

H10473.

NOAA FORM 76-35A	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
Type of Survey	Hydrographic
Field No.	AHP2-10-7-93
Office No.	H-10473
LOCALITY	
State	Florida
General Locality	Biscayne Bay
Locality	Vicinity of Soldiers Key
.....	
1993	
CHIEF OF PARTY	
LCDR James E. Waddell, Jr., NOAA	
LIBRARY & ARCHIVES	
DATE	NOV 29 1994

Diagram 1248

CRIS

CP4
11465
11451A
11462
11466
11460

HYDROGRAPHIC TITLE SHEET

H-10473

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.

AHP2-10-7-93

State Florida

General locality Biscayne Bay

Locality Vicinity of Soldier Key

Scale 1:10,000 Date of survey May 19 to August 11, 1993

Instructions dated April 6, 1993 Project No. S-H901

Vessel NOAA Launch 0518

Chief of party LCDR James E. Waddell Jr. NOAA

Surveyed by Mr. Dave Elliott

Soundings taken by echo sounder, ~~XXXXXX~~ pole Innerspace model 448

Graphic record scaled by DE

Graphic record checked by DE

Verification by Gordon E. Kay Automated plot by PHS Xynetics Plotter

Evaluation by Gordon E. Kay

Soundings in ~~XXXXXX~~ meters and decimeters at ~~XXXX~~ MLLW

REMARKS: Time in UTC, revisions and marginal notes in black were generated during office processing. All separates are filled with the hydrographic data, as a result page numbering may be interrupted or non-sequential. All depths listed in this report are referenced to mean lower low water unless otherwise noted.

1-27-97
SC 11/29/94

AWOIS/SURF ✓ 10/19/94 SJV



DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10473

Field No. AHP2-10-7-93

Scale: 1:10,000

Atlantic Hydrographic Party

Chief of Party: LCDR James E. Waddell, Jr., NOAA
1993

A. PROJECT

This survey was conducted according to Hydrographic Project Instructions S-H901-AHP, Biscayne Bay, Florida, dated April 6, 1993 and Change No. 1, dated July 13, 1993. ✓

The purpose of project S-H901-AHP is to evaluate and ascertain any changes as a result of damages suffered by Hurricane Andrew during the fall of 1992. Prior surveys in this area were conducted in 1919, 1930, 1934, and 1946. ✓

The sheet letter is "B" as specified by the project instructions. ✓

B. AREA SURVEYED

The area surveyed for H-10473 is Biscayne Bay, Florida in the vicinity of Soldier Key. The approximate geographic limits are as follows:

North: 25°37'40"N
South: 25°33'40"N
East: 080°07'30"W 29"
West: 080°14'21"W

This survey was conducted from May 19, 1993 (DN 139) to August 11, 1993 (DN 223).

C. SOUNDING VESSEL

NOAA launch 0518 (EDP No. 0518), a 21-foot MonArk, was used to collect all data on this survey. ✓
No unusual problems were encountered with this launch during the survey.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Version 4.03 of the PC-DAS programs was used for on-line data acquisition. A list of all HP-DPS programs and versions used for data processing can be found in Appendix VI.* The NOS program Velocity (Ver. 2.0) and WordPerfect (Ver. 5.1) were also used during this survey.

** filed with the survey records.*

E. SONAR EQUIPMENT

No side scan sonar equipment was available for this survey. ✓

F. SOUNDING EQUIPMENT

An Innerspace model 448 depth sounder, S/N 175, was used to collect all echo soundings on this survey. A standard lead line calibrated in meters, S/N 0518, was used during this survey for comparison readings with the depth sounder. A 5-meter long, wooden sounding pole, constructed according to HSG No. 69, was used to obtain all pole soundings. No problems were encountered with any of the sounding equipment. ✓

G. CORRECTIONS TO ECHO SOUNDINGS

Corrections for the speed of sound through the water column were computed from data obtained with an Odom Hydrographic Systems Digibar (Model DB1100) speed of sound probe, S/N 155. This instrument was calibrated by the manufacturer on May 3, 1993 and data quality assurance tests were performed before each cast. Program VELOCITY was used for computing the speed of sound correctors. Speed of sound corrections were applied to soundings using the HDAPS Reapply Depth Correctors function. Copies of the tables and support documentation are in the Survey Separates.* The following speed of sound casts were taken on this survey. ✓

<u>Cast</u>	<u>Date (DN)</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Actual/Extended</u>
				<u>Depth m.</u>
01	06/02/93 (153)	25°34.0'N	080°13.0'W	4.0 / 5.2
02	06/09/93 (160)	25°35.0'N	080°12.0'W	4.0 / 5.2
03	06/16/93 (167)	25°35.5'N	080°13.0'W	4.0 / 5.2
04	06/23/93 (174)	25°35.7'N	080°13.2'W	4.0 / 5.2
05	07/07/93 (188)	25°35.0'N	080°12.0'W	4.0 / 5.2
06	07/15/93 (196)	25°34.1'N	080°05.8'W	12.0 / 15.6
07	07/27/93 (208)	25°30.6'N	080°07.8'W	8.0 / 10.4
08	08/09/93 (221)	25°30.0'N	080°07.5'W	10.0 / 13.0

The bracketing days for these casts are outlined in the table below.

