

9490

Diag. Cht. No. 902.

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. ML-5-1-75

Office No. H-9490

LOCALITY

State Puerto Rico

General Locality .. South .. Coast

Locality . Vicinity of Punta Arenas . to

..... Punta Pozuelo

19 75

CHIEF OF PARTY

..... R. M. Buffington

LIBRARY & ARCHIVES

DATE Aug. 16, 1977

9490

HYDROGRAPHIC TITLE SHEET

H - 9490

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 - 5 - 1 - 75

State Puerto Rico

General locality South Coast

Locality Vicinity Punta Arenas ^{to} Punta Pozuelo

Scale 1 - 5000 Date of survey 6⁰⁶⁵ March - 27⁰⁸⁰ March 1975

Instructions dated 1 November, 1974 Project No. OPR - 423 - MI - 75

Vessel NOAA Ship MT MITCHELL MSS - 22 Launches 1002, 1204 and Montark

Chief of party Ronald M. Buffington, CDR., NOAA, Commanding Officer

Surveyed by Ship's Personnel

Soundings taken by echo sounder, hand lead, pole

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Protracted by N/A Automated plot by CALCOMP-618 (AMC)

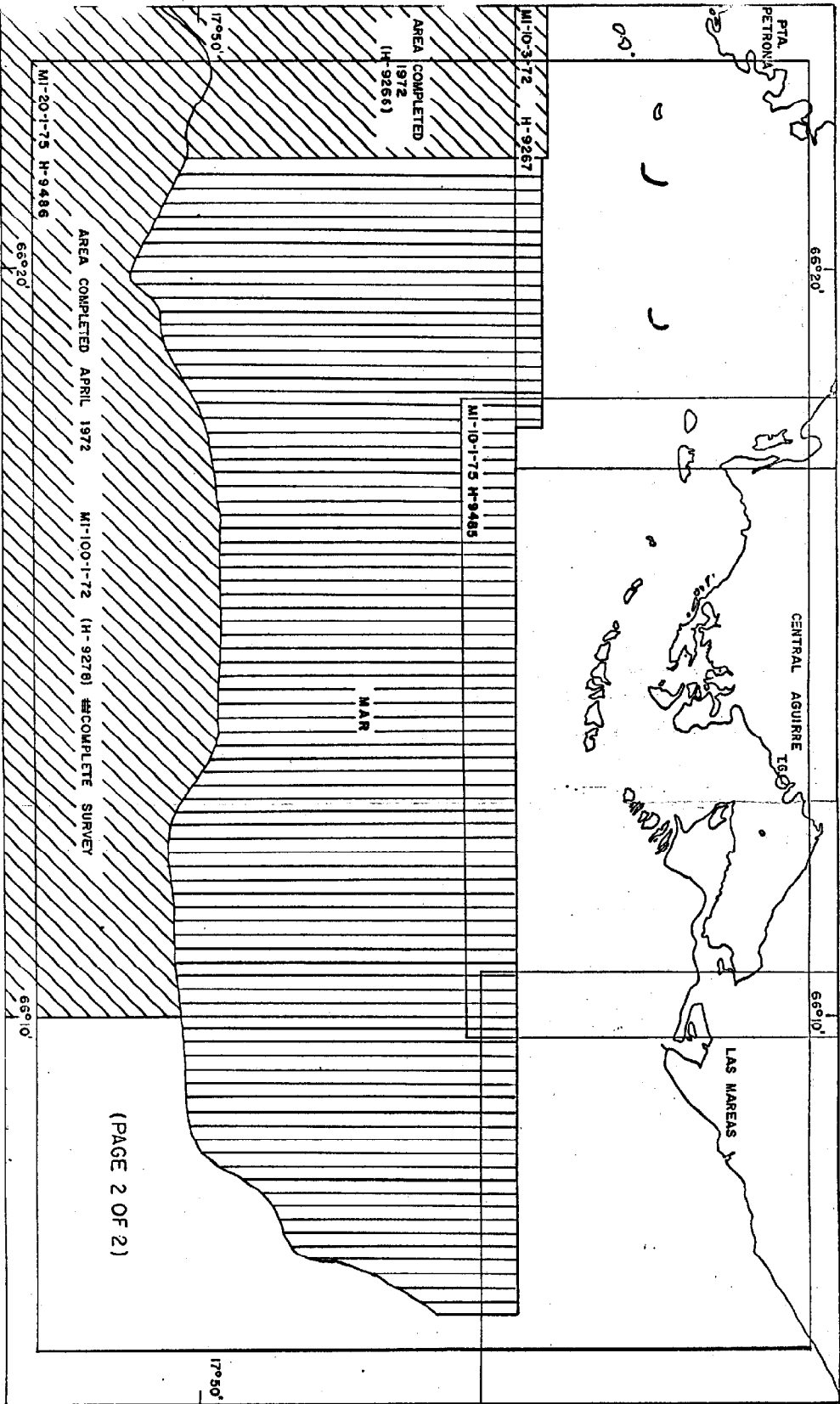
Soundings penciled by N/A

Verification by H.R. Smith

Soundings in ~~XXXXXXXXX~~ feet at MLW ~~XXXXXX~~

REMARKS: Notes in red by the Verifier.

<u>CDR. R.J.DeRycke</u>	<u>LT. M.R.Mulhern</u>
<u>LTJG. D.A.Pasciuti</u>	<u>LTJG. T.G.Russel</u>
<u>ENS. K.L.O'Donnel</u>	<u>ENS. E.J.Fields</u>
<u>ENS. R.E.Marriner</u>	<u>ENS. S.R.Iwamoto</u>
<u>ENS. J.O'Reilly</u>	<u>ENS. B.W.Woodry</u>



DESCRIPTIVE REPORT

to accompany
Hydrographic Survey H-9490

of

OPR-423 MI-5-1-75

Cdr. Ronald M. Buffington

Commanding Officer

A. PROJECT

This survey (Registry Number H-9490) was an inshore portion of OPR-423 conducted by the personnel of the NOAA Ship MT. MITCHELL (MSS-22) during the first half of the 1975 field season in accordance with the instructions from the Revised Hydrographic Manual and the project instructions for OPR-423-MI-75 dated 1 November, 1974 as amended by Change No. 1 dated 7 November, 1974, Change No. 2 dated 22 November, 1974 and Change No. 3 dated 2 January, 1975.

B. AREA SURVEYED

This survey covered a passage on the south coast of Puerto Rico extending east from the vicinity of Punta Arenas and Bahia de Jobos Light to Punta Pozuelo and Boca del Infierno at the entrance to Bahia de Jobos. The survey also included the navigable back waters extending northward, and the waters on the northern side of the offshore islands.

The survey junctions with H-9491 (MI-5-2-75) to the northeast and H-9485 (MI-10-1-75) to the south and west.

Work began on 6 March, 1975 (JD 065) and was completed on 27 March, 1975 (JD 086).

C. SOUNDING VESSELS

The major portion of this survey was performed with NOAA launch # 1002 (Vesno 2222 on all survey records). This launch was a 28 foot aluminum hulled Jensen which maintained a complete Hydroplot system. A DelNorte Range-range system was used for horizontal control.

