

7680

Diag'd. on Diag. Ch. No. 78-2

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC  
Field No. H-PBS-1548 Office No. H-7680

LOCALITY  
State VIRGINIA  
General locality CHESAPEAKE BAY  
Locality NANDUA CREEK

1948

CHIEF OF PARTY

R. H. Tryon, Jr.

LIBRARY & ARCHIVES

DATE Feb 18-49- April 29-49

7680

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-7680

Field No. H-PBS-1548

State VIRGINIA

General locality ~~Eastern Shore,~~ Chesapeake Bay

Locality Nandua Creek

Scale 1:10,000 Date of survey Oct. & Nov. 1948

Instructions dated 20 September 1948 -- Project CS-335

Vessel (PARKER-BOWEN-STIRNI) Launch "ARK" from Ship COWIE

Chief of party R. H. Tryon, Jr.

Surveyed by J. E. Waugh

Soundings taken by fathometer, graphic recorder, hand lead, wire Graphic Recorder, *sky pole*

Fathograms scaled by \_\_\_\_\_

Fathograms checked by \_\_\_\_\_

Protracted by \_\_\_\_\_

Soundings penciled by \_\_\_\_\_

Soundings in ~~fathoms~~ feet at MLW ~~MLLW~~

REMARKS: Smooth sheet and plotting by the Norfolk Processing Office.

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SURVEY H-7680

(Field No. H-PBS-1548)

Chief of Party - R. H. Tryon, Jr.          Sheet Scale 1:10,000

Officer in Charge - J. E. Waugh

-----

A. PROJECT

Project CS-335, Instructions dated 20 September 1948, addressed to Commanding Officer USC&GS Ships PARKER, BOWEN & STIRNI.

B. SURVEY LIMITS AND DATES

This is a revision survey of Nandua Creek, Virginia, covering the entire creek and its tributaries from a line across the entrance extending from the north shore at Lat. 37-38.25 N, Long. 75-53.58 W to the south shore at Lat. 37-37.62 N, Long. 75-54.41 W.

The hydrography was conducted between 3 November and 9 November 1948, and covers a portion of survey H-3702, scale 1:20,000, completed in 1914. It joins and partly covers the entrance channel survey made by the United States Corps of Engineers in July 1948.

C. VESSELS AND EQUIPMENT

The hydrography was done in the 24-ft. skiff "ARK" borrowed from the Ship COWIE for this survey. The ARK is driven by outboard motor and speeds up to 4 knots are possible. Maneuverability is good except in strong breezes. The Ship BOWEN towed the launch from Norfolk and remained anchored in Nandua Creek during operations. Officers and men from the Ship BOWEN accomplished the survey.

Portable depth recorder No. 116-S, Submarine Signal Company model 808-J, was used except where beach lines necessitated use of the sounding pole.

The sounding pole<sup>was</sup> constructed in accordance with subject 461 of the Hydrographic Manual.

#### D. TIDE STATION

A portable tide gage (No. 167) was established 12 October in Nandua Creek at Lat. 37-36.98 N. Long. 75-52.6D'W. (Signal Tid. located by planetable) and was maintained until 9 November when the survey was completed. Mean low water was computed in advance to be 1.7 feet on the tide staff. This value was used to compute tide reducers for boat sheet plotting.

#### E. BOAT SHEET

The sheet H-PBS-1548 was constructed in the Washington Office by the projection ruling machine. Shoreline was drawn by the Washington Office from the 1942 topographic surveys T-8169, T-8170, T-8171, and T-8172.

Control was transferred by tracing from topographic sheet T-7106 (Field No. PBS-A-48).

#### F. CONTROL STATIONS

Graphic control, extended from a scheme of theodolite located stations, provided adequate control for the hydrographic survey. This topographic survey was made specifically for hydrographic control. A complete discussion is found in the Descriptive Report to Accompany Topographic Survey T-7106 (Field No. PBS-A-48).

A copy of the list of signals on the above topographic sheet is made a part of this report. Signals not used have been lined out.

#### G. SHORELINE AND TOPOGRAPHY

The shoreline and topography shown on the boat sheet were drawn by the Washington Office, based on air photographic compilations of 1942. Stations of 1942 recovered for this project were relocated. Consequently the shoreline sketched by the hydrographer (based on the 1948 location of stations) is displaced by an unknown amount. Additional changes are due to the hurricane of 1944 and to natural extension and recession of land. In general shoreline changes are minor.

