9170

Diag. Cht. No. 1211-3.

Form 504

U. S. DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic (Special)

Field No. HSL 10-1-70 *Office No.* H-9170

LOCALITY

State Rhode Island

General locality Block Island Sound

Locality Southwest Ledge

19 70

CHIEF OF PARTY

Ralph J. Land, LCDR, NOAA

LIBRARY & ARCHIVES

DATE SEP 18 1972

USCOMM-DC 5087

9170

Charts 271
1211

FORM C&GS-537
(5-66)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.
H-9170
Field Examination

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.
HSL 10-1-70

State Rhode Island

General locality Block Island Sound

Locality Vicinity of Southwest Ledge

Scale 1/10000 Date of survey 6-19 October 1970

Instructions dated 31 August 1970 Project No. SP-AMC-HSL-4-70

Vessel NOAA Launch 1257

Chief of party LCDR Ralph J. Land, NOAA Corps

Surveyed by LCDR Ralph J. Land, LT C. Dale North, Jr., Donald Gerock, Franklin Saunders

Soundings taken by echo sounder, ~~hand lead, pole~~ DE-723-D S/N 1904

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

Graphic record checked by LCDR Ralph J. Land & Donald B. Gerock

Protracted by Atlantic Marine Center Automated plot by Complot Plotter

Soundings ~~plotted~~ inked by Complot Plotter

Soundings in ~~fathoms~~ feet at MLW ~~MLLW~~

REMARKS: This survey accomplished using Launch 1257's automated hydrographic survey system.

Seventy-fifth meridian (EST) time was used throughout this survey.

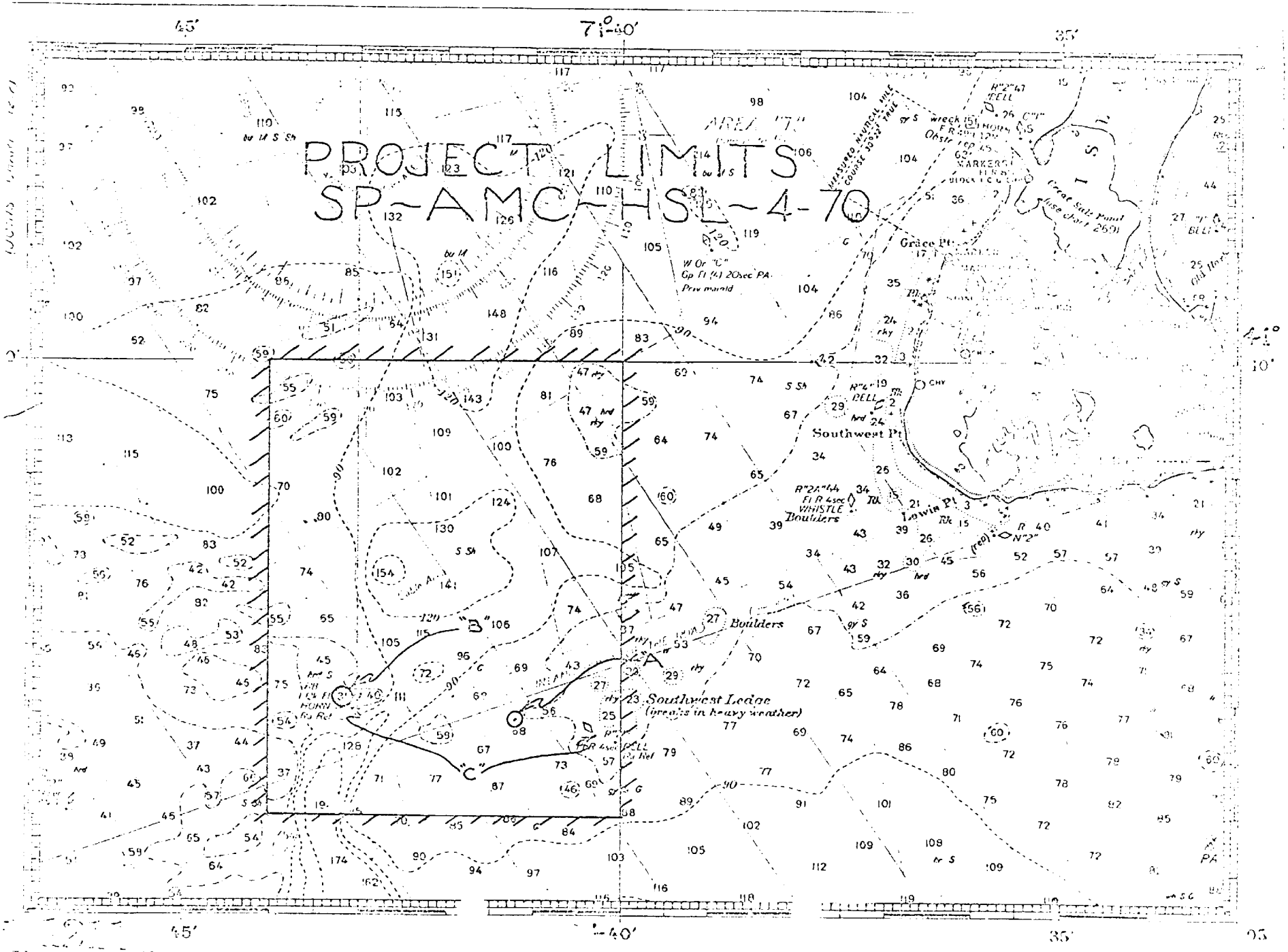
Applied to stds 11/13/72
CDB.

USCOMM-DC 37009-P66

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC FIELD EXAMINATION
(FIELD NO. HSL 10-1-70)

SCALE: 1:10,000
YEAR: 1970

NOAA LAUNCH 1257
LCDR Ralph J. Land
Officer-In-Charge


PROJECT LIMITS
SP-AMC-HSL-4-70
45'
7°-40'
35'
Southwest Pt
Boulders
Southwest Ledge
(breaks in heavy weather)
Grace Pt
Lewis Pt
Great Salt Pond
"A"
"B"
"C"

A. PROJECT. SP-AMC-HSL-4-70, Block Island Sound Special Investigation, was carried out in accordance with instructions dated 31 August 1970. The investigation of the sunken yacht north of Gardiner's Island was not achieved. In addition, the loss of the starboard propeller on 19 October necessitated leaving some splitting and development undone in the area on the extreme eastern edge of HSL 10-1-70. However, the project was considered satisfactorily completed for its purpose.