<u>Cast No.</u>	<u>Table No.</u>	<u>Used for Days</u>
1	1	153-155
2	2	158-160
3	3	166-172
4	4	174-181
5	5	187-190
6	6	194-204

*filed with the survey records

7	7	211-217	✓
8	8	221-223	

Weather permitting, lead line comparisons were taken daily to determine echo sounder error. No echo sounder error was observed during these comparisons. The lead line was calibrated on May 13, 1993 with a steel tape. A copy of the leadline comparison log and the leadline calibration form can be found in the Survey Separates. A static draft of 0.3 meters was applied to on-line soundings through Offset Table No. 1 using the HDAPS Reapply Depth Correctors function. The draft was measured by subtracting the difference from a punch mark on the side of Launch 0518, 0.6 meters above the transducer, to the water surface. ✓

Settlement and squat measurements for vessel 0518 were performed on May 13, 1993 (DN 133) at the Miami, Marine Stadium using the level method; data from this test are included in the Survey Separates.* Settlement and squat correctors were applied to on-line soundings through Offset Table No. 1. ✓

The sounding plot used predicted tides determined from Haulover Pier, Florida, with the time and height correctors designated in section 5.9 of the project instructions. Approved water levels were requested from the Product and Services Branch, Datums Section, N/OES231, in a letter dated August 13, 1993. A copy is included in Appendix V of this report.* ✓

H. CONTROL STATIONS

The horizontal control datum for this project is the North American Datum of 1983. Two horizontal control stations, Key Biscayne Towers Condominium (001), and Key Biscayne Yacht Club Light No.1 (002) were used on this survey. These stations were established to 3rd-order standards with GPS by AHP personnel in May. The Horizontal Control Report and the Horizontal Control Report Addendum for these positions were submitted to N/CG23322 on May 28, 1993. These positions served as our GPS base station sites and also our launch performance checkpoint during work on this survey. Positions for these stations are shown in the Control Station ~~list in Appendix III of this report.~~ *attached.* ✓

I. HYDROGRAPHIC POSITION CONTROL

see Evaluation Report, section 2

Survey Methods

Differential GPS (DGPS) was used for all hydrographic data acquired on this survey. Ashtech M-XII receiver (S/N 700157E1075) and antenna (S/N 700228C1572) were used for the reference station. An Ashtech Sensor (S/N 700417A1054) and antenna (S/N 700378A0275) were used as the remote station on Launch 0518. Maxon VHF radios were used as the datalink between the base station receiver and the launch sensor. The primary GPS base station site (001) was set at Key Biscayne Towers Condominium. Prior to using the Key Biscayne Towers Condominium base station, the Monitor test was run for this site to check its susceptibility to multi-path problems; this test indicated 99.9% availability at a 1:10,000 survey scale. Results of this test are included in the Survey ✓

**filed with the survey records.*

Separates.

Daily DGPS performance checks were conducted in accordance with FPM 3.4.4 by comparing the DGPS position of the vessel to our computed third-order position of Key Biscayne Yacht Club Light No.1. To obtain a performance check, the launch was brought alongside the checkpoint and the Easting, Northing, number of SVs, HDOP, and time of observation were noted on the echogram. These values were then entered into a Lotus spreadsheet table which would compute the acceptable error margin (based on the HDOP) and also our observed difference between our known and observed position. The table of these comparisons is included in the Survey Separates. All of our observed differences fell well within the allowable limit. ✓

J. SHORELINE *SEE Evaluation Report, section 2*

There was no final field sheet for H-10473, as this survey was Team Processed with Pacific Hydrographic Section. The shoreline was transferred by hand from a chart blowup in brown ink. Noted changes are shown in red ink. Chart No. 11465 (1:40,000, 28th Ed., July 11, 1992) was enlarged to 1:10,000 due to no updated photography being available at the time of this survey. Shoreline verification was accomplished during inshore hydrographic data acquisition and by visual inspection. The reference number descriptions, field notes, explanations of new shoreline features, and photographs of various features are located in the daily log, on the graphic record, and on the boat sheet. Charted shoreline should be retained and superseded only by new photography when available. *do NOT concur, see Evaluation Report, section 2.*

K. CROSSLINES

A total of 59.4 linear nautical miles of crosslines were run, which represents approximately 11% of the main scheme hydrography. Crossline soundings agree with the mainscheme soundings within 0.2 meters inshore to 0.5 meters offshore. The offshore discrepancy is believed due to the difference between predicted and actual tides. *this problem was resolved with the application of approved tides.*

L. JUNCTIONS

This survey junctions with recently completed surveys H-10474 to the south and Sheet "A" to the north, both of which are 1:10,000 scale surveys from S-H901-AHP. Comparisons between survey H-10473 and H-10474 indicate good agreement between soundings and depth curves, with differences less than 0.2 meters. AHP has not begun sounding on Sheet "A." *Survey H-10493 SEE Evaluation Report Section 5.*

