

9714

Diag. Cht. No. 1219-2

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. PE-20-4-77
Office No..... H-9714

LOCALITY

State Delaware
General Locality Delaware Coast
Locality Fenwick Island to Indian River Inlet

1977

CHIEF OF PARTY
Carl W. Fisher

LIBRARY & ARCHIVES

DATE March 30, 1979

☆ U.S. GOV. PRINTING OFFICE: 1976-669-441

9714

Area 2

Charts

12211 (1220)
12214 (1219)
12216 (411)
12205 (1109)

HYDROGRAPHIC TITLE SHEET

H-9714

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.

PE 20-4-77

State DelawareGeneral locality DELMARVANG Delaware CoastLocality Fenwick Island to Indian River Inlet
Delaware Coast, Bethany Beach, DelawareScale 1:20000Date of survey 18 August - 22 Sept. 1977Instructions dated 21
18 January 1977Project No. OPR -516-PE-77Vessel PEIRCE
Launches 1008 & 1009 (VesNo 2838 & 2839)Chief of party Carl W. Fisher, CDR., NOAA, Commanding Officer NOAA Ship PEIRCE
CDR. Carl W. Fisher, CDR. G. Molyneaux, LCDR. K. Schnebele, LT. P. ChelgrenSurveyed by LTJG. D. Minkel, ENS. P. McGrath, ENS. K. Cox, ENS. R. McCannSoundings taken by echo sounder, ~~and lead, etc.~~ Ross Model 5000Graphic record scaled by Digital echo sounder / CM, CWF, KJS, PM, DHM, PM, KC, FM, BM, KA, FLGraphic record checked by CM, DM, KJS,Protracted by _____ Automated plot by Xynetics 1201Verification by _____ J. Scott BradfordSoundings in ~~XXXXXX~~ feet at MLW ~~XXXXX~~
February 8, 1979REMARKS: All times are in GMT.Applied to stds 6/12/79
108

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-9714
Field Number PE-20-4-77

A. PROJECT

This survey is an integral part of the DELMARVANC Project; OPR-516-PE-77. It was conducted according to Instructions dated 18 January 1977 from Chief, Operations Division, Atlantic Marine Center (copy appended to this report) and Project Instructions dated 21 January 1977. Applicable changes to the project instructions are as follows:

<u>Change Number</u>	<u>Date</u>	<u>Subject</u>
2	March 2, 1977	Control
6	March 22, 1977	Tides
7	April 21, 1977	Pre-Survey Review
8	May 3, 1977	Tides
12	September 9, 1977	Tides

B. AREA SURVEYED

This survey roughly encompasses the area from Indian River Inlet, Delaware south to Fenwick Island, Delaware. The survey extends out approximately 4 miles from shore. The following latitude and longitudes outline the survey:

<u>Latitude</u>	<u>Longitude</u>
38°37.7'	75°04.0'
38°37.7'	75°02.0'
38°36.6'	75°02.0'
38°36.6'	74°58.3'
38°31.9'	74°58.3'
38°31.9'	74°59.9'
38°28.4'	74°59.9'
38°28.4'	75°04.0'

Hydrography was conducted from 18 August to 22 September 1977 (J.D. 230 to 265).

C. SOUNDING VESSEL

Hydrography was conducted entirely with two type I Launches equipped with Ross Digital Echo Sounders (Model 5000).

<u>Vessel</u>	<u>EDP VesNo.</u>
Launch 1008	2838
Launch 1009	2839

During the survey, Launch 1008 was used exclusively in the non-automated mode to conduct Range/Azimuth hydrography. This manual acquisition was the result of an inoperative computer system. It is believed the system was inoperative due to inadequate power supplied by the Onan generator.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The following sounding equipment was used for this survey:

<u>Vessel</u>	<u>Echo Sounder</u>	<u>Remarks</u>
2838	Ross Model 5000, S/N 1079	5-40 ft. *
2839	Ross Model 5000, S/N 1055	5-50 ft.

* VesNo 2838 encountered isolated depths up to 60 ft. at the mouth of Indian River Inlet.

- (1) Sound Velocity Corrections: Corrections were obtained from bar checks taken on the working grounds. The average corrections obtained from the bar checks were graphed, and velocity correctors scaled at 0.2 ft. intervals for each Launch. The static draft of the launches is included in the respective velocity tables. ✓

The following tables were used for this survey:

Table 1	VesNo 2838	J.D. 230 - 236, 264
Table 2	VesNo 2839	J.D. 230 - 237
Table 3	VesNo 2839	J.D. 255 - 256

- (2) Initial and Other Instrument Corrections: All echo sounders were maintained at zero initial and routine phase checks were performed. No problems which would affect the accuracy of the soundings were encountered. ✓
- (3) Settlement and Squat: Settlement and squat corrections for the launches were observed in Ft. Lauderdale, Florida in February 1977. The TRA Corrections Abstract (appended) tabulates the correctors applied for the various engine R.P.M.'s used on line. Correctors were applied for changes of 0.2 foot. ✓

Note that copies of the velocity tables, TC/TI Tapes, and TRA Correction Abstract are appended to this report. Other abstracts and graphs are included in the field records of this survey.

E. HYDROGRAPHIC SHEETS

The field sheet is a 1:20,000 scale sheet, protracted and plotted using the ship's hydroplot system and Complot Roll-Bed Plotter. Sheet orientation is north-south.

The field data is presented on two plotter sheets; the mainscheme, splits and crosslines on one sheet. The second sheet depicting bottom samples, developments, and aids to navigation. In addition page size inserts (1:10,000 scale) are included in this report. These inserts show Indian River Inlet, and chain drag sweeps for items PSR #17 and PSR #18.

Inserts filed with survey records.

The field records will be transmitted to the Atlantic Marine Center for verification and smooth plotting. The smooth sheet projection parameters are appended, as are the field sheet parameter tape listings, and the electronic control parameters.

F. CONTROL STATIONS

Control stations for this survey were both visual and electronic. All visual signals used on the survey are published horizontal control stations, with the exception of the South Jetty Light of Indian River Inlet. The position of this light and electronic control stations used during this survey were located by Mr. Jim Shea, AMC, Operations Division, using third order traverse methods. All control is based on the North American Datum of 1927. (See appended letter from Operations Division dated 11/04/77)*. For control station sources and uses, see the Signal Listing appended to this report. pg 34

* *See remarks annotated by Quality Control concerning location of this light.*

G. HYDROGRAPHIC POSITION CONTROL

All sounding line control for this survey was either Range/Range or Range/Azimuth using Del Norte equipment. One D.P. was obtained using visual control. This was converted to Range/Range for computer processing purposes. The Del Norte equipment used was modified during the 1976-77 lay-up period to improve it's accuracy and performance (the MOS-6 Retrofit). The DMU's are model R03c and the Remote and Master Trisponder are model 217c. The specific unit serial numbers and usage are tabulated below.