Planetable-located sections of shoreline at each planetable setup are shown by full red lines on the boat sheet. Sections sketched by the hydrographer are in dashed blue lines. (See also sections on control and revision in Descriptive Report to Accompany Topographic Survey T-7106 (Field No. PBS-A-48).

shoreline  
from smooth  
sheet taken  
from  
T-8013(1942)

## H. SOUNDINGS

Soundings were made by the Submarine Signal Company, Type 808-J, depth recorder adjusted to 820 fathoms per second, except in extremely shoal areas and beach lines where it was necessary to resort to the sounding pole.

Bar checks were taken in accordance with subject 557 in the Hydrographic Manual. Mean corrections were computed after rejecting the obvious "wild" readings and a ~~graph~~ graph drawn representing corrections as ordinates and depths 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 sextants on the launch used for horizontal control.

In the upper reaches of some of the smaller tributaries positions were spotted on the Boat Sheet by inspection of shoreline. These are recorded in the sounding records as "See Boat Sheet".

## J. ADEQUACY OF SURVEY

This survey is complete and adequate. Nandua Creek is relatively unimportant and is used almost exclusively by local crabbers and oystermen who are constantly aware of the changing entrance channel and the various shoals and passages.

It is to be noted that several shoal soundings are found in and near the main channel. A lengthy search was made in the vicinity west of Nandua Creek Daybeacon No. 7 to determine the character of these shoals. (See paragraph N.)

Unless the entrance channel is dredged considerably deeper it is recommended that no further work be done in this area.

## K. CROSSLINES

Approximately ten percent of the lines run were crosslines. These closely checked the soundings on other lines and it is believed that smooth sheet plotting will assure perfect crossings.

## L. COMPARISON WITH PRIOR SURVEYS

The only prior survey is H-3702, Scale 1:20,000, 1914. A comparison with this survey reveals major changes in the entrance channel only and moderate changes elsewhere. The new six-foot curve closely parallels the older surveys curve and the difference in some sections may be due to the more complete delineation of the present survey.

The flats to the northeast of the entrance channel seem slightly deeper. This may be a direct effect of the 1944 hurricane. Elsewhere the effect of silting can be seen. The entire channel is shoaler by approximately one foot.

Survey H-3702 does not indicate any of the shoal soundings in and near the channel which the present survey found. (See paragraph N.) It is probable that snags were present in the same area in 1914 but hand lead soundings failed to discover their presence.

There are no specific soundings or features on the 1914 survey which the present survey disproved. Changes are general and natural.

The entrance channel survey made by the United States Corps of Engineers (Nandua Creek, Va., July 1948, Scale: 1 inch = 200 feet, sheet 1 of 1) is joined by the present survey. Soundings at the junction are in agreement.

546  
Review  
Page 5

## M. COMPARISON WITH CHART

There is no large scale chart of Nandua Creek. A comparison with Chart 1223, printed 23 August 1948 reveals little. Since Chart 1223 is based on hydrographic survey H-3702, the discussion in paragraph L. covers this comparison.

Sec  
Review  
Par. 6

## N. DANGERS AND SHOALS

Although the entrance channel changes position and depth constantly, floating aids to navigation are changed frequently to define its position and hence no particular danger exists for vessels entering Nandua Creek.

Within the creek several dangers do exist. Fortunately these are practically all in the same vicinity and local mariners are aware of the condition. Debris of all kinds, including duck blinds, and portions of trees which fall into the water as the shore erodes, float into the main channel. This debris, moving with the tide, grounds at the large bend west of Nandua Creek Daybeacon No. 7 where because of the widening in the Creek the currents are slow. There they remain, waterlogged, and in most cases entirely submerged. Debris is also to be found in other areas though not to the extent found near Beacon 7. It is to be noted that many crab pots are in the creek and its deeper tributaries.

As an experiment, test sounding lines were run in the immediate area of several crab pots. No indications were obtained on the fathogram. Yet it is certain that at least a faint sounding should be obtained. These pots are cubic, as large as two feet high, and possibly account for some of the unverified strays. Being made usually of folded mesh wire they do not present a danger to navigation.

Four tracing paper overlays showing areas of intensive search and development accompany the boatsheet.

Overlay No. 1 covers the area east of signal ONE. Strays obtained (34-36b; 45-46b; 8-10d; and 36-37d) were not verified by the search and development (1-47f). Approximately 50 minutes were spent running 15-meter spaced sounding lines. Continuous, unrecorded, handlead soundings were taken while on sounding lines in addition to 30 minutes spent "feeling" the bottom with the handlead in the immediate vicinity of the strays (15-16f).

Overlay No. 2 covers the area south and west of Nandua Creek Daybeacon No. 11. Approximately one hour was spent developing and searching in this area. One possible danger exists and is included in the tabulation below.

