

H10599

NOAA FORM 76-35A	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SERVICE	
DESCRIPTIVE REPORT	
Type of Survey	Hydrographic Side Scan Sonar
Field No.	MI-10-2-95
Registry No.	H-10599
LOCALITY	
State	Florida
General Locality	Tampa Bay
Sublocality	10 NM West of Egmont Key
19 95	
CHIEF OF PARTY CDR R. L. Parsons	
LIBRARY & ARCHIVES	
DATE	MAY 31 1996

HYDROGRAPHIC TITLE SHEET

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 NUMBER:  
MI-10-02-95 (A)

State: Florida

General locality: Tampa Bay

Locality: 10 <sup>NM</sup> Nautical Miles West of Egmont Key

Scale: 1: 10,000 Date of survey: 02 May to 25 July 1995

Instructions dated: 03 March 1995 & 30 March 1995 Project Number: OPR-J343-MI-95

Vessel: NOAA Ship MT MITCHELL S-222

Chief of Party: CDR Roger L. Parsons

Surveyed by: J.A. Ferguson, T. Duffy, E. J. Van Den Ameele, J.D. Swallow, J.A. Mann, E.J. Sipos, R.H. Aldridge, R.C. Jones, S.A. Shaulis, U.L. Gardner, Jr., P.G. Lewit, M.J. Annis, E.R. Yniguez, C.A. Neely, S. L. Scherer, M.S. Platz, and M. Wiseman.

Soundings taken by echo sounder, hand lead-line, or pole: DSF 6000N fathometer

Record scaled by: MT MITCHELL personnel

Electronic record checked by: MT MITCHELL personnel

Protracted by: N/A Automated plot by: ENCAD NOVAJET III PLOTTER (AHB) Zeta 936 Plotters (FIELD)

Verification by: Hydrographic Surveys Branch PERSONNEL

Soundings in: Feet: \_\_\_\_\_ Fathoms: \_\_\_\_\_ Meters: (\*) at MLW: \_\_\_\_\_ MLLW: (\*): \_\_\_\_\_

Remarks: Basic Hydrographic and 200% Side Scan Sonar coverage of Fairway Anchorage, including AWOIS item #'s 3650 and 3652.

Electronic Data Processing (EDP) numbers involved in data acquisition: 2223, 2224, 2225 and 2226.

Time zones used: +0 for data collection and tidal data.

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

AWOIS/SURF MCR 6/11/96

MAY 31 1996 *[Signature]*

## Table of Contents

<u>Section</u>	<u>Page</u>
Project Sketch	2
A. Project	3
B. Area Surveyed	3
C. Survey Vessels	4
D. Automated Data Acquisition and Processing	4
E. Sonar Equipment	5
F. Sounding Equipment	7
G. Corrections to Soundings	8
H. Control Stations	10
I. Hydrographic Position Control	10
J. Shoreline	13
K. Cross lines	13
L. Junctions	13
M. Comparison with Prior Surveys	14
N. Item Investigations	14
O. Comparison with the Chart	24
P. Adequacy of Survey	24
Q. Aids to Navigation	25
R. Statistics	26
S. Miscellaneous	26
T. Recommendation	27
U. Referral to Reports	27

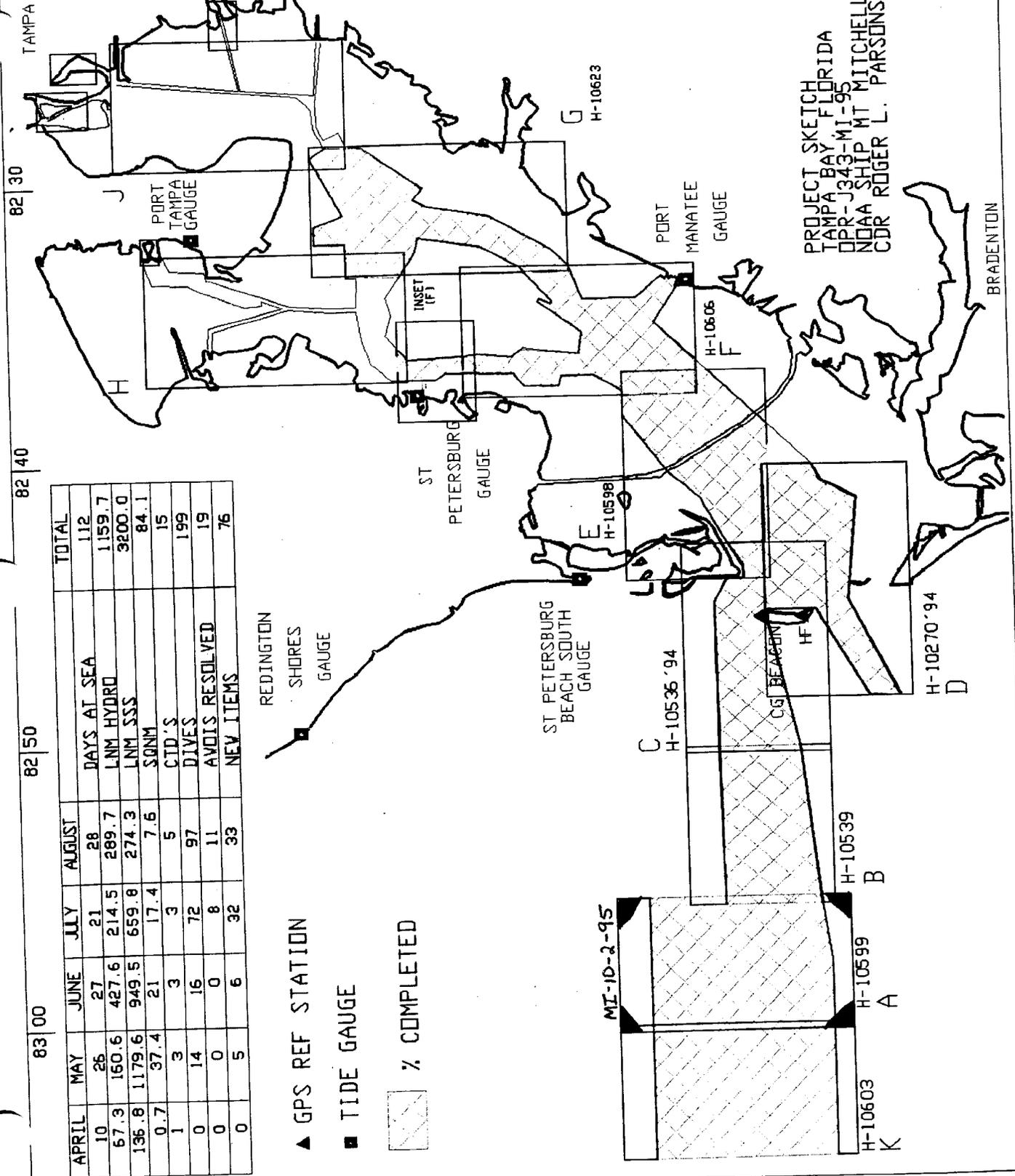
### Appendices

- I. Danger to Navigation Reports/ Dive Investigation Reports
- II. Non-Floating Aids and Landmarks for Charts
- III. List of Horizontal Control Stations
- IV. \* Geographic Names (FIELD)
- V. \* Tides and Water Levels
- VI. \* Supplemental Correspondence
- VII. Approval Sheet

\* FILED WITH THE ORIGINAL FIELD RECORDS

APRIL	MAY	JUNE	JULY	AUGUST	TOTAL
10	26	27	21	28	112
57.3	160.6	427.6	214.5	289.7	1159.7
136.8	1179.6	949.5	659.8	274.3	3200.0
0.7	37.4	21	17.4	7.6	84.1
1	3	3	3	5	15
0	14	16	72	97	199
0	0	0	8	11	19
0	5	6	32	33	76
					DAYS AT SEA
					LNM HYDRO
					LNM SSS
					SONM
					CTD'S
					DIVES
					AVOIDS RESOLVED
					NEW ITEMS

- ▲ GPS REF STATION
- TIDE GAUGE
- ▨ % COMPLETED



PROJECT SKETCH  
 TAMPA BAY FLORIDA  
 DPR-J343-MI-95  
 NOAA SHIP MT MITCHELL  
 CDR ROGER L. PARSONS

BRADENTON

MI-10-2-95

H-10603  
K

H-10599  
A

H-10539  
B

C  
H-10536 '94

E  
H-10598

ST PETERSBURG  
GAUGE

PORT MANATEE  
GAUGE

F  
H-10606

G  
H-10623

PORT TAMPA  
GAUGE

D  
H-10270 '94

H  
CGT BEACON

TAMPA

## **A. PROJECT**

- A.1** This survey was conducted in accordance with Project Instructions OPR-J343-MI, Tampa Bay, Florida.
- A.2** The date of the instructions for 1995 operations is March 3, 1995.
- A.3** Change No.1: Amendment to Instructions for section **5.0. TIDES** is dated March 30, 1995.
- A.4** Sheet letter "A" was specified by the project instructions.
- A.5** Project OPR-J343-MI responds to requests from the Tampa Bay Pilots, the Tampa Bay Marine Advisory Council, local port authorities, the Seventh U.S. Coast Guard District, and the U.S. Army Corps of Engineers (USACE) to acquire modern hydrography of the areas adjacent to the USACE dredged channels. This area was last surveyed in 1975.

