

9501

Diag. Cht. Nos. 1235 & 1236-2

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT (HYDROGRAPHIC)

Type of Survey HYDROGRAPHIC
Field No. AHP-10-2-75
Office No. H-9501

LOCALITY

State NORTH CAROLINA
General Locality CAPE FEAR RIVER
Locality LOWER CAPE FEAR RIVER

1975

CHIEF OF PARTY
F. T. SMITH

LIBRARY & ARCHIVES

DATE 2-10-77

☆ U.S. GOV. PRINTING OFFICE: 1975-668-353

Chs

426

Aug 3

8355C Applied 10/21/77 TUA

HYDROGRAPHIC TITLE SHEET

H-9501

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form,
filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

AHP-10-2-75

State North CarolinaGeneral locality Cape Fear RiverLocality Lower Cape Fear RiverScale 1:10,000Date of survey 24 27
January - March 1975Instructions dated 10 July 1974Project No. OPR-437-AHP-74Vessel Launch 1277Chief of party Lt. Cdr. F. T. SmithSurveyed by W.A. Wert, F. L. Kleinschmidt, J.S. Bradford, D.M. BryantSoundings taken by echo sounder, hand lead, poleGraphic record scaled by Launch PersonnelGraphic record checked by Launch Personnel HRS (AMC)Processed by MTA Calcomp 618 AMCAutomated plot by PDP 8/e AMCVerification by HRS SmithSoundings in fathoms feet at MLW MLLW

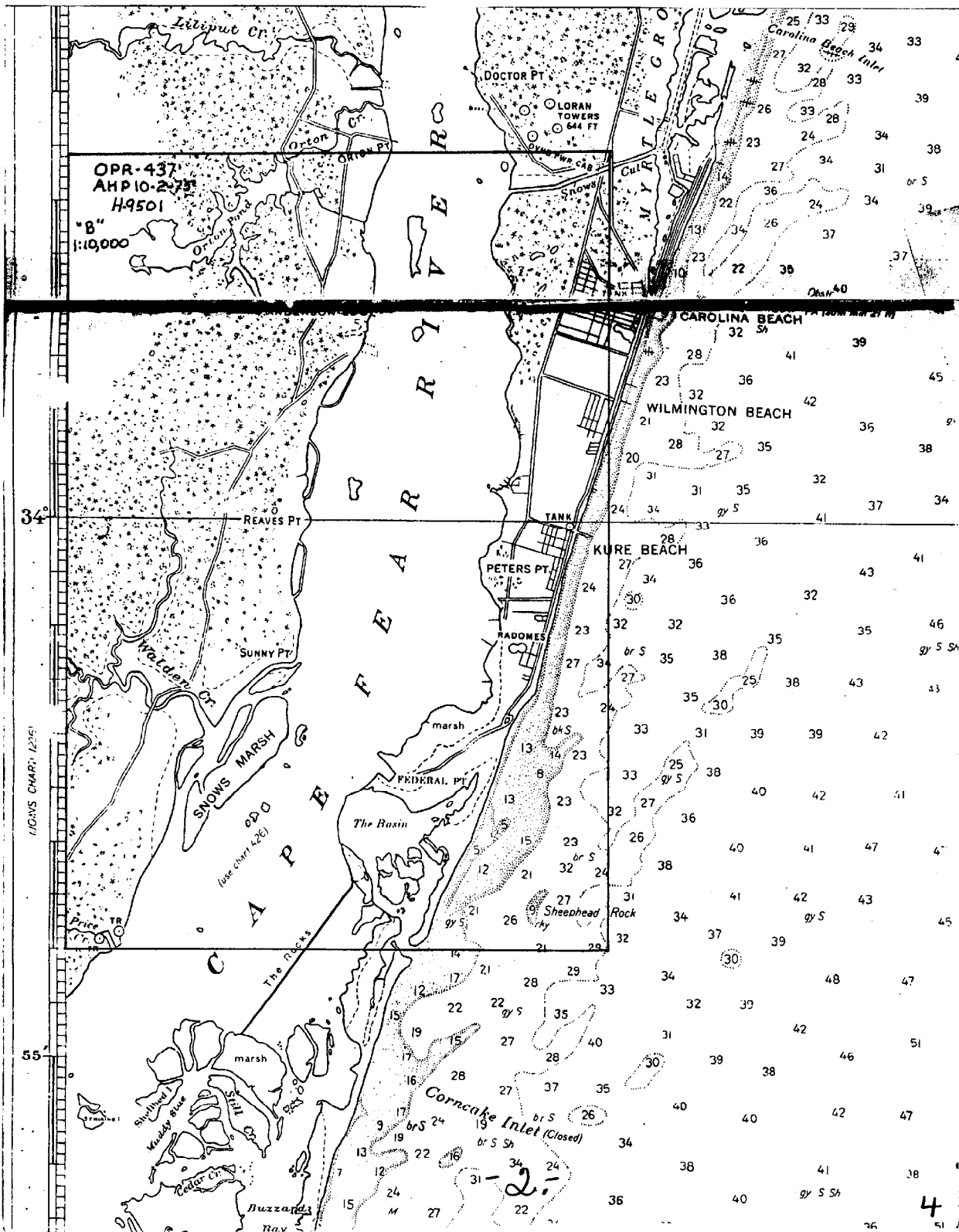
REMARKS:

Applied to stob 6/17/76
CAB1.