Overlays Nos. 3 and 4 cover the area west of Nandua Creek Daybeacon No. 7. This area is so cluttered with snags and other debris that sounding lines spaced as close as ten meters failed to give definite contours of the many obstructions. Most of the snags (floating and submerged evidence as well as local knowledge indicate the shoal soundings to be on snags) are too scattered and too small to warrant individual attention. There are a few areas in which adjacent or crossing lines indicate large obstructions and the following tabulation includes them. Development and searching on f-day failed to provide least depth over the many snags. Hand lead soundings agreed with the general bottom depths though taken in the immediate vicinity of shoal soundings, indicating the recorded shoals to be on vertical or widely separated objects (e.g. branch of tree). Consequently, a system of lines spaced 10-meters was run on g-day. This system covers the entire area and verifies most of the shoal soundings. (See also paragraph J). A total of 2 hours and 20 minutes was spent on systematic lines and one hour and 45 minutes was spent on unrecorded handlead soundings, drifting, circling, and maneuvering about.

The following tabulation lists the dangers to navigation in Nandua Creek.

Danger	Lat.Long.	Least Depth (Feet)	Day	Position No. Plus Seconds After
Snag	37-36.78 75-53.61	<del>7.4</del>	b	102+55
Snag	37-36.87 75-53.62	<del>5.8</del>	b f f g g g b	18+12 48+5 48+10 11+56 14+86 54+20 101+67
Snag	37-36.85 75-53.56	<del>5.8</del>	c e f f f	91+20 3+20 59+75 62+00 88+52
-----	37-37.44 75-51.65	<del>4</del>	e	43+78

Disproved by  
1949 Wiredrag:  
See Addendum and  
Review, Par 7c



Danger	Lat. Long.	Least Depth (Feet)	Day	Position No. Plus Seconds After
Snag	37-36.80 75-53.52	<del>4.8</del>	e	3+55
			e	3+75
			g	40+48
Snag	37-36.83 75-53.54	<del>9.2</del>	g	34+42
Snag	37-36.79 75-53.67	<del>2.0</del>	g	37+15
Snag	37-36.81 75-53.47	<del>6.2</del>	g	38+35
			g	40+3
			g	40+16
			g	47+72
Snag	37-36.80 75-53.56	<del>9.0</del>	g	43+83
Snag	37-36.77 75-53.51	<del>2.4</del>	g	53+79
Snag	37-36.84 75-53.31	BARES 2' ✓	g	71
Snag	37-36.78 75-53.55	BARES 4' ✓	g	72 (73 verifies 72)

See note on preceding page.

## O. COAST PILOT INFORMATION

Recommended changes for Coast Pilot Notes covering Nandua Creek and its tributaries were forwarded to the Washington Office separately. A copy of this data is included on the next page.

There are no ranges or bearings for vessels entering the creek. On calm days, discoloration and current streaks indicate the entrance channel.

Anchorage may be had anywhere within the creek. Bottom is hard sand or soft gray mud and its holding qualities are good. The Ship BOWEN anchored in the vicinity of Lat. 37-37.03, Long. 75-53.65 while conducting the survey.

COAST PILOT NOTES

for

ATLANTIC COAST - SECTION C - SANDY HOOK TO CAPE HENRY

Fifth (1947) Edition

Page 299: Lines 40-42. -- Strike out phrase "9 feet" thru "above the mouth" and substitute "7 feet in November 1948, in a channel across the flats at the mouth, 8 feet in a natural channel to Cedar View Wharf (in ruins), 2.8 miles above entrance buoys, and 5 feet to the settlement of Nandua, 4 miles above the mouth."

Line 44. -- Strike out first sentence.

Line 44. -- Add after "The marine railway"  
the phrase "at Nandua"

Line 45. -- Strike out "2½" and substitute "4"

Line 45. -- After line 45 add new paragraph:

"Hacks Neck is a post village on Back Creek. Four feet can be carried with local knowledge from the main channel in Nandua Creek across the flats to the wharves at the settlement. A limited amount of supplies can be obtained."

Line 48. -- Strike out the word "may".

P. AIDS TO NAVIGATION

Fixed aids to navigation consist of Nandua Creek Daybeacons No. 7,9,10 and 11. A report on these aids was forwarded to the Washington Office on 3 December 1948.

Floating aids to navigation consist of buoys C-1, N-2, C-3, N-4 and N-6. A copy of the report on these (submitted 24 November 1948) is enclosed after the text of this Report.

A report on "Objects for Use of U.S. Coast Guard", including a list of objects and a copy of Chart 1223 showing objects and three point fixes used, was submitted to the Commander, Fifth Coast Guard District on 24 November 1948.

Q. LANDMARKS FOR CHARTS

There are no landmarks in this area.

R. GEOGRAPHIC NAMES

(See Geographic Name List following the text of this Report).

