

8613

Diag. Cht. No. 77-3.

Form 504	
U. S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY	
DESCRIPTIVE REPORT	
Type of Survey	Hydrographic
Field No.	CO-10-3-61
Office No.	H-8613
LOCALITY	
State	Maryland
General locality	Potomac River
Locality	Wicomico River Entrance and Kettle Bottom Shoals
<u>1961</u>	
CHIEF OF PARTY	
P. A. Stark	
LIBRARY & ARCHIVES	
DATE	November 13, 1962

USCOMM-DC 5087

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-8613

Field No. CO-10-3-61

State MARYLAND

General locality POTOMAC RIVER

Locality ENTRANCE
WICOMICO RIVER, AND KETTLE BOTTOM SHOALS

Scale 1:10,000 Date of survey 20 June - 7 October 1961

Instructions dated ORIGINAL: 23 April 1959 SUPPLEMENTAL: 23 February 1960;
6 December 1960, and 31 March 1961

Vessel USC&GS Ship COWIE

Chief of party P. A. STARK

Surveyed by Ship COWIE personnel

Soundings taken by ~~fathometer, graphic recorder~~ hand lead, wire and sounding pole

Fathograms scaled by LT. C. K. Townsend, ENS. R. A. Zimmer, V. R. Molloy,
R. A. Monschke, W. M. Smith and B. A. Taylor

Fathograms checked by W. M. Smith

Protracted by W.L. Jonns (Norfolk Processing Office)

Soundings penciled by W.L. Jonns " " "

Soundings in ~~fathoms~~ feet at MLW ~~MCKKW~~ and are true depths

REMARKS:

Handwritten mark

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SURVEY H-8613

(FIELD NO. CO-10-3-61)

PROJECT OPR-409

POTOMAC RIVER, MARYLAND

A. PROJECT:

The work was executed under original instructions dated 23 April 1959 and supplemental instructions dated 23 February 1961, 6 December 1960, and 31 March 1961. ✓

B. SURVEY LIMITS AND DATES:

The surveyed area consists of the northern side of the Potomac River in the vicinity of Kettle Bottom Shoals and the Wicomico River. The survey extends from Latitude $38^{\circ} 12.7' N$ to $38^{\circ} 17.6' N$ and from Longitude $76^{\circ} 44.9' W$ to $76^{\circ} 55.3' W$; it includes approximately 41 square nautical miles of area of which 26 square nautical miles is water area. All of this water area except a strip one mile wide in the north-south direction and two and one half miles wide in the east-west direction located in the southeast corner of the sheet was surveyed; the 2.5 square nautical mile area was surveyed on Sheet CO-10-5-61. H-8614 (1961) ✓

The survey makes a junction with ~~H-8557 (CO-10-5-60)~~ ^{H-8552 (1960)} CO-10-6-60 on the east; ~~CO-10-4-61~~ ^{H-8702 (1961)} on the north; ~~CO-10-1-61~~ ^{H-8711 (1961)} on the south; and ~~CO-10-5-61~~ ^{H-8614 (1961)} and ~~CO-10-6-61~~ ^{H-8703 (1961)} on the west. Adequate junctions were made with all these surveys except CO-10-6-61 which was not completed this field season. H-8703 (1962) ✓

Field work began on 20 June 1961 and ended on 7 October 1961. During this time 43 days were spent working in the field. ✓

The layout of the sheet was supplied by the Washington Office. A copy of season's progress sketch showing this layout is included with this report. ✓

C. SOUNDING VESSEL:

All of the hydrography of this survey was accomplished by Launch 178 and Skiff 750; both boats were based from the Ship COWIE. In general the skiff worked in the shallow areas near the shore, and the launch worked offshore. ✓

Blue ink was used for Launch 178 hydrography and violet ink was used for Skiff 750. ✓

D. SOUNDING EQUIPMENT:

Soundings were obtained by type 808 fathometer, sounding pole, and hand lead. Fathometer 160-SPX was used on Launch 178, and fathometer 164 was used on Skiff 750. In shoreline areas the sounding pole was used on Skiff 750. The hand lead was used for detached positions to determine the least depths of shoal areas and to obtain bottom samples by both vessels. ✓

Fathometer corrections were determined by bar checks; these corrections can be found attached to this report. There were no corrections necessary on the sounding pole or hand lead soundings. ✓

E. SMOOTH SHEET:

The smooth sheet ^{was} ~~will be~~ made in the Norfolk Processing Office; it is expected that the sheet will also be plotted there. ✓
Smooth sheet plotted in Norfolk Processing Office.

F. CONTROL:

The hydrography was principally controlled by three-point sextant fixes taken on hydrographic signals and natural objects. In some instances of sounding near the shore and particularly in creeks, positions were obtained by estimating the distance from a signal or some predominant natural object. ✓

The hydrographic signals were of four types: ^{ia} triangulation stations; topographic stations; photo points taken from photogrammetric manuscripts; and, hydrographic points determined by sextant fix. A complete list of signals is included with this report. ✓

Planimetric manuscripts T-10651, T-10654, T-10921, and T-10922 were used to establish the photogrammetric signals. Manuscripts T-10922 and T-10921 were advance manuscripts. ✓

Triangulation in the area of this survey was done in 1918 by the Bureau of Ordnance and in 1954 by Don A. Jones. ✓

The horizontal datum for the boat sheets, triangulation, and planimetric manuscripts is the North American 1927 datum. ✓

G. SHORELINE:

The shoreline was transferred to this survey from the planimetric manuscripts mentioned in Section F. CONTROL of this report. Any changes to the shoreline were placed directly on the sheet. ✓

Certain topographic features, notably day beacons and other fixed aids to navigation, were found to be displaced from their photogrammetric locations; the new positions were located by the photogrammetrist supporting the hydrographic party and were placed directly on the manuscripts. ✓

Daybeacon locations on smooth sheet from blackline manuscripts.

G. SHORELINE (CONTINUED):

It was impossible to completely define the low water line because of the fact that the zero-foot curve was not always attainable due to the small range of tide. Heavy grass, especially in the Wicomico River and connecting creeks, made it difficult to reach the shore. ✓

H. CROSSLINES:

Approximately 8 per cent of the hydrographic lines were crosslines; they were run north and south about three-fourths of a mile apart. ✓

The soundings were put on the boat sheet without fathometer corrections and smooth tides so many one and two foot discrepancies apparently occurred. Several of these discrepancies were resolved by reference to smooth tides. It is believed that the above differences will disappear on the smooth sheet. ✓

I. JUNCTION:

This survey made adequate junctions with all of the adjoining surveys mentioned in Section B. AREA SURVEYED of this report. These adjoining surveys are shown in the copy of the season's progress sketch included with this report. ✓

J. COMPARISON WITH PRIOR SURVEYS:

The prior surveys of the area covered by this survey were No. 969, 1860-68; No. 2617, 1903; No. 2660, 1902; No. 2661, 1902-03; No. 2661a, 1904; All of these prior surveys except No. 969 were done at a scale of 1:10,000; No. 969 was done at 1:20,000. The hydrography on the prior surveys was done by hand lead with widely spaced lines so it was impossible to make a complete comparison with the present survey. However, general agreement was found to exist in both water depths and depth curves.