M. COMPARISON WITH PRIOR SURVEYS

See Pacific Hydrographic Section's Evaluation Report for H-10473. ✓

N. ITEM INVESTIGATION REPORTS

Six AWOIS reports are filed in the Descriptive Report ^{attached.} ~~Appendices, within Section VI., Supplemental Correspondence.~~

O. COMPARISON WITH THE CHART *see Evaluation Report, section 7*

Comparisons were made with the following charts:

<u>Chart No</u>	<u>Edition</u>	<u>Date</u>
11451 SC	25th	July 11, 1992
11462	21st	August 1, 1992
11463	13th	November 14, 1992
11465	28th	July 11, 1992

No dangers to navigation were found on this survey. ✓

There were six AWOIS items within this survey and are addressed in the Item Investigation reports ^{attached} ~~in Appendix VI.~~ The coordinates and descriptions of all positioned items can be found in the ✓ DP/REMARKS printout, which is included with the survey data.*

A 50-meter radius search was conducted to find a charted submerged pipe at 25°35'32"N, 080°10'27"W. The pipe was not found at this location, but rather at 25°35'32.88"N, 080°10'31.81"W (Pos. No. 109). It is exposed 0.2 meters at MLLW. ✓

Recommendation: The hydrographer recommends that the charted position of the submerged pipe ✓ be changed to the position determined by this survey. *do NOT CONCUR. Delete Charted pipe. Chart pipe as located.*

A visible pipe charted at 25°36'58"N, 080°10'34"W was searched for and found at 25°36'58.38"N, 080°10'34.37"W (Pos. No. 110). It is exposed 1.2 meters at MLLW. ✓

Recommendation: The hydrographer recommends that the charted position of the pipe be retained as charted. *do NOT CONCUR. Delete charted pipe. Chart pipe as located.*

There are charted rock symbols throughout this survey located inside of the shoal tinted areas. These areas are covered with sponges ~~and coral heads~~ that appear to look like rocks from the surface. ✓ Numerous dives were conducted to confirm this. These flats were found to be hard rocky sand bottoms with grass beds and sponges.

Recommendation: The hydrographer recommends that the rock symbols be retained as charted. ✓ *Do NOT CONCUR. Delete charted rock symbols. Chart NOTE "AREA COVERED with coral heads and sponges"*

In general, the charted soundings agreed with the present survey within 0.3 to 0.5 meters and although the depth curves were drawn in meters they reflected previously charted shoals and reefs. ✓

* Filed with the survey data.

P. ADEQUACY OF SURVEY

This basic hydrographic survey is complete and adequate to supersede all prior surveys within the common area. *CONCUR.*

Q. AIDS TO NAVIGATION

The following fixed aids to navigation are maintained by the U.S. Coast Guard and lie within the survey area. All of the aids serve their intended purpose. Aids to navigation were positioned by DGPS during hydrographic operations. Equipment and resources were not available for 3rd-order positions on these navigation aids.

<u>Pos. No.</u>	<u>USCGLL#</u>	<u>Charted Pos.</u>	<u>Survey Pos.</u>	<u>Distance/Bearing from Charted Position</u>
97	42715	25°37'00"N 080°11'30"W	25°37'01.04"N 080°11'31.5 ¹ / ₆ "W	On station
98	42755	25°36'05"N 080°13'05"W	25°36'05.14 ⁵ / ₆ "N 080°13'04.3 ⁷ / ₆ "W	On station
99	42840	25°35'58"N 080°14'11"W	25°35'57.71 ² / ₆ "N 080°14'11.0 ⁸ / ₆ "W	On station
100	42845	25°34'12"N 080°11'30"W	25°34'13.09 ¹⁰ / ₆ "N 080°11'30.9 ⁷ / ₆ "W	On station
101	9755	25°34'12"N 080°07'57"W	25°34'12.89 ⁹⁰ / ₆ "N 080°07'57.0 ¹ / ₆ "W	On station
102	9745	25°35'45"N 080°07'34"W	25°35'46.6 ⁴ / ₆ "N 080°07'33.45"W	On station

All navigation aid positions were submitted to the Seventh U.S. Coast Guard at the conclusion of S-H901-AHP. ✓

There were no overhead cables, overhead pipelines, or ferry routes within the survey limits. ✓

R. STATISTICS

Description Quantities

Total Positions	4260 4302
Total Nautical Miles of Hydrography	536.7
Sq. Nautical Miles of Hydrography	24.0
Days of Production	28

Detached Positions	14
Bottom Samples	96
Tide Stations	2
Velocity Casts	8

S. MISCELLANEOUS

Bottom samples were taken as directed in Section 6.7 of the project instructions. Bottom sample positions and descriptions are plotted on the overlay submitted with this survey, and are listed on the Oceanographic Log Sheet-M, NOAA Form 75-44, which is included in the Survey Separates, section II. *filed with the survey records.* ✓

No significant currents were encountered during this survey.