<u>Del Norte Equipment</u>	<u>Serial Number</u>	<u>Location</u>
DMU/Master	180/169	Launch 1008 (VesNo 2838)
DMU/Master	162/1070	Launch 1009 (VesNo 2839)

		<u>Signal Number</u>
Remote 74	188	043
Remote 76	217	043, 050
Remote 78	218	050, 055

Calibration of the equipment was accomplished by first computing the distance between two horizontal control stations using computer program RK 407, then the DMU's were set up on one station, the remotes on the other and the observed readings recorded. If needed, the equipment was then adjusted to the computed distance. After calibration the Del Norte's were then set up on a short range (measured with a model 76 Geodimeter) and the observed readings recorded. In addition visual calibrations were performed in the survey area to check the equipment. Because of the good agreement between computed and observed range, and the stability between calibrations, electronic control correctors of zero were carried throughout the survey. Copies of calibration abstract and field checks are included in the survey results.

No atmospheric anomalies were observed that would have affected the quality of the position control data. However, DMU #162 (launch 1009) was found to be improperly grounded, this caused erroneous range input. The problem was corrected and all suspect data rejected. See appended letter (subject: Hydroplot system) for specifics.

*filed
in cahier*

H. SHORELINE *See Verifier's Report*

Shoreline was not delineated by this survey, refer to section 1.3 of the project instructions. Shoreline shown on the sheet was hand transferred from Chart 12216 (formerly C & GS 411) 16th Ed., January 29, 1977 by using an overhead projector and is not meant to show observed shoreline characteristics. Placement of shoreline on the field sheet is intended as an aid only. While the survey was being conducted, comparison with the chart was made and no discrepancies were observed.

I. CROSSLINES

Crosslines constituted 8% of the total mainscheme hydrography. Agreement on all lines was good; within two feet or less.

J. JUNCTIONS *See Verifier's Report*
H-9136 (1976) 1:20,000
H-9578 (1975) 1:20,000

Surveys H-9136 and H-9578 are the contemporary surveys this survey junctions with. Agreement was excellent with H-9136 (within one foot or less). Agreement with H-9578 was good (within two feet or less).

Incomplete junctioning with H-9578 occurred at latitude $38^{\circ}36.4'$ N longitude $74^{\circ}57.7'$ W. An attempt was made to extend lines well into the limits of H-9578 in order to fill a holiday on that survey and to make a complete junction. However, (1) one line fell short causing an incomplete junction. Due to the small area of the holiday (400m x 400m), the good agreement between the two surveys, and the charted bottom contour of the area; the holiday is not considered significant by this party.

K. COMPARISON WITH PRIOR SURVEYS *See Verifier's Report*

Two numbered and one unnumbered pre-survey review items lie within the limits of this survey; they are as follows:

PSR #17 Dangerous Sunken Wreck (PA), at $38^{\circ}37'$ N, $075^{\circ}03'$ W. Wreck was located by this survey at $38^{\circ}37'17.8''$ N, $075^{\circ}01'12.5''$ W, least depth obtained by divers 13.6 ft. (field corrected to MLW), position number 526. For further information see pages 31, 34 of

based on predicted tides

✓
sounding volume 4 and appended copies of letters to Coast Guard District #3 and Chief, Marine Charts Division.

Recommendation: Delete Dangerous Sunken Wreck (PA) at 38°37'N, concur ✓
075°03' W; show Dangerous Sunken Wreck at 38°37.8' N, 075°01'12.2" W.
The wreck should be charted as: 14wk ← *based on corrected depths.*

PSR #18 Pile, at 38°35.6' N, 075°03.14' W.

An extensive chain drag was conducted, position numbers 554-568. No evidence of the pile was found. The sweep was 50 meters wide with 20 meters overlap. Debris in the chain indicated that it was dragged on the bottom. For specific information see pages 45-48, Vol. No. 4 of the Sounding Volumes. In addition, an interview with the Commanding Officer of Indian River Coast Guard Station revealed neither he or any of his personnel had observed the pile, nor had he received any reports of its existence from the local mariners. Due to the date of the source and the severity of storms in the area it is believed that the pile is no longer in existence.

Recommendation: Delete pile at 38°35.6' N, 075°03.14' W. concur

Fish Haven at (approximately) 38°34.6' N, 075°02.8' W.
Least depth obtained was 28 feet at 38°34.7' N, 075°02.9' W, position number 2331 + 3 (on crossline); development position numbers are 2270, 2475. Examination of the fathogram showed no indication of debris, and it is felt that the least depth obtained is on a sand bottom which is further substantiated by the depth contours in the area and bottom sample #471, latitude 38°35.0' N, longitude 075°02.9' W.

Recommendation: ~~Remain as charted.~~ See Verifiers Report

Comparisons were made to the following surveys:

H-9578	← Junctional surveys	1975	1:20,000
H-9136		1970	1:20,000
H-8710		1962	1:10,000
H-4164		1920	1:40,000
H-4093		1919	1:40,000

When comparing this survey, it was observed that agreement was much better with the more recent surveys. Excellent agreement (± 1 foot) was observed with surveys H-9136 and H-8710 (see exception below), H-9578 showed good agreement (± 2 ft.). The older surveys (H-4164 and H-4093) show a decrease in agreement (± 4 ft.), especially in the shallower inshore areas, agreement improves (to 2 ft.) in the deeper off-shore areas of the survey. Comparison with the older surveys indicates shifting of shoal areas; this shifting is believed to be due primarily to the bottom composition (sand) and the severity of the winter storms experienced in this area. Large changes in beach topography have been observed by this field party. These changes have been observed in times period as short as two weeks during which a storm has occurred.

Comparison with H-8710 indicated major bottom changes at the mouth and surrounding area of Indian River Inlet. Specifically the 6 foot shoal to the north (lat. $38^{\circ}36'39''$, long. $075^{\circ}03'15''$) no longer exhibits a 6 ft. least depth, and scouring to 60 ft. has taken place at the mouth of the inlet. It is believed that the changes in this area are due to the high velocity tidal currents in the inlet. For further discussion of these currents see Section P. Concur

For further discussion and recommendations see Section L.

