

7791

Diag. Cht. No. 1222-3

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. PBS H-1249 Office No. H-7791

LOCALITY

State Virginia

General locality Lower Chesapeake Bay

Locality Vicinity of Cape Charles

194 9

CHIEF OF PARTY

R. H. Tryon, Jr.

LIBRARY & ARCHIVES

DATE 11 May 1950

B-1870-1 (1)

DECLASSIFIED BY NOAA  
PURSUANT TO DOC SYSTEMATIC REVIEW  
GUIDELINES AS DESCRIBED IN SECTION  
(a) EXECUTIVE ORDER 12356.

16222



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-7791

Field No. PBS-1249

State VIRGINIA

General locality LOWER CHESAPEAKE BAY

Locality VICINITY *Cape Charles*  
~~FISHERMAN ISLAND~~

Scale 1:10,000 Date of survey 7 Nov. to 2 Dec. 1949

Instructions dated 26 July 1949

Vessel SHIPS BOWEN AND STIRNI, LAUNCH #116 AND DINGHY

Chief of party Raymond H. Tryon, Jr.

Surveyed by W.E. Randall and A.L. Powell

Soundings taken by ~~fathometer~~, graphic recorder, ~~and lead wire~~ Pole

Fathograms scaled by Field Personnel

Fathograms checked by " "

Protracted by Harry J. Thompson

Soundings penciled by Harry J. Thompson

Soundings in ~~FATHOMS~~ feet at MLW ~~BELOW~~

REMARKS:

-----  
-----  
-----  
-----  
-----  
-----



DESCRIPTIVE REPORT  
TO ACCOMPANY  
HYDROGRAPHIC SURVEY H- 7791  
(Field No. PBS H-1249)

Raymond H. Tryon, Jr., Chief of Party      Ships PARKER, BOWEN, STIRNI  
Scale: 1: 10;000                                      Survey made in 1949

A. PROJECT:

This survey was executed under Supplemental Instructions from the Director for Project CS-326, dated 26 July 1948.

B. SURVEY LIMITS AND DATES:

This survey covers the inshore hydrography on the east side of Lower Chesapeake Bay from Latitude  $37^{\circ} 04' 30''$  to  $37^{\circ} 11' 00''$ . The southernmost part being southwest of Fisherman Island. It also covers the shoal water, "Inner Middle Ground Shoal," west of Fisherman Island.

The survey began on 7 November 1949 and was completed on 2 December 1949. On the west and south it joins contemporary survey H-7750 (PBS - H-4148, Scale 1:40,000, began in July 1948 and completed on 25 October 1949; H-4926, Scale 1:20,000 surveyed in 1929 on the east (south of Fisherman Island); H-3658, Scale 1:20,000 made in 1914 on the north. *Not a work-off on April 15<sup>th</sup> day*

C. VESSEL AND EQUIPMENT:

The hydrography was done in USC&GS Ships BOWEN, STIRNI; Launch #116 and a sixteen foot Dinghy. While doing hydrography the Ships were operated from 400 to 1000 RPM and the Launch was operated at 600 RPM; an outboard motor was used on the Dinghy. Ships BOWEN and STIRNI were used to do the hydrography where the depths and other conditions would permit. Launch #116 was used for the rest of the hydrography except for the inshore lines; the 16 foot Dinghy was used to run these shoal water lines.



The Launch was operated from Ship's BOWEN and STIRNI; the Ships were anchored behind the break water at Kiptopeake, Va.

Portable depth recorder, Submarine Signal Company model 808-J and 808-A were used to obtain soundings where possible; a sounding pole was used in the shoal water. Depth recorders Nos. 120-S, model 808-J and No. 116-S, model 808-J were used on Launch No. 116. Depth recorder No. 120-S was used on the Ship BOWEN; and depth recorder No. 65, model 808-A was used on Ship STIRNI. Soundings were obtained with a pole when the Dinghy was used; a sounding pole was also used in Launch #116 in very shoal water.

D. TIDE AND CURRENT STATIONS:

The tides for this area were furnished by the Washington Office upon request. They were based on the hourly heights as observed at the primary station located at the Naval Operating Base, Hampton Roads, Virginia. A time correction of minus 45 minutes and a high water height difference of plus 0.3 foot was applied to observed tides. (See Directors letter of 25 March 1949, reference 36-tmo).

No current stations were occupied.

E. BOAT SHEET:

Boat sheet <sup>H-7791</sup> (PBS 1249) was constructed in the Washington Office.

Shoreline was transferred by the Office from T-8181 and T-8183. <sup>of 1942</sup>

Shoreline shown in red is from <sup>ph</sup> Graphic Control Surveys, <sup>T-7074 a+b</sup> (PBS-C&D-)

1949.

