

9175

Diag. Cht. Nos. 1218-2 & 1219-2.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. WH-10-2-70 Office No. H-9175

LOCALITY

State Delaware

General locality Delaware Bay Entrance

Locality East of Cape Henlopen

1970

CHIEF OF PARTY

M. J. Umbach & R. J. Land

LIBRARY & ARCHIVES

DATE 2-8-73

USCOMM-DC 37022-P66

9175
9176

①

HYDROGRAPHIC TITLE SHEET

H-9175

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.

WH10-2-70

State Delaware

General locality ~~Cape Henlopen~~ Delaware Bay Entrance

Locality ~~Entrance to Delaware Bay~~ East of Cape Henlopen

Scale 1,10:000 Date of survey 9/11/70 - 10/1/70

Instructions dated 28 May 1970 Project No. OPR-492

Vessel NOAA Launch 1257

Chief of party CDR Melvin J. Umbach

Surveyed by LCDR Ralph J. Land, LT C. Dale North, Franklin L. Saunders, George C. Jamerson, and Donald B. Gerock

Soundings taken by echo sounder, ~~hand level, pocket~~ Raytheon DE-723 (Digital)

Graphic record scaled by LT C. Dale North, Franklin L. Saunders

Graphic record checked by LCDR Ralph J. Land

Protracted by SALCOMP PLOTTER - ATLANTIC MARINE CENTER Automated plot by ~~Complot AMC~~ ^{CALCOMP 618}

Soundings penciled by ~~CALCOMP PLOTTER - AMC~~

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

REMARKS: All Time Was Eastern Standard Time (75th Meridian)

Chart

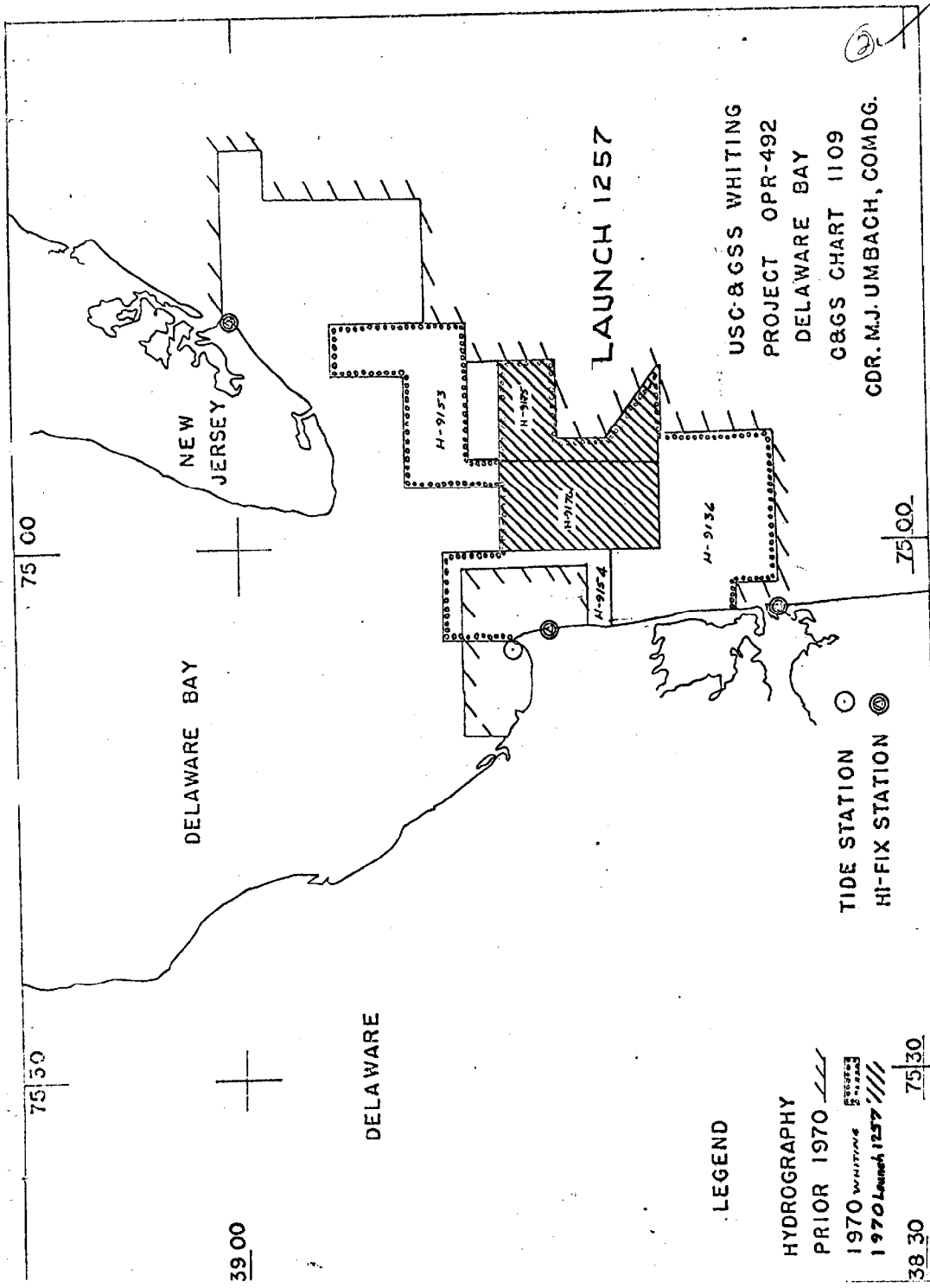
1219

*1000 use
1107 1219 for
1218 outside
H*

Applied to stoll 2/22/73

CAS

11/1/74 177A-11-274



75 00

75 30

DELAWARE BAY

NEW JERSEY

DELAWARE

LAUNCH 1257

LEGEND

HYDROGRAPHY

PRIOR 1970

1970 WHITING

1970 Launch 1257

TIDE STATION

HI-FIX STATION

USC & GSS WHITING
PROJECT OPR-492
DELAWARE BAY
C&GS CHART 1109
CDR. M.J. UMBACH, COMDG.

39 00

75 00

38 30 75 30

3



DESCRIPTIVE REPORT

To Accompany

HYDROGRAPHIC SURVEY H-9175

WH10-2-70

Scale: 1:10,000

Year: 1970

Melvin J. Umbach, CDR, USESSA, Comdg. Ship WHITING

Ralph J. Land, LCDR, USESSA, O-I-C Launch 1257

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A. PROJECT - "INSTRUCTIONS"-- PROJECT OPR-492-- Delaware Bay, dated 28 May 1970 and "SUPPLEMENTAL INSTRUCTIONS" -- OPR-492 -- Delaware Bay, dated 15 ~~June~~ ^{July} 1970 are the authority for this survey. ✓

B. AREA SURVEYED - Almost all of the area surveyed fell in the danger area which also included the most inshore segments of the Delaware Bay sealanes as delineated on Chart 1219. The area ~~was~~ ^{is} bounded by Latitudes $38^{\circ}40'20''$ ⁴N and $38^{\circ}48'25''$ ⁴N, and the Meridians $74^{\circ}55'26''$ ³⁰ and $74^{\circ}49'30''$ ⁵⁵. ✓

It was decided by the Chief of Party that all contemporary WHITING work would junction with Launch 1257's work. Contemporary surveys which junctioned were WH20-4-70(H-9136) and WH10-3-70 (H-9176).

This survey was accomplished between September 11, 1970 and October 1, 1970, Julian Days 254 through 274.

C. SOUNDING VESSEL - All soundings were taken by Launch 1257 on this survey. ✓

D. SOUNDING EQUIPMENT - Depths were determined with Raytheon Fathometer Model DE-723D, Recorder S/N 1904 except on Julian Days 266 through 268 when recorder S/N 37025 was used. Depths encountered ranged from 36 to 150 feet. ✓

Echo Sounder corrections were determined from daily bar checks, taken when weather and wave conditions permitted, and TDC (Temperature, Depth, Conductance) Observations using a Martek 100S Instrument on 7/22 (Day 203), 8/13 (Day 225), 8/22 (Day 234), 9/13 (Day 256), and 10/1/70 (Day 274). TDC Observations were taken outside of the danger area in the deepest water available on the western edge of the work area. A tabulation of the velocity corrections is included in this report.

