

9008

Diag. Cht. No. 1212-2.

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-20-2-68 Office No. H-9008

LOCALITY

State Connecticut

General locality Long Island Sound

Locality Stratford Point to Branford
Reef

1968

CHIEF OF PARTY

W. L. Mobley & C. D. Upham

LIBRARY & ARCHIVES

DATE 7/28/69

9008

HYDROGRAPHIC TITLE SHEET

H-9008

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 20-2-68

State Connecticut

General locality Long Island Sound

Locality Stratford Point to Branford Reef

Scale 1:20,000 Date of survey 14 Aug. - 9 Oct. 1968

Instructions dated 7/18/68 Project No. SP-AMC-11-68
5/18/67, 5/14/68 OPR-474

Vessel USC&GS Launch 1257

Chief of party CDR Wayne L. Mobley, O.O. USC&GSS WHITING
CDR Clinton D. Upham, OinC USC&GS Launch 1257

Surveyed by CDR Clinton D. Upham

Soundings taken by echo sounder, ~~XXXXXXX~~ DE-723D #1904

Graphic record scaled by Automatic Digital Output, checked by resounding fathometer

Graphic record checked by C. D. Upham

Protracted by _____ Automated plot by Pacific Marine Center

Soundings penciled by _____

Soundings in ~~XIXXIX~~ feet at MLW ~~XXXXXX~~

REMARKS: This is a test survey conducted at a speed of about 20 knots in which position and sounding data were automatically logged on-line using DECCA HI-FIX, the Raytheon DE-723D (DIGITAL) Fathometer and the DECCA HI-FIX Digital Control Unit.

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SURVEY H-9008 (Field No. WH20-2-68)

1968

USC&GS Ship WHITING, Wayne L. Mobley, CDR, USESSA, Comdg. Officer

USC&GS Launch 1257, Clinton D. Upham, CDR, USESSA, Officer in Charge

Scale: 1/20,000

This is a test survey conducted at a speed of about 20 knots in which position and sounding data were automatically logged on line using Decca HI-FIX, the Raytheon DE-723 (Digital) Survey Fathometer and the Decca Digital Control Unit.

A. PROJECT

This survey was carried out in accordance with instructions dated 18 May 1967 and supplemental instructions dated 14 May 1968, OPR-474, Long Island Sound. The High Speed Hydrographic Survey technique was used in accordance with instructions dated 18 July 1968, SP-AMC-11-68, High Speed Launch Hydrography, Long Island Sound. Copies of these instructions are appended to this report.

B. AREA SURVEYED

The survey covers a portion of Long Island Sound ^{offshore} ~~along the Connecticut shore~~ between Stratford Point and Branford Reef. The area is bounded on the south by Latitude $41^{\circ}05.3'N$, on the east by Longitude $72^{\circ}48.6'W$, and on the west by Longitude $73^{\circ}08'W$, and on the north by 15-30 ft. depths (approx).

All hydrography was accomplished during the period 14 August thru 09 October 1968.

This survey makes a junction with contemporary survey ✓
Registry No. H-8967 (Field No. WH20-3-67, 1967-68) on the
south, and falls within an area covered by the following
prior surveys: *Also several older surveys (see Review Par. 6)*

H-1170a	1:10,000	1872
H-1170b	1:10,000	1872
H-1638	1:10,000	1884
H-1735	1:10,000	1885
H-1733	1:40,000	1886
H-6125	1:20,000	1930
H-6124	1:10,000	1934

C. SOUNDING VESSEL

All sounding on the survey was accomplished with USC&GS Launch
1257. The launch operated at a speed of approximately 20 nau- ✓
tical miles per hour (1850 rpm) the vast majority of the time.
Half speed (1150 rpm) was used as required to avoid other
water borne traffic in the survey area. All bottom samples
were taken by the USC&GS Ship WHITING.

D. SOUNDING EQUIPMENT

All depths were determined with Raytheon Survey Fathometer,
Model DE-723D, Recorder S/N 1904; ECU S/N 1010; Digital Dis- ✓
play Unit S/N 1907. The initial was maintained at 2.0 feet
throughout the entire survey.

Depths encountered ranged from ¹⁵20 to ¹¹⁷115 feet.

Sounding corrections were determined from bar checks, taken
as frequently as weather and sea conditions permitted, coupled ✓
with temperature and salinity observations made by the USC&GS
Ship WHITING. Methods used in determining these corrections,
as well as a tabulation of corrections, are contained in
FATHOMETER REPORT, OPR-474, LONG ISLAND SOUND, 1968, USC&GS
WHITING.

Settlement and Squat corrections were derived from tests con- ✓
ducted on 16 July 1968. A tabulation of these corrections
is contained in the Fathometer Report cited above.

During check scanning of the records, the digital depth value
was accepted in virtually all cases; fathogram values being
used only in cases where misses or obviously erroneous digital
values had been recorded. *Additional soundings on peaks and deeps
had to be scanned visually from fathogram.*

Not consistently true. Some A-phase readings would require +.2' as a correction. Minor changes in phase differences also apparent during the season

A series of observations was made to determine the value needed to convert the fathogram depth value to the digital depth value. These observations indicated a correction of -0.2 feet for depths ranging from 16 feet to 152 feet which is considered negligible. An abstract of the results of these observations is appended to this report.

E. SMOOTH SHEET

The smooth sheet was plotted by ^{Gerber Digital Plotter} (computer controlled plotter) at the Pacific Marine Center.

Verification done by Atlantic Marine Center personnel.

F. CONTROL

The entire survey was controlled by Decca HI-FIX (Hyperbolic) with shore stations located as follows:

Master Station	Lat.	40°58'35.93" N	✓
	Long.	73°07'06.66" W	
Slave 1 Station	Lat.	41°00'47.54" N	✓
	Long.	72°33'37.36" W	
Slave 2 Station	Lat.	41°09'07.28" N	✓
	Long.	73°06'12.81" W	

HI-FIX stations were located by triangulation and traverse. For details regarding the methods used, refer to HI-FIX REPORT, USC&GS SHIP WHITING, OPR-474, LONG ISLAND SOUND, 1968.

HI-FIX corrections were determined from three point sextant fix calibrations taken during the course of the hydrographic operations. Triangulation control was used exclusively for the HI-FIX calibrations. The visual fixes were converted to hyperbolic HI-FIX lane values via the WHITING computer (PDP-8), and corrections determined by comparing these computed values to the simultaneously observed HI-FIX values.

A tabulation of HI-FIX corrections is appended to this report.

To test the validity of the computed hydro positions, a number of the visual HI-FIX calibration fixes were protracted on the smooth sheet and each compared to the plot of the corresponding geographic position as determined by the WHITING PDP-8 computer. No significant differences were noted. In addition, the positions of eighteen representative visual HI-FIX calibration fixes were computed via the AMC IBM-1130 computer, and each compared to the corresponding WHITING PDP-8 computed positions. VERY GOOD!

Differences as much as 9 meters in latitude found in computations by the two programs

Again, no significant differences were noted. A tabulation of these positions may be found on Appendix pages 4 and 5. ✓

G. SHORELINE

Shoreline manuscripts of the area adjacent to the survey have not been made available. ✓
NOT REQUIRED. NO SHORELINE NECESSARY ON SMOOTH SHEET

H. CROSSLINES

Approximately 5 percent of all sounding lines were run as crosslines. Examination indicates excellent agreement at crossings in all instances. ✓

I. JUNCTIONS

This survey junctions with contemporary survey H-8967 (Field No. WH20-3-67, 1967-68) on the south in depths that vary from 50 to 95 feet. Examination indicates very good agreement between the two surveys considering the water depth in the junction area. It is noted that a general, and rather consistent, one foot difference exists at the junction, the soundings on H-8967 being deeper.

Junction with H-8967 will be discussed during the Review of that survey

J. COMPARISON WITH PRIOR SURVEYS

Copies of three prior surveys were available for comparison as follows:

H-1638a, 1884, 1:10,000 - Comparatively good general agreement is noted; the prior survey indicating depths 1 to 4 feet deeper in some instances. Townshend Ledge is not delineated on the prior survey.

H-1638b, 1884, 1:10,000 - Comparatively good general agreement is noted; the prior survey indicating depths 1 to 4 feet deeper in some cases. The 30-foot depth curve agrees quite well.

See Review Par. 6

H-1735, 1885, 1:10,000 - Comparatively good general agreement is noted with some discrepancies in depth of the same order of magnitude as indicated for the above prior surveys.

One presurvey review item, a sunken wreck charted at Lat. 41°12.3' N, Long. 72° 54.5' W, falls within the survey area.

Wreck Should be retained on the chart.
logged

It is believed that this feature does not exist as shown, since a thorough search of the area failed to reveal such existence. However, it is not recommended that this feature be removed from the chart unless disproved by wire drag. ← CONCUR.

K. COMPARISON WITH THE CHART

Comparison with charts of the area indicated the following:

1212, 11th Ed., Dec. 25/67 (1:80,000) - Good general agreement is noted with random differences of 1 to 5 feet in the deepest off-shore areas. Considerable change is noted in the shoal (sand wave) area at the west edge of the survey. The present survey indicates a shoal depth of 20 feet on Townshend Ledge ~~vice~~ 18 feet as charted. Townshend Ledge now appears as two isolated shoals with deeper water between. The 29 foot sounding charted at Lat. 41°11.9' N, Long. 72°55.7' W falls in depths of 32 - 33 feet on present survey. An uncharted obstruction (shoal depth 48 feet), which appears to be a sunken wreck on the fathogram, was located at Lat. 41°07.48', Long. 73°02.19' in general depths of 55 feet. Present Survey shows 18' after Review

217, 6th Ed., July 29/68 (1:20,000) - Good general agreement is noted with random differences in depths of 1 - 2 feet.

218, 15th Ed., Apr. 14/69 (1:20,000) - Good general agreement is noted although the 30-foot depth curve in the vicinity of Townshend Ledge has changed somewhat. Elsewhere the 30-foot depth curve exhibits good agreement.

219, 8th Ed., Apr. 28/69 (1:20,000) - Good general agreement is noted with random depth differences of 1 - 2 feet. The 30-foot depth curve agrees quite well. See Par. 7 Review

L. ADEQUACY OF SURVEY

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

M. AIDS TO NAVIGATION

Four floating aids to navigation were located during the course of the survey. A comparison of the hydrographic locations of these aids with the Light List and the largest scale chart of the area (C&GS 218) reveals excellent agreement. These aids adequately serve the purposes for which established. ✓

No unofficial aids to navigation were found within the survey area. ✓

*Records for bottom samples
filed in this report.*

N. STATISTICS

- 63 - Detached Positions (Bottom Samples) Ship WHITING ✓
- 12,856 - Positions - Launch 1257
- 2,009 - Nautical Miles of Sounding Lines

O. MISCELLANEOUS

As previously indicated, this survey was conducted at a speed of about 20 nautical miles per hour. All position and sounding data were automatically logged on-line using the data acquisition system outlined in Figure 1 below. ✓

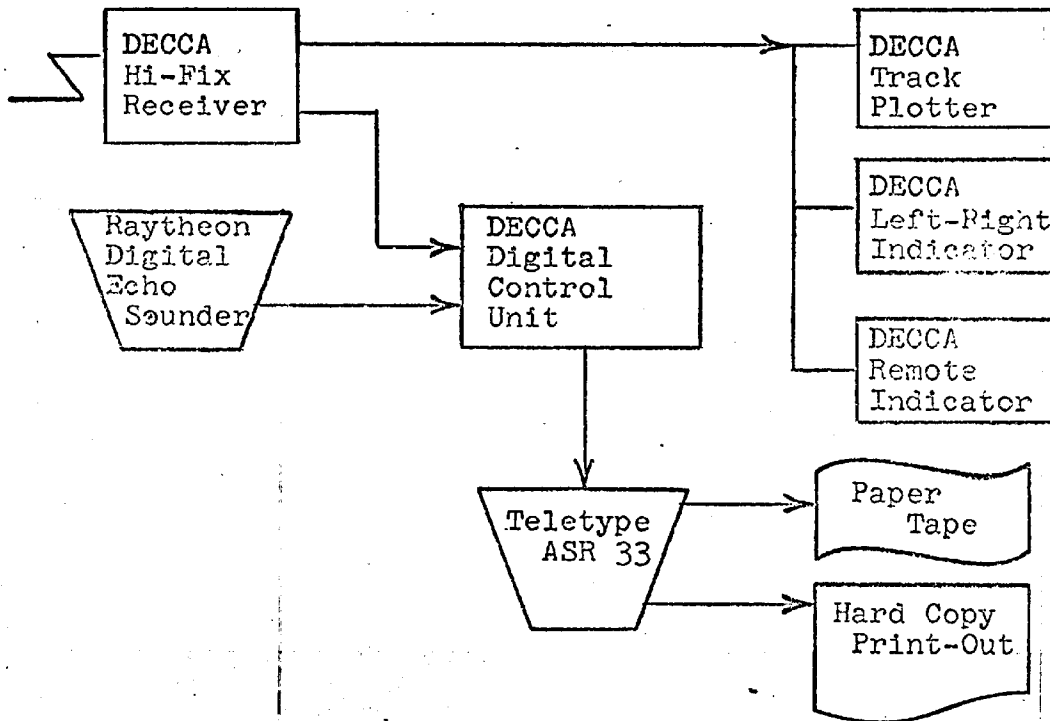


Figure 1. Data System Flow Chart, USC&GS Launch 1257

The Decca HI-FIX Remote Indicator and Left-Right Indicator, mounted in the Pilot House, were used to guide the launch along the HI-FIX (hyperbolic) arcs.

