9505

Mag
OPR 435
Cat. 1 Hydro

9505

Diag. Cht. No. 1251-2. (inset)

Form 504

U. S. DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. HY-10-1-66 Office No. 9505

LOCALITY

State FLORIDA

General locality FLORIDA KEYS

Locality KEY WEST

1966

CHIEF OF PARTY

HARRY D. REED JR. CDR USESSA

LIBRARY & ARCHIVES

DATE Oct. 13, 1977

USCOMM-DC 5087

Area 3 & 4

Charts

576 (1447)
584 (11441)
854 (11445)
1002 (11013)
1003 (11006)
1007 (11)
111 (11460)
1113 (11420)
1254 (11442)
1351 (11434)

FORM C&GS-537 (8-15-59)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

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. HY-10-1-66

State: Florida

General locality: Florida Keys

Locality: Key West

Scale: 1:10,000 Date of survey: July 25 to August 27, 1966

Instructions dated: May 19, 1966 Project No.: OPR 435 Florida Keys

Vessel: Launch HY-1 and Skiff #1 (Boats from USC&GSS HYDROGRAPHER)

Chief of party: Harry D. Reed Jr. CDR USESSA

Surveyed by: K.E. Taggart, J.P. Brown, B.D. Edwards, D.E. Youngdahl, A.P. Sibold, J.L. Wallace, H.M. Coghlan, T.E. Gerish

Soundings taken by echo sounder, ~~hand lead~~, pole: (Sounding Pole--no serial number) (Fathometer DE-723 Serial No. 555)

Graphic record scaled by: Ship personnel

Graphic record checked by: Ship personnel

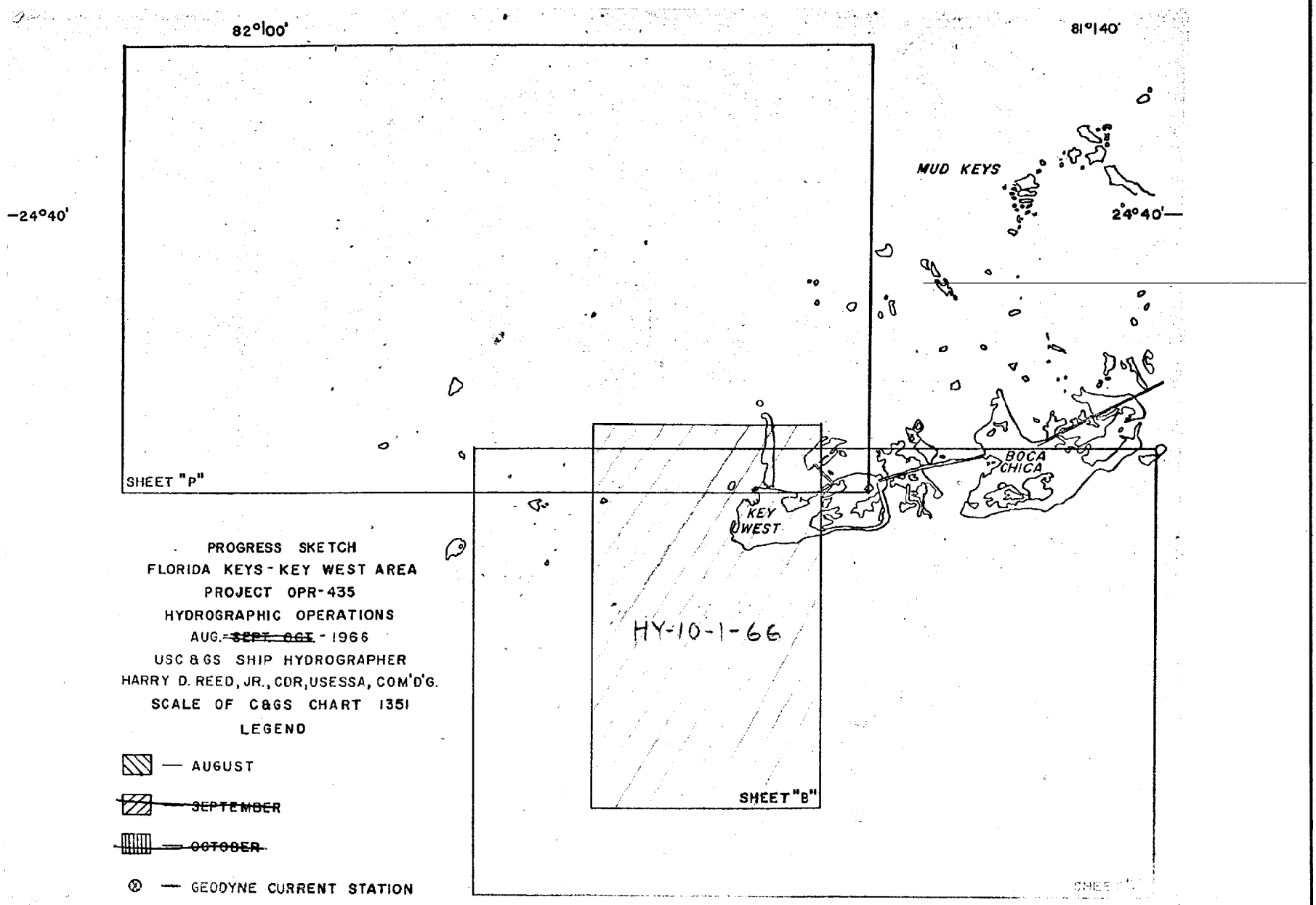
Protracted by:

Soundings penciled by:

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

REMARKS: This survey is an incomplete inshore survey, using Raydist control on 8 days and visual control on 9 days. Soundings were taken from the launch by fathometer, and from the skiff by sounding pole. Soundings were recorded in the sounding volumes. HDEG Category 1 survey - no further processing to be done

USCOMM-DC 8272-P62


82°100'
81°140'
24°40'
24°40'
MUD KEYS
SHEET "P"
KEY WEST
BOCA CHICA
HY-10-1-66
SHEET "B"
PROGRESS SKETCH
FLORIDA KEYS - KEY WEST AREA
PROJECT OPR-435
HYDROGRAPHIC OPERATIONS
AUG. ~~SEPT. OCT~~ - 1966
USC & GS SHIP HYDROGRAPHER
HARRY D. REED, JR., CDR, USESSA, COM'D'G.
SCALE OF C&GS CHART 1351
LEGEND
— AUGUST
~~SEPTEMBER~~
~~OCTOBER~~
— GEODYNE CURRENT STATION

DESCRIPTIVE REPORT

To Accompany

Hydrographic Survey HY-10-1-66 (Incomplete)

July 25 to August 27, 1966

USC&GSS HYDROGRAPHER — Scale 1:10,000

Harry D. Reed Jr., CDR USESSA — Chief of Party

A. PROJECT

Hydrography on this sheet was accomplished under Instructions OPR 435, dated May 19, 1966. Early closing of the 1966 field season due to official instructions and the approach of hurricane FAITH prevented the completion of this survey.

B. AREA SURVEYED

The area surveyed is divided into three parts. The major portion of the survey extends west 3 miles from Key West harbor, to Mule Key. It is bounded by latitudes 24° 33.0' N to 24° 34.9' N, and by longitudes 81° 47.7' W to 81° 51.5'W. The city of Key West forms the eastern border of this surveyed area.

The second portion of the survey lies 1.5 miles south of Fort Taylor, covering a 0.3 square nautical mile area. It lies entirely inside the area surveyed last year by the HYDROGRAPHER (H-8844) (Key West Naval Anchorage). This survey covers a spoil area and an area where

the Navy removed a coral head by blasting.

The third portion of the survey lies 3 miles south of Key West, and covers a 0.9 square nautical mile area. It is a strip 0.4 miles wide and 2.2 miles long, from latitudes 24° 27.9' N to 24° 30.0' N. Part of Key West Harbor Main Channel runs through this surveyed area.

Hydrography was accomplished during the period August 3 to August 25, 1966.

Junction is made with the following prior surveys:

H 8844	1965	1:10,000
H 7932	1951	1:20,000
No. 5934a	1936-7	1:10,000
4138	1919	1:15,000
H 8762	1963	1:20,000

Junction is made with the following contemporary surveys:

HY-20-1-66	1966	1:20,000
Corps of Engineers Jacksonville D.O. File No. 21-29,226 (Sheets 7&8)	1965	1:1200

C. SOUNDING VESSEL

Launch HY-1 was used to obtain all echo soundings. Skiff #2 was used for all pole soundings. Blue ink identifies the work of launch HY-1; violet ink identifies the work of skiff #2.

D. SOUNDING EQUIPMENT

A Raytheon Survey Fathometer, Model DE-723, Serial No. 555 was used for all echo soundings. Soundings obtained ranged from 2 feet to 102 feet. The fathometer was used in all areas where it was deep enough to maneuver the launch at high tide.