The survey launch is limited by draft to waters deeper than 0.4 meters. Because of minimal tidal ranges, we were unable to approach the inshore shoal areas which exist throughout this survey area. ✓
NOTE: The inshore limit defined by Project Instructions section 1-B is the 0.7 meter depth curve.

T. RECOMMENDATIONS

Future chart editions should have printed on them a reordering address and telephone number so when our customers wish to order the same or adjoining charts, they will not need to obtain a chart catalog. This eliminates a step in getting our product to the market place. *CONCEPT*

U. REFERRAL TO REPORTS

<u>Titles</u>	<u>Transmittal Information</u>
Horizontal Control Report for S-H901-AHP	Field Photogrammetry Section N/CG23322, Norfolk, VA (5/28/93)
Descriptive Report to Accompany Survey H-10473	Pacific Hydrographic Section N/CG245, Seattle, WA (8/30/93)
Chart Sales Agent Report	Pacific Hydrographic Section N/CG245, Seattle, WA (8/17/93)
User Evaluation Report	Pacific Hydrographic Section N/CG245, Seattle, WA (8/17/93)
Chart Inspection Report	Atlantic Hydrographic Section N/CG244, Norfolk, VA (8/17/93)

Coast Pilot Report

Pacific Hydrographic Section
N/CG245, Seattle, WA (8/23/93)



Submitted By: The Atlantic Hydrographic Party

AWOIS NO: 8478

Item Description: Visible Wreck ✓

Source: CL1943/78--CES ✓

AWOIS Position: Lat - 25/35/16.28N ✓ Lon - 080/09/53.87W ✓

Required Investigation: VS, DI, BD, SD -- 100m radius

Charts Affected: 11451, 11465

INVESTIGATION

Date(s)/DN(s): 5/26/93 (DN:146)

Position Numbers: 107

Launch Number: 0518

Investigation Used: VS, DI

Water Visibility: 15m

Position Determined By: DGPS

Investigation Summary: The charted visible wreck was found to be submerged near the charted location while searching for AWOIS No. 8473. A snorkel dive was conducted to determine dimensions and material source of vessel. The wooden remains of a ship's hull are approximately 40 feet long and 6 feet wide.

The located wreck is 49.7 meters from the reported position. ✓

CHARTING RECOMMENDATION

The hydrographer recommends that the charted visible wreck be revised to submerged wreck at the following position: *DO NOT CONCERN*
Delete the Charted Wreck. Chart Wreck at new position, uncovers. ✓

Recommended Position: Lat - 25/35/16.82N Lon -
080/09/55.54W

Recommended Least Depth: *-1.2* Am by pole at *actual tide* pred. MLLW. (1.0m raw)

COMPILATION NOTES

✓

AWOIS NO: 8470

Item Description: Submerged Obstruction

Source: CL894/79--CES ✓

AWOIS Position: Lat - 25/35/13.48N ✓ Lon - 080/09/39.57W ✓

Required Investigation: VS, BD, DI, SD -- 100m radius ✓

Charts Affected: 11451, 11465

INVESTIGATION

Date(s)/DN(s): 5/26/93 (DN:146)

Position Numbers: 103

Launch Number: 0518

Investigation Used: VS, DI

Water Visibility: 15m

Position Determined By: DGPS

Investigation Summary: The obstruction charted as Boiler was found near the charted location and positioned in approximately one meter of water. A least depth was taken by pole sounding. A snorkel dive was made to check dimensions. The obstruction is barnacle encrusted and is approximately 10 by 5 feet.

The located boiler is 7.7 meters from the reported position.

CHARTING RECOMMENDATION

The hydrographer recommends that the charted Boiler be ~~retained~~ ^{deleted.} as ~~charted~~ ^{located feature} as submerged at the following position:

Recommended Position: Lat - 25/35/13.73N Lon - 080/09/39.57⁴W

Recommended Least Depth: -0.1m by pole at ^{actual} ~~pred.~~ MLLW. (0.8m raw)

COMPILATION NOTES

Chart

Applied As

✓

ANOIS NO: 8471

Item Description: Submerged Wreck ✓

Source: CL291/73--USPS, CL894/79--CES ✓

ANOIS Position: Lat - 25/35/24.57N ✓ Lon - 080/09/44.17W ✓

Required Investigation: VS, BD, DI, SD -- 100m radius ✓

Charts Affected: 11451, 11465

INVESTIGATION

Date(s)/DN(s): 5/26/93 (DN:146)

Position Numbers: 104

Launch Number: 0518

Investigation Used: VS, DI

Water Visibility: 15m

Position Determined By: DGPS

Investigation Summary: The submerged wreck was located visually near the charted location. The hull remains are completely silted in and only the outline of the vessel remains. ✓

The located wreck is 11.9 meters from the reported position.