The launch was operated by three men throughout the survey. The Officer-in-Charge performed the duties of hydrographer and instrument operator. An Oiler and Bos'n Mate on temporary detail from MT MITCHELL and DISCOVERER, respectively, provided the required machinery and deck maintenance and alternated as helmsmen. ✓

At the end of each hydro day, the teletype tape and listing were annotated and the fathogram check scanned aboard the launch. Corrections and additions to the raw survey depth data were applied to the teletype listing. The teletype tape, listing and fathogram were then turned over to WHITING for further computer/plotter processing and plotting. ✓

Aboard WHITING a raw depth data corrector tape, incorporating corrections and additions made during fathogram check scanning, was logged manually from the annotated teletype listing. This corrector tape and the uncorrected raw data tape were then read into the computer simultaneously resulting in the production of a third tape incorporating the raw depth data corrections and coded in WHITING format. During this latter operation, position numbers (fix interval 30 seconds) were assigned. Predicted tide reducers and HI-FIX corrections were then loaded into the computer, the WHITING format tape read in and the preliminary plot achieved by computer controlled plotter. Examples of the raw data (DCU) format, DE-723D fathogram, and WHITING format are shown on Appendix pages 1 thru 3. *Too many fix positions resulted from this selection. See Review Par. 4*

Following the close of the 1968 Field Season, the WHITING converted all of the WHITING format tapes to PMC code; compiled final HI-FIX corrections; computed geographic positions for all hydro positions (PMC cannot conveniently do this for hyperbolic HI-FIX data); and compiled velocity, settlement and squat, and tide corrections. These data were forwarded to the Pacific Marine Center where the Smooth Plot was accomplished via the Gerber Plotter. ✓

P. RECOMMENDATIONS

A thorough search of the area failed to reveal the existence of the sunken wreck charted at Latitude 41°12.3' N, Longitude 72°54.5' W. It is, therefore, believed that this feature does not exist as shown. However, it is not recommended that the wreck be removed from the chart unless disproved by wire drag. *CONCUR. 1827 [signature]*

Q. REFERENCES TO REPORTS

COMPUTER-PLOTTER REPORT, LONG ISLAND SOUND 1968, USC&GSS WHITING

copy forwarded with Descriptive Report H-9008

FATHOMETER REPORT, OPR-474, LONG ISLAND SOUND 1968, USC&GSS WHITING

copy forwarded with Descriptive Report H-9008

HI-FIX REPORT, OPR-474, LONG ISLAND SOUND, JULY-OCTOBER 1968, USC&GSS WHITING

copy forwarded with Descriptive Report H-9008

PROGRESS REPORT--HIGH SPEED HYDROGRAPHIC SURVEY PROJECT, 19 March 1968 - 31 January 1969

copy forwarded with Descriptive Report H-9008

Smooth Tide Curves

Retained by AMC Processing Branch

Launch Listing (Teletype Printout) and Fathogram for the following days
227, 232, 233, 234, 236, 239, 240, 241, 242, 243, 248, 249, 250, 254, 256, 258, 259, 260, 261, 262, 263, 264, 265, 268, 269, 270, 275, 282, 283

Forwarded with Descriptive Report H-9008

Raw Data Tapes (DCU-Launch Format) for the above hydro days

Retained by AMC Processing Branch

WHITING Format tapes (used in preliminary plot) for the above hydro days

Retained by AMC Processing Branch

WHITING Format Listing for above hydro days

Retained by AMC Processing Branch

HI-FIX Calibration Observations

Retained by AMC Processing Branch

Respectfully submitted,



Clinton D. Upham
CDR, USESSA

✓

TIDE NOTE

Hydrographic Survey H-9008 (Field No. WH20-2-68)

Tide Station: Port Jefferson, Long Island, New York
Latitude 40° 57.05' N
Longitude 74° 04.6' W

Plane of Reference: MLW = 3.7 feet on tide staff

Time Correction: -15 minutes in area east of HI-FIX
P, Arc 218.5, (line joining Lat.
41°05.49', Long. 72°55.31' and Lat.
41°13.35', Long. 72°57.80'). Zero
time correction west of this line.

Height Correction: 0.9 range ratio in East zone, zero
height correction in West zone,
zones as delineated above.

ABSTRACT OF CORRECTIONS TO ECHO SOUNDINGS

HYDROGRAPHIC SURVEY H-9008 (Field No. WH 20-2-68)

1968

USC & GS LAUNCH 1257

See Review
Part 4.

Settlement & Squat (TRA) Correction

Settlement & Squat Correction = +0.4 ft. for the following periods:

<u>Day No.</u>	<u>Date</u>	<u>Time of Day</u>
232	8/19/68	144500 to 144740 EST
232	8/19/68	145540 to 145920 EST
241	8/28/68	133220 to 133340 EDT
241	8/28/68	134200 to 134400 EDT
243	8/30/68	102720 to 103200 EDT
248	9/4/68	132210 to 144000 EDT
248	9/4/68	145620 to 145900 EDT
250	9/6/68	111520 to 111800 EDT
250	9/6/68	141500 to 141700 EDT
254	9/10/68	093720 to 093800 EDT
254	9/10/68	110320 to 110500 EDT
256	9/12/68	142620 to 142800 EDT
258	9/14/68	095540 to 095700 EDT
258	9/14/68	101720 to 101820 EDT
258	9/14/68	145940 to 150140 EDT
258	9/14/68	153120 to 153420 EDT
260	9/16/68	111230 to 111320 EDT
261	9/17/68	144650 to 144900 EDT
262	9/18/68	134400 to 134420 EDT
262	9/18/68	143600 to 143820 EDT
265	9/21/68	111440 to 111740 EDT
265	9/21/68	114220 to 114400 EDT
270	9/26/68	153440 to 153520 EDT
283	10/09/68	143640 to 143900 EDT

Settlement and Squat Correction = 0.0 for the following times:

283	10/09/68	153835	EDT
283	10/09/68	161911	EDT

Settlement and Squat = -0.5 ft. for all other times work was in progress on this sheet.

/

ABSTRACT OF CORRECTIONS TO ECHO SOUNDINGS
HYDROGRAPHIC SURVEY H-9008 (Field No. WH 20-2-68)

USC & GS LAUNCH 1257

Continued

Velocity Table No. 3

<i>Depth</i>	<i>to</i>	<i>Corr</i>					
000000	01	0000	0003	000	0	000000	000000
000048	01	0002					
000082	01	0004					
000120	01	0006					
000160	01	0008					
000200	01	0010					
000245	01	0012					
000294	01	0014					
000338	01	0016					
000390	01	0018					
000440	01	0020					
000490	01	0022					
000545	01	0024					
000600	01	0026					
000655	01	0028					
000715	01	0030					
000770	01	0032					
000825	01	0034					
000880	01	0036					
000940	01	0038					
001000	01	0040					
001055	01	0042					
001115	01	0044					
001170	01	0046					
001230	01	0048					
001285	01	0050					
001340	01	0052					
001400	01	0054					
001450	01	0056					
001510	01	0058					
001565	01	0060					
001620	01	0062					

ABSTRACT

CORRECTION REQUIRED TO CONVERT FATHOGRAM

DEPTH TO AGREE WITH DIGITAL DEPTH

Hydrographic Survey H-9008 (Field No. WH 20-2-68)

USC & GS Launch 1257

Fathometer: DE-723D S/N 1904

1968

<u>Date</u>	<u>Fathogram Scale</u>	<u>Mean Fathometer Depth (Ft)</u>	<u>Correction (Ft.)</u>
10/2/68	A	16	-0.2
10/2/68	A	17	-0.2
10/2/68	A	19	-0.2
10/11/68	A	27	-0.1
10/10/68	A	42	+0.1
10/2/68	A-B	50	-0.3
10/2/68	B	54	-0.3
10/3/68	B	60	-0.1
10/2/68	B	66	-0.3
10/12/68	C	93	-0.2
10/12/68	C	115	-0.1
10/11/68	D	130	-0.1
10/12/68	D	152	-0.1
		Mean Correction	-0.2

Note:

These values determined with launch stopped over level bottom in the various depths.

On lines there were some small phase differences indicated. Fgm to digital on A phase generally was +.2 to .3'

ABSTRACT OF CORRECTIONS TO
DISTANCE MEASUREMENTS

Hydrographic Survey H-9008 (Field No. WH 20-2-68)

USC & GS Launch 1257

1968

HI-FIX CORRECTIONS

<u>Day No.</u>	<u>POS # 's</u>	<u>PAT I</u>	<u>PAT II</u>	<u>TIME</u>
227	0001-0179	-.35	-.15	000000-240000
232	0180-0259	-.35	-.15	000000-240000
233	0260-0350	-.35	-.15	000000-240000
234	0351-0591	-.35	-.15	000000-240000
236	0592-0729	-.35	-.15	000000-240000
239	0730-1251	-.35	-.15	000000-240000
240	1252-1740	-.35	-.15	000000-240000
241	1741-2158	-.35	-.15	000000-240000
242	2253-2778	-.35	-.15	000000-240000
243	2779-3366	-.35	-.15	000000-240000
248	3367-3490	-.35	-.15	000000-240000
249	3490-3926	-.35	-.15	000000-240000
250	3926-4328	-.35	-.15	000000-240000
254	4328-4790	-.35	-.15	000000-240000
256	4791-5107	-.41	-.16	000000-240000
258	5108-5847	-.41	-.16	000000-240000
259	5848-6554	-.41	-.16	000000-240000
260	6555-6753	-.41	-.16	000000-110000
260	7000-7477	-.41	-.16	110500-240000
261	7478-8178	-.41	-.16	000000-240000
262	8179-8686	-.41	-.16	000000-240000
263	8687-8839	-.41	-.16	000000-240000
264	8840-9592	-.41	-.16	000000-240000
265	9593-9999	-.41	-.16	000000-142910
	0001-0208	-.41	-.16	142910-240000
268	0209-0421	-.41	-.16	000000-240000
269	0422-0840	-.41	-.16	000000-240000
270	0841-1422	-.41	-.16	000000-240000
275	1423-1847	-.41	-.16	000000-240000
282	1848-2366	-.40	-.13	000000-240000
283	2367-3084	-.40	-.13	000000-240000
**284	6800-6816	-.32	-.14	025500-065500
**284	6817-6863	-.32	-.14	102100-240000