F. CONTROL STATION:

The control used on this sheet consisted of three triangulation stations, supplemented by 32 topographic signals located by contemporary graphic control survey <sup>C&D</sup> PBS-~~B&C~~-1949.

<sup>T-7074 a+b</sup>



The triangulation is from a scheme executed by J.B.M. 1906, C. D. Meaney 1941 and K.B.J. 1939. Three observation towers ( [REDACTED] ) the geographic positions of which are classified as confidential and were furnished this party by the Supervisor, South-eastern District.

Below is a list of the triangulation stations and topographic signals used.

ABE	FAT	NIP
BAG	GAL	OAK
CUT	<i>Gib</i> HER	NAT
DAY	IDA	RAG
CRY	JAX	SAM
CAR	JAP <i>Not used</i>	VIM
DOT	KID	ZOO
LOW	BLUFF	SID
EAR	KEY	SHE
END	LAY	WISE [REDACTED] A&C
EVA	MAN	

G. SHORELINE AND TOPOGRAPHY:

The shoreline and topographic detail were taken from T-8181, Scale 1:20,000; T-8183, 1:20,000 surveyed in the summer and fall of 1942. The original survey was made by photogrammetric means. The detail was furnished this party on a 1:10,000 by the Washington Office. There has been considerable change of the shoreline of Fisherman Island; the shoreline along the southwest end of Wise point is building to the west. The shoreline on the north end of the sheet is in fair agreement with the old surveys. For a more

*Shoreline on 5/5 from G.C. Survey T-7074 a+b (1949) supplemented by shoreline sketched on 8/5 and shown on 5/5 by dashed red lines.*



detailed discussion of these changes see "Report on Graphic Control Survey" <sup>F-7074 aty</sup> (PBS-B&C 1949)

The mean low water line was not defined by soundings. The ~~weather~~ <sup>sea</sup> conditions; the equipment available to this party and the small range of tide made it impossible to define the MLW line without jeopardising the Launch and personnel.

Soundings were obtained in most areas along the beach at the shoalest depth in which the Launch could be operated. The Dinghy was used on some of the shoalest depths, but the weather and the sea prevented its use much of the time.

#### H. SOUNDINGS:

Soundings were obtained with the Submarine Signal Company type 808-J (Nos. 120-S, 116-S, 65 and 808-A) depth recorders calibrated to 820 fathoms per second. A sounding pole was used to obtain shoal soundings.

Bar checks were taken in accordance with paragraph reference No. 557 of the HYDROGRAPHIC MANUAL. Mean corrections were computed after rejecting the obvious "wild" readings and a graph drawn representing corrections as ordinates and depth as abscissae. The bar check corrections entered in the sounding records were scaled from this graph. (See attached report on Bar Checks).

#### I. CONTROL OF HYDROGRAPHY:

Standard surveying procedure was used, with the three-point fix by Sextant on the vessel used for horizontal control. Hand lead soundings were taken around the new pier under construction by the Virginia Ferry Corp. These soundings were controlled by measurement with a steel tape from a corner of the pier.



J. ADEQUACY OF SURVEY:

This survey is complete and adequate for the area. There are three small areas where the spacing is wide; i.e. Latitude  $37^{\circ} 05.4'$ , Longitude  $75^{\circ} 58.5'$ ; Latitude  $37^{\circ} 10.3'$ , Longitude  $75^{\circ} 59.3'$ ; and Latitude  $37^{\circ} 11.0'$ , Longitude  $75^{\circ} 59.8'$ . (Continued on page 7 of this report).

*Development adequate for charting purposes.*

K. CROSSLINES:

Approximately ten percent of the lines run were crosslines. These lines differ as much as two feet in some areas but after checking the observed tides it is believed that smooth sheet plotting will assure perfect crossings.

*5/5 Crossings considered adequate.*

L. COMPARISON WITH PRIOR SURVEYS:

The present survey is in general agreement with prior survey Register No. <sup>H</sup>3658, 1914; Scale 1:20,000. There is some discrepancy in the rough bottom south of Fisherman Island. The sounding in this area is generally shoaler by four to ten feet. There is no indication of the <sup>present</sup> 18 foot sounding in Latitude  $37^{\circ} 04.15'$ , Longitude  $75^{\circ} 58.05'$  <sup>8</sup> on this or any other prior survey. These soundings differ by 18 to 20 feet from the old survey. The shoal in Latitude  $37^{\circ} 05.5'$ , Longitude  $76^{\circ} 00.5'$  has increased in size and a shoal sounding of <sup>3</sup> ~~2~~ feet was obtained in this area. *(Lat.  $37^{\circ} 05.27'$ , Long.  $76^{\circ} 00.36'$ )*

