

9313

Diag. Cht. No. 1218-2

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. WH-20-3-72
Office No. H-9313

LOCALITY

State Delaware
General Locality .. Delaware Bay
Locality Mispillion River & Entrance

1972

CHIEF OF PARTY
C. H. Nixon

LIBRARY & ARCHIVES

DATE August 29, 1980

Area 2
CHT:
12304

9313

DESCRIPTIVE REPORT

To Accompany Hydrographic Survey H-9313

Field No. WH 20-3-72

DELAWARE BAY

1972

Scale 1:20,000

NOAA Ship WHITING

Charles H. Nixon, CDR, NOAA, Commanding

HYDROGRAPHIC TITLE SHEET

H-9313

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.

WH 20-3-72

State Delaware

General locality Delaware Bay

Locality South of Mispillion River Entrance

Scale 1:20,000 & 1:10,000

Date of survey 6/3/72 - 10/9/72

28 February 1972 and CHANGE

Instructions dated NO. 1 dated 24 March 1972 Project No. OPR-492-WH-72

Vessel Launches WH-1 and WH-2, Whaler No. 2

Chief of party CDR Charles H. Nixon

Surveyed by CDR Nixon, LCDR Burke, LT LeRoy, LTJG Hoge, LTJG Servais, ENS Kaiser, ENS Decker, CST Hill

Soundings taken by echo sounder, ~~and back~~ pole DE-723D echosounders

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Protracted by _____

Automated plot by WHITING System
Verified by D.V. Mann 8-1-80

Soundings penciled by WHITING Shipboard System

Soundings in ~~feet~~ feet at MLW ~~MEAN~~

REMARKS: The area of boatsheet WH 20-3-72 requires two WHITING computer plotter sheets to cover; WH 20-3N-72 and WH 20-3S-72. Hydrography was accomplished only on WH 20-3S-72 during the 1972 field season. This title sheet is for the south half of WH 20-3-72. Time meridian of this survey was 0°. (GMT)

App'd. to st'ds. 7-22-81

A. PROJECT

This survey was accomplished in accordance with PROJECT INSTRUCTIONS--OPR-492-WH-72--DELAWARE BAY, dated February 28, 1972 and CHANGE NO. 1, Supplement to Instructions, dated March 24, 1972.

B. AREA SURVEYED

The area surveyed is bounded on the west by the Delaware shoreline from Fowler Beach north to the Mispillion River Jettys. The northern boundary of the sheet extends along a line east of the Mispillion River Jettys to approximately two miles offshore. The eastern edge of the sheet is the junction with ~~prior~~ survey WH 20-2-71, H-9202, 1971, which extends southward to the shoreline just south of Fowler Beach.

C. SOUNDING VESSELS

The sounding vessels used were NOAA Ship WHITING's launches WH-1 and WH-2. In addition, shoreline was run by the ship's Boston Whaler No. 2.

D. SOUNDING EQUIPMENT

The sounding instruments used were Raytheon DE-723D survey fathometers. Launch 1, used survey fathometer number 37018 and launch 2 used survey fathometer number 37019. The ship's Boston Whaler No. 2 used a sounding pole for the shoreline work.

Barchecks and leadline comparisons were taken in the area of the survey as often as sea conditions permitted. The launch fathometer operators continually checked for proper initial settings, stylus arm length, and A-F scale checks. Nansen and TDC casts were taken frequently in the area of the survey in water as deep as that encompassed by the survey as an additional source of sounding corrections.

See
Verification
Report

Tide correctors, based upon predicted tides for the Mispillion River entrance, were applied to all soundings on WH 20-3S-72. H-9313
A tide gage was maintained at the Mispillion River entrance for obtaining smooth tide data.

E. SMOOTH SHEET

The smooth sheet will be plotted on the computer plotter system at the Atlantic Marine Center, Norfolk, Virginia.

H-9313
Boatsheet WH 20-3-72 was subdivided into two plotter sheets, WH 20-3N-72 and WH 20-3S-72. It was the latter of the two,

(Mispillion River)
1:10,000

WH 20-3S-72 which was completed and is the subject of this report. WH 20-3N-72 will be completed at a later date. ON 2/13/75
this was considered a completed survey.

F. CONTROL

Both WHITING launches WH-1 and WH-2 ran visual hydrography on sheet WH 20-3S-72. In addition Boston Whaler No. 2 ran the visual ^(H-9313) controlled shoreline in the area.

The control, a line of traverse stations, was established by Photo Party 62 and ship's personnel. Tripods were built on all the relevant monumented traverse stations, while banners were constructed on the secondary points of the traverse.

