

9190

*0616 WPC
Smooth Copy*

Diag. Cht. No. 902.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. MI-10-2-71 Office No. H-9190

LOCALITY

State Puerto Rico

General locality South Coast

Locality Coastline

Long. 66°25'W. to Long. 66°33'W.

1971

CHIEF OF PARTY

Edwin K. McGaffrey, CAPT, NOAA

LIBRARY & ARCHIVES

DATE NOV 17 1974

*Charts 902
926
927*

9190

HYDROGRAPHIC TITLE SHEET

H-9190

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-10-2-71

State Puerto Rico

General locality South Coast

Locality Punta Cayito to Rio Jacaguas
Coastline Longitude 66°25'W. to Longitude 66°33'W.

Scale 1:10,000 Date of survey 4-6-71 to 5-11-71

Project Inst. dated 22 Dec. 1970

Instructions dated Amend. dated 22 Jan. 1971 Project No. OPR-423-MI-71

Vessel NOAA Ship MT MITCHELL (MSS-22)

Chief of party Edwin K. McCaffrey, CAPT, NOAA

Surveyed by LTJG S.C. Schwartz, ENS G.L. Sundin, ENS G. Freirich

Soundings taken by echo sounder, hand lead, pole used the three methods listed

Graphic record scaled by Ship personnel

Graphic record checked by Ship personnel

Protracted by CALCOMP-AMC 618 Automated plot by CALCOMP-AMC
618

Soundings pencilled by CALCOMP-AMC 618

Soundings in ~~MKKK~~ feet at MLW MKKW

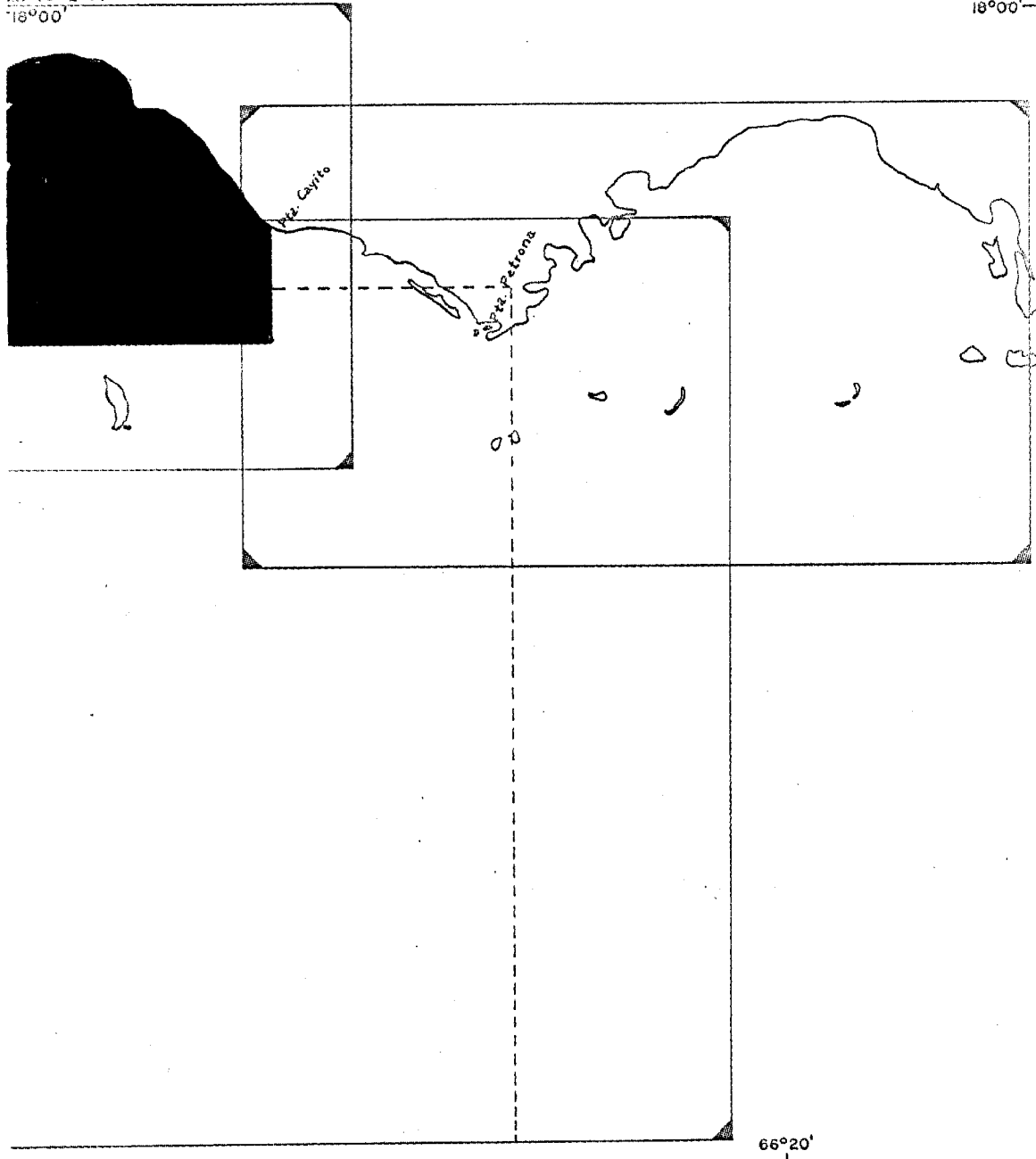
REMARKS: Hydrographic data transcribed from sounding volumes to punched paper Position and Sounding Tapes with Printout. Transcription errors, omissions, alterations, etc. entered on the printout by hand. Correction to echo sounding data transcribed from computation sheets to TRA, Velocity and Tide Tapes with printout. List of Signals Tape with printout constructed. All printouts proof-read. All records transferred to the Atlantic Marine Center.

66°20'

PROGRESS SKETCH-OPR-423(SHEET 3 OF 3)

MI-10-2-71 (H-9190)
18°00'

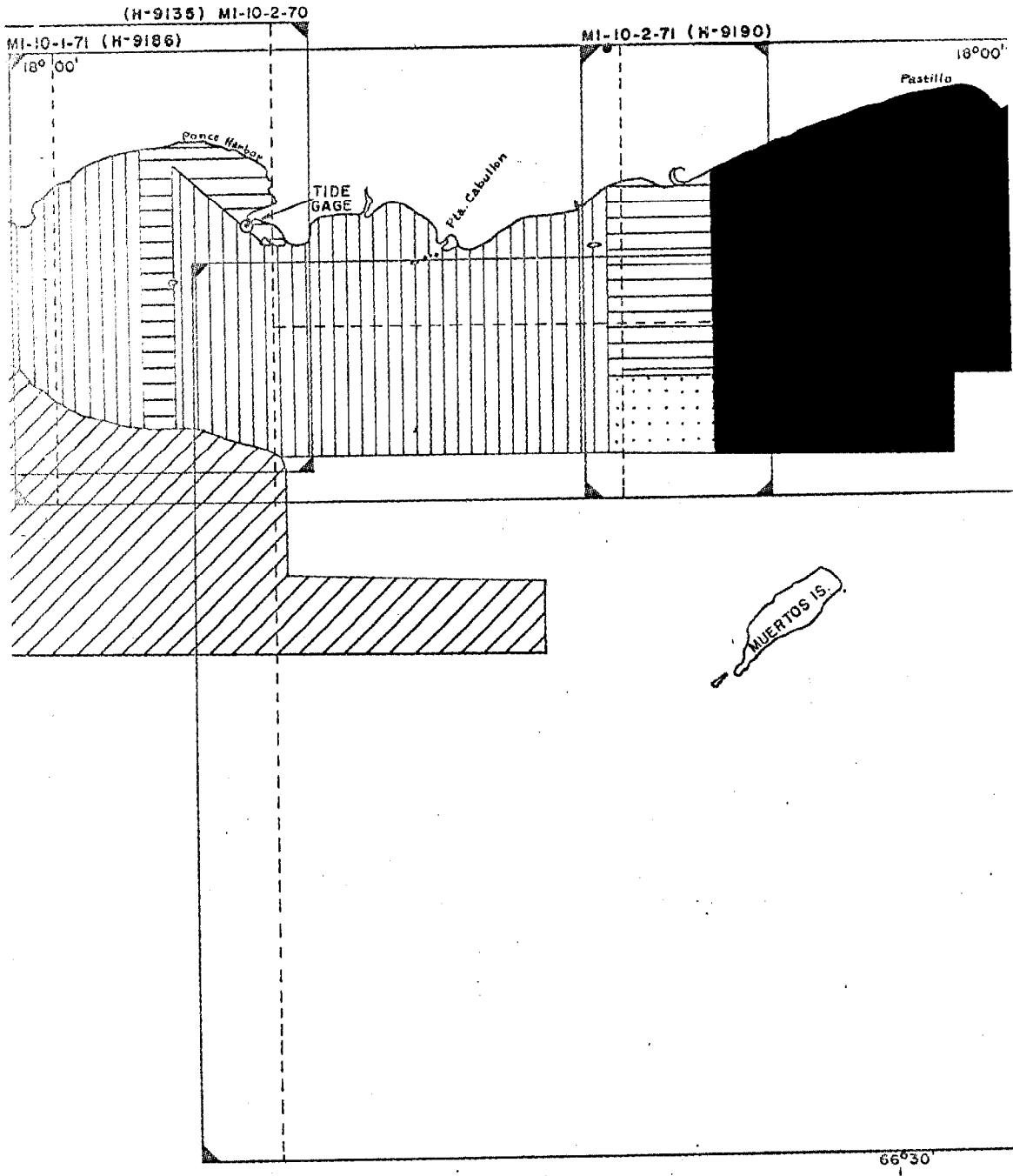
18°00'



66°20'

66°30'

PROGRESS SKETCH-OPR-423 (SHEET 2 OF 3)



66°50'

66°45'

PROGRESS SKETCH

OPR-423

PUERTO RICO

HYDROGRAPHIC OPERATIONS

FEB-MAY 1971

NOAA SHIP MT MITCHELL (MSS-22)

EDWIN K. MCGAFFREY, CDR, NOAA, COM'D'G.

SCALE OF CGGS CHART 902

WHITING 1969 SURVEY

MT MITCHELL 1970 SURVEY

MT MITCHELL 1971 SURVEY

FEB MAR APR MAY

Legend symbols for survey periods: FEB (diagonal lines), MAR (horizontal lines), APR (vertical lines), MAY (checkered).

