

8570

Diag. Cht. No. 1002 & 1007-2.

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. HY-200-1-60 Office No. H-8570

### LOCALITY

State Florida

General locality Straits of Florida

Locality South of Key West

1960

### CHIEF OF PARTY

K. S. Ulm

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DATE Nov. 2, 1961

USCOMM-DC 37022-P66

## HYDROGRAPHIC TITLE SHEET

8570  
H-8017

FIELD NO.

HY 200-1-60

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State FLORIDAGeneral locality STRAITS OF FLORIDASOUTH OF KEY WESTLocality STRAITS OF FLORIDA (SOUTHERN AREA)Scale 1:200,000 Date of survey 5 April - 4 October 1960Revised instructions 3 February 1960,Instructions dated Amended Inst. 10 March 1960, Amended Inst. 31 March 1960Vessel USC&GS HYDROGRAPHERChief of party KENNETH S. ULMC.A. SCHOENE, J.R. PLAGGMIER, J.F. GUTH, L.S. BROWN, G.M. POOR,Surveyed by J.A. TENNEYCK, D.W. MONCEV ICZSoundings taken by echo sounder, Sounder, min. EDO + 808Fathograms scaled by SHIP'S PERSONNELFathograms checked by SHIP'S PERSONNELProtracted by SHIP'S PERSONNEL \*Soundings penciled by SHIP'S PERSONNEL - INCOMPLETE \*Soundings in fathoms        at MLW       

REMARKS: \* This survey was originally smooth plotted in 1960 aboard the Ship HYDROGRAPHER. The original data was logged for machine plotting by Garber Digital Plotter in 1966 and the machine smooth plot was completed in 1968.

The original manual smooth sheet will be destroyed after the review is signed.

DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SURVEY  
FIELD NO. HY 200-1-60  
OFFICE NO. H-~~8017~~  
1960 **8570**  
STRAITS OF FLORIDA  
SHIP HYDROGRAPHER  
SCALE 1:200,000  
KENNETH S. ULM CHIEF OF PARTY

A. PROJECT:

Project CS-328 STRAITS OF FLORIDA AND GULF OF MEXICO,  
REVISED INSTRUCTIONS - Dated February 3, 1960; AMENDED INSTRUCTIONS - ✓  
Dated March 10, 1960; AMENDED INSTRUCTIONS - Dated March 31, 1960.  
(See SPECIAL NOTE - ADDITIONAL INFORMATION)

B. SURVEY LIMITS AND DATES:

This survey covers an area approximately 6,900 square miles  
in the southern part of Florida Straits. The surveyed area is ✓  
an approximate L shaped figure with the following latitudes,  
longitudes, and directions enclosing it:

From Lat.  $24^{\circ} - 17'$  Long.  $83^{\circ} - 37'$ , south to Lat.  $23^{\circ} - 43'$ ,  
west to Long.  $83^{\circ} - 52'$ , south to Lat.  $23^{\circ} - 10'$ , east to Long.  
 $81^{\circ} - 05'$ , north to Lat  $23^{\circ} - 53'$ , west to Long  $83^{\circ} - 14'$ , north to Lat.  
 $24^{\circ} - 17'$ , west to point of start.

Field work began on April 5, 1960, and was completed on ✓  
October 4, 1960. During this period considerable work was  
accomplished on other projects.

Junction was made on the west side of the sheet with H-8061,  
1953, Scale 1:200,000. Junction and some overlap was made on the ✓  
north and west side of the sheet with H-8017, 1952, Scale 1:200,000.  
Junction was made on the south side of the sheet with sheet limits,  
the 100 fathom curve off the Cuban coast, and to limits off the  
Cuban coast restricted by safe ship navigation. Junction was made  
on the east side of the sheet with sheet limits.

**H-8733 (1963)**

~~There are no contemporary surveys.~~

C. VESSEL AND EQUIPMENT

The hydrography on this sheet was done by the Ship HYDROGRAPHER. The turning radius at sounding speed (120 RPM or approximately 10 knots) of the HYDROGRAPHER is about 100 meters.

808 fathometers 57-31 and 153 were used in the few shoal areas. The EDO fathometer 185-3 was used for the bulk of the survey from shoal soundings to depths greater than 1400 fathoms.

See comments  
on EDO Fath.  
in Review  
Par. 4.

D. TIDE STATIONS:

For the major part of this survey no tide corrections were applied because the approximate tide range of two feet was between 0.17 and 0.01 per cent of the depth. On the inshore soundings along the Cuban coast between Long.  $81^{\circ}00'W$  and  $82^{\circ}20'W$ , in depths less than 200 fathoms, tides from the standard gage at Key West were used for the reduction of soundings. A tide note is included at the end of this report.

E. SMOOTH SHEET:

The smooth sheet projection was inked in the Washington Office. Raydist arcs were drawn and inked by officer personnel aboard the HYDROGRAPHER.

← old manual  
smooth sheet  
only.

No shoreline or topographic detail was transferred to the sheet. ✓

F. CONTROL STATIONS:

All hydrography in 1960 on this sheet was controlled by Raydist. Two Raydist stations were established at the following locations:

Boca Chica Key; (R<sub>1</sub>) Triangulation Station Rock Point 3,  
1924, RM 4 Latitude  $24^{\circ}33'36.139''N$

1960 Longitude  $81^{\circ}41'03.731''W$

Loggerhead Key; (R<sub>2</sub>) Triangulation Station LOGGERHEAD KEY  
LIGHTHOUSE, 1960, RM 1

Latitude  $24^{\circ}37'58.046''N$   
Longitude  $82^{\circ}55'11.052''W$

The stations were located using third order traverse methods by ship personnel in March 1960. ✓

G. SHORELINE AND TOPOGRAPHY:

No shoreline or topography is shown on this sheet. Although the northern coast of Cuba is within the limits of this sheet, the surveyed area is offshore. No accurate shoreline is presently available on the HYDROGRAPHER for this area. ✓

H. SOUNDINGS:

Depths in shoal water were recorded with 808 fathometers and in deep water with the EDO fathometer. Salinity - Temperatures were taken to correct the fathometer readings.

Velocity corrections are abstracted at the end of this report.