## **B. AREA SURVEYED**

**B.1** The survey area is located 8-12 nautical miles west of the entrance to Tampa Bay, Florida. Existing depths are between 9 and 17 meters (29 to 55 feet). 200% side scan sonar coverage is required in the navigable areas of the survey. For this sheet this includes the channel, safety fairway, and anchorage leading to Tampa Bay. In addition, the spoil areas are included in the survey limits to update these discontinued areas. AWOIS items 3650 and 3652 are included in the survey area on this sheet and require investigation.

The primary traffic in the area are various deep draft cargo vessels, tugs, barges, fishing vessels, and recreation vessels. The deepest drafts observed transiting this sheet was 12 meters.

**B.2** The project sheet is rectangular in shape. The latitude and longitude of the corners of the sheet are:

27° 33' 42.0''N	082° 55' 51.0''W
27° 33' 42.0''N	083° 00' 29.0''W
27° 40' 18.0''N	083° 00' 29.0''W
27° 40' 18.0''N	082° 55' 51.0''W

The AWOIS listing indicated that AWOIS items 3650 and 3652 both required 200% side scan sonar coverage. The charted positions and search radii for the AWOIS items on this sheet are as follows:

<u>Item</u>	<u>Charted Position</u>	<u>Search Radius</u>
AWOIS 3650	27° 36' 50.11"N 83° 00' 05.38"W	200 meters



CONTACT	2.48	April 12, 1995
CONVERT	3.65	March 8, 1995
DAS_SURV	6.80	April 12, 1995
DIAGNOSE	3.05	March 8, 1995
DISK_UTIL	1.00	March 8, 1995
DP	2.18	March 8, 1995
DPCONVERT	1.03	March 8, 1995
DSNEDITS	1.04	March 8, 1995
EXCESS	4.32	March 8, 1995
FILESYS	3.31	March 8, 1995
GRAFEDIT	1.06	March 8, 1995
HIPSTICK	1.01	March 8, 1995
HPRAZ	1.26	March 8, 1995
INVERSE	2.02	March 8, 1995
LISTDATA	1.02	March 8, 1995
LOADNEW	2.13	March 8, 1995
LSTAWOIS	3.10	March 8, 1995
MAINMENU	1.20	March 8, 1995
MAN_DATA	3.02	March 8, 1995
NEWPOST	6.13	March 8, 1995
PLOTALL	2.32	March 8, 1995
POINT	2.12	March 8, 1995
PREDICT	2.01	March 8, 1995
PRESURV	7.11	March 8, 1995
PRINTOUT	4.04	March 8, 1995
QUICK	2.07	March 8, 1995
RAMSAVER	1.02	March 8, 1995
REAPPLY	2.12	March 8, 1995
RECOMP	1.04	March 8, 1995
SCANNER	1.00	March 8, 1995
SELPRINT	2.05	March 8, 1995
SYMBOLS	2.00	March 8, 1995
VERSIONS	1.00	March 8, 1995
ZOOMEDIT	2.33	March 8, 1995

*SHIPDIM* version 2.1 and a LOTUS 1-2-3 spreadsheet were used to compute DGPS performance checks.

**D.2** Two programs were used to compute velocity correctors: *VELOCITY* (Ver. 2.11), dated September 21, 1994, and *CAT* (Ver. 2.00), dated December 18, 1992. Programs *DAILYDQA* (Ver. 2.2), and *SMLGAUGE* (Ver. 2.2), both dated March 23, 1995, were used to compute least depths and conduct quality control for the MOD III diver's least depth gauge.

**D.3** There were no nonstandard automated acquisition or processing methods used.

## **E. SIDE SCAN SONAR EQUIPMENT**

**E.1** Side scan sonar operations were conducted using an EG&G Model 260-TH slant range corrected side scan recorder and a Model 272-T (single frequency) towfish. The following list shows the equipment serial numbers and corresponding dates used for each boat.

<u>Vessel Number</u>	<u>Equipment Type</u>	<u>Serial Number</u>	<u>Days Used</u>
2223	EG&G Recorder	12102	122-206
2223	EG&G Towfish	10823	122-145
2223	EG&G Towfish	11591	151-206
2225	EG&G Recorder	16672	122-206
2225	EG&G Towfish	11591	122-145
2225	EG&G Towfish	10823	151-206
2226	EG&G Recorder	16669	122-206
2226	EG&G Towfish	11904	122-206

**E.2** All side scan sonar towfish were configured with a 20° beam depression.

**E.3** The 100 kHz frequency for the side scan sonar was used throughout the entire survey.

**E.4 a)** In sufficiently deep water and calm sea conditions the 100 meter range scale was used for coverage. A few times sea conditions precluded the use of the 100 meter range scale. In which case, 75 meter range scale was used to obtain adequate coverage with minimal sea return.

The 50 meter range scale was used for contact development. The deep water on this sheet and the limited amount of cable length on the launches precluded use of 25 meter range scale.

Line spacing for main scheme coverage was determined using the formula provided in section 7.3.2.2 of the Field Procedures Manual ( $LS_{max} = 2RS - 2EPE_{max}$ ). The predicted maximum estimated position error (EPE) did not exceed 15 meters within the survey area, so a maximum line spacing of 170 meters was established for the 100 meter range scale and 120 meter line spacing for the 75 meter range scale.

**b)** Daily opening and closing confidence checks were obtained either by towing the fish past the anchor chain of MT. MITCHELL, buoys, or over unique bottom characteristics found during the survey.

**c)** As indicated in section B.2 of this report, AWOIS items 3650 and 3652 required 200% side scan sonar coverage. The search radii for both AWOIS items was 200 meters. Since both search radii were within the survey limits 200% coverage was obtained on the items during normal side scan coverage.

**d)** On a few occasions, schools of fish were observed both in the water and on the trace. In addition, other vessels created turbulence in the water resulting from their wakes. Whenever possible, these sources of noise were annotated on the sonar record. When these factors obscured the sonar traces the affected area was rejected and resurveyed.

**e)** The towfish were deployed from the sterns of all vessels during the entire survey period.

**E.5** Once a contact was considered significant, based on shadow height or fathometer readings and correlation with 200% coverage, a launch was sent back to the contact for further development. The contact development consists of running side scan sonar lines over the contact to ensonify it from different perspectives. These development lines were run using the 50 meter range scale. The developments are discussed in section N.

**E.6** Any contact thought to be significant was entered into the contact tables. Significance was based on shadow height and general appearance of the contact. Once 200% coverage was achieved the contact tables were compared to see which contacts warranted development. The contacts deemed important were then developed using the procedures described in section E.5 above.

Overlap was checked on-line using the real-time swath plot and checked again during processing using the edited swath plot. During routine data acquisition for this sheet, several gaps in the side scan sonar coverage were created. The sources of these gaps included poor side scan quality including wake from other vessels, DGPS reception failures, bad helm, and starting or breaking line inappropriately. These gaps were found during data processing and a launch was sent to run a line to fill the gap and achieve the appropriate side scan sonar coverage.

## **F. SOUNDING EQUIPMENT**

**F.1** All hydrographic soundings were acquired using a Raytheon 6000N Digital Survey Fathometer (DSF). The following list shows the equipment serial numbers and corresponding days used for each boat.

<u>Vessel Number</u>	<u>Serial Number</u>	<u>Days Used</u>
2223	B046N	122-135
2223	B053N	137-143
2223	B047N	144-151
2223	B054N	152-193
2223	A108N	194-202
2223	B047N	202-206
2224	B054N	122-138
2224	B053N	151-206
2225	B053N	122-130
2225	C066	130-137
2225	B042N	138-201
2225	B054N	202-206
2226	B047N	122-141
2226	B046N	142-206

F.2 A MOD III diver's depth gauge (S/N 68337) was used during this survey. *SMLGAUGE* Version 2.2 program was used to compute the least depths from readings of the MOD III obtained during dives. System checks on the fathometers were performed using lead lines. These lines were calibrated as per instructions in the Hydrographic Manual section 7.2.1.2. Refer to **Separate IV\*** for calibration data and the list of lead line checks for the launches.

F.3 No faults in the sounding equipment were observed.

F.4 Both the high (100kHz) and the low (24 kHz) frequency sounding data were recorded during data acquisition. Only high frequency soundings were selected for plotting. Low frequency sounding data were examined for irregularities.

## **G. CORRECTIONS TO SOUNDINGS**

G.1 a) Detailed information and tables used to determine all corrections to soundings can be found in **Separate IV\***

The velocity of sound through water was determined using a Seacat conductivity, temperature and density gauge (S/N 192472-0284 and S/N 192472-0285) manufactured by Sea-Bird Electronics, Inc. A Data Quality Assurance (DQA) Test was conducted with each velocity cast to ensure the meter was within tolerance. DQA tests were done with hydrometers calibrated by using standards of the National Institute of Standards and Technology which conforms to and satisfy the requirements set for this project.