CHARTING RECOMMENDATION

The hydrographer recommends that the charted submerged wreck be *deleted*.
~~retained as charted~~ at the following position:
stranded wreck

Recommended Position: Lat - 25/35/24.24N Lon - 080/09/43.95W ✓

Recommended Least Depth: ^{*UNCOVERS - 0.3 actual*} ~~Awash~~ at pred. MLLW. (0.6m raw) ✓

COMPILATION NOTES

AWOIS NO: 8472

Item Description: Visible Wreck ✓

Source: CL894/79--CES ✓

AWOIS Position: Lat - 25/35/22.28N ✓ Lon - 080/09/41.57W ✓

Required Investigation: VS, BD, DI, SD -- 100m radius ✓

Charts Affected: 11451, 11465

INVESTIGATION

Date(s)/DN(s): 5/26/93 (DN:146)

Position Numbers: 105

Launch Number: 0518

Investigation Used: VS

Water Visibility: 15m

Position Determined By: DGPS

Investigation Summary: The charted location of the twenty foot cabin cruiser bearing 6.4 feet at the SW tip of Soldier Key is a large sand flat. The search radius of this item extends over this flat in a water depth of 0.5m to 1.0m. This area was searched extensively even beyond the required search radius up to 200 meters. There were no signs or evidence of any wreckage. This feature was most likely salvaged shortly after grounding. Due to limited information provided in AWOIS listing research of owner and vessel registration is difficult to find, however AHP has contacted several salvage firms in Miami, FL and we hope to bring forth documentation to aid in the removal of this wreck.

NOTE: As of 9/2/94 no additional information has been received.

CHARTING RECOMMENDATION

The hydrographer recommends that the charted visible wreck be removed from the chart at the following location: *CONCUR*

Recommended Position: Lat - 25/35/22.2⁸N Lon - 080/09/41.5⁷W ✓

Recommended Least Depth: N/A

COMPILATION NOTES

ANOIS NO: 8473

Item Description: Visible Wreck ✓

Source: CL894/79--CES ✓

ANOIS Position: Lat - 25/35/16.08N ✓ Lon - 080/09/53.77W ✓

Required Investigation: VS, BD, DI, SD -- 100m radius ✓

Charts Affected: 11451, 11465

INVESTIGATION

Date(s)/DN(s): 5/26/93 (DN:146)

Position Numbers: 106

Launch Number: 0518

Investigation Used: VS, DI

Water Visibility: 15m

Position Determined By: DGPS

Investigation Summary: The visble wreck was found to be submerged near the charted location in a two meter hole. The remains of steel wreckage and ribs of a vessel laying east to west as described. A snorkel dive was conducted on this feature to check dimensions and type of structure. The remains are approximately 50 feet long and 6 feet wide. ✓

The located wreck is 18.1 meters from the reported position.

CHARTING RECOMMENDATION

The hydrographer recommends that the charted visble wreck be revised to submerged wreck at the following position: *do NOT lower. Delete the Charted Wreck. Chart Newly located Wreck.*

Recommended Position: Lat - 25/35/16.09N Lon - 080/09/53.13W

Recommended Least Depth: *UNCOVERS actual Tide* Awash at pred. MLLW. (*-13* 0.4m raw) ✓

COMPILATION NOTES

Chart

Applied As

✓

AWOIS NO: 8495

Item Description: Partially submerged wreck. "Three Brothers" ✓

Source: LNM47/89 ✓

AWOIS Position: Lat - 25/34/15.00N ✓ Lon - 080/07/33.00W ✓

Required Investigation: BD, DI, SD -- 500m radius ✓

Charts Affected: 11451, 11465

INVESTIGATION

Date(s)/DN(s): 6/29/93 (DN:180)

Position Numbers: 2054

Launch Number: 0518

Investigation Used: SD, DI

Water Visibility: 10m

Position Determined By: DGPS

Investigation Summary: Two local salvage companies have been contacted inquiring about the PA of the partially submerged charted wreck. The fishing vessel Three Brothers broke up and sank while transiting Haitians to Miami in 1989 according to Mr. Allan Byrd of Byrd Commercial Diving. A conversation with Mr. Stewart Kopella of Atlantis Marine Towing and Salvage was identical by comparison in position of vessel and events leading to the loss of vessel. The vessel was wooden and approximately forty feet long and 15 feet wide. According to divers at A.M.T.S. the vessel had been dove on shortly after sinking and had broken up in several sections. After the passing of Hurricane Andrew the remains could not be located and have most likely been scattered along the bottom. Three divers of AHP conducted diving operations at this location with two search techniques. The first was a standard 100m circle search along the bottom at the center of the charted location. The second was a diver tow sled at 25m line spacing encompassing a 500m search radius. The search radius was reduced from 1000m to 500m due to the accounts of the salvage companies knowledge of the wreck after a conversation with N/CG241. The results of these investigations was nothing found.