G. SHORELINE

The shoreline on the boatsheet was transferred from shoreline Manuscript TP-00058, dated October 1969. The low water line was verified by sounding lines run by Boston Whaler No. 2, while the high water line was verified by Photo Party 62.
See Verifiers Report

H. CROSSLINES

Crosslines composed 5.2% of the total length of main sounding lines. The agreement between the crosslines and the main system of lines was excellent. *See Verifiers Report*

I. JUNCTIONS

Agreement in depths at the eastern junction with survey WH 20-2-71, H-9202, 1971 was excellent. Soundings agreed or were within one foot of each other. *See Verifiers Report* ^{+ or - 1 to 2 ft. differences, partial butt junction made during G.C.I.}

J. COMPARISON WITH PRIOR SURVEYS

Comparison with the prior survey of 1883, Registry No. 1582 was made. The basic line spacing on the old survey was very wide, however, the agreement between the surveys was very good. The maximum difference between soundings was two feet.

Pre-Survey Review Items: The 3 ft. circled sounding located just off the Mispillion Jetty at Lat. $38^{\circ}56'05.0''N$, Long. $75^{\circ}16'30.0''W$ was verified by launch WH-1 on 195 day. This depth is still the controlling depth for the approach to the jetty. The hydrographer recommends this sounding be retained on the chart. *See Verifiers Report*

✓ JPS

The 5 ft. circled sounding at Lat. 38°55'12.0"N, Long. 75°16'32.0"W was investigated by WH-1 on 188 day. The shoalest soundings found within this area were 6 ft. depths located just ~~south~~ ^{North} of the circled 5 ft. sounding. *See Verifiers Report* ^{made w/ adequate development 7AS}

K. COMPARISON WITH THE CHART

The boatsheet was compared with the 18th Edition of Chart No. 1218, dated September 25, 1971 at a scale of 1:80,000.

Agreement was excellent throughout the entire area encompassed by the boatsheet. A two-foot discrepancy was maximum error of the agreement. *Concur*

L. ADEQUACY OF THE SURVEY

The survey is complete and adequate to supersede all prior surveys for charting purposes. *See Verifiers Report*

M. AIDS TO NAVIGATION

The following non-floating aids to navigation are located within the area of the survey:

| <u>NAME</u> | <u>CHARACTERISTIC</u> |
|--|----------------------------|
| Mispillion South Jetty Light | F1 R 4 sec. 26 ft. 10m "1" |
| Mispillion Lighthouse River Light | F1 4 sec. 67 ft. 9m |

These aids were considered adequate to serve the purpose for which they were established. *Concur*

N. STATISTICS

| <u>Sounding Vessel</u> | <u>Miles of Sounding Line</u> | <u>No. of Bottom Samples</u> | <u>No. of Positions</u> |
|------------------------|-------------------------------|------------------------------|-------------------------|
| WH-1 | 56.9 | 2 | 302 |
| WH-2 | 45.8 | 0 | 296 |
| Large Whaler | 37.4 | 0 | 228 |
| TOTAL | 140.1 N.M. | 2 | 826 |

Area Surveyed = 5½ Square Nautical Miles

Percent of Crosslines = 5.2%

O. MISCELLANEOUS

None.

P. RECOMMENDATIONS

None.

Q. REFERENCES TO REPORTS

1. Corrections to Echo Soundings Report 1972, Project OPR-492-WH-72
 2. Reconnaissance Survey Mispillion River Jetty to Milford Report 1972, Project OPR-492-WH-72
-

I

356 38 46 5355 075 07 0011
476 38 50 1849 075 13 3347
496 38 52 2426 075 15 3234 LYNCH, 1971 ✓
500 38 52 3749 075 15 5044 ✓
504 38 52 5189 075 16 0908 ✓
505 38 53 0047 075 16 2115 ✓
506 38 53 1175 075 16 3234 ✓
508 38 53 2048 075 16 3981 TOUGH, 1971 ✓
509 38 53 4186 075 17 0078 ✓
512 38 53 3572 075 16 5646 ✓
516 38 53 5161 075 17 1360 ✓
517 38 53 5363 075 17 1579 ✓
520 38 54 1422 075 17 4020 ✓
524 38 54 2768 075 17 5508 ✓
528 38 54 4592 075 18 1532 ✓
532 38 55 1049 075 18 3435 ✓
536 38 55 2006 075 18 4250 SHAW, 1971 ✓
540 38 55 2872 075 18 5124 ✓
544 38 55 3725 075 18 5702 ✓
548 38 55 4741 075 19 0394 ✓
552 38 55 5902 075 19 0662 ✓
556 38 56 0502 075 19 2542 Trout 1971 ✓
560 38 56 0615 075 19 0477 RAYDIŠT, 1968 ✓

570 38 56 5042 075 18 5569 MISPELLION FLASHING LIGHT, 1933 ✓
572 38 56 1124 075 17 5468 MISPELLION River Jetty LIGHT, 1933 ✓
580 39 00 0074 075 19 4396