A separate report on Fathometer and Velocity Corrections - 1960 Field Season, Ship HYDROGRAPHER, has been submitted.

Due to the extreme depth of this survey, the normal Instrument Corrections were disregarded on all soundings. Instrument corrections on the 808 fathometers were disregarded because of the depth of the water, irregularity of the bottom, the ~~small~~ scale used for the survey, ~~which causes inaccurate plotting for inshore surveys, and inaccurate calibration corrections for inshore surveys.~~ From 1825 (HA day) August 7, 1960, to 1215 (JA day) August 8, 1960, the EDO fathometer was not recording properly, and five fathoms were added to all soundings, as noted in the record book.

Soundings were recorded and reduced to various accuracies; however, all are at least to the accuracy required under Table 2, page 14 and 5-101 of the Hydrographic Manual. Soundings on the Smooth Sheet are penciled as follows:

Depth	To the nearest
0 - 200	1 fm.
200 - 600 (EDO fast speed)	2 fms.
600 (EDO fast speed) to	
1800 (EDO fast speed)	5 fms.
EDO slow speed (All)	10 fms.

Automated smooth plot shows soundings to nearest reduced fathom.

Soundings and depth curves are pencilled for review and inking by the Washington Office.

I. CONTROL OF HYDROGRAPHY:

Hydrography was controlled entirely by Raydist. Raydist dials were set by calibrating from visual fixes, cross ranges, and pre-determined positions of navigation buoys and planted buoys. See raydist report for detailed description.

Triangulation stations were used to locate the Raydist Stations.

The width of a raydist lane is equal to 148.631 feet (45.303 meters).

The proper corrections have been applied to the Raydist readings recorded in the sounding volumes, and the smooth sheet is plotted correctly on the North American 1927 Datum.

J. ADEQUACY OF SURVEY:

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

Junctions with adjoining surveys are satisfactory. Depth curves can be adequately drawn at junctions.

Every 100 fathom depth curve is ~~pencilled~~ <sup>inked</sup> on the smooth sheet from 100 fathoms to ~~1400~~ fathoms to adequately delineate the configuration of the bottom. ~~1000~~

K. CROSSLINES:

810 miles or 10.1 per cent of the 8,051.2 nautical miles of hydrography was cross lines.

Discrepancies at crossings vary in percentages of depth from 0 to about 3 per cent. In the few areas where crossline discrepancies exceed 2 per cent of the depth, the difference can be attributed to irregular bottom and interpretation of the fathogram. It is considered the crossline soundings and irregular system of line soundings are in good agreement.

L. COMPARISON WITH PRIOR SURVEYS:

H-8061, 1953, 1:200,000

The comparison of the soundings at the junction is good and should be considered adequate.

H-8017, 1952, 1:200,000

The comparison of the soundings in the overlap area and at the junction is good to poor. In areas of doubt the 1960 survey should govern since Raydist control was used in place of the inferior accuracy of EPI control of 1952. See Special Note-- Additional Information Letter to Norfolk District Officer, October 7, 1960. "Some of the sounding lines on the 1952 work appear to be out of position, and some lines are in agreement with this season's work. A probable explanation of this condition was given me by Chief Petty Officers who were aboard this vessel during the 1952 season. EPI control was used, and during the daylight hours, control was excellent;

Original discrepancies were the result of EDO fath. on this survey (H-8570) see Review Par. 4

Discrepancies now resolved.

but at night considerable difficulty was experienced in identifying the ground wave from the sky waves. As a result the sounding lines were shaky on night operations. Since H-8017 has not been smooth plotted, nor were corrections entered in the sounding record volumes, it is safe to assume that neither velocity nor other corrections were applied to boat sheet soundings.

Since copies of Cuban surveys were never received, no comparison could be made along the Cuban coast. ✓

The Army Map Service, 1:50,000 - scale topographic maps of the northern coast of Cuba cannot be located aboard, so that the few available soundings cannot be compared. ✓

M. COMPARISON WITH CHART:

Chart 1113 - October 12, 1959. Comparison with this chart is generally fair to good. Since this is the first accurate survey made of the area, no complete comparison can be made. ✓

N. - Y. These items are not applicable to this report.

Z. TABULATION OF APPLICABLE DATA:

Seasons Report	To Washington Office - Nov. 7, 1960
Coast Pilot Report	To Washington Office - Oct. 1960
Fathometer Report	To Washington Office - Nov. 1960
Raydist Report	To Washington Office - Nov. 1960

Oceanography Data:

Water sample boxes (8) (#1 - 172) and bottom samples (6).	To Washington Office - Oct. 14, 1960
Oceanography Log Sheet A (8 copies)	To Washington Office - Oct. 15, 1960
B. T. Slides (HY-1,2,3,5,6,7,8)	To Washington Office - Oct. 15, 1960

SPECIAL NOTE - ADDITIONAL INFORMATION

Completion of the smooth sheet has been delayed due to the following:

Instructions were received in October, 1960, stating that HY-20152 and HY 200-1-60 were to be plotted on the same sheet. In the fall of 1960 ship personnel plotted all the HY 200-1-60 positions but did not pencil on soundings. The sheet and all HY 200-1-60 records were forwarded to the Norfolk Office. The Norfolk Office

This info. refers  
to old manual  
smooth plot  
only. ✓

was then to complete the sheet by having the 1952 EPI arcs added, plot the HY-20152 positions and pencil on all soundings for HY 200-1-60 and HY-20152.

In March 1961 instructions were received stating that H-8570 (HY 200-1-60) and H-8017 (HY-20152) shall be independent and completed sheets. The Norfolk Office was instructed to return HY 200-1-60 and all records for completion of smooth processing.

In April 1961 the incompletely smooth sheet and all records for HY 200-1-60 were received from Norfolk. By this time the HYDROGRAPHER had already completed a special project in South America and was beginning a new season, so that smooth processing was obviously delayed.

Following is a list of Instructions and correspondence referring to this matter.