*see TP 5C of Review.*

*Original 8' sdg. retained. See smooth sheet. NEM.*

*2? NEM.*

Item No. 13 from Preliminary Review dated 14 July 1948 was not visible although the topographer (Sheet PBS-B&C 1949) was informed that the <sup>DVKW</sup> "Ducks" from Fort <sup>C</sup>ustis have been recently snagged on parts of this wreck. (See Report for Graphic Control Survey No. <sup>T-7074 A+B</sup> PBS-B&C 1949). *It is recommended that the wreck symbol be changed to a submerged wreck.*

*see TP 6A3 of Review*

Item No. 14 from this review is no longer in evidence; the beach has built out in this area and is bare at low water. *It is recommended that the wreck symbol be deleted from the chart.*

*see TP 6A2 of Review.*

*Also see pg 4 of D.R. for T-7074 a+b*



M. COMPARISON WITH CHART:

A comparison was made with chart 1222 printed in 1946; the present survey is in general agreement with this chart except as noted in "L" above.

See P6  
of Review

N. DANGERS AND SHOALS:

All charted dangers and shoals were found as charted except as listed in "L" and "M" above.

P. AIDS TO NAVIGATION:

The following floating aids to navigation were located in this area.

<u>NAME</u>	<u>LATITUDE LONGITUDE</u>	<u>DEPTH OF WATER</u>	<u>POSITION NUMBER</u>	<u>DATE OF LOCATION</u>
North Channel Buoy #9	37° 04.76' 75° 59.52'	35'	(1a) 1b'	8 Nov. 1949
Cape Charles Spit Buoy	37° 06.38' 75° 58.97'	12'	183 B	29 Nov. 1949
Latimer Shoal Buoy	37° 06.56' 75° 59.41'	21'	182 B	29 Nov. 1949

Q. LANDMARK FOR CHARTS:

Landmarks for charts have been submitted, a copy of Form (7-7074a+b) is attached to the report for graphic control survey PBS-~~BSS~~ 1949. C+D

R. GEOGRAPHIC NAMES:

No field investigation of Geographic names was accomplished.

U. SETTLEMENT AND SQUAT:

Settlement and squat corrections for the soundings obtained with Ships BOWEN and STIRNI have been entered in the record books. Settlement and squat corrections for Launch #116 were determined and found to be negligible.



J. ADDITION TO ADEQUACY OF SURVEY: (Cont. from pg. 5)

These areas are near the shore and it is believed that the soundings obtained are adequate.

The junction made with Sheet H-<sup>not in Work Office 12/1/50 ddy</sup>7750 (Field PBS-4148) indicate that the Shoran controlled hydrography needs some adjustment. It is thought that there is sufficient overlap to make the adjustment and obtain a satisfactory junction. A satisfactory junction is made with the visual work on <sup>H-7750</sup>(PBS-4148) and depth curves can be drawn.

Junction with H-7750 to be compared with present survey when H-7750 is verified.

The junction made with Sheet H-4926, Scale 1:20,000 surveyed in 1929 indicates that there has been considerable change in this area. The bottom is rough in this area but generally the soundings are shoaler by from four to ten feet. This discrepancy in soundings at the junction prevents the drawing of depth curves.

See P 5 D of Review.

The junction made with Sheet H-3658, Scale 1:20,000 surveyed in 1914 makes a satisfactory junction and depth curves can be drawn.

See P 5 C of Review



FATHOMETER CORRECTIONS

HYDROGRAPHIC SURVEY H- 7791

(Field No. PBS H-1249)

LOWER CHESAPEAKE BAY, VIRGINIA

7 November - 2 October 1949

USC&GS Ships PARKER, BOWEN, STIRNI ----- Raymond H. Tryon, Jr.  
Chief of Party

EQUIPMENT:

Depth recorder type 808-J (No. 120-S) was used on Ship BOWEN and recorder 808-A (No. 65) was used on Ship STIRNI. Depth recorders type 808-J (Nos. 120-S and 116-S) were used in Launch #116 on this survey. The transceiver units on the Launch were mounted in a standard "fish" secured on the starboard side of the deadwood of the keel on the after part of the vessel approximately three-fourths of the length of the vessel from the bow.

The bar check apparatus on Launch #116 consisted of a six (6) foot eight (8) inch board covered with sheet metal. The ends of the board is supported by standard mahogany colored tiller rope with a phosphor-bronze wire center. The graduations are marked as described in reference No. 4621 of the HYDROGRAPHIC MANUAL.

The bar check apparatus on Ships BOWEN and STIRNI consisted of an eighteen (18) foot, two and one-half ( $2\frac{1}{2}$ ) inch G. I. pipe with a rectangular sheet of iron, four (4) feet by eight (8) inches, fastened at the center of the pipe. The supports for the bar are constructed from mahogany colored tiller rope with a phosphor-bronze wire center. The markings for the graduations on these lines are similar to those on a standard lead line.