10 JULY 73

JUL 10 1973

VELOCITY TABLE NO. 8, WH-1, H9313, WH-20-5-72

000049 0 0000 0002 000 293100 000313
000107 0 0002
000166 0 0004
000225 0 0006
000285 0 0008
000349 0 0010
000418 0 0012
000500 0 0014
000620 0 0016
000700 0 0018
999999 0 0018

JUL 10 1973

VELOCITY TABLE NO. 12, WH-2, H9313, WH-20-3-72

000049 0 0000 0012 000 293200 009313
000107 0 0002
000166 0 0004
000225 0 0006
000285 0 0008
000349 0 0010
000418 0 0012
000500 0 0014
000620 0 0016
000700 0 0018
999999 0 0018

10 JULY 73

JUL 10 1973

VELOCITY TABLE NO. 8, WH-1, H9313, WH-20-5-72

000049 0 0000 0002 000 293100 009313

000107 0 0002

000166 0 0004

000225 0 0006

000285 0 0008

000349 0 0010

000418 0 0012

000500 0 0014

000620 0 0016

000700 0 0018

~~000999 0 0018~~

JUL 10 1973

VELOCITY TABLE NO. 12, WH-2, H9313, WH-20-3-72

000049 0 0000 0012 000 293200 009313

000107 0 0002

000166 0 0004

000225 0 0006

000285 0 0008

000349 0 0010

000418 0 0012

000500 0 0014

000620 0 0016

000700 0 0018

~~000999 0 0018~~

U. S. DEPARTMENT OF COMMERCE 2/26/73
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 7(-12)): Milford⁽²⁾
Mispillion Lighthouse⁽¹⁾

Period: June 3-July 14; Sept 30, Oct 9, 1972

HYDROGRAPHIC SHEET: H-9313

OPR: 492

Locality: Mispillion River, Delaware Bay

Plane of reference (mean ~~LOW~~ low water): Milford 2.4 ft.
Mispillion Light 2.0 ft.

Height of Mean High Water above Plane of Reference is Milford 3.0 ft.
Mispillion Light 3.9 ft.

Remarks:

Hourly heights have been revised in-red and verified as follows:

Julian Day Zoning: Mispillion River

155
156
283

There is a time difference of 2.4 hrs. between the earlier tide at the entrance and the station at Milford.

In addition the range at the entrance is 3.9 ft. while the range at Milford is 3.0 ft.

Due to lack of information between these two sites, it must be assumed that a linear change in time and range can be applied to correct hourly heights for reduction of soundings.

Robert A. Cummings
Chief, Tides Branch

ADDITION TO DESCRIPTIVE REPORT

WH-20-3S-72

MISPILLION RIVER

1972

SCALE 1:10,000

NOAA SHIP WHITING

Charles H. Nixon, CDR, NOAA, Commanding

This survey was accomplished in accordance with project instructions for OPR-492 dated 21 May 1971 and amended 1 July and 5 August 1972. The survey was done on September 30, 1972 by Whiting Launch # 1. It consists of 42 positions and 94 miles of sounding line, *is considered a reconnaissance survey* 7.P.S.

The area surveyed was that portion of the Mispillion River from the Mispillion South Jetty Light in Delaware Bay, to the Highway 14 Bascule Bridge which crosses the river. The river is located approximately 15 miles NW of Lewes, Delaware and trends east-west. The survey is bounded by longitude $75^{\circ} 25' 30''$ on the west, latitudes $38^{\circ} 54' 30''$ and $38^{\circ} 57' 58''$ on the south and north, and by contemporary survey WH-20-3S-72 # H-9313 on the east. Sounding equipment consisted of a Raytheon DE-723-D Fathometer, serial number 37018.

Control for this survey consisted of picking readily identifiable points, usually drainage ditches, off TP Sheets 00057 & 00058, and using these points for "see-boatsheet" hydro. These fixes were marked on the fathogram and soundings were recorded every 15 seconds.

To the hydrographers knowledge the Mispillion River has never been surveyed. A limited number of small boats use the river and the survey should be adequate for their purpose. The tide range on this river is considerable and greatly affects the water depth.

Actual tides were requested in December 1972 (see attached letter copy) so that reduced soundings could be plotted by ship's personnel. At this time, May 1, 1973 the tide data has not arrived and the forwarded manuscripts have fixes plotted only,

Submitted#

Theodore C. Kaiser

Theodore C. Kaiser
LTJG NOAA

Forwarded:

Jeffrey G. Carlen
Jeffrey G. Carlen
CDR. NOAA

For Charles H. Nixon
CDR. NOAA

TIDE NOTE

Daily predicted tides for Breakwater Harbor, Delaware with appropriate correctors applied for the Mispillion River Entrance were used to obtain predicted tides for the boatsheet.