	FEB	MAR	APR	MAY
0	21	0	0	0
131	639	539	217	
9	6	16	8	
46	33	11	0	
7	4	4	1	
7	3	2	2	
1	0	0	0	
21	93	29	0	
18	17	30	0	
1	0	0	0	
11	4	10	0	
2	0	0	0	
0	2	0	0	1

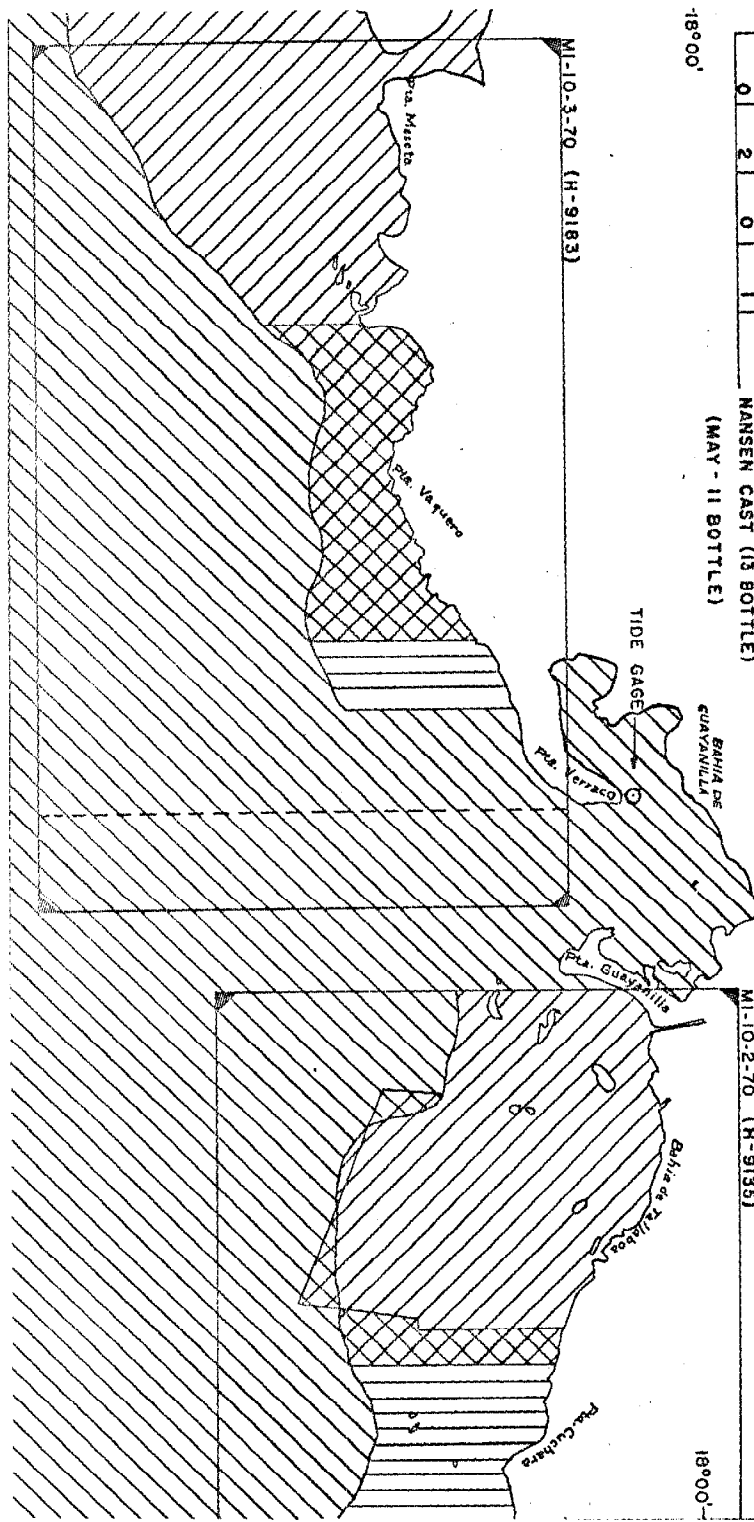
- LINEAR NAUTICAL MILES, SOUNDING LINE, (SHIP)
- LINEAR NAUTICAL MILES, SOUNDING LINE, (LAUNCH)
- LINEAR NAUTICAL MILES, SOUNDING LINE, (SKIFF)
- HYDROGRAPHIC SIGNALS ERRECTED
- HYDROGRAPHIC SIGNALS RE-SULIT
- HYDROGRAPHIC SIGNALS RE-DRESSED
- STD CAST (SOUND VELOCITY DATA)
- BOTTOM SAMPLES (GRAB)
- TRIANGULATION STATIONS RECOVERED
- TOPOGRAPHIC STATIONS ESTABLISHED
- TOPOGRAPHIC STATIONS RECOVERED
- PRESSURE RECORDING TIDE GAGE ESTABLISHED
- MANSEN CAST (13 BOTTLE)
- (MAY - 11 BOTTLE)

MI-10-2-70 (H-9135)

18°00'

18°00'

MI-10-3-70 (H-9183)



Descriptive Report
To Accompany
Hydrographic Survey MI-10-2-71
Registry Number H-9190

OPR-423-MI-71
South Coast of Puerto Rico

1971 Field Season

NOAA Ship MT MITCHELL (MSS-22)

Edwin K. McCaffrey, CAPT, NOAA, Com'd'g.

*Applied to stds 11/6/75
CAB*

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Descriptive Report
To Accompany
Hydrographic Survey MI-10-2-71
Registry Number H-9190

OPR-423-MI-71
South Coast of Puerto Rico

1971 Field Season
Scale 1:10,000

NOAA Ship MT MITCHELL (MSS-22)

Edwin K. McCaffrey
CAPT, NOAA
Commanding Officer

A. PROJECT

This survey was accomplished under Project Instructions OPR-423-MI-70, Hydrographic Survey, South Coast, Puerto Rico, dated 22 December, 1970. All work was recorded using Greenwich Mean Time in accordance with the First Amendment to Project Instructions dated 22 January, 1971.

B. AREA SURVEYED

The area surveyed is on the south coast of Puerto Rico beginning approximately 5 miles east of Ponce Harbor and proceeding eastward. The limits of the area surveyed are as follows:

Northern Limit - South coast of Puerto Rico

Southern Limit - Latitude $17^{\circ}56^{\prime}30''N$. West of Longitude $66^{\circ}25^{\prime}15''W$.
Latitude $17^{\circ}55^{\prime}30''N$. East of Longitude $66^{\circ}29^{\prime}15''W$.

Eastern Limit - Longitude $66^{\circ}25^{\prime}15''W$.

Western Limit - Longitude $66^{\circ}32^{\prime}10''W$. (Junction with
Boatsheet MI-10-1-71 H-9186)
1971

Prior surveys of the area were accomplished in 1899, 1901, 1905-1906 and 1927 (H-2420, H-2421, H-2736, H-2737, H-4699); these covered the area and were the source of comparison depths.

Hydrography commenced on April 6, 1971 and was concluded on May 11, 1971.

C. SOUNDING VESSEL

Launches MI-3, MI-6, and MI-4 were used on this sheet for echo sounding work. Launch MI-3 was used primarily to define the bottom from the shoreline to an approximate 18 foot curve. It was also used for some crosslines and one day of development work. Launch MI-6 was used on relatively deep-water sounding lines and developments and was confined to water deeper than 18 feet due to its vulnerability to damage on reefs and/or coral heads. MI-6 accounted for 77% of the total nautical miles of hydrography on this sheet. Launch MI-4 was used for one day of sounding lines, close inshore work and reef definition was accomplished using various skiffs with pole and hand lead soundings.

A breakdown of the sounding vessel data listing type, propulsion, position number blocks actually used and color of ink used to differentiate the position numbers, is shown below:

<u>Boat</u>	<u>Type</u>	<u>Engine</u>	<u>Position Number</u>	<u>Position Number Color</u>
MI-3	25' Bertram Twin Outdrive	Rover	5000 - 5693	Green
MI-4	25' Bertram Twin Outdrive	Perkins	7000 - 7059	Violet

<u>Boat</u>	<u>Type</u>	<u>Engine</u>	<u>Position Number</u>	<u>Position Number Color</u>
MI-6	31' Uniflite	Cummins	1000 - 3619	Red
Skiffs	Boston Whaler	Various Outboards	0001 - 0213	Blue

D. SOUNDING EQUIPMENT

All echo sounding accomplished by the launches was done using a Raytheon Survey Fathometer, Model DE-723B. The serial numbers of the echo sounders used in each boat is listed below:

<u>Boat</u>	<u>Echo Sounder Serial Number</u>	<u>Remarks</u>
MI-3	1279	(through Day 109)
	1272	(Day 131)
MI-4	1281	
MI-6	1285	

All soundings were read and recorded in feet.

Velocity, Draft and Instrument Error corrections were determined by bar checks. Normally two bar checks were made each day, one before commencing operations and one after the day's operations were completed. These corrections were abstracted, graphed, and then reduced to a particular correction (in 0.2 foot increments) for a particular range of depths.

An STD Cast and three Nansen Casts were made to determine corrections for depths beyond the range of the bar checks.

STD Cast Station	- 11 Feb. 1971
Nansen Cast Station #1	- 26 Mar. 1971
Nansen Cast Station #2	- 26 Mar. 1971
Nansen Cast Station #3	- 11 May 1971

The results of all casts were averaged to determine corrections.

Even though the casts were made at different dates, the computed velocities for the various layer depths showed no seasonal variation, hence justification for the averaging. (Reference is invited to "Report on Corrections to Echo Soundings" for the 1971 field season).

The initial was set at 2.0 feet to compensate for the estim-

ated draft of the launch transducer. Any deviation from the 2.0' initial setting (due to change of voltage, stylus length, etc.) in excess of 0.1' was noted in the sounding volume. Velocity corrections were computed including the 2.0' initial.

The Settlement & Squat corrector was the second component of the TRA correction. Settlement & Squat data were determined for each launch. The results of Settlement & Squat tests for each launch are included in "Report on Corrections to Echo Soundings" for the 1971 field season. When the tests were run, the launches had operating tachometers on both engines. Except for those on Launch MI-6, the tachometers were inoperative most of the time and the Revolutions Per Minute (RPM) entries in the sounding volume are estimates by the Officer-in-Charge and the coxwain.

Routine checks were made on the operational characteristics of the echo sounders. The checks included frequent A-F Scale comparisons (with fine arc checks), Speed Count and MRV evaluations. As in the past, the major source of any deviation was due to improper paper alignment. The checks remain with the fathograms.

Hand leadlines were used to verify least depth soundings where possible, and simultaneous comparisons of echo sounding equipment and leadline were taken at the time of each bar check. The leadlines were the standard type, 60 feet of braided nylon covering a phosphor bronze core and marked according to the Hydrographic Manual. A comparison of the leadlines with a tape was made and the results are entered in the sounding volumes.

Aluminum pipe sounding poles, 10 feet in length but capable of being joined to create a 20 foot pole, were constructed. The poles were used for shallow water measurements, which include reef line soundings and all shallow water lines run in skiffs.

Due to the normal small tide range in the area surveyed (0.7'), predicted tide correctors weren't applied to the boatsheet soundings. Final tide correctors for use in the smooth sheet compilation were obtained from data recorded by a pressure recording (Bubbler) tide gage installed by ship personnel at Muelle de Ponce, in Playa de Ponce, Puerto

Rico, approximately 5 miles west of the western limit of the area surveyed.

E. SMOOTH SHEET

The smooth sheet will eventually be computer plotted using paper punch tapes designed for this use. Six types of tapes (each with a proof-read printout) were constructed in the field for smooth plotting the work. A list of the tapes is shown below:

1. List of Signals Tape
2. Sounding Tape
3. Position Tape
4. Velocity Tape
5. TRA TC/TI Corrector Tape
6. Tide Tape

The Sounding Tape and the Position Tape contain the data as transcribed from the sounding volumes. The other tapes contain data transcribed from the abstracts of computation sheets or graphs.

A Hydrographic Data Logger, Module Mark 3-0, used in conjunction with a Model ASR33 teletype comprised the transcribing equipment. ASCII Code and Single Indicator Format was used.

F. CONTROL *See Review*

Control for all positions was visual, employing the three-point sextant fix method using stationary shore signals erected by ship personnel. The shore signals were located by photogrammetric, triangulation or traverse methods utilizing MT MITCHELL personnel and LTJG Richard Olson of Photo Party #62. The signals were photo-plotted directly on the T-Sheets of the survey area and the geographic positions were then transferred to the boatsheet. The List of Signals and method of location are appended to this report.

The manuscripts of the area are as follows:

T-13125 (1966-71)	T-13372 (1970)
T-13126 (1966-72)	T-13373 (1970-72)
T-13127 (1966-72)	

off smooth sheet

A single pattern of hyperbolic Hi-Fix (Decca) arcs was used to aid in steering the launch and for an aid in line spacing. The pattern of arcs was generated by stations which were located at Punta Jorobado and at Playa de Santa Isabel. Neither station site was marked. The operating frequency was 1618.650 KHz. This pattern created a lane spacing of approximately 95 meters in the area of this boatsheet. Regular line spacing was to be 100 meters for the area surveyed; thus a routine of running lines at one lane spacing kept the spacing within required limits. Due to the close proximity of the east edge of this sheet to the Santa Isabel Hi-Fix station (approximately $\frac{1}{2}$ mile) the hyperbolic arcs curved very sharply in this area. To adequately conform the plotted sounding lines to these arcs, positions were taken at one minute intervals (rather than the normal $1\frac{1}{2}$ minute interval) in the area of severe curvature.

