

H11036

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 / Multibeam

Field No. Sheet D

Registry No. H11036

### LOCALITY

State Commonwealth of Puerto Rico

General Locality South Coast of Puerto Rico

Locality Bahia De Ponce

2001

CHIEF OF PARTY  
LCDR Gerd F. Glang

LIBRARY & ARCHIVES

DATE \_\_\_\_\_

|  |  |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
|--|--|------------------|---|--|--|-------------------|-----------------------------------|--|--|---------------|-----------------------|--|--|--------|----------------|-----------------|-----------------------------|---------------------|-----------------|-----------------|--------------------|---------|---------------------------------|--|--|-----------------|---|--|--|--------------|--------------------------|--|--|---------------|---|--|--|--|--|--|--|---------------------------|--------------------------|--|--|----------------------------|--------------------------|--|--|--|--|--|--|----------------|------------|-----------------|-------------------------------|------------------|--|--|--|---------------|--|--|--|
| NOAA FORM 77-28<br>U.S. DEPARTMENT OF COMMERCE<br>(11-72)<br>NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION<br><br><p style="text-align: center;"><b>HYDROGRAPHIC TITLE SHEET</b></p>   | REGISTRY NUMBER:<br><br><p style="text-align: center;"><b>H11036</b></p> |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| 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: <del>N/A</del> <b>SHEET "D"</b>                            |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
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| State/Territory:   | <b><i>Commonwealth of Puerto Rico</i></b>                                |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| General Locality:  | <b>South Coast of Puerto Rico</b>  |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Sub-Locality:  | <b>Bahia de Ponce</b>  |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Scale:   | <b>1:5,000</b>   | Date of Survey:  | <b>04/29/01 to 05/31/01</b>               |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Instructions Dated:  | <b>03/19/01</b>  | Project Number:  | <b>OPR-I305-WH</b>                        |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Vessel:  | <b>NOAA Ship WHITING, S-329</b>  |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Chief of Party:  | <b>Lieutenant Commander Gerd F. Glang, NOAA</b>                          |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Surveyed by:   | <b>WHITING Personnel</b>   |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Soundings by:  | <b>Odom Echotrac DF3200 MK II Echosounder</b>                            |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
|  | <b>Reson SeaBat 8101 multibeam sonar</b>                                 |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Graphic record scaled by:  | <b>WHITING Personnel</b>   |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Graphic record checked by:   | <b>WHITING Personnel</b>   |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
|  | <b><i>Hewlett Packard Design Jet 2500CP (office)</i></b>                 |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Protracted by:   | <b>N/A</b>   | Automated Plot:  | <b>HP-750C (<i>field</i>)</b>             |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Verification by:   | <b>Atlantic Hydrographic Branch <i>Personnel</i></b>                     |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Soundings in:  | <b><del>Meters</del> <i>Feet</i> at MLLW</b>                             |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |
| Remarks: <b><i>* Red italicized notes in Descriptive Report were made during office processing.</i></b><br><br><b><i>1) All Times are UTC.</i></b><br><b><i>2) This is a basic Hydrographic Survey under the Navigable Area Concept.</i></b><br><b><i>3) Projection is UTM Zone 19.</i></b>  |  |                  |   |  |  |                   |                                   |  |  |               |                       |  |  |        |                |                 |                             |                     |                 |                 |                    |         |                                 |  |  |                 |   |  |  |              |                          |  |  |               |   |  |  |  |  |  |  |                           |                          |  |  |                            |                          |  |  |  |  |  |  |                |            |                 |                               |                  |  |  |  |               |  |  |  |

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## DESCRIPTIVE REPORT

to accompany

### **HYDROGRAPHIC SURVEY H11036**

Scale of Survey: 1:5,000

Year of Survey: 2001

NOAA Ship WHITING

LCDR Gerd F. Glang, Commanding

### **A. AREA SURVEYED**

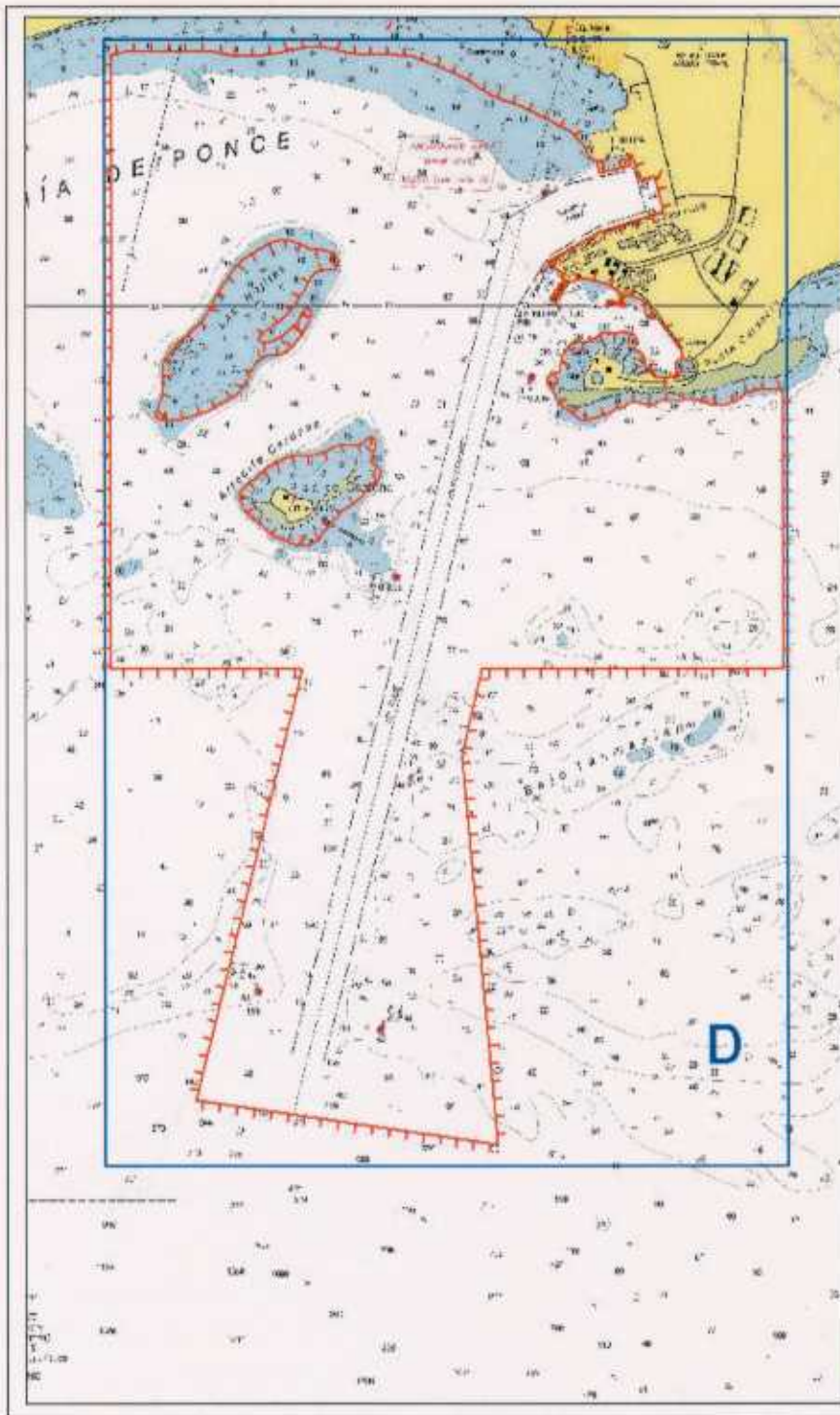
This hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions for project OPR-I305-WH, South Coast of Puerto Rico, Puerto Rico. The instructions are dated March 19, 2001. No subsequent changes affecting this survey were made to the letter instructions. *Change #1 dated July 16, 2001*

This Descriptive Report pertains to survey H11036, Bahia de Ponce. Survey H11036 is referenced in the letter instructions as Sheet "D" of project OPR-I305-WH.

Survey limits are displayed graphically in the chartlet on the following page (Figure 1). A second chartlet, differentiating areas of side scan sonar (SSS), shallow water multibeam (SWMB), and vertical beam echosounder (VBES) data acquisition in the survey area, is included as

Appendix III \* - Progress Sketch. Additionally, VBES data were acquired in conjunction with both SSS and SWMB operations.

*\* Data filed with original field records.*




NOAA Ship WHITING  
 LCDR Gard F. Glang  
 Commanding  
 April 28 - May 31, 2001

Project: CPR-005-1177  
 Sounding Units: Meters  
 Sounding Datum: MLLW  
 Central Meridian: 068° 00' 00"  
 Scale Factor: 0.9996

Scale of Survey: 1:5,000  
 Horizontal Datum: MLD 83  
 Projection: UTM 18

Survey: #11036  
 State: Puerto Rico  
 Locality: South Coast of Puerto Rico  
 Sub-Locality: Bahía de Ponce



NATIONAL OCEANIC AND  
 ATMOSPHERIC ADMINISTRATION  
 NATIONAL OCEAN SERVICE

## **B. DATA ACQUISITION AND PROCESSING**

### **B.1. EQUIPMENT**

Data were acquired by NOAA Ship WHITING and survey Launches 1005 and 1014. WHITING is a 49.7 meter vessel with average transducer draft of 3.2 meters. Both launches are NOAA's standard 8.5-meter aluminum Jensen vessel with a typical 0.5-meter transducer draft. All vessels were configured as described in the Data Acquisition and Processing Report (DAPR) \* for this project. Major data acquisition systems are summarized below.

NOAA Ship WHITING acquired High Speed/High Resolution side scan sonar (HSHRSSH) and VBES data. HSHRSSH data were acquired with the Klein T-5500 side scan sonar towfish. VBES data were acquired with an Odom Echotrac DF3200 MKII echosounder. WHITING's positioning system is a Trimble DSM212L integrated differential GPS receiver. Attitude data were determined using a TSS DMS-05 Dynamic Motion Sensor.

Launch 1005 acquired shallow water multibeam (SWMB), side scan sonar (SSS), and VBES<sup>1</sup>, data. An Odom Echotrac DF3200 MK II echosounder was used for VBES hydrography. SWMB data were acquired with a Reson SeaBat 8101 shallow water multibeam system. SSS data were acquired with an Edgetech model 272-T towed side scan sonar. Launch 1005 utilizes a TSS POS/MV 320 (version 2) GPS-aided inertial motion sensor to determine both positioning and attitude.

Launch 1014 acquired VBES, SSS and HSHRSSH data. Launch 1014 was also used to acquire detached positions (DP), bottom samples, and to support dive investigations. An Odom Echotrac DF3200 MK II echosounder was used for VBES hydrography. Side scan sonar data were acquired with an Edgetech model 272-T towed side scan sonar. The Klein T-5500 side scan sonar was hull mounted during HSHRSSH data acquisition. Positioning was determined with a Trimble DSM212L integrated differential GPS receiver. Attitude data were determined using a TSS DMS-05 attitude sensor. Diver least depth determinations were acquired using a MOD III Diver Least Depth Gauge.

Sound velocity data were acquired by all three survey platforms. All velocity casts were conducted with Sea-Bird SBE 19 SEACAT Profiler instruments.

No unusual vessel configurations were employed on this project. Refer to the project DAPR for detailed vessel configuration information.

*\* Data filed with original field records.*

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<sup>1</sup>Launch 1005 VBES data were not processed when SWMB data were acquired.

## **B.2. QUALITY CONTROL**

No unusual conditions which would downgrade or compromise equipment effectiveness were encountered during survey operations.

### **Side Scan Sonar Quality Control**

Daily confidence checks were made with each system by observing the outer ranges of the sonar images. A satisfactory check was determined by the ability to distinguish contacts or known features across the entire range of the side scan trace.

When operating in relatively shoal waters (i.e. less than 30 meters deep), a short tow was required for the Edgetech SSS systems. When cable-out was reduced to 10 meters or less, minor degradation of the side scan imagery and ODOM echosounder traces were noted due to cross-talk between the two systems.

### **Shallow Water Multibeam Quality Control**

Daily confidence checks were made with the SWMB system by correlating sounding data to the VBES sonar data during simultaneous acquisition. A bathymetry confidence check, performed in ISIS, provided real-time comparison of the VBES data to nadir soundings from the SWMB system. This comparison was monitored for significant discrepancies during data acquisition.

At the conclusion of survey operations, a CARIS HIPS Quality Control Report was compiled. This process compares the soundings in a checkline file with a Digital Terrain Model (DTM). The report generates statistics relating to the deviation of beams from a reference surface. Since VBES crossline data were acquired for this survey, this report was generated using a SWMB development area. A copy of the Quality Control Report has been included in Separate V \* - Crossline Comparisons.

There were no faults with the SWMB system which affected final data integrity. Very brief losses in attitude data were observed during SWMB acquisition. These "drop-outs" appeared randomly in SWMB .XTF files, only, and were later attributed to a faulty serial port. Attitude data were filtered or rejected as necessary, using CARIS NT, to correct the attitude errors. Refer to this project's DAPR \* for detailed discussion of SWMB system calibrations, data acquisition, and standard data processing.

*\* Data filed with original field records.*

## Preliminary Smooth Sheet Histogram

The preliminary smooth sheet histogram is shown in Figure 2. The histogram shows the majority of soundings in the range of 30 to 40 feet, as would be expected from charted depths within the harbor and proposed turning basin area east of Las Hojitas. A secondary spike in the range of 60 feet represents the depths of the entrance channel and proposed anchorage area east of the channel. The small percentage of depths over 100 feet are attributable to an extreme slope and increase in depth at the southern end of the survey area.

