H10666

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. AHP-10-3-96

Registry No. H-10666

LOCALITY

State Texas

General Locality Galveston Bay

Sublocality Ash Lake to Spilmans Island

19 96

CHIEF OF PARTY
LT J. A. Illg

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NOAA FORM 77-28 (10/72) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTER NO.
HYDROGRAPHIC TITLE SHEET	H-10666
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. AHP-10-3-96

State Texas

General locality Galveston Bay

Locality Ash Lake to Spilmans Island

Scale 1:10,000 Date of survey 2/8/96 (DN 039) to 2/15/96 (DN 046)

Instructions dated 9-16-96 Project No. OPR-K204-AHP

Vessel NOAA Launch 518

Chief of party James A. Illg, LT, NOAA

Surveyed by David B. Elliott

Soundings taken by echo sounder, hand lead, pole Innerspace Model 448 echo sounder

Graphic record scaled by DBE, PMW, JBG

Graphic record checked by DBE

Protracted by Automated plot by Bruning Zeta 824 plotter (FIELD)

Verification by Atlantic Hydrographic Branch PERSONNEL

Soundings in meters feet at MLW MLLW

REMARKS: DBE - David B. Elliott

JBG - John B. Gaskin

PMW - Philip M. Wolf

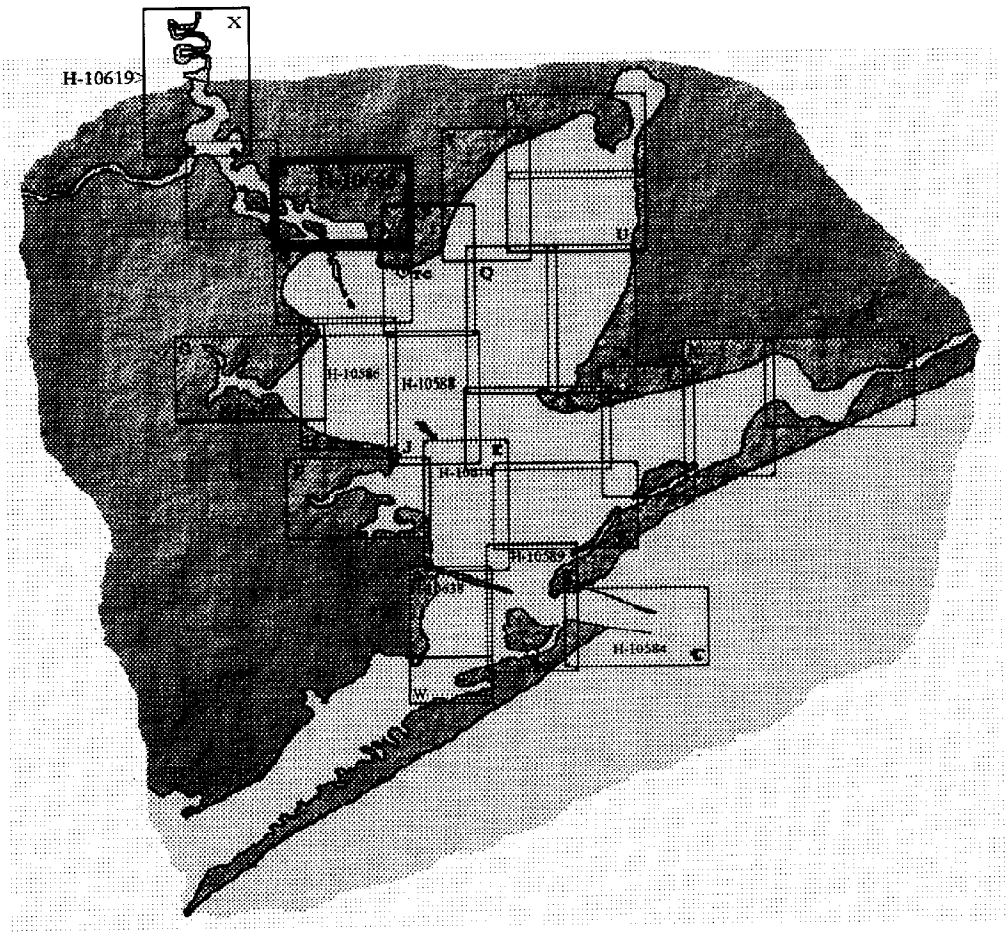
NOTES IN RED WERE MADE DURING OFFICE PROCESSING

AWOIS/SURF 12/11/97 MCR

NOAA FORM 77-28 SUPERSEDES FORM C & GS-837.

This form was electronically produced by Elite Federal Forms, Inc.

Atlantic Hydrographic Party
Galveston Bay
OPR-K204-AHP
Index of Sheets



DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10666
FIELD NO. AHP-10-3-96
SCALE: 1:10,000
1996
ATLANTIC HYDROGRAPHIC PARTY
CHIEF OF PARTY: LT James A. Illg, NOAA

A. PROJECT

This survey was conducted according to Hydrographic Project Instructions OPR-K204-AHP, Galveston Bay, Texas, dated September 16, 1994, change No. 1, dated June 6, 1995, change No. 2, dated October 26, 1995, and change No. 3, dated April 3, 1996.

Project OPR-K204-AHP is in response to requests from the Houston Pilots Association, Houston/Galveston Navigation Safety Advisory Committee, West Gulf Maritime Association, Houston Safe Boating Council, Inc., and the U. S. Coast Guard, for updated hydrographic and bathymetric data of this area for use in proposed studies and in the creation of new charts. Prior surveys in this area were conducted in the years between 1962-1965.

This survey is designated as sheet "S."

B. AREA SURVEYED

The area surveyed for H-10666 covers the Houston Ship Channel from Morgans Point to the new Baytown bridge over the ship channel. Also included in the survey area is the Cedar Bayou extension channel from its junction with the Houston Ship Channel to Ijams Lake. The survey was limited to a 200-meter swath on each side of the Houston Ship Channel and left side, center and right side channel lines in the Cedar Bayou extension. The approximate survey limits are:

North: 29°42.2'N
South: 29°40.2'N
East: 094°55.2'W
West: 095°00.5'W

This survey was conducted from February 8, 1996 (DN 039) to February 15, 1996 (DN 046).

C. SURVEY VESSELS

NOAA launch 0518, a 21-foot MonArk, was used to collect all survey data. There were no unusual vessel configurations nor problems encountered.