S. SILTED AREAS

Silting has occurred, as evidenced by the general shoaling of the channels of the creek and its tributaries. Soundings are generally about one foot shoaler on the present survey than they were on the 1914 survey (H-3702). (See also paragraph L.)

See Review  
Par 5

U. SETTLEMENT AND SQUAT

A special examination was made to determine the correction due to settlement and squat. (See Sounding Record IV, page 38.) Sounding lines were run over flat bottom past a mark six different times at normal sounding speed. Then the launch stopped beside the mark and two different soundings were recorded. The mean soundings underway and stopped were identical, proving no corrections existed.

Respectfully submitted

William E. Randall  
Lt. (jg) USC & GS

Approved and Forwarded:

Raymond H. Tryon, Jr.  
Lt. Comdr. (Chief of Party).

STATISTICS

The statistics for Hydrographic Survey H-7680  
(Field No. H-PBS-1548) Project CS-335, Nandua Creek, Virginia,  
are as follows:

Launch "ARK" - Attached to Ship BOWEN

<u>Vol.</u> <u>No.</u>	<u>Day</u> <u>Letter</u>	<u>Date</u>	<u>No.of H.L.</u> <u>&amp; Pole Sdgs.</u>	<u>No. of</u> <u>Positions</u>	<u>Stat.Miles</u> <u>Sdg.Lines</u>
I	a	Nov.3	1314	180	20.6
I & II	b	Nov.4	3	205	22.5
II & III	c	Nov.5	2	234	23.9
III	d	Nov.6	5	194	19.3
IV	e	Nov.7	15	150	14.2
IV	f	Nov.8	0	128	7.0
V	g	Nov.9	1	73	6.5
Totals			1340	1164	114.0

Total square statute miles = 3.25

## TIDE NOTE

A portable automatic tide gage was established in Nandua Creek 12 October and maintained until hydrography was completed on 9 November 1948. A continuous record of tides was obtained.

Reductions of soundings in the sounding records and on the boat sheet are based on the value of 1.7 feet as MLW on the tide staff. This value was computed in the field and later verified by the Washington Office. Hourly heights were scaled from the marigrams after applying corrections for time and height. From these corrected values new graphs were drawn and reducers scaled.

The tide gage was located (signal Tid) by graphic control (Topographic Sheet T-7106 (Field No. PBS-A-48)). Its position is Lat.  $37^{\circ}-36'+1808m.$ : Long.  $75^{\circ}-52'+883m.$

The structure supporting the tide gage consisted of 2 x 4's in the form of a tripod, driven into the bottom, and braced with 2 x 4's and 1 x 4's. A platform near the top facilitated maintenance of the gage. The structure was extremely rigid. (See also paragraph D. in the text of this Descriptive Report).

GEOGRAPHIC NAME LIST

814 ✓  
12-23-49

<u>Refer.</u>	<u>Name</u>	<u>Remarks</u>
ABCD	Back Creek	Previously charted name in undisputed local usage.
ABCD	Cedar View	Uncharted name in undisputed local usage. refers to land area northeast of Curratuck Creek and southwest of Mcleans Gut (uncharted name). Cedar View Road is the local name for state Road No. 616, leading to the ruins of Cedar View Wharf.
ABCD	Craddock Neck	Previously charted name in undisputed local usage.
ABCD	Curratuck Creek	Previously charted name in undisputed local usage.
CD	Cutlers Gut	Uncharted name in local usage. Named for the Cutler family who own much property adjacent to the gut.
BCD	Evans Gut	Uncharted name in local usage. Named for former landowner.
ABCD	Hacks Neck	Previously charted name in undisputed local use.
CD	Joe Boggs Gut	Uncharted name in local usage. Named for former landowner.
BCD	McLeans Gut	Uncharted name in local usage. Name of former landowner.
ABCD	Nelsons Marsh	Uncharted name in local usage. Formerly Hyslops Marsh. Name changes with owner.
ABCD	Monadox Point	Previously charted name in undisputed local usage.



<u>Refer.</u>	<u>Name</u>	<u>Remarks</u>
ABCD	Nandus	Previously charted name in undisputed usage. Refers to settlement. ←
ABCD	Nandua Creek	Previously charted name in undisputed usage.

References: A - William Guy Long  
Painter, Va., RFD, Route 1.

B - A. B. Evans  
Pungoteague, Va.

C - Arthur Grover Stevens  
Harborton, Va.

D - Reginald Bonniwell  
Hacks Neck, Va.

VELOCITY CORRECTION ABSTRACT

A tabulation of bar check data follows.