FIELD WORK:

No serial temperature and salinity observations were taken within the area covered by this survey.

Bar checks were taken in accordance with standard practice.

The initial setting to obtain small corrections was found to be two (2) feet for Launch #116, and four (4) feet on Ships BOWEN and STIRNI.

The bar lines were checked against a standard frequently and found to be correct.

Corrections for settlement and squat for the BOWEN and STIRNI were determined by tests made on the BOWEN. The tests consisted of measuring depth with a type 808-J depth recorder as the Ship passed over the same point at various speeds. Horizontal control to insure the Ship's passing over the same point on each run consisted of ranges crossing at nearly right angles. The Ship ran one range and the depth was recorded when the Ship crossed the other range. Observations were made at three depths, Forty-four feet, twenty-two feet, and twelve and one half feet, as outlined in the HYDROGRAPHIC MANUAL.

In general the procedure for each depth was as follows: The Ship stopped over the point and recorded the depth and time. Then the Ship passed over the point a sufficient number of times at speeds of 400, 600, 800 and 1000 RPM to insure at least two good values at each speed, recording the depth and time over the point on each run. A final test was made with the Ship stopped over the point.

Plotting the recorded depths as ordinates versus times as abscissae, and using for a tide baseline a straightline connecting the two tests made stopped, before and after the underway tests,

the settlement and squat corrections are the scaled differences in depth from the plotted positions of the tests measured vertically to the baseline. (The errors resulting from plotting the baseline as a straight line instead of as the actual tide curve are negligible). A mean of the corrections obtained at any one speed is the accepted correction for that speed. A similar graph was made for each of the three depths tested.

To obtain corrections for intermediate speeds, an interpolation graph was made, plotting corrections versus RPM and drawing a smooth curve for each of the three depths tested. From this, the final graphs were drawn, one for each speed used by the Ships. A tabulation of the final corrections accompany this report.

On the BOWEN and STIRNI, the settlement and squat corrections have been entered in the sounding volumes. The correction for Launch #116 was determined and found to be negligible.

OFFICE COMPUTATION:

All bar check readings for the various depths were tabulated and a set of curves was drawn for the entire period for each fathometer and <sup>each</sup> ~~and~~ vessel. Corrections were scaled from the curves and tabulated. The table of corrections and the curves are attached to this report.

All fathograms have been scanned for variations of the initial setting and proper corrections entered in the sounding records.

SUMMARY:

All necessary corrections have been entered in the sounding records.

*Allen L. Powell*  
Allen L. Powell  
Lt.(j.g.), USC&GS

ABSTRACT OF BAR CHECKS

SHEET H-779 (PBS 1249)

FATHOMETER NO. 120S

808J

820 Fm/sec

Ship BOWEN

DATE	Vol.	Ltr.	BAR CHECK DEPTH AND FATHOMETER CORRECTION TO OBTAIN TRUE DEPTH							
			10	15	20	25	30	35	40	50
1949										
16 Nov.	1	a	+0.1		-0.1			-0.1		-0.2

FATHOMETER NO. 65

808A

820 Fm/sec

Ship STIRNI

21 Nov.	2	a	-0.05	-0.2	-0.3	-0.55	-0.7	-0.8		
21 Nov.	2	a	-0.15	-0.45						
29 Nov.	2	b	-0.2	-0.0	-0.15	-0.1				
29 Nov.	2	b	+0.1		-0.25		-0.3	-0.8	-1.1	
								B-1.5	B-1.6	B-2.0
29 Nov.	2	b	-0.0		-0.15		-0.45		-0.9	
									B-2.0	
30 Nov.	3	c	-0.0	-0.0						
30 Nov.	3	c	-0.0		-0.3		-0.95		-1.1	
									B-313	
30 Nov.	3	c	-0.2	-0.1	-0.4					

TOTAL "A"  
MEAN

-0.50    -0.75    -1.55    -0.65    -2.40    -1.60    -3.10  
-0.0625    -0.15    -0.258    -0.325    -0.60    -0.80    -1.033

TOTAL "B"  
MEAN

-1.50    -6.90    -2.0  
-1.50    -2.45    -2.0



ABSTRACT OF BAR CHECKS

SHEET H-771/(PBS 1249)