Bottom samples were obtained by a Pacific Plastics launch NOAA #1204 (Vesno 2224) using Visual Control. In areas of generally shoal waters, where it would be difficult to establish full horizontal control, or where the nature and importance of the area did not warrant the establishment of a full horizontal control system, a sixteen foot aluminum hulled launch built by MonArk, Inc. of Monticello, Arkansas was employed using Range-Azimuth control. This launch, designated Vesno.2228 in all sounding records, was equipped with an Evinrude 85 horsepower outboard engine, remote steering and throttle controls, a portable fathometer and a DelNorte remote Trisponder. A listing of all equipment and corresponding serial numbers for each of the launches involved in this survey is included with the attachments to this report.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Vesno 2222 (Jensen) employed a Ross 5000 fathometer (S/N 86093/1052) and digitizer throughout the course of this survey. Vesno 2228 (MonArk) employed a Raytheon 719-B portable fathometer (S/N 3947) powered by a standard 12VDC battery which was re-charged periodically to ensure proper operation. The "bottom sample boat" (Vesno 2224) employed a Raytheon DE-723B fathometer (S/N 1360).

The initial was set at zero on all echo sounders, and periodic checks were made to ensure that the initial did not drift from the zero. Any variance of the initial from zero was removed while scanning the graphic records. Field checks were made frequently at convenient intervals on the two Raytheon fathometers. The field checks included A-F scale checks, fine arc, speed count, frequency checks, paper alignment and initial drift. The Ross 5000 was also checked at frequent intervals for fine arc, belt speed (via phase calibrations), initial, and paper alignment. Adjustments were made in the field as necessary and annotated on the graphic records. The checks were made to ensure that the data obtained was in accordance with hydrographic standards.

All soundings were scanned and checked by launch personnel with additional checks made by the officer in charge of the launch. Corrections of depths and inserts of prominent peaks and deeps were made and placed on the corrector tapes which accompany this survey.

Velocity corrections and instrument errors were determined by taking daily bar checks and lead line comparisons. The bar check data for each day was meant to obtain a more accurate representation of the water column in the area, thus resulting in a more representative set of velocity corrections.

The velocity corrections for the Jensen and the MonArk (Vesno 2222 and 2228 respectively) were organized into two tables and graphs which accompany this report.

A lead line comparison abstract for both sounding vessels is included with this report. It should be noted that there were discrepancies between the Jensen's digitized depths and the lead line depths. A comparison was made of the leadline and digitized depths taken aboard the Jensen for the three surveys it was involved in during OPR-423. It showed a similar difference of 1 to 3 feet, these differences can only be contributed to a misreading of the leadline.

Vesno 2222 utilized a leadline to determine the least depth of a shoal. The results were not plotted on the smooth sheet because the ~~shoalest~~ shallowest peak was not found with the leadline. A number of soundings made by Vesno 2228 were obtained with a sounding pole. These soundings were corrected for tide only.

A report on settlement and squat tests ~~was~~ results for Vesnos 2222 and 2224 is included with this report.

Because the MonArk is not fitted with a tabhometer the exact speed of the skiff was not known and it was not practical to measure settlement and squat data. However, the launch was run sufficiently slow during all soundings for settlement and squat corrections to be considered negligible.

The transducer was mounted permanently in the hull near the stern of the MonArk. The draft of the launch was determined from measurements taken from the gunwale to the waterline and applying this measurement to the previously measured distance from the gunwale to the transducer to yield the transducer draft.

Corrections for actual tides are to be applied to all soundings. A copy of the request for corrected tides and a copy of the field tide note is included with the attachments to this report.

E. HYDROGRAPHIC SHEET

The hydrographic sheet is in 1:5,000 scale and corresponds to the instructions for such a scale as outlined in the Atlantic Marine Center Manual.

The master data tapes for the DelNorte range-range hydrography were produced on line aboard the Jensen utilizing a digital PDP 8/E computer (S/N 010751), a NOS Hydroplot Controller (S/N 0700016) and a number of hydroplot programs. Data was scanned and a final corrected field sheet was produced aboard the MT. MITCHELL. The master data tapes for the range-azimuth hydrography were produced off-line. The scanned soundings and the control information (taken from the "Hydrographic Operations Log"-Sounding Volumes) were placed on paper punch tape in a logger format. A temporary version of RK337 "Unscrambler", version 29 October, 1974, was used to reformat these tapes to a master data tape format for smooth plotting. The corrector tapes were also produced off-line to correct errors detected on the master data tapes.

The positions for bottom samples were obtained visually from sextant angle fixes. The angles were placed on paper tape in a logger format and plotted with programs RK 211 & 215.

Master data tapes, corrector tapes, velocity tapes TC/TI tapes and their respective printouts are included along with the graphic records and sounding volumes accompanying this report. Also submitted with this data are eight roll plotter Mylar sheets. Four contain regular sounding lines, and the other four are overlays showing developments and bottom samples. Also included is a Mylar composite sheet containing pre-survey review items, prior survey soundings, and junction soundings for this survey. The final smooth plot and verification of H-9490 will be made at the Atlantic Marine Center, Norfolk.

F. CONTROL STATIONS

Control stations used in this survey were all second and third order triangulation stations and intersection stations. A number of photo points were used in the range-azimuth work. Sixty-five control stations were utilized during the course of OPR-423-MI-75. A listing of the control stations used for sheet 9490 is included with this report.

G. HYDROGRAPHIC POSITION CONTROL

The major portion of this survey was conducted utilizing a DelNorte Range-Range system of control. The DelNorte slave units were situated at chosen control sites, picked to provide a maximum coverage of the working area using the two stations. All sounding lines were run within the pre-determined optimum intersection limits for each DelNorte pair set-up. Calibrations utilizing two horizontal sextant angles and one check angle from control sites in the area were made daily and whenever the location of the DelNorte pairs was shifted. Program RK561 computed the sextant fix and the DelNorte fix and determined the correctors to be applied for the P1, P2 readings. The corrections were applied on line. An abstract of all calibrations is included in this report.

Electronic control correctors were made during the off-line process where necessary to rectify "busted" positions. It was suggested that a large number of the stray readings were caused by reflections of the DelNorte signals off wet mangrove leaves, radar reflectors on buoys in the area and passing vessels with their radar on. An electronic corrector abstract is included with this report.

The range-azimuth control utilized one angle measured by a Wilde T-2 theodolite from a control station to the sounding launch, and one range measured to the launch by a DelNorte trisponder. For the purposes of this survey, the theodolite and DelNorte master unit can be considered to have occupied the same

point, which was of at least third order triangulation accuracy, with the exception of the photo points listed on the control station printout. The small distance that existed between the theodolite and the DelNorte Master introduced negligible error in the position of the launch.

The majority of the lines were run with the launch being steered along a constant azimuth by directions from the theodolite observer to the coxswain via radio communications. All position control data was recorded at the theodolite-occupied station.

Certain areas of the survey did not warrant the time and cost to establish control stations of the required accuracy. These areas were surveyed using the changes in the photo-shoreline as control for the position of the launch, as well as information based on time and course. These soundings were later assigned azimuths and ranges for incorporation into the master data tapes and for plotting by the hydroplot system.

Landmarks identified in the aerial photographs for the survey area were occupied for certain portions of the range - azimuth hydrography. The geographic positions for these points were scaled from their locations on the topographic sheets covering the particular area.

