

9595

Diag. Cht. 902 & 904-2.

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT  
(HYDROGRAPHIC)

Type of Survey .... Hydrographic.....  
Field No. .... MI 100-1-76.....  
Office No..... H-9595.....

LOCALITY

State ..... Puerto Rico.....  
General Locality .. Southeast Coast (Offshore).....  
Locality .. Punta Lima to Cayos Caribes.....

19 76

CHIEF OF PARTY

W. V. Hull

LIBRARY & ARCHIVES

DATE ..... 5/26/77.....

9595

Area 3

Charts

- 902
- 904
- 917 1.140000
- 918 1.110000
- 920 1.200000
- 924 1.200000
- 925 1.200000
- 940 - 1.250000

H-9595

HYDROGRAPHIC TITLE SHEET

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form,  
filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

MI 100-1-76

State Puerto Rico

General locality ~~Offshore South East Coast of Puerto Rico~~ *Southeast Coast (offshore)*

Locality Punta Lima to Cayos Caribes

Scale 1:100,000 Date of survey 5 March to 17 April 1976

Instructions dated October 1, 1975 Project No. OPR 423-MI-76

Vessel NOAA SHIP MT MITCHELL MSS-22 VESNO 2220

Chief of party Commander Wesley V. Hull, NOAA

Surveyed by Lcdr W. Daniels, Ens N. Konchuba, Ens W. Dewhurst, Ens D. Rice, Ens J. Bailey, Lt A. Potok, LTjg S. Iwamoto, LTjg R. Marriner, Ens R. Mann

Soundings taken by echo sounder, ~~hand lead, pole~~

Graphic record scaled by BD, EM, FL, PS, FS, RW

Graphic record checked by BD, EM, FL, PS, FS, RW

Protracted by N/A Automated plot by *CALCOMP PLOTTER - 618*  
Atlantic Marine Center

Soundings penciled by N/A Verifier: B. J. Stephenson, AMC

Soundings in fathoms ~~5000~~ at MLW ~~5000~~

REMARKS:

*Applied to stg 9/6/77*  
*[Signature]*

DESCRIPTIVE REPORT  
TO ACCOMPANY

HYDROGRAPHIC SURVEY H-9595, MI 100-1-76  
1:100,000 1976

NOAA SHIP MT MITCHELL MSS-22

COMMANDER WESLEY V. HULL, NOAA  
COMMANDING OFFICER

A. Project

This survey was performed in accordance with Project Instructions OPR 423-MI-76, issued October 1, 1975 as amended by Change No. 1 dated January 16, 1976.

B. Area Surveyed

This survey, at a 1:100,000 scale, covered an area Offshore of the South East Coast of Puerto Rico from approximately the 100 fathom curve seaward including a 1:20,000 scale development of Escollo Grappler. The survey area is approximately described by the following points, connected counterclockwise:

| Latitude:  | Longitude: |
|------------|------------|
| 18°05'10"N | 65°39'20"W |
| 17 10 00   | 65 39 20   |
| 17 10 00   | 66 10 00   |
| 17 50 50   | 66 10 00   |

Survey operations were conducted on the following dates:

March 5 thru March 17, 1976  
April 10 thru April 17, 1976

C. Sounding Vessel

The NOAA Ship Mt Mitchell (VESNO 2220) was used to obtain all soundings for this survey.

D. Sounding Equipment and Corrections to Echo Soundings

The following sounding equipment was used to obtain depth information for this survey:

| Equipment:                                      | Serial Number: |
|---|----------------|
| Ross Model 5000 Fineline Depth Sounder Recorder | 1050           |
| Digitizer Model 6000-637                        | 1039-2         |
| Transceiver Model 4000-544                      | 1050           |
| Raytheon Universal Graphic Recorder             | 170            |
| CESP-I  | 016            |
| Digitizer                                       | 202            |
| Transceiver Model 248C with CESPI               | 516            |
| Transceiver EDO                                 | 219            |

The digitizing feature of the Ross depth sounder was used during on-line sounding operations. Digitizing of the Raytheon data was

utilized when possible. These data often had to be manually entered. The action of the seas on the ship made necessary the correction of a large number of soundings. These corrections were applied using the hydroplot corrector tape and were determined during off-line scanning of the graphic records.

A Raytheon Correlator (CESPI) was utilized occasionally during this survey. When the CESPI was utilized a TRA corrector of -23.8 fathoms was used which included the normal +2.2 fathom draft corrector and also the 65 millisecond delay encountered with the system.

Variations in the instrument initial were adjusted on-line after phase comparison checks. Any uncorrected shifts were corrected by applying correctors during off-line scanning.

Draft changes of the sounding vessel were recorded on entering and leaving port. These corrections were applied using the TC/TI tape and are not included in these plotted data.

Velocity of sound through water corrections were not applied to these soundings. This was due to the off-line program RK211's inability to handle more than 75 velocity correctors. Nansen Casts to determine velocity of sound through water corrections were however taken on the following dates and locations. *on the field sheet*

| Cast No: | Date:  | Latitude:   | Longitude:  |
|----------|--------|-------------|-------------|
| 4        | 4 Feb  | 017°15'00"N | 065°51'36"W |
| 5        | 4 Feb  | 017°51'36"N | 065°57'18"W |
| 6        | 17 Feb | 017°52'30"N | 065°50'48"W |

A list of the instruments used to analyze the temperatures and salinity data from the Nansen Casts is included in Appendix 3 along with an abstract of the obtained data. Casts 4 and 5 were used to determine the velocity corrections. Cast 6 was taken as a comparison to verify the previous results. No significant change was noted.