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

Version 5.01 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 the Appendix of this report.* The NOS program VELOCITY (Ver. 2.10) and WordPerfect (Ver. 6.0) were also used during this survey.

E. SONAR EQUIPMENT

Non-Applicable.

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 echo sounder. A five-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

Correctors for the velocity of sound through water were determined from the casts listed below:

Velocity Table No.	Cast No.	Deepest Depth(m)	Applicable DN	Cast Position	Day
1	1	18.4	39, 40	29°42.05' 095°00.5'	038
2	2	15.8	43, 44, 46	29°40.9' 094°58.9'	046

These casts were taken with a Seabird Seacat Velocity Profiler, Model 19-03, S/N 198671-1477. This instrument was calibrated by the manufacturer on February 8, 1995 and data quality assurance tests were performed prior to each cast. Program VELOCITY was used for computing the speed of sound correctors. Speed of sound corrections were applied to the sounding plot using the HDAPS program REAPPLY. Copies of the velocity tables and support documentation are in the "Survey Separates." *

* FILED WITH THE ORIGINAL FIELD DATA

Lead line comparisons were taken daily to determine echo sounder error. No echo sounder error was observed. The lead line comparison logs are in the "Survey Separates." The lead lines were calibrated using a steel tape on December 7, 1994 for launch 0518. No corrections were necessary. A copy of the calibration form is in the "Survey Separates." *

A static draft of 0.3 meters was applied to the final sounding plot by the HDAPS program REAPPLY. The draft was measured by subtracting the difference from a punch mark on the side of launch 0518, 0.6 meter above the transducer, to the water surface.

Settlement and squat measurements for launch 0518 were determined on December 6, 1994 (DN 340). These measurements were conducted in the Galveston Ship Channel in Galveston, TX, using the level method. The data from this test is included in the "Survey Separates." * Settlement and squat correctors were applied to the final sounding plot using the HDAPS program REAPPLY.

Predicted tides for this project were provided on diskette by the Product and Services Branch, Datums Section, N/OES231 for the Galveston Pier 21, Texas, reference station number 877-1450. Correctors for one tidal zone on sheet "S" were used as designated by the Project Instructions. The zone was numbered and is defined by the following geographic location:

Zone # 16 = north of Morgans Point (approximately 29°40.0'N) and south of a line between Brownwood Point (approximately 29°44.8'N, 095°3.0'W) and the southeastern tip of Barnes Island (approximately 29°43.7'N, 095°03.0'W). Time and height correctors for zone 16 are:

	Time (min.)		
	High Water	Low Water	Range Ratio
zone # 16	+4:54	+4:42	x0.96

All elevations and soundings on survey H-10666 are at the sounding datum of MLLW unless otherwise specified.

Approved water levels were requested from the Product and Services Branch, Datums Section, N/OES231, in a letter dated October 15,1996. A copy is included in the appendices of this report. * APPROVED TIDES AND ZONING WERE APPLIED DURING OFFICE PROCESSING

H. CONTROL STATIONS SEE ALSO THE EVALUATION REPORT.

The horizontal control datum for this project is the North American Datum of 1983. The control base station used for this survey was the USCG Galveston Radio Beacon, at position 029°19'45.092"N, 094°44'10.484"W.

* FILED WITH THE ORIGINAL FIELD RECORDS.

I. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used for all positioning of hydrographic data acquired on this survey. An Ashtech Sensor (S/N 700417A1065) and antenna were used as the remote station on launch 0518.

A DGPS performance check was conducted at the beginning and again at the end of survey operations in accordance with FPM 3.4.4 by comparing the DGPS position of the vessel to the third-order position of station, CG 16,1974 (29°19'58.72712N, 094°46'22.78417W). 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 the known and observed position. The table of these comparisons is included in the "Survey Separates." Both of our observed differences fell well within the allowable limit.

J. SHORELINE SEE ALSO THE EVALUATION REPORT

There was no final field sheet for H-10666 because this project was team processed with the Atlantic Hydrographic Branch. This survey was conducted within 200m limits on either side of the Houston Ship Channel as well as left, center, and right side channel lines in the Cedar Bayou Extension Channel. No shoreline exists within these survey limits. Shoreline shown on the boat sheet in brown ink was applied from chart 11328, 18th ed., Nov 28/92, for orientation purposes only.

K. CROSSLINES

A total of 8.6 linear nautical miles of crosslines were run, which equals approximately 14% of the main scheme hydrography mileage. Crossline soundings agree with the main scheme soundings within 0.2 to 0.6 meters. The application of smooth tides will create a closer agreement in sounding comparison.

L. JUNCTIONS SEE ALSO THE EVALUATION REPORT.

This survey junctions with H-10663, 1996 to the north, and H-10661, 1996 to the south. Both are 1:10,000 scale surveys. Junction soundings between this survey and both junction surveys are in good agreement, with differences of 0.5 meters or less. The application of smooth tides will improve the agreement.

M. COMPARISON WITH PRIOR SURVEYS

See the Atlantic Hydrographic Branch's Evaluation Report for H-10666.

N. ITEM INVESTIGATION REPORTS

All AWOIS reports are filed in the Descriptive Report appendices. Ten AWOIS items were addressed on this survey. APPENDED TO THIS REPORT

O. COMPARISON WITH THE CHART SEE ALSO THE EVALUATION REPORT

Comparison was made with the following chart:

Chart No.	Edition	Edition Date
11328	19th	May 6/95

No Dangers to Navigation were identified by this survey.

No depths shallower than those shown in the charted tabulation of controlling depths for the Houston Ship Channel were found on this survey.

Depths in the Cedar Bayou Channel from the Houston Ship Channel eastward to the first bend (approximately 29°40'25"N, 094°55'51"W) agree with the charted tabulation. Depths eastward of the first bend are 0.8 - 1.3 meters deeper than the tabulated controlling depth.

Soundings throughout the survey area but outside of the channels were found as much as 2 feet deeper than charted.

An island charted at 29°40'15"N, 094°58'24"W, no longer exists. Least depths of 0.9 (3 FT) meter were found on junction survey H-10661 at 29°40'16.5"N, 094°58'27"W. This survey found a least depth of 0.7 (2.3 FT) meters at 29°40'19.5"N, 094°58'27"W. The charted area surrounding the island is also much deeper, with depths of 2.4 meters in areas currently charted as uncovering.