B. AREA SURVEYED. Southwest of Block Island, Rhode Island in the general vicinity of Southwest Ledge. The project was twelve square nautical miles in area and was bound by the following limits:

Lat.	41°10'00"N;	and Long.	71 44'00"W
	41 06'00"N;		71 44'00"W
	41 10'00"N;		71 40'00"W
	41 06'00"N;		71 40'00"W

All hydrography was accomplished during the period 6 October through 19 October 1970. The survey falls within the area covered by a 1939 survey, H-6443 (1:40,000). No junctions with this prior survey were required.

C. SOUNDING VESSEL. All soundings on the survey were accomplished with NOAA Launch 1257. The Launch operated at a speed of approximately 20 nautical miles/hr. (1850 RPM) the majority of the time. On 19 October 1970 the loss of the starboard shaft and propeller necessitated completing the survey at 1500 RPM on the port engine.

No bottom samples were required and none were taken.

D. SOUNDING EQUIPMENT. All depths were determined with Raytheon Survey Fathometer, Model DE-723D, Recorder S/N 1904.

Depths encountered ranged from 25 to 200 feet. Echo sounder corrections were determined from daily bar checks and a TDC (Temperature, Depth, Conductance) observation on 15 October 1970 using a Martek 100S instrument. A tabulation of these 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 measurement in August 1970. Thus, a draft correction of +0.6 feet 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:

RPM	CORRECTOR
525	+0.2
900	+0.4
1100	+0.7
1400	+0.8
1600	+0.0
1850	-0.2

The settlement and squat correction for one engine at 1500 RPM was determined after the survey on 10 November 1970. The method used was the same as in Lewes, Delaware; and was conducted at the Atlantic Marine Center, Norfolk, Virginia with the following result:

RPM (Starboard Engine)	CORRECTOR
1500	+0.5

E. SMOOTH SHEET. Smooth sheet plotted at AMC No smooth sheet was made by Launch 1257. 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 two overlapping grids to obtain the one boat sheet. It is anticipated the smooth sheet will be plotted by the Atlantic Marine Center.

F. CONTROL. The entire survey was controlled by Hastings Radist (Range-Range) at a frequency of 3300.495Kc. with shore stations located as follows:

Station 1 (Red) "Hatch" Lat. 41 16"57.477"N
Long.72 15'45.052"W
Station 2 (~~Green~~) "Watch" Lat. 41 18'15.542"N
Violet on smooth sheet Long.71 51'32.370"W

Station sites were established and located by Atlantic Marine Center personnel in 1970. Station "Hatch" was located using a strong three point fix obtained with a Wild T-2. Station "Watch" is a third order traverse station.

Raydist corrections were determined by three point sextant fix calibrations taken during the course of the hydrographic survey. Triangulation stations visible as objects from sea were used exclusively for the Raydist calibrations. Visual fixes were converted to range-range raydist lane values by the Launch's computer program and the corrections determined by comparing

computed values to the simultaneously observed Raydist values on the hydrographic navigation unit interface. A tabulation of Raydist corrections is included in this report.

Triangulation control for the Block Island Sound Survey used in the calibration of Raydist is as follows:

OBJECT	LOCATIONS
Baptist Church Steeple, 1911	Lat. 41 10'04.81"N Long.71 36'06.31"W
Block Island Life Saving Station, Chimney, 1911	Lat. 41 09'48.84"N Long.71 36'38.27"W
Chim, 1912	Lat. 41 09'21.62"N Long.71 36'40.91"W
Block Island North Lighthouse, 1874	Lat. 41 13'39.08"N Long.71 34'34.86"W
Beacon Hill Tower, 1928	Lat. 41 10'31.40"N Long.71 35'30.90"W
Little Gull Island Lighthouse, 1932	Lat. 41 12'22.67"N Long.72 06'26.28"W
Race Rock Lighthouse, 1882	Lat. 41 14'36.15"N Long.72 02'51.41"W
Plum Island Watertank, 1965	Lat. 41 10'55.13"N Long.72 11'47.27"W

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

H. CROSSLINES. Approximately seven percent of all sounding lines were run as crosslines. There are numerous sharply rising features in the area surveyed, but even with their presence, agreement appears to be very good.

I. JUNCTION. Junctions were not required.

J. COMPARISON WITH PRIOR SURVEYS. Comparison with prior survey H-6443 (1:40,000) 1939, reveals no significant differences in the northern half of HSL 10-1-70. In the southern half of the sheet, features exist as shown by the previous survey, but the least depths on these features appear to be offset in position from their original charted positions.

The least depth obtained on the section of Southwest Ledge within the survey area was 26 feet MLW using predicted tides as compared to 25 feet on H-6443.0 2NM in a southerly direction.

A 43-foot sounding from H-6443 at Lat. 41 07'35" Long. 71 40'25" was not located although 45-foot soundings were found in the nearby area and ~~may be reduced~~ with smooth tides. A 37-foot shoal indication on H-6443 located in the extreme southwest of HSL 10-1-70 was located but at a least depth of 40 feet (~~predicted tide~~) instead of 37 feet. A shoal with a least depth of 31 feet marked by "RB" horn buoy was located approximately 0.1 mile east of the H-6443 location with a least depth of 33 feet (Not plotted on the plotter sheet.)

K. COMPARISON WITH THE CHART. Chart 1211, 14th Ed., 16 December 1968, was used for comparison with the new survey. Depths are in general agreement except for those noted in Section J. of this report. Additionally, a 46-foot sounding charted at Lat. 41 06'15" Long. 71 40'25" was not found, and its existence is doubtful. However, a 48-foot sounding was located 0.4 NM north of the charted 46-foot sounding. A 72-foot sounding charted at Lat. 41 07'15" Long. 71 42'15" was not located and probably does not exist.

L. ADEQUACY OF SURVEY. This survey is complete and adequate for the purpose for which it was conducted, and it is sufficient to supercede any prior survey for charting. (Also see Recommendations)

M. AIDS TO NAVIGATION. Two floating aids to navigation were located during the course of the survey. The first, a "RB" horn buoy marking the charted 31-foot depth is located at:

Lat. 41 07'01.~~09~~ 15"
Long. 71 42'~~56.47~~ 59.00"

The second buoy, Southwest Lodge Bell Buoy R"2" is located at:

Lat. 41 06'~~46.41~~ 43.5"
Long. 71 40'~~16.28~~ 21.0"

The geographic position of these two buoys were furnished to the Commander, Coast Guard New York as directed in the project instructions. These floating aids adequately serve the purpose for which they were established.