All sound velocity data were processed using *VELOCITY* Version 2.11 and *CAT* Version 2.00 software. The computed velocity correctors were entered into the HDAPS sound velocity tables and applied on-line to digitized soundings except for data collected on the days of the casts. Data was reapplied for those days. Refer to **Separate IV\*** for dates and positions of casts and for sound velocity correctors applied to this survey.

b) There was no variation in the DSF-6000N instrument initial.

c) No instrument correctors to the DSF-6000N were required.

d) No instrument corrections were determined from direct comparison of lead-line checks. Refer to **Separate IV\*** for a list of lead line checks for each launch.

e) All sounding correctors were applied to both the narrow (100 kHz) and the wide (24 kHz) beams.

f) The static draft of the launches (VesNos. 2223, 2224, 2225, 2226) were determined in

**\* FILED WITH THE ORIGINAL FIELD RECORDS**  
NOAA Ship MT. MITCHELL

Survey: H-10599

Page: 8

February, 1995. A calibrated steel tape was used to measure the distance from the transducer to a reference line on the launch above the waterline. The launches were then put in the water and the distance from the waterline to the reference line was measured. Static drafts were used in HDAPS offset tables online and during post-processing for all launches. Refer to **Separate III\*** for the offset tables. There was no significant difference between the static draft measured in the Elizabeth River and the static draft measured in the project area.

g) Settlement and squat correctors for each launch were determined, using procedures outlined in the Hydrographic Manual, on the Elizabeth River in 1995 (2223 and 2226 in February, 2224 and 2225 in April). An observer, stationed with a level on a pier, measured changes in relative height as each launch ran toward and away from the observer at various speeds. Settlement and squat correctors were applied to soundings through the HDAPS offset table. Refer to **Separate IV\*** for results of the static and dynamic draft determinations.

h) None of the launches are equipped with a heave, roll, and pitch sensor. Sea action on the fathometer record from the launches was scanned out during processing.

G.2 The HDAPS program "Reapply" was used for data collected on the day of a velocity cast. On that day the launches ran on velocity table 0, and on the appropriate table thereafter. Once the new HDAPS velocity table became available the data was reapplied correspondingly.

G.3 Velocity zoning was not required and there were no special correctors applied to the fathometers.

G.4 Pneumatic depth gauges were not used during this survey. The MOD III pressure gauge was used for least depth determination during diver investigations. A DQA was performed once daily during non-dive days and before and after dive operations on dive days. The DQA was performed by comparing the MOD III gauge to the ship's barometer and entering the readings into the *DAILYDQA* program. A printout was produced for each check. Copies are included in **Separate IV\***

G.5 Occasionally, sea conditions affected the fathometer record. Launches are not equipped with heave, pitch and roll sensors so the sea action was scanned out and selected sounding depths were edited during processing.

G.6 a) The tidal datum for this project is Mean Lower Low Water (MLLW). Predicted tides from a gage at Clearwater Beach, Florida (872-6724) were provided on magnetic (floppy) disk before the start of the project. Water levels were monitored for the primary gage at Reddington Beach (872-6575) and at a secondary gage (872-6430) which was located at St. Petersburg Beach. Refer to **Appendix V\*** for a description of these gages. **APPROVED TIDES AND ZONES WERE APPLIED DURING OFFICE PROCESSING**

b) The data from the disk were used to generate predicted tide correctors for the tide tables. The tide tables were applied on-line and during processing of sounding data. A copy of the tide tables is included in **Separate IV\***

c) Zoning was required for this project. This survey was all inclusive of zone one . This zone required a -20 minute time correction and a 0.70 range ratio to the predicted tides at Clearwater Beach (872-6724). Refer to **Appendix V** for more information about this zone.

## **H. CONTROL STATIONS SEE ALSO THE EVALUATION REPORT**

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

**H.2** Two DGPS reference stations were used to control this survey. The list of horizontal control stations is ~~located in Appendix III.~~ **APPENDED TO THIS REPORT**

**H.3** Station TAMPA PILOTS on Egmont Key, Florida was recovered and position verified by MT. MITCHELL personnel in April, 1995. This position was used to set up a NOAA High Frequency (HF) DGPS system for secondary position control of the project. Program *MONITOR* version 3.0 was run for 24 hours once the system was established to confirm the position and ensure that no multi-path or other site specific problems existed. This was done by setting up an Ashtech M-XII receiver connected to a Magnavox MX-50R beacon receiver over the mark and comparing the known position to the computed position. The MX-50R received differential correctors from the U.S. Coast Guard beacon on Egmont Key. See **Appendix III** for the *MONITOR* output.

**H.4** The TAMPA PILOTS station mark was recovered in Egmont Key, Florida using the North American Datum of 1983 (NAD 83).

**H.5** No horizontal control stations were established during this project.

**H.6** No position anomalies, problems, or unconventional survey methods occurred during recovery of horizontal control for this project.

## **I. HYDROGRAPHIC POSITION CONTROL**

**I.1** The primary method of sounding position control was the Differential Global Positioning System (DGPS).

**I.2** In accordance with the Field Procedures Manual (FPM), the maximum expected positional error (EPE) for this survey was 15 meters (1.5 mm at a survey scale of 1:10,000). At no time in this survey did the EPE consistently exceed 15 meters.

**I.3** The NOAA HF DGPS shore system consists of :

Ashtech M-XII GPS receiver

S/N 700354B2501

L1/L2 GPS antenna

S/N 700228D2311

**\* FILED WITH THE ORIGINAL FIELD RECORDS**

Raytheon 152 transceiver  
LRD-2 Long Range Data Modulator

S/N BS29252  
S/N 606, DN 122-159  
S/N 613, DN 159-206

On each launch there is an Ashtech GPS receiver, a Magnavox MX-50R DGPS beacon receiver for U.S.C.G. differential beacons, and a LRD-1 long range data receiver for the NOAA HF DGPS system. The ship also has the same equipment but is set up to monitor two reference stations simultaneously. The units used are as follows:

<u>VESSEL</u>	<u>MODEL</u>	<u>S/N</u>
2220	Ashtech M-XII GPS Receiver "A"	700417B1129
	Ashtech M-XII GPS Receiver "B"	700417B1004
	Magnavox MX-50R Beacon Receiver "A"	315
	Magnavox MX-50R Beacon Receiver "B"	316
	LRD-1 HF Receiver	205
	GPS Antenna (starboard)	700391A0270
	GPS Antenna (port)	700391A0451
2223	Ashtech M-XII GPS Receiver	700417B1196
	Magnavox MX-50R Beacon Receiver	168
	LRD-1 HF Receiver	249
	GPS Antenna	700371A0533
2224	Ashtech M-XII GPS Receiver	700417B1190
	Magnavox MX-50R Beacon Receiver	207
	LRD-1 HF Receiver	250
	GPS Antenna	700378A0468
2225	Ashtech M-XII GPS Receiver	700417B1182
	Magnavox MX-50R Beacon Receiver	117
	LRD-1 HF Receiver	206, DN 122-139
	LRD-1 HF Receiver	250, DN 141-206
	GPS Antenna	700391A0517
2226	Ashtech M-XII GPS Receiver	700417B1197
	Magnavox MX-50R Beacon Receiver	219
	LRD-1 HF Receiver	299
	GPS Antenna	700391A0232, DN 122-137
	GPS Antenna	700391A0509, DN 138-206

I.4 As stated in section H.2, two DGPS reference stations were used: U.S.C.G. Egmont Key beacon and a NOAA HF DGPS shore system also on Egmont Key. To ensure EPE's of less than 15 meters the following HDOP<sub>max</sub>'s were determined using the formula from FPM

section 3.4.2.

<u>Station</u>	<u>ESE</u>	<u>EDE</u>	<u>Max. HDOP</u>
NOAA HF	4	0.3	3.7
USCG Egmont Key	4	0.3	3.7

DGPS performance checks were performed by comparing positioning of two independent DGPS stations. The inverse distance between the two independent stations' positions was computed to ensure it did not exceed the  $EPE_{max}$  of 15 meters. For the comparison, the launches would lay dead in the water alongside each other with their GPS antennae as close together as possible. The launches would then simultaneously mark their position by dumping the on-line HDAPS screen to the printer. The Easting and Northing values from each launch, along with the HDOP, and number of satellites used were entered into a *LOTUS 1-2-3* spreadsheet for computation of position error. The performance checks were done with each launch receiving correctors from an independent DGPS reference station for most of the checks. Occasionally, the launches would use the same station, if problems were encountered receiving the signal of a shore station. When the same station was used by both launches an additional performance check was obtained aboard MT. MITCHELL using the *SHIPDIM* program which monitored two independent stations. Performance checks were attempted once per week but were subject to equipment problems and bad weather. A copy of the performance checks are included in **Separate III.\***

MT. MITCHELL monitored two reference stations and recorded performance checks with the *SHIPDIM* program Version 2.1 during all periods of hydrography. The outlier files produced by the program were reviewed daily. A printed copy of the performance checks are included in **Separate III.\***

I.5 No calibration data were applied to the DGPS raw positioning data.