** HI-FIX corrections applied to USC&GS WHITING detached positions (Bottom Samples).

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

FORM NO. 1001
10-23-60

V.H.-20-2-68

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (FATHOMS)	WEIGHT OF SAMP. FLTR	AP. PROX. FATH. TO BOTTOM	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	CHECKED BY	DATE CHECKED	REMARKS (Unusual conditions, corrections, depth under water, type of bottom, relief, etc., slope, plane, disposition, etc.)	OBS. INIT.
		LATITUDE	LONGITUDE										
6800	OCT. 10	41°06' 56.00	72°49' 04.31	85.2	80				fine gy M	Porter	143.08		
6801	X	41°07' 02.31	72°50' 46.45	91.6					"		152.92		
6802	X	41°07' 02.47	72°52' 34.06	85.8					"		155.20		
6803	X	41°07' 01.41	72°54' 01.65	86.9					"		156.91		
6804	X	41°06' 57.06	72°55' 57.25	76.2					"		160.09		
6805	X	41°07' 00.49	72°57' 34.25	68.4					"		166.27		
6806	X	41°07' 01.84	72°59' 20.38	72.0					"		170.40		
6807	X	41°07' 01.03	73°01' 08.00	67.6					"		175.81		
6808	X	41°07' 00.24	73°02' 58.94	56.0					"		186.36		
6809	X	41°07' 20.84	73°04' 37.15	43.0					"		192.35		
6810	X	41°05' 59.78	73°06' 04.14	46.8					"		164.81		
6811	X	41°05' 57.09	73°07' 08.76	60.6					"		163.54		
6812	X	41°05' 58.44	73°08' 58.14	71.3					"		161.90		
6813	X	41°05' 55.84	73°10' 20.14	77.0					"		157.95		
6814	X	41°05' 53.00	73°11' 37.15	82.0					"		153.77		
6815	X	41°05' 51.25	73°12' 54.26	85.0					"		150.20		
6816	X	41°05' 50.34	73°15' 36.25	81.0					"		148.05		

Use more than one box per sample if necessary.

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

FORM C&GS-733M
(6-23-65)

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (Fathoms)	WEIGHT OF SAMPLER	APX. PER- CENTAGE TENTATION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	CHECKED BY	DATE CHECKED	REMARKS Part II (Unusual conditions, cohesion, density, cutter, stat. no., type of bottom, relief, etc.)	OBS. INIT.
		LATITUDE	LONGITUDE										
6817	OCT. 10, 1968	41°08' 16.41"	72°49' 00.41"	86.4	80.0				fine gy M		159.79		
6818		41°09' 30.97"	72°48' 53.00"	72.0					fine gy M		167.16		
6819		41°10' 45.53"	72°48' 55.03"	58.2					fine gy M		174.97		
6820		41°12' 10.75"	72°48' 48.25"	49.6					fine gy M, sh		182.71		
6821		41°13' 03.97"	72°49' 55.75"	46.0					fine gy M		189.74		
6822		41°13' 02.39"	72°51' 17.06"	45.0					" "		193.00		
6823		41°13' 01.41"	72°53' 18.63"	42.0					crs. bk M, sh		193.42		
6824		41°11' 54.41"	72°52' 11.00"	52.8					fine gy M		189.39		
6825		41°11' 58.38"	72°56' 23.75"	53.8					" "		185.40		
6826		41°12' 03.13"	72°54' 04.63"	46.0					fine gy M, rk, sh		195.61		
6827		41°12' 31.63"	72°54' 47.56"	36.2					crs S use P=pebbles		201.05		
6828		41°12' 03.53"	72°55' 53.63"	38.6					crs. fine gy M, sh		201.45		
6829		41°12' 37.84"	72°56' 49.06"	39.0					fine S, fine gy M		207.56		
6830		41°12' 14.16"	72°57' 36.06"	42.0					fine gy M, sh		208.40		
6831		41°12' 47.22"	72°58' 35.68"	36.8					fine gy M, sh		214.55		
6832		41°12' 04.80"	72°59' 26.25"	41.0					fine gy M, fine sh DO NOT USE		195.54		
6833		41°11' 32.69"	72°56' 20.00"	41.0					use P=pebbles		193.15		

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (Fathoms)	WEIGHT OF SAMPLER ELEMENT	AP. PROX. PENETRA- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	PART I REMARKS (Unusual conditions, cohesionless, detrital cutting, size, nature of bottom, relief, etc.)	PART II REMARKS (Special slope, plain, disposition, etc.)	OBS. INIT.			
		PROJ. NO.											YEAR	CHECKED BY	DATE CHECKED
		LATITUDE	LONGITUDE												
6834	Oct. 10	41° 0' 55.06	73° 0' 13.00	35.4	80				CRS s. bk w. sh, fne gy M	170.48	216.49				
6835		41° 0' 48.66	73° 02' 44.94	36.4					" " " " " "	154.66	223.16				
6836		41° 0' 51.47	72° 59' 34.49	41.6					CRS gy S	188.14	208.47				
6837		41° 0' 55.28	72° 57' 40.31	47.6					fne gy M	209.93	201.03				
6838		41° 11' 02.41	72° 55' 50.38	51.8					Med gy M	231.94	195.17				
6839		41° 0' 57.28	72° 53' 57.94	52.0					fne gy M	254.40	188.65				
6840		41° 0' 56.56	72° 52' 06.69	49.5					" " "	277.36	183.43				
6841		41° 0' 50.84	72° 50' 25.38	56.8					" " " , fne sh	298.47	178.74				
6842		41° 09' 42.50	72° 50' 33.50	66.0					" " "	295.21	171.71				
6843		41° 09' 14.00	72° 52' 23.88	61.6					" " "	231.52	175.98				
6844		41° 09' 45.79	72° 53' 41.69	51.8					CRS gy M, sh	254.73	179.47				
6845		41° 09' 45.59	72° 55' 51.31	57.6					fne gy M	227.25	185.97				
6846		41° 09' 50.31	72° 57' 42.44	52.8					" " " , fne w. sh spks	204.81	193.17				
6847		41° 09' 50.19	72° 59' 29.25	46.2					CRS dk brs	183.86	200.55				
6848		41° 09' 51.16	73° 01' 23.19	44.6					USE → SPK gy M Med gy M, fne spks	162.64	209.87				
6849		41° 09' 52.94	73° 02' 57.85	37.6					USE → " SPK gy M "	146.40	218.92				
6850		41° 09' 50.47	73° 04' 38.33	27.4					USE → " SPK gy M "	130.21	228.36				

Use more than one line per sample if necessary.

✓

LIST OF SIGNALS

USED IN HI-FIX CALIBRATION

Hydrographic Survey H-9008 (Field No. WH 20-2-68)

1968

USC & GS Launch 1257

<u>Signal Name</u>	<u>Origin</u>	<u>Latitude</u> <u>Longitude</u>
BEA	Housatonic River, Beacon No. 3, 1931	41°10'05.849" 73°06'34.113"
BREAK	BREAK, 1931 (Housatonic River Breakwater Light)	41°09'38.254" 73°05'36.513"
EAST	New Haven Mid Breakwater, East End Light, 1931	41°13'52.659" 72°55'24.882"
HAV	New Haven Light, 1933	41°13'15.430" ✓ 72°56'33.422" ✓
LED	Southwest Ledge Lighthouse, 1882	41°14'03.681" ✓ 72°54'45.178" ✓
MID	New Haven Mid Breakwater, West End Light, 1931	41°13'27.229" 72°56'11.308"
NEW	New Haven West Breakwater, West End Light, 1931	41°13'31.939" ✓ 72°57'23.754" ✓
NORTH	WICC North Radio Tower, 1933	41°09'39.230" 73°09'54.354"
OLD	Old Tower, 1833-32 (New Haven Lighthouse)	41°14'55.931" 72°54'15.238"
POINT	Stratford Point Lighthouse 1881	41°09'06.799" 73°06'13.577"
PORT	Port Jefferson, Long Island Lighting Co. Southwest Stack, 1962	40°56'59.461" 73°04'46.287"
RIV	Housatonic River, Beacon No. 1, 1931	41°09'46.676" 73°06'14.987"
SOUTH	WICC South Radio Tower, 1933	41°09'32.803" 73°09'51.981"
STRAT	Stratford Shoal Lighthouse, 1881	41°03'35.368" 73°06'02.214" ✓

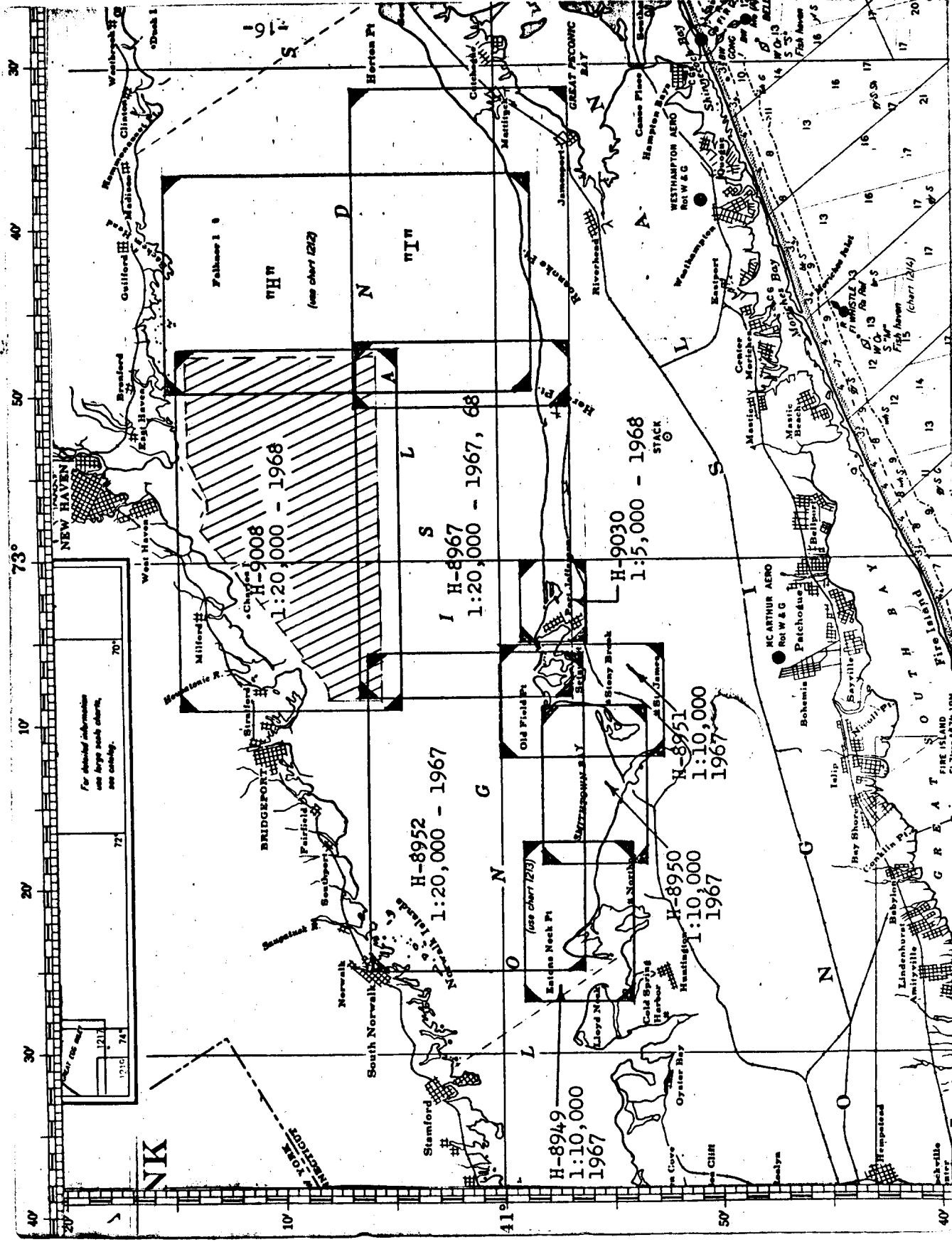
APPROVAL SHEET

HYDROGRAPHIC SURVEY H-9008 (Field No. WH 20-2-68)

The smooth sheet and accompanying records have been carefully examined and are approved. This survey was conducted under my personal supervision, and I reviewed all data daily throughout the course of the field work.



