYDROGRAPHIC TITLE SHEET

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

REGISTER NO. H-8407

Field No. CO-2156

State VIRGINIA

General locality CHESAPEAKE BAY

Locality SOUTH OF TANGIER ISLAND

Scale 1:20,000 Date of survey 1 to 16 August 1956
19 June to 9 August 1957

Instructions dated SUPPLEMENTAL INSTRUCTIONS DATED 2/5/53, 2/25/54, 7/14/55, 11/17/55, 7/11/56, 10/4/56, 1/25/58

Vessel COWIE

Chief of party CDR. Robert A. Earle, 1957 Season - LCDR. L. G. Taylor, 1956 Season

Surveyed by CDR. Robert A. Earle " "

Soundings taken by fathometer, graphic recorder, hand lead, wire Fathometer

Fathograms scaled by Ens. J. P. Porcher, Ens. S. C. Miller, B John C. Phillips, CRT William M. Smith and SAB Wilford A. Dixon.

Fathograms checked by Ens. R. F. Shoolbred, Ens. J. P. Porcher, Ens. S. C. Miller, CRT William M. Smith & CQS Oliver C. Swindell.

Protracted by Lt. Bruce E. Greene, Ens. R. F. Shoolbred and CQS O. C. Swindell.

Soundings penciled by Alpha G. Atwill

Soundings in ~~fathoms~~ feet at MLW ~~MLLW~~ ~~Feet at MLW~~ and are true depths.

REMARKS: This sheet is a smooth-bbat sheet with shoran control and was plotted while hydrography was in progress.

DESCRIPTIVE REPORT
TO ACCOMPANY

HYDROGRAPHIC SURVEY H- 8407

SCALE 1:20,000 FIELD NUMBER CO - 2156

CHESAPEAKE BAY
SOUTH OF TANGIER ISLAND

USC&GS Ship COWIE

LCDR. L. G. TAYLOR, COMDG. 1956
CDR. R. A. EARLE, COMDG. 1957

## A - PROJECT:

Project 12870, Supplemental Instructions dated 2/5/53, 2/25/54, 1/14/55, 11/17/55, 7/11/56, 10/4/56, and 1/25/57.

## B - SURVEY LIMITS AND DATES:

This survey is of the offshore area of Chesapeake Bay from Latitude 37° - 32.8' to Latitude 37° - 46.0'. The western limit is Longitude 76° - 09.6' and the eastern limit is Longitude 75° - 58.1'.

The 1956 work extends from the northwestern corner of the sheet to the 13 statute mile arc from Smith Point Lighthouse. (See accompanying Index of Sheets).

(1955) H-8191(1954-55) (1953)
Junctions are with surveys CO-2154 and CO-2153 (H-8083) to the west, CO-2155 (H-8280) and (H-7944)(1:20,000 1951) to the north, CO-1157 (H-8408)(1957) and CO-1357 ~~to the east.~~ & H-8447 (1957) to the east.
H-8446(1957-58)

Field work began in the 1956 season on 1 August and was discontinued on 16 August 1956.

Field work began in the 1957 season on 19 June and was completed on 9 August 1957.

## C - VESSEL AND EQUIPMENT:

The Ship COWIE using 808 fathometers 114-S, 120-S, and 164; and unattended "E" type shoran was used throughout this survey. An aluminum skiff with hand lead and sounding pole was used for investigating the San Marcos Wreck. The turning radius of the COWIE as operated was 400 meters.

Skiff sdgs, if recorded, were not rec'd with this survey.

## D - TIDE AND CURRENT STATIONS:

Portable automatic tide gages were maintained on Great Wicomico River Lighthouse and Windmill Point Lighthouse during survey operations in the 1956 field work. Hourly heights from the Great Wicomico River gage were used for the reduction of soundings with zero time correction and a height ratio of 1.4 applied to the observed heights.

A portable automatic tide gage was maintained on Windmill Point Lighthouse during survey operations in the 1957 field season. Hourly heights from this gage with zero time and height corrections were used in the reduction of soundings.

Current Station No. 3 of the 1953 instructions, located 3.1 miles 104° true from Windmill Point Lighthouse, was occupied for a period of 51 hours from 15 October to 17 October 1956. Falls off West edge of sheet.

E - SMOOTH SHEETS:

The boat sheet has been plotted as a smooth-boat sheet as specified in the Supplemental Instructions dated 17 November 1956 and 11 July 1956. Positions were pricked through a tracing cloth overlay on which charted soundings and features, soundings from adjoining surveys, etc. were inked. The overlay was treated as a boat sheet. Soundings and other pertinent information will be penciled on the smooth sheet by personnel of the COWIE pending available time, otherwise the Norfolk Processing Office. Projection was constructed by personnel of the Washington Office. Shoran lines of position were ruled on the sheet by the Norfolk Processing Office.

F - CONTROL STATIONS:

TRIANGULATION STATIONS *

TANGIER SOUND LIGHTHOUSE, 1898 *
REIDVILLE MUNICIPLE WATER TANK, 1955 *
TANGIER ISLAND, SWAIN MEMORIAL CHURCH SPIRE, 1898 *
*(These signals are not within the limits of this survey. Were used for location of the SAN MARCOS WRECK BUOY).

SMITH POINT LIGHTHOUSE, 1898 *
GREAT WICOMICO RIVER LIGHTHOUSE, 1898 *
WINDMILL POINT LIGHTHOUSE, 1898 *
*(Shoran Ground Stations).

HYDROGRAPHIC SIGNAL:

FORE - Located by sextant fix from triangulation station BULLEYE 1949 on sheet H-8280 (1955) CO-2155. (For the purpose for which this signal was used, the position of BULLEYE, 1949 may be used since the two were nearly on range and are separated by only 15 meters).

G - SHORELINE AND TOPOGRAPHY:

(NOT APPLICABLE).

H - SOUNDINGS:

All soundings were obtained using 808 fathometers. See "FATHOMETER CORRECTIONS, Ship COWIE, 1956", and "FATHOMETER CORRECTION REPORT, 1957", for corrections to be applied.

I - CONTROL OF HYDROGRAPHY:

Hydrography was controlled with Shoran. Sounding lines run during the 1956 season were run on arcs from station MIT and during the 1957 season were run on arcs from station WICO, at intervals of 0.125 statute miles in depths over thirty feet and at intervals of 0.062 statute miles in depths of thirty feet or less, and at points of investigation.

Computations for shoran lines of position for stations MIT and WIN were furnished by the Washington Office. Computations for lines of position for station WICO were computed and checked by personnel of the ship COWIE, and ruled on the projection by the Norfolk Porcessing Office. See "SHORAN CORRECTION REPORT 1956" and "SHORAN CORRECTION REPORT 1957" for method of obtaining corrections.

