8278

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-1355 *Office No.* H-8278

LOCALITY

State Maryland - Virginia

General locality Cheapeake Bay

Locality Smith Point to Mob Neck, Potomac River

1955

CHIEF OF PARTY

K. S. Ulm

LIBRARY & ARCHIVES

DATE February 10, 1959

USCOMM-DC 5087

8278

4 NB

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-8278

Field No. Co-1355

State MARYLAND-VIRGINIA

General locality CHESAPEAKE BAY

Locality SMITH POINT TO ~~HULL~~ MOB NECK, POTOMAC RIVER

Scale 1:10,000 Date of survey 21 July to 30 Sept. 1955

Instructions dated 5 Feb. 1953; 25 Feb. 1954 & 14 Jan. 1955

Vessel SHIP COWIE, Lch. 102 & Skiff 729

Chief of party KENNETH S. ULM

Surveyed by K.S. ULM; R.J. BLACK; F.A. PUSEY & A.J. RAMEY

Soundings taken by ~~xxxxxxxx~~, graphic recorder, hand lead, ~~xxxx~~ Pole

Fathograms scaled by SHIP PERSONNEL

Fathograms checked by SHIP PERSONNEL & NORFOLK DISTRICT OFFICE

Protracted by FRED BEAN Norfolk P.O.

Soundings penciled by FRED BEAN

Soundings in ~~xxxxxx~~ feet at MLW ~~xxxxx~~ and are true depths

REMARKS:

U. S. GOVERNMENT PRINTING OFFICE 16—66520-1

DESCRIPTIVE REPORT
To Accompany

Hydrographic Survey H — Field No. CO-1355

Chesapeake Bay — Potomac River

USC&GS Ship COWIE — Scale 1:10,000

Commander K. S. Ulm, Commanding

A. Project:

Project CS-1287, Supplemental Instructions dated 5 February 1953, 25 February 1954 and 14 January 1955.

B. Survey Limits and Dates:

The area covered by this survey includes the southern shore of the Potomac River from Smith Point westward to longitude 76° 19.5'. Junctions with contemporary surveys are as follows: CO-1255 to the south and CO-2255 to the north. H-8277(55) H-8283(55-56)

The survey began on 21 July and was concluded on 30 September 1955.

C. Vessel and Equipment:

The Ship COWIE, equipped with 808 type fathometer 120S, was used offshore in general depths of 12 feet and upward. Launch 102, equipped with 808 type fathometers 114-S and 118-S was used in general depths of 5 feet and upward to a junction with the ship. Skiff 749, equipped with 808 type fathometer 114-S was used in shoal areas along the shore.

D. Tide and Current Stations:

A portable automatic tide gage was operated at the Great Wicomico River Light House, throughout the entire period of this survey, and one was maintained at Point Lookout, Maryland from 30 August 1955 through the end of the season.

E. Smooth Sheet:

Construction and plotting of the smooth sheet ~~will be~~ was by the Norfolk Processing Office.

F. Control Stations: See N.P.O. List of Signals

Triangulation:

Hack, 1955 (Hack)
Little Wicomico River Light 1, 1955 (Jet)
Smith Point Light, 1898 (Smith)
Sig, 1955 (Sig)

F. Control Stations (Contd.):

Topographic:

T-11047	Hut	Fox	Nig
	Log	Fry	Out
	Mug	Gab	Pin
	Nil	Gas	Pug
T-11049	Abe	Got	Quo
	Add	Hoe	Toy
	Art	Hon	Van
	Deb	Hum	Wed
	For	Jug	
		Let	
		Mop	

Hydrographic:

Rum	Sky	Sox	Sub

G. Shoreline and Topography:

The shoreline on the boat sheet was transferred from aerial photograph manuscript T-11047 and T-11049. (Advance Manuscripts) See Review p1 (Boat Sheet only)

It was not practical to define the entire low water line by soundings due to the small range of tide in this area. The following areas have shoreline corrections as shown in red ink on the boat sheet; broken lines indicate approximate positions since no signals were available for fixes.