Also
H-827
(1862)
and
H-778
(1862)

18. Lat 38°13.55' Long 76°48.40' 19. Lat 38°13.7' Long 76°47.75' 20. Lat 38°14.44' Long 76°50.19'

Several preliminary review items were located on the survey. Review items No. 18, 19, and 21 were reported wrecks. Regularly spaced hydrographic lines discovered no trace of these wrecks; an overlay of lines spaced 20 to 40 meters apart and run perpendicular to the regular sounding lines were run over each area without finding the wreck. It is recommended that these wrecks be deleted from future charts. Item 21 was Obstr Rep. 2 1/2 ✓

See
Review
Par. 7

Review item No. 22 was a 19-foot depth reported by the Corps of Engineers in 1925. Regularly spaced hydrographic lines and an overlay of closely spaced lines indicated no trace of this shoal. It is recommended that the shoal be removed from future charts. ✓

See
Review
Par. 7

23A. Lat. 38°15.25' Long 76°51.34' 23B Lat. 38°16.25' Long 76°52.76'

Review item No. 23A and 23B were reported range stations used by the Naval Weapons Laboratory at Dahlgren, Virginia. No trace of these stations or their submerged superstructure was found by regular hydrographic lines or overlays. It is recommended that the stations be deleted from future charts.

See
Review
Par. 7

J. COMPARISON WITH PRIOR SURVEYS (CONTINUED):

Lat 38°17.25' Long 76°55.0'

Review item No. 23C was also a range station used by the Naval Weapons Laboratory; this was found to exist as a superstructure protruding ~~above~~ MHW approximately 50 feet. Its exact location was determined as ^{above} WATER, 10, 1954 through triangulation by Don A. Jones. The structure is equipped with a radar reflector and might be used as an artificial aid to navigation if placed on the chart as such.

See
Review
Par. 7

φ 35° 51.75' λ 76° 52.05'

Review item No. 24 was an 18-foot depth originated in Survey H-2661. Neither regular sounding lines nor a special overlay of the vicinity showed any trace of the shoal. It is recommended that the sounding be removed from future charts. Indication of Shoal found on 30-31 w-day launch. 18 ft. sounding carried forward.

See
Par. 6
Review

φ 38° 16.4' λ 76° 53.0'

Review item No. 25 was an area reported foul. Hydrography in the area showed it to be shoal as it is along the shore of the river. The area is not foul to any extent unless heavy underwater grass is the criteria for being foul, in which case almost the entire shore of the river would have to be called foul because it has the same grass. It is recommended that the foul area be deleted from the chart.

See
Par. 7
Review

K. COMPARISON WITH THE CHART:

The present survey was compared with Chart No. 558 (scale 1:40,000). The soundings on the boat sheet are in general agreement when consideration is given of the fact that fathometer corrections and smooth tides have not been applied.

No important newly found dangers to navigation were discovered in the area.

Several deletions to the chart have been recommended in Section J. COMPARISON WITH PRIOR SURVEYS of this report.

L. ADEQUACY OF SURVEY:

This survey is considered to be complete and adequate to super^Scede all prior surveys for charting purposes. The junctions with adjoining surveys are satisfactory and the depth curves can be drawn through the junctions without difficulty.

See
Par. #6
and 7
Review

M. AIDS TO NAVIGATION:

The position of floating aids to navigation were checked by the hydrographic party and the fixed aids checked by the photogrammetric unit. There is an overhead power cable extending eastward from the most eastern point of St. Margarets Island to the closest point of land on the Maryland shore. This point is better defined as signal ALP which is the power pole which supports this cable. This signal is shown on T-10651. This should be indicated on Chart No. 558. ← Now appears on *Chit. 558, 5th Ed. Nov. 5, 1962.*

N. STATISTICS:

Launch 178 ran 431.7 nautical miles of sounding lines using 2773 hydrographic positions; Skiff 750 ran 361.0 nautical miles of sounding lines using 2863 hydrographic positions. Approximately 26 square nautical miles of hydrography were done on the sheet. Both boats spent 26 days doing field work on the survey. ✓

One current station was occupied and two magnetic stations were observed within the limits of this survey. The location of these stations is shown on the copy of the season's progress sketch included with this report. ✓

One hundred thirty-seven bottom samples were taken during the survey. ✓

~~An abstract of statistics is included with this report.~~

O. MISCELLANEOUS:

The chart of the region shows several shoal areas rising 6 to 8 feet above the 20 to 30 foot trend of the bottom. These shoals were found to be oyster beds. Each shoal area on the chart or found while running regular hydrographic lines was investigated. The investigations were of two types: either an overlay of closely spaced lines was made of the area, or the area was developed by running a series of closely spaced random lines around a marker buoy to ascertain the least depth. All of these shoal areas will appear on the smooth sheet. There is some question regarding whether or not every oyster bed on the survey was located; however, the vast majority of the shoals was determined, and the hydrographer feels that within economic feasibility the controlling depth has been indicated. Also there were no oyster beds in the channel running through the area. ✓

Comparison of crosslines with regular hydrographic lines shows slight discrepancies; it is believed that these differences were caused by predicted tides varying from actual tides. ✓

Fixes in the southwest corner of this survey approached a distance of four miles. After repeated attempts to do this area (including the circle method) failed because of poor visibility, the hydrography was done on survey CO-10-5-61. H-8614 (1961) ✓

In order to fully develop certain areas of this survey the method of overlaying was used. Overlays were used to check preliminary review items, to delineate depth curves, and to distinguish shoals. All of these overlays have been included in this report. Some overlays need not be plotted on the smooth sheet at all, and others only partially plotted. In each individual case the boat sheet has indicated what is to be plotted. ✓

Overlays of developments not smooth plotted
are attached to this report.

P. RECOMMENDATIONS:

If the area of this sheet is surveyed in the future, it is suggested that a different boat sheet layout be used. In fact, the layout used on the surveys mentioned in Section J. COMPARISON WITH PRIOR SURVEYS of this report was superior to the present layout. A layout of the sheets such that each sheet would reach both shores of the river would be ideal. ✓

The boat sheet paper was found to be almost inadequate; its surface seemed to repel ink and absorb moisture. It is recommended that a better quality paper be obtained. ✓

Respectfully submitted,

Charles R. Townsend
for Robert A. Zimmer
ENS., C&GS.

