

H10748

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic/Lidar

Field No. NO-10-1-97

Registry No. H10748

LOCALITY

State Florida

General Locality North Atlantic Ocean

Locality Approaches to Miami

1997

CHIEF OF PARTY
Mr. M. W. Brooks

LIBRARY & ARCHIVES

DATE OCT 9 1999

HYDROGRAPHIC TITLE SHEET

H-10748

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.

NO-10-1-97

State FLORIDA

General locality ~~MIAMI~~ NORTH ATLANTIC OCEAN

Locality APPROACHES TO MIAMI, FLORIDA

Scale 1:10,000 Date of survey Feb - Mar 1997

Instructions dated Feb. 1, 1997 Project No. OPR-H300-KR-97

Vessel NOAA 60

Chief of party MARK W. BROOKS

Surveyed by JOHN E. CHANCE & ASSOCIATES, INC.

Soundings taken by echo sounder, hand lead, pole LIDAR

Graphic record scaled by MARK W. BROOKS, EDDIE CULPEPPER

Graphic record checked by MARK W. BROOKS, EDDIE CULPEPPER

Protracted by N/A Automated plot by HEWLETT PACKARD
~~N/A DESIGNJET~~
2500CP (A11B)

Verification by ~~NA~~ ATLANTIC HYDROGRAPHIC BRANCH PERSONNEL

Soundings in fathoms feet at MLW MLLW _____ Feet at MLLW _____

REMARKS: JOHN E. CHANCE & ASSOCIATES, INC.
200 DULLES DRIVE
LAFAYETTE, LA 70506 AWWIS/SURE 9/20/97
mc12

NOTES IN THE DESCRIPTIVE REPORT WERE MADE IN RED
DURING OFFICE PROCESSING.

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A. PROJECT

A.1 This survey was conducted in accordance with Hydrographic Project Instructions OPR-H300-KR-97, Approaches to Miami.

A.2 Project OPR-H300-KR-97 provides NOAA with modern, accurate hydrographic survey data acquired using lidar technology.

A.3 This portion of Project OPR-H300-KR-97, Approaches to Miami.

A.3 No information has been presented to the contractor concerning the origin or possible requests for Project OPR-H300-KR-97.

B. AREA SURVEYED

The survey encompasses an area along the coast of Florida near Miami Harbor. The bounding polygon is described as follows:

-80.1206 25.7601	-80.0946 25.8064
-80.0879 25.8054	-80.0848 25.7988
-80.0862 25.7942	-80.0825 25.7835
-80.0869 25.7778	-80.0876 25.7423
-80.1019 25.7423	-80.1019 25.7565
-80.1143 25.7522	-80.1262 25.7576
-80.1279 25.7599	-80.1249 25.7617
-80.1206 25.7601	

Both commercial vessels and pleasure craft are frequent in this area. The port of Miami is served by the project area. The port of Miami is a major cruise stop for many of the world's large passenger vessels. A considerable amount of domestic and foreign commerce passes through the port. Commercial interests in the area include commercial shipping, passenger cruise ships, and commercial fishing.

In the approaches to Miami, several spoil areas and fish havens exist. This fish haven located just northeast of the harbor entrance has an authorized clearance of 18 feet.

LIDAR data collection days included Feb. 10-12, Feb. 19-22, Mar. 10-11, 1997.

C. SURVEY VESSELS

C.1 The following survey vessels was used during this project:

<u>VESSEL</u>	<u>REGISTRATION NUMBER</u>	<u>PRIMARY FUNCTION</u>
NOAA 60	N60RF	Hydrography

C.2 No unusual vessel configurations or problems were encountered.

D. AUTOMATED DATA ACQUISITION AND PROCESSING *SEE ALSO EVALUATION REPORT*

D.1 All LIDAR data were collected using the SHOALS Airborne Data Collection System, version 951105. This software is manufactured by OPTECH, Inc., North York, Ontario, Canada.

D.3 LIDAR data were processed using the SHOALS Data Processing System, version 1.78. This software is manufactured by OPTECH, Inc., North York, Ontario, Canada. The software uses a depth extraction algorithm developed by NOS.

D.4 No non-standard automated acquisition or processing methods were used.

E. SONAR EQUIPMENT

E.1 No side scan data were collected during this phase of Project OPR-H300-KR-97.

F. SOUNDING EQUIPMENT

F.1 All hydrographic soundings were acquired using the US Army Corps of Engineers SHOALS Lidar Bathymetry System. The following list contains information for the separate components of the system:

COMPONENT	SERIAL NUMBER	DATES USED
SHOALS	1	41-43, 50-52, 69-70

F.2 The SHOALS system was the only sounding equipment used during this survey for the purpose of charting. No multibeam nor single-beam data were collected. No diver investigations were conducted for this survey, eliminating the need for a pneumatic depth gauge.

F.3 The SHOALS Lidar Bathymetry System uses a laser that is a 200 Hz Nd:YAG operating at a wave length of 1064 nm (infrared) and frequency doubled to 532 nm (green). The system operates at a power level of about 5 milli-joules. The receiver includes a Cassegrain design telescope. Five detectors are in the system, a gated photomultiplier tube (PMT), two avalanche photo diodes (APD) to detect 1064 nm radiation (IR1 and IR2), an APD to detect 532 nm radiation (green), and an APD to detect Raman radiation at 645 nm. There were no faults in the SHOALS system that affected the accuracy of the data.

G. CORRECTIONS TO SOUNDINGS

G.1 a) The SHOALS system requires no velocity correction, but does require an index of refraction based upon the water salinity. This number is used for the calculation of the refraction angle when the light enters the water. No major fresh water streams are in the area of the project, therefore a value of 1.3423, which is typical of salty water, was used.

c) No instrument correctors were applied to the SHOALS system.

d) Operating characteristics of the SHOALS system requires no draft corrections to collected data.

e) Operating characteristics of the SHOALS system requires no draft corrections to collected data.

f) A Litton LTN-90 Inertial Reference System measures roll, pitch and vertical acceleration of the helicopter for the SHOALS system. These values are stored on the raw data tapes and are applied in the SHOALS processor.

