

8283

Diag. Cht. Nos. 77-3 and 78-3.

Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. CO-2255 Office No. H-8283

LOCALITY

State Virginia - Maryland

General locality Chesapeake Bay

Locality Smith Point to Point No. Point

1955 & 56

CHIEF OF PARTY

K. S. Ulm and E. L. Jones

LIBRARY & ARCHIVES

DATE December 23, 1956

COMM-DC 61300

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-8283

Field No. Co-2255

State VIRGINIA-MARYLAND

General locality CHESAPEAKE BAY

Locality SMITH POINT TO PT. NO POINT

Scale 1:20,000 Date of survey Oct. 1955 to June 1956

Instructions dated 2/5/53, 2/25/54, 1/14/55 & 11/17/55

Vessel SHIP COWIE

Chief of party K.S. ULM & E.L. JONES, R.A. EARLE

Surveyed by R.J. BLACK, ~~J.H. POSEY~~, J.P. PORCHER, B.E. GREEN
& C.I. HARDING

Soundings taken by ~~XXXXXXXX~~, graphic recorder, hand lead, ~~XXX~~

Fathograms scaled by SHIP PERSONNEL

Fathograms checked by SHIP PERSONNEL

Protracted by A.K. SCHUGELD

Soundings penciled by A.K. SCHUGELD

Soundings in ~~XXXXXX~~ feet at MLW ~~XXXXX~~ and relative depths.

REMARKS:

48

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SHEET H-8283

1:20,000 (FIELD NO. CO-2255)

CHESAPEAKE BAY

SMITH POINT TO POINT NO POINT

PROJECT 12870 1955 & 1956

USC&GS SHIP COWIE

K. S. Ulm, Comdg. 1955
E. L. Jones, Comdg. 1956

A - PROJECT:

Project 12870, Supplemental Instructions dated 5 February 1953, 25 February 1954, 14 January 1955 and 17 November 1955.

B - SURVEY LIMITS AND DATES:

This survey is of the offshore area of Chesapeake Bay from Smith Point to Point No Point.

The approximate southern limit is latitude $37^{\circ}54'$ N., and the northern limit is latitude $38^{\circ}08.2'$ N. at the mouth of the Potomac. It extends eastward from longitude $76^{\circ}19.5'$ W. to longitude $76^{\circ}10'$ W., and north of Point Lookout it extends eastward from longitude $76^{\circ}17'$ W. to approximate longitude $76^{\circ}12'$. Junctions with contemporary surveys are as follows: ^{H-8278 (1955)} ~~CO-1355~~ to the south, ^{H-8279 (1955)-59} ~~CO-1455~~ to the west (north of latitude $38^{\circ}02'$ N.), and ^{H-8435 (1956)} ~~CO-2451~~ to the east (South of latitude $38^{\circ}02'$ N.). Junctions with prior surveys are: ⁽¹⁹⁴⁵⁻⁴⁶⁾ H-7094 to the north, ⁽¹⁹⁴²⁾ H-6775 to the east (north of latitude $38^{\circ}02'$ N.), ^{H-8496 (1959) to the west.} Field work was begun on 29 September 1955 and discontinued on 26 October 1955. It was resumed on 25 April 1956 and completed on 12 June 1956.

C - VESSELS AND EQUIPMENT:

The Ship COMIE using 808 fathometers 118-S and 120-S was used throughout this survey. Unattended Type "B" Shoran equipment was used for control of hydrography during most of the 1956 field work.

D - TIDE AND CURRENT STATIONS:

The 1955 soundings were reduced from a portable tide gage maintained at the U. S. Coast Guard Pier on the west side of Point Lookout. No time or height corrections were applied to the observed tides. 1956 soundings were reduced from records of a portable tide gage maintained at Great Wicomico River Lighthouse. A time difference of $\frac{1}{2}$ one hour and a height correction of $\frac{1}{10}$ 0.2 feet were applied to the observed tides. A portable tide gage was also maintained at Holland Island Bar Lighthouse throughout the 1956 field work period on this survey.

No current stations were occupied within the limits of this survey.

E - SMOOTH SHEET:

The smooth sheet will be prepared and plotted by the Norfolk Processing Office.

F - CONTROL STATIONS:

Triangulation Stations	Hydrographic Name
Hack, 1955	Hack ✓
Little Wicomico River Light No. 1, 1955 ✓	Jet
Point Lookout Belfrey, Finial, 1901	Frey
Point Lookout Lighthouse, 1846-1934	Look

Point Lookout Tank, 1934	Tank
Point No Point Lighthouse, 1905- 422	No
Sig, 1955	Sig
Smith Point Lighthouse, 1898- 1949	Smith

Topographic Signals:

T-11047	T-11049	T-11288	T-11289	T-11290
Hut	Abe	Sol	Con	Abe Abe
* Log*	For	Tax	Dot	Aim
Mug	Fox		Gal	Bag
	Gab		Ice	Dim
	Got		Jam	Fat
	Toy		* Key	Was
			Mar	
			Out	
			Pal	

* Plotted from boat sheet
No position furnished

*my signal
Topo*

Shoran Stations:

MIT Smith Point Lighthouse, 1898

AND Holland Island Bar Lighthouse, 1897

OUT Latitude 38°02' 18.143" N
Longitude 76° 19' 20.143" W
33.52 meters, azimuth ^{344°}~~164°~~ 12' from Point
Lookout Lighthouse, 1846

G - SHORLINE AND TOPOGRAPHY:

Sho^upline is from T-11047, T-11049, T-11288, T-11289 and T-11290. This subject is discussed in detail in the Descriptive Reports for contemporary inshore surveys ^{H-8278} ~~60-1355~~ and ^{H-8279} ~~60-1455~~.