Day	<u>Corrections to be applied at depth:</u>			
	<u>5 feet</u>	<u>10 feet</u>	<u>15 feet</u>	<u>20 feet</u>
a	+ 0.2	0.0		
b	+ 0.05	0.0		
	+ 0.3 R	+0.2 R	+ 0.1 R	0.0 R
	+ 0.2	0.0		
	+ 0.25	0.0		
c	+ 0.1	0.0		
	+ 0.2	0.0		
	0.0	-0.2 R		
	+ 0.2	0.0		
d	0.0	-0.1		
	+ 0.2	0.0		
	+ 0.2	0.0		
e	+ 0.1	0.0		
	+ 0.05	0.0		
	+ 0.05	0.0		
	+ 0.05	-0.2 R		
f	+ 0.1	-0.1		
	+ 0.1	0.0		
	+ 0.05	0.0		
g	+ 0.15	+0.1		
	+ 0.2	0.0		
Means	+ 0.1225	-0.0056		

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

TO BE CHARTED  
TO BE DELETED

STRIKE OUT ONE

Norfolk, Virginia

10 December

19 48

I recommend that the following objects which have *(have not)* been inspected from seaward to determine their value as landmarks, be charted on ~~the charts~~ the charts indicated.

The positions given have been checked after listing by William E. Randall

R. H. Tryon, Jr.

Chief of Party.

STATE Virginia			POSITION					METHOD OF LOCATION AND SURVEY No.	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
CHARTING NAME	DESCRIPTION	SIGNAL NAME	LATITUDE		LONGITUDE		DATUM						
			° ' "	D. M. METERS	° ' "	D. P. METERS							
"7"	Nandua Creek Daybeacon No. 7	Sev	37 36	1452	75 53	343	N.A. 1927	Topo. 5-7-26 PBS-A-48	Nov. 1948				1223
"9"	Nandua Creek Daybeacon No. 9	Nin	37 37	114	75 52	1340	do	do	do				do
"10"	Nandua Creek Daybeacon No. 10	Ten	37 37	758	75 51	1257	do	do	do				do
"11"	Nandua Creek Daybeacon No. 11	Lev	37 37	895	75 51	831	do	do	do				do

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804 Positions of charted landmarks and *nonfloating aids* to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

Special Report On  
 "Objects for use of U. S. Coast Guard"

Project CS-335  
 Nandua Creek, Virginia

The location of floating aids to navigation at the entrance of Nandua Creek was by three-point fix, employing sextants. The objects used in the location are all semi-permanent and should remain for a number of years.

Descriptions of the objects are adequate though brief, and it is improbable that any confusion will arise concerning identification of the objects.

The floating aids were each located twice, first, using signals on the boat sheet and, second, using objects which the Coast Guard could identify. The two positions in all cases were identical. Following is the location of the aids as determined for the Coast Guard:

<u>Floating Aid</u>	<u>Objects</u>	<u>Lt.&amp;Rt.Angle</u>	<u>Time</u>	<u>Date</u> 1948
Buoy C-1	Pungoteague Creek Light	25- 05	0933	6 Nov.
	ALP ART	129- 19		
N-2	S	24- 09	0925	6 Nov.
		128- 41		
C-3	S	22- 39	0914	6 Nov.
		148- 15		
N-4	Pungoteague Creek Light	21- 57	1049	4 Nov.
	ALP GIN	54- 07		
N-6	S	17- 55	1051	4 Nov.
		58- 36		

It is to be noted that the positions determined by this survey do not agree exactly with the charted positions of the floating aids. This is due probably to the fixes used by the Coast Guard.

The buoys are changed frequently to define better the constantly changing channel and for the present time seem to be properly placed.

Joseph E. Waugh  
Lt. Comdr.  
US C & GS

Additional data required for Descriptive Report:

Buoy	Lat. Long.	Depth Feet	Position No.	Date 1948
<del>C-1</del>	<del>37-37+ 1570 m 75-54+ 1330 m</del>	<del>9</del>	<del>34 d</del>	6 Nov. <i>Superseded by light. See attached letter dated 4/22/49</i>
N-2	37-37+ 1477 m 75-54+ 1261 m	9	33 d	6 Nov. ✓
<del>C-3</del>	<del>37-37+ 1434 m 75-54+ 927 m</del>	<del>5</del>	<del>28 d</del>	6 Nov. <i>new position obtained in 1949</i>
N-4	37-37+ 17 <sup>34</sup> <del>25</del> m 75-54+ 319 m	9	68 b	4 Nov.
N-6	37-37+ 16 <sup>40</sup> <del>31</del> m 75-54+ 72 m	15	69 b	4 Nov.