When the Hi-Fix Left-Right Indicator was used for steering, the notation "Arc" appears in the "Heading By" column of the sounding volumes.

G. SHORELINE *See Review*

The following T-Sheets were used for sources of shoreline:

1. T-13125 (1966-71)
2. T-13372 (1970)
3. T-13373 (1970-72)

The shoreline consists primarily of dirt and rock beaches sloping up sharply to approximately 3 - 5 feet above Mean Low Water then leveling off to flat ground inland. With the aid of the photogrammetrist, the shoreline configuration on this sheet was verified by taping distances from the various signals to the approximate Mean Low Water line.

Field work determined that there were several errors on the manuscripts in locating and defining limits of foul areas and coral awash. Where possible, limits of foul areas were determined by outlining the area with detached positions. The only extensive reef on this sheet is south of Signal 160. It is denoted on the boatsheet with black ink. Several other foul areas are denoted with black dashed lines.

As noted on the boatsheet, the rivers emptying into the sea have a considerable effect on shoreline configuration. Dur-

ing times of heavy rainfall, these rivers tend to swell rapidly, and thus increase discharge or produce new openings to the sea where none previously existed. The rivers discharge considerable amounts of sand and silt near the shore and when the rain is prolonged, marked changes in the shoreline occur. The areas which are most subject to change are so noted on the boatsheet.

This shoreline work was co-ordinated with LTJG Richard Olson of Photo Party #62, who was doing the field edit of the manuscripts of the area.

H. CROSSLINES

The boatsheet consists of approximately 502 nautical miles of normal sounding lines. A total of 43 nautical miles of crosslines were run as checks to the normal hydrography. The crossline total amounts to 8.6% of the regular sounding lines.

Excellent agreement between crosslines and regular sounding lines was typical over virtually the entire sheet, and discrepancies rarely exceed one foot. It should be noted that in cases when there was any disagreement, the bottom was normally irregular with small outcrops of coral.

I. JUNCTIONS *See Review*

Only one sheet provided a junction to this sheet; that being on the west edge with contemporary survey MI-10-1-71 (H-9186)¹⁹⁷¹. Agreement between soundings was excellent in areas of reasonably regular bottom configuration. Near Latitude 17°56.7'N., there exists a sizeable coral shoal common to both sheets. A reasonably good junction is made here. However, a few discrepancies do appear due to the irregular pattern of peaks and holes. The contours of the shoal on each sheet made a fairly good match with occasional offsets of 5 to 10 meters. Junction discrepancies are slight and are believed mainly due to use of uncorrected sounding data on adjoining surveys.

The shoreline at the junction was of uniform configuration and without reefs. The junction here was exact.

J. COMPARISON WITH PRIOR SURVEYS *See Review*

Prior surveys of this area were done in 1899 (1:20,000 Sheets

H-2420 and H-2421), 1905-06 (1:20,000⁴ Sheets H-2736 and H-2737), and 1927 (1:20,000 Sheet H-4699). Agreement with these surveys was generally very good. A few minor discrepancies do exist. However, these can be explained by the smaller scale and older methods of these surveys.

K. COMPARISON WITH THE CHARTS

The area covered by this survey was included in the compilation of C&GS Chart 926 (Scale 1:20,000). Agreement with the chart was generally very good. Comparisons with appreciable discrepancies were developed, many of these being Pre-Survey Review Items. Three shoal areas not listed as Pre-Survey Review Items were developed during this survey. Discrepancies with the chart were noticed after running the regular system of sounding lines, and further development was deemed necessary. The results of these three developments are as follows:

1. At Latitude 17°57.90'N. Longitude 66°28.70'W., C&GS Chart 926 indicates no shoal area and typical depths of 49 - 50 feet. Regular hydrographic sounding lines outlined two adjacent shoal spots. Subsequent investigation showed a least depth of 34 feet. (Development #5 covered this area). A least depth (reduced) of 34 ft. was obtained by the development on the present survey. Survey depths should be charted.
2. At Latitude 17°57.55'N. Longitude 66°29.75'W., C&GS Chart 926 indicates a shoal area with least depth of 23 feet. Subsequent development determined a least depth of 19 feet. (Development #15 covered this area). Concur. Survey depths should be charted.
3. At Latitude 17°57.05'N. Longitude 66°30.55'W., C&GS Chart 926 indicates a shoal area with least depth of 29 feet. Subsequent development determined a least depth of 25 feet. (Development #16 covered this area). A least depth (reduced) of 24 ft. was obtained by the development on the present survey. Survey depths should be charted.

These developments are summarized in the Pre-Survey Review Comparison sheets and noted as "Additional Developments".

There were 31 Pre-Survey Review Items investigated on this boatsheet, all of which were charted soundings on C&GS Chart 926. The Pre-Survey Review Item developments were plotted on a mylar overlay of the boatsheet. Recommendations as to which charted soundings should be changed are included in the

Pre-Survey Review Soundings - Comparison Sheets which describes each development. These sheets are included in this report. See annotations for each item by the reviewer.

On most developments, the following procedure was used for investigation. A development was run using one-half lane spacing, of approximately 50 meters (splitting the existing lanes into thirds), during which the graphic record was inspected continuously for an indication of a shoal. If the shoal was found, a marker buoy was dropped near it. If not found while running Hi-Fix arcs, then the buoy was kept ready while lines were run at right angles to the arc lines with a spacing of approximately 50 meters.

When the buoy was set out on a shoal, a more intensive search, using a crisscross pattern with spacing of about 5 to 10 meters, was conducted around the buoy searching with the echo sounder for a depth shoaler than previously found. Finally a search with leadline was made for the shoalest indication. The shoalest depth, whether echo or leadline, was plotted on the boatsheet (with appropriate notes) in accordance with Section 5-122 of the Hydrographic Manual.

It should be noted that certain Pre-Survey Review Items were adequately identified (the sounding proven or disproven) with the regular network of sounding lines, therefore, no detailed development was undertaken.

L. ADEQUACY OF SURVEY See review.

This survey is complete and adequate to supersede all prior surveys of the area. A total of 24 developments were completed of which 22 were used to investigate and define Pre-Survey Review Items on this sheet.

M. AIDS TO NAVIGATION

There were no aids to navigation on this boatsheet.

N. STATISTICS

	Launch MI-3	Launch MI-4	Launch MI-6	Skiff	Total
Pos. for Computer Plot	691	43	2573	200	3507
Rejected Pos.	3	15	47	13	78

	Launch	Launch	Launch	Skiff	Total
	MI-3	MI-4	MI-6		
Duplicate Pos.	0	0	2	0	2
Omitted Pos.	0	0	5	0	5
Det. Pos. (Shoreline)	0	0	0	0	0
Det. Pos. (Hand Lead)	2	0	8	22	32
Det. Pos. (Pole)	0	0	0	191	191
Bottom Samples	0	0	0	22	22
No. of Developments	2	0	34	0	36
L.N.M. Sounding Lines	94.9	11.0	422.4	17.3	545.6
Sq.N.M. Surveyed	3.3	.6	21.1	0.0	25.0

O. MISCELLANEOUS

For practical purposes, this sheet can be considered to be entirely out of the normal shipping lanes. Due to the extent of the reef surrounding Berberia Island, ships of any appreciable size rarely venture further north than Latitude 17°58'00"N.

No bottom samples were obtained on this sheet in the section south of Latitude 17°59'30"N. The hydrography in this area was added as the season neared it's close and no time was available to obtain the samples. It was decided that the samples would be obtained during the 1972 field season as Sheet "P" was being surveyed. Sheet "P" junctions with this sheet.

P. RECOMMENDATIONS

None.

Q. REFERENCE TO REPORTS

The 1971 "Report on Corrections to Echo Soundings" should be consulted for complete understanding of the final survey data.

Respectfully Submitted,

S. C. Schwartz
S. C. Schwartz, LTJG, NOAA

Approved and Forwarded

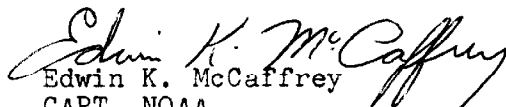
Edwin K. McCaffrey
Edwin K. McCaffrey, CAPT, NOAA
Commanding Officer

Approval Sheet

Field Number MI-10-2-71

Registry Number H-9190 (1971)

The field work and processing of data from this hydrographic survey was under my immediate daily supervision. The boatsheet and all records have been reviewed and are approved by me. This survey is complete and adequate to supersede all prior surveys of the area.


Edwin K. McCaffrey
CAPT, NOAA
Commanding Officer

Tide Note

Boatsheet MI-10-2-71

Registry No. H-9190

(1971)

The tide station used for Boatsheet MI-10-2-71 was located at Muelle de Ponce, Playa de Ponce, Puerto Rico (Latitude 17°58'15.0"N. Longitude 66°37'17.0"W.). The tide gage was a portable pressure recording (Bubbler) type, operating on Greenwich Mean Time meridian.

The height on the tide staff at datum mean low water is 2.3 feet.

Hourly heights were tabulated by ship personnel, and no corrections for tidal lag or range differences at the working grounds were used. (Copies of the Tides: Hourly Heights are included in this report).

The maximum tide range was 1.1 feet.

LIST OF SIGNALS

MI-10-2-71 H-9190 (1271)

Reference Notes Continued:

7. SE corner of cream house, large white shutters. ✓
8. Peak, weathered $1\frac{1}{2}$ story small house, reddish roof. ✓
9. SE corner post (blue); white house, blue trim, red metal roof. ✓

LIST OF SIGNALS

MI-10-2-71 H- 9190 (1971)

<u>Signal No.</u>	<u>Located By (Method)</u>	<u>Temp. or Recoverable</u>	<u>Other Names</u>	<u>Ref. Notes</u>
200	T-13373	Temp.		
210	T-13373	Temp.		
220	3-point fix	Temp.		
230	T-13373	Temp.		
240	T-13373	Recov.		6 ✓
250	T-13373	Recov.		7 ✓
260	T-13373	Recov.		8 ✓
270	T-13373	Recov.		9 ✓
290	T-13373	Temp.		
300	Triangulation	Recov.	Cortada Sugar Company Stack, 1966	
310	T-13372	Temp.		
320	T-13372	Temp.		
325	T-13372	Temp.		
401	Traverse	Temp.		

Reference Notes:

1. Center white post; blue house, white trim, green roof. ✓
2. SE corner of two story white building. ✓
3. SE corner of blue-green shack, corrugated metal roof. ✓
4. SE corner of two story green house, metal roof. ✓
5. SE corner, flat one story house, pink strips on SE face. ✓
6. Peak, blue building, metal corrugated roof, rust colored. ✓

LIST OF SIGNALS

MI-10-2-71 H-9190 (1971)

<u>Signal No.</u>	<u>Located By (Method)</u>	<u>Temp. or Recoverable</u>	<u>Other Names</u>	<u>Ref. Notes</u>
580	Traverse	Temp.		
590	Traverse	Temp.		
600	Traverse	Temp.		
610	3-point fix	Temp.		
620	T-13125	Temp.		
630	T-13125	Temp.		
640	T-13125	Temp.		
650	T-13125	Temp.		
660	T-13125	Temp.		
670	T-13125	Temp.		
690	Sextant	Temp.		
700	T-13125	Recov.	Central Fortuna Concrete Stack	Not plotted on smooth sheet.
100	T-13373	Temp.		
110	T-13373	Recov.		1 ✓
120	T-13373	Recov.		2 ✓
130	T-13373	Recov.		3 ✓
140	T-13373	Recov.		4 ✓
160	T-13373	Temp.		
170	T-13373	Recov.	WCGB Radio Station Mast	
180	T-13373	Recov.		5
190	Sextant	Temp.		