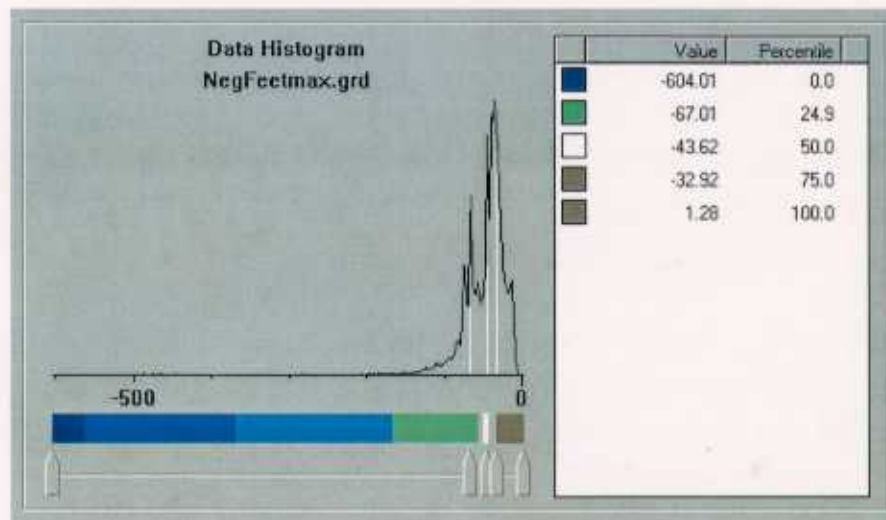


Figure 2 - Preliminary smooth sheet histogram - soundings in feet.

## Crosslines

Over ten linear nautical miles (1nm) of VBES crosslines were run, equivalent to 10% of all 1nm of SSS/HSRSSH mainscheme data acquired for this survey. Mainscheme data were defined for this survey to be both the 100% and 200% coverages. Crossline to mainscheme comparisons were made in MapInfo 5.0, with excellent general agreement. A minimal number of discrepancies greater than 5 percent of the shoalest depth were observed in areas of coral reefs and ledges.

## Junctions

No contemporary surveys were available for junction comparisons.



### **B.3. CORRECTIONS TO ECHO SOUNDING**

All survey methods and instruments were implemented as described in the Correction to Echo Soundings section of the DAPR \* for this project.

A table detailing all sound velocity casts is contained in Separates III \* - Sound Velocity Profile Data. Sound velocity data has been submitted on CD-ROM with the digital data package. Cast data is organized on the digital media as follows: vessel / day of cast / cast data.

*\* Data filed with original field records.*

## C. VERTICAL AND HORIZONTAL CONTROL

### Vertical Control

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating tide station at Magueyes, PR (975-9110) served as control for datum determination. Two tertiary, 30-day gauges were installed to provide ancillary tidal data for this project. One gauge was installed at Punta Guayanilla (975-8053), and one gauge was installed at Las Mareas (975-5679). Installation and initial leveling of subordinate stations was performed by CO-OPS/FOD personnel. WHITING personnel performed closing levels at each subordinate station.

Tidal zoning for this survey is consistent with the Letter Instructions. The entire survey area is contained within one tidal zone. The zone data applicable for this survey is as follows:

| ZONE NAME | TIME CORRECTOR (MIN) | RANGE RATIO | REFERENCE STATION |
|-----------|----------------------|-------------|-------------------|
| PRS1*     | 0                    | x1.00       | 975-9110          |

\*Zone PRS1 was not affected by data obtained from the Las Mareas station (975-5679).

A Request for Approved Tides was sent to N/OPS1 on June 1, 2001 (See Appendix IV). \* Verified tides from the N/OPS1 CO-OPS website were periodically downloaded by (N/CS31) using the program Tidebot. Data were transmitted to WHITING in two week increments via email. Verified tidal data for this survey were concatenated into one file and applied to all sounding data. *Approved tides and zones were reapplied during office processing in CARIS.*

**Horizontal Control** *See also the evaluation report.*

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 19.

Sounding positional control was established using Global Positioning System (GPS) corrected by the nearest U.S. Coast Guard differential GPS reference station. The differential beacon used for this survey was Isabella, Puerto Rico. No secondary differential beacon was available for this survey area. No horizontal control stations were established for this survey.

The horizontal dilution of precision (HDOP) and positional dilution of precision (PDOP) were monitored during acquisition on all survey platforms. Neither HDOP nor PDOP values exceeded 4.00, and adequate satellite coverage was maintained throughout survey operations. All positioning equipment was operated in a manner consistent with the manufacturers requirements and as described in the DAPR \*. Detailed information regarding vertical and horizontal control is included in the Vertical and Horizontal Control Report. See Appendix IV\* - Tides and Water Levels.

*\* Data filed with original field records.*

## **D. RESULTS AND RECOMMENDATIONS**

### **D.1. CHART COMPARISON** *See also the evaluation report.*

Two NOS charts are affected by this survey:

25677, 19<sup>th</sup> edition, March 18, 1995, 1:100,000

25683, 17<sup>th</sup> edition, November 11, 2000, 1:20,000

As of Notices to Mariners issue NM 32/01, August 4, 2001, and Local Notice to Mariners issue LNM 29/01, July 17, 2001, no corrections have been issued for the current edition of Chart 25683. None of the corrections issued for the current edition of Chart 25677 affect the survey area.

#### **General Agreement with Charted soundings**

In general, sounding data agreed well with charted depths. Individual features and significant discrepancies with specific charted depths are addressed in the Dangers to Navigation and Charted Features sections. *Concur.*

#### **Tabulated Channel Depths**

Soundings within Ponce Harbor Entrance Channel and Turning Basin agreed well with tabulated depths reported by the Corps of Engineers (April 2001). Soundings were within 0.5 ft of depths reported for each specified quarter of the channel and turning basin. *Concur.*

#### **Shoaling Trends**

The greatest inconsistency between charted depths and present survey soundings is attributed to a sewer pipe incorrectly charted at position 17° 58' 24.84" N, 066° 38' 32.07" W. This pipe was identified in both SSS and SWMB data. The pipe has a true seaward endpoint position of 17° 58' 02.80 03.55" N, 066° 38' 31.55 29" W, and runs toward shore at a bearing of 006.5° T. Soundings along the true location of the sewer pipe are up to 8 feet shoaler than the charted depths. Three of the most significant soundings along the pipeline has been submitted as a Danger to Navigation (DTON) number 1, 5 and 7. See Appendix A\* Danger to Navigation Report. *Dton 1 and 7 were not considered dangers during office processing.*

*\* See Danger to Navigation Report appended to this report.*

Present survey soundings indicate three general areas of shoaling. The most significant area is a slight shift of the 60 foot curve along the eastern side of the Entrance Channel, between buoys R "2" and R"4". Shoaling is predominantly noted in the vicinity of buoy R "2". *Concur*

A sounding of 38 ft, currently charted as 40 ft, was identified at position 17° 56' 00.20 55.90" N, 066° 37' 52.10 41" W. This sounding has been submitted as DTON number 20. *Concur.*

The second area of note is shoaling within the passage between Las Hojitas and Arrecife Cardona (approximate position of 17° 57' 42.78" N, 066° 38' 05.20" W). Present survey soundings are generally 1 to 2 feet shoaler than charted depths. *Concur.*

The third area of shoaling is located at the northwest corner of the survey, in approximate position 17° 58' 37.93" N, 066° 38' 11.88" W. Both the 12 foot and 18 foot curves have shifted slightly south in this vicinity, with present survey soundings up to 4 feet shoaler than currently charted depths. A sounding of 21 feet with charted depth of 25 feet in this area has been submitted as DTON number 3. *Not considered a DtoN during office processing.*

### **Deepening Trends**

Four areas of general deepening trends were identified within the survey area. In each of these instances, the 60 foot curve has receded. General changes in depths are summarized below.

The first area is located at the southeastern corner of the survey limits. The charted 60 foot curve dips south around a depth of 57 feet in position 17° 55' 45.05" N, 066° 37' 39.60" W. This area was ensonified by 200% SSS, and further developed with 100% SWMB. Present survey soundings vary between 108 and 112 feet at this position. *Concur.*

A shift of the 60 foot curve was also identified in approximate position 17° 56' 49.71" N, 066° 37' 34.93" W, 500 meters northeast of buoy RN "4". Current charted depths are 33 to 45 feet. No contacts were identified in 200% SSS, and approximately 70% of the area has been developed with 100% SWMB. Present survey soundings vary between 63 and 78 feet, indicating a southerly shift of the 60 foot curve. *Concur.*

A third deepening trend was noted in approximate position 17° 56' 00.01" N, 066° 38' 09.22" W, on the eastern side of buoy G "1". This area was ensonified by 200% SSS, and further developed with 100% SWMB. Present survey soundings, 61 to 92 feet, indicate a westerly shift of the 60 foot curve. *Concur.*

The fourth area identified is a charted shoal (position 17° 57' 09.15" N, 066° 37' 49.97" W) extending south from Bajo Cardona. The area was ensonified with 200% SSS and developed with 100% SWMB. Present survey soundings indicate significant deepening in this vicinity, with a shift of the 60 foot curve in a northerly direction. Present survey soundings vary between 73 and 76 feet. *Concur.*

### **AWOIS Items and Item Investigations**

Two AWOIS items are located within the survey limits. These AWOIS items and all additional item investigations are summarized in the following pages.

## AWOIS: 11015

Item Description: Charted wreck

Source: Unknown, charted since 1964. May have been charted during development of marina and shoreside facilities.

Item Position: 17° 57' 53.69" N, 066° 37' 00.78" W

Required Investigation: SD, S2, DI

Radius: 100 m

Charts Affected: 25683

---

### INVESTIGATION

Contact No: Not found.

Date(s): 119, 129

Least Depth Position Number: N/A

Investigation Used: 100% SSS, 100% SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: 100% SSS was completed over 89% of the 100 meter search radius. SWMB coverage was acquired over 68% of the search radius. Investigation of the entire 100 meter radius could not be completed due to shoal waters and pier structures. One contact identified by SSS within the assigned radius was determined to be a nondescript shoal. This wreck was not identified within the navigable waters of the AWOIS radius in either SSS or SWMB. It is the hydrographer's opinion that this item has been adequately investigated to disprove AWOIS 11015.

---

### CHARTING RECOMMENDATION

The hydrographer recommends deleting "Wk" note at position 17° 57' 53.69" N, 066° 37' 00.78" W and charting present survey soundings in this area. *Concur.*

**AWOIS: 11016**

Item Description: Submerged chain link fence to enclose a swimming area, 150 ft long by 80 ft wide. Signs installed at both submerged corners, with top of each post one ft above mean high water line. Project completed 12/02/82.

Source: COE Permit No. 82F-5038.

Item Position: 17° 57' 49.22" N, 066° 37' 10.39" W

Required Investigation: Unassigned, information only          Radius: N/A

Charts Affected: 25683

---

**INVESTIGATION**

Contact No: Area too shoal to investigate with survey launches.

Date(s): N/A

Least Depth Position Number: N/A

Investigation Used: Visual, Interview

Surveyed Position: N/A

Position Determined By: N/A

Investigation Summary: This AWOIS item was too shoal to investigate directly. No signs or exposed piles, as noted in the AWOIS description, were observed during survey operations. Commodore Godfrey Franco, and Mr. Tony Coufal, of the Ponce Yacht and Fishing Club, report that this submerged fence was installed in the 1980's, but has not been maintained. It was reported that remnants of the fence do exist, and that the piles have never been removed.

---

**CHARTING RECOMMENDATION**

The hydrographer recommends deleting the notes "sign" at positions 17° 57' 50.46" N, 066° 37' 08.32" W and 17° 57' 47.53" N, 066° 37' 12.14" W, retaining the submerged fence and piles at positions 17° 57' 50.10" N, 066° 37' ~~09.94~~**10.08**" W and 17° 57' 48.39" N, 066° 37' ~~10.62~~**74**" W as charted. *Concur. Revise charted signs to "subm piles"*

**Contact: 119\_113\_2046\_0001**

Item Description: Sand mound with wood/tree debris atop.

Source: H11036 SSS data.

Item Position: 17° 57' 54.77" N, 066° 37' 05.01" W

Required Investigation: N/A

Radius: N/A

Charts Affected: 25683

---

INVESTIGATION

Contact No: 119\_113\_2046\_0001

Correlating contacts: 119\_116\_2102\_0010, 119\_120\_2050\_0002

Date(s): 119, 129, 138

Least Depth Position Number: Time 19:46:48.69, Ping 429, Beam 92

Investigation Used: 100% SSS, 100% SWMB, Dive

Surveyed Position: 17° 57' 54.54 **47"** N, 066° 37' 04.82 **67"** W

Position Determined By: Differential GPS

Investigation Summary: Contact 113\_2046\_0001, located 28.8 m outside of the search radius for AWOIS 11015 (a charted wreck), exhibited the possible shape of a wreck on SSS. Dive operations at this site identified only a sand mound covered with wood/tree debris and growth. A least depth of 4.079 m (13 ft), corrected with ~~verified~~ **approved** tides, was determined at position 17° 57' 54.54" N, 066° 37' 04.82" W by SWMB. This least depth was confirmed by DLDG.