N. STATISTICS. There were 1753 positions recorded during the survey accomplishing 281 nautical miles which equals 12 square nautical miles of hydrography. Bottom samples were neither required nor taken during this special project.

O. MISCELLANEOUS. The following data on the raw data tape was rejected for reasons noted and should be deleted from the survey:

Rejected Soundings

TIME	FIX NO.	DAY	REASON
162126	738	280	DP Duplication
083815-083843	773	281	Raydist Malfunction
103335-103349	848	281	Raydist Malfunction
120057-120104	943	281	Raydist Malfunction
144646-144817	1136-1138	281	Raydist Malfunction
103933	1666	292	DP Duplication
123831-123838	1734	292	Speed Change - Lost Propeller

P. RECOMMENDATIONS. Apparent displaced soundings from prior surveys might have resulted from less than desired visual control. The best fix obtainable from the surveyed area on objects visible on Block Island were computed to have a probable error of over 10 meters with an error of one minute in the sextant angle on any one object. It is improbable that the 72-foot sounding and 46-foot sounding mentioned in Part J. exist. However, consideration should be given to making any future survey in this area overlap everything west of Long. 71 43'20", because this area was not properly developed after the loss of the starboard propeller on Launch 1257. It is felt, nonetheless, that the survey is adequate to fulfill the requirements of the special field examination.

A wire drag investigation would certify what this survey indicates--no unexpected least depths 25 to 30 feet shoaler than previously indicated.

Q. REFERENCES TO REPORTS:

(1) "TDC Report, Project OPR-474, USC&GSS Whiting," December 1969

(2) "High Speed Data Acquisition For Large-Scale Hydrographic Surveys," March 1970 by Clinton D. Upham, CDR, USESSA

SEPARATES FOLLOWING TEXT

Abstract of Barchecks – Block Island – SP-AMC-HSL –

	Bar set @ 5'	10'	15'
Day 279			
Digital	4.35	9.1	13.7
Fathogram	4.6	9.1	13.7
Digital	4.3	9.05	
Fathogram	4.6	9.1	
Day 280			
Digital	4.1	8.9	
Fathogram	4.3	9.0	
Digital	4.1	8.85	
Fathogram	4.3	8.9	
Day 281			
Digital	4.3	9.0	
Fathogram	4.4	9.1	
Digital	4.3	9.0	
Fathogram	4.4	9.1	
Day 288			
Digital	4.25	8.9	
Fathogram	4.4	9.0	
Digital	4.15	9.0	
Fathogram	4.3	9.1	
Day 292			
Digital	4.35	9.1	
Fathogram	4.6	9.2	
Digital	4.35	9.1	
Fathogram	4.6	9.2	
Digital	4.4		
Fathogram	4.6		
Digital	4.4		
Fathogram	4.7		

ABSTRACT TO CORRECTORS TO ECHO SOUNDINGS

DEPTH		VEL. CORR.	VEL. TABLE NO.			
000058	0	0000	0001	000	000000	000000
000130	0	0002				
000200	0	0004				
000270	0	0006				
000333	0	0008				
000413	0	0010				
000483	0	0012				
000554	0	0014				
000623	0	0016				
000697	0	0018				
000764	0	0020				
000833	0	0022				
000903	0	0024				
000972	0	0026				
001046	0	0028				
001116	0	0030				
001190	0	0032				
001263	0	0034				
001331	0	0036				
001402	0	0038				
001470	0	0040				
001543	0	0042				
001612	0	0044				
001683	0	0046				
001755	0	0048				
001827	0	0050				
001896	0	0052				
001967	0	0054				
002050	0	0056				

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

Date: August 14, 1972

Reply to Attn of: C3311-64-MCFOA

Subject: Smooth Tide Correctors (H-9170)

To: Acting Chief, Processing Division
Atlantic Marine Center

In response to your telephone request, the suggested time and height corrections to apply to the Montauk observations for Lat. 41°10' and Long. 71°40' to 71°44' follow.

Time		Height
HW	LW	
-1.00	-2.00	1.4 ratio

C. I. Thurlow

C. I. Thurlow
Chief, Tidal Datum Planes Section
Tides Branch
Oceanographic Division

H-9-70

COAST AND GEODETIC SURVEY (ESSA)
TIDES, HOURLY HEIGHTS (FEET)

MONTAUK NEW YORK OCT 1970 TM 75.00W

DAY OF MONTH

HOUR	OCT 1 274	2 275	3 276	4 277	5 278	6 279	7 280	8 281	9 282	10 283	11 284
0	5.16	5.43	5.75	5.61	5.35	5.30	5.17	4.88	4.53	4.29	3.74
1	4.85	5.10	5.28	5.23	5.00	5.23	5.27	5.10	4.82	4.68	4.15
2	4.52	4.79	4.91	4.95	4.67	4.85	5.13	5.27	5.13	5.04	4.81
3	4.35	4.53	4.59	4.65	4.47	4.62	4.94	5.18	5.41	5.42	5.27
4	4.53	4.53	4.52	4.76	4.30	4.50	4.72	4.96	5.38	5.73	5.64
5	5.07	4.86	4.67	4.62	4.16	4.32	4.46	4.77	5.17	5.70	5.89
6	5.61	5.32	5.10	4.61	4.15	4.22	4.27	4.59	4.96	5.55	5.90
7	6.12	5.87	5.65	4.98	4.37	4.26	4.16	4.38	4.71	5.20	5.53
8	6.54	6.33	6.19	5.49	4.83	4.57	4.18	4.21	4.45	4.89	5.14
9	6.87	6.78	6.59	6.06	5.28	4.87	4.37	4.15	4.28	4.50	4.83
10	6.59	6.83	6.86	6.62	5.65	5.29	4.74	4.26	4.13	4.19	4.28
11	6.13	6.52	6.77	6.63	5.98	5.71	5.11	4.65	4.31	4.02	3.81
12	5.67	5.99	6.38	6.22	6.06	6.03	5.42	5.04	4.68	4.18	3.66
13	5.31	5.55	5.83	5.78	5.88	6.09	5.72	5.46	5.16	4.65	3.95
14	4.88	5.16	5.37	5.35	5.49	5.83	5.79	5.69	5.47	5.19	4.50
15	4.43	4.70	4.98	5.02	5.06	5.40	5.50	5.77	5.76	5.56	5.11
16	4.32	4.55	4.62	4.44	4.68	5.12	5.26	5.64	5.89	5.83	5.49
17	4.68	4.70	4.54	4.12	4.27	4.77	5.03	5.36	5.74	6.09	5.97
18	5.17	5.17	4.80	3.88	3.92	4.42	4.73	5.09	5.49	5.98	6.15
19	5.55	5.43	5.16	4.15	3.82	4.07	4.29	4.77	5.16	5.50	5.85
20	5.87	5.81	5.57	4.48	4.07	3.97	3.92	4.26	4.76	5.06	5.34
21	6.15	6.14	5.69	4.66	4.41	4.19	3.89	3.92	4.24	4.60	4.81
22	6.17	6.34	5.84	5.10	4.81	4.46	4.11	3.87	3.89	4.07	4.39
23	5.79	6.14	5.88	5.38	5.12	4.84	4.50	4.16	3.91	3.71	3.89

