

H-8744

Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. WH-10-2-63 Office No. H-8744

LOCALITY

State Maryland
General locality Chesapeake Bay
Locality Mouth of Choptank River

1963

CHIEF OF PARTY

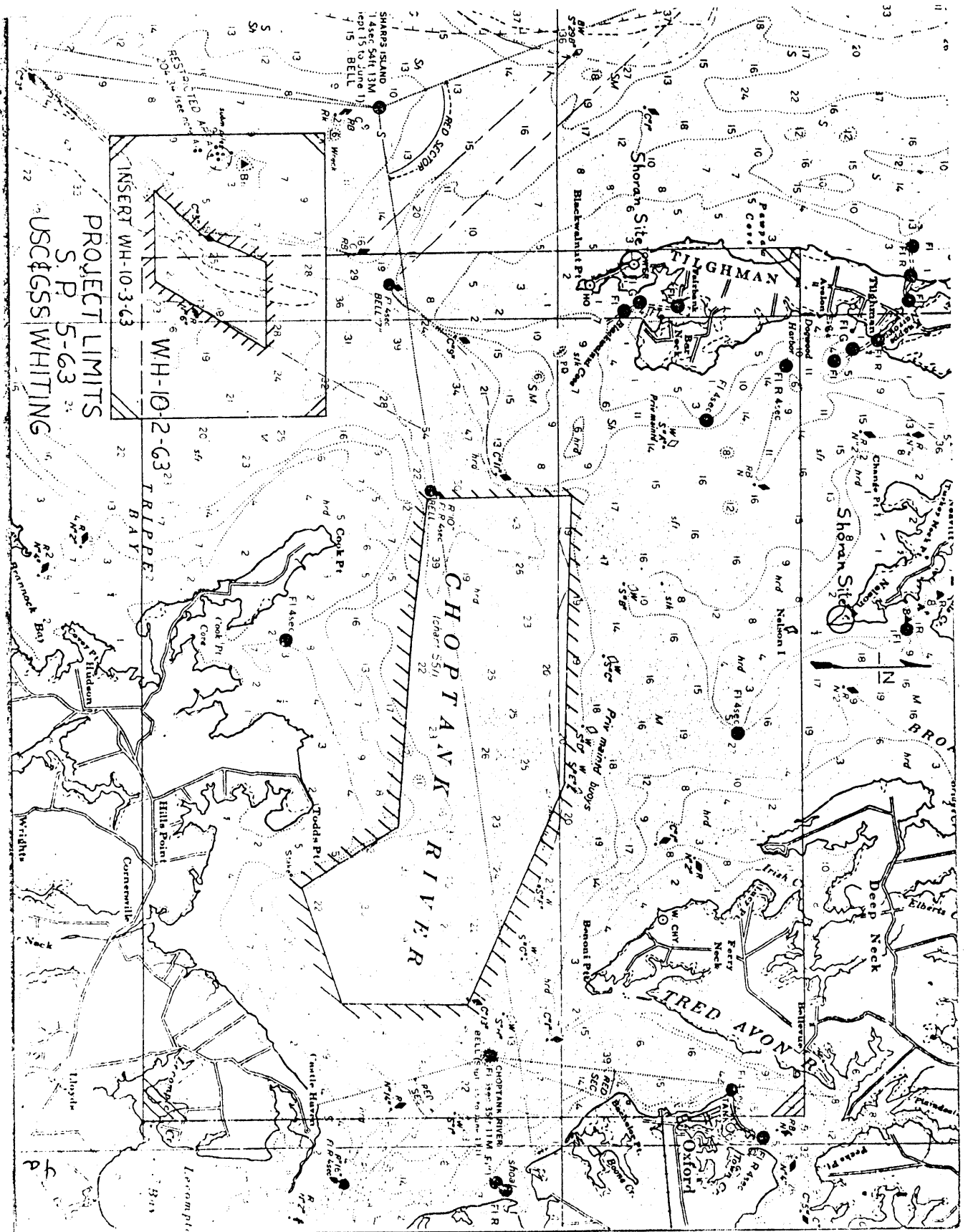
H. R. Lippold, Jr., LCDR, C&GS

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USCOMM-DC 5087

H-8744



*This copy to replace original
lost 11/16/66 with smooth sheet after
preliminary verification and review*