To:	Commanding Officer - Ship HYDROGRAPHER	Mar. 10, 1960
From:	The Director	
	Coast and Geodetic Survey	
Subject:	AMENDED INSTRUCTIONS - PROJECT CS-328 STRAITS OF FLORIDA AND GULF OF MEXICO.	
To:	The Director	Mar. 14, 1960
From:	Coast and Geodetic Survey	
Subject:	Norfolk District Office	
	Soundings in Boat Sheet - Survey H-8017 (HY-20152)	
To:	Commanding Officer - Ship HYDROGRAPHER	Oct. 5, 1960
From:	Norfolk District Office	
Subject:	Boat Sheets - Request for.	
To:	Norfolk District Office	Oct. 7, 1960
From:	Commanding Officer - Ship HYDROGRAPHER	
Subject:	Boat Sheets, Florida Straits.	
To:	Commanding Officer - Ship HYDROGRAPHER	Oct 12, 1960
From:	The Director	
Subject:	Coast and Geodetic Survey	
	Request for smooth sheet and registry numbers.	
To:	Commanding Officer - Ship HYDROGRAPHER	Nov. 29, 1960
From:	Norfolk District Office	
Subject:	Smooth Plot of Survey H-8017 (HY-20152)	
To:	Commanding Officer - Ship HYDROGRAPHER	Mar. 22, 1961
From:	Chief, Operations Division, Washington, D. C.	
Subject:	Boat and Smooth Sheets HY 80-1-60, HY 80-2-60, HY 200-1-60.	

Submitted by:

*Jack E. Guth*  
Jack E. Guth, LCDR, C&GS

APPROVAL SHEET

The records and smooth sheet as submitted to the Norfolk Office have been reviewed and are approved.

The survey is complete and adequate, and no additional field work is recommended.

*Emmett H. Sheridan*  
Emmett H. Sheridan  
CAPT, C&GS  
Commanding Ship HYDROGRAPHER

Reports Nos.

1960-132

1961-96

1960-116

1960-131

1961-91

1961-54

TIDE NOTE

The standard tide gage at Key West, Florida, was used for the reduction of soundings of the shoal depths off the northern coast of Cuba, using a range factor of 0.9 and a time difference of minus 30 minutes. Tabulation of tide correctors for this area follows:

Depths (fms)	Recorded to (fms.)	Enter Corrections to (fms)	
11-31	0.2	0.1	
31-101	0.5	0.2	
101-200	1.0	0.5	
DAY LETTER	DATE	TIME	CORRECTION
B	22 May	1015	-0.5
		1020 - 1021	-0.2
		1205 - 1215	0.0
C	23 May	1800 - 1810	0.0
		1900	-0.2
		1905 - 1910	-0.5
D	24 May	0720 - 0725	-0.2
H	5 June	0900	0.0
		0905	-0.2
		1105 - 1115	0.0
J	6 June	0848 - 0857	-0.5
		0900 - 0920	-0.2
		0922	-0.5
		0925 - 0928	-0.2
		0930 - 0935	-0.5
		0940 - 0955	0.0
		1005 - 1025	0.0
K	7 June	0708 - 0715	-0.5
Q	18 June	0820 - 0900	-0.2
R	19 June	1135 - 1205	0.0
		1330 - 1345	0.0
S	20 June	0803 - 0805	-0.5
		1345 - 1355	0.0
		1525 - 1540	0.0
T	21 June	0920	-0.5
		0921 - 0955	-0.2
		1000 - 1016	-0.5
		1025	0.0
		1340 - 1405	0.0
		1425 - 1440	0.0
		1535 - 1551	0.0
		1613 - 1645	0.0
		1650	-0.2
U	22 June	0730	-0.4
		0735	-0.5
		0950 - 1003	-0.2
		1006	-0.5
AA	24 July	0940 - 0945	-0.5
		1030	-0.4
		1035	-0.5

VELOCITY CORRECTIONS

EDO FATHOMETER - 800 fms./sec.

21 - 26 May

Depth Correction  
Range 0.5 fms

101-108	45.0
119	5.5
130	6.0
148	6.5
154	7.0
166	7.5
179	8.0
192	8.5
195	9.0

Range 1.0 fms.

196-216	49.0
246	10.0
278	11.0
312	12.0
348	13.0
387	14.0
428	15.0
468	16.0
513	17.0
558	18.0
600	19.0

Range 2.0 fms.

600-694	420.0
788	22.0
866	24.0
943	26.0
1020	28.0
1097	30.0
1173	32.0

4 June - 12 August

Depth Correction  
Range 0.5 fms.

101-110	45.0
122	5.5
134	6.0
148	6.5
162	7.0
175	7.5
191	8.0
195	8.5

Range 1.0 fms.

196-203	48.0
235	9.0
270	10.0
309	11.0
352	12.0
398	13.0
452	14.0
502	15.0
556	16.0
600	17.0

Range 2.0 fms.

601-694	418.0
784	20.0
872	22.0
956	24.0
1038	26.0
1119	28.0
1198	30.0
1275	32.0
1350	34.0
2000	36.0

19 - 27 August

Depth Correction  
Range 0.5 fms.

183-195	49.0
Range 1.0 fms.	1.0
196-206	49.0
235	10.0
266	11.0
298	12.0
336	13.0
378	14.0
433	15.0
493	16.0

562	17.0
599	18.0

Range 2.0 fms.

600-673	418.0
782	20.0
875	22.0
960	24.0
1041	26.0
1120	28.0
1200	30.0
1273	32.0
1345	34.0

1416	36.0
1480	38.0

808 FATHOMETER - 820 fms./sec.

21 May - 12 August

Depth      Correction  
Range 0.1 fms.

2.0-5.5      ~~0.1~~  
8.8      0.2  
11.0      0.3

Range 0.2 fms.

11.0-12.5      ~~0.2~~  
19.8      0.4  
27.0      0.6  
31.0      0.8

Range 0.5 fms.

31-32      ~~0.5~~  
51      1.0  
72      1.5  
96      2.0  
128      2.5  
164      3.0  
200      3.5

16-21 September

29 September - 4 October

Depth      Correction  
Range 1.0 fms.190-219      49.0  
252      10.0  
288      11.0  
328      12.0  
371      13.0  
407      14.0  
445      15.0  
483      16.0  
520      17.0  
560      18.0  
600      19.0

Range 2.0 fms.