There were no charted features investigated within the survey limits other than the AWOIS items resolved on this survey.

P. ADEQUACY OF SURVEY SEE ALSO THE EVALUATION REPORT.

This limited area basic hydrographic survey of the Houston Ship Channel and the Cedar Bayou Channel is adequate to supersede all prior surveys within their common areas.

Q. AIDS TO NAVIGATION SEE ALSO THE EVALUATION REPORT.

The following fixed aids to navigation are maintained by the U.S. Coast Guard and lie within the survey area. All of the aids, including those found off station on this survey, serve their intended purpose. The following table shows a comparison of survey and U.S.C.G. Light List, Volume 4, 1996 positions when applicable, as well as the difference between the surveyed and the charted locations.

Fixed Aids:

Houston Ship Channel

Pos. No.	Name and USCGLL#	LL Position	Survey Pos.	Distance/Bearing from Charted Pos.
1878	Light 99 23575	None	29°41'54.6"N 095°00'04.3"W	On Station
1884	Barbours Cut Junc Lt 33 BC 23525	29°41.2'N 094°59.2'W	29°41'12.3"N 094°59'09.9"W	40 meters NNW
1885	Light 91 23375	29°41.0'N 094°59.0'W	29°40'59.0"N 094°58'59.9"W	25 meters S
1886	Light 90 23350	None	29°40'25.7"N 094°58'37.5"W	130 meters NNW
1887	Light 89	29°40.3'N 094°58.7'W	29°40'22.7"N 094°58'46.2"W	130 meters NNW
2434	Lower Red Lt Bend OB Rng Front Lt 23835	29°42.0'N 094°59.8'W	29°41'57.2"N 094°59'47.1"W	70 meters ESE on range
2437	Lower Red Lt Bend OB Rng Rear Lt 23840	None	29°41'56.5"N 094°59'42.8"W	On Station
2438	Morgans Pt App Inner Rng Front Light 23355	29°41.4'N 094°59.1'W	29°41'22.3"N 094°59'04.7"W	On Station

2439	Upper Morgans Pt OB Rng Front Light 23545	29°41.2'N 094°58.9'W	29°41'10.8"N 094°58'53.9"W	On Station
2440	Barbours Cut Crossing Rng Front Light 23380	29°40.7'N 094°58.7'W	29°40'42.6"N 094°58'40.5"W	On Station
2441	Barbours Cut Crossing Rng Rear Light 23385	None	29°40'37.0"N 094°58'36.3"W	On Station
Cedar Bayou Channel				
2336	Daybeacon 6 23400	None	29°41'13.4"N 094°58'27.1"W	20 meters SSW
2338	Daybeacon 10 23410	None	29°41'18.6"N 094°58'07.3"W	On Station
2340	Light 14 23420	29°41.3'N 094°57.9'W	29°41'19.1"N 094°57'55.2"W	On Station
2341	Daybeacon 16 23425	None	29°41'12.4"N 094°57'41.3"W	On Station
2342	Daybeacon 18 23430	None	29°41'05.3"N 094°57'25.0"W	10 meters E
2343	Daybeacon 20 23435	None	29°40'54.1"N 094°57'00.5"W	On Station
2344	Daybeacon 22 23440	None	29°40'45.5"N 094°56'41.9"W	On Station
2345	Light 23 23445	29°40.7'N 094°56.5'W	29°40'41.0"N 094°56'27.3"W	On Station
2346	Daybeacon 24 23450	None	29°40'37.8"N 094°56'27.7"W	On Station
2347	Daybeacon 25 23455	None	29°40'31.6"N 094°56'16.6"W	On Station
2348	Daybeacon 26 23460	None	29°40'29.9"N 094°56'18.2"W	On Station

2349	Daybeacon 27 23465	None	29°40'23.8"N 094°56'08.2"W	15 meters E
2350	Daybeacon 28 23470	None	29°40'22.6"N 094°56'10.0"W	15 meters SSW
2351	Daybeacon 29 23475	None	29°40'21.0"N 094°56'02.2"W	On Station
2352	Light 30 23480	None	29°40'18.3"N 094°55'55.3"W	35 meters SSW
2353	Light 31 23485	None	29°40'21.4"N 094°55'54.4"W	15 meters S
2354	Daybeacon 33 23490	None	29°40'27.2"N 094°55'48.1"W	On Station
2355	Daybeacon 35 23495	None	29°40'38.9"N 094°55'45.0"W	On Station
2356	Light 37 23500	None	29°40'53.1"N 094°55'37.3"W	On Station
2357	Daybeacon 38 23505	None	29°40'59.7"N 094°55'20.4"W	On Station
2358	Daybeacon 39 23510	None	29°41'01.2"N 094°55'22.0"W	20 meters SW
2359	Daybeacon 40 23515	None	29°41'08.2"N 094°55'12.0"W	On Station

Floating Aids:

There are 9 floating aids to navigation within the limits of H-10666. All of them were located by detached position and are listed on the DP/Remarks Listing for this survey in the appendices of this report. All aids serve their intended purpose.

The overhead power cables crossing the Houston Ship Channel from 29°41'02"N, 094°59'10"W to 29°41'23"N, 094°59'06"W, still exist and should remain as charted. Two charted cable and pipeline areas, one centered at 29°41'30"N, 094°59'30"W and the other centered at 29°40'45"N, 094°55'45"W, should also remain as charted.

There are no bridges or ferry routes within the limits of this survey.

R. STATISTICS

Description	Quantity
Total Number of Positions	2408
Total Lineal Nautical Miles of Hydrography	61.5
Square Nautical Miles of Hydrography	1.0
Days of Production	5
Detached Positions	50
Bottom Samples	0
Tide Stations	2
Velocity Casts	2

S. MISCELLANEOUS SEE ALSO THE EVALUATION REPORT.

No bottom samples were taken on this survey. No tidal anomalies were observed during this survey. The hydrographer noticed that wind impacts the water levels as much or more than tides in the survey area. This factor was dependent upon the fetch, duration and velocity of the wind.

T. RECOMMENDATIONS

No additional field work was identified after field processing completion. Specific recommendations are made on the Item Investigation Reports appended, and in section O. of this report.