INDEX

	Page
Hydrographic Title Sheet	1
Boatsheet Layout	2
A. Project	3
B. Area Surveyed	3
C. Sounding Vessel	3
D. Sounding Equipment	3
E. Smooth Sheet	4
F. Control	4
G. Shoreline	4
H. Crosslines	4
I. Junctions	4
J. Comparison with Prior Surveys	4-6
K. Comparison with the Chart	6
L. Adequacy of Survey	7
M. Aids to Navigation	7
N. Statistics	7
O. Miscellaneous	7
P. Recommendations	7-8
Q. References to Reports	8
Approval Sheet	9
Appendix	10
Electronic Control	
1. Del Norte Note	11
2. Abstract of Equipment Utilization	12-13
✓3. Electronic Corrector Abstract	14-21
4. Signal List	22
✓5. Electronic Control Parameters	23-29
Projection Parameters	30
Velocity Correction Report	31-33
Abstract of Settlement and Squat	34
✓Position Data Sheet	35
Tide Note	36-40
Oceanographic Log Sheet-M	41-42

✓ = Items filed in the cahier with the field records.



DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-9501
AHP-10-2-75, SCALE 1:10,000
OPR-437, Cape Fear River, North Carolina

A. Project

OPR-437 is a survey to provide hydrographic data needed to update existing charts and for the construction of a new small craft chart. The survey was accomplished in accordance with Project Instructions OPR-437-AHP-74 dated 10 July 1974 and with Chapter 3 of the AMC Manual.

B. Area Surveyed

The area encompassed by sheet AHP-10-2-75 is an irregular section extending from a junction of previous work accomplished by Launch 1277 at Zeke's Island, northward to Snows Cut. The approximate limits of hydrography extend from 33° 56' 50" northward to 34° 03' 05" and are bounded on the east and west by the shoreline. Junction was made with contemporary survey H-9489, AHP-10-7-74, 1:10,000 scale, 1974-1975. Detailed prior surveys of the area are H-1134, 1:10,000 scale, 1872, and H-1190 B, 1:10,000 scale, 1873. All field work was accomplished during the period 24 January 1975-27 March 1975. A 1:10,000 scale channel overlay and two 1:2,500 scale wreck investigation overlays are presented for plotting clarity.

C. Sounding Vessel

Launch 1277 was used exclusively to accomplish the survey work on AHP-10-2-75.

D. Sounding Equipment

A Raytheon Fathometer, model number DE 723D, serial number 1904 was used in Launch 1277. All initial settings were adjusted to zero. Frequent A to F scale checks were taken to insure correct stylus arm length. A TRA correction of +1.5 feet was determined by drawing the bar check tightly against the transducer and measuring the bar depth. All fathograms were scanned to mean out sea swell action where applicable. Refer to Velocity and Fathometer Corrector Report, OPR-437, Cape Fear River, North Carolina, which is in the appendix.

E. Smooth Sheet

Raw master tapes were logged and data plotted on the boatsheet by the launch's on-board PDP 8/e Hydroplot System. Edited master and corrector tapes, velocity tape, and TC/TI tape were logged by launch personnel and submitted for smooth plotting by Processing Division, Atlantic Marine Center.

F. Control

Control for Del-Norte Range-Range hydrography was established utilizing six separate networks of remote transponders, located at third-order triangulation stations as calibration points. Geographic positions of some of these triangulation stations were taken from U.S. Army Corps of Engineers Data; refer to Horizontal Control Report OPR-437, Cape Fear River, North Carolina 1975 for verification of these positions. Refer to daily raw data printouts for calibration data and see appendix for abstract of correctors and Del-Norte Note.

G. Shoreline

Shoreline and topographic details were transferred from manuscripts TP-00676 thru TP-00679. The MLW was defined by hydrography in most areas.

H. Crosslines

Approximately 15.7 nautical miles, or 12.1% of the main scheme hydrography run on sheet AHP-10-2-75, were crosslines. The agreement with main scheme lines was very good, and all soundings agreed to the nearest foot.

I. Junctions

Junction with H-9489, AHP-10-7-74, was good and soundings generally agreed to the nearest foot, however a slight offset occurred in the continuation of depth curves. This can be accounted for by a change in tide reference stations and velocity correctors between the two boatsheets.

J. Comparison with Prior Surveys

Comparisons with H-1134, 1:10,000 scale, 1872, and H-1190 B, 1:10,000 scale, 1873, showed extensive major changes in most areas.

Pre-Survey Review Items were investigated with the following results:

- ✓ Item 8, Submerged Dolphins. The vicinity of this item was examined at a minus 1 foot tide. Two 12" diameter wood pilings which bare 12" at MLW with the inscription "USAE Survey Marker Do Not Disturb" were found.

Charted Position

34° 00.66', 77° 56.25"

New Positions(Fix #1903, 1904)

34° 00.63', 77° 56.25'

It is recommended that "Submerged Dolphin" nomenclature be changed to "Piles" and the position adjusted.

*Deleted Subm Dols and symbols
added two piles and type Piles TWA 835 50
agrees with TP-00676 426*

Item 9, Piles. This area was examined and Fix #1872 marks the NW corner of a concrete platform, 7 meters x 7 meters, which bares 10' at MLW.

Charted Position

34° 00.73', 77° 55.97'

New Position(Fix #1872)

34° 00.72', 77° 55.91'

It is recommended that "Piles" nomenclature be changed to "Platform" and the position adjusted.

*position agreed with Final Reviewed
TP-00677
835 50
426*

Item 10, Platform (PA). This area was examined and no evidence of a platform was found other than that mentioned in Item 9. Fix #1865 marks a 8" wood piling, which bares 8' at MLW located in the vicinity of this item.

Charted Position

34° 00.86', 77° 55.71'

New Position(Fix #1865)

34° 01.04', 77° 55.68'

It is recommended that "Platform (PA)" be deleted and "Piling" nomenclature and new position be added to future editions of the chart.

*Changed pile to new position TWA 835 50
426*

Item 11, Dangerous Submerged Wreck. 10 meter spacing lines were run to verify this item. A least depth of 9 feet was noted on the fathogram, reduced to MLW.

Charted Position

34° 01.22', 77° 56.24'

New Position of Least Depth

34° 01' 13.2" 77° 56' 13.2" (Pos. 1450-51)

It is recommended that the wreck symbol be retained ^{on the chart.} and position adjusted. Additional work such as wire drag or diver verification is recommended to obtain the least depth.