A tide station was installed by ship's personnel on June 24, 1972 at Lat. $38^{\circ} 56' 51''$ N, Long $75^{\circ} 18' 56''$ W. Hourly heights for the hours of hydrography were scaled and logged. The time meridian was 0° (GMT). The hourly heights were sent to Rockville for verification and a copy of the logged unverified hourly heights is included in this report. Hydrography was done on two days before the gage was installed. The Tides Division has been requested to furnish inferred hourly heights for these days - 155 and 156.

A copy of the letter to the Chief, Tides Division is enclosed in this report. The letter requests the two days of inferred tides, the value of MLW on the staff, verification of the hourly heights, and time and height differences to be applied for smooth plotting.

GEOGRAPHIC NAME LIST

Cedar Beach

Fowler Beach

Mispyllion River

Slaughter Beach

Cedar Neck

APPROVAL SHEET

Submitted by,

John C. Vascopale
Robert Hoge
LTJG, NOAA

Supervision of field and office work on this hydrographic survey was continuous on a day to day basis to insure completeness of the survey and that the work done was in accordance with the instructions.

Approved/Forwarded

Charles H. Nixon
Charles H. Nixon
CDR, NOAA
Commanding Officer, NOAA Ship WHITING

GEOGRAPHIC NAMES

H-9313

| Name on Survey | Source of Information | | | | | | | | | | |
|-----------------------|-----------------------|------------------------|--------------------------|------------------------|---------------|-------------------|----------|-------|-----------------|----|--|
| | A | B | C | D | E | F | G | H | K | | |
| | ON CHART NO. | ON PREVIOUS SURVEY NO. | CON U.S. QUADRANGLE MAPS | FROM LOCAL INFORMATION | ON LOCAL MAPS | P.O. GUIDE OR MAP | RANDOMLY | ATLAS | U.S. LIGHT LIST | | |
| Cedar Beach (Isale) | | | + | | | | | | | 1 | |
| Fowler Beach | | | + | | | | | | | 2 | |
| Mispillion River | | | + | | | | | | | 3 | |
| Slaughter Beach (Pp) | | | + | | | | | | | 4 | |
| Cedar Neck | | | | | | | | | | 5 | |
| Cedar Creek | | | x | | | | | | | 6 | |
| Milford | | | + | | | | | | | 7 | |
| Deep Branch | | | x | | | | | | | 8 | |
| Swan Creek | | | | | | | | | | 9 | |
| Fishing Branch | | | x | | | | | | | 10 | |
| Beaverdam Branch | | | x | | | | | | | 11 | |
| Delaware Bay | | | x | | | | | | | 12 | |
| CAINS LANDING | | | x | | | | | | | 13 | |
| GREGOS CANAL | | | x | | | | | | | 14 | |
| MALONEYS LANDING | | | x | | | | | | | 15 | |
| MISPILLION LIGHT (Pp) | | | x | | | | | | | 16 | |
| | | | | | | | | | | 17 | |
| | | | | | | | | | | 18 | |
| | | | | | | | | | | 19 | |
| | | | | | | | | | | 20 | |
| | | | | | | | | | | 21 | |
| | | | | | | | | | | 22 | |
| | | | | | | | | | | 23 | |
| | | | | | | | | | | 24 | |
| | | | | | | | | | | 25 | |

Approved:

Chris E. Harrington
Chief Geographer - C3x5

6 Feb. 1981

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 | | 1 (3 parts) | |
| DESCRIPTIVE REPORT | | 1 | SMOOTH OVERLAYS: POS. ARC, EXCESS | | 3 | |
| DESCRIP-TION | DEPTH RECORDS | HORIZ. CONT. RECORDS | PRINTOUTS | TAPE ROLLS | PUNCHED CARDS | ABSTRACTS/SOURCE DOCUMENTS |
| ENVELOPES | | | | | | |
| CAHIERS | 1 With raw printouts | | | | | |
| VOLUMES | 4 | | | | | |
| BOXES | | | 1 | | | |

T-SHEET PRINTS (List)