H - SOUNDINGS:

Depths were measured with 808 fathometers. Fathometer and velocity corrections were determined from daily bar checks and from temperature and salinity observations. (See special report "Fathometer Corrections, 1956 Season" forwarded 19 February, 1957.) S.R. 145, 1956

I - Control of Hydrography:

Visual hydrography executed in 1955 and part of 1956 along the south bank of the Potomac River was controlled by sextant fixes on natural objects and signals on shore located by triangulation or photogrammetric methods. Satisfactory results were obtained with no noticeable jumps in sounding lines.

Most of the 1956 work was controlled by Shoran. Computations for shoran lines of position were furnished by the Washington Office from triangulation stations at which the shoran stations were located (see heading "F" this report). The computations as furnished for stations, Mit and AND are satisfactory for smooth sheet use since the displacement of the Shoran mast from the center was approximately 2 meters in each case, and is not plottable on a 1:20,000 scale. The computations for station OUT cannot be used as furnished since the displacement of the mast was about 33 meters. The points should be recomputed from the

G. P. as given in heading "F", or the already computed points should be shifted 33.5 meters on an azimuth of ^{344°}~~164~~ 12'. No practical error (due to convergence of the meridians) will be introduced in the latter case because the amount of shift is relatively small. *Correction applied to our during Smooth Plot.*

No shoran corrections were applied to boat sheet plotting since accurate corrections were not available before shoran hydro began and several of the plotters had had no previous shoran plotting experience. Adequate corrections were determined however from weekly calibrations (See "Shoran Correction Report, 1956" forwarded 19 February 1957) and the shift in position due to corrections has been taken into account in examining the boat sheet for junctions with visual work and adjoining surveys, and for chart comparison purposes.

On several occasions, when objects were visible, simultaneous sextant fixes were taken and recorded in the sounding volumes as a check on the shoran.

J - ADEQUACY OF SURVEY:

This survey is complete and adequate and supersedes prior surveys *see Review* for charting purposes. Junctions with prior and contemporary surveys are satisfactory with maximum differences of 1 to 2 feet. No holidays exist and depth curves can be adequately drawn at the junctions.

K - CROSSLINES:

Crosslines are sufficient and comprise about 8 per cent of the principal system of lines. Boat sheet discrepancies at crossings have been examined with the reduced soundings and are found to be satisfactory. *see Review*

L-M - COMPARISON WITH CHARTS AND PRIOR SURVEYS:

Items on the Preliminary Review of 24 March, 1954 were investigated as follows:

1. Item 7: The sunken wreck charted in latitude $37^{\circ} 59.5'$, *See Review* longitude $76^{\circ} 10.7'$ from H. O. Notice 4 1950 was investigated as follows. The area was developed by two systems of 100-meter lines intersecting at about 45 degrees. In addition the ship spent 24 minutes cruising about the area searching with the fathometer. No indication of the wreck was found. In view of the extensive dragging previously reported and the negative results of this investigation it is recommended that it's position be charted as doubtful and that instructions be issued for a Field Examination by wire dragging.

North bound ships use the buoy which marks this wreck as a navigational aid, often passing and changing course $3/4$ mile to the west of it. The buoy also marks the edge of the shoal water to the north and northeast and it should be retained for navigational purposes even if the wreck should be disproved.

2. Item 8: The area surrounding the 14-foot sounding charted in *Disregard 14'* *See Review* latitude $38^{\circ} 01.65'$, Longitude $76^{\circ} 10.1'$ was covered by a development similar to that mentioned in the preceeding paragraph. While the charted sounding was not found, a least depth reducing to ¹⁵~~14~~ $1/2$ feet was found 250 meters to the south, between positions 136 and 137Z. Approximately 700 meters to the south a sounding reducing to ^{13'}~~12~~ $1/2$ feet was found between positions 112 and 113U,

and a sounding reducing to ¹³~~12~~ feet was found between positions 130 and 131Z. Undoubtedly the charted 14-foot sounding is "o.K." as indicated in the sounding records for H-3379. It is recommended that the charted 14-foot sounding be retained and that a ¹³~~12~~-foot sounding be charted in latitude $38^{\circ} 01.25'$, longitude $76^{\circ} 10.02'$ to replace the 17-foot sounding presently charted in this location on Chart 1224.

Since there are apparently several isolated shoals in this area it is recommended that, if instructions are issued to wire drag item 7 in the preceeding paragraph, this area also be included

3. Item 12: The charted 42-foot sounding in latitude $37^{\circ} 57.07' N$ longitude $76^{\circ} 12.81' W$ lies in an area where general depths of 44 and 45 feet were found on this survey. The bottom is quite even and no indication of isolated shoals in this area is evident from the regular system of lines. It appears unlikely that the 42-foot sounding exists in the location shown, however depths of 42 feet were found 400 meters to the west north west. Since the depths in this area were found to be generally 2 to 3 feet shoaler than the charted depths it is recommended that the charted 42-foot sounding be retained until a new edition of Chart 557 is prepared.

*Discrepancy?
See Review*

4. Item 16: The 11-foot sounding in latitude $38^{\circ} 02.35' N$, longitude $76^{\circ} 19.80' W$ was corroborated during a special investigation on 6 June 1956, which is to be plotted as a sub-plan on (See Vol. XII, p. 62 for this investigation.) this sheet. Several sounding lines were run in this area using a

skiff and handlead. ^{Three}~~Least~~ depths found reduced to 11 feet and ^{were}~~was~~

~~in the immediate area.~~
~~midway between positions 21a and 22a (green).~~ The ten foot
smooth plot is blue.
sounding charted 120 meters to the eastward was also investigated
and no indication of the 6-foot sounding formerly charted in this
position was found. In addition to the development, 30 minutes
was spent drifting and cruising at slow speed through the area
while feeling with the handlead and sounding pole. No depths
shoaler than those recorded ^{on this survey} were found.