J - ADEQUACY OF SURVEY:

This survey is considered complete and adequate for charting purposes and should supersede all prior surveys. Junctions with adjoining surveys are satisfactory and no holidays exist. Depth curves can adequately be drawn at all junctions. See P 5&6 Review

K - CROSSLINES:

Nine percent crosslines were run and are sufficient and in satisfactory agreement. Maximum disagreement of crosslines is 1 to 2 feet of depths. It is felt that when final correction values are applied these descrepancies will smooth out. Not entirely See P2 Review

L & M - COMPARISON WITH PRIOR SURVEYS AND CHARTS:

Comparison with chart 1223 (11/7/55) and surveys H-252 (1:40,000, 1849 & 50) H-3313 (1:40,000 1911) show good agreement. Differences generally do not exceed 1 to 3 feet. Depth curves are in good agreement with those shown on the chart and old surveys except in the area of Latitude 37° 35.0' to 37° 39.0' and Longitude 75° 59.0' to 76° 00.0' where the 30 foot curve has changed. On the southern end of this curve a channel has worked its way into the shoal as shown on the boat sheet. A deep of 31 to 35 feet has developed inside this shoal on the eastern edge inside of the 30 foot curve. Other depth curves are ragged but it is felt that with the application of final corrections these curves will smooth out. See P3 & 5 of Review

The following items from the Preliminary Review of charts 1222 and 1223 were investigated:

1. Item 2: The San Marcos Wreck, Latitude 37° 43.2', Longitude 76° 05'. This was first located by triangulation in 1911, but FE-3, 1950 placed it approximately 360 meters farther west. It was recharted accordingly since the 1911 position was unchecked. A simultaneous shoran-sextant fix taken on the wreck buoy placed it 360 meters east of the 1950 location. Examination of the area of the wreck showed no apparent change in the nature and extent of the wreckage or its position relative to the buoy as shown on FE-3, 1950. By displacing the 1950 survey an amount equal to the shift in

position of the wreck buoy, the 1911 position of the wreck is verified. It is recommended that the wreck and buoy be recharted accordingly. Position data for the buoy and of the wreckage with respect to the buoy was forwarded to the Washington Office by messenger on 9 October 1956. The area adjacent to the wreck was not sounded by the Ship but satisfactory junction was made with FE-3, 1950, after shifting it in position as indicated. The shoalest part of the wreckage was found to be covered by 1/2 foot at MLW at the time of the survey. (Vol. 3 pg. 57)

See subsequent survey FE 1, 1960

2. Item 8: The wreck and buoy charted in Latitude 37° 43.5', Longitude 76° 04.5' was from H. O. Notice to Mariners No. 46 (November 12, 1955). It was subsequently reported (H. O. Notice to Mariners No. 16 April 21, 1956) that the wreckage had disintegrated and washed away and that the buoy was being discontinued. No trace of it was found during the present survey and it is recommended for deletion from the chart.

Recommendation concurred in

3. Item 3: The wreck symbol, Latitude 37° 39.0', Longitude 76° 05.5' was charted from C. G. Notice to Mariners No. 3, 1951. The chart letter 325 (1952) from the Supervisor, S. E. District, USC&GS states that it was not known whether the three LCVP type vessels reported sunk were picked up, or still remain as a possible danger to navigation. No trace of these reported wrecks were discovered during investigation on this survey. Sounding lines were run over this area at intervals of 100 meters, but no indication of these wrecks were found. It is felt that these wrecks may still be in their reported position and that to definitely determine their status the area should be swept with a wire drag.

See TP 6 of Review

4. Item 1: The unsupported shoal sounding of 23 feet, Latitude 37° 37.07', Longitude 76° 00.49' from survey H-3702(1:20,000 - 1944) was not found. Sounding lines were run over this area at ~~100~~ meter intervals, and a least depth of 25 feet was found in the area approximately ~~100~~ 250 meters southwest of the charted 23 feet. The depth of this extensive shoal is generally 26 feet with scattered depths of 25 feet. Depths of two feet deeper than the charted soundings and those shown on survey H-252(1:40,000 1849 & 50) were obtained throughout the area. Since this shoal is quite flat with no indication of peaks it is recommended that the 23 foot charted sounding be replaced by a depth of 25 feet.

See TP 5 of Review

Delete 23 ft from chart.

5. Supplemental Instructions dated 25 January 1957:

See Chart Letter 523 (1957)

The reported grounding of the ESSO Tanker BERMUDA in 32 feet of water at Latitude 37° 41'17" N, Longitude 76° 07'40" W was extensively investigated and no shoal was located. A report and tracing of the investigation was sent to the Director with a detailed drawing plotted from information supplied by the personnel of the ESSO BERMUDA showing the sequence of events as reported. Excerpts of this letter dated 12 July accompanying this report follows. The investigation (Lday, pos. 45-91) was near 76°08.40'

"On this date the charted location of RB Qk Fl Bell Buoy was obtained by a sextant fix which was verified by shoran, and the buoy was found to be approximately 0.55 miles from its charted position. The sextant fix and

data obtained from personnel on the Tanker ESSO BERMUDA have been plotted on the attached section of Chart 1223. On this chart, one can readily see that the Captains bearings using the correct location of the buoy, would have placed his ship close to the 30 foot curve, in an area where our boat sheet shows 31 feet of water. The Pilots bearing is felt to be extremely questionable as a 333° rather than a 343° bearing on 12 T1, would have intersected the other bearings. It can be assumed that the course of the ESSO BERMUDA was changed as soon as the ship touched bottom, because had it continued on the 332° course, the vessel would have been aground in less than a mile".

The section of chart forwarded with this report shows what apparently happened on the ESSO BERMUDA, and subsequently the investigation was discontinued. It was recommended that the reported 32 foot shoal be deleted from all charts, and from this recommendation, Notice to Mariners, No. 32, September 21, 1957, states that the 32 foot shoal does not exist. The location of RB Qk Fl Bell Buoy should be recharted in the position obtained in this survey. Information of this erroneous location was transmitted by radio telephone through the Norfolk District Officer to the Washington Office and the U. S. Coast Guard Norfolk Headquarters on 12 July 1957.

32 ft sdg. has been deleted from Charts

N - DANGERS AND SHOALS:

No new dangers or shoals were found during this survey.

O - COAST PILOT INFORMATION:

No changes or additions noted.

P - Q AIDS TO NAVIGATION AND LANDMARKS FOR CHARTS:

No additional landmarks recommended for charting

See N.P.O. List of Floating Aids

No non-floating aids to navigation were located.