SPECIAL REPORTS (List) 1-Junction Strip 1-chart markup

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 | | | 826 |
| POSITIONS CHECKED | | 400 | |
| POSITIONS REVISED | | 294 | |
| SOUNDINGS REVISED | | 164 | |
| SOUNDINGS ERRONEOUSLY SPACED | | 0 | |
| SIGNALS (CONTROL) ERRONEOUSLY PLOTTED | | 0 | |
| TIME - HOURS | | | |
| CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION) | | | |
| VERIFICATION OF CONTROL | | 0 | |
| VERIFICATION OF POSITIONS | | 130 | |
| VERIFICATION OF SOUNDINGS | | 48 | |
| COMPILATION OF SMOOTH SHEET | | 13 | |
| APPLICATION OF TOPOGRAPHY | | 10 | |
| APPLICATION OF PHOTOBATHYMETRY | | | |
| JUNCTIONS | | 4 | |
| COMPARISON WITH PRIOR SURVEYS & CHARTS | | 4 | |
| VERIFIER'S REPORT | | 10 | |
| OTHER | | 7 | |
| TOTALS | | 226 | 226 |
| Pre-Verification by B. J. Stephenson | Beginning Date 01/10/73 | Ending Date 01/10/73 | |
| Verification by B.J. Stephenson, D. Mason | Beginning Date 08/15/79 | Ending Date 08/01/80 | |
| Verification Check by R. Roberson | Time (Hours) 4 | Date 07/30/80 | |
| Marine Center Inspection by Hydrographic Inspection Team (AMC) | Time (Hours) 10 | Date 08/01/80 | |
| Quality Control Inspection by J. P. Saulsbury | Time (Hours) 78 | Date 11/5/80 | |
| Requirements Evaluation by D.J. Hill | Time (Hours) 2 | Date 5/28/81 | |

H. Myers 8 hrs 7/6/81

REGISTRY NO. H-4313 (1972)

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
VERIFICATION REPORT

REGISTRY NO. H-9313

FIELD NO. WH-20-3-72

Delaware, Delaware Bay, Mispillion River and Entrance

SURVEYED: June 2, 1972 through October 9, 1972

SOUNDINGS: Raytheon 723 D

CONTROL: Three Point Sextant

Fix and ~~See~~ Boat Sheet

Chief of Party

C. Nixon

Surveyed by

K. Burke

R. LeRoy

R. Hoge

J. Servais

T. Kaiser

G. Decker

W. Hill

Automated Plot by

Xynetics 1201 Plotter (AMC)

Verified and Inked by

D.V. Mason

Dated

August 1, 1980

1. INTRODUCTION

Numerous problems were encountered during the verification of this survey. These problems are discussed in detail throughout this report.

2. CONTROL AND SHORELINE

a. The source of control is adequately described under section F of the Descriptive Report.

b. The shoreline for this survey is taken from two class III shoreline manuscripts, T.P. -00057 and T.P. -00058 was flown in October 1969. No field edit has been applied. *Field edit on these two surveys was cancelled.*

The shoreline from T.P. -00059 (1969-71) is from a Class I shoreline Manuscript. T.P. -00057 and T.P. -00058 were photographically reduced from a 1:10,000 scale sheet to 1:20,000 scale sheets, the same as the scale of the survey. T.P.-00059 was reduced using a Kargl Reflecting Projector during verification. The shoreline for this survey is considered to be "for orientation purposes only," as shown on this survey. *Shoreline should be charted from the above mentioned topo surveys. Do not concur with "for orientation purposes only" statement.*
FRS

3. HYDROGRPHY

a. Depths at crossings are in good agreement. Refer to Section 4.e for additional information. ✓

b. The standard 6-foot curves were adequately delineated. The three foot supplemental curve was added to better delineate the bottom configuration.

c. The development of the bottom configuration and investigation of least depths is considered adequate with the following exceptions:

1. A shoal area of approximately 400 by 600 meters in the vicinity of lat. $38^{\circ}55.1'$ long. $75^{\circ}16.6'$ was not adequately developed to delineate the extent of the shoal or least depths. *CONCLUR*

2. The shoal area of approximately 300 by 400 meters in the vicinity of lat. $38^{\circ}56.05'$; long. $75^{\circ}17.75'$; at the entrance to Mispillion River was not developed adequately to assure that the least depths were obtained. *2 ft. least depths acquired on the present survey. Additional development is needed to ascertain that least depths were acquired.*

3. There were several areas south of lat. $38^{\circ}55'$ alongshore and out to 6-foot depths ^{where} ~~were~~ additional lines should have been run to fully develop the bottom configuration. *A few splits would have been beneficial.*

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records, and reports are adequate and conform to the requirements of the Hydrographic Manual with the following exceptions:

a. The sounding volumes were incomplete in regards to stamps and the stamps were not properly annotated. There are no sounding volumes for five days of hydrography. *All sdgs acquired on the boat sheet are accounted for on the smooth sheet.*

b. Fathograms were not properly annotated. Some fathograms were found without position numbers. These position numbers were added during verification. ✓

c. Random data was found to be overlooked and not processed by the field. This data was logged, checked, spooled, and incorporated into the survey during verification. ✓

d. The launches ran with an initial setting of 2.0 feet to compensate for their draft correction. The 2.0 foot draft correction was also added to the TRA tape which made the survey 2 feet too deep. This discrepancy was corrected by subtracting the 2.0 foot draft from the TRA tape. *CONCUR*

e. One crossline had to be rejected during verification due to the lack of data sent in by the field. This crossline was also plotted incorrectly on the field boat sheet.

f. This survey was turned in eight months after its completion. There are no velocity corrector abstracts in the Descriptive Report. The velocity table used for this survey was made up and dated July 10, 1973. One year after the survey was completed.