600-670      420.0  
753      22.0  
835      24.0  
915      26.0  
992      28.0  
1065      30.0  
1137      32.0  
1205      34.0  
1275      36.0  
1335      38.0  
1393      40.0  
1460      42.0Depth      Correction  
Range 0.5 fms.180-194      48.5  
Range 1.0 fms.  
195-220      49.0  
253      10.0  
290      11.0  
329      12.0  
370      13.0  
425      14.0  
480      15.0  
536      16.0  
590      17.0  
599      18.0

Range 2.0 fms.

600-685      418.0  
780      20.0  
873      22.0  
960      24.0  
1045      26.0  
1125      28.0  
1204      30.0  
1277      32.0  
1348      34.0  
1420      36.0

## RAYDIST CORRECTIONS

<u>Date</u>	<u>Day Letter</u>	<u>Positions</u>	<u>Corr. (R<sub>1</sub>)</u>	<u>Corr. (R<sub>2</sub>)</u>
21 May	A	1 - 53	+0.6	+1.0
22 May	B	1	+0.6	+1.0
		2 - 3	+1.6	0.0
		4 - 94	+0.6	+1.0
23 May	C	1 - 33	+2.3	-7.5
		34	+2.3	-9.5
		35	+2.3	-11.5
		36 - 57	+2.3	-9.5
24 May	D	1 - 2	+2.3	-9.5
		3 - 95	+2.3	-7.5
25 May	E	1 - 2	+4.5	-9.2
		3 - 61	+4.5	-8.2
		62	+3.5	-13.2
		64	-0.5	-15.2
		65 - 67	-1.5	-15.2
		68 - 77	-3.5	-13.2
26 May	F	1 - 8	-3.5	-13.2
4 June	G	1 - 34	+35.1	-34.4
5 June	H	1 - 72	+35.1	-34.4
6 June	J	1 - 22	0.0	+0.2
7 June	K	1 - 60	+6.0	-7.7
8 June	L	1 - 6	+6.0	-7.7
		7	+6.0	-9.7
		8 - 10	+6.0	-7.7
		11 - 77	+6.0	-11.7
		78 - 86	0.0	+0.7
9 June	M	1 - 82	0.0	+0.7
		83 - 85	+1.0	-0.3
		86 - 89	0.0	+0.7
		90 - 106	-1.0	+1.7
10 June	N	1 - 6	-1.0	+1.7
17 June	P	1 - 7	+0.1	0.0
		8	+0.1	t & c
		9 - 39	+0.1	+32.0
18 June	Q	1 - 27	+0.1	+32.0
		28 - 95	+0.3	+0.7
19 June	R	1 - 2	+0.3	+0.7
		3 - 72	+0.3	+2.7
		73 - 74	+0.3	+1.7
		75 - 92	-0.7	-0.3
20 June	S	1 - 16	-0.7	-0.3
		17 - 52	-1.7	+0.7
		53 - 77	-1.7	-1.4
		78 - 93	-1.7	-3.4
		94 - 104	-1.7	-5.4
21 June	T	1 - 122	-1.7	-5.4
22 June	U	1 - 14	-1.7	-5.4
		15 - 26	-1.7	-3.4

## RAYDIST CORRECTIONS (Contd.)

<u>Date</u>	<u>Day Letter</u>	<u>Positions</u>	<u>Corr. (R<sub>1</sub>)</u>	<u>Corr. (R<sub>2</sub>)</u>
22 June (Contd.)	U	27-94	-0.4	-0.2
		95-103	+.6	-1.2
		104	+.2	-2.2
		105	+.2	-3.2
		106	+.2	-2.2
23 June	V	1-3	+.2	+.2
		4-57	+.3	-1.8
		58-64	+.3	+.2
		65	+.3	+.2
		66-72	+.3	+.2
		73-74	+.3	+.2
24 June	W	1	+.3	+.2
		2-111	+.3	+.2
25 June	X	1-6	-0.8	+.2
		7-8	-1.8	+.2
		9	-0.8	+.2
		10-44	+.2	+.2
		45-66	-0.8	+.2
		1-29	-0.4	-1.2
22 July	Y	30-38	+.6	+.8
		39-49	+.6	+.8
		1-14	+.6	+.8
23 July	Z	15-17	+.6	-0.2
		18-68	+.6	+.8
		69-98	+.6	-0.2
		1-40	+.6	-0.2
24 July	AA	41-95	+.4	-0.7
		1-101	+.4	-0.7
25 July	BA	1-4	+.4	-0.7
26 July	CA	6-31	-0.6	-0.8
27 July	DA	1-22	-0.6	+.3
		23-38	+.0	+.4
28 July	EA	1-32	+.0	+.4
5 August	FA	1-41	+.1	+.9
6 August	GA	1-17	+.1	-1.1
		18-19	+.1	-1.1
		20-71	+.1	+.9
7 August	HA	1-11	+.3	-2.0
		12-52	+.3	-1.0
8 August	JA	1-3	+.3	-1.0
		4-91	+.3	+.0
		92-101	+.3	-1.0
		1-47	+.3	-1.0
9 August	KA	48-56	+.3	-0.2
		1-103	+.3	-0.2
10 August	LA	1-98	+.3	-0.2
		99-102	+.3	-1.2
12 August	NA	1-34	+.3	-1.2
19 August	PA	1-14	+.2	-1.2
20 August	QA	1-116	+.2	-1.2
21 August	RA	1-110	+.2	-1.2