L. COMPARISON WITH THE CHART *See Verifier's Report*

Comparison was made to Chart 12214 (C & GS 1219), 29th Ed., January 17 1976; corrected thru October 1977.

The following charted features are discussed in Section K of this report:

- (1) Obstruction, Fish Haven, authorized minimum depth 30 ft., latitude $38^{\circ}34.6'$ N, longitude $075^{\circ}02.8'$ W. *Retain fish haven as charted.*
- (2) Pile, latitude $38^{\circ}35.6'$ N, longitude $075^{\circ}03.14'$ W. PSR #18.
- (3) Dangerous Sunken Wreck, PA, latitude $38^{\circ}37'$ N, longitude $75^{\circ}03'$ W, PSR #17; Coast Guard was advised of position obtained by this survey for (L.N.M.) and Marine Charts Division was also advised. Copies of Advisory correspondence and Radioteletype messages are appended ✓ to this report.

Specific shoal investigations conducted and their results are tabulated below:

<u>Development</u>	<u>Least Depth (ft.) Obtained by Fatho.</u>	<u>Position Number</u>	<u>Latitude Longitude</u>	<u>(Inclusive) Position No.</u>
A	30	2940 + 6	$38^{\circ}30.13'$ N	2912-3022
			$75^{\circ}00.52'$ W	
	27	2955 + 7	$38^{\circ}29.64'$ N	
			$75^{\circ}00.52'$ W	
	28	2966 + 2	$39^{\circ}29.35'$ N	
B	298	3013 + 3,	$38^{\circ}28.73'$ N	2740-2747
		4	$75^{\circ}01.56'$ W	
	384	2742 + 3	$38^{\circ}30.61'$ N	
			$75^{\circ}01.20'$ W	
C	31	2760 + 2,	$38^{\circ}31.41'$ N	2748-2767
		3	$75^{\circ}01.20'$ W	
D	38	2698 + 3,	$38^{\circ}31.95'$ N	2768-2771
		4	$75^{\circ}00.14'$ W	
E	24	2797 + 4	$38^{\circ}32.63'$ N	2772-2804
			$75^{\circ}00.86'$ W	

F	27 ⁶	3070 + 4,	38°32.85' N	2772-2792
		5	75°02.15' W	2906-2911
				3069-3073
G	20 ¹⁹	3086 + 3	38°33.68' N	2805-2822
			75°02.28' W	2851-2905
	22	2344 + 3,	38°34.36' N	
		4	75°02.18' W	3075-3091
	24	2811 + 1,	38°34.91' N	
		2	75°02.47' W	
H	10 ⁹	2848 + 2,	38°36.17' N	
		3	75°03.00' W	2829-2850

Indian River 20
 Inlet (centerline) 543 + 5
 See appended 1:10,000 enlargement.

543-553

not

appended

Note: Due to the size of the shoals in developments A and G more than one least depth was selected.

*filed with
survey records
CMB*

Overall agreement with charted soundings was good (+ 2 ft. or less). However, in specific areas, changes in the general depth were noted. They are as follows:

- (1) Deepening of close inshore waters, comparison showed a general deepening of 3 to 5 ft. of the charted alongshore soundings. It is recommended that due to the mobility of the bottom, the charted soundings ^{not} be retained on the inshore portion of this survey.
- (2) Shallower than charted depths observed in the vicinity of 38°33' N, 74°59' W. Charte soundings in this area were 3 to 5 ft. deeper than those recorded by this survey. It is recommended that the chart be revised to show these shallower depths.
- (3) Shoaling over a more extensive area in the vicinity of 38°29' N, 75°01' W. It is recommended the chart be revised to show this increase in shoaling; specifically the 30 ft. depth curve in this area.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supercede prior surveys for charting purposes; except for charting shoreline as discussed in Section H.

N. AIDS TO NAVIGATION

Four buoys and one light were located during this survey. The displayed characteristics agreed with those charted for the aids and the 1977 Light List. Agreement with charted positions are tabulated below:

<u>Aid</u>	<u>Charted Position</u>	<u>Observed Position</u>	<u>(Meters/True) Range/Bearing</u>
Buoy "1"	38°36'33" 75°02'46"	38°36'33.2" 75°02'45.7"	9m/44°
Buoy "2"	38°36'33.5" 75°03'27.5"	38°36'33.3" 75°03'19.8"	187m/92°
Buoy "3"	38°36'28.5" 75°03'26.0"	38°36'27.2" 75°03'16.9"	222m/100°
* LE 2410 Light list no. 2410	38°36'32.0" 75°03'36.0"	38°26'32.7" 75°03'23.1"	314m/86°

*Replacement buoy, see paragraph below.

Light list no. 2412

~~LE~~ 2412, located by Mr. J. Shea, Operations Division, Atlantic Marine Center, see appended letter, dated 4 November 1977. ✓

Charted Position = Position hand scaled from Chart 411, 16th Ed., January 29, 1977

Observed Position = Position obtained by this survey.

Range/Bearing = Range and bearing of observed position from charted position.

Though there are differences between charted positions and observed positions this field party observed that all aids adequately serve the mariner. In addition, the Light List warns the mariner that the positions of the buoys are frequently shifted with changing conditions.

One exception to the charted aids was observed by this field party and is described as follows:

*^{List}Light No. 2410, North Jetty Light, Indian River Inlet, Delaware, latitude 38°36.5' N, longitude 075°03.6' W, "not in place at time of field investigation". The light has been destroyed and temporarily replaced with a red, lighted buoy. The buoy light exhibits the same characteristics as the original light listed in the Light List (flashing red, 4 sec.) and is located approximately 40 meters eastward of the seaward end of the

see Verifier's Report pg 3

north jetty. According to the present Commanding Officer of Indian River Inlet Coast Guard station, the light was destroyed in 1975 and the buoy was installed at that time as a temporary replacement. Work is underway to replace the original light. A completion date for replacement is not available. It is felt by this field party that the replacement buoy does adequately serve the mariner, and that no revision to the chart should be made since replacement of the original light is underway.

Note: For landmark revisions to the chart, see the appended NOAA forms 76-40. ✓

O. STATISTICS

	<u>Vessel Number</u>		
	<u>2838</u>	<u>2839</u>	<u>Total</u>
Position numbers used	001-568	2000-3084	1652
Nautical Miles, Sounding lines	101.1	414.9	516
Square Miles Surveyed	6.9	21.8	28.7
Bottom Samples			29
Tide Stations			2

P. MISCELLANEOUS

See comments on scouring at mouth of Indian River Inlet in Section K.