See QC Report, item 3, par. 2

g. No bottom samples were taken in the survey area.

Bottom samples were brought forward to the present survey from H-1582 (1883) during A.C.I.

h. The foul areas found on the T-sheets were not investigated, nor were they discussed in the Descriptive Report.

5. JUNCTIONS

a. An adequate junction was made with H-9202 (1971) to the east. Several 7-foot soundings were brought through to the present survey to better delineate

the 6-foot shoal at latitude $38^{\circ}55.01'$ longitude $75^{\circ}16.05'$. Changes on H-9202 will have to be made by the Quality Control Branch, C352, since this survey has been verified and mailed to Rockville, to bring the surveys into agreement.

± 1 to 2 ft differences - Partial bott junction was made during Q.C.I.

6. COMPARISON WITH PRIOR SURVEYS

H-1582 (1883) 1:20,000

The above prior survey covers the area of the present survey. A comparison between the present and prior survey reveals that the present survey is from 0 to *4* ~~2~~ *and 2 to 3 ft shoaler on bar at jetty entrance (jetty created bar)* feet deeper. These differences are attributed to natural changes in the bottom configuration and less detailed and accurate methods employed on the prior survey. The present survey *with the addition of bottom characteristics* is adequate to supersede the above prior survey within the common area.

7. COMPARISON WITH CHART #1218 (18th Edition, September 25, 1971)

A. Hydrography

The charted hydrography generally originates with the previously discussed prior survey which requires no further consideration except as indicated below.

Attention is directed to the following:

- 1) PRESURVEY REVIEW ITEM #4 A 3-foot depth, shown on chart #1218 in lat. $38^{\circ}56.01'$, long. $75^{\circ}17.8'$. This sounding was located at the eastern edge of a 2 to 3 foot shoal. It is recommended that the seaward 2-foot sounding be charted

at lat. $38^{\circ}55'$ long. $75^{\circ}17.7'$. The controlling depth for the Mispillion River Entrance is 6 foot and should be charted as such. *Markers are needed for a 6' entrance depth.*

2) A 5-foot shoal sounding charted from an unknown source at latitude $38^{\circ}55.02'$, long. $75^{\circ}16.5'$. A 6-foot shoal area was located at this area. *100 meter development on H-9202 (1971) discredited 4 1/2 sdg.*

Due to insufficient development the 5-foot charted sounding should remain as charted. *Do not concur. This shoal with a least depth of 4 1/2 ft., charted from an unknown source, is discredited by present survey depths. Chart the shoal as shown on the present survey.*

3) A 6-foot sounding charted at lat. $38^{\circ}54.8'$, long. $75^{\circ}16.3'$. *from H-1582 (1968)* Due to insufficient development this sounding should remain as charted. *Do not concur. Area has deepened to 8-10 ft depths. Charted 6 ft sdg. is discredited by deeper present survey depths. Chart the area as shown on the present survey & H-9202 (1971)*

b. Controlling Depths

The controlling depth of the Mispillion River at Mean Low Water after *was reported to be 2 1/2 ft. in Sept. 1972* crossing the bar is 7-feet. This note should be revised on the chart.

c. Aids to Navigation

The aids to navigation located on the present survey are in substantial agreement with their charted positions and adequately serve the purposes intended. ✓

8. COMPLIANCE WITH INSTRUCTIONS

This survey does not comply with the Project Instructions. See Section 4 and 9 of this report.

9. ADDITIONAL FIELD WORK

This is considered a very poor survey. Considering the comments under "Condition of Survey" where considerable office manipulation of field data was necessary to obtain a coherent plot of the survey results, this area should be resurveyed as part of the continuation of the scheduled survey work in the Delaware and/or Delaware Bay. *Do not concur.*

The inset portion of the survey is considered an adequate basic survey.

The Missillion River (1:14,000) portion of the survey is considered reconnaissance.

JPS

INSPECTION REPORT
H-9313

The completed survey has been inspected by the Hydrographic Inspection Team with regard to survey coverage, delineation of depth contours, development of critical depths, cartographic symbolization and verification or disapproval of charted data. The Verification Report has presented the facts accurately and properly, the procedures used were appropriate, and the recommendations are logical and justifiable. The survey records do not comply with National Ocean Survey requirements and this is noted in the Verification Report. The Hydrographic Inspection Team concurs with the verifier's findings, actions, and recommendations. ✓