Soundings in the shoal areas were taken with a sounding pole from the skiff.

Corrections to echo soundings were determined as follows:

1) Instrument, Draft, and Velocity (all combined) corrections were derived from bar checks taken twice daily in the surveyed area.

2) Settlement & Squat corrections were derived from settlement & squat tests made on launch HY-1 in 1964. The transducer has not been moved since then.

3) Phase comparisons taken on August 23 yielded fair to poor results.

4) Predicted tides were used to obtain tide reducers applied to soundings inked on the boatsheet.

No corrections other than tide reducers were applied to boatsheet soundings.

E. SMOOTH SHEET

The smooth sheet has not been plotted pending completion of the survey.

F. CONTROL

Raydist controlled launch hydrography was accomplished on 8 days (f,g, h,j,p,q,r,s). Sextant fixes were used to control pole (skiff) hydrography

on 4 days (d,l,m,n) and launch hydrography on the remaining 5 days (a,b,c,e,k).

Triangulation signals were plotted on the boatsheet by ship's officers. Topographic signals were transferred to the boatsheet from the following photogrammetric manuscripts:

T 11249	1963	Incomplete
T 11207	1963	Incomplete
T 11250	1963	Incomplete
T 11251	1963	Incomplete

Raydist stations were located as follows:

R1--DUNE (Marco Island, Florida) 25° 56' 15.134" N
81° 44' 02.628" W

R2--LOG (Loggerhead Key, Dry Tortugas, Florida) (Station marked as "Loggerhead Key, L.H. 1875, RM No. 1")
24° 37' 58.222" N
82° 55' 12.167" W

Lane width is 45.399 meters. The arcs from the R1 station are blue; the arcs from the R2 station are red.

The R1 station (DUNE) was located by 3rd order traverse methods, from existing horizontal control stations, by ship's officers. The R2 station (LOG) was erected over the previously-used Raydist station site on Loggerhead Key, which was originally located by 3rd order traverse in 1960. The 1960 position was adjusted after a relocation by traverse in 1961; the 1961 position was used for this survey.

Information received after survey operations had been discontinued indicated that signal EAST (East Triangle Light, 1934) (Light List #5052) had been rebuilt 18.16 feet (5.5 meters) from its former location in approximate aximuth 148° 44' (S 31° 16' E). A state plane coordinate position for the new light was determined by the U.S. Army Corps of Engineers during 1965 dredging operations in Key West Harbor.

As the structure was used during this survey for a Raydist calibration point, the Raydist correctors were determined by plotting the new position on the boatsheet as accurately as possible and then scaling off the Raydist coordinates. The signal was used only once for a visual fix during this survey (see detached position 15a--buoy location).

EAST was also used for a calibration point during the HYDROGRAPHER's 1965 Raydist-controlled survey in Key West Harbor (H-8844). The structure was plotted on the smoothsheet from the old (1953) published position, as the ship had not been furnished information indicating that the light had been rebuilt in 1962 by the Coast Guard. However, considering the scale of the survey and the short distance involved, no appreciable error has been introduced into the positioning of the 1965 soundings.

G. SHORELINE

Shoreline and shoal area outlines were traced onto the boatsheet from the photo manuscripts listed above (under F). The transferred shoreline and topographic details were investigated. All topographic changes are indexed on the smooth ozalid prints, and are delineated on the office photos.

Three changes in the high water line were determined by ship's personnel using planetable. One change in the high water line was determined by transit and stadia. Those four shoreline changes are shown on the boat-sheet and on the photographs.

There are numerous topographic and hydrographic changes in Key West Bight and vicinity. Many of these changes are shown on a 1:5000 transparent overlay of Key West Bight.

The smooth ozalids (T 11249 and T 11251) are the indices for all shoreline revisions.

The low water line is not defined by the soundings along the shoreline because of insufficient density of these soundings.

H. CROSSLINES

1.5 miles of crosslines were run in the spoil area survey, which is 1.5 miles south of Fort Taylor. Excellent agreement was obtained.

No other crosslines were run in the other two portions of the survey.

I. JUNCTIONS

Excellent agreement was obtained with the following contemporary surveys:

HY-20-1-66	1966	1:20,000
Corps of Engineers Jacksonville D.O. File No. 21-29,226 Sheets 7&8	1965	1:1200

J. COMPARISON WITH PRIOR SURVEYS

The following numbered pre-survey review items were investigated:

Item 12--two visible wrecks	The easternmost of these two wrecks is still visible. It bares approximately 2.0 feet at low water, with the hull clearly visible below the surface.
	The westernmost wreck is no longer bare at low water, but the hull is clearly visible below the surface. The least depth found was 1.4 feet at low water. See Pos. 18b, Vol. 0, p. 7.
	Both these wrecks are located in their charted positions.
Item 13--visible wreck	This wreck is no longer bare at low water. The least depth found was 0.2 feet. See Pos. 22b, Vol. 0, p. 8. It is located in its charted position
Item 14--sunken wreck	This sunken wreck is covered by sand fill. See boatsheet for limits of shoreline, covering this wreck.
Item 15--visible wreck	This wreck bares approximately 1.6 feet at low water, with the hull clearly visible below the surface. No deck structures remain--only the hull protrudes above low water. See Pos. 14e, Vol. 0, p. 11.
Item 16--markers	The five markers charted at 24° 34.02' N 81° 48.86' W all exist; 4 markers are still standing, and the easternmost marker exists as a sunken pile whose tip is just below the surface at low water. The Corps of Engineers built the markers as the front half of a dredging range. (The rear set of markers, not part of the pre-survey review, is charted.) See Vol. 0, p. 9, Pos. 2c; p. 10, Pos. 10e,11e, 12e,13e.

Item 16 (continued)	The single marker at 24° 33.97' N 81° 48.59' W has been removed or destroyed, and should be deleted from the chart.
Item 7--radar reflectors	The two Navy-maintained radar reflectors within the limits of the boatsheet were plotted. Their positions differ slightly from their charted positions. See boatsheet and Vol. 0, Pos.5e & 23b.
Item 5--visible wreck	This wreck is still visible at low water and bares approximately 0.4 feet. The location as shown on the boatsheet is the bare part of the wreck. See Vol. 0, p. 9, Pos. 1c.

The following numbered items falling within the limits of HY-10-1-66 were not investigated due to lack of time:

Item 3--possible sunken wreck (1920)

Item 17--shoal

Item 18--shoal sounding

The unnumbered pre-survey review soundings were not investigated for the same reason.

Excellent agreement was obtained with all the prior surveys listed under B.

K. COMPARISON WITH THE CHART

Comparison with C&GS Chart 576 (8th Ed.,March 21, 1966--corrected thru Notice to Mariners No. 32, August 12, 1966)reveals the following discrepancies (in addition to items mentioned in G & J above):

The three mooring buoys shown on the chart in Man of War Harbor have been moved. See Pos. 15b, 16b, 17b near 24° 34' 28" N 81° 48' 10" W.

The two mooring buoys 330 m. NE of Northwest Channel Inner Range Rear Light have been removed and should be deleted from the chart.

Four markers exist at 24° 33' 44'' N and 81° 50' 26'' W, where the chart shows only one marker. See Pos. 140j, 141j, 142j, 143j.

A new wreck exists at 24° 33' 56'' N, 81° 48' 46'' W. It is visible at high water, and bares 2 feet at low water. See Pos. 7b.

The shoal in the spoil area at 24° 31' 13'' N, 81° 48' 57'' W has been dredged to a minimum depth of 10 feet. See boatsheet.

Numerous shoals exist in the area one mile NE of Mule Key, similar to the shoals delineated on the chart S and E of Mule Key.

Close agreement exists between the charted 18 foot depth curve and the boatsheet 18 foot depth curve. Two regions where large disrepancies exist are at 1) 24° 34' 23'' N
81° 48' 07'' W

2) 24° 34' 18'' N
81° 50' 03'' W

L. ADEQUACY OF SURVEY

This survey is incomplete and therefore is not adequate to supersede prior surveys for charting. The line spacing is about 90 meters at the top and bottom portions of the survey, with no development accomplished. The middle portion of the survey (the spoil area off Fort Taylor) alone is adequate to supersede prior surveys for charting.

The shoal areas NE and SE of Mule Key require additional work to enable the depth curves to be drawn.

The shoreline revisions (indicated on the ozalids and office cronaflex prints) are complete and adequate for charting.

M. AIDS TO NAVIGATION

Refer to REPORT ON LANDMARKS FOR CHARTS & FIXED AIDS TO NAVIGATION (USC&GSS HYDROGRAPHER, OPR 435 Florida Keys, 1966, Harry D. Reed Jr., Chief of Party), a copy of which is appended to this report.

The buoys and lights marking Key West Main Channel and Turning Basin adequately mark the channel and turning basin.