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC
SURVEY H-8744

FIELD No. WH-10-2-63

CHOPTANK RIVER, MARYLAND

Scale: 1:10,000

1963

Ship WHITING

H. R. Lippold, Jr., Comdg.

Surveyed by: LCDR H.R. Lippold, Jr.
LT J. Collins
LTJG J.W. Bricker
LTJG F.P. Kapinos
ENS D.G. Hickerson
ENS W.Y.S. Williams

A. PROJECT

The authority for this survey is contained in instructions for project SP-5-63, Shoal Development--Choptank River, Maryland, dated 13 November 1963, and supplemental instructions dated 21 November 1963.

B. AREA SURVEYED

The general area surveyed was the Choptank River about nine miles northwest of Cambridge, Maryland. The supplemental instructions called for an investigation in the vicinity of Sharps Island. For survey limits see attached section of C&GS Chart 1225.

The Choptank River is characterized by shallow waters along its shores and gently sloping bottoms out to mid-channel, where a sharper drop-off is generally encountered. The bottom has deep deposits of fine silt and mud; this was determined by bottom samples and fathogram traces. The submarine topography is generally very regular.

Dates of the survey are from 20 November thru 23 November.

There are no junctions made with any prior or contemporary surveys.

C. SOUNDING VESSEL

The Ship WHITING and both 26-foot hydrographic launches were used to complete this survey. The Ship WHITING used a

purple capital-letter day. Launch WH1 used a blue small-letter day. Launch WH2 used a red small-letter day.

D. SOUNDING EQUIPMENT

All sounding was accomplished using Ratheon 723 survey fathometers with the following serial numbers: Ship WHITING, No. 262; Launch WH1, No. 249; and Launch WH2, No. 251.

Velocity corrections for the launches were obtained from bar checks taken twice daily. Velocity corrections for the ship were obtained from lead-line comparisons taken daily on flat bottoms.

E. SMOOTH SHEET

The smooth-sheet projection was made by the Washington Office and is being plotted by the Norfolk District Office, Hydrographic Processing Section.

The hydrography accomplished for the supplemental investigation near Sharps Island will be smooth-plotted on an inset in the northeast corner of the smooth sheet.

F. CONTROL

Hiran was used to control all hydrographic operations for this project. Reconnaissance and location of the shore-station sites were accomplished by the Washington Office.

The shore-station sites were located on Tilghman Island and Nelson Point. Station MAN was a twenty-foot tower attached to the northwest corner of an eighty-foot-high skeleton steel tower on Tilghman Island. Station LIN was a sixty-foot tower located on triangulation station BLIND-1963 on Nelson Point.

Calibration of the Hiran equipment was accomplished using the Choptank River Light as a point of calibration and also by comparing the electronic fixes with visual fixes.

The launches were able to tie up alongside the lighthouse, and a distance and bearing were taken from the antennas to the center of the lighthouse. The ship used a range between station MAN and the lighthouse and a taped distance to the lighthouse.

G. SHORELINE

There was no transfer of shoreline necessary for this project since the area surveyed was in mid-channel. Existing shoreline and topography were used from C&GS Chart 551 when necessary for visual navigation or calibration.

H. CROSSLINES

Crosslines were run to an extent of about 7% of the regular scheme. Crosslines are in good agreement throughout the survey. Discrepancies in soundings on the boat sheets were resolved by using different velocity corrections for the launches than for the ship.

I. JUNCTIONS

No junctions were made with any prior or contemporary surveys.