The following floating aids to navigation were located:

| | Latitude | Longitude | Depth |
|---|---|---|---|
| 1. R 12TL Fl 4 Sec. (Position 36E 8/14/56) Bell Radar Ref. | 37° 46.44' | 76° 10.00' | 38' |
| 2. SAN MARCOS WRECK (79-81 E - 8-14-56) 1 Qk Fl " "WR" Bell | 37° 43.41' | 76° 04.78' | 27' |
| 3. RN "2" (~~Position 174E 8/14/56~~) Superseded by pos. 96 AE - 8-2-57 | 37° 44.63' | 76° 00.50' | 31' |
| 4. C "3" (Position 111E 8/14/56) | 37° 44.63' | 76° 00.22' | 13.5' |
| 5. RB 1 Qk Fl Bell (~~Position 69W 7/12/57~~) Radar Ref Superseded by Pos. 182 AE (8-2-57) | 37° 40.49' | 76° 06.05' | 37' |

| | Latitude | Longitude | Depth |
|---|---|---|---|
| 6. R "2" Fl 4 sec. Bell(Position 204 AD 7/25/57) | 37° 36.37' | 76° 02.39' | 43' |
| 7. RN "4" (Position 49 AF 8/3/57) | 37° 39.89' | 75° 59.50' | 40' |

R - GEOGRAPHIC NAMES:

No additional geographic names are recommended for charting.

U-Y - MISCELLANEOUS:

1. No additional information.

2. Tabulation of Applicable Data

"Fathometer Corrections, 1956 Season" Ship COWIE, forwarded 19 February 1957.

"Fathometer Correction Report 1957" Ship COWIE, forwarded 20 November 1957.

"Shoran Correction Report 1956 Season", Ship COWIE, forwarded 19 February 1957.

"Shoran Correction Report 1957, Ship COWIE, forwarded 20 November 1957.

Respectfully submitted,

R. F. Shoolbred

R. F. Shoolbred
Ensign, C&GS
USC&GS Ship COWIE

STATISTICS
HYDROGRAPHIC SURVEY H-8407
(1956 - 1957)

Ship COWIE

| Day Letter | Date | Volume No. | Positions | Nautical Miles |
|---|---|---|---|---|
| A | 8/1/56 | I | 59 | 25.1 |
| B | 8/9/56 | I & II | 127 | 60.0 |
| C | 8/10/56 | II | 26 | 12.7 |
| D | 8.13.56 | II & III | 91 | 44.2 |
| E | 8/14/56 | III & IV | 175 | 78.1 |
| F | 8/15/56 | IV & V | 195 | 88.4 |
| G | 8/16/56 | V, VI & VII | 227 | 108.0 |
| H | 6/19/57 | VIII | 38 | 17.2 |
| J | 6/20/57 | VIII & IX | 202 | 92.5 |
| K | 6/21/57 | IX,X & XI | 214 | 90.2 |
| L | 6/22/57 | XI | 120 | 41.1 |
| M | 6/23/57 | XII | 43 | 20.2 |
| N | 6/24/57 | XII & XIII | 118 | 52.7 |
| P | 6/25/57 | XIII & XIV | 222 | 105.6 |
| Q | 6/26/57 | XV & XVI | 207 | 99.8 |
| R | 6/27/57 | XVI & XVII | 188 | 86.2 |
| S | 6/28/57 | XVII | 11 | 4.5 |
| T | 7/9/57 | XVIII & XIX | 133 | 64.5 |
| U | 7/10/57 | XIX | 13 | 5.2 |
| V | 7/11/57 | XIX & XX | 163 | 78.2 |
| W | 7/12/57 | XX & XXI | 69 | 32.2 |
| X | 7/17/57 | XXI & XXII | 159 | 68.4 |
| Y | 7/18/57 | XXII | 105 | 58.8 |
| Z | 7/19/57 | XXIII | 53 | 23.3 |
| AA | 7/21/57 | XXIII & XXIV | 124 | 43.3 |
| AB | 7/22/57 | XXIV & XXV | 212 | 85.1 |
| AC | 7/23/57 | XXV & XXVI | 103 | 42.1 |
| AD | 7/25/57 | XXVI & XXVII | 242 | 95.1 |
| AE | 8/2/57 | XXVIII & XXIX | 190 | 66.2 |
| AF | 8/3/57 | XXIX | 81 | 29.8 |
| AG | 8/4/57 | XXIX | 24 | 8.6 |
| AH | 8/6/57 | XXIX | 23 | 9.1 |
| AJ | 8/7/57 | XXX | 22 | 10.1 |
| AK | 8/9/57 | XXX | 15 | 8.4 |
| | TOTALS | 30 Volumes | 3,994 | 1,754.9 |

AREA: 121.9 Sq. Miles

APPROVAL SHEET H-8407

(CO-2156)

Records for field work for this sheet were inspected daily by the writer who, in general, was the officer in charge of hydrography.

Processing of all records was completed after the writer was detached.

The survey, which is considered complete and adequate, is herewith approved.

Robert A. Earle
CDR., C&GS
Comd'g. Ship COWIE (to 11/30/57)

## TIDAL NOTE

Portable automatic tide gages were maintained on Great Wicomico River Lighthouse, Latitude 37° 48.26', Longitude 76° 16.10', and Windmill Point Lighthouse, Latitude 37° 35.8', Longitude 76° 14.2' during survey operations in the 1956 field work. Hourly heights from the Great Wicomico gage were used for the reduction of soundings through G-day, 8/16/56 with a zero time correction and a height ratio of 1.4 applied to the observed heights. Mean low water corresponds to 2.0 feet on the tide staff.

A portable automatic tide gage was maintained on Windmill Point Lighthouse during survey operations in the 1957 field season. Hourly heights from this gage with zero time and height correction were used for the reduction of soundings. Mean low water corresponds to 2.2 feet on the tide staff. The hourly heights were scaled from the marigrams and tide curves were drawn by personnel of the Ship COWIE.