#### E. Hydrographic Sheets

Field sheets on this survey were prepared using the Hydroplot System aboard the NOAA Ship Mt Mitchell. Field records will be forwarded to the Atlantic Marine Center for processing and verification.

Soundings on the field sheets are corrected for draft, initial error and digitizer error. They are not corrected for velocity, predicted tides and settlement and squat.

F. Control Stations

Control Stations used for Hydrography were:

| Signal:        | Name:  | Latitude:               | Longitude:               | Type:                           |
|----------------|--|-------------------------|--------------------------|---------------------------------|
| 009            | Ole Grande 1975                                | 17°55'49.830N           | 066°09'36.300            | Del Norte                       |
| 011            | Mareas Hi Fix 1972                             | 17°55'55.630            | 066°09'29.480            | Hi Fix (Freq 1799.6 KHz)        |
| 018            | <del>Arroyo Beacon Light</del><br>Flg. 1966-75 | 17°57'15.897            | 066°02'54.675            | Del Norte                       |
| 037            | House 1966-76                                  | 17°59'24.818            | 065°53'08.350            | Del Norte                       |
| 047            | Bat 1965-76                                    | 18°01'03.782            | 065°46'47.162            | Del Norte                       |
| 060            | Algodon 4 Hi Fix                               | 18°12'10.085            | 065°48'05.289            | Hi Fix (Freq 1799.6 KHz)        |
| 069            | Nav #2   | 18°02'39.699            | 065°48'34.314            | Del Norte                       |
| <del>068</del> | <del>Breakwater</del>                          | <del>18°03'15.823</del> | <del>065°49'42.677</del> | <del>Del Norte</del> <i>805</i> |

Geodetic positions were provided by Operations Division, Atlantic Marine Center or by ship's personnel per provisional Hydrographic Manual. Del Norte and Hi Fix equipment were erected at the locations by the ship's personnel.

G. Hydrographic Position Control

The Range-Range Mode of the Hi Fix Navigation System was employed along with Del Norte for Positioning Control:

The following equipment was used:

| Hi Fix                               | Serial No: |
|--------------------------------------|------------|
| Shipboard:                           |            |
| Hi Fix MDU                           | 078        |
| Master Transmitter                   | A250       |
| Receiver                             | A274       |
| (Changed to SN A-358 on 13 Apr 1976) |            |
| Sawtooth Recorder                    | P266       |
| Navigation Interface                 | 200587     |
| Station 1 Las Mareas, P.R:           |            |
| Hi Fix Transmitter                   | 066        |
| Receiver                             | A-278      |
| Coupler                              | A-161      |
| Compac II                            | 2597       |
| Tabtron                              | H690       |

Station 2 Roosevelt Roads:

|                    |          |
|--------------------|----------|
| Hi Fix Transmitter | 066      |
| Receiver           | 234      |
| Coupler            | A-160    |
| Compac II          | 2599/000 |
| Tabtron            | 012      |

Del Norte:

|                             |     |
|-----------------------------|-----|
| Shipboard                   |     |
| (Day 065-079) Del Norte DMU | 159 |
| Master Transmitter          | 263 |
| (Day 079-108) Del Norte DMU | 188 |
| Master Transmitter          | 263 |
| Station 009 Remote A        | 253 |
| Station 018 Remote D        | 221 |
| Station 037 Remote B        | 217 |
| Station 069 Remote C        | 262 |
| Station 047 Remote A        | 253 |

Calibration of the Hi Fix positioning equipment was accomplished using both three point sextant fixes and direct Del Norte reading comparisons. Observed readings were compared and compiled using RK561. Del Norte positioning equipment was calibrated by three point sextant fixes at sea and with the aid of an AGC Model 76 Geodimeter (S/N 1012) on land. In each field calibration a simultaneous check fix was utilized. Sextant fixes were taken on both the starboard and port side to minimize anomalous error. The resulting calibration corrections were averaged and applied throughout the survey. This method of calibration proved adequate for this survey. Lane jumps detected during on-line operations were recovered and applied with the aid of the saw tooth record. An abstract of calibration data is included in the supporting material accompanying this survey.

Receiver A-274 was exchanged for Receiver A-358 on April 1976. A malfunction of Receiver A-274 was detected. The exchange alleviated the problem.

H. Shoreline

There was no shoreline within the limits of this survey.

I. Crosslines

Crosslines for this survey were run between 90 and 45 degrees to the mainscheme hydro lines.

Crossing agreements are very good throughout this survey, differing only by 1 to 2 fathoms in most cases. Crossline mileage was about 20% of the regular sounding lines.

J. Junctions

Junctions with contemporary surveys H-9610, H-9597, H-9596, H-9607, H-9608<sup>6</sup> and H-9609<sup>8</sup> were good considering the steep terrain at junction and the differences in scale between these surveys and H-9595. Selected common soundings were compared at each junction with H-9595. Velocity corrections were considered in this comparison. In most cases the 100 fathom curve was defined with a resolution of better than 2 fathoms. B/S  
see  
HIT  
report

K. Comparison with Prior Surveys

This Survey Junctions with the following Prior Surveys:

| Survey: | Scale:    | Date: |
|---------|-----------|-------|
| H-9278  | 1:100,000 | 1975  |
| H-9486  | 1:20,000  | 1975  |
| H-2424  | 1:20,000  | 1899  |
| H-2583  | 1:20,000  | 1902  |

Comparison of randomly selected common soundings was made with each prior survey. Junction with H-9278 was excellent with only a 1 to 2 fathom difference observed in most cases. Junction with H-9486 was good with only minor discrepancies observed due to the steep terrain of the area and the differences in scale between surveys. Comparison with H-2424 and H-2583 yielded many discrepancies due to the steep terrain and differences in scales and dates of surveys. The 100 fathom curve was however well defined and compared satisfactorily to the 100 fathom contour on H-9595.