Clinton D. Upham
CDR, USESSA
Officer in Charge
High Speed Hydrographic
Survey Project



APPENDIX

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501. PRINTED BY THE STANDARD REGISTER COMPANY, U. S. A. STAINLOCK

DAY 264

123120 027853 019987 0255/033300002641
 123130 027849 019968 0248/033900002641
 123140 027837 019941 0246/034000002640
 123150 027843 019913 0249/034100002640
 123200 027852 019883 0251/034200002640
 123210 027853 019860 0254/034300002640
 123220 027855 019829 0257/034400002640
 123230 027858 019801 0258/034500002640
 123240 027855 019777 0291/034600002640
 123250 027853 019752 0341/034700002640
 123300 027850 019721 0339/034800002640
 123310 027850 019693 0354/034900002640
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 123330 027855 019641 0357/035100002640
 123340 027854 019611 0359/035200002640
 123350 027847 019583 0351/035300002640
 123400 027847 019557 0348/035400002640
 123410 027847 019524 0337/035500002640
 123420 027847 019498 0334/035600002640
 123430 027847 019471 0473/035700002640
 123440 027847 019443 0493/035800002640
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 123510 027847 019357 0469/036100002640
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 123540 027852 019265 0504/036400002640
 123550 027856 019235 0510/036500002640
 123600 027862 019203 0510/036600002640
 123610 027858 019176 0507/036700002640
 123620 027844 019148 0496/036800002640

Sheet 101-10-68

Control (Hyperbolic)

20 Sept 1968

123450

123400

A scale
B scale

EXAMPLE OF RAW DATA (DCU) FORMAT

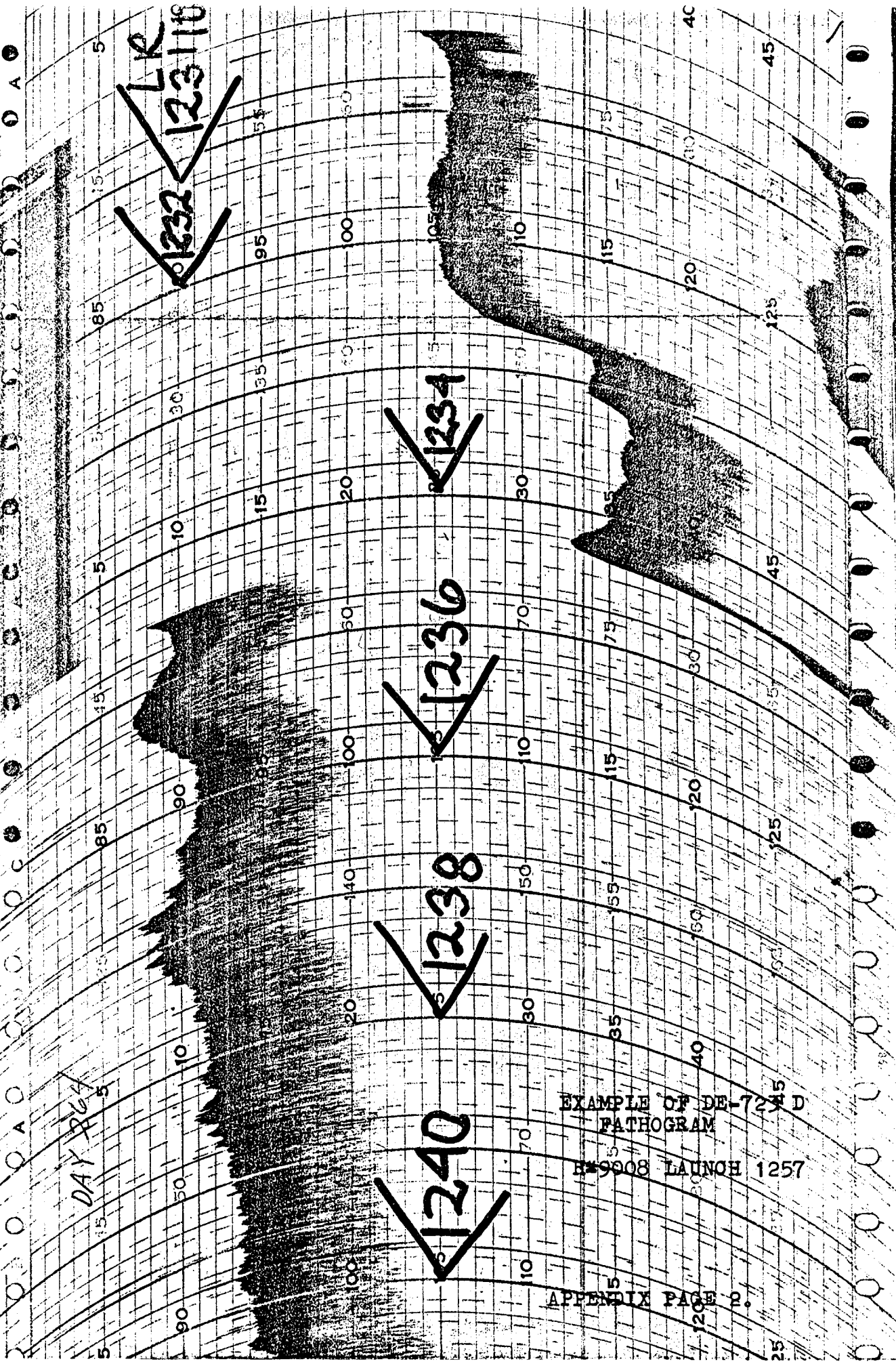
H-9008 LAUNCH 1257

Helmshing

APPENDIX PAGE 1.

Ch 77

30 RAYNEON CO. SOUTH SAN FRANCISCO CALIF. CENTER OF GRAVITY IN FEET OR F



EXAMPLE OF DE-7245 D
BATHOGRAM
H*9908 LAUNCH 1257

123120 01 0255 9099 264 0 027868 019987 ✓
123130 01 0248
123140 01 0246
123150 01 0249 9100 264 0 027843 019913
123200 01 0251
123210 01 0254
123220 01 0257 9101 264 0 027855 019829
123230 01 0268
123240 01 0291
123250 01 0341 9102 264 0 027853 019752
123300 01 0339
123310 01 0354
123320 01 0363 9103 264 0 027855 019668
123330 01 0357
123340 01 0359
123350 01 0351 9104 264 0 027847 019583
123400 01 0348
123410 01 0337
123420 01 0334 9105 264 0 027847 019498
123430 01 0473
123440 01 0493
123450 01 0495 9106 264 0 027847 019411
123500 01 0481
123510 01 0469
123520 01 0474 9107 264 0 027847 019323
123530 01 0489
123540 01 0504
123550 01 0510 9108 264 0 027856 019235
123600 01 0510
123610 01 0507
123620 01 0496 9109 264 0 027844 019148

DAY 264

EXAMPLE OF WHITING FORMAT

H-9008 LAUNCH 1257

APPENDIX PAGE 3.

Conny High Fix position

Line 1 - 3 Pt. Sextant Fix Position - WHITING (PDP-8)
 Line 2 - 3 Pt. Sextant Fix Position - AMC (IBM-1130)
 Line 3 - Difference in Meters
 * Displacement on 1:20,000 scale survey sheet (MM.)

Appendix Page 4.

	LAT	SEC	M	* mm	LONG	SEC	M	* mm	No.
	41-12	37.63	1160.8		72-56	50.13	1168.1		2
	41-12	37.85	1167.6		72-56	50.217	1170.1		
			6.8	.34			2.0	.10	
	41-12	37.28	1150.0		72-56	50.75	1182.5		3
	41-12	37.56	1158.7		72-56	50.850	1184.9		
			8.7	.44			2.4	.12	
	41-12	41.19	1270.6		72-56	48.50	1130.1		4
	41-12	41.43	1278.2		72-56	48.558	1131.4		
			7.6	.38			1.3	.07	
	41-09	38.09	1175.0		73-05	16.69	389.1		5
	41-09	38.35	1183.3		73-05	16.738	390.3		
			8.3	.46			1.2	.06	
	41-09	38.34	1182.7		73-05	17.00	396.4		6
	41-09	38.56	1189.6		73-05	17.499	408.0		
			6.9	.35			1.6	.08	
	41-09	38.34	1182.7		73-05	17.31	403.6		7
	41-09	38.630	1191.7		73-05	17.366	404.9		
			9.0	.45			1.3	.07	
	41-09	31.50	971.7		73-05	00.94	21.9		8
	41-09	31.747	979.4		73-05	01.007	23.5		
			7.7	.38			1.6	.08	
	41-08	20.13	621.0		73-05	58.50	1364.4		9
	41-08	20.376	628.6		73-05	58.517	1364.7		
			7.6	.38			0.3	.02	
	41-08	20.44	630.5		73-05	58.38	1361.6		10
	41-08	20.637	636.6		73-05	58.410	1362.3		
			6.1	.36			0.7	.04	
	41-08	20.53	633.3		73-05	58.31	1360.0		11
	41-08	20.782	641.1		73-05	58.309	1360.0		
			7.8	.39			0.0	.00	
	41-07	13.09	403.8		72-58	25.94	605.7		12
	41-07	13.301	410.3		72-58	25.975	606.0		
			6.5	.32			0.8	.04	

Appendix Page 5.

LAT	Sec	M	* MM	LONG	Sec	M	* MM	No.
41-07	11.84 13.09	364.7 365.7		72-58	25.56	596.3		13
41-07	17.078	377.6	.38	72-58	25.57	596.6		
		7.4 7.9	.37			0.3	.02	
41-07	01.78	54.9		72-56	29.88	697.1		14
41-07	01.910	58.9		72-56	29.85	696.4		
		4.0	.30			0.7	.04	
41-07	03.66	112.9		72-56	30.38	708.8		15
41-07	03.829	118.1		72-56	30.399	709.7		
		5.7	.26			0.4	.02	
41-03	21.94	676.8		73-05	28.50	665.5		16
41-03	22.087	681.3		73-05	28.52	666.1		
		4.5	.22			0.6	.03	
41-03	26.78	810.7		73-05	33.38	779.5		17
41-03	26.460	816.7		73-05	33.390	779.8		
		5.5	.28			0.3	.02	
41-10	54.75	1688.9		73-03	02.06	48.0		18
41-10	54.998	1696.6		73-03	02.062	48.1		
		7.7	.38			0.1	.00	
41-03	24.91	1076.9		73-05	18.56	433.4		19
41-03	25.114	1083.7		73-05	18.574	433.8		
		6.3	.32			0.8	.04	



U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
Atlantic Marine Center
439 West York Street
Norfolk, Virginia 23510

Pruf

Commanding Officer
USC&GSS WHITING

18 May 1967

INSTRUCTIONS -- PROJECT OPR-474 -- LONG ISLAND SOUND

GENERAL

1. Purpose. A basic hydrographic survey in Long Island Sound is required for maintenance of existing coverage and to fulfill requirements for a new nautical chart.

2. Plan of Operations. Work on this project shall begin after returning from operations on Project OPR-423, Puerto Rico. Field operations shall begin at the western end of the project area and progress east along the northern shore of Long Island with hydrography extending to the limit of ship work along the Connecticut shore.