U. REFERRAL TO REPORTS

Title	Transmittal Information
Descriptive Report to Accompany Survey H-10663	Atlantic Hydrographic Branch N/CS33, Norfolk, VA (10/96)
Descriptive Report to Accompany Survey H-10661	Atlantic Hydrographic Branch N/CS33, Norfolk, VA (11/96)

Submitted by: Brian A. Finke for David B. Elliott
Atlantic Hydrographic Party
Hydrographer in charge - Launch 0518

APPROVAL SHEET
Basic Hydrographic Survey
OPR-K204-AHP
AHP-10-3-96
H-10666
1996

This limited area basic hydrographic survey was conducted in accordance with the Project Instructions for OPR-K204-AHP, the Hydrographic Manual, the Hydrographic Survey Guidelines, and the Field Procedures Manual. All reports, records, and survey sheets were reviewed by Mr. Brian A. Link, Assistant Chief of Party. The descriptive report was reviewed and approved by the Chief of Party. Mr. David B. Elliott was the Hydrographer-in-charge of daily operations. The Chief of Party did not directly supervise any part of this survey. LT Kevin N. Harbison was Chief of Party at the time this survey was conducted, but transferred before the survey was submitted.

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

James A. Illg

James A. Illg, LT, NOAA
Chief, Atlantic Hydrographic Party

Brian A. Link

for David B. Elliott
Hydrographer-in-charge of daily operations

AWOIS NO: 9616

Item Description: Submerged Wreck

Source: H8742/62-63, CL1696/73 USPS

AWOIS Position: **Lat** - 29/40/21.92N **Lon** - 094/58/58.73W

Investigation Techniques: BD, S2, SD, DI, -- 30m radius

Charts Affected: 11326, 11328

INVESTIGATION

Date(s)/DN(s): 02/13/96 (DN:044)

Position Numbers: 2364 **Launch Number:** 0518

Investigation Used: VS **Water Visibility:** 2m

Position Determined By: DGPS

Investigation Summary: A visual search of the 30m radius area was conducted in water which was 2m deep with the bottom clearly visible. The bottom in this area was found clear of any debris. ~~Piles~~ DOLS charted in this area were located by detached position on the center of three 10" diameter wooden ~~piles~~. DOLPHINS

CHARTING RECOMMENDATION

The hydrographer recommends that the SUBM wreck ED be removed from the chart. A ~~pile~~ CONCR DOLPHIN symbol should be retained on the chart at the recommended position listed below. SEE ALSO SECTION M.2.b. OF THE EVALUATION REPORT.

Recommended Position: **Lat** - 29°40'22.62"N **Lon** - 094°58'59.74"W

Recommended Least Depth: Exposed 1.0m above water surface at time of survey. (3FT @ MLLW)

****

COMPILATION NOTES

DELETE SUBM WK ED

AWOIS NO: 9617

Item Description: Submerged Wreck ED

Source: H8742/62-63, CL1696/73 USPS

AWOIS Position: **Lat** - 29/40/23.82N **Lon** - 094/59/05.98W

Investigation Techniques: BD, SD, DI, -- 30m radius

Charts Affected: 11326, 11328

INVESTIGATION

Date(s)/DN(s): 02/13/96 (DN:044)

Position Numbers: 2365 **Launch Number:** 0518

Investigation Used: VS, ES **Water Visibility:** 2m

Position Determined By: DGPS

Investigation Summary: A visual and echo sounder search of the required area was conducted in water depths of 1.5 meters. The bottom was clearly visible. Two, 3 foot long piles, 8" in diameter, were found lying on their sides at this location. The piles lie in a scour and are completely detached from the bottom. No evidence of the wreck was seen.

CHARTING RECOMMENDATION

The hydrographer recommends that the SUBM wreck ED be removed from the chart. No recommendation is made to chart the piles since they are detached from the bottom and movable by currents and sea action. CONCUR

Recommended Position: **Lat** - **Lon** -

Recommended Least Depth:

****

COMPILATION NOTES

DELETE SUBM WRECK ED (X) ED

AWOIS NO: 9618

Item Description: Wreck (Wonda Lou II)

Source: NM39/61

AWOIS Position: **Lat** - 29/40/30.81N **Lon** - 094/58/54.73W

Investigation Techniques: BD, SD, DI -- 75m radius

Charts Affected: 11326, 11328

INVESTIGATION

Date(s)/DN(s): 02/13/96 (DN:044)

Position Numbers: 2367 **Launch Number:** 0518

Investigation Used: VS, DI, SD, BD **Water Visibility:** 2m

Position Determined By: DGPS

Investigation Summary: The wreck, which lies in a charted foul area, was found lying at the waters edge. The wreck is 6 meters long by 2 meters wide and very dilapidated.

CHARTING RECOMMENDATION

Because the wreck is lying at the waters edge and is very dilapidated, the hydrographer recommends that the wreck be removed from the chart. The foul area should remain as charted. Concur

Recommended Position: **Lat -** **Lon -**

Recommended Least Depth: N/A

****

COMPILATION NOTES

DELETE SUBM WRECK PA

EXT PA

AWOIS NO: 9628

Item Description: Obstruction (Stakes)

Source: BP69322—COE/Port of Houston Authority

AWOIS Position: Lat - 29/40/35.80N **Lon** - 094/58/37.50W

Investigation Techniques: VS, BD, SD

Charts Affected: 11327

INVESTIGATION

Date(s)/DN(s): 02/13/96 (DN:044)

Position Numbers: 2368 (reference) **Launch Number:** 0518

Investigation Used: VS, BD, SD **Water Visibility:** 2m

Position Determined By: DGPS

Investigation Summary: A visual search of the area, with the bottom clearly visible revealed no evidence of stakes in this area. This was confirmed by a telephone conversation with Mr. Richard Whitmire (409) 766-6315 from the Galveston Office of the U.S. Army Corps of Engineers, who said the stakes were removed after dredging.

CHARTING RECOMMENDATION

The hydrographer recommends that the stakes be removed from the chart. Concur

Recommended Position: Lat - **Lon -**

Recommended Least Depth:

****

COMPILATION NOTES

DELETE 6 STAKES

AWOIS NO: 9629

Item Description: Sounding

Source: CL225/80 – COE / Port of Houston Authority

AWOIS Position: **Lat** - 29/40/57.50N **Lon** - 094/59/00.00W

Investigation Techniques: ES – within channel

Charts Affected: 11326, 11228

INVESTIGATION

Date(s)/DN(s): 02/13/96 (DN:044)

Position Numbers: 2371 - 2394 **Launch Number:** 0518

Investigation Used: ES **Water Visibility:**

Position Determined By: DGPS

Investigation Summary: A left side, centerline, and right side channel line of hydrography was run. The channel, which is narrow and unmarked was found to have a controlling depth of 14.4 feet on the centerline corrected by predicted tides.