There <sup>was one</sup> ~~were no~~ presurvey review items.

L. Comparison with the Chart

Chart No. 25640 (22nd Edition Feb 8, 1975) is the largest scale chart covering the survey area. The chart was found to be an adequate representation of the area. Selected soundings were chosen from the chart and compared to the field sheet. Comparisons were good to fair in most cases with differences of between 1 to 100 fathoms noted depending on the slope of terrain and depth. Velocity corrections were considered in this comparison.

Upon inspection of Chart No. 25640, a reported 40 fathom sounding of 1953 was discovered. Although this was ~~not~~ considered a presurvey review item, <sup>and</sup> a development was run through the area. The development yielded a shoal sounding of ~~20~~<sup>45</sup> fathoms (with velocity corrections applied) at Lat 17°48'.7N Long 65°42'.0W. B/S



M. Adequacy of the Survey

This survey is considered complete and adequate to supersede prior surveys for charting.

N. Aids to Navigation

There are no aids to Navigation within the limits of this survey.

O. Statistics

|   |      |
|---|------|
| Total number of positions                                       | 913  |
| Total nautical miles of sounding line<br>(Excluding Crosslines) | 982  |
| Total nautical miles of crosslines                              | 200  |
| Total square miles of hydrography                               | 1368 |
| Temporary and salinity stations                                 | 3    |
| Bottom samples  | 8    |
| Tide stations   | 3    |

P. Miscellaneous

The plotted characters of crosslines were plotted on the field sheets at rotation angles between 0 and 135 degrees. This was done for clarity purposes only and does not affect the position of the soundings.

The P1 and P2 values for Del Norte control used on day 101 and day 108 to plot these sheets were incorrect. They have since been changed. The P1 and P2 values used were:

|         |             |             | Time:  |
|---------|-------------|-------------|--------|
| Day 101 | P1 = -00030 | P2 = +00000 | 045330 |
| Day 101 | P1 = -00090 | P2 = -00030 | 221830 |
| Day 108 | P1 = -00010 | P2 = +00180 | 130200 |

These sheets were not replotted since this difference was insignificant at this scale.

Q. Recommendations

None

R. Automated Data Processing

The following Hydroplot programs were used for processing data for this survey:

|       | Name:                          | Version Date: |
|-------|--------------------------------|---------------|
| RK111 | Range-Range Real Time Plot     | 1/30/76       |
| RK201 | Grid, Signal and Lattice Plot  | 4/18/75       |
| RK211 | Range-Range Non-Real Time Plot | 8/16/74       |
| RK301 | Vista                          | 8/12/74       |
| RK530 | Velocity Corrections           | 6/25/74       |
| RK561 | Geodetic Calibrations          | 2/19/75       |
| AM602 | Elinore                        | 5/21/75       |

Respectfully Submitted:



Warren T. Dewhurst  
Ensign, NOAA



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SURVEY  
NOAA SHIP MT MITCHELL MSS-22  
439 West York Street  
Norfolk, Virginia 23510

Date : 11 May 1976

Reply to Attn. of:

To : The Director, National Ocean Survey

From : Commanding Officer, NOAA Ship Mt Mitchell MSS-22

Subject: Tidal Data for OPR-423-MI-76 Southeast Coast of Puerto Rico  
Surveys H-9595, H9596, H9597, H9607, H9608, H9609, H9610

It is requested that verified hourly heights for the following gages be forwarded to The Director, Atlantic Marine Center (CAM-3). Please note that all times are requested to be GMT:

|                     |               |                |
|---------------------|---------------|----------------|
| Arroyo, Puerto Rico | Lat 17°57.9'N | Long 66°03.9'W |
| Playa de Naguabo    | 18°11'20"N    | 65°42'40"W     |
| Yabucoa Harbor      | 18°03'20"N    | 65°50'10"W     |

From 3 March 1976 through 18 April 1976


A copy of the Progress Sketch for OPR-423-MI-76 is enclosed as an aid in your evaluation of this request.

*Wesley W. Hull*  
Wesley W. Hull  
Commander, NOAA  
Commanding

*Tide stations  
were not plotted on  
this Survey. See inshore  
surveys. BJS*

*Tide gages plotted on  
smooth sheet of present  
survey during quality control.*

The field work and data processing for Hydrographic Survey H-9595 was performed under my immediate daily supervision and are approved by me. This survey is considered adequate and complete for charting.

  
Wesley V. Hull  
Commander, NOAA

SIGNAL NAMES LIST

OPR-423-MI-76

MI-100-1-76

|   |  |
|---|--|
| 009 OLE GRANDE 1975   | AMC RECORDS, 1975  |
| 011 MAREAS HI FIX 1972  | AMC RECORDS  |
| 018 <del>FIGG 1966-75</del> <del>ARROYO BEACON LIGHT</del><br>ARROYO BEACON LIGHT | NON RECOVERABLE (see Horiz.<br>CONTROL Report.)<br>Q170661, 1002 |
| 037 HOUSE 1966  | Q170654, 1001  |
| 047 BAT   | Q180653, 1010  |
| 060 ALGODON 4 HI FIX  | Q180653, 1052A   |
| 069 NAV #2  | VOL 1, P 26  |
| <del>068 BREAKWATER</del>   | <del>VOL 1, P 33</del> OJ  |

VELOCITY CORRECTIONS FOR SURVEY H 9595.