HYDROGRAPHY

3. Hydrography shall be basic and in accordance with the Hydrographic Manual.

4. Hydrography from Eatons Neck Point to Old Field Point is first priority. Hydrography in this area is required to fulfill the requirements for the issue of a "new" 1:20,000 chart. The limits of "new" chart 225 are shown on the project limit sketch.

5. Control. Offshore hydrography shall be controlled by HI-FIX. Inshore hydrography shall be controlled by visual fix. Photo-hydro support will be furnished by an experienced photogrammetrist assigned by the East Coast Field Director.

6. All triangulation stations in the project area shall be searched for and reported on. New stations that will be necessary for the subsequent control of hydrography shall be established by second order, Class II methods. Triangulation data for the project area will be furnished.

7. Signals may be located by any approved method but those located by photogrammetric methods shall conform to the requirements of the Hydrographic Manual and Photogrammetry Instructions No. 45, Revision 1. Field locations of all signals shall be final. Signals for the Mt. Sinai Harbor 1:5,000 survey shall be established by plane table since 1:5,000 coverage is not available at this time.

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8. Use of HI-FIX frequencies and operations in restricted areas shall be coordinated with local military officials.
9. A boatsheet layout will be furnished. Boatsheets shall be constructed by ship's personnel.
10. A permanent record shall be made of all fix angles and geographic positions of objects used for calibration. A report on HI-FIX calibration and calibration checks shall be made in accordance with Section 3-61 of the Hydrographic Manual.
11. Sounding Equipment. Echo sounding shall be used wherever practicable. The use of sounding poles may be more feasible in rivers, inlets and in shallow flat areas. Fathometer soundings shall be recorded simultaneously with pole soundings when possible. Least depths on critical shoals and doubtful echo soundings shall be verified by hand lead. All questionable soundings shall be resolved in the field.
12. Maintenance for the DE-723 shall be in accordance with maintenance instructions forwarded in memorandum referenced C56, Change to Maintenance Instructions, dated December 22, 1966.
13. Line Spacing. Sounding line spacing shall not exceed the following:
- | <u>Spacing (meters)</u> | <u>Depth or Area</u> |
|-------------------------|--|
| 50 | In channels, inlets and harbors developed on 1:5,000 sheets. In areas of irregular bottom in depths less than 3 fathoms. |
| 100 | General spacing in depths less than 11 fathoms. |
| 200 | In depths over 11 fathoms. |
14. Line spacing shall be reduced where necessary to delineate bottom configuration. All indications of bottom irregularity shall be thoroughly developed. Use of development overlays is encouraged.
15. Junctions. Satisfactory junctions shall be made with modern surveys indexed on the limit sketch. Copies of the junctioning surveys will be furnished. Copies of other prior surveys will be furnished for comparison purposes.
16. In areas which are subject to natural and/or man-made changes, hydrography shall be completed to the extent necessary

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A5

to insure adequate junctions with future surveys.

17. If significant changes are known to have occurred within the areas covered by contemporary surveys, these areas shall be resurveyed to the extent necessary to insure accuracy of chart revision and proper junctions.

18. Scales. Mt. Sinai Harbor and bordering areas shall be surveyed at the scale of 1:5,000 for revision of chart 361. Smithtown Bay shall be surveyed at the scale of 1:10,000 from the project limit at Eatons Neck Point to a junction with H-7938 (1:10,000, 1951) at Old Field Point. The remaining areas shall be surveyed at the scale of 1:20,000.

19. Systems of sounding lines. Sounding lines shall be in accordance with Sections 5-19 through 5-24 of the Hydrographic Manual. Crosslines shall be run in accordance with Section 1-26.

20. Depth unit. Soundings shall be recorded in feet.

21. Presurvey review. A presurvey review of the project area will be furnished. All items shown on the review and critical data from other sources shall be plotted on boatsheets and thoroughly examined to prove or disprove their existence. The descriptive report shall make definite recommendations to dispose of each numbered item on the presurvey review.

22. Hydrographic data shall be recorded and processed in accordance with the Provisional General Instructions for Automated Hydrographic Surveys.

PHOTOGRAMMETRY

23. The photogrammetrist to be assigned by the East Coast Field Director to provide photo-hydro operational support will report to and be under the day-to-day supervision of the Commanding Officer. Administrative supervision will remain with the East Coast Field Director.

24. Photo-hydro support data for the Advance shoreline manuscripts will be furnished for the shoreline from Eatons Neck to Mattituck Inlet upon request.

25. The data will consist of two cronaflex positives and three ozalid prints of each map manuscript. One cronaflex positive is intended for transfer of shoreline to boatsheets and the other for signal location. In addition to field ratio prints and specially prepared cronapaque ratio photographs will be furnished.

AK 8

26. Field edit shall be limited to the shoreline and along-shore features. The photogrammetrist shall make the field edit during, and as currently as practicable with photo-hydro support operations.

27. All field edit notes shall be made in violet ink on the field ratio prints. Each correction, or group of corrections shall be cross-referenced by the appropriate photograph number on an ozalid print of the affected survey. Each correction shall be made in this manner regardless of its seeming unimportance. Corrections noted only in the sounding volume, or elsewhere in the hydrographic records will be hidden from the photogrammetric compiler and reviewers, and will likely never be applied to the map manuscript. The ozalid print will serve as an inventory and index of corrections to be applied prior to processing smooth sheets.

28. The photogrammetrist shall be responsible for agreement between the boatsheet and the field edit data where the two surveys cover common details. All discrepancies must be resolved before field edit data is shipped.

29. Submit a field edit report for each map edited as specified in Section 727, Topographic Manual, Part II. Side headings 53 and 55 may be omitted, but any applicable items not provided for in the outline may be reported under items 56 through 60.

30. Cronaflex copies used for locating signals and cronaflexes needed for processing smooth sheets shall be made a part of the hydrographic records. Field and cronapaque ratio prints that will not be needed again for field edit or to locate signals shall be returned to the Chief, Photogrammetry Division by the photogrammetrist.

TIDES

31. The control tide stations at New London, Connecticut and Port Jefferson, New York will serve as reference stations. Servicing of the gages is not required. Copies of the latest inspection reports will be furnished.

32. As work progresses, automatic gages shall be maintained at the following locations:

- a. Niantic, Connecticut
- b. Saybrook Jetty, Connecticut
- c. Essex, Connecticut River
- d. Truman Beach, Long Island
- e. Clinton Harbor, Connecticut
- f. Horton Beach, Long Island
- g. Mattituck Inlet, Long Island
- h. Sachem Head, Connecticut

- i. Herod Point, Long Island
- j. New Haven, Connecticut

Tidal bench mark data for b, e, g and j will be furnished.

33. Tide reducers for hydrography in the vicinity of Eatons Neck, Port Jefferson and Plum Island may be obtained from the standard gages operating at the respective locations. Hourly heights may be requested from the Rockville Office.

34. The satisfactory operation of all tide gages shall be checked periodically to insure continuous records during periods of hydrography.

35. Tidal zoning, where applicable, shall be in accordance with paragraph 5-102 of the Hydrographic Manual and sections 253 through 256 of Publication 30-1, Manual of Tide Observations.

36. Geographic limits of each tide zone and any time and range corrections shall be given in the Tide Note in Descriptive Reports. Break points for each tide zone shall be clearly indicated in the sounding volumes as they occur. Tide zone limits shall be indicated on boatsheets.

37. Assistance and/or approval of tidal zoning plans will be given by the Tides and Currents Branch, Rockville Office, C331 upon request.

COAST PILOT

38. The Coast Pilot description of the project area shall be carefully reviewed and a special report submitted in accordance with Section 7, Coast Pilot Manual, Second (1964) Edition.


MISCELLANEOUS

39. Reports shall be submitted in accordance with Sections 2-36 through 2-48 of the Hydrographic Manual.

40. Monthly progress sketches shall be submitted at the scale of Chart 1212.

41. Submit recommendations if it appears advisable to amend these instructions.

42. Receipt of these instructions shall be acknowledged.


J. Bull
Director
Atlantic Marine Center

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AR



U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
NORFOLK REGIONAL OFFICE
NORFOLK, VA. 23510
Atlantic Marine Center

IN REPLY REFER TO:

14 May 1968

Commanding Officer
USC&GSS WHITING

SUPPLEMENTAL INSTRUCTIONS -- PROJECT OPR-474 -- LONG ISLAND
SOUND

GENERAL

1. INSTRUCTIONS -- PROJECT OPR-474 -- LONG ISLAND SOUND, dated 18 May 1967 remain in effect with additions and changes as noted. Delete paragraphs 4, 12 and the portion of paragraph 18 referring to Smithtown Bay.

HYDROGRAPHY

2. Inshore ends of electronically controlled lines shall be tied down by strong sextant fix.

3. Maintenance for the DE-723 fathometer shall be in accordance with maintenance instructions forwarded in memorandum referenced C56, Change to Maintenance Instructions, dated December 22, 1966. Hourly comparison of the "A" and "F" scale initial trace is required. Comparison of the "Fix" trace with the "Fine" arc of the chart paper shall be made twice each day. These checks shall remain with the fathogram as part of the permanent records of the survey. Immediate adjustment shall be made when the stylus arm length or paper alignment is found to be incorrect.

4. Bottom samples shall be taken in accordance with paragraph 1-42 of the Hydrographic Manual. Sample spacing may be increased to 5 inches in depths less than 100 fathoms where bottom characteristics are found to be in agreement with prior surveys. Bottom samples shall be preserved in accordance with memorandum referenced C33-232, Bottom Sediment Samples, dated December 22, 1966. Samples should be taken by snapper cups to get as large a sample as possible. Use of armed lead is discouraged.

5. Attention is called to paragraph 7 concerning signals for the Mt. Sinai Harbor 1:5,000 survey. Photogrammetric coverage is still not available for this area.

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A4

6. The use of light skiffs for shallow water hydrography shall be restricted to foul areas or in shoal waters with flat, featureless bottoms where it is impracticable to sound with conventional launches. The skiff shall be manned by a minimum of 5 men to insure adequate quality of hydrography. Skiff hydrography shall make proper junction with launch work but shall not be interspersed with launch hydrography in open or navigable waters.

7. Copies of 1967 hydrography will be furnished for junction purposes.

8. Photo-hydro support data for sheets T-12389 through T-12400 were furnished to the Ship WHITING for the 1967 field season. The data should be examined for completeness. Replacements for any missing or damaged items will be furnished by the Chief, Photogrammetry Division, within 30 days after receipt of request. The Chief, Photogrammetry Division will furnish photo-hydro support data for sheets T-11730 through T-11732 on 30-day notice and for sheets T-11726 through T-11729 on 60-day notice.

9. Tide reducers for hydrography in the vicinity of Eatons Neck, Port Jefferson, Plum Island and Bridgeport may be obtained from the standard gages operating at the respective locations. Hourly heights may be requested from the Rockville Office.

MISCELLANEOUS

10. A radio schedule will be established between the WHITING and the Atlantic Marine Center radio station KVH at the beginning of the field season. Details on the frequencies and times of routine operation of KVH will be furnished by the Atlantic Marine Center.

11. Submit recommendations if it appears advisable to amend these instructions.

12. Receipt of these supplemental instructions and instructions for Project OPR-474 dated 18 May 1967 shall be acknowledged.