G.2 There were no unusual or unique methods or instruments used for correcting the SHOALS data.

G.3 Pneumatic depth gauges were not required for this phase of survey H-10748.

G.4 The SHOALS data processor incorporates a wave correction algorithm. This algorithm is capable of producing corrections for both long- and short-period waves. A corrector value is produced for every sounding and is automatically applied to each sounding. The value for each pulse can be found in the database of each flight the

SHOALS system completed. Application of the wave corrector to raw measurements appeared to accurately represent true depths.

G.5 The SHOALS system uses a an apriori k value that is used to calculate surface biases in real time for the alignment of the waveforms in the digital record, and for the recalculation of the biases in the post-processing. The value should be based on the water clarity of the area being surveyed. A value of 0.15 m^{-1} was used for project H-10748.

G.6 a) The tidal datum for this project is Mean Lower Low Water. The operating tide station at Virginia Key, FL (872-3214) served as direct control for the datum determination. No predicted tides were used during this project.

b) Zoning for this project is consistent with the project instructions.

A request for smooth tides was faxed on April 24, 1997. The smooth tides were received on June 23, 1997. *APPROVED TIDES AND ZONING WERE APPLIED DURING FIELD OPERATIONS.*

H. CONTROL STATIONS *SEE ALSO EVALUATION REPORT*

H.1 The horizontal datum for this project is the North American Datum of 1983 (NAD 83).

H.2 This survey was conducted exclusively using Differential GPS (DGPS) positioning, which precluded the need for shore-based horizontal control stations.

H.3 No horizontal control stations were used or established for this survey.

H.4 Verification of horizontal control was not necessary since no land-based horizontal control stations were used.

H.5 There are no photogrammetric problems, positioning problems or unconventional survey methods pertinent to this survey.

I. HYDROGRAPHIC POSITION CONTROL

I.1 This survey was conducted exclusively using Differential GPS (DGPS) positioning.

I.2 Data collected aboard NOAA 60 were not collected when the Horizontal Dilution of Precision (HDOP) exceeded 4.0.

NOAA 60's DGPS receiver's were configured such that only satellites ten degrees or greater above the horizon were used in the position computation. The age of pseudo-range correctors used in the position computation was set not to exceed 30 seconds. A minimum of four satellites was used to compute positions. No Dead Reckoning (DR) was ever performed.

I.3 Control Equipment:

NOAA 60 DGPS
Ashtech GPS Sensor
S/N LP02081-NOT12D1H00
John E. Chance & Associates, Inc. OMNISTAR™

Correctors were computed using the entire United States OMNISTAR™ network. The DGPS system requires no calibration from outside sources. No checks were done for data collected on NOAA 60.

I.4 No calibration data were required to be applied to the raw positioning data because DGPS was the primary positioning system.

I.5 a) There were no unusual methods used to calibrate or operate the electronic positioning equipment.

b) The OMNISTAR™ used for the positioning of NOAA 60 experienced no problems.

c) At no time was weather a problem or concern for the DGPS system on NOAA 60.

d) No systematic errors were detected that required adjustments to the DGPS system.

e) Aboard NOAA 60, antenna positions were corrected for offset and referenced to the position of the SHOALS scanning mirror. These correctors were located on the flight planning tape and are applied in the post-processing of the data.

J. SHORELINE *SEE ALSO EVALUATION REPORT*

Not Applicable. No shoreline is contained within the boundaries of this survey. However, the breakwaters at the entrance to the harbor are presented on the final sheets.

K. CROSSLINES

K.1 No planning of crosslines was done during this phase of survey H-10748. Lines running along the channel and lines that were run to fill in holidays enabled the contractor to check data from mainscheme lines.

K.2 Data collected from lines running through the channel compared very well with data collected from lines running across the channel. No error in the position of the channel walls was evident due to the directional running of lines.

K.3 No numerical comparisons of cross-directional sounding lines was done during this survey.

L. JUNCTIONS *SEE ALSO EVALUATION REPORT*

Junctional comparisons with contemporary surveys are not applicable under this contract. See Section N for comparison to the nautical charts.

M. COMPARISON WITH PRIOR SURVEYS *SEE ALSO EVALUATION REPORT*

Comparison with prior surveys was not required under this contract. See Section N for comparison to the nautical charts.

N. COMPARISON WITH EXISTING CHARTS *SEE ALSO EVALUATION REPORT*

N.1 The largest scale chart affected by this survey area is:

Chart 11468
33rd ed. May 4, 1996
Scale 1:10,000

N.2 No Danger to Navigation reports were submitted in conjunction with survey H-10748.

N.3 The general correlation between charted shoal areas and this survey is very good.

80°05'58.92"W, 25°47'25.08"N

N.4 A wreck positioned at -80.0997, 25.7903 was not found during this survey. However, an area of shallow depths was found at -80.0972 25.7882. This area is marked

80°05'49.93"W, 25°47'17.86"N

as an obstruction* on the final smooth sheet because of the steep slope the bottom has in this area. In this area, three soundings were found using the hazard detection program, but the waveform from the least depth sounding did not contain a second bottom. * SAME AS S.2

30° 05' 22.92" W, 25° 46' 43.33" N
An obstruction*1 charted at -80.0897 25.7787 could be part of an uncharted ridge on an offshore reef. The least depths near this location are 32-33 feet. The charted depths are 39 feet. * / SAME AS S.3

In areas of known reefs, the lidar data showed locations of both deeper and shallower least depths than on the existing charts.

O. NOT USED

P. AIDS TO NAVIGATION SEE ALSO EVALUATION REPORT

P.1 No correspondence with the U.S. Coast Guard regarding floating aids to navigation was conducted.

P.2 Many floating aids to navigation exist within the survey area. These aids are shown on the final smooth sheet

P.3 No bridges, overhead cables or overhead pipelines are located within the survey limits.

P.4 Several submerged pipelines exist within the survey area. These pipelines are easily seen on the side scan sonar records and all are charted correctly. These pipelines run from the shoreline to offshore platforms.