Unusually fast tidal currents present in Indian River Inlet. The Coast Pilot and Tidal Currents Table both describe the currents as being approximately two knots. It is the feeling of this field party that the velocity of these currents is closer to 3 to 4 knots; especially at max. ebb. It is therefore recommended that these currents should be measured and predictions updated. However, as there is no deep draft use of the inlet but an ever increasing recreational boat use, it is suggested that the observation of these currents be at the convenience of the survey.

Q. RECOMMENDATIONS

At the time of this survey, construction of a new sewage outfall was underway at Bethany Beach, Delaware. An above water trestle is being used to lay the sewage line in position. The seaward end of the trestle was located by this survey at latitude $38^{\circ}31'31.0''$ N, longitude $075^{\circ}03'06.5''$ W, present plans are for the trestle to continue eastward another 5220 ft. According to Mr. Jack O'Connor, Project Manager, the trestle is a temporary structure and will be cut off below the ocean bottom when the project is completed (6-8 months from time of survey). As this is a temporary structure and will not cause any lesser depths this field party does not believe the quality of the survey will be affected.

These detached positions (3063-64) have been rejected by verifier. Specific recommendations regarding certain charted features are made in Section K and L.

R. AUTOMATED DATA PROCESSING

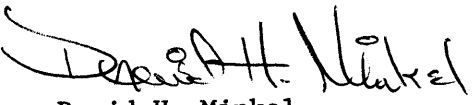
The following hydroplot system programs were used in acquiring and processing the data:

RK 111	Range/Range Real Time Hydroplot	01/30/76
Rk 201	Grid, Signal, and Lattic Plot	04/18/75
RK 211	Range/Range Non Real Time Plot	05/04/76
RK 300	Utility Computations	02/05/76
RK 330	Reformat and Data Check	11/10/72
RK 561	H/P Geodetic Calibration by 3 Point Fix	02/19/75
AM 602	ELINORE	05/20/75

S. REFERENCES TO REPORTS

None

Respectfully submitted for approval;


David H. Minkel
LTJG, NOAA



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA Ship PEIRCE (S-328)
Atlantic Marine Center
Norfolk, Virginia 23510

13 September 1977

3161

Commander
THIRD Coast Guard District
Governors Island
New York, New York 10004

In a recent survey off of Indian River Inlet, Delaware, a dangerous sunken wreck was located. The wreck lies in 40 feet of water covered by 13 feet (field corrected to MLW). The wreck is the F/V CASEY AND BROWN listed in the Local Notice to Mariners No. 52 of 1975. The following chart correction information should be used to revise your position:

Chart No.

Correction

12200 (1109)

Change dangerous sunken wreck PA
at 38°37'N, 75°03'W

12214 (1219)

to

12216 (411)

Dangerous sunken wreck, 13 ft. at
38°37'17.8"N, 75°01'12.4"W

L.N.M. No. 52 of 1975 also reports the wreck is marked (55 gallon drum) and lit. The wreck is no longer marked by any form of buoy.

Carl W. Fisher
Carl W. Fisher
Commander, NOAA

DE NME
DE WTD

R 131317Z SEP 77

FM NORAS PEIRCEXWTER

TO ATO SEVEN EIGHT

CCCC THREE NEW YORK N.Y.

INFO/LANTMARCON NORFOLK VA

BT

UNCLAS

1. DANGEROUS SUNKEN WRECK COVERED BY 13 FT AT MEAN LOW WATER LOCATED:
CHART NUMBER 12216 (FORMERLY C AND GS 4112): LATITUDE 38 DEGREES 37'
17.4"N, LONGITUDE 075 DEGREES 01' 12.4"W; DISTANCE 2.03 NAUTICAL MILES
BEARING 052 DEGREES FROM THE INDIAN RIVER INLET NORTH JETTY BEACON.
THE WRECK IS THE F/V CASEY AND BROWN PREVIOUSLY REPORTED AS POSITION
APPROXIMATE AT LATITUDE 38 DEGREES 37'N, LONGITUDE 075 DEGREES 03'W
IN THE LOCAL NOTICE TO MARINERS NUMBER 52 OF 1975.

2. DETAILED CHART CORRECTION INFORMATION WILL FOLLOW IN A LETTER TO
THE THIRD COAST GUARD DISTRICT.

BT

FOR 131211Z 14 . 747Z RATTY INT OSL ONE MORE R KKKKKZA H
THE 007 MME RR OSL EFF OSL ORU K



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY

NOAA Ship PEIRCE (S-328)
Atlantic Marine Center
Norfolk, Virginia 23510

14 September 1977

3161

TO: Chief, Marine Chart Division (C-322)
THRU: Director, Atlantic Marine Center
FROM: Commanding Officer
NOAA Ship PEIRCE (S-328)

SUBJECT: Chart Correction to 12216 (411) - Dangerous Sunken Wreck

While conducting survey H-9714, a dangerous sunken wreck was located in the vicinity of Indian River Inlet, Delaware. The wreck lies in forty feet of water covered by 13.7 feet (field corrected to MLW). The wreck is the F/V CASEY AND BROWN listed in Local Notice to Mariners No. 52 of 1975. The following chart correction information should be used for revision:

CHART NO.

CORRECTION

12200 (1109)

Delete:

12214 (1219)

Dangerous sunken wreck, PA at
38°37'N, 75°03'W

12216 (411)

Show:

Dangerous sunken wreck, 13 ft. at
38°37'17.8"N, 75°01'12.4"W

After an extensive wire drag was conducted at the charted position with negative results, an interview was held with Mr. Marvel, a local boat owner/diver who had at one time attempted to raise the wreck. Mr. Marvel supplied both visual ranges and Loran A rates for the wreck site and confirmed that the wreck was the F/V CASEY AND BROWN. Electronic ranges were computed for the Loran A position. A combination of these ranges and the supplied visual ranges were used to find the wreck on J.D. 254. The exact position was determined by anchoring above the wreck and taking a visual fix. On J.D. 255, divers dove on the wreck and determined a least depth of 13.7 feet by using standard leadline methods. The wreck was found in



tact, laying on her keel with a slight list. Local Notice to Mariners No. 52 of 1975 reported the sight as being marked. No buoy of any form was found on the site.

See attached chartlet for position of wreck and incorrect position of symbol presently on chart.

