

10448

10448

Diagram No. 1264-2

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. AHP2-10-11-92
Registry No. H-10448

LOCALITY

State Florida
General Locality Choctawhatchee Bay
Sublocality Hogtown Bayou to Basin Bayou

1992-93

CHIEF OF PARTY
LT T.R. Waddington

LIBRARY & ARCHIVES

DATE November 15, 1993

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11388 N.C.

HYDROGRAPHIC TITLE SHEET

H-10448

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.

AHP2-10-11-92

State Florida

General locality Choctawhatchee Bay

Locality Hogtown Bayou to Basin Bayou

Scale 1:10,000 Date of survey November 11-March 9, 1993

Instructions dated March 9, 1992 Project No. OPR-J259/AHP

Vessel NOAA Launch 0518

Chief of party LT Thomas R. Waddington, NOAA

Surveyed by Thomas R. Waddington, Ralph Rogers, Dave Elliott, Jan Budlong, V. Lanius, Bob Ramsey, Castle Parker

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

Graphic record scaled by R. Rogers, C. Parker, D. Elliott, G. Hendrix, J. Budlong

Graphic record checked by R. Rogers, C. Parker, D. Elliott, G. Hendrix, J. Budlong

Evaluation by: Processed by R.N. Mihailov Automated plot by PHS Xynetics Plotter

Verification by R.N. Mihailov

Soundings in ~~xxxxxxx~~ meters MLLW and decimeters

REMARKS: Time in UTC, revisions and marginal notes in black were generated during office processing. All separates are filed 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.

NOOIS/SURF ✓ 11/17/93, SJV
12-13-96
R.W.W. 11/22/93

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10448
Field No. AHP-10-11-92
Scale:1:10,000
Atlantic Hydrographic Party
Chief of Party: Lt. Thomas R. Waddington, NOAA
1992

A. PROJECT ✓

This survey was conducted in accordance with Hydrographic Project Instructions OPR-J259-AHP, Choctawhatchee Bay, Florida dated 3/9/92; these were amended by Change No. 1 dated 6/2/92; and Change No. 2 dated 9/30/92. This survey is designated as sheet "E" in the project instructions.

The purpose of project OPR-J259-AHP is to obtain modern hydrographic data to revise existing nautical charts of Choctawhatchee Bay, Florida. Charted depths are based primarily on lead line surveys conducted in 1935 and 1936. The water traffic in the bay includes commercial vessels transiting via the Intracoastal Waterway System (ICW), fishing vessels and pleasure boats.

B. AREA SURVEYED *See Evaluation Report, Section 1*

The area surveyed for H-10448 is Choctawhatchee Bay, Florida; Hogtown Bayou to Basin Bayou. The approximate geographic limits are as follows:

North Latitude: 30° 30' 05" N
South Latitude: 30° 23' 05" N
East Longitude: 086° 13' 00" W
West Longitude: 086° 16' 50" W
33"

This survey was conducted from 11/11/92 (DN 316) to 3/9/93 (DN 068).

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 suite of programs was used for on-line data acquisition on the survey launch. A list of all HP-DPS programs and versions used for data processing can be found in Appendix VI.* In addition to the HDAPS, the NOS program Velocity (Ver. 1.11) and WordPerfect (Ver. 5.1) were also used during this survey.

* Filed with the hydrographic data.

E. SONAR EQUIPMENT ✓

No side scan sonar equipment was available for this survey.

F. SOUNDING EQUIPMENT

An Innerspace model 448 depth sounder, S/N 187, 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. Depths encountered in the survey area range from 0.2 to 6.8 meters (Position 2123+3). 0.6 6.7

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 2/21/92 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 the final field sheet soundings using the HDAPS Reapply Depth Correctors function. Copies of the tables and support documentation are in the Survey Separates, section IV.*The following speed of sound casts were taken on this survey.

| Cast | Date (DN) | Latitude | Longitude | Extended Depth |
|---------------|---------------------------|----------------------|-----------------------|---|
| 13 | 11/11/92 (316) | 30°20.0'N | 086°27.0'W | 6.5 PLOTS OUTSIDE SHEET LIMITS |
| 14 | 11/18/92 (323) | 30°26.0'N | 086°17.0'W | 7.8 " " " " |
| 15 | 12/08/92 (343) | 30°26.0'N | 086°17.0'W | 6.5 Used on this survey |
| 16 | 12/22/92 (357) | 30°26.3'N | 086°16.7'W | 9.1 PLOTS OUTSIDE SHEET LIMITS |
| 17 | 01/04/93 (004) | 30°26.8'N | 086°16.0'W | 6.5 PLOTS WITHIN SURVEY LIMITS |
| 18 | 01/12/93 (012) | 30°26.0'N | 086°18.0'W | 7.8 PLOTS WITHIN SURVEY LIMITS |
| 19 | 01/29/93 (029) | 30°26.0'N | 086°18.0'W | 7.8 Used on this survey |
| 20 | 02/17/93 (048) | 30°26.0'N | 086°12.0'W | 5.2 PLOTS OUTSIDE SHEET LIMITS |

Because Casts 15 and 19 were the only ones which generated any corrector values (0.1 meters), we recommend that only these two casts be applied during final processing. The bracketing days for these two casts are outlined in the table below.

| Cast No. | Table No. | Use for Days |
|----------|-----------|---------------------------------|
| 15 | 15 | 316 364 335 - 350 |
| 19 | 19 | 029 - 038 19 - 68 |

* Filed with hydrographic data.

Weather permitting, lead line comparisons were taken daily to determine instrument error. No instrument error was observed during these comparisons. The lead line was calibrated on 5/1/92 with a steel tape. A copy of the leadline comparison log and the leadline calibration form can be found in the Survey Separates, section IV.* A static draft of 0.3 meters was applied to on-line soundings through Offset Table No. 1* and to final field sheet soundings 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 5/14/92 in Choctawhatchee Bay using the level method; data from this test are included in the Survey Separates, section IV.* Settlement and squat correctors were applied to on-line soundings through Offset Table No. 1* and to final field sheet soundings using the HDAPS Reapply Depth Correctors function.

The final field sheet was plotted using predicted tides determined from Pensacola, Florida, with the time and height correctors designated in section 5.9 of the project instructions. Weather and wind conditions during this survey had a far greater effect on the true water levels than did tidal action. This resulted in generally higher water levels during periods of southerly winds (when Gulf water is blown into the Bay), and lower water levels during periods of northerly winds. Depth differences (<0.3m) between some adjacent lines of hydro run on different days and also any contour irregularities, are believed to be due to the effect of the winds on the Bay water-levels. Approved water levels were requested from the Product and Services Branch, N/OES231, in a letter dated 3/12/93. A copy is included in Appendix V* of this report. *With the application of approved tides no unusual anomalies were evident. Approved tide note is attached to this report.*
H. CONTROL STATIONS ✓

The horizontal control datum for this project is the North American Datum of 1983. Four horizontal control stations, Choctawhatchee Bay Light 47 (061), LaGrange Bayou Light 1 (062), CENTEL GPS Base (064), and Baytowne Marina Cal Point (065) were used on this survey. These stations were established to 3rd-order standards with GPS by AHP personnel in July and October. The Horizontal Control Report and the Horizontal Control Report Addendum for these positions were submitted to N/CG23322 in October and November 1992. 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.

I. HYDROGRAPHIC POSITION CONTROL ✓

Survey Methods

Differential GPS (DGPS) was the method of positioning used for all hydrographic data acquired on this survey. Ashtech M-XII receivers (S/Ns 700283E1389 and 700157E1076) with antennas (S/N 700228C1572 and 700271A0064) were used for the reference station. An Ashtech Sensor (S/N 700417A1054) with Sensor antenna (S/N 700378A0275) was used as the remote station on Launch 0518. Ashtech-supplied Maxon VHF radios provided the datalink between the base station receiver and the launch sensor. We set our primary GPS base station site at Centel GPS Base (064). Prior to using the Centel base station, we ran the Monitor test at this site to check its susceptibility to multi-path problems; this test indicated 98.5% availability at a 1:10,000 survey scale. Results of this test are included in the Survey Separates, section III.*

* Filed with the survey records.

Because of extensive and unresolved DGPS radio-link problems in the eastern portions of this survey, we had to set-up a short-term DGPS base station atop Choctawhatchee Bay Light 47 to complete the field work in this area. Since Light 47 is a remote site with no power available, we were unable to run the Monitor program for this station; however, because it is an elevated light in the middle of the Bay surrounded only by water, multi-path was not a major concern at this site. This was confirmed through phone conversations with both Operations Section (N/CG241) personnel and Ashtech, Inc. technical personnel. On-line data acquired from this site were consistently stable and all performance checks agreed well. Analysis of this data during office processing was found to contain no significant problems.