1. Latitude 37° 54.20', Longitude 76° 15.40' } Same area
2. Latitude 37° 54.30', Longitude 76° 15.50' }

H. Soundings:

Soundings, which were taken with the 808 type fathometer, handlead and sounding pole, agree satisfactorily and depth curves can be adequately drawn at the junctions.

I. Control of Hydrography:

Sounding lines were controlled by three point fixes, using natural objects or signals erected along the shoreline. Satisfactory results were obtained from using these signals.

J. Adequacy of Survey:

This survey is considered complete, adequate for charting purposes, and should supersede all prior surveys. Junctions with the adjoining surveys are satisfactory, no holidays exist and depth curves can be adequately drawn at the junctions. Several soundings were deleted from H-8277 in order to resolve depth differences of 1 to 2 feet in junctional overlap area in the vicinity of Smith Point.

K. Crosslines:

Crosslines are in good agreement and comprise approximately ten percent of the principal system of lines.

L-M. Comparison With Prior Surveys and Charts:

Launch 102:

1. Item 11 (Preliminary Review). The wreck in latitude 37° 54.90', longitude 76° 15.62' was charted from L.H. Notice 26 (1937), which states that the CASCHALOT went hard aground here. According to Curtis Smith of Sunnybank, Virginia, the boat broke up and washed away shortly after going aground, leaving only the motor in place. Therefor, it is recommended that the chart symbol be changed to that of a submerged wreck. *Review p 6* *Position on 1223 made to agree with 557 and add PA jma*

2. Item 13 (Preliminary Review). The sunken wreck in latitude 37° 56.43', longitude 76° 18.62' was charted from H.O. Notice 2, 1922, which reported the sinking of a pile-driver awash at that time. An investigation was performed by dragging the anchor in the approximate vicinity of a shoal sounding obtained between positions 126 and 127g. Concentric circles were then run around this position by changing the scope of line and soundings were taken with the fathometer and handlead. A solid structure, with a depth of 13.7 feet was detected with the handlead at latitude 37° 56.32', longitude 76° 18.50', and is believed to be the wreck in question. *Review p 6*

3. A comparison with Chart 557 (print date 10/18/54) shows good agreement between the old and new surveys. *Review p 5 + 6*

Skiff 749:

1. A comparison with Chart No. 557 (print date 10/18/54), shows good agreement between the old and new surveys. *Review p 5 + 6*

Ship COWIE:

1. A comparison with Chart No. 1224 (print date 5/10/54), and with Chart No. 557 (print date 10/18/54), shows good agreement between the old and new surveys. *Review p 5 + 6*

N. Dangers and Shoals:

No new dangers or shoals were located within the limits of this survey.

O. Coast Pilot Information:

The 1955 Coast Pilot Report is being prepared as a separate report.

P. Aids to Navigation:

Form 567, Nonfloating Aids to Navigation, is being prepared as a separate report.

Floating Aids to Navigation, within the limits of this survey are as follows:

401. Potomac River Buoy "C1", latitude 37° 54.18', longitude 76° 11.80', in 41 feet of water.

Q. Lnadmarks for Charts:

Form 567, Landmarks for Charts, is being prepared as a separate report.

No new landmarks are recommended for the area covered by this survey.

R. Geographic Names:

Geographic names as shown on the charts in this area are adequate, and no additional names are recommended.

U-Y. Miscellaneous:

The fathometer corrections for the ship were obtained by averaging the bar checks by seasonal periods, the same fathometer being used throughout the season.

The launch fathometer corrections were obtained by averaging the bar checks according to the fathometer used.

The skiff fathometer corrections were obtained by averaging all the bar checks, the same fathometer being used throughout the season.

An abstract of the above corrections is included as part of this report.

Z. Tabulation of Applicable Data:

A list of signlas is attached to Vol. No. 1 of the sounding records.

A tabulation of other data is included as part of this report.