The reported 6-foot sounding mentioned above was discussed
with the Point Lookout lightkeeper, Mr. George J. Gatton. Mr.
Gatton recalls discussing the incident which led to the 1911 re-
porting of this sounding with persons who were stationed there at
the time. Apparently a lighthouse tender backed too far inshore
while leaving the pier and touched bottom. According to Mr.
Gatton the captain of the lighthouse tender was much farther inshore
than he thought at the time. It appears, therefore that this sound-
ing was erroneously reported and since no indications of it were
found during this investigation it is recommended that it be dis-
regarded in any further consideration of this area.

*The 6-ft
sounding is
to be disregarded.
See also
H-8279 (1911-19)*

5. Item 17: The wreck charted in latitude $38^{\circ} 02.1'$, longitude
 $76^{\circ} 19.28'$ was searched for during the course of the special in-
vestigation mentioned above. There is now a sand spit which is
(Vol. VII, p. 60.)
bare at low water in this location. Portions of the wreck are
probably buried in the sand but no trace of it was found at this
time. It is recommended that the wreck be deleted from the chart. *Concur*

6. Charted ^{clearances for} obstructions of 37 feet and ³⁹ 38 feet in latitude 38° 05.4', longitude 76° 15.2', and latitude 38° 05.2', longitude 76° 14.6', respectively. The area was covered by a 100 meter regularly spaced system of sounding lines. General depths of 43 to 45 feet were found; the bottom is very even and no indications of shoaling were found. Since there is no mention in the preliminary review concerning the nature and extent of F.E. 11, 1951 or *See Renew* of the obstructions found; no recommendation will be made at this time as to their disposal.
7. A comparison with Chart 557 (print date 10/18/54) and Chart 1224 (print date 11/14/55) shows good agreement between the old and the new surveys maximum discrepancies being about 1 to 3 feet. General configuration of depth curves is unchanged.

N - DANGERS AND SHOALS:

For discussion of shoals found in the vicinity of latitude 38° 01', longitude 76° 10', refer to paragraph 2, heading ^{"L-M"} ~~"N"~~ of this report.

No other new dangers or shoals of any consequence were found.

O - COAST PILOT INFORMATION:

Coast Pilot notes for the season are being submitted as a separate report.

No Coast Pilot information for the area of this survey was noted in 1955 or 1956.

P - Q - AIDS TO NAVIGATION AND LANDMARKS FOR CHARTS:

Landmarks were inspected and found adequate. No new landmarks are recommended for charting, and none are recommended for deletion.

No non-floating aids to navigation were located within the limits of this survey.

Floating aids to navigation were located during this survey as

follows:

*See NPO list
These positions listed from unadjusted field positions (Shoran 'C' not applied to Boat Sheet) See Norfolk Processing
listings attached.*

Buoy	Latitude	Longitude	Depth
1. S "14W"	37° 55.28' ✓	76° 13.78' ✓	35 Feet
2. S "14AW"	37° 56.30' ✓	76° 15.71' ⁶⁰	36 Feet
3. S "15W"	37° 57.49' ⁵⁰	76° 17.72' ⁰	39 Feet
4. Point Lookout Shoal, Bell Buoy "2"	(position 13Z, 1956 work) 38° 01.42' ✓	76° 19.40' ✓	19 Feet
5. R Bell "16 AA" Fl W	38° 06.18' ⁹	76° 12.55' ²	30 Feet
6. Point Lookout Shoal, N "4"	38° 02.29' ✓	76° 19.69' ⁷²	17½ Feet
7. R N "16"	38° 04.62' ⁵	76° 11.95' ¹	19½ Feet
8. R Bell "14" Qk Fl W	37° 59.42' ✓	76° 10.73' ⁵	44 Feet

R - GEOGRAPHIC NAMES:

Geographic names as shown on the charts of the area are adequate and no additional names are recommended.

S - Y:

(No additional information).

Z - TABULATION OF APPLICABLE DATA:

1. Fathometer Correction Report, 1956 forwarded 19 February 1957. *SR. 145, 1956*
2. Shoran Correction Report, 1956 forwarded 19 February 1957. *SR. 144, 1956*
Not available during review. ET

Respectfully Submitted,



Bruce E. Greene
Lieutenant, USC&GS

Forwarded:



Robert A. Earle
Commander, USC&GS
Comdg. Ship COWIE

TIDE NOTE

1955:

A portable tide gage, latitude $38^{\circ} 02.35'$ N, longitude $76^{\circ} 19.41'$ W, at the U. S. Coast Guard Pier, Point Lookout, Maryland, was used to obtain tide reducers for the 1955 work. No time or height corrections were applied to the observed tides. The plane of reference is mean low water.

1956:

Falls off sheet

A portable tide gage maintained at Great Wicomico River Lighthouse, *off survey limits.* latitude $37^{\circ} 48.3'$, longitude $76^{\circ} 16.1'$, provided hourly height for reduction of the 1956 soundings. The plane of reference is mean low water which corresponds to 2.0 feet on the tide staff. A time difference of ± 1 hour and a height difference of ± 0.2 feet were applied to the observed tides to obtain reducers for all 1956 work on this sheet.