P.5 No ferry terminals are located within the survey area.

Q. STATISTICS

Q.1 a) Total number of valid soundings > 5,800,000

b) Lineal nautical miles of survey

- nautical miles of survey with the use
of side scan sonar

N/A

	- nautical miles of survey with the use SHOALS Lidar system (approx.)	875
Q.2	a) Square nautical miles of hydrography	
	- SHOALS Lidar	5.8
	b) Hours of data acquisition	10.1
	c) Hours of survey support	13
	d) Hours of data processing (approx.)	175
	e) Hours of weather and environmental downtime(approx.)	0
	f) Number of velocity casts	N/A

No side scan sonar data were collected during this phase of survey H-10748. Linear nautical miles of lidar includes re-flights. Hours of data processing include automated data processing, manual processing and sounding validation. Velocity casts were not needed due to the use of lidar.

R. MISCELLANEOUS *SEE ALSO EVALUATION REPORT*

R.1 No evidence of silting was found during this survey.

R.2 No evidence of unusual submarine features was found during this survey.

R.3 No evidence of anomalous tidal conditions was found during this survey.

R.4 No evidence of unusual currents was recorded during this survey.

R.5 Parts of the survey area are in the direct flightline of the Miami International Airport. Special permission was granted for NOAA 60 to fly in the area. This permission was granted during each flight. Some areas may not contain 100% coverage due to lack of available flying time in the areas.

S. RECOMMENDATIONS SEE ALSO EVALUATION REPORT

S.1 The contractor is aware of no construction or dredging that will affect results of this survey.

S.2 A change should be made to existing charts. Chart 11468 shows ~~an obstruction~~ at the approximated position of: *SAME AS N. 4* *A SUNKEN WK (PA)*

25.20"
25° 47.42' N
80° 05.98' W
58.80"

It is recommended that this ~~obstruction~~ should be moved to: *CONCUR WITH CLARIFICATION SUNKEN WK (PA) NOT SHOWN ON LATEST EDITIONS OF CHARTS 11468 AND 11466*

17.86"
25° 47.30' N
80° 05.83' W
Least Depth = 28 feet

CHART
29. OBSTN
(PA)

S.3 Chart 11468 also shows a ~~obstruction~~ at the approximate location of:

43.32"
25° 46.75' N
80° 05.38' W
22.92"

RETAIN CHARTED "OBSTN (PA) AT THIS LOCATION

This area seems to be the top ridge of a reef. The controlling depth in this area is: *CONCUR*

51.15"
25° 46.85' N
80° 05.40' W
Least Depth = 32 feet

CHART 32. OBSTN

S.4 Chart 11468 shows a least depth at:

38.40"
25° 45.64' N
80° 06.25' W
Least Depth = 21 feet

The controlling depth in this area was found to be: *CONCUR*

41.69"
25° 45.69' N
80° 06.19' W
Least Depth = 19 feet

CHART 18. OBSTN

S.5 Chart 11468 shows a least depth at:

16.80"
25° 45.28' N
80° 06.97' W
58.20"

Least Depth = 14 feet

This depth was not found during this phase of survey H-10748. The controlling depth in this area was found to be: *DO NOT CONCUR - SEE EVALUATION REPORT*

17.68'
25° 45.20' N *SECTION N. 5*
80° 06.97' W -
58.05'
Least Depth = 18 feet

⁶
~~S.5~~ Three locations are marked as obstructions during this phase of survey H-10748 that were not marked on previous charts. These obstructions should be noted on future charts as the following: *CONCUR*

23.56
25° 44.30' N *CHART 23 OBSTN*
80° 05.72' W -
43.40'
Least Depth = 23 feet

12.95'
25° 45.21' N *CHART 28 OBSTN*
80° 05.54' W -
32.85'
Least Depth = 27 feet

44.95'
25° 45.75' N *CHART 26 OBSTN*
80° 05.41' W -
24.50'
Least Depth = 26 feet

⁷
~~S.6~~ The contractor recommends further investigations of the survey area in the areas where 100% coverage was not obtained. Also, confirmation of the least depths reported should be accomplished at the same time. The minimum that should be investigated are the three obstructions that were found that were not previously charted. The investigations should be accomplished by marine vessel using side scan sonar with a high resolution multi-beam system for least depth determination.

T. REFERRAL TO REPORTS

No reports have been published which are not part of this Descriptive Report for survey H-10748.

Omnistar Site Survey 1996

ITRF94/96 Coordinates

<u>Site</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Ellipsoidal Height</u>
Mercedes, TX	N 26° 06' 10.83388"	W 97° 51' 24.48161"	-3.8720m
Houston, TX	N 29° 35' 04.68541"	W 95° 30' 10.75933"	4.3010m
West Glenn, TX	N 29° 43' 30.59525"	W 95° 30' 33.38134"	-2.7070m
Pensacola, FL	N 30° 28' 50.08871"	W 87° 14' 55.37459"	10.4230m
Coco Beach, FL	N 28° 07' 09.09154"	W 80° 34' 42.45647"	-20.3080m
Fayetteville, NC	N 35° 06' 20.24045"	W 78° 55' 19.65223"	32.3280m
Long Island, NY	N 40° 46' 58.27470"	W 72° 45' 51.48090"	-28.0800m
Duluth, MN	N 46° 50' 14.24659"	W 92° 12' 48.62647"	432.4340m
Everett, WA	N 47° 54' 15.02694"	W 122° 16' 29.04485"	167.7410m
Redding, CA	N 40° 33' 53.54173"	W 122° 21' 48.85769"	134.3110m
San Diego, CA	N 32° 54' 47.94791"	W 117° 13' 51.30125"	-19.6990m
Denver, CO	N 39° 34' 49.64003"	W 104° 51' 50.88076"	1743.7880m
Lafayette, LA	N 30° 13' 13.84437"	W 92° 03' 21.29095"	-8.6890m
St Johns, Canada	N 47° 36' 51.56310"	W 52° 43' 23.62332"	134.8370m
Carmen, Mexico	N 18° 38' 38.37706"	W 91° 49' 23.66018"	27.2120m
Carmen Hotel, Mexico	N 18° 39' 41.92219"	W 91° 49' 50.65762"	-1.0790m

