

FE283

Diagram 1251-2

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ... Field Examination

Field No. R/H-05-01-86

Registry No. FE-283

LOCALITY

State Florida

General Locality ... Key West

Sublocality Key West Harbor

19 86

CHIEF OF PARTY

LCDR R.K. Norris

LIBRARY & ARCHIVES

DATE October 8, 1987

☆U.S. GOV. PRINTING OFFICE: 1985-566-054

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11442-nc

72 SIGS OFF SEP
"RECORD OF APPLICATION"

HYDROGRAPHIC TITLE SHEET

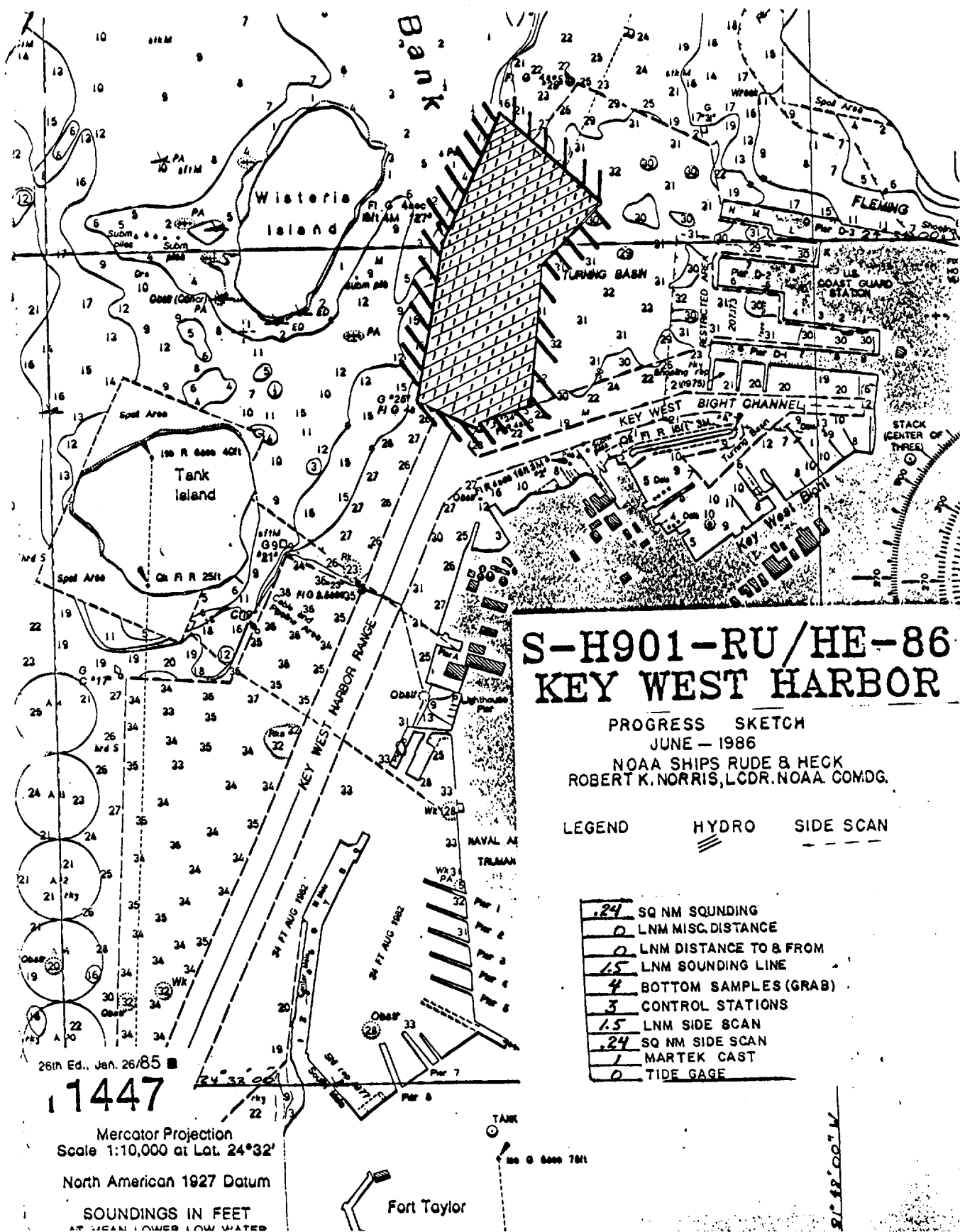
FE - 283

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.

R/H 05-01-86

State FLORIDAGeneral locality KEY WESTLocality KEY WEST HARBOR TURNING BASINScale 1:5,000 Date of survey June, 1986Instructions dated June 09, 1986 Project No. S-H901-RU/HE-86Vessel NOAA Ship HECK's survey launch HE-3Chief of party Robert K. Norris, LCDR, NOAASurveyed by LT(jg)'s Francis, LowellSoundings taken by echo sounder, hand lead, pole RAYTHEON
ROSS 719CGraphic record scaled by LT(jg) Francis, CST Morris, ST SharackGraphic record checked by LT(jg) Francis, CST MorrisProtracted by _____ Automated plot by AMC (Harris)
XYNETICS 1201 PLOTTERVerification by Atlantic Marine Center J. B. WILSONSoundings in fathoms feet at MLW MLLW FeetREMARKS: This survey was a special investigation performed at the direct
request of the U.S. Navy, Commanding Officer, Naval Air Station, Key West
Florida.Notes in red were made during office processing.AWOIS and SURF 9/88 RAD



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DESCRIPTIVE REPORT
TO ACCOMPANY HYDROGRAPHIC SURVEY
S-H901-R/H-86
Key West Turning Basin
Key West, Florida
Field Number R/H-05-01-86
Registry # FE-283

A. PROJECT

Project S-H901-RU/HE-86 (Key West Harbor, Florida), was a special investigation to determine the eastern extent of the shelf area that borders the western most side of the upper turning basin in Key West Harbor. This survey was performed at the special request of the Commanding Officer, Naval Air Station, Key West, following the October 1985 grounding of the USS ESTOCIN (FFG-15) in the turning basin. This project was conducted in accordance with project instructions S-H901-RU/HE/86 dated June 9, 1986, issued by Chief, Nautical Charting Division and forwarded via the Director, Atlantic Marine Center (AMC). No changes were issued during the survey.