No work TWA

Charted from bp 31204(1937 and bp 67010 of 1964

Item 24, Pier Ruins, Wreck, Low Water Spot, and Visible Ruins charted in the vicinity of 34° 01.6', 77° 56.6'. Extensive 20 meter spacing lines were run to verify this item. The prominent least depths reduced to MLW and positions are as follows:

Least Depth

5 7 feet

8 8 feet

3 4 feet

Position

34° 01' 48.9", 77° 56' 30.2" (Pos. 1540-41)

34° 01' 45.8", 77° 56' 28.9" (Pos. 1605-06)

34° 01' 45.0", 77° 56' 31.2" (Pos. 1543-44)

4 feet	34° 01' 42.2", 77° 56' 33.5" Pos. 1561-62
10 11 feet	34° 01' 42.2", 77° 56' 30.3" (Pos. 1539-40)
1 2 feet	34° 01' 35.0", 77° 56' 35.7" (Pos. 1578-79)
3 feet	34° 01' 31.4", 77° 56' 35.0" (Pos. 1311-12)

No corr's TWA
It is recommended that the above least depths be applied to future editions of the chart. This area was later examined at a minus 1' Tide and numerous pier pilings and pier ruins were found awash (covered 1' MLW) 10 to 15 meters from the shoreline within this area. Additional work such as diver verification is needed to determine if the least depths are isolated shoals, pier ruins, or wrecks. *Charted ruins and wreck symbols and notations should be retained on the chart*

Dashed Circle Item, Submerged Piles charted position 34° 00.36', 77° 56.66' were searched for at a minus 1' tide and nothing found. It is recommended that "Submerged Piles" nomenclature be deleted from future editions of the chart since the depth of water in this location is 1' MLW. (See Verifier's Report-section 2-E)

Deleted Subm Piles and symbols from chart
An item not mentioned in the pre-survey review but contained on prior survey H-1134, 1:10,000 scale, 1872, is the wreck "Raleigh". 10 meter spacing lines were run to verify this item. A least depth of 11 feet was noted on the fathogram, reduced to MLW.

<u>Charted Position (Prior Survey)</u>	<u>Position of Least Depth</u>
33° 57' 26.0", 77° 57' 08.7"	33° 57' 26.0", 77° 57' 08.7"

It is recommended that the wreck symbol be added to future editions of the chart at the position indicated. Other work such as wire drag or diver verification is recommended to obtain the least depth.

*Added Subm. WK
Symbol at position indicated
835 SC TWA
#426*

K. Comparison with the Chart

A comparison with C&GS chart 426, 13 Edition, 20 April 1974 shows general disagreement. Among the major discrepancies are the following items:

Carolina Power & Light has dredged a nuclear power plant intake ~~channel~~ through the lower half of Snows Marsh, 33° 57' 30", 77° 58' 30". The controlling depth is ~~approximately 18~~ 2 feet. *Applied thru survey 835 SC #426*

The flat between Horseshoe Shoal and Snows Marsh, 33° 57' 30", 77° 58' 00" is shoaling and now shows 1 foot instead of the charted 8 foot depth. *Applied thru survey 835 SC #426*

East side of Channel South of 33° 58' 00" in general is now 3' to 16' deeper than shown on the chart. *Applied thru survey 835 SC #426*

West side of Channel north of 33° 58' 00" and all approaches to Wharf's 1, 2 and 3 (Sunny Point Military Ocean Terminal) in general are now 5 to 10 feet deeper than shown on the chart. *Applied thru survey 835 SC #426*

A ~~trough~~ ^{main} was found with a maximum depth of 10' At 34° 02' 15", 77° 55' 15". Depths of 1/2 foot are shown on the chart at this location. *Applied thru survey 835 SC #426*

L. Adequacy of Survey

This survey is complete and adequate to supersede prior surveys for charting.

M. Aids to Navigation

Comparison of the observed floating aids to navigation with C&GS Chart 426, 13th Edition, 20 April 1974, and Light List Volume I Atlantic Coast 1975 showed the following discrepancies:

<u>Chart</u>	<u>Light List</u>	<u>Observed</u>
C "25A"	C "25A" RA REF	C "25A" RA REF
"29" FL RA REF	"29" FL RA REF	"29" FL

Refer to Horizontal Control Report OPR-437, Cape Fear River, North Carolina 1974 for positions of the fixed aids to navigation contained within the limits of H-9501.

N. Statistics

<u>Vessel</u>	<u>Nautical Miles of Soundings</u>	<u>Sq. Nautical Miles</u>	<u>No. of Bottom Samples</u>	<u>No. of Positions</u>
Launch 1277	198.7	8.1	20	1913

O. Miscellaneous

Detached positions were obtained on pilings and range markers which bare at MHW, for the purpose of verification of field edit only.

All soundings taken on Days 028 and 029 (Fix #122-256) were smooth plotted using field reduced smooth tides based on readings of a tide staff at the Federal Point Basin Small Boat Landing. Office reduced tides will change the datum. Refer to the enclosed Tide Note.

A North Carolina state maintained small boat marina is currently under construction at the sw entrance to Snows Cut.

The extensive spoil area located in the vicinity of Peters Point was investigated by 1000 meter ^{long} zig-zag patterns to provide depths for the purpose of small craft use.

P. Recommendations

It is recommended that future hydrographic surveys of the Cape Fear River be accomplished at a 1:5,000 scale for more accurate shoal and shoreline delineation and to provide a larger work sheet for the hydrographer.

It is recommended that all critical sounding data be immediately applied to the existing chart and a high priority given to the production of the new 1:40,000 scale small craft chart. It is additionally recommended that, in the interest of safety, consideration be given for production of a 1:20,000 scale small craft chart instead of the proposed 1:40,000 scale in order to present a more detailed representation of bottom configuration for recreational use.