Respectfully submitted,

Albert J. Ramey

Albert J. Ramey
Lieut. (j.g.), USC&GS

Approved and forwarded

Edmund L. Jones

Kenneth S. Ulm
Commander, USC&GS
Commanding Ship COWIE

Tide Note:

A portable automatic tide gage was maintained at the Great Wicomico River Light House throughout the entire period of this survey, and one at Point Lookout, Maryland from 8/30/55 to the end of the season. The Point Lookout tides were used with no corrections for time or height, whereas a time difference of plus 1 hour, 45 minutes and a range ratio of 1.2 was applied to the Great Wicomico tides. No other time or height corrections were applied. The hourly heights were scaled from the tide marigrams and the tide curves were plotted by personnel of the Ship COWIE.

STATISTICS:

Ship COWIE

Vol. No.	Date	Day Letter	No. of Pos.	Statute Miles
I	8/24/55	A	189	41.4
I	8/29/55	B	74	16.6
II	8/29/55	B	27	5.6
II	9/16/55	C	65	15.3
II	9/21/55	D	115	24.4
II	9/28/55	E	20	4.0
III	9/28/55	E	18	3.8
III	9/30/55	F	75	15.8
TOTALS			583	126.9

Launch 102

IV	7/21/55	a	178	29.2
IV	7/27/55	b	86	15.3
V	7/27/55	b	116	20.3
V	7/28/55	c	122	20.5
VI	8/3/55	d	44	7.2
VI	8/4/55	e	130	19.2
VI	8/23/55	f	7	Signal Location
VI	9/7/55	g	57	6.3
VII	9/7/55	g	116	16.7
VII	9/22/55	h	56	7.5
TOTALS			912	144.2

Skiff 749

VIII	8/2/55	a	125	18.1
VIII	8/31/55	b	37	5.5
VIII	9/1/55	c	74	10.6
IX	9/1/55	c	91	11.5
IX	9/14/55	d	51	5.2
IX	9/15/55	e	134	14.9
X	9/15/55	e	23	2.6
TOTALS	Skiff 749		535	68.4
	Ship COWIE		583	126.9
	Launch 102		912	144.2
			2,030	339.5

Area: 17.66 Square Statute Miles

FATHOMETER CORRECTIONS
Sheet CO-1355

Fathometer 120S Ship COWIE,
24 August - 21 September (incl.)

A Scale

0	27.5	+0.6
28	55	+0.4

28 September - 27 October (incl.)

A Scale

0	14	+0.6
14.5	16.5	+0.4
17	20	+0.2
20.5	29	0.0
29.5	36	-0.2
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

B Scale

35	46.5	-0.8
47	51	-1.0
51.5	55	-1.2

Launch 102
Fathometer 114S

A Scale

0	30	0.0
30.5	40	+0.2
40.5	50	+0.4
50.5	55	+0.6

B Scale

37	44	+2.0
44.5	55	+2.2
55.5	72	+2.0
72.5	75	+2.2
75.5	77	+2.4
77.5	79	+2.6
79.5		+2.8

C Scale

68	72	+6.0
72.5	76	+5.8
76.5	80	+5.6
80.5	84	+5.4
84.5	88	+5.2
88.5	92	+5.0
92.5	96	+4.8
96.5	100	+4.6
100.5	104	+4.4
104.5	108	+4.2
108.5	112	+4.0
112.5	116	+3.8
116.5	120	+3.6

Launch 102, Fathometer 118S

0	7	0.0
7.5	26	+0.2
26.5	35	+0.4
35.5	40	+0.6
40.5	45	+0.8
45.5	48	+1.0
48.5	50	+1.2