---

CHARTING RECOMMENDATION

Hydrographer recommends charting an obstruction (debris) with least depth of 13 ft at position 17° 57' 54.54" N, 066° 37' 04.82" W. ***Do not concur. Item is considered insignificant. Chart present survey soundings.***

NOAA Ship WHITING  
Dive Investigation Report  
Dive No. 138.3

| Survey Information   |  |                                       |                               |
|--|--|---------------------------------------|-------------------------------|
| AWOIS Item:  | Description: Sand pile with tree limb debris | Date: May 18, 2001                    |                               |
| Latitude - Longitude   |  | SSS Contacts                          |                               |
| 17° 57' 54.54" N   | 066° 37' 04.82" W                            | 113 2046 0001                         |                               |
| SWMB day/line/time/ping/beam   |  | VBES Positions                        |                               |
| 129 / 153 1945 / 19:46:48.69 / 429 / 92  |  | N/A                                   |                               |
| SWMB Depth   |  | VBES Depth                            |                               |
| 4.079 m (13 ft)  |  | N/A                                   |                               |
| Dive Information   |  |                                       |                               |
| Dive Master: LT Brennan  |  | Time In: 1718 GMT                     |                               |
| Dive Tender: LT Brennan  |  | Time Out: 1725 GMT                    |                               |
| Diver #1: ENS DeHart   |  | Max Depth: 15 ft                      |                               |
| Diver #2: SS Elwell  |  | Visibility/Current: 2 ft / no current |                               |
| Diver's Least Depth Gauge Information  |  |                                       |                               |
| Gauge Number:  | 68332  | CTD Location:                         | 17° 56' 31" N, 066° 37' 33" W |
| Pre-Dive Surface Pressure:   | 14.75  | CTD Time:                             | 1626 GMT                      |
| Least Depth Pressure:  | 20.87  | <b>DLDG Depth:</b>                    | 4.28 m                        |
| Post-Dive Deck Pressure:   | 14.65  | <b>Tide Corrector:</b>                | 0.0725 m                      |
| Time of Least Depth:   | 1721 GMT                                     | <b>Item Least Depth:</b>              | 4.21 m (14 ft)                |
| Narrative Report:  |  |                                       |                               |
| Sand mound with wood/tree limb debris atop. Line snags noted in tree debris.   |  |                                       |                               |
| <p style="text-align: center;">SAND MOUND w/ TREE LIMB DEBRIS ON TOP</p> <p style="text-align: center;">8"</p> <p style="text-align: center;">LINE SNAGS ← <b>DLDG = 20.87 psia</b></p> <p style="text-align: center;">25'</p> |  |                                       |                               |



**Contact: 130\_113\_2138\_0001 - (DTON #12)**

Item Description: Uncharted wreck

Source: H11036 SSS data

Item Position: 17° 56' 41.65" N, 066° 37' 37.68" W

Required Investigation: N/A

Radius: N/A

Charts Affected: 25683

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INVESTIGATION

Correlating Contacts: 130\_211\_2205\_0001

Date(s): 130, 134, 138

Least Depth Position Number: Time 17:01:15.46, Ping 77, Beam 4

Investigation Used: 200% SSS, 100% SWMB, Dive

Least Depth Position: 17° 56' 42.56" N, 066° 37' 39.47" W

Position Determined By: Differential GPS

Investigation Summary: Contact 113\_2138\_0001 was identified as a wreck during SSS operations. A dive was performed on this contact, confirming a wreck estimated as 150-200 ft in length. A least depth of 6.54 m (21 ft), corrected with **verified approved** tides, was determined in position 17° 56' 42.56" N, 066° 37' 39.47" W by DLDG. A correlating least depth of 6.83 m (22 ft) was acquired by SWMB. **Submitted as DtoN #12. See also page 23 and DtoN Report appended to this report.**

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CHARTING RECOMMENDATION

The hydrographer recommends charting a wreck with least depth of 21 ft at position 17° 56' 42.56 **32**" N, 066° 37' 39.47**38.35**" W. **Concur. Chart a dangerous 21 Wk.**

NOAA Ship WHITING  
Dive Investigation Report  
Dive No. 138.1

| Survey Information   |                              |  |                               |
|--|------------------------------|--|-------------------------------|
| AWOIS Item:  | Description: Uncharted wreck | Date: May 18, 2001                     |                               |
| Latitude - Longitude   |                              | SSS Contacts                           |                               |
| 17° 56' 42.56" N   | 066° 37' 39.47" W            | 130 113 2138 0001, 130 211 2205 0001   |                               |
| SWMB day/line/time/ping/beam   |                              | VBES Positions                         |                               |
| 2001-134 / 304-1701 / 17:01:15.46 / 77 / 4   |                              | N/A                                    |                               |
| SWMB Depth   |                              | VBES Depth                             |                               |
| 6.83 m (22 ft) (*Note: LD was determined by DLDG)  |                              | N/A                                    |                               |
| Dive Information   |                              |  |                               |
| Dive Master: LT Brennan  |                              | Time In: 1400 GMT                      |                               |
| Dive Tender: SS Elwell   |                              | Time Out: 1442 GMT                     |                               |
| Diver #1: LT Brennan   |                              | Max Depth: 41 ft                       |                               |
| Diver #2: ENS DeHart   |                              | Visibility/Current: 30 ft / no current |                               |
| Diver's Least Depth Gauge Information  |                              |  |                               |
| Gauge Number:  | 68332                        | CTD Location:                          | 17° 56' 31" N, 066° 37' 33" W |
| Pre-Dive Surface Pressure:   | 14.94                        | CTD Time:                              | 1626 GMT                      |
| Least Depth Pressure:  | 24.50                        | <b>DLDG Depth:</b>                     | 6.65 m                        |
| Post-Dive Deck Pressure:   | 14.67                        | <b>Tide Corrector:</b>                 | -0.112 m                      |
| Time of Least Depth:   | 1422 GMT                     | <b>Item Least Depth:</b>               | 6.54 m (21 ft)                |
| <p>Narrative Report:<br/>                     uncharted wreck, estimated length 150-200 feet. Riveted steel vessel w/ bow starboard side down on reef. Interior severely deteriorated. Remainder of hull is keel down with deteriorating plating extending from the bottom. One piece of transverse framing protrudes a significant distance upward. Two boilers are located in what was estimated to be the former engine room area. Least depths are the upward corner of the port bow and the top of the framing.</p> |                              |  |                               |
|  |                              |  |                               |

**Contact: 130\_210\_1405\_0006**

Item Description: Piece of steel

Source: H11036 SSS data

Item Position: 17° 56' 30.64" N, 066° 37' 32.79" W

Required Investigation: N/A

Radius: N/A

Charts Affected: 25683

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#### INVESTIGATION

Correlating Contacts: None

Date(s): 130, 134, 138

Least Depth Position Number: Ping 180, Beam 55

Investigation Used: 200% SSS, 100% SWMB, Dive

Surveyed Position: 17° 56' 30.72" N, 066° 37' 32.71" W

Position Determined By: Differential GPS

Investigation Summary: Contact 210\_1403\_0006 was identified during SSS processing. A dive performed on this contact identified an upright section of steel, possibly remnants from a ship wreck found on the opposite side of a coral reef (see previous Item Investigation for contact 113\_2138\_0001). A least depth of 5.85 **2** m (19 ft), corrected with ~~verified~~ **approved** tides, was determined in position 17° 56' 30.72" N, 066° 37' 32.71" W by SWMB. A depth of 5.96 m (19 ft) was confirmed by DLDG.

---

#### CHARTING RECOMMENDATION

The hydrographer recommends charting an obstruction (steel debris) with least depth of 19 ft at position 17° 56' 30.72" N, 066° 37' 32.71" W. **Concur. Chart a dangerous 19 Obstr.**

NOAA Ship WHITING  
Dive Investigation Report  
Dive No. 138.2

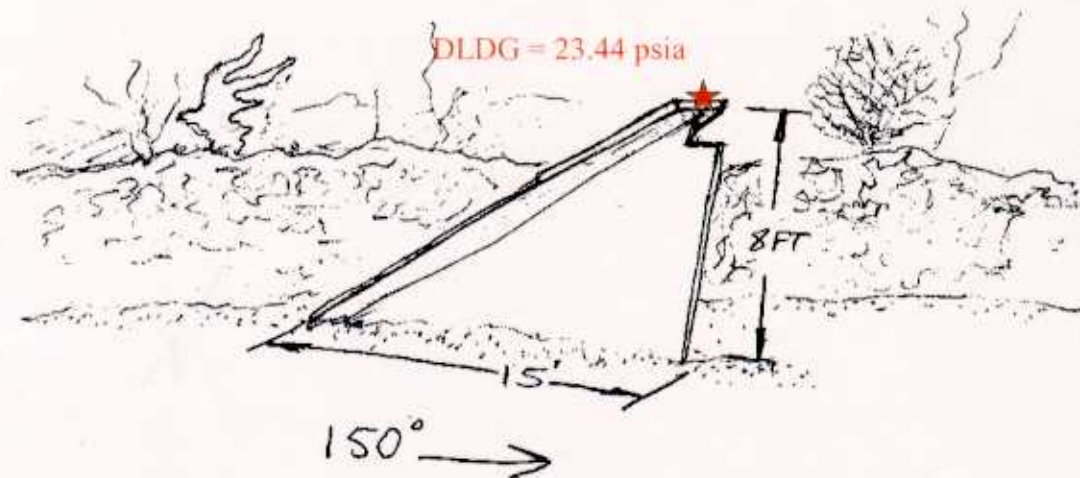
| Survey Information                       |  |                    |
|--|--|--------------------|
| AWOIS Item:                              | Description: Piece of steel, possibly from wreck | Date: May 18, 2001 |
| Latitude - Longitude                     |  | SSS Contacts       |
| 17° 56' 30.72" N                         | 066° 37' 32.71" W                                | 210 1403 0006      |
| SWMB day/line/time/ping/beam             |  | VBES Positions     |
| 139 / 242 1908 / 19:08:32.970 / 180 / 55 |  | N/A                |
| SWMB Depth                               |  | VBES Depth         |
| 5.847                                    |  | N/A                |

| Dive Information        |  |
|-------------------------|--|
| Dive Master: LT Brennan | Time In: 1529 GMT                      |
| Dive Tender: ENS DeHart | Time Out: 1555 GMT                     |
| Diver #1: LT Brennan    | Max Depth: 30 ft                       |
| Diver #2: SS Elwell     | Visibility/Current: 30 ft / no current |

| Diver's Least Depth Gauge Information |          |                          |                               |
|---------------------------------------|----------|--------------------------|-------------------------------|
| Gauge Number:                         | 68332    | CTD Location:            | 17° 56' 31" N, 066° 37' 33" W |
| Pre-Dive Surface Pressure:            | 14.75    | CTD Time:                | 1626 GMT                      |
| Least Depth Pressure:                 | 23.44    | <b>DLDG Depth:</b>       | 6.05 m                        |
| Post-Dive Deck Pressure:              | 14.65    | <b>Tide Corrector:</b>   | -0.087 m                      |
| Time of Least Depth:                  | 1541 GMT | <b>Item Least Depth:</b> | 5.96 m (19 ft)                |

Narrative Report:

Large piece of steel, possibly from uncharted wreck located on opposite side of coral reef.



**Contact: 119\_116\_2102\_0008 - (DTON #8)**

Item Description: Numerous wood piles, possibly pier ruins, along current pier.

Source: H11036 SSS data

Item Position: 17° 58' 01.82" N, 066° 37' 14.67" W

Required Investigation: N/A

Radius: N/A

Charts Affected: 25683

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INVESTIGATION

Correlating Contacts: None

Date(s): 119, 131, 138

Least Depth Position Number: Time 17:45:47.07, Ping 210, Beam 49

Investigation Used: 200% SSS, 100% SWMB, Dive

Surveyed Position: 17° 58' 02.63" N, 066° 37' 13.85" W

Position Determined By: Differential GPS

Investigation Summary: Contact 116\_2102\_0008 was identified during SSS operations. A dive performed on this contact identified numerous wood piles laying horizontally on the sea floor, as well as approximately eight piles oriented vertically along the current pier face. A least depth of

23 ft (7.22 m), corrected with ~~verified~~ *approved* tides, was determined in position 17° 58' 02.63" N,

066° 37' 13.85" W by SWMB. A least depth of 7.64 m (25 ft) was determined by DLDG at position 17° 58' 01.49" N, 066° 37' 14.64" W, further south along the pier face. Due to numerous piles in the vicinity and limited visibility by divers, the hydrographer recommends charting the SWMB least depth at the SWMB position indicated. *Submitted as DtoN #8.*

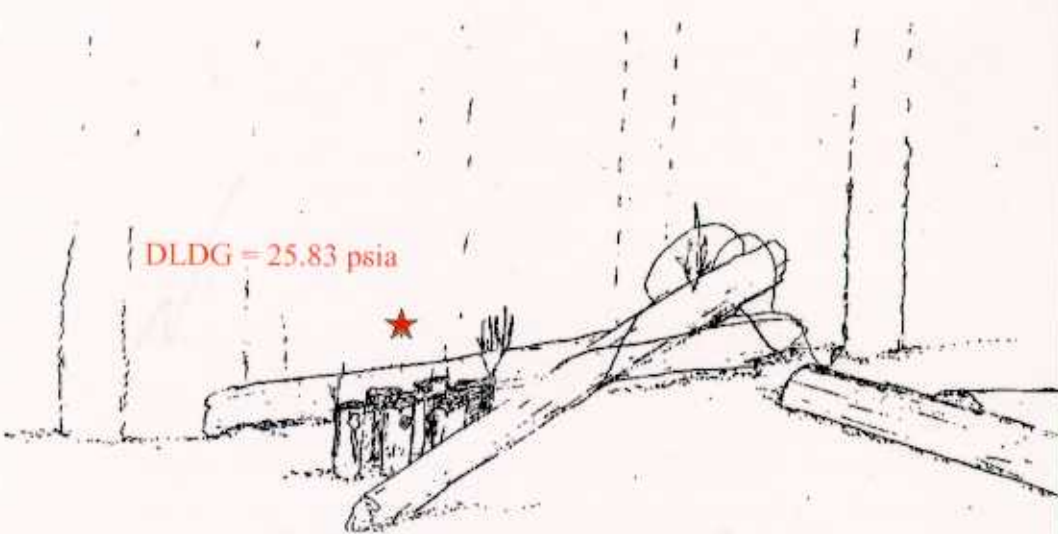
*See also page 23 and the DtoN Report appended to the Evaluation Report.*