I.6 a) No unusual methods of calibrating the electronic positioning equipment were used.

b) No equipment malfunctions were encountered which affected positioning accuracy.

c) Localized thunderstorms occasionally downgraded the signals of the DGPS stations and correctors would not be received for a few seconds at a time. After 30 seconds of losing correctors, HDAPS goes into a dead reckoning (DR) mode. After 30 seconds of being in DR mode, HDAPS stops data collection. Survey operations would stop until the signal returned or the control was changed. If the signal was lost for only a few seconds, and it was felt that the course was steady through the period, data collection would continue.

d) Weak signals were only observed during the strong thunderstorms associated with this project area.

**\* FILED WITH THE ORIGINAL FIELD RECORDS**

e) No systematic errors were observed.

f) Antenna positions were corrected for offset and layback, and referenced to the position of the DSF-6000N transducer. These correctors were located in the HDAPS Offset table, and applied on-line to the positioning algorithm. Refer to **Separate III** for a copy of offset tables used during this survey. \* FILED WITH THE ORIGINAL FIELD RECORDS

g) Offset and layback distances for the boom (tow point) were located in the HDAPS Offset table and applied on-line. The values of the offsets and laybacks are included in the same tables as discussed in section f above. These values, along with the cable length, towfish height, and depth of water, were used by the HDAPS system to compute the position of the towfish.

## **J. SHORELINE**

No shoreline areas are present within the limits of this survey.

## **K. CROSS LINES**

**K.1.** Four cross lines were obtained running east and west across the sheet. In addition, the second 100% side scan sonar lines were run perpendicular to the first 100% lines. These soundings gave essentially a 50% cross line coverage. All overlapping soundings were compared for agreement.

**K.2.** Overall, agreement between the overlapping soundings is excellent. The largest difference found between cross lines and main scheme is 0.5 meters. This difference was found in several places on the sheet and is not indicative of a particular area.

**K.3.** The differences stated above could be attributed to different sea states from the times of collection of the soundings. Also, there are many rocky areas on the sheet that could contribute to the differences.

**K.4.** Soundings were collected with all vessels listed for this survey. Direct comparison between those soundings yielded excellent agreement.

## **L. JUNCTIONS SEE ALSO THE EVALUATION REPORT**

**L.1.** This survey junctions with two other surveys, H-10539 and H-10603, conducted concurrently with this survey. H-10603 is a 1:10,000 scale survey and overlaps on the

western side of this sheet. H-10539 is a 1:10,000 scale survey and overlaps a portion of the eastern side of this sheet.

L.2. Comparisons between the surveys are very good. The soundings generally agree to within 0.3 meters. No side scan sonar contacts were shared with surveys H-10539 and H-10603.

L.3. Because of good junction agreement, no further investigation is warranted.

L.4. No adjustments to soundings or features shared between these surveys are recommended.

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

M.1 Survey H-9338 is the most recent prior survey in this survey area available for comparison. H-9338 was a 1:20,000 scale basic hydrographic survey completed in 1975. In addition H-10232WD was a 1:20,000 scale wire drag survey completed in this area in 1986.

M.2 360 soundings from H-9338 were compared to observed depths from the final plot of this survey at a 1:20,000 scale in feet. The agreement between H-9338 and H-10599 is very good. H-10599 averaged 0.9 feet deeper than H-9338 with only 18 soundings being the largest difference of 3 feet deeper on H-10599. Survey H-10232WD was compared for any soundings from H-10599 that would be shoaler than the least depth wire drag areas. No soundings were found to be shoaler.

M.3 There are no significant features from H-9338 or H-10232WD that needed to be identified during this survey.

M.4 There were no significant shoaling or deepening trends observed on this survey as compared to prior surveys.

M.5 There were no contemporary non-NOS surveys in this area available for comparison.

THE PRESENT SURVEY IS ADEQUATE TO SUPERSEDE THE PRIOR SURVEYS  
IN THE COMMON AREAS.

### **N. ITEM INVESTIGATIONS SEE ALSO THE EVALUATION REPORT**

There were two AWOIS items assigned for this survey area. Descriptions are as follows:

#### **AWOIS 3650**

**State and Locality:** Florida, Tampa Bay

Position: 27° 36' 50.11" N 083° 00' 05.38" W

Datum: MLLW Reported Depth: 36 feet

Type of Feature: Sounding

Source: FE273/82WD--RUDE/HECK; Fathometer depth of 36 feet in depths of 48 feet. H10232/86WD--RUDE/HECK; Above 36 foot depth was neither verified nor disproved but was cleared by 29 feet.

Survey Requirements: 200% side scan sonar coverage, 200 meter search radius. Echo sounder development. Diver investigation.

Method of Investigation: A 200 meter search radius was established for 200% side scan sonar coverage.

Results of Investigation: This coverage was obtained during regular side scan sonar coverage for the survey area. 100% coverage was oriented north-south and 200% oriented east-west. In addition 50 meter spaced sounding lines were run within the search radius. No significant contacts were found within the search area. The area in this search radius appears to be very rocky from the side scan sonar record. Several rocks within 500 meters were diver investigated. The descriptions of the diver investigations follow the AWOIS descriptions. The shoalest sounding found is 14.3 meters (47 feet). The depth at the center of the AWOIS item is 15.4 meters (50 feet).

Comparison with Prior Surveys: Refer to section M.

Comparison with Chart: Refer to section O. No danger to navigation report was filed.

Recommendation: No further investigation of this AWOIS item is needed. <sup>CONCUR</sup> Update this area on the chart with soundings obtained from this survey. ~~DO NOT CONCUR - NO DEPTHS ARE SHOWN WITHIN THE LIMITS OF THE CHARTED SPOIL AREA~~

**AWOIS 3652**

State and Locality: Florida, Tampa Bay

Charted Position: 27° 37' 22.11" N 082° 59' 26.38" W

Datum: MLLW Reported Depth: 32 feet

Type of Feature: Sounding

Source: FE273/82--RUDE/HECK; Fathometer depth of 32 feet in depths of 47 feet.

H10232/86WD--RUDE/HECK; Above 32 foot depth was neither verified nor disproved but was cleared by 24 feet.

Survey Requirements: 200% side scan sonar coverage, 200 meter search radius. Echo sounder development. Diver investigation.

Method of Investigation: A 200 meter search radius was established for 200% side scan sonar coverage.

Results of Investigation: This coverage was obtained during regular side scan sonar coverage for the survey area. 100% coverage was oriented north-south and 200% oriented east-west. In addition 50 meter spaced sounding lines were run within the search radius. The shoalest sounding found is 9.6 meters (32 feet) on the outer edge of the search radius. The depth at the center of the AWOIS item is 13.5 meters (44 feet). The area in this search radius appears to be very rocky from the side scan sonar record. Several rocks within 500 meters were diver investigated. The descriptions of the diver investigations follow this AWOIS description. 31 FT SOUNDING FOUND IN LATITUDE 27° 37' 18.353" N, LONGITUDE 82° 59' 31.556" W

Comparison with Prior Surveys: Refer to section M.

Comparison with Chart: Refer to section O. No danger to navigation report was filed.

Recommendation: The 32 foot sounding reported in the AWOIS description has been resolved by finding a 31<sup>CONCUR</sup> foot depth. Update this area on the chart with soundings obtained from this survey. ~~DO NOT CONCUR - NO DEPTHS ARE SHOWN WITHIN THE LIMITS OF THE CHARTED DUMP SITE.~~

#### Other Contacts

As stated previously, several contacts were discovered and entered into contact tables. A list of the tables are contained in Separate V. \* Tables one and two are contacts entered from fathometer records. Tables four through eight contain contacts from sonar records. After careful examination of fathometer records and sonar records, the contacts were considered for further development. Most of the contacts are considered insignificant. Those contacts that were developed are labeled with a dv in the remarks column. The contacts found during developments are listed in tables nine through eleven. Those contacts were then considered for diver investigation. \* FILED WITH THE ORIGINAL FIELD RECORDS

Dive investigations consisted of dropping a buoy line on the position obtained from the development. Divers would then dive on the buoy line and if necessary do a circle search for the item. The water clarity in this area was excellent. Visibility often exceeded 50 feet. On most of the dives a search was not necessary due to the great visibility and divers located the largest items easily. A detailed description of those investigations follows. In addition a ~~copy~~ of the dive investigation forms are ~~contained in Appendix 4.~~ APPENDED TO THIS REPORT. The surrounding water depths are taken from the fathometer record near the detached position and are corrected for

draft and sound velocity only. The item depths are the computed depths from the readings of the MOD III gauge and are **not** corrected for predicted tides (unless otherwise noted).