J. Bull
Director
Atlantic Marine Center

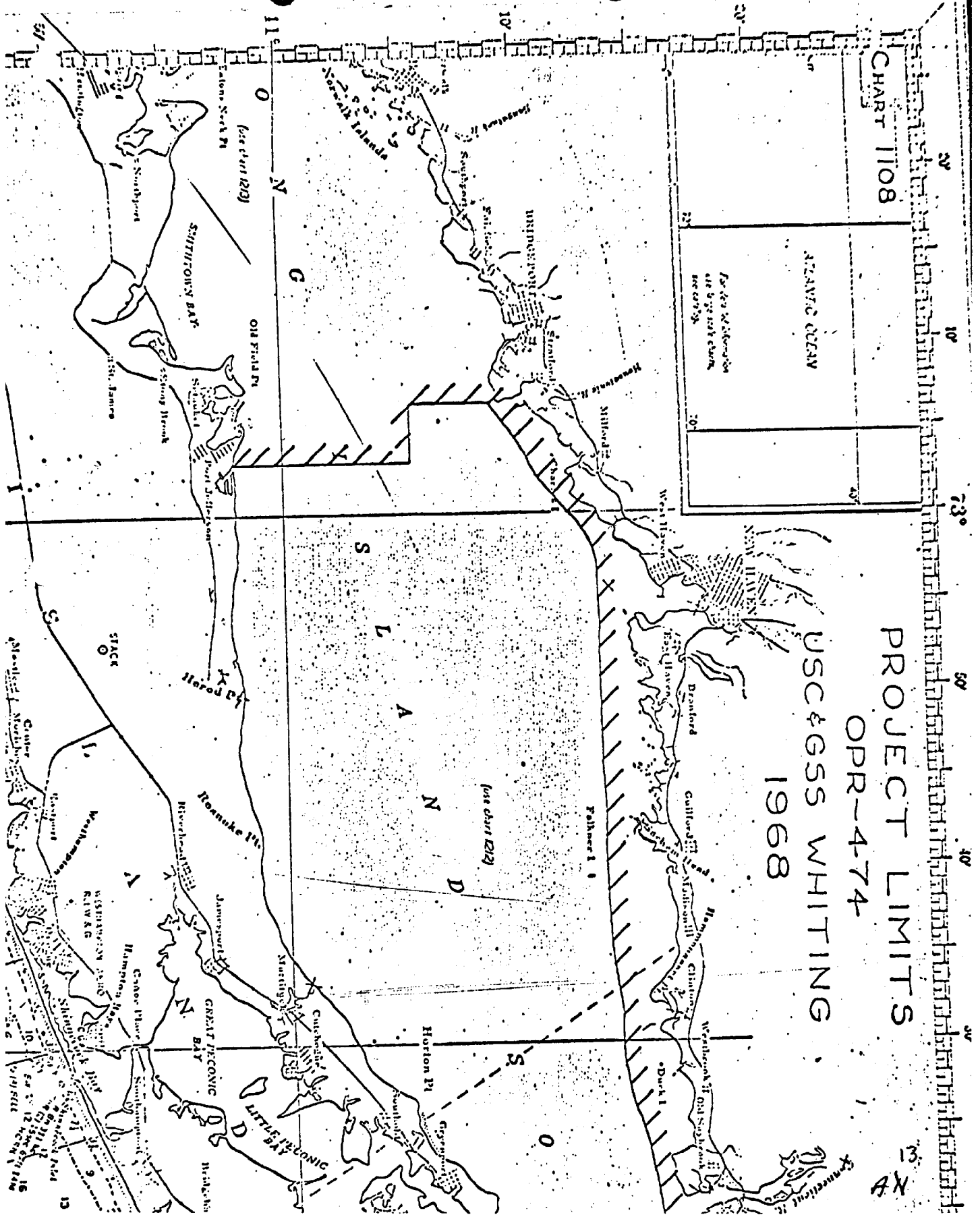
12
AK

CHART 1108

ATLANTIC OCEAN

For the information
of the fisherman
reference

PROJECT LIMITS OPR-4-74 USCG & GSS WHITING 1968



AX 13

Atlantic Marine Center
439 West York Street
Norfolk, Virginia 23510

CFN2

Officer in Charge
High Speed Launch 1257

18 July 1968

INSTRUCTIONS -- SP-AMC-11-68 -- HIGH SPEED LAUNCH HYDROGRAPHY --
LONG ISLAND SOUND

GENERAL

1. Purpose. This project is being undertaken to test the feasibility of conducting electronically controlled large scale hydrographic surveys at speeds in excess of 15 knots.
2. This work shall be accomplished according to INSTRUCTIONS -- PROJECT OPR-474 -- LONG ISLAND SOUND, dated 18 May 1967 and SUPPLEMENTAL INSTRUCTIONS -- PROJECT OPR-474, dated 14 May 1968.
3. The Commanding Officer of the WHITING is directed, by copy of these instructions, to furnish all support requested without unduly impeding his own progress.

HYDROGRAPHY

4. Control. Hydrography shall be controlled by Hi-Fix using existing shore stations installed by personnel of the WHITING.
5. All corrections to sounding data shall be requested from the WHITING.
6. Receipt of these instructions shall be acknowledged.

J. Bull
Director
Atlantic Marine Center

cc:
WHITING
C351
C62
C62, Capt. Jones
PIxl
Proffitt

14
AX

Memorandum

TO : Commanding Officer
USC&GSS WHITING

FROM : Chief, Datum Planes Section
Oceanography Division

DATE: November 8, 1968

In reply refer to:
C3311-169-CSSK

SUBJECT: Tidal data, Long Island, New York

In reply to your memorandum of October 25, 1968, there are enclosed hourly heights for Port Jefferson, New York, for August and September 1968. Hourly heights for October will be furnished as soon as they are available. Tabulated heights refer to a datum which is 3.7 feet below mean low water.

Listed below are the corrections to apply to the Port Jefferson tides for the reduction of soundings.

Area (Longitude) Time and Height Correction

73°00' - 73°08'

No correction

72°56'

72°48' - 73°00'

+0 15' in Time +
0.9 Range Ratio

72°56'

*Call Wharton on
Nov. 15
- copying
+ 0 15'*

*O.K.
- Call Wharton 11/13/68
- r.c.c.*

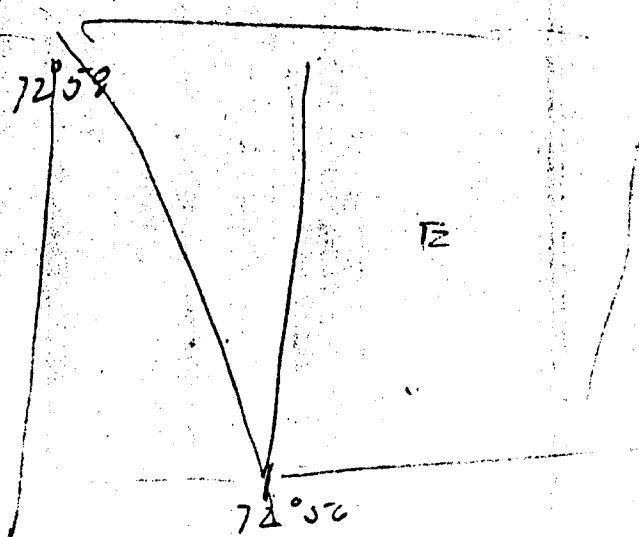
L. C. Wharton
L. C. Wharton

R.C. Wharton

Enclosures

cc:
AMC

148-8468 W
301-496-8468-



A15

UNITED STATES GOVERNMENT

Memorandum

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

TO : Chief, Tides & Currents Section

DATE: 1/13/69

In reply refer to:

FROM : Commanding Officer, USC&GS Ship WHITING

SUBJECT: Tidal Data Approval, Long Island Sound, New York

Ref.: A. C3311-169-CSSK, dated 11/8/68
B. 2 sheets of tide curves - East zone.

Enclosed for your approval are subject tide reducers for surveys H-9005 and H-9006. Please forward approved reducers to Chief, Electronic Data Processing, Pacific Marine Center as soon as possible for smooth processing.

It is noted that the corrections in the East zone are not based on the +15 minute time correction as indicated by Reference A. It should have been a -15 minute time correction. This can be verified by a comparison of the two sets of tide curves (Ref. B.). One set for Long Wharf in New Haven showing the true tides for the East zone and the other based on the +15 minute correction as applied to Port Jefferson hourly heights.

The preliminary plot of survey H-9006, High Speed Launch survey, also reflects the 1/2 hour difference in time.

Wayne L. Mobley

CC: AMC
PMC



BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

A16

UNITED STATES GOVERNMENT

Memorandum

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

TO : Director, Coast and Geodetic Survey

DATE: 1/17/69

THRU: Director, Atlantic Marine Center

In reply refer to:

FROM : Commanding Officer
USC&GS Ship WHITING

SUBJECT: Tide Problems

REF.: WHITING memo to Chief, Tides & Currents Branch 1/13/69

The problem of the slowness in obtaining the tide reducers for an automated survey has again come up.

This time it has been complicated by an erroneous time correction furnished to the ship by Tides and Currents Branch (see reference memo).

The result of this is that the completion of the High Speed Launch smooth sheet, survey H-9006, ~~will be~~ ^{is} delayed several months.

We had found the error after the application of tides to the preliminary plot. This plot also brought several other problems to light in our present programs and systems. These we are taking steps to eliminate.

The tidal problem however is one that must be dealt with in the immediate future. We on the WHITING have considered several partial solutions which will reduce the time aboard the ship in producing the tide reducer but will not eliminate the slowness nor the possible errors in the Rockville system.

We presently have a programmer in Rockville who is working on a program for our computer system which will produce tide reducers on both an ASCII tape (used in listing and submission to P. M. C.), and a binary tape (used in storing the correctors in the computer). These tide reducer tapes will be produced by either entering times of highs and lows (predicted tides) or the hourly heights (smooth tides) along with time correction, ratios, datum or whatever else is necessary to produce a set of corrections.

A 17

If it could be used and would speed the approval of the tides we could also draw the curves on the plotter to the scale of form 114, graph of tide reducers, and submit to Tides and Currents Branch. This program could be a great time saver for the ship as it would be available to East Coast ships and field parties during our June and winter inport periods.

If the WITING can produce the product why then can't the hourly heights be furnished to computer division in Rockville and the corrections furnished the ships or marine center?

If speed is essential in producing an automated survey then what is the status of the development of portable telemetered tide gauges for shipboard use?

These problems, partial solutions and questions are herewith forwarded for your consideration and evaluation.

Wayne L. Mobley

CC; A.M.C.
P.M.C.
C6

A-18

Coast and Geodetic Survey

Chief, Electronic Data Processing Branch
Pacific Marine Center

February 12, 1969

Chief, Datum Planes Section
Oceanography Division

C3311-15-MCFOE

Verified tide reducers

Enclosed are verified tide reducers and Form 712 for printout tapes submitted in the memorandums of January 13 and 15, 1969, by the USC&GSS WHITING.

The tide reducers for the East Zone on H.S. 9005-6 were verified by using Port Jefferson tides with zero time correction and 0.9 range ratio. This correction seemed much more logical than the one previously furnished or that which was used by the WHITING.

L. C. Wharton

L. C. Wharton

Enclosures 2

cc:
Cdr. Upham, AMC

2/19/69

NOTE: In telephone discussion this date Mr. Wharton advised that the -15 minute time correction proposed by WHITING (WHITING memo 1/13/69) is to be used. He contended that paragraph 1 above so indicates. He indicated that paragraph 2 above means that Port Jefferson w/zero time corr'n was merely used to verify these tide reducers. We SHALL use the -15 minute time correction.

Upham

A 19

FIG. 18.