GEOGRAPHIC NAMES

H-10748

Name on Survey	Source of Name									
	A ON CHART NO. 11468	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	
BAR CUT	X									1
FISHER ISLAND	X		X							2
FLORIDA (title)	X									3
GOVERNMENT CUT	X		X							4
LUMJUS PARK	X		X							5
MIAMI (title)	X									6
MIAMI BEACH	X		X							7
NORTH ATLANTIC OCEAN	X		X							8
OUTER BAR CUT	X									9
SOUTH POINTE PARK			X							10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Approved

James J. Pennington
 James J. Pennington
 FEB 17 1998

N/CS33-47-99

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY
(Check):

- ORDINARY MAIL
- AIR MAIL
- REGISTERED MAIL
- EXPRESS
- GBL (Give number) _____

TO:

[_____]
 NOAA/National Ocean Service
 Chief, Data Control Group
 N/CS3x1, Station 6813, SSMC3
 1315 East-West Highway
 Silver Spring, MD 20910
 [_____]

DATE FORWARDED

11 June 1999

NUMBER OF PACKAGES

1 Tube

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

OPR-H300-KR-97

HYDROGRAPHIC/LIDAR SURVEY H10748

- 1 TUBE CONTAINING:
- 1 ^{Mylar} ~~MAYLAR~~ H-DRAWING FOR CHART #11468
 - 1 PAPER COMPOSITE DRAWING FOR CHART #11468
 - 1 ~~MAYLAR~~ H-DRAWING FOR CHART #11466
 - 1 PAPER COMPOSITE DRAWING FOR CHART #11466
 - 1 ~~MAYLAR~~ SMOOTH SHEET H10748
 - 1 NOAA FORM 75-96
 - 1 DRAWING HISTORY FOR CHART #11468
 - 1 DRAWING HISTORY FOR CHART #11466
 - 1 ORIGINAL DESCRIPTIVE REPORT
- Mylar* (with arrows pointing to the first two items)

FROM: (Signature)

Richard Blevins
 Richard Blevins

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

[_____]
 Atlantic Hydrographic Branch, N/CS33
 439 West York Street
 Norfolk, VA 23510-114
 [_____]

06/11/99

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H10748

NUMBER OF CONTROL STATIONS		2
NUMBER OF POSITIONS		5800000
NUMBER OF SOUNDINGS		5800000
	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	35	09/25/97
VERIFICATION OF FIELD DATA	50	03/02/99
EVALUATION AND ANALYSIS	49	
FINAL INSPECTION	11	10/16/98
COMPILATION	223	06/10/99
TOTAL TIME	432	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		03/09/99

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H10748 (1997)**

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

The following software was used to process data at the Atlantic Hydrographic Branch:

Hydrographic Processing System
NADCON, version 2.10
SiteWorks, version 2.01
MicroStation 95, version 5.05
I/RAS B, version 5.01
NOS-HPS Convertor

The smooth sheet was plotted using a Hewlett Packard DesignJet 2500CP plotter.

G. CORRECTIONS TO SOUNDINGS

A request for approved tides and zoning was sent from the contractor on April 24, 1997 to Oceanographic Products and Services Branch, Datums Section, N/OES234. Approved tides and zoning were received by the contractor from N/OES234 and were applied to the survey data by the contractor. The letter accompanying approved tides and zoning was not included in the data package forwarded by the contractor.

H. CONTROL STATIONS

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). Office processing of this survey is based on these values. The smooth sheet has been annotated with ticks showing the computed mean shift between the NAD 83 and the North American Datum of 1927 (NAD 27).

To place this survey on the NAD 27, move the projection lines 1.357 seconds (41.751 meters or 4.18 mm at the scale of the survey) north in latitude, and 0.838 seconds (23.362 meters or 2.34 mm at the scale of the survey) east in longitude.

All geographic positions listed in this report are referenced to NAD 83 unless stated otherwise.

J. SHORELINE

Brown shoreline originates with National Ocean Service (NOS) chart 11468 (34th Edition, Apr. 5/97) and is for orientation purposes only.

L. JUNCTIONS

There are no junctional surveys. Charted depths in the junctional areas are in general harmony with present survey depths.

M. COMPARISON WITH PRIOR SURVEYS

A comparison with prior surveys was not done during office processing in accordance with section 4. of the memorandum titled "Changes to Hydrographic Survey Processing", dated May 24, 1995. This memorandum also applies to LIDAR data.

**N. COMPARISON WITH CHART 11468 (35th Edition, April 18/98)
11466 (34th Edition, Feb 6/99)**

Hydrography

The charted hydrography originates with the prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in sections N. and S. of the Descriptive Report. Attention is directed to the following:

1) A charted note Shl rep 1994 PA, in the vicinity of Latitude 25°47'54"N, Longitude 80°05'18"W, originates with Local Notice to Mariners 34 of 1994 (LMN34/94). This is a shoal area with depths to 32 feet (9⁸ m) on the present survey. It is recommended that this note be deleted from the chart, and the area be charted as shown on the present survey.

2) The following uncharted obstructions were identified during office processing.

<u>Depth</u> <u>(ft/m)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
30/ 9 ¹ m	25°45'48.60"	80°05'23.51"
28/ 8 ⁵ m	25°45'40.02"	80°05'48.69"
33/10 m	25°45'49.68"	80°05'40.60"
34/10 ⁴ m	25°48'00.60"	80°05'19.26"
32/ 9 ⁸ m	25°47'49.76"	80°05'19.58"
33/10 m	25°47'33.71"	80°05'20.07"
32/ 9 ⁸ m	25°45'57.88"	80°05'25.41"

It is recommended that these features be charted as shown on the present survey.

3) An uncharted shoal, extending from Latitude 25°48'21"N, Longitude 80°05'21"W to Latitude 25°44'24"N, Longitude 80°05'24"W, was noted during office processing. The supplemental 36 foot (11 m) curve was drawn to accentuate the feature. It is recommended that this feature be charted as shown on the present survey.