ADDENDUM  
TO  
DESCRIPTIVE REPORT  
TO ACCOMPANY  
HYDROGRAPHIC SURVEY -H- 7680

Chief of Party: G. R. Fish

Scale 1:10,000

---

B. SURVEY LIMITS AND DATES

This survey consisted of wire drag investigation of apparent shoal soundings as found on the Hydrographic Survey in November 1948. This additional work was accomplished on 18-21 April 1949.

C. VESSELS, EQUIPMENT AND PROCEDURE

Two methods of dragging this area were used. The first consisted of anchoring one end of the drag near the shoal soundings and towing a 400 foot drag (200 foot sections) in a circle across the shoals. This method with the equipment available proved unsatisfactory and this work was rejected. The main difficulty was keeping the proper tension on the drag.

It was decided to use a 400 foot drag (100 foot sections) using standard wire drag equipment except that 35 pound weights and small buoys were used throughout the length of the drag. The drag was towed by a dinghy and dory using outboards for power. The line boat was used as a tender. To assist in controlling the drag strips ranges were established for the vessels to follow. Sufficient angle men were not available to obtain sextant fixes when soundings were taken by the tender. Standard wire drag procedure was followed in determining the lift.

Considerable difficulty was encountered in beginning the strips. This was due to sag in the ground wire between buoys. The tender assisted by lifting the ground wire clear of the bottom. After a strip was once started no difficulty was encountered. A tight bight was maintained at all times.

D. TIDE STATION

A tide staff was established in the vicinity of the 1948 tide station and connected to two established bench marks. Mean low water was computed in advance to be 1.7 feet on this staff. This value was used to draw the drag strips.

E. BOAT SHEET

The office furnished a vinylite copy of Hydrographic Survey 7680. The wire drag strips have been plotted on tracing paper overlays for this sheet. The new position of Aids to Navigation are plotted directly on the vinylite copy.

F. CONTROL STATIONS

A sufficient number of signals were recovered and rebuilt to control the wire drag strips.

I. CONTROL OF WIRE DRAG

Standard surveying practices were followed using three point sextant fixes on shore objects and cuts to the near and far buoys from the guide and end launches respectively. A 35 meter tow line was used.

J. ADEQUACY OF SURVEY

This survey is complete and adequate. No trace of the apparent shoal soundings as indicated on the Hydrographic Survey was found. It is recommended that they be removed and the fathograms be rescanned.

P. AIDS TO NAVIGATION

See report to The Director dated 22 April 1949. (A copy is attached).

U. RESULTS OF INVESTIGATION

Sounding from H-7680	Location	Effective Depth of Drag	Position Number
5 feet	37 36.85	10 feet	8-14 b
	75 53.56	9 feet	18-23 b
7 feet	37 36.87	9 feet	24-28 b
	75 53.59	10 feet	8-14 b
7 feet	Rejected	9 feet	18-23 b
		8 feet	35-40 b
8 feet	37 36.81	9 feet	24-28 b
	75 53.48	8 feet	43-50 b
8 feet*	37 36.82	9 feet	30-34 b
	75 53.57	8 feet	35-40 b
		8 feet	43-50 b

\* Investigation of this depth was not requested by the Washington Office. Shown on photographic print of H-7680. ✓

At position 28 b the drag was aground on edge of shoal. ✓

At position 34 b the hang was on charted 9 foot sounding. This hang was cleared to 8 feet on strips 35-40 b and 43-50 b. ✓

At position 50 b the drag was aground on edge of shoal. ✓

At position 50 b the far buoy was against the edge of shoal. When forward progress stopped the drag settled to bottom between the buoys. The hang as shown is on charted soundings. ✓

The hang as shown on positions 15-17 b was rejected. In reversing the drag at 14 b the tension was relaxed and the drag settled to the bottom. This area was covered on the previous strip to an effective depth of 10 feet. ✓

At the end of the day the current was slack and the wind was calm. Numerous short pieces of grass were noticed floating on the surface in this general area as the boats were returning to the Ship BOWEN. ✓

J. E. Waugh  
Lt. Comdr., USC&GS

Approved & Forwarded

G. R. Fish  
Lt. Comdr., USC&GS  
Chief of Party



TIDE NOTE

A tide staff was established in Nandua Creek, Virginia on 18 April 1949 and maintained until wire drag operations were completed on 21 April 1949. The height was read every twenty minutes during the time the party was engaged on field work.

The staff was secured in a vertical position to a 2" x 4" driven into the bottom and braced by 2" x 6' in the form of a tripod. This staff was located approximately in the same position as the 1948 tide station. Levels were run to two of the old bench marks.

Reduction of soundings and effective depth diagrams are based on a value of 1.7 feet as corresponding to MLW on the tide staff. This value was computed in the field and has not been verified by the Washington Office.