## RAYDIST CORRECTIONS (Contd.)

<u>Date</u>	<u>Day Letter</u>	<u>Positions</u>	<u>Corr. (R1)</u>	<u>Corr. (R2)</u>
22 August	SA	1-113	41.2	-1.2
		114 -116	40.2	-2.2
23 August	TA	1-81	40.2	-2.2
24 August	UA	1-40	0.0	-2.3
25 August	VA	1-42	40.2	-2.0
26 August	WA	1-86	40.2	-2.0
		87	41.2	-3.0
		88	42.2	0.0
		89-94	41.2	45.0
		95-98	-0.8	43.0
		99	-1.8	44.0
		100-101	-3.8	43.0
		102	-11.8	47.0
27 August	XA	1-2	-11.8	47.0
16 September	YA	1-10	40.7	-0.8
		11	40.7	41.2
17 September	ZA	1-51	-0.3	40.3
		52-53	40.7	-0.7
18 September	AB	1-63	-0.3	-1.7
19 September	BB	1-113	-0.3	-1.7
20 September	CB	1-36	-0.3	-1.7
		37-79	-0.3	-0.7
		80	41.7	-2.7
		81	41.7	-4.7
		82-86	-0.3	-4.7
		87	40.7	-5.7
		88-91	-0.3	-4.7
		92-97	-1.3	-3.7
21 September	DB	1-23	40.8	-2.8
		24-42	41.8	-1.8
		43-45	42.8	-2.8
		46-47	42.8	43.2
		48	43.8	44.2
		49	43.8	48.2
		50	47.8	415.2
29 September	EB	1-42	-0.4	0.0
30 September	FB	1-11	-0.4	0.0
		12-46	-0.3	40.3
1 October	GB	1-69	40.8	40.6
2 October	HB	1-35	40.8	40.6
3 October	JB	1-63	40.6	41.1
		64-66	41.6	43.1
		67	42.6	44.1
		68	41.6	48.15.1
		69-71	42.6	46.1
		72-80	43.6	45.1
		81	42.6	44.1
4 October	KB	1	43.6	44.1
		2	40.6	41.1
		3-77	-0.4	40.1

STATISTICS

<u>DATE</u>	<u>Day Letter</u>	<u>Vol.</u>	<u>No. Pos.</u>	<u>Naut. Mi. Sdg. Line</u>	<u>To from Dist.</u>	<u>Misc. Dist.</u>	<u>Total Naut. Mi.</u>
21 May	A	1	53	111.8	40.4	10.0	162.2
22	B	1	94	241.3	----	4.0	245.3
23	C	1	57	110.9	24.5	3.5	138.9
24	D	1	95	192.9	----	15.0	207.9
25	E	1-2	77	162.3	----	6.0	168.3
26	F	2	8	19.7	38.0	----	57.7
4 June	G	2	34	75.1	33.0	----	108.1
5	H	2	72	160.1	----	25.0	185.1
6	J	2	23	46.1	----	53.4	99.5
7	K	2	60	136.8	----	35.6	172.4
8	L	2	86	192.0	----	30.2	222.2
9	M	2-3	100	229.7	----	2.3	232.0
10	N	3	6	13.6	----	----	13.6
17	P	3	39	96.8	26.7	----	123.5
18	Q	3	95	218.9	----	17.5	236.4
19	R	3	92	168.4	1.5	34.6	204.5
20	S	3-4	104	191.0	----	39.4	230.4
21	T	4	122	218.6	----	8.5	227.1
22	U	4	107	192.8	11.0	18.9	222.7
23	V	4	74	125.7	----	24.0	149.7
24	W	4	111	204.8	14.9	2.4	222.1
25	X	4	66	116.5	25.0	0.4	141.9
26 July	Y	5	45	106.9	16.5	2.6	126.0
27	Z	5	98	211.4	----	5.0	216.4
28	AA	5-6	95	219.9	----	2.5	222.4
29	BA	6	101	236.1	----	5.2	241.3
30	CA	6	31	51.6	----	43.2	94.8
31	DA	6	38	72.4	----	100.7	173.1
32	EA	6	32	69.2	----	26.0	95.2
5 Aug.	FA	6	41	92.4	33.2	----	125.6
6	GA	6-7	72	155.6	----	3.0	158.6
7	HA	7	52	126.8	28.0	----	154.8
8	JA	7	101	192.1	----	10.7	202.8
9	KA	7	56	130.2	----	84.4	214.6
10	LA	7	103	209.0	----	13.6	222.6
11	MA	7-8	102	193.6	----	6.0	199.6
12	NA	8	34	61.3	----	1.5	62.8
13	PA	8	14	33.0	37.0	----	70.0
14	QA	8	116	219.0	----	12.0	231.0
15	RA	8	110	205.0	----	6.2	211.2
16	SA	8-9	116	196.2	----	21.2	217.4
17	TA	9	91	193.0	28.5	3.1	224.6
18	UA	9	40	86.0	143.4	2.0	231.4
19	VA	9	42	84.0	133.8	5.0	220.8
20	WA	9	102	217.0	----	12.4	229.4
21	XA	9	3	4.5	73.1	4.5	82.1
22 Sept.	YA	10	11	18.4	17.1	----	35.5
23	ZA	10	53	96.2	----	99.2	195.4
24	AB	10	63	133.5	----	81.9	215.4
25	BB	10	113	201.0	----	13.2	214.2
26	CB	10	97	191.1	4.0	8.5	203.6

## GEOGRAPHIC NAMES

Survey No. H-8570

## TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrographic Survey~~

28 November '61

Division of Charts: R. H. Carstens

Plane of reference approved in  
12 volumes of sounding records for

HYDROGRAPHIC SHEET 8570

Locality Straits of Florida

Chief of Party: K. S. Ulm (1960)  
Plane of reference is mean low water  
ft. on tide staff at  
ft. below B. M.

Height of mean high water above plane of reference at the  
working grounds is: 1.2 feet.

Condition of records satisfactory except as noted below:

*J. M. Symons*  
\_\_\_\_\_  
Chief, Tides and Currents Branch  
~~Chief, Division of Tides and Currents~~

CROSS REFERENCING OF POSITION NUMBERS

H-8570

ORIGINAL RECORDS

AUTOMATED RECORDS

(Sounding Volumes)

<u>Day</u>	<u>Date</u>	<u>Positions</u>	<u>Day</u>	<u>Year</u>	<u>Positions</u>
A	5-21-60	1-53 .....	142	60	1-53
B	5-22-60	1-94 .....	143	60	54-147
C	5-23-60	1-57 .....	144	60	148-203
D	5-24-60	1-95 .....	145	60	204-298
E	5-25-60	1-77 .....	146	60	299-375
F	5-26-60	1-08 .....	147	60	376-384
G	6-04-60	1-34 .....	156	60	385-417
H	6-05-60	1-72 .....	157	60	418-490
J	6-06-60	1-23 .....	158	60	491-513
K	6-07-60	1-60 .....	159	60	514-572
L	6-08-60	1-86 .....	160	60	573-658
M	6-09-60	1-100 .....	161	60	659-758
N	6-10-60	1-06 .....	162	60	759-765
P	6-17-60	1-39 .....	169	60	766-803
Q	6-18-60	1-95 .....	170	60	804-898
R	6-19-60	1-92 .....	171	60	899-990
S	6-20-60	1-104 .....	172	60	991-1094
T	6-21-60	1-122 .....	173	60	1095-1216
U	6-22-60	1-106 .....	174	60	1217-1323
V	6-23-60	1-74 .....	175	60	1324-1397
W	6-24-60	1-111 .....	176	60	1398-1508