J. COMPARISON WITH PRIOR SURVEYS

Copies of the prior surveys were not received during the actual time of the survey and could not be compared in the field. The boat sheets have since been compared with prior surveys H-7032, 1:10,000, 1943-1945, and H-7043, 1:10,000, 1943-1945.

In general, the soundings ran two to three feet deeper for the launch work and one to two feet deeper for the ship work than the prior surveys indicated. These discrepancies are expected to be resolved after the velocity and tide corrections are entered for final reductions. From these comparisons it does not appear that much shoaling, if any, has occurred since the prior surveys.

No prior surveys are available for the comparison of the investigation near Sharps Island.

K. COMPARISON WITH CHART

Comparisons were made with Chart C&GS 551, dated 25 February 1963. In general, the same differences in soundings were found as when compared with the prior surveys.

The additional investigation in the vicinity of Sharps Island compared very favorably with the chart. No evidence of shoaling was found to substantiate the reporting of a 19-foot shoal in the mid-channel area about 520 feet due east of Buoy C-5.

L. ADEQUACY OF SURVEY

The survey is complete and adequate within the designated limits and should supersede prior surveys for charting.

M. AIDS TO NAVIGATION

Three buoys, C-5, N-6, and C-13, were located and found to be properly charted. Other aids, both fixed and floating, were found to be properly located although the exact positions were not determined.

The floating aids in the Choptank River were found to be spaced rather far apart, and more aids would be desirable if the river is to be opened to major vessels.

N. STATISTICS

<u>Vessel</u>	<u>Number of Positions</u>	<u>N.M. of Sounding Lines</u>
Ship WHITING	720	136.8
Launch WH1	527	112.5
Launch WH2	611	127.3
Total	1858	376.6

Total area surveyed: 8.2 nautical square miles
 Bottom samples: 10
 Tide stations: 1

P. RECOMMENDATIONS

It is recommended that a large-scale chart be issued of the Choptank River and the channel leading into Cambridge, Maryland. The largest-scale chart now available is 1:40,000 and is inadequate for the safe navigation of the larger vessels expected to use the new port facilities at Cambridge.

Respectfully submitted,

Frederick P. Kapinos
 LTJG, C&GS

TIDE NOTE

One tide gage was used to control the tidal data for this survey. It was located at the Cambridge Yacht Basin Pier, Cambridge, Maryland, in Lat. $38^{\circ} 34.60'$ N and Long. $76^{\circ} 04.35'$ W. Time meridian 75° W (ZD+5) was used for times on the gage. Mean low water was 2.5 feet on the staff, and all heights recorded on the marigrams should be corrected by this amount.

Time and range corrections were necessary for the tides at both survey areas. A .9 range correction with a -30 minutes time correction was used for the main survey area. An .8 range correction with a -60 minutes time correction was used for the investigation near Sharps Island.

ABSTRACT OF VELOCITY CORRECTIONS

SP-5-63

WH-10-2-63

<u>Vessel</u>	<u>Correction</u>	<u>to Depth</u>
Ship WHITING	-1.6	20.0
	-1.4	23.2
	-1.2	28.2
	-1.0	40.0
	-0.8	60.0
Launch WH1	-2.6	8.2
	-2.4	9.9
	-2.2	12.1
	-2.0	21.9
	-2.2	42.0
	-2.0	over 42.0
Launch WH2	-2.2	10.4
	-2.0	43.7
	-2.2	over 43.7

Table 1

Table 2

Table 3

ABSTRACT OF SETTLEMENT AND SQUAT CORRECTIONS

FOR LAUNCHES WH1 AND WH2

<u>RPM</u>	<u>Correction</u>
0000-1000	0.0
1000-2400	+0.2
2400-	0.0

ABSTRACT OF SHORAN CORRECTIONS

SP-5-63

WH-10-2-63

<u>Vessel</u>	<u>Station MAN</u>		<u>Station LIN</u>	
	<u>Correction</u>	<u>Distance</u>	<u>Correction</u>	<u>Distance</u>
Ship WHITING	+0.010	2.5-4.7	-0.020	2.9-5.4
	+0.005	4.7-6.9	-0.015	5.4-7.8
	0.000	6.9-9.0	-0.010	7.8-9.0
Launch WH1	0.000	4.7-9.0	-0.010	2.5-9.0
Launch WH2	+0.020	2.0-3.35	+0.005	2.0-6.5
	+0.015	3.35-8.2	0.000	6.5-9.0
	+0.010	8.2-9.0		