The charted spoil area on the sheet was found to contain numerous rocks and coral heads. Dive investigation items A1 through A11 detail the investigative work for the largest rocks in the area. Recommend charting the area as Rocky and ~~use soundings on the chart to indicate the least depths of items A1 through A11.~~ ~~Do not concur.~~ ~~SEE SECTION N.1 OF THE EVALUATION REPORT~~ CHARTING PRESENT SURVEY SOUNDINGS IN THE COMMON AREA.

**Dive Investigation A1**

Lat: 27° 37' 06.22" N                      Surrounding Water Depth: 12.4 meters 40 ft  
Long: 82° 59' 43.26" W                      Least Depth of Item: 10.5<sup>4</sup> meters 34 ft

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	128	5815.42	100% SSS
	188	9211.34, 9313.36	Development
	190	100	Dive Detached Position

**Results of Investigation:** The contact was first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed several objects approximately 2 meters high. Divers investigated the area and found several large rocks with coral growth. The largest was measured for a least depth with the MOD III least depth gauge at 1955 UTC on DN 190 and positioned with a launch.

**Recommendation:** Item is in rocky spoil area. Chart area as Rocky and chart sounding at least depth. ~~Do not concur - CHART A ROCK WITH A LEAST DEPTH~~

Latitude: 27° 37' 06.22" N                      OF 34 ft. (34RK)  
Longitude: 82° 59' 43.26" W  
Least Depth: 10.5<sup>4</sup> meters 34 ft

**Dive Investigation A2, A2.1, A2.2**

Lat: 27° 36' 49.21" N                      Surrounding Water Depth: 14.2<sup>0</sup> meters 46 ft  
Long: 82° 59' 24.10" W                      Least Depth of Item: 14.2<sup>3</sup> meters 43 ft

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	142	8987.21	100% SSS
	188	9207.36, 9209.33	Development
	190	103	Dive Detached Position
	193	106,107	Dive Detached Positions

**Results of Investigation:** These contacts were first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed several objects approximately 1 meter high. Divers investigated the area and found a rock field. The three largest rocks were measured for a least depth with the MOD III least depth gauge and each rock was positioned with a launch. The position listed here (D.P. 106) is the center rock of (DIVE A2.2)

the three. The least depth was obtained at 17<sup>34</sup>~~25~~ UTC on DN 193.

**Recommendation:** Item is in rocky spoil area. Chart area as Rocky and chart sounding at least depth. ~~DO NOT CONCUR~~

Latitude: 27° 36' 49.<sup>7</sup>~~2~~1" N  
Longitude: 82° 59' 24.<sup>0</sup>~~1~~0" W  
Least Depth: 14.<sup>3</sup>~~2~~ meters 43 ft

**Dive Investigation A3**

Lat: 27° 37' 01.82" N      Surrounding Water Depth: 1<sup>5</sup>~~6~~.2 meters 50 ft  
Long: 83° 00' 15.30" W      Least Depth of Item: 1<sup>4</sup>~~4~~.8 meters 45 ft  
13.9

History:	DN	REF. FIX #'S	ACTIVITY
	128	5918.40	100% SSS
	189	9272.22, 9272.30	Development
	193	105	Dive Detached Position

**Results of Investigation:** The contact was first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed a large item. Divers investigated the area and found several large rocks with coral growth. The largest was measured for a least depth with the MOD III least depth gauge at 1619 UTC on DN 193 and positioned with a launch.

**Recommendation:** Item is in rocky spoil area. Chart area as Rocky and chart sounding at least depth. ~~DO NOT CONCUR~~

Latitude: 27° 37' 01.82" N  
Longitude: 83° 00' 15.30" W  
Least Depth: 1<sup>4</sup>~~4~~.8 meters 45 ft  
13.9

**Dive Investigation A4**

Lat: 27° 37' 04.30" N      Surrounding Water Depth: 1<sup>3</sup>~~4~~.8 meters 45 ft  
Long: 82° 59' 52.05" W      Least Depth of Item: 12.<sup>2</sup>~~2~~ meters 40 ft

History:	DN	REF. FIX #'S	ACTIVITY
	128	5815.42	100% SSS
	188	9211.34, 9313.36	Development
	193	110	Dive Detached Position

**Results of Investigation:** The contact was first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed several objects approximately 2 meters high. Divers investigated the area and found several large rocks with coral growth. The largest was measured for a least depth with the MOD III least depth gauge at 1838 UTC on DN 193 and positioned with a launch.

**Recommendation:** Item is in rocky spoil area. Chart area as Rocky and chart sounding at least depth. ~~DO NOT CONCUR~~

Latitude: 27° 37' 04.30" N  
Longitude: 82° 59' 52.05" W  
Least Depth: 12.7<sup>3</sup> meters 40 ft

**Dive Investigation A5**

Lat: 27° 37' 04.88" N      Surrounding Water Depth: 13.8  
Long: 82° 59' 49.69" W      Least Depth of Item: ~~14.3~~ meters 45 ft  
12.9<sup>6</sup> meters 41 ft

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	128	5836.81	100% SSS
	139	8916.18	200% SSS
	189	9274.41	Development
	193	111	Dive Detached Position

**Results of Investigation:** The contacts were first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed two objects approximately 1.5 meters high. Divers investigated the area and found two large rocks 30 feet apart. The largest was measured for a least depth with the MOD III least depth gauge at 1939 UTC on DN 193 and positioned with a launch.

**Recommendation:** Item is in rocky spoil area. Chart area as Rocky and chart sounding at least depth. ~~DO NOT CONCUR~~

Latitude: 27° 37' 04.88" N  
Longitude: 82° 59' 49.69" W  
Least Depth: 12.9<sup>6</sup> meters 41 ft

**Dive Investigation A6**

Lat: 27° 36' 49.51" N      Surrounding Water Depth: 14.9  
Long: 82° 59' 55.94" W      Least Depth of Item: ~~15.3~~ meters 49 ft  
14.4<sup>3</sup> meters 47 ft

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	128	5857.32	100% SSS
	189	9263.32, 9265.43	Development
	193	112	Dive Detached Position

**Results of Investigation:** The contact was first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed an object approximately 1.5 meters high. Divers investigated the area and found one large rock with coral growth. The rock was measured for a least depth with the MOD III least depth gauge at 2033 UTC on DN 193 and positioned with a launch.

**Recommendation:** Item is in rocky spoil area. Chart area as Rocky and chart sounding

at least depth. ~~Do NOT CONCUR~~

Latitude: 27° 36' 49.51" N  
Longitude: 82° 59' 55.94" W  
Least Depth: 14.4<sup>3</sup> meters 47 ft

**Dive Investigation A7**

Lat: 27° 37' 18.76" N      Surrounding Water Depth: 13.8  
Long: 82° 59' 51.12" W      Least Depth of Item: ~~14.4~~ meters 45 ft  
12.9<sup>3</sup> meters 40 ft

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	128	5831.89, 5833.65	100% SSS
	139	8874.77	200% SSS
	189	9276.32	Development
	204	115	Dive Detached Position

**Results of Investigation:** The contacts were first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale revealing several objects approximately 1.5 meters high. Divers investigated the area and found several large rocks with coral growth. The largest was measured for a least depth with the MOD III least depth gauge at 1258 UTC on DN 204 and positioned with a launch.

**Recommendation:** Item is in rocky spoil area. Chart area as Rocky and chart sounding at least depth. ~~Do NOT CONCUR~~

Latitude: 27° 37' 18.76" N  
Longitude: 82° 59' 51.12" W  
Least Depth: 12.9<sup>3</sup> meters 40 ft

**Dive Investigation A8**

Lat: 27° 37' 27.83" N      Surrounding Water Depth: 3  
Long: 82° 59' 49.68" W      Least Depth of Item: 14.8 meters 45 ft  
13.9<sup>3</sup> meters 43 ft

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	128	5831.28	100% SSS
	138	8832.34	200% SSS
	189	9276.32	Development
	204	116	Dive Detached Position

**Results of Investigation:** The contacts were first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed several objects approximately 1 meter high. Divers investigated the area and found a field of rocks. The largest was measured for a least depth with the MOD III least depth gauge at 1331 UTC on DN 204 and positioned with a launch.

**Recommendation:** Item is in rocky spoil area. Chart area as Rocky and chart sounding at least depth. ~~DO NOT CONCUR~~

Latitude: 27° 37' 27.83" N  
Longitude: 82° 59' 49.68" W  
Least Depth: 13.2 meters 43 ft

**Dive Investigation A9**

Lat: 27° 36' 59.71" N      Surrounding Water Depth: 14.3 meters 47 ft  
Long: 82° 59' 50.01" W      Least Depth of Item: 13.2 meters 41 ft  
12.6

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	139	8922.43	200% SSS
	193	9354.32, 9356.35	Development
	204	117	Dive Detached Position

**Results of Investigation:** The contacts were first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed several objects approximately 1.5 meters high. Divers investigated the area and found a field of rocks. The largest was measured for a least depth with the MOD III least depth gauge at 1402 UTC on DN 204 and positioned with a launch.