FATHOMETER NO. 120S

808J

820 Fm/sec

Launch #116

DATE	Vol.	Ltr.	BAR CHECK DEPTH AND FATHOMETER CORRECTION TO OBTAIN TRUE DEPTH								
			10	15	20	25	30	35	40	50	
1949											
7 Nov.	4	a	-0.25		-0.20			-0.60			
8 Nov.	4	b	-0.05		-0.30			-0.40		-0.90	-1.3
										B-1.25	B-1.8
17 Nov.	5	e	-0.15		-0.20						
21 Nov.	6	f	-0.20		-0.20			-0.55			
21 Nov.	6	f	+0.05		-0.00						
28 Nov.	6	g	-0.25								
28 Nov.	6	g	-0.15		-0.55						
28 Nov.	6	g	-0.00		-0.30						
29 Nov.	7	h	-0.00		-0.25						
29 Nov.	7	h	-0.35		-0.30						
30 Nov.	8	j	-0.10		-0.35			-0.60			
TOTAL			-1.45		-2.65			-2.15		-0.90	-1.30
MEAN			-0.131		-0.265			-0.538		-0.90	-1.30
TOTAL "B"										B-1.25	B-1.80
MEAN										B-1.25	B-1.80

ABSTRACT OF BAR CHECKS

SHEET H-779/ (PBS 1249)

FATHOMETER NO. 116S

808J

820 Fm/sec

Launch #116

DATE	Vol.	Ltr.	10	15	BAR CHECK DEPTH AND FATHOMETER CORRECTION TO OBTAIN TRUE DEPTH					
					20	25	30	35	40	50
9 Nov.	4	c	-0.2		-0.25		-0.35		-0.80	
									B-0.80	
10 Nov.	5	d	-0.00		-0.00					
TOTAL			-0.2		-0.25		-0.35		-0.80	
MEAN			-0.1		-0.125		-0.175		-0.80	
TOTAL "B"									B-0.80	
MEAN									B-0.80	

FATHOMETER CORRECTIONS

HYDROGRAPHIC SURVEY H-7791 (PBS 1249)

U.S.C.&G.S. Ship BOWEN

The Corrections Tabulated below are based on Standard Initials of 4.0 feet Ship BOWEN fathograms. All soundings on A-SCALE, FOOT SCALE unless otherwise stated.

Ship BOWEN

FATHOMETER NO. 120S                      808J

Corrections	From	To
+ 0.2	0.0	10.0
0.0	10.5	25.0
- 0.2	25.5	44.0

U.S.C.&G.S. Ship STIRNI

The Corrections Tabulated below are based on Standard Initials of 4.0 feet Ship STIRNI fathograms. All soundings on A-SCALE, FOOT SCALE unless otherwise stated.

Ship STIRNI

FATHOMETER NO. 65                      808A

Corrections	From	To
0.0	0.0	14.0
- 0.2	14.5	21.0
- 0.4	21.5	27.0
- 0.6	27.5	32.5
- 0.8	33.0	37.0
- 1.0	37.5	41.5
- 1.2	42.0	46.5
- 1.4	47.0	53.5
- 1.6	54.0	61.0

Ship STIRNI "B" SCALE

- 1.4	26.0	34.5
- 1.6	35.0	43.0
- 1.8	43.5	48.0
- 2.0	48.5	53.0
- 2.2	53.5	57.5
- 2.4	58.0	62.5



FATHOMETER CORRECTIONS

HYDROGRAPHIC SURVEY H- 779/ (PBS 1249)

U.S.C.&G.S. Launch #116

The Corrections Tabulated below are based on Standard Initials of 2.0 feet Launch #116 fathograms. All soundings on A-SCALE, FOOT SCALE unless otherwise stated.

Launch #116

FATHOMETER NO. 116S		808J
Corrections	From	To
0.0	0.0	10.0
- 0.2	10.5	26.0
- 0.4	26.5	34.0
- 0.6	34.5	38.0
- 0.8	38.5	42.0
- 1.0	42.5	45.5
- 1.2	46.0	49.0
- 1.4	49.5	52.5
- 1.6	53.0	56.5

Launch #116

FATHOMETER NO. 120S		808J
Corrections	From	To
0.0	0.0	10.0
- 0.2	10.5	22.0
- 0.4	22.5	28.5
- 0.6	29.0	35.0
- 0.8	35.5	40.0
- 1.0	40.5	45.0
- 1.2	45.5	50.0
- 1.4	50.5	56.0

LIST OF SIGNALS  
To Accompany

HYDROGRAPHIC SURVEY H-7791 (Field No. PBS-1249)

KIPTOPEKE, NORTH TOWER, 1942-49	KID
CHEAPSIDE (U.S.E.), 1939	SID
<del>WISE, F.C. TOWER "A" (U.S.E.)</del>	WISE "A"
<del>WISE, F.C. TOWER "C" (U.S.E.)</del>	WISE "C"

TOPOGRAPHIC STATIONS

(Source T-7074 a & b)