APPROVAL SHEET

The boat sheet and records for the area are complete and approved. The boat sheet and sounding volumes were examined daily during the survey. The area surveyed is complete and adequate for charting.

H. R. Lippold, Jr.
LCDR, C&GS
Commanding Ship WHITING

SURVEY # 08744
POSITION NUMBERS

<u>VOLUME NUMBER</u>	<u>VESSEL</u>	<u>BLOCK OF NUMBERS ALLOCATED</u>
01-04	Ship Whiting	0001-0719A
05-07	(Launch # 1)	0801-1356
08-10	(Launch # 2)	2001-2121
		2222-2712

NOTE: All Volumes Are Electronically Surveyed.

ABSTRACT FOR SURVEY # 08744 (1963)

<u>MANUAL</u>		<u>AUTOMATED</u>	
<u>DAY</u>	<u>POSITION #'S</u>	<u>JULIAN DAY</u>	<u>POSITION #'S</u>
<u>SHIP WHITING</u>			
"A" Day 11/20/63	1-174	324	0001-0174
"B" Day 11/21/63	1-236	325	0175-0410
"C" Day 11/22/63	1-161	326	0411-0571
"D" Day 11/23/63	1-148A	327	0572-0719A
<u>(LAUNCH # 1)</u>			
"A" Day 11/20/63	1-156	324	0801-0956
"B" Day 11/21/63	1-241	325	0957-1197
"C" Day 11/22/63	1-55;57-160	326	1198-1356
<u>(LAUNCH # 2)</u>			
"A" Day 11/20/63	1-121	324	2001-2121
	122-202	324	2222-2302
"B" Day 11/21/63	1-244	325	2303-2546
"C" Day 11/22/63	1-166	326	2547-2712

SQUAT & SETTLEMENT

Squat and settlement tests were run on the ship WHITING and one of its launches on November 24, 1964. The method used was the same for each vessel. A self leveling level was set up on the dock at Moon Engineering Company, in Norfolk, Virginia and first the launch and then the ship was run by at different speeds and readings taken on a rod held over the transducers. On the launch the rod was held directly over the transducer, whereas on the ship the rod was held on the outboard rail on first one side then the other, and the results then averaged. Following is the results of the squat and settlement test:

Speed	Correction(in feet)
LAUNCHES	
<u>R.P.M.</u>	
0000--1000	0.0
1001--2400	+0.2
2401--3000	0.0

SHIP WHITING

Console setting
combined pitch & speed

000--3.8	0.0
3.8--4.2	+0.2
4.2--5.0	+0.4
5.0--6.0	+0.6
6.0--7.2	+0.8
7.2--10.0	+1.0

OFFICE OF CARTOGRAPHY
REVIEW SECTION -- NAUTICAL CHART DIVISION
REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8744

FIELD NO. WH-10-2-63

Maryland, Chesapeake Bay, Mouth of Choptank River

SURVEYED: November 1963

SCALE: 1:10,000

PROJECT NO. SP-5-63

SOUNDINGS: Ratheon 723 Depth
Recorder

CONTROL: Hiran

Chief of Party-----H. R. Lippold, Jr.
Surveyed by-----H. R. Lippold, Jr.
F. P. Kapinos
J. W. Bricker
Protracted by-----A. K. Schugeld
Soundings Plotted by-----A. K. Schugeld
Preliminary Verification by-----D. R. Engle
Verified and Inked by-----
Reviewed by-----D. R. Engle
Inspected by-----R. H. Carstens

Date: 1/28/64

1. Description of the Area

The survey covers the mouth of the Choptank River and a small area east of Sharps Island Shoal.