**Recommendation:** Item is in rocky spoil area. Chart area as Rocky and chart sounding at least depth. ~~DO NOT CONCUR~~

Latitude: 27° 36' 59.71" N  
Longitude: 82° 59' 50.01" W  
Least Depth: 13.2 meters 41 ft  
12.6

**Dive Investigation A10**

Lat: 27° 37' 03.03" N      Surrounding Water Depth: 13.8 meters 45 ft  
Long: 82° 59' 19.76" W      Least Depth of Item: 13.0 meters 42 ft  
12.8

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	127	5726.85	100% SSS
	189	9247.21, 9249.39	Development
	204	122	Dive Detached Position

**Results of Investigation:** The contact was first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed several objects approximately 1.5 meters high. Divers investigated the area and found a field of rocks. The largest was measured for a least depth with the MOD III least depth gauge at 1802 UTC on DN 204 and positioned with a launch.

**Recommendation:** Item is in rocky spoil area. Chart area as Rocky and chart sounding at least depth. ~~DO NOT CONCUR~~

Latitude: 27° 37' 03.03" N  
Longitude: 82° 59' 19.76" W  
Least Depth: ~~13.0~~ meters 42 ft  
12.8

**Dive Investigation A11**

Lat: 27° 36' 59.46" N      Surrounding Water Depth: 14.2<sup>0</sup> meters 46 ft  
Long: 82° 59' 16.94" W      Least Depth of Item: 13.3 meters 43 ft

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	127	5705.73	100% SSS
	189	9257.59, 9257.61	Development
	204	123	Dive Detached Position

**Results of Investigation:** The contact was first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed two objects approximately 1.5 meters high. Divers investigated the area and found one large rock with coral growth. The rock was measured for a least depth with the MOD III least depth gauge at 1852 UTC on DN 204 and positioned with a launch.

**Recommendation:** Item is in rocky spoil area. Chart area as Rocky and chart sounding at least depth. ~~Do Not~~ CONCUR

Latitude: 27° 36' 59.46" N  
Longitude: 82° 59' 16.94" W  
Least depth: 13.3 meters 43 ft

**Dive Investigation A12**

Lat: 27° 37' 24.27" N      Surrounding Water Depth: 13.1<sup>1</sup> meters 43 ft  
Long: 82° 56' 05.61" W      Least Depth of Item: ~~14.0~~ meters 40 ft  
13.0 meters 40 ft  
12.4

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	123	5138.15	100% SSS
	138	8849.83	200% SSS
	189	9239.30, 9241.36	Development
	204	118	Dive Detached Position

**Results of Investigation:** The contact was first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale revealed one object approximately 1.5 meters high. Divers investigated the area and found an 11 foot long, 3 foot diameter, metal pipe-like object open on both ends with coral growth. The item was measured for a least depth with the MOD III least depth gauge at 1455 UTC on DN 204 and positioned with a launch.

**Recommendation:** Chart an obstruction at:

Latitude: 27° 37' 24.27" N CONCUR - CHART AS 40 Obs'n  
 Longitude: 82° 56' 05.61" W  
 Least Depth: ~~13.0~~ meters 40ft  
 13.4

**Dive Investigation A13**

Lat: 27° 36' 48.24" N Surrounding Water Depth: ~~14.6~~<sup>13.8</sup> meters 45 ft  
 Long: 82° 57' 10.31" W Least Depth of Item: 13.6<sup>3</sup> meters 43 ft

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	123	5201.84	100% SSS
	189	9231.28, 9233.22	Development
	204	120	Dive Detached Position

**Results of Investigation:** The contact was first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed one object approximately 1 meter high. Divers investigated the area and found a triangular concrete structure 6 feet long and 4 feet wide covered with coral growth. The item was measured for a least depth with the MOD III least depth gauge at 1710 UTC on DN 204 and positioned with a launch.

**Recommendation:** Chart an obstruction at: CONCUR - CHART AS 43 Obs'n  
 Latitude: 27° 36' 48.24" N  
 Longitude: 82° 57' 10.31" W  
 Least Depth: 13.8<sup>3</sup> meters 43 ft

**Dive Investigation A14**

Lat: 27° 38' 02.34" N Surrounding Water Depth: 13.4 meters 44 ft  
 Long: 82° 56' 12.76" W Least Depth of Item: 12.8<sup>4</sup> meters 40 ft

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	138	8724.00	200% SSS
	188	9177.38, 9179.18	SSS Development
	204	119	Dive Detached Position
	205	6517-6544	Fathometer Development

**Results of Investigation:** The contact was first seen during normal side scan sonar coverage. The site was developed with 50 meter range scale and revealed a contact approximately 1.5 meters high. Divers investigated the area and found an extensive coral reef of uniform height 3 to 4 feet rising from the bottom. The reef was too extensive for divers to ensure that the least depth taken was the actual shoalest point of the reef. A least depth reading from the MOD III least depth gauge and a position were taken at the original SSS contact location. A fathometer development with 5 meter line spacing was then done over the reef to ensure the least depth of the feature was obtained. The reading from the

MOD III gauge was 12.6 meters (corrected with predicted tides). A 12.5 meter depth from the fathometer development (pos. 6525.20) is the shoalest and is listed here as the least depth of the item. The reef appears to cover a 100 square meter area as reported by the divers and from the developments.

**Recommendation:** Chart a coral reef at: **DO NOT CONCUR - CHART PRESENT SURVEY DEPTHS**  
Latitude: 27° 38' 02.34" N  
Longitude: 82° 56' 12.76" W  
Least depth: 12.5<sup>4</sup> meters (corrected ~~online~~ with predicted tides)  
40 ft

## **O. COMPARISON WITH THE CHART**

**O.1** The following charts are affected by this survey:

<b><u>Chart #</u></b>	<b><u>Edition</u></b>	<b><u>Date</u></b>	<b><u>Scale</u></b>
11400	29th	January 21, 1995	1:456,394
11412	36th	June 4, 1994	1:80,000

During the period of survey operations, there have been no pertinent notice to mariner updates from the above charts affecting the survey area. Chart 11412 is due to have a new edition released in January, 1997.

**O.2** No dangers to navigation were reported during this survey.

**O.3** The 53 charted soundings from chart 11412 which lie in this survey area were compared to soundings from this survey at a 1:80,000 scale in feet. The comparison yielded good agreement. On average soundings from this survey are 1.2 feet deeper than the charted depths which may indicate a deepening trend. The maximum difference was 4 feet deeper occurring on two charted soundings.

**O.4** There were no non-sounding features in the survey area.

**O.5** No changes to the scale or coverage of the published charts of the survey area are recommended.

## **P. ADEQUACY OF SURVEY**

**P.1** All AWOIS items assigned for this sheet have been resolved. This survey is complete and adequate to supersede prior surveys affecting this area.

P.2 This survey is considered complete and adequate for updating the chart.

### Q. AIDS TO NAVIGATION

Q.1 MT. MITCHELL conducted no correspondence with the U.S. Coast Guard regarding floating aids to navigation.

Q.2 There are four buoys marking the beginning of Egmont channel on this sheet. A table of their positions follows. The description of the buoys from the Light List match the field records but no positions were given. The large differences between the survey and chart is due to the 1:80,000 scale of chart 11412 when finding the measured position.

Buoy Name	Measured Position from Chart	Survey Position	Difference (meters)	D. P.#
Green "1" Whistle Fl G 2.5s	27° 35' 32.4" N 82° 58' 58.8" W	27° 35' 33.74" N 82° 58' 59.19" W	42.6	9115
Red "2" Bell FL R 2.5s	27° 35' 25.2" N 82° 58' 55.8" W	27° 35' 25.92" N 82° 58' 59.84" W	65.2	9117
Green "3" FL G 4s	27° 35' 43.8" N 82° 57' 15.6" W	27° 35' 37.24" N 82° 57' 11.36" W	145.0	9122
Red "4" FL R 4s	27° 35' 36.0" N 82° 57' 13.2" W	27° 35' 44.47" N 82° 57' 10.36" W	63.4	9120

THESE AIDS APPEAR ADEQUATE TO SERVE THEIR INTENDED PURPOSES.  
Q.3 No other aids were located during the survey.

Q.4 No bridges, overhead cables or above surface pipelines are within the survey area.

Q.5 No submarine cable crossings, submarine pipelines, or ferry routes are within the survey area.

Q.6 There are no ferry terminals in the survey area.

## **R. STATISTICS**

<b>R.1.</b>	<b><u>VN 2223</u></b>	<b><u>VN 2224</u></b>	<b><u>VN 2225</u></b>	<b><u>VN 2226</u></b>	<b><u>Total</u></b>
a) Number of positions:	171	32	1645	1356	3204
b) Lineal nautical miles of SSS/sounding lines:	14.3	0	316.0	220.4	550.7
<b>R.2</b>					
a) Total square nautical miles of hydrography:					16
b) Days of production:	4	1	13	14	22
c) Detached positions:	0	0	0	20	20
d) Bottom samples	16	32	9	7	64
e) Tide stations:					2
f) Current stations					0
g) Velocity casts:					10
h) Magnetic stations					0
I) XBT drops					0
j) Dive Investigations:					14

No current stations, magnetic stations or XBT drops were established or performed.