Daily DGPS performance checks, as required by the Field Procedures Manual, were accomplished by comparing the DGPS position of the vessel to our computed third-order positions of either the Baytowne Marina Cal Point or the LaGrange Bayou Light 1, both of which we established prior to survey start-up. To obtain a performance check, we would bring the launch alongside our checkpoint and note on the echogram the Easting, the Northing, the number of SVs, the HDOP, and the time of our observation. These values were then entered into a Lotus spreadsheet table which would compute our 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, section III. All of our observed differences fell well within the allowable limit.

** SVs (SPACE VEHICLES) & HDOP (HORIZONTAL DILUTION OF PRECISION)
Sporadic differential radio-link problems accounted for some downtime during the early parts of this survey. During some of our work (primarily in Hogtown Bayou and the eastern portion of the sheet), we received the "Lost Lock - GPS Dead Reckoning" message for some extended periods on several of our lines. In these instances, the PC-DAS provides an approximate DR position for up to 20 seconds, at which point the position becomes noticeably bad. Once the radio-link is re-established, it takes another 20 to 30 seconds before a valid position is computed and displayed on the survey screen. (This unnecessary delay is due to the position buffer in the PC-DAS, which fills up with flyers after extended Lost Lock periods and fails to recognize when valid positions are recomputed.)

During these extended periods of GPS dead reckoning, we maintained the launch on a steady compass heading until we received a valid GPS position on the survey screen. If this position showed us still near the desired line we would maintain course along our planned line and then edit the bad positions in the post-survey mode; if we were well off-line, we would break the line and attempt to re-run it. We also experienced infrequent and short-term periods where our HDOP values exceeded the computed allowable limit of 3.8 for a 1:10,000 scale survey. Any data acquired during periods of High HDOP or Lost Lock was reviewed, then edited or rejected as warranted. Because of our sometimes erratic positioning, spacing between portions of adjacent sounding lines sometimes exceeded allowable limits. In most cases we filled in these holidays; however, if minor gaps occurred where the bottom was consistent and well-defined we did not attempt to fill them in. Gaps were not evident in the final data.

J. SHORELINE See Evaluation Report, Section 2.

Shoreline shown on the final field sheet was transferred by hand from TP-00338 and TP-00339. These shoreline manuscripts were originally compiled on NAD 1927 at 1:20,000 scale and then enlarged to 1:10,000 scale for use with this survey. This manuscript was then updated using 1991 NANCEI source data; in some instances within this survey area, these NANCEI-source revisions were accompanied by the note, "Spotty Source Data". This shoreline was transferred by hand onto the boat and final field sheets by computing conversion tick marks for NAD 27 to NAD 83.

* Filed with the hydrographic data.

Shoreline verification was accomplished during inshore hydrographic data acquisition and by visual inspection. Verified shoreline features are shown in black ink on the final field sheet; they were assigned reference numbers which were hand plotted (along with heights) on the final field sheet. 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. The only T-sheet feature which we could not verify was the small islet shown at the entrance into Churchill Bayou; this is not shown on the final field sheet. Charted shoreline should be superseded by shoreline from TP-00338 and TP-00339, along with the features noted below. -CONCUR

► The following shoreline features were identified on this survey that did not appear on either TP-00338 or TP-00339; these are shown in ^{solid} red on the final field sheet.

| <u>Position</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Feature</u> |
|-----------------|--|--|------------------------------------|
| 1282 | 30° 29' 13.264"N | 086° 14' 59.795"W | Boat Ramp w/ wooden pier (1.5m) |
| 2199 | 30° 23' 16.967"N | 086° 15' 28.186"W | T-shaped wooden pier (2.0m) |
| 2200 | 30° 23' 18.324"N | 086° 15' 27.757"W | L-shaped wooden pier (2.0m) |
| 2201 | 30° 23' 55.658"N | 086° 13' 43.657"W | Boat Ramp |
| 2202 | 30° 23' 55.483"N | 086° 13' 46.849"W | T-shaped wooden pier (3.0m) |
| 2203 | 30° 23' 37 ⁵³ .330"N | 086° 13' 53 ^{53.00} .010"W | Wooden pier w/ covered slip (5.0m) |

Position 2203 was an offset DP to position a pier which was unreachable by launch due to shoaling. Though this position appears to plot on shore, we suspect that we over-estimated the offset range. We hand-plotted this feature on the final field sheet, assuming that the T-sheet shoreline was accurate in this area.

K. CROSSLINES ✓

A total of 27 linear nautical miles of cross-lines were run on H-10448; this is approximately 9% of the main scheme hydrography. Cross-line and main scheme soundings agree within 0.3 meters.

L. JUNCTIONS ✓ See Evaluation Report, Section 5.

This survey junctions with recently completed survey H-10428 to the west and upcoming survey sheet "F" to the east, both 1:10,000 scale surveys from OPR-J259-AHP. Sheet "F" will be completed by Launch 0518 also. Shoreline borders the north and south sides of the sheet. Comparisons between this survey and H-10428 indicate good agreement between soundings and depth curves.

Sheet F = H-10453, 1:10,000 (1993)

M. COMPARISON WITH PRIOR SURVEYS See Evaluation Report, Section 6.

This survey was compared to the following prior survey:

| <u>Survey No.</u> | <u>Scale</u> | <u>Year</u> |
|-------------------|--------------|-------------|
| H-6448 | 1:10,000 | 1939 |

* Filed with the hydrographic data.

None of the AWOIS items addressed as part of this survey originated from the prior survey. However, several charted features which were not assigned as AWOIS items do originate from the prior survey. These and other items are discussed below.

► Contours between this survey and the prior agree well throughout, with only minor differences noticed around Alaqua Point and Light 47. Depths also agree well, with current survey depths sometimes one to two feet deeper than the prior depths, particularly in the middle and northern portions of the Bay. We also identified some significant depressions on this survey, which are discussed further below. We made a color depth plot in feet, which greatly aided our comparison of contours and soundings between this survey and the prior. Bottom samples acquired on this survey also agree well with the prior survey throughout the area. - CONCUR

► We identified numerous irregular bottom features on this survey, which were not evident on the prior survey and contrasted with the normally flat and consistent bottom. These features generally appeared as depressions which sometimes had a prominent mound rising within them. Although these mounds looked significant, their depths agreed well with surrounding depths outside of the depression. These features were most common in the southern portions of the Bay east of Hogtown Bayou, in depths between four to six meters. We were told by local sources that these holes resulted from past shell dredging which was conducted in this area to provide fill material. On 2/5/93 (DN 036), we dove into two of the more prominent depressions (Positions 2176 and 2177) and in both cases found a silty bottom rising gradually to a minor sand and shell mound. On 2/20/93 (DN 051), we ran some hydro developments around these features (Positions 2204 thru 2218) and again found no indications of any more significant features. - CONCUR

► Shoreline shown on H-6448 is noticeably different than that presently existing; the shoreline has shifted southward since the time of the prior survey; in other words, the north shore of the Bay has expanded slightly southward, while the south shore has receded. The shoreline depicted on TP-00338 and TP-00339 accurately represents existing shoreline, with the exception of the minor changes noted in section J. See Evaluation Report, Section G.

► The Basin Bayou Oil Wharf, and the two dolphins and entrance channel associated with it are no longer present. The shoreline has extended southward and the area has shoaled up, so that this feature is now largely in shallow water. We scaled positions for the dolphins from the prior survey, and conducted 50m-radius dive/wade investigations about these positions (Positions 2249 and 2250) on 2/20/93 (DN 051). These searches took us close to shore in shallow water, and revealed no signs of any obstructions. We also ran some hydro development in this area to investigate the existence of the small channel shown leading into the Oil Wharf. Present survey soundings and shoreline should be used in this area. - CONCUR, chart area as shown on survey.

► The three piles around the Basin Bayou entrance are no longer present. Because of shoaling in this area, we could only get the launch over the position of the southern-most of these three piles, which we scaled from the prior survey. On 2/20/93 (DN 051), we conducted a 50-meter radius wade search about this position (Position 2248) and encountered no hangs. To search for the other two piles, we grounded the boat as close as we could get (Position 2246) and then using the PC-DAS target range and bearing function, we conducted a thorough wade search for the other two piles. Water depths were less than one foot (0.3 meters) throughout, with good visibility; no signs of any piles were found. A pile (pos# 2247) at latitude 30/29/07.95N, longitude 86/15/06.38W was located during this survey approximately 60 meters north of the charted pile at survey location. See section N of this report.

► The entrance into Basin Bayou has now shoaled over and is no longer approachable by boat. This is discussed in Section N and as AWOIS 6893 in ~~Appendix VI~~ this report. See following page for discussion of this channel.

► Two small islets shown just off the marshy area in Hogtown Bayou near latitude $30^{\circ}25.0'N$, longitude $086^{\circ}18.4'W$, are no longer present. We recorded mainscheme soundings of 0.6^{to 0.7} meters in the vicinity of these features. These islets are not shown on the smooth sheet and should not be charted. See Evaluation Report Section 6.