B. AREA SURVEYED

The survey area is located in Key West Harbor turning basin in the vicinity of lighted buoy "25" and Lt "27" Key West Florida. The actual limits of the survey area are defined as follows:

024° 33.81 N 081° 48.52 W	010° True to	024° 34.01 N 081° 48.47 W
024° 34.01 N 081° 48.47 W	026° True to	024° 34.15 N 081° 48.41 W
024° 34.15 N 081° 48.41 W	131° True to	024° 34.04 N 081° 48.27 W
024° 34.04 N 081° 48.27 W	226° True to	024° 33.97 N 081° 48.35 W
024° 33.97 N 081° 48.35 W	187° True to	024° 33.81 N 081° 48.37 W
024° 33.81 N 081° 48.37 W	257° True to	024° 33.78 N 081° 48.44 W
024° 33.78 N 081° 48.44 W	206° True to	024° 33.77 N 081° 48.46 W
024° 33.77 N 081° 48.46 W	297° True to	024° 33.81 N 081° 48.52 W

The project was conducted as a field examination as defined by Section 7.4 of the Hydrographic manual. In addition, 100 percent side scan sonar coverage was performed from the western edge of the shelf as defined in Section A to a point 200 meters inside and parallel to the western limit of the upper turning basin.

That coastline which borders the western extent of the turning basin was transcribed by hand from Chart 11447, 26 Edition to the final survey sheets to assist in defining the extent to which the shelf now reaches into the turning basin.

Hydrography and side scan operations were conducted from 12 June to 14 June, 1986.

C. SOUNDING VESSELS

Hydrography was conducted using the NOAA Ship HECK's 20 foot long SISU survey launch HE-3 (9043)^(9/4/). The launch, which is normally utilized as a wire drag tester boat proved to be a marginal platform for hydrographic operations. The launch was unable to provide the power necessary to run the additional electronic equipment needed for hydrography or side scan operations. Marine batteries were utilized to supply the needed power.

The vessel size and hull design contributed greatly to the jagged profile seen on the echo sounder trace. During minimal seas, or when other vessels passed in close proximity, the launch would roll and pitch severely. The echogram was annotated to reflect these occurrences and it is very evident that the jagged trace was caused by vessel activity and not a change in the bottom topography. The accentuated activity of the vessel was removed from soundings during the scanning process.

Prior to the beginning of data acquisition, The launch transducer was found to be non-operational in its hull mounting. The transducer was removed and mounted to a wooden structure which was affixed over the side of the launch. A draft corrector was determined by direct measurement for this new location and the new set-up worked well throughout the entire project.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The echo sounder used for this project was a Raytheon portable echo sounder model DE-719C. The following is a list of the days and times that the echo sounder was used:

<u>VESNO</u>	<u>DOY</u>	<u>TIME (GMT)</u>	<u>ECHO-SOUNDER S/N</u>
HE - 3	163	175600 - 201300	5497
HE - 3	165	135800 - 181720	5497

The echo sounder was maintained at a zero initial setting with a static draft of 0.7 feet which was directly measured being added to all corrector tapes.

For the side scan sonar portion of this survey, an EG&G Image Correcting, Model 260 Side Scan Sonar system was used. Towfish frequency was set at 100 khz for the entire project. The system worked well throughout the entire project. Two contacts were observed within the survey area but computations showed the targets to be of insignificant size. No further investigations were performed on the targets. Coverage abstracts and a sonar contact list is included with this report (See Appendix X). *Concur*

Depths in the survey area ranged from a shallow of ~~two feet~~ ^{one foot} to a deep of 34 feet. Generally, depths were in the mid 20's to mid 30 feet.

The velocity of sound corrections are based upon a T.D.C. cast performed by NOAA survey launch HE - 3. The T.D.C. cast was performed on June 14, 1986 (DOY-165) at position 024° 33.12 N, 081° 48.30 W to a depth of 10 meters. The instrument used to perform the T.D.C. cast was a Martek Mark VII, model # 167, serial number 177. The unit was calibrated by the Atlantic Marine Center. The velocity table and correctors were computed and applied to all field work by the Atlantic Marine Center Electronic Data Processing Section (EDPS). This was because the RUDE & HECK do not have the automated capability to compute velocity correctors for TDC casts

The RUDE & HECK do not normally perform bar checks or vertical casts so a series of daily Echo-Sounder/Leadline Comparisons were conducted to determine if any instrument error existed. For DOY 163, an instrument * corrector of ~~2.1 feet~~ ^{0.1 feet} was found to exist and was applied via the TC/TI tape by the AMC EDPS. On DOY 165 an instrument corrector of ~~1.8 feet~~ ^{0.1 feet} was observed and applied via the TC/TI tape as well. Sounding correction abstracts are appended to this report (See Appendix III). * *Instrument error for this day (163) was 0.1 ft and day 165 was 0.0 ft. The field did not use velocity data with analog depth.*

Settlement and squat corrections were determined on May 30, 1986 (DOY 150) by RUDE & HECK personnel at the U.S. Navy Base, Truman Annex in Key West Florida. A Ziess Level (S/N 100225) was set-up on the western edge of the center mole pier and shots were taken to a stadia rod positioned directly over the transducer of HE-3. A temporary tide staff was positioned on the pier face to allow the level party to correct for tidal change. A copy of the settlement and squat results are included with this report (See Appendix III).

Speed changes were noted in the daily sounding records along with time (UTC +4), raw depths, control data, position numbers, and towfish layback (Side Scan Operations).

All soundings were corrected for velocity of sound, draft, instrument error, settlement and squat and, predicted tides. *Smooth tides applied to smooth plot.*

E. HYDROGRAPHIC SHEETS *(field)*

The field sheets used while on line were constructed aboard the NOAA Ship RUDE (9040). Sheets were prepared utilizing a DEC PDP 11/34 computer and Houston Instruments roll bed printer.