The initial was maintained at 2.0 feet throughout this survey. The physical draft of the transducers was determined to be 2.55 feet by physical measurement in August 1970. Thus, a draft correction of +0.6 was used throughout the survey.

Settlement and Squat Corrections were derived from tests conducted on 25 August 1970 in Breakwater Harbor, Delaware. A leveling instrument was mounted on the end of a pier. With a leveling rod held over the location of the Launch's transducer, the Launch ran away from the position of the level at the various sounding RPM. When the Launch attained maximum speed at that RPM, a level was read from the rod. Two readings from separate runs were taken for each sounding speed, with stand-stills in between read for tide, and averaged to determine the settlement and squat correction for the various speeds.

A tabulation follows:

<u>RPM</u>	<u>CORRECTOR</u>
525	+0.2
900	+0.4
1100	+0.7
1400	+0.8
1600	+0.0
1850	-0.2

Hence, the final TRA was arrived at in the following manner:

+0.6 ft.	Draft Correction
<u>-0.2 ft.</u>	Settlement and Squat Correction
+0.4 ft.	Final TRA at 1850 RPM

All hydrography was sounded at 1850 RPM which represents 20 knots.

E. SMOOTH SHEET - Boat sheet grids and electronic control arcs were constructed on the Complot Plotter on board Launch 1257. The 22-inch capacity of the XY Plotter necessitated drawing three overlapping grids to obtain the one boat sheet. It is anticipated the smooth sheet will be plotted by the Atlantic Marine Center.

F. CONTROL - Hi-Fix in the hyperbolic mode was used for all but the last day, Day 274. Raydist was used for a few lines of development. Considerable time had been lost to Hi-Fix malfunctions, mostly from "Rolling Dials". Obvious misplacement of soundings from this cause has been corrected. Periods, where this condition persisted and hydrography was not suspended, were marked in the record book. Most, but not all "Rolls", occurring at the instant of sounding fixes, were marked on the printout and corrected later on the corrector tape for that day. Suspect soundings should have the Hi-Fix position deleted and be plotted on time and course during subsequent processing and verification if a misplaced sounding has been overlooked by the field party. *Suspect soundings plotted on time and course.*

From Day 254 through Day 257, the least significant digit on Pattern I of the Hi-Fix Lane Count was incorrectly recorded as a result of a wiring error in the new Hydrographic Navigation Unit which acts as an interface between the DECCA Digitizer Unit and the Computer. The hundredth of a lane count was recorded thusly, no matter what the tenths were:

<u>Recorded</u>	=	<u>Actual</u>
0.00	=	0.00
0.02	=	0.01
0.01	=	0.02
0.03	=	0.03
0.04	=	0.04
0.06	=	0.05
0.05	=	0.06
0.07	=	0.07
0.08	=	0.08
0.00	=	0.09

A Computer Program, written by LT Jack Wallace, allowed all proper changes to be made to the Hi-Fix lane count on Pattern I, without altering other original data, up through the digit representing .08 of a lane. All even whole tenths (i.e. ending in zero) have been dealt with by deleting the Hi-Fix patterns altogether, except on position numbered fixes. On position numbered fixes where any even whole tenth has been recorded, a decision was made by the Processing Officer whether the lane count should be 0.00 or 0.09 on any like digit up to 0.09 and 0.99; and the result of his decision was recorded on the edited raw data tapes. Hence, two sets of raw data tapes have been forwarded for Days 254 through 257 - The original and the edited.

Hi-Fix and Raydist corrections were determined from three-point sextant fixes taken during the course of the Hydrographic Survey. Triangulation stations visible from sea and hydrographic signals were used as objects in taking sextant fixes. Visual fixes were converted to lane values by the Launch's computer program and the corrections determined by comparing computed values to the simultaneously observed Hi-Fix and Raydist values on the Hydrographic Navigation Unit Interface. Attention is directed to the "Report on Corrections to Distance Measurements" submitted separately for the Launch work on OPR-492.

The Hi-Fix shore stations were located by Mr. James Shea, of the Atlantic Marine Center, by three-point T-2 fix and short traverse. The locations were:

Master Station	38°47'17".199N
<i>Navy</i>	75°05'20".839W
Slave I	38°36'18".672N
<i>India</i>	75°03'41".663W
Slave II	38°59'41".459N
<i>Wild</i>	74°47'44".148W

The Hi-Fix frequency was 1799.6 KHZ

Raydist stations used on the last day of this survey were established by Ships RUDE and Heck for their Wire Drag Operations on OPR-480. The stations were located at:

Cotton Patch 2, 1962	38°34'46".641N
	75°03'33".774W
CHAP, 1970 (Stake in Ground)	38°47'29".911N
	75°05'23".944W

The Raydist frequency was 3300.495 KHZ. The Red Station was on the right when faced from sea and reversed through the interface.

① ✓

G. SHORELINE-- No shoreline was within the survey limits.

H. CROSSLINES - Approximately 3 percent of all sounding lines were run as crosslines. Agreement is excellent. ✓

I. & J. JUNCTIONS AND COMPARISON WITH PRIOR SURVEYS - Junctions were not made with prior surveys. However, H-6272 (1:40,000, 1937) covers ^{most} all of the area surveyed on H-91765. Agreement is very good. The sixty-foot contour matches very well. ✓

Presurvey Review Item 1E, the Wreck of the New Orleans, was not found. An indication on the fathogram was developed in the field, but it was decided that the indication was a natural object.

K. COMPARISON WITH THE CHART - Chart 1219, 22nd Ed., Aug. 2, 1969 was used for comparison with the new survey. Comparison is very good except for a few soundings near the top portion of the sheet. One in particular, a charted 34 foot sounding near 38°48'00"N and 74°55'00"W, has no basis for its existence. No indication of the sounding was found. The area just south of the sounding where 37 foot soundings are present on the new survey was examined by running additional sounding lines with negative results. ✓

L. ADEQUACY OF SURVEY - This survey is complete and adequate to supercede any prior survey for charting. ✓

M. AIDS TO NAVIGATION - No aids were in the survey area. ✓

N. STATISTICS - 4912 positions on 826.5 nautical miles of sounding line produced 19.3 square nautical miles of hydrography. Bottom samples were not taken because of the nature of the danger area. See Note B on Chart 1219. ✓

M. MISCELLANEOUS - This Hydrographic Survey was run at 50 meter spacing in lieu of a wire drag survey. ✓

P. RECOMMENDATIONS - None ✓

Q. REFERENCES TO REPORTS - Particular attention is directed to the separate reports submitted by Launch 1257 on corrections to Echo Soundings and corrections to Distance Measurements for OPR-492. ✓

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SEPARATES FOLLOWING TEXT

Page

TIDE NOTE with attached memorandum from Bureau Headquarters
PARAMETERS FOR DIGITAL COMPUTING POLYCONIC PROJECTION
COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS
ABSTRACT OF DAILY HI-FIX CORRECTORS
ABSTRACT OF BARCHECKS
ABSTRACT OF VELOCITY CORRECTORS
VELOCITY CORRECTIONS GRAPH
APPROVAL SHEET

7/17/74

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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

Tide Station Used (NOAA Form 77-12): Harbor of Refuge

Period: September 11, 1970 - October 1, 1970

HYDROGRAPHIC SHEET: H-9175

OPR: 492

Locality: Delaware Bay

Plane of reference (mean ~~lower~~ low water): 3.2 ft.

Height of Mean High Water above Plane of Reference is 4.0 ft.

Remarks:

James R. Hubbard
for Chief, Tides Branch

(10)

TIDE NOTE

Harbor of Refuge Bubbler Gage installed by Ship WHITING on Harbor of Refuge Lighthouse at $38^{\circ}48'54''\text{N}$ and $75^{\circ}05'36''$ was used for tide reducers for this survey. *Gage is outside survey limits*

Hour heights were furnished by Ship WHITING. To refer heights to MLW, subtract 3.8^2 feet. Attention is called to the letter from the Tides Section on the following page.

Tidal zoning was not employed neither were corrections for differences for time and height.

Hourly heights were logged and submitted covering the periods of hydrography. No correction for reference to MLW was applied to these tapes.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Rockville, Md. 20852

Date: February 10, 1971

Reply to
Attn of: C331W-39-MCFOB

Subject: Tidal Data, Delaware Bay

To: Chief, Processing Division, CFN3
Atlantic Marine Center

In accordance with memorandum dated January 21, 1971, from
Commanding Officer, Ship WHITING, mean low water on the
Harbor of Refuge 1970 tide staff is 3.2 feet.