TABLE NUMBER 1. UNIT IS FATHOMS.

DEPTH + TPA VELOCITY CORRECTION

|     |     |
|-----|-----|
| 4   | 0   |
| 8   | 0.1 |
| 12  | 0.2 |
| 16  | 0.3 |
| 20  | 0.4 |
| 24  | 0.5 |
| 28  | 0.6 |
| 32  | 0.7 |
| 36  | 0.8 |
| 40  | 0.9 |
| 44  | 1.0 |
| 48  | 1.1 |
| 52  | 1.2 |
| 56  | 1.3 |
| 60  | 1.4 |
| 64  | 1.5 |
| 68  | 1.6 |
| 72  | 1.7 |
| 76  | 1.8 |
| 80  | 1.9 |
| 84  | 2.0 |
| 88  | 2.1 |
| 92  | 2.2 |
| 96  | 2.3 |
| 100 | 2.4 |
| 104 | 2.5 |
| 108 | 2.6 |
| 112 | 2.7 |
| 116 | 2.8 |
| 120 | 2.9 |
| 124 | 3.0 |
| 128 | 3.1 |
| 132 | 3.2 |
| 136 | 3.3 |
| 140 | 3.4 |
| 144 | 3.5 |
| 148 | 3.6 |
| 152 | 3.7 |
| 156 | 3.8 |

3

2

|         |       |
|---------|-------|
| 1490.0  | 39.0  |
| 1510.0  | 40.0  |
| 1540.0  | 41.0  |
| 1570.0  | 42.0  |
| 1600.0  | 43.0  |
| 1630.0  | 44.0  |
| 1650.0  | 45.0  |
| 1680.0  | 46.0  |
| 1710.0  | 47.0  |
| 1740.0  | 48.0  |
| 1760.0  | 49.0  |
| 1790.0  | 50.0  |
| 1800.0  | 51.0  |
| 1820.0  | 52.0  |
| 1860.0  | 53.0  |
| 1880.0  | 54.0  |
| 1900.0  | 55.0  |
| 1930.0  | 56.0  |
| 1960.0  | 57.0  |
| 1990.0  | 58.0  |
| 2000.0  | 59.0  |
| 2020.0  | 60.0  |
| 2040.0  | 61.0  |
| 2060.0  | 62.0  |
| 2080.0  | 63.0  |
| 2100.0  | 64.0  |
| 2130.0  | 65.0  |
| 2150.0  | 66.0  |
| 2170.0  | 67.0  |
| 2190.0  | 68.0  |
| 2210.0  | 69.0  |
| 2240.0  | 70.0  |
| 2260.0  | 71.0  |
| 2280.0  | 72.0  |
| 2300.0  | 73.0  |
| 2320.0  | 74.0  |
| 2340.0  | 75.0  |
| 2360.0  | 76.0  |
| 2380.0  | 77.0  |
| 2400.0  | 78.0  |
| 2420.0  | 79.0  |
| 2430.0  | 80.0  |
| 2450.0  | 81.0  |
| 2465.0  | 82.0  |
| 2480.0  | 83.0  |
| 2500.0  | 84.0  |
| 2510.0  | 85.0  |
| 2525.0  | 86.0  |
| 2540.0  | 87.0  |
| 2560.0  | 88.0  |
| 2580.0  | 89.0  |
| 2600.0  | 90.0  |
| 2605.0  | 91.0  |
| 2620.0  | 92.0  |
| 2640.0  | 93.0  |
| 2660.0  | 94.0  |
| 2680.0  | 95.0  |
| 2700.0  | 96.0  |
| 2710.0  | 97.0  |
| 2720.0  | 98.0  |
| 2740.0  | 99.0  |
| 2760.0  | 100.0 |
| 99999.9 | 100.0 |