Final sheets were prepared by AMC EDPS using sounding and position data supplied by the NOAA Ships RUDE & HECK. The RUDE & HECK do not have the ability to plot data collected using the range/azimuth method of position control. Sounding and position control data was sent to AMC EDPS so that smooth sheets could be plotted. Work could then be completed on them back aboard the RUDE & HECK. The sheets provided by EDPS consisted of one sheet of sounding plots only and one sheet of position plots only. All plotted soundings were corrected for velocity of sound, instrument error, draft, settlement and squat and predicted tides as mentioned in section D.

F. CONTROL STATIONS *See section 2.a. of The Evaluation Report.*

The control datum for this project was the North American Datum of 1927. No new control sites were established during this survey. With the exception of one, all electronic and visual control stations used during this survey were of Third Order, Class I positional accuracy standards or better.

Station "PIER D-2", a Florida Engineering Survey Mark was discovered on Pier D-2 of the U.S. Coast Guard base in Key West, Fl. Although no position was known for this site, it proved to be useful for reasons expanded upon in section G. following.

A complete list of signals, with the exception of PIER D-2, is found in Appendix V of this report.

G. HYDROGRAPHIC POSITION CONTROL *See section 2.a. of The Evaluation Report.*

Vessel positioning for all work on this survey was done using a range azimuth configuration utilizing the Mini-Ranger Falcon 484 system with a Wild T-2 theodolite and observer. Throughout survey operations a second rate was collected to allow the ship the possibility of plotting the survey work by the range/range method. This is the only method the RUDE & HECK can currently plot with on it's automated system. This second range was intermittently blocked by land and vessels and proved of little use. It is recommended that the second range be ignored during smooth plotting.

Station "PIER D-2", was a Florida Engineering Mark which no position was known for at the time of this survey. Even so, it's orientation to the working grounds provided a good steering arc to control the side scan sonar portion of the survey. Position data was from the range/azimuth station for the side scan work and steering arcs were recorded but not utilized for plotting purposes.

The following is a daily listing of equipment and serial numbers used:

<u>DAY OF YEAR</u>	<u>EQUIPMENT</u>	<u>SERIAL NUMBER</u>
163	RPU	F0257
	CDU	E0011
	R/T	2965
	CODE 4	3222
	WILD T-2	35327
165	RPU	E0140
	CDU	E0011
	R/T	F3409
	CODE 4	3222
	WILD T-2	35327

On June 12, 1986 (DOY 163), survey operations began. Mini-ranger RPU F0257 and R/T 2965 were used to collect position data. On June 13, 1986 (DOY 164), RPU F0257 and R/T 2965 were exposed to salt water and subsequently failed. No final baseline calibration was possible. Based on the method of failure and the fact that daily systems checks verified that the unit was functioning properly, data collected using this configuration is considered adequate for charting purposes. The units were replaced by mini-ranger RPU E0140 and R/T F3409 on June 14, 1986, (DOY 165) which were used until project completion. Summaries of daily systems checks are included with this report in Appendix X. Baseline calibration data and information for this survey was submitted as part of the electronic control report for project S-H661-RU/HE-86, Looe Key, Florida. Final correctors should be obtained from this report prior to the final smooth plot.

Vessel calibrations were performed by fixed point method using the Hewlett Packard (HP) 3808A Electronic Distance Measuring Instrument (S/N 1723A00639). Survey launch HE -3 would pull up alongside light structure "27" located within the project area, and an observer located at control station "MAN O WAR" would use the HP 3808A to measure the distance to the vessel. The distance would then be compared to the observed reading of the Mini-Ranger system. This fixed point calibration system worked well throughout the duration of the project. The HP 3808A was compared against a known baseline in Key West, Fl. to ensure it was functioning properly.

No andist corrector was required as the sounding transducer was located directly under the mini-ranger R/T.

H. SHORELINE *see section 2.6. of the Evaluation Report.*

No shoreline manuscripts were provided and verification was not directed. Shoreline scaled from chart 11447 has been placed on the smooth plots for orientation purposes only.

I. CROSSLINES *See section 3.a. of the Evaluation Report.*

Soundings were collected during Side Scan Sonar operations. The soundings were reduced and manually compared against mainscheme hydrography. These lines were run normal to hydrographic lines and showed good agreement. Due to the size of the scale of this survey, crosslines were not plotted on the smooth sheets as it was felt they would clutter the sheet to the extent of making it illegible.

A percentage of 50% crosslines were run.

J. JUNCTIONS *See section 5. of the Evaluation Report.*

No junctions were required or performed during this survey.

K. COMPARISONS WITH PRIOR SURVEYS *See sections 4.e. and 6 of the Evaluation Report.*

No prior surveys were provided and comparisons were not required.

L. COMPARISON WITH THE CHART *See section 7.a. of the Evaluation Report.*

Comparisons were performed with chart number 11447, 26th Edition, January 26/85, 1:10,000 scale. To facilitate and simplify comparisons, soundings were transferred to a grid overlay at the same scale as the survey sheet. In general soundings were in good agreement with charted depths. No significant differences are observed between charted features and those surveyed during the project.

M. ADEQUACY OF SURVEY

This survey is considered complete and adequate to supersede prior surveys of this area.

N. AIDS TO NAVIGATION *See section 7.b. of the Evaluation Report.*

Three aids to navigation were located within the survey area. The first, non-floating aid fixed light number 27, is a 16 foot high green light with a visibility range of four miles, exhibiting a flashing green light. Floating aids were, buoy number 24, a flashing red four second light and, buoy number 25, a flashing green four second light. All three aids were positioned by range/azimuth positioning and each were in good agreement with currently charted positions. All three aids are plotted on the smooth sheet. Fixed light "27" marks the eastern extent of the shoal area bordering the western side of the Key West turning basin. Buoys "24" & "25" mark the entrance channel into the turning basin.

O. STATISTICS

All data collection was performed by NOAA survey launch HE-3 (9043).