For sheet WH¹⁰20-1-70 (9154) no ~~tid~~^{correction to tide}e correction is required.

For sheet WH20-5-70 (9153) use correction of -0 15 minutes
in time and zero height correction.

Enclosed are hourly heights submitted by the WHITING.

L. C. Wharton
L. C. Wharton
Tides & Currents Branch
Oceanography Division
National Ocean Survey

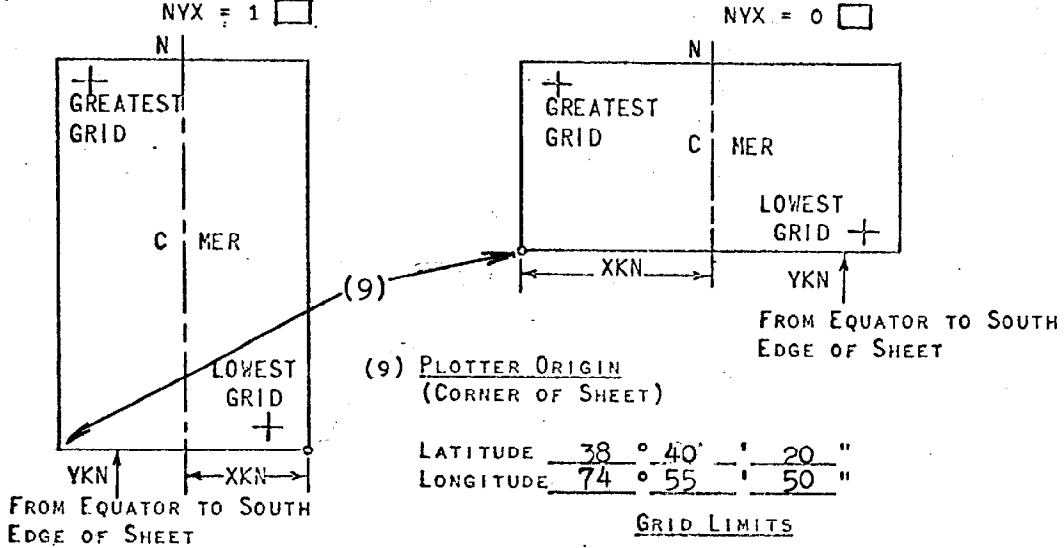
Enclosures

FORM # 1

FIG. 15

PARAMETERS FOR DIGITAL COMPUTING
POLYCONIC PROJECTION

- (1) PROJECT No. OPR-492 (4) REQUESTED BY _____
 (2) H No. 9175 (5) SHIP OR OFFICE NOAA Launch 1257
 (3) FIELD No. WH 10-2-70 (6) DATE REQUIRED _____
 (7) VISUAL (8) ELECTRONIC (FILL OUT FORM #3)
 (10) XKN (SP 5) DISTANCE *FROM CMER TO EAST EDGE (NYX = 1)
 OR WEST EDGE (NYX = 0). NA METERS
 (11) YKN (SP 241) DISTANCE FROM EQUATOR TO SOUTH EDGE
 OF SHEET. NA METERS
 (12) CENTRAL MERIDIAN 74 ° 52 ' 30 " W
 (13) SURVEY SCALE 1: 10,000
 (14) SIZE OF SHEET (CHECK ONE) 36x54 42x60 OTHER
 (15) NYX, ORIENTATION OF SHEET (CHECK ONE)
 NYX = 1 NYX = 0



LIST G.P. OF ALL STATIONS TO BE PLOTTED ON THIS PROJECTION ON THE BACK OF THIS FORM. (DEG., MIN., SEC.)

- (16) GREATEST LATITUDE ° NA ' " (PROJECTION LINE
 (17) LOWEST LATITUDE ° ' " INTERVAL, PAGE 4
 (18) DIFFERENCE ° ' " HYDRO MANUAL)
 (19) ' "
 (20) YSN
 (21) GREATEST LONGITUDE ° NA ' "
 (22) LOWEST LONGITUDE ° ' "
 (23) DIFFERENCE ° ' "
 (24) ' "
 (25) XSN

Deemed not applicable (NA) by
Chief, Processing Branch

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

- (1) PROJECT No. OPR - 492 (2) H- No. 9175 (3) FIELD No. WH-10-2-70
- (4) TYPE OF CONTROL: SHORAN, RAYDIST, X HI-FIX, RADAR
 FREQUENCY (FOR CONVERSION OF RAYDIST OR HI-FIX LANES TO METERS) _____
- (5) ~~RANGE ONE (R1)~~ (RANGE 1 / RANGE 1) HYPERBOLIC
 STATION NAME PATTERN 1 LATITUDE 38 ° 36 ' 18.672" N
(Indian) (101) LONGITUDE 75 ° 03 ' 41.663" W
- (6) ~~RANGE TWO (R2)~~
 STATION NAME PATTERN 2 LATITUDE 38 ° 59 ' 41.459" N
WTTA (102) LONGITUDE 74 ° 47 ' 44.149" W
- (7) AZIMUTH FROM R1 TO R2 _____ ° _____ ' _____ "
- (8) BASELINE LENGTH IN METERS _____ M.
- (9) LOCATION OF SURVEY WITH RESPECT TO ELECTRONIC BASELINE: CHECK ONE
 (TO DETERMINE: IMAGINE AN OBSERVER STANDING AT R1 AND LOOKING DIRECTLY
 AT R2 --- IF THE SURVEY AREA IS TO THE OBSERVER'S LEFT THEN A IS
NEGATIVE; IF THE SURVEY AREA IS TO THE OBSERVER'S RIGHT THEN A IS
POSITIVE.)
- _____ -A (MINUS) _____ +A (PLUS)
- (10) IF SHORAN CORRECTIONS ARE APPLIED BY THE EQUATION, $K(X) + C = D$,
 WHERE X IS SHORAN DISTANCE AND D IS TRUE DISTANCE, ENTER THE CONSTANT
 COEFFICIENTS OF THE EQUATIONS HERE:
 K(R1) _____, C(R1) _____, K(R2) _____, C(R2) _____
- (11) NUMBER OF VELOCITY TABLES TO BE USED:
 NONE, ONE, X MORE THAN ONE.
- (12) _____ THIS FORM IS SUBMITTED ONLY AS AN AID IN PREPARING A BOAT
 SHEET PROJECTION.
- _____ THIS FORM APPLIES TO ALL DATA ON THIS SURVEY.
- X THIS FORM APPLIES TO PART OF THE DATA ON THIS SURVEY -
- TIME AND DATE LIMITATIONS: FROM 254 To 267
- POSITION NUMBER LIMITATIONS: FROM 001 To 4898
- THIS IS FORM #3 SHEET # 1 OF 2 SHEETS FOR THIS SURVEY.
- (13) OTHER REMARKS:
 MASTER STATION: Lat 38° 47' 17." 199N
Kavy (103) Long 75° 05' 20." 839W

FORM # 3 FIG. 7
 COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE - RANGE)

- (1) PROJECT No. OPR-492 (2) H- No. 9175 (3) FIELD No. WH-10-2-70
- (4) TYPE OF CONTROL: SHORAN, RAYDIST, HI-FIX, RADAR
 FREQUENCY (FOR CONVERSION OF RAYDIST OR HI-FIX LANES TO METERS) _____
- (5) RANGE ONE (R1) (104) LATITUDE 38° 34' 46."641 N
 STATION NAME COTTON PATCH 2, 1962 LONGITUDE 75° 03' 33."774 W
- (6) RANGE TWO (R2) (105) LATITUDE 38° 47' 29."911 N
 STATION NAME CHAP, 1970 LONGITUDE 75° 05' 23."994 W
- (7) AZIMUTH FROM R1 TO R2 _____ " _____ "
- (8) BASELINE LENGTH IN METERS _____ M.
- (9) LOCATION OF SURVEY WITH RESPECT TO ELECTRONIC BASELINE: CHECK ONE
 (TO DETERMINE: IMAGINE AN OBSERVER STANDING AT R1 AND LOOKING DIRECTLY
 AT R2 ---- IF THE SURVEY AREA IS TO THE OBSERVER'S LEFT THEN A IS
NEGATIVE; IF THE SURVEY AREA IS TO THE OBSERVER'S RIGHT THEN A IS
POSITIVE.)