B Scale

40	44	+1.0
44.5	58	+1.2
58.5	60	+1.0

Skiff 749, Fathometer 114S

A Scale

0	14	+0.2
14.5	19	0.0
19.5	25	-0.2
25.5	40	-0.4

NORFOLK PROCESSING OFFICE
LIST OF SIGNALS
H-8278

TRIANGULATION STATIONS

HACK	HACK, 1955
JET	LITTLE WICOMICO RIVER LIGHT 1, 1955
SIG	SIG, 1955
SMITH	SMITH POINT LIGHTHOUSE, 1898-1949

TOPOGRAPHIC STATIONS

SOURCE T-11047

Art	Gab	Hut	Mug	Nil

SOURCE T-11049

Abe	Add	Deb	Fig	For	Fox	Fry	Gas	Got
Hoe	Hon	Hum	Jug	Let	Mop	Nig	Out	Pau
Pin	Pug	Quo	Rum	Sex	Sox	Toy	Van	Wed

HYDROGRAPHIC STATIONS

Sky	Vol. 6, pgs. 56&57
Sub	" " " " "
*Log	Vol. 9, pgs. 57&68

* See Addendum

NORFOLK PROCESSING OFFICE
ADDENDUM
To Accompany

HYDROGRAPHIC SURVEY H-8278 (Co-1355)

GENERAL

The bottom, in the area of this survey extending to the 24 foot curve, is made up of numerous lumps and sloughs. The curves are extremely irregular and a great many crossing discrepancies of 1' exist. It is believed that most of these discrepancies may be attributed to the character of the bottom and to minor position displacement. Larger unaccountable discrepancies are listed below.

SOUNDING DISCREPANCIES

blue day soundings rejected as faulty

Lat. 37-53.5 Long. 76-13.6, Line 14-15e (red) crossing 1-2d (blue).

Lat. 37-53.8 Long. 76-14.1, Line 1-3d (red) crossing 23-24c (red). *Review pp 2.*

Lat. 37-53.7 Long. 76-14.2, Detached position 2g (blue) pole sounding of 3' falling in 5 to 6 foot depths. *Sounding OK*

Lat. 37-54.9 Long. 76-16.1, Line 161-162a (blue) crossing 128-129c (red). *Uneven bottom here.*

CONTROL

Hydro station "Log" was transferred from the boat sheet. Two parallel cuts from detached positions checked this location, how-ever, no other location data could be found to use on the smooth plot. No jumps were noted when this station was used on sounding lines.

Norfolk, Va.
3 Feb. 1959

Respectfully submitted,

Hugh L. Proffitt
Cartographer

FORM 197
(3-16-55)

GEOGRAPHIC NAMES

Survey No. H-8278

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	K U. S. Light List	
Maryland		(Title)							BGN	1
Virginia		"		; should be added to title on cover					"	2
Chesapeake Bay									"	3
Potomac River									"	4
Smith Point										5
Mob Neck		should be used in subtitle rather than Hull Neck, which is off the limits of this sheet								6
										7
				Names approved L. Heck			2-18-59			8
Tide stations off sheet:										9
Point Lookout										10
Great Wicomico River Lighthouse										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

Form 946

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8278

Records accompanying survey: Smooth sheets 1;

boat sheets 1; sounding vols. 10; wire drag vols. ;

Descriptive Reports 1; graphic recorder envelopes 9;

special reports, etc. .....

.....

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

Number of positions on sheet		2030.
Number of positions checked		66
Number of positions revised		0
Number of soundings revised (refers to depth only)		51
Number of soundings erroneously spaced		0
Number of signals erroneously plotted or transferred		0
Topographic details	Time	4 hr.
Junctions	Time	24 hr.
Verification of soundings from graphic record	Time	6 hr.
Special adjustments	Time	.....