Commercial Diving
3345 NW South River Dr.
305-635-1727

Atlantis Marine Towing & Salvage
Dinner Key Marina, Miami Fl
305-854-6198

CHARTING RECOMMENDATION

The hydrographer recommends that the charted visible wreck PA be removed from the chart at the following location: *CANCU*

Recommended Position: Lat - 25/34/15.0N ✓ Lon - 080/07/33.0W ✓ ✓

Recommended Least Depth: N/A

COMPILATION NOTES

CONTROL STATIONS as of 24 Sep 1993

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
001	0	025:41:00.774	080:09:27.976	49	250	0.0	0.0	05/11/93		Key Biscayne Towers Condo,1993
002	0	025:41:59.448	080:10:46.331	4	139	0.0	0.0	05/11/93		KBYC*1*,1993

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
 HYDROGRAPHIC PARTY
 GEODETIC PARTY
 PHOTO FIELD PARTY
 COMPILATION ACTIVITY
 FINAL REVIEWER
 QUALITY CONTROL & REVIEW GRP.
 COAST PILOT BRANCH
(See reverse for responsible personnel)

REPORTING UNIT
(Field Party, Ship or Office)
AHP

STATE
Florida

LOCALITY
Biscayne Bay

DATE
6/10/93

OPR PROJECT NO.
S-H901-AHP

JOB NUMBER
10-7-93

DATUM
NAD 83

DATE
6/10/93

CHARTING NAME

DESCRIPTION
(Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

CHARTS AFFECTED

POSITION
LATITUDE
D.M. Meters
LONGITUDE
D.P. Meters

OFFICE
FIELD

Light

Safety Valve Bank Lt. 1A
USCGLL # 42719

F-3-L-DGPS
11451
11465

Light

Biscayne National Park Boundary
Lt. C USCGLL #42755

F-3-L-DGPS
"

Light

Blackledge Lt. 2
USCGLL # 42840

F-3-L-DGPS
"

Light

Safety Valve Bank Lt. 1B
USCGLL # 42845

F-3-L-DGPS
"

Daybeacon

Soldier Key Dbn. 4
USCGLL # 9755

F-3-L-DGPS
"

Daybeacon

Soldier Key Dbn. 2
USCGLL # 9745

F-3-L-DGPS
"

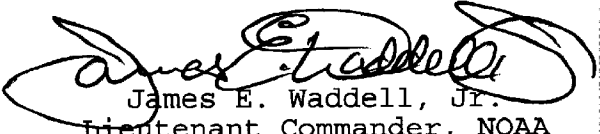
RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	David B. Elliott Atlantic Hydrographic Party 2
POSITIONS DETERMINED AND/OR VERIFIED	AHP 2
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
	FIELD ACTIVITY REPRESENTATIVE
	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.

APPROVAL SHEET

BASIC HYDROGRAPHIC SURVEY
S-H901-AHP
AHP2-10-07-93
H-10473
1993

This basic hydrographic survey was conducted in accordance with the project instructions for S-H901-AHP, the hydrographic manual, the hydrographic survey guidelines, and the field procedures manual. The survey data and reports were completed under frequent supervision. All sounding plots were reviewed in their entirety and all supporting records were also checked.

This survey is a complete basic hydrographic survey for the area described in Section B of this report.


James E. Waddell, Jr.
Lieutenant Commander, NOAA
Chief, Atlantic Hydrographic Party



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

ORIGINAL

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: December 15, 1993

MARINE CENTER: Pacific

HYDROGRAPHIC PROJECT: S-H901-AHP

HYDROGRAPHIC SHEET: H-10473 (Amended)

LOCALITY: Biscayne Bay, Florida, Vicinity of Soldier Key

TIME PERIOD: May 19 - August 11, 1993

TIDE STATION USED: 872-3232 Key Biscayne Yacht Club, Fl.
Lat. $25^{\circ} 41.9'N$ Lon. $80^{\circ} 10.2'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 3.91 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.2 ft.

TIDE STATION USED: 872-3962 Key Colony Beach, Fl.

Lat. $24^{\circ} 43.1'N$ Lon. $81^{\circ} 1.1'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 3.22 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.9 ft.

REMARKS: RECOMMENDED ZONING

1. In Biscayne Bay, west of $80^{\circ} 10.0'W$, south of $25^{\circ} 38.0'N$ and north of $25^{\circ} 33.0'N$, times and heights are direct on Key Biscayne Yacht Club, Fl. (872-3232).
2. In the Atlantic Ocean, east of $80^{\circ} 10.0'W$, south of $25^{\circ} 38.0'N$ and north of $25^{\circ} 33.0'N$, apply a -45 minute time correction and a X1.38 range ratio to all heights to Key Colony Beach, Fl. (872-3962).

Note: Times are tabulated in Eastern Standard Time.

William M. Huber
CHIEF, DATUMS SECTION





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: October 18, 1993

MARINE CENTER: Pacific

HYDROGRAPHIC PROJECT: S-H901-AHP

HYDROGRAPHIC SHEET: H-10473

LOCALITY: Biscayne Bay, Florida, Vicinity of Soldier Key

TIME PERIOD: May 19 - August 11, 1993

TIDE STATION USED: 872-3232 Key Biscayne Yacht Club, Fl.

Lat. $25^{\circ} 41.9'N$ Lon. $80^{\circ} 10.2'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 3.91 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.2 ft.

TIDE STATION USED: 872-3962 Key Colony Beach, Fl.