Bottom samples were taken using horizontal sextant angles for control. Two angles and a third check angle from control sites in the area were taken and logged in the hydrographic operation log. The angles were transferred in logger format to paper tape and processed on to the boat sheet using RK212 & 215. The check fixes were logged and plotted as checks to the regular angles but the data tapes for the check angles were not forwarded.

Below is a listing of the electronic control equipment in use for the period of this survey:

Vesno 2222 (Jensen)		
DelNorte DMU		S/N 189
Parallel buffer		S/N 123
Master T/R unit		S/N 250
Remote "C" trisponder		S/N 249
Remote "D" trisponder		S/N 248
Vesno 2228 (MonArk)		
DelNorte DMU		S/N 182
Remote trisponder		S/N 262
Master T/R unit		S/N 281

The DelNorte systems were calibrated at the start of OPR-423-MI-75 and at regular intervals until the finish. DelNorte measurements were compared with baseline distances established by geodimeter. Any discrepancies greater than ± 3 meters found in the measurements were corrected on the DelNorte by the adjustment of the calibration pads located on the front panel of the DMU.

H. SHORELINE

Shoreline details were transferred to the field sheets from the following NOS topographic sheets:

Sheet No.	Scale	Year
T:13369	1:5,000	1970
T:13368	1:5,000	1970
T:13367	1:5,000	1970
T:13366	1:5,000	1970

Field edit was performed by Photo Party 62⁰ working in conjunction with the ship's personnel and by boat OIC's. Waters around the shoreline were extensively developed by MonArk launch 2228.

I. CROSSLINES

Crosslines to the extent of 8.7 % were run over the area surveyed in accordance with Hydrographic Manual instructions. Junctions were good and discrepancies were within 1 to 2 feet of the depths found on the regular hydrolines.

J. JUNCTIONS

This survey junctioned with H-9491 (MI-5-2-75) to the northeast at the entrance to Bahia de Jobos. All soundings were within one foot.

Junctions with H-9485 (MI-10-1-75) to the southeast at Boca del Infierno and to the west at Bahia de Jobos Light were good. All soundings were within 1 to 2 feet.

K. COMPARISONS WITH PRIOR SURVEYS

The area surveyed in H-9490 was included in the following prior surveys:

Survey	Date	Scale
H-2421	1899	1:20,000
H-2422	1899	1:10,000
H-2423	1899	1:10,000
H-2737	1905/06	1:40,000

In most instances the compared soundings agreed to within 1 to 3 feet. The only great discrepancy was noticed offshore Cayo Caribes at the northeast corner of the survey; soundings of 9 to 10² feet were found where soundings from H-2423 indicated a depth of 16 feet should be.

L. COMPARISON WITH CHARTS

This survey area is on chart # 25677 (NOS902). It is also on chart # 25687 (NOS909) but the area is shown in blue tint with no soundings indicated. Chart # 25687 shows good comparisons with most soundings within one to two feet.

An uncharted shoal 250 meters southeast of the entrance channel for Bahia de Jobos was found and developed. The shoal lies parallel to the channel and extends southwest from 17°55'45"N, 66°13'49"W to 17°55'36"N, 66°14'00"W. The shoal had a least depth of 14³ feet found between bottom positions 504 and 505 and between 518 and 519.

A number of small uncharted shoals in the area of Boca del Infierno were found but not developed. ✓

An uncharted mound rising from about 33 feet of water to a least depth of 21 feet was found between positions 569 and 570, at 17°56'11"N, 66°16'22"W.

The following Pre-survey Review items were surveyed: 38"

Item # 2: a wreck, located at 17°56'06"N, 66°15'37.5"W was searched for but no trace was found on the fathograms. (It is recommended that the wreck need not be indicated on any future charts of the area) This item is considered not disproved. It is recommended that it remain charted as is. ✓

An un-numbered sounding of 27 feet at 17°56'10"N, 66°16'40"W was extensively developed. The area has shoaled to a least depth ^{of 20'} and has moved 50 meters west from the indicated position. The least depth was found between positions 919 and 920. It is recommended that the present depths supersede the charted depth. ✓

An un-numbered sounding of 22 feet was found as indicated at 17°56'02"N, 66°18'00"W. ^{6'16"} least depth in area is 21 feet. ✓

An un-numbered sounding of 12 feet indicated to be at 17°55'33"N, 66°15'25"W was not found; ^{with a least depth of 10 feet in area} the area generally being 27 to 30 feet. The 12 fathom curve begins about 75 meters south. ~~With the sounding extending southward, it is that the present depths supersede the charted depths.~~ 12 ft. sounding carried from H-2422 (1899). ✓

An un-numbered depth of 18 feet at 17°56'07"N, 66°15'38"W was found to be a small shoal rising 2 to 4 feet from the surrounding bottom. The least depth of the shoal was generally 18 feet. It is recommended that the charted depths supersede the charted depth. (13) present ✓

At location 17°55'48"N, 66°15'08"W, an un-numbered depth of 22 feet was indicated. This was not found. The waters were generally 24 to 26 feet, with a least depth of (21). Recommend the present depths supersede the charted depths. ✓

An un-numbered shoal extending southwards from 17°56'59"N, 66°15'06"W to 17°56'56"N, 66°15'05"W with a depth at the northern end of 17 feet and a depth at the southern end of 12 feet was developed. The depths found at the northern end generally agreed with the charted depths while the southern end was found to have shoaled to 9 feet. It is recommended that the present depths supersede the charted depths. ✓

An un-numbered pre-survey review item indicating a depth of 11 feet on a shoal area at 17°13'20"N, 66°13'45"W was not developed but a least depth of 12 feet was found along a regular sounding line crossing the shoal. It is recommended that the present depth supersede the charted depth. ✓

The obstruction indicated at 17°55'18.3"N, 66°14'12.9"W was located at that spot. It is an abandoned metal structured tower constructed from three railroad ties. - The Photo Manuscript location accepted. ✓

M. ADEQUACY OF SURVEY

This survey is sufficiently complete and adequate to supersede all prior surveys. Three areas could have been further developed at the southeast corner of the survey. These areas are shoals well outside the main channel leading into Jobos Bay and do not constitute a grave danger to navigation but a special effort should be made to further investigate these shoals in any future surveys of the area.

N. AIDS TO NAVIGATION

The aids to navigation in the area surveyed included 2 buoys and a fixed light. Detached positions were made alongside each buoy, and the position of the light was determined by T-2 theodolite observations. The positions for these aids are indicated below:

Buoy "3" Black Can	Lat. 17°55'37".14N	Lat. 66°14'21".15W
Buoy "2" Red Nun	17°56'03".65N	66°16'18".92W
Bahia de Jobos Light	17°56'08".74N	66°16'59".679W

These aids are in agreement with Chart 909, 7th. Edition 1974, as corrected by the 7th. Coast Guard District Broadcast of Local Notice to Mariners #24 of 1974.