LIST OF SIGNALS

MI-10-2-71 H-9190 (1971)

<u>Signal No.</u>	<u>N-Latitude Deg-Min-Meters</u>	<u>W-Longitude Deg-Min-Meters</u>
190	17-59 1025.3	66-27 1511.6
200	17-59 0883.8	66-27 0919.2
210	17-59 0359.1	66-27 0408.6
220	17-59 0014.455	66-27 0292.163
230	17-58 1842.0	66-27 0038.5
240	17-58 1452.2	66-26 1106.2
250	17-58 1295.2	66-26 0943.4
260	17-58 0947.0	66-26 0666.4
270	17-58 0684.8	66-26 0464.6
290	17-57 1631.3	66-25 1588.1
300	17-59 1540.888	66-26 0039.585
310	17-57 1316.1	66-25 1331.7
320	17-57 1281.7	66-25 0765.2
325	17-57 1131.5	66-24 1564.6
401	17-56 0150.8	66-27 0971.0

OPR-423

PUERTO RICO (SOUTH COAST)

LIST OF SIGNALS

MI-10-2-71 H-9190 (1971)

<u>Signal No.</u>	<u>N-Latitude</u> <u>Deg-Min-Meters</u>	<u>W-Longitude</u> <u>Deg-Min-Meters</u>	
580	17-57 1696.285	66-33 0308.043	off smooth sheet
590	17-58 0877.4	66-33 0418.4	off smooth sheet
600	17-58 1104.221	66-32 1365-663	off smooth sheet
610	17-58 1018.7	66-32 0646.5	
620	17-58 1207.2	66-32 0240.6	
630	17-58 1383.1	66-31 1643.5	
640	17-58 1509.0	66-31 1351.9	
650	17-59 0006.9	66-31 0650.0	
660	17-59 0247.7	66-31 0000.3	
670	17-59 0558.8	66-30 0892.4	
690	17-59 0689.6	66-30 0450.6	
700	17-59 1632.0	66-32 0743.3	not plotted on smooth sheet
100	17-59 0873.8	66-29 1659.4	
110	17-59 0944.9	66-29 1355.3	
120	17-59 1013.6	66-29 0926.8	
130	17-59 1051.1	66-29 0520.3	
140	17-59 1048.8	66-29 0200.3	
160	17-59 0650.0	66-28 1311.8	
170	17-59 1075.9	66-28 0934.2	
180	17-59 1013.7	66-28 0394.7	

VELOCITY TABLE 04

Correction	to	Depth	Correction	to	Depth
-	1.5	5.5	15.0		334.5
	1.0	14.0	15.5		345.0
	0.5	24.5	16.0		355.5
	0.0	32.0	16.5		366.0
+	0.5	39.5	17.0		376.5
	1.0	49.0	17.5		387.0
	1.5	59.0	18.0		397.5
	2.0	69.0	18.5		409.0
	2.5	79.0	19.0		420.0
	3.0	89.0	19.5		432.0
	3.5	99.0	20.0		443.5
	4.0	109.0	20.5		455.0
	4.5	119.0	21.0		466.5
	5.0	128.5	21.5		478.0
	5.5	138.5	22.0		490.0
	6.0	148.5	22.5		501.5
	6.5	158.5	23.0		513.0
	7.0	168.0	23.5		525.0
	7.5	178.0	24.0		536.0
	8.0	188.0	24.5		548.0
	8.5	198.0	25.0		560.0
	9.0	208.5	25.5		571.5
	9.5	219.0	26.0		583.0
	10.0	229.5	26.5		595.0
	10.5	240.0	27.0		607.0
	11.0	250.5	27.5		620.0
	11.5	261.0	28.0		633.0
	12.0	271.5	28.5		646.5
	12.5	282.0	29.0		660.0
	13.0	292.5	29.5		673.0
	13.5	303.0	30.0		686.0
	14.0	313.5	30.5		699.0
	14.5	324.0	31.0		712.0

VELOCITY TABLE 04

<u>Correction</u>	<u>to</u>	<u>Depth</u>	<u>Correction</u>	<u>to</u>	<u>Depth</u>
31.5		725.0			
32.0		738.0			
32.5		751.0			
33.0		764.5			
33.5		778.0			
34.0		791.5			
34.5		805.0			
35.0		819.0			
35.5		833.0			
36.0		848.0			
36.5		862.0			
37.0		877.0			
37.5		891.0			
38.0		905.0			
38.5		920.0			
39.0		934.0			
39.5		948.0			
40.0		962.5			

VELOCITY TABLE 05

<u>Correction</u>	<u>to</u>	<u>Depth</u>
-	1.6	1.5
	1.4	4.8
	1.2	8.2
	1.0	11.5
	0.8	14.8
	0.6	17.6
	0.4	23.4
	0.2	26.6
	0.0	29.6
+	0.2	32.6
	0.4	35.6
	0.6	38.6
	0.8	42.0
	1.0	45.8
	1.2	49.8
	1.4	53.8
	1.6	58.0
	1.8	61.8
	2.0	65.8
	2.2	70.0
	2.4	74.0
	2.6	78.0
	2.8	82.0
	3.0	86.0
	3.2	90.0

VELOCITY TABLE 07

	<u>Correction</u>	<u>to</u>	<u>Depth</u>
-	1.4		3.2
	1.2		6.2
	1.0		9.4
	0.8		12.6
	0.6		15.8
	0.4		19.0
	0.2		22.2
	0.0		25.4
+	0.2		28.6
	0.4		31.8
	0.6		35.0
	0.8		38.4
	1.0		41.8
	1.2		46.0
	1.4		50.0
	1.6		54.0
	1.8		58.0
	2.0		62.0
	2.2		66.0
	2.4		70.0
	2.6		74.0
	2.8		78.0
	3.0		82.0
	3.2		86.0
	3.4		90.0

VELOCITY TABLE 10

Correction	to	Depth	Correction	to	Depth
-	2.0	3.0	14.0		316.0
	1.5	10.5	14.5		327.0
	1.0	18.5	15.0		337.5
	0.5	26.5	15.5		348.0
	0.0	34.5	16.0		358.5
+	0.5	42.0	16.5		369.0
	1.0	51.5	17.0		379.5
	1.5	61.5	17.5		390.0
	2.0	71.5	18.0		401.0
	2.5	81.5	18.5		413.0
	3.0	91.5	19.0		424.0
	3.5	101.5	19.5		435.5
	4.0	111.5	20.0		447.0
	4.5	121.5	20.5		458.5
	5.0	131.5	21.0		470.0
	5.5	141.0	21.5		481.5
	6.0	151.0	22.0		493.0
	6.5	161.0	22.5		505.0
	7.0	171.0	23.0		515.5
	7.5	181.0	23.5		528.0
	8.0	191.0	24.0		539.5
	8.5	200.5	24.5		551.0
	9.0	211.0	25.0		562.5
	9.5	221.5	25.5		574.0
	10.0	232.0	26.0		585.5
	10.5	242.5	26.5		597.0
	11.0	253.0	27.0		610.0
	11.5	263.5	27.5		623.5
	12.0	274.0	28.0		636.5
	12.5	284.5	28.5		650.0
	13.0	295.0	29.0		663.0
	13.5	305.5	29.5		676.0

VELOCITY TABLE 10

<u>Correction</u>	<u>to</u>	<u>Depth</u>
30.0		689.0
30.5		702.0
31.0		715.0
31.5		728.5
32.0		741.5
32.5		755.0
33.0		768.0
33.5		781.0
34.0		794.0
34.5		808.0
35.0		822.0
35.5		836.0
36.0		851.0
36.5		865.0
37.0		879.0
37.5		894.0
38.0		907.5
38.5		922.0
39.0		936.0
39.5		951.0
40.0		965.0

VELOCITY TABLE 11

<u>Correction</u>	<u>to</u>	<u>Depth</u>
-	1.8	3.6
	1.6	6.8
	1.4	10.0
	1.2	13.2
	1.0	16.2
	0.8	19.4
	0.6	22.4
	0.4	25.6
	0.2	28.8
	0.0	32.0
+	0.2	35.0
	0.4	38.0
	0.6	41.4
	0.8	44.6
	1.0	48.4
	1.2	52.4
	1.4	56.4
	1.6	60.4
	1.8	64.4
	2.0	68.4
	2.2	72.4
	2.4	76.4
	2.6	80.4
	2.8	84.4
	3.0	88.4
	3.2	92.5

VELOCITY TABLE 12

Correction to Depth		Correction to Depth	
-	1.5	16.0	351.0
	1.0	16.5	361.5
	0.5	17.0	372.0
	0.0	17.5	382.5
+	0.5	18.0	393.0
	1.0	18.5	404.0
	1.5	19.0	415.5
	2.0	19.5	427.0
	2.5	20.0	439.0
	3.0	20.5	450.0
	3.5	21.0	462.0
	4.0	21.5	473.5
	4.5	22.0	485.0
	5.0	22.5	497.0
	5.5	23.0	508.5
	6.0	23.5	520.0
	6.5	24.0	532.0
	7.0	24.5	543.5
	7.5	25.0	555.0
	8.0	25.5	567.0
	8.5	26.0	578.0
	9.0	26.5	590.0
	9.5	27.0	602.0
	10.0	27.5	615.0
	10.5	28.0	628.0
	11.0	28.5	641.5
	11.5	29.0	654.5
	12.0	29.5	667.5
	12.5	30.0	680.5
	13.0	30.5	694.0
	13.5	31.0	707.0
	14.0	31.5	720.0
	14.5	32.0	733.5
	15.0	32.5	747.0
	15.5	33.0	760.0

VELOCITY TABLE 12

<u>Correction</u>	<u>to</u>	<u>Depth</u>
33.5		773.0
34.0		786.5
34.5		800.0
35.0		814.5
35.5		829.0
36.0		843.0
36.5		857.0
37.0		872.0
37.5		886.0
38.0		900.0
38.5		915.0
39.0		929.0
39.5		943.0
40.0		958.0

OPR-423

Puerto Rico (South Coast)

Position Data Sheet

Launch M-6				Sheet M-10-2-71			Registry No. H-9190					
Vol.	Jul. Day	Pos. No.	Time (GMT)	Pos. No.	Time (GMT)	Detached Position Shoreline	Detached Position Pole	Detached Position Hand Lead	REJECTED POSITIONS	DUPLICATE POSITIONS	OMITTED POSITIONS	Bottom Samples
5	102	1000	112730	1181	170000							
6	103	1182	111500	1377	172830				1325			
7	104	1378	113700	1565	172330							
8	105	1566	121100	1697	171130							
10	110	1697	115215	1836	164045					1697		
12	113	1837	110300	1967	173915				1864 2069-2072 2080-2082 2091			
13	114	1968	111700	2140	175415							
14	115	2141	111145	2361	181215						2206	
15	116	2362	111100	2460	140130							
15	117	2461	121545	2514	144700							
16	124	2515	111545	2667	161100							
16	125	2668	121415	2706	132045							
16	125	2707	134445	2738	164715			2707-2709				
18	126	2738	122115	2846	172045				2839-2840 2843-2844	2738		
18	127	2847	114715	2948	161345			2940-2941				
19	127	2949	161500	2988	171045							
19	128	2989	111800	3125	172530						3092-3096	
20	129	3126	110215	3276	171515			3138-3140				
21	130	3277	105630	3454	170315				3449-3454 3475			
22	131	3455	104700	3619	180630							

OPR-423

Puerto Rico (South Coast)

Position Data Sheet

Launch	MT-3	1971	Pos. No.	Time (GMT)	Pos. No.	Time (GMT)	Detached Position Shoreline	Detached Position Pole	Detached Position Hand Lead	REJECTED POSITIONS	DUPPLICATE POSITIONS	OMITTED POSITIONS	Registry No.	H-9190	Bottom Samples
1	096	5000	142100	5032	150945										
1	097	5033	104100	5194	155515										
2	098	5195	112300	5332	160230										
3	099	5333	120730	5501	165715										
9	109	5502	123800	5651	174215										
23	131	5652	124500	5653	125500				5652-5653						
23	131	5654	130000	5693	160130					5664-5666					

