**DESCRIPTIVE REPORT**

**Type of Survey**: SHORELINE (Photogrammetric)

**Field No.**: T-12139

**State**: PUERTO RICO

**General locality**: EAST COAST

**Locality**: BAHIA LAS CABEZAS

---

**1958 - 1961**

**CHIEF OF PARTY**
M. L. Olivier, Chief of Field Party 708
V. R. Sobieralski, Tampa District Officer

**LIBRARY & ARCHIVES**

**DATE**: 1 JUL 1968
### DESCRIPTIVE REPORT - DATA RECORD

**T - 12139**

<table>
<thead>
<tr>
<th>PROJECT NO. (I):</th>
<th>PH-6106</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIELD OFFICE (II):</td>
<td>Puerto Rico</td>
</tr>
<tr>
<td>CHIEF OF PARTY:</td>
<td>M. L. Olivier</td>
</tr>
<tr>
<td>PHOTOGRAMMETRIC OFFICE (III):</td>
<td>Tampa, Florida</td>
</tr>
<tr>
<td>OFFICER-IN-CHARGE:</td>
<td>V. Ralph Sobieralski</td>
</tr>
</tbody>
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**INSTRUCTIONS DATED (II) (III):**

August 30, 1961
Amendment January 15, 1962

*Features restricted to those features useful to photo hydro support. *

**METHOD OF COMPILATION (III):** Kelsh

**MANUSCRIPT SCALE (III):** 1:5,000

**STEREOSCOPIC PLOTTING INSTRUMENT SCALE (III):** 1:3,000

**DATE RECEIVED IN WASHINGTON OFFICE (IV):**

- MAY 2, 1962

**DATE REPORTED TO NAUTICAL CHART BRANCH (IV):** APRIL 13, 1968

**GEOGRAPHIC DATUM (III):** Puerto Rico

**REFERENCE STATION (III):** POINT SAN DIEGO 1902 (CAPE 1901)

**LAT.:** 18°22'55.805" (178.7 m) **LONG.:** 65°36'39.532" (1160.4 m)

**PLANE COORDINATES (IV):**

- x = 199,876.01 FT.
- y = 773,555.60 FT.

**STATE:** Puerto Rico  **ZONE:** P.R. Lambert

---

**NOTES:**
- Roman numerals indicate whether the item is to be entered by (I) Field Party, (III) Photogrammetric Office, or (IV) Washington Office.
- When entering names of personnel on this record give the surname and initials, not initials only.

---

**U.S. DEPARTMENT OF COMMERCE**
**COAST AND GEODETIC SURVEY**

**FORM C&GS-181a**

12-61
**DESCRIPTIVE REPORT - DATA RECORD**

**FIELD INSPECTION BY (II):**
M. L. Olivier

**DATE:**
Nov. 1961 *

**MEAN HIGH WATER LOCATION (III) (STATE DATE AND METHOD OF LOCATION):**

Date of Photography: Oct. 1961
Air photo compilation

**PROJECTION AND GRIDS RULED BY (IV):**
A.R. (W.O.)

**DATE**
Apr. 1962

**PROJECTION AND GRIDS CHECKED BY (IV):**
A.R. (W.O.)

**DATE**
Apr. 1962

**CONTROL PLOTTED BY (III):**
V. P. Cackowski

**DATE**
Apr. 1962

**CONTROL CHECKED BY (III):**
R. E. Smith

**DATE**
Apr. 1962

**STEREOSCOPIC CONTROL EXTENSION BY (III):**
Washington Office

**DATE**
Mar. 1962

**STEREOSCOPIC INSTRUMENT COMPILATION (III):**

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<th>CONTOURS</th>
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<tr>
<td>R. E. Smith</td>
<td></td>
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**DATE**
May 1962

**MANUSCRIPT Delineated BY (III):**
R. E. Smith

**DATE**
May 1962

**Scribing BY (III):**
R. E. Smith

**DATE**
June 1964

**PHOTOGRAMMETRIC OFFICE REVIEW BY (III):**
W. H. Shearouse (Compilation Manuscript)

**DATE**
May 1962
June 1964

**REMARKS:**

* Date approximate, taken from Control Station Identification Card.
### Camera (Kind or Source) (III):