Carl W. Fisher

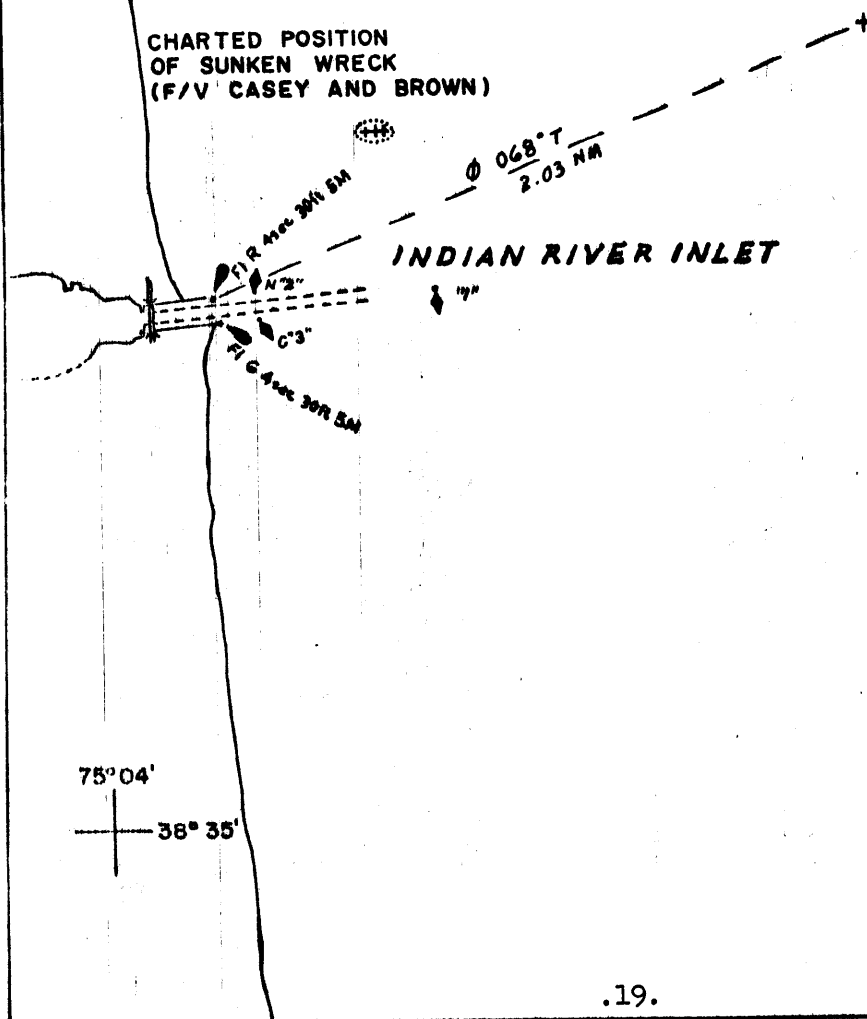
Carl W. Fisher
Commander, NOAA

CHART CORRECTION
 OPR-516
 DELMARVANC
 11-12 SEPT, 1977
 NOAA Ship PEIRCE
 CARL W. FISHER, CDR NOAA
 COMDG.
 From Chart 12216 (formerly C&GS 411)

75° 01'
 38° 39'

ACTUAL POSITION OF
 DANGEROUS SUNKEN WRECK
 (F/V CASEY AND BROWN)
 Lat. 38° 37' 17.8" N
 Long. 075° 01' 12.4" W

CHARTED POSITION
 OF SUNKEN WRECK
 (F/V CASEY AND BROWN)



FIELD TIDE NOTE H-9714

Field tide reduction was based on predicted tides from Lewes, Delaware. Tides were zoned to the working area for PE-20-4-77 using correctors furnished with the project instructions. The predicted tides were interpolated at 0.2 ft. intervals using program AM 500, version dated 11/10/72.

The gages listed on the attached request for verified hourly heights were operating during the survey. The gage at Rehobeth Beach, Delaware was omitted per Change No. 12 to Project Instructions dated September 9, 1977.

VELOCITY TAPE LISTING

H-9714

Table No. 1 (2838)

000097 0 0018 0001 000 283800 200477
000151 0 0020
000205 0 0022
000259 0 0024
000314 0 0026
000367 0 0028
999999 0 0030

Table No. 2 (2839)

000130 0 0018 0002 000 283900 200477
000187 0 0020
000244 0 0022
000302 0 0024
000358 0 0026
000416 0 0028
999999 0 0030

Table No. 3 (2839)

000098 0 0018 0003 000 283900 020477
000148 0 0020
000198 0 0022
000250 0 0024
000302 0 0026
000352 0 0028
000404 0 0030
000454 0 0032
999999 0 0034

SIGNAL TAPE LISTING

H-9714

STA	Q	LATITUDE			LONGITUDE			CRT	ELEV	F. KHZ
034	7	38	19	37617	075	05	00013	254	0000	000000
035	7	38	19	37993	075	05	03942	254	0000	000000
037	7	38	21	19698	075	04	24915	254	0000	000000
039	7	38	30	02923	075	03	10023	254	0000	000000
040	7	38	30	29880	075	03	15075	254	0000	000000
041	7	38	30	32668	075	03	11006	254	0000	000000
042	7	38	32	01769	075	03	15484	254	0000	000000
043	7	38	32	21683	075	03	16439	254	0000	000000
044	7	38	33	37592	075	03	36798	254	0000	000000
045	7	38	34	34226	075	03	37738	254	0000	000000
046	7	38	34	46641	075	03	33774	250	0000	000000
047	7	38	35	18079	075	03	33699	254	0000	000000
048	7	38	35	19213	075	03	40943	254	0000	000000
049	7	38	36	24001	075	03	48849	254	0000	000000
050	7	38	36	24248	075	03	47820	254	0000	000000
051	7	38	35	18417	075	03	41812	139	0000	000000
052	7	38	32	16041	075	03	31782	139	0000	000000
053	7	38	38	01377	075	04	02455	139	0000	000000
054	7	38	28	04598	075	03	05780	254	0000	000000
055	7	38	28	09033	075	03	01179	254	0000	000000
056	7	38	28	52642	075	03	07490	254	0000	000000
057	7	38	30	20646	075	03	15298	139	0000	000000
058	7	38	32	21169	075	03	16698	254	0000	000000
059	7	38	40	40937	075	04	17395	139	0000	000000
060	7	38	43	00667	075	04	57666	139	0000	000000
061	7	38	36	27476	075	03	34171	243	0000	000000

LISTED ON THE FOLLOWING PAGE ARE THE NAMES AND REFERENCES OF THE SIGNALS USED BY THIS SURVEY.