_____ -A (MINUS) +A (PLUS)

- (10) IF SHORAN CORRECTIONS ARE APPLIED BY THE EQUATION, $K(X) + C = D$,
 WHERE X IS SHORAN DISTANCE AND D IS TRUE DISTANCE, ENTER THE CONSTANT
 COEFFICIENTS OF THE EQUATIONS HERE:

K(R1) _____, C(R1) _____, K(R2) _____, C(R2) _____

- (11) NUMBER OF VELOCITY TABLES TO BE USED:
 _____ NONE, _____ ONE, MORE THAN ONE.

- (12) _____ THIS FORM IS SUBMITTED ONLY AS AN AID IN PREPARING A BOAT
 SHEET PROJECTION.

_____ THIS FORM APPLIES TO ALL DATA ON THIS SURVEY.

THIS FORM APPLIES TO PART OF THE DATA ON THIS SURVEY -

TIME AND DATE LIMITATIONS: FROM 274 TO 274

POSITION NUMBER LIMITATIONS: FROM 4899 TO 4912

THIS IS FORM #3 SHEET # 2 OF 2 SHEETS FOR THIS SURVEY.

- (13) OTHER REMARKS:

HI-FIX in the Hyperbolic mode was used throughout the
 survey. A few lines were run on the last day for develop-
 ment using RAYDIST Control.

57
2024

ABSTRACT OF
DAILY HI-FIX CORRECTORS
USCGS LAUNCH 1257

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OPR 492 - DELAWARE BAY.

LOCATION	DATE	JULIAN DAY	75°W TIME	CODE PI	CODE PTL	MEAN PI	MEAN PTL
CAPE HENLOPEN & NEAR BUOY "HC"	7/21	202	0800-0845	+1.16	-0.25		
				+1.16	-0.21		
				+1.15	-0.21		
				+1.13	-0.27		
				+1.11	-0.21		
				+1.11	-0.24	+0.14	-0.23
RENOBETH BEACH	7/21	202	1420	+1.18	-0.25		
				+1.20	-0.25	+0.19	-0.25
CAPE HENLOPEN	7/21	202	1535	+1.19	-0.17		
				+1.17	-0.19	+0.18	-0.18
BUOY "HC"	7/22	203	1800	202 MEAN CORRECTOR		+0.17	-0.22
				-	-0.19		
				+1.17	-0.21		
				+1.19	-0.22		
				+1.17	-0.21	+0.18	-0.21
BUOY "HC" CAPE HENLOPEN	7/22	203	1620	+1.21	-0.16		
				-	-0.20		
				+1.14	-0.16		
				+1.19	-0.13	+0.18	-0.16
				203 MEAN CORRECTOR		+0.18	-0.18
CAPE HENLOPEN	7/23	204	0815	+1.18	-0.19		
				+1.20	-0.23		
				+1.21	-0.21		
				+1.21	-0.22	+0.20	-0.21
CAPE HENLOPEN	7/23	204	1500	+1.22	-0.18		
				+1.25	-0.18		
				+1.24	-0.17		
				+1.20	-0.17	+0.21	-0.18
				204 MEAN CORRECTOR		+0.20	-0.20
BUOY "HC"	8/5	217	0815	+1.08	-0.19		
				+1.13	-0.19		
				+1.09	-0.19		
				+1.14	-0.17	+0.11	-0.19
CAPE HENLOPEN	8/5	217	1535	+1.04	-0.18		
				+1.00	-0.20		
				+1.06	-0.15		
				-0.01	-0.20	+0.02	-0.18
						217 MEAN CORRECTOR	

Hi-Fix Correctors

OPR 492 - DELAWARE BAY

LOCATION	DATE	JULIAN DAY	75°W TIME	COBR PI	COCC PI	MEAN PI	MEAN PI	
CAPE HENLOPEN	8/7	219	0750	+06	-19	+04	-18	
				+04	-18			
				+02	-20			
				+02	-15			
	8/8	220	0800	1605	+09	-13	+07	-16
					+08	-12		
					+08	-15		
					+10	-13		
			219	MEAN CORRECTOR				
CAPE HENLOPEN	8/9	221	0745	+10	-17	+07	-17	
				+08	-19			
				+08	-19			
				+09	-20			
	8/10	222	0820	1445	+08	-16	+08	-18
					+06	-15		
					+07	-18		
					+05	-18		
			220	MEAN CORRECTOR				
CAPE HENLOPEN	8/9	221	0745	+03	-19	+05	-21	
				+07	-18			
				+03	-25			
				+05	-22			
	8/10	222	0820	1615	+03	-15	+04	-18
					+03	-14		
					+03	-16		
			221	MEAN CORRECTOR				
CAPE HENLOPEN	8/10	222	0820	+09	-16	+07	-17	
				+06	-18			
				+06	-18			
				+05	-17			
	8/12	224	0745		+06	-23	+06	-24
					+05	-24		
					+05	-24		
					+07	-25		
			0830	+06	-27	+04	-25	
	+02	-24						

H. Fix CORRECTORS

OPR 492 - DELAWARE BAY

LOCATION	DATE	JULIAN DAY	75°W TIME	CORR. PI	CORR. PII	MEAN PI	MEAN PII				
CAPE HENLOPEN	8/12/70	224	1220	+0.06	-0.16						
				+0.05	-0.16						
				+0.08	-0.22						
				+0.08	-0.19	+0.07	-0.18				
				MEAN CORRECTOR		+0.06	-0.22				
CAPE HENLOPEN	8/13/70	225	0755	+0.04	-0.22						
				+0.05	-0.18						
				+0.07	-0.20						
				+0.08	-0.21	+0.06	-0.20				
				MEAN CORRECTOR		+0.07	-0.18				
In working area - CAPE HENLOPEN			1320	+0.08	-0.16						
				+0.07	-0.17						
				+0.10	-0.16	+0.08	-0.16				
				MEAN CORRECTOR		+0.07	-0.18				
				CAPE HENLOPEN	8/18/70	230	0850	+0.04	-0.26		
+0.03	-0.24										
+0.04	-0.23										
+0.04	-0.24	+0.04	-0.24								
MEAN CORRECTOR		+0.04	-0.24								
WORK AREA CAPE HENLOPEN			1525	+0.09	-0.21						
				+0.16	-0.22						
				+0.11	-0.21						
				+0.14	-0.24	+0.12	-0.22				
				MEAN CORRECTOR		+0.12	-0.22				
CAPE HENLOPEN			1540	+0.08	-0.18						
				+0.12	-0.20	+0.10	-0.19				
				MEAN CORRECTOR		+0.09	-0.22				
				CAPE HENLOPEN	8/19/70	231	0845	+0.04	-0.20		
								+0.07	-0.17		
+0.06	-0.15										
+0.07	-0.17	+0.06	-0.17								
MEAN CORRECTOR		+0.06	-0.17								
			1105	+0.02	-0.09						
				+0.00	-0.11						
				+0.02	-0.13	+0.01	-0.11				
				MEAN CORRECTOR		+0.01	-0.11				
							1125	+0.06	-0.13		
+0.06	-0.14										
+0.09	-0.17										
+0.08	-0.15	+0.07	-0.15								
MEAN CORRECTOR		+0.07	-0.15								

H. Fix CORRECTORS

OPR-492 DELAWARE BAY

LOCATION	DATE	JULIAN DAY	75°W Time	CORR PI	COCK PI	MEAN PE	MEAN PB
CAPE HENLOPEN	8/19	231	1315	+08	+15	+08	-15
CAPE HENLOPEN			1605	+03	-17		
				+08	-18		
				+11	-18		
				+12	—	+08	-18
			231	MEAN CORRECTOR		+06	-15
CAPE HENLOPEN	8/20	232	1120	+08	-15		
				+09	-14		
				+07	-20		
				+08	-14	+08	-16
			1450	+06	-18		
			232	MEAN CORRECTOR		+08	-16
CAPE HENLOPEN	8/22	234	0850	+09	-15		
				+07	-22		
				+08	-21		
				+04	-20	+07	-20
			1330	+13	-21		
				+07	-22		
				+09	-22	+10	-22
			1500	+09	-R		
				+09	-R		
				+15	—		
				+11	—	+11	—
			234	MEAN CORRECTOR		+09	-21
CAPE HENLOPEN	8/25	237	0810	+02	-29		
				+02	-30		
				+02	-31		
				+01	-29	+02	-30
			Fix 5650-5689			+02	-30
			1030	+47	-24		
				+43	-26		
				+44	-25		
				+46	-21	+45	-24