DATUM IS 3.62 FT BELOW MLW

Block Island Survey H-9170

COAST AND GEODETIC SURVEY (ESSA)
TIDES, HOURLY HEIGHTS (FEET)

MONTAUK NEW YORK OCT 1970 TM 75.00W

DAY OF MONTH

HOUR	12 285	13 286	14 287	15 288	16 289	17 290	18 291	19 292	20 293	21	22 295
0	3.56	3.80	4.14	4.54	4.90	5.16	4.88	5.32	5.45	4.90	4.84
1	3.62	3.45	3.54	4.07	4.54	4.80	4.48	4.92	5.46	5.18	5.08
2	4.29	3.71	3.33	3.60	4.19	4.60	4.29	4.63	5.22	5.12	5.33
3	5.03	4.48	3.80	3.53	3.84	4.16	4.00	4.30	4.96	4.91	5.49
4	5.54	5.21	4.72	4.08	3.85	4.04	3.48	4.02	4.77	4.77	5.25
5	5.95	5.86	5.50	4.97	4.43	4.18	3.29	3.83	4.54	4.74	5.09
6	6.25	6.41	6.18	5.79	5.27	4.51	3.64	3.60	4.31	4.52	4.95
7	6.22	6.70	6.69	6.49	5.87	5.29	4.03	4.02	4.23	4.45	4.77
8	5.80	6.42	6.95	7.05	6.43	5.99	4.46	4.45	4.40	4.39	4.65
9	5.31	5.82	6.55	7.09	6.85	6.59	5.16	4.82	4.68	4.42	4.61
10	4.80	5.23	5.84	6.56	6.80	6.84	5.80	5.29	5.04	4.58	4.61
11	4.09	4.67	5.21	5.85	6.24	6.77	5.87	5.79	5.32	4.90	4.75
12	3.61	3.90	4.53	5.22	5.50	6.03	5.34	6.03	5.61	5.20	5.06
13	3.49	3.43	3.86	4.58	4.96	5.58	5.07	5.82	5.71	5.56	5.46
14	3.79	3.26	3.33	3.90	4.29	5.14	4.67	5.43	5.54	5.67	5.72
15	4.48	3.81	3.24	3.34	3.49	4.59	4.34	5.13	5.26	5.53	5.72
16	5.18	4.58	3.85	3.38	3.18	3.62	3.84	4.80	4.95	5.33	5.63
17	5.75	5.31	4.74	4.10	3.56	3.32	3.39	4.40	4.72	5.12	5.61
18	6.16	5.80	5.43	4.93	4.19	3.49	3.26	3.94	4.30	4.81	5.33
19	6.21	6.24	5.93	5.46	5.00	4.07	3.52	3.80	3.85	4.55	5.11
20	5.77	6.12	6.29	5.88	5.51	4.76	3.85	3.98	3.65	4.16	4.83
21	5.19	5.66	6.09	6.23	5.86	4.93	4.30	4.33	3.81	4.02	4.47
22	4.70	5.04	5.45	5.99	5.90	5.14	4.83	4.72	4.09	4.14	4.47
23	4.31	4.58	4.94	5.39	5.57	5.24	5.20	5.20	4.48	4.48	4.58

DATUM IS 3.62 FT. BELOW ITEM MSL 2624.05

S 7500W 31 1-22 -10.30 22003.1 * ( ) ARE INFERRED

Abstract of RAYDIST lane correctors
SP-AMC-HSL-4-70

LOCATION	DATE	DAY NO.	75M TIME	CORR. PI	CORR. PI	MEAN PI	MEAN PI
BLOCK Is.	10/6/70	279	0800	+1.23	+1.00		
				+1.28	+1.11		
				+1.29	+1.09		
				+1.32	+1.09	+1.28	+1.07
			0900	+1.39	+1.16		
				+1.33	+1.07		
				+1.37	+1.10		
				+1.37	+1.11		
				+1.35	+1.10		
				+1.38	+1.13	+1.36	+1.11
				DAY 279 MEAN CORR,		+1.32	+1.09
BLOCK Is.	10/7/70	280	0900	+.62	+.01		
				+.68	+.05		
				+.73	+.12		
				+.75	+.17		
				+.72	+.18	+.70	+.11
			1640	+.93	+.45		
				+.88	+.39		
				+.91	+.43		
				+1.00	+.56		
				+.79	+.37		
				+.61	+.31	+.85	+.42
				Day 280 MEAN CORC.		+.77	+.26
BLOCK Is.	10/8/70	281	0900	+.81	+.19		
				+.80	+.17		
	FIX 739 - 772			+.80	+.17	+.80 -	+.18 -
			0930	+.82	+1.22		
				+.86	+1.26		
	FIX 773 - 847			+.86	+1.25	+.85 -	+1.24 -
			1050	+.86	+1.34		
	FIX 848 - 942			+.95	+1.41	+.90 -	+1.37 -
			1220	+.86	+2.39		
				+.83	+2.37		
	FIX 943 - 1135			+.91	+2.44	+.87 -	+2.40