Q. References to Reports

1. Horizontal Control Report OPR-437, Cape Fear River 1974, 75.
2. Field Edit Report OPR-437, Cape Fear River 1974, 75.

Respectfully Submitted

for *W. A. Wert*

William A. Wert
Lt.(jg), NOAA
OIC, Launch 1277

APPROVAL SHEET
SURVEY H-9401
AHP-10-2-75

The Hydrographic Records transmitted with this report are complete and adequate.

for *CDR John O. Ralston*
F. T. Smith
Lt. Cdr., NOAA
Chief, AHP

A P P E N D I X

Del Norte Note

Del Norte positioning equipment, which operates in a range-range mode, was used to control all of the hydrography on sheet AHP-10-2-75. Six separate control networks were used on this sheet, one of which was used on both sides of the baseline. All shore stations were located at or eccentric to established third-order triangulation stations.

Calibration was established twice daily (whenever possible) by positioning the launch at known third-order triangulation stations. Del Norte ranges were compared to ranges calculated by PDP-8/e computer using the RK401 program. Any eccentricity from the triangulation mark to the Del Norte antenna was accounted for.

Performance of the Del Norte equipment was fair during the project. The mobile transponder was replaced on 6 March 75; however, the problem was determined to be water seepage into a sealed antenna. Just prior to starting work on sheet AHP-10-2-75, transponder unit S/N 189 was received from AMC. After 90 minutes of service, this unit failed and was field repaired (see FAILLOG #5133). Since being repaired, this unit exhibits moderate changes in calibration from day to day, and resetting of the DMU calibration has been necessary several times. The largest observed difference between morning and evening calibrations for any unit was 5 meters, with mean differences of 1.6 meters (unit s/n 188), 1.8 meters (unit s/n 189), and 2.0 meters (unit s/n 181). The mean standard deviation over all calibrations ranged from 1.9 meters to 2.3 meters.

Abstract of Equipment Utilization
AHP-10-2-75, H-9501

I. Distance Measuring Unit (DMU) s/n 159

II. Mobile Transponder

Julian Days 024-064 s/n 162

Julian Days 065-086 s/n 159

III. Shore Station Sites

<u>Signal Number</u>	<u>Station Description</u>
2	Lower Swash Channel Range Rear Light, 13m High Lat. 33°56'59.369", Long. 77°57'04.967"
3	Bald Head Shoal Channel Range Rear Light, 9m High Lat. 33°53'45.315", Long. 77°58'55.991"
12	Horseshoe Shoal Channel Range Rear Light, 13m High Lat. 33°55'53.721", Long. 77°58'11.153"
15	P.C.B.L., 1851 (Bug) (ecc.) 8m High Lat. 33°56'09.304", Long. 77°59'23.967"
16	Federal Point, 1913, 12m High Lat. 33°57'36.622", Long. 77°56'29.835"
17	Peter 3, 4m High Lat. 33°59'34.716", Long. 77°55'26.355"
18	Reaves Point 2, (ecc), 3m High Lat. 34°00'00.225", Long. 77°57'16.606"
21	Dock, 1975, 5m High Lat. 34°03'02.686", Long. 77°55'06.266"
22	Upper Midnight Channel Range Front Light, 6m High Lat. 34°03'24.027", Long. 77°56'25.239"

IV. Station Utilization

Pattern I		Pattern II		<u>Julian Days Used</u>
<u>Signal #</u>	<u>Unit S/N</u>	<u>Signal #</u>	<u>Unit S/N</u>	
3	189	15	188	24-29
16	188	12	189	44-49
16	188	12	181	63
17	181	16	188	64-72
18	189	17	181	73,79
17	181	18	189	73-79
22	181	21	188	80
18	189	22	181	80-86

SIGNAL LIST H-9501

STA	O	LATITUDE			LONGITUDE			CODE	ELEV	DESCRIPTION
002	3	33	56	59369	077	57	04967	250	0013 000000	* LOWER SWASH CHANNEL REAR RANGE
003	7	33	53	45315	077	58	55991	250	0009 000000	* BALD HEAD CHANNEL REAR RANGE
006	0	33	53	41111	078	00	17149	139	0006 000000	* SMITH ISLAND CHANNEL FRONT RAN
012	1	33	55	53721	077	58	11153	250	0013 000000	* HORSESHOE SHOAL CHANNEL REAR RA
013	1	33	56	33984	077	57	49885	139	0005 000000	* LOWER SWASH CHANNEL FRONT RAN
015	3	33	56	09304	077	59	23967	243	0008 000000	P.C.B.L., 1851 (BUG) (ecc.)
016	2	33	57	36622	077	56	29835	250	0012 000000	FEDERAL POINT, 1913
017	4	33	59	34716	077	55	26355	250	0004 000000	* PETER 3
018	0	34	00	00225	077	57	16606	243	0003 01498.3 000000	* REAVES POINT 2 (ecc.)
021	4	34	03	02686	077	55	06266	250	0005 000000	DOCK, 1975
022	0	34	03	24027	077	56	25239	250	0006 000000	* UPPER MIDNIGHT CHANNEL FRONT RA
023	1	33	57	40168	077	57	00364	139	0003 000000	* SNOWS MARSH CHANNEL FRONT RAN
024	3	34	01	26816	077	56	08487	139	0007 000000	* LOWER MIDNIGHT CHANNEL FRONT RAN
025	3	34	02	53146	077	55	41618	139	0013 000000	* LOWER MIDNIGHT CHANNEL REAR RA

* POSITION TAKEN FROM U.S. ARMY CORPS OF ENGINEERS THIRD-ORDER TRIANGULATION DATA,
TO BE VERIFIED BY FIELD EDIT.

Fathometer and Velocity
Correction Report OPR-437
Jan-March 1975

A. Equipment

A Raytheon Fathometer, model number DE 723 D, serial number 1904 was used in Launch 1277. This fathometer often failed to sound (Digital and Analog) in depths under the transducer ranging from 2.4 feet or less and never sounded in depths less than 1.9 feet. This was discussed with Electronic Engineering Division at AMC and as a solution different receiver cards were substituted in the ECU (inverter) unit. This did not correct the problem and therefore numerous pole soundings were necessary in shoal water.