O. STATISTICS

	Vessno	2222	2224	2228	Total
Liner nautical miles, including crosslines and developments		116.1	-	38.7	154.8
Area surveyed, square miles		2.35	-	1.5	3.85
Miles crosslines		8.0	-	-	8.0
Miles of developments		16.0	-	-	16.0
Number of positions		951	21	764	1736
Number of bottom samples		-	21	-	21

P. AUTOMATED DATA PROCESSING

The following hydroplot system programs were utilized for the processing of data:

PROGRAM	TITLE	VERSION DATE
RK 111	Range-Range Real Time Hydroplot	8/7/74
RK 201	Grid, Signal and Lattice Plot	2/19/75
RK 211	Range-Range Non-Real Time Plot	8/16/74
RK 212	Visual Station Table Load and Plot	4/1/74
RK 215	Visual Position and Sounding Plot	3/3/74
RK 216	Range-Azimuth Position and Sounding Plot	2/14/74
RK 337	Unscrambler	8/8/74
RK 337(X)	Unscrambler	10/29/74
PM 360	Electronic Corrector Abstract	3/21/74
AM 500	Predicted Tide Generator	11/10/72
RK 561	Geodetic Calibration	7/1/74
AM 602	Elinore Line Editor	3/10/72

Q. MISCELLANEOUS

NONE


R. RECOMMENDATIONS

NONE

S. REFERENCE TO REPORTS

For a more complete and detailed evaluation of the control used for this survey, reference should be made to Report On Horizontal Control, OPR-423-MI-75.

Respectfully submitted;


 Richard E. Marriner II
 Ensign, NOAA

APPROVAL SHEET

Hydrographic Survey H-9490

OPR-423-MI-5-1-75

The field work on this hydrographic survey was under my daily supervision. The boatsheet and records have been reviewed and approved by me.



Ronald M. Buffington
Commander, NOAA
Commanding Officer

SIGNAL NAMES LIST - SOUTH COAST OF PUERTO RICO

OPR-423-MI-75 5/15/75

SIGNAL NUMBER	STATION NAME	QUAD*	R/T	ORDER
040	SALINAS RADIO TOWER WHOY 1972	FIELD G P	R	3
044	BAHIA DE JOBOS LIGHT 1975	250 FIELD G P	R	3
048	AGUIRRE SUGAR ASSN TALLEST STACK 1966	170661 1020	R	3
050	INFIERNO 2 1966	139 170661 1006A	R	3
054	BAHIA DE JOBOS RANGE B REAR LIGHT 1966	139 170661 1013	R	3
056	TOWER 2 1975	170661 RESEC	R	3
320	ABE 1975	254 170661 RESEC	T	3
324	JOE 1975	254 170661 RESEC	T	3
325	KIM 1975	170661 RESEC	T	3
326	BARC 1975	254 170661 RESEC	T	3
336	BUSE 1975	254 170661 RESEC	T	3
342	ZEB 1975	170661 TRAV	T	3
362	FIER 1975	254 170661 RESEC	T	3
366	AGUIRRE POWER STATION METEOROLOGICAL TOWER 1975	243 170661 INTER	R	3
415	P4 (PIER AT NORTH SHORE, ENTRANCE TO JOBOS BAY)	254 170661 PHOTO	T	⊙
		T-13369		
430	GRID INTERSECTION - 17 56 00 N, 066 12 45 W			
420	(PIER AT BACK BAY)	243		

* - WHERE THE STATION IS PUBLISHED, THE QUAD GIVEN BY THE PUBLICATION IS LISTED.
FOR OTHER STATIONS, THE METHOD OF LOCATION IS GIVEN AS FOLLOWS:

RESEC - RESECTION
TRAV - TRAVERSE
INTER - INTERSECTION

THOSE STATIONS NOT PUBLISHED AND WHERE THE METHOD OF LOCATION IS NOT KNOWN ARE SIMPLY LISTED AS "FIELD G P"

R/T RECOVERABLE OR TEMPORARY STATION

040	7	17	58	38850	066	18	14010	139	0000	000000	✓
044	7	17	56	08740	066	16	59679	139	0000	149835	✓
048	7	17	57	18137	066	13	21221	139	0000	000000	✓
050	7	17	55	24289	066	12	54369	139	0000	000000	✓
054	7	17	55	01621	066	14	25019	139	0000	149835	✓
056	7	17	57	54896	066	14	08038	139	0000	000000	✓
320	7	17	55	46163	066	16	21730	243	0000	149835	✓
324	7	17	55	29390	066	15	31260	243	0000	149835	✓
325	7	17	55	55150	066	14	27760	243	0000	149835	✓
326	7	17	55	13960	066	14	24670	243	0000	149835	✓
336	7	17	56	05210	066	13	49660	243	0000	149835	✓
342	7	17	56	48795	066	12	49756	243	0000	149835	✓
362	7	17	55	03200	066	13	33790	243	0000	149835	✓
366	7	17	57	02223	066	14	13396	139	0000	000000	✓
415	7	17	56	40392	066	15	48211	243	0000	149835	✓
430	7	17	56	00000	066	12	45000	243	0000	149835	✓
420	7	17	56	50708	066	15	47752	243	0000	149835	✓
364		17	55	36601	066	12	56151	139	0000		
042		17	58	50631	066	17	45571	139	0000		
999		17	55	09775	066	14	54475	139	0000		

- From Tape Listing ✓
 " " " ✓

scaled from SS.

VELOCITY CORRECTION TABLE PRINTOUT
VESNO 2228
MI-5-1-75 H-9490

TABLE 0001

000016 0 0000 0001 000 222800 009490
000049 0 0002
000085 0 0004
000121 0 0006
000159 0 0008
000199 0 0010
000244 0 0012
000297 0 0014
000359 0 0016
000516 0 0018
999999 0 0020

TABLE 0002

999999 0 0000 0002 000 222800 009490

VELOCITY CORRECTOR TAPE PRINTOUT

TABLE # 3

VESSNO 2222

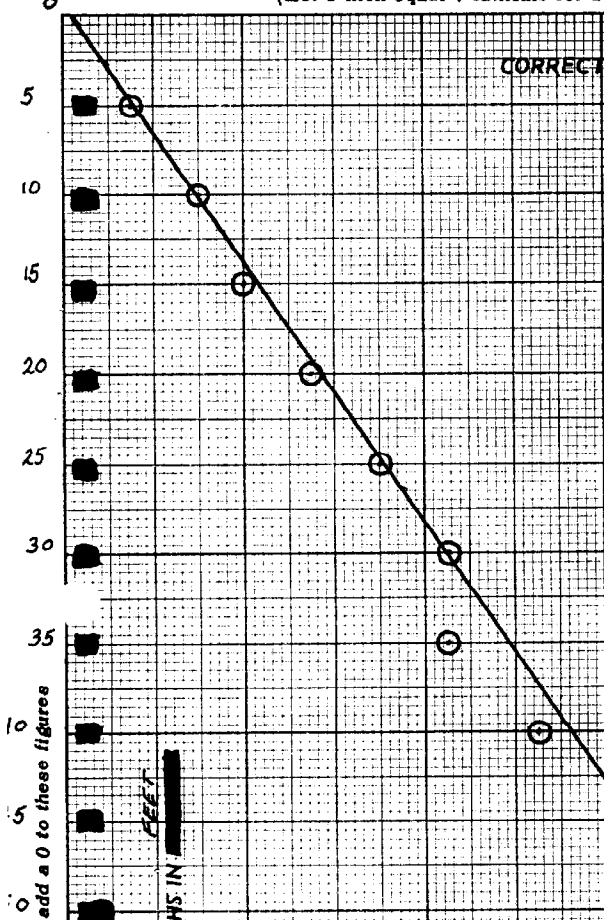
MI - 5 - 1 - 75

000050	0	0002	0003	000	222200	009490
000080	0	0004				
000120	0	0006				
000155	0	0008				
000190	0	0010				
000230	0	0012				
000265	0	0014				
000300	0	0016				
000335	0	0018				
000370	0	0020				
000410	0	0022				
000445	0	0024				
000480	0	0026				
999999	0	0028				