HI FIX CORRECTORS

OPR 492 DELAWARE BAY

LOCATION	DATE	JULIAN DAY	75°W TIME	COOR PI	COOR PI	MEAN PI	MEAN PI	
CAPE HENLOPEN	8/25	237	1425	+56	-.27			
				+55	-.25			
				+55	-.23			
				+54	-.21	+55	-.24	
				FIX 5690-5988		+50	-.24	
CAPE HENLOPEN	8/26	238	1310	-107	-.19			
				-.06	-.20			
				-.05	-.14			
				-.05	-.12	-.06	-.16	
NOTE: FIX 6067-6290			1740	-.06	-.21			
MEAN CORRECTOR PAT I = +.03				-.07	-.23			
				-.03	-.18			
				-.08	-.21	-.08	-.21	
			FIX 5989-6066		-.07	-.18		
CAPE HENLOPEN	8/27	239	0815	-.23	-.21			
				-.21	-.25			
				-.18	-.23			
				-.20	-.18	-.21	-.22	
			239 CORRECTOR		-.21	-.22		
CAPE HENLOPEN	9/2	245	0800	+1.03	-.23			
				+1.03	-.25			
				+1.07	-.25			
				+1.05	-.23	+1.04	-.24	
				1140	+1.05	-.25		
					+1.09	-.23		
					+1.11	-.20		
					+1.12	-.23	+1.09	-.23
	1700	+1.01	-.23					
		+1.00	-.26					
		+1.06	-.22					
		+1.03	-.18					
		+1.03	-.16	+1.03	-.21			
			245 MEAN CORRECTOR		+1.05	-.23		
CAPE HENLOPEN	9/3	246	0815	+1.07	-.19			
				+1.08	-.19			
				+1.05	-.21			
				+1.05	-.24			
				+1.03	-.21			
		+1.04	-.25					

H. Fix CORRECTORS

20

OPR 492 DELAWARE BAY

LOCATION	DATE	JULIAN DAY	TOW TIME	COBE PE	LOCK PB	MEAN PE	MEAN PI
CAPE HENLOPEN	9/3	246	1320	+1.11	-1.21		
				+1.01	-1.24		
				-0.03	-1.19	+1.03	-1.21
				246 MEAN CORRECTOR		+1.04	-1.22
CAPE HENLOPEN	9/8	251	1200	+1.07	-1.23		
				+1.06	-1.26		
			+1.06	-1.24			
			+1.08	-1.19	+1.07	-1.23	
			1400	+1.04	-1.22		
			+1.08	-1.28	+1.06	-1.25	
			1605	+1.04	-1.23		
			+1.04	-1.21			
-1.06	-1.21						
+1.05	-1.20	+1.05	-1.21				
251 MEAN CORRECTOR		+1.06	-1.23				
NEAR BWFB	9/11	254	1340	+0.07	-1.16		
				+0.05	-1.20		
			+0.06	-1.15			
			+0.06	-1.19	+0.06	-1.18	
			1725	+0.04	-1.20		
			+0.03	-1.16			
			+0.06	-1.19			
			+0.07	-1.17	+0.05	-1.18	
			254 MEAN CORRECTOR		+0.06	-1.18	
CAPE HENLOPEN	9/12	255	0815	+0.06	-1.18		
				+0.04	-1.14		
			+0.07	-1.17			
			+0.07	-1.15	+0.06	-1.16	
			1239	+0.05	-1.14		
			+0.03	-1.19			
			+0.03	-1.13			
			+0.03	-1.23	+0.04	-1.17	
			255 MEAN CORRECTOR		+0.05	-1.16	

H_i Fix CORRECTORS

✓ (8)

CPR 402 DELAWARE BAY

LOCATION	DATE	JULIAN DAY	75°W TIME	CORR PI	CORR PII	MEAN PI	MEAN PII
	9/13	256	0820	+09	-22		
				+09	-17		
				+06	-24		
				+05	-19	+07	-20
			1509	+03	-		
				+03	-19		
				+02	-19		
				+09	-22	+04	-17
			256	MEAN CORRECTOR		+04 ⁰⁶	-18
	9/14	257	0910	+06	-		
				+00	-26		
				+09	-23		
				+00	-	+04	-24
			1530	+09	-15		
				+05	-17		
				+07	-23		
				+12	-12	+08	-17
			257	MEAN CORRECTOR		+06	-20
	9/15	258	0810	+09	-20		
				+08	-22		
				+08	-20		
				+09	-17	+08	-20
			1420	+10	-10		
				+09	-14		
				+08	-17		
				+07	-20	+09	-15
			1620	+04	-20		
				+04	-23		
				+03	-20		
				+07	-20	+05	-21
			258	MEAN CORRECTOR		+07	-19
	9/16	259	0759	+01	-25		
				+07	-18		
				+08	-24	+05	-22

Hi Fix CORRECTOIDS

(20)

OPR 492 DELAWARE BAY

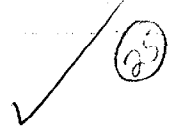
LOCATION	DATE	JULIAN DAY	15°W TIME	CORR PI	CORR PII	CORR MEAN PI	MEAN PII
	9/16	259	1800 1745	+03	-23		
				+02	-22		
				+01	-21		
				+05	-20	+03	-22
			259	MEAN CORRECTOR		+04	-22
	9/17	260	0935	+05	-18		
				+02	-17		
				+01	-19		
				+05	-19	+03	-18
			260	MEAN CORRECTOR		+03	-18
	9/18	261	0840	-	-19		
				+06	-18		
				+09	-18		
				+07	-16	+07	-19
			1240	+06	-13		
				+07	-14		
				+04	-16		
				+08	-	+06	-14
			261	MEAN CORRECTOR		+06	-16
	9/22	261 ⁵	0740	+07	-27		
				+04	-27		
				+05	-32	+05	-29
				+08	-27		
				+06	-28		
				+08	-29		
				+10	-23	+08	-27
			265	MEAN CORRECTOR		+06	-28
	9/23	266		+04	-32		
				+01	-34		
				+03	-34		
				+00	-32	+02	-33
				+06	-24		
				+04	-26		
				+05	-29		
				+06	-26	+05	-26
			266	MEAN CORRECTOR		+04	-30

	LOCATION	DATE	JULIAN DAY	75°W Time	CORR PI	CORR PII	MEAN PT	MEAN PII
	DELAWARE BAY	9/24	267	0812	+07	-30		
					+07	-31		
					+03	-34		
					+07	-34	+06	-32
					+01	-29		
					+02	-30		
					-01	-27	+01	-29
					267 MEAN CORRECTOR		+03	-30
		9/25	268		+03	-27		
					+03	-28		
					+03	-30		
					+00	-26	+02	-28
					268 MEAN CORRECTOR		+02	-28
				1210				
		9/26	269	0915	+04	-25		
					+05	-26		
					+06	-26		
					+06	-27	+05	-26
					269 MEAN CORRECTOR		+05	-26
		9/27	270	0821	+01	-31		
					+08	-30		
					+04	-25		
				H. Fix	+06	-28	+05	-29
				0942	-61	+4.07		
					-62	+4.03		
					-52	+3.97		
					-46	+4.11		
				RAYDIST	-55	+3.94		
					-60	+3.96	-56	+4.01
				1132	-40	+4.05		
					-56	+4.25		
					-57	+4.19		
					-37	+4.17	-48	+4.16
					270 MEAN CORRECTOR		-52	+4.08

LOCATION	DATE	JULIAN DAY	TSON TIME	CORR PI	CORR PII	MEAN PI	MEAN PII
	10/1	274	0650	+47	-4.09		
				+44	-4.07		
				+39	-4.08		
				+51	+3.90	+45	-4.03
			1034	+67	+4.10		
				+65	+3.94		
				+63	+4.00		
				+61	+3.91	+64	3 -3.99
				274 MEAN CORRECTOR		+54	-4.02