The bottom is generally smooth but in several areas it slopes gradually to the channel edge, where it drops more abruptly to maximum depths. Much of the bottom in the deeper parts of the channel is covered with sediment.

2. Shoreline and Control

This is an offshore survey and no contemporary topography was compiled for this project. The shoreline originates with reviewed photogrammetric surveys T-8248 and T-8249 of 1942 and Chart 551 (Print date February 25, 1963). Revisions to shoreline subsequent to the date of the photogrammetric surveys were applied from the chart. (Sharps Island and two islets in approx. lat. $38^{\circ}46'$, long. $76^{\circ}14'$, formerly bare at mean high water, have been revised to low water shoals in accordance with Chart Letters 1101 of 1962 and 1226 of 1960 respectively).

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

3. Hydrography

Sounding line crossings are in good agreement except as noted on page 9 of the Descriptive Report.

The usual depth curves are adequately delineated.

The development of bottom configuration and least depths is satisfactory. No bottom samples were obtained on the eastern third of the survey or on the channel investigation east of Sharps Island Shoal.

4. Condition of Survey

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

5. Junctions

No contemporary surveys exist in this area, therefore, no junctions were made.

6. Comparison with Prior Surveys

a.	H- 199 (1848), 1:20,000	H-2630 (1902), 1:20,000
	H- 201 (1848), 1:20,000	H-2631 (1902), 1:20,000
	H-2427 (1899), 1:40,000	

These prior surveys have been discussed in the reviews of the hydrographic surveys listed in par. b below and need no further consideration.

- b. H-6958 (1944), 1:10,000
- H-7032 (1943-45), 1:10,000
- H-7043 (1943-45), 1:10,000
- H-7075 (1945), 1:10,000

These prior surveys cover the area of the present survey. A comparison of the prior and present depths indicates no major bottom changes, but numerous variable differences in depth of one to two feet. These differences are considered to have been caused by current action. Scouring has occurred in the shoaler portions of the channel and shoaling is noted in the deeper portions. The fathograms show excellent traces of sediment in areas where shoaling is evident.

The present survey is adequate to supersede the prior surveys within the common area except for bottom characteristics which have been carried forward to supplement those obtained on the present survey.

7. Comparison with Chart 551 (Latest print date 2-25-63)

A. Hydrography

Charted hydrography originates entirely with the prior surveys listed in 6b above and is superseded by the present survey.

B. Aids to Navigation

The aids to navigation located on the present survey are in agreement with charted aids except that the buoy which was located at lat. $33^{\circ}36.64'$, long. $76^{\circ}20.98'$ is charted 100 meters west of this position.

Choptank River Lighthouse was plotted on the survey as a reference station.

The aids to navigation as presently charted adequately mark the features intended.

8. Compliance with Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work

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

Examined and Approved:

Chief,
Nautical Chart Division

Assistant Director,
Office of Cartography

Projects Officer,
Operations Division

Assistant Director
Office of Oceanography

*Review had been signed before
it was lost.*

RH Carstens 11/16/66

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. _____

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
551	11/21/68	R A Lillis	Full Part Before ^{After} Verification Review Inspection ^{Signed} Via Drawing No. <i>considered as applied thru "signed"</i> <i>as per D.E. Westbrooke 12/5/68 J.E. Beaulieu</i>
77	8/8/69	H. Frost	Full Part Before ^{After} Verification Review Inspection Signed Via Drawing No. <i>This survey has been adequately applied</i> <i>through chart 551. Scale of #77 is sufficiently small to warrant</i> <i>this.</i>
1225	8-5-70	<i>Rogers, J. ...</i>	Full Part Before ^{After} Verification Review Inspection Signed Via Drawing No. <i>20 OF CHART 551</i>
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
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