NOAA Ship MT MITCHELL (MSS-22)
 Pre-Survey Review Soundings - Comparison Sheet
 Launch MI-6

Boatsheet MI-10-2 - 71

Registry Number H-9190

Julian Day	Volume Number	Page Number	Boatsheet Sounding (feet)	Charted Sounding (feet)	Development Number	Position of Shoalest Depth (Boatsheet)	Position of Shoalest Depth (Boatsheet)	Comments/Recommendations
126	18	36	23	none	9	57.02'	29.53'	Position 2828-2829 (echo sounding) 23' sounding seems to be west edge of east-west ridge. Recommend this sounding be added to the chart. <i>Chart present survey depths.</i>
127	18	46	20	17	10	57.78'	29.18'	Position 2856-2857 (echo sounding) Recommend delete the charted sounding and use the boatsheet sounding. <i>17 ft bearing from 11-400(23) to 11-400(23) by 17 ft was least depth found by development on present survey.</i>
127	18	59	36	42	11	58.26'	29.60'	Position 2903-2904 (echo sounding) Recommend delete the charted sounding and use the boatsheet sounding. <i>35 ft depth found in vicinity of development on present survey. Chart present survey depths.</i>
127	18	64	30	31	11	58.01'	29.71'	Position 2919 (Hand Lead sounding) Recommend retain the charted sounding. <i>30 ft depth found by development on present survey. Chart present survey depths.</i>
127	18	70	26	27	12	57.97'	29.90'	Position 2941 (Hand Lead sounding) Recommend delete the charted sounding and use the boatsheet sounding. <i>25 ft depth derived by development on present survey. Chart present survey depths.</i>
127	19	4	29	24	13	58.77'	29.60'	Position 2951-2952 (echo sounding) Recommend delete the charted sounding. No indication of shoal spot. <i>No evidence of 24 ft shoal found by adequate development on present survey. Chart present survey depths.</i>
128	19	23	25	24	15	57.30'	29.94'	Position 3011-3012 (echo sounding) Recommend retain the charted sounding. <i>22 ft depth derived by development on present survey. Chart present survey depths.</i>
128	19	42	24	25	15	57.28'	30.00'	Position 3077-3078 (echo sounding) Recommend retain the charted sounding. <i>23 ft least depth obtained by development on present survey. Chart present survey depths.</i>
104	7	41	29	25	15	57.17'	30.05'	Position 1500-1501 (echo sounding) Recommend delete the charted sounding and use the boatsheet sounding. <i>24 ft least depth obtained by development in vicinity of present survey. Chart present survey depths.</i>

All least depths transferred from overlay to boatsheet

Comments/Recommendations

NOAA Ship MT MITCHELL (MSS-22)
 Pre-Survey Review Soundings - Comparison Sheet
 Launch MI - 6

Boatsheet MT 10-2-71 Registry Number H-9190

Julian Day	Volume Number	Page Number	Boatsheet Sounding (feet)	Charted Sounding (feet)	Development Number	Position of Shoalest Depth (Boatsheet)	Comments/Recommendations
128	19	17	26	23	15	W 17°N. λ 66°W.	All least depths transferred from the overlay to the boatsheet
129	20	8	25	24	15	57.15'	Position 2992-2993 (echo sounding) Recommend delete the charted sounding and use the boatsheet sounding Chart present survey depths.
128	19	54	42	42	17	57.62'	Position 3139 (Hand Lead sounding) Recommend retain the charted sounding 23 ft. depth found by development on present survey. Chart present survey depths.
129	20	11	42	46	18	57.35'	Position 3120-3121 (echo sounding) Recommend retain the charted sounding 42 ft. depth found by present survey. Chart present survey depths.
129	20	17	39	none	18	57.33'	Position 3175 (echo sounding) Recommend delete the charted sounding and use the boatsheet sounding 42 ft. depth found by present survey. 89 ft. depth found same to west. Chart present survey depths.
129	20	22	49	47	19	57.45'	Position 3190-3191 (echo sounding) Recommend retain the charted sounding least depth at 50 ft. found by development of present survey. Chart present survey depths.
129	20	32	35	35	20	57.20'	Position 3227-3228 (echo sounding) Recommend retain the charted sounding 95 ft. depth confirmed by present survey. Chart present survey depths.
129	20	35	42	53	21	57.43'	Position 3236-3237 (echo sounding) Recommend delete the charted sounding and use the boatsheet sounding 42 ft. depth found by development on present survey. Chart present survey depths.
129	20	40	16	12	22	59.15'	Position 3255-3256 (echo sounding) Recommend delete the charted sounding - no shoal spot found 42 ft. depth found by development on present survey. Chart present survey depths.

VESSEL: **NOAA Ship M/T MITCHELL** PROJ. NO.: **OPR-423** YEAR: **1971** LOCATION: **South Coast of Puerto Rico**
 DATE CHECKED BY: *Thomas J. McNamee* DATE CHECKED: **April 12, 1971**

SERIAL NO.	DATE (1971)	SAMPLE POSITION		DEPTH (feet)	WEIGHT OF FILTER	AP. PERCENTAGE	LENGTH OF CORE	COLOR OF MENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, density, color, size, etc.; type of bottom relief, etc.)	POS. NO.
		NORTH LATITUDE	WEST LONGITUDE								
1	APRIL 10	56.95°	31.51°	50	10 lb.	NA	NA	gray	sft gy M brk Sh		Pos. No. 0001
2	10	57.03°	30.50°	60				gray	gty gy M brk Sh		Pos. No. 0002
3	10	56.96°	29.44°	45				gray	gty gy M brk Sh Wd		Pos. No. 0003
4	11	56.89°	28.56°	---				gray	sft gy M Co Brk Sh		Pos. No. 0004
5	11	57.01°	27.45°	---				gray	gty gy S Grs		Pos. No. 0005
6	11	57.01°	26.42°	40				gray	stk gy M		Pos. No. 0006
7	11	57.02°	25.53°	---				gray	gty gy M brk Sh Grs		Pos. No. 0007
8	11	58.05°	26.55°	16				gray	gty gy M Brk Sh Wd		Pos. No. 0008
9	11	57.95°	27.54°	28				gray	gty gy S brk Sh Grs		Pos. No. 0009
10	11	58.98°	27.57°	18				gray	gty gy M		Pos. No. 0010
11	11	57.93°	28.52°	28				gray	gty gy M brk Sh		Pos. No. 0011
12	11	57.98°	28.48°	48				gray	stk gy M		Pos. No. 0012
13	11	57.96°	29.60°	55				gray	stk gy M		Pos. No. 0013
14	11	59.08°	29.49°	22				gray	gty gy M		Pos. No. 0014
15	11	58.95°	30.55°	---				gray	gty gy M brk Sh		Pos. No. 0015
16	11	57.93°	30.46°	50				gray	stk gy M		Pos. No. 0016
17	11	58.48°	31.01°	32				gray	Oys Co stk gy M		Pos. No. 0017

Use more than one line per sample if necessary. USCGM-DC 371a-274

FORM C365-733M Using snapper type sampler OCEANOGRAPHIC LOG SHEET - M
 (4-65) Imbedded in 10 lb. sounding BOTTOM SEDIMENT DATA Boatsheet MT-10-2-71
 U.S. DEPARTMENT OF COMMERCE
 COAST AND GEODETIC SURVEY

VESSEL	NOAA Ship	PROJ. NO.	OPR-423	YEAR	1971	South Coast of Puerto Rico	CHECKED BY	DATE CHECKED			
SERIAL NO.	DATE (1971)	SAMPLE POSITION NORTH LATITUDE	WEST LONGITUDE	DEPTH Feet	WEIGHT OF SAMPLER	ADJ. CORRECTION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, corals, venosity, density, surface, soil, no., type of bottom, relief, etc.)	OS.
18	April 11	57.931°	31.601°	42	10 lb.	NA	NA	gray	stk ety ey M brk Sh		Pos. No. 0018
19	11	58.481°	30.001°	41				gray	stk ey M brk Sh		Pos. No. 0019
20	11	57.361°	30.001°	55				gray	stk ey M brk Sh		Pos. No. 0020
21	11	57.511°	31.151°	55				gray	stk ety ey M brk Sh		Pos. No. 0021
22	11	57.541°	32.041°	62				gray	sft ey M		Pos. No. 0022
											Pos. No.
											Pos. No.
											Pos. No.
											Pos. No.
											Pos. No.
											Pos. No.
											Pos. No.
											Pos. No.
											Pos. No.
											Pos. No.
											Pos. No.

Use more than one line per sample if necessary.

USCGM-DC 3751a-748

NOAA Ship MT MITCHELL (MSS-22)

Boatsheet MT-10-2-71		TRA Correction Abstract				Register Number H-9190						
Jul. Day 1971	Date 1971	Boat No.	Vol. No.	Time		Velocity		Detached Position	Initial Corr.	Settlement & Corr.		TRA Corr.
				To GMT	From GMT	Nearest 0.2 ft.	Nearest 1.0 ft.			1 Iner.	2 Iner.	
096	Apr. 6	MT-3	1	142100	142400				0.0	+0.4		+0.4
096	6	"	1	142515	150945				0.0	+0.4		+0.4
097	7	"	1	104100	144700				0.0		+0.3	+0.3
097	7	"	1	145000	155515				0.0		+0.3	+0.3
098	8	"	2	112300	134930				0.0		+0.3	+0.3
098	8	"	2	143645	160230				0.0	+0.4		+0.4
099	9	"	3	120730	150400				0.0	+0.4		+0.4
099	9	"	3	150715	152915				0.0	+0.2		+0.2
099	9	"	3	154645	165715				0.0	+0.4		+0.4
102	12	MT-6	5	112730	170000				0.0	+0.1		+0.1
103	13	"	6	111500	172830				0.0	+0.1		+0.1
104	14	"	7	113700	172330				0.0	+0.1		+0.1
105	15	"	8	121100	171130				0.0	+0.1		+0.1
109	19	MT-3	9	123800	174215				0.0		+0.3	+0.3
110	20	MT-6	10	112515	164045				0.0		+0.1	+0.1
112	22	MT-4	11	142630	160700				0.0		+0.2	+0.2
113	23	MT-6	12	110300	110600				0.0		+0.2	+0.2
113	23	"	12	110615	112045				0.0		0.0	0.0
113	23	"	12	131615	173015				0.0		0.0	0.0
114	24	"	13	111700	175415				0.0		0.0	0.0
115	25	"	14	111145	134415				0.0		0.0	0.0

NOAA Ship MT MITCHELL (MSS-22)

Boatsheet MT-10-2-71			TRA Correction Abstract				Registry Number H-9190					
Jul. Day	Date 1971	Boat No.	Vol. No.	To		Velocity Table		Detached Position	Initial Corr.	Settlement & Squat Corr.		TRA Corr.
				Time GMT	Time GMT	Nearest 0.2 ft.	Nearest 1.0 ft.			1 Enf.	2 Enf.	
115	APR. 25	MT-6	14	134430	135145		10		+0.1		0.0	+0.1
115	25	"	14	135200	135615		10		+0.2		0.0	+0.2
115	25	"	14	135630	135745		10		+0.3		0.0	+0.3
115	25	"	14	145030	150745		10		0.0		0.0	0.0
115	25	"	14	150800	152730		10		+0.1		0.0	+0.1
115	25	"	14	152745	153400		10		+0.2		0.0	+0.2
115	25	"	14	153415	153930		10		+0.3		0.0	+0.3
115	25	"	14	153945	154400		10		+0.4		0.0	+0.4
115	25	"	14	154415	155130		10		+0.5		0.0	+0.5
115	25	"	14	155145	155300		10		+0.6		0.0	+0.6
115	25	"	14	155315	155500		10		+0.7		0.0	+0.7
115	25	"	14	155515	155715		10		+0.8		0.0	+0.8
115	25	"	14	155730	160045		10		+1.0		0.0	+1.0
115	25	"	14	162445	181215		10		0.0		0.0	0.0
116	26	"	15	111100	113000		10		0.0		0.0	0.0
116	26	"	15	113015	115300		10		-0.1		0.0	-0.1
116	26	"	15	115530	140130		10		0.0		0.0	0.0
117	27	"	15	121545	122330		10		-0.1		0.0	-0.1
117	27	"	15	122445	144700		10		0.0		0.0	0.0
124	MAY 4	"	16	111545	123145		10		0.0		0.0	0.0
124	4	"	16	125745	161100		10		0.0		0.0	0.0