7

6

5

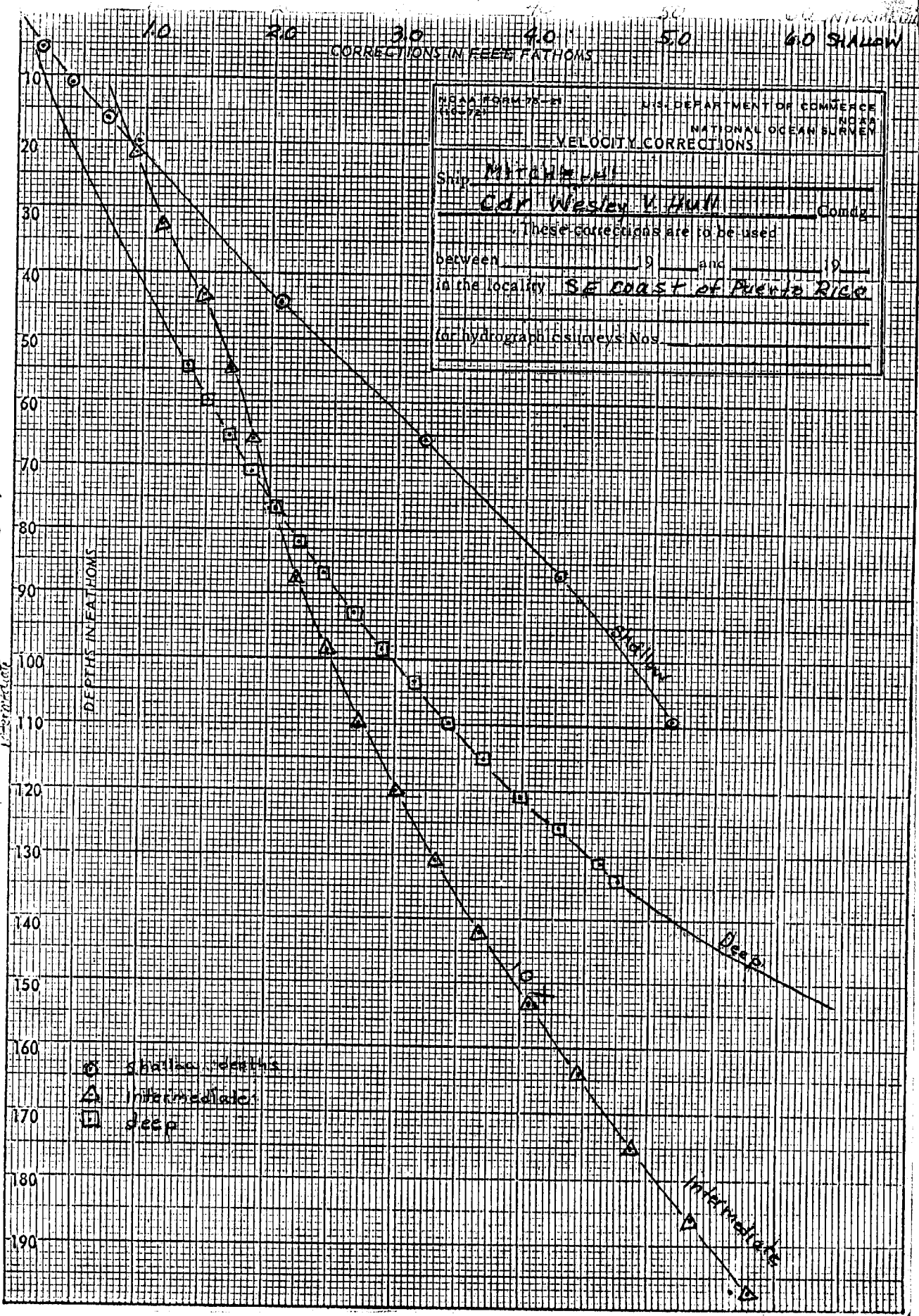
4

3

MADE 20 X 20 TO THE INCH 46 1240  
 KEUFFEL & ESSER CO.  
 MADE IN U.S.A.

DEEP)  
 1000  
 1200  
 1400  
 1600  
 1800  
 2000  
 2200  
 2400  
 2600  
 2800  
 3000

(For deep water add a 0 to these figures)  
 DEPTHS IN FEET





8/27/76

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): Arroyo  
Yabucoa Harbor

Period: March 3 - April 18, 1976

HYDROGRAPHIC SHEET: H-9595

OPR: 423

Locality: Off southeast coast of Puerto Rico  
diurnal

Plane of reference (mean ~~lower~~ low water): 0.82 ft. - Arroyo  
1.62 ft. - Yabucoa Harbor

Height of Mean High Water above Plane of Reference is  
0.8 ft.

Remarks: Recommended zoning: (where tide reducers are required)

- (1) West of 66°00' zone direct on Arroyo
- (2) East of 66°00' zone direct on Yabucoa Harbor

*James R. Hubbard*  
for Chief, Tides Branch

GEOGRAPHIC NAMES

H-9595

|                |              |                        |                          |                        |               |                   |                     |                 |   |
|----------------|--------------|------------------------|--------------------------|------------------------|---------------|-------------------|---------------------|-----------------|---|
| Name on Survey | A            | B                      | C                        | D                      | E             | F                 | G                   | H               | K |
|                | ON CHART NO. | ON PREVIOUS SURVEY NO. | CON U.S. QUADRANGLE MAPS | FROM LOCAL INFORMATION | ON LOCAL MAPS | P.O. GUIDE OR MAP | GRAND McNALLY ATLAS | U.S. LIGHT LIST |   |

|                      |  |  |  |  |  |  |  |  |  |    |
|----------------------|--|--|--|--|--|--|--|--|--|----|
| CABO MALA PASCUA     |  |  |  |  |  |  |  |  |  | 1  |
| LAYOS CARIBES        |  |  |  |  |  |  |  |  |  | 2  |
| ESCOLLO GRAPPLER     |  |  |  |  |  |  |  |  |  | 3  |
| ESCOLLO INVESTIGATOR |  |  |  |  |  |  |  |  |  | 4  |
| MAR CARIBE           |  |  |  |  |  |  |  |  |  | 5  |
| PASAJE DE VIEQUES    |  |  |  |  |  |  |  |  |  | 6  |
| PLAYA DE HUMACAO     |  |  |  |  |  |  |  |  |  | 7  |
| PUERTO ARROYO        |  |  |  |  |  |  |  |  |  | 8  |
| PUERTO RICO          |  |  |  |  |  |  |  |  |  | 9  |
| PUERTO YABUCCA       |  |  |  |  |  |  |  |  |  | 10 |
| PUNTA ALGODONES      |  |  |  |  |  |  |  |  |  | 11 |
| PUNTA BARRANCAS      |  |  |  |  |  |  |  |  |  | 12 |
| PUNTA CANDELEIRO     |  |  |  |  |  |  |  |  |  | 13 |
| PUNTA FIGURAS        |  |  |  |  |  |  |  |  |  | 14 |
| PUNTA GUAYANES       |  |  |  |  |  |  |  |  |  | 15 |
| PUNTA LIMA           |  |  |  |  |  |  |  |  |  | 16 |
| PUNTA OLA GRANDE     |  |  |  |  |  |  |  |  |  | 17 |
| PUNTA QUEBRADA HONDA |  |  |  |  |  |  |  |  |  | 18 |
| PUNTA TORO           |  |  |  |  |  |  |  |  |  | 19 |
| PUNTA TUNA           |  |  |  |  |  |  |  |  |  | 20 |
| PUNTA VIENTO         |  |  |  |  |  |  |  |  |  | 21 |
| PUNTA YEGUAS         |  |  |  |  |  |  |  |  |  | 22 |
|                      |  |  |  |  |  |  |  |  |  | 23 |
|                      |  |  |  |  |  |  |  |  |  | 24 |
|                      |  |  |  |  |  |  |  |  |  | 25 |