---

CHARTING RECOMMENDATION

The hydrographer recommends charting obstructions (pier debris) with least depth of 23 ft at position 17° 58' 02.63" N, 066° 37' 13.85" W. *Concur. Chart a dangerous 23 Obstm.*

NOAA Ship WHITING  
Dive Investigation Report  
Dive No. 138.4

| Survey Information   |  |  |                               |
|--|--|--|-------------------------------|
| AWOIS Item:  | Description: Numerous wood piles, poss. pier ruins | Date: May 18, 2001                     |                               |
| Latitude - Longitude   |  | SSS Contacts                           |                               |
| 17° 58' 02.63" N   | 066° 37' 13.85 W                                   | 116 2102 0008                          |                               |
| SWMB day/line/time/ping/beam   |  | VBES Positions                         |                               |
| 2001-131 / 212-1745 / 17:45:47.07 / 210 / 49   |  | N/A                                    |                               |
| SWMB Depth   |  | VBES Depth                             |                               |
| 7.22 m (23 ft)   |  | N/A                                    |                               |
| Dive Information   |  |  |                               |
| Dive Master: LT Brennan  |  | Time In: 1750 GMT                      |                               |
| Dive Tender: SS Elwell   |  | Time Out: 1806 GMT                     |                               |
| Diver #1: LT Brennan   |  | Max Depth: 29 ft                       |                               |
| Diver #2: ENS DeHart   |  | Visibility/Current: 10 ft / no current |                               |
| Diver's Least Depth Gauge Information  |  |  |                               |
| Gauge Number:  | 68332  | CTD Location:                          | 17° 56' 31" N, 066° 37' 33" W |
| Pre-Dive Surface Pressure:   | 14.70  | CTD Time:                              | 1626 GMT                      |
| Least Depth Pressure:  | 25.83  | <b>DLDG Depth:</b>                     | 7.73 m                        |
| Post-Dive Deck Pressure:   | 14.64  | <b>Tide Corrector:</b>                 | 0.093 m                       |
| Time of Least Depth:   | 1755 GMT   | <b>Item Least Depth:</b>               | 7.64 m (25 ft)                |
| Narrative Report:  |  |  |                               |
| <p>Appears to be pier ruins. Several wood piles laying flat on sea floor. Approximately eight remain upright, extending up to 1.5 ft upward.</p> |  |  |                               |
|    |  |  |                               |

**Contact: 129\_121\_1320\_0001**

Item Description: Possible pile along pier face.

Source: H11036 SSS data

Item Position: 17° 58' 13.58" N, 066° 37' 06.56" W

Required Investigation: N/A

Radius: N/A

Charts Affected: 25683

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INVESTIGATION

Correlating Contacts: None

Date(s): 126, 129, 139, 138

Least Depth Position Number: N/A

Investigation Used: 200% SSS, SWMB, Dive

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: Contact number 129\_121\_1320\_0001 was identified on 100% SSS as a possible pile along the adjacent pier face. No pile or obstruction was identified during dive operations, nor was any discreet object identified on SWMB. Divers noted that rubble sloped from the side of the pier in this area.

---

CHARTING RECOMMENDATION

The hydrographer recommends charting present survey soundings. *Concur.*

NOAA Ship WHITING  
Dive Investigation Report  
Dive No. 138.5

| Survey Information   |  |                                       |     |
|--|--|---------------------------------------|-----|
| AWOIS Item:  | Description: Rubble sloping from pier face | Date: May 18, 2001                    |     |
| Latitude - Longitude   |  | SSS Contacts                          |     |
| 17° 58' 13.58" N   | 066° 37' 06.56" W                          | 121 1320 0001                         |     |
| SWMB day/line/time/ping/beam   |  | VBES Positions                        |     |
| N/A  |  | N/A                                   |     |
| SWMB Depth   |  | VBES Depth                            |     |
| N/A  |  | N/A                                   |     |
| Dive Information   |  |                                       |     |
| Dive Master: LT Brennan  |  | Time In: 1842 GMT                     |     |
| Dive Tender: ENS DeHart  |  | Time Out: 1855 GMT                    |     |
| Diver #1: LT Brennan   |  | Max Depth: 41 ft                      |     |
| Diver #2: SS Elwell  |  | Visibility/Current: 2 ft / no current |     |
| Diver's Least Depth Gauge Information  |  |                                       |     |
| Gauge Number:  | No least depth taken                       | CTD Location:                         | N/A |
| Pre-Dive Surface Pressure:   | N/A  | CTD Time:                             | N/A |
| Least Depth Pressure:  | N/A  | <b>DLDG Depth:</b>                    | N/A |
| Post-Dive Deck Pressure:   | N/A  | <b>Tide Corrector:</b>                | N/A |
| Time of Least Depth:   | N/A  | <b>Item Least Depth:</b>              | N/A |
| Narrative Report:  |  |                                       |     |
| <p>No isolated feature identified by divers during circle search. Debris sloping from deteriorating pier face noted. No least depth reading taken.</p> |  |                                       |     |



### Incorrectly Charted Sewer Pipe - DTONs #1, #5 and #7

Item Description: Least depths along incorrectly charted sewer pipe.

Source: H11036 SSS and SWMB data

Item Position: Charted termination points are 17° 58' 02.75" N, 066° 38' 37.81" W and 17° 58' 52.76" N, 066° 38' 24.94" W.

Required Investigation: N/A

Radius: N/A

Charts Affected: 25683

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#### INVESTIGATION

Correlating Contacts: Numerous SSS contacts along the pipeline

Date(s): 125, 126, 131

Least Depth Position Numbers: N/A

Investigation Used: 200% SSS, 100% SWMB

Surveyed Position: The seaward termination of the pipeline is identified at position 17° 58' 02.80" N, 066° 38' 31.55" W. The pipe runs toward shore at a bearing of 006.5° T.

Position Determined By: Differential GPS

Investigation Summary: This sewer pipe was identified on 100% and 200% SSS as being incorrectly charted. The item was developed using 100% SWMB. Soundings along the pipeline are up to 8 feet shoaler than charted depths. Three selected soundings having the greatest discrepancies with charted depths have been submitted as DTONs. (See Appendix A - DTON Report.) Due to the nature of material discharged from this pipeline, no dives were conducted to verify position or least depth of this item.

---

#### CHARTING RECOMMENDATION

The hydrographer recommends deleting currently charted sewer pipe at position 17° 58' 24.84" N, 066° 38' 32.07" W, and charting the sewer pipe with a seaward termination point at position 17° 58' ~~02.80~~**03.55**" N, 066° 38' ~~31.55~~**29**" W, running toward shore at a bearing of 006.5° T. Chart present survey soundings in the vicinity of the pipe. *Concur.-*

**Dangers to Navigation** *See also the evaluation report.*

Twenty-five items associated with this survey were submitted to N/CS33 as Dangers to Navigation (DTON). These items are summarized in the following table. A copy of the DTON report submitted by WHITING has been included as Appendix I *A revised DtoN report is appended to the evaluation report.*

| DANGERS TO NAVIGATION AFFECTING NOAA CHART 25683 |                    |                                |                             |                               |
|--|--------------------|--------------------------------|-----------------------------|-------------------------------|
| DTON #   | LEAST DEPTH (FEET) | LEAST DEPTH LATITUDE           | LEAST DEPTH LONGITUDE       | DESCRIPTION                   |
| 1**  | 22                 | 17° 58' 37.21" N               | 066° 38' 27.85" W           | 22 ft least depth on pipeline |
| 2**  | 12                 | 17° 58' 39.97 6" N             | 066° 38' 19.46 15" W        | 12 ft rock                    |
| 3**  | 21                 | 17° 58' 37.93" N               | 066° 38' 11.88" W           | 21 ft sounding                |
| 4  | 29                 | 17° 58' 21.99" N               | 066° 38' 41.67" W           | 29 ft obstruction             |
| 5  | 29                 | 17° 58' 24.62" N               | 066° 38' 28.51" W           | 29 ft least depth on pipeline |
| 6  | 30                 | 17° 58' 10.17" N               | 066° 38' 41.00" W           | 30 ft obstruction             |
| 7**  | 31                 | 17° 58' 15.60" N               | 066° 38' 31.20" W           | 31 ft least depth on pipeline |
| 8  | 23                 | 17° 58' 02.63" N               | 066° 37' 13.85" W           | 23 ft obstruction near pier   |
| 9**  | <del>44</del> 43   | 17° 57' 29.41" N               | 066° 38' 23.02" W           | <del>44</del> 43 ft sounding  |
| 10**   | 28                 | 17° 57' 17.30" N               | 066° 38' 37.86" W           | 28 ft sounding                |
| 11**   | 31                 | 17° 56' 52.02" N               | 066° 38' 37.92" W           | 31 ft sounding                |
| 12   | 21                 | 17° 56' 42.56" N<br>.32"       | 066° 37' 39.47" W<br>38.35" | 21 ft wreck                   |
| 13**   | 23                 | 17° 56' 36.91" N               | 066° 37' 40.24" W           | 23 ft sounding                |
| 14**   | 25                 | 17° 57' 02.90" N               | 066° 36' 39.38" W           | 25 ft sounding                |
| 15**   | 37                 | 17° 57' 05.99" N               | 066° 36' 44.96" W           | 37 ft sounding                |
| 16   | 49                 | 17° 57' 19.23" N               | 066° 36' 31.33" W           | 49 ft sounding                |
| 17**   | 35                 | 17° 56' 12.49" N               | 066° 37' 46.70" W           | 35 ft sounding                |
| 18   | 33                 | 17° 56' 12.10" N               | 066° 37' 41.85" W           | 33 ft sounding                |
| 19**   | 34                 | 17° 56' 09.79" N               | 066° 37' 45.23" W           | 34 ft sounding                |
| 20   | 38                 | 17° 56' 00.20" N<br>55' 59.90" | 066° 37' 52.40" W<br>.41"   | <del>38</del> 37 ft sounding  |
| 21**   | 38                 | 17° 55' 52.64" N               | 066° 37' 49.32" W           | 38 ft sounding                |

| DANGERS TO NAVIGATION AFFECTING NOAA CHART 25683 |                    |                      |                       |                          |
|--|--------------------|----------------------|-----------------------|--------------------------|
| DTON #   | LEAST DEPTH (FEET) | LEAST DEPTH LATITUDE | LEAST DEPTH LONGITUDE | DESCRIPTION              |
| 22**   | 41 42              | 17° 56' 02.35" N     | 066° 37' 43.63" W     | 41 42 ft sounding        |
| 23**   | 32                 | 17° 55' 52.01" N     | 066° 37' 32.04" W     | 32 ft sounding           |
| 24**   | 30                 | 17° 58' 20.44" N     | 066° 36' 56.19" W     | 30 ft sounding near pier |
| 25   | 30                 | 17° 58' 01.49" N     | 066° 37' 20.49" W     | 30 ft sounding           |

\*\* These items were not considered a DtoN during office processing.

### Charted Features

The following is a list of significant charted *soundings and* features within the survey limits which have not been previously addressed in this report.

| ITEM                      | CHARTED POSITION                      | REMARKS/RECOMMENDATIONS  |
|---------------------------|---------------------------------------|--|
| Charted depth of 110 feet | 17° 55' 39.20" N<br>066° 37' 46.32" W | Soundings at this position vary between 290 and 480 feet. However, due to the depth of water in this area, 200% SSS data could not be acquired. Present survey soundings are from VBES only. Recommend retaining charted 110 ft depth. <i>Do not concur. Chart present survey soundings.</i> |
| Charted depth of 39 feet  | 17° 55' 50.14" N<br>066° 37' 26.26" W | Soundings at this position vary between 42 and 48 feet. No contacts were identified in 200% SSS in close proximity to this depth. Recommend charting present survey soundings. <i>Concur.</i>  |
| Charted 17-18 foot shoal  | 17° 57' 13.96" N<br>066° 38' 37.00" W | Shoal was identified in 200% SSS. Least depth determined by SWMB is 16 ft. Recommend charting present survey soundings. <i>Concur.</i>   |
| Charted depth of 22 feet  | 17° 57' 16.64" N<br>066° 38' 31.92" W | Soundings vary between 26 and 29 feet. No contacts were identified on 200% SSS in close proximity to this depth. Recommend charting present survey soundings. <i>Concur.</i>   |
| Charted depth of 41 feet  | 17° 57' 39.10" N<br>066° 38' 17.65" W | Soundings vary between 46 and 47 feet. No contacts were identified in 200% SSS in close proximity to this depth. Recommend charting present survey soundings. <i>Concur.</i>   |
| Charted depth of 26 feet  | 17° 58' 16.62" N<br>066° 37' 31.45" W | Soundings vary between 28 and 32 feet. No contacts were identified in 200% SSS in close proximity to this depth. Area was also developed with 100% SWMB. Recommend charting present survey soundings. <i>Concur.</i>   |