The buoys in Northwest Channel are plotted on an adjacent survey (HY-20-1-66).

Two spoil areas are marked by pairs of buoys. The first spoil area at 24° 31' 15'' N, 81° 49' 00'' W is marked by one black can "1" and one red nun buoy "2". The spoil area at 24° 30' 42'' N, 81° 48' 30'' W is similarly marked with one red nun buoy "2" and one black can "1". These buoys are maintained by the U.S. Coast Guard, and are charted.

N. STATISTICS

Number of Positions	1351
Naut. Miles of Launch (Raydist) Sounding Lines	92.6
Naut. Miles of Launch (Visual) Sounding Lines	15.1
Naut. Miles of Skiff (Pole) Sounding Lines	37.7
TOTAL Naut. Miles of Sounding Lines	145.4

One 23 day current station was observed with a self-registering Geodyne current meter.

P. RECOMMENDATIONS

The survey should be completed. The shoreline revisions are complete and adequate for chart revision, but the hydrographic features have not been delineated closely enough in order for this survey to supersede prior surveys, except for the well developed spoil area survey off Fort Taylor. Almost all the preliminary work necessary for a complete hydrographic survey has been accomplished; the only remaining work is the actual sounding.

Of the 11 bar checks that were taken, 10 went to 30 feet, and one went to 45 feet. Bar check corrections were extrapolated to 48 feet, the maximum allowed. Hence, no bar check corrections exist for soundings over 48 feet. In addition, the phase comparison corrections are of indeterminate accuracy. Therefore, accurate echo sounding corrections exist only for soundings on A scale (under 50 feet). 2.1 miles of soundings at depths of over 48 feet, at the south end of the boat sheet are of questionable accuracy and have been rejected.

Q. REFERENCES TO REPORTS

The following reports are necessary for a complete evaluation of the survey:

1) Raydist Report, USC&GSS HYDROGRAPHER, OPR 435 Florida Keys, 1966, Harry D. Reed Jr., Chief of Party

2) Corrections to Echo Soundings Report, USC&GSS HYDROGRAPHER, OPR 435, Florida Keys, 1966, Harry D. Reed Jr,, Chief of Party

3) Season's Report, USC&GSS HYDROGRAPHER, 1966 Field Season, Harry D. Reed Jr., Chief of Party

Respectfully submitted:

Arthur P Sibold

Arthur P. Sibold
ENS USC&GS

Approved & forwarded:

Harry D Reed

Harry D. Reed Jr.
COMMANDING, SHIP HYDROGRAPHER

LIST OF CONTROL STATIONS (HY-10-1-66)

Name used in survey	Origin
CAT (pile)	sextant fix (3 pt. sextant fix)
EAST (East Triangle Light, 1965)	Corps of Engineers Jacksonville D.O. File No. 21-29,226 Sheet 21
FRANK (dredging daymark)	3 pt. sextant fix
FORT (dredging daymark)	3 pt. sextant fix
GOB (dolphin)	3 pt. sextant fix
FRONT (Northwest Channel, Inner Range Front Light 25, 1956)	Florida GPs, p. 1070
KEY (Key West Harbor Front Range Light, 1934)	Florida GPs, p. 425
KING (Kingfish Shoal Light, 1956)	Florida GPs, p. 1070
LIGHT (Key West Lighthouse, 1849)	Florida GPs, p.
MAST (Key West Naval Radio Mast, Middle, 1917)	Florida GPs, p. 407
MOLE (Naval Station Light)	T 11251
MSCF (Key West, Main Channel Range Front Light, 1956)	Florida GPs, p. 1071
MULE (pile)	T 11250
NAG (corner of wharf)	T 11249
NATE (Key West Naval Station, Tank, 1956)	Florida GPs, p. 1071
OMNI (Omni, 1966)	3 pt. theodolite fix (Refer to Report on Landmarks to Chart, USC&GSS HYDROGRAPHER, 1966, OPR 435 Florida Keys, Harry D. Reed Jr., C. of P.)

No new pts. hydro stations were located Use points on my H.T.P.

Name used in survey	Origin
REAR (Northwest Channel, Inner Rear Range Light, 1934)	Florida GPs, p. 427
ROCK (rock)	T 11249
STAFF (Key West, Post Office Flagstaff, 1908)	Florida GPs, p. 543
TANK (Key West, Courthouse, Water Tank, 1943)	Florida GPs, p. 876
TENT	3 pt. sextant fix
TONY(center of concrete camel)	T 11251
TUG (corner of finger pier)	T 11249
WEST (Key West Harbor, Rear Range Light, 1934)	Florida GPs, p. 425

TIDE NOTE

Field No. HY-10-1-66

Tide Station:	Key West, Florida 24° 33.2' N 81° 48.5' W
Plane of Reference:	MLW = 4.5 feet on the tide staff
Time Meridian	75° West
Time Correction:	None
Height Correction:	None
Area Covered:	Entire area of Boatsheet HY-10-1-66

An abstract of tide corrections is appended to this report. Hourly heights were furnished by the Washington Office. The abstract of tide corrections was compiled and checked by ship personnel.

APPROVAL SHEET

Field No. HY-10-1-66

The field work on this survey was accomplished under my supervision. Frequent inspections of the boat sheet were made as the work progressed.

The boat sheet and other field records have been reviewed by me and are approved. The survey is incomplete and additional field work as outlined in the descriptive report will be required to finish it.

Harry D. Reed, Jr.
CDR, USESSA
Commanding, Ship HYDROGRAPHER

October 31, 1966

ABSTRACT OF TIDE CORRECTORS

BASED ON KEY WEST STANDARD TIDE GAGE

REDUCERS ARE IN FEET AND ARE READ TO THE NEAREST TWO TENTHS OF A FOOT

HY-10-1-66

Date	Time From	Time To	Correctors
Aug.4,1966	1400	1423	-0.8
	1424	1500	-0.6
	1501	1535	-0.4
	1536	1611	-0.2
	1612	1645	0.0
Aug.8,1966	0900	0928	-0.4
	0929	1030	-0.6
	1031	1210	-0.8
	1211	1400	-1.0
	1401	1500	-1.2
Aug.11,1966	1300	1429	-0.2
	1430	1535	-0.4
	1536	1700	-0.6
Aug.12,1966	0700	0745	-1.4
	0746	0809	-1.2
	0810	0832	-1.0
	0833	0858	-0.8
	0859	0932	-0.6
	0933	1015	-0.4
	1016	1059	-0.2
	1100	1138	0.0
	1139	1200	+0.2
Aug.13,1966	0700	0800	-1.6
	0801	0838	-1.4
	0839	0906	-1.2
	0907	0932	-1.0
	0933	0959	-0.8
	1000	1020	-0.6
	1021	1045	-0.4
	1046	1114	-0.2
	1115	1200	0.0
Aug.15,1966	0700	0800	-0.2
	0801	0900	-2.2
	0901	0944	-2.0
	0945	1014	-1.8
	1015	1040	-1.6
	1041	1100	-1.4
	1101	1120	-1.2
	1121	1138	-1.0
	1139	1200	-0.8
Aug.16,1966	0900	1000	-2.2
	1001	1042	-2.0
	1043	1110	-1.8
	1111	1131	-1.6
	1132	1150	-1.4
	1151	1208	-1.2
	1209	1230	-1.0
	1231	1300	-0.8
	1301	1325	-0.6
	1326	1348	-0.4
	1349	1407	-0.2
	1408	1427	0.0
	1428	1459	+0.2
	1500	1600	+0.4
Aug.17,1966	0800	0819	-1.6
	0820	0859	-1.8
	0900	1119	-2.0
	1120	1149	-1.8
	1150	1211	-1.6
	1212	1237	-1.4
	1238	1300	-1.2
	1301	1320	-1.0
	1321	1341	-0.8
	1342	1400	-0.6

ABSTRACT OF TIDE REDUCERS

BASED ON KEY WEST STANDARD TIDE GAGE

HY-10-1-66 Continued..