Day	Date	Portions	Day	Year	Positions
X	6-25-60	1-66 .....	177	60	1509-1575
Y	7-22-60	1-45 .....	204	60	1576-1619
Z	7-23-60	1-98 .....	205	60	1620-1717
AA	7-24-60	1-95 .....	206	60	1718-1812
BA	7-25-60	1-101 .....	207	60	1813-1913
CA	7-26-60	1-32 .....	208	60	1914-1945
DA	7-27-60	1-38 .....	209	60	1946-1982
EA	7-28-60	1-32 .....	210	60	1983-2015
FA	8-05-60	1-41 .....	218	60	2016-2055
GA	8-06-60	1-73 .....	219	60	2056-2127
HA	8-07-60	1-52 .....	220	60	2128-2177
JA	8-08-60	1-101 .....	221	60	2178-2278
KA	8-09-60	1-56 .....	222	60	2279-2334
LA	8-10-60	1-103 .....	223	60	2335-2438
MA	8-11-60	1-102 .....	224	60	2439-2539
NA	8-12-60	1-34 .....	225	60	2540-2574
PA	8-19-60	1-15 .....	232	60	2575-2588
QA	8-20-60	1-116 .....	233	60	2589-2703
RA	8-21-60	1-110 .....	234	60	2704-2813
SA	8-22-60	1-116 .....	235	60	2814-2929
TA	8-23-60	1-91 .....	236	60	2930-3011
UA	8-24-60	1-41 .....	237	60	3012-3051
VA	8-25-60	1-42 .....	238	60	3052-3092

<u>Day</u>	<u>Date</u>	<u>Positions</u>	<u>Day</u>	<u>Year</u>	<u>Positions</u>
WA	8-26-60	1-102 .....	239	60	3093-3194
XA	8-27-60	1-3 .....	240	60	3195-3197
YA	9-16-60	1-11 .....	260	60	3198-3208
ZA	9-17-60	1-53 .....	261	60	3209-3261
AB	9-18-60	1-64 .....	262	60	3262-3324
BB	9-19-60	1-113 .....	263	60	3325-3436
CB	9-20-60	1-97 .....	264	60	3437-3534
DB	9-21-60	1-50 .....	265	60	3535-3584
EB	9-29-60	1-42 .....	273	60	3585-3625
FB	9-30-60	1-46 .....	274	60	3626-3672
GB	10-01-60	1-69 .....	275	60	3673-3740
HB	10-02-60	1-37 .....	276	60	3741-3776
JB	10-03-60	1-81 .....	277	60	3777-3856
KB	10-04-60	1-77 .....	278	60	3857-3934

The total number of positions for a certain day as recorded in the original records and the automated records may differ by a few numbers. Positions not plotted and rejected positions recorded in the original records are not reflected in the totals of the automated records. Also any additional artificial fixes (turning positions, etc.) recorded in the automated records are not reflected in the totals of the original records.

## Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8570

Records accompanying survey: Smooth sheets 1....;  
 boat sheets 1...; sounding vols. 12...; wire drag vols. ....;  
 Descriptive Reports 1....; graphic recorder envelopes 29...;  
 special reports, etc. 4 Cahiers - Raydist Brush Tapes and .....  
 Clary Printer Tapes:.....

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

Number of positions on sheet	.....
Number of positions checked	.....
Number of positions revised	.....
Number of soundings revised (refers to depth only)	.....
Number of soundings erroneously spaced	.....
Number of signals erroneously plotted or transferred	.....
Topographic details	Time ..... <span style="float: right;">See next page</span>
Junctions	Time ..... <span style="float: right;">See next page</span>
Verification of soundings from graphic record	Time ..... <span style="float: right;">See next page</span>
Special adjustments	Time ..... <span style="float: right;">See next page</span>

Verification by ..... Total time ..... Date .....

Reviewed by ..... Time ..... Date .....

**HYDROGRAPHIC SURVEY STATISTICS**

**HYDROGRAPHIC SURVEY NO. H-8570**

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

*See preceding page*

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION			AMOUNT
SMOOTH SHEET			BOAT SHEETS			
DESCRIPTIVE REPORT			OVERLAYS			
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS						
VOLUMES						
BOXES						
T-SHEET PRINTS (List)						
SPECIAL REPORTS (List)						

**OFFICE PROCESSING ACTIVITIES**

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

PROCESSING ACTIVITY	AMOUNTS			
	VERIFICATION	PAS VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				<i>3935</i>
POSITIONS CHECKED	<i>3425</i>		0	
POSITIONS REVISED	<i>39</i>		0	
DEPTH SOUNDINGS REVISED	0	<i>Most</i> <sup>See Review</sup>	61	
DEPTH SOUNDINGS ERRONEOUSLY SPACED	0		0	
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED			0	
TIME (MANHOURS)				
TOPOGRAPHIC DETAILS	0			
JUNCTIONS	8			
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS	8			
SPECIAL ADJUSTMENTS	0	107	16	<i>← added depth curves 600, 700, 800, 900 fm.</i>
ALL OTHER WORK	24		52	
TOTALS	40	107	68	
PRE-VERIFICATION BY <i>Dale E. Westbrook</i>		BEGINNING DATE	ENDING DATE	
VERIFICATION BY <i>J. B. Chamber</i>		BEGINNING DATE	ENDING DATE	
REVIEW BY <i>Dale E. Westbrook</i>		BEGINNING DATE	ENDING DATE	

Reg. No. H-8570 (1960)

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey, the following shall be completed:

CARDS CORRECTED

DATE \_\_\_\_\_ TIME REQ'D \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

INFORMATION FOR FUTURE PRE-SURVEY REVIEWS

Any future survey of this area should include detailed development of the several important valleys and knolls within the limits of both this survey and H-8017. Lines running along the axes of the valleys would be of prime importance.