STATISTICS

Vol. No.	Day Letter	Date 1949	No. of H.L. Soundings	No. of Positions	Length of Drag Strips	No. of Positions
1	a	19 April			0.3	26
1	b	20 April			0.1	50
2	a	19 April	--	--	--	--
2	b	20 April	11	11		
2	c	21 April	3	3		
<b>TOTALS</b>			14	14	0.4	76
Total square statute miles				0.1		

418 Post Office Bldg., Norfolk, Virginia

22 April 1949

To: The Director  
U. S. Coast & Geodetic Survey  
Washington 25, D. C.

Subject: Aids to Navigation - Nandua Creek, Virginia

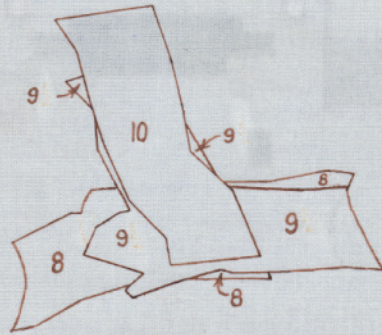
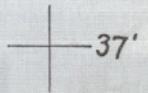
Enclosed is form 567 giving the location of Nandua Creek Light 1 established on or about 28 March 1949. The location of Nandua Creek Buoy 2 and Nandua Creek Buoy 3 were changed at the same time. These new locations as determined by sextant fixes on shore are given below.

It is thought that Buoy 3 has drifted off position as it is well over on the south side of the channel at the present time. The position as determined is not in agreement with the published position. In addition the Ship BOWEN in entering Nandua Creek on 18 April 1949 and leaving same on 21 April 1949 had less water in the channel as marked by the present position of the buoys than found in the marked channel last year. On 21 April the shoals were visible and there appeared to be better water to the north of Buoy 3.

NAME	LAT. & LONG.	DEPTH AT MLW
Nandua Creek Light 1	37 37 1577.4 meters 75 54 1249.2 "	10'
Nandua Creek <sup>Buoy</sup> <del>Light</del> 2	37 37 1467 " 75 54 1263 "	9'
Nandua Creek <sup>Buoy</sup> <del>Light</del> 3	37 37 1343 " 75 54 1150 "	8½'

G. R. Fish  
Lt. Comdr., USC&GS  
Comdg. Ships PARKER, BOWEN, STIRNI

c.c. Supervisor, SE District



A & D DIAGRAM

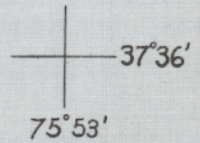
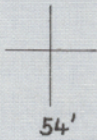
to accompany

H-7680

NANDUA CREEK, VA.

Add'l Work of 1949

Scale 1/10,000



TIDE NOTE FOR HYDROGRAPHIC SHEET

21 June 1950

~~DIVISION OF CHARTS, WASHINGTON, D. C.~~

Division of Charts:

R. H. Carstens

Plane of reference approved in  
4 volumes of sounding records for

HYDROGRAPHIC SHEET 7780

Locality - Manokin River, Chesapeake Bay

Chief of Party: E. B. Latham in 1949

Plane of reference is mean low water, reading  
2.6 ft. on tide staff at Teague Creek Entrance  
3.3 ft. below B. M. 1 (1949)

Height of mean high water above plane of reference  
is 2.1 feet.

Condition of records satisfactory except as noted below:

*E. C. McKay*  
*Section*

Chief, ~~Division~~ of Tides and Currents.

GEOGRAPHIC NAMES

Survey No. H-7680

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K
<u>Virginia</u>				(four title)				USGB	1
<u>Chesapeake Bay</u>								"	2
									3
<u>Nandua Creek</u>									4
<u>Back Creek</u>									5
<u>Monadox Point</u>									6
<u>Curratuck Creek</u>								USGB	7
<u>Boggs Gut</u>									8
<u>Nandua</u>								USGB	9
<u>Russian Cove</u>									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25
									26
									27

Names underlined in red  
are approved  
L-13-14  
L-HECK

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. ....

Records accompanying survey:

Boat sheets .....; sounding vols. ....; wire drag vols. ....;  
bomb vols. ....; graphic recorder rolls .....;  
special reports, etc. ....  
.....

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

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

Verification by *P. K. Delandus* Total time ..... Date *5/12/49*  
Reviewed by *J. F. Jordan* Time *31/26* Date *12/23/49*

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7680

FIELD NO. PBS-1548

Virginia, Chesapeake Bay, Nandua Creek  
Surveyed in Oct. and Nov., 1948, Apr. 1949 Scale 1:10,000  
Project No. CS-335

Soundings:

Control:

808-J Fathometer  
Pole

Visual fixes on shore signals

Chief of Party - R. H. Tryon, Jr., and G. R. Fish  
Surveyed by - J. E. Waugh  
Protracted by - A. Kaupa  
Soundings plotted by - A. Kaupa  
Verified and inked by - R. K. DeLawder  
Reviewed by - G. F. Jordan, May 19, 1949  
Inspected by - R. H. Carstens

1. Shoreline and Control

The control for this survey is based on triangulation of 1911 to 1948 and on graphic control survey T-7106 (1948).