LOCATION	DATE	DAY NO.	75W TIME	CORR. PI	CORR. PII	MEAN PI	MEAN PII
Block Is.	10/8/70	281	1500	+.91	+4.44		
				+.95	+4.50		
	FIX 1136 – 1232			+1.06	+4.59	+.97	+4.51
	Use +.93 · +4.48						
			1635	+.92	+4.52		
				+.90	+4.49		
				+.91	+4.46		
				+.85	+4.36	+.90	+4.46
Block Is.	10/5/70	288	1055	-.09	+.52 ~~.25~~		
				-.11	+.49		
				-.11	+.53		
				-.11	+.50	-.11	+.51
			1615	-.10	+.53		
				-.11	+.51		
				-.12	+.51		
				-.12	—	-.11	+.52
				Day 288 MEAN CORR.		-.11	+.52
	10/19/70	292	0905	-.19	+.48		
				-.29	+.42		
				-.23	+.46		
				-.33	+.~~33~~	-.26	+.45
			1618	-.38	+.54	-.38	+.54
				Day 292 MEAN CORR.		-.32	+.50

FORM # 1

FIG. 15

PARAMETERS FOR DIGITAL COMPUTING
POLYCONIC PROJECTION

(1) PROJECT NO. SP-AMC-HSL-4-70
(2) H NO. Field Examination
(3) FIELD NO. HSL 10-1-70
(4) REQUESTED BY
(5) SHIP OR OFFICE
(6) DATE REQUIRED
(7) VISUAL ☐
(8) ELECTRONIC [X] (FILL OUT FORM #3)

(10) XKN (SP 5) DISTANCE FROM CMER TO EAST EDGE (NYX = 1) OR WEST EDGE (NYX = 0). 4552.925 METERS

(11) YKN (SP 241) DISTANCE FROM EQUATOR TO SOUTH EDGE OF SHEET. 4,549,153.000 METERS

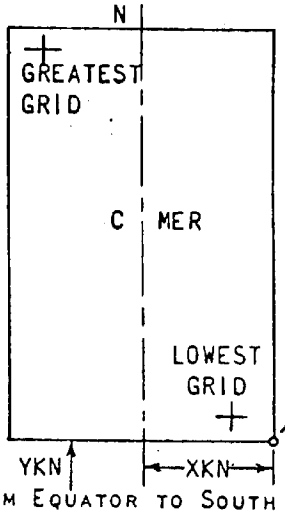
(12) CENTRAL MERIDIAN 71° 42' 00"

(13) SURVEY SCALE 1:10,000

(14) SIZE OF SHEET (CHECK ONE) 36x54 [X] 42x60 ☐ OTHER ☐

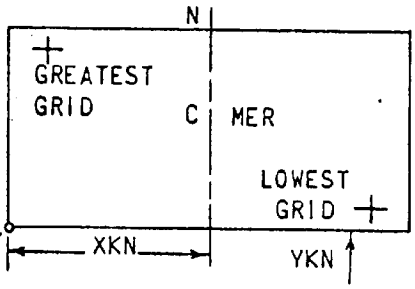
(15) NYX, ORIENTATION OF SHEET (CHECK ONE)

NYX = 1 [X]



FROM EQUATOR TO SOUTH EDGE OF SHEET

NYX = 0 ☐



FROM EQUATOR TO SOUTH EDGE OF SHEET

(9) PLOTTER ORIGIN (CORNER OF SHEET)

LATITUDE 41° 04' 45"
LONGITUDE 71° 38' 45"

GRID LIMITS

(16) GREATEST LATITUDE 41° 12' 10" (PROJECTION LINE
(17) LOWEST LATITUDE 41° 04' 45" INTERVAL, PAGE 4
(18) DIFFERENCE 0° 7' 25" HYDRO MANUAL)

(19) 0' 30"
(20) 14.8 YSN

(21) GREATEST LONGITUDE 71° 45' 15"
(22) LOWEST LONGITUDE 71° 38' 45"
(23) DIFFERENCE 0° 6' 30"

(24) 0' 30"
(25) 13 XSN

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

FORM # 3 FIG. 7

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE - RANGE)

(1) PROJECT NO. SP-AMC-HSL-4270- No Field Exam(3) FIELD NO. HSL 10-1-70

(4) TYPE OF CONTROL: ____ SHORAN, X RAYDIST, ____ HI-FIX, ____ RADAR
FREQUENCY (FOR CONVERSION OF RAYDIST OR HI-FIX LANES TO METERS) 3300.495

(5) RANGE ONE (R1)
STATION NAME HATCH
LATITUDE 41 ° 16 ' 57.47"
LONGITUDE 72 ° 15 ' 45.05"

(6) RANGE TWO (R2)
STATION NAME WATCH
LATITUDE 41 ° 18 ' 15.54"
LONGITUDE 71 ° 51 ' 32.37"

(7) AZIMUTH FROM R1 TO R2 265 ° 47 ' 29.21"

(8) BASELINE LENGTH IN METERS 33885.99 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) X +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, _X_ONE, ___MORE THAN ONE.

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

__X__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 _____ TO _____

POSITION NUMBER LIMITATIONS: FROM _____ TO _____

THIS IS FORM #3 SHEET #__1__ OF __1__ SHEETS FOR THIS SURVEY.

(13) OTHER REMARKS:

ABSTRACT OF HYDROGRAPHIC DATA LOCATED ON
SURVEY HSL 10-1-70

Position No.	Description	Comments
737	RB Horn Buoy QK Fl	Buoy 20 m N of pos
1665	R'2' Bell Buoy Fl R 4 Sec	Buoy 15 m W of pos

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

Date: 9 November 1970

Reply to Attn of: Officer-in-Charge, NOAA Launch 1257

Subject: Report on Location of Floating Aids

To: Director, Atlantic Marine Center

The following message was phoned to the Coast Guard message center in New York:

Routine 061500Z Nov. 1970
Fm. NOAA NOS Launch 1257
To, District Commander
Coast Guard New York

COM-GRNC

BT
Unclas

The following floating aids to navigation were located using electronic positioning control during a recent hydrographic survey by this vessel conducted 10/6/70 through 10/19/70 in Block Island Sound:

RB Horn buoy- Lat. 41 07 01.09N (15)
Long. 71 42 ~~56.47~~ 59.00W

R"2" Fl R 4 sec Bell buoy- Lat. 41 06 ~~46.41~~ 43.5N
Long. 71 40 ~~16.28~~ 21.0W