B. Velocity and Instrument Error Correctors

Depth corrections were obtained by averaging bar check values and excluding values which differed by more than 0.4 feet. A graph was constructed and velocity correctors were scaled in accordance with Table 2 of the Hydrographic Manual. The graph and abstract of corrector values are included with this report. A TRA correction of +1.5 feet was predetermined by drawing the bar check tightly against the transducer and measuring the bar depth. Frequent A to F scale checks were taken to check stylus arm length. All initial settings were adjusted to zero.

C. Settlement & Squat Correctors

Settlement and squat correctors were obtained as outlined in Section 5-108 of the Hydrographic Manual. The graph and abstract of corrector values are included with this report.

D. Miscellaneous

No appreciable changes in depth corrections occurred between the first and last days of hydrography, therefore bar check data was averaged and one velocity table was constructed.

E. Recommendations

The launch will be alongside AMC during early April for repairs and modifications. It is highly recommended that Electronic Engineering Division at AMC isolate and correct the sounding problem mentioned in Section A of this report. Undue time is spent inserting and logging long words on both the corrector and TC/TI tapes necessary for pole soundings resulting in a decrease of production capability of Launch 1277.

Respectfully Submitted

William A. Wert, Lt.(jg), NOAA

6 4 -2 0 +2
(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, FATHOMS

5 10 15 20 25 30 35 40 45 50 55 60
(For deep water add a 0 to these figures)

DEPTH IN FATHOMS FEET (BAR DEPTH - DEPTH CORRECTION)

NOAA FORM 10-21 (10-72)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEAN SURVEY	
VELOCITY CORRECTIONS			
Ship <u>AMP LAUNCH 1277</u>			
<u>WILLIAM A. WEST</u>		Comdg.	
These corrections are to be used			
between <u>JAN 24</u> 19 <u>75</u> and <u>MAR 26</u> 19 <u>75</u>			
in the locality <u>OPR 437</u>			
<u>CAPE FEAR RIVER</u>			
for hydrographic surveys Nos. <u>H-9801</u>			

EXTRAPOLATED 38%

Velocity Correction Abstract

Depth (FT)	Correction (FT)
0.0-17.0	-0.2
17.1-59.0	-0.4

VELOCITY CORRECTIONS FOR SURVEY H 9501.

TABLE NUMBER 1. UNIT IS FEET.

DEPTH+TRA VELOCITY CORRECTION

17:0	-0.2 ✓
59:0	-0.4
99999.9	-0.4

SETTLEMENT & SQUAT

LAUNCH 1277

MAY 7, 1974

ABSTRACT OF SETTLEMENT & SQUAT

RPM

CORRECTION (FT)

0-1499

0.0

1500-2000

+0.2

2001-3000

+0.4

CORRECTION (FT)

4

3

2

1

0

1000

-34-

2000

3000

20

14	14	14	15	12	50
-35	-35	-35	375	30	
82	28	2	28	40	

August 13, 1975

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for Form 362

Tide Station Used (NOAA Form 77-12): Reaves Point, Federal Point
Federal Point staff, Southport

Period: January 24-March 27, 1975

HYDROGRAPHIC SHEET: H-9501

OPR: 437

Locality: Cape Fear River

Plane of reference (mean ~~lower~~ low water): 1.0ft-Southport ✓
1.5ft-Reaves Point ✓
2.6ft-Federal Point
1.0ft-Federal Pt. staff -

Height of Mean High Water above Plane of Reference is
4.2 ft.-Cape Fear River
2.4 ft.-The Basin

Remarks: Recommended zoning:

- (1) In The Basin zone direct on the Federal Point staff.
- (2) South of $33^{\circ}57.0'N$ use Southport applying +15 minutes time correction and range ratio $\times 0.95$
- (3) From $33^{\circ}57.0'N$ to $33^{\circ}59.3'N$ zone direct on Federal Point
- (4) North of $33^{\circ}59.3'$ zone direct on Reaves Point.

James R. Hubbard
for Chief, Tides Branch

GEOGRAPHIC NAMES

H-9501

Name on Survey	Source of Name										
	A ON CHART NO. 126	B ON PREVIOUS SURVEY	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G GRAND McNALLY ATLAS	H U.S. LIGHT LIST	K		
ANDERSON LANDING	✓										1
CAPE FEAR RIVER	✓										2
FEDERAL POINT	✓										3
HORSESHOE SHOAL	? ✓										4
MIDNIGHT SHOAL	✓										5
PETERS POINT	✓										6
REAVES POINT	✓										7
SNOWS MARSH	✓										8
SNOWS POINT	✓										9
SUNNY POINT	✓										10
THE BASIN	✓										11
WALDEN CREEK	✓										12
ZEKES ISLAND	✓										13
MILITARY OCEAN TERMINAL - SUNNY POINT											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

APPROVED

Chas. E. Harrington

STAFF GEOGRAPHER - CSIX 20

14 MARCH 1977

ATLANTIC MARINE CENTER
APPROVAL SHEET
FOR
AUTOMATED SURVEY H- 9501

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~been~~ been made. A new final sounding printout has/~~been~~ been made.

Date: Oct 21, 1976

Signed: William L. Jones

Title: Chief, Verification Branch

- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic and AMC Manuals. Exceptions are listed in the verifier's report.