APPROVED

*Chas. E. Harrington*

STAFF GEOGRAPHER - C51X2

22 JUNE 1977

APPROVAL SHEET  
FOR  
SURVEY H- 9595

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Provisional Hydrographic Manual. Exceptions are listed in the Verifier's Report.

Date: May 9, 1977

Signed: William L. Jones

Title: Chief, Verification Branch

**HYDROGRAPHIC SURVEY STATISTICS**  
**HYDROGRAPHIC SURVEY NO. H-9595**

**RECORDS ACCOMPANYING SURVEY:** To be completed when survey is registered.

| RECORD DESCRIPTION                     | AMOUNT                                 | RECORD DESCRIPTION                           | AMOUNT   |            |               |                            |
|--|--|--|--|------------|---------------|----------------------------|
| SMOOTH SHEET plus PNO & Excess Overlay | 1                                      | BOAT SHEETS (2 mylar) 2 Boat Sheet O/Ls      | 1  |            |               |                            |
| DESCRIPTIVE REPORT                     |  | OVERLAYS & 4 Preliminary O/Ls & 3 Misc. O/Ls | 7  |            |               |                            |
| DESCRIPTION                            | DEPTH RECORDS                          | HORIZ. CONT. RECORDS                         | PRINTOUTS  | TAPE ROLLS | PUNCHED CARDS | ABSTRACTS/SOURCE DOCUMENTS |
| ENVELOPES                              | 12 (PRD Fathograms)                    |  |  |            |               |                            |
| CAHIERS                                | 1 (Fathograms, Printouts & Misc. Data) |  |  |            |               |                            |
| VOLUMES                                | 1                                      |  |  |            |               |                            |
| BOXES                                  |  |  | 1 (Smooth Printout, Bundle of Sawtooth Records & 1 Envelope of Misc. Data) |            |               |                            |

T-SHEET PRINTS (List)

SPECIAL REPORTS (List)

**OFFICE PROCESSING ACTIVITIES**

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

| PROCESSING ACTIVITY                                | AMOUNTS                    |                         |           |        |
|--|----------------------------|-------------------------|-----------|--------|
|  | PRE-VERIFICATION           | VERIFICATION            | REVIEW    | TOTALS |
| POSITIONS ON SHEET                                 |                            |                         |           | 913    |
| POSITIONS CHECKED                                  |                            | 86                      |           |        |
| POSITIONS REVISED                                  |                            | 12                      |           |        |
| DEPTH SOUNDINGS REVISED                            |                            | 86                      |           |        |
| DEPTH SOUNDINGS ERRONEOUSLY SPACED                 |                            | --                      |           |        |
| SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED         |                            | --                      |           |        |
|  | TIME (MANHOURS)            |                         |           |        |
| TOPOGRAPHIC DETAILS                                |                            | 2                       | --        |        |
| JUNCTIONS  |                            | 16                      | 2         |        |
| VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS     |                            | 50                      | 6         |        |
| SPECIAL ADJUSTMENTS                                |                            | --                      | --        |        |
| ALL OTHER WORK                                     |                            | 135                     | 12        |        |
| <b>TOTALS</b>                                      |                            | <b>203</b>              | <b>20</b> |        |
| PRE-VERIFICATION BY<br>J. Griffin                  | BEGINNING DATE<br>02/15/76 | ENDING DATE<br>07/29/76 |           |        |
| VERIFICATION BY<br>M. W. Johnson, B. J. Stephenson | BEGINNING DATE<br>12/07/76 | ENDING DATE<br>03/15/77 |           |        |
| REVIEW BY<br>B. J. Stephenson                      | BEGINNING DATE<br>04/18/77 | ENDING DATE<br>04/20/77 |           |        |

Quality Control: B. K. Myers 2/12/77 35 hrs. Not MTP. Baumgardner 8-17-77 4hrs

Reg. No. H-9595

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey the following shall be completed:

CARDS CORRECTED

DATE \_\_\_\_\_ TIME REQ'D \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

Reg. No. 9595

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE 6-16-82 TIME REQ'D \_\_\_\_\_ INITIALS JAL

REMARKS:

*a 31-fathom sounding at Lat. 19° 50.25', Long. 66° 09' should be indicated as a "MISS" on the tape. This sounding was deleted from the smooth sheet during quality evaluation, but not changed on the final sounding printout.*  
GMM

H-9595

Information for Future Presurvey Reviews

No additional hydrography is recommended for the area covered by the present survey. Most of the survey depths are greater than 20 fathoms; therefore, the resurvey cycle is considered to be 50 years.