4) A charted 54 foot (16⁵ m) depth, in the vicinity of Latitude 25°46'57"N, Longitude 80°05'06"W, is not considered disproved by the present survey. It is recommended that the depth be retained as charted.

5) A charted 14 foot (4³ m) depth, in the vicinity of Latitude 25°45'16.8"N, Longitude 80°06'58.2"W, is not considered disproved by the present survey. It is recommended that the depth be retained as charted.

6) A charted sunken wreck (PD), in the vicinity of Latitude 25°45'38"N, Longitude 80°07'44"W, originates with an unknown source and is not considered disproved by the present survey. It is recommended that the feature be retained as charted.

7) A charted 31 foot (9⁶ m) depth surrounded by the danger curve with the notation rep PA, in the vicinity of latitude 25°47'48"N, longitude 80°05'24"W, originates with LNM37/96. This feature is **not** considered disproved by the present survey. It is recommended that this feature be retained as charted. It is also recommended that this feature be brought forward to chart 11466.

8) A charted obstruction PA, in the vicinity of latitude 25°47'09"N, longitude 80°05'18.60"W, originates with LMN47/96. This feature is **not** considered disproved by the present survey. It is recommended that this feature be retained as charted.

9) A conflict exist between the present survey depths and the 25 feet (7⁶ m) authorized minimum depth in a charted **Fish Heaven** located in the vicinity of latitude 25°45'00"N, longitude 80°05'52"W. The following soundings with depths less the authorized minimum depth of 25 feet (7⁶ m) were identified during office process:

<u>Depth</u> <u>(ft/m)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
16/4 ⁸ m	25°45'05.72"	80°05'58.09"
23/6 ⁹ m	25°45'06.44"	80°05'56.03"
24/7 ³ m	25°45'06.12"	80°05'54.33"
17/5 ³ m	25°45'02.47"	80°05'58.02"
22/6 ⁷ m	25°45'01.88"	80°05'56.31"
21/6 ⁶ m	25°44'59.44"	80°05'56.48"
16/5 ⁰ m	25°44'58.93"	80°05'58.19"
20/6 ¹ m	25°44'56.22"	80°05'57.75"
22/6 ⁷ m	25°44'55.91"	80°05'55.40"
20/6 ² m	25°44'53.63"	80°05'57.56"
21/6 ⁴ m	25°44'51.09"	80°05'56.64"
24/7 ³ m	25°44'51.07"	80°05'55.02"

It is recommended that soundings from the present survey with depths less than 25 feet (7⁶ m) be charted inside the limits of this fish heaven, scale permitting. It is also recommended that the authorized minimum depth for this fish heaven be revised to 16 feet (4⁸ m).

Danger to Navigation

During office processing, two danger to navigation reports were submitted to Commander (oan), Seventh Coast Guard District, Miami, Florida for inclusion in the Local Notice to Mariners. Copies of these reports were also submitted to Navigation Information & Services, ST D 44, Bethesda, Maryland, Nautical Data Branch, N/CS26, Silver Spring, Maryland, and Operations Branch, N/CS31, Silver Spring, Maryland. A copy of each report is appended to this report.

The present survey is adequate to supersede the charted hydrography within the common area.

Controlling Depths

A conflict exists with the controlling depth in the left outside quarter of Outer Bar Cut in the vicinity of Latitude 25°45'45.5"N, Longitude 80°05'34.0"W. The present survey shows a depth of 38 feet (11⁶ m) with a controlling depth of 41.6 feet (12⁷ m) tabulated as the controlling depth for this section of the channel.

A charted note, **8 ft reported April 1983**, in the vicinity of Latitude 25°46'04.28"N, Longitude 80°08'22.18"W originates with an unknown source. This area was found to have a controlling depth of **7 feet**. It is recommended the note be

revised to read 7 ft, ^{reported} March 1997.

Bottom Samples

All bottom samples were retained as charted since no bottom samples were obtained during the course of this survey.

P. Aids to Navigation

Fifteen floating aids to navigation, four fixed aids, and one privately maintained aid are within the limits of the present survey. Aids to navigation were not located by the field unit. No changes in charting are recommended.

Submerged Pipelines

The hydrographer states that the submerged pipelines located within the limits of the survey can be easily seen on side scan sonar records. No side scan sonar operations were conducted by the contractor during survey operations. No changes in charting are recommended.

R. MISCELLANEOUS

Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland.

The following NOS Charts are used for compilation of the present survey:

11468 (35th Edition, April 18/98)
11466 (34th Edition, Feb 6/99)

S. RECOMMENDATIONS

This is an adequate basic hydrographic survey; however, due to the following deficiencies additional work is recommended.

- 1) 100% bottom coverage was not obtained.
- 2) No DGPS performance checks were conducted.
- 3) No cross lines were run.
- 4) Even though 100% coverage was achieved over most of the survey, soundings exceed the ~~STATEMENT OF WORK (SOW)~~ *There was NO STATEMENT OF WORK -*

*RPD
10/10/99*

X PD 10/8/99
~~guideline of 4-7 mm in several areas~~

5) Comparison with Chart 11468, 33rd Edition, May 4, 1996 is considered poor. Although the contractor attempted to compare the charted obstructions with survey data, they failed to resolve individual discrepancies between charted and surveyed soundings. Differences of ± 11 feet were noted. Although it is conceivable that shoaling has taken place in the area, as the survey data indicates, increases in depth should have been further investigated to determine actual changes in the bottom topography.

6) Four obstructions shown on the 33rd edition of the chart are located within the survey limits, one of which was subsequently removed on the 34th edition. The contractor failed to find the item that had been removed and instead described an area of shoal depths, the shoalest depth being 29 feet (8⁸ m), to the southeast of the removed wreck symbol. The area they pointed out already had a charted depth of 30 feet (9¹ m). The second charted obstruction investigated resulted in a plotted 32 foot (9⁸ m) depth. The third charted obstruction, a reported shoal of 36 feet (11 m), resulted in a plotted 34 foot (10⁴ m) depth. The fourth obstruction investigated was a sunken wreck (PD) which the contractor failed to prove or disprove. The contractors also failed to notice that the authorized minimum depth of 25 feet in a fish haven located in latitude 25°45'00"N, longitude 080°06'51"W had been exceeded by 10 feet (3 m) along the western edge.