Date	Time From	Time To	Correctors
Aug.18,1966	0800	0834	-1.2
	0835	0900	-1.4
	0901	0923	-1.6
	0924	1000	-1.8
	1001	1200	-2.0
	1201	1230	-1.8
	1231	1250	-1.6
	1251	1310	-1.4
	1311	1336	-1.2
	1337	1415	-1.0
	1416	1440	-0.8
	1441	1500	-0.6
Aug.19,1966	0900	0915	-1.0
	0916	0944	-1.2
	0945	1025	-1.4
	1026	1320	-1.6
	1321	1350	-1.4
	1351	1410	-1.2
	1411	1439	-1.0
	1440	1500	-0.8
Aug.22,1966	0800	0900	+0.2
	0901	1000	0.0
	1001	1100	-0.2
	1101	1200	-0.4
	1201	1300	-0.6
	1301	1630	-0.8
	1631	1700	-0.6
Aug.23,1966	0700	0735	-0.4
	0736	0821	-0.2
	0822	1136	0.0
	1137	1200	-0.2
Aug.24,1966	0700	0712	-1.0
	0713	0744	-0.8
	0745	0817	-0.6
	0818	0858	-0.4
	0859	0941	-0.2
	0942	1245	0.0
	1246	1345	-0.2
	1346	1500	-0.4
	1501	1600	-0.6
Aug.25,1966	0700	0728	-1.2
	0729	0800	-1.0
	0801	0838	-0.8
	0839	0920	-0.6
	0921	1000	-0.4
	1001	1038	-0.2
	1039	1100	0.0

SETTLEMENT & SQUAT CORRECTION ABSTRACT

Date 1966	Letter	From h m s	To h m s	Corr. Ft.	RPM
8-11	f	13-10-15	16-23-30	0.2	2000
8-12	g	08-25-15	11-27-30	0.2	2000
8-13	h	07-26-00	07-41-00	0.0	1000
		07-47-00	08-02-45	0.2	2000
		08-12-00	08-44-30	0.0	1000
		08-50-00	09-10-15	0.2	2000
		09-10-30	09-11-45	0.0	1000
		09-12-00	09-23-00	0.2	2000
		09-23-15	09-25-15	0.0	1000
		09-25-30	09-31-30	0.2	2000
		09-31-45	09-32-15	0.0	1000
		09-50-45	10-26-00	0.2	2000
		10-26-15	10-29-15	0.0	1000
		10-29-30	10-39-00	0.2	2000
		10-39-15	10-41-00	0.0	1000
		10-46-00	11-02-30	0.2	2000
		11-02-45	11-03-30	0.0	1000
		11-04-43	11-30-30	0.2	2000
		11-30-45	11-31-30	0.0	1000
8-15	j	07-32-15	07-55-30	0.2	2000
		07-55-37	08-03-15	0.0	1000
		08-08-15	08-25-45	0.2	2000
		08-25-53	08-27-45	0.0	1000
		08-28-00	08-34-45	0.2	2000
		08-35-00	08-35-45	0.0	1000
		08-36-00	08-46-00	0.2	2000
		08-46-15	08-56-00	0.0	1000
		08-56-15	09-13-30	0.2	2000
		09-13-45	09-16-30	0.0	1000
		09-19-45	09-40-45	0.2	2000
		09-41-00	09-41-30	0.0	1000
		09-44-45	10-07-30	0.2	2000
		10-07-45	10-08-00	0.0	1000
		10-13-00	10-16-15	0.2	2000
		10-16-30	10-17-45	0.0	1000
		10-18-00	10-30-00	0.2	2000
		10-30-08	10-32-45	0.0	1000
		10-32-50	10-35-30	0.2	2000
		10-37-30	10-40-30	0.0	1000
		10-40-45	10-43-30	0.2	2000
		10-43-45	10-44-00	0.0	1000
		10-46-00	10-48-15	0.2	2000
		10-48-30	10-54-45	0.0	1000
		10-55-00	10-59-00	0.2	2000
		10-59-15	11-06-30	0.0	1000

Date 1966	Letter	From h m s	To h m s	Corr. Ft.	RPM
8-16	k	09-03-00	09-30-00	0.0	1000
		09-39-00	15-12-00	0.2	2000
8-22	p	08-44-45	08-49-15	0.0	1200
		08-52-45	09-09-15	0.2	2000
		14-43-45	14-44-15	0.0	0000
		15-20-15	16-16-15	0.2	2000
8-23	q	07-52-00	09-15-45	0.2	2000
		09-16-00	09-17-15	0.0	1000
		09-17-30	12-10-45	0.2	2000
8-24	r	07-39-00	15-01-45	0.2	2000
8-25	s	07-56-15	08-15-00	0.2	2000
		09-49-00	10-18-00	0.0	0000

ABSTRACT OF BAR CHECK CORRECTIONS

The listed corrections to soundings combine the corrections for initial draft, velocity of sound, and instrument error. The corrections are in feet.

Fathometer depth in feet	Correction
0.0 to 2.5	-0.4
2.6 to 4.7	-0.2
4.8 to 6.9	0.0
7.0 to 9.1	+0.2
9.2 to 11.3	0.4
11.4 to 13.5	0.6
13.6 to 16.4	0.8
16.5 to 20.5	1.0
20.6 to 23.3	1.2
23.4 to 26.0	1.4
26.1 to 28.3	1.6
28.4 to 30.7	1.8
30.8 to 33.0	2.0
33.1 to 36.2	2.2
36.3 to 41.8	2.4
41.9 to 48.5	2.6

ABSTRACT OF PHASE COMPARISON CORRECTIONS

HY-10-1-66
HY-20-1-66

The corrections listed below were derived from phase comparisons made in an area of sloping bottom, with no sea and swells less than one foot. The corrections are in feet, and are to be applied to the B scale sounding to obtain the equivalent true sounding. The C scale correction must be combined with the B scale correction to obtain the equivalent true sounding.

	A scale	B scale	B scale corr'n	B scale	C scale	C scale corr'n
1.	45.2	45.2	0.0	83.0	83.0	0.0
2.	45.2	45.0	+0.2	82.8	82.8	0.0
3.	44.5	44.5	0.0	82.5	82.5	0.0
4.	44.2	44.2	0.0	82.1	82.0	+0.1
5.	45.1	45.1	0.0	83.0	82.7	+0.3
6.	45.2	45.2	0.0	82.2	82.1	+0.1
7.	43.9	43.9	0.0	82.4	82.0	+0.4
8.	45.0	45.0	0.0	83.0	83.0	0.0
9.	45.2	45.1	+0.1	83.0	82.8	+0.2
10.	45.0	45.2	-0.2	83.0	83.0	0.0
11.	47.0	47.0	0.0	83.0	83.0	0.0
12.	47.2	47.2	0.0	83.0	83.0	0.0

ABSTRACT OF RAYDIST CORRECTIONS

HY-10-1-66

Date(1966)	Day Letter	HYDRO TIME From	To	R1 corr'n	R2 corr'n
8-11	f	13 09	16 25	∕0.5	∕1.5
8-12	g	07 23	08 48	0.5	-0.5
	g	09 47	10 25	0.5	∕1.5
	g	11 11	11 28	0.5	1.5
8-13	h	07 25	11 32	0.5	1.5
8-15	j	07 31	11 07	0.5	1.5
8-22	p	08 44	09 10	0.5	1.5
	p	14 44	16 17	0.5	1.5
8-23	q	07 51	08 23	0.5	1.5
	q	08 42	09 13	0.5	1.5
	q	09 14	09 22	-0.5	2.5
	q	09 36	09 46	∕0.5	1.5
	q	09 47	12 11	1.5	0.5
	q	14 04	14 25	0.5	0.5
8-24	r	07 38	08 50	0.5	1.5
	r	13 29	15 02	0.5	1.5
8-25	s	07 56	08 0230	0.5	1.5
	s	08 03	08 1130	2.5	1.5
	s	08 12	08 16	3.5	0.5
	s	09 48	10 19	0.5	1.5

COAST PILOT REPORT

USC&GS SHIP HYDROGRAPHER

OPR-435 (FLORIDA KEYS)

1966 FIELD SEASON

Investigation was made and information is furnished for the Florida Keys within the area of the HYDROGRAPHER'S 1966 operation area.

A review was made of the U.S. Coast Pilot Number 4, Atlantic Coast, Cape Henry to Key West, Seventh Edition (1964) and the Second Supplement dated January 1, 1966. Inspection includes Page 124 - Line 32/L through Page 125 - Line 7/R and Page 125 - Line 40/R through Page 125 - Line 44/R. Within these pages the Coast Pilot is correct except for the following changes:

Page 124 - Line 22/R; read:

channel, and only the outer part of the east jetty shows above

Page 125 - Line 44/R; read:

lighted buoy 10A and the inner harbor.

It should be noted that certain sections of the U.S. Coast Pilot Number 4, on pages 125 and 126, were not investigated due to the approach of Hurricane FAITH and the HYDROGRAPHER'S subsequent departure from Key West. These sections include:

Page 125 - Pilotage, Towage, Quarantine, Customs, Immigration, and Wharves and on Page 126 - Supplies, Repairs, Salvage and Communications.

Jack L. Wallace
ENS, USESSA

Approved and Forwarded:

Harry D. Reed, Jr.
CDR, USESSA
Commanding Officer
USC&GS Ship HYDROGRAPHER

REPORT

ON

LANDMARKS FOR CHARTS

AND

FIXED AIDS TO NAVIGATION

OPR-435 (FLORIDA KEYS)

USC&GS SHIP HYDROGRAPHER HARRY D. REED, JR., CDR, USESSA

This report covers landmarks and fixed aids to navigation investigated during the course of 1966 hydrographic surveys on OPR-435, Florida Keys.