OK NO. 37
 56-57
 DC 28424

LAUNCH 1257
 1970
 ABSTRACT OF



BARCHECKS OPR 492 DELAWARE BAY

	BAERT	10'	15'						
202	SET								
DIAL (Down)	4.6	9.3							
FATH "	4.7	9.24							
DIAL (UP)	4.65								
FATH "	4.7								
203 Dig.	4.25	9.2							
FATH	4.3	9.3							
Dig.	4.2								
FATH	4.3								
204 Dig.	4.4	9.2							
FATH	4.6	9.3							
Dig.	4.5	9.1							
FATH	4.7	9.2							
217 Dig.	4.3	9.05							
FATH	4.5	9.1							
Dig.	4.35	9.15							
FATH	4.6	9.3							
219 Dig.	4.35	9.05							
FATH	4.4	9.1							
Dig.	4.25	9.15							
FATH	4.3	9.1							
220 Dig.	4.3	9.1							
FATH	4.5	9.3							
Dig.	4.3	9.15							
FATH	4.5	9.3							
221 Dig.	4.25	—							
FATH	4.3	9.3							
Dig.	4.25	(8.85) R							
FATH	4.4	9.0							
225 Dig.	4.15	8.75							
FATH	4.2	8.9							
Dig.	4.15	8.8	13.5						
FATH	4.2	8.9	13.6						
230 Dig.	4.4	9.05							
FATH	4.5	9.1							

LAUNCH 1257
 1970

ABSTRACT OF

26

BARCHECKS OPR 492 DELAWARE BAY

	BAR 4P 5'	10'	15'					
232 Dig.		9.0	13.7					
FATH		9.2	13.8					
DIG.		9.1	13.7					
FATH		9.2	13.8					
234 Dig.	4.35	9.1						
FATH	4.6	9.3						
DIG.	4.35	9.1						
FATH	4.6	9.3						
237 Dig.	4.2	9.15	13.9					
FATH	4.3	9.2	14.0					
DIG.	4.1	9.0						
FATH	4.3	9.1						
238 Dig.	4.3	8.9						
FATH	4.5	9.0						
DIG.	4.2	9.0						
FATH	4.5	9.1						
239 Dig.	4.15	9.05	13.65					
FATH	4.3	9.1	13.8					
	4.25	8.95						
FATH	4.4	9.1						
245 Dig.	4.3	9.05						
FATH	4.6	9.2						
DIG.	4.35	9.05						
FATH	4.6	9.2						
245 Dig.	4.3	9.15						
FATH	4.5	9.3						
DIG.	4.3	9.05						
FATH	4.5	9.2						
246 Dig.	4.4	9.15	13.75					
FATH	4.7	9.2	13.4					
DIG.	4.45	9.05						
FATH	4.7	9.2						
251 Dig.	4.15	8.95						
FATH	4.3	9.0						

BOX NO. 37
 30-507
 M-DC 24324

1970
 LAUNCH 1257
 ABSTRACT OF
 DELAWARE BAY

37

BARCHECKS OPR-492

	BAR @ 5'	10'	15'	20'	25'	30'	35'	40'	45'
Day 254 (DIG.)	4.25	8.95							
FATH	4.5	9.1							
DIG	4.3	9.0							
FATH	4.5	9.1							
Day 255 DIG	4.15	9.25	13.8						42.2 ^(A)
FATH	4.3	9.4	13.9						42.1
DIG	4.45	9.3	14.05	18.8	-	28.2	33.0	37.65	42.2 ^(B)
FATH	4.7	9.4	14.1	18.8	-	28.2	32.9	37.6	42.7
Day 256 DIG	4.35	9.2							
FATH	4.6	9.4							
DIG	4.45	9.15							
FATH	4.7	9.3							
Day 256 DIG	4.35	9.25							
FATH	4.5	9.3							
DIG	4.35	9.2							
FATH	4.5	9.3							
Day 257 DIG	4.3	9.2							
FATH	4.5	9.2							
DIG	4.3	9.15							
FATH	4.6	9.3							
Day 257 DIG	4.4	9.2							
FATH	4.7	9.3							
DIG	4.4	9.2							
FATH	4.7	9.3							
Day 258 DIG	4.4	9.2							
FATH	4.6	9.3							
DIG	4.4	9.15							
FATH	4.7	9.2							
Day 258 DIG	4.2	9.0							
FATH	4.4	9.1							
DIG	4.3	9.1							
FATH	4.6	9.1							
Day 259 DIG	4.25	9.25							
FATH	4.4	9.3							

LAUNCH 1257
DELAWARE BAY
ABSTRACT OF
BARCHECKS CPR-492

(2)

	Bar@	10'	15'
	5'		
Day 261 DIG	4.4	9.2	
FATH	4.6	9.3	
DIG	4.5	9.2	
FATH	4.7	9.3	

Day 264 DIG	4.35	9.15	
FATH	4.6	9.3	
DIG	4.35	9.25	
FATH	4.6	9.4	

Day 265 DIG	4.45	9.2	
FATH	4.7	9.4	
DIG	4.45	9.15	
FATH	4.7	9.4	

Day 266 DIG	4.35	9.25	
FATH	4.7	9.4	
DIG	4.45	9.35	
FATH	4.7	9.6	

Day 266 DIG	4.4	9.3	
FATH	4.8	9.7	
DIG	4.5	9.25	
FATH	4.8	9.6	

Day 267 DIG	4.35	9.05	
FATH	4.7	9.3	
DIG	4.45	9.15	
FATH	4.8	9.4	

Day 268 DIG	4.35	9.05	
FATH	4.5	9.2	
DIG	4.35	9.05	
FATH	4.6	9.2	

Day 269 DIG	4.45	9.25	
FATH	4.8	9.4	
DIG	4.45	9.25	
FATH	4.8	9.4	

DELAWARE BAY
1970

ABSTRACT
OF
BARCHECKS OPR-492

✓ (29)

	Bar #	5'	10'	15'	20'
Day 274	DIG	4.3	9.0	13.95	-
	FATH	4.7	9.1	14.0	18.8
	DIG	4.4	9.2	-	-
	FATH	4.8	9.3	14.0	-

Day DIG
FATH
DIG
FATH

Day DIG
FATH
DIG
FATH

Day DIG
FATH
DIG
FATH

Day

Day

DEPTH	VEL. CORRN	VEL. TABLE
000045	0 0000	0001 000 000000 000000
000115	0 0002	
000180	0 0004	
000250	0 0006	
000315	0 0008	
000385	0 0010	
000450	0 0012	
000515	0 0014	
000585	0 0016	
000650	0 0018	
000715	0 0020	
000785	0 0022	
000850	0 0024	
000915	0 0026	
000985	0 0028	
001050	0 0030	
001115	0 0032	
001185	0 0034	
001250	0 0036	
001315	0 0038	
001385	0 0040	
001450	0 0042	
001520	0 0044	
199999	0 0000	
000050	0 0000	0002 000 000000 000000
000120	0 0002	
000180	0 0004	
000240	0 0006	
000295	0 0008	
000355	0 0010	
000415	0 0012	
000470	0 0014	
000530	0 0016	
000590	0 0018	
000650	0 0020	
000705	0 0022	
000765	0 0024	
000825	0 0026	
000870	0 0028	
000940	0 0030	
001000	0 0032	
001055	0 0034	
001115	0 0036	
001175	0 0038	
001230	0 0040	
001290	0 0042	
001350	0 0044	
001405	0 0046	
001465	0 0048	
001520	0 0050	
199999	0 0000	