APPROVED:

D. G. Rushford
D. G. Rushford
LCDR., C&GS.
Comdg. Ship COWIE
for: P. A. Stark

T I D E N O T E

A portable automatic tide gage was maintained on 75th. meridian time at Colton Point, Latitude $38^{\circ} 43' 42''$, Longitude $76^{\circ} 44' 00''$ throughout the entire period of the survey. The height on the staff corresponding to mean low water was 2.8 feet. No time or height differences were applied to the observed Colton Point tides. The hourly heights were scaled from the marigrams and the tide curves plotted by personnel of the Ship COWIE. Inferred hourly heights were requested and received from the Washington Office for 20 June, the only period the gage was inoperative during the survey.

FATHOMETER CORRECTIONS

SKIFF 750

FATHOMETER 164

"a" day, 3 July to "n" day, 26 July 1961

<u>FROM</u>	<u>TO</u>	<u>CORR 'N</u>
2.5	16.2	0.0
16.3	23.0	- 0.2
23.1	29.8	- 0.4
29.9	36.4	- 0.6
36.5	_____	- 0.8

"p" day, 10 August to "y" day, 28 August 1961

2.5	40.0	0.0
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"z" day, 22 September to "ba" day, 24 September 1961

2.5	40.0	0.0
-----	------	-----

LAUNCH 178

FATHOMETER 160-SPX

"a" day, 20 June to "e" day, 30 June 1961

<u>FROM</u>	<u>TO</u>	<u>CORR 'N</u>
2.5	7.0	≠ 0.4
7.1	35.0	≠ 0.2

"f" day, 1 July to "u" day, 30 June 1961

3.0	37.0	≠ 0.2
37.1	40.0	≠ 0.4

"v" day, 1 August to "z" day, 25 August 1961

2.5	12.8	≠ 0.2
12.9	25.0	≠ 0.4

"aa" day, 5 October and "ba" day, 7 October 1961

2.5	18.1	≠ 0.2
18.2	35.0	0.0

LIST OF CONTROL STATIONS

HYDROGRAPHIC SURVEY H-8613

(FIELD NO. CO-10-3-61)

PROJECT OPR-409

POTOMAC RIVER, MARYLAND

<u>NAME</u>	<u>ORIGIN</u>	<u>NAME</u>	<u>ORIGIN</u>
Able	T-10921	Cut	T-10651
Ace	T-10651	Daw	T-10922
Add	T-10922 (hydrographic)	Day	Topographic, Neale Sound day beacon 6, 1959, T-10922
Ado	T-10922	Deb	T-10921
Aim	T-10922	Dic	Topographic, Neale Sound Channel Light 11, 1959, T-10922
Ale	T-10922	Doc	Hydrographic, St. Catherine Sound lower entrance day beacon 3L, T-10651
Alp	T-10651	Dog	T-10651
And	Topographic, Cobb Island Light, 1959, T-10922	Don	T-10651
Ann	T-10922	Dor	Topographic, Dormer, 1958, T-10651
Arm	T-10651	Dot	T-10651
Art	T-10651	Dud	T-10922
Ask	Hydrographic, sextant cuts, Vol. ⁵⁷ 7, pg. 12, Skiff 750	Dun	T-10651
Ate	Triangulation, WATER, 10, 1951, T-10921	Ear	T-10651
Ave	T-10651	Ebb	T-10651
Bag	T-10922	Egg	T-10651
Bah	T-10921	Ego	Hydrographic, St. Catherine Sound lower entrance day beacon 4L, T-10651
Bar	T-10922	Elf	T-10651
Bat	Hydrographic, sextant cuts, Vol. ⁵⁷ 7, pg. 45, Skiff 750	Elm	T-10651
Bed	T-10651	Era	Hydrographic, T-10921
Bib	T-10651	Erg	T-10922
Big	T-10651	Ern	Topographic, St. Catherine Sound upper entrance day beacon, 4U, 1958, T-10651
Bon	T-10922	Est	T-10651
Box	T-10651	Eva	Hydrographic, T-10922
Bul	T-10651	Far	T-10921
Bum	T-10651	Fat	T-10922
Bus	T-10651	Fed	Topographic, Gable, 1958, T-10651
But	T-10-651	Fet	T-10651
Cab	T-10651	Few	T-10651
Can	T-10922	Fig	T-10922
Car	Hydrographic, sextant cuts, Vol. ⁵⁵ 5 pg. 35, Skiff 750	Fin	T-10651
Caw	T-10921	Fit	T-10651
Chi	T-10651	Fix	Hydrographic, T-10651
Cobb	Triangulation, COBB POINT BAR LIGHT, 1951, T-10922	Foe	T-10651
Cod	T-10651	Fog	Hydrographic, St. Catherine Sound lower entrance day beacon 6L, T-10651
Coo	T-10922	Fox	T-10922
Cop	T-10651	Fun	T-10922
Cow	T-10922	Gab	Topographic, Gable, 1958, T-10651
Crain	Triangulation, CRAIN (U.S.E.) 1951, T-10921	Gad	T-10651
Cry	Hydrographic, St. Catherine Sound Lower entrance day beacon, T-10651	Gal	T-10651
		Gas	T-10922
		Gem	T-10921
		Gig	T-10651

LIST OF CONTROL STATIONS (CONTINUED)

HYDROGRAPHIC SURVEY H-8613

(FIELD NO. CO-10-3-61)

PROJECT OPR-409

POTOMAC RIVER, MARYLAND

<u>NAME</u>	<u>ORIGIN</u>	<u>NAME</u>	<u>ORIGIN</u>
Gin	Hydrographic, St. Catherine Sound lower entrance day beacon 7L, T-10654	Lip	T-10651
Got	T-10651	Lit	Topo, St. Catherine Sound upper entrance light 2U, 1958, T-10651
Gum	T-10654	Log	T-10922
Gus	T-10651	Lop	T-10654
Guy	T-10922	Low	T-10922
Hag	T-10951	Lux	T-10922
Han	Topographic, Neal Sound Channel Light 9, 1959, T-10922	Mag	T-10654
Hap	T-10921	Mal	T-10654
Hat	Hydro, T-10654	Mar	Topo, Chimney, 1958, T-10951
Hem	T-10651	Maw	T-10651
Her	Topo, St. Catherine Sound Junction day beacon 1958 T-10654	Met	T-10922
Hoe	T-10651	Mit	Hydro, sextant cuts, Vol. ¹⁵ 7, pg. 12, Skiff 750
Hop	T-10922	Mop	T-10922
Hub	Topo, Clubhouse, 1958 T-10654	Mut	T-10922
Hug	T-10922	Nea	Topo, Neale Sound Channel Light 2, 1959, T-10922
Hum	T-10922	Ned	T-10651
Hut	T-10654	Nel	Topo, Neale Sound Channel Light 8, 1959, T-10922
Ice	Hydro, sextant cuts, Vol. 4 pg 36, Launch 178	Nes	Hydro, sextant cuts, Vol. ^{//} 3, pg. 6, Skiff 750
Ida	T-10654	Nit	T-10922
Ide	T-10651	Nix	T-10922
Ill	Topo, Grill, 1958, T-10651	Nod	T-10922
Irk	T-10922	Now	T-10922
Its	T-10921	Nub	T-10651
Ivy	T-10654	Nut	T-10922
Jap	T-10921	Oak	T-10922
Jaw	T-10651	Odd	T-10651
Jet	T-10922	Oil	T-10654
Jim	T-10654	Out	T-10922
Joe	Hydro, sextant cuts, Vol. ¹⁴ 6 pg. 51, Skiff 750	Owl	T-10922
Joy	T-10651	Par	T-10651
Jut	T-10654	Peg	T-10651
Ked	T-10921	Pep	T-10922
Ken	T-10651	Pie	T-10922
Key	T-10654	Poi	Topo, Rock Point Light 1, 1959, T-10922
Kid	T-10922	Pot	Triang, POTOMAC VIEW, 1918, T-10921x*
Kim	T-10651	Pup	T-10654
Lad	T-10921	Put	T-10922
Lay	T-10651	Quo	T-10922
Leg	T-10654	Rag	T-10922
Lim	T-10922	Ray	T-10922
		Rat	T-10922
		Rev	T-10654
		Rim	T-10651