Reference: C&GS Charts 1211 & 271

BT

TOD 1000 rjl/bm

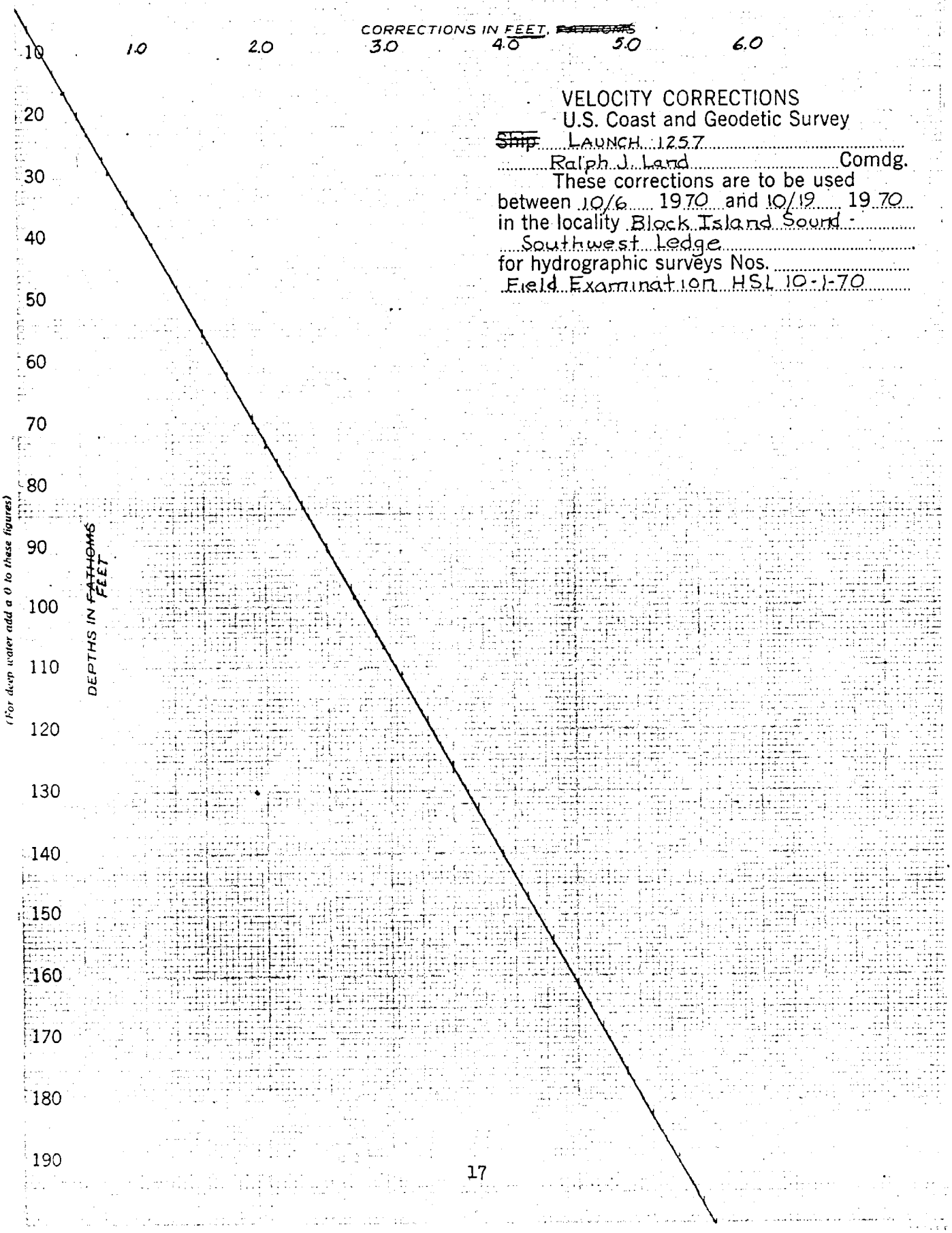
Ralph J. Land
LCDR, NOAA

Copy to: C351

ABSTRACT OF DAILY POSITION NUMBERS USED

Julian Day	Position Numbers
280	001 - 738
281	739 - 1232
288	1233 - 1589
292	1590 - 1753

Form No J-100-5 (Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)



VELOCITY CORRECTIONS
U.S. Coast and Geodetic Survey

~~Ship~~ LAUNCH 1257
Ralph J. Land Comdg.
These corrections are to be used
between 10/6 1970 and 10/19 1970
in the locality Block Island Sound -
Southwest Ledge
for hydrographic surveys Nos.
Field Examination HSL 10-1-70

APPROVAL SHEET

Except for those recommendations and stated omissions mentioned elsewhere, this survey is approved. Every aspect of this survey was participated in by the Chief of Party.

Ralph J. Land
LCDR NOAA

VERIFIER: Billy J. Stephensen

Norfolk, Va.
Sept. 9, 1971

VERIFICATION BRANCH
PLOTTER NOTE TO EDP (AMC)

SURVEY H-9170 (HSL 10-1-70), BLOCK ISLAND SOUND

Prior to plotting this Branch check scanned the fathograms for this survey. The quality of the field scanning was considered to be excellent. ~~A list of changes is attached~~.

THE FIELD WORK IS COMPLETE

ALL SOUNDING WAS BY LAUNCH 1257

Hugh L. Proffitt
Chief, Verification Br., AMC

Verifier....CHAS. MEEKINS

Norfolk, Va.
June 8, 1972

Plotter Note to EDP (AMC)
H-9170 (HSL 10-1-70)

This office has completed verification of the preliminary ~~sounding~~ Position overlay for the above survey.

We are returning the ~~sounding~~ Position record printout. Only two changes are needed....pos. 738, and pos. 1666 are to be destroyed. duplicate positions Field rejection of buoy Positions.

When the above changes have been made, please furnish this office with a sounding overlay.

Time required 6½ hrs.

WLJ/cm

HUGH L. PROFFITT
Chief, Verification Branch
Atlantic Marine Center

Verifier:..R.G.Roberson

August 22.1972
Norfolk,Va.

NOTE TO EDP (AMC)
SURVEY H-9170 (HSL-10-1-70)

This Branch has completed the verification of the preliminary sounding overlay for this survey.

We are returning the complete record cahier.

There are no position changes required;there are about 48 sounding, and 16 excess routine changes to be made as shown on the sounding record printout in red pencil.

After the needed changes have been made please furnish this branch with a smooth sheet.

The smooth sheet is to be plotted on standard 36" x 60" cloth back smooth sheet paper.On the smooth sheet the position dots are to be plotted using red ink.

The position overlay is to be plotted on mylar with black position mumbers,and red and violet electronic control arcs.