Vel. P.O. CHECKED BY WLS
DATE 10-20-71
VERIFICATION BR. AMC

21



IC/TI TAPE

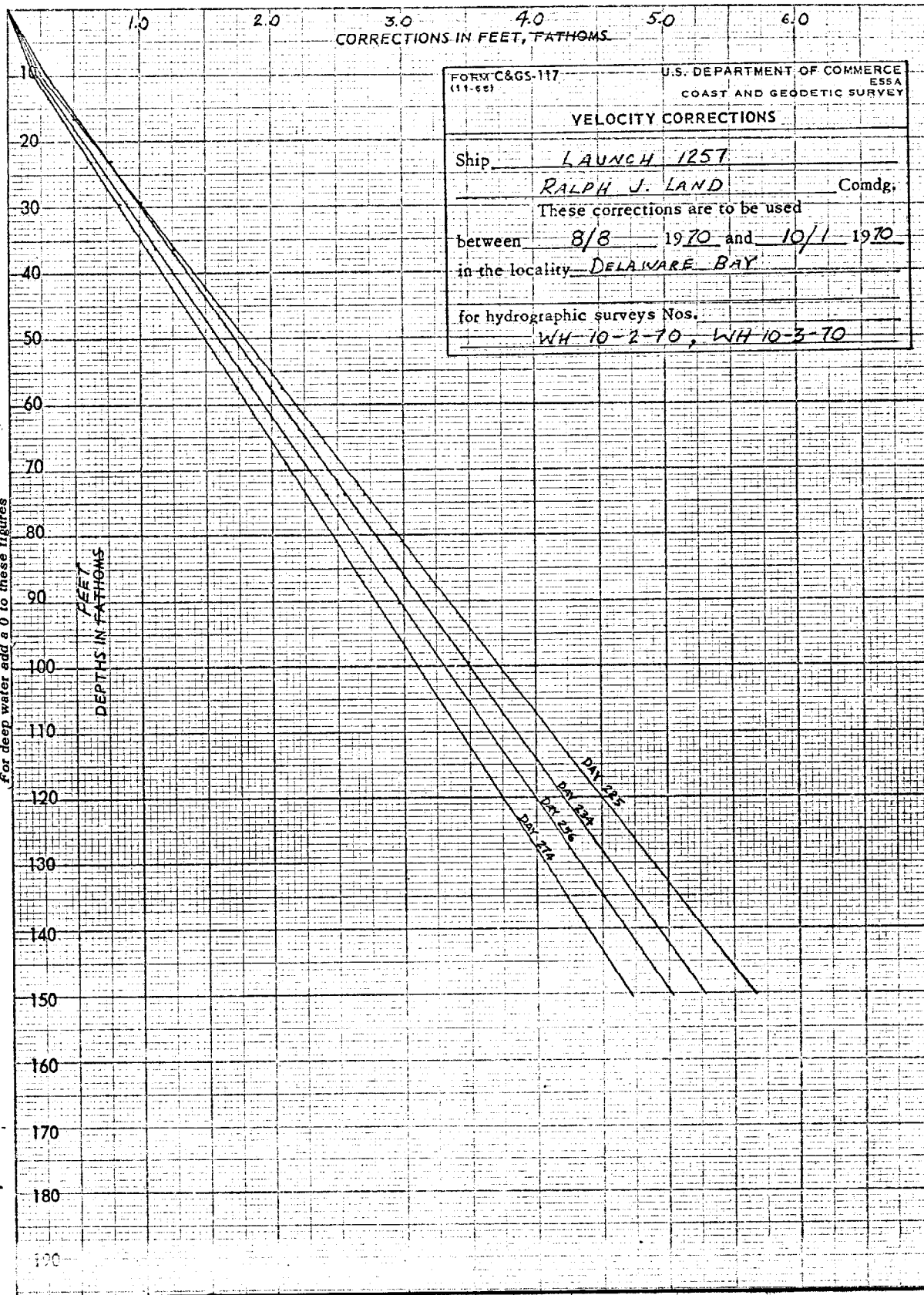
000000 0 0000 0002 254 125700 009175 -
000000 0 0000 0002 275 125700 009175 -

Te/TI

P.O. CHECKED BY WLS
DATE 10-20-71
VERIFICATION BR. AMC

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

✓ 62




For deep water add a 0 to these figures

FEET
DEPTHS IN FATHOMS


MADE IN U.S.A.
KEUFFEL & ESSER CO.

APPROVAL SHEET

The Officer-in-Charge participated in every aspect of this survey. Approval is thereby attested.


Ralph J. Land
LCDR, NOAA

Approval:


Melvin J. Umbach
CDR, NOAA
Chief of Party

DESCRIPTIVE REPORT DATA RECORD		
PART I SMOOTH SHEET PREPARATION		DATE
PREPARED BY/OPERATOR		DATE
A. PLOTTER OPERATOR		
B. DISTORTION MARKS PLOTTED		
C. PROJECTION INTERSECTIONS PLOTTED		
D. POINTS OF ELECTRONIC CONTROL ARCS PLOTTED		
E. OVERLAYS PREPARED BY		
1. POSITION NUMBER		
2. EXCESS SOUNDINGS		
3. PRELIMINARY SMOOTH PLOT		
4. LIST OTHERS		
A.		
B.		
F. SOUNDING SELECTION BY		
G. PLOTTER INPUT	PREPARED	
H.	CHECKED	
I. DESCRIPTIVE REPORT ADDENDUMS		
PART II SMOOTH SHEET COMPLETION		DATE
CARTOGRAPHER		DATE
A. DISTORTION SCALE TICKS IDENTIFIED BY NOTE		G.F. Trefethen Jan. 11, 1973
B. PROJECTION INTERSECTIONS VERIFIED BY		" " " " " "
C. PROJECTION LINES RULED BY		Calcomp Plotter " 10, "
D. ELECTRONIC CONTROL ARCS RULED AND LOCATION VERIFIED		" " " " "
E. OVERLAYS COMPLETED BY		
1. POSITION NUMBER LEADERS ADDED		G.F. Trefethen " 17 "
2. EXCESS SOUNDING OVERLAY COMPARED		E.J. Fields " 2, "
3. PRELIMINARY SMOOTH PLOTS COMPARED		E.J. Fields " " "
4. OTHERS UTILIZED		
A.		
B.		
F. DESCRIPTIVE REPORT ADDENDUM		G.F. Trefethen " 18, "
G. CONTROL STATIONS VERIFIED		
H. POSITIONS MANUALLY PLOTTED		B.T. Davis Sept. 9, "
I. MANUAL PLOT VERIFIED		E.J. Fields Jan. 2, 1973
J. SHORELINE APPLIED		
K. BOTTOM CHARACTERISTICS ADDED		
L. NOTES AND DEPTH CURVES ADDED		G.F. Trefethen Jan. 17, 1973

GEOGRAPHIC NAMES

Survey No. **H-9175**

On Chart No. ✓
 On previous survey No.
 On U. S. quadrangle Maps
 From local information
 On local Maps
 P. O. Guide or Map
 Rand McNally Atlas
 U. S. Light List ⁽²⁾

Name on Survey	A	B	C	D	E	F	G	H	K	
ATLANTIC OCEAN										1
Delaware Bay	1219									2
Cape Henlopen	1219									3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
APPROVED BY										18
<i>A. J. Wright</i>										19
CHIEF GEOGRAPHER										20
										21
										22
										23
										24
										25
										26
										27

PREPARED BY CARTOGRAPHER

C. E. Hammett

FORM C&GS-946
(REV. 11-63)
(PRESC. BY
HYDROGRAPHIC
MANUAL 20-2,
6-64, 7-13)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
NAUTICAL CHART DIVISION

130

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-9175

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT			
SMOOTH SHEET 6 PNO	1	No Boat Sheet available BOAT SHEETS 3 parts	0 3			
DESCRIPTIVE REPORT	1	OVERLAYS	3			
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS / SOURCE DOCUMENTS
ENVELOPES	3					
CAHIERS	1		3			
VOLUMES						
BOXES			3			

T-SHEET PRINTS (LINE) **None**

SPECIAL REPORTS (LINE)
~~Hi Pin and Velocity Correction Report~~

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

PROCESSING ACTIVITY	AMOUNTS			TOTALS
	PRE-VERIFICATION	VERIFICATION	REVIEW	
POSITIONS ON SHEET				4912
POSITIONS CHECKED		50		
POSITIONS REVISED		10		
DEPTH SOUNDINGS REVISED		144		
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS			0	
JUNCTIONS			20	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		10	5	
SPECIAL ADJUSTMENTS				
ALL OTHER WORK		140	62	
TOTALS		200	87	

PRE-VERIFICATION BY B.T. Davis & E.J. Fields	BEGINNING DATE Sept. 9, 1971	ENDING DATE June 21, 1973
VERIFICATION BY G.F. Trefethen	BEGINNING DATE Jan. 11, 1973	ENDING DATE Jan. 18, 1973
REVIEW BY <i>Kenneth W. Wellman</i>	BEGINNING DATE 7-9-74	ENDING DATE 8-19-74

C. Andrews 16 hrs 10/18/74
Inspect G.H. Hayes 16 hrs

Reg. No. H-9175

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 REQ'D _____ INITIALS _____

REMARKS :

H-9175 (1970)

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Items for Future Pre-Survey Review

The submerged wreck discussed in Part 7 (A) of the Review is recommended to be investigated by wire-drag.