SIGNAL NAME LISTING

H-9714

<u>Signal Number</u>	<u>Name</u>	<u>Source</u>
041	H-7-DL-77	AMC
043	H-5-DL-77	AMC
046	Cotton Patch 2	Vol.II pg. 107
050	CH-5-77	AMC
051	Bethany Beach Observation Tower #4	Vol.II pg. 110
052	Bethany Beach Municipal Water Tank	Vol.II pg. 104
053	Indian River Inlet Coast Guard Cupola	Vol.II pg. 131
055	9-01-77	AMC
057	Fenwick Island Observation Tower #3	Vol.II pg. 98
058	H-5-DL-77 Offset	PEIRCE
059	Round	Vol.II pg. 135
060	Rehoboth Beach Municipal Water Tank	Vol.II pg. 144

Vol.II = Delaware Horizontal Control data, volume and page.

AMC = Stations located by AMC field party

PEIRCE = Station located by PEIRCE concurrent with this survey.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
ATLANTIC MARINE CENTER

November 4, 1977

CAM102/JDS

TO: Commanding Officer
NOAA Ship PEIRCE
Charles H. Nixon
FROM: Charles H. Nixon
Chief, Operations Division
SUBJECT: Indian River South Jetty Light

Indian River South Jetty Light was located by third-order triangulation methods. Position is

Lat.: 38-36-27.4759 ✓

Long.: 75-03-34.1705-

Data filed in CAM102 is missing that would verify the light's position at third order accuracy. However, information substantiates the location to have been observed by fourth-order triangulation methods. Consequently, during the survey, the feature, not used as a signal, was shown by cartographic code 070 (a lighted structure, not used as a signal and located by less than third order accuracy) on the survey.



NOAA Form 76-45
(8-74)

Replace USGS Form 567.

☐ TO BE CHARTED
☐ TO BE REVISED
☒ TO BE DELETED

REPORTING UNIT
(Field Party, Ship or Office)

NOAA Ship PEIRCE S-328 Delaware

HAVE ☒ HAVE NOT ☐ been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.

OPR - 516

NA

H-9714

SURVEY NUMBER

DATUM

North American 1927

POSITION

Indian River Inlet

LOCALITY

STATE

DATE

11/3/77

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY

- ☒ HYDROGRAPHIC PARTY
☐ GEODETIC PARTY
☐ PHOTO FIELD PARTY
☐ COMPILATION ACTIVITY
☐ FINAL REVIEWER
☐ QUALITY CONTROL & REVIEW
☐ COAST PILOT BRANCH
(See reverse for responsible person)

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

CHARTING NAME

DESCRIPTION

(Record reason for deletion of landmark or aid to navigation.
Show triangulation station names, where applicable, in parentheses)

LATITUDE
° / ' " D.M. Meters

LONGITUDE
° / ' " D.P. Meters

FIELD

CHARTS
AFFECTE

TOWER
Tower was reported to be a 60 ft. steel tower by a 1962 survey, in addition it was used by that survey as a signal. This party inspected the site from both seaward and land; the tower is no longer there.

33 75 03 46

12214
12216

Ref. L-1873(77)

APPROVAL SHEET

The field work on survey H-9714 (PE-20-4-77) was carried out under my immediate daily supervision which included participation in data acquisition, processing and checking. This report, the field sheet and all accompanying field records have been reviewed by me and are approved. The survey is complete and adequate to supercede prior surveys.



Carl W. Fisher, CDR, NOAA
Commanding Officer
NOAA Ship PEIRCE (S-328)

July 5, 1978

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) 855-9208 Bethany Beach, De.

Period: August 18 - September 22, 1977

HYDROGRAPHIC SHEET: H-9714

OPR: 516

Locality: Off Bethany Beach, Delaware

Plane of reference (mean ~~lower~~ low water): 7.9 ft.

Height of Mean High Water above ^{3.6 ft.} plane of Reference is

Remarks: Recommended zoning:

1. North of $38^{\circ}37'$ apply range ratio xl.08
2. South of $38^{\circ}37'$ zone direct.

Don M. Spillner
Chief, Tides Branch

GEOGRAPHIC NAMES

H-9714

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 ATLAS	G RAND McNALLY ATLAS	H U.S. LIGHT LIST	K
BETHANY BEACH (P.I.)									1
FENWICK ISLAND (P.I.)									2
INDIAN RIVER INLET									3
FENWICK ISLAND									4
SOUTH BETHANY									5
									6
									7
									8
									9
									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25

Approved:

Chas. E. Harrington

Chief Geographer - C3x5

30 APRIL 1979

APPROVAL SHEET
FOR
SURVEY H- 9714

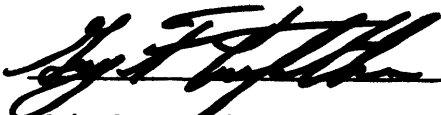
- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verifier's Report.

Date:

3/7/77

Signed:

Title:


Chief, Verification Branch

HYDROGRAPHIC SURVEY STATISTICS

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

RECORD DESCRIPTION			AMOUNT	RECORD DESCRIPTION			AMOUNT
SMOOTH SHEET			1	BOAT SHEETS & PRELIMINARY OVERLAYS			3
DESCRIPTIVE REPORT			1	SMOOTH OVERLAYS: POS. ARC, EXCESS			2
DESCRIP- TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS	
ENVELOPES	2						1- of misc. DATA
CAHIERS			with 1 fathoms				
VOLUMES	4						
BOXES							

T-SHEET PRINTS (List)

1- calibration notebook

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	TOTALS
POSITIONS ON SHEET			1652
POSITIONS CHECKED		173	
POSITIONS REVISED		5	
SOUNDINGS REVISED		47	
SOUNDINGS ERRONEOUSLY SPACED		4	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	5		
VERIFICATION OF CONTROL	1		
VERIFICATION OF POSITIONS		12	
VERIFICATION OF SOUNDINGS		46	
COMPILATION OF SMOOTH SHEET		30	
APPLICATION OF TOPOGRAPHY		0	
APPLICATION OF PHOTOBATHYMETRY		0	
JUNCTIONS		5	
COMPARISON WITH PRIOR SURVEYS & CHARTS		5	
VERIFIER'S REPORT		10	
OTHER		1	
TOTALS	6	109	115
Pre-Verification by M.B. Hickson	Beginning Date 12/05/77	Ending Date 12/05/77	
Verification by S. Kelly, J.S. Bradford	Beginning Date 11/02/78	Ending Date 02/08/79	
Verification Check by R.G. Roberson	Time (Hours) 5	Date 02/09/79	
Marine Center Inspection by Hydrographic Inspection Team (AMC)	Time (Hours) 8	Date 03/07/79	
Quality Control Inspection by G. Myers	Time (Hours) 43	Date 4/27/79	
Requirements Evaluation by B. Bellis	Time (Hours) 3	Date 5/10/79	