DESCRIPTIVE REPORT DATA RECORD		
PART I SMOOTH SHEET PREPARATION		
	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		
	CARTOGRAPHER	DATE
A. DISTORTION SCALE TICKS IDENTIFIED BY NOTE	ALLAN K. SCHUGELD	5/5/69
B. PROJECTION INTERSECTIONS VERIFIED BY	ALLAN K. SCHUGELD	4/1/69
C. PROJECTION LINES RULED BY	ALLAN K. SCHUGELD	4/2/69
D. ELECTRONIC CONTROL ARCS RULED AND LOCATION VERIFIED	ALLAN K. SCHUGELD	5/7/69
E. OVERLAYS COMPLETED BY	ALLAN K. SCHUGELD	
1. POSITION NUMBER LEADERS ADDED	ALLAN K. SCHUGELD	5/21/69
2. EXCESS SOUNDING OVERLAY COMPARED	ALLAN K. SCHUGELD	4/30/69
3. PRELIMINARY SMOOTH PLOTS COMPARED	ALLAN K. SCHUGELD	4/25/69
4. OTHERS UTILIZED		
A.		
B.		
F. DESCRIPTIVE REPORT ADDENDUM	ALLAN K. SCHUGELD	5/21/69
G. CONTROL STATIONS VERIFIED	ALLAN K. SCHUGELD	4/2/69
POSITIONS MANUALLY PLOTTED	F. BEAN AND D. R. MUMFORD	4/18/69
MANUAL PLOT VERIFIED	ALLAN K. SCHUGELD	4/23/69
J. SHORELINE APPLIED	NOT APPLICABLE	
K. BOTTOM CHARACTERISTICS ADDED	ALLAN K. SCHUGELD	4/29/69
L. NOTES AND DEPTH CURVES ADDED	ALLAN K. SCHUGELD	5/2/69

H- 9008

A. Additions and corrections have been furnished the plotter
Except those to be forwarded
center by the verification unit. by Review
Signed *Alfred L. Ruffner*
Date July 17, 1969 Title Chief, Hydro Br., AMC

B. Additions and corrections have been added to the survey
records and the final smooth sheet forwarded to the verifica- (Review)
tion unit.

Date July 17, 1969 Signed *Alfred L. Ruffner*
Title Chief, Hydro Br., AMC

C. The smooth sheet has been inspected, is complete, and
meets the requirements of the General Instructions for
automated surveys and the Hydrographic Manual. (Note:
All exceptions are listed in the verifier's report).

Date July 17, 1969 Signed *Alfred L. Ruffner*
Title Chief, Hydro Br., AMC

D. Smooth sheet and records forwarded to Rockville, Maryland
Office.

Date July 22, 1969.

NORFOLK HYDROGRAPHIC PROCESSING BRANCH

VERIFICATION NOTES

H-9008

GENERAL

The location chosen for this test survey is representative of much of the area surveyed by the Bureau along the Gulf and Atlantic coasts. The bottom varies from smooth to undulating to irregular, and includes some sandwaves at the West end of the survey.

The survey is a picture of evenly spaced, symmetrical, hyperbolic sounding lines. Soundings are homogeneous in that they are compatible with those on adjacent lines and are in good agreement at crossings. Depth curves follow the natural configurations of the various types of bottom surveyed.


VERIFICATION

Verification was accomplished in a minimum amount of time and with much less effort than would have been needed on other surveys of comparable size. Use of the digitized fathometer helped to speed our operation by eliminating most of the human errors usually experienced when scanning in the conventional manner.

Under the system used, which will be changed on future surveys, position numbers were applied by computer after the survey had been completed. Soundings on the fathograms have to be related to the positions by time and Julian day. While very few position "busts" were found, due to the shortness of the position interval, a considerable amount of time was needed to connect and verify the 13000 used to control the survey.

Since the automated system only allows four places for position numbers two Mylar overlays were needed to avoid duplications. Positions 1 thru 9999 are plotted on one overlay in ~~black~~ ink, the remaining positions are plotted on the other overlay in ~~red~~ ^{black} ink.

A field boat sheet was not made for this survey as a plotter was not available for Launch 1257 at the time the field work was done.


Hugh L. Proffitt
Chief, Hydro Branch, AMC

Norfolk, Va.
July 17, 1969

FORM C&GS-946
(REV. 11-65)
(PREP. BY
HYDROGRAPHIC
MANUAL 20-2,
0-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-9008

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT			
SMOOTH SHEET	1	BOAT SHEETS <i>None</i>				
DESCRIPTIVE REPORT	1	OVERLAYS <i>None</i> 2 Position overlays to be retained	5			
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS / SOURCE DOCUMENTS
ENVELOPES	1		2			
CANIERS	2		1			
VOLUMES						
BOXES						

T-SHEET PRINTS (LINE) *None*

SPECIAL REPORTS (LINE)
See paragraph Q

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				12,919
POSITIONS CHECKED		100	3	
POSITIONS REVISED		11	1	
DEPTH SOUNDINGS REVISED				
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS				
JUNCTIONS				
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS	102 hrs			
SPECIAL ADJUSTMENTS <i>checking into computer error</i>			32 hrs.	
ALL OTHER WORK <i>See Review Part 4</i>	15 hrs	221 hrs		
TOTALS	117 hrs	332 hrs	145 hrs.	
PRE-VERIFICATION BY <i>SMITH, BERN, MUNKFORD AND SCHUGELD</i>	BEGINNING DATE <i>4/1/69</i>	ENDING DATE <i>4/18/69</i>		
VERIFICATION BY <i>William Schugeld</i>	BEGINNING DATE <i>4/3/69</i>	ENDING DATE <i>5/21/69</i>		
REVIEW BY <i>Dale E. Westbrock</i>	BEGINNING DATE <i>8/6/69</i>	ENDING DATE <i>9/17/69</i>		

OFFICE OF HYDROGRAPHY AND OCEANOGRAPHY
MARINE CHART DIVISION
HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9008

FIELD NO. WH-20-2-68

Connecticut, Long Island Sound, Stratford Point to
Branford Reef

SURVEYED: August through October 1968

SCALE: 1:20,000

PROJECT NO.: OPR-474
SP-AMC-11-68

SOUNDINGS: DE-723-D #1904
Digital Depth Recorder

CONTROL: Hi-Fix (Hyperbolic
Mode)

Chief of Party..... C. D. Upham
Surveyed by..... C. D. Upham
Plotted by..... Gerber Digital Plotter
Soundings Plotted by..... Gerber Digital Plotter
Verified by..... A. K. Shugeld
Reviewed by..... D. E. Westbrook
..... Date: September 16, 1968
Inspected by..... R. H. Carstens

1. Description of the Area

The area surveyed covers a portion of Long Island Sound off the coast of Connecticut between Stratford Point and Branford Reef, and includes depths ranging from about 15-115 feet. The bottom in much of the area is relatively smooth and gently sloping and is composed mostly of mud and broken shells.

There are two areas of irregularity within the limits of the survey. The first area is at the extreme western edge of the survey where numerous sand or gravel ridges, 6 to 8 feet high, extend southward from Stratford Point. The other area extends in a narrow band from about lat. 41°11', long. 73°02' to lat. 41°06', long. 72°57' where a 5-10 foot fault, or similar formation, is apparent. This irregularity is not delineated by depth curves on the smooth sheet, but contours drawn at 1-2 foot intervals clearly indicate its existence.

(2)

2. Control and Shoreline

The source of the control is adequately described in the Descriptive Report.

No shoreline has been shown on the smooth sheet since this is an offshore survey.

3. Hydrography

A. Depths at crossings are in good agreement. Many of the crossline soundings have been excessed (not plotted) because of the combination of survey scale and line spacing, therefore, the crosslines are not all visibly apparent on the smooth sheet.

B. The usual depth curves were adequately delineated. Although the sand ridge area on the western edge of the survey could have been more adequately surveyed at 1:10,000 scale.

Dashed and brown curves have been added in accordance with Par. 6-64 of the Hydrographic Manual to emphasize certain features.

C. The development of the bottom configuration and delineation of least depths are considered adequate. While additional development may have provided lesser depths on some of the sand ridge features at the western edge of the survey, it is believed that adequate characteristic depths have been obtained, particularly when considering the high probability of the changeable nature of these features in both position and least depth.

4. Condition of the Survey

The sounding records, Atlantic Marine Center verification, and the Descriptive Report are adequate and conform in general to the requirements of the Hydrographic Manual and the Instruction Manual--Automated Hydrographic Surveys.

I. Some important accepted differences between the records for this survey and those for a standard automated hydrographic survey are as follows:

(3.)

A. The fathogram fix marks are referenced by time not position number.

B. The DCU (Digital Control Unit) raw data printout contains only time, Hi-Fix readings, and digital sounding.

C. Position numbers were added by computer during survey processing, and are shown on the position overlays, final sounding card printouts, and position card printouts. Reference to the original raw data must be made by day and time.

II. Several procedures were followed in the acquisition and presentation of data on this survey which should not be continued:

A. The number of positions (12,903) exceeded a standard total of 9999. Not only does this exceed the PMC Gerber plotter capability but it caused additional verification time in clarifying the numerous overlapping position numbers on the two position overlays.

Position numbers 1-6753, 6800-6864, and 7000-9999 are shown on one position overlay in RED ink. For numbering positions over 9999, duplicated position numbers from 0-3084 are shown on the second position overlay in BLACK ink.

B. The hyperbolic arc lattice was not inked to an interval close enough to provide for accurate manual checking of Hi-Fix positions. On some portions of the smooth sheet overlay the arcs are as much as 12 inches apart. This condition was accepted on the present survey, but in the future, particularly when the capability exists to draw the arcs by automatic plotter, the interval between arcs should approximate the grid interval between lines of latitude. Some arcs will have to be dropped, of course, in areas of high convergence.

C. Strict adherence to the sounding line spacing as specified in the Project Instructions (100 meters in depths less than 11 fathoms) resulted in survey "overkill" in this instance. The hydrographer would have been justified in recommending that the line spacing be increased over the smooth bottom areas that are found over much of this survey.

(4.)

D. The settlement and squat correction at high speed was determined to be minus 0.4 foot. The correction at half speed was fixed at plus 0.5 foot. These corrections were applied to soundings at speed changes without prorating the 0.9 foot difference in smaller increments. The time interval of acceleration and deceleration should in the future be documented by the hydrographer. If complete acceleration or deceleration does not take place within the interval between two adjacent soundings, the correction should be accurately prorated along the sounding line.

E. In areas of sharp sand ridges there was difficulty in determining the least depths from the DE-723 fathograms. Lines crossing such areas should be run at a slower speed or the fast chart paper speed should be used.

F. Preliminary comparison of three-point fix computations by the Ship WHITING PDP-8 computer and the same fixes as computed by the IBM 1130 at the Atlantic Marine Center indicate that the geographic positions of soundings on this survey, as computed by the WHITING, are 7 meters south of the positions they should occupy. Although this degree of error is not considered excessive on this offshore 1:20,000 scale survey, the same error on larger scale sheets could be unacceptable. A further investigation and solution of this problem has been requested so that future surveys will not be subject to this error.

G. The time meridian on which the high speed launch operated, fluctuated between 75°W. and 60°W. Apparently there was some debate that arose between the Ship WHITING and the high speed launch about which time should be used. However, the Hydrographic Manual clearly states that the Standard Time shall be used for all observations, including tide; in this case Eastern Standard Time or 75°W.

One hour should be added to the raw data records on Days 241, 242, 243, 248, 249, and 250 to conform to the 60°W. time used by the Ship WHITING during later processing.

(5.)

A detailed discussion of some of the advantages and disadvantages of the high speed launch system as well as general comment on the present state of automated hydrographic survey processing can be found in a special report by this reviewer filed in the C&GS Archives entitled Special Report--Processing of Hydrographic Survey H-9008, High Speed Launch # 1257, Long Island Sound, 1968. Much of that discussion will not be repeated here. However, it can be concluded that an adequate offshore survey can be made at speeds of up to 20 knots with the vessel tested, and that an adequate graphic depth record can be acquired at those speeds over the type of bottom terrain encountered, except possibly in the sand ridge area. The high speed launch test, therefore, can be considered successful in that it has proved the concept sound and worthy of further pursuance.

5. Junctions

The present survey joins H-8967 (1967) on the south which has not as yet been received in the Rockville Office. The junction will be discussed in the review of that survey.

The present survey is in harmony with charted depths in other areas.