ABE	BAG	BLUFF	CAR	CRY	CUT	DAY	DOT	EAR	END	EVA
FAT	GAL	GIB	HER	IDA	JAX	KEY	LAY	LOW	MAN	NAT
NIP	OAK	RAG	SAM	SHE	VIM	ZOO				

STATISTICS

The statistics for Hydrographic Survey H-7791 (PBS-H-1249) are as follows:

Vol. No.	Day Letter	Date 1949	No. of Positions	Stat. Miles Sdg. Line	Vessel
1.	A	16 Nov.	<u>231</u>	<u>32.7</u>	BOWEN
		Total =	231	Total= 32.7	
Sq. Stat. Mi. = .68					
2.	A	21 Nov.	87	10.1	STIRNI
2.	B	29 Nov.	204	32.0	STIRNI
3.	C	30 Nov.	<u>163</u>	<u>22.8</u>	STIRNI
		Total =	454	Total= 64.9	
Sq. Stat. Mi. = 1.32					
4.	a	7 Nov.	24	2.1	LAUNCH 116
4.	b	8 Nov.	202	18.9	LAUNCH 116
4.	c	9 Nov.	159	10.3	LAUNCH 116
5.	c	9 Nov.	68	5.5	LAUNCH 116
5.	d	10 Nov.	198	16.2	LAUNCH 116
5.	e	17 Nov.	141	8.9	LAUNCH 116
6.	f	21 Nov.	147	9.8	LAUNCH 116
6.	g	28 Nov.	250	16.3	LAUNCH 116
7.	h	29 Nov.	402	30.6	LAUNCH 116
8	j	30 Nov.	<u>174</u>	<u>15.0</u>	LAUNCH 116
		Total =	1765	Total=133.6	
Sq. Stat. Mi. = 2.74					
9.	a	30 Nov.	72	7.0	DINGHY
9.	b	2 Dec.	<u>7</u>	<u>1.0</u>	DINGHY
		Total =	79	Total= 8.0	
Sq. Stat. Mi. = .15					
10.	a	2 Dec	<u>58</u>		
		Total =	58		

TOTALS FOR SHEET

2587 Positions  
239.2 Stat. Mi. Sdg. line  
4.89 Sq. Stat. Mi.

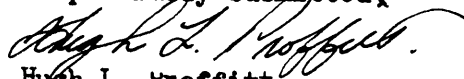
ADDENDUM  
To Accompany

HYDROGRAPHIC SURVEY H-7791 (Field No. PBS-1249)

SHORELINE

Shoreline was transferred from topographic sheets T-7074 a&b and supplemented with boat sheet sketches at Fisherman Island because of extensive changes in that area.

Respectfully submitted,



Hugh L. Proffitt  
Cartographer

Norfolk, Va.  
4 May 1950

Approved & forwarded:



Earl O. Heaton  
Supervisor, S.E. District.



## SETTLEMENT &amp; SQUAT CORRECTIONS

PBS

<u>SPEED (RPM)</u>	<u>CORRECTIONS (FEET)</u>	<u>FROM DEPTH TO DEPTH (FEET)</u>
400	0.2	all depths
450	0.2	all depths
500	0.2	all depths
600	0.4	6.0 to 14.5
	0.2	15.0 & over
650	0.4	11.5 to 17.0
	0.2	17.5 & over
700	0.6	12.5 to 15.0
	0.4	15.5 to 19.5
	0.2	20.0 & over
750	0.8	12.5 to 14.0
	0.6	14.5 to 16.5
	0.4	17.0 to 12.5
	0.2	22.0 to 31.5
	0.4	32.0 & over
800	1.0	12.5 to 13.0
	0.8	13.5 to 15.5
	0.6	16.0 to 19.0
	0.4	19.5 & over
850	1.0	12.5 to 13.5
	0.8	14.0 to 16.5
	0.6	17.0 to 22.5
	0.4	23.0 & over
900	1.0	12.5 to 14.5
	0.8	15.0 to 20.5
	0.6	21.0 to 34.0
	0.4	34.5 & over
1000	1.0	6.0 to 21.5
	0.8	22.0 to 31.5
	0.6	32.0 & over



[REDACTED]

The following triangulation stations are classified and are shown on the hydrographic sheet only by their hydrographic names:

<u>Hydro. Name</u>	<u>Triangulation Station</u>
Wise A	Wise, F.C. Tower A (USE)
Wise C	Wise, F.C. Tower C (USE)

**DECLASSIFIED BY NOAA**  
PURSUANT TO DOC SYSTEMATIC REVIEW  
GUIDELINES AS DESCRIBED IN SECTION  
3.3(a), EXECUTIVE ORDER 12356.