| ITEM                     | CHARTED POSITION   | REMARKS/RECOMMENDATIONS   |
|--------------------------|--|---|
| Charted depth of 30 feet | 17° 57' 56.65" N<br>066° 36' 58.80" W  | Area was investigated with 200% SSS and 100% SWMB. No contacts were identified in SSS in close proximity to this depth. Least depth from SWMB was 26 feet. Recommend charting present survey soundings. <i>Concur.</i>  |
| Charted 11 foot shoal    | 17° 58' 37.05" N<br>066° 37' 32.93" W  | Area is located outside of the 18 ft curve, and was investigated with VBES only. Shoal was not identified with VBES. Recommend retaining 11 foot shoal as charted. <i>Concur. Not considered disproved.</i>   |
| Charted 11 foot rock     | 17° 58' 38.77" N<br>066° 38' 23.65" W<br><br><i>Revise 11 Rk to:<br/>17° 58' 38.30" N<br/>66° 38' 23.81" W</i> | Charted rock with least depth of <del>12</del> 11 feet was verified at charted position with 200% SSS and 100% SWMB. Two additional rocks were identified by the same methods in close proximity. First rock located at position 17° 58' 39.36" N, 066° 38' 21.87" W has a SWMB least depth of 13 feet. Second rock at position 17° 58' 39.91" N, 066° 38' 19.24" W has a SWMB least depth of 12 feet. Recommend charting a shoal with least depths around all three rocks and adjusting note "Rk" to "Rks" <i>Concur. Revise 11 Rk to 11 and 12 Rks.</i> |
| Charted Sewer Pipe       | 17° 58' 24.84" N,<br>066° 38' 32.07" W   | Pipe is incorrectly charted. This pipe was identified in both SSS and SWMB data, with a seaward end point at position 17° 58' <del>02.80</del> 03.55" N, 066° 38' 31.55 <del>29</del> " W. Pipe runs toward shore at a bearing of 006.5° T. Recommend deleting sewer pipe at charted position and charting pipe as noted above. <i>Concur. See also pages 8 and 22.</i>   |
| Charted 17 foot shoal    | 17° 57' 01.26' N<br>066° 37' 14.42" W  | Shoal was verified with 100% SWMB. Least depth from SWMB is 17 feet. Recommend retaining shoal as charted. <i>Chart as shown on the present survey.</i>   |
| Charted depth of 41 feet | 17° 57' 06.66" N<br>066° 36' 44.83' W  | Area was investigated with 200% SSS and 100% SWMB. No contacts were identified in SSS in close proximity to this depth. Least depth from SWMB is 37 feet. Item was submitted as DTON #15*. Recommend charting present survey soundings. <i>Concur.</i>  |
| Charted depth of 29 feet | 17° 57' 03.29" N<br>066° 36' 38.53' W  | Area was investigated with 200% SSS. No contacts were identified in SSS in close proximity to this depth. Least depth from VBES is 25 feet. Item was submitted as DTON #14*. Recommend charting present survey soundings. <i>Concur.</i>  |
| Charted rock             | 17° 57' 48.46" N<br>066° 36' 50.27' W  | Area was too shoal to investigate. Retain rock as charted. <i>Do not Concur. Four new piers are in the immediate vicinity. Delete dangerous rock. See last three items (piers) discussed on page 31.</i>  |

*\*Not considered a DtoN during office processing.*

## D.2. ADDITIONAL RESULTS

### Aids to Navigation (ATON's)

All federally maintained aids to navigation (i.e. channel buoys) positioned during this survey are on station, as charted, with two exceptions. Red channel buoys "2" and "4" were repositioned by the United States Coast Guard (USCG) during the time of survey. DPs were acquired for the new positions of these two buoys, as noted in the table on the following page. (See NOAA form 76-40 in Appendix V): *Filed with the original field records.*

| ATON          | LIGHT LIST # | LATITUDE<br>LONGITUDE<br>(SURVEYED POSITION)  | RANGE (R) & BEARING<br>(B) FROM CHARTED<br>FEATURE |
|---------------|--------------|---|--|
| R "2" Fl R 4s | 31965.1      | 17° 55' 53.17" N<br>066° 37' 55.25" W   | R = 182 m<br>B = 271° T                            |
| R N "4"       | 31965.2      | 17° 56' <del>40.57</del> <b>36.43</b> " N<br>066° 37' <del>43.27</del> <b>42.91</b> " W | R = 141.9 m<br>B = 003.5° T                        |

The remaining four main channel buoys were on station as charted. However, it is noted that no position data is given for any of the main channel buoys in the Light List. These buoys, and their respective surveyed positions, are listed in the following table. The hydrographer recommends that the current buoy positions be incorporated into the Light List. *Concur. Defer to MCD Update Service Branch for charting recommendations of Aids to Nav.*

| ATON             | LIGHT LIST NUMBER | LATITUDE / LONGITUDE<br>(SURVEYED POSITION)   |
|------------------|-------------------|---|
| G "1" Fl G 4 s   | 31955             | 17° 55' 59.83" N, 066° 38' 12.78" W   |
| R "2" Fl R 4s    | 31965.1           | 17° 55' 53.17" N, 066° 37' 55.25" W   |
| R N "4"          | 31965.2           | 17° 56' <del>40.57</del> <b>36.43</b> " N, 066° 37' <del>43.27</del> <b>42.91</b> " W |
| G "5" Fl G 2.5 s | 31970             | 17° 57' 12.31" N, 066° 37' 46.46" W   |
| R "6" Fl R 2.5 s | 31975             | 17° 57' 47.85" N, 066° 37' 20.34" W   |
| G "7" Fl G 2.5 s | 31995             | 17° 58' 20.22" N, 066° 37' 17.32" W   |

Three privately maintained ATONs are included in the Light List. Charted, surveyed, and Light List positions and characteristics are inconsistent. The following table lists these aids to navigation and positions/characteristics from each data source. The hydrographer recommends these lights be charted at the current surveyed position with the observed characteristic. *Concur. Defer to MCD Update Service Branch for charting recommendations for Aids to Navigation.*

| ATON & LIGHT LIST #                                | SURVEYED POSITION & OBSERVED CHARACTERISTIC                  | CHARTED POSITION & CHARTED CHARACTERISTIC  | LIGHT LIST POSITION & LIGHT LIST CHARACTERISTIC |
|--|--|--|---|
| Muelle Municipal Pier Lights (2)<br>LL# 31980      | 17° 58' 01.37 47" N<br>066° 37' 16.54 43" W<br>FR            | 17° 58' 01.95" N<br>066° 37' 15.74" W<br>F | 17° 58' 00" N<br>066° 37' 18" W<br>FW           |
|  | 17° 58' 00.72" N<br>066° 37' 15.63" W<br>FY                  |  |   |
| Ponce Harbor Pier 4 Obstruction Light<br>LL# 31985 | 17° 58' 07.90" N<br>066° 37' 16.48" W<br>FR                  | 17° 58' 07.94" N<br>066° 37' 16.35" W<br>F | 17° 58' 06" N<br>066° 37' 18" W<br>FW           |
| Trailer Wharf Obstruction Light<br>LL# 31990       | 17° 58' 23.61" N<br>066° 37' 07.26" W<br>two lights, FY & FR | 17° 58' 24.02" N<br>066° 37' 06.68" W<br>F | 17° 58' 24" N<br>066° 37' 06" W<br>FW           |

Five privately maintained lights positioned during survey operations are not currently charted. None of these lights are included in the Light List. The hydrographer recommends these lights be charted at the surveyed positions noted below. *Concur* Each of these lights is shown on the Shoreline Plot submitted with the data package.

| ATON DESCRIPTION                           | SURVEYED POSITION                       |
|--|---|
| FY light at pier corner                    | 17° 58' 22.36" N, 066° 36' 56.53" W     |
| FR light at center of pier                 | 17° 58' 02.50" N, 066° 37' 14.19" W     |
| F light, w/ R un-numbered triangle daymark | 17° 58' 00.52 5" N, 066° 37' 05.56 5" W |
| F light at pier corner                     | 17° 57' 59.73" N, 066° 37' 02.00" W     |
| F light at Ponce Fishing and Yacht Club*   | 17° 57' 45.60" N, 066° 37' 09.00" W     |

\*It was requested, by the Ponce Fishing and Yacht Club, that this privately maintained light be charted. The light was observed as having a fixed white characteristic. The light position was reported via email by LTJG Faulkner of the USCG. The hydrographer recommends this light be charted at the USCG reported position. A copy of correspondence with LTJG Faulkner and copies of NOAA Form 76-40 are included in Appendix V\*\* - Supplemental Survey Records and Correspondence. \* *Concur, defer to MCD Update Service Branch for charting recommendations of Aids to Nav.* \*\**Data filed with the original field records.*

## Bottom Samples

Bottom samples were taken to verify charted bottom types. Samples were acquired at each of the currently charted bottom type locations within the survey limits. Of the 50 samples acquired, 40% did not agree with the current charting. The hydrographer recommends making the following charting changes based on current bottom sample data. *Concur.* The position and characteristics of each sample acquired (i.e. Log M sheets) can be reviewed in Appendix V - Supplemental Survey Records and Correspondence. *Data filed with original field records.*

| CHART POSITION |                | DELETE CHARTED<br>BOTTOM TYPE | CHART<br>BOTTOM TYPE |
|----------------|----------------|-------------------------------|----------------------|
| LATITUDE       | LONGITUDE      |                               |                      |
| 17° 57' 48" N  | 066° 38' 01" W | h                             | M                    |
| 17° 57' 38" N  | 066° 38' 21" W | rky <sup>1</sup>              | M <sup>2</sup>       |
| 17° 57' 07" N  | 066° 38' 17" W | h                             | M                    |
| 17° 57' 06" N  | 066° 38' 30" W | rky                           | Sh, G                |
| 17° 58' 41" N  | 066° 38' 17" W | h                             | M                    |
| 17° 58' 18" N  | 066° 38' 13" W | h                             | M                    |
| 17° 58' 11" N  | 066° 37' 54" W | h                             | M                    |
| 17° 58' 34" N  | 066° 37' 39" W | Sh                            | h                    |
| 17° 58' 18" N  | 066° 37' 30" W | h                             | M                    |
| 17° 56' 58" N  | 066° 36' 49" W | Sh                            | h, S                 |
| 17° 56' 58" N  | 066° 37' 07" W | so                            | h                    |
| 17° 57' 04" N  | 066° 36' 59" W | h                             | M                    |
| 17° 56' 41" N  | 066° 37' 43" W | rky <sup>1</sup>              | S, Co <sup>2</sup>   |
| 17° 56' 30" N  | 066° 37' 45" W | h                             | S, Co                |
| 17° 56' 16" N  | 066° 37' 42" W | h                             | S                    |
| 17° 56' 03" N  | 066° 37' 25" W | h                             | S, Co                |

| CHART POSITION |                  | DELETE CHARTED<br>BOTTOM TYPE | CHART<br>BOTTOM TYPE |
|----------------|------------------|-------------------------------|----------------------|
| LATITUDE       | LONGITUDE        |                               |                      |
| 17° 56' 01" N  | 066° 37' 48" W   | Sh                            | h                    |
| 17° 56' 47" N  | 066° 37' 58.1" W | h                             | Silt                 |
| 17° 57' 09" N  | 066° 37' 56" W   | h <sup>1</sup>                | Silt <sup>2</sup>    |
| 17° 58' 34" N  | 066° 37' 24" W   | so                            | S, Sh                |

<sup>1</sup> Retain <sup>2</sup> Do not chart

**Shoreline Verification and Other Detached Positions** *See also the Evaluation Report.*

Shoreline verification revealed several areas where charted shoreline is offset from actual positions. The hydrographer recommends modern photogrammetry be applied to this harbor. No digital shoreline mapping file was provided by N/NGS3 for this survey. Shoreline details were compared to the largest scale chart available for this area, NOS Chart 25683, 17<sup>th</sup> edition, November 11, 2000, 1:20,000. *Concur. Consult Remote Sensing Division (RSD) for current shoreline data.*

Detached positions were acquired along municipal piers and wharves, as well as private Ponce Yacht Club piers, where accessible by launch. Several uncharted features, such as piles, lights and wrecks were also positioned during the verification process. Very shoal areas located on the south side of Ponce Yacht Club were inaccessible, and two piers in this area were not positioned. Digital photographs of positioned items were taken at the time of verification, and have been submitted on CD-ROM with the digital data package. The naming convention of images is based on the event number(s) of DP(s) represented in each photo. Summary sheets of all DPs acquired are included in Appendix V- Supplemental Survey Records and Correspondence. *Data filed with original field records.*

Verified shoreline and associated detached positions are depicted on a separate 1:2,000 scale plot for enhanced detail. This shoreline plot has been included with the data submission package. The currently charted shoreline, scaled from NOS Chart 25683 in MapInfo, has been shown in brown on the shoreline plot. This data is for reference purposes, only. Verified shoreline agreeing with the current charting is represented in black, and verified shoreline requiring changes to the current charting are depicted in red. Each DP is labeled in black with its fix number. When the item was not directly accessible by launch, offsets were applied to the DP position. Offsets are represented on the plot with a blue line extending from the DP to the true position of the item. True positions are depicted by a blue star.