0.4 0.8 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0
 (Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET

NO. FORM 117 (11-74)		U.S. DEPARTMENT OF COMMERCE NOAA NATIONAL OCEAN SURVEY	
VELOCITY CORRECTIONS			
Ship	<u>AT MITCHELL (MSS-22)</u>	VESSEL	<u>2212</u>
	<u>R.M. BUFFINGTON</u>	CDR, NOAA	Comdg.
These corrections are to be used			
between	<u>8 MARCH 1975</u>	and	<u>25 MARCH 1975</u>
in the locality <u>VERY PUNTA ARENAS - PUNTA PALLELO</u>			
<u>SOUTH COAST, PUERTO RICO</u>			
for hydrographic surveys Nos. <u>H-9490</u>			
<u>ME-5-1-75</u>			



VELOCITY CORRECTION TABLE
1

TRUE DEPTH	APPLICABLE DEPTH	VELOCITY CORRECTION
4.0	4.8	0.2
8.0	7.6	0.4
12.0	11.4	0.6
15.5	14.7	0.8
19.0	18.0	1.0
23.0	21.8	1.2
26.5	25.1	1.4
30.0	28.4	1.6
33.5	31.3	1.8
37.0	35.0	2.0
41.0	38.8	2.2
44.5	42.1	2.4
48.0	45.1	2.6
9999	9999	2.8

(For deep water add a 0 to these figures)

DEPTHS IN FEET

(Let 1 inch equal 4 fathoms for deep water and $\frac{1}{2}$ inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, ~~EXTENSIVE~~

NOS FORM 117
(1-71)

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL OCEAN SURVEY

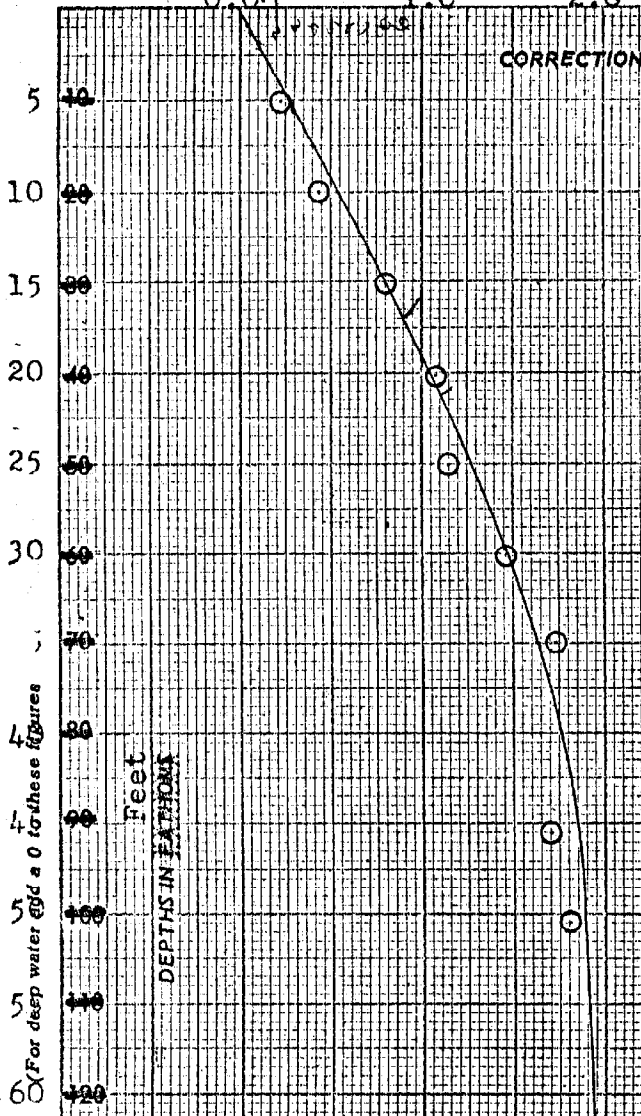
VELOCITY CORRECTIONS

Ship MT MITCHELL SKIFF VESNO 2228

R. V. Buffington, CDR, NOAA Comdg.

These corrections are to be used
between Feb. 22 1975 and Mar. 26 1975
in the locality Puerto Rico (South Coast)

for hydrographic surveys Nos. H-9267, H-9485
H-9490, H-9491



<u>True Depth</u> (ft)	<u>Applicable Depth</u> (ft)	<u>Velocity Correction</u> (ft)
1.6	1.6	+ 0.0
5.2	4.9	+ 0.2
8.9	8.5	+ 0.4
12.7	12.1	+ 0.6
16.7	15.9	+ 0.8
20.9	19.9	+ 1.0
25.6	24.4	+ 1.2
31.1	29.7	+ 1.4
37.5	35.9	+ 1.6
53.4	51.6	+ 1.8

MADE IN U.S.A.
 KEUFFEL & ESSER CO.

CAM3-12
2-22-74

OPR 423

TRA CORRECTION ABSTRACT

VESEL 2222

SHEET MI - 5 - 1 - 75

REGISTRY NO. H- 9490

Vol.	Jul. Day	GMT From Time	GMT To Time	Velocity Table ft/fms	Draft	Instru- ment Error Corr.	Initial Corr.	S&S Corr.	TRA Corr. ft/fms	Remarks
I	067	134702	153510		1.0			+0.2	+1.2	2000 RPM
		153511	163742		1.0			+0.2	+1.2	1500 RPM
		163743	165415		1.0			+0.2	+1.2	2000 RPM
I	068	110919	112511		1.0			+0.0	+1.0	900 RPM
		112512	133706		1.0			+0.2	+1.2	2000 RPM
		133707	161538		1.0			+0.1	+1.1	2200 RPM
		161539	163254		1.0			+0.0	+1.0	900 RPM
		163255	163414		1.0			+0.1	+1.1	2200 RPM
		163415	163534		1.0			+0.2	+1.2	1500 RPM
		163535	172300		1.0			+0.1	+1.1	2200 RPM
I	080	130306	171631		1.0			+0.1	+1.1	2100 RPM
		171632	172932		1.0			+0.2	+1.2	1500 RPM
		172733	172811		1.0			+0.0	+1.0	600 RPM
		172812	173944		1.0			+0.2	+1.2	1500 RPM
		173945	174825		1.0			+0.1	+1.1	2100 RPM

CAM3-12
2-22-74

OPR 423

TRA CORRECTION ABSTRACT

REGISTRY NO. H- 9490

SHEET MI - 5 - 1 - 75

VESSEL 2222

Vol. Day	Jul. Day	GMT From Time	GMT To Time	Velocity Table ft/fms	Draft	Instru- ment Error Corr.	Initial Corr.	S&S Corr.	TRA Corr. ft/fms	Remarks
I	081	105322	112356		1.0			+0.1	+1.1	2100 RPM
		112357	121038		1.0			+0.1	+1.1	1100 RPM
		121039	151056		1.0			+0.2	+1.2	1500 RPM
		151057	163820		1.0			+0.1	+1.1	2100 RPM
		163821	164535		1.0			-0.2	+0.8	2400 RPM
		164536	174606		1.0			+0.1	+1.1	2100 RPM
		174607	180022		1.0			+0.1	+1.1	1100 RPM
I	082	120032	122941		1.0			+0.1	+1.1	2100 RPM
		122942	124858		1.0			+0.1	+1.1	1100 RPM
		124859	151607		1.0			+0.1	+1.1	2100 RPM
		151608	153807		1.0			+0.1	+1.1	1100 RPM
		153808	154756		1.0			+0.1	+1.1	2100 RPM
		154757	154935		1.0			+0.1	+1.1	1100 RPM
		154936	155919		1.0			+0.1	+1.1	2100 RPM
		155920	160043		1.0			+0.1	+1.1	1100 RPM
		160044	161024		1.0			+0.1	+1.1	2100 RPM