## **S. MISCELLANEOUS**

**S.1** No unusual silting, unusual submarine features, anomalous tidal conditions, anomalous current conditions, or magnetic anomalies were encountered during this survey.

**S.2** 53 of the 64 bottom samples were submitted to the Smithsonian Institution (11 bottom samples were collected but not saved).

**T. RECOMMENDATIONS**

T.1 No inadequacies have been found during this survey.

T.2 There is no present or planned construction or dredging that will affect results of this survey.

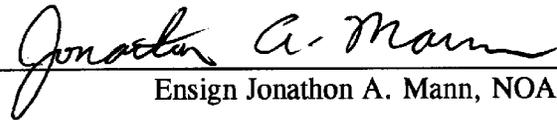
T.3 There were no unusual conditions or features which require further investigation.

**U. REFERRAL TO REPORTS**

None.

**SUBMITTAL SHEET**  
**Survey H-10599**

This descriptive report accurately describes all activities pertaining to the control, collection and processing of data for this survey, and is respectfully submitted by:



---

Ensign Jonathon A. Mann, NOAA

**APPENDIX VII**  
**Approval Sheet**

Registry No. H-10599

Field operations of this survey were conducted under my supervision with frequent personal checks of progress and adequacy. This report and field sheets have been closely reviewed for accuracy pertaining to the control, collection and processing of data for this survey. The information obtained from this survey is adequate for updating the chart.

A handwritten signature in cursive script, appearing to read "R. L. Parsons", written over a horizontal line.

Commander Roger L. Parsons, NOAA  
Commanding Officer, NOAA Ship MT. MITCHELL

**APPENDIX III**  
**List of Horizontal Control Stations**

1. List of Horizontal Control Stations.
2. Copy of *MONITOR* program output plot and statistics.

Horizontal Control Stations

~~Station 000 - United States Coast Guard, Egmont Key, Florida Differential Beacon~~ <sup>FL</sup>

Lat: 27° 36' 01.488" N

Long: 082° 45' 37.170" W

Transmission Rate: 200 bps

Transmission Frequency: 310 KHz

Source: USCG DGPS Radio beacon Prototype Status & Operating Specifications

~~Station 001 - TAMPA PILOTS, Egmont Key, Florida (NOAA-HF System)~~

Lat: 27° 35' 06.214" N

Long: 082° 45' 40.512" W

Transmission Rate: 100 bps

Transmission Frequency: 2774.50 KHz

Antenna Elevation: 14.0 meters

Source: NGS, established in 1981 and position confirmed by MT. MITCHELL in 1995



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:** October 5, 1995

**HYDROGRAPHIC BRANCH:** Atlantic

**HYDROGRAPHIC PROJECT:** OPR-J343-MI

**HYDROGRAPHIC SHEET:** H-10599

**LOCALITY:** Tampa Bay Approaches, Florida

**TIME PERIOD:** May 2 - July 25, 1995

**TIDE STATION USED:** 872-6430 St. Petersburg Beach South, Fl.  
Lat.  $27^{\circ} 41.0'N$  Lon.  $82^{\circ} 44.3'W$

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 8.79 ft.

**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 2.0 ft.

**REMARKS:** RECOMMENDED ZONING

West of  $82^{\circ} 55.0'W$ , apply a -20 minute time correction, and a  
X 0.86 range ratio to heights using St. Petersburg Beach South,  
Fl. (872-6430).

**Note:** Times are tabulated on Greenwich Mean Time.  
Data for St. Petersburg Beach South, Fl. (872-6430) are  
stored in temporary file #672-6430.

*William M. Johnson*  
-----  
CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

Name on Survey

A ON CHART NO. 11412, 11400, 11420  
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

Name on Survey	A	B	C	D	E	F	G	H	K	
EGMONT KEY	X		X							1
FLORIDA (title)	X		X							2
MEXICO, GULF OF	X		X							3
TAMPA BAY	X		X							4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Approved

*Chris Colby*  
Chief Geographer

JAN 18 1996

N/CS33-73-96

LETTER TRANSMITTING DATA

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

- ORDINARY MAIL                       AIR MAIL
- REGISTERED MAIL                       EXPRESS
- GBL (Give number) \_\_\_\_\_

TO:

NOAA/National Ocean Service  
 Chief, Data Control Group, N/CS3x1  
 SSMC3, Station 6815  
 1315 East-West Highway  
 L Silver Spring, MD 20910-3282

DATE FORWARDED

May 17, 1996

NUMBER OF PACKAGES

1 Box, 1 Tube

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

H-10599

Florida, Tampa Bay 10 NM West of Egmont Key

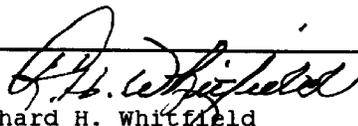
1 Box Containing:

- 1 Original Descriptive Report for H-10599
- 1 HISTORY OF CARTOGRAPHIC WORK (NOAA form 76-71) for H-10599

1 Tube Containing:

- 1 Original Smooth Sheet for H-10599
- 1 Paper Composite Drawing of Survey H-10599 for NOS chart 11412
- 1 Mylar H-DRAWING of H-10599 for NOS chart 11412

FROM: (Signature)

  
 Richard H. Whitfield

RECEIVED THE ABOVE  
(Name, Division, Date)

Return receipted copy to:

Atlantic Hydrographic Branch N/CS331  
 439 W. York Street  
 Norfolk, VA 23510-1114

05/16/96

HYDROGRAPHIC SURVEY STATISTICS  
REGISTRY NUMBER: H-10599

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	3204
NUMBER OF SOUNDINGS	22309

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	21	12/19/95
VERIFICATION OF FIELD DATA	87	03/28/96
QUALITY CONTROL CHECKS	4	
EVALUATION AND ANALYSIS	25.50	
FINAL INSPECTION	6	05/09/96
COMPILATION	45	05/13/96
TOTAL TIME	189	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		03/25/96

---

**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT FOR H-10599 (1995)**

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  
QUICKSURF, version 5.1  
Microstation, version 5.0  
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 1.113 seconds (34.26 meters or 3.43 mm at the scale of the survey) north in latitude, and 0.614 seconds (16.84 meters or 1.68 mm at the scale of the survey) east in longitude.

**L. JUNCTIONS**

H-10539 (1994-95) to the east  
H-10603 (1995) to the west

A standard junction was effected between the present survey and survey H-10603 (1995).

A standard junction could not be effected with survey H-10539 (1994-95). The survey has not reached the sounding stage of office processing. Any adjustments to the depth curves in the junctional areas will have to be made on the chart during compilation.

There are no contemporary surveys to the north and south of the present survey. Present survey depths are in harmony with the charted hydrography to the north and south.

**M. COMPARISON WITH PRIOR SURVEYS**

An adequate comparison was made with prior surveys H-9338 (1975) and H-10232WD (1986) in section M., page 14, of the Descriptive Report. A comparison of prior surveys was not done during office processing in accordance with section 4. of the memorandum titled *Changes to Hydrographic Survey Processing*, dated May 24, 1995.

**N. ITEM INVESTIGATIONS**

1. The charted Spoil Area and Dump Site in the vicinity of Latitude 27°37'00"N, Longitude 83°00'00"W have been discontinued. See Chart Letter 328 of 1996 (CL328/96) appended to this report. It is recommended that Spoil Area and Dump site and the notation "Dump Site (dredged material) (see note S)" be deleted from the chart. It is also recommended that the present survey soundings be charted in the common area.

2. It is recommended that the bottom characteristic rky be charted in Latitude 27°37'00"N, Longitude 82°59'54"W as shown on the present survey.

3. It is recommended that the charted Spoil Areas in the vicinity of Latitude 27°35'00"N, Longitude 82°58'00"W and Latitude 27°35'15"N, Longitude 82°56'30"W be retained, with the blue tint removed. Soundings from the present survey should be charted in the common areas.

4. During office processing an uncharted dangerous submerged obstruction with a fathometer depth of 37 feet (11<sup>4</sup> m), in Latitude 27°36'21.909"N, Longitude 82°58'31.909"W, was noted. It is recommended that a dangerous submerged obstruction with a depth of 37 feet (11<sup>4</sup> m) (37 *Obstn*) be charted as shown on the present survey.

**O. COMPARISON WITH CHARTS 11400 (29th Ed., Jan. 21/95)  
11412 (36th Ed., June 04/94)  
11414 (35th Ed., Feb. 26/94)**

**Hydrography**

The charted hydrography originates with the previously discussed prior surveys and needs no further discussion. The hydrographer makes an adequate chart comparison with Charts 11400 and 11412 in sections N. and O. of the Descriptive Report. A comparison of the survey with Chart 11414 yielded good agreement.

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

**P. ADEQUACY OF SURVEY**

This is an adequate hydrographic/side scan sonar survey. No additional work is recommended.