REGISTRY NO. H-9714

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. _____

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 _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

ATLANTIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO. H-9714

FIELD NO.: PE-20-4-77

Delaware, Delaware Coast, Fenwick Island to Indian River Inlet

SURVEYED: 18 August through 22 September 1977

SCALE: 1:20,000

PROJECT NO.: OPR-516

SOUNDINGS: Ross Digital
Echo Sounder

CONTROL: Del-Norte
(Range-Range)
(Range-Azimuth)

Chief of Party	C. W. Fisher
Surveyed by	C. W. Fisher
.....	C. Molyneaux
.....	K. Schnebele
.....	P. Chelgren
.....	D. Minkel
.....	P. McGrath
.....	K. Cox
.....	R. McCann
Automated Plot by	XYNETICS 1201
Verified and Inked by	J. S. Bradford
	February 8, 1979

1. Introduction

No unusual problems were encountered during verification. The red changes in the Descriptive Report were made by the verifier. The projection parameters have been revised and inserted in the Descriptive Report.

2. Control and Shoreline

a. The control is adequately described in Sections F. and G. of the Descriptive Report.

b. Shoreline originates from TP-00180 Class I, unreviewed photogrammetric manuscript of 1970⁷² and was reduced to 1:20,000 and applied to H-9714 in black ink. The remainder of the shoreline was hand transferred in brown and is for orientation purposes only.

3. Hydrography

a. Depths at crossing are in good agreement.

b. The standard depth curves are adequately delineated on the majority of the sheet. In the shoreline area from latitude 38°34.30' to longitude 38°28.30', hydrographic lines

extending closer to shore and a line parallel to the shore-line would have been preferred to better delineate the 6 and 12 foot curve.

c. The development of bottom configuration and least depths ~~is~~ adequate with the following exception:

In the area of latitude 38°33.10', longitude 75°02.30' depths from prior survey H-8596 were brought forward because of a lack of development by the hydrographer. A reduction in line spacing in this area would have better delineated these features.

4. Condition of Survey

The sounding records, field sheet and accompanying overlays, hydrographic records, and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual, with the following exception:

a. In the development of the Fish Haven located approximately latitude 38°34.6', longitude 75°02.9', control stations 43 and 55 were used with less than 12° intersection. The hydrographic data was retained because the depths were in harmony with the main scheme hydrography.

b. Daily field checks of the Del-Norte were not made.

5. Junctions

An adequate junction was effected with the following contemporary surveys:

H-9136	(1970)	1:20,000	to the north
H-9578	(1975)	1:20,000	to the east

H-9764 (1978) 1:20,000 could not be used as a junctional survey because smooth tides had not been applied at the time of verification; however, a comparison between H-9714 and H-9764's field sheet showed good agreement. The junction with H-9764 (1978) will be effected when H-9764 is processed.

6. Comparison with Prior Surveys

H-8710	1962	1:10,000
H-8596	1961-63	1:10,000
H-4942	1929	1:20,000
H-4164	1920	1:40,000
H-4093	1919	1:20,000

These surveys, taken together, cover the common area of the present survey. In addition to the comments by the hydrographer in Section K. of the Descriptive Report a comparison of the present survey with the prior surveys reveals no major differences overall, with the exception of Indian River Inlet.

In the area of Indian River Inlet and immediately south, H-4942 (1929) shows considerable disagreement, obviously because the survey is prior to dredging. However, H-8596 (1961) shows the same area to be in disagreement with the present survey also. The spoil area south of the inlet reveals a shoal with a least depth of 4 feet on the prior survey. This shoal was developed on the present survey, and it appears that this shoal has migrated southeasterly with a least depth of 9 feet at latitude $38^{\circ}36.15'$, longitude $75^{\circ}03.0'$. *This area superseded by H-8710.*

Seven (7) soundings were brought forward from H-8596 (1961) in the approximate area of latitude $38^{\circ}33'30''$, longitude $75^{\circ}02'30''$. These additional soundings aid to delineation of finger-like shoals in this area.

With the addition of the seven soundings brought forward from H-8596, the present survey is adequate to supersede the above prior surveys within the common area.

7. Comparison With Chart #12214 (30th Edition, March 19, 1977)
#12216 (16th Edition, January 27, 1977)

a. Hydrography

The charted hydrography originates primarily with the previously discussed prior surveys, which require no further discussion.

Attention is directed to the following charted features:

Obstruction, Fish Haven, (authorized minimum depth 30 ft) latitude $38^{\circ}34.6'$, longitude $75^{\circ}02.8'$ this feature was developed on the present survey, and a least depth of 21 was obtained. ~~It is recommended that this be charted as Obstruction, Fish Haven 21 feet.~~ *Referred to compiler for deletion.*

PSR #17 and PSR #18 are adequately disposed of in Section K. of the Descriptive Report.

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

b. Aids to Navigation

The aids to navigation on the present survey are in agreement with their charted position, with the exception of Indian River Inlet North Jetty Light which was destroyed and a temporary red lighted buoy placed approximately 40 meters eastward.*

The buoy shown on the sketch sheet graphically plots about 375 meters eastward of the charted position of the light.

8. Compliance With Instructions

This survey adequately complies with the Project Instructions.

9. Additional Field Work

This is a good basic survey; additional work is not recommended.

Inspection Report

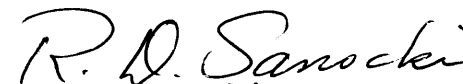
H- 9714

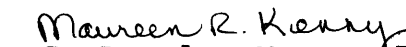
Any verification errors regarding procedures and presentation of survey data detected during inspection by the Hydrographic Inspection Team have been corrected before submission for administrative approval. HIT comments regarding quality of field work, compliance with instructions, and adequacy of the survey have been incorporated within the Verifier's Report.