► The submerged logs shown at the head of Hogtown Bayou are no longer present as shown. Although Chart 11385 shows individual logs in this area, the prior survey shows only two notes ("submerged logs" and "submerged piling and logs") with arrows pointing to a general area in the water. It does not appear that these features were accurately transferred from the prior to Chart 11385. On 2/5/93 (DN 036), we conducted a visual wade search throughout both of these areas and saw no obstructions, other than one stump right on the shore. Depths in this area were less than two feet (0.6 meters) with good water visibility throughout the area. Because of DGPS problems, we were unable to obtain valid DPs at these positions; we did assign reference numbers to document the search. Because of the limited area and proximity to shore, we are confident that we searched in the applicable areas. - Concur, delete submerged logs from the chart, and chart area as shown on smooth sheet.

N. COMPARISON WITH THE CHART ✓

Comparisons were made with the following largest scale charts covering the survey area:

| <u>Chart No</u> | <u>Scale</u> | <u>Edition</u> | <u>Date</u> |
|-----------------|--------------|----------------|-------------------|
| 11385SC | 1:40,000 | 20th | November 23, 1991 |
| 11388 | 1:80,000 | 15th | January 4, 1992 |

Two AWOIS items lie within this survey and both are addressed below and also on the Item Investigation Forms in ~~Appendix VI~~ of this report. The coordinates and descriptions of all positioned items can be found in the "DP/REMARKS" printout, which is included with the survey data.

this ~~Appendix I~~ Two Danger to Navigation Reports were submitted during this survey and copies are included in ~~Appendix I~~. One report refers to a submerged steel barge which we initially detected as a fatho spike during mainscheme hydrography on 1/27/93 (DN 029). A subsequent dive investigation conducted on 3/9/93 (DN 068) revealed the remains of a steel barge, most of which was silted over. An approximately 40x15 foot section was still visible above the bottom, resting at a slanted angle. The highest point was the northwest corner, which projected five feet above the surrounding mud bottom. We obtained a leadline least depth of 2.8 meters (9.0 feet) at this point and also took a DP (Position 2297) on the buoy marking this point. We recommend that a dangerous submerged wreck with a known least depth of 2.8 meters (9.0 feet) be charted at latitude $30^{\circ}27'36.302"N$, longitude $086^{\circ}13'30.470"W$. ^{CONCUR} The other report is for eight uncharted visible piles located on this survey and discussed further within this section. ^{at MLLW corrected for approved tides}

We made a color depth plot in feet, which greatly aided our comparison of contours and soundings between this survey and the chart. Contours agreed well, with only minor differences noted around Light 47 and off of Alaqua Point. Soundings also agreed well, with survey soundings sometimes one to two feet deeper than charted, particularly in the middle of the Bay, off of Alaqua Point, near Light 47, and inside of Musset Bayou. The following was also noted during this comparison.

► One charted cautionary remark falls within the area of this survey at approximate latitude $30^{\circ}25'N$, longitude $086^{\circ}17'W$ and reads, "CAUTION - Numerous iron pipe stakes exist within outlined area". This note was added through Chart Letter 1647 which originated from a USPS report in 1967. This USPS report referred to numerous 2"-diameter iron stakes extending one to two feet above the surface used to mark oyster leases within Hogtown Bayou. Within this outlined area, we identified no visible iron pipe stakes or any other type of obstruction during hydro operations in this area. Because of the large area encompassed by these remarks, we had no economic means of searching for potentially submerged stakes. However, we did discuss this item with Mr. Warren Sweeney, a local shrimper from Niceville, FL (Phone No: 904/678-9216), who has dragged frequently throughout this Bay. He stated that he has hung his nets in this area, and in one instance he dove on a hang which turned out to be a submerged iron stake. He said the pipe was in 12 feet of water, but it was mostly bent down so that it extended only a few feet off the bottom. He also stated that there are no visible stakes left in this area, although he suspects that other submerged stakes do exist. Considering this information, we recommend that the charted cautionary remark be revised to read "CAUTION - Numerous submerged iron pipe stakes exist within outlined area." - CONCUR

► The northwestern portions of this survey fall within a charted, magenta-outlined prohibited area (Chart annotation: "Prohibited Area 334.700 - See Note A"). Mr. Leland Wamsted, USPS District 15 Cooperative Charting Chairman (Phone No: 904/837-9203), has pursued this matter extensively with the Air Force over the last few years and has resolved that the prohibited designation is no longer valid. A copy of a letter from the Air Force stating its position, and some other supporting documents are included in Appendix VI. ^{THE FEDERAL} Based upon this correspondence and our work in this area, we recommend that the outlined areas be re-designated as Restricted, which implies that navigation within those areas may be controlled at sometime. During the course of our field work, we observed pleasure and commercial boats routinely navigating in these areas. * Attached

► The charted Marker off of Alaqua Point (AWOIS 6894) was not found and should be removed from the chart. The "Shl Rep 1976" note near the Basin Bayou entrance (AWOIS 6893) was valid and depths throughout this area were less than 0.5 feet (0.2m). The "Shl Rep" note should be replaced with a continuation of the "shoal uncovers" tint across the mouth of Basin Bayou, effectively closing it to navigation. ^{DO NOT CONCUR} Both of these items are further addressed in the Item Investigation Reports in Appendix VI. ^{DO NOT CONCUR} attached to this report. See smooth sheet for proper depiction of this area.

► The Oil Wharf and two dolphins charted just east of Basin Bayou and the three piles charted at the Basin Bayou entrance should be removed from the chart. ^{DO NOT CONCUR} The submerged logs charted at the head of Hogtown Bayou and the small islets charted near the Hogtown Bayou entrance should also be removed from the chart. ^{DO NOT CONCUR} All of these features originated from the prior survey and are discussed in detail in Section M. - CONCUR, chart area as shown on smooth sheet.

- ▶ Two uncharted boat ramps were located, one on 2/8/93 (DN 039) at the head of Hogtown Bayou at latitude 30°23'55.658"N, longitude 086°13'43.657"W (Position 2201) and the other on 12/3/92 (DN 338) in Basin Bayou at latitude 30°29'13.264"N, longitude 086°14'59.795"W (Position 1282). *chart ramps at locations as shown on smooth sheet.*
- ▶ A metal post baring 1.5 meters ^{at MHW} was located in the Basin Bayou entrance on 2/20/93 (DN 051) and should be charted at latitude 30°29'07.940"N, longitude 086°15'06.375"W (Position 2247). - *CONCUR*
- ▶ Three adjacent wooden posts, one of which held our tide staff, were located near the NE shore of Basin Bayou, baring 1.0 meters. Because of their close proximity, they should be charted together as one symbol at latitude 30°29'48.527"N, longitude 086°14'24.800"W (Position 1278). - *CONCUR*
- ▶ A concrete breakwater, approximately 66 meters long, awash in 0.5 meters of water was identified on 2/5/93 (DN 036) along the northern shore of the Bay and should be charted according to the following positions.

| <u>Position</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Feature</u> |
|-----------------|-----------------|------------------|------------------------|
| 2188 | 30°28'31.843"N | 086°14'17.817"W | East end of Breakwater |
| 2189 | 30°28'33.254"N | 086°14'19.686"W | West end of Breakwater |

- ▶ Eight visible, 6"-diameter, wooden piles were identified on 2/5/93 (DN 036) in the northern portions of this survey and should be charted according to the following positions. These piles were reported in a Danger to Navigation letter dated 3/30/93. *Attached.*

| <u>Position</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Height</u> |
|-----------------|-----------------|------------------|---------------|
| 2179 | 30°28'07.122"N | 086°13'34.830"W | 0.9m |
| 2180 | 30°28'01.985"N | 086°13'35.366"W | 1.4m |
| 2181 | 30°27'56.306"N | 086°13'35.805"W | 1.4m |
| 2182 | 30°27'57.082"N | 086°13'48.250"W | 1.4m |
| 2183 | 30°28'18.608"N | 086°15'08.281"W | 2.4m |
| 2184 | 30°28'28.247"N | 086°15'24.747"W | 2.9m |
| 2185 | 30°28'35.058"N | 086°15'21.905"W | 0.9m |
| 2186 | 30°28'30.240"N | 086°15'04.102"W | 0.9m |

- ▶ Because of shoaling across its entrance, we were unable to get the survey launch into Churchill Bayou, along the southern shore of Hogtown Bayou. On 2/8/93 (DN 039), we grounded the launch and conducted a sounding pole wade search in the area. We were unable to obtain a valid position at this point due to DGPS problems, though we are confident of our location. During this search we found no more than 0.3 meters of water across the entrance, though we did find 1.0 meter depths just inside the bayou. Some of these pole soundings were manually plotted on the boat sheet and then used to contour the final field sheet. The presently charted "shoal uncovers" tint should continue across the mouth of Churchill Bayou. - *CONCUR, chart area as shown on smooth sheet.*

O. ADEQUACY OF SURVEY ✓

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

P. AIDS TO NAVIGATION ✓

A charted, privately maintained mooring buoy (Fl Y 4s - Privt Maintd) on the eastern limit of this survey was removed in October 1992 and is not scheduled to be replaced. This information was provided by Chief Lewis of the USCG Aids to Navigation Unit in Pensacola, FL (904/455-2354). This buoy does not appear in the USCG Light List (USCGLL) Vol IV, 1992 edition. CONCUR

Choctawhatchee Bay Light 47 (USCGLL No. 29935), which falls within this survey's limits, was located to third-order, class I standards using Ashtech M-XII receivers. The unadjusted field position for this navaid is latitude $30^{\circ}26'13.20054''N$, longitude $086^{\circ}14'31.51656''W$. This position is approximately 125 meters ESE of the charted, Light List, and T-sheet positions. According to Chief Lewis, the original light was removed in the early 1980's and rebuilt at its present position. He explained that when this light was rebuilt, they relied on fathometer readings and were unable to obtain a strong sextant fix position to update their old position. See attached Form 76-40 for revised position.