Recommended adjustments, additions and deletions to charted shoreline are summarized, with remarks/recommendations, in the following table. *All surveyed positions identified in this table are true item positions, and not necessarily DP positions.*



| NEW OR CHANGED BAHIA DE PONCE FEATURES |  |   |
|--|--|---|
| FEATURE                                | SURVEYED POSITION(S), DP NUMBER(S)   | REMARKS & CHARTING RECOMMENDATIONS  |
| Rip Rap along Shoreline                | 17° 58' 29.93" N, 066° 37' 09.27" W, #24676<br>17° 58' 25.96" N, 066° 37' 08.49" W, #24675                             | Chart rip rap between surveyed endpoint positions indicated, and as shown in shoreline plot. <i>See D.2.a of the E&amp;A Rept.</i>  |
| Visible wreck                          | 17° 58' 25.20" N, 066° 37' 00.99" W, #24677<br><i>Chart the notation "Wk" and arrow due to the scale of the chart.</i> | Vessel is partially submerged along pier face. Chart visible wreck at surveyed position. <i>Concur in part.</i>   |
| Rock awash                             | 17° 58' 21.94" N, 066° 36' 59.20" W, #24678<br>.54 .53   | Rock awash at corner of shoreline. Chart rock awash at surveyed position. <i>Concur.</i>  |
| Loading ramp                           | 17° 58' 19.06" N, 066° 36' 55.54" W, #24681<br><i>Do not chart. Scale of the chart does not allow.</i>                 | Loading ramp in bulkhead for transferring truck trailers onto barges. Appears to lower during operation. <i>Concur</i>  |
| Rip Rap along Shoreline                | 17° 58' 07.38" N, 066° 37' 16.28" W, #24688<br>17° 58' 05.29" N, 066° 37' 14.38" W, #24686                             | Chart rip rap between surveyed endpoint positions indicated, and as shown in shoreline plot. <i>See D.2.a of the E&amp;A Rept.</i>  |
| Concrete Piles                         | 17° 58' 01.03" N, 066° 37' 16.07" W, #24692<br>17° 58' 00.75" N, 066° 37' 15.52" W, #24691                             | Positions identify endpoints of two rows of square concrete piles visible at MLLW, each approximately 1'x1'x1.5'. Chart piles between surveyed endpoints indicated. See DP photos for further reference. <i>Concur. Only if the scale of the chart allows.</i>              |
| Rip Rap along Shoreline                | 17° 58' 03.85" N, 066° 37' 12.95" W, #24694<br>17° 58' 04.50" N, 066° 37' 09.24" W, #24695                             | Chart rip rap between surveyed endpoint positions indicated, and as shown in shoreline plot. <i>See D.2.a of the E&amp;A Rept.</i>  |
| Pier Ruins                             | 17° 58' 02.40" N, 066° 37' 07.56" W, #24702  | Pier ruins are not charted correctly. Delete currently charted pier ruins at position 17° 58' 03.08" N, 066° 37' 07.68" W. Chart pier ruins from surveyed endpoint to shore, bearing 021° T. <i>Concur</i>  |
| Pier Ruins                             | 17° 58' 02.14" N, 066° 37' 06.64" W, #24701<br>17° 58' 01.99" N, 066° 37' 06.16" W, #24700                             | Pier ruins are not charted correctly. Ruins are actually "L" shaped. Delete currently charted pier ruins at position 17° 58' 02.82" N, 066° 37' 06.26" W. Chart pier ruins between two surveyed points, then from easternmost point to shore, bearing 021° T. <i>Concur</i> |
| Uncharted dolphin                      | 17° 58' 01.41" N, 066° 37' 05.25" W, #24699  | Chart dolphin (+09 ft) at surveyed position. <i>Concur.</i>   |

| NEW OR CHANGED BAHIA DE PONCE FEATURES             |   |   |
|--|---|---|
| FEATURE  | SURVEYED POSITION(S), DP NUMBER(S)  | REMARKS & CHARTING RECOMMENDATIONS  |
| Visible Obstruction                                | 17° 58' 01.19" N, 066° 36' 59.93" W, #24706   | Chart obstruction, visible <del>1</del> foot <i>awash</i> at MLLW, at surveyed position indicated. <i>Concur.</i>   |
| Submerged wreck w/ adjacent debris visible at MLLW | 17° 58' 00.89" N, 066° 36' 58.64" W, #24708   | Approximately 12' pleasure craft estimated 1 ft below water surface with adjacent visible debris. Item is very close to shoreline. Chart submerged <del>dangerous-a</del> <i>visible</i> wreck at surveyed position indicated. <i>Concur.</i> |
| Small pier and boat ramp with pile at seaward end  | 17° 58' 00.32" N, 066° 36' 58.46" W #24707<br>DP at end of pier   | Chart pier from position indicated extending toward shore at a bearing of 058° T. <i>Do not concur. See section D.2.a. of the Evaluation Report.</i>  |
|  | 17° 58' 00.25" N, 066° 36' 58.40" W, #24707<br>DP offset for pile position  | Chart pile (8 ft) at position indicated. <i>Do not concur. See section D.2.a. of the Evaluation Report.</i>   |
| Boardwalk Pier                                     | 17° 57' 54.59" N, 066° 36' 53.72" W, #24710<br>17° 57' 53.70" N, 066° 36' 53.02" W, #24711  | A small boat pier with access to the boardwalk has been constructed. Chart rectangular pier extending from boardwalk to surveyed endpoints indicated. <i>See section D.2.a. of the Evaluation Report.</i>                                     |
| Uncharted piers & boat ramp                        | 17° 57' 49.96" N, 066° 36' 51.05" W, #24715<br>17° 57' 49.58" N, 066° 36' 50.99" W, #24715<br>Second pier position estimated from width of boat ramp. | Chart two finger piers starting at each surveyed end point, bearing 124° T to shore. <i>Concur.</i> Chart a boat ramp between these two piers. <i>Do not concur. Scale of the chart does not allow.</i>                                       |
| Uncharted Pier                                     | 17° 57' 49.38" N, 066° 36' 51.78" W, #24714   | Chart a finger pier starting at surveyed end point, bearing 124° T to shore. <i>Concur</i>  |
| Uncharted Pier                                     | 17° 57' 49.18" N, 066° 36' 53.06" W #24713  | Chart a finger pier starting at surveyed end point, bearing 124° T to shore. <i>Concur</i>  |

| NEW OR CHANGED BAHIA DE PONCE FEATURES |   |   |
|--|---|---|
| FEATURE                                | SURVEYED POSITION(S), DP NUMBER(S)  | REMARKS & CHARTING RECOMMENDATIONS  |
| Revised pier                           | 17° 57' 51.63" N, 066° 37' 01.78" W<br>No DP acquired. Actual location of pier end is too shoal for positioning with survey launch. | This pier does not extend as far seaward as charted. The actual endpoint could not be positioned due to shoal water. Mr. Tony Coufal, of the Ponce Yacht and Fishing Club provided a set of yacht club pier plans for review. When questioned about this pier, which appeared approximately half of the charted size, he reported that the pier was never constructed to the length indicated by current charting. Recommend revising this pier to half of the length currently charted, from shore to the "surveyed" position indicated. <i>See section D.2.a. of the Evaluation Report.</i> |
| Uncharted boathouse                    | 17° 57' 53.11" N, 066° 37' 04.05" W, #24718<br>17° 57' 52.49" N, 066° 37' 04.41" W, #24720  | Ponce Yacht and Fishing Club maintains a boathouse in the center of this pier. Chart a square boat house extending from the currently charted pier to surveyed endpoints indicated. <i>See section D.2.a. of the Evaluation Report.</i>   |
| Mischarted pier                        | 17° 57' 53.00" N, 066° 37' 04.68" W, #24721<br>17° 57' 53.71" N, 066° 37' 06.61" W, #24723  | Actual pier is "T" shaped. Delete currently charted pier between positions 17° 57' 54.77" N, 066° 37' 09.09" W and 17° 57' 53.32" N, 066° 37' 06.41" W. <i>Concur.</i><br>Chart pier between two surveyed positions, with center span bearing 200° T to shore. <i>Concur.</i>   |
| Piles (2)                              | 17° 57' 53.47" N, 066° 37' 06.89" W, #24723<br>17° 57' 53.49" N, 066° 37' 07.20" W, #24722  | Chart a pile at each position indicated. <i>Concur.</i>   |

**Prior Survey Comparisons** *See also the evaluation report.*

No prior survey comparisons were conducted by WHITING personnel.

**Bridges, Overhead Cables and Overhead Pipelines**

No bridges or overhead cables are located within the survey limits. *Concur.*

**Ferry Routes**

No ferry routes or ferry terminals are active within the survey limits. *Concur.*

**Submarine Cables and Pipelines**

One sewer pipeline is located at the northwestern corner of the survey limits. Charted termination points for this pipeline are 17° 58' 02.75" N, 066° 38' 37.81" W and 17° 58' 52.76" N, 066° 38' 24.94" W. SSS and SWMB investigations have determined that this pipeline is mischarted. The seaward termination of the pipeline is identified at position 17° 58' 02.80" N, 066° 38' 31.55" W. The pipe runs toward shore at a bearing of 006.5° T. Sounding data in the vicinity of this pipeline has been previously addressed in Section D.1. Chart Comparison. *Concur.*

Discrete cables or cable areas were neither charted nor observed in the survey area.

**Drilling Structures, Platforms and Well Heads**

No drilling structures, platforms or well heads were charted or observed within the survey area. *Concur.*

**Proposed Channel Redesign**

The Carribbean Harbor Pilots are actively pursuing a redesign of Aids to Navigation for Bahía de Ponce. A proposed channel design includes repositioning and additions of buoys, plus additions of both an anchorage and a larger turning basin. A proposed layout is shown in Figure 3. It is noted that these changes are a proposal, *only*, at this time.

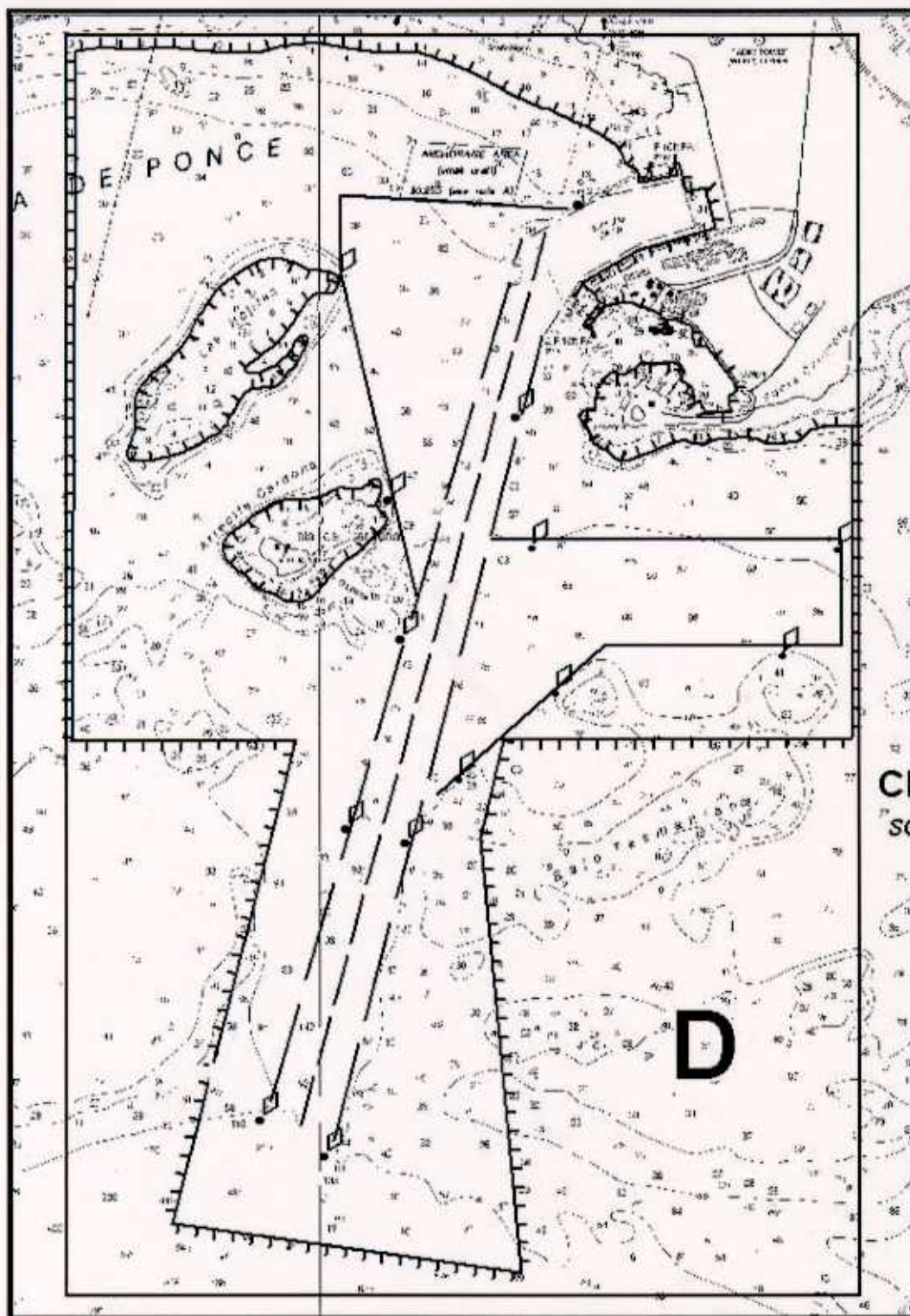


Figure 3 - Ponce Harbor redesign as proposed by the Carribeian Harbor Pilots.

**E. APPROVAL SHEET**

OPR-I305-WH  
Puerto Rico  
South Coast of Puerto Rico

Bahia de Ponce  
Survey Registry No. H11036

Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy. All field sheets, this Descriptive Report, and all accompanying records and data are approved.

This survey is adequate to supersede all prior surveys in common areas, and for application to the relevant NOS nautical charts.

Submitted: Holly A. DeHart SEPT 29, 2001  
LTJG Holly A. DeHart, NOAA  
Junior Officer

Richard T. Brennan  
LT Richard T. Brennan, NOAA  
Field Operations Officer

Approved and Forwarded: Gerd F. Glang SEPT 29, 2001  
LCDR Gerd F. Glang, NOAA  
Commanding Officer



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
Silver Spring, Maryland 20910

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE:** November 19, 2001

**HYDROGRAPHIC BRANCH:** Atlantic  
**HYDROGRAPHIC PROJECT:** OPR-I305-WH-2001  
**HYDROGRAPHIC SHEET:** H11036


**LOCALITY:** Bahia de Ponce, Puerto Rico  
**TIME PERIOD:** April 29 - May 31, 2001

**TIDE STATION USED:** 975-8053 Punta Guayanilla, PR  
Lat.  $17^{\circ} 58.6'N$  Lon.  $66^{\circ} 45.7'W$   
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 0.212 meters

**REMARKS: RECOMMENDED ZONING**  
Use zone(s) identified as: PRS1.

Refer to attachments for zoning information.