Examined and Approved:
Hydrographic Inspection Team
Date: 7 March 1979


Robert A. Trauschke, CDR, NOAA
Chief, Processing Division

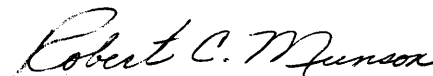
Absent
Carl W. Fisher, CDR, NOAA
Chief, Operations Division


R. D. Sanocki
Technical Assistant
Processing Division


C. Douglas Mason, LT, NOAA
Chief, Electronic Data
Processing Branch


Harry R. Smith
Team Leader
Verification Branch

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

April 27, 1979

OA/C352:GKM

A. J. Patrick
TO: A. J. Patrick
Chief, Hydrographic Surveys Division
G. K. Myers
FROM: G. K. Myers
Chief, Quality Control Branch
SUBJECT: Quality Control Report for H-9714 (1977), Delaware, Delaware Coast, Fenwick Island to Indian River Inlet

A quality control inspection of H-9714 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths and navigation hazards, shoreline transfer, decisions and actions by the verifier, and cartographic presentation of data.

A tide station located in latitude $38^{\circ}32.3'$, longitude $75^{\circ}03.2'$ at the edge of a charted groin recorded actual tidal data during the present survey. The position of this station from the Tides and Water Levels Division was shown on the smooth sheet during quality control.

The position of Indian River Inlet South Jetty Light at latitude $38^{\circ}36'27''$, longitude $75^{\circ}03'34''$ was properly identified on the smooth sheet of the present survey during quality control. Records were not available to substantiate this feature's position at the time of verification.

Description of two charted landmarks located by third-order triangulation methods prior to the date of the present survey are noted on the smooth sheet.

In general the present survey was found to conform to National Ocean Survey standards and requirements except as discussed in the Verifier's Report, the HIT Report, and as follows:

1. The charted controlling depth note for the Indian River Inlet Channel based on data furnished by a miscellaneous source prior to the date of the present survey should have been discussed in the Verifier's Report. Present soundings are not in conflict with the charted controlling depth.
2. The least depth of 21 feet that is stated in the Verifier's Report to fall in the area of the charted fish haven at latitude $38^{\circ}34.6'$, longitude $75^{\circ}02.8'$ was not found in the survey records or mentioned in the hydrographer's part of the Descriptive Report. A 21-foot sounding



is not plotted at this location on the smooth sheet. It is recommended that this feature be retained as charted.

3. A comparison with H-8596 and H-4942 in the area of Indian River Inlet and immediately south of this channel was unnecessarily discussed in the Verifier's Report.

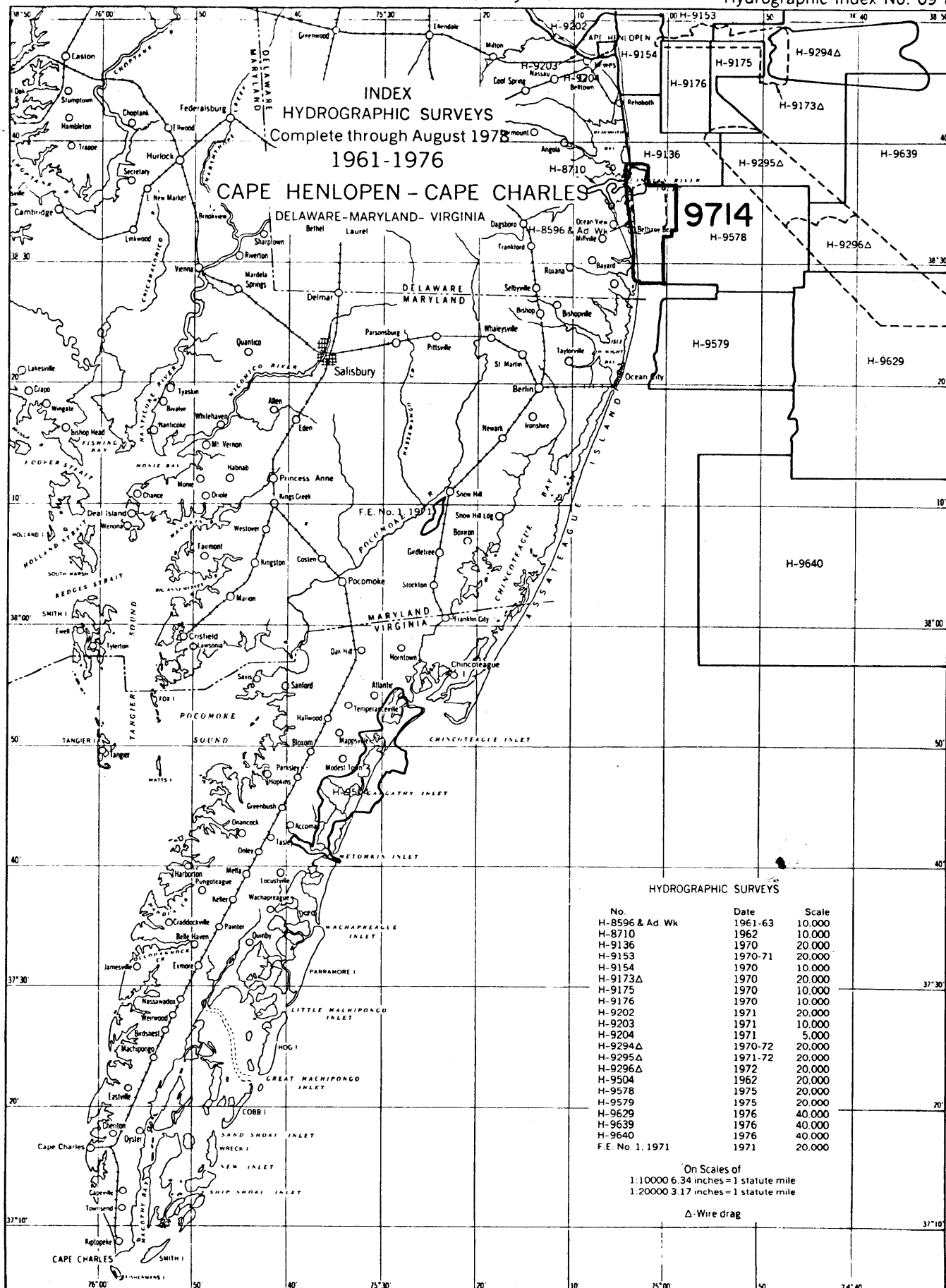
cc:

OA/C35

OA/C351

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 69 K



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO.

H-9714

INSTRUCTIONS

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

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

[illegible]