All final sheets are to be plotted using wet inks.

WLJ

Hugh L.Proffitt
Chief,Ver.Br.,AMC

FORM 197
(3-16-55)

GEOGRAPHIC NAMES

Survey No. H-9170

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
Atlantic Ocean										1
Block Island Sound										2
Southwest Ledge										3
										4
										5
			Names checked + approved							6
			R. J. Wright							7
			11-29-72							8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

FORM C&GS-946
(REV. 11-65)
(PRESC. BY
HYDROGRAPHIC
MANUAL 20-2,
6-94, 7-131)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9170 (HSL-10-1-70)

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS	2
DESCRIPTIVE REPORT	1	OVERLAYS	

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS / SOURCE DOCUMENTS
ENVELOPES	1		1			
CAHIERS			1			
VOLUMES		1				
BOXES						

T-SHEET PRINTS (List): N.A.

SPECIAL REPORTS (List): Correction to Echo Soundings Report
Raydist Calibration Report

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				1753
POSITIONS CHECKED		180		
POSITIONS REVISED		2		
DEPTH SOUNDINGS REVISED		25+		
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS				
JUNCTIONS				
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		12		
SPECIAL ADJUSTMENTS				
ALL OTHER WORK		53		
TOTALS		75		

PRE-VERIFICATION BY	BEGINNING DATE	ENDING DATE
VERIFICATION BY R.G. Roberson, C. Meekins, B .T. Davis	BEGINNING DATE 6/8/72	ENDING DATE 8/30/72
REVIEW BY	BEGINNING DATE	ENDING DATE

FORM C&GS-946A
(REV. 11-69)
(PRES. BY HYDROGRAPHIC MANUAL, 8-94)

U.S. DEPARTMENT OF COMMERCE
ESSA
COAST AND GEODETIC SURVEY

VERIFIER'S REPORT

HYDROGRAPHIC SURVEY, H 9170 (HLS-10-1-70)

INSTRUCTIONS - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

CL - Check List Items: should be checked as having been completed during the verification processes.

R - Report Item: This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT	CL	R
Note: The verifier should first read the Descriptive Report for general information and problems.		
1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. Remarks Required: -- None	X	
2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: -- None	X	
3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None	X	
Part II - SHORELINE AND SIGNALS		
4. Source of shoreline signals Remarks Required: -- List all surveys a. Give earliest and latest dates of photographs b. Field inspection date c. Field Edit date d. Reviewed-Unreviewed	N.A.	
5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences	N.A.	
6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Remarks Required: -- None	N.A.	
7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required -- List those signals still unlocated	N.A.	
Part III - JUNCTIONS		
Note: Make a cursory comparison preliminary to inking soundings in area of overlap.		
8. All junctions of contemporary or overlapping sheets were transferred in colored ink and certain critical curves were made identical. Remarks Required: -- None	N.A.	
9. The notation in slanted lettering "JOINS H---- (19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None	N.A.	

Part III - JUNCTIONS (Continued)	CL	R
10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of Butt junctions and areas which are SUPERSEDED.	N.A.	
Part IV - VOLUMES		
11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. Remarks Required: -- None	N.A.	
12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following: (a) rocks (b) line turns (c) position values of beginning and ending of lines (d) bar check or velocity correctors (e) time recording (f) notes or markings on fathograms (g) was reduction of soundings accurately done? (h) was scanning accurate? (i) were peaks at uneven intervals missed? (j) were stamps completed? (k) references to adjacent features	X	
Part V - PROTRACTING		
13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None	N.A.	
14. The protracting and plotting of all unsatisfactory crossings were verified. Remarks Required: -- None	X	
15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None	X	

Fig. 20 (cont'd.)
Form 946 A (back of form)

Part V - PROTRACTING (Continued)	CL	R
16. The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.	X	
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number. Automated	N.A.	
Part VI - SOUNDINGS		
18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None	X	
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.	X	
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None	X	
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	X	
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.	X	
Part VII - CURVES		
23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected. W.L.J.	X	
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area not sounded in black dashed Remarks Required: -- None	X	
25. Depth curves were satisfactory except as follows: (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas [illegible] sufficient.		

Part VIII - AIDS TO NAVIGATION	CL	R
26. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey. Remarks Required: -- Conflicts of any nature listed.	N.A.	
27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification. Remarks Required: -- None	X	
Part IX - BOATSHEET		
28. The boat sheet was constantly compared with the smooth sheet with reference to note-, position of sounding lines and supplemental information. Remarks Required: -- None	X	
29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.	N.A.	
Part X - GENERAL		
30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None	X	
31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None	X	
32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet. Remarks Required: -- None	X	
33. The bottom characteristics are adequately shown. Remarks Required: -- None	N.A.	
Part XI - NOTES TO THE REVIEWER		
34. Unresolved discrepancies and questionable soundings.	X	
35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.	X	
36. Supplemental information.	X	

Verified by: Bernie T. Davis — Date: 8/30/72

FORM CAGS-946A (11-65)

USCOMM-DC 36272-P65

FIG. 18.

DESCRIPTIVE REPORT DATA RECORD		
PART I SMOOTH SHEET PREPARATION	PREPARED BY/OPERATOR	DATE
A. PLOTTER OPERATOR	EDP-AMC	
B. DISTORTION MARKS PLOTTED		
C. PROJECTION ~~INTERSECTIONS~~ PLOTTED	EDP-AMC	
D. ~~POINTS OF~~ ELECTRONIC CONTROL ARCS PLOTTED	EDP-AMC	
E. OVERLAYS PREPARED BY		
1. POSITION NUMBER	EDP-AMC	
2. EXCESS SOUNDINGS	EDP-AMC	
3. PRELIMINARY SMOOTH PLOT	EDP-AMC	
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		
B. PROJECTION ~~INTERSECTIONS~~ VERIFIED BY	B.T.D.	8/28/72
C. PROJECTION LINES RULED BY	Plotter	
D. ELECTRONIC CONTROL ARCS RULED AND LOCATION VERIFIED	Plotter B.T.D.	8/29/72
E. OVERLAYS COMPLETED BY		
1. POSITION NUMBER LEADERS ADDED	B.T.D.	8/30/72
2. EXCESS SOUNDING OVERLAY COMPARED	B.T.D.	8/29/72
3. PRELIMINARY SMOOTH PLOTS COMPARED	B.T.D.	8/29/72
4. OTHERS UTILIZED		
A.		
B.		
F. DESCRIPTIVE REPORT ADDENDUM	B.T.D.	8/30/72
G. CONTROL STATIONS VERIFIED	N.A.	
H. POSITIONS MANUALLY PLOTTED	N.A.	
I. MANUAL PLOT VERIFIED	N.A.	
J. SHORELINE APPLIED	N.A.	
K. BOTTOM CHARACTERISTICS ADDED	N.A.	
L. NOTES AND DEPTH CURVES ADDED	B.T.D.	8/29/72

H- 9170

A. Additions and corrections have been furnished the plotter center by the verification unit.

Date Sept. 6, 1972

Signed Hugh D. Ruffner

Title Chief, Verification Br., AMC

B. Additions and corrections have been added to the survey records and the final smooth sheet forwarded to the ~~xxxxxxxx~~ Review ~~xxxx~~ unit.