Examined and Approved:
Hydrographic Inspection Team
Date: August 1, 1980

R. D. Sanocki
R.D. Sanocki
Technical Assistant
Processing Division

Maureen R. Kenny
Maureen R. Kenny, LT, NOAA
Acting Chief, Processing Division

H. R. Smith
H.R. Smith
Team Leader
Verification Branch

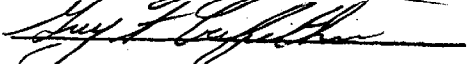
Approved/Forwarded

R. H. Houlder
Richard H. Houlder
RADM, NOAA
Director, Atlantic Marine Center

APPROVAL SHEET
FOR
SURVEY H-9313

- 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: 8/14/80

Signed: 
Title: Chief, Verification Branch



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

OA/C352:FPS

November 5, 1980

TO: Glen R. Schaefer *GRS*
Chief, Hydrographic Surveys Division

THRU: Chief, Quality Control Branch *qjm*

FROM: F. P. Saulsbury *F. P. Saulsbury*
Quality Evaluator

SUBJECT: Quality Control Report for H-9313 (1972), Delaware, Delaware Bay,
Mispillion River and Entrance

A quality control inspection of H-9313 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, shoreline transfer, smooth plotting, decisions and actions taken by the verifier, and the cartographic presentation of data. In general, it was found to conform to the National Ocean Survey's standards and requirements except as stated in the Verifier's Report and as follows:

1. The following items should be investigated at an opportune time and pertinent information furnished so that these items may be accurately charted.
 - a. The jetties at the entrance to Mispillion River are shown on the smooth sheet as delineated on TP-00058 (1969); that is, partially covered at MHW. These features are indicated by solid black lines on the boat sheet which cartographically represents the jetties to bare at MHW. Since the color of the jetties on the boat sheet is black, rather than red, the delineation of the jetties as shown on TP-00058 (1969) and the smooth sheet is considered more reliable.
 - b. The delineation of shoreline in the vicinity of latitude $38^{\circ}55.01'N$, longitude $75^{\circ}24.30'W$ is questionable. Here, the boat sheet delineation of limits for a dredged area suggests a considerable change of the MHW line; however, the original shoreline is not expunged.
 - c. The two dashed black lines in the vicinity of latitude $38^{\circ}54.30'N$, longitude $75^{\circ}17.65'W$ that resemble the delineation of ruins were added to



the smooth sheet from the boat sheet during quality control inspection. No information as to what these dashed black lines identify is found in the survey records.

d. The boat sheet delineation of the dock and marine railway in the vicinity of latitude 38°55.10'N, longitude 75°25.0'W is considered improbable. The boat sheet delineation shows the marine railway enclosed within a dock. This was revised during quality control inspection and the area was shown on the smooth sheet as it appears on an air photo of 1969.

2. While 16 groins are charted in the vicinity of latitude 38°54.80'N, longitude 75°18.30'W the present survey shows only 13. Chart the groins as shown on the present survey.

3. Mispillion River was surveyed with a single line of soundings. There is no survey confirmation that the deepest channel soundings were acquired. Therefore a valid controlling depth note for the chart is considered misleading. It is suggested that the charted controlling depth note read: "After crossing the bar the controlling depth at Mean Low Water was reported to be 2 1/2 feet to Milford in September 1972."

Fathometer soundings in Mispillion River are plotted on the smooth sheet from references "See Boat Sheet" in the sounding volumes. No velocity correctors were applied or are available. However, velocity correctors applied to the remaining hydrography on the survey are positive and suggest that if correctors were available, they would add a plus 0.2 foot to controlling depths in the river.

For the aforementioned reasons the survey in Mispillion River is considered to be of a reconnaissance nature.

Controlling depths in the river should be ascertained at an opportune time. Also, Cedar Creek should be surveyed from its entrance southward to the Route 36 Bridge.

4. Verification experienced considerable difficulty when plotting the hydrography in the inset portion of the survey. An examination of this area during quality control inspection revealed that the smooth sheet plot is in good general agreement with the boat sheet plot and that depths at crossings are reasonable. Also, charted features are in reasonable agreement with counterpart features shown on the present survey. With the addition of bottom characteristics brought forward from H-1582 (1883), the inset portion of the present survey is considered adequate to supersede prior survey data and charted information within the common area. The inset portion of the survey is considered an adequate basic survey.

5. A comparison of junctional soundings on H-9202 (1971) revealed plus and/or minus 1- to 2-foot differences throughout the overlap area with H-9313. Due to these differences, a partial butt junction was made with H-9202 (1971). The present survey partially supersedes H-9202. The differences are attributed to bottom change.

6. The sign on the bascule bridge at Milford reads:

"Special Regulations - U.S. Coast Guard 1-1-71, 2 hours notice required to open bridge. Contact Delaware Division of Highways - Georgetown, Del. Monday thru Friday 8 AM to 4 PM - Call 856-2571. Nights, weekends and holidays call 645-6537."