NORFOLK PROCESSING OFFICE
FLOATING AIDS TO NAVIGATION
H-8283

<u>BUOY</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>DEPTH</u>	<u>POS.</u>	<u>DATE</u>
Pt. Lookout Shoal Bell Buoy 2	38-01.48✓	76-19.41✓	18'	1Z /	5/30/56
Cornfield Harbor Buoy 4	38-02.29	76-19.72✓	17'	1a✓	6/ 6/56
Kedges Straits Middle Ground Buoy 14	37-59.42✓	76-10.75	44'	210U✓	5/23/56
Kedges Straits Middle Ground Norther End Buoy 16	38-04.65✓	76-11.91✓	19'✓	60Y✓	5/29/56
Ches. Bay Main Chan. Buoy 16AA	38-06.19✓	76-12.52	30'	44Y✓	5/29/56
Spar 14W	37-55.28✓	76-13.78	33'	143G 144G 146G	10/26/55
Spar 14AW	37-56.31 ²	76-15.60✓	36'	147G 148G 151G 149 G	10/26/55
Spar 15W	37-57.50✓	76-17.70✓	38'	152G 153G 155G✓ 170G✓	10/26/55
N Priv maintained	38°-02.39	76-19.49	11'	38 a	6/6/56

STATISTICS FOR HYDROGRAPHIC SURVEY H-8283 (1955-56)

SHIP COWIE

Day Letter	Date	Volume No.	No. of Positions	Naut. Mi.	Sounding
A	9/2/55	I	11	3.9	
B	10/7/55	I	34	11.3	
C	10/10/55	I	66	19.8	
D	10/17/55	XX I	98	32.8	
E	10/21/55	II	32	10.6	
F	10/24/55	II	75	22.8	
G	10/26/55	II & III	196	55.8	
H	4/25/56	IV	112	35.9	
J	4/26/56	IV	62	21.0	
K	5/8/56	IV & V	60	28.3	
L	5/9/56	V	115	52.5	
M	5/10/56	V & VI	70	33.9	
N	5/15/56	VI	18	9.6	
P	5/16/56	VI	40	20.2	
Q	5/17/56	VI & VII	131	66.2	
R	5/18/56	VII	73	36.1	
S	5/21/56	VII & VIII	156	79.3	
T	5/22/56	VIII	95	45.0	
U	5/23/56	IX	246	79.3	
V	5/24/56	X	8	3.6	
X W	5/25/56	X	53	22.9	
X	5/28/56	X	66	31.4	
Y	5/29/56	X & XI	145	62.5	
Z	5/30/56	XI & XII	207	73.1	

STATISTICS FOR HYDROGRAPHIC SURVEY H-8283 (1955-56) Con'td.

SHIP CONIE

Day letter	Date	Volume No.	No of Positions	Naut. Mi. Sounding
AA	6/4/56	XII	50	(Bottom Samples)
BA	6/5/56	XII	82	23.0
CA	6/12/56	XII & XIII	182	59.1

SKIFF

a	6/6/56	XII	50	1.8
TOTALS:		13 Volumes	2,533	937.4

Area - 63.2 Square Nautical Miles.

FATHOMETER CORRECTIONS

SHIP COWIE - 1955

Fathometer No. 120-S

A Scale			B Scale			C Scale		
to	14	0.6	35	- 41	-0.5	70	- 93	-1.5
14.5	- 16.5	0.4	41.5	- 54	-1.0	93.5	- 105	-2.0
17	- 20	0.2	54.5	- 72	-1.5	105.5	- 125	-2.5
20.5	- 29	00.0	72.5	- 85	-2.0			
29.5	- 36	-0.2	85.5	- 90	-2.5			
36.5	- 41	-0.4						
41.5	- 45	-0.6						
45.5	- 48.5	-0.8						
49	- 52	-1.0						
52.5	- 55	-1.2						

FATHOMETER CORRECTIONS

Ship COMIE 1954:

Day	Correction	to	Depth
H, J, K, L & M	0 .6 Ft.		19.0 Ft.
	0 .4 Ft.		29.0 Ft.
	0 .2 Ft.		38.0 Ft.
	0 Ft.		48.0 Ft.
	-0.2 Ft.		57.0 Ft.
	-0.4 Ft.		68.0 Ft.
	-0.6 Ft.		80.0 Ft.
	-0.8 Ft.		93.0 Ft.
	-1.0 Ft.		100.0 Ft.
N, O, S, T & W	0 .2 Ft.		16.0 Ft.
	0 Ft.		27.0 Ft.
	-0.2 Ft.		41.0 Ft.
	-0.4 Ft.		54.0 Ft.
	-0.6 Ft.		68.0 Ft.
	-0.8 Ft.		84.0 Ft.
	-1.0 Ft.		102.0 Ft.
	-1.2 Ft.		122.0 Ft.
	-1.4 Ft.		140.0 Ft.

BATHYMETRIC CORRECTIONS

Ship CONIE 1956:

Day	Correction	to	Depth
P & Q	0.6 Ft.		16.0 Ft.
	0.4 Ft.		19.0 Ft.
	0.2 Ft.		34.0 Ft.
	0 Ft.		47.0 Ft.
	-0.2 Ft.		61.0 Ft.
	-0.4 Ft.		76.0 Ft.
	-0.6 Ft.		94.0 Ft.
	-0.8 Ft.		110.0 Ft.
161 U thru 246 U	1.0 Ft.		27.0 Ft.
	0.8 Ft.		41.0 Ft.
	0.6 Ft.		51.0 Ft.
	0.4 Ft.		68.0 Ft.
	0.2 Ft.		85.0 Ft.
	0 Ft.		103.0 Ft.
	-0.2 Ft.		110.0 Ft.
1 U thru 160 U & V	-0.4 Ft.		17.0 Ft.
	-0.2 Ft.		27.0 Ft.
	-0.4 Ft.		41.0 Ft.
	-0.6 Ft.		51.0 Ft.
	-0.8 Ft.		68.0 Ft.
	-1.0 Ft.		85.0 Ft.
	-1.2 Ft.		103.0 Ft.
	-1.4 Ft.		110.0 Ft.