CHARTING RECOMMENDATION

The controlling depth of this channel should be revised to reflect depths found by this survey after the application of approved tide heights. Concur

Recommended Position: **Lat** - 29°40'57.5"N **Lon** - 094°59'00.00"W

****

COMPILATION NOTES

Revise note 50: "14ft rep feb 1996"

AWOIS NO: 9630

Item Description: Obstruction (dolphin)

Source: BP83794 – 1972, Port of Houston

AWOIS Position: **Lat** - 29/40/59.00N **Lon** - 094/59/00.20W

Investigation Techniques: VS, BD, DI -- 30m radius

Charts Affected: 11326, 11328

INVESTIGATION

Date(s)/DN(s): 02/13/96 (DN:044)

Position Numbers: 2369 **Launch Number:** 0518

Investigation Used: VS **Water Visibility:** 2m

Position Determined By: DGPS

Investigation Summary: The dolphins were located visually and a detached position was taken on at the center of two side by side dolphins, approximately 8m in diameter. The dolphins are steel pilings with concrete caps used as ship moorings. Each of the dolphins are lighted.

CHARTING RECOMMENDATION

The charted "Dols Lighted" symbol should be revised to the recommended position below.

Recommended Position: **Lat** - 29°40'59.30"N **Lon** - 094°59'02.44"W

Recommended Least Depth: Exposed 6.0 meters at the time of survey.

****

COMPILATION NOTES

CHARTED ON THE LATEST EDITION OF CHART 11328 (20TH ED., MAR 15/97)
RETAIN AS CHARTED.

AWOIS NO: 9631

Item Description: Wreck PA (SUBM)

Source: LNM5/89

AWOIS Position: **Lat** - 29/41/00.80N **Lon** - 094/59/00.70W

Investigation Techniques: S2, BD, SD, DI -- 60m radius

Charts Affected: 11326, 11328

INVESTIGATION

Date(s)/DN(s): 02/13/96 (DN:044)

Position Numbers: 2370 **Launch Number:** 0518

Investigation Used: VS, ES, DI **Water Visibility:** 2m

Position Determined By: DGPS

Investigation Summary: A wreck matching the AWOIS description was found at the waters edge in less than 1m of water and lying amongst rip-rap and other debris. The wreck is a small fishing vessel about 14 feet long. The wreck is very dilapidated. The wreck was found at 29°40'54.48"N, 094°59'02.98"W.

CHARTING RECOMMENDATION

Because of the condition and location, this SUBM PA wreck should be removed from the chart. CONCUR

DO NOT CHART WRECK LOCATED BY THE HYDROGRAPHER

Recommended Position: **Lat** - **Lon** -

Recommended Least Depth:

****

COMPILATION NOTES

AWOIS NO: 9632

Item Description: Obstruction (piles)

Source: CL1144/75 USPS Report

AWOIS Position: **Lat** - 29/41/11.00N **Lon** - 094/58/27.00W

Investigation Techniques: VS, SD – no search radius assigned

Charts Affected: 11326, 11328

INVESTIGATION

Date(s)/DN(s): 02/13/96 (DN:044)

Position Numbers: **Launch Number:** 0518

Investigation Used: VS, Local Knowledge **Water Visibility:**

Position Determined By: DGPS

Investigation Summary: A telephone conversation with Mr. Richard Whitmire (409)766-6315, from the Galveston office of the U.S. Army Corps of Engineers, revealed that these piles were removed.

CHARTING RECOMMENDATION

References to these piles along the Cedar Bayou Channel should be removed from the chart. Concur

Recommended Position: **Lat** - **Lon** -

Recommended Least Depth:

****

COMPILATION NOTES

Delete 3 Notations "Piles Reported"

AWOIS NO: 9633

Item Description: Submerged Wreck

Source: CL1104/80—USPS Report

AWOIS Position: Lat - 29/40/47.81N **Lon** - 094/55/38.23W

Investigation Techniques: VS, ES

Charts Affected: 11326, 11328

INVESTIGATION

Date(s)/DN(s): 02/12/96 (DN:043)

Position Numbers: 2363 **Launch Number:** 0518

Investigation Used: VS, ES, DI **Water Visibility:**

Position Determined By: DGPS

Investigation Summary: The wreck was located by visual search and a detached position was taken. The wreck consists of wooden ruins of the ribs and stem, 15 meters long by 4-5 meters wide.

CHARTING RECOMMENDATION

Recommended Position: Lat - 29°40'49.68"N **Lon** - 094°55'36.93"W

Recommended Least Depth: Awash at time of survey

****

COMPILATION NOTES

DELETE JUDY WRECK PA. RETAIN CHARTED HULK SHOWN ON 20TH EDITION OF CHART 11328

AWOIS NO: 9634

Item Description: BARGE

Source: BP77451/69 Air Photo Revision

AWOIS Position: **Lat** - 29/40/51.30N **Lon** - 094/55/30.20W

Investigation Techniques: VS, ES, BD, SD, DI, ## -- 50m radius

Charts Affected: 11326, 11328

INVESTIGATION

Date(s)/DN(s): 02/12/96 (DN:043)

Position Numbers: ~~2360~~ - 2361 **Launch Number:** 0518

Investigation Used: VS, BD, DI, SD **Water Visibility:** 2m

Position Determined By: DGPS

Investigation Summary: A visual search of the area found the barge wreck adjacent to the shoreline and being used as a pier. The wreck is 25m long by 6m wide. The barge is oriented from NE to SW.

CHARTING RECOMMENDATION

The hydrographer recommends that the wreck be charted at the following geographic position:

Recommended Position: **Lat** - 29°40'~~53.59~~ 52.0"N **Lon** - 094°55'~~30.31"~~ 29.5" *

Recommended Least Depth: Exposed 1.0 meters above the water surface at time of survey (3 ft @ MHW)

****

COMPILATION NOTES

CHART PIER AND WRECK

REVISE (*) TO 1

* position revised after further review in AHB

DGPS PERFORMANCE CHECK FORM - ATLANTIC HYDROGRAPHIC PARTY (GALVESTON, TEXAS)

OPR: K-204-AHP AHP-10:3:96 H-10668 SHEET "S" Ash Lake to Spilmans Isl.