No changes are recommended to the charted clearances for the Rt 20 bridge where it crosses the entrance to Basin Bayou or the Rt 393 bridge where it crosses Hogtown Bayou. There were no overhead cables, overhead pipelines, or ferry routes within the limits of this survey. No landmarks are located within the survey limits.

Q. STATISTICS ✓

| <u>Description</u> | <u>Quantities</u> |
|-------------------------------------|-------------------|
| Total Positions | 2300 |
| Total Nautical Miles of Hydrography | 340 |
| Total Nautical Miles of Chain drag | 0 |
| Sq. Nautical Miles of Hydrography | 17 |
| Days of Production | 21 |
| Detached Positions | 75 |
| Bottom Samples | 47 |
| Tide Stations | 6 |
| Velocity Casts | 8 |

R. 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.* No significant currents of any kind were encountered during this survey.

* Filed with the hydrographic data.

S. RECOMMENDATIONS ✓

The only noticeably dynamic area encountered throughout this project (not just on this survey) is in the vicinity of the Destin East Pass and to the west where the ICW enters into the Narrows. The bottom in this area is largely fine sand and is subject to storm surge and stronger tidal currents which lead to frequent shifting and shoaling. The Corps of Engineers is presently tasked with maintaining the channel depths in this area, though there is some local concern about the adequacy of this maintenance. Any future survey requirements in this area should probably focus more on this particular area and possibly in resolving any recent unsurveyed chart items. Other than shoreline changes, which can be better detected with aerial photography, the rest of this Bay appears mostly stable, with very few bottom topography changes noted since the 193~~8~~₉ prior surveys. (H-6448)

T. REFERRAL TO REPORTS ✓

| <u>Titles</u> | <u>Transmittal Information</u> |
|---|---|
| Horizontal Control Report for OPR-J259-AHP | Field Photogrammetry Section N/CG23322, Norfolk, VA, |
| (1992)Descriptive Report to Accompany Survey H-10427 | Pacific Hydrographic Section N/CG245, Seattle, WA |
| Chart Sales Agent Report | Chart Distribution Branch N/CG33, Rockville, MD |
| User Evaluation Report | Atlantic Hydrographic Section N/CG244, Norfolk, VA |
| Chart Inspection Report | Atlantic Hydrographic Section N/CG244, Norfolk, VA |
| Coast Pilot Report | Pacific Hydrographic Section N/CG245, Seattle, WA |

Submitted By: The Atlantic Hydrographic Party

AWOIS NO:6893

Item Description: Shoaling Reported

Source: Unknown

AWOIS Position: Lat - 30/29/09.70N Lon - 086/15/04.79W

Required Investigation: Develop Basin Bayou Entrance

Chart(s) Affected: 11385

INVESTIGATION

Date(s)/DN(s): 2/3/93 and 2/20/93 (034 and 051)

Position Numbers: 2169-2175, 2246 Launch Number: 0518

Investigation Used: ED, VS Water Visibility: To Bottom (> 1m)

Position Determined By: DGPS

Investigation Summary: On 2/3/93 (DN 034) we ran three crosslines around the entrance into Basin Bayou, however shallow depths prevented extensive development of this area. On 2/20/93 (DN 051) we grounded Launch 0518 at Latitude 30/29/05.635N and Longitude 086/15/06.224W (Position 2246) which was as close as we could get to the Basin Bayou Entrance. We then conducted a sounding pole wade search northward from the boat position throughout the area. This entire area is now shoaled over and we measured a maximum sounding pole depth of 0.5 feet (0.2 meters) across the entrance. We have manually plotted some of these pole soundings onto the boat sheet, and have contoured the final field sheet based upon these pole soundings. Comparison between the prior survey and the T-map, shows that the shoreline has also extended southward in this area. Local sources tell us that this area has been shoaled in since a hurricane in the early 1970s.

CHARTING RECOMMENDATION

The hydrographer recommends that the "Shl Rep 1976" note be removed from the chart, and that "shoal uncovers" green tint be continued across the mouth of Basin Bayou, effectively closing it to navigation from Choctawhatchee Bay. Do not concur, delete "Shl Rep 1976" note and chart area as shown on smooth sheet.

Recommended Position: Lat - Lon -

Recommended Least Depth:

COMPILATION NOTES

Chart

Applied As

AWOIS NO:6894

Item Description: Obstruction - Visible marker scaled from chart

Source: Unknown

AWOIS Position: Lat - 30/28/04.71N Lon - 086/14/22.79W

Required Investigation: VS, BD, DI -- 200m radius

Chart(s) Affected: 11385

INVESTIGATION

Date(s)/DN(s): 2/5/93 (036)

Position Numbers: 2187

Launch Number: 0518

Investigation Used: VS, DI

Water Visibility: To Bottom (> 2m)

Position Determined By: DGPS

Investigation Summary: On 2/5/93 (DN 036) we dropped a buoy at Position 2187 and conducted several 100 meter radius dive/wade searches throughout the area. We started with a 100m circle search about the center point, and then conducted four other circle searches centered outside the initial circle. The diagram for these dives is illustrated on the fatho trace for this day. Water depths during this search were between 2 and 12 feet with good water visibility throughout the search area. No hangs were encountered nor any signs of obstructions visible. Numerous visible piles were observed and positioned in this same general area, though none were close to being within the search radius for this item.

CHARTING RECOMMENDATION

The hydrographer recommends that the charted marker be removed from the chart. - concur, remove marker from chart.

Recommended Position: Lat - Lon -

Recommended Least Depth:

COMPILATION NOTES

Chart

Applied As

| | | | | | | | | | | |
|-----|---|---------------|---------------|----|-----|-----|-----|---|----------|--------------------------------|
| 001 | F | 030:23:40.692 | 086:23:19.545 | 2 | 250 | 0.0 | 0.0 | C | 00/00/88 | ALBERT |
| 002 | | 030:31:09.003 | 086:29:32.298 | 2 | 250 | 0.0 | 0.0 | | 00/00/88 | ANDERSON |
| 003 | F | 030:24:28.023 | 086:29:16.327 | 1 | 250 | 0.0 | 0.0 | | 00/00/87 | BACON |
| 004 | | 030:25:28.023 | 086:36:00.545 | 0 | 250 | 0.0 | 0.0 | | 00/00/87 | BARN |
| 005 | | 030:27:10.273 | 086:34:38.679 | 0 | 250 | 0.0 | 0.0 | | 00/00/87 | BEV |
| 006 | | 030:25:32.166 | 086:33:20.046 | 5 | 250 | 0.0 | 0.0 | | 00/00/87 | BLACK POINT LT 2 |
| 007 | | 030:29:22.697 | 086:26:48.230 | 2 | 250 | 0.0 | 0.0 | | 00/00/88 | BLUE |
| 008 | | 030:29:57.235 | 086:26:34.601 | 0 | 250 | 0.0 | 0.0 | | 00/00/88 | BLUEWATER BAY RADIO TOWER |
| 009 | | 030:29:20.889 | 086:25:22.040 | 0 | 250 | 0.0 | 0.0 | | 00/00/88 | BLUEWATER BAY TANK |
| 010 | | 030:27:38.681 | 086:28:23.675 | 0 | 250 | 0.0 | 0.0 | | 00/00/88 | BOGGY BAYOU ENTRANCE LIGHT |
| 011 | | 030:28:45.011 | 086:28:28.689 | 0 | 250 | 0.0 | 0.0 | | 00/00/88 | BOGGY BAYOU LIGHT 3 |
| 012 | | 030:30:16.389 | 086:29:04.860 | 0 | 250 | 0.0 | 0.0 | | 00/00/88 | BOGGY BAYOU LIGHT 9 |
| 013 | | 030:29:42.528 | 086:28:45.043 | 2 | 250 | 0.0 | 0.0 | | 00/00/88 | BORTHWICK |
| 014 | | 030:30:17.668 | 086:27:17.274 | 2 | 250 | 0.0 | 0.0 | | 00/00/88 | BUSTLE |
| 015 | | 030:29:34.965 | 086:28:41.958 | 2 | 250 | 0.0 | 0.0 | | 00/00/88 | BYRNE |
| 016 | | 030:23:38.902 | 086:31:00.977 | 17 | 250 | 0.0 | 0.0 | | 00/00/82 | CENTER |
| 017 | | 030:23:38.944 | 086:31:01.000 | 19 | 250 | 0.0 | 0.0 | | 00/00/88 | CENTER ECC |
| 018 | | 030:22:51.141 | 086:30:37.534 | 10 | 250 | 0.0 | 0.0 | | 00/00/88 | CHOCTAWHATCHEE BAY ENT LIGHT 3 |
| 019 | | 030:22:51.380 | 086:30:26.614 | 10 | 250 | 0.0 | 0.0 | | 00/00/88 | CHOCTAWHATCHEE BAY ENT LIGHT 4 |
| 020 | | 030:24:16.467 | 086:31:10.874 | 5 | 250 | 0.0 | 0.0 | | 00/00/87 | CHOCTAWHATCHEE BAY ENT LT 15 |
| 021 | F | 030:25:42.645 | 086:18:47.114 | 3 | 250 | 0.0 | 0.0 | 2 | 00/00/88 | CHOCTAWHATCHEE BAY LIGHT 49 |
| 022 | F | 030:25:26.589 | 086:26:08.924 | 0 | 250 | 0.0 | 0.0 | | 00/00/88 | CHOCTAWHATCHEE BAY LIGHT 51 |
| 023 | F | 030:25:35.370 | 086:29:21.062 | 5 | 250 | 0.0 | 0.0 | A | 00/00/88 | CHOCTAWHATCHEE BAY LIGHT 53 |
| 024 | | 030:27:28.889 | 086:36:04.960 | 0 | 250 | 0.0 | 0.0 | | 00/00/87 | CHULA |
| 025 | | 030:28:21.157 | 086:18:15.740 | 3 | 250 | 0.0 | 0.0 | | 00/00/88 | CLIFF |
| 026 | F | 030:25:02.748 | 086:29:18.198 | 1 | 250 | 0.0 | 0.0 | 7 | 00/00/87 | COBB |
| 027 | | 030:24:22.478 | 086:29:09.593 | 1 | 250 | 0.0 | 0.0 | | 00/00/87 | COLD |
| 028 | | 030:30:27.212 | 086:27:12.316 | 1 | 250 | 0.0 | 0.0 | | 00/00/88 | COON |
| 029 | | 030:25:43.141 | 086:36:44.967 | 0 | 250 | 0.0 | 0.0 | | 00/00/87 | CROCKET |
| 030 | | 030:30:15.971 | 086:27:21.697 | 2 | 250 | 0.0 | 0.0 | | 00/00/88 | CUDDY |
| 031 | | 030:28:51.912 | 086:29:11.347 | 2 | 250 | 0.0 | 0.0 | | 00/00/88 | DRONE |
| 032 | | 030:25:23.190 | 086:18:47.717 | 1 | 250 | 0.0 | 0.0 | | 00/00/88 | FOUR MILE POINT |
| 033 | | 030:28:23.592 | 086:18:20.521 | 0 | 250 | 0.0 | 0.0 | | 00/00/88 | HAMMOCK POINT RANGE MARKER |
| 034 | | 030:26:30.849 | 086:35:27.240 | 0 | 250 | 0.0 | 0.0 | | 00/00/87 | HAPPY |
| 035 | | 030:30:12.991 | 086:30:03.237 | 1 | 250 | 0.0 | 0.0 | | 00/00/88 | HIDDEN |
| 036 | F | 030:27:21.641 | 086:30:50.178 | 1 | 250 | 0.0 | 0.0 | 9 | 00/00/88 | JACK |
| 037 | F | 030:27:06.246 | 086:25:16.733 | 2 | 250 | 0.0 | 0.0 | A | 00/00/87 | JIM |
| 038 | F | 030:24:59.669 | 086:29:24.435 | 1 | 250 | 0.0 | 0.0 | | 00/00/87 | JOES |
| 039 | | 030:23:59.515 | 086:35:59.092 | 5 | 250 | 0.0 | 0.0 | | 00/00/85 | JOHN T |
| 040 | | 030:27:09.517 | 086:32:25.949 | 1 | 250 | 0.0 | 0.0 | | 00/00/88 | MIKE |
| 041 | | 030:28:04.877 | 086:35:25.518 | 0 | 250 | 0.0 | 0.0 | | 00/00/87 | NABORS |
| 042 | | 030:27:00.211 | 086:35:34.735 | 0 | 250 | 0.0 | 0.0 | | 00/00/87 | PARADISE |
| 043 | | 030:27:40.176 | 086:35:45.204 | -0 | 250 | 0.0 | 0.0 | | 00/00/87 | PARK |
| 044 | | 030:27:02.655 | 086:34:45.811 | 1 | 250 | 0.0 | 0.0 | | 00/00/87 | PHILLIPS |
| 045 | | 030:27:20.039 | 086:32:40.319 | 1 | 250 | 0.0 | 0.0 | | 00/00/88 | PK EYC |
| 046 | | 030:30:41.016 | 086:27:15.452 | 2 | 250 | 0.0 | 0.0 | | 00/00/88 | PK POST |
| 047 | | 030:30:12.856 | 086:26:21.706 | 7 | 250 | 0.0 | 0.0 | | 00/00/88 | ROCK |
| 048 | | 030:29:02.788 | 086:27:08.628 | 0 | 250 | 0.0 | 0.0 | | 00/00/88 | ROCKY BAYOU ENTRANCE LIGHT 1 |
| 049 | | 030:28:07.998 | 086:29:03.127 | 2 | 250 | 0.0 | 0.0 | | 00/00/88 | SHOTGUN |
| 050 | | 030:30:17.986 | 086:29:06.798 | 2 | 250 | 0.0 | 0.0 | | 00/00/88 | SMITH |
| 051 | | 030:26:54.824 | 086:36:00.148 | 0 | 250 | 0.0 | 0.0 | | 00/00/87 | SWEENEY |
| 052 | | 030:26:05.036 | 086:35:05.901 | 0 | 250 | 0.0 | 0.0 | | 00/00/87 | SYB WATER TANK |
| 053 | F | 030:28:28.475 | 086:18:46.838 | 3 | 250 | 0.0 | 0.0 | 1 | 00/00/92 | GRASSY TEMP |
| 054 | F | 030:23:39.760 | 086:34:09.178 | 2 | 250 | 0.0 | 0.0 | D | 00/00/56 | CONTRAVES ONE |
| 055 | | 030:26:30.567 | 086:35:36.990 | 35 | 250 | 0.0 | 0.0 | | 05/15/92 | BANK |
| 056 | F | 030:26:13.200 | 086:14:31.516 | 5 | 250 | 0.0 | 0.0 | 5 | 07/03/92 | CHOCTAWHATCHEE BAY LIGHT 47 |
| 057 | F | 030:22:39.298 | 086:18:28.900 | 91 | 250 | 0.0 | 0.0 | 4 | 07/22/92 | CENTEL(CENTEL MICROWAVE TRW) |
| 058 | | 030:22:36.086 | 086:10:48.267 | 75 | 239 | 0.0 | 0.0 | | 03/01/91 | BOWMAN(EGLIN AFB BOWMAN TWR) |
| 059 | | 030:25:53.599 | 086:12:32.159 | 3 | 239 | 0.0 | 0.0 | | 10/10/92 | LA GRANGE BAYOU LIGHT 1 |
| 060 | | 030:27:16.322 | 086:09:56.287 | 3 | 239 | 0.0 | 0.0 | | 10/10/92 | LA GRANGE BAYOU LIGHT 11 |
| 061 | | 030:28:11.639 | 086:08:26.360 | 3 | 239 | 0.0 | 0.0 | | 10/10/92 | LA GRANGE BAYOU LIGHT 22 |
| 062 | | 030:28:54.882 | 086:12:19.173 | 1 | 239 | 0.0 | 0.0 | | 10/10/92 | ALAQ |
| 063 | | 030:23:56.864 | 086:13:42.634 | 1 | 239 | 0.0 | 0.0 | | 10/10/92 | 872-93768 |
| 064 | | 030:22:38.852 | 086:18:29.347 | 0 | 250 | 0.0 | 0.0 | | 10/28/92 | CENTEL GPS BASE |
| 065 | | 030:23:21.277 | 086:19:39.768 | 0 | 239 | 0.0 | 0.0 | | 10/28/92 | BAYTOWNE MARINA CAL POINT |

| RESPONSIBLE PERSONNEL | |
|--|---|
| TYPE OF ACTION | NAME |
| OBJECTS INSPECTED FROM SEAWARD | ORIGINATOR <input type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETTIC PARTY <input type="checkbox"/> OTHER (Specify) |
| POSITIONS DETERMINED AND/OR VERIFIED | FIELD ACTIVITY REPRESENTATIVE |
| FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES | OFFICE ACTIVITY REPRESENTATIVE <input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE |

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'
(Consult Photogrammetric Instructions No. 64.)

| OFFICE | FIELD (Cont'd) |
|---|--|
| <p>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</p> | <p>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</p> |
| <p>FIELD</p> <p>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</p> <p>A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75</p> <p>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</p> | <p>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</p> <p>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75</p> <p>**PHOTOGAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</p> |



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Coast and Geodetic Survey
Norfolk, Virginia 23510-1114

**ADVANCE
INFORMATION**

Atlantic Hydrographic Party
439 West York St.
Norfolk, VA 23510-1114

March 10, 1993

Commander (OAN), 8th U. S. Coast Guard District
Hale Boggs Federal Building
501 Magazine Street
New Orleans, LA 70130-3396

Dear Sir:

While conducting a basic hydrographic survey (Registry No. H-10448) of Choctawhatchee Bay, Florida, the following item was identified as a danger to navigation and is recommended for inclusion in the Local Notice to Mariners. The position is in NAD 83 datum and the sounding has been reduced to Mean Lower Low Water (MLLW) using predicted tides. This information affects Chart 11385, 20th Edition/February 1992, NAD 83 datum.