7) Three additional obstructions were identified by the contractor, the most significant of which rose approximately 20 feet off the charted bottom. All three obstructions should have been further investigated and resolved as erroneous depths or dangers to navigation.

8) The number of hazards indicated by the SHOALS processing, as well as the daily flight records, would indicate periodic substandard conditions for LIDAR data acquisition.

9) According to the Descriptive Report and flight records, no fixed or floating aids to navigation were positioned, although they are depicted on the smooth sheet. The submerged pipelines within the survey area were claimed to have been seen on the side scan sonar images; no side scan sonar operations were conducted during survey operations.

10) Areas of abrupt changes in the bottom were not adequately depicted with reduced smooth sheet sounding spacing. Contouring was satisfactory and consistent with the

charted contours except in areas where the shoals have migrated seaward and in areas where point features were not contoured.

It should also be noted that survey H10748A was conducted in the area of the present survey by the Atlantic Hydrographic Party between January and April of 1998.

Robert Snow

Robert Snow
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEANIC SERVICE Office of Coast Survey
Atlantic Hydrographic Branch
439 W. York Street
Norfolk, VA 23510-1114

January 8, 1998

Commander (can)
Seventh Coast Guard District
Brickell Plaza Building
909 SE 1st Avenue
Miami, Florida 33131 3050

Dear Sir,

During office processing of the hydrographic survey conducted for the approaches to Miami, Florida (project OPR-B300 KR 97, registry H-10748), the following shoal soundings were identified as hazards to navigation. I recommend that the items be included in the next Local Notice to Mariners. The positions are based on NAD83 datum and the soundings have been reduced to Mean Lower Low Water (MLLW) using smooth tides. All items were located using Differential GPS. All data is preliminary and subject to further field work and office review.

#	Depth	Geographic Position	
		Latitude	Longitude
1	32'	25°45'57.88"N	80°05'25.41"W
2	29'	25°45'48.61"N	80°05'23.52"W
3	26'	25°45'44.94"N	80°05'24.51"W
4	27'	25°45'40.03"N	80°05'48.70"W

Affected Nautical Charts:

Chart Number	Edition Number	Date	Horizontal Datum
11451	27th	2/3/96	NAD 83
11465	32nd	4/5/97	NAD 83
11466	32nd	11/16/96	NAD 83
11467	33rd	12/14/96	NAD 83
11468	34th	4/5/97	NAD 83

The attached chartlet depicts the depths to be added in red.

Questions concerning this report should be directed to the Atlantic Hydrographic Branch by calling 757-441-6746.

Sincerely,



Nicholas E. Perugini, CDR, NOAA
Chief, Atlantic Hydrographic Branch

Attachment

NIMA-RTS
H/CS26
H/CS27



NOS Chart 11468, 34th Edition, April 5/97

Mercator Projection, 1:10,000
NAD83

Plot of shoal soundings found during contract
LIDAR hydrographic operations on survey
H-10748.