USCG Galveston Antenna Beacon
Lat: 29 19.7515N Lon: 094 44.1747W

Offset to Launch Antenna: 11m due West '(Observed value corrected for offset)
East : 37766.6
North: 9197.6

Date	DN	Time	SVs	HDOP	Max. Allow. Error ' (4*HDOP)	Observed East	Observed North	Observed ' Diff
Feb 7,96	38	15:00	8	0.8	3.2	37766.0	9198.4	1.000000
Feb 16,96	47	16:20	7	0.9	3.6	37766.8	9196.8	0.824621

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

DATE: March 28, 1997

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-K204-AHP

HYDROGRAPHIC SHEET: H-10666
(replaces incorrect Tide Note # H-10688 of October 29, 1996 and revises zoning for #H-10666 of November 4, 1996)

LOCALITY: Galveston Bay, Texas, Ash Lake to Spilmans Island

TIME PERIOD: February 8 - 15, 1996

TIDE STATION USED: 877-0613 Morgans Point, Tx.
Lat. 29° 40.9'N Lon. 94° 59.1'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 4.71 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.2 ft.

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: GB128, GB127 and GB120.
Refer to attachments for zoning information.

Note: Zoning for this area has been revised and renumbered. Discard previously provided zone numbers when reprocessing this H-sheet.

Note: The original time series data set provided with the tide note dated 10/29/96 was relative to station datum. The MLLW value provided then and above (4.71 ft.) applies to the original data set. Due to system changes, the data set provided for subsequent sheets is relative to MLLW and is stated as MLLW = 0.00 ft. On applicable tide notes. If the new data series is used to reprocess this sheet, then use MLLW = 0.00 ft.

Note: Provided time series data are tabulated in English units (feet) and on Greenwich Mean Time.

Note: Tidal phase progressions are inconsistent in this tidal regime. The best available time corrections are provided for both high and low water times. An average of the high and low water time corrections are provided for each zone for survey applications.

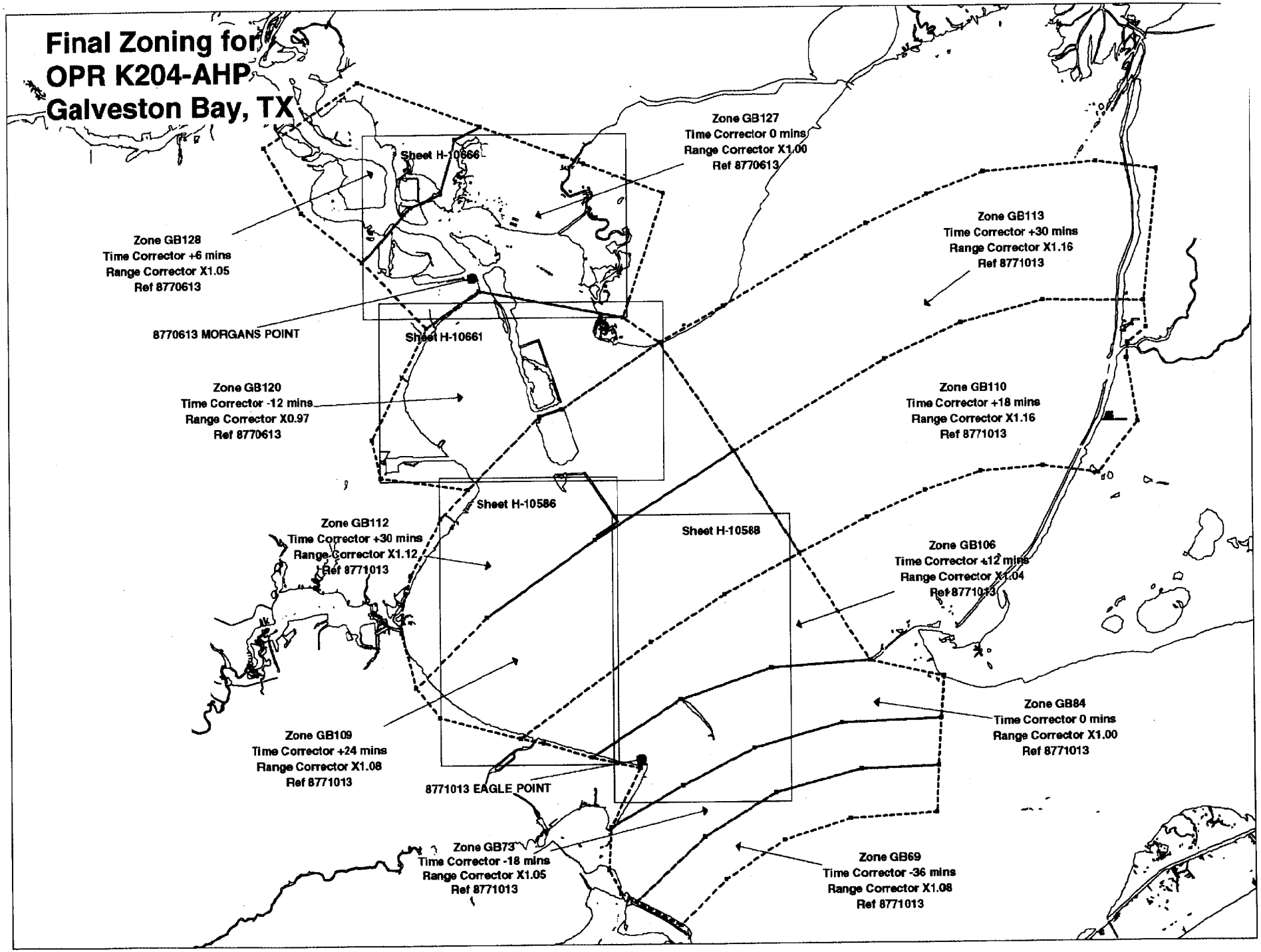
Note: Relative sea level trends show that the Galveston Bay, Texas area is undergoing substantial land subsidence. The relative sea level trend observed at the site for the control station, Galveston, Pier 21, for the time period 1950 through 1993 is +0.025 ft./yr. with a standard error of 0.002 ft./yr. As a result of high rate of sea level change, the 1960 to 1978 Tidal Epoch value of Mean Lower Low Water (MLLW) used as chart datum and reference datum for NOS tidal predictions does not reflect present conditions. The data are under review to determine an updated value of MLLW. Even though the 1960-78 Epoch value of MLLW is not the most current, the change is in the direction that is safe for navigation purposes.