Dale E. Westbrook

OFFICE OF HYDROGRAPHY AND OCEANOGRAPHY  
MARINE CHART DIVISION  
HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8570

FIELD NO. HY-200-1-60

Florida, Straits of Florida, South of Key West

SURVEYED: April through October 1960

SCALE: 1:200,000

PROJECT NO.: CS-328

SOUNDINGS: 808 and EDO Depth  
Recorders

CONTROL: Raydist

Chief of Party.....	K. S. Ulm
Surveyed by.....	C. A. Schoene
.....	J. R. Plaggmier
.....	J. E. Guth
.....	L. S. Brown
.....	G. M. Poor
.....	J. A. Teneyck
.....	D. W. Moncevicz
Protracted by.....	Gerber Digital Plotter
Soundings Plotted by.....	Gerber Digital Plotter
Verified by.....	J. C. Chambers
.....	D. E. Westbrook
Reviewed by.....	D. E. Westbrook
.....	Date: March 28, 1969
Inspected by.....	R. H. Carstens

1. Description of the Area

This survey is located in the approximate center of the Straits of Florida between the Florida Keys and Cuba. The bottom contains numerous important irregularities, some of which have been tentatively named by Jordan and Stewart (1961) in a study titled, Submarine Topography of the Western Straits of Florida, published in the Geological Society of America Bulletin.

The present survey shows the lower portion of Tortugas Valley in lat.  $23^{\circ}40'$ , long.  $83^{\circ}03'$ ; the lower portion of the Agassiz Valleys in lat.  $23^{\circ}37'$ , long.  $82^{\circ}41'$ ; and the southwest portion of Mitchell Escarpment in lat.  $23^{\circ}52'$ , long.  $82^{\circ}15'$ .

Not described by Jordan and Stewart, however, are: the knoll in lat.  $23^{\circ}32'7''$ , long.  $83^{\circ}50'1''$  which rises 400 fathoms from 1200 fathom depths (subsequently named Jordan Knoll, Board of Geographic Names, 1969), and the numerous valleys which incise the Cuban island shelf in the vicinity of lat.  $23^{\circ}15'$ , long.  $81^{\circ}25'$ .

The bottom in the survey area is composed mostly of mud, with some sand, clay, and broken shells.

Since H-8017 (1952-54) considerably overlaps the present survey, the complete picture of the area can be obtained only by using both surveys.

## 2. Control and Shoreline

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

There is no shoreline within the present survey area.

## 3. Hydrography

A. Depths at crossings are in good agreement.

B. The usual depth curves were adequately delineated. Nonstandard curves were drawn to more adequately portray the several important bottom features at 600, 700, 800, and 900 fathoms.

C. The development of the bottom configuration and determination of least depths are adequate. If this survey were to be undertaken at the present time, however, more development of the numerous important submarine features would be desirable for bathymetric mapping.

## 4. Condition of the Survey

The sounding records, automated plotting, and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual and the Instruction Manual--Automated Hydrographic Surveys, except that the automated smooth plot was deficient in two instances:

A. The figure 5's did not print completely. A break in the figure indicated either a worn character on the numbering head, or the type had a piece of dirt on it.

B. No excess sounding plot was made for this survey. A preliminary plot of excess soundings is very important to the adequate verification of an automated survey and should be made in all cases.

A major amount of difficulty was experienced in processing this survey. Sounding discrepancies were found within the survey itself as well as with H-8017 (1952-54) at the junction and overlap. The junctions with other surveys were also poor. It is safe to say that without automated reduction and plotting of soundings, the adjustment of this survey would have been close to impossible.

A careful study of the entire problem was made, and the conclusion was reached that the EDO fathometer used on the present survey was not operating properly, and that adequate field observation and control of the operating characteristics of this fathometer were not accomplished according to standard procedures. The Descriptive Report of the present survey, erroneously attempts to explain away the discrepancies by pointing to the EPI control on H- 8017 (1952-54) as the cause of the problem.

The following corrections were applied to the present survey to bring it into adequate agreement with itself and adjacent surveys:

A. An arbitrary correction of minus 13.0 fathoms was applied to all EDO soundings (almost all sounding on the survey). NOTE: This correction was applied to the raw soundings during the final computer run. Consequently, the sounding volumes and the raw data printouts have not been corrected accordingly. This fact must be kept in mind during any future checking of depths.

B. A variable instrumental correction (as much as minus 20.0 fathoms) was found by comparing deep scale (0-6000 fathoms) EDO readings with shallower scale readings when the scale was changed. The corrections were applied to the EDO deep scale.

The final computer card printout shows these instrumental corrections as a part of the TRA correction which also includes a plus 2.0 fathom correction for the zero initial setting.

A few isolated discrepancies of 3-5 fathoms still exist between the present survey and H-8017. These discrepancies are believed to be the result of using historical velocity correction data on H-8017, as opposed to the observed velocity correction data used on the present survey.

#### 5. Junctions

Adequate junctions were effected with H-8017 (1952-54) which both overlaps and joins the present survey on the north and west; with H-8061 (1953-54) on the west; and H-8733 (1963) on the east.

The junction with H-8630 (1961) on the north will be discussed in the review of that survey.

No contemporary survey is available for a junction with the present survey on the south in the vicinity of Cuba. A discussion of this area will be found under Part. 7, Comparison With Charts.

#### 6. Comparison With Prior Surveys

H-1353 (1:600,000) 1875-77  
H-1399 (1:80,000) 1877-78  
H-1532 (1:2,400,000) 1882  
H-4088a (1914) H.O. Chart 1411

These surveys contain only a few scattered soundings which fall within the present survey area. Some of these reconnaissance soundings are in reasonably good agreement with the present survey considering the great depths, and the lack of good horizontal positioning on the older surveys.