CAM3-12
2-22-74

OPR 423

TRA CORRECTION ABSTRACT

REGISTRY NO. H- 9490

SHEET MI - 5 - 1 - 75

VESSEL 2222

Vol.	Jul. Day	GMT From Time	GMT To Time	Velocity Table ft/fms	Draft	Instru- ment Error Corr.	Initial Corr.	S&S Corr.	TRA Corr. ft/fms	Remarks
I	082	161025	161133		1.0			+0.1	+1.1	1100 RPM
		161134	162052		1.0			+0.1	+1.1	2100 RPM
		162053	162231		1.0			+0.1	+1.1	1100 RPM
		162232	163122		1.0			+0.1	+1.1	2100 RPM
		163123	163302		1.0			+0.1	+1.1	1100 RPM
		163303	164142		1.0			+0.1	+1.1	2100 RPM
		164143	164313		1.0			+0.1	+1.1	1100 RPM
		164314	171905		1.0			+0.1	+1.1	2100 RPM
I	084	120748	135557		1.0			+0.1	+1.1	2100 RPM
		135558	140855		1.0			+0.0	+1.0	600 RPM
		140856	141707		1.0			+0.1	+1.1	2100 RPM
		141708	142253		1.0			+0.2	+1.2	1500 RPM

21

TIDE NOTE

Field tide reductions based on predicted tides from Santa Isabel, Puerto Rico, as interpolated by program AM-500 on a PDP-8E computer, for all soundings have been applied. Tide predictions for Santa Isabel, Central Aguirre, Arroyo, and the reference station at Magueyes Island, Puerto Rico were forwarded to the NOAA Ship MT MITCHELL from the Tidal Datum Planes Section, C3311, Oceanographic Division, NOS, Rockville, Maryland on 22 January 1975. Only the times of high and low water differ at these four locations; there is no difference in the heights of the tide. Initially, reduced tides were based on data found in Tide Tables, High and Low Water Predictions, 1975 for Playa Cortada, Puerto Rico. The tidal datum in these tables was referenced to Galveston, Texas. During the course of the survey OPR-423-MI-75 it was noted that the times of predicted high and low tides differed quite markedly from the actual observed tides. It was then discovered that the tides at Galveston, Texas are largely semi-diurnal; the tide for the south coast of Puerto Rico is mainly diurnal. At that time the predicted tide tapes based on Playa Cortada were replaced with the data received from Rockville. All work done prior to the change was corrected with the new predicted tides in the off-line processing. All times of predicted tides are in GMT.

Three Ficher-Porter ADR Tide Gages were installed along the south coast of Puerto Rico to provide actual tide information throughout the course of this survey. Location and period of operation of the tide gages are as follows:

<u>SITE</u>	<u>LOCATION</u>	<u>PERIOD</u>
Santa Isabel	17 57.3° N	77 Days
	66 24.4' W	15 Jan. to 2 Apr. 1975
Central Aguirre	17 57.4' N	78 Days
	66 13.1' W	15 Jan. to 3 Apr. 1975
Arroyo	17 57.9' N	45 Days
	66 03.9' W	17 to 21 Feb. 1975 and 16 ^{MARCH} to 28 Apr. 1975

All gages were installed by Ship's Officers. Tide gage observers were hired from the local populace to keep daily records of wind, time of observations, tide heights, and to inform the ship if any malfunction of the gage was noticed. Gages were periodically checked by Ship's Officers and adjustments were made when necessary. All gages were set at LMT (60 W).

Santa Isabel

A Fisher-Porter analog to digital recorder tide gage (S/N 711A3389M4) was installed and placed in operation of 15 January 1975. The records obtained from 15 January to 13 February were found by Rockville to be "no good". On 8 March 1975, the Santa Isabel gage was removed and replaced by ADR Gage (S/N 6511A1632M14). The gage was observed to be working properly except for a maladjusted lost motion coupler which was noted on 10 March and reset at that time. The gage was removed on 2 April. Records were scanned and appeared to be in good order. Code disks set to correspond with staff readings.

Central Aguirre

ADR Tide Gage (S/N 7304A3908M4) was installed and set in operation on 15 January 1975. No problems were encountered with this gage, and tide records from 15 January to 3 April 1975 were obtained with no breaks. The gage was removed on 3 April. Code disks were set to correspond with staff readings.

Arroyo

The original ADR Tide Gage (S/N 7304A3908M9) was installed on 19 February 1975. At that time it was noted that the high order code disk was not incrementing as it should when the low order code disk completed one complete revolution. Efforts were made to repair the gage in the field. On 21 February, the gage was removed and taken to the ship for repairs. A message was forwarded to the Tides Division at AMC explaining the nature of the gage's trouble on 27 February. The return message received on 28 February stated that the gage was "beyond field repair capability" and that it was to be sent to AMC. Another gage, (S/N 7206A2664M17) was received from AMC, and it was installed at Arroyo on 16 March 1975. The gage was observed to be sluggish in transferring tide changes to the code disk. On 18 March, the lost motion coupler was removed and replaced. The tide gage was left in place after completion of the hydrographic survey through 28 April 1975, in order to provide at least 30 days of continuous records.

Levels

Upon installation of the tide gages, levels were run between bench marks and the rod stop at the vitrified scale. Levels were run again at the three sites when the gages were removed.

Comparison of level records indicated a negligible shift of 0.002 feet of the Arroyo staff and no differences at Santa Isabel and Central Aguirre.

9/3/75

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): Santa Isabel, Central
Aguirre

Period: March 6-27, 1975

HYDROGRAPHIC SHEET: H=9490

OPR: 423

Locality: Off Southern Puerto Rico including part of Jobos Bay

Plane of reference (mean ~~low~~ low water): 3.14 ft - Central
Aguirre

Height of Mean High Water above Plane of Reference is 3.08 ft - Santa Isabel
0.8 ft.

Remarks: Recommended zoning:

- (1) Inside Cayos de Barca zone direct on Central Aguirre.
- (2) Outside Cayos de Barca zone direct on Santa Isabel.