Date Sept. 6, 1972

Signed Hugh D. Ruffner

Title Chief, Ver. 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 _____

Signed _____

Title _____

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

Date Sept. 6, 1972.

VERIFICATION NOTE
H-9170 (HSL 10-1-70)

GENERAL

Within limitations, as stated in paragraph "A" concerning launch problems and the end of the field season, this appears to be an excellent survey. Problems experienced during verification were few in number and minor in nature.

This survey is located in an area of very irregular bottom and includes some areas of sand waves. They are higher in the North-West part of the survey. Additional developement would have been helpful in determining least depths, particularly in the area of submerged submarine operations. Reference should be made to wire drag field examination RH 10-1-71 for least depths on some of the more critical sheals.

Non-standard 90 ft. curve was drafted on the smooth sheet in brown ink as it is shown on charts of the area.

Hugh L. Proffitt
Chief, Verification Br., AMC

Norfolk, Va.
Sept. 6, 1972

RECORD OF APPLICATION TO CHARTS

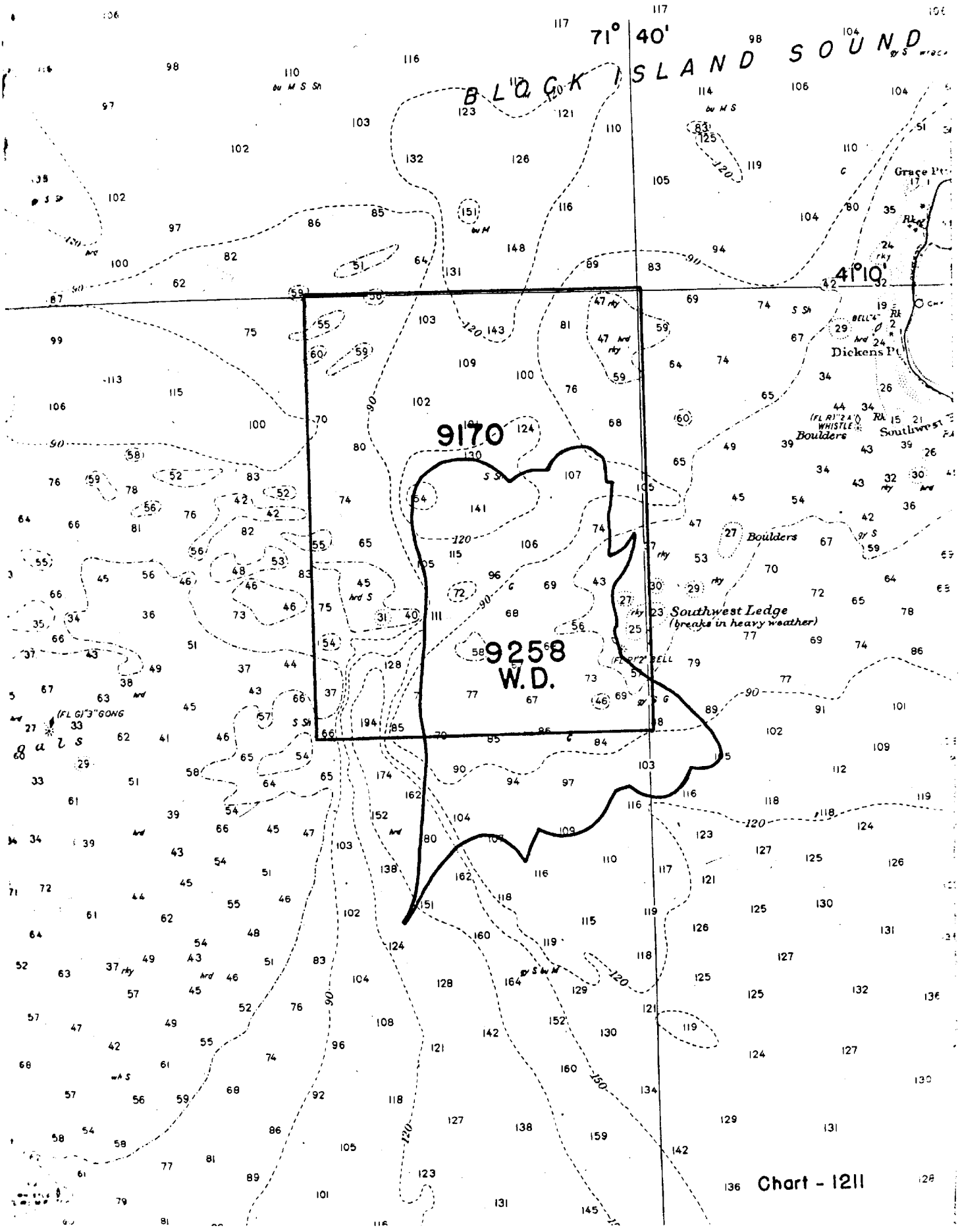
FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9170

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
271	11-20-72	Robert Healey	~~Full~~ Part ~~Before~~ After Verification / Before Review [redacted] Signed Via
			Drawing No. 6
1211	8-16-73	Robert Healey	~~Full~~ Part Before [redacted] Review [redacted] Signed Via
			Drawing No. 42
13205	8/29/90	Lee A[illegible]	~~Full~~ Part Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. 53 Considered Adequatly Applied
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.


71° 40'
BLOCK ISLAND SOUND
41°10'
9170
9258
W.D.
Southwest Ledge
(breaks in heavy weather)
Boulders
Dickens Pt
Grace Pt
Southwest
Chart - 1211