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ATLANTIC MARINE CENTER  
VERIFIER'S REPORT

REGISTRY NO. H-9595

FIELD NO. MI-100-1-76

Puerto Rico, Offshore Southeast Coast  
Punta Lima to Cayos Caribes

SURVEYED: March 5 through April 17, 1976

SCALE: 1:100,000

PROJECT NO.: OPR-423

SOUNDINGS: Ross Digital Depth Recorder  
Raytheon Universal Graphic  
Recorder

CONTROL: Hi-Fix,  
Del-Norte  
(Range-Range)

Chief of Party ..... CDR W. V. Hull  
Surveyed by ..... LCDR W. Daniels  
..... LT A. Potok  
..... LTJG S. Iwamoto  
..... LTJG R. Marriner  
..... ENS R. Mann  
..... ENS N. Konchuba  
..... ENS W. Dewhurst  
..... ENS D. Rice  
..... ENS J. Bailey  
Automated Plot by ..... Calcomp Plotter #618 (AMC)  
Verified and Inked by ..... B. J. Stephenson *B. J. Stephenson*  
April 21, 1977

1. Introduction

No unusual problems were encountered. The projection parameter was revised during verification. The red changes in the Descriptive Report were made by the verifier.

2. Control and Shoreline

a. The control for this survey is adequately described in Section F of the Descriptive Report.

b. This is an offshore survey; therefore, no shoreline is shown on this survey.

3. Hydrography

a. Depths at crossings are in good agreement.

b. The standard depth curves were adequately delineated with the exception of the 100 fathom curve and less. These curves should be taken from the larger scale in-shore surveys.

In some areas an additional line or two would have made some of the depth curves easier to draw.

c. The development of the bottom configuration and the investigation of least depths are considered adequate.

#### 4. Condition of Survey

The Smooth Sheet and accompanying overlays, hydrographic records, and reports are adequate to conform to the requirements of the Provisional Hydrographic Manual.

#### 5. Junctions

An adequate junction has been effected with the following surveys:

H-9278 (1975) to the west  
H-9486 (1976) to the northwest  
H-9596 (1976) to the northwest  
H-9597 (1976) to the north  
H-9607 (1976) to the north  
H-9608 (1976) to the north  
H-9610 (1976) to the north

Due to the steep terrain, differences in scale, and the limited number of soundings less than 100 fathoms it is suggested that the chart compiler use the curves from the larger scale in-shore surveys.

There were no contemporary surveys to the east or south.

#### 6. Comparison with Prior Surveys

H-2805 (1906) 1:100,000  
H-2737 (1905-06) 1:40,000  
H-2583 (1902) 1:20,000  
H-2424 (1899) 1:20,000

These surveys, taken together, cover the northern portion of the present survey. A comparison between the prior surveys and the present survey reveals a variable pattern of depth differences, slight curve displacement, and bottom configuration changes are evident. Survey depths differed from one to 120 fathoms. These sounding discrepancies can probably be attributed to the less reliable positioning and sounding methods employed on the earlier surveys.

The present survey is adequate to supersede the prior surveys within the common areas.



7. Comparison with Charts 25677, 13th Edition, December 13, 1975, 25640, ~~2<sup>nd</sup>~~<sup>4<sup>th</sup></sup> Edition, ~~February 8,~~<sup>January 19,</sup> 1977, and 25650, 20th Edition, August 9, 1975
- 

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration. The source of the majority of the charted soundings could not be readily ascertained. The soundings do not provide information significant to navigation and are adequately superseded by the present survey.

b. Aids to Navigation

There are no aids to navigation in the area of the present survey.

8. Compliance with Instructions

This survey adequately complies with the Project Instructions.

9. Additional Field Work

This is a good basic survey and no additional field work is recommended.

10. Hydrographic Inspection Team Comments

Hydrographic Inspection Team comments are included within this report and Verification deficiencies found, if any, have been corrected on the smooth sheet.

Approval Sheet for H-9595

Examined and Approved:  
Hydrographic Inspection Team  
Date: *may 12, 1977*

*Robert A. Trauschke*  
CDR Robert A. Trauschke, NOAA  
Chief, Processing Division

*Jeffrey S. Carlen*  
CDR Jeffrey S. Carlen, NOAA  
Chief, Coastal Mapping Division

C. Douglas Mason, LT, NOAA \*  
Chief, EDP Branch

*William L. Jonns*  
William L. Jonns  
Chief, Verification Branch

*Dorothy C. Calland*  
Dorothy C. Calland  
Verification Branch

\* On leave

Approved/Forwarded

*Robert C. Munson*

Robert C. Munson  
RADM, NOAA  
Director, Atlantic Marine Center



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SURVEY  
Rockville, Md. 20852

C352

July 12, 1977

TO: *A. J. Patrick*  
A. J. Patrick  
Chief, Marine Surveys Division

FROM: *G. K. Myers*  
G. K. Myers  
Chief, Quality Control Branch

SUBJECT: Quality Control Report, H-9595 (1976), Puerto Rico, Southeast Coast (offshore), Punta Lima to Cayos Caribes

A quality control inspection of H-9595 (1976) has been accomplished to evaluate the accuracy and adequacy of the survey with respect to data acquisition, delineation of the bottom, determination of least depths, junctions, and navigation hazards, decisions and actions by the verifier, and cartographic presentation of data.

Depth curves and necessary revisions to soundings in the overlapping areas with H-9610 (1976), H-9597 (1976), H-9596 (1976), H-9607 (1976), and H-9486 (1976) on the north will be completed during the evaluation of those surveys.