LIST OF CONTROL STATIONS(CONTINUED)

HYDROGRAPHIC SURVEY H-8613

(FIELD NO. CO-10-3-61)

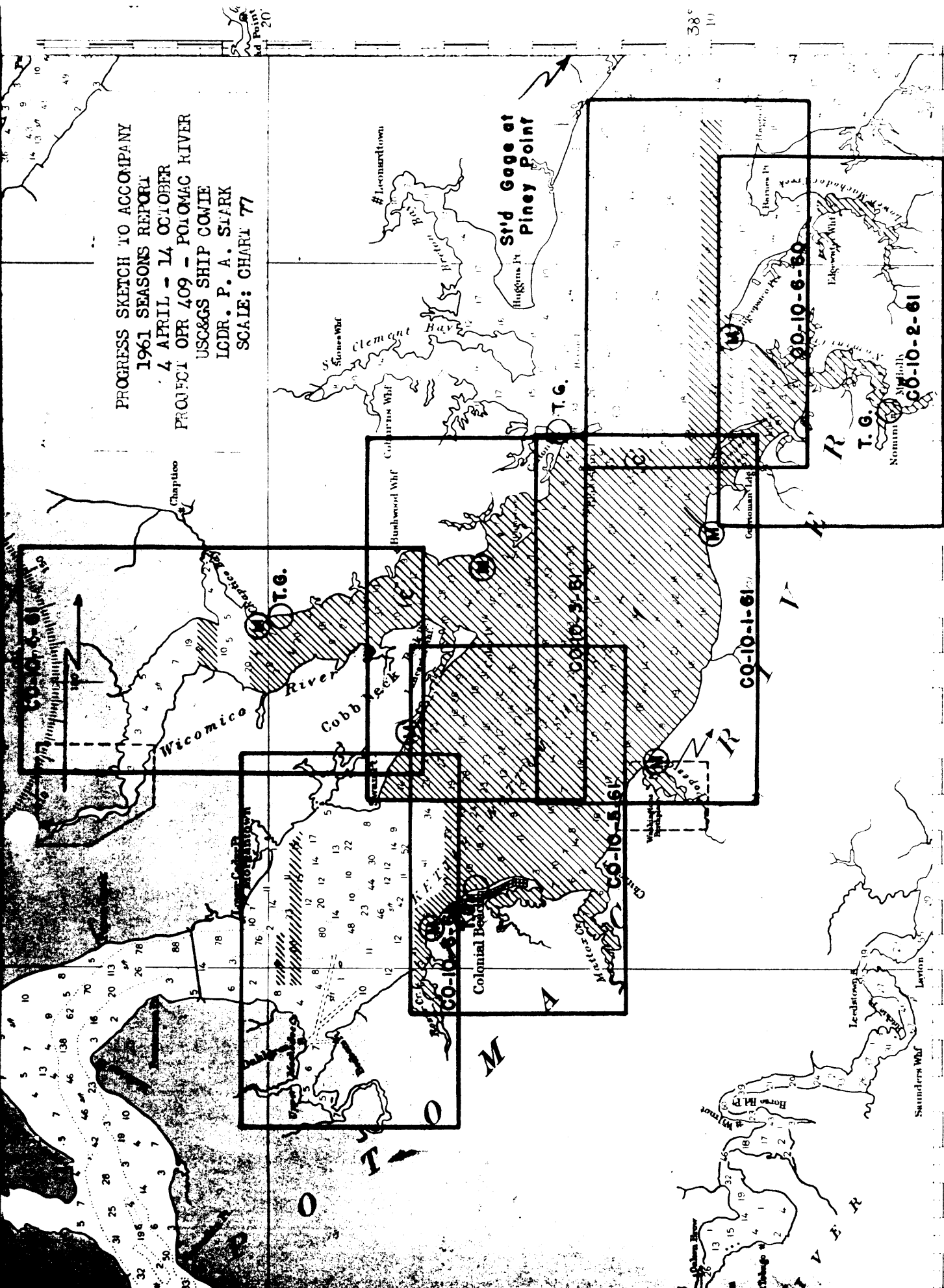
PROJECT OPR-409

POTOMAC RIVER, MARYLAND

<u>NAME</u>	<u>ORIGIN</u>	<u>NAME</u>	<u>ORIGIN</u>
Rio	T-10922	Try	T-10922
Roy	T-10651	Tub	T-10651
Rue	Hydro, sextant cuts, Vol. ¹⁵ 7, pg. 13, Skiff 750	Use	T-10922
Rum	T-10922	Val	T-10922
Sag	Hydro, T-10922	Vet	T-10961
Sal	T-10922	Vex	T-10922
Sam	T-10651	Via	T-10651
Sax	T-10654	Vim	T-10922
Set	T-10654	Wap	T-10922
Sex	T-10922	War	T-10922
Sic	T-10651	Was	T-10654
Sip	T-10651	Who	T-10651
Sit	T-10922	Why	T-10922
Sox	T-10922	Win	T-10922
Sow	T-10922	Yam	T-10922
Tan	T-10922	Yea	T-10922
Tap	T-10654	Yes	T-10922
Tar	T-10921	You	Topo, St. Catherine Sound upper entrance day beacon 5U, 1958, T-10654
Tat	T-10922	Zag	T-10922
Tax	T-10922	Zig	T-10922
Tex	T-10922	Zim	Hydro, sextant cuts, Vol. ¹⁵ 7, pg. 12, Skiff 750
Tom	T-10922	Zoo	T-10654
Toy	T-10654		

PROGRESS SKETCH TO ACCOMPANY
1961 SEASONS REPORT
4 APRIL - 14 OCTOBER
PROJECT OPR 409 - POLOMAC RIVER
USC&GS SHIP COMIE
LCDR. P. A. STARK
SCALE: CHART 77

Std Gage at
Piney Point



NORFOLK PROCESSING OFFICE
ADDENDUM
To Accompany

HYDROGRAPHIC SURVEY H-8613 (Co-10-3-61)

GENERAL

This appears to be an excellent basic survey. Soundings are in good agreement at crossings but some of the fathometer readings are questionable in areas of heavy grass. Grass indications were noticed on the fathograms in all shoal areas, but it was particularly heavy in St. Catherine Sound, in Neale Sound, and around the entrance to Wicomico River.