APPROVAL SHEET

The beat sheet and records as submitted to the Norfolk Processing Office are approved. The beat sheet and record books have been inspected daily as the work progressed. The survey is complete and adequate. No additional work is recommended. ✓

*Raymond H. Tryen, Jr.*

Raymond H. Tryen, Jr.  
Lt. Comdr. USC&GS  
Chief of Party

## TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~

24 May 1950

Division of Charts: R. H. Carstens

Plane of reference approved in  
10 volumes of sounding records for

HYDROGRAPHIC SHEET 7791

Locality Lower Chesapeake Bay, Virginia

Chief of Party: R. H. Tryon in 1949

Plane of reference is mean low water, reading  
3.6 ft. on tide staff at Hampton Roads (NOB)  
13.4 ft. below B. M. 6 (1927)

Height of mean high water above plane of reference is 2.5 feet.

Condition of records satisfactory except as noted below:

*E. C. McKay*  
*Section*  
Chief, ~~Division of Tides and Currents.~~

GEOGRAPHIC NAMES

Survey No. H-7791

Name on Survey	A	B	C	D	E	F	G	H	K	
	On Chart No.	On previous survey No.	On U. S. quadrangle Maps	From local information	On local Maps	P. O. Guide or Map	Rand McNally Atlas	U. S. Light List		
<u>Virginia</u>									USGB	1
<u>Chesapeake Bay</u>									"	2
										3
<u>Cape Charles</u>										4
<u>Wise Point</u>										5
<u>Kiptopeke</u>									USGB	6
<u>Fisherman Island</u>									"	7
<u>Inner Middle Ground</u>										8
<u>Picketts Harbor</u>										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27
										M 234

Names underlined in red are approved. 5-25-50.

L. Heck

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. .... H-7791

Records accompanying survey:

Boat sheets <sup>1</sup>.....; sounding vols. <sup>10</sup>.....; wire drag vols. ....;  
 bomb vols. ....; graphic recorder rolls ~~19x~~ 10 envel.  
 special reports, etc. ....  
 .....

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

Number of positions on sheet	.....	2590
Number of positions checked	.....	50
Number of positions revised	.....	0
Number of soundings revised (refers to depth only)	.....	0
Number of soundings erroneously spaced	.....	2
Number of signals erroneously plotted or transferred	.....	0
Topographic details	Time	..... 10
Junctions	Time	..... 8
Verification of soundings from graphic record	Time	..... 0

Verification by <sup>Mr. Starn 8 hrs</sup> O. Svendsen <sup>158</sup> Total time 164 hrs Date 6 Dec 1950

Reviewed by *A. J. G. [Signature]* Time 31 Date Jan 2, 1951

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7791

FIELD NO. PBS-H-1249

Virginia, Lower Chesapeake Bay, Vicinity of Cape Charles  
Surveyed in Nov. - Dec., 1949                      Scale 1:10,000  
Project No. CS-326

Soundings:

Control:

808 Fathometer  
Sounding Pole

Sextant fixes on shore signals

Chief of Party - R. H. Tryon, Jr.  
Surveyed by - W. E. Randall and A. L. Powell  
Protracted by - H. J. Thompson  
Soundings plotted by - H. J. Thompson  
Verified and inked by - O. Svendsen  
Reviewed by - I. M. Zeskind, 10 January 1951  
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline of the present survey originates with plane table survey T-7074a and b (1949). Supplementary shoreline shown by dashed red lines was transferred from the boat sheet.

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

2. Sounding Line Crossings

Depths at crossings are in good agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves were adequately delineated, except for the low-water curve which was only partially determined. Soundings were obtained as close to the beach as practicable considering the draft of the boat and conditions of the sea.

The bottom is generally smooth except for several lumps found inshore and the deep found west of Fisherman Island.



4. Junctions with Contemporary Surveys

Adjoining Project surveys have not been received in the Washington Office at this time. Junctions with the present survey will be discussed in the reviews of the adjoining surveys.

5. Comparison with Prior Surveys

- A. H-286 (1851), scale 1:20,000  
 H-345 (1852), scale 1:20,000  
 H-364 (1852), scale 1:40,000  
 H-1013 (1869), scale 1:20,000  
 H-1169 (1874), scale 1:20,000  
 H-1873 (1888), scale 1:20,000  
 H-1874 (1888), scale 1:20,000  
 H-1875 (1888), scale 1:10,000

A comparison between the prior surveys and the present survey reveals many differences in bottom configuration caused by shoaling and shifting of the bottom. The shoaling has been gradual and totals 2-6 ft. in depths of 4-50 ft. However, a deepening of 19ft. has occurred in lat. 37° 04.82', long. 75° 58.53', where a prior depth of 15 ft. on H-1873 falls in present depths of 22-34 ft. Inner Middle Ground has eroded as much as 700 meters on its eastern side and its western side has shifted southwestward about 50 meters. The west side of Fisherman Island has accreted as much as 700 meters.