► An approximately 40-foot by 15-foot section of a submerged steel barge projecting 4.8 feet (1.5 meters) off the mud bottom, was found in 13.8 feet (4.3 meters) of water at position latitude 30° 27' 36.3" N, longitude 086° 13' 30.5" W. A lead-line least depth of 9.0 feet (2.8 meters), corrected to MLLW with predicted tides, was obtained on the highest point which was identified during a dive investigation.

A chart section of this area, showing the location of this danger, is also included. Questions concerning this report should be directed to myself at 904/267-1713 or to the Pacific Hydrographic Section at 206/526-6853 (after 4/15/93).

Sincerely,

Thomas R. Waddington
LT Thomas Waddington, NOAA
Chief, Atlantic Hydrographic Party

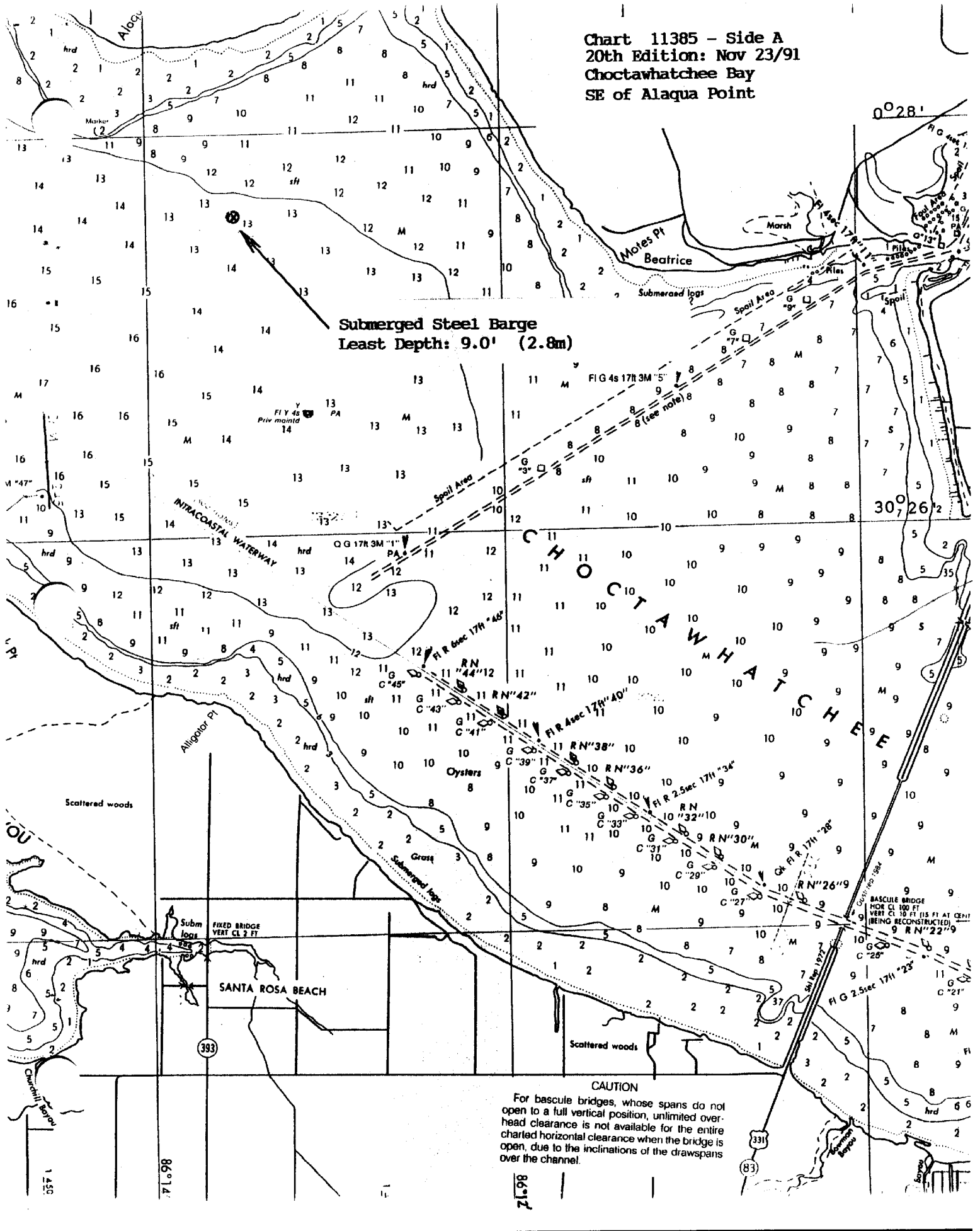
Enclosure

ADVANCE INFORMATION

N/CG221



Chart 11385 - Side A
 20th Edition: Nov 23/91
 Choctawhatchee Bay
 SE of Alaqua Point



Submerged Steel Barge
 Least Depth: 9.0' (2.8m)

CAUTION
 For bascule bridges, whose spans do not open to a full vertical position, unlimited overhead clearance is not available for the entire charted horizontal clearance when the bridge is open, due to the inclinations of the drawspans over the channel.

BASCULE BRIDGE
 MORE CL 100 FT
 VERT CL 10 FT 115 FT AT CENT
 (BEING RECONSTRUCTED)
 9 RN "22" 9

393

83

86°12'

86°14'

1:455

**ADVANCE
INFORMATION**



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Coast and Geodetic Survey
Norfolk, Virginia 23510-1114

Atlantic Hydrographic Party
439 West York St.
Norfolk, VA 23510-1114

March 30, 1993

Commander (OAN), 8th U. S. Coast Guard District
Hale Boggs Federal Building
501 Magazine Street
New Orleans, LA 70130-3396

Dear Sir:

While conducting a basic hydrographic survey (Registry No. H-10448) of Choctawhatchee Bay, Florida, the following uncharted features were identified as dangers to navigation and are recommended for inclusion in the Local Notice to Mariners; these are all unmarked, visible, six-inch diameter piles. The positions are in NAD 83 datum and the elevations have been reduced to Mean Lower Low Water (MLLW) using predicted tides. This information affects Chart 11385, 20th Edition/February 1992, NAD 83 datum.

| <u>Position</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Height</u> |
|-----------------|-----------------|------------------|---------------|
| 2179 | 30°28'07.122"N | 086°13'34.830"W | 0.9m |
| 2180 | 30°28'01.985"N | 086°13'35.366"W | 1.4m |
| 2181 | 30°27'56.306"N | 086°13'35.805"W | 1.4m |
| 2182 | 30°27'57.082"N | 086°13'48.250"W | 1.4m |
| 2183 | 30°28'18.608"N | 086°15'08.281"W | 2.4m |
| 2184 | 30°28'28.247"N | 086°15'24.747"W | 2.9m |
| 2185 | 30°28'35.058"N | 086°15'21.905"W | 0.9m |
| 2186 | 30°28'30.240"N | 086°15'04.102"W | 0.9m |

A chart section of this area, showing the location of these dangers, is also included. Questions concerning this report should be directed to myself at 904/267-1713 or to the Pacific Hydrographic Section at 206/526-6853 (after 4/15/93).

Sincerely,

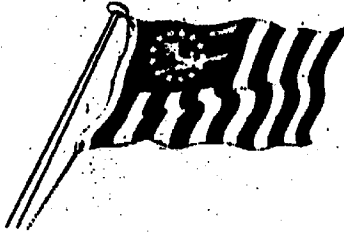
Thomas Waddington
LT Thomas Waddington, NOAA
Chief, Atlantic Hydrographic Party

Enclosure

ADVANCE INFORMATION

N/CG221





FORT WALTON POWER SQUADRON

(A Unit of the United States Power Squadrons)

Chartered 1955

Leland D. Wamsted
707 6th St.
Destin, FL 32541

Fort Walton Beach, Florida

21 FEB 89

3246th Test Wing/DO
ATTN: Mr. Don Setterberg
Eglin Air Force Base, FL 32542

Dear Mr. Setterberg:

In accordance with our discussion in your office, 26 January, 1989, proposed changes to the United States Coast Pilot, Number 5, 1987, are attached.