Numerous sharp lumps, extending 5 to 6 feet above surrounding depths, appear in the Southwest portion of this survey. Development lines were not recorded for most of them, however, due to their frequency and small size it is considered impracticable to locate and determine least depths on all of them by any method other than wire drag

This survey shows shoaling of from 1 to 2 feet in Kettle Bottom Channel, and there is a 19 foot spot just inside the channel limits at Lat. 38-14.51' and Long. 76-52.16'. *Shown on S.S.*

OVERLAYS

Extensive development was done on overlays to accompany the boat sheet. This work was plotted directly on the smooth sheet where it did not cause undue congestion. The remaining lines are being submitted on smooth overlays as follows: *Attached to DR*

<u>OVERLAY NUMBER</u>	<u>SOUNDING LINES</u>
1	83 to 101z (blue) 1 to 35ba "
2	35 to 51z "
3	53 to 75z " 4 to 33ba (purple)
4	10 to 49aa " 63 to 91aa "
5	84 to 164ba "

Norfolk, Va.
5 Nov. 1962

Respectfully submitted,

Hugh L. Proffitt
Hugh L. Proffitt
Cartographer

NORFOLK PROCESSING OFFICE
LIST OF
FLOATING AIDS TO NAVIGATION

H-8316

<u>BOUY</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>DEPTH</u>	<u>POS. NO.</u>	<u>DATE</u>
Dukeharts Chan. Buoy 4	38-13.06	76-45.23	10'	94m	7-19-61
Dukeharts Chan. Buoy 5	38-13.33	76-46.04	6'	28n	7-26-61
Dukeharts Chan. Buoy 6	38-12.84	76-46.58	24'	83q	7-18-61
Line Of Fire Buoy I	38-14.00	76-48.31	15'	29p	7-17-61
Line Of Fire Buoy K	38-14.62	76-50.71	17'	1d	7-29-61
Line Of Fire Buoy L	38-13.64	76-55.20	15'	71s	7-25-61
Line Of Fire Buoy M	38-15.87	76-53.47	23'	31e	7-27-61
Wicomico R. Buoy 2	38-15.23	76-49.55	31'	1f	7-13-61
Cobb Pt. Bar I. Junction Buoy N	38-14.13	76-49.47	21'	1p	7-17-61
Kettle Bottom Shoals Chan. Lt. Buoy 17	38-14.13	76-51.12	26'	19v	8- 1-61
Kettle Bottom Shoals Chan. Bell Buoy 18	38-14.19	76-51.08	25'	18v	8- 1-61
<u>KETTLE BOTTOM SHOALS</u>					
Chan. Buoy 19	38-14.49	76-52.10	21'	14v	8- 1-61
Chan. Buoy 20	38-14.54	76-52.03	23'	13v	"
Chan. Lt. Buoy 21	38-14.75	76-52.81	23'	24m	7-15-61
Chan. Buoy 22	38-14.83	76-52.67	23'	25m	"
Chan. Buoy 23	38-15.03	76-53.60	23'	30t	7-29-61
Chan. Buoy 24	38-15.09	76-53.50	23'	31t	"
Chan. Buoy 25 (Lt.)	38-15.33	76-54.43	23'	80t	"
Chan. Buoy 26	38-15.41	76-54.37	25'	81t	"
Chan. Buoy 28	38-15.69	76-54.96	33'	1h	7- 3-61
Chan. Buoy 15	38-13.49	76-49.81	23'	85p	7-17-61

GEOGRAPHIC NAMES

Survey No. *H-8613*

Name on Survey	Source										BGN	
	A	B	C	D	E	F	G	H	K			
✓ Bluff Point ✓	x											1
✓ Bullock Island ✓	x											2
✓ Bushwood Wharf ✓	x									x		3
✓ Cobb Island ✓	x									x		4
✓ Cobb Point ✓	x									x		5
✓ Cobb Point Bar ✓	x											6
✓ Colton Point ✓	x									x		7
✓ Dukeharts Creek ✓	x											8
✗ Hackley Creek ✓	x											9
✓ Kettle Bottom Shoals ✓	x											10
✓ Mill Creek ✓	x											11
✓ Neale Sound ✓	x									x		12
✓ Potomac River ✓	x									x		13
✓ Rock Point ✓	x											14
✓ St. Catherine I. ✓	x											15
✓ St. Catherine Sound ✓	x											16
✓ St. Margaret Island ✓	x											17
✓ Whites Neck Creek ✓	x									x		18
✓ White Point Bar ✓	x											19
✓ Wicomico River ✓	x									x		20
✓ <i>Dukeharts Channel</i>												21
✓ <i>Weir Creek</i>												22
												23
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												26
												27

George W. Ball
Geographic Names Section
17 December 1962

TIDE NOTE FOR HYDROGRAPHIC SHEET

1/8/63

Nautical Chart Division: R. H. Carstens

Plane of reference approved in
17 volumes of sounding records for

HYDROGRAPHIC SHEET 8613

Locality Potomac River, Maryland

Chief of Party: P. A. Stark (1961)

Plane of reference is mean low water, reading.

2.8 ft. on tide staff at Colton Point

5.3 ft. below B. M. No 1 (1960)

Height of mean high water above plane of reference is 1.6 ft.

Condition of records satisfactory except as noted below:



Chief, Tides and Currents Branch

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8613.....

Records accompanying survey: Smooth sheets 1.....;
 boat sheets 1(2 parts).....; sounding vols. 17.....; wire drag vols.;
 Descriptive Reports 1...; graphic recorder envelopes 20...;
 special reports, etc. 5-Hydrographic Overlays and 2-Paper Over-
 lays (Boat sheets) 1 Chart 558. 8. 12 Boat sheet overlays
 5 retained in DR.