Description of objects was accomplished during the Coast Pilot investigation in accordance with paragraph 31 of project instructions.

The attached Form 567 indicates the method of location employed.

The cupola on the VORTAC station, situated on the western tip of a 1,000 foot sand fill, was located by three-point fix at an eccentric station. A position computation from the eccentric station to the cupola fixed the position of the cupola. All work was accomplished using a T-2 and third-order methods. The computations accompany this report.

It is suggested that the stack shown on the charts as "easterly of two", in the vicinity of Key West Bight, be removed from the charts. An adequate description would now read, "the most easterly of two shorter stacks in a group of five stacks". The stack in question can no longer be easily distinguished from seaward.

According to the FAA Maintenance Department at Key West International Airport, four of the five Department of Commerce Radio Masts were torn down as of April 22, 1966. The remaining mast is the center one and is a second-order triangulated position.

Jack L. Wallace

Jack L. Wallace
ENS, USESSA

Approved and Forwarded:

Harry D. Reed

Harry D. Reed, Jr., CDR, USESSA
Commanding Officer
USC&GS Ship HYDROGRAPHER

Form 567
April 1945

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

~~NONFLOATING AIDS OR~~ LANDMARKS FOR CHARTS

~~TO BE CHARTED~~ / TO BE DELETED — STRIKE OUT ONE

USC&GS Ship HYDROGRAPHER — August 24, 1966

I recommend that the following objects which have *(~~have not~~)* been inspected from seaward to determine their value as landmarks be ~~charted~~ *(deleted from)* the charts indicated.

The positions given have been checked after listing by Jack L. Wallace, ENS, USESSA

Harry D. Reed, Jr., CDR, USESSA

Chief of Party.

STATE: Key West, Florida (OPR-435)

CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION LATITUDE* ° ′	LATITUDE* ″ D.M. METERS	LONGITUDE* ° ′	LONGITUDE* ″ D.P. METERS	DATUM	METHOD OF LOCATION AND SURVEY No.	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
STACK	(Easterly of two) on top of Power Station		24 33	~~43.9~~	80 47	~~53.2~~	NA 1927	———	———	x	x		~~504, 5~~ 854
RADIO TOWERS	Key West Department of Commerce South Radio Mast		24 32	~~49.961~~ 1537.8	81 47	~~12.194~~ 343.2	"	Triangulated	1943	x	x		~~576, 5~~ 854
RADIO TOWERS	Key West Department of Commerce North Radio Mast		24 32	~~51.853~~ 1587.7	81 47	~~11.207~~ 315.34	"	"	"	x	x		~~576, 5~~ 854
RADIO TOWERS	Key West Department of Commerce East Radio Mast		24 32	~~51.957~~ 1596.6	81 47	~~09.041~~ 254.4	"	"	"	x	x		~~576, 5~~ 854
RADIO TOWERS	Key West Department of Commerce West Radio Mast		24 32	~~52.874~~ 1626.8	81 47	~~14.359~~ 404.1	"	"	"	x	x		~~576, 5~~ 854

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804. Positions of charted landmarks and *nonfloating aids* to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given

Form 567
April 1945

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

TO BE CHARTED / ~~TO BE DELETED~~ } STRIKE OUT ONE

USC&GS Ship HYDROGRAPHER August 24, 19 66

I recommend that the following objects which have ~~have not~~ been inspected from seaward to determine their value as landmarks be charted on ~~(deleted from)~~ the charts indicated.

The positions given have been checked after listing by Jack L. Wallace, ENS, USESSA

Harry D. Reed, Jr., CDR, USESSA
Chief of Party.

STATE Key West, Florida (OPR-435)

CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION LATITUDE* ° ′	LATITUDE* ″ D.M. METERS	LONGITUDE* ° ′	LONGITUDE* ″ D.P. METERS	DATUM	METHOD OF LOCATION AND SURVEY No.	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
CUPOLA	White VORTAC cupola maintained by FAA		24 35	07.55	81 48	02.42	NA 1927	Triangulated	8-3-66	x	x		576, 58 854

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804. Positions of charted landmarks and *nonfloating aids* to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given

~~Entire copy~~
ONLY

no bar check
phase abstracts

REPORT ON CORRECTIONS TO ECHO SOUNDINGS

FATHOMETER REPORT

OPR 435 FLORIDA KEYS

1966

USC&GSS HYDROGRAPHER HARRY D. REED JR., Cmdg.

JULY 25 to AUGUST 27, 1966

HY-10-1-66

HY-20-1-66

REPORT ON CORRECTIONS TO ECHO SOUNDINGS

FATHOMETER REPORT

OPR 435 FLORIDA KEYS

1966

USC&GSS HYDROGRAPHER — HARRY D. REED JR., Cmdg.

HY-10-1-66
HY-20-1-66 — Surveyed by Launch HY-1

A. GENERAL

Echo sounding corrections covered by this report apply to hydrography accomplished by HYDROGRAPHER's launch HY-1, on the following hydrographic sheets:

Hydrographic Sheet	Period
HY-10-1-66	August 3--August 25
HY-20-1-66	August 12--August 15

A Raytheon Survey Fathometer, Model DE 723, Serial No. 555, was used for soundings on 9 days. The remaining hydrography was accomplished with a sounding pole. During the survey, a constant check was maintained on the fathometer, and the following were noted:

1) Stylus speed--stylus speed checks are marked on the fathogram.

2) Stylus arm and needle--correct length.

3) Voltage--voltage readings are recorded in the sounding volume.

4) MRV--MRV checks are noted in the sounding volume.

All these items indicated that the fathometer was operating correctly.

B. CORRECTIONS

The echo sounding corrections required for launch-obtained soundings are as follows:

1) Instrument, draft, and velocity

2) Settlement & squat

3) Phase

4) Initial

5) Tide

The bar check correction encompasses instrument, velocity and draft corrections. An abstract of bar check corrections is appended to this report. A bar check was taken twice daily in the surveyed area, except on August 23 and 25, when only one bar check could be taken due to fathometer failures. All bar checks were taken to a depth of 30 feet, except for one bar check ;taken to 45 feet. The accuracy of bar check corrections beyond 50 feet should be regarded as questionable, given normal extrapolation. Bar check corrections were extrapolated to 48.5 feet, even though the Hydrographic Manual would allow extrapolation to 60 feet.

Settlement and squat corrections were determined from tests made in 1964.[1] The same launch and fathometer that was used for the tests was used for all fathometer soundings during OPR 435. The settlement and squat corrections for launch HY-1 are as follows:

0 to 1230 RPM	0.0 feet
1231 to 2000 RPM	∮0.2 feet

The phase correction was determined from phase comparisons made in an area of sloping bottom, on August 23, when the sea was calm except for gentle one-half foot swells. There was no area of smooth bottom in the vicinity of the working grounds where other phase comparisons could be made. The phase comparison results appear to be fair on AB scale, and poor on BC scale. Their accuracy cannot be evaluated, due to the conditions under which they were taken. The phase correction for AB scale is 0.0 feet; for BC scale it is 0.0 feet. Most of the survey

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[1] REPORT ON CORRECTIONS TO ECHO SOUNDINGS, OPR 427 (Sabine Bank, Texas and Louisiana), July 17--October 20, 1964, V.R. Sobieralski--Chief of Party, Ship HYDROGRAPHER; p. 5.

soundings are on A scale; the phase corrections apply only to a small amount of hydrography at the bottom of the boatsheet, where the survey junctions with a prior survey. As the bar check corrections are only valid to a depth of 50 feet, it is recommended that only soundings on A scale be considered reliable, as corrections to soundings over 50 feet are of unknown accuracy. 2.1 miles of hydrography are involved in this matter and may have to be rejected.

The initial on the fathometer was set at 0.0 feet for the entire survey. On two instances, the initial was incorrect by 0.2 feet: "q" day (HY-10-1-66) (bar check)--initial correction is -0.2 feet; "a" day (HY-20-1-66)--initial correction is -0.2 feet for the time period 1524:40 to 1539:40. At all other times, the initial was off by 0.1 foot or less.

Tide reducers to be applied during smooth plotting will be derived from actual tide values obtained from the Key West standard gage.