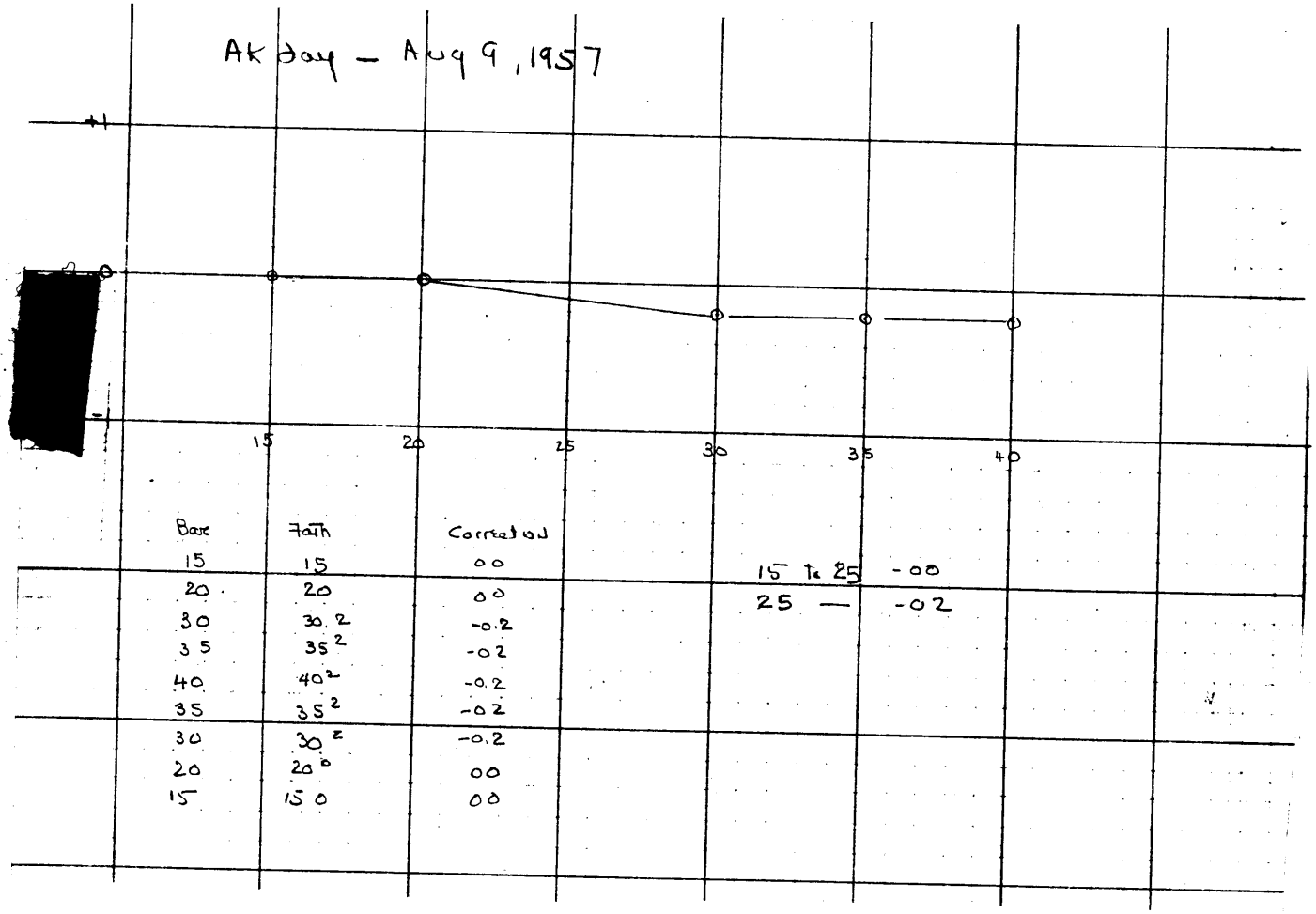
FATHOMETER CORRECTIONS

Ship COWIE 1956 Field Season Sheet CO-2156(H-8407)

| Day | Correction | to | Depth |
|---|---|---|---|
| A | -0.4 ft. | | 18.0 ft. |
| | -0.2 ft. | | 25.0 ft. |
| | 0.0 ft. | | 35.0 ft. |
| | +0.2 ft. | | 50.0 ft. |
| B | 0.0 ft. | | 50.0 ft. |
| C | -0.4 ft. | | 23.5 ft. |
| | -0.2 ft. | | 27.5 ft. |
| | 0.0 ft. | | 40.0 ft. |
| D | -0.2 ft. | | 20.0 ft. |
| | 0.0 ft. | | 46.0 ft. |
| | +0.2 ft. | | 50.0 ft. |
| E, F, G | 0.0 ft. | | 50.0 ft. |

Computed by: CIH
Checked by: BEG

Ak Bay – Aug 9, 1957




| Bar | Fath | Correction |
|---|---|---|
| 15 | 15 | 00 |
| 20 | 20 | 00 |
| 30 | 30.2 | -0.2 |
| 35 | 35.2 | -0.2 |
| 40 | 40.2 | -0.2 |
| 35 | 35.2 | -0.2 |
| 30 | 30.2 | -0.2 |
| 20 | 20.0 | 00 |
| 15 | 15.0 | 00 |

15 to 25 -00

25 — -02

FATHOMETER CORRECTIONS

SHIP COWIE SHEET CO-2156 (H-8407)

| Day | Corrections (ft) | From (ft) | To (ft) | Phase Correction A to B Scale (ft) | Correction to B & C Scale (ft) |
|---|---|---|---|---|---|
| I,J,K,L,M, N,P,Q,R,S, T,U,V,W | 0.0 | 15.0 | 55.0 | -0.7 | -0.7 |
| X,Y,Z | +0.2 | 15.0 | 17.5 | | |
| | +0.4 | 18.0 | 23.0 | | |
| | +0.6 | 23.5 | 27.5 | | |
| | +0.8 | 28.0 | 30.0 | | |
| | +1.0 | 30.5 | 55.0 | -0.7 | +0.3 |
| AA,AB,AC, AD,AE,AF, AG,AH | +0.2 | 15.0 | 20.0 | | |
| | +0.4 | 20.5 | 27.0 | | |
| | +0.6 | 27.5 | 33.0 | | |
| | +0.8 | 33.5 | 37.0 | | |
| | +1.0 | 37.5 | 55.0 | | |
| "B" scale correction AA through AC day | | | | -0.7 | +0.3 |
| "B" scale correction AD through AH day | | | | 0.0 | +1.0 |
| AJ,AK | 0.0 | 15.0 | 25.0 | AK day recompiled by Processing Office (A-scale only) | |
| | +0.2 | 25.5 | 30.0 | | |
| | +0.4 | 30.5 | 33.0 | 0.0' - 0 to 24' | |
| | +0.6 | 33.5 | 35.5 | -0.2' - 25' to 55' | |
| | +0.8 | 36.0 | 40.0 | | |
| | +1.0 | 40.5 | 55.0 | +0.9 | +1.9 |

copy ✓ RPS

FATHOGRAM SCANNING NOTE

All fathograms have been thoroughly scanned and entries checked.

No further scanning is necessary.

✓

SHORAN CORRECTION NOTE

The shoran field corrections, as plotted, did not vary more than .005 statute miles from the smooth shoran corrections entered in the volumes. Therefore, checking of smooth shoran corrections as entered in the volumes was omitted. It is felt that the time spent, in order to check these entries is not warranted, as the sheet is a smooth-boat sheet.

The reviewer can refer to the shoran corrections in the descriptive report if necessary.