The following statistics will be submitted with the cartog-
 rapher's report on the sheet:

Number of positions on sheet	5,652
Number of positions checked	223
Number of positions revised	5
Number of soundings revised (refers to depth only)	134
Number of soundings erroneously spaced	21
Number of signals erroneously plotted or transferred	NONE
Topographic details	Time 70
Junctions	Time 55
Verification of soundings from graphic record	Time 40
Special adjustments	Time 35

Verification by *George A. Kozenczak* Total time 1520 Date March 16, 1964

Reviewed by *Dale E. Westbrock* Time 94 Date May 7, 1964

OFFICE OF CARTOGRAPHY

REVIEW SECTION -- NAUTICAL CHART DIVISION

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8613

FIELD NO. CO-10-3-61

Maryland, Potomac River, Wicomico River Entrance and
Kettle Bottom Shoals

SURVEYED: June-October 1961

SCALE: 1:10,000

PROJECT NO. CS-409

SOUNDINGS: 808 Depth Recorders
16' Sounding Pole

CONTROL: Sextant fixes
on shore objects

Chief of Party-----P. A. Stark
Surveyed by-----C. K. Townsend
C. H. Nixon
E. E. Brown
R. A. Zimmer
O. C. Swindell
Protracted by-----W. L. Jonns
Soundings Plotted by-----W. L. Jonns
Verified and Inked by-----G. A. Kozemczak
Reviewed by-----D. E. Westbrook
Inspected by-----R. H. Carstens

Date: May 7, 1964

1. Description of the Area

This survey is located at the confluence of the Potomac and Wicomico Rivers in Maryland, and includes the area along the north side of the Potomac River between Colton Point and approximate Long. $76^{\circ}55'$. The survey extends north to Mill Creek on the Wicomico River and south to approximate Lat. $38^{\circ}13'$.

The southwestern portion of the survey covers part of an extensive shoal area known as Kettle Bottom Shoals. These shoals cover the entire width of the Potomac River in the area of this survey and necessitate the maintenance of a dredged channel (200 feet wide and 3 miles long) for the passage of deep draft vessels.

Most of the shoals mentioned above are oyster shell lumps which protrude up to 8 feet (Lat. $38^{\circ}14.77'$, Long. $76^{\circ}54.71'$) from an otherwise smooth, gently sloping bottom.

Where the Potomac and Wicomico Rivers join, a bar makes out about 1 mile in a southeasterly direction from Cobb Island. Two rocks bare 3 feet at M.L.W. exist at the end of this bar. These rocks are probably part of the foundation of Cobb Point Bar Light nearby.

Inshore shoal flats extend into the Potomac River for a distance of 0.1 to 0.2 miles.

Both Neale Sound and St. Catherine Sound are shallow and require dredged channels for the passage of small craft.

In general, except on the oyster shell shoals, the bottom consists of a few feet of soft mud sediments overlying a harder material.

Heavy grass grows in the shallows, especially in St. Catherine Sound.

Innumerable piers ring the shoreline on this survey and many duck blinds have been located close inshore.

2. Control and Shoreline

The control is adequately described in the Descriptive Report.

The shoreline originates with reviewed Photogrammetric Manuscripts T-10651 (1955-59), T-10954 (1955-58), T-10921 (1958-59), and T-10922 (1958-59).

3. Hydrography

- A. Depths at crossings are in good agreement.
- B. The usual depth curves were adequately delineated. The 3-ft. and 24-ft. curves were added to more adequately define the bottom configuration. Oyster shell lumps protruding from the

bottom were emphasized by either dashed blue or solid brown depth curves in accordance with Par. 6-64, Hydrographic Manual.

- C. The development of the bottom configuration is considered adequate. The investigation of least depths is not considered adequate. The least depths on numerous known oyster shell lumps were not obtained by the hydrographer. In some cases, shoal indications were not developed at all. An illustration of this can be found in Lat. $38^{\circ}14.88'$, Long. $76^{\circ}53.30'$ where a shoal indication of 19 feet was found on the regular system of sounding lines and no development was undertaken. A 14 ft was charted here at the time of the survey. H-2661 (1902-03), however, shows a 12-ft. sounding nearby the 19-ft. on the present survey. It was necessary then to carry forward the 12-ft. sounding. More than 20 shoal soundings were carried forward from prior surveys to supplement the present survey. Many of these shoal soundings should have been more intensively investigated by the hydrographer.

4. Condition of the Survey

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

5. Junctions

Adequate junctions were effected with H-8611 (1961) on the south; H-8552 (1960) on the east; H-8614 (1961) on the southwest; and H-8702 (1961) on the north. The junction with H-8703 (1962) on the northwest will be discussed in the review of that survey.

6. Comparison with Prior Surveys

- A. H-969 (1:20,000) 1860-1868
H-778 (1:20,000) 1862
H-827 (1:20,000) 1862

These surveys provide the earliest complete coverage of the area of the present survey. The hydrography on these surveys has been largely superseded by the larger scale surveys made in the early 1900's. The bulk of the comparison will be made with these later surveys:

- B. H-2660 (1:10,000) 1902
- H-2661 (1:10,000) 1902-03
- H-2661 a (1:10,000) 1904
- H-2617 (1:10,000) 1903
- H-2617 a (1:10,000) 1904
- H-2769 (1:10,000) 1905

Since the early 1860 surveys, an extensive change has occurred in the channel depths in the Wicomico River near its junction with the Potomac. General shoaling of the deepest parts of the channel exists, having a maximum decrease in depth of about 10 feet. Much of the shoaling has occurred since the early 1900 surveys, however. A comparison with H-2617 (1903) in the same general area shows shoaling of 4-5 feet in the Wicomico River Channel. In Lat. $38^{\circ}13.98'$, Long. $76^{\circ}49.10'$, a depth which, in 1903 was 38 feet, now has shoaled to 30 feet.

The islets at the entrance to Neale Sound seem to be eroding away, pointing up one of the few changes in the shoreline.

In the Potomac River, general shoaling of about 1-2 feet has occurred since the 1860-62 surveys and about 1 foot since the 1902-05 surveys. The shoal on the south side of Dukeharts Channel has deepened about 2-3 ft. since the preceding survey in 1862.

The 1902-05 surveys intensively developed many oyster shell lumps which include some that were not adequately developed for least depth on the present survey. Since the positions and heights of these lumps appear to be relatively stable a number of shoal soundings have been carried forward from the 1902-05 prior surveys to supplement the hydrography on the present survey.

With the addition of about 20 soundings carried forward, the present survey is adequate to supersede the prior surveys within the common area.

7. Comparison with Chart 558 - 5th Ed., Nov. 5, 1962

A. Hydrography

Most of the charted hydrography in the area of the present survey originates with the previously discussed prior surveys which require no further consideration.

This hydrography has been supplemented with critical soundings from the boat sheet and unverified smooth sheet of the present survey.

A number of soundings in the vicinity of Kettle Bottom Channel have been charted from an investigation made by the USC&GS Ship COWIE in 1959 (BP-58371 and BP-58451), and U. S. Corps of Engineers surveys of 1924 (BP-19828) and 1952 (BP-52014-15).

Several soundings in Neale Sound have been charted from a U. S. Corps of Engineers survey of June 1959 (BP-83682).

A few features originate with Chart Letters from various sources.