Position Index		Bottom Change	Use	Resurvey
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle</u>
384	0750	2	9	25 Years

OFFICE OF MARINE SURVEYS AND MAPS
MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9175

FIELD NO. WH-10-2-70

Delaware, Delaware Bay Entrance, East of Cape Henlopen

SURVEYED: September 11 - October 1, 1970

SCALE: 1:10,000

PROJECT NO. OPR-492

SOUNDINGS: Echo Sounder
DE-723 (Digital)

CONTROL: Hi-Fix (Hyperbolic
Mode) & Raydist
(Range-Range)

Chief of Party.....	M. J. Umbach
Surveyed by	R. J. Land
.....	C. D. North
.....	F. L. Saunders
.....	G. C. Jamerson
.....	D. B. Gerock
Automated Plot by	Calcomp Plotter No. 618 (AMC)
Verified and Inked by	G. F. Trefethen
Reviewed by	K. W. Wellman
	Date: 8/19/74
Inspected by	G. K. Myers

1. Description of the Area

This survey covers the approaches to the Delaware Bay entrance between latitudes 38°41.00' and 38°48.50', longitudes 74°50.00' and 74°55.50'.

The bottom in the northern part of the survey contains several undulations trending in an easterly to northeasterly direction and rising 6 to 10 ft. from trough to crest.

2. Control and Shoreline

The origin of control is given in the Descriptive Report.

There is no shoreline within the limits of this survey.

3. Hydrography

- A. Depths at crossings are, in general, in good agreement. Minor differences of one to two feet are attributed to sea conditions and minor irregularities on the bottom.
- B. The usual depth curves are adequately delineated. A 90-ft. supplemental depth curve was added to improve the portrayal of the bottom configuration.
- C. The development of the bottom configuration and the investigation of least depths are considered adequate.

The close spacing of sounding lines was followed because the possibility of unexploded mines on the bottom precluded wire-drag investigation in this area.

4. Condition of the Survey

The sounding records, automated plotting and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual, supplemented by the Instruction Manual-Automated Hydrographic Surveys.

Because of digital recording of soundings in areas of chop, uncertainty in depth values may be about \pm one foot.

One Raydist arc was plotted in error on the position number overlay and was revised during review.

5. Junctions

An adequate junction was effected with H-9176 (1970) on the west, H-9136 (1970) on the southwest, and H-9153 (1970) on the northwest.

At the project limits on the south and east present depths are in harmony with charted depths. The holiday between the present survey and H-9153 (1970) on the north will be surveyed under project OPR-516 in 1976.

6. Comparison with Prior Surveys

A. H-149 (1844), 1:20,000	H-1633 (1884), 1:40,000
H-151 (1844), 1:40,000	H-1697 (1886), 1:40,000
H-670 (1859), 1:400,000	H-4093 (1919), 1:40,000
H-1533 (1882), 1:40,000	H-4164 (1920), 1:40,000

These prior surveys have been compared with H-6272 (1937), discussed below, and in the common area were superseded in the review of that survey. Except for a strip from 0.5 to 1 mile wide along the western limit, H-6272 covers the entire area of the present survey. Further consideration of these earlier surveys is not considered necessary.

B. H-6272 (1937), 1:40,000

A comparison between the prior and present survey depths reveals only minor differences of 1 to 2 feet. The bottom appears to be stable and the differences to be caused largely by methods of surveying. The present survey, with its much greater detail, is adequate to supersede the prior survey in the common area.

C. H-9295 WD (1971-72), 1:20,000

There are no conflicts between present depths and effective depths on this wire-drag survey.

7. Comparison with Chart 1219 (latest print date May 25, 1974)

A. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration, supplemented by the partial application of the boat sheet of the present survey (Bp's 79845-47), Corps of Engineers and U.S. Navy blueprints and Wreck List of 1957.

Attention is directed to the following:

(1) The reported 34-ft. sounding charted in lat. 38°48.02', long. 74°55.10' in present depths of 41 ft. originates with CL 289 (1956). The present survey discredits this sounding and it should be deleted from the chart.

●(2) The submerged wreck charted in lat. 38°41.00', long. 74°51.00' originates with the U.S. Navy Wreck List of 1957. It is not considered disproved by the present survey and should be retained on the chart.

Except as noted above, the present survey is adequate to supersede the charted hydrography within the common area.

approved
initial, C.K.

B. Aids to Navigation

There are no aids to navigation within the area of the present survey.

8. Compliance with Instructions

This survey adequately complies with the Project Instructions.

9. Additional Field Work

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

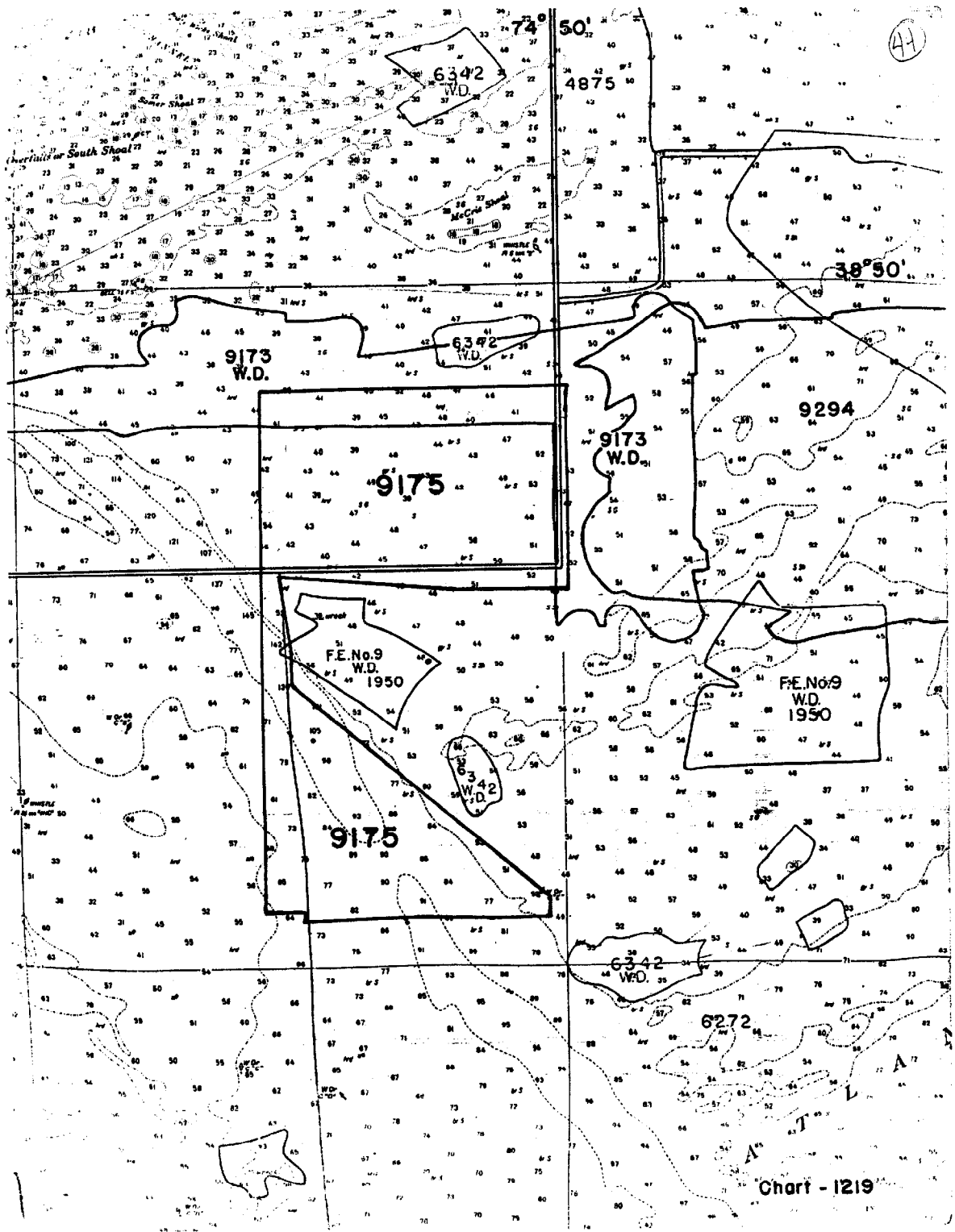
Examined and Approved:

John D. Boyer

Chief
Marine Chart Division

Robert C. Munson

Associate Director
Office of Marine Surveys and Maps



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Chart - 1219