Respectfully submitted:

Arthur P. Sibold
ENS USC&GS

Approved & forwarded:

Harry D. Reed Jr.
COMMANDING, SHIP HYDROGRAPHER

Date 1966	Letter	From h m s	To h m s	Corr. Ft.	RPM
8-16	k	09-03-00	09-30-00	0.0	1000
		09-39-00	15-12-00	0.2	2000
8-22	p	08-44-45	08-49-15	0.0	1200
		08-52-45	09-09-15	0.2	2000
		14-43-45	14-44-15	0.0	0000
		15-20-15	16-16-15	0.2	2000
8-23	q	07-52-00	09-15-45	0.2	2000
		09-16-00	09-17-15	0.0	1000
		09-17-30	12-10-45	0.2	2000
8-24	r	07-39-00	15-01-45	0.2	2000
8-25	s	07-56-15	08-15-00	0.2	2000
		09-49-00	10-18-00	0.0	0000

(HY-10-1-66)

SETTLEMENT & SQUAT CORRECTION ABSTRACT

Date 1966	Letter	From h m s	To h m s	Corr. Ft.	RPM
8-11	f	13-10-15	16-23-30	0.2	2000
8-12	g	08-25-15	11-27-30	0.2	2000
8-13	h	07-26-00	07-41-00	0.0	1000
		07-47-00	08-02-45	0.2	2000
		08-12-00	08-44-30	0.0	1000
		08-50-00	09-10-15	0.2	2000
		09-10-30	09-11-45	0.0	1000
		09-12-00	09-23-00	0.2	2000
		09-23-15	09-25-15	0.0	1000
		09-25-30	09-31-30	0.2	2000
		09-31-45	09-32-15	0.0	1000
		09-50-45	10-26-00	0.2	2000
		10-26-15	10-29-15	0.0	1000
		10-29-30	10-39-00	0.2	2000
		10-39-15	10-41-00	0.0	1000
		10-46-00	11-02-30	0.2	2000
		11-02-45	11-03-30	0.0	1000
		11-04-43	11-30-30	0.2	2000
		11-30-45	11-31-30	0.0	1000
8-15	j	07-32-15	07-55-30	0.2	2000
		07-55-37	08-03-15	0.0	1000
		08-08-15	08-25-45	0.2	2000
		08-25-53	08-27-45	0.0	1000
		08-28-00	08-34-45	0.2	2000
		08-35-00	08-35-45	0.0	1000
		08-36-00	08-46-00	0.2	2000
		08-46-15	08-56-00	0.0	1000
		08-56-15	09-13-30	0.2	2000
		09-13-45	09-16-30	0.0	1000
		09-19-45	09-40-45	0.2	2000
		09-41-00	09-41-30	0.0	1000
		09-44-45	10-07-30	0.2	2000
		10-07-45	10-08-00	0.0	1000
		10-13-00	10-16-15	0.2	2000
		10-16-30	10-17-45	0.0	1000
		10-18-00	10-30-00	0.2	2000
		10-30-08	10-32-45	0.0	1000
		10-32-50	10-35-30	0.2	2000
		10-37-30	10-40-30	0.0	1000
		10-40-45	10-43-30	0.2	2000
		10-43-45	10-44-00	0.0	1000
		10-46-00	10-48-15	0.2	2000
		10-48-30	10-54-45	0.0	1000
		10-55-00	10-59-00	0.2	2000
		10-59-15	11-06-30	0.0	1000

Extra copy

RAYDIST REPORT

OPR 435 FLORIDA KEYS

1966

USC&GSS HYDROGRAPHER HARRY D. REED JR., Cmdg.

JULY 25 to AUGUST 27, 1966

HY-10-1-66

HY-20-1-66

RAYDIST REPORT

OPR 435 FLORIDA KEYS

1966

USC&GSS HYDROGRAPHER — HARRY D. REED JR., Cmdg.

HY-10-1-66
HY-20-1-66 — Surveyed by Launch HY-1

A. INTRODUCTION

During the period July 28 to August 26, 1966, the ship HYDROGRAPHER attempted to use Raydist to control launch hydrography in the Key West area. However, due to interference from a private Raydist shore station(Offshore Raydist Inc.) operating nearby (at Sugarloaf Key, some 15 miles east), only on 8 days of the 17 working days during which the party was engaged on OPR 435 operations could Raydist be used to control hydrography.

On 6 days, good results were o-tained using Raydist control, and 80.7 miles of hydrography were run. On 2 days, results were obtained with great difficulty, and at the expense of much effort. 11.9 miles of hydrography were run on these 2 days. In addition, the start of actual sounding was delayed 4 days after the boatsheet was readied, due to the operation of the shore station at Sugarloaf Key.

The frequency used by the launch transmitter is 1650.015 kc. Offshore Raydist Inc. was using a frequency of 1651.015 kc. The Offshore Raydist Inc. station was only 15 miles from Key West, whereas our own R1 shore station was 90 miles away near Naples, Florida. Both stations had an equal transmitting power output, but the 1:6 distance ratio explains why Offshore Raydist's signal spilled over and saturated the RF section of the launch receiver, making it impossible to track our own R1 signal.

On August 20, Mr. Jesse Wilkins, from Hastings-Raydist, accompanied by Mr. Theo. Sother of Offshore Raydist Inc., came aboard the ship to assist the HYDROGRAPHER's electronics technicians in determining a way to filter out the signals from the Offshore Raydist transmitter. First, the bandwidth in the IF section was narrowed, and the transmitters

and receivers retuned. This action reduced, but did not eliminate, the interference. Next, Offshore Raydist was asked to cut their output power by one-half, which they did. Subsequently, hydrography controlled by Raydist was resumed, with fair results. Occasional interference was experienced. The Offshore Raydist signal interfered enough so that noise or static could easily cause lane flips. In other words, had Offshore Raydist not transmitted, atmospheric and radio noise would not have knocked out the launch Raydist so readily. During the 4 days (91½ hrs.) that launch hydrography was attempted concurrently with Offshore Raydist*s transmission, 9 lane flips occurred due to outside interference from all sources while 7 lane flips occurred due to outside interference from all sources during the time Offshore Raydist was not transmitting (4 days--18 hrs.).

B. EQUIPMENT

Transistorized Raydist equipment was used in the ship*s launch HY-1. A 35 foot telescoping single antenna was used in the launch. A brush recorder was used in conjunction with the receiver, to provide a visual record by which the Raydist operator's fix readings could by validated.

Each shore station used a single antenna system, with the usual electronic equipment. In order to avoid interference with Raydist transmission, audio communication between the launch and ship was maintained using VHF FM radio. Between the ship and the shore stations, audio communication was maintained with a sideband radio.

Raydist frequencies:		
	Launch	3300.40 kc
	R1	1650.015 kc
	R1 (link)	2398.0 kc
	R2 (link)	2510.0 kc

Lane width: 45.399 meters

C. CONTROL

Station sites were selected to provide strong arc intersection within the survey area, and minimum signal traverse over land. Raydist stations were located as follows:

R1---DUNE (vicinity of Naples, Florida) (located by 3rd order traverse
25° 56' 15.134" N by HYDROGRAPHER personnel, 1966)
81° 44* 02.628" W

R2---LOG (Loggerhead Key, Dry Tortugas, Florida) (located by 3rd
24° 37' 58.222" N order traverse in 1960)
82° 55' 12.167" W

Raydist was used to successfully control hydrography at maximum distances of 90 nautical miles from R1 and 62 miles from R2. The accuracy was excellent, with probable error not exceeding one lane on interference-free days.

Raydist failure was due to the following causes:

1. Atmospheric interference---------- 16

2. Shore station equipment---------- 0

3. Launch equipment---------- 3

The R2 station on Loggerhead Key was powered by a portable generator. The R1 station near Naples received power from commercial sources.

The launch steering meter used by the helmsman to follow Raydist arcs proved invaluable. This meter should always be installed in launches using Raydist control, as following arcs proves to be the best method of running a pattern of sounding lines of uniform spacing.

Three-point sextant fixes taken simultaneously with a Raydist fix, both while running arcs and while running crosslines, served to verify the lane count. Several times, three-point sextant fixes enabled the hydrographer to isolate thelane gains and losses, verify lane counts, and reconstruct arcs, in situations where lane loss or gain could not be scaled from the brush recorder tape. It is recommended that several sextant fixes be taken each day as standard procedure during Raydist controlled launch hydrography.

D. CALIBRATION

Calibration was determined by securing the launch at the same position alongside a triangulated light structure in the area surveyed, scaling the true Raydist values off the boatsheet, and setting the Raydist dials to the closest lane value so that a positive index error always resulted. The launch was placed in the same relative position alongside the calibration structure each time a calibration was made. Calibrations were made each day before commencing hydrography, each time a Raydist failure occurred, and each time a lane loss or gain was detected. A check calibration was made at the end of each day (or period) of hydrography, and prior to returning to the ship at any time.

An abstract of final Raydist corrections is appended to this report. The daily corrections were determined by averaging the calibrations for 8 days of Raydist hydrography, taking into account integral lane gains or losses.