TOTAL POSITIONS	167
NAUTICAL MILES OF HYDROGRAPHY	1.5
SQUARE MILES OF HYDROGRAPHY	.24
NAUTICAL MILES OF SIDE SCAN	1.5
SQUARE MILES OF SIDE SCAN	.24
BOTTOM SAMPLES	4
VELOCITY CASTS	1

P. MISCELLANEOUS

Bottom samples were taken and agreed with charted representations.
(See APPENDIX VII)

Q. RECOMMENDATIONS

It is the opinion of the hydrographer that the current chart which encompasses the surveyed area (Chart 11447) is adequate. No additional field work is required. *Concur*

R. AUTOMATED DATA PROCESSING

The following programs were utilized for processing this survey.

PROGRAM

PARC	(Parameter File Editor)
SEDIT	(Station File Editor)
LEDIT	(Lattice File Editor)
GULP	(Grid,Control Station,Lattice Plot)

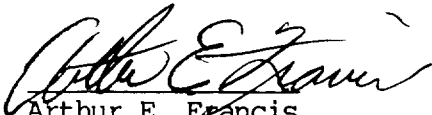
NOTE - ALL FINAL SHEETS WERE GENERATED BY THE ATLANTIC MARINE CENTER, ELECTRONIC DATA PROCESSING SECTION. A LISTING OF PROGRAMS UTILIZED BY AMC WERE NOT AVAILABLE AT THE TIME OF THIS REPORT.

S. REFERRALS TO REPORTS

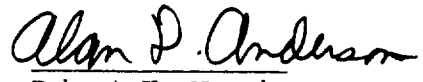
The following reports are not submitted with this report. The Electronic Control Report and the Coast Pilot Report which cover this survey were submitted as part of project S-H661-RU/HE-86, Looe Key, Fl., Registry number H-10221. Both reports were transmitted to the Atlantic Marine Center, MOA23, on September 09, 1986.

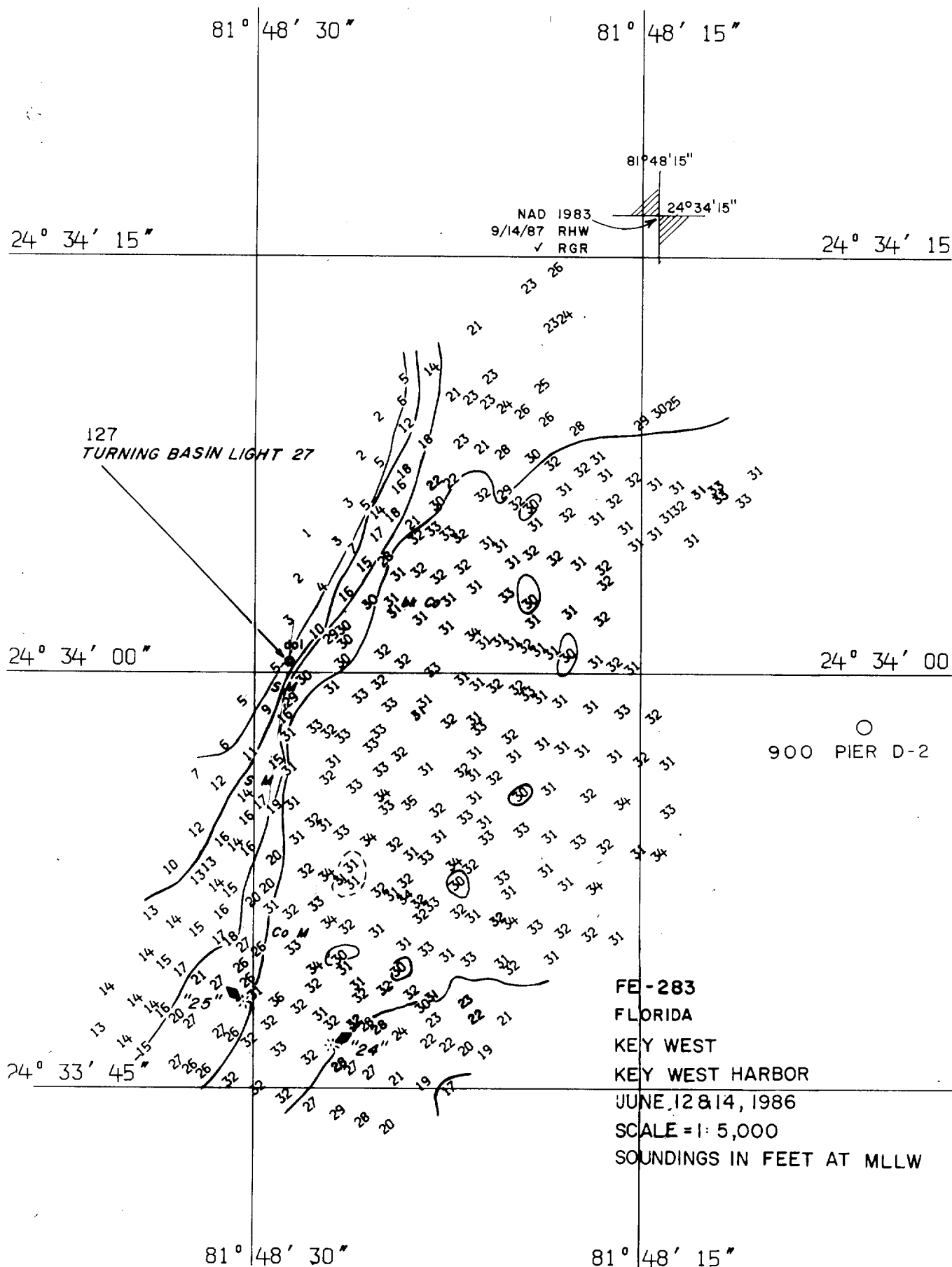
This survey is complete and adequate to supersede all existing work encompassing this area. All records were checked daily by the command for adequacy and completeness.