SHORAN CORRECTIONS

1956 FIELD SEASON

USC&GS Ship COWIE

PROJECT CS-12870

SHEET CO - 2156:

Station MIT

| Shoran Reading (Statute Mile) | Correction (Statute Mile) |
|---|---|
| 0.380 to 0.839 | + .080 |
| 0.840 to 1.479 | + .075 |
| 1.480 to 2.359 | + .070 |
| 2.360 to 3.559 | + .065 |
| 3.560 to 5.119 | + .060 |
| 5.120 to 7.239 | + .055 |
| 7.240 to 9.429 | + .050 |
| 9.430 to 11.719 | + .045 |
| 11.720 to 13.949 | + .040 |
| 13.950 to 16.199 | + .035 |
| 16.200 to 18. | + .030 |

Station WIN

| | |
|---|---|
| 0.300 to 0.839 | + .085 |
| 0.840 to 1.569 | + .080 |
| 1.570 to 2.709 | + .075 |
| 2.710 to 4.449 | + .070 |
| 4.450 to 7.549 | + .065 |
| 7.550 to 11.199 | + .060 |
| 11.200 to 14.949 | + .055 |
| 14.950 to 18.5 | + .050 |

Computed by: BEG
Checked: CIH ✓
Copy Checked: BEG

SHORAN CORRECTIONS

1957 FIELD SEASON

USC&GS Ship COWIE PROJECT CS-12870

SHEET CO - 2156:

Station WICO - (June 19 through July 12)

| Shoran Reading (Statute Mile) | Correction (Statute Mile) |
|---|---|
| 1.33 to 2.25 | +.055 |
| 2.26 to 3.35 | +.050 |
| 3.36 to 4.82 | +.045 |
| 4.83 to 6.59 | +.040 |
| 6.60 to 8.70 | +.035 |
| 8.71 to 10.70 | +.030 |
| 10.71 to 12.70 | +.025 |
| 12.71 to 14.68 | +.020 |
| 14.69 to 16.66 | +.015 |
| 16.67 to 18.62 | +.010 |
| 18.63 to 20.70 | +.005 |
| 20.71 to 22.70 | .000 |
| 22.71 to 24.70 | -.005 |

Computed: RFS
Checked: JPP

SHEET CO - 2156 & CO - 1357:

(July 16 through August 10)

| | |
|---|---|
| 1.45 to 2.60 | + .065 |
| 2.61 to 4.10 | + .060 |
| 4.11 to 6.31 | + .055 |
| 6.32 to 8.70 | + .050 |
| 8.71 to 11.14 | + .045 |
| 11.15 to 13.52 | + .040 |
| 13.53 to 16.00 | + .035 |
| 16.01 to 18.40 | + .030 |
| 18.41 to 20.88 | + .025 |
| 20.89 to 23.20 | + .020 |
| 23.21 to 25.- | + .015 |

Computed: RFS
Checked: JPP

SHEET CO - 2156:

Station WIN - (June 19 through July 12)

| Shoran Reading (Statute Mile) | Correction (Statute Mile) |
|---|---|
| 1.04 to 1.90 | + .045 |
| 1.91 to 2.98 | + .040 |
| 2.99 to 4.39 | + .035 |
| 4.40 to 6.10 | + .030 |
| 6.11 to 8.23 | + .025 |
| 8.24 to 10.27 | + .020 |
| 10.28 to 12.38 | + .015 |
| 12.39 to 14.40 | + .010 |
| 14.41 to 16.50 | + .005 |
| 16.51 to 18.59 | .000 |
| 18.60 to 20.65 | - .005 |

Computed: RFS
Checked: JPP

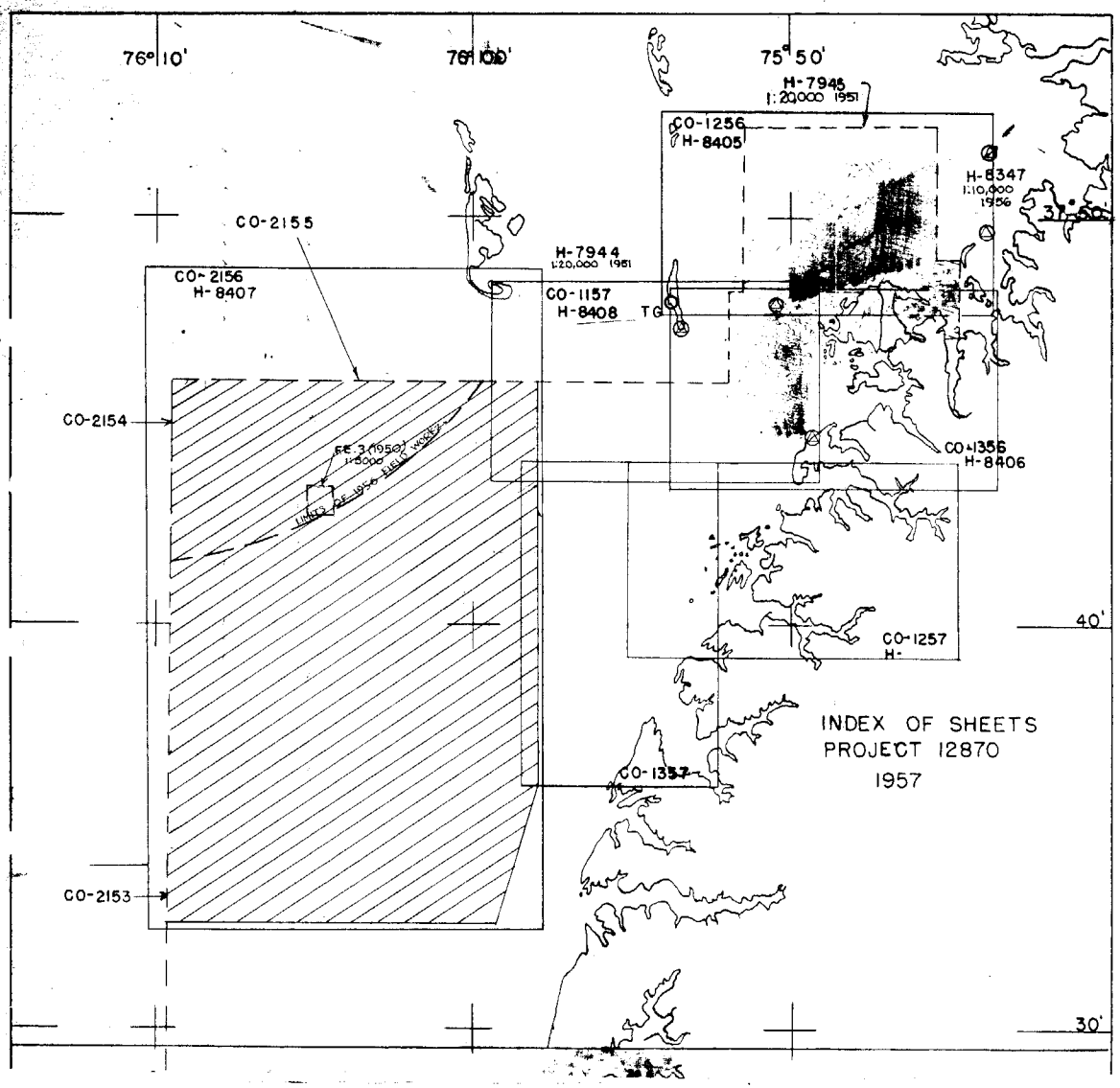
SHEET CO - 2156 & CO - 1357:

(July 16 through August 10)

| | |
|---|---|
| 1.84 to 2.71 | + .065 |
| 2.72 to 3.68 | + .060 |
| 3.69 to 4.90 | + .055 |
| 4.91 to 6.30 | + .050 |
| 6.31 to 7.88 | + .045 |
| 7.89 to 9.39 | + .040 |
| 9.40 to 10.99 | + .035 |
| 11.00 to 12.49 | + .030 |
| 12.50 to 14.00 | + .025 |
| 14.01 to 15.57 | + .020 |
| 15.58 to 17.10 | + .015 |
| 17.11 to 18.62 | + .010 |
| 18.63 to 20.20 | + .005 |
| 20.21 to 21.70 | .000 |
| 21.71 to 23.22 | - .005 |