**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.

MT MITCHELL Processing Team

*for* Robert A. Roberson  
Marilyn L. Schluter  
Cartographic Technician  
Verification and Evaluation and Analysis

APPROVAL SHEET  
H-10599

Initial Approvals:

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

Richard H. Whitfield Date: 25 March 1996  
Richard H. Whitfield  
Cartographer  
Atlantic Hydrographic Branch

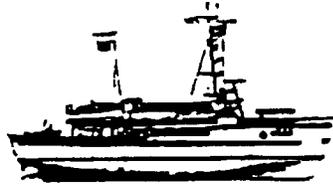
I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Nicholas E. Perugini Date: 25 March 96  
Nicholas E. Perugini, CDR, NOAA  
Chief, Atlantic Hydrographic Branch

\*\*\*\*\*

Final Approval:

Approved: Andrew A. Armstrong Date: June 12, 1996  
Andrew A. Armstrong, IFF  
Captain, NOAA  
Chief, Hydrographic Surveys Division



# NOAA - NATIONAL OCEAN SERVICE OFFICE OF COAST SURVEY

## HYDROGRAPHIC SURVEYS DIVISION FAX COVER SHEET

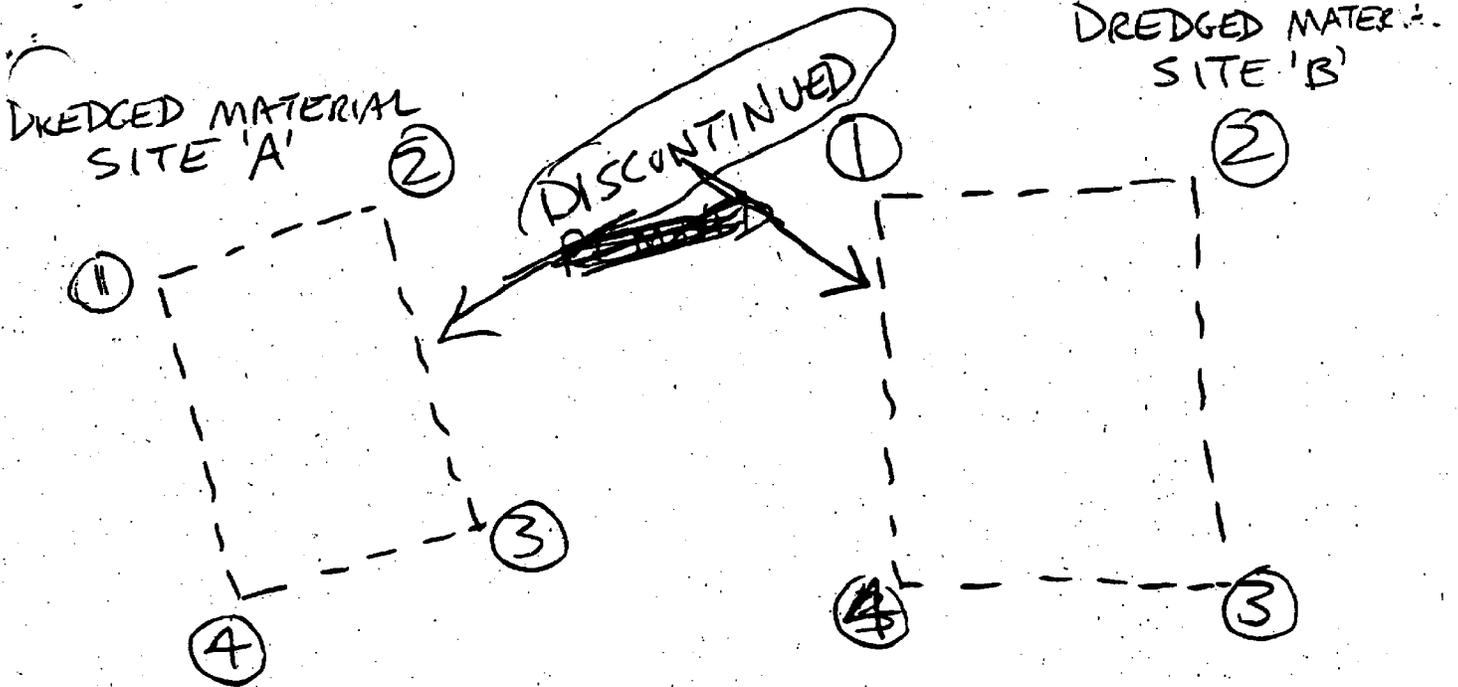
DATE March 18, 1996  
 NAME CDR Perugini  
 TO: ORGANIZATION AHB  
 ROUTING CODE \_\_\_\_\_  
 TELEPHONE NUMBER \_\_\_\_\_

NAME LCDR John Humphrey  
 FROM: ORGANIZATION \_\_\_\_\_  
 ROUTING CODE N/CS3  
 TELEPHONE NUMBER 301-713-2698  
 FAX NUMBER 301-713-4533

# OF PAGES INCLUDING THIS COVER SHEET 2

REMARKS: *Nick - The reference to "A" is the one you've been dealing with.*

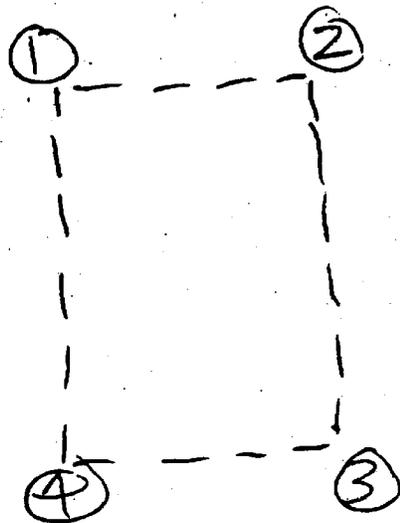
*Nick - correct GP's for D-4 A1*



- ① 27°37'28" 83°00'09"
- ② 27°37'34" 82°59'19"
- ③ 27°36'43" 82°59'13"
- ④ 27°36'37" 83°00'03"

- ① 27°38'08" 82°55'06"
- ② 27°38'08" 82°54'00"
- ③ 27°37'06" 82°54'00"
- ④ 27°37'06" 82°55'06"

Tampa Hbr "Site 4" (AUTHORIZED)



- ① 27°32'27" 83°06'02"
- ② 27°32'27" 83°03'46"
- ③ 27°30'27" 83°03'46"
- ④ 27°30'27" 83°06'02"

328

Page 1 of 1

FORM CD-201 U.S. DEPARTMENT OF COMMERCE  
1-18-84  
REV. BY 208-10

Use this form in lieu of transmittal slips within Commerce when message/comment is to be retained as file material. Do not prepare carbons. Not to be used in lieu of Form CD-120 for informal correspondence.

MINUTE - MEMO

SUBJECT STATUS OF CHARTED DUMPSITES  
OFF ENTRANCE TO TAMPA BAY, FL

199  
JRN

TO MESSAGE/COMMENT FROM/DATE

N/CS 25  
N/CS 263  
N/CS 3

The two dredged material sites known as "site A" and "site B" have been discontinued and should be removed from all affected navigation charts. Only "Tampa Bay Harbor Site 4" remains an approved EPA dumpsite. See attached page for locations.

N/CS 261  
(3-18-96)

per Gary Collins  
EPA-Region IV  
Water Mngmt Div  
JBN 3-18-96

(E)

Ref: L-502(95)  
Ref: L-1089 (77)

PRODUCTS

- CP5
- 11414
- 11412
- 11400
- 11420
- 11006 NC

328



**ORIGINAL TWO FEATURES  
CHARTED, (same ?)** 42

**1a** ORIGINAL WESTERN AREA  
CHARTED FROM ROUGH C OF E DRAWING (CL1656ff)  
INDICATING "DISPOSAL AREAS"  
APPEARS ON 23rd ED OF CHT 11412, DATED 5/6/78  
GP'S TRANSFERRED FROM PRIOR CHART

**55** FAIRWAY ANCHOR  
166.200 (see note A)

**44** FAIRWAY ANCHORAGE  
166.200 (see note A)

**49** DUMP SITE  
(dredged material)  
(see note S)

**37** BOUNDARIES CHARTED FROM FEDERAL REGISTER GP'S,  
DATED 1/11/77, LISTED UNDER HEADING "DREDGED MATERIAL SITES"  
RETAINED UNDER EPA HQ MANAGEMENT"  
APPEARS ON 23rd ED OF CHT 11412, DATED 5/6/78

(cleared to  
24ft 1986)

**47** CLEARANCE NOTATION FROM APPLICATION OF H-10232WD (1986)  
NOT FROM HYDROGRAPHER & EVAL. RECOMMENDATION  
APPLIED TO 8/8/89 ED OF 11412

**5.2** WEST AND SOUTH LIMITS EXPANDED PER EVALUATOR'S RECOMMENDATION IN  
DESCRIPTIVE REPORT FOR FE-273 WD (1982), REVISION APPEARS ON 31st ED OF  
CHT 11412, 4/4/87

Shoaling reported 1982  
53

**44** G "1"  
FIG 2.5s  
WHISTLE  
49

**47** G "3"  
FIG 4s  
37

**49** SAFETY FAIRWAY  
39 R "4"