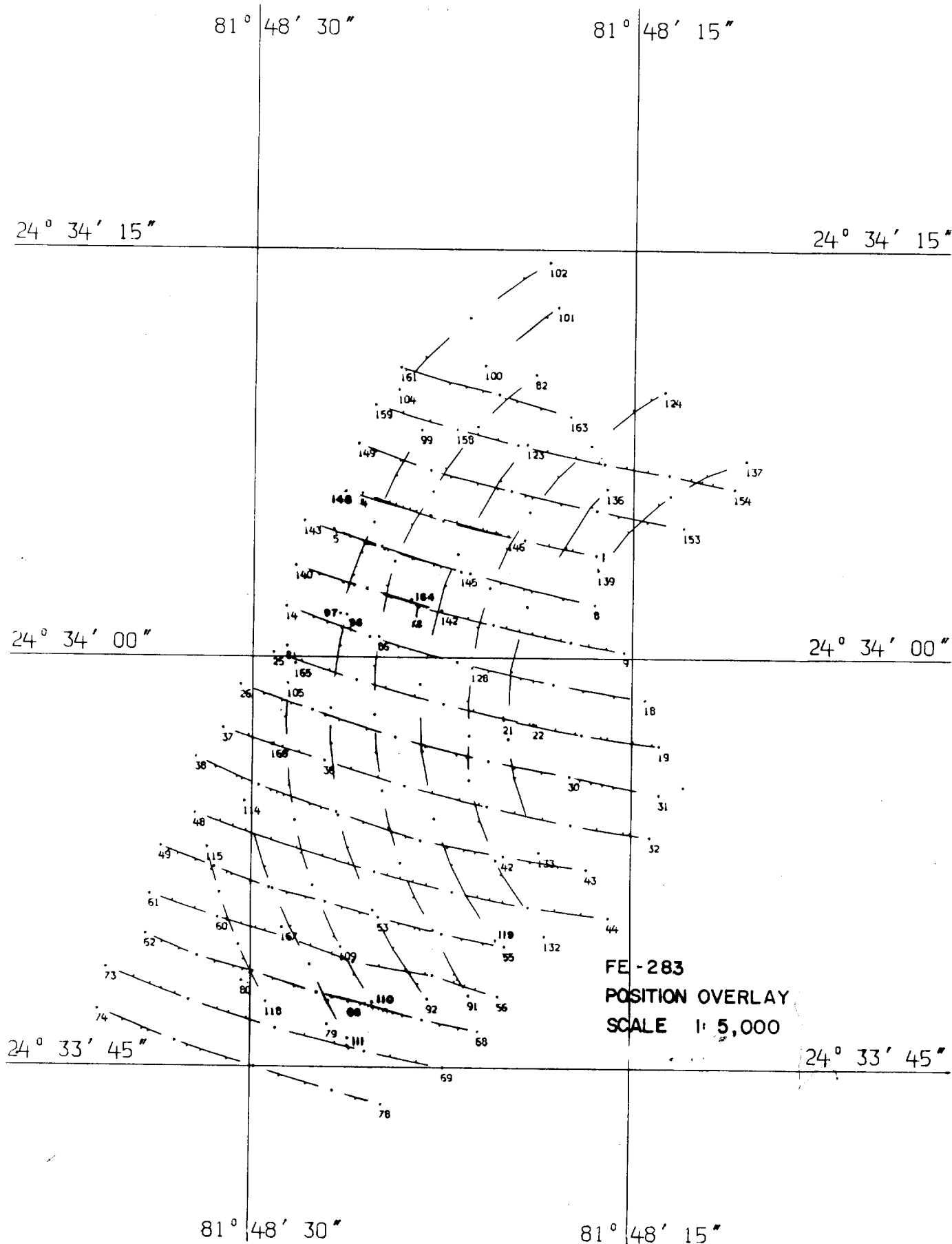
Report prepared by,

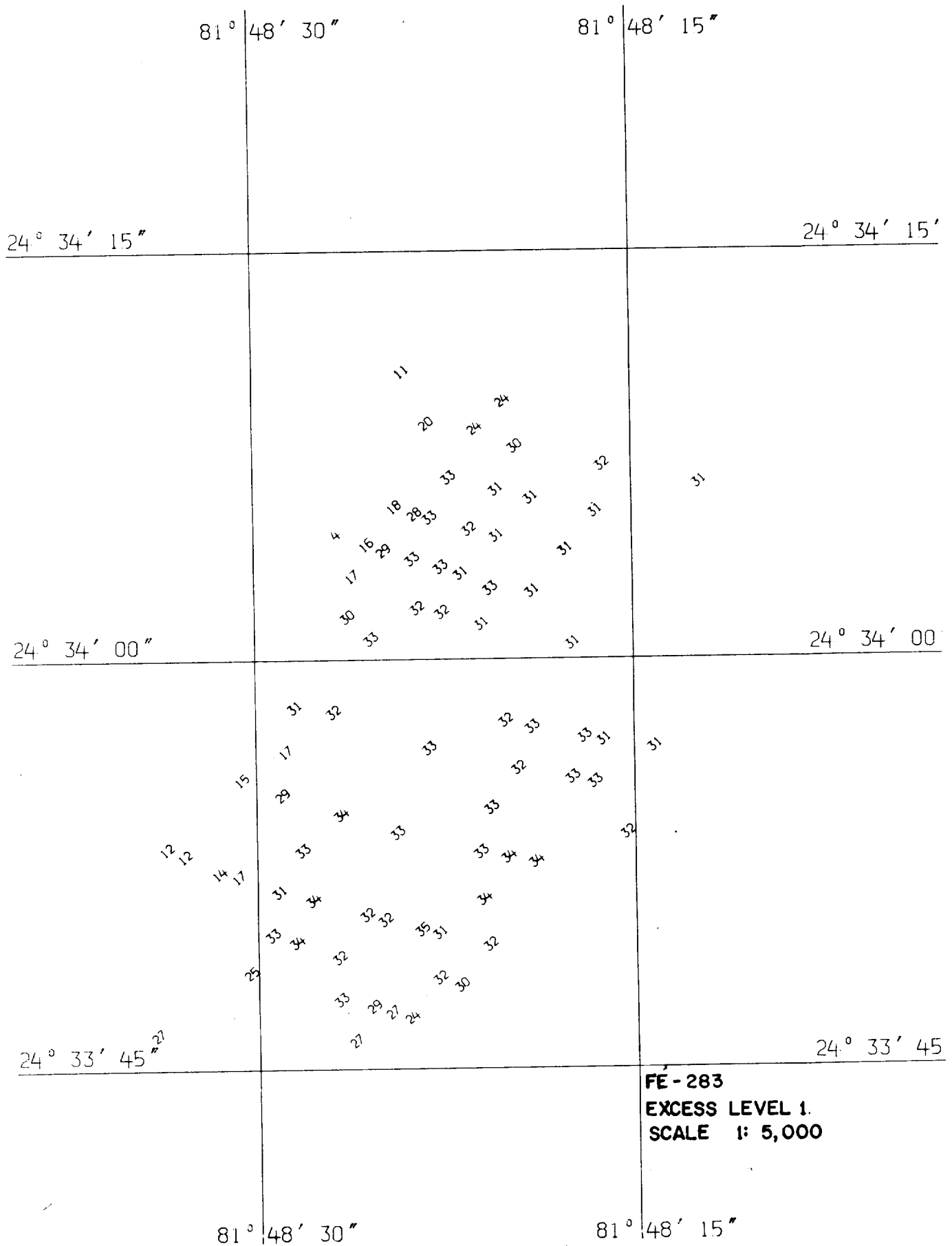

Arthur E. Francis
LT(jg), NOAA

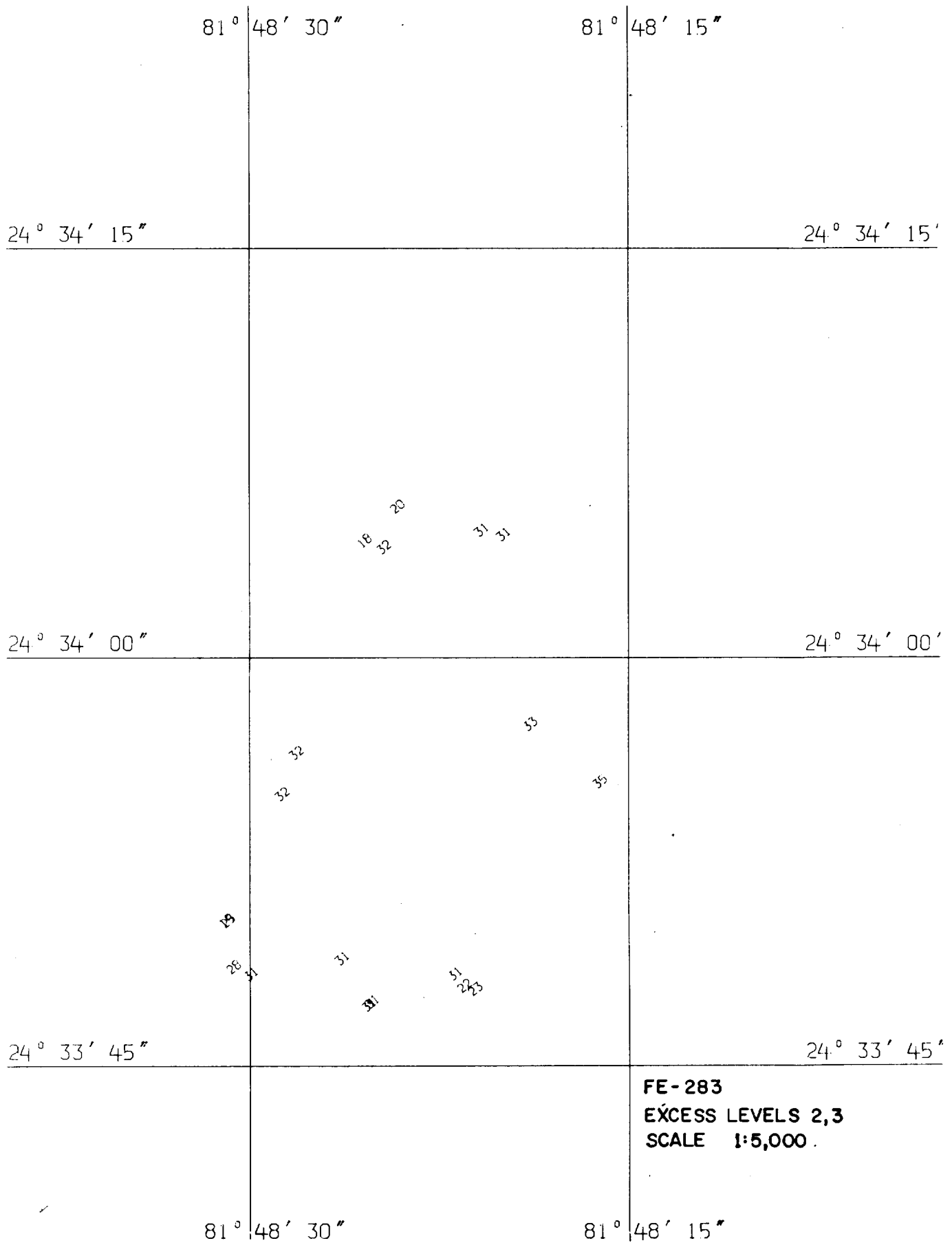
Approved by,


for Robert K. Norris
LCDR, NOAA









SIGNAL TAPE LISTING

FE - 283

R/H - 5-1-86

100	7	24	33	26700	081	49	43640	139	0000	000000	<i>KINGFISH SHOAL LT.</i>
200	7	24	35	07430	081	48	02850	250	0000	149335	<i>MAN-O-WAR</i>
300	7	24	33	00720	081	48	03810	139	0025	000000	<i>OLD LT. HOUSE</i>

*

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	<input type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	FIELD ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	OFFICE ACTIVITY REPRESENTATIVE <input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' (Consult Photogrammetric Instructions No. 64.)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75 *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

DATE: 09/23/86

Marine Center: Atlantic Marine Center

OPR: H901

Hydrographic Sheet: FE-283

Locality: Key West Harbor, FL

Time Period: June 12 - 14, 1986

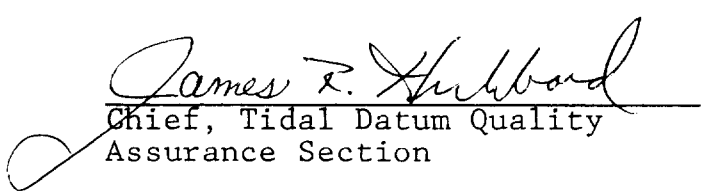
Tide Station Used: 872-4580 Key West, FL

Plane of Reference (Mean Lower Low Water): 4.33 ft.