SOUNDINGS

80° 06.00' W

25° 46.00' N

Spill Area

A

T

V

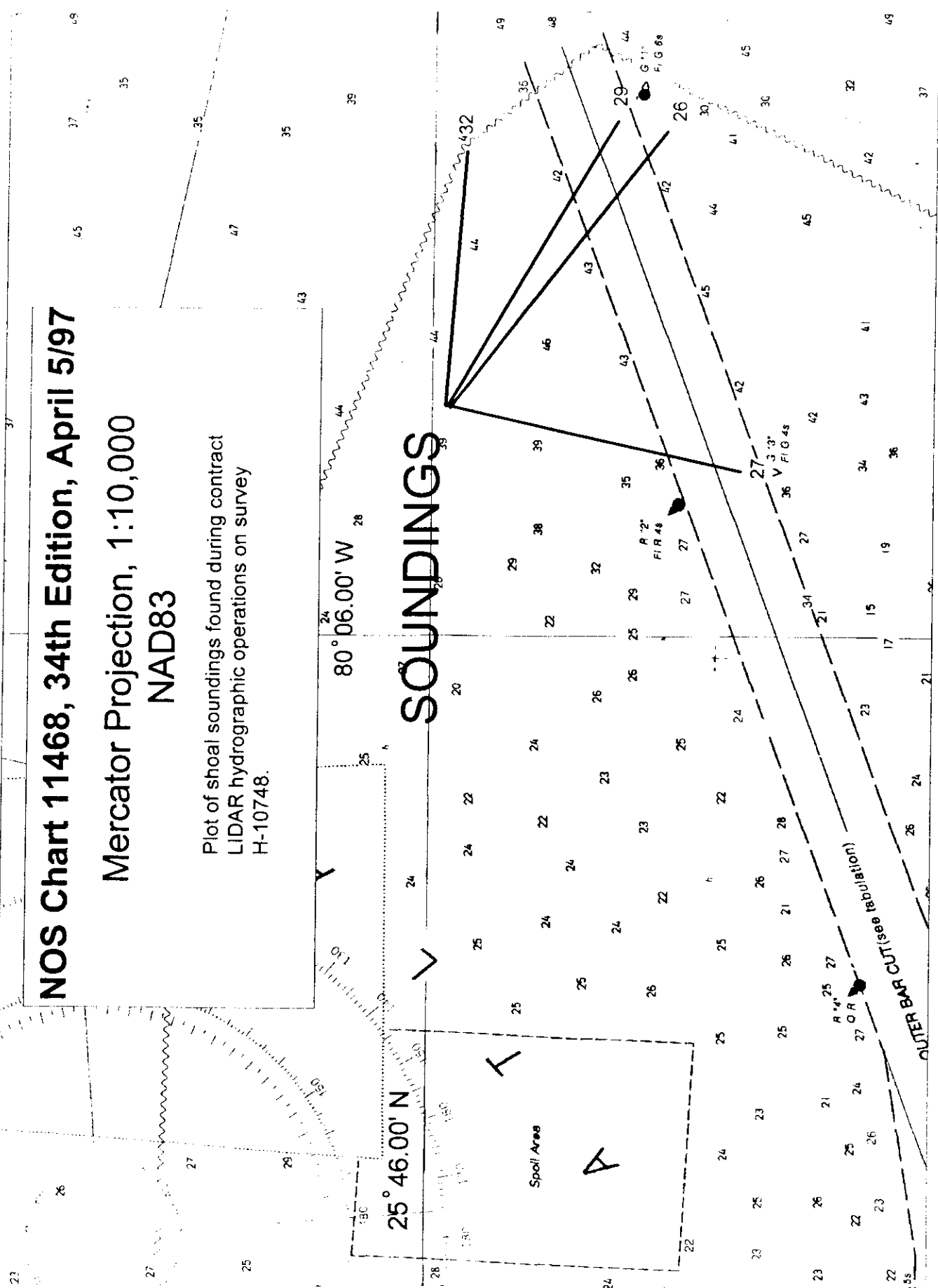
Y

OUTER BARBERS POINT (population)

R 2" FIG 48

R 3" FIG 45

G 1" FIG 88





UNITED STATES DEPARTMENT OF COMMERCE
 National Oceanic and Atmospheric Administration
 NATIONAL OCEAN SERVICE, Office of Coast Survey
 Atlantic Hydrographic Branch
 439 W. York Street
 Norfolk, VA 23510-1114

January 15, 1998

Commander (oan)
 Seventh Coast Guard District
 Brickell Plaza Building
 909 SE 1st Avenue
 Miami, Florida 33131-3050

Dear Sir,

During office processing of the hydrographic survey conducted for the approaches to Miami, Florida (project OPR-H300-KR-97, registry H-10748), the following shoal soundings were identified as hazards to navigation. I recommend that the items be included in the next Local Notice to Mariners. The positions are based on NAD83 datum and the soundings have been reduced to Mean Lower Low Water (MLLW) using smooth tides. All items were located using Differential GPS. All data is preliminary and subject to further field work and office review.

Depth	Geographic Position	
	Latitude	Longitude
34'	25°48'00.60"N	80°05'19.27"W
31'	25°47'49.76"N	80°05'19.58"W
32'	25°47'33.71"N	80°05'20.08"W
27'	25°45'12.96"N	80°05'32.85"W
23'	25°44'23.57"N	80°05'43.31"W

Affected Nautical Charts:

Chart Number	Edition Number	Date	Horizontal Datum
11451	27th	2/3/96	NAD 83
11465	32nd	4/5/97	NAD 83
11466	32nd	11/16/96	NAD 83
11467	33rd	12/14/96	NAD 83
11468	34th	4/5/97	NAD 83

The attached chartlet depicts the depths to be added in red.

Questions concerning this report should be directed to the Atlantic Hydrographic Branch by calling 757-441-6746.