Verification by John P. Wei.... Total time 128 hr. Date Nov. 14, 1960

Reviewed by D. R. Engle..... Time 60... Date Dec. 14, 1960

US COMM C&GS DC

OFFICE OF CARTOGRAPHY

REVIEW SECTION -- NAUTICAL CHART DIVISION

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8278 FIELD NO. CO-1355

Maryland-Virginia, Chesapeake Bay, Smith Point to Mob Neck, Potomac River

SURVEYED: July - September 1955 SCALE: 1:10,000

PROJECT NO. CS-1287

SOUNDINGS: 808 Depth Recorder
Hand Lead
Pole

CONTROL: Sextant fixes on shore signals

Chief of Party ---------- K. S. Ulm
Surveyed by ---------- K. S. Ulm; R. J. Black
F. A. Pusey; A. J. Ramey
Protracted by ---------- F. Bean
Soundings plotted by -------- F. Bean
Verified and inked by ------- J. P. Weir
Reviewed by ---------- D. R. Engle DATE: Dec. 14, 1960
Inspected by ---------- R. H. Carstens

1. Shoreline and Signals

The shoreline originates with reviewed air-photographic surveys T-11047 and T-11049 of 1952-54.

The shoreline in the vicinity of Lat. 37°54.25', Long. 76°15.45' was revised by the hydrographer.

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

2. Sounding Line Crossings

Depths at crossings generally agree within one foot, except at Lat. 37°53.8', Long. 76°14.1' where a 2-foot difference exists in 6-foot depths. All soundings in this area are pole soundings. Since no recorded information could be found to bring these depths into agreement, and since these shoal 3-foot soundings may be a part of the long 3-foot shoal extending out toward the area concerned, all soundings were retained despite the discrepancy at crossings.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated. The 3-foot curve was added to delineate the numerous shoal sand ridges and depressions which characterize much of the inshore bottom.

4. Junctions with Contemporary Surveys

An adequate junction was effected with H-8277 (1955) on the south. Junction with H-8283 (1955-56) on the north will be considered in the review of that survey.

5. Comparison with Prior Surveys

H-211 (1849), 1:20,000
H-2500 (1900-01), 1:60,000
H-2739 (1904-05), 1:20,000

These prior surveys cover the area of the present survey. A comparison of the prior and present surveys reveals that this area is at present generally 1-2 feet shoaler than indicated on the prior surveys, with the following exceptions:

(1) At Lat. 37°54.35', Long. 76°12.4' soundings from H-211 (1849) of 13-19 feet fall in present depths of 17-38 feet. This effects only one sounding line on the prior survey which appears to be out of position.

(2) At Lat. 37°56.13', Long. 76°18.35' a 24-foot sounding from H-211 (1849) falls in present depths of 14 feet. This appears to have been a 10-foot error in sounding or recording.

(3) At Lat. 37°54.4', Long. 76°14.4' the 8-foot shoal from H-211 (1849) has subsequently eroded to present depths of 12 to 13 feet.

The more thorough coverage of the present survey reveals much information not shown on the sparsely developed smaller-scale prior surveys. The present survey is adequate to supersede the prior surveys within the common area.

6. Comparison with Chart 557 (Latest print date Nov. 7, 1960)

a. Hydrography

Charted hydrography originates principally with the previously discussed surveys supplemented by partial application of the present survey prior to verification and review. Comparison

of the chart and the present survey reveals differences in depth of 1 to 2 feet and numerous depth curve differences.

The wreck (Item 11, Preliminary Review) charted at Lat. 37°54.9', Long. 76°15.6' from L. H. Notice to Mariners No. 26 (1937) was not found by the hydrographer. The wreck was reported to have broken up and washed away leaving only the motor remaining (Item L-M, p. 3 of Descriptive Report). It should be retained on the chart as a submerged wreck PA.

The submerged wreck (Item 13, Preliminary Review) charted at Lat. 37°56.43', Long. 76°18.62' from H.O. Notice to Mariners No. 2, 1922 was investigated by the hydrographer. A solid structure, believed to be the wreck, was detected with the hand lead at a depth of 13.7 feet at Lat. 37°56.32', Long. 76°18.50'. It is now properly charted as a 13-foot sounding on a wreck.

Except as noted above the present survey is adequate to supersede the charted information.

b. Controlling Depths

The charted controlling depth of the entrance to Little Wicomico River is based on data furnished by the U. S. Corps of Engineers subsequent to the date of the present survey and supersedes the present survey information.

c. Aids to Navigation

The aids to navigation located on the present survey are in substantial agreement with the charted aids and adequately mark the features intended.