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

#### H-8521 (1960) Position Plotting Sheet

This survey contains two reconnaissance tracklines made by the Ship EXPLORER in 1960 which fall within the confines of the present survey. Again, in a few instances, good sounding agreement with the present survey was noted considering the small scale of H-8521 and the lack of good horizontal control on its reconnaissance lines.

These reconnaissance soundings should not be used for charting within the area of the present survey.

### 7. Comparison With Chart 1113, 9th Ed., December 23, 1968

The charted soundings within the present survey area are from various sources which include: old U.S. Navy, British Admiralty, and Spanish charts; the previously discussed prior surveys which require no further consideration; more recent U.S. Navy charts and tracklines; and the boat sheet of the present survey.

Since the present survey (with H-8017) provides the first detailed, accurate picture of the ocean bottom in this area, and since the prior soundings have but little reliability in view of the methods and positioning by which they were obtained, the present survey, when used in conjunction with H-8017, is adequate to supersede the charted soundings within the common area.

An exception to the above statement exists, however, in the immediate vicinity of the coast of Cuba at the southern edge of the present survey. Here, a few charted soundings (from Bp-25855-56, U.S.N Chart 2623) appear to be shoaler than those shown on the present survey. Because of the relatively small scale of the present survey and its lack of development in this area, these shoaler soundings may be valid and should be retained on the chart.

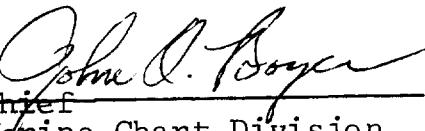
### 8. Compliance With Project Instructions

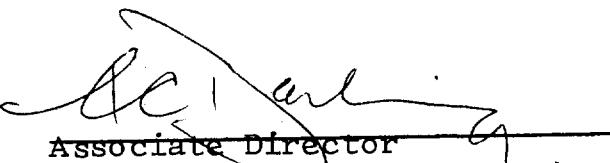
The present survey adequately complies with the Project Instructions.

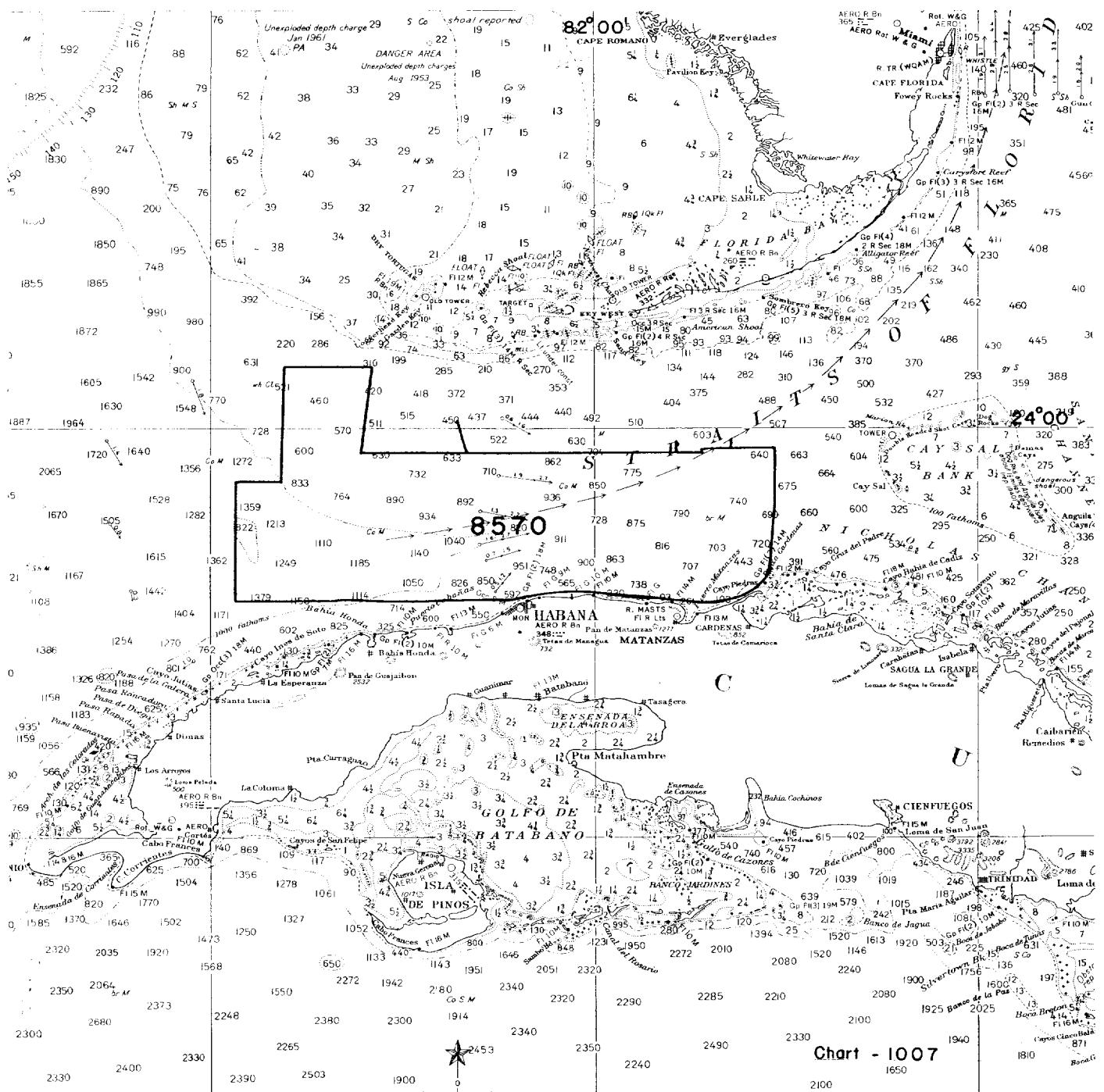
### 9. Additional Field Work

The present survey, taken together with H-8017, provides adequate basic coverage of the area and no additional field work is recommended.

Examined and Approved:

  
John O. Boyer  
Chief  
Marine Chart Division

  
R.C. Darling  
Associate Director  
Hydrography and Oceanography



## NAUTICAL CHARTS BRANCH

**SURVEY NO. H-8570**

## Record of Application to Charts

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

M-2168-1