The shoreline is from the unreviewed shoreline manuscript T-8013 (1949).

2. Bottom Configuration and Depth Curves

The river bottom is quite smooth except for the steep gradient where the channel borders shoal areas.

The usual depth curves are complete, and adequately delineate the bottom.



3. Sounding Line Crossings

The depths at sounding line crossings are in very good agreement.

4. Adjoining Surveys

No contemporary surveys by this Bureau adjoin the present survey. An adequate junction was effected in the river entrance with a Corps of Engineers survey of July 1948 (Bp. 43937).

The adjoining hydrography on Chart 1223 at the limits of the present survey is in adequate agreement with present depths.

5. Comparison with Prior Surveys

H-976a (1868) and H-3702 (1914) on scale 1:20,000

A comparison of prior and present depths reveals no appreciable changes in the river bottom except in the vicinity of lat.  $37^{\circ} 37.6'$ , long.  $75^{\circ} 53.75'$ , where shoaling to 4- and 6-ft. depths is delineated by a protrusion in the 6-ft. curve. Although depths in some areas on H-3702 indicate that a shoaling as great as 3 ft. in 10- to 14-ft. depths has occurred since that survey in 1914, the depths on H-976a are generally not more than 1 ft. deeper than present depths. Some silting has probably occurred, but otherwise the bottom inside the river entrance is considered to be generally stable.

Although the present survey does not include a development of the entrance channel, one line of hydrography here indicates that a considerable change in the bottom has occurred since the prior surveys. This channel area is covered by a Corps of Engineers survey of 1948.

The present survey adequately supersedes H-976a and H-3702 in the common area.

6. Comparison with Chart 1223 (Print date of August 23, 1948)

a. Hydrography

Charted hydrography originates with prior survey H-3702, supplemented by a Corps of Engineers survey in 1927 (Bp. 22102). Soundings and curves charted from this blueprint in the vicinity of Beacons 7 and 9 conflict with the present survey. A comparison indicates that

control for the hydrography on the blueprint is in error and that the center line of the proposed channel on the blueprint is as much as 400 meters in error northwestward and northeastward of Beacon No. 7. This blueprint shows deep water north of the charted beacon instead of southward.

Hydrography on the present survey adequately supersedes the charted hydrography. Chart revisions are now in progress and include rejection of a  $4\frac{1}{2}$ -ft. sounding in lat.  $37^{\circ} 37.45'$ , long.  $75^{\circ} 51.70'$ . This sounding appears as a hand correction on the chart and was taken from the present survey before verification.

b. Aids to Navigation

Aids on the chart and on the present survey are in substantial agreement and adequately mark the features intended except as follows:

The buoy C-3 in lat.  $37^{\circ} 37.73'$ , long.  $75^{\circ} 54.79'$  on the 1949 work of present survey is considered to have been temporarily off its station. The position on the chart is in accordance with Notice to Mariners No. 17, 1949 and is in harmony with channel conditions reported by Comdr. Fish in Chart Letter No. 311, 1949.

7. Condition of the Survey

- a. The Descriptive Report and sounding records are complete and comprehensive.
- b. Smooth-plotting of the survey was very good.
- c. An area and depth tracing showing the results of the wire drag work in 1949 is included in the Descriptive Report. The wire drag disproved questionable fathogram recordings on the 1948 sounding lines west of Beacon No. 7. The reason for the apparent obstruction traces on the fathograms is unknown. Although two snags in the vicinity bare at MHW, no submerged snags were found by special investigation during the hydrographic work in 1948 or by wire drag in 1949. Grass was observed on the water surface subsequent to wire dragging and probably accounts for the traces on the fathograms.

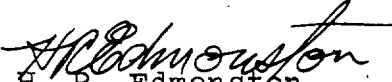
8. Compliance with Project Instructions

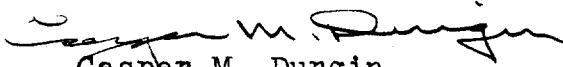
The survey adequately complies with the project instructions.


9. Additional Field Work


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

Examined and approved:

  
H. R. Edmonston  
Chief, Nautical Chart Branch

  
Casper M. Durgin  
Chief, Division of Charts

  
K. G. Crosby  
Chief, Section of Hydrography

  
W. M. Scalfé  
Chief, Division of Coastal Surveys