FATHOMETER CORRECTIONS

Ship OWIE 1956:

Day	Correction	to	Depth
X, Y, AA & BA	+0.6 Ft.		16.0 Ft.
	+0.8 Ft.		32.0 Ft.
	+0.6 Ft.		61.0 Ft.
	+0.4 Ft.		98.0 Ft.
	+0.2 Ft.		120.0 Ft.
	⁰ +0.4 Ft.		16.0 Ft.
	-0.2 Ft.		17.0 Ft.
	0 Ft.		32.0 Ft.
	-0.2 Ft.		61.0 Ft.
	-0.4 Ft.		99.0 Ft.
CA	-0.6 Ft.		120.0 Ft.
	+0.2 Ft.		120.0 Ft.

*z → use "y" day bar cks.
for corrections to bring up
crossings into agreement.*

METHODS USED TO OBTAIN FATHOMETER CORRECTIONS

1. EQUIPMENT: 800-J fathometers Nos. 1148, 1188 and 1208 were used for practically all of the work this season. These fathometers are old and in rather poor operating condition. Worn parts caused considerable slippage of the initial and large errors when changing phase. The fathometers also showed a marked instrumental error (sometimes positive, sometime negative) which showed up at all depths and usually remained constant for an entire day, often for several days.

Bar checks yielded erratic results especially in depth greater than thirty feet.

One Model 255 Edo Fathometer, No. 210, was installed in Launch 176. Several attempts were made to use this fathometer but due to improper adjustment, mechanical failure of certain delicate parts, and the lack of trained repair personnel, the instrument yielded usable results on only one occasion.

2. TIDAL CONDITIONS: The area covered by Sheets CO-2255 and CO-2451 lies at the mouth of the Potomac River. In this area there is a considerable variation in the salinity from the surface to the bottom. Between the depths of thirty feet and sixty feet the salinity varied with the stage of the tide. These two facts could help to explain the erratic bar checks.

3. METHOD USED TO DETERMINE VELOCITY CORRECTIONS: Ten temperature and salinity observations were taken between 25 April 1956 and 24 July 1956. These observations showed that the water warmed at a uniform rate while the salinity remained fairly constant as the season progressed. The velocity corrections computed from the temperatures and salinities do not take into consideration the instrumental error in the fathometer.

H-9293

The final correction curves for Sheets CO-2255 and CO-2451 were obtained by determining the instrumental error of the fathometer then shifting the axis of the velocity curve (determined from temperatures and salinities) to include this error. A weighted mean of the bar checks was used to determine the velocity correction for depths through twenty feet. The correction for twenty feet was taken as the instrumental error. At that point the temperature and salinity velocity curve was joined to the bar check curve to arrive at the final correction curves.

Poor Copy

The depth of twenty feet was chosen as the junction point because the temperature and salinity at this depth was practically constant regardless of the stage of the tide.

Velocity corrections for Sheets CO-2156, CO-1156 and CO-1256 were determined by using a weighted mean of the bar checks.

4. METHOD USED TO DETERMINE PHASE CORRECTIONS: Originally comparative bar check readings on different scales (where scales overlapped) were to be the basis of the phase corrections. The results of the bar checks were so erratic that another method of obtaining phase corrections had to be found. Due to the nature of the bottom in Chesapeake Bay, relatively smooth with gentle slopes, the following method was adopted.

Comparative readings, from the fathograms, before and after phase changes are the basis for the corrections that were applied. All corrections are referenced to "A" scale assuming no phase correction on "A" scale.

When a difference was obtained from readings at the beginning and end of a phase change cycle, as from "B" scale to "C" scale and then back from "C" scale to "B" scale, the mean of the readings was used as the phase correction.

In determining the corrections, allowances were made for the slope of the bottom and the time taken to shift scales.

When the trace ran off the fathogram making it ^{impossible} to obtain a value at a point of scale shift, either or both the preceding or following scale shift (phase change) was used to determine the correction to be applied.

5. METHOD USED TO DETERMINE THE INITIAL CORRECTION: The initial corrections were obtained by scanning the fathograms.

When an error in initial appeared after a shift back to "A" scale, the error was attributed to needle wear and prorated over the remaining the previous initial check.

*The complete Fath. Report will be
upon completion of 1956 surveys
H. L. P.*

Peer Copy

SHORAN CORRECTIONS

1956 FIELD SEASON

USC&GS SHIP COWIE

PROJECT 12870

SHEET CO-2255:

Stations MIT and OUT

Shoran Reading (Stat. Mi.)	Correction (Stat. Mi.)
0.870 to 1.609	+0.090
1.610 to 2.599	+0.085
2.600 to 3.999	+0.080
4.000 to 5.799	+0.075
5.800 to 8.199	+0.070
8.200 to 11.299	+0.065
11.300 to 14.499	+0.060
14.500 to 17.599	+0.055
17.600 to 20	+0.050

Station AND

Shoran Reading (Stat. Mi.)	Correction (Stat. Mi.)
0.720 to 1.389	+0.090
1.390 to 2.289	+0.085
2.290 to 3.549	+0.080
3.550 to 5.279	+0.075
5.280 to 7.399	+0.070
7.400 to 10.499	+0.065
10.500 to 13.659	+0.060
13.660 to 16.849	+0.055
16.850 to 19	+0.050

Comp. by: BEG
Checked: CIH

NORFOLK PROCESSING OFFICE
ADDENDUM
To Accompany

HYDROGRAPHIC SURVEY H-8283 (Co-2255)

GENERAL

This appears to be an excellent basic survey except for crossing discrepancies on K, Z and CA days. This Office was unable to correct the soundings on these days without resorting to arbitrary methods. The discrepancies may possibly be attributed to one or more of the conditions listed in the attached yellow pages which were taken from the 1956 Fathometer Report.