**Note 1:** Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time.

  
-----  
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT FOR H11036 (2001)**

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.

**B. DATA ACQUISITION AND PROCESSING**

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

Hydrographic Processing System  
MicroStation J, version 7.1  
I/RAS B, version 5.01  
NADCON, version 2.10  
MapInfo, version 6.5  
CARIS HIPS/SIPS 2000  
PYDRO, version 2.5.3

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

**C. HORIZONTAL CONTROL**

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

To place this survey on the NAD 27, move the projection lines 7.115 seconds (218.737 meters or 43.75 mm at the scale of the survey) south in latitude, and 1.378 seconds (40.549 meters or 8.11 mm at the scale of the survey) east in longitude.

**D.1. COMPARISON WITH CHART 25683 (17<sup>th</sup> Edition, NOV. 11/00)**

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

A 38 foot sounding shown on the present survey in Latitude 17°57'40.80"N, Longitude 66°37'18.44"W, was not



discussed by the hydrographer. This feature has been considered an obstruction during office processing. It is recommended that a 38 foot obstruction be charted as shown on the present survey.

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

### **Dangers to Navigation**

A Danger to Navigation report was submitted to the Marine Chart Division, N/CS3x1, Silver Spring, Maryland, for inclusion to the local notice to mariners. A copy is appended to this report.

## **D.2. ADDITIONAL RESULTS**

### **Shoreline**

a. Shoreline located by the hydrographer is shown in red on the present survey. Those shoreline features discussed and referenced to this report in the Descriptive Report are not shown on the H-Drawing for the present survey. This shoreline is not considered adequate for compilation. It is recommended that Source Data Unit determine the source for the shoreline and make the final determination.

b. In addition to the shoreline discussed in the Descriptive Report the following features are also not considered adequate for compilation: The Muelle Municipal Pier in the vicinity of Latitude 17°58'02"N, Longitude 66°37'15"W, and a "T" shaped pier in the vicinity of Latitude 17°58'00.38"N, Longitude 66°37'03.60"W. It is recommended that Source and Data Unit make the final determination.

c. The hydrographer's recommendation to revise a pier approximately half of the charted length in Latitude 17°57'51.63"N, Longitude 66°37'01.78"W is not considered an adequate position. It is recommended that Source Data Unit make the final determination.

### **Comparison With Prior surveys**

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

**Controlling Depths**

No conflict exists with the charted controlling depth in the entrance channel turning basin and present survey soundings throughout the common area.

**Adequacy of Survey**

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

**Miscellaneous**

Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland. The following NOS chart was used for compilation of the present survey: 25683 (17<sup>th</sup> Edition, NOV. 11/00)

Robert Snow

**Robert Snow**

Cartographic Technician  
Verification of Field Data  
Evaluation and Analysis


**APPROVAL SHEET  
H11036 (2001)**

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 disproval 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  
Cartographer  
Atlantic Hydrographic Branch  
Date: 12/02/02

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.

  
Emily B. Christman, CDR, NOAA  
Chief, Atlantic Hydrographic Branch  
Date: 1/27/03

\*\*\*\*\*

Final Approval:

Approved:   
Samuel P. De Bow, Jr.  
Captain, NOAA  
Chief, Hydrographic Surveys Division  
Date: March 7, 2003

*AWOIS/SURE ✓ 2/21/03 SJI*

H11036

NOAA Ship WHITING

August 20, 2001

**REPORT OF DANGER TO NAVIGATION**

Survey Registry Number: **H11036**

State/Territory: Puerto Rico  
Locality: South Coast of Puerto Rico  
Sub-Locality: Bahia de Ponce

Project Number: OPR-I305-WH  
Survey Date(s): April 29 - May 31, 2001

Soundings are reduced to Mean Lower Low Water (MLLW) using Verified Water Levels.  
Horizontal datum is NAD 83.

Chart(s) Affected: **25683**, 17<sup>th</sup> edition, November 11, 2000, 1:20,000

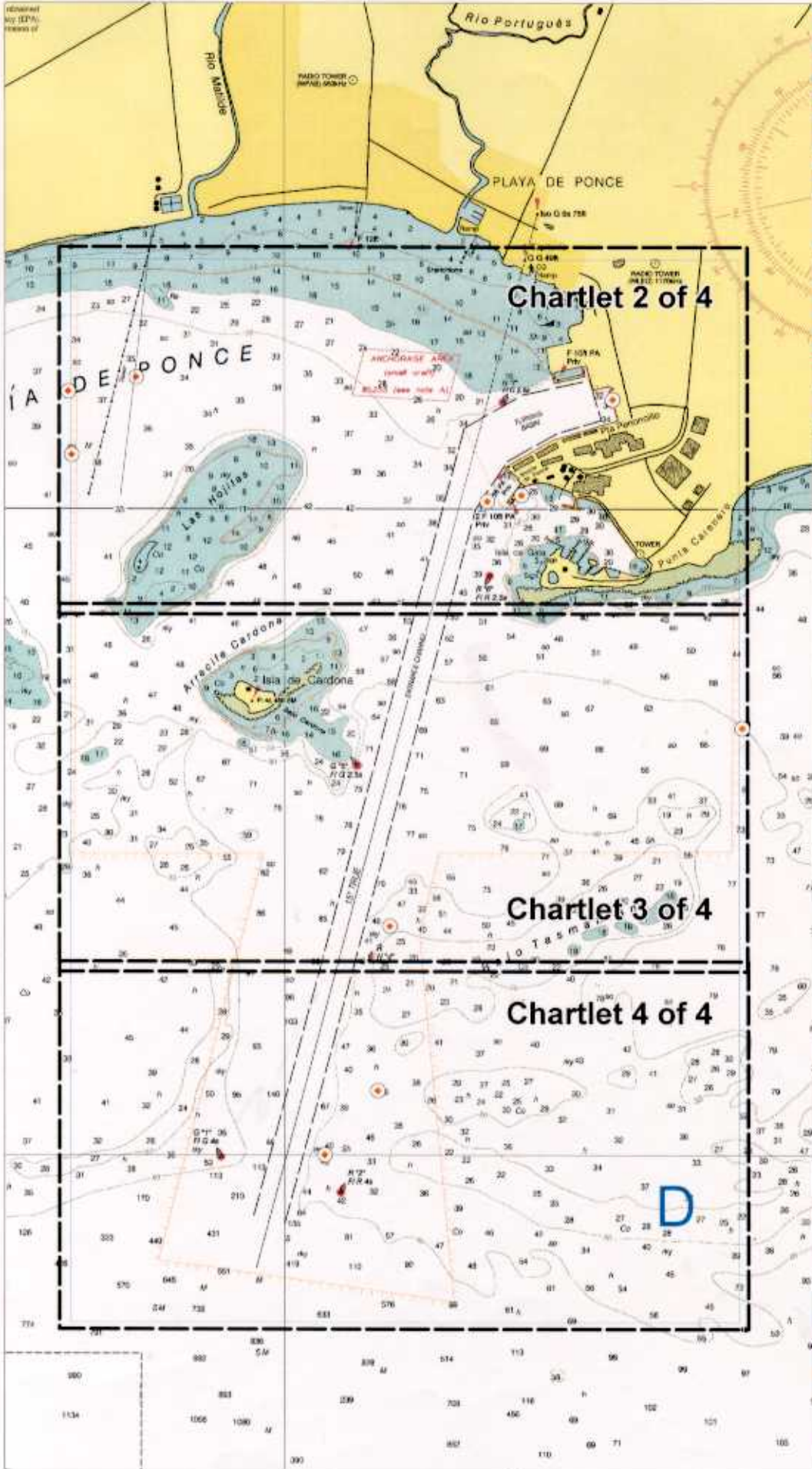
**DANGERS TO NAVIGATION**

Ten dangers to navigation were identified during operations for hydrographic survey H11036, Bahia de Ponce, South Coast of Puerto Rico. Dangers to navigation are summarized in the table on the following page.

Questions concerning this report should be directed to the Chief, Atlantic Hydrographic Branch at (757) 441-6746.

| <b>DANGERS TO NAVIGATION AFFECTING NOAA CHART 25683</b> |                               |                                       |                                  |                                |
|---|-------------------------------|---------------------------------------|----------------------------------|--------------------------------|
| <b>DTON #</b>   | <b>LEAST DEPTH<br/>(FEET)</b> | <b>LEAST DEPTH<br/>LATITUDE</b>       | <b>LEAST DEPTH<br/>LONGITUDE</b> | <b>DESCRIPTION</b>             |
| 4   | 29                            | 17° 58' 21.99" N                      | 066° 38' 41.67" W                | 29 ft obstruction              |
| 5   | 29                            | 17° 58' 24.62" N                      | 066° 38' 28.51" W                | 29 ft least depth on pipeline  |
| 6   | 30                            | 17° 58' 10.17" N                      | 066° 38' 41.00" W                | 30 ft obstruction              |
| 8   | 23                            | 17° 58' 02.63" N                      | 066° 37' 13.85" W                | 23 ft obstruction near pier    |
| 12  | 21                            | 17° 56' 42.56" N                      | 066° 37' 39.47" W                | 21 ft wreck                    |
| 16  | 49                            | 17° 57' 19.23" N                      | 066° 36' 31.33" W                | 49 ft sounding                 |
| 18  | 33                            | 17° 56' 12.10" N                      | 066° 37' 41.85" W                | 33 ft sounding                 |
| 20  | 38                            | 17° 56' 00.20" N<br><i>55' 59.90"</i> | 066° 37' 52.10" W<br><i>41"</i>  | 37 ft sounding<br><i>37 ft</i> |
| 24*   | 30                            | 17° 58' 20.44" N                      | 066° 36' 56.19" W                | 30 ft sounding near pier       |
| 25  | 30                            | 17° 58' 01.49" N                      | 066° 37' 20.49" W                | 30 ft sounding                 |

*\* Not considered a Dton during office processing.*



**This chartlet may not be up to date with the latest Local Notice to Mariners information. NOT FOR NAVIGATION.**

**Chartlet 1 of 4** Chart 25683, 17th Ed., November 11th, 2000, Scale 1:20,000, Bahia de Ponce and Approaches. Revisions from NOAA Hydrographic Survey H11036.

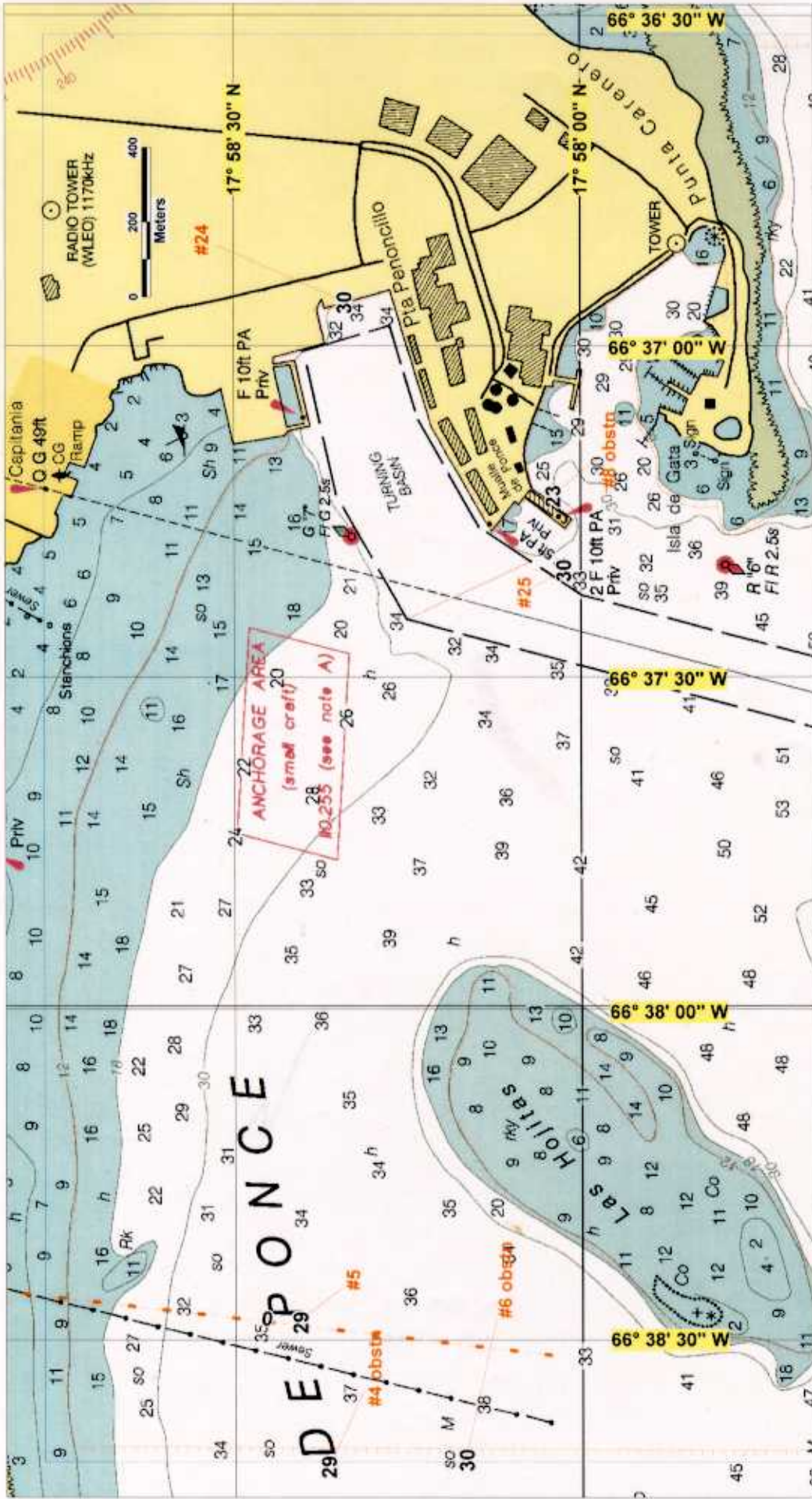
**NOAA Ship WHITING**  
**LCDR Gerd F. Glang**  
 Commanding  
 April 29 to  
 May 31, 2001

Sounding Units: Meters  
 Sounding Datum: MLLW  
 Horizontal Datum: NAD 83  
 Projection: UTM 19  
 Central Meridian: 069° 00 00  
 Scale Factor: 0.9996

Project: OPR-1305-WH  
 Survey: H11036  
 State: Puerto Rico  
 Locality: South Coast of Puerto Rico  
 Sub-locality: Bahia de Ponce  
 Survey Scale: 1:5,000

**NATIONAL OCEANIC AND  
 ATMOSPHERIC ADMINISTRATION  
 NATIONAL OCEAN SERVICE**





This chartlet may not be up to date with the latest Local Notice to Mariners information. NOT FOR NAVIGATION.