The wreck charted in Lat. $38^{\circ}13.55'$, Long. $76^{\circ}48.40'$, was found to be plotted from an erroneous interpretation of the hydrographic records of H-2660 (1902). It should, therefore, be deleted from the chart. ✓

The wreck charted in Lat. $38^{\circ}13.70'$, Long. $76^{\circ}47.75'$, originates with T-2598 (1902). The hydrographer on H-2660 (1902) found the position of the wreck to be about 130 meters to the southeast of the topographer's position which is the one charted. Both positions were adequately developed by the hydrographer on the present survey and no indication of the wreck was found. Since the wreck would now be over 60 years old, it has probably long since disintegrated. In accordance with the hydrographer's recommendation (Part J. Desc. Report), this wreck should be deleted from the chart. ✓ OS

The two areas reported foul charted in the vicinity of Lat. $38^{\circ}16.4'$, Long. $76^{\circ}53.0'$, originate with 1951 air photos (Chart Letter No. 275 of 1952). These areas were thoroughly covered on the present survey and nothing ✓

foul in nature was observed other than normal shoal water and grass. The photo interpreter evidently saw the grass on the photos and erroneously reported the areas to be foul. In accordance with the hydrographer's recommendation (Part J. Desc. Report), these two foul areas should be deleted from the chart.

PSR Item 23c See Des. Report, para. J.

The Naval Weapons Laboratory Range Station (small house on platform) charted out of position in Lat. $38^{\circ}17.25'$, Long. $76^{\circ}55.00'$ originates with T-8114 (1942-43.) This range station was found on the present survey to be a superstructure about 50 feet above M.H.W. equipped with a radar reflector, and is triangulation station WATER 10, 1954. This position checks that on T-8114 (1942-43). The platform as charted should be deleted and the RA REF and symbol charted now as a hand correction should be retained on the chart. ✓ OS

The Naval Weapons Range Station (small house on platform) charted out of position in Lat. $38^{\circ}16.25'$, Long. $76^{\circ}52.76'$ originates with T-8114 (1942-43) where it is shown about 140 meters to the southwest of the charted location. The actual position was developed by the hydrographer and no remains were found. However, the development is not considered adequate to disprove the possibility that parts of the superstructure still exist submerged. The feature has, therefore, been carried forward from H-8114 (1942-43) to the present survey as submerged ruins in red. The charted position and description should be made to conform to those shown on the present survey. ✓ OS

The Naval Weapons Range Station (small house on platform) charted in Lat. $38^{\circ}15.25'$, Long. $76^{\circ}51.34'$, originates with T-8115 (1942-43). This area was developed by the hydrographer and no remains were found. However, the development is not considered adequate to disprove the possibility that parts of the superstructure still exist submerged. The feature has been carried forward from T-8115 (1942-43) to the present survey as submerged ruins in red. The charted position and description should be made to conform to those on the present survey. ✓ OS

The 19-ft. sounding charted in Lat. $38^{\circ}14.07'$, Long. $76^{\circ}50.27'$, originates with a U. S. Corps of Engineers survey of 1924 (BP-19828). This sounding falls in depths of 24 feet on the present survey and was developed on an ✓

overlay by the hydrographer. No indication of a feature was found in this location. In accordance with the hydrographer's recommendation (Part J. Desc. Report) the 19-ft sounding should be deleted from the chart. ✓

The 2 1/2 Obstr Rep charted in Lat. $38^{\circ}14.44'$, Long. $76^{\circ}50.19'$ originates with Chart Letter No. 927 of 1954. This alleged sunken barge loaded with rock was investigated by the hydrographer, but no trace was found. However, the letter reports that a depth of 7 feet surrounds the obstruction. At the position reported and investigated, the depths are about ~~11~~ 13 feet. The reported position, therefore, may be in error, and the true position of the wreck may not have been investigated by the hydrographer. In view of the conflicting information between the chart letter and the present survey, the 2 1/2 Obstr Rep should be retained as charted with the addition of PD since its position is doubtful. ✓

✓ OS
Ch 55B

The 20-ft sounding charted in Lat. $38^{\circ}15.54'$, Long. $76^{\circ}55.04'$ originates with an investigation by the USC&GS Ship COWIE in 1959 (BP-58371). This sounding falls in depths of 24 feet on the present survey but was not disproved. The 20-ft. sounding should be retained on the chart. ✓ OS

The 20-ft. sounding charted in Lat. $38^{\circ}15.52'$, Long. $76^{\circ}54.90'$ also originates with the 1959 COWIE investigation (BP-58371). This sounding falls in depths of 25 feet on the present survey but it was not disproved. The 20-ft. sounding should, therefore, be retained on the chart. ✓ OS

The 19-ft. sounding charted in Lat. $38^{\circ}15.25'$, Long. $76^{\circ}54.44'$ originates with the 1959 COWIE investigation (BP-58371). The present survey shows a sounding of 21 feet nearby, but the feature was not developed for least depth. The 19-ft. sounding should be retained on the chart. ✓ OS

The 20-ft. sounding charted in Lat. $38^{\circ}15.26'$, Long. $76^{\circ}54.23'$ originates with a U. S. Corps of Engineers survey of 1924 (BP-19828). This sounding falls in 23 feet of water on the present survey, but it was not

disproved. The 20-ft. sounding should, therefore, be retained on the chart. ✓ OS Ch 553

The 19-ft. sounding charted in Lat. $38^{\circ}15.41'$, Long. $76^{\circ}54.17'$ originates with a C. of E. Survey of 1924 (BP-19828). This sounding falls in depths of 24 feet on the present survey but was not disproved. The 19-ft. sounding should, therefore, be retained on the chart. ✓ OS

The 21-ft. sounding charted in Lat. $38^{\circ}15.27'$, Long. $76^{\circ}53.91'$ originates with the COWIE investigation of 1959 (BP-58371). This sounding falls in depths of 23 feet on the present survey and was not disproved. The 21-ft. sounding should, therefore, be retained on the chart. ✓

The 19-ft. sounding charted in Lat. $38^{\circ}15.00'$, Long. $76^{\circ}53.03'$ originates with the 1959 COWIE investigation (BP-58451). This sounding falls in 22 feet on the present survey and was not disproved. The 19-ft. sounding should, therefore, be retained on the chart. ✓

The 18-ft. sounding charted in Lat. $38^{\circ}14.77'$, Long. $76^{\circ}52.99'$ originates with the 1959 COWIE investigation (BP-58451). This sounding falls in depths of 21 feet on the present survey but was not disproved. The 18-ft. sounding should, therefore, be retained on the chart. ✓

The present survey together with the 9 soundings discussed above is adequate to supersede the charted information within the common area. ✓

B. Controlling Depths

The controlling depth notes as charted are in substantial agreement with the depths shown on the present survey. Except for the controlling depth in the outer portion of Neale Sound Channel (Chart Letter No. 781 of 1963), there is no information available covering the remaining channel areas subsequent to the present survey.