K-DAY On K day, all soundings were in agreement with surrounding hydrography except those between positions 51 and 60K. These soundings are being submitted on an overlay as they will require adjustments of as-much-as 5 feet. *Phase Corr revised and Shoran Correctors revised thru 3pt fix comparisons.*

Z-DAY The soundings on this day are in disagreement through-out. The crossing discrepancies are particularly noticeable on A scale, where the soundings average 1 to 2 feet shoaler than surrounding hydrography. *see below.*

This is a crossline and development day, and as such, was one of the first to be penciled on the smooth sheet. The rather extensive Z day development area, at Lat. 38-01' and Long. 76-10', was covered again on U day. All U day soundings falling in this area are being submitted on an overlay as they average 1 foot deeper than Z day soundings.

CA-DAY Soundings on A and B scales average from one to two feet shoaler than surrounding hydrography. *minor revisions made; evidence of faulty operation on C scale;*

Z day:- "Y" day bar check was used where necessary to bring crossings into agreement.

Norfolk, Va.
14 December 1959

Respectfully submitted,

Hugh L. Proffitt
Hugh L. Proffitt
Cartographer

OFFICE OF CARTOGRAPHY

REVIEW SECTION -- NAUTICAL CHART DIVISION

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8283

FIELD NO. CO-2255

Virginia - Maryland, Chesapeake Bay, Smith Pt. to Pt. No Pt.

SURVEYED: Oct. 1955 - June 1956

SCALE: 1:20,000

PROJECT NO. 12870

SOUNDINGS: 808 Depth Recorder
Leadline
Sounding Pole

CONTROL: Shoran
Sextant angles
on shore object

Chiefs of Party ----- K. S. Ulm; E. L. Jones; R. A. Earle
Surveyed by ----- R. J. Black; ~~E. L. Posey~~; J. P. Porcher
B. E. Greene; C. I. Harding
Protracted by ----- A. K. Schugeld
Soundings plotted by ----- A. K. Schugeld
Verified and inked by ----- J. C. Chambers
Reviewed by ----- E. E. Thomas
Inspected by ----- R. H. Carstens

DATE 6-26-61

1. Description of the Area

This survey is located in the Chesapeake Bay offshore of the entrance to the Potomac River.

Generally the survey covers an area of smooth bottom, with minor irregularities in depths less than 20 ft. The survey includes the deep water channel of the bay and adjacent areas.

2. Control and Shoreline

The origin of control is adequately described in the Descriptive Report.

The shoreline originates with reviewed photogrammetric surveys T-11047, T-11049, T-11289 and T-11290 (1952-54) with revisions determined by the hydrographer in red.

3. Hydrography

- a. Depths at crossings are in good agreement after revisions indicated in item 4 were made.
- b. The usual depth curves are adequately delineated.
- c. The development of the bottom configuration and the investigation of least depths is considered good.

4. Condition of the Survey

- a. It was necessary for the verifier to revise approximately 500 soundings to eliminate numerous crossing discrepancies of 1-3 feet caused by faulty depth recorder operation..

Revision to phase and bar check corrections were made on portions of 3 day's work and shoran positioning of a section of one day's work was revised in accordance with 3-point fix information.

- b. The field plotting, sounding records, and Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual.

5. Junctions

Adequate junctions were effected with H-8496 (1959) on the west, with H-8278 (1955) on the south, H-8277 (1955) on the southeast, H-8435 (1956) and H-6775 (1942) on the east, and H-7094 (1945-46) on the north. The junction with H-8279 (1955-59) on the northwest will be considered in the review of that survey.

6. Comparison with Prior Surveys

- a. H-1319 a&b (1877)

This is a boundary survey showing no soundings and is not applicable for comparison with the present hydrographic survey.

- b.

H-1441	a&b (1879)	1:40,000
H-2429	(1899)	1:40,000
H-2500	(1900-01)	1:60,000

The few soundings on these earlier reconnaissance surveys which fall within the area of the present survey afford no adequate basis for comparison. The present survey is adequate to supersede these prior surveys in the common area.

- c. H-211 (1849) 1:20,000
 H-2739 (1904-5) 1:20,000
 H-2993 (1908-09) 1:20,000
 H-3379 (1912) 1:40,000
 H-4920 (1929) 1:20,000

These surveys comprise the coverage more comparable to the present survey. A comparison of the present and prior surveys reveals that a general shoaling of 1 to 2 feet has occurred since 1849 (H-211) over the major portion of the survey. However, a large area at the Potomac River entrance has shoaled as much as 3 to 4 feet during this period. This change is attributed to sedimentation.

Random differences between the present survey and H-211 (1849) of as much as 3 to 5 feet exist in areas of smooth bottom and are attributed to the use on the prior survey of handlead sounding on a soft mud bottom.

The present survey is adequate to supersede the prior surveys in the common area.