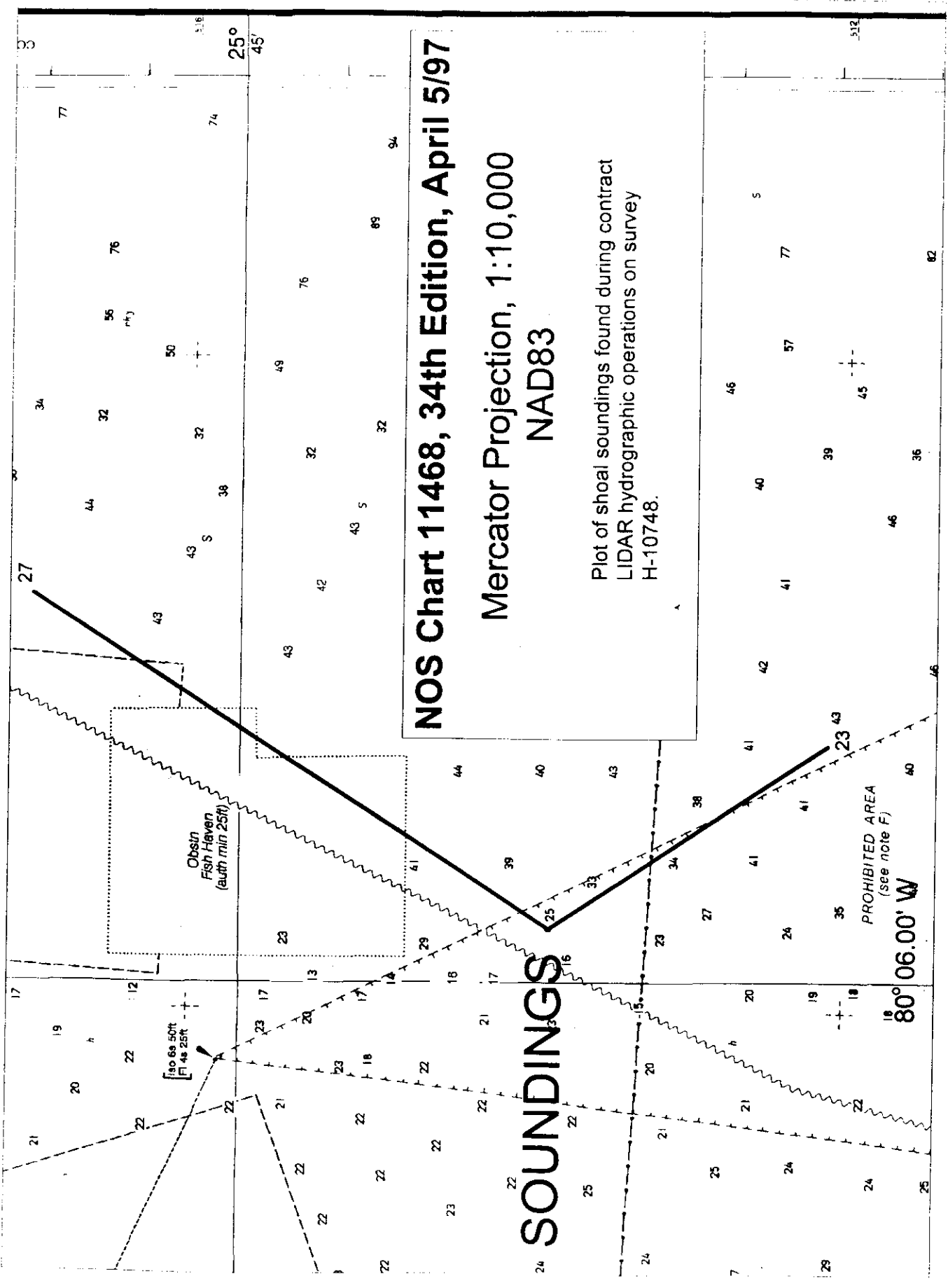
Sincerely,

Nicholas E. Perugini, CDR, NOAA
 Chief, Atlantic Hydrographic Branch

Attachment

cc: NIMA NIS
 N/CS26
 N/CS31





NOS Chart 11468, 34th Edition, April 5/97
Mercator Projection, 1:10,000
NAD83

Plot of shoal soundings found during contract
 LIDAR hydrographic operations on survey
 H-10748.

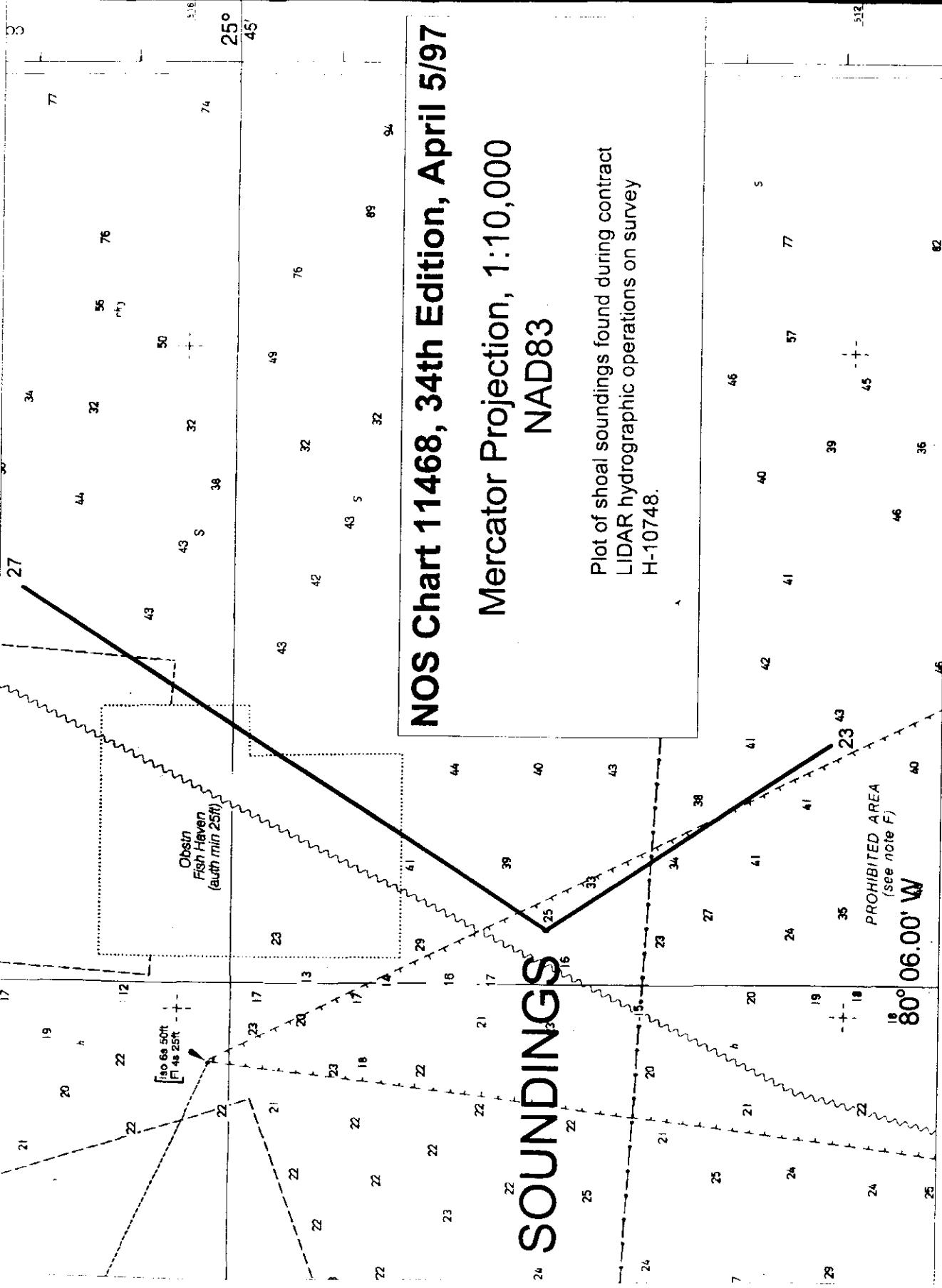
Obtain
 Fish Haven
 (auth min 25ft)

100 to 50ft
 11 to 25ft

PROHIBITED AREA
 (see note F)

80° 06.00' W

SOUNDINGS



APPROVAL SHEET
H10748 (1997)

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproof of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Richard W. Blevins Date: 10-1-98
Richard W. Blevins
Cartographer
Atlantic Hydrographic Branch

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Andrew L. Beaver Date: 3/4/99
Andrew L. Beaver
Lieutenant Commander, NOAA
Chief, Atlantic Hydrographic Branch

Final Approval:

Approved: Samuel P. De Bow, Jr. Date: October 8, 1999
Samuel P. De Bow, Jr.
Commander, NOAA
Chief, Hydrographic Surveys Division