This information appears in the sounding records.

cc:
OA/C351



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

JUN 8 1981

OA/C351:D

TO: OA/CAM - Richard H. Houlder

FROM:  OA/CS - Roger F. Lanier

SUBJECT: H-9313 (1972); OPR-492, Delaware, Delaware Bay, Mispillion River
and Entrance, Report of Compliance with Project Instructions

The smooth sheet and Descriptive Report for the subject survey have been examined. This survey, except as noted in the Quality Control Report, dated November 5, 1980 (copy attached), and the Verifier's Report, is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-492-WH-72, dated February 28, 1972.

Attachment

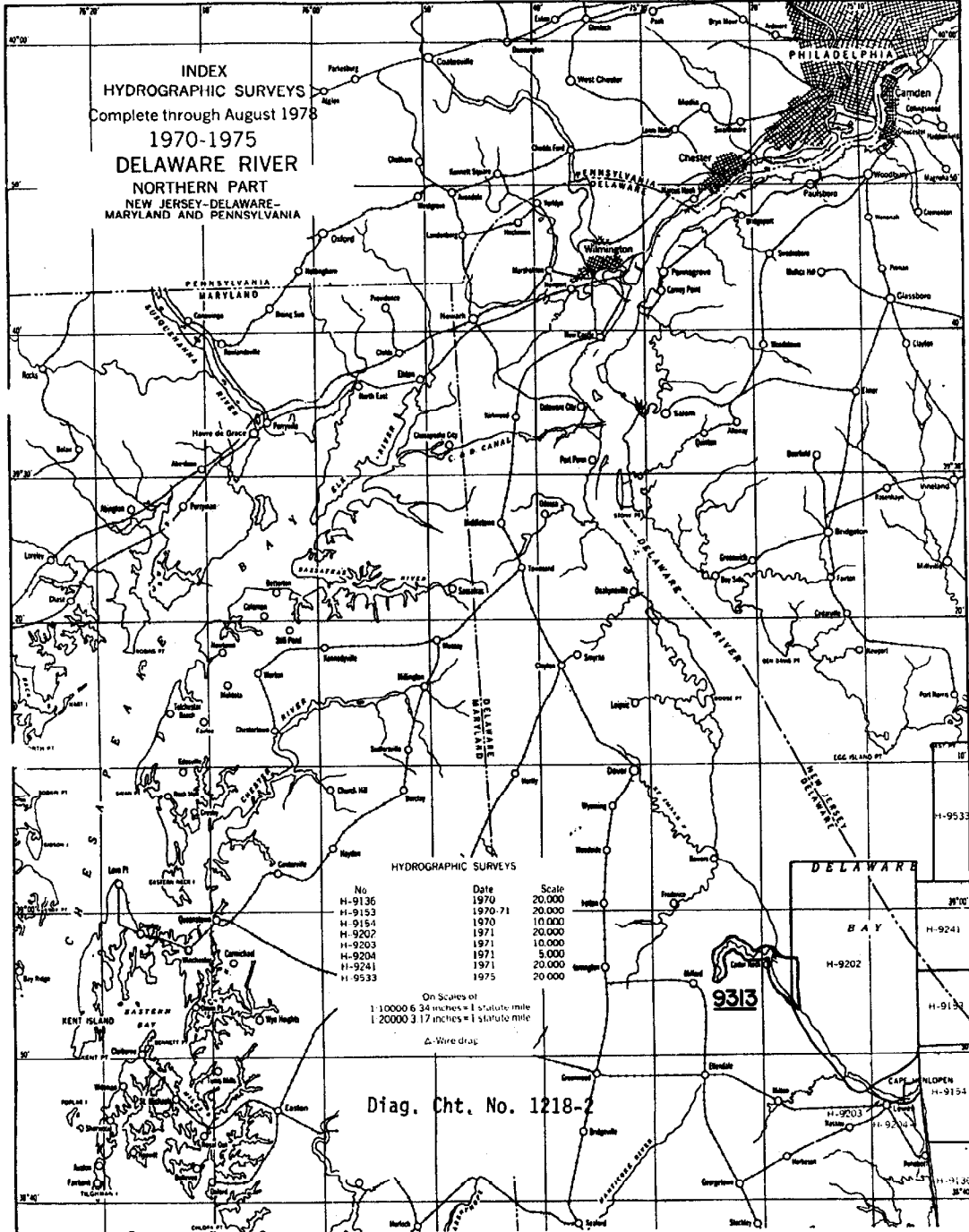
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OA/C352 w/o att.



10TH ANNIVERSARY 1970-1980
National Oceanic and Atmospheric Administration
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DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 67 G



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9313

INSTRUCTIONS

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

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

| CHART | DATE | CARTOGRAPHER | REMARKS |
|-------|---------|-------------------|--|
| 12304 | 8/21/81 | Russell P Kennedy | Full Part Before After Verification Review Inspection Signed Via Drawing No. 52 |
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