James R. Whitford
for Chief, Tides Branch

GEOGRAPHIC NAMES

H-9490

Name on Survey	Source of Name										
	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			
BOCA DEL INFIERNO											1
CAYO MORRILLO											2
CAYOS CARIBES											3
CAYOS DE BARCA											4
CAYOS DE PALAROS											5
CAYO PUERCA											6
LAS MAREAS											7
MAR NEGRO											8
PUNTA COLCHONES											9
											10
											11
											12
											13
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											18
											19
											20
											21
											22
											23
											24
											25

APPROVED

Chas. E. Harrington

STAFF GEOGRAPHER - C 3142

26 Oct 1977

APPROVAL SHEET
FOR
SURVEY H- 9490

- 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: 07/11/77

Signed: William Jones

Title: Chief, Verification Branch

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-9490
MI-5-1-75

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET with smooth pos. & excess overlay	1	BOAT SHEETS (A parts)	1
DESCRIPTIVE REPORT	1	OVERLAYS (preliminary)	8 4

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
Jordanian file ENVELOPES	4X		1-smooth P/O			1
CAHIERS	1		with depth rec.			
VOLUMES	5					
BOXES						

T-SHEET PRINTS (List)

SPECIAL REPORTS (List)

Horizontal Control Report (copy)

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				1660
POSITIONS CHECKED		160	4	
POSITIONS REVISED		70		
DEPTH SOUNDINGS REVISED		206	3	
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		24	23	
JUNCTIONS		8		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		32	12	
SPECIAL ADJUSTMENTS	4			
ALL OTHER WORK		434	2	
TOTALS	4	498	37	
PRE-VERIFICATION BY C. Meekins	BEGINNING DATE 06/06/75	ENDING DATE 06/07/75		
VERIFICATION BY J. Griffin, G. Hendrix, M. Hickson	BEGINNING DATE 06/15/76	ENDING DATE 01/29/77		
REVIEW BY H. R. Smith Hydrographic Inspection Team	BEGINNING DATE 04/27/77 07/13/77 12/22/77	ENDING DATE 05/31/77 07/18/77		

Critique 11-16-77 4 hrs DM

Quality Control: B. Myers 45 hrs

REGISTRY NO. 9490

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 REQUIRED _____ INITIALS _____

REMARKS:

REGISTRY NO. _____

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 5-2-82 TIME REQUIRED _____ INITIALS JAR

REMARKS:

H-9490

Items for Future Presurvey Reviews

The following items should be thoroughly investigated at an opportune time in the future:

1. The sunken wreck, PA charted in latitude 17°56'06", longitude 66°15'38" originating with a U.S. Power Squadrons report (CL 1985/68) was noted previously as a Presurvey Review item. This feature was not specifically investigated on the present survey and, therefore, has been recommended to be retained on the chart.

2. The obstructions located at latitude 17°55'11.5", longitude 66°13'04.5", latitude 17°55'18.9", longitude 66°14'12.5", and latitude 17°56'39.7", longitude 66°15'48.6" from the contemporary topographic surveys should be investigated to determine their existence and, if found, the condition of these features should be ascertained.

<u>Position Index</u>		<u>Bottom Change</u>	<u>Use</u>	<u>Resurvey</u>
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle</u>
175	0662	1	1	50 years

ATLANTIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO. H-9490

FIELD NO. MI-5-1-75

Puerto Rico, South Coast, Vicinity of Punta Arenas and Punta Pozuelo

SURVEYED: March 6 through March 27, 1975

SOUNDINGS: Ross 5,000 Fathometer,
Raytheon 719B Fathometer,
Raytheon 723B Fathometer,
Lead line and pole

CONTROL: Del-Norte,
Range-Azimuth
Visual, SBS

SCALE: 1:5,000

PROJECT NO.: OPR-423

Chief of Party	R. M. Buffington
Surveyed by	R. J. DeRycke
.....	M. R. Mulhern
.....	D. H. Pascuiti
.....	T. G. Russel
.....	K. L. O'Donnel
.....	E. J. Fields
.....	R. E. Marriner
.....	S. R. Iwamoto
.....	J. O'Reilly
.....	B. W. Woodry
Automated Plot by	Calcomp Plotter #618 (AMC)
Verified and Inked by	H. R. Smith

1. Introduction

- a. No unusual problems were encountered during verification of this survey.
- b. The projection parameters were changed during verification.

2. Control and Shoreline

- a. The source of control is adequately described in the Descriptive Report.
- b. The shoreline was taken from the following unreviewed, Class I manuscripts: T-13366 of March 1970, field edited January, February, and August 1975; T-13367 of March 1970, field edited May 1975; T-13368 of March 1970, field edited August 1975; and T-13369 of March 1970, field edited August 1975.

3. Hydrography

a. The depths at crossings are in good agreement.

b. The standard depth curves adequately delineated the bottom, except in several areas where line spacing was inadequate. Areas included are: the southeast corner, and northeast of Cayo Morrillo, where this survey joins H-9485 (1975); also areas centered around the northwest end of Cayo Puerca, north of the islands on which Bahia de Jobos Range 13, Rear Light (signal 54) is located, and east of Cayo Puerca - here the six (6) foot curve could not be completed.

c. The low-water line was not developed, probably due to the small range of tide and the extension of shallow water from the shoreline.

d. The development of the bottom configuration and the investigation of least depths are considered adequate, except in areas where line spacing was insufficient and small holidays exist. These areas are centered around:

- (1) Latitude 17° 55' 15", longitude 66° 13' 50"
- (2) Latitude 17° 55' 05", longitude 66° 14' 10"
- (3) Latitude 17° 55' 25", longitude 66° 15' 08"
- (4) Latitude 17° 55' 15", longitude 66° 14' 10"
- (5) Latitude 17° 55' 10", longitude 66° 14' 20"
- (6) Latitude 17° 55' 55", longitude 66° 16' 15"

4. Condition of Survey

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

5. Junctions

An adequate junction has been effected with the following surveys:

- H-9491 (1975) on the northeast
- H-9485 (1975) on the southwest, south, and southeast

The junction with H-9485 (1975) to the south is considered adequate; however, additional hydrography would have been desirable and it is recommended that additional hydrography be accomplished at an opportune time, to assure that the area is clear of coral heads, and that least depths are obtained.

6. Comparison With Prior Surveys

H-2422 (1899) 1:10,000
H-2423 (1899) 1:10,000
H-2737 (1905-06) 1:40,000

A comparison between the present survey and the prior surveys, which cover the common area, reveals good agreement. There is only minor change in shoreline, mostly on the north where there are many mangrove islets.

The bottom configuration and general depths are in substantial agreement. There are several shoal areas, which are adequately discussed in the Descriptive Report (see Item L).

No sounding data was carried forward to this survey from H-2422 and H-2423 (1899) because there was some doubt about the datum differences of surveys prior to 1901 in the Puerto Rico area. There was also considerable distortion in the bromide copies of these surveys available at AMC.

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

7. Comparison With Chart 25687 (formerly C&GS 909), 8th Edition, March 1, 1975

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration.

Attention is directed to the following:

(1) The sunken wreck, PA, Pre-survey Review Item #2, charted at latitude 17° 56' 06" and longitude 66° 15' 38" - originates with U.S. Power Squadron Report (ch-1985-68). The present survey includes a limited investigation of this item by fathometer, but did not locate the wreck. It is recommended that the wreck remain charted, as is, until it can be proved or disproved by wire drag or diver. ✓

(2) The obstruction charted at latitude 17° 55' 10" and longitude 66° 14' 13" - the obstruction was located by the present survey. The photo manuscript location is plotted on the smooth sheet. It is recommended that the photo manuscript's location be charted. ✓

(3) The obstructions shown on manuscript T-13366 at latitude 17° 55' 12" and longitude 66° 13' 05", located by the field editors, was not investigated by the present survey. It is recommended that the obstructions be charted as located on the smooth sheet, taken from the manuscript. ✓

(4) The unnumbered Pre-survey Review soundings have been discussed and properly disposed of in the Descriptive Report (see Item L).