NOAA Ship MT MITCHELL (MSS-22)

Boatsheet MT-10-2-71			TRA Correction Abstract				Registry Number H-9190					
Jul. Day 1971	Date 1971	Boat No.	Vol. No.	To		Velocity Table		Detached Position	Initial Corr.	Settlement & Squat Corr.		TRA Corr.
				Time GMT	Time GMT	Nearest 0.2 ft.	Nearest 1.0 ft.			INF. 1	INF. 2	
125	5	MT-6	16	121415	132045		10		0.0			0.0
125	5	"	16	134445	145915		--	X	---			0.0
125	5	"	16	150000	161045		10		+0.1			0.0
125	5	"	16	163730	164715		10		+0.1			0.0
126	6	"	18	122115	123315		10		0.0			0.0
126	6	"	18	123415	123845		10		-0.1			-0.1
126	6	"	18	123945	124415		10		-0.2			-0.2
126	6	"	18	124815	130100		10		+0.1			+0.1
126	6	"	18	130200	132415		10		0.0			0.0
126	6	"	18	132530	132845		10		-0.2			-0.2
126	6	"	18	133030	133215		10		0.0			0.0
126	6	"	18	133230	133400		10		-0.1			-0.1
126	6	"	18	133630	134100		10		0.0			0.0
126	6	"	18	134630	134915		10		-0.1			-0.1
126	6	"	18	145830	150900		10		0.0			0.0
126	6	"	18	151115	151415		10		+0.1			+0.1
126	6	"	18	151530	154730		10		0.0			0.0
126	6	"	18	160115	160345		10		+0.1			+0.1
126	6	"	18	160515	160645		10		0.0			0.0
126	6	"	18	161145	162530		10		+0.1			+0.1
126	6	"	18	162700	164245		10		0.0			0.0

NOAA Ship MT MITCHELL (MSS-22)

Boatsheet MT-10-2-71			TRA Correction Abstract				Registry Number H-9190					
Jul. Day	Date 1971	Boat No.	Vol. No.	To		Velocity Table		Detached Position	Initial Corr.	Settlement & Corr.		TRA Corr.
				Time GMT	Time GMT	Nearest 0.2 ft.	Nearest 1.0 ft.			Eng. 1	Eng. 2	
126	May 6	MT-6	18	164415	165230		10		+0.1			+0.1
126	6	"	18	171300	172045		10		0.0			0.0
127	7	"	18	114715	122900		10		0.0			0.0
127	7	"	18	123015	123029		10		+0.1			+0.1
127	7	"	18	123030	131500		10		0.0			0.0
127	7	"	18	131615	131622		10		-0.1			-0.1
127	7	"	18	131640	133047		10		0.0			0.0
127	7	"	18	131745	133415		10		+0.1			+0.1
127	7	"	18	133515	133630		10		0.0			0.0
127	7	"	18	134515	134715		10		-0.2			-0.2
127	7	"	18	134800	152245		10		0.0			0.0
127	7	"	18	152900	153045		10		-0.2			-0.2
127	7	"	18	153915	154845		10		0.0			0.0
127	7	"	18	155015	160000		--	X	---			0.0
127	7	"	18	160600	161130		10		+0.1			+0.1
127	7	"	19	161500	164630		10		0.0			0.0
127	7	"	19	164645	164815		10		-0.1			-0.1
127	7	"	19	165030	171045		10		+0.1			+0.1
128	8	"	19	111800	144115		10		0.0			0.0
128	8	"	19	144230	144930		10		+0.1			+0.1
128	8	"	19	145200	154315		10		0.0			0.0

NOAA Ship MT MITCHELL (MSS-22)

Boatsheet MI-10-2-71			TRA Correction Abstract				Register Number H-9190			
Jul. Date 1971	Boat No.	Vol. No.	To		Velocity Table		Detached Position	Initial Corr.	Settlement & TRA	
			Time GMT	Time GMT	Nearest 0.2 ft.	Nearest 1.0 ft.			Squat Corr. 1 S.M.F. 2 S.M.F.	TRA Corr.
128	MI-6	19	154430	161530		10		+0.1		+0.1
128	"	19	161630	163715		10		0.0		0.0
128	"	19	163830	165300		10		+0.1		+0.1
128	"	19	165400	172530		10		0.0		0.0
129	"	20	110215	110345		10		0.0		0.0
129	"	20	110515	111945		10		+0.1		+0.1
129	"	20	113700	115045		--	X	---		0.0
129	"	20	123145	123730		10		0.0		0.0
129	"	20	123830	130330		10		+0.1		+0.1
129	"	20	130530	154900		10		0.0		0.0
129	"	20	154945	155345		10		-0.1		-0.1
129	"	20	160345	171515		10		0.0		0.0
130	"	21	105630	150100		10		0.0		0.0
130	"	21	150245	151145		10		0.0		0.0
130	"	21	151330	152230		10		0.0		0.0
130	"	21	152400	153315		10		+0.1		+0.1
130	"	21	153445	164230		10		0.0		0.0
130	"	21	164500	170300		10		+0.1		+0.1
131	"	22	104700	105315		10		0.0		0.0
131	"	22	112745	114500		10		+0.1		+0.1
131	"	22	114515	152700		10		0.0		0.0

*****See next page - Launch MI-3 ran sounding lines during same period*****

NOAA Ship MT MITCHELL (MSS-22)
 Pre-Survey Review Soundings - Comparison Sheet
 Launch MT - 3

Boatsheet MT-10.2 - 71

Registry Number H-9190

Julian Day	Volume Number	Page Number	Boatsheet Sounding (feet)	Charted Sounding (feet)	Development Number	Position of Shoalest Depth (Boatsheet)	Comments/Recommendations
098	2	7	17	11	23	58.97' 28.70'	Position 5201-5202 (echo sounding) Recommend delete the charted sounding. Charted sounding not found. Present survey development found least depth of 14 ft in vicinity. Chart present survey depths.
099	3	29	15	3	36	57.52' 25.60'	Position 5432 (echo sounding) Recommend delete the charted sounding. Charted sounding not found. Depths at 13-15 feet found by present survey. Chart present survey depths.
109	9	47	32	33	29	56.62' 29.79'	Position 5640-5641 (echo sounding) Recommend retain the charted sounding. Depths at 32 ft found by present survey. Chart present survey depths.
124	9	39	26	24	1	57.27' 26.40'	Position 5620-5621 (echo sounding) Recommend retain the charted sounding. 25 ft depths found in vicinity by present survey; however the development listed a 24 ft depth. Chart present survey depths.
131	23	15	14	12	24	57.80' 26.38'	Position 5689-5690 (echo sounding) Recommend retain the charted sounding. A least depth of 13 ft was found by a development on the present survey. 12 ft depth brought back to supplement present survey depths.
131	23	5	19	25	14	58.70' 29.15'	Position 5653 (Hand Lead sounding) Recommend delete the charted sounding and use the boatsheet sounding. Least depths at 12 ft found by development on present survey. Chart present survey depths.

All least depths transferred from overlay to boatsheet

NOAA Ship MT MITCHELL (MSS-22)
 Pre-Survey Review Soundings - Comparison Sheet
 Launch MI-6

Boatsheet MI-10-2 - 71

Registry Number H- 9190

Julian Day	Volume Number	Page Number	Boatsheet Sounding (feet)	Charted Sounding (feet)	Development Number	Position of Shoalest Depth (Boatsheet)	Position of Shoalest Depth (Boatsheet)	Comments/Recommendations
103	6	55	25	none	16	57.08'	30.58'	Position 1351-1352 (echo sounding) Recommend this sounding be added to the chart. Least depth of 24 ft. found by present survey development. Chart survey depths.
104	7	56	43	46	32	57.25'	29.85'	Position 1552-1553 (echo sounding) Recommend delete charted sounding and use the boatsheet sounding of 41 feet to 42 feet 2100 meters east of the Pre-Survey Review Item. <i>Concur</i>
105	8	46	60	60	30	56.55'	29.38'	Position 1690-1691 (echo sounding) Recommend retain the charted sounding. 61 ft depth found by present survey. Chart present survey depths.
110	10	7	49	42	33	57.02'	29.32'	Position 1702-1703 (echo sounding) Recommend delete the charted sounding. <i>Concur</i>
110	10	40	40	49	34	58.15'	28.95'	Position 1804-1805 (echo sounding) Recommend delete charted sounding and use the boatsheet sounding. 41 ft depth found by present survey.
124	16	31	20	19	1	57.31'	26.77'	Position 2637-2638 (echo sounding) Recommend retain the charted sounding. Development by present survey found depths of 19 ft. 150-250 m. north of charted depth. Chart present survey depths.
124	16	36	22	20	1	57.27'	26.40'	Position 2655-2656 (echo sounding) Recommend delete the charted sounding and use the boatsheet sounding. Present survey development found depths of 21 ft.
125	16	43	28	24	2	57.08'	27.08'	Position 2672-2673 (echo sounding) Recommend delete the charted sounding and use the boatsheet sounding. Present survey development found depths of 27 ft. Number 2672 was sounding of 27 ft. Number 2673 was sounding of 27 ft. <i>Chart present survey depths.</i>
125	16	46	22	19	3	57.50'	27.42'	Position 2683-2684 (echo sounding) Recommend delete the charted sounding and use boatsheet sounding. <i>Chart present survey depths.</i>

All least depths transferred from overlay to boatsheet

Comments/Recommendations

NOAA Ship MT MITCHELL (MSS-22)
 Pre-Survey Review Soundings - Comparison Sheet
 Launch MI-6

Boatsheet MI-10-2 - 71

Registry Number H-9190

Julian Day	Volume Number	Page Number	Boatsheet Sounding (feet)	Charted Sounding (feet)	Development Number	Position of Shoalest Depth (Boatsheet)	Position of Shoalest Depth (Boatsheet)	Comments/Recommendations
115	14	50	18	19	3	57.45'	27.33'	Position 2213-2213 (echo sounding) Recommend delete the charted sounding and use the boatsheet sounding 17 ft. depth found by development on present survey. Chart survey depths.
125	16	52	20	17	3	57.78'	27.54'	Position 2708 (Hand Lead sounding) Recommend delete the charted sounding and use the boatsheet sounding 19 ft. depth found by present survey. Chart survey depths.
125	16	52	18	none	3	57.68'	27.79'	Position 2707 (Hand Lead sounding) Recommend add this sounding to chart. This is shoal depth of considerable area as shown by present survey development. Chart present survey depths.
125	16	53	28	23	4	58.67'	27.63'	Position 2712-2713 (echo sounding) Recommend delete charted sounding. No indication of shoal spot. Chart present survey depths.
125	16	58	34	none	5	57.90'	28.72'	Position 2731-2732 (echo sounding) Shoal developed from regular system of hydro lines. Recommend this sounding be entered on the chart. Chart present survey depths.
126	18	13	23	18	6	57.50'	28.92'	Position 2761-2762 (echo sounding) Recommend delete the charted sounding and use the boatsheet sounding 17 ft. depth of site found by present survey. Chart present survey depths.
126	18	18	24	41	7	57.90'	29.43'	Position 2777-2778 (echo sounding) Pre-Survey Chart present survey depths. Review item seems to be east end of ridge. Recommend delete charted sounding - use boatsheet sounding.
126	18	24	18	17	8	57.17'	29.55'	Position 2795-2796 (echo sounding) Recommend retain the charted sounding 17 ft. shoal confirmed by development on present survey. Chart present survey depths.
126	18	36	33	39	9	56.97'	29.75'	Position 2898 (echo sounding) Recommend delete the charted sounding - use boatsheet sounding. Chart present survey depths.