E. STATISTICS

Naut. Miles of Sounding Line (HY-10-1-66) (Raydist controlled)-- 92.6

Naut. Miles of Sounding Line (HY-20-1-66) (Raydist controlled)-- 20.1

Respectfully submitted:

Arthur P. Sibold
ENS USC&GS

Approved & Forwarded:

Harry D. Reed Jr.
COMMANDING, SHIP HYDROGRAPHER

ABSTRACT OF RAYDIST CORRECTIONS

HY-10-1-66

Date(1966)	Day Letter	HYDRO TIME From	To	R1 corr'n	R2 corr'n
8-11	f	13 09	16 25	∕0.5	∕1.5
8-12	g	07 23	08 48	0.5	-0.5
	g	09 47	10 25	0.5	∕1.5
	g	11 11	11 28	0.5	1.5
8-13	h	07 25	11 32	0.5	1.5
8-15	j	07 31	11 07	0.5	1.5
8-22	p	08 44	09 10	0.5	1.5
	p	14 44	16 17	0.5	1.5
8-23	q	07 51	08 23	0.5	1.5
	q	08 42	09 13	0.5	1.5
	q	09 14	09 22	-0.5	2.5
	q	09 36	09 46	∕0.5	1.5
	q	09 47	12 11	1.5	0.5
	q	14 04	14 25	0.5	0.5
8-24	r	07 38	08 50	0.5	1.5
	r	13 29	15 02	0.5	1.5
8-25	s	07 56	08 0230	0.5	1.5
	s	08 03	08 1130	2.5	1.5
	s	08 12	08 16	3.5	0.5
	s	09 48	10 19	0.5	1.5

ABSTRACT OF RAYDIST CORRECTIONS

HY-20-1-66

Date (1966)	Day Letter	HYDRO TIME From	To	R1 corr'n	R2 corr'n
8-12	a	13 07	14 21	∓0.5	∓1.5
	a	14 32	16 21	0.5	-0.5
	a	16 23	16 48	0.5	∓1.5
	a	16 49	16 57	0.5	-0.5
8-13	b	12 58	15 52	0.5	1.5
8-14	c	13 42	13 51	0.5	1.5

NOAA FORM 76-155
(11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

SURVEY NUMBER

H-9505

GEOGRAPHIC NAMES

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	
										1
										2
										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
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										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

U.S. G.P.O. 1972-769-565/516 REG.#6

FORM C&GS-946
(REV. 11-65)
(PRESC. BY
HYDROGRAPHIC
MANUAL 20-2,
6-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. 9505

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	0	BOAT SHEETS	1
DESCRIPTIVE REPORT	1	OVERLAYS	0

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						8-sawtooth 1-misc.data
CAHIERS	1					
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			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				
POSITIONS CHECKED				
POSITIONS REVISED				
DEPTH SOUNDINGS REVISED				
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS				
JUNCTIONS				
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS				
SPECIAL ADJUSTMENTS				
ALL OTHER WORK				
TOTALS				

PRE-VERIFICATION BY	BEGINNING DATE	ENDING DATE
VERIFICATION BY	BEGINNING DATE	ENDING DATE
REVIEW BY	BEGINNING DATE	ENDING DATE

USCOMM-DC 36271-P65

CAM3-1
1/31/74

ATLANTIC MARINE CENTER

PROJECTION PARAMETERS

POLYCONIC OR MODIFIED TRANSVERSE MERCATOR

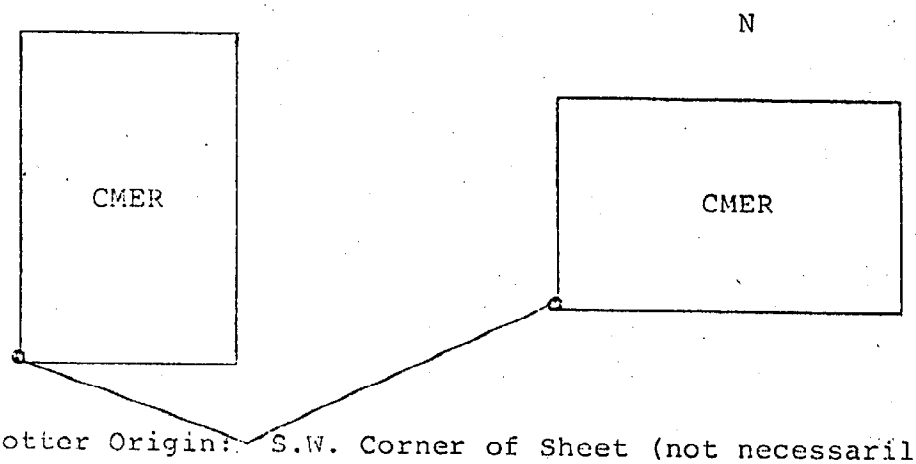
1. Project No. 435
2. Reg. No. H-9505
3. Field No. HY-10-1-66
4. Requested By VERIF DC
5. Ship or Office AMC
6. Date Required AYC

7. Polyconic [X] Modified Transverse Mercator [ ]
8. Central Meridian of Projection 81° 49' 00"
9. Survey Scale: 1: 10,000
10. Size of Sheet (check one):

36 x 54 [ ] 36 x 60 [X] Other [ ] Specify _____

11. Sheet Orientation (check one):

NYX = 1 [1] NYX = ø [ ]



12. Plotter Origin: S.W. Corner of Sheet (not necessarily a grid intersection)
    Latitude 24° 27' 15"
    Longitude 81° 51' 55"
13. G.P.'s of triangulation and/or signals attached [ ]
14. Material Desired: Tracing Paper [ ] Mylar [X]
    Smooth Sheet [ ] Other [ ] Specify _____
15. Remarks: _____

MBH 5/1/95

AM3-1
1/31/74

ATLANTIC MARINE CENTER

PROJECTION PARAMETERS

POLYCONIC OR MODIFIED TRANSVERSE MERCATOR

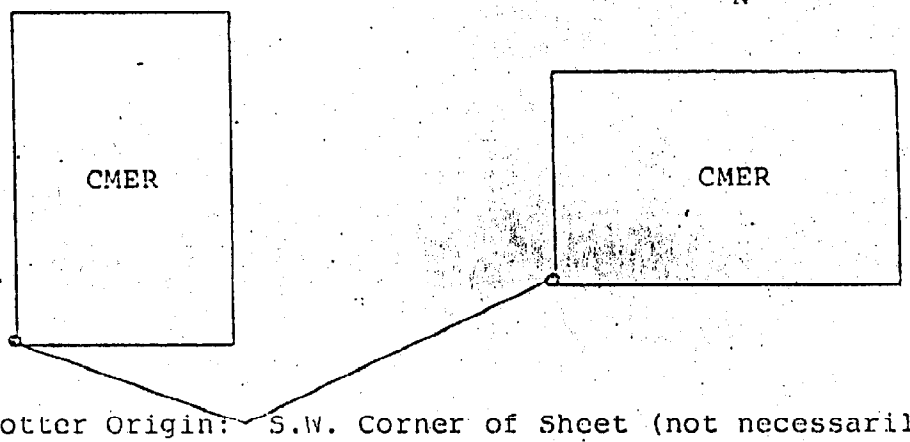
1. Project No. 435
2. Reg. No. H-9505
3. Field No. HY-10-1-66
4. Requested By VERIF DC
5. Ship or Office AMC
6. Date Required AYC

7. Polyconic [X] Modified Transverse Mercator [ ]
8. Central Meridian of Projection 81° 49' 00"
9. Survey Scale: 1: 10,000
10. Size of Sheet (check one):

36 x 54 [ ] 36 x 60 [X] Other [ ] Specify _____

11. Sheet Orientation (check one):

NYX = 1 [1] NYX = Ø [ ]



12. Plotter Origin: S.W. Corner of Sheet (not necessarily a grid intersection)
Latitude 24° 27' 15"
Longitude 81° 51' 55"
13. G.P.'s of triangulation and/or signals attached [ ]
14. Material Desired: Tracing Paper [ ] Mylar [X]
Smooth Sheet [ ] Other [ ] Specify _____
15. Remarks: _____