Except as discussed above, the present survey is adequate to supersede the charted hydrography within the common area.

b. Aids to Navigation

The aids to navigation located on the present survey agree with their charted positions and adequately serve the purposes intended. (Two former aids are shown on the smooth sheet as triangulation stations and designated as landmarks.)

8. Compliance With Instructions

This survey adequately complies with Project Instructions, except as noted.

9. Additional Field Work

This survey is considered adequate to supersede the prior surveys, primarily because the prior surveys were accomplished at smaller scales and they also neglected entirely the inshore areas. However, by modern standards the present survey must be considered a poor basic survey. ✓



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Atlantic Marine Center
439 West York Street
Norfolk, Virginia 23510

File No: D6-5
Ser. No: 77-79

July 22, 1977

CAM3/RAT

TO: RADM Robert C. Munson
Director, Atlantic Marine Center

FROM: *Robert A. Trauschke*
CDR Robert A. Trauschke
Chief, Processing Division

SUBJECT: Hydrographic Inspection Team Report, H-9490

This survey was accomplished in 1975, in general compliance with Project Instructions OPR-423-MI-75, dated November 1974, by the NOAA Ship MT. MITCHELL. It is part of the continuing project on the south coast of Puerto Rico. This 1:5,000 survey covers the approaches to Central Aguirre.

FIELD WORK

The Hydrographic Inspection Team did not question the field units' decision to do a "reconnaissance" type survey of the alongshore areas east of Punta Arenas. It would have been very desirable, however, to have extended the main scheme hydrography further north so that at least the six foot depth curves could have been delineated. In the area of Punta Colchones and Cayo Puerca a number of small bays and harbors exist, with relatively deep water in which the "reconnaissance" type work is not satisfactory. The 23 foot sounding at latitude 17° 55' 54", longitude 66° 15' 33" and the 28 foot sounding at latitude 17° 56' 06", longitude 66° 16' 20" were not sufficiently developed.

The channel into Bahia de Jobos was not developed according to 4.3.4.1 of the Provisional Hydrographic Manual.

The obstruction at 17° 55' 18.⁹" and 66° 14' 12.⁵" was not described. Is it submerged or actually a tower? Also, a discrepancy exists as to the position of the "tower". Position #255, "D.P. on tower" is approximately 25 meters west of the photo position. By assuming the photo position as good, one must also assume that at position #255 the "tower" was 25 meters on the port beam. If this is not a correct assumption, then



all position data that day is suspect.

The shoal area due north of Cayos de Pajaros could have been looked at a little more closely to determine whether or not 28 feet could be carried to the dredged channel.

Holidays exist throughout the sheet (see Verifier's Report.)

In Paragraph L of the Descriptive Report, "Comparison With Chart", the hydrographer stated, "A number of small uncharted shoals in the area of Boca del Infierno were found but not developed." It would have been desirable to at least have given an explanation as to why not.

The interval between soundings was excessive, as was the distance between positions.

VERIFICATION

The sheet was returned to the verifier in order to have the names of all electronic stations lettered on the sheet. Also, the "Grs in water" notes were revised to "Grs". Some depth curves needed revision after consideration of the excess level.

The HIT Team considered using a brown curve to define the dredged channel but decided against it. The presence of the 30 foot curve and the lack of sounding data were the factors in the HIT Team's decision.

The Hydrographic Inspection Team was in concurrence with the verifier's comment regarding the survey's adequacy to supersede the prior surveys and that it is not considered to be a very good basic survey.

The HIT Team devoted more than 35 hours to this survey.

Approval Sheet for H-9490

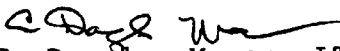
Examined and Approved:
Hydrographic Inspection Team
Date: *July 15, 1977*



CDR Robert A. Trauschke, NOAA
Chief, Processing Division



CDR Jeffrey G. Carlen, NOAA
Chief, Coastal Mapping Division



Lt. Douglas Mason, LT, NOAA
Chief, EDP Branch

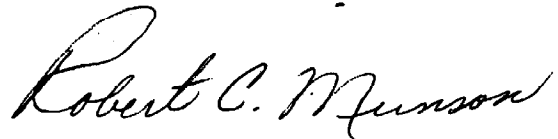


William L. Johns
Chief, Verification Branch



Guy F. Trefethen
Verification Branch

Approved/Forwarded



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

October 26, 1977

a J Patrick
TO: A. J. Patrick
Chief, Marine Surveys Division
G. K. Myers
FROM: G. K. Myers
Chief, Quality Control Branch

SUBJECT: Quality Control Report, H-9490 (1975), Puerto Rico, South Coast, Vicinity of Punta Arenas to Punta Pozuelo

A quality inspection of H-9490 (1975) 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 and navigation hazards, transfer of topographic information, decisions and actions by the verifier, and cartographic presentation of data.

The junction with H-9485 (1975) on the south and west was completed during the evaluation of the survey. The junction with H-9491 (1975) on the northeast will be considered during the evaluation of that survey.

The present survey was found to conform to National Ocean Survey standards and requirements except for the following deficiencies:

1. A comparison of the prior surveys with the present survey during quality evaluation reveals general shoaling of 1 to 2 feet, except in a few areas where present depths are as much as 4 feet less than prior depths. With the addition of some soundings and bottom characteristics carried forward from H-2422 (1899), the larger scale present survey is adequate to supersede the prior surveys in the common area.
2. The sunken rock symbols charted along the southeast shores of Punta Colchones and Cayo Puerca between latitude 17°55'42", longitude 66°14'17" and latitude 17°56'04", longitude 66°13'48" from H-2423 (1899) were not investigated by the hydrographer. These areas shown to be shallow on T-13368 should have been questioned during verification. Due to the lack of a field determination of these features, the deficiency was referred to the Coastal Mapping Division during quality control. An examination of photography proved the existence of ledge in these areas. A recommendation to the effect that necessary revisions be made during the final review of the photogrammetric manuscript was submitted by the quality evaluator. ✓



3. In addition to the comment made in the Verifier's Report regarding the source of charted information, the following statement should be included.

Charted hydrography, also, originates with 1974 Puerto Rico Water Resources Authority surveys and a chart letter.

4. During the quality evaluation of the present survey, no obstruction was found to be charted at latitude $17^{\circ}55'10''$, longitude $66^{\circ}14'13''$ as indicated in the Verifier's Report. However, an obstruction located at latitude $17^{\circ}55'18.9''$, longitude $66^{\circ}14'12.5''$ from T-13368 should be charted. ✓

5. Section VII of the Verifier's Report is supplemented by the following:

In the charted controlling depth area in the immediate vicinity of latitude $17^{\circ}55.83'$, longitude $66^{\circ}14'$ the present depths are as much as 1 foot shoaler than the charted controlling depth note--28 FT FOR WIDTH OF 150 FT JUNE 1974. (See provisional manual--section 6.6.12 (b).)

6. The appropriate note, Light Discontinued, for Bahia de Jobos, Range A, Rear Light and Bahia de Jobos, Range B, Rear Light was indicated on the smooth sheet during quality control. The discontinuance of these private aids is reported in LNM 33/70.

7. Some soundings on the smooth sheet were plotted in error during verification.

cc:
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