All least depth s transferred from overlay to boatsheet

Comments/Recommendations

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

1/15/73

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center

Hourly heights are approved for Form 362's, hourly heights

Tide Station Used (NOAA form 77-12): Muelle De Ponce, Puerto Rico

Period: February 16 - May 17, 1971

HYDROGRAPHIC SHEET: H-9190

OPR: 423

Locality: South Coast of Puerto Rico

Plane of reference (mean lower low water): Feb. 16 - March 16 1.7 ft.
which is feet on tide staff. March 16 - May 17 2.3 ft.

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

Remarks: Hourly Heights have been revised in red and verified.

<u>Day</u>	<u>Hour</u>	<u>Day</u>	<u>Hour</u>
2/17	1000-1200	2/28	1300

Hourly Heights which were computed from the Magueyes Observations have been entered for

<u>Day</u>	<u>Hour</u>	<u>Day</u>	<u>Hour</u>
3/17	1100-1800	4/5	1000-1500
3/18	1100-1800	4/6	1000-1800
3/22	1100-1400	4/7	0900-1800
3/23	1400-1900	4/8	0900-1700
3/24	1100-1600	4/9	0900-1700
3/25	1000-2000	4/10	1000-1800
3/26	1100-1900	4/11	1100-1900
3/29	1100-1800	4/12	1100-1800
3/30	1100-1800	4/13	1000-1800
3/31	1000-1300		

Robert A. Cummings

Chief, Tides Branch

CAM3-1
2-18-71

ATLANTIC MARINE CENTER
PROJECTION PARAMETERS
POLYCONIC OR MODIFIED TRANSVERSE MERCATOR

1. Project No. OPR-123 4. Requested By Verification Branch
2. Reg. No. H-9190 5. Ship or Office AMC
3. Field No. MI-10-2-71 6. Date Required ASAP

7. Polyconic Modified Transverse Mercator

8. Central Meridian of Projection 66 ° 29 ' 00 "

9. Survey Scale: 1: 10,000

10. Size of Sheet (check one):

36 x 54 36 x 60 Other Specify _____

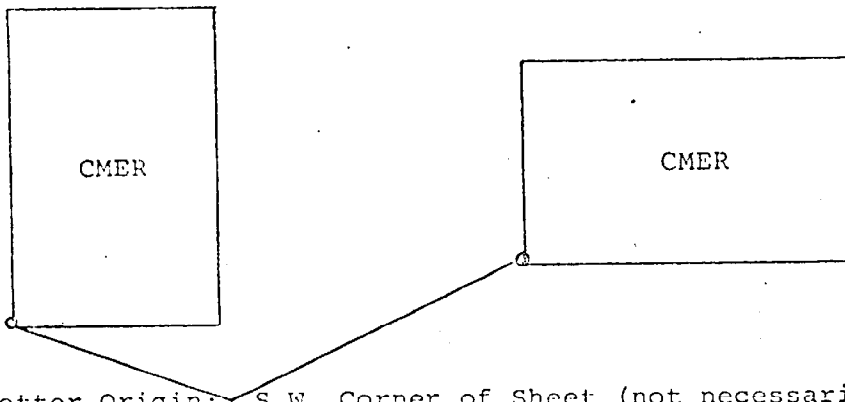
11. Sheet Orientation (check one):

NYX = 1

NYX = 0

N

N



12. Plotter Origin: S.W. Corner of Sheet (not necessarily a grid intersection)

Latitude 17 ° 55 ' 07 "

Longitude 66 ° 32 ' 20 "

13. G.P.'s of triangulation and/or signals attached

14. Material Desired: Tracing Paper Mylar

Smooth Sheet Other Specify _____

15. Remarks: _____

VERIFICATION NOTES

Survey H-9190

This appears to be an excellent basic survey. Soundings are in good agreement at crossings and the depth curves adequately delineate the features in this area of irregular bottom.

Problems encountered during verification and the methods used to resolve them are explained in the accompanying AMC Plotter Notes.

Norfolk, Virginia
November 8, 1974

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

ATLANTIC MARINE CENTER
APPROVAL SHEET
FOR
AUTOMATED SURVEY H- 9190

- 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.

Date: November 7, 1974

Signed:

William L. Jonns

William L. Jonns

Title:

Chief, Verification Branch

- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic and AMC Manuals. Exceptions are listed in the verifier's report.

Date: November 7, 1974

Signed:

C. Dale North, Jr., LCDR, NOAA

Title:

Chief, Processing Division

Verifier:..W.L.Jonns

Norfolk, Va.
Dec.1,1972

VERIFICATION NOTE TO EDP (AMC)
SURVEY H-9190 (MI-10-1-71)

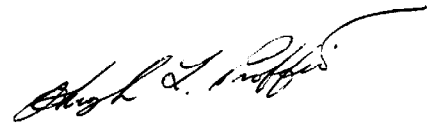
This branch has completed the verification of the control overlay for this survey.

There is only one (1) correction needed at this time. Please change the G.P. for hydrographic signal number 190 to Lat. $17^{\circ}59'33.438''$ Long. $66^{\circ}27'50.916''$.

After the above change has been made please furnish this office with a position overlay.

The point of origin is to be moved in long. only to Long. $66^{\circ}32'20''$.

WLJ



Hugh L. Proffitt
Chief, Ver. Br. AMC.

Verifier:..E.J.Fields

Norfolk, Va.
Jan.29, 1973

VERIFICATION NOTE TO EDP.(AMC)
SURVEY H-9190 (MI-10-2-71)
OPR 423

This branch has completed the verification of the preliminary position overlay.

We are returning the position printout with all needed changes marked in blue pencil. Corrector cards were key-punched by personnel of this branch and accompany this note.


A summary of changes are as follows:

1. There are (7) seven records to be assigned position numbers.(d.p.'s)
2. There are (13)thirteen records to be deleted.(sdgn's after line broke)
3. There are (9) nine records to be inserted.
4. There are (64) sixty four positions to be corrected.(Pseudo fix)
5. Ascertain positions 1-22 are plotted (omitted on ⁵frist pos.overlay)

The fathograms were check scanned and no changes are required at this time.

After the above changes have been made to your files, please furnish this branch with a sounding overlay.

WLJ


Hugh L. Proffitt
Chief, Ver.Br., AMC.

Verifier; .W.L. Jonns

Norfolk, Va.
Feb. 16, 1973

VERIFICATION NOTE TO EDP
SURVEYS-H-9190 & H-9186 - H-9183
MI-10-1-71 & 10-2-71 (MP MI-10-3-70)
OPR 423

This branch has completed the verification of the tide, vel,
and the tc/ti printouts for these surveys.

It appears that the velocity table 4 was omitted from your files.
These surveys use the same velocity tables and the tides are inclusive.

With the exception of the omitted table 4 there are no corrections
to be made at this time.

WLJ

W.L. Jonns
Hugh L. Pfoffitt
Chief, Ver. Br. AMC

9186
9190
9183

Norfolk, Virginia
August 12, 1974

EDP NOTE TO VERIFICATION BRANCH
SURVEY H-9190

Some visual surveys processed in January and February 1974 accidentally had the signal objects erased. We thought we caught them all, but this one slipped through and was discovered only recently.

We were able to go to the original file and assign the original signal numbers to the positions. We then recomputed the entire survey using these signals.

Please go through the original position printouts for this survey and look for all the changes that were to be made to the original visual objects. These changes will have to be made again. Mark these corrections on the accompanying printout of fix records (dated 8/5/74). Note that the record numbers might have changed from the original printout due to inserts.

Punch IR01 cards for these changes.

Greg R Bass
Gregory R. Bass, LT, NOAA
Chief, EDP Branch

P.S. The extrapolated position computation problem (Control Type 900) has been solved.

Verifier: R. Cram

16 April 1974

VERIFICATION NOTE TO EDP (AMC)
Survey H-9190 (MI-10-2-71) OPR-423

This office has completed the verification of the sounding correctors; TRA, Tide, Velocity.

There was only one problem found with this survey. The TRA was entered twice at some time within the system. No cards were punched for this change as the problem will be corrected by EDP by deleting all TRA and reapplying the correct TRA via ~~new~~ ^{original} TRA tape.

Plot all sounding normal and with color. Distortion point origin is Lat. 17/55/19 Long. 66/32/13.

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

Verifier: Leroy Cram

August 15, 1974

VERIFICATION BRANCH
PLOTTER NOTE TO EDP (AMC)
SURVEY H-9190) OPR 423
MI-10-2-71

This branch has completed the verification of the sounding overlay.

There are

- 0-- positions to be inserted
- 0-- records to be inserted
- 15- records to be deleted
- 4- positions to be changed
- 257- soundings to be corrected
- 54- soundings to be excessed
- Signal numbers to be changed: 310 (W), 290 (W), 270 (W), 240 (W), 210 (W).

The NP excess position program is not requested for this plot. There are about ---- position numbers effected.

Distortion point tick origin shall be

$17^{\circ} 55' 15''$
 $66^{\circ} 32' 15''$

Sounding orientation is to be normal $15^{\circ} 30' 45''$

Reference station to be plotted is Cortada Sugar Co. Stack at Lat. $17^{\circ} 59' 50.125''$ Long. $66^{\circ} 26' 01.360''$

Cards have been keypunched for all changes and accompany this note.

After all corrections have been applied, please plot the smooth sheet with plotter origin same as sounding overlay and size same. (See revised form CAM 1)

No. 42 HYDROGRAPHIC SURVEY

Field No. MI-10-2-71 Reg. No. H-9190

Scale 1:10,000 Plotted: Verified

Projection	EDP, AMC	WLJ
Tri. Sta.	EDP, AMC	WLJ
Topo Sta.	EDP, AMC	WLJ
Hydro. Sta.	EDP, AMC	WLJ
Datum	Puerto Rican	
Ref. Sta.	Cortada Sugar Co. Stack 1966-71 WLJ	
Lat.	$17^{\circ} 59' 15.40.888$	m. Adj
Long	$66^{\circ} 26' 0039.585$	m. Unadj

Stamp origin point.

W. L. Jonns
Chief, Verification

GEOGRAPHIC NAMES

Name on Survey	Source of Name											
	A	B	C	D	E	F	G	H	K			
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND McNALLY ATLAS	U.S. LIGHT LIST				
BAJIO DE MAREA												1
MANZANILLO												2
MAR CARIBE												3
PASTILLO												4
PLAYA CORTADA												5
PUERTO RICO												6
PUNTA CAYITO												7
PUNTA PASTILLO												8
RIO COAMO												9
RIO DESCALABRADO												10
RIO JACAGUAS												11
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Approved
 Char E. Harrington
 Staff Geographer
 30 Jan. 1975

OFFICE OF MARINE SURVEYS AND MAPS
MARINE CHART DIVISION
(MODIFIED) HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H- 9190

FIELD NO. MI-10-2-71

AREA: Puerto Rico, South Coast,

SURVEYED: (dates) April 6 thru May 11, 1971

SCALE: 1:10,000 PROJECT NO.: OPR-423

SOUNDINGS: Sounding Pole, Handlead, and DE-723 B Depth Recorder CONTROL: Sextant Fixes on Shore Signals

Chief of Party E. K. McCaffrey

Surveyed by G. M. Adair, G. W. Adams, G. R. Bass, W. R. Curtis, C. W. Fisher,
G. Freirich, T. Gryniewicz, C. L. Hardt, S. McGee, S. C. Schwartz, G. L. Sundin, S. L. Wood

Automated Plot by AMC - Calcomp Plotter 618

Verified by B. J. Stephenson

Reviewed by R. D. Sanocki Date November 21, 1975

Cursory inspection made--survey processing considered complete.

inspected by F. SAULSBURY Date 2-26-76

Inspector's comments:

⊙ Make corrections as indicated on overlay

MODIFIED REVIEW

1. Control and Shoreline

The origin of the control is adequately described in section F of the Descriptive Report.