Height of Mean High Water Above Plane of Reference: 1.6 ft.

Remarks: Recommended Zoning:

Zone direct


Chief, Tidal Datum Quality
Assurance Section

GEOGRAPHIC NAMES

FE-283

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 GRAND MCNALLY ATLAS	H U.S. LIGHT LIST	K
FLORIDA (title)									1
KEY WEST (title)									2
KEY WEST HARBOR (title)									3
									4
									5
									6
									7
									8
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									23
									24
									25

Approved:

Charles E. Harrington
Chief Geographer - N/C62x5

JUN 16 1987

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NO.: FE-283

Number of positions

165

Number of soundings

443

Number of control stations

3

TIME-HOURS

DATE COMPLETED

Preprocessing Examination

43

10/26/86

Verification of Field Data

50

03/12/87

Quality Control Checks

17

Evaluation and Analysis

33

06/11/87

Final Inspection

5

06/09/87

TOTAL TIME

148

Marine Center Approval

06/12/87

Transmittal letter of survey and survey records will be included in the Descriptive Report to identify the records accompanying the survey.

ATLANTIC MARINE CENTER
EVALUATION REPORT

SURVEY NO.: FE-283

FIELD NO.: R/H-5-1-86

Florida, Key West, Key West Harbor

SURVEYED: June 12 and 14, 1986

SCALE: 1:5,000

PROJECT NO.: S-H901-RU/HE-86

SOUNDINGS: RAYTHEON DE-719C Fathometer and Leadline

CONTROL: MOTOROLA Falcon 484 Mini-Ranger and Wild T-2
Theodolite (Range/Azimuth)

Chief of Party.....R. K. Norris

Surveyed by.....A. E. Francis
.....J. E. Lowell

Automated Plot by.....XYNETICS 1201 Plotter (AMC)

1. INTRODUCTION

a. One smooth sheet was generated during office processing and is inserted into the Descriptive Report. This final sheet adequately displays the area covered by this survey.

b. No unusual problems were encountered during office processing.

c. Notes in the Descriptive Report were made in red during office processing.

2. CONTROL AND SHORELINE

a. The control is adequately discussed in sections F., G., and S. of the Descriptive Report.

b. Shoreline is not shown on the present survey smooth plot.

3. HYDROGRAPHY

a. Soundings at crossings are in excellent agreement and comply with the criteria found in sections 4.6.1. and 6.3.4.3. of the HYDROGRAPHIC MANUAL.

b. The standard depth curves were drawn in their entirety. Additional dashed curves were drawn to better show the bottom relief.

c. Development of the bottom configuration and determination of least depth is considered adequate.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the HYDROGRAPHIC MANUAL with the following exceptions:

a. The request for smooth tides was not submitted until September 15, 1986. The last day of hydrography was June 14, 1986.

b. A large number of inserts were required to suitably define the bottom configuration.

c. North and south hydrographic lines exceeded the maximum sounding interval requirements stated in sections 1.4.6. and 4.5.6. of the HYDROGRAPHIC MANUAL by one (1) to twenty (20) millimeters at the scale of the survey. This does not detract from the overall survey results.

d. No barchecks were taken. Vertical casts were taken with a hand leadline. It is recommended that the field unit develop a barcheck capability for the launch if it is to be used for hydrographic surveying.

e. Prior surveys were not available to the hydrographer within the required time limits as stated in section 6.10. of the Project Instructions. However, the most recent prior survey, FE-165 (1958), which covers the entire common area is not listed in the Project Instructions. Prior survey FE-165 (1958) was ordered and compared with the present survey during office processing.

5. JUNCTIONS

There are no contemporary junctional surveys with the present survey. Charted hydrography in the junctional areas is in harmony with the present survey.

6. COMPARISON WITH PRIOR SURVEYS.

FE-165 (1958) 1:5,000

The survey listed above covers the survey area in its entirety.

Present survey depths shoaler than thirty (30) feet are in good agreement with prior survey with soundings plus or minus (+/-) three (3) feet. Depths over thirty feet are deeper than the prior survey from one (1) foot to seventeen

(17) feet because the channel has been deepened in the area of the presently charted turning basin.

The present survey is adequate to supersede the prior survey in the common area.

7. COMPARISON WITH CHART 11447 (26th Ed., Jan.26/85)

a. Hydrography

Charted hydrography originates with miscellaneous sources, most probably U. S. Army Corps of Engineers surveys. Charted soundings are in good agreement with the present survey with soundings agreeing plus or minus (+/-) one (1) to three (3) feet.

The charted 29-foot depth charted from a miscellaneous source in Latitude 24°33'50"N, Longitude 81°48'25"W was not disproved on the present survey and should be retained as charted.

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

b. Aids to Navigation


One (1) fixed and two (2) floating aids to navigation fall within the survey limits. Because of the grounding by the USS ESTOCIN (PFG-15) it may be appropriate to relocate "Turning Basin Light 27" forty (40) meters to the southeast, and buoy "25" twenty (20) meters to the east.