Computed: RFS
Checked: JPP

CO-2156


76° 10'
76° 00'
75° 50'
H-7945
1:20,000 1951
CO-1256
H-8405
H-8347
1:10,000
1956
37° 50'
CO-2155
H-7944
1:20,000 1951
CO-2156
H-8407
CO-1157
H-8408
TG
CO-2154
FE 3 (1950)
1:5000
UNDER RE 1956 FIELD WORK
CO-1356
H-8406
40'
CO-1257
H-
INDEX OF SHEETS
PROJECT 12870
1957
CO-1357
CO-2153
30'

NORFOLK PROCESSING OFFICE
FLOATING AIDS TO NAVIGATION
H-8407

| BUOY | LATITUDE | LONGITUDE | DEPTH | POS. NO. | DATE |
|---|---|---|---|---|---|
| Tangier I. Shoal Lump L'td. Bell Buoy 12TL | 37-46.42 | 76-10.00 | 37 | 36F | 8-15-56 |
| San Marcos Wreck L'td. Bell Buoy WR2 | 37-43.13 | 76-04.77 | 26 | 80E | 8-14-56 |
| Tangier Sd. Entr. Buoy 2 | 37-44.49 | 76-04.49 | 28 | 96AE | 8- 2-57 |
| Tangier Sd. Buoy 3 | 37-46.22 | 76-00.20 | 13 | 111E | 8-14-56 |
| *Ches. Bay-Tangier Sd. Lighted Bell Buoy | 37-40.62 | 76-06.05 | 38 | 182AE | 8- 2-57 |
| Ches. Bay East Side L'td. Bell Buoy 2 Radar Ref. | 37-36.36 | 76-02.38 | 43 | 204AD | 7-25-57 |
| Ches. Bay East Side Buoy 4 | 37-39.89 | 75-59.50 | 32 | 49AF | 8- 3-57 |

UNLISTED BUOYS

| | | | | | |
|---|---|---|---|---|---|
| BW S "31B" | 37-44.45 | 76-02.59 | 30 | 105E | 8-14-56 |
| R & B WRA | 37-39.50 | 76-08.78 | 41 | 52J | 6-20-57 |
| 20 MT | 37-40.87 | 76-05.69 | 36 | 4AA | 7-21-57 |
| Buoy | 37-40.25 | 75-59.38 | 36 | 56V | 7-11-57 |

* See Addendum

NORFOLK PROCESSING OFFICE
ADDENDUM
To Accompany

HYDROGRAPHIC SURVEY H-8407 (Co-2156)

GENERAL

This survey was plotted aboard Ship Cowie as a smooth boat sheet. The accuracy of the plotting appears to be satisfactory and the existing minor position displacement may be attributed to slippage of the plotting overlay, and the probable use of preliminary shoran corrections.

The damaged conditions along the edges of the smooth sheet existed when the sheet was received at this Office.

SOUNDINGS

Agreement of soundings at crossings was considered good as discrepancies amounted to no more than one foot. How-ever, it was necessary to recompile bar check corrections for AK day, and to apply fathometer speed corrections to N day, in order to bring soundings into agreement.

Extreme shoal indications, appearing on the fathograms between positions 132 and 133K and at 41N, were not smooth plotted as they are believed to have been caused by momentary governor falure. They should be investigated further before the preliminary charting of these soundings. 21' between 132-133K rejected per R.H.C. 30' between 40 & 41N rejected.

FLOATING AIDS

Lat. 37-40.62' and Long. 76-06.0~~5~~3' The R & B Bell Buoy was plotted on the reference from position 182AE, Vol. 29. Paragraph 5, pg. 4, of this report, states that the buoy was located by sextant angles and checked by shoran fixes, how-ever, this information could not be found in the volumes. 3pt. sextant fix at 69W (Vol 21) however this pos. is superseded by 182AE (shoran)

On page 4, vol. 21, position 6~~4~~9W is noted as being the location of a R & B buoy. A temporary dog-ear was attached to the sheet for plotting Tangier Spire and the fix plotted. This position places the buoy at Lat. 37-45.83' and Long. 76-05.65', and while this location is obviously incorrect, it was left on the sheet to relieve verification of replacing the dog-ear and replotting the needed control. 69W Superseded by pos 182AE

Norfolk, Va.
5 Jan. 1960

Respectfully submitted,
Hugh L. Proffitt
Hugh L. Proffitt
Cartographer

FORM 197
(3-16-55)

# GEOGRAPHIC NAMES

Survey No. H-8407

| Name on Survey | A On Chart No. | 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 Rand McNally Atlas | H U. S. Light List | K | |
|---|---|---|---|---|---|---|---|---|---|---|
| CHESAPEAKE BAY (TITLE) | | | | | | | | | BGN | 1 |
| TANGIER ISLAND (TITLE) | | | | | | | | | | 2 |
| | | | | | | | | | | 3 |
| | | | | | | | | | | 4 |
| | | | | | | | | | | 5 |
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| | | | | | | | | | | 7 |
| TIDE STATIONS | | | | | | | | | | 8 |
| GREAT WICOMICO RIVER | | | | | | | | | BGN | 9 |
| WINDMILL POINT | | | | | | | | | | 10 |
| | | | | | | | | | | 11 |
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George M. Bace
Geographic Names Section
June 20, 1960

DIVISION OF CHARTS

REVIEW SECTION -- NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8407 FIELD NO. CO-2156

Virginia, Chesapeake Bay, South of Tangier Island

SURVEYED: Aug. 1956 - Aug. 1957 SCALE 1:20,000

PROJECT NO. 12870

SOUNDINGS: Handlead
Sounding Pole
808 Depth Recorder

CONTROL: Shoran

Chief of Party ---------- R. A. Earle and L. G. Taylor
Surveyed by ---------- R. A. Earle
Protracted by ---------- B. E. Greene, R. F. Shoolbred and O. C. Swindell
Soundings plotted by -------- A. G. Atwill
Verified and inked by ------- F. P. Saulsbury
Reviewed by ---------- I. M. Zeskind DATE: 6/31/60
Inspected by ---------- R. H. Carstens

1. Shoreline and Control

No shoreline is shown on this offshore survey.

The source of the control is given in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in good agreement.

3. Depth Curves and Bottom Configuration

The usual depths curves were adequately delineated. The 24-ft. and 36-ft. curves were drawn to better define the bottom configuration.

The bottom is fairly regular. Submarine features such as shoals, deeps, ridges and troughs provide some bottom irregularity.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-8083 (1953) on the southwest, with H-8191 (1954-55) on the west, and with H-7944 (1951) on the northeast. The junctions with H-8448 (1958) on the south, with H-8447 (1958), H-8446 (1957-58) and H-8408 (1957) on the east, and with H-8280 (1955) on the northwest will be considered in the reviews of those surveys.