Date: 12/2/76

Signed: Robert A. Traumbach

Title: Chief, Processing Division

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9501

AHP-10-2-75

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET smooth PNO, excess overlays		1	BOAT SHEETS (5 parts, paper)		1	
DESCRIPTIVE REPORT		1	OVERLAYS 2 parts		7 X	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ACCORDION ENVELOPES	1		1			1
CAHIERS	1-with printouts					
VOLUMES						
BOXES						

T-SHEET PRINTS (List)

TP 00676, TP 00677, TP00678, TP 00679

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				1913
POSITIONS CHECKED		350		
POSITIONS REVISED		7		
DEPTH SOUNDINGS REVISED		200		
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		64		
JUNCTIONS		6		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS	20			
SPECIAL ADJUSTMENTS				
ALL OTHER WORK		334		
TOTALS	20	404	39	

PRE-VERIFICATION BY

M.B. Hickson III

VERIFICATION BY

H.R. Smith

REVIEW BY

Hydrographic Inspection Team (AMC)

BEGINNING DATE

04/22/75

ENDING DATE

04/26/75

BEGINNING DATE

01/08/76

ENDING DATE

10/27/76

BEGINNING DATE

10/21/76

ENDING DATE

11/02/76

QUALITY CONTROL BY

K. W. Wellman

R.D. Senacki 6-677 pho. 3-11-77
66hu carsten 2542 9/28/77 U.S. G.P.O. 1972-769-562/439 REG.#6

REGISTRY NO. _____

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey, the following shall be completed:

CARDS CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

REGISTRY NO. H-9501

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE 12-6-82 TIME REQUIRED _____ INITIALS SR

REMARKS: The following revisions were made during quality control inspection:

<u>Position #</u>	<u>Record #</u>	<u>Remarks</u>
1621	798	Excess sounding
1348	6543	digitize new position of pile
619-620	2989	excess sounding
646-647	3133-34	digitize piles
1121-1126	5490-95	digitize piles
1388	6725	digitize pile

H-9501

Items for Future Presurvey Reviews

The following charted items are not disproved by the present survey and have been recommended for retention on the chart:

<u>Charted Feature</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Q.C. Report Item No.</u>
Submerged wreck	34°01.21'	77°56.24'	6-A-2
Pipe	34°01.02'	77°57.10'	6-A-4
Pipe	34°00.85'	77°57.15'	6-A-4
Pipe	33°59.93'	77°56.87'	6-A-5
Pile	33°57.60'	77°56.78'	6-A-9

The above items should be verified or disproved during future work in the area.

<u>Position Index</u>		<u>Bottom Change</u>	<u>Use</u>	<u>Resurvey</u>
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle</u>
335	0780	6	2	25 years
340	0780	4	2	25 years

C. Low-water Line: The low-water line was developed over much of the area, supplemented by the topographic manuscripts.

D. Developments: The investigation of least depths and development of bottom configuration is adequate.

E. Pre-survey Review Items: There are five numbered and one un-numbered Pre-survey Review Items on this survey.

Item #8, submerged dolphins, charted in latitude 34° 00.66' and longitude 77° 56.25'; originates with Chart Letter #913 (1955) and Chart Letter #1582 (1971), U.S. Power Squadron. See Item J. in the Descriptive Report. Concur with hydrographer's recommendation. *No corr's TWA concurred with survey*

Item #9, piles, P.D. charted in latitude 34° 00.73' and longitude 77° 55.97'; originates with Chart Letter #593 (1950). Charted as platform on current chart. Apparently taken from boat sheet. *No corr's agree with Final reviewed TP-00677 TWA 835 sec 426*

Item #10, platform, P.A. charted in latitude 34° 00.86' and longitude 77° 55.71'; originates with Chart Letter #1439 (1973), U.S. Power Squadron. Charted as piles on current charts. Apparently taken from boat sheet. *repositioned pile symbol to new position TWA 835 sec 426 chart present 426 survey information*

Item #11, dangerous submerged wreck, charted in latitude 34° 01.22' and longitude 77° 56.24'; source - Notice to Mariners #4 (1950). See Section J. of the Descriptive Report. Concur with hydrographer's recommendation. (See Q.C. Report-item 1) *Retained dangerous wreck 835 sec TWA 426*

Item #24, pier ruins, wreck, low-water spot and visible ruins, charted in the vicinity of latitude 34° 01.6' and longitude 77° 56.6', Corps of Engineers surveys BPS 31284 (1937) and 67010 (1964). See Section J. of the Descriptive Report for recommendation of hydrographer. It is recommended ~~concurrence with hydrographer. In addition, it is recommended that the wreck and visible ruins symbols be carried forward from source to the chart.~~ *Retained on chart 835 sec TWA 426* (See Q.C. Report-item 1) *retained on*

The dashed-circled item, submerged piles, charted in latitude 34° 00.36' and longitude 77° 56.66'; source unknown. See Section J. of the Descriptive Report for the recommendation of the hydrographer. The original source of this item should be investigated and a comparison with the present survey be made. *bp 26338 (1933) CL 1582 (1971) Deleted Subm piles and symbol from chart 835 sec 426 TWA*

F. Bottom Samples: There were 20 bottom samples throughout the survey area.

3. Condition of the Survey

The sounding records, automated plotting and the Descriptive Report are adequate and conform to the requirements of the Provisional Hydrographic Manual, supplemented by the Atlantic Marine Center Manual with the following exceptions:

- (a) Data for D.P.'s had to be taken from the raw data.
- (b) No sounding volumes were used, as required by Section 4.8.31. of the manual.

4. Junctions

An adequate junction was effected with H-9489 (1974) on the south and H-9502 (1975) on the north.

5. Comparison With Surveys

A. Prior Surveys: H-1134 (1872) 1:10,000 and H-1190b (1873) 1:10,000.

A comparison between the above surveys, which, taken together cover the area of the present survey, reveals extensive shoaling and shifting of the river's features due to artificial and natural causes, and the deepening of the channels due to dredging. On the present survey, the river has an improved, continuous main channel over the length of the survey area, with depths eight to forty feet deeper than those on the prior surveys. The channel on the prior survey is noted by a series of deeps interrupted by shoals. Generally, the marshes; except for Snows Marsh, which has enlarged, and spoil areas on the present survey, were covered by one to eleven feet of water on the prior surveys.