MBH

getra

ABSTRACT OF TIDE CORRECTORS

BASED ON KEY WEST STANDARD TIDE GAGE

REDUCERS ARE IN FEET AND ARE READ TO THE NEAREST TWO TENTHS OF A FOOT

HY-10-1-66

Date	Time From	Time To	Correctors
Aug.4,1966	1400	1423	-0.8
	1424	1500	-0.6
	1501	1535	-0.4
	1536	1611	-0.2
	1612	1645	0.0
Aug.8,1966	0900	0928	-0.4
	0929	1030	-0.6
	1031	1210	-0.8
	1211	1400	-1.0
	1401	1500	-1.2
Aug.11,1966	1300	1429	-0.2
	1430	1535	-0.4
	1536	1700	-0.6
Aug.12,1966	0700	0745	-1.4
	0746	0809	-1.2
	0810	0832	-1.0
	0833	0858	-0.8
	0859	0932	-0.6
	0933	1015	-0.4
	1016	1059	-0.2
	1100	1138	0.0
	1139	1200	+0.2
Aug.13,1966	0700	0800	-1.6
	0801	0838	-1.4
	0839	0906	-1.2
	0907	0932	-1.0
	0933	0959	-0.8
	1000	1020	-0.6
	1021	1045	-0.4
	1046	1114	-0.2
	1115	1200	0.0
Aug.15,1966	0700	0800	-0.2
	0801	0900	-2.2
	0901	0944	-2.0
	0945	1014	-1.8
	1015	1040	-1.6
	1041	1100	-1.4
	1101	1120	-1.2
	1121	1138	-1.0
	1139	1200	-0.8
Aug.16,1966	0900	1000	-2.2
	1001	1042	-2.0
	1043	1110	-1.8
	1111	1131	-1.6
	1132	1150	-1.4
	1151	1208	-1.2
	1209	1230	-1.0
	1231	1300	-0.8
	1301	1325	-0.6
	1326	1348	-0.4
	1349	1407	-0.2
	1408	1427	0.0
	1428	1459	+0.2
	1500	1600	+0.4
Aug.17,1966	0800	0819	-1.6
	0820	0859	-1.8
	0900	1119	-2.0
	1120	1149	-1.8
	1150	1211	-1.6
	1212	1237	-1.4
	1238	1300	-1.2
	1301	1320	-1.0
	1321	1341	-0.8
	1342	1400	-0.6

ABSTRACT OF TIDE REDUCERS

BASED ON KEY WEST STANDARD TIDE GAGE

HY-10-1-66 Continued..

Date	Time From	Time To	Correctors
Aug.18,1966	0800	0834	-1.2
	0835	0900	-1.4
	0901	0923	-1.6
	0924	1000	-1.8
	1001	1200	-2.0
	1201	1230	-1.8
	1231	1250	-1.6
	1251	1310	-1.4
	1311	1336	-1.2
	1337	1415	-1.0
	1416	1440	-0.8
	1441	1500	-0.6
Aug.19,1966	0900	0915	-1.0
	0916	0944	-1.2
	0945	1025	-1.4
	1026	1320	-1.6
	1321	1350	-1.4
	1351	1410	-1.2
	1411	1439	-1.0
	1440	1500	-0.8
Aug.22,1966	0800	0900	+0.2
	0901	1000	0.0
	1001	1100	-0.2
	1101	1200	-0.4
	1201	1300	-0.6
	1301	1630	-0.8
	1631	1700	-0.6
Aug.23,1966	0700	0735	-0.4
	0736	0821	-0.2
	0822	1136	0.0
	1137	1200	-0.2
Aug.24,1966	0700	0712	-1.0
	0713	0744	-0.8
	0745	0817	-0.6
	0818	0858	-0.4
	0859	0941	-0.2
	0942	1245	0.0
	1246	1345	-0.2
	1346	1500	-0.4
	1501	1600	-0.6
Aug.25,1966	0700	0728	-1.2
	0729	0800	-1.0
	0801	0838	-0.8
	0839	0920	-0.6
	0921	1000	-0.4
	1001	1038	-0.2
	1039	1100	0.0

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Jan., 1929

TIDES

H-9505

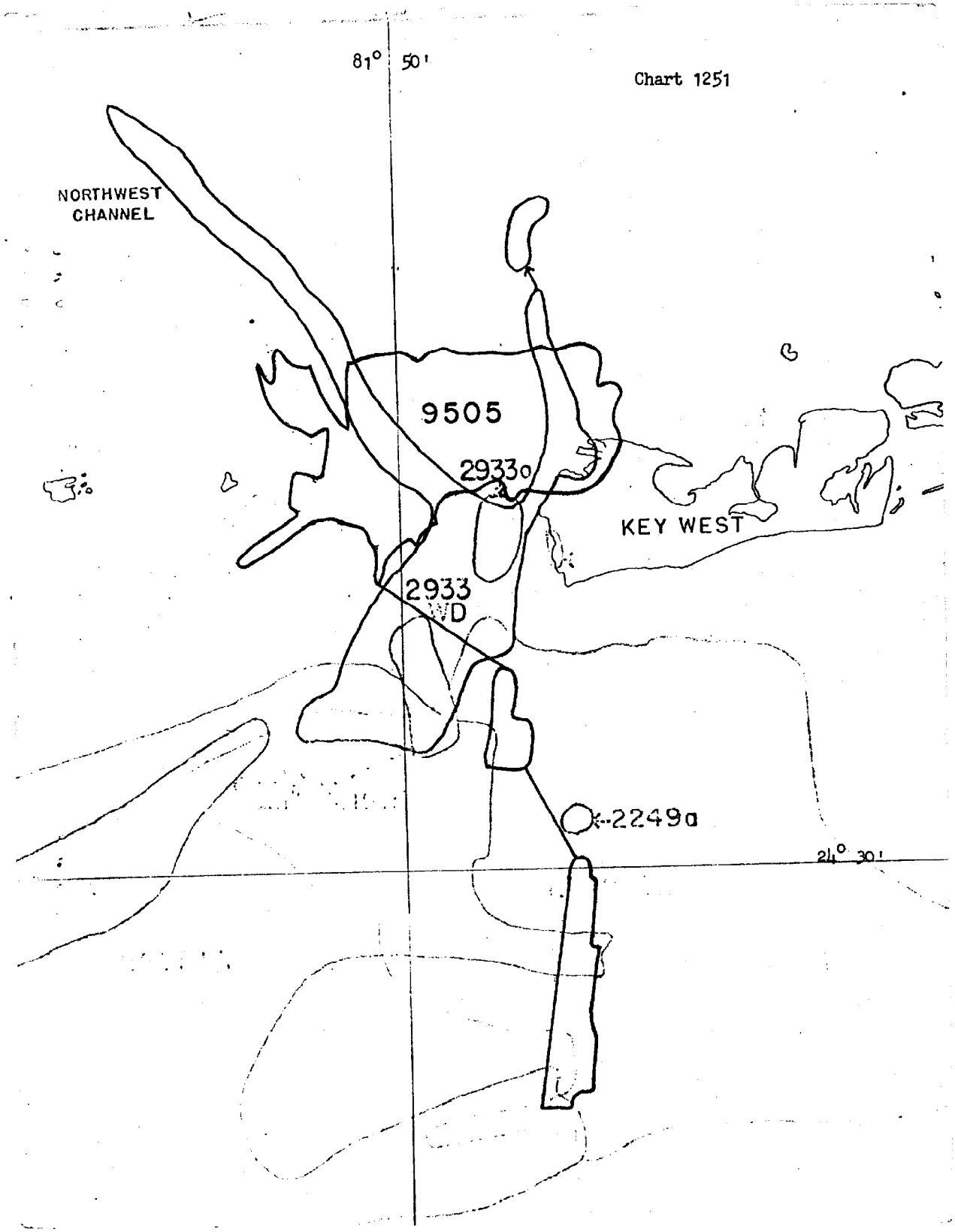
COMPUTATION OF TRIANGLES

State: _____

11—9121

	NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
		2-3 1 2 3 1-3 1-2	DAYS WE WILL NEED TIDES WERE LISTED & GIVEN TO EDP (W. HILL)					
		2-3 1 2 3 1-3 1-2	MARCH '75					DC
		2-3 1 2 3 1-3 1-2						
		2-3 1 2 3 1-3 1-2						

Do not write in this margin


81° 50'
Chart 1251
NORTHWEST
CHANNEL
9505
2933o
KEY WEST
2933
D
2249o
24° 30'

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9505

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
576	25NOV 77	[illegible]	Adequate ~~Full Part~~ Before ~~After~~ Verification Review Inspection Signed Via
(11447)	(10,000)		Drawing No. CATEGORY 1
584	13MAY78	D.W. Galvin	ADEQUATELY ~~Full Part~~ Before ~~After~~ Verification Review Inspection Signed Via
(11441)	(20,000)		Drawing No. CATEGORY 1 APPLICATION
(853/54)	1-9-79	Stephen J. Perry	ADEQUATELY ~~Full Part~~ Before ~~After~~ Verification Review Inspection Signed Via
11443	(40000)		Drawing No. CATEGORY 1
(1251) 11442	1-17-79	Stephen J. Perry	ADEQUATELY ~~Full Part~~ Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. 44 (7-13-79)
(1351)			ADEQUATELY ~~Full Part~~ Before ~~After~~ Verification Review Inspection Signed Via
11434	8-17-81	Rick Richter	Drawing No. 31 8-27-79
(1112)			CATEGORY 1
11460	8-24-81	Rick Richter	ADEQUATELY ~~Full Part~~ Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. 42 CATEGORY 1
11447	22Aug83	[illegible]	Part ~~Full Part~~ Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. 35 CATEGORY
11420	1-24-84	JOE TURNER	ADEQUATE ~~Full Part~~ Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No.
411	4-8-92	Ken Foster	~~Full Part~~ Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. 63 Exam - N/C - Scale
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8558-P62