Chartlet 2 of 4 Chart 25683, 17th Ed., Nov. 11th, 2000, Scale 1:20,000, Bahia de Ponce and Approaches. Revisions from NOAA Hydrographic Survey H11036.

NOAA Ship WHITING  
LCDR Gerd F. Glang  
Commanding  
April 29 to  
May 31, 2001

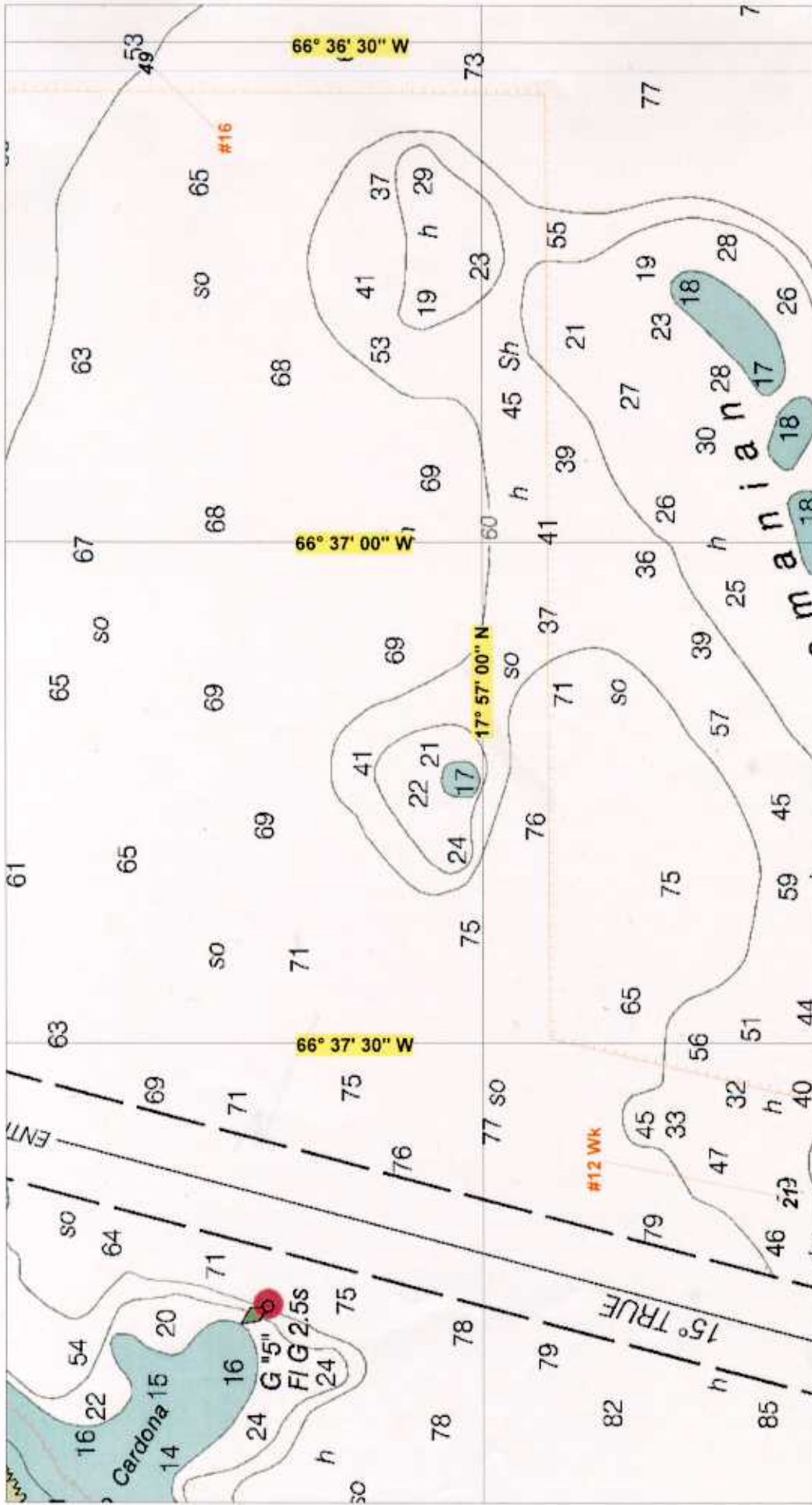
Sounding Units: Meters  
Sounding Datum: MLLW  
Horizontal Datum: NAD 83  
Projection: UTM 19  
Central Meridian: 069° 00 00  
Scale Factor: 0.9996

Project: OPR-1305-WH  
Survey: H11036  
State: Puerto Rico  
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Survey Scale: 1:5,000

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE







**Chartlet 3 of 4**  
 Chart 25683, 17th Ed., Nov. 11th, 2000, Scale 1:20,000, Bahia de Ponce and Approaches.  
 Revisions from NOAA Hydrographic Survey H11036.

**Chartlet 3 of 4**  
 Chart 25683, 17th Ed., Nov. 11th, 2000, Scale 1:20,000, Bahia de Ponce and Approaches.  
 Revisions from NOAA Hydrographic Survey H11036.

**Chartlet 3 of 4**  
 Chart 25683, 17th Ed., Nov. 11th, 2000, Scale 1:20,000, Bahia de Ponce and Approaches.  
 Revisions from NOAA Hydrographic Survey H11036.

|   |  |  |   |  |
|---|--|--|---|--|
|  | <p><b>NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION</b><br/> <b>NATIONAL OCEAN SERVICE</b></p> | <p>Project: OPR-I305-WH<br/>       Survey: H11036<br/>       State: Puerto Rico<br/>       Locality: South Coast of Puerto Rico<br/>       Sub-locality: Bahia de Ponce<br/>       Survey Scale: 1:5,000</p> | <p>Sounding Units: Meters<br/>       Sounding Datum: MLLW<br/>       Horizontal Datum: MAD 83<br/>       Projection: UTM 19<br/>       Central Meridian: 069° 00 00<br/>       Scale Factor: 0.9996</p> | <p><b>NOAA Ship WHITING</b><br/> <b>LCDR Gerd F. Glang</b><br/> <b>Commanding</b><br/>       April 29 to<br/>       May 31, 2001</p> |
|---|--|--|---|--|

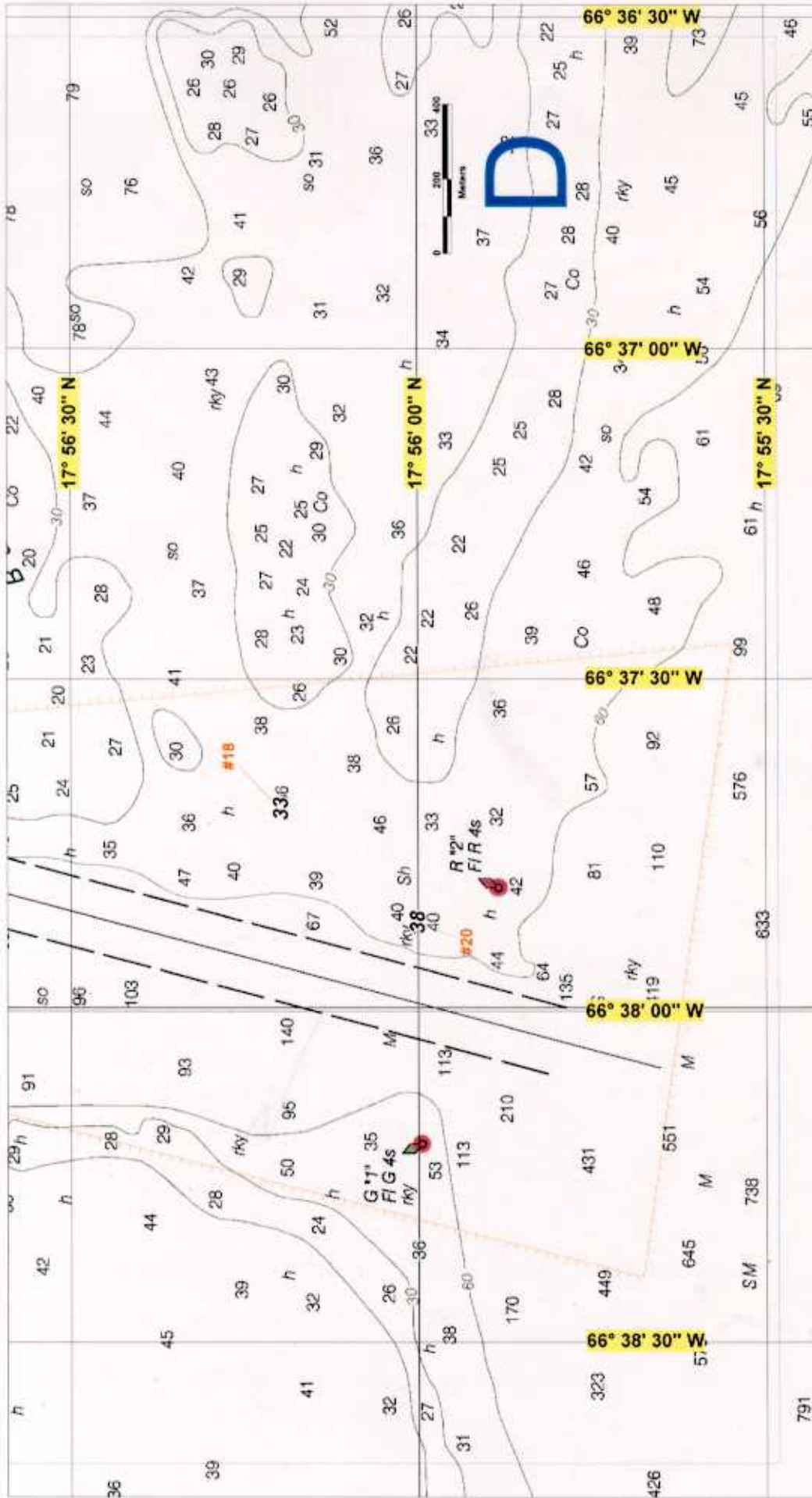


**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**  
**NATIONAL OCEAN SERVICE**

Project: OPR-I305-WH  
 Survey: H11036  
 State: Puerto Rico  
 Locality: South Coast of Puerto Rico  
 Sub-locality: Bahia de Ponce  
 Survey Scale: 1:5,000

Sounding Units: Meters  
 Sounding Datum: MLLW  
 Horizontal Datum: MAD 83  
 Projection: UTM 19  
 Central Meridian: 069° 00 00  
 Scale Factor: 0.9996

**NOAA Ship WHITING**  
**LCDR Gerd F. Glang**  
**Commanding**  
 April 29 to  
 May 31, 2001



**This chartlet may not be up to date with the latest Local Notice to Mariners information. NOT FOR NAVIGATION.**

**Chartlet 4 of 4** Chart 25683, 17th Ed., Nov. 11th, 2000, Scale 1:20,000, Bahia de Ponce and Approaches. Revisions from NOAA Hydrographic Survey H11036.

**NOAA Ship WHITING**  
**LCDR Gerd F. Glang**  
**Commanding**  
 April 29 to  
 May 31, 2001

Sounding Units: Meters  
 Sounding Datum: MLLW  
 Horizontal Datum: NAD 83  
 Projection: UTM 19  
 Central Meridian: 069° 00' 00"  
 Scale Factor: 0.9996

Project: OPR-1305-WH  
 Survey: H11036  
 State: Puerto Rico  
 Locality: South Coast of Puerto Rico  
 Sub-locality: Bahía de Ponce  
 Survey Scale: 1:5,000

**NATIONAL OCEANIC AND  
 ATMOSPHERIC ADMINISTRATION  
 NATIONAL OCEAN SERVICE**



MARINE CHART BRANCH  
**RECORD OF APPLICATION TO CHARTS**

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H11036

**INSTRUCTIONS**

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

| CHART | DATE     | CARTOGRAPHER       | REMARKS  |
|-------|----------|--------------------|--|
| 25683 | 01/03/03 | <i>[Signature]</i> | Full <del>Part Before</del> After Marine Center Approval Signed Via<br>Drawing No. |
| 25683 | 3/4/03   | <i>[Signature]</i> | Full <del>Part Before</del> After Marine Center Approval Signed Via<br>Drawing No. |
|       |          |                    | Full Part Before After Marine Center Approval Signed Via<br>Drawing No.            |
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