Lat. $24^{\circ} 43.1'N$ Lon. $81^{\circ} 1.1'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 3.22 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.9 ft.

REMARKS: RECOMMENDED ZONING

1. In Biscayne Bay, south of $25^{\circ} 43.0'N$ and north of $25^{\circ} 32.5'N$, times and heights are direct on Key Biscayne Yacht Club, Fl. (872-3232).
2. In the Atlantic Ocean, south of $25^{\circ} 38.0'N$ and north of $25^{\circ} 29.0'N$, apply a -45 minute time correction and a X1.38 range ratio to all heights to Key Colony Beach, Fl. (872-3962).

Note: Times are tabulated in Eastern Standard Time.

William M. Hester

ACTING CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

H-10473

Name on Survey	A ON CHART NO. 11465 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											
	BISCAYNE BAY	X										
FLORIDA (title)	X											2
SAFETY VALVE	X											3
SOLDIER KEY	X											4
												5
												6
												7
												8
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												25

Approved:

Charles E. Harrington
 Chief Geographer - N/CG 2x5

FEB 14 1994

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		1
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		2
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDION FILES	1				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES					

SHORELINE DATA

SHORELINE MAPS (List):	NA
PHOTOBATHYMETRIC MAPS (List):	NA
NOTES TO THE HYDROGRAPHER (List):	NA
SPECIAL REPORTS (List):	NA
NAUTICAL CHARTS (List):	

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

PROCESSING ACTIVITY	AMOUNTS			
	VERIFICATION	EVALUATION	TOTALS	
POSITIONS ON SHEET			4268	
POSITIONS REVISED				
SOUNDINGS REVISED			311	
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	82		82	
VERIFICATION OF SOUNDINGS	17		17	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	24		24	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		24	24	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		23	16	
GEOGRAPHIC NAMES				
OTHER: Digitization				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	123	47	170
Pre-processing Examination by D. Haines	Beginning Date 11/9/93	Ending Date 12/6/93		
Verification of Field Data by G. Kay	Time (Hours) 123	Ending Date 8/23/94		
Verification Check by	Time (Hours)	Ending Date		
Evaluation and Analysis by G. Kay	Time (Hours) 4	Ending Date 9/12/94		
Inspection by D. Hill	Time (Hours)	Ending Date 10/ /94		

EVALUATION REPORT

H-10473

1. INTRODUCTION

Survey H-10473 is a basic hydrographic survey accomplished by the Atlantic Hydrographic Party 2, under the following Project Instructions.

OPR-S-H901-AHP, dated April 6, 1993
CHANGE NO. 1, dated July 13, 1993

This survey was conducted in Florida, and covers an area inside the Biscayne National Monument in Biscayne Bay. The surveyed area is bounded by latitude 25/37/40N to the north and latitude 25/33/39N to the south. The eastern limit is longitude 80/07/29W. The western limit is longitude 80/14/21W. There is no shoreline within the of this survey. The bottom consists of sand, grasses and coral. Depths range from less than a meter along the shoreline to 6.9 meters east of Ragged Keys at the eastern survey limits.

Predicted tides for Haulover Pier, Florida, were used for the reduction of soundings during field processing. Approved hourly heights zoned from Key Biscayne Yacht Club, Florida, gage 872-3232 and Key Colony Beach, Florida, gage 872-3962, were used during office processing.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. NAD 83 is used as the horizontal datum for plotting and position computation. The velocity, and other correctors are adequate. An accompanying computer printout contains the parameters and the correctors.

A digital file has been generated for this survey that includes categories of information required to comply with Hydrographic Survey Guideline No. 52, Standard Digital Data Exchange Format, April 15, 1986. Certain descriptive information, however, may not be in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for a complete depiction of the survey data.

2. CONTROL AND SHORELINE

Sections H and I of the hydrographer's report contain adequate discussions of horizontal control and hydrographic positioning. Additional detailed information on horizontal control is found in the Horizontal Control Report for OPR-S-H901-AHP, dated May 28, 12.1993.

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. The quality of 57 positions exceeds limits in terms of horizontal dilution of precision (HDOP). These positions are isolated and occur randomly throughout the survey area. A review of the data, indicates that these positions are adequate and the soundings located by these fixes are consistent with the

surrounding information. These fixes are considered acceptable.

The control stations used during this survey are field values based on NAD 83. The smooth sheet and accompanying overlays are annotated with an NAD 27 adjustment tick based on values determined with the NGS program, NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: 1.390 seconds (42.783 meters)
Longitude: -0.825 seconds (-23.032 meters)

The year of establishment of control stations shown on the smooth sheet originates with the previously referenced horizontal control report and the hydrographer's signal list.

This survey is an offshore survey and does not contain any shoreline.

3. HYDROGRAPHY

Except as note below, and elsewhere in this report, hydrography is adequate to:

- a. delineate the bottom configuration, determine least depths, and draw the standard depth curves;
- b. reveal there are no significant discrepancies or anomalies requiring further investigation; and
- c. show the survey was properly controlled and soundings are correctly plotted.