5. Comparison with Prior Surveys

A. H-252 (1849-51), 1-40,000
H-285 (1851), 1-40,000
H-1964 (1881), 1-40,000
H-2500 (1900-01), 1-60,000

These small scale reconnaissance surveys cover the area of the present survey. A comparison between the prior and present surveys reveals the bottom in general has shoaled from 1-3 ft. However, greater shoaling has occurred in several areas, as for example in the vicinity of lat. 37°34.3', long. 76°00.9' where shoaling of as much as 8 ft. has taken place. It is also noted that the bottom has deepened 2-3 ft. in several places. An example of this latter condition is found in the trough in the vicinity of lat. 37°45.0', long. 76°01.0'. These differences in depth are attributed to the different methods of surveying, the depositing of sediment, and the action of the current on the bottom.

A number of bottom characteristics have been carried forward from the prior surveys to the present survey. With the addition of these bottom characteristics, the present survey is adequate to supersede the prior surveys within the common area.

B. H-2800 (1906), 1-20,000
H-3313 (1911), 1-40,000
H-3361 (1911), 1-40,000
H-3702 (1914), 1-20,000
H-4918 (1929), 1-40,000
FE 5, 1949, 1-80,000
FE 7, 1956, 1-40,000

These prior surveys cover portions of the present survey. A comparison between the prior and present surveys reveals the present survey generally to be 1 ft. to 3 ft. shoaler than the prior surveys. These differences in depths are attributed to causes similar to those given in paragraph A above.

The 23-ft. sounding charted in lat. 37°37.07', long. 76°00.49', from H-3702 (1914) should be deleted from the chart. The sounding was questioned in the sounding volume and was considered to be 1-fm. too shoal. The

charted sounding falls in present depths of 26-27 ft. in a relatively flat area and about 250 meters north and northwest of 25-ft. soundings. (See par. 4, page 4 of the Descriptive Report.)

Two soundings from FE 5, 1949, and a number of bottom characteristics from prior surveys have been carried forward to the present survey. With these additions, the present survey is adequate to supersede the prior surveys within the common area.

C. Wire Drag

FE 5, 1949, 1-80,000

There are no conflicts between the present survey soundings and the effective wire-drag depths.

6. Comparison with Chart 568 (Latest print date 7/6/59)
Chart 1223 (Latest print date 12/14/59)

A. Hydrography

The charted hydrography originates principally with the prior surveys previously discussed which need no further consideration supplemented by soundings from the boat sheet of the present survey (Bp 55957). A comparison between the chart and present survey reveals only minor differences of 1-3 ft. in depths. Attention is directed to the following:

Items applied 12/14/60

1. The 35-ft. sounding charted in lat. 37°33.10', long. 76°06.80', from the boat sheet of the present survey (Bp 55957) was revised to 38 ft. during verification and review of the present survey. The sounding should be deleted from the chart.

2. The wreck "Rep" charted in lat. 37°39.0', long. 76°05.5', from C.G. N. to M. 3, 1951, symbolizes 3 sunken LCVP vessels. These wrecks were searched for and could not be found during the present survey. However, the wrecks were subsequently searched for by wire drag in compliance with SP 6-59, during FE 6, 1959. The wrecks will be considered in the review of FE 6, 1959. (See par. 3, page 4 of the Descriptive Report.)

3. The 26-ft. sounding charted in lat. 37°40.45', long. 76°02.90', from the boat sheet of the present survey (Bp 55957) was revised to 30-ft. during verification and review of the present survey. The 26-ft. sounding should be deleted from the chart and the curve enclosing the sounding should be revised.

4. The 32-ft. and 36-ft. cleared effective wire-drag depths over obstructions charted in lat. 37°39.2', long. 76°05.9' from FE 6 (1959), were applied to the chart subsequent to the present survey.

5. The 20-ft. cleared effective wire-drag depth over San Marcos Wreck charted in lat. 37°43.2, long. 76°04.7', from FE 1 (1960), was applied to the chart subsequent to the present survey.

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

B. Aids to Navigation

The present survey positions of aids to navigation are in substantial agreement with the charted positions and adequately mark the features intended, except as follows:

1. The lighted bell buoy located on the present survey in lat. 37°40.62', long. 76°06.03', was subsequently charted about 1½ miles southwestward in accordance with HON to M. 9, 1960. Here it better marks the intended feature.

2. Lighted bell buoy "2" located on the present survey in lat. 37°36.36', long. 76°02.36', was subsequently charted about 2-3/4 miles south southwestward in accordance with HON to M. 9, 1960. Here it better marks the intended feature.

3. Lighted buoy "WR 1" charted in lat. 37°43.16', long. 76°04.63', was established subsequent to the present survey in accordance with HON to M. 29, 1958. This buoy marks the eastern limits of the San Marcos wreck.

4. The lighted red and black bell buoy "WR" located on the present survey in lat. 37°43.16', long. 76°04.75' was replaced by the lighted red bell buoy "WR 2" now charted, subsequent to the present survey in accordance with HON to M. 29, 1958. This buoy marks the western limits of the San Marcos wreck.

7. Conditions of Survey

a. The sounding records and Descriptive Report are complete and comprehensive.

b. Approximately 400 soundings were revised during verification of the present survey because of faulty fathometer speeds

initial and phase corrections, for the purpose of improving crossings and the accuracy of bottom delineation.

c. The smooth boat sheet locations of sounding lines were pricked through to the smooth sheet. Minor inaccuracies are noted in the plotting of the positions, but only those positions were revised where better agreement in depths of surrounding hydrography was obtained.

8. Compliance with Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work Recommended

The survey is considered basic and no additional field work is recommended.

Examined and Approved:

F E Waugh 10/18/60
Chief, Nautical Chart Branch

Chief, Division of Charts

Louis F. Woodcock
Chief, Hydrography Branch

J. I. Bowie
Chief, Division of Coastal Surveys

Form 946

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. ..8407..

Records accompanying survey: Smooth sheets ..1...;

boat sheets ..1..; sounding vols. 30 +1 filed with H-8446 (Bar checks).; wire drag vols. .....;

Descriptive Reports ..1...; graphic recorder envelopes ..26...;

special reports, etc. .....

.....

The following statistics will be submitted with the cartographer's report on the sheet:

| | | |
|---|---|---|
| Number of positions on sheet | | 3,994 |
| Number of positions checked | | 160 |
| Number of positions revised | | 25 |
| Number of soundings revised (refers to depth only) | | *2123 |
| Number of soundings erroneously spaced | | 0 |
| Number of signals erroneously plotted or transferred | | 0 |
| Topographic details | Time | 0 |
| Junctions | Time | 24 |
| Verification of soundings from graphic record | Time | 10 |
| Special adjustments | Time | ..... |

Verification by F. P. Saulsbury ..... Total time 433.. Date 5-20-60..