6. Comparison With Prior Surveys

A.	H-23	(1:10,000)	1837
	H-24	(1:20,000)	1837
	H-28	(1:10,000)	1838
	H-29	(1:20,000)	1838
	H-32	(1:10,000)	1838
	H-34	(1:10,000)	1838
	H-35	(1:20,000)	1838

These surveys comprise the earliest coverage of the present survey area. Although little more than reconnaissance, these surveys seem accurately done by present standards, even though a few erroneous soundings were recorded. Few major changes in the bottom configuration have occurred except that present survey soundings are about 1-3 ft. shoaler than those on the prior surveys. Some of this difference may be due to the methods of sounding; leadline or wire soundings tending to be deeper than fathometer soundings.

(6.)

However, it is reasonable to assume that deposition of sediments of about 1-2 ft. has occurred throughout the area in the span of 130 years between the prior and present surveys.

When compared with H-24 (1837) the sand ridge area on the western edge of the present survey has changed considerably. For example, in latitude $41^{\circ}07'09''$, longitude $73^{\circ}06'55''$, the present survey shows depths of 36-37 ft. while the prior survey shows 27-30 ft.

Two 20-ft. soundings in lat. $41^{\circ}11'42''$, long. $73^{\circ}02'05''$ on H-28 (1838) have been discredited by depths of 27-31 ft. on the present survey.

Also, two 4 3/4-fm. (29 ft.) soundings on H-29 (1838) in lat. $41^{\circ}12'78''$, long. $72^{\circ}51'50''$ have been discredited by present survey depths of 41-46 ft. This sounding line is probably plotted out of position and should have fallen on the shoal about 400 meters to the westward on the present survey.

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

B.	H-1170a	(1:10,000)	1872
	H-1170b	(1:10,000)	1872
	H-1638a	(1:10,000)	1884
	H-1638b	(1:10,000)	1884
	H-1731	(1:40,000)	1886
	H-1733	(1:40,000)	1886
	<u>H-1735</u>	<u>(1:10,000)</u>	<u>1885</u>

These surveys comprise the most recent prior survey coverage of the present survey area except for two surveys discussed below.

Good general agreement between these prior surveys and the present survey is apparent except that sedimentation of 1-2 ft. is again indicated throughout the area, particularly in the deeper depths.

The sand or gravel ridge area on the western edge of the present survey has changed somewhat in configuration since H-1731 (1886) but the least depths on the ridges appear to be about the same.

(7.)

The present survey shows a portion of an area that has obviously been dredged since H-1638b (1884). A prior sounding of 26-ft. is now 48-ft. in lat. $41^{\circ}13'20''$, long. $72^{\circ}59'32''$

One sounding has been brought forward from H-1731 (1886) to supplement the present survey.

With the addition of the sounding noted above, the present survey is adequate to supersede these prior surveys within the common area.

C. H-6124a (1:10,000) 1934
H-6125 (1:20,000) 1934

These surveys cover only the sand ridge area located on the western edge of the present survey. Although some shoaling is apparent between 1934 and 1968 in the deeper portions of the area, a comparison between the present and prior surveys indicates a bottom of relative stability, particularly in the sand ridge area, where the general configuration of the major ridges show a marked similarity. The peaks of the ridges have shifted position slightly in some instances, but the present least depths seem to be approximately the same as they were at the time of these prior surveys.

Three soundings have been brought forward from H-6125 (1934) to supplement the present survey.

With the addition of the soundings noted above, the present survey is adequate to supersede these prior surveys within the common area.

7. Comparison With Chart 217, 6th Ed., July 29, 1968
Chart 218, 15th Ed., April 14, 1969
Chart 219, 8th Ed., April 28, 1969
Chart 220, 12th Ed., March 10, 1969
Chart 1212, 12th Ed., February 10, 1969

A. Hydrography

Most of the charted hydrography in the present survey area originates with the previously discussed prior surveys which require no further consideration.

(8.)

Several soundings on Chart 218 in the vicinity of the entrance channel to New Haven Harbor have been charted from a 1932 Corps of Engineers survey (Bp-24792). These soundings can be considered superseded by the present survey within the common area.

Attention is directed to the following:

- ✓ 1. The 48-ft. obstruction located on the present survey in lat. $41^{\circ}07'49''$, long. $73^{\circ}02'18''$ is not presently charted and should be added to the charts. *Added to chart 219 5-21-70 DJK* 1791
page
2. A few shoal soundings charted near the northern edge of the present survey have not been verified or disproved and should be retained on the charts pending the receipt and review of large scale inshore surveys. These soundings are listed as follows:

<u>Sounding (FT.)</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Large Scale Chart No.</u>
DJK ✓ 18	$41^{\circ}07'18''.8$	$73^{\circ}07'52''.3$	220 ✓
DJK ✓ 19	$41^{\circ}07'30''.5$	$73^{\circ}07'38''.5$	219, 220 ✓
DJK ✓ 17	$41^{\circ}07'35''.3$	$73^{\circ}07'31''.0$	219, 220 ✓
DJK ✓ 16	$41^{\circ}10'44''.0$	$73^{\circ}04'56''.7$	219 ✓
DJK ✓ 20	$41^{\circ}13'21''.0$	$72^{\circ}54'20''.0$	218 ✓
DJK ✓ 23	$41^{\circ}13'27''.1$	$72^{\circ}53'14''.1$	218 ✓
DJK ✓ 27	$41^{\circ}13'14''.5$	$72^{\circ}48'41''.1$	217 ✓

3. The sunken wreck charted in lat. $41^{\circ}12'20''.0$, long. $72^{\circ}54'30''.0$ on Chart 218 is the cabin cruiser BUBI reported in Notice to Mariners No. 7 of 1966. The wreck was not located on the present survey and should be retained on the charts until it is verified or disproved by wire-drag. ✓ LLV 5/21/70

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

B. Controlling Depths

The present survey covers a portion of the southerly end of the New Haven Harbor entrance channel which is maintained by the Corps of Engineers. Present survey depths do not conflict with the controlling depth noted charted for this channel.

(9.)

C. Aids to Navigation

Four floating aids to navigation were located on the present survey. Their plotted positions are in substantial agreement with the charted positions, and they adequately mark the features intended.


8. Compliance With Instructions

The survey adequately complies with the Project Instructions.


9. Additional Field Work

This is an excellent basic survey and no additional field work is recommended, except that the obstruction and wreck noted in Par. 7 should be wire-dragged when the opportunity arises.

Examined and Approved:



Chief
Marine Chart Division



Associate Director
Hydrography and Oceanography

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9008

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
220	9-3-69	E. Fry	Full Part Before After Verification Review ^{Before} Inspection Signed Via Drawing No. 23
1213	9-9-69	E. Fry	Full Part Before After Verification Review ^{Before} Inspection Signed Via Drawing No. 36 <i>No changes made during inspection EHC 10/14/69</i>
217	11-10-69	O. Chapman	Full Part Before After Verification Review Inspection Signed Via Drawing No. 20
218	11-10-69	O. Chapman	Full Part Before After Verification Review Inspection Signed Via Drawing No. 22
219	11-19-69	O. Chapman	Full Part Before After Verification Review Inspection Signed Via Drawing No. 18
220	11-18-69	O. Chapman	<i>Reapplied</i> Full Part Before After Verification Review Inspection Signed Via Drawing No. 23
1212	11-26-69	O. Chapman	Full Part Before After Verification Review Inspection Signed Via Drawing No. 41 <i>added Critical Corr. only added a 48 sounding + Obstr.</i> Full Part Before After Verification Review Inspection Signed Via Drawing No.
116-SC Page E	4-2-70	Frank W. Maloney	Full Part Before After Verification Review Inspection Signed Via Drawing No. 9th Ed. (Applied through charts 217 & 218. Dwg. Numbers #20 & #22)
117-SC Page A+B	5-28-70	Roger Durando	Full Part Before After Verification Review Inspection Signed Via Drawing No. 10th Ed. <i>FULLY APPLIED THRU CHARTS #20, #18, #21, & #22</i>
1212	9-2-70	Harold Schantz	Fully App'd to chrt 1212 thru chrt 219 dwg #18
1213	9-14-70	Constance E. Reese	Fully App'd After V + R + Inspection thru charts 220 dwg #23 and 117-SC dwg #10
116-SC Page(E)	5-29-73	John Bailey	Fully App'd AFTER INSPECTION. App'd thru Dwg's 217 #22 and 218 #24

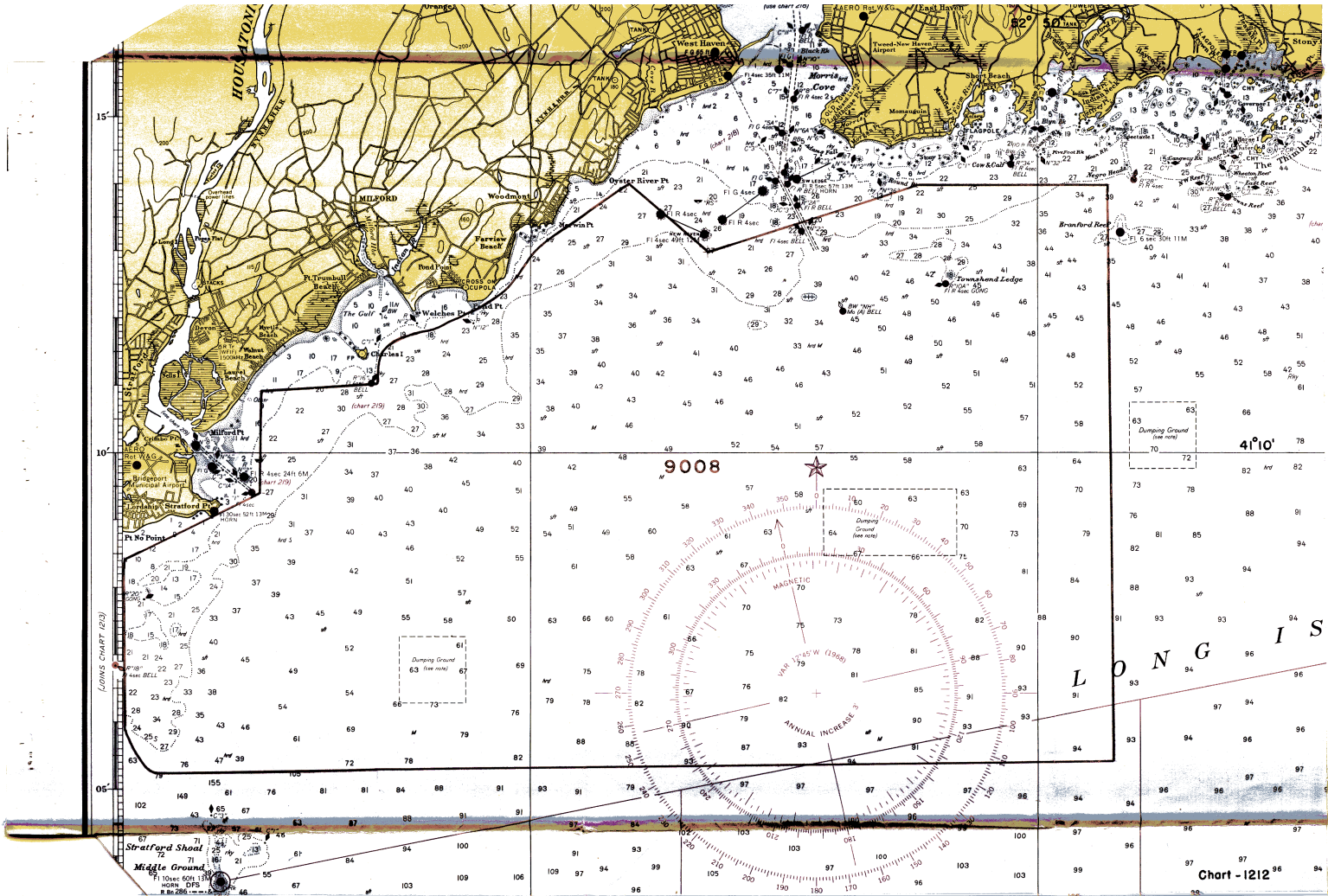


Chart - 1212