Some noted man-made changes on the present survey are: Three wharfs and associated channels in the general vicinity of Reaves Point, the dredged canal through the lower half of Snows Marsh, the improved (dredged) continuous main channel, and the breakwater extending from Federal Point to Muddy Slough.

Shoreline changes are mostly in the southern portion of the survey. On the west side of the river the shoreline has shifted, probably due to filling, from Sunny Point southward. Shifting of the shoreline on the east side of the river is from Federal Point southward. The shifting and filling have had the effect of narrowing the river. Shoreline changes appear to be due to natural and artificial causes.

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

B. Wire Drag Surveys: There is no record of a wire drag survey in the area.

6. Comparison With Published Charts

#11537 (formerly C&GS 426), 13th edition, dated April 20, 1976⁴ and ~~#11534 (formerly 835-SC), 13th edition, dated March, 1976.~~

A. Hydrography: The survey depths are in general harmony with the charted depths. The hydrography adequately defines the area.

A comparison between the charts listed above, which contain the same basic data, and the present survey reveals the following:

1. Six dredge markers and one platform, shown at positions 877-883 on the present survey in latitude 33° 59' 21" and longitude 77° 56' 22". *agree with final copy T-sheet TWA*
2. The Basin, south of Federal Point, covered on the present survey. Five D.P.'s were taken in the area - three on piles, one on an iron pipe on the north side of the Basin and one on a rock on the south side of the Basin. *No corr's V TWA*
3. Six Carolina Beach Channel markers at Carolina Beach Boat Basin. *agree TWA*
4. Eighteen foot charted sounding in latitude 33° 58' 02" and longitude 77° 56' 57". Present survey shows 22 feet. Source unknown (Charted 18 superseded-disregard) *applied via survey TWA 835-SC f 426*

5. Five foot sounding charted in latitude $33^{\circ} 58' 35''$ and longitude $77^{\circ} 57' 07''$. Present survey shows 21 1/2 feet. Source unknown. *Deleted 5 ft sdg and brought into agreement with survey 835 sc. 426*
 6. Pipe charted in lat $34^{\circ} 00.69'$, long $77^{\circ} 57.22'$ is not verified or disproved by the present survey and should be *deleted*
 7. Six submerged piles charted in latitude $33^{\circ} 58' 25''$ and longitude $77^{\circ} 56' 05''$. Source unknown. (See Q.C. Report-item 6-A-7) *Deleted six subm piles and type 835 sc. 426*

- B. Controlling Depths: (See Q.C. Report-item 7)
- C. Aids to Navigation: The six aids marking the channel to Carolina Beach, New Boat Basin are not charted. Other aids to navigation shown on the survey are in substantial agreement with the charted positions and adequately mark the features intended. *No corr. 426*

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

7. Compliance With Instructions

This survey does comply with the Project Instructions.

8. Additional Field Work

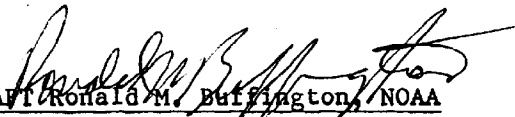
This is an excellent basic survey. Additional field work is not recommended.

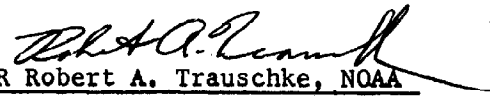
9. Hydrographic Inspection Team Comments


Hydrographic Inspection Team comments are included within this report and Verification deficiencies found have been corrected on the Smooth Sheet.

Approval sheet for H-9501

Examined and Approved:
Hydrographic Inspection Team
Date: 10/28/76


CAPT Ronald M. Buffington, NOAA
Chief, Operations Division


CDR Robert A. Trauschke, NOAA
Chief, Processing Division

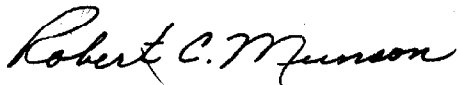

CDR Jeffrey G. Carlen, NOAA
Chief, Coastal Mapping Division

C. Douglas Mason, LT ~~USN~~, NOAA*
Chief, EDP Branch


William L. Jonns
Chief, Verification Branch

* Extended TDY

Approved/Forwarded


Robert C. Munson
RADM, NOAA
Director, Atlantic Marine Center



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

C352

March 11, 1977

TO: *a. j. Patrick*
A. J. Patrick
Chief, Marine Surveys Division

THRU: Chief, Quality Control Branch

FROM: K. W. Wellman *K. W. Wellman*
Quality Evaluator

SUBJECT: Quality Control Report for H-9501 (1975), North Carolina, Cape Fear River, Lower Cape Fear River

A quality control inspection of H-9501 has been accomplished to evaluate the accuracy and adequacy of the survey with respect to data acquisition, delineation of the bottom, determination of least depths and navigation hazards, junctions, shoreline transfer, decisions and actions by the verifier, and cartographic presentation of data.

The junction with H-9502 (1975) on the north will be inspected during the quality evaluation of that survey.

In general, the present survey was found to conform to National Ocean Survey standards and requirements except as follows:

1. Submerged wrecks were improperly plotted in the vicinity of latitude 34°01'13.2", longitude 77°56'13.7" and latitude 34°01'34.9", longitude 77°56'35.7" (Presurvey Review Items 11 and 24 respectively). The developments in the indicated areas were intended to verify charted submerged wrecks. Inasmuch as the hydrographer did not actually claim that the wrecks were located, it is considered misleading to include the notation "Wk" on the smooth sheet. The wreck notes were deleted during quality control inspection. *Retained Sub Wrecks TWA*
2. Three triangulation stations not used as signals were improperly symbolized (cartographic code 112) on the verified smooth sheet (see provisional manual--appendix B, page B-4). *NO CORR'S TWA*
3. The detached positions of numerous piles, shown on the verified smooth sheet, were at variance with the corresponding T-sheet positions. During quality control inspection such excessively displaced positions were revised to agree with the reviewed T-sheets (see provisional manual--section *NO CORR'S TWA*