Reviewed by [signature] ..... Time 68.. Date 6-13-60

*Due to various speed, phase & Initial Corrections

* About 400 revisions to sdgs caused by inaccurate fathometer speeds, initial changes and phase corrections

US COMM C&GS DC

RHC

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. Apr. 1950

# TIDE NOTE FOR HYDROGRAPHIC SHEET

15 February 1960

~~Division of Coastal Surveys~~

Division of Charts: R. H. Carstens

Plane of reference approved in
30 volumes of sounding records for

HYDROGRAPHIC SHEET 8407

Locality Chesapeake Bay, Virginia

Chief of Party: L. G. Taylor) R. A. Earle ) in 1956-57

Plane of reference is mean low water, reading
2.0 ft. on tide staff ~~at~~ (1956) at Great Wicomico River Lt. Ho.
14.1 ft. below B. M. 1 (1898)

2.2 ft. on tide staff (1957) at Windmill Point Lt. Ho.
4.4 ft. below B.M. 1 (1956)

Height of mean high water above plane of reference is 1.1 feet.

Condition of records satisfactory except as noted below:

William Shafuo
~~Chief, Division of Tides and Currents.~~
Chief, Tides Branch

U. S. GOVERNMENT PRINTING OFFICE 877933

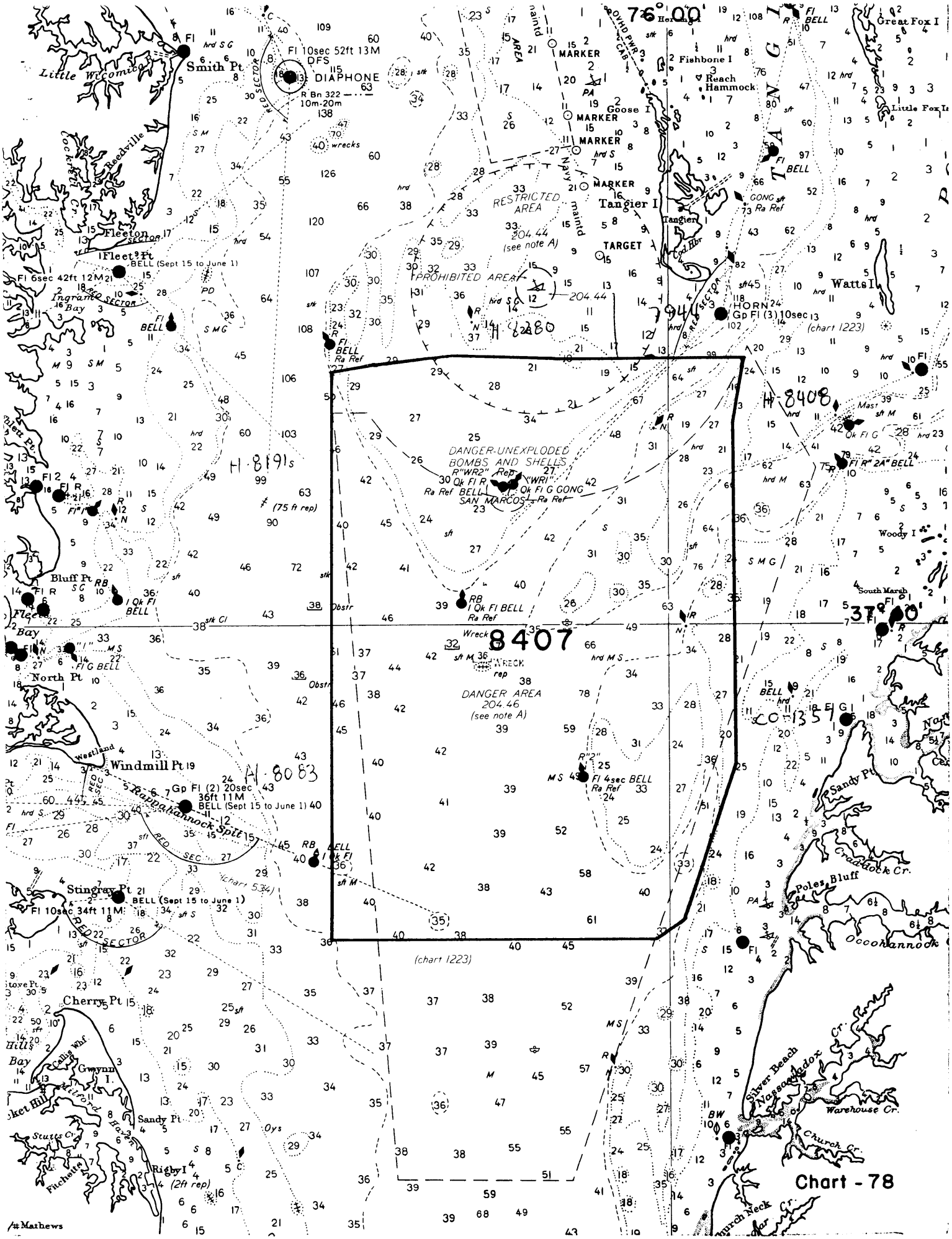
Chart - 78
DANGER-UNEXPLODED BOMBS AND SHELLS
DANGER AREA 204.46 (see note A)
RESTRICTED AREA 204.44 (see note A)
PROHIBITED AREA
Smith Pt
Little Wicomico
Fleeton
Fleet Pt
Ingram Bay
Bluff Pt
North Pt
Windmill Pt
Rappahannock Spit
Stingray Pt
Cherry Pt
Sandy Pt
Rigby I
Tangier I
Tangier
Goose I
Fishbone I
Reach Hammock
Watts I
Great Fox I
Little Fox I
Woody I
South Marsh
Sandy Pt
Poles Bluff
Occohannock
Silver Beach
Nassawaddox
Warehouse Cr
Church Cr
Mathews

# NAUTICAL CHARTS BRANCH

SURVEY NO. H-8407

## Record of Application to Charts

| DATE | CHART | CARTOGRAPHER | REMARKS |
|---|---|---|---|
| 3/31/60 | 568 | M Evans III | Before ~~After~~ Verification and Review Examined for critical corns - no corns applied at this time |
| 5/9/60 | 1223 | J W Walker | Before ~~After~~ Verification and Review Examined - no critical cor. - not applied |
| 7-19-60 | 78 | J. M. Albert | add about 18 pages ~~Before~~ After Verification and Review (in pencil) Partial application |
| 12/15/60 | 568 | E. E. Thomas | ~~Before~~ After Verification and Review Completely applied |
| 12/17/60 | 1223 | E E Thomas | ~~Before~~ After Verification and Review |
| 12/20/60 | 78 | J. H Eaton | Comp appd. ~~Before~~ After Verification and Review |
| 2/3/61 | 568 | M Evans III | ~~Before~~ After Verification and Review |
| | | | Before After Verification and Review |
| | | | Before After Verification and Review |
| | | | Before After Verification and Review |

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.