C. Aids to Navigation

The aids shown on the present survey are in substantial agreement with the charted position and adequately mark the features intended.


Buoys C"5" shown on the present survey in Lat. $38^{\circ}13.31'$, Long. $76^{\circ}46.05'$; N"4" in Lat. $38^{\circ}13.05'$, Long. $76^{\circ}45.24'$; and N"2A" in Lat. $38^{\circ}15.91'$, Long. $76^{\circ}50.48'$ have been replaced by daybeacons subsequent to the date of the present survey.

8. Compliance with Instructions

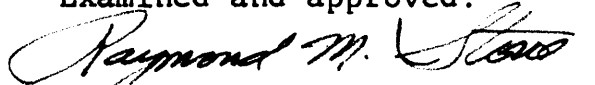
The survey adequately complies with the Project Instructions.

9. Additional Field Work

This survey is considered to be a good basic survey and no additional field work is recommended.


Chief, Marine Chart
Division

Examined and approved:


Acting
Associate Director,
Hydrography and Oceanography

38° 15'

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^{11 ba} 5
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38° 14'

76° 51'

76° 50'

TO ACCOMPANY H-8613
 83-101 3 25 Sept. 1961
 1-35 ba 7 Oct. 1961
 N^o 1.

38° 16'

					40	34
				7	5	
		10	9	8	6	
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		52	43	42	52	38
		51	40			

38° 15'

76° 51'

76° 52'

To accompany H-8613
Pos. 35-52₂ 25 Sept. 1961

76° 54'
17'

76° 53'
38° 17'

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38° 16'
76° 53'

To accompany H-8613
25 Sept. 1961 Pos. 53-75
24 Sept. 1961 Pos. 4-33ba

Nº 3

76° 49'
38° 14'

48'
14'

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38° 13'
76° 49'

76° 48'

To accompany H-8613
Pos 10aa thru 49aa
Pos 63aa thru 91aa
23 Sept. 1961
Nº 4

76° 53'
 38° 15'

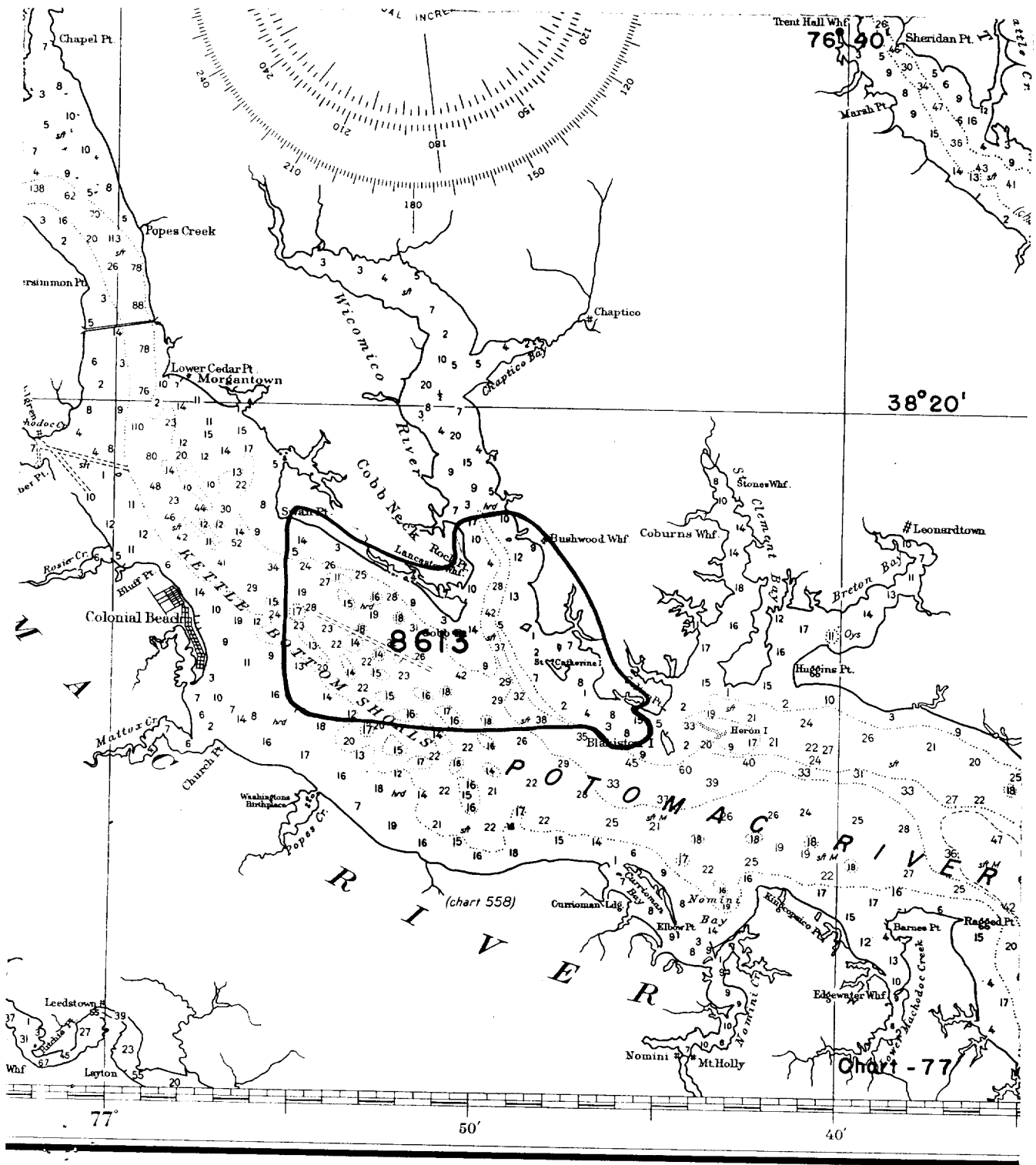
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38° 14'

To accompany H-8613
 Pos 84-164 ba.
 24 Sept. 1961
 N=5



Compiled and
 U. S. DEP.
Lutl
 COAST &
 H.

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8613

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
9/14/63	558	O. Svendsen	App. critical information only Before After Verification and Review ✓ RKO 10-25-63
2/27/64	77	O. Svendsen	No corr. Before After Verification and Review
4/14/66	558	Eileen Sheehan	Fully Applied Before After Verification and Review <i>Not applied to negat. w/c</i>
2/14/67	558	O. Svendsen	Part. app. critical corrections only Before After Verification and Review Drg # 23 & 23M
10/27/67	101-SC	L. VanZant	Part. applied critical corr. only. applied thru Before After Verification and Review 558 drwg # 23
12/14/67	558	O. Svendsen	Full application Before After Verification and Review Drg # 24 & 24 M
10-17-68	558	H. Radden	Re-app'd a few soundings and revised curves to agree with 101-SC and port directly from sheet
10/7/68	101-SC	J. Allen	App'd thru CH 558 drg # 24 Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review

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.