6.3.5). In addition, a few elevations accompanying the piles were erroneous, thus necessitating reevaluation and revision during the quality control inspection. *No corr's TWA*

4. The verifier misidentified the following aids to navigation:

a. Snows Cut Range Front Light A in latitude $34^{\circ}02.91'$, longitude $77^{\circ}55.61'$ (erroneously identified as . . . Rear Light A on the verified smooth sheet). *No corr's TWA*

b. Upper Midnight Channel Light "34" in latitude $34^{\circ}02.95'$, longitude $77^{\circ}56.36'$ (erroneously identified as Upper Midnight Channel North Range Rear Light on the verified smooth sheet). *No corr's TWA*

5. Lower Midnight Channel Range Rear Light (located in latitude $34^{\circ}02.88'$, longitude $77^{\circ}55.69'$) also serves a dual function as Snows Cut Range Rear Light A. The latter function of this light, however, was not so indicated on the verified smooth sheet. *No corr's TWA*

6. The editions of the charts current at the date of the survey were not used in the Comparison with Published Charts (section 6 of the Verifier's Report). In addition, the charts used during verification were not forwarded with the survey records [see provisional manual--sections 6.3.10 and 8.3(12)]. *No corr's TWA*

The comparison with chart 835-SC is considered unnecessary inasmuch as chart 426 covers the entire area of the survey and is the same scale as chart 835-SC. *No corr's*

Section 6-A of the Verifier's Report is superseded by the following:

a. Hydrography

The charted hydrography originates with miscellaneous chart letters and Corps of Engineers blueprints.

Attention is directed to the following:

(1) The four piles charted in the vicinity of latitude $34^{\circ}01.98'$, longitude $77^{\circ}55.98'$ originate with a not readily ascertainable source on the first edition of chart 426 in 1950. They are not shown on the present survey and probably represent the prior position of a dredging range. The present survey shows a similar line of piles approximately 300 meters to the north of the charted position. The chart should be revised to agree with the present survey. *piles in agreement with survey TWA*

*835-SC
426*

(2) The submerged wreck charted in latitude 34°01.21', longitude 77°56.24' originates with H.O.N.M. 4 of 1950. It is not disproved by the present survey and should be retained on the chart. *Retained subm' wrk 835 SC TWA & 426*

(3) The four piles charted in the vicinity of latitude 34°01.35', longitude 77°56.15' originate with a not readily ascertainable source on the first edition of chart 426. They are not shown on the present survey and probably represent the prior position of a dredging range. The present survey shows a similar line of piles about 160 meters to the north. *426 835 SC*
The chart should be revised to agree with the present survey. *Chart in full agreement with survey TWA*

(4) The two pipes charted in latitude 34°01.02', longitude 77°57.10' and latitude 34°00.85', longitude 77°57.15' originate with Bp-85896 (1973). They are not verified or disproved by the present survey and should be charted as pipes above the sounding datum. *426 835 SC*
No change to chart. Charted as pipes TWA

(5) The pipe charted in latitude 33°59.93', longitude 77°56.87' originates with Bp-85895 (1973). It is not verified or disproved by the present survey and should be revised to a pipe above sounding datum on the chart. *426 835 SC*
No change to chart TWA

(6) The six piles charted in the vicinity of latitude 33°58.15', longitude 77°56.41' originate with a not readily ascertainable source on the first edition of chart 426. They are not shown on the present survey and probably represent the prior position of a dredging range. The present survey shows a similar pattern of piles approximately 100 meters to the northeast of the charted position. The charted positions of the piles should be revised to agree with the present survey. *Chart in full agreement with survey 835 SC TWA*

(7) The six piles charted in the vicinity of latitude 33°58.39', longitude 77°56.12' originate with a not readily ascertainable source on the first edition of chart 426. They are not shown on the present survey and probably represent the prior position of a dredging range. These piles should be deleted from the chart. *Deleted six piles and type 426 & 835 SC TWA*

(8) The six piles charted in the vicinity of latitude 33°57.06', longitude 77°57.10' originate with a not readily ascertainable source on the first edition of chart 426. They are not shown on the present survey and probably represent the prior position of a dredging range. The present survey shows a similar pattern of piles approximately 110 meters to the south of the charted position. The charted position of the piles should be revised to agree with the present survey. *piles in full agreement with survey 835 SC TWA*

(9) The pile charted in latitude 33°57.60', longitude 77°56.78' originates with Bp-81996 (1958-60). It is not verified or disproved by the present survey and should be charted as a pile above the sounding datum. *pile in agreement 835 SC TWA & 426*

7. Section 6 of the Verifier's Report (Comparison with Published Charts) is lacking any reference to the results of a comparison between the present survey and the controlling depths of the charted channels [see provisional manual--section 6.6(12-b)].

Section 6 of the Verifier's Report is supplemented by the following:

b. Controlling Depths

The controlling depths of the channels within the limits of the present survey are in general agreement with those indicated on the chart except that the present survey indicates controlling depths of 7 feet in the channel charted in the vicinity of latitude 33°57.69', longitude 77°56.50' to 77°57.00' which is reported to have a controlling depth of 14 feet. Further, the charted position of the centerline of this channel falls approximately 50 meters south of the comparable position indicated on the present survey. The chart should be revised to agree with the present survey.

Change legend to read

8. TP-00276 (1973/75) was inadvertently omitted in the discussion of photogrammetric manuscripts used for shoreline on the present survey.

7 FT 1975

CH 8355C

426

NO CORR

9. In the application of the present survey to the chart it is recommended that consideration be given to adding the name Military Ocean Terminal-Sunny Point.

No corr

10. The investigation and disposition of a number of charted pipes, piles, and dredge markers which should have been done during photogrammetric field edit was not accomplished.

No corr

cc:
C351