- d. F.E. 11, 1951

This is a wire-drag field examination. There are no conflicts noted between the effective drag depths and the depths on the present survey. The depths found during this examination have neither been verified nor disproved by the present survey and are therefore carried forward.

7. Comparison with Chart 555 (Latest print date 5-15-61)
 557 (Latest print date 11-7-60)
 1223 (Latest print date 7-25-60)
 1224 (Latest print date 12-12-60)

A. Hydrography

The charted hydrography originates principally with the previously discussed prior surveys, supplemented by partial application of the present survey thru the boat sheet (Bp. 57615) and the unverified smooth sheet.

The following items are specifically noted:

- (1) The wreck, charted in Lat. $37^{\circ}55.05'$, Long. $76^{\circ}10.95'$ originates with NM-48, 1957. ✓ Ch 568 6/25/58
- (2) The wreck, charted in Lat. $37^{\circ}57.2'$, Long. $76^{\circ}12.4'$ originates with NM-49, 1958.
- (3) The wreck, charted in Lat. $37^{\circ}59.5'$, Long. $76^{\circ}10.75'$ originates with NM-4, 1950 and 5, 1950. The area was investigated by soundings, but no indication was found on the present survey. However it is recommended that the charted data be retained. ✓ Ch 568
- (4) The 14-ft. sounding from H-3379 (1912) has been discredited at its charted position in Lat. $38^{\circ}01.65'$, Long. $76^{\circ}10.1'$ by specific development on the present survey. A similar feature, however, was found approximately 250 meters southward with a least depth of 15 ft.
- (5) The 42-ft. sounding charted on 557 in Lat. $37^{\circ}57.07'$, Long. $76^{\circ}12.81'$ falls in general depths of 45-47 ft., and should be disregarded. Its origin is assumed to be a 47-ft. depth from H-211 which was erroneously revised to a 42-ft. depth during a prior chart reconstruction.

The present survey is adequate to supersede the charted hydrography in the common area except for the wrecks listed above.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work

This survey is considered to be a ~~basic~~ basic survey and no additional hydrography is recommended.

The following charted wrecks should be considered for future wire-drag examination:

<u>Wreck</u>	<u>Charted Position</u>		<u>Source</u>
	<u>Lat.</u>	<u>Long.</u>	
1. 20 ft. rep.	37°59.5'	76°10.75'	NM-4, 5, 1950'
2. 37 ft. rep.	37°57.2'	76°12.4'	NM-49, 1958 <i>6/25/71</i>
3. 45 ft. rep.	37°55.05'	76°10.95'	NM-48, 1957 ✓

*Ch 568 6/25/71
OS*

Examined and Approved:

J. E. Waugh
Chief,
Nautical Chart Division
9/29/61

[Signature]
Assistant Director,
Office of Cartography

[Signature]
Projects Officer,
Operations Division

Max R. Keltus
Assistant Director,
Office of Oceanography

GEOGRAPHIC NAMES

Survey No. H-8283

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 BGN	
POINT NO POINT	557									1
ST JEROME POINT	"									2
POINT LOOK-IN	"							✓		3
POINT LOOKOUT	"									4
SMITH POINT	"									5
CHESAPEAKE BAY (TILE)	"							✓		6
										7
										8
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										27

George M. Bree
Geographic Names
1/12/60

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8283...

Records accompanying survey: Smooth sheets .1...;
 boat sheets .1...; sounding vols. .13...; wire drag vols.;
 Descriptive Reports .1...; graphic recorder envelopes .15...;
 special reports, etc. .2-Overlay tracings and 1-Sub-plan.....

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

Number of positions on sheet	2533
Number of positions checked	92
Number of positions revised	0
Number of soundings revised (refers to depth only)	approx 500 (2 day)
Number of soundings erroneously spaced	0...
Number of signals erroneously plotted or transferred	0...
Topographic details	Time 4
Junctions	Time 72 4
Verification of soundings from graphic record	Time 16
Special adjustments	Time 8 6
	E. E. Thomas 10 hrs. *

Verification by *J. B. Chambers* Total time 376 hrs Date 4/5/61

Reviewed by *E. E. Thomas* Time 64 Date 6/25/61

* Corrections during Review.