In general, the present survey was found to conform to National Ocean Survey standards and requirements except as follows:

1. The quality evaluator found no conflicts between present depths and effective wire-drag depths on a small portion of H-4287 WD (1922-23) which falls in an area common to the present survey. The scale of the wire-drag survey is 1:20,000.
2. The term "light" noted on the boat sheet for some bottom characteristics described by color was added to the smooth sheet during quality evaluation (see provisional manual--section 4.7.3).
3. The term "fine" was mistakenly transferred to the smooth sheet from erroneous descriptions for bottom specimens of clay and ooze indicated on the boat sheet (see provisional manual--section 4.7.2).
4. Depth curves were completed in the areas of overlap with H-9608 (1976) on the north and H-9278 (1972) on the west during quality evaluation. No contemporary surveys exist on the east and south; however, the present survey depths are in harmony with charted depths in those areas.



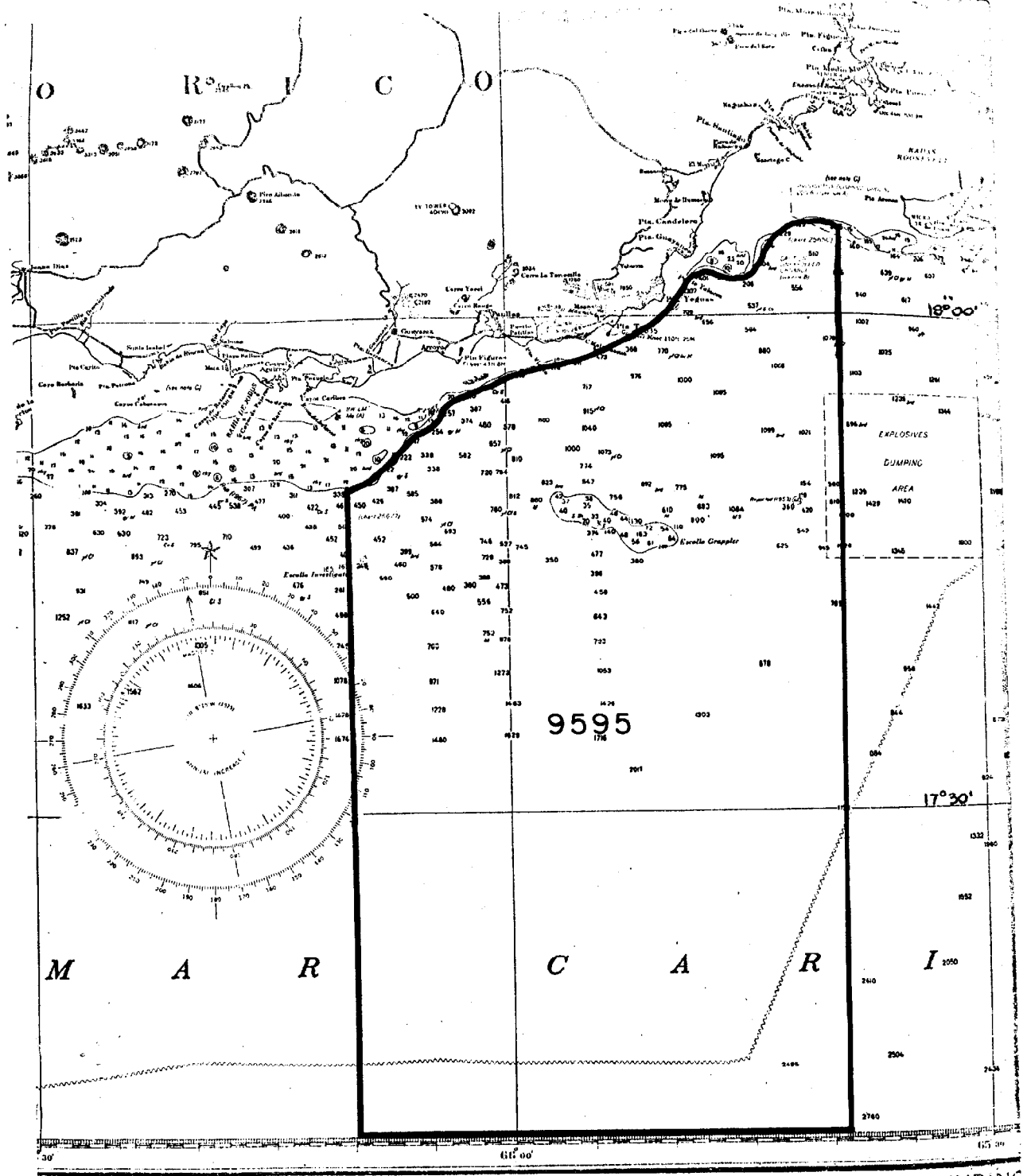
5. A 40-fathom sounding, reported 1953 charted at latitude  $17^{\circ}48.7'$ , longitude  $65^{\circ}42.0'$  from a cable ship report, CL 1106/1953, is uncorrected for velocity and draft which could be plus 4 to 5 fathoms. An adequate investigation in the area on the present survey revealed a depth of 44.5 fathoms which is considered the true depth. The 40 should be deleted from the chart.

6. The reconnaissance nature of H-2805 (1906) which is the only prior survey that covers most of the area of the present survey gives only a very general idea of depths in the area. The lack of development on this prior survey prevents a detailed comparison with the present survey, except that the general depths provide a comparable delineation of the bottom. Some additional bottom characteristics were retained from this prior survey in order to supplement present hydrography during quality evaluation.

7. The approximate positions of tide gages were shown on the smooth sheet of the present survey during quality evaluation.

8. The 31-fathom sounding charted in latitude  $17^{\circ}47.6'$ , longitude  $65^{\circ}54.1'$  from NM 21/73 (CL-638/73) was investigated by running sounding lines in a limited area. The development of this feature is considered adequate and the area should be charted in accordance with the present survey.

cc:  
C351



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 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
 NATIONAL OCEAN SURVEY

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SOUNDING