7. Condition of Survey

a. The sounding records are complete and the Descriptive Report covers all matters of importance.

b. The smooth plotting was generally accurate.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work

This is an excellent basic survey and no additional field work is recommended.

Examined and Approved:

J. E. Waugh
Chief,
Nautical Chart Division
7/25/61

Projects Officer,
Operations Division

Assistant Director,
Office of Cartography

Assistant Director,
Office of Oceanography

RHC

Form 712
(11-30-55)

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Chart Division: R. H. Carstens

26 March 1959

Plane of reference approved in
10 volumes of sounding records for

HYDROGRAPHIC SHEET 8278

Locality Potomac River, Chesapeake Bay

Chief of Party: K. S. Ulm in 1955

Plane of reference is mean low water, reading

1.0 ft. on tide staff at Point Lookout, Md.

4.2 ft. below B.M. 4 (1928)

1.9 ft. on tide staff at Great Wicomico River Lt. House, Va.
14.2 ft. below B.M. 1 (1898)

Height of mean high water above plane of reference is as follows:

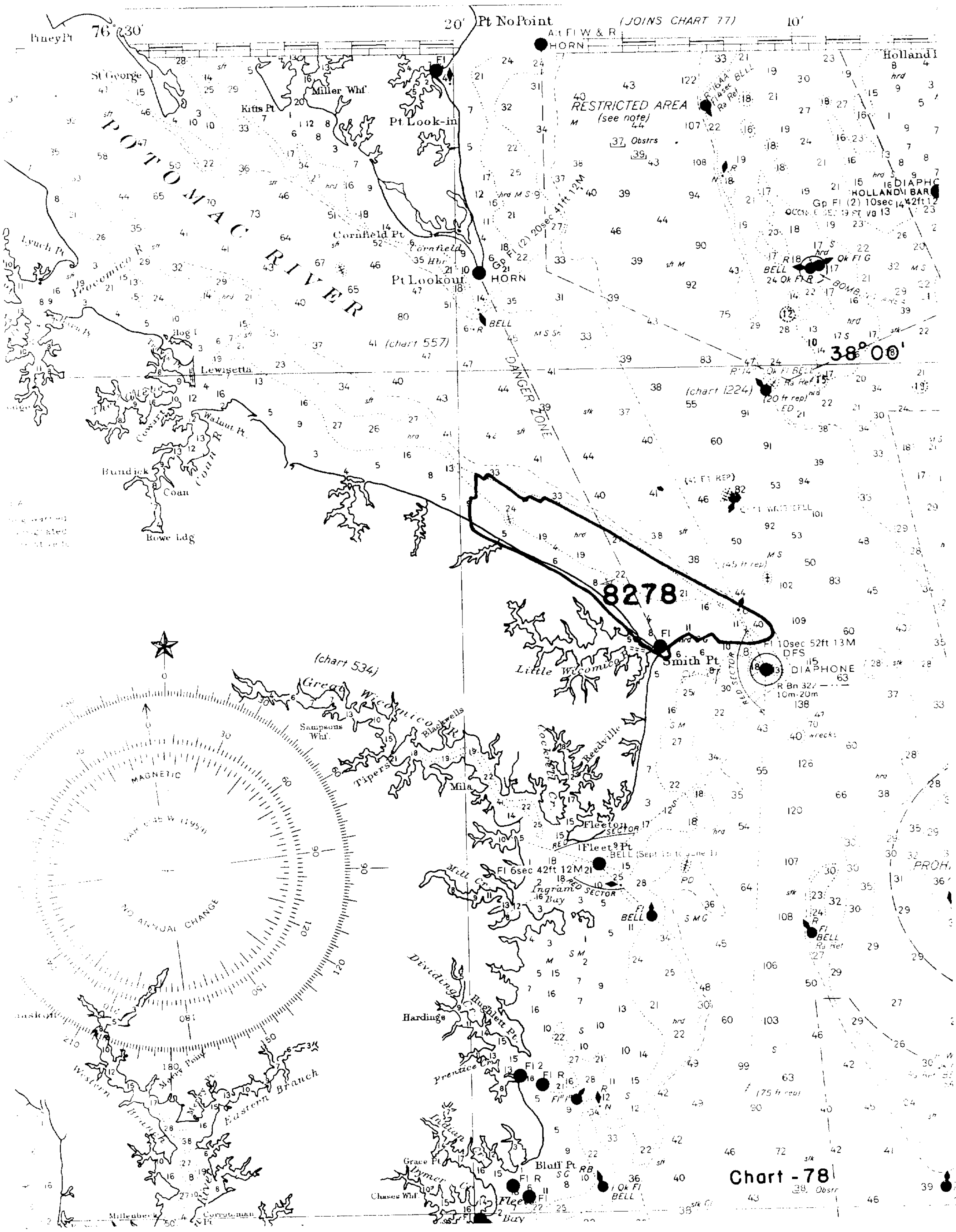
Point Lookout	=	1.3 feet
Great Wicomico River Lt. House	=	1.1 feet