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

B. H-2867 (1906-07), Scale 1:30,000

The few soundings on this prior survey which fall in the area of the present survey affords no adequate basis for comparison.

- C. H-3295 (1911), scale 1:20,000  
 H-3415 (1912-13), scale 1:40,000  
H-3658 (1914), scale 1:20,000

A comparison between these prior surveys and the present survey reveals many differences in bottom configuration caused by shoaling, eroding and shifting of the bottom. Inner Middle Ground has shifted as much as 150 meters southwestward and has increased in length northwestward about 600 meters. The bottom in the in-shore area west of Cape Charles and Fisherman Island,

except as noted below, has shoaled from 2-27 ft. in depths of 5-52 ft., as for example, in lat. 37° 06.48', long. 76° 59.15', where a prior depth of 52 ft. falls in present depths of about 25 ft. Deepening of as much as 12 ft. has occurred in the vicinity of lat. 37° 04.8', long. 75° 58.2'. The shoreline on the west side of Fisherman Island in the vicinity of lat. 37° 05.8', long. 75° 58.8', has accreted as much as 300 meters.

The following prior soundings (charted) which are shoaler than present depths should be disregarded; the bottom in which these prior soundings fall has eroded.

<u>Prior Sdg.</u> (Ft.)	<u>N. A. 1927 Datum</u>		<u>Present Depth</u> (Ft.)
	<u>Lat.</u>	<u>Long.</u>	
5	37° 05.00'	76° 00.04'	8-10
5	37° 04.75'	75° 58.12'	13-16
7	37° 04.79'	75° 58.27'	15-16
2	37° 05.01'	75° 58.27'	8-13

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

- D. H-4193 (1921), scale 1:40,000  
H-4926 (1929), scale 1:20,000

These prior surveys cover the present survey in that area which lies approximately south of latitude 37° 05.2'. A comparison between the prior and present surveys reveals changes in the bottom of as much as 14 ft.

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

6. Comparison with Chart 1222 (Latest print date 10/23/50)

A. Hydrography

The charted hydrography originates principally with the previously discussed surveys supplemented by information from the present survey before verification, together with Corps of Engineers survey of 1938 (Bp. 32397), C.G.N. to M. No. 16, 1941 and H.O.N. to M. No. 25, 1950.

The following discrepancies are noted:

1. The sunken wreck charted in lat. 37° 05.93', long. 75° 58.92'<sup>55.8'</sup> and originating with C.G.N. to M. No. 16, 1941, falls on the present survey in an area

which now bares at low-water. The wreck is no longer in evidence, and should, therefore, be deleted from the chart as recommended by the hydrographer in the Descriptive Report, page 5, paragraph 6, Item No. 14.

2. The wreck charted in lat.  $37^{\circ} 06.80'$ , long.  $75^{\circ} 58.40'$ , should be shown as a sunken wreck in accordance with the recommendation of the hydrographer. The topographer of contemporary topographic survey T-7074a and b (1949) states in the Descriptive Report, page 5, paragraph L, Item No. 13, that he did not see the wreck when he was in this vicinity, but was informed that military "ducks" (amphibious craft) from Fort Custis have recently been snagged on parts of this wreck when they were operating in this area.

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

B. Aids to Navigation

Buoy C-9 charted in lat.  $37^{\circ} 04.80'$ , long.  $75^{\circ} 59.8'$ , falls on the present survey approximately 400 meters east of the charted position. The buoy should be moved to the charted position to properly mark the feature intended.

The 4 lights charted on the breakwater in the vicinity of lat.  $37^{\circ} 09.8'$ , long.  $75^{\circ} 59.5'$ , are not shown on the present survey. These lights were established subsequent to the present survey and were charted in accordance with H.O. N. to M. No. 25, 1950.

The present survey positions of other aids to navigation are in substantial agreement with the charted positions and adequately mark the features intended.

7. Condition of Survey

- a. The sounding records and Descriptive Report are complete and comprehensive.
- b. The field plotting was accurately done.
- c. No bottom characteristics were obtained on Inner Middle Ground.



8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions, except as noted in paragraph 7c above.

9. Additional Field Work Recommended

This is a very good basic survey and no additional field work is recommended. The lack of bottom characteristics on Inner Middle Ground mentioned in paragraph 7c above is noted as a matter of record.

Examined and approved:

*H. R. Edmonston*

H. R. Edmonston  
Chief, Nautical Chart Branch

*R. W. Knox*

R. W. Knox  
Chief, Division of Charts

*L. S. Hubbard*

L. S. Hubbard  
Chief, Section of Hydrography

*W. M. Scaife*

W. M. Scaife  
Chief, Division of Coastal Surveys