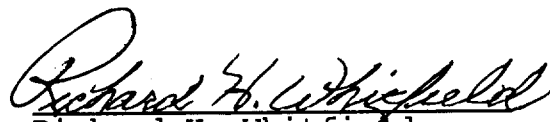
8. COMPLIANCE WITH PROJECT INSTRUCTIONS

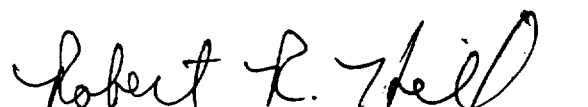
This survey adequately complies with the Project Instructions except as noted in section 4. of this report.

9. ADDITIONAL FIELD WORK

This is a good basic survey; no additional field work is recommended.


James B. Wilson
Cartographic Technician
Verification of Field Data


Richard H. Whitfield
Cartographer
Evaluation and Analysis


Robert R. Hill
Senior Cartographic Technician
Verification Check

Latent
BP's
BP 12/25/85
7/21/85

ADDENDUM TO ACCOMPANY SURVEY FE-283

The average values for shifting surveyed NAD 1927 positions to NAD 1983 positions for this survey are as follows:

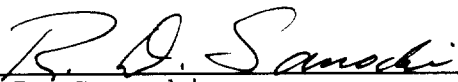
Position shifts (NAD 1983 minus NAD 1927):

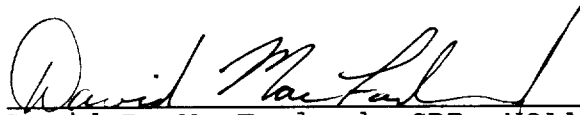
Average latitude shift = 1.525 seconds = 46.9 meters

Average longitude shift = -0.669 seconds = -18.8 meters

INSPECTION REPORT
FE-283

The completed survey has been inspected with regard to survey coverage, presentation of survey results, and the verification or disproof of the assigned items for investigation. The survey was found to be in compliance with National Ocean Service requirements except as noted in the Evaluation Report by the evaluator. The survey records comply with NOS requirements except where noted in the report.


R. D. Sanocki
Chief, Hydrographic Surveys
Processing Section
Hydrographic Surveys Branch

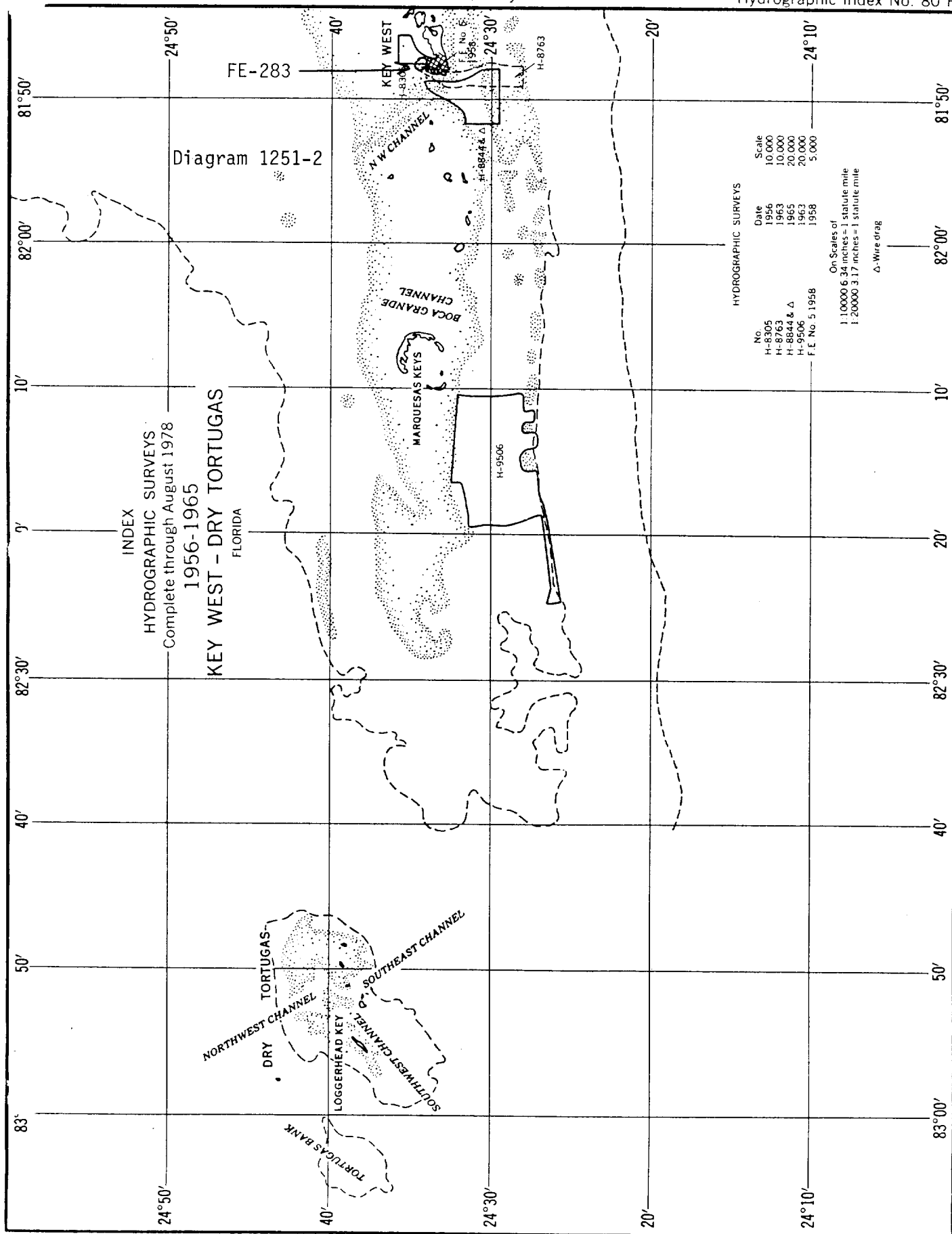

David B. MacFarland, CDR, NOAA
Chief, Hydrographic Surveys Branch

Approved June 12, 1987


Ray E. Moses, RADM, NOAA
Director, Atlantic Marine Center

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 80 H



FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-283

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.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.

Appd to Stds 10-13-87