Condition of records satisfactory except as noted below:

William Shafer
Signature

Chief, Tides Branch

Comm-DC 34330



Piney Pt
76° 30'
20'
Pt No Point
(JOINS CHART 77)
10'
Holland I
St George I
Miller Whf
Kitts Pt
Pt Look-in
POTOMAC RIVER
RESTRICTED AREA
(see note)
Obstrs
HOLLAND BAR
Gp Fl (2) 10sec 42ft
Lynch Pt
Yeocomico R
Cornfield Pt
Cornfield Hbr
Pt Lookout
HORN
BELL
38° 00'
(chart 557)
DANGER ZONE
Hog I
Lewisetta
(chart 1224)
Coan R
Bundick
Coan
Rowe Ldg
8278
Fl
Smith Pt
Little Wicomico R
Fl 10sec 52ft 13M
DFS
DIAPHONE
(chart 534)
Great Wicomico R
Sampsons Whf
Blackwells
Tipers
Mila
Cockrell Cr
Reedville
MAGNETIC
NO ANNUAL CHANGE
Fleeton
Fleet Pt
Fl 6sec 42ft 12M
RED SECTOR
Ingram Bay
Mill Cr
Dividing Cr
Hughlett Pt
Hardings
Prentice Cr
Western Branch
Eastern Branch
Indian Cr
Dymer Cr
Grace Pt
Chases Whf
Bluff Pt
Fleets Bay
Millenbeck
Corrotoman
Chart - 78

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8278

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
3-19-59	557	R. K. de Lauder	Before ~~After~~ Verification and Review
3-19-59	1223	R.K.D.	Before ~~After~~ Verification and Review gma
4/1/59	1224	J. H Eaton	Before ~~After~~ Verification and Review gma
6/30/59	78	JPW	Before ~~After~~ Verification and Review Partially
2-17-60	557	a.j. Hoffman	Before ~~After~~ Verification and Review 3 endgs, 2 LW curves. Partially
2-17-60	101-1 (12285)	a.j. Hoffman	Before ~~After~~ Verification and Review Applied thru Ch. 557 Partially
3-9-61	557 (12233)	R.K. de Lauder	~~Before~~ After Verification and Review. Before review was typed. Drg 20
3/28/61	1224 (12230)	C.R. Wittmann	~~Before~~ After Verification and Review Before review was typed
5/3/61	78 (12220)	Jesse Eaton	~~Before~~ After Verification and Review before review was typed
8/11/61	1223 (12225)	J. H Eaton	Comp App'd. thru Ch 557 ~~Before~~ After Verification and Review (See next item)
8-30-61	1223	R.E. Elkins	After Ver & Rev. Fully applied thru chart 1224 dtg 31.
3-27-91	12285 (101)	Ed Martin	In full after verification & review A thru top drg 30 12233(557) drg 45

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.