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~DIVISION OF CHARTS~~

18 January 1960

Division of Charts: R. H. Carstens

Plane of reference approved in
13 volumes of sounding records for

HYDROGRAPHIC SHEET 8283

Locality Chesapeake Bay, Virginia & Maryland

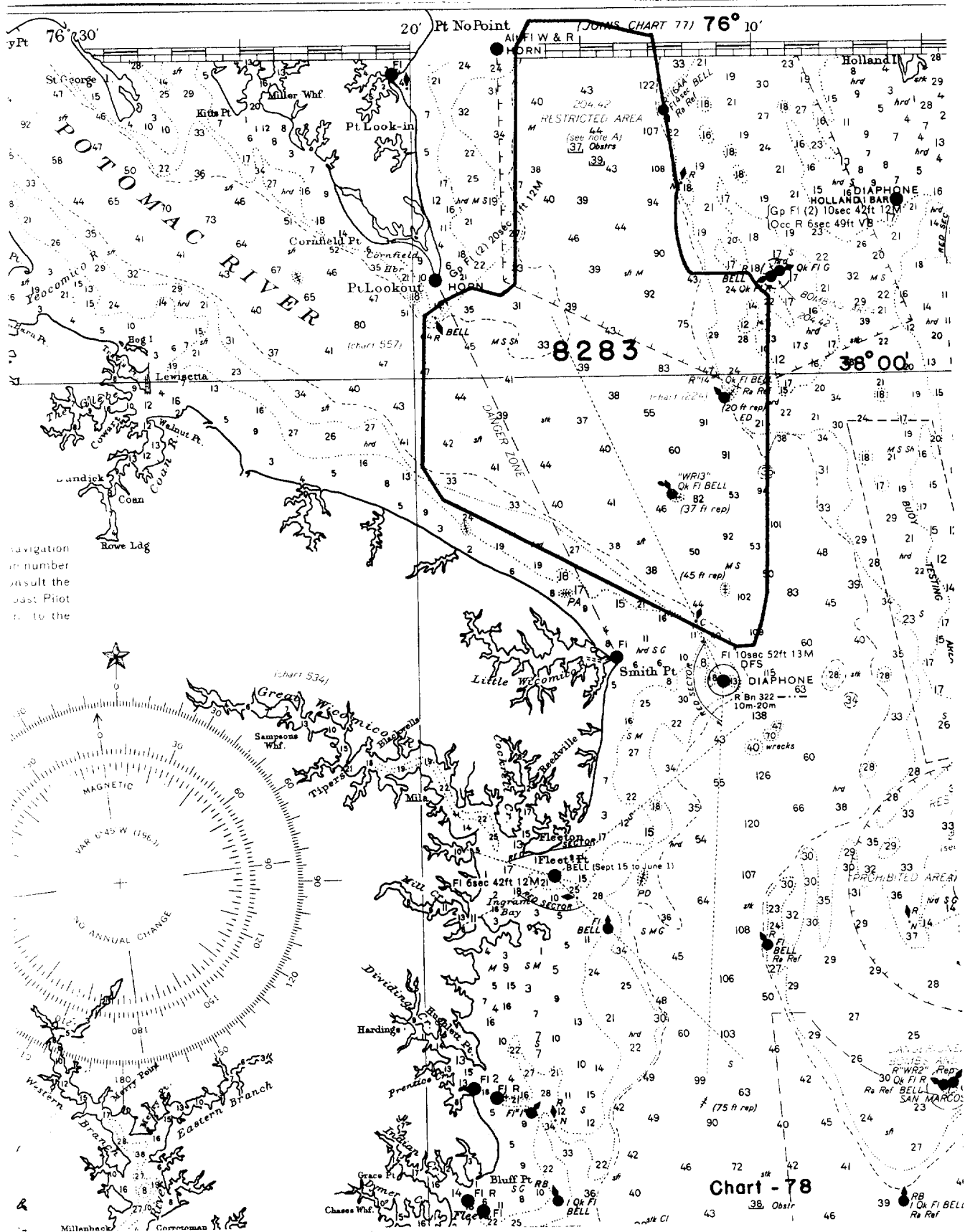
K.S. Ulm in 1955
Chief of Party: E.L. Jones in 1956
Plane of reference is mean low water, reading
1.0 ft. on tide staff at Point Lookout
3.9 ft. below B. M. 1 (1929)

2.0 ft. on tide staff at Great Wicomico River L.H.
11.5 ft. below B.M. 6 (1954)

Height of mean high water above plane of reference is 1.3 feet.

Condition of records satisfactory except as noted below:


Chief, Tides Branch~~CHIEF, DIVISION OF CHARTS~~



NAUTICAL CHARTS BRANCH

SURVEY NO. H-8283

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
2-17-60	557	A. J. Hoffman	Before After Verification and Review <i>Partially</i>
2-17-60	101-1 (12255)	A. J. Hoffman	Before After Verification and Review <i>applied thru ch. 557 Partially</i>
4-5-60	1223	R. K. de Lander	Before After Verification and Review <i>thru ch 557</i>
4-20-60	1224	R. K. de Lander	<i>part appld</i> Before After Verification and Review <i>thru ch 557</i>
5/19/60	77	<i>Sam.</i>	Before After Verification and Review <i>Examined only.</i>
7-13-60	78	C. R. W.	<i>via ch 1224</i> Before After Verification and Review
3/1/61	555	O. Svendsen	<i>App. & critical sdgs only</i> Before After Verification and Review
6/15/61	557	H. W. Burgoyne	Before After Verification and Review <i>before inspection - partially applied in vicinity of 50,36 curve</i>
8/11/61	1223	J. H. Eaton	<i>Comp. app'd. Part thru ch 557</i> Before After Verification and Review
8-28-61	1224	R. E. Elkins	Before After Verification and Review <i>Partly applied Examined review - no revisions</i>
8-30-61	1224	R. E. Elkins	<i>After Ver & Rev. Partly applied. (Revised sdgs and curves and fully applied in area of chart 1223 only).</i>
11/13/61	555	J. H. E.	<i>After ver. and review. Comp. applied</i>
1/13/62	1224 (12233) 557	J. H. Eaton	<i>Comp. App'd. after V & R. Thru drg. 555 & 557 & 1223</i>
1/13/62	557	J. H. Eaton	<i>Comp App'd. after V & R. drg 21</i>
2/27/64	77	O. Svendsen	<i>Comp app after V & R.</i>
9/29/67	78	J. H. M.	<i>Partly app after V & R</i>
8/24/70	78	J. H. M. 11/140	<i>Fully appd thru 1224 & 48 & 1223 & 44</i>

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.

6/25/71 568

O. Svendsen

Fully app. after inspection on Drg #17 (See Back)

NAVY CHART

DATE	CHART	CARTOGRAPHER	REMARKS
3-27-91	12285	Ed Martin	in full after inspection & review to dreg 30, after thru 12233(557) dreg 45

[scribble]
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