The shoreline originates with Class I shoreline manuscripts T-13125 (1966-71), T-13372 (1970-72), and T-13373 (1970-72).

The delineation of features offshore of the mean high-water line were made on the smooth sheet by the resolution of data from the present hydrographic survey and the above mentioned shoreline manuscripts.

2. Hydrography

A. Depths at crossings are in good agreement.

B. The usual depth curves were adequately delineated.

C. The development of the bottom configuration and the investigation of least depths is considered adequate.

* Many questionable shoal traces were plotted since there was
no field determination of their authenticity.

3. Condition of Survey

The survey records, automated plotting, Descriptive Report, and verification are adequate and conform to the requirements of the Hydrographic Manual as amended by the Instructions Manual - Automated Hydrographic Surveys with the following exception: A detached position (No. 214) on ~~a fall~~ an obstruction which fell off the limits of the present survey but within the limits of the junctional survey H-9186 (1971) was not plotted on H-9186 (1971).

The obstruction was found approximately 600 meters offshore in 13 feet of water and there was no indication of it on H-9186 (1971). This oversight was due to the failure of the verifier to examine each detached position described in the sounding volumes of the present survey.*

4. Junctions

Adequate junctions ~~was~~ ^{was} effected with H-9186 (1971) on the west. H-9267 (1972) on the east was not available at the time of this review and will subsequently be considered in the review of that survey. The junction with H-9265 (1972) to the south is discussed in the review of that survey.

5. Comparison with Prior Surveys

H-2420 (1899) 1:20,000

H-2421 (1899) 1:20,000

H-2736 (1905-06) 1:40,000

H-2737 (1905-06) 1:40,000

H-4699 (1927) 1:20,000

These surveys taken together cover the area of the present survey. A comparison of these surveys with the present survey revealed the prior surveys to be in substantial agreement with the present survey. The existing differences appear to be erratic and originate primarily with the older prior surveys. The differences ~~are~~ attributed to the survey methods employed during the prior surveys.

With the addition of several soundings and bottom characteristics brought forward from H-4699 (1927) the present survey is considered adequate to supersede the prior surveys within the common area.

6. Comparison with Chart 926, 4th Ed., February 5, 1972
25683, 10th Ed., June 28, 1975

A. Hydrography

The charted hydrography originates with the previously discussed prior surveys, which need no further consideration, supplemented by applications from the local sheet (BP 81840-41) ~~of the present survey~~ and the smooth sheet of the present survey before review.

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

B. Aids to Navigation

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

7. Compliance with Instructions

The survey adequately complies with the Project Instructions.

8. Additional Field Work

This is considered to be ^{a good} ~~an excellent~~ basic survey and no additional field work is recommended.

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-9190

MI 10-2-71

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS		1	
DESCRIPTIVE REPORT		1	OVERLAYS		3 2	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	1		1			1
CAHIERS	1					
VOLUMES	23					
BOXES			3-Bundles			
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				3507
POSITIONS CHECKED		327	20	
POSITIONS REVISED		100	-	
DEPTH SOUNDINGS REVISED		300	16	
DEPTH SOUNDINGS ERRONEOUSLY SPACED		-	-	
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		-	-	
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		8	16	
JUNCTIONS		8	12	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		-	16	
SPECIAL ADJUSTMENTS		-	-	
ALL OTHER WORK		219	88	
TOTALS		235	132	
PRE-VERIFICATION BY R. G. Cram, E. J. Fields		BEGINNING DATE 1/15/73	ENDING DATE 9/15/74	
VERIFICATION BY B. J. Stephenson		BEGINNING DATE 10/3/74	ENDING DATE 10/11/74	
REVIEW BY R. D. Sanocki		BEGINNING DATE October 3, 1975	ENDING DATE November 1, 1975	

and Insp F.P. SAULSBURY

VERIFIER'S REPORT
HYDROGRAPHIC SURVEY, H 9190 (MI 10-2-71)

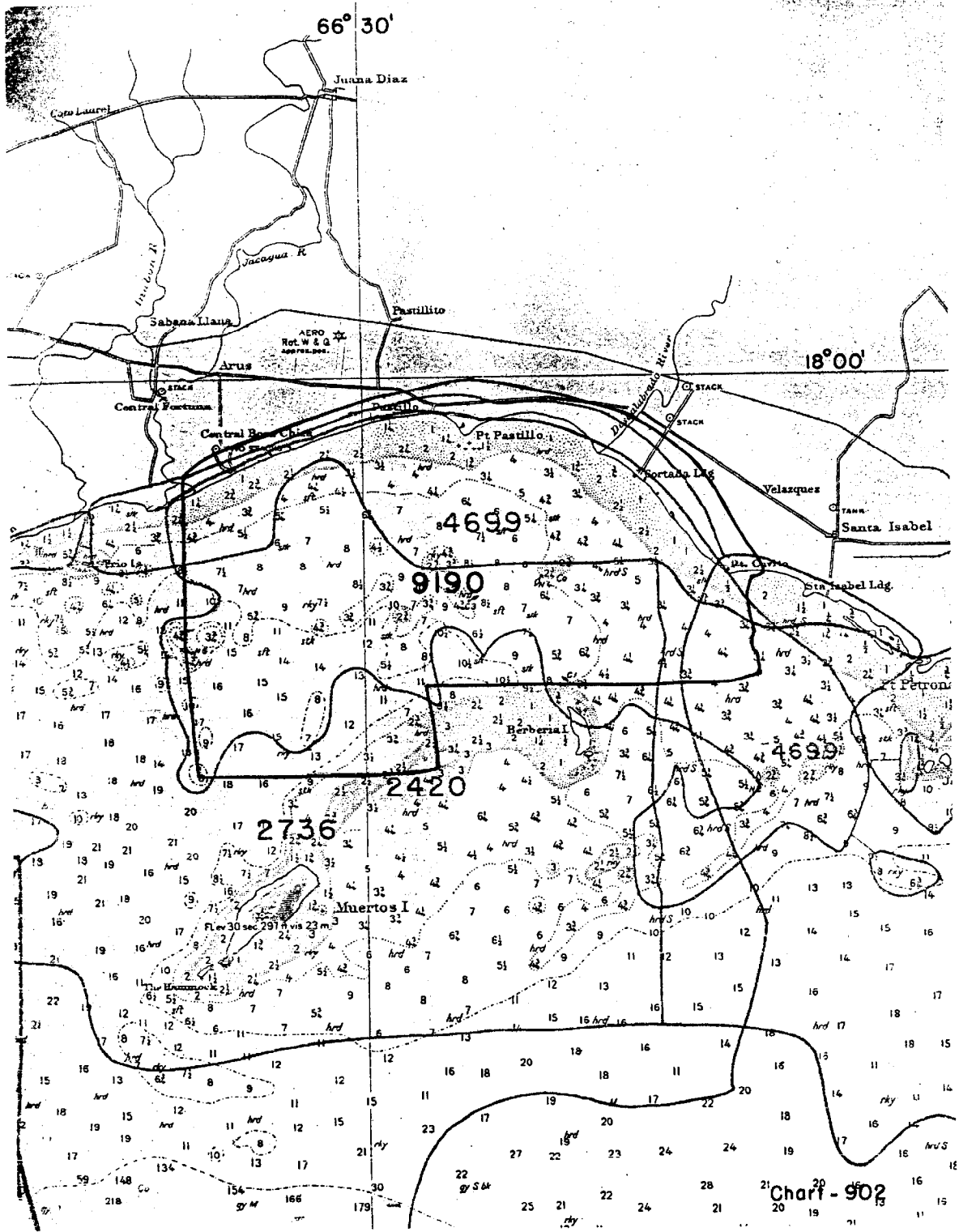
INSTRUCTIONS - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

CL - Check List Items: should be checked as having been completed during the verification processes.

R - Report Item: This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT	CL	R	Part III - JUNCTIONS (Continued)	CL	R
<p>Note: The verifier should first read the Descriptive Report for general information and problems.</p> <p>1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. ✓ Remarks Required: -- None</p>	X		<p>10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of Butt junctions and areas which are SUPERSEDED. <i>Errors necessitated revisions during review</i> PDS</p>	X	
<p>2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: -- None ✓</p>	X		<p>Part IV - VOLUMES 11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. <i>This was not accomplished during verification</i> Remarks Required: -- None PDS</p>	X	
<p>3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None</p>	X		<p>12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following: (a) rocks (b) line turns (c) position values of beginning and ending of lines (d) bar check or velocity correctors (e) time recording (f) notes or markings on fathograms (g) was reduction of soundings accurately done? (h) was scanning accurate? (i) were peaks at uneven intervals missed? (j) were stamps completed? (k) references to adjacent features</p>	X	
<p>Part II - SHORELINE AND SIGNALS 4. Source of shoreline signals Remarks Required: -- List all surveys ? a. Give earliest and latest dates of photographs <i>See Descriptive Report & Review.</i> b. Field inspection date c. Field Edit date d. Reviewed-Unreviewed</p>	X				
<p>5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences. <i>Minor revisions necessary during review.</i></p>	X				
<p>6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Δ sta #300 improperly described on smooth sheet. Remarks Required: -- None</p>	X				
<p>7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required: -- List those signals still unidentified. ✓</p>	X		<p>Part V - MACHINE PLOTTING 13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None ✓</p>	X	
<p>Part III - JUNCTIONS Note: Make a cursory comparison preliminary to inking soundings in area of overlap. 8. All junctions of contemporary or overlapping sheets were compared and overlapping curves were made identical. <i>Partly done during verification.</i> Remarks Required: -- None</p>	X		<p>14. The plotting of all unsatisfactory crossings was verified. Remarks Required: -- None ✓</p>	X	
<p>9. The notation in slanted lettering "JOINS H---- (19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None ✓</p>	X		<p>15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None ✓</p>	X	

Part V - PROTRACTING (Continued)	CL	R	Part VIII - AIDS TO NAVIGATION	CL	R
16. The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable reploting or adjustments.	X		26. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey. Remarks Required: -- Conflicts of any nature listed.	X	
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.	X		27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification. Remarks Required: -- None	X	
Part VI - SOUNDINGS			Part IX - BOAT SHEET		
18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None	X		28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information. Remarks Required: -- None	X	
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.	X		29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.	X	
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None	X		Part X - GENERAL		
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	X		30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None	X	
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.	X		31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None	X	
Part VII - CURVES			32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet. Remarks Required: -- None	X	
23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected.	X		33. The bottom characteristics are adequately shown. <i>several revised during review</i> Remarks Required: -- None	X	
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area not sounded in black dashed Remarks Required: -- None	X		Part XI - NOTES TO THE REVIEWER		
25. Depth curves were satisfactory except as follows: <i>minor revisions during review</i> (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.	X		34. Unresolved discrepancies and questionable soundings.	X	
			35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.	X	
			36. Supplemental information.	X	
Verified by Billy J. Stephenson			Date 10/10/74		



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9190

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
926	9-18-75	G. Moore	Full Part Before After Verification Review Inspection Signed Via Drawing No.
927 (25688)	12-5-77	J. Briggs	Full Part Before After Verification Review Inspection Signed Via Drawing No. 12
MCP 926 (25685)	5-21-80	B. Fernandes	Full Part Before After Verification Review Inspection Signed Via Drawing No.
(456) 25677	4-17-81	B. Fernandes	Full Part Before After Verification Review Inspection Signed Via Drawing No.
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