The proposed changes convert the existing Prohibited Area (Coast Pilot #5 Para 334.700) on the North shore of Choctawhatchee Bay to a Danger Area, and the Prohibited Area (Coast Pilot #5 Para 334.730) in the Intercoastal Water Way narrows based on USC and GS Station Tuck 3 to a Restricted Area.

In addition, outdated command names and enforcement authority titles are updated.

Request your assistance in obtaining approval of these proposed changes. Upon approval please return the correspondence to me. If there are any questions, please contact me at 837-9203.

Sincerely yours,

Leland D. Wamsted

Leland D. Wamsted
Chairman, Cooperative Charting



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS MUNITIONS SYSTEMS DIVISION (AFSC)
EGLIN AIR FORCE BASE, FLORIDA 32542-5000

12 July 1989

Mr Leland D. Wamsted
707 6th Street
Destin FL 32541

Dear Mr Wamsted

The changes to the U.S. Coastal Pilot proposed by the Fort Walton Power Squadron have been reviewed. Changing the prohibited designation to restricted for the three areas identified in your letter is acceptable.

Attached is the coast pilot report citing the recommended changes. As discussed with Mr Setterberg, these are being returned for you to forward to the National Ocean Service, NOAA, to correct the affected pages. Please notify Mr Setterberg at 882-5669, when you have sent the changes to the National Ocean Service.

Sincerely

Glenn E. Messerli

GLENN E. MESSERLI, Colonel, USAF
Chief of Staff

1 Atch
Coast Pilot Report

APPROVAL SHEET

BASIC HYDROGRAPHIC SURVEY

OPR-J259/92

AHP-10-11-92

H-10448

1992-93

This basic hydrographic survey was conducted in accordance with the project instructions for OPR-J259-AHP, the hydrographic manual, the hydrographic survey guidelines, and the field procedures manual. The survey data and reports were completed under frequent supervision. All boat sheets and final field sheets 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.

Thomas R. Waddington
Thomas R. Waddington
Lieutenant, NOAA
Chief, Atlantic Hydrographic Party

ORIGINAL



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: July 13, 1993

MARINE CENTER: Pacific

OPR: J259

HYDROGRAPHIC SHEET: H-10448

LOCALITY: Choctawhatchee Bay, Florida, Hogtown Bayou to Basin Bayou

TIME PERIOD: November 11, 1992 - March 9, 1993

TIDE STATION USED: 872-9376 Santa Rosa, Hogtown Bayou, Fl.
Lat. $30^{\circ} 23.9'N$ Lon. $86^{\circ} 13.7'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 1.09 feet
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 0.6 foot

TIDE STATION USED: 872-9381 Basin Bayou, Fl.
Lat. $30^{\circ} 29.8'N$ Lon. $86^{\circ} 14.4'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 2.37 feet
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 0.4 foot

TIDE STATION USED: 872-9435 Big Hammock Point, Fl.
Lat. $30^{\circ} 27.9'N$ Lon. $86^{\circ} 21.1'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 2.20 feet
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 0.5 foot

REMARKS: RECOMMENDED ZONING

1. In Hogtown Bayou (south of a line between Fourmile Point and Live Oak Point), times and heights are direct on Hogtown Bayou, Fl. (872-9376).
2. In Choctawhatchee Bay between longitudes $86^{\circ} 13.0'W$ and $86^{\circ} 17.0'W$, (not including Hogtown Bayou and Basin Bayou) times and heights are direct on Big Hammock Point, Fl. (872-9435).



3. In Basin Bayou, times and heights are direct on the staff readings provided for Basin Bayou, Fl. (872-9381).

NOTE: Hourly heights are tabulated on Central Standard Time.



CHIEF, DATUMS SECTION 

Basin Bayou, Choctawhatchee Bay, Fl. (872-9381)

In support of OPR J259, a staff was installed in lieu of the reinstallation of a tide gage. Staff readings were taken on December 3, 1992, and placed on station datum on the basis of the staff of June 28, 1977. Elevations are thus compatible with the datums derived from the tidal series of August - November 1977. These staff readings will be used in place of hourly height data in this location for December 1992.

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 2.37 feet
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 0.4 foot

| Greenwich time | Local time | Height in feet on station datum |
|----------------|------------|---------------------------------|
| 15 15 | 09 15 | 2.7 feet |
| 15 20 | 09 20 | 2.7 feet |
| 15 25 | 09 25 | 2.7 feet |
| 15 30 | 09 30 | 2.7 feet |
| 15 35 | 09 35 | 2.7 feet |
| 15 40 | 09 40 | 2.7 feet |
| 15 45 | 09 45 | 2.7 feet |
| 16 00 | 10 00 | 2.7 feet |
| 16 15 | 10 15 | 2.7 feet |
| 16 30 | 10 30 | 2.7 feet |
| 16 45 | 10 45 | 2.7 feet |
| 17 00 | 11 00 | 2.7 feet |
| 17 15 | 11 15 | 2.6 feet |
| 17 30 | 11 30 | 2.6 feet |
| 17 45 | 11 45 | 2.6 feet |
| 18 00 | 12 00 | 2.6 feet |
| 18 10 | 12 10 | 2.6 feet |
| 18 20 | 12 20 | 2.7 feet |
| 18 30 | 12 30 | 2.7 feet |
| 18 40 | 12 40 | 2.7 feet |
| 18 50 | 12 50 | 2.7 feet |
| 19 00 | 13 00 | 2.7 feet |
| 19 10 | 13 10 | 2.7 feet |
| 19 20 | 13 20 | 2.7 feet |
| 19 30 | 13 30 | 2.7 feet |
| 19 40 | 13 40 | 2.7 feet |

T. Sheehan 116 06/09/93

GEOGRAPHIC NAMES

H-10448

| Name on Survey | A ON CHART NO. 11305/11388 B ON PREVIOUS SURVEY NO. H-6448 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 | | | | | | | | | |
|--------------------|--|---|---|---|---|---|---|---|---|----|
| | A | B | C | D | E | F | G | H | K | |
| ALAUQA POINT | X | X | | | | | | | | 1 |
| ALLIGATOR POINT | X | X | | | | | | | | 2 |
| BASIN BAYOU | X | X | | | | | | | | 3 |
| CHOCTAWHATCHEE BAY | X | X | | | | | | | | 4 |
| CHURCHILL BAYOU | X | X | | | | | | | | 5 |
| FLORIDA (title) | X | X | | | | | | | | 6 |
| HOGTOWN BAYOU | X | X | | | | | | | | 7 |
| LIVE OAK POINT | X | X | | | | | | | | 8 |
| MUSSETT BAYOU | X | X | | | | | | | | 9 |
| SANTA ROSA BEACH | X | | | | | | | | | 10 |
| (locale) | | | | | | | | | | 11 |
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Approved:

Charles E. Harrington
Chief Geographer - NCG 2x5

MAY - 5 1993

| NOAA FORM 77-27(H) (9-83) | | U.S. DEPARTMENT OF COMMERCE | | REGISTRY NUMBER H-10448 | |
|--|----------------------|-----------------------------|----------------------------|------------------------------------|-----------------------------------|
| HYDROGRAPHIC SURVEY STATISTICS | | | | | |
| RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed. | | | | | |
| RECORD DESCRIPTION | | AMOUNT | | RECORD DESCRIPTION | |
| SMOOTH SHEET | | 1 | | SMOOTH OVERLAYS: POS., ARC, EXCESS | |
| DESCRIPTIVE REPORT | | 1 | | FIELD SHEETS AND OTHER OVERLAYS | |
| DESCRIP- TION | DEPTH/POS RECORDS | HORIZ. CONT. RECORDS | SONAR- GRAMS | PRINTOUTS | ABSTRACTS/ SOURCE DOCUMENTS |
| ACCORDION FILES | 1 | | | | |
| ENVELOPES | | | | | |
| VOLUMES | 1 | | | | |
| CAHIERS | | | | | |
| BOXES | | | | | |
| SHORELINE DATA | | | | | |
| SHORELINE MAPS (List): | | TP00338, TP00339 | | | |
| PHOTOBATHYMETRIC MAPS (List): | | NA | | | |
| NOTES TO THE HYDROGRAPHER (List): | | NA | | | |
| SPECIAL REPORTS (List): | | NA | | | |
| NAUTICAL CHARTS (List): | | 11385 | | | |
| OFFICE PROCESSING ACTIVITIES <i>The following statistics will be submitted with the cartographer's report on the survey</i> | | | | | |
| PROCESSING ACTIVITY | | | AMOUNTS | | |
| | | | VERIFICATION | EVALUATION | TOTALS |
| POSITIONS ON SHEET | | | | | 2151 |
| POSITIONS REVISED | | | | | |
| SOUNDINGS REVISED | | | | | |
| CONTROL STATIONS REVISED | | | | | |
| | | | TIME-HOURS | | |
| | | | VERIFICATION | EVALUATION | TOTALS |
| PRE-PROCESSING EXAMINATION | | | | | |
| VERIFICATION OF CONTROL | | | | | |
| VERIFICATION OF POSITIONS | | | 28 | | 28 |
| VERIFICATION OF SOUNDINGS | | | 55 | | 55 |
| VERIFICATION OF JUNCTIONS | | | | | |
| APPLICATION OF PHOTOBATHYMETRY | | | | | |
| SHORELINE APPLICATION/VERIFICATION | | | | | |
| COMPILATION OF SMOOTH SHEET | | | 36 | | 36 |
| COMPARISON WITH PRIOR SURVEYS AND CHARTS | | | | 5 | 5 |
| EVALUATION OF SIDE SCAN SONAR RECORDS | | | | | |
| EVALUATION OF WIRE DRAGS AND SWEEPS | | | | | |
| EVALUATION REPORT | | | | 30 | 30 |
| GEOGRAPHIC NAMES | | | | | |
| OTHER* | | | | | |
| *USE OTHER SIDE OF FORM FOR REMARKS | | | TOTALS | 119 | 35 |
| | | | | | 154 |
| Pre-processing Examination by D. Neander | | | Beginning Date 11/11/92 | Ending Date 4/23/93 | |
| Verification of Field Data by R. Mihailov | | | Time (Hours) 119 | Ending Date 10/5/93 | |
| Verification Check by | | | Time (Hours) | Ending Date | |
| Evaluation and Analysis by R. Mihailov | | | Time (Hours) 35 | Ending Date 10/28/93 | |
| Inspection by B. Olmstead | | | Time (Hours) 18 | Ending Date 11/01/93 | |

EVALUATION REPORT

H-10448

1. INTRODUCTION

Survey H-10448 is a basic hydrographic survey accomplished by the Atlantic Hydrographic Party 2, under the following Project Instructions.

OPR-J259-AHP, dated March 9, 1992

CHANGE NO. 1, dated June 2, 1992

CHANGE NO. 2, dated September 30, 1992

This survey was conducted in Florida and covers the eastern portion of Choctawhatchee Bay, from Hogtown Bayou to Basin Bayou. The surveyed area is bounded by latitude 30/23/05N to the south, latitude 30/30/05N to the north, longitude 86/13/05W to the east and longitude 86/16/50W to the west. The shoreline consists of sand, marsh and private piers. The bottom consists mainly of mud and sand. Depths range from 0.6 meters along the shoreline to 6.7 meters in Choctawhatchee Bay.

Predicted tides for Pensacola, Florida were used for the reduction of soundings during field processing. Approved hourly heights zoned from Santa Rosa, Hogtown Bayou, Florida gage 872-9376, Basin Bayou, Florida, gage 872-9381 and Big Hammock Point, Florida, gage number 872-9435 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. The velocity, and other offset 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 complete information.

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-J259-AHP, dated October 12, 1992.

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 several positions exceeds limits in terms of horizontal dilution of precision (HDOP). A review of the data, however, indicates that none of these fixes are used to position dangers to navigation. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable.

Positions of horizontal control stations used during hydrography are field values based on NAD 83. These values were used during office processing for the computation of positions. The smooth sheet and accompanying overlays are annotated with NAD 27 adjustment ticks based on values determined with 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: 0.713 seconds (21.949 meters)
Longitude: -0.203 seconds (-5.407 meters)

The year of establishment of control stations shown on the smooth sheet originates with the above mentioned horizontal control reports and the hydrographer's signal list.

Several soundings located at the entrances to Churchill Bayou, latitude 30/23/24N, longitude 86/14/40W, and Basin Bayou, latitude 30/29/09N, longitude 86/15/04W, were acquired by the hydrographer as "see field sheet" (SFS). These soundings were reduced using the final correctors and drafted onto the smooth sheet at the field sheet position. They were subsequently digitized for inclusion into the hydrographic file.

Shoreline drawn on the smooth sheet originates from 1:10,000 scale photographic enlargements of the shoreline map. These maps have been updated by 1991 Nanci support data and were compiled on NAD 27.

| | <u>Photo Date</u> | <u>Scale</u> |
|----------|-------------------|--------------|
| TP-00338 | Feb., Mar. 1989 | 1:20,000 |
| TP-00339 | Feb., Mar. 1989 | 1:20,000 |

The following shoreline changes are depicted on the smooth sheet in solid red, and were transferred from the final field sheet with supporting positional information. These revisions are adequate to supersede the common photogrammetrically delineated shoreline.

| <u>Feature</u> | <u>Latitude(N)</u> | <u>Longitude(W)</u> |
|----------------|--------------------|---------------------|
| Pier and ramp | 30/29/13.3 | 86/14/59.8 |
| Pier | 30/23/16.7 | 86/15/28.1 |
| Pier | 30/23/18.3 | 86/15/27.7 |
| Ramp | 30/23/55.6 | 86/13/43.6 |
| Pier | 30/23/55.4 | 86/13/46.8 |
| Pier | 30/23/53.3 | 86/13/53.0 |

3. HYDROGRAPHY

Except as noted 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.

Standard depth curves were adequately drawn and developed with the exception of the zero curve. This was due to the shallowness of some areas and the small range of tide.

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 1992 Edition.

5. JUNCTIONS

Survey H-10448 junctions with the following surveys.

| <u>Survey</u> | <u>Year</u> | <u>Scale</u> | <u>Area</u> |
|---------------|-------------|--------------|-------------|
| H-10453 | 1993 | 1:10,000 | East |
| H-10428 | 1992 | 1:10,000 | West |

The junction with survey H-10453 could not be accomplished because this survey is still in office processing. The junctions with this survey will be addressed in the Evaluation Report for survey H-10453.

The junction with survey H-10428 is complete.

6. COMPARISON WITH PRIOR SURVEYS

H-6448 (1939) 1:10,000

Prior survey H-6448 covers the entire survey area of the present survey. Generally, soundings agree within 0.5 meter between the prior survey and the present survey, the prior survey being shoaler. Shoreline around Alaqua Point and Alligator Point in Choctawhatchee Bay, has eroded approximately fifty meters since 1939. The remainder of the shoreline to include Hogtown and Basin Bayous has remained stable during the last fifty-three years.

Several prior survey features which are currently charted were investigated by the hydrographer and found not to exist. Discussions of these items are found in paragraphs M and N of the hydrographer's report.

Survey H-10448 is adequate to supersede this prior survey within the common area.

7. COMPARISON WITH CHART

| <u>Chart</u> | <u>Edition</u> | <u>Date</u> | <u>Scale</u> | <u>Datum</u> |
|--------------|----------------|-------------------|--------------|--------------|
| 11385SC | 20th edition | November 23, 1991 | 1:40,000 | NAD83 |

a. Hydrography originates with prior survey H-6448 and miscellaneous sources.

One charted "CAUTION" note centered at latitude 30/25.5N, longitude 86/17.2W, should be revised. There are indications that submerged iron pipes still exist in this area. Refer to Paragraph N of the hydrographer's report for further discussion and charting recommendations.

Except where noted above, survey H-10448 is adequate to supersede charted hydrography within the common area.

b. AWOIS

All AWOIS items within the survey area originate with miscellaneous sources. Refer to the hydrographer's report for discussion and disposition of these features.

c. Controlling Depths

The Intracoastal Waterway (ICW) is located within the survey area and has a project depth of 12 feet (3.6 meters). Survey depths in this region of the ICW are deeper than the charted

project depth. The survey depths found range from 4.4 meters (14.4 feet) to 5.5 meters (18 feet).

d. Aids to Navigation

One fixed aid to navigation, Choctawhatchee Bay Light 47, was located during this survey. This position is approximately 120 meters ESE of the charted position. See attached 76-40 form for revised position.

There are no floating aids or features of landmark value located within the area of this survey.

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

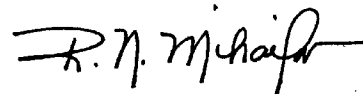
The hydrographer reported eight piles and one dangerous submerged wreck as dangers to navigation to the USGS and DMAHTC. Copies of these reports are attached to this report. No additional dangers to navigation were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10448 adequately complies with the Project Instructions except where noted in this report.

9. ADDITIONAL FIELD WORK

This is a good hydrographic survey. No additional work is recommended.



R. N. Mihailov
Cartographer

APPROVAL SHEET
H-10448

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.

Bruce A. Olmstead
for Dennis J. Hill Date: 11/1/93
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

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.

Douglas G. Hennick
Commander Douglas G. Hennick, NOAA Date: 11/4/93
Chief, Pacific Hydrographic Section

Final Approval

Approved:

J. Austin Yeager
J. Austin Yeager Date: 11/22/93
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