CHIEF, TIDAL ANALYSIS BRANCH

Final tide zone correctors and node point locations for OPR K204-AHP. Sheet H-10666.

Format: Longitude in decimal degrees (negative value denotes Longitude West),
Latitude in decimal degrees
Tide Station (in recommended order of use)
Average Time Correction (in minutes)
Range Correction

	Tide Station Order	AVG Time Correction	Range Correction
Zone GB120			
-94.987435 29.60139	877-0613	-12	0.97
-95.02613 29.606029	877-1013	42	1.15
-95.030133 29.620524			
-95.005764 29.66289			
-94.982082 29.677124			
-94.918321 29.666686			
-94.902708 29.656925			
-94.946074 29.631713			
-94.955797 29.629003			
-94.987435 29.60139			
Zone GB127			
-95.005764 29.66289	877-0613	0	1.00
-95.033819 29.688195	877-1013	54	1.19
-95.012401 29.708916			
-94.998965 29.714083			
-94.992438 29.734754			
-94.980989 29.739753			
-94.944645 29.728253			
-94.935471 29.725308			
-94.900324 29.71379			
-94.918321 29.666686			
-94.982082 29.677124			
-95.005764 29.66289			
Zone GB128			
-95.077176 29.732162	877-0613	6	1.05
-95.06078 29.707173			
-95.033819 29.688195			
-95.012401 29.708916			
-94.998965 29.714083			
-94.992438 29.734754			
-94.980989 29.739753			
-95.035528 29.75693			
-95.077176 29.732162			


Final Zoning for
OPR K204-AHP
Galveston Bay, TX
Sheet H-10666
Sheet H-10661
Sheet H-10586
Sheet H-10588
Zone GB127
Time Corrector 0 mins
Range Corrector X1.00
Ref 8770613
Zone GB128
Time Corrector +6 mins
Range Corrector X1.05
Ref 8770613
8770613 MORGANS POINT
Zone GB113
Time Corrector +30 mins
Range Corrector X1.16
Ref 8771013
Zone GB120
Time Corrector -12 mins
Range Corrector X0.97
Ref 8770613
Zone GB110
Time Corrector +18 mins
Range Corrector X1.16
Ref 8771013
Zone GB112
Time Corrector +30 mins
Range Corrector X1.12
Ref 8771013
Zone GB106
Time Corrector +12 mins
Range Corrector X1.04
Ref 8771013
Zone GB84
Time Corrector 0 mins
Range Corrector X1.00
Ref 8771013
Zone GB109
Time Corrector +24 mins
Range Corrector X1.08
Ref 8771013
8771013 EAGLE POINT
Zone GB73
Time Corrector -18 mins
Range Corrector X1.05
Ref 8771013
Zone GB69
Time Corrector -36 mins
Range Corrector X1.08
Ref 8771013

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10666

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 11328, 11326	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	
ASH LAKE	X		X							1
ASH POINT	X		X							2
ATKINSON ISLAND	X		X							3
BARBOURS CUT	X		X							4
BOAZ ISLAND	X		X							5
CEDAR BAYOU	X		X							6
EVERGREEN POINT	X		X							7
GALVESTON BAY	X		X							8
HOG ISLAND	X		X							9
HOUSTON SHIP CHANNEL	X		X							10
IJAMS LAKE	X		X							11
MORGANS POINT	X		X							12
SHELL POINT	X		X							13
SPILMANS ISLAND	X		X							14
TABBS BAY	X		X							15
TEXAS (title)	X		X							16
										17
										18
										19
					Approved:					20
										21
					Curtis C. Loy					22
					Chief Geographer					23
					FEB 28 1997					24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

11/25/97

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10666

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	2408
NUMBER OF SOUNDINGS	2408

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	78	12/20/96
VERIFICATION OF FIELD DATA	160	04/29/97
QUALITY CONTROL CHECKS	0	
EVALUATION AND ANALYSIS	203.50	
FINAL INSPECTION	94	10/29/97
COMPILATION	68	11/13/97
TOTAL TIME	604	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 11/03/97

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10666 (1996)

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 (HPS)
AutoCAD, Release 12
SiteWorks, version 2.1
MicroStation 95, version 5.05
NADCON, version 2.10
I/RAS B, version 5.01

The smooth sheet was plotted using an ENCAD NovaJet III plotter.

H. CONTROL

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). 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 0.819 seconds (25.20 meters or 2.52 mm at the scale of the survey) north in latitude, and 0.737 seconds (19.80 meters or 1.98 mm at the scale of the survey) west in longitude.

J. Shoreline

Shoreline originates with photogrametric manuscripts DM-10228 and DM-10229 of 1994. A small area of shoreline shown in brown, in the vicinity of Latitude 29°42'15"N, Longitude 95°00'30"W, originates with chart 11328 (20th Ed., Mar. 15/97) and is for orientation purposes only.

L. JUNCTIONS

H-10661 (1996) to the south
H-10663 (1996) to the northwest

A standard junction was effected between the present survey and surveys H-10661 (1996) and H-10663 (1996).

There are no contemporary survey to the north and east of the present survey. Present survey depths are in harmony with

the charted hydrography to the north and east.

M. COMPARISON WITH PRIOR SURVEYS

Hydrographic

H-8741 (1963-65) 1:10,000
H-8742 (1962-63) 1:10,000

1. Prior survey H-8741 covers the present survey in its entirety with the exception of a small portion in the vicinity of Latitude 29°40'15"N, Longitude 94°58'45"W. Present survey depths within Houston Ship Channel are 2 to 11 feet (0^6 to 3^5 m) deeper than prior survey depths. Present survey depths outside of the channel area are generally 1 to 6 feet (0^3 to 1^8 m) deeper than prior survey depths. The following should be noted:

a. The following charted features originate with the prior survey. These features were neither verified nor disproved by the present survey and have been brought forward from the prior survey to supplement the present survey. These features are shown as submerged on the present survey.