The inshore limit as defined by the Project Instructions (section 1.8) is the 0.7-meter depth curve.

4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual, March 1993 Edition, except as follows.

5. JUNCTIONS

Survey H-10473 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10473	1993	1:10,000	South
H-10493	1993	1:10,000	North

The junction with surveys H-10474 and H-10493 are complete and in good agreement.

6. COMPARISON WITH PRIOR SURVEYS

Survey H-10473 was compared with the following prior surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>
H-4076	1919	1:20,000
H-5058	1930	1:20,000
H-5536	1934	1:20,000
H-5540WD	1934	1:20,000
FE-58	1946	1:20,000

Survey H-4076 covers a majority of the present survey area. Soundings compare favorably with most of the present soundings. Survey H-10473 is 0.2 to 0.4 meters deeper than the prior survey soundings.

Surveys H-5058 and H-5536 cover the entire survey area of the present survey. Soundings compare very well within 0.3 to 0.6 meters when compared to these prior surveys. The delineation of the coral reefs as defined by the present survey matches considerably well with these prior surveys.

Prior wire drag survey H-5540WD covers only a swath path on the east half of the present survey H-10473. The prior wire drag survey contains swept depths of 10 feet (3.05 meters). The present survey did not find any depths shoaler than the prior surveys cleared depth to 10 feet (3.05 meters).

FE-58 consists of pole soundings that were used to verify the aero-compiled 6-foot curves that are situated around the coral shoal areas in Biscayne Bay. This field examination was plotted on Chart 848, (old numbering system). However, the plotted survey was not available for comparison purposes.

There are no AWOIS items that originate with these prior surveys within the common area.

Except for the prior wire drag survey H-5540WD, survey H-10473 is adequate to supersede these prior surveys within the area of common coverage.

7. COMPARISON WITH CHART

Survey H-10473 was compared with the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
11465	29st	October 30, 1993	1:40,000	NAD 83
11451 SC	25th	July 11, 1992	1:80,000	NAD 83
11462	21st	August 1, 1992	1:80,000	NAD 83

a. Hydrography

The charted hydrography on the above charts originate with the previously mentioned prior surveys and miscellaneous sources. Survey H-10473 is adequate to supersede charted hydrography within the survey area.

There are numerous charted rocks located within the shoal areas of the charts. These features were reviewed and studied by the hydrographer and this cartographer. These rocks are not rocks but instead are sponges and scattered coral heads, located on the floor of the bay. All of these charted features were not investigated. However, enough were investigated to conclude that these presently charted features, "rocks" do not accurately portray the survey area. These features should be removed from the charts.

Except as noted, survey H-10473 is adequate to supersede charted hydrography within the common area.

b. AWOIS

There are six AWOIS items numbered 4627, 4632, 4641 and 4647, 8470 and 8471 that originate with miscellaneous sources and were assigned for investigation. The disposition of these AWOIS items may be found in the AWOIS item investigation write-ups attached to the descriptive report.

c. Controlling Depths

There are no charted channels with controlling depths within the limits of this survey.

d. Aids to Navigation

There are six fixed aids to navigation located within the limits of this survey. These aids were not located to 3rd-order class I, survey requirements as requested in the Project Instructions, section 4.2.1. However, hydrographic positions were obtained on all of them. All of these fixed aids agree with the charted position. Their positions are on the enclosed NOAA form 76-40.

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

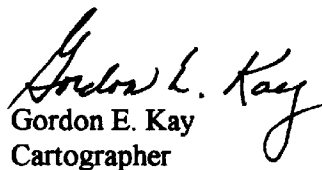
There were no dangers to navigation discovered during the course of this survey. No dangers were found during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10473 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is a good hydrographic survey. Additional field work is not recommended.


Gordon E. Kay
Cartographer

APPROVAL SHEET
H-10473

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproval of charted data. The digital data have been completed and all revisions and processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts have been made and are included with the survey records. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

[Signature]
for Dennis J. Hill
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

Date: 10-31-94

I have reviewed the smooth sounding plot, 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.

[Signature]
Commander Kathy A. Timmons, NOAA
Chief, Pacific Hydrographic Section

Date: 11/21/94

Final Approval

Approved:

[Signature]
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

Date: 12-2-94

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10473

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
11460	11/20/94	Gordon E. Kay	Full Part Before After Marine Center Approval Signed Via Drawing No. Examined, no corrections and soundings applied.
11465	6/6/95	L. Stannard	Full Part Before After Marine Center Approval Signed Via Drawing No. #61
11451(A)	6-18-95	L. Stannard	Full Part Before After Marine Center Approval Signed Via Drawing No. #27 thru Cht 11465 #61
11462	6-12-95	L. Stannard	Full Part Before After Marine Center Approval Signed Via Drawing No. Exam no Cort's 3-E Area
11466	8/23/95	L. Stannard ^{PS}	Full Part Before After Marine Center Approval Signed Via Drawing No. #50 Apr 2 thru Cht 11465 #61
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
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