Feature	Latitude (N)	Longitude (W)
Pipe	29°40'32.6"	94°58'52.8"
Stake	29°40'30.5"	94°58'54.4"
Piles (2)	29°40'30.2"	94°58'52.9"
Piles	29°40'29.3"	94°58'56.0"
Pile	29°40'36.4"	94°58'51.3"

It is recommended that these features be revised to submerged features as shown on the present survey.

b. The following features originate with the prior survey and were neither verified nor disproved by the present survey. The features have been brought forward from the prior survey to supplement the present survey.

Feature	Latitude (N)	Longitude (W)
Foul limits	29°40'32.0"	94°58'55.0"
pier ruins (2)	29°40'35.0"	94°58'52.0"

It is recommended that the features be retained as charted.

c. A charted Rock pile and limits in the vicinity of Latitude 29°40'18.0"N, Longitude 94°58'35.0"W originates with the prior survey as a rock with a depth of 6 feet. The rock was neither verified nor disproved by the present survey. It is recommended that the rock pile and limits be retained as charted.

d. Two charted submerged piles in the vicinity Latitude 29°40'53.2"N, Longitude 94°58'56.5"W originate with the prior survey as visible piles. The piles were neither verified nor disproved by the present survey. It is recommended that the submerged piles be retained as charted.

e. Four charted dolphins and pier ruins on the north side of a channel in the vicinity of Latitude 29°40'58.0"N, Longitude 94°59'01.0"W were neither verified nor disproved by the field unit. During a telcon with captain Heredia of the fireboat "HOWARD T. TELLEPSEN" (281-470-5585), it was stated that some of the dolphins had been broken and that none could be seen above the surface of the water. Ruins of the old pier that is now charted in ruins could be seen out to at least 100 yards from shore. The dolphins originate with the prior survey as visible. The four dolphins have been brought forward from the prior survey and are shown on the present survey as submerged. The pier ruins originate with the prior survey and have been brought forward from the prior survey to supplement the present survey. It is recommended that the four dolphins be revised to submerged dolphins as shown on the present survey. It is also recommended that the pier ruins be retained as charted.

f. A charted sign originating with the prior survey in Latitude 29°41'34.2"N, Longitude 94°59'18.7"W was neither verified nor disproved by the field unit. The sign has been brought forward from the prior survey to supplement the present survey as a submerged obstruction. Because no one has much use for a submerged sign other than a diver, it is recommended that the sign be revised to a submerged obstruction as shown on the present survey.

2. Prior survey H-8742 covers the a small area of the southern portion of the present survey. Present survey depths are generally 2 to 10 feet (0^{6} to 3 m) deeper than prior survey depths. Present survey depths outside of the channel area are generally 2 to 6 feet (0^{6} to 1^{8} m) deeper than the prior survey. Present survey depths in the main channel are 7 to 12 feet (2^{1} to 3^{6} m) deeper than the prior survey. The following should be noted:

a. The following charted features originate with the prior survey. These features were neither verified nor disproved by the present survey and have been brought forward from the prior survey to supplement the present survey. These piles are shown as submerged on the present survey.

Feature	Latitude (N)	Longitude (W)
Pile	29°40'24.4"	94°58'33.0"
Pile	29°40'21.1"	94°58'33.3"
Pile	29°40'20.4"	94°58'33.0"
Pile	29°40'16.7"	94°58'31.1"
Pipe	29°40'21.6"	94°58'36.5"

It is recommended that the features be revised to submerged as shown on the present survey.

b. The hydrographer located the most eastern of three charted dolphins in Latitude 29°40'22.62"N, Longitude 94°58'59.74"W and stated in the Descriptive Report that it is the center of three dolphins. Three dolphins and one pile originating with the prior survey are shown on the chart. Because only one of the dolphins was located and the hydrographers' description of the area does not adequately agree with the charted data, it is recommended that the three dolphins and pile be retained as charted. With the exception of the dolphin located by the present survey, two dolphins and one pile have been brought forward from the present survey to supplement the present survey.

c. The charted notation Platform in Latitude 29°40'22.5"N, Longitude 94°58'35.5"W originates with the prior survey. The platform has subsequently been deleted from the chart and the notation has been retained over the years. It is recommended that the notation Platform be deleted from the chart.

d. Charted pier ruins in Latitude 29°40'22.0"N, Longitude 94°59'07.5"W originates with the prior survey. These ruins were neither verified nor discussed by the hydrographer. A note in the field records at the end of a line of hydrography states that the "line turns" at pier ruins. This is in the immediate vicinity of the charted pier ruins. It is recommended that the pier ruins be retained as charted.

The difference between the present and the prior surveys may be attributed to natural and cultural changes, dredging, withdrawal of gas and oil from the region, and improved hydrographic surveying methods and equipment.

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

O. COMPARISON WITH CHART 11328 (19th Edition, May 6/95)

Hydrography

The charted hydrography originates with previously discussed prior surveys and needs no further discussion. The hydrographer makes an adequate chart comparison in section O. of the Descriptive Report.

The following charted features, originating with unknown sources, were neither verified nor disproved by the present survey:

Feature	Latitude (N)	Longitude (W)
Subm pile	29°41'33.8"	94°59'16.3"
Subm pile	29°41'32.6"	94°59'16.3"
Subm pile	29°41'17.9"	94°59'02.5"
Note *broken piling*	29°40'25.5"	94°58'38.0"

It is recommended that these features be retained as charted.

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

P. ADEQUACY OF SURVEY

This is an adequate hydrographic survey. No additional work is recommended.

Q. AIDS TO NAVIGATION

Five charted floating aids to navigation, Atkinson Island Cut buoys 9 through 13 in the vicinity of Latitude 29°40'30"N Longitude 94°58'35"W in Atkinson Island Cut, were not located by the field unit. It is recommended that these buoys be retained as charted unless other information indicates otherwise.

All fixed and floating aids to navigation located by field unit appear adequate to serve their intended purposes.

S. MISCELLANEOUS

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

NOAA chart 11328 (20th Ed., Mar. 15/97) was used for compilation of the present survey.

H-10666

Reginald L. Keene Sr.
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H-10664 6

DEN 10-19-2006

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 disapproval 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.

R.H. Whitfield Date: Nov. 3, 1997

Richard H. Whitfield
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.

Nicholas E. Perugini Date: November 3, 1997

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

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Final Approval:

Approved: Andrew A. Armstrong Date: Jan 23, 1998

Andrew A. Armstrong, III
Captain, NOAA
Chief, Hydrographic Surveys Division

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10666

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
11328	11/12/97	[signature]	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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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.