Single lens Wild "W"

### Photographs (III)

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<td>61-W-1735</td>
<td>10/26/61</td>
<td>15:58</td>
<td>1:15,000 Dia-positives</td>
<td>0.6 Above MLLW</td>
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<tr>
<td>&quot; &quot; 1736</td>
<td>15:59</td>
<td></td>
<td>&quot; positives &quot;</td>
<td>&quot; &quot;</td>
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<tr>
<td>58-S-2837</td>
<td>10/31/58</td>
<td>11:12</td>
<td>1:10,000 color &quot; print &quot;</td>
<td>&quot; &quot;</td>
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<tr>
<td>&quot; &quot; 2818</td>
<td>11:13</td>
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<td>&quot; print &quot;</td>
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### Predicted Tide (III)

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<th>Ratio of Ranges</th>
<th>Mean Range</th>
<th>Diurnal Range</th>
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<tr>
<td>San Juan</td>
<td>1.1</td>
<td>1.3</td>
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<td>Bahia de Fajardo</td>
<td>1.0</td>
<td>1.1</td>
<td>1.4</td>
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</table>

### Subordinate Station:

Atlantic Marine Center

Proof Edit by (IV):

Washington, D.C.

Date: June 1967

Number of Triangulation Stations Searched for (II): 1

Recovered: 1

Identified: 1

Number of BMS(ES) Searched for (II): None

Recovered: None

Identified: None

Number of Recoverable Photo Stations Established (III): 0

Number of Temporary Photo Hydro Stations Established (III): 0

Remarks: No field ed. noted.
SUMMARY TO ACCOMPANY
DESCRIPTIVE REPORT T-12139

Shoreline manuscript T-12139 is one of eight 1:5,000 scale maps in Ph-6106 (210h2) Puerto Rico, which also contains sixteen 1:10,000 scale maps. The sketch on page 5 of this report shows the position of this manuscript in the project. It is noted that 1:5,000 scale maps T-121h3 and T-121h4, and 1:10,000 maps T-12150, T-12151 and T-12161 of this project are in a 'postponed' status until some future date, cancelled.

This is a stereo-instrument project in advance of hydrographic surveys of the area. Field inspection was done on 1:10,000 ratio prints of 1:30,000 panchromatic photographs flown with the "S" camera on April 18, 1959. 1:15,000 diapositives, made with the "W" camera on October 26, 1961 were used for compilation. 1:10,000 color prints made in 1958 (no date) with the "S" camera, were used for reference. The stereo-bridge was run and adjusted to field identified control in the Washington Office. Compilation was done with the Kelsh Plotter. Ratio prints, at 1:5,000 scale were processed from the 1961 "W" photography and provided for photo-hydro support.

Field work preceding compilation consisted of control identification and field inspection was provided for compilation. Some incidental field edit was done during the 1961 hydrography, none was submitted for this map. The western limits of hydrography was longitude 69° 38.65'.

The compilation manuscript was a vinylite sheet one minute, 52.5 seconds in latitude, and one minute 52.5 seconds in longitude. The smooth manuscript was on cronaflex for registry and record after final review.
2. AREAL FIELD INSPECTION

These shoreline sheets are located on the eastern coast of Puerto Rico. The area is undeveloped except for the village of Fajardo and the Roosevelt Roads Naval Reservation.

Field inspection was performed on photographs 59-S-3940 through 59-S-3949 and 59-S-3915 through 59-S-3923. Some difficulty of interpretation of the apparent MHN L was encountered around mangrove areas.

Three housing areas within the naval station were not field inspected. It is believed that the 1961 photographs will cover these spots. Also a small marina in Ensenada Honda was left for the 1961 photographs. A new marina, under construction, on the south side of Cayo Obispo (a small island just east of Playa de Fajardo) was left for field edit.

3. HORIZONTAL CONTROL

All Coast and Geodetic Survey control stations except four within the project limits were searched for: HOUSE, 1901; KID, 1941; MONTE, 1941; and NORTH, 1941 were not searched for because no descriptions were furnished. Only those stations as specified on the project diagram were photo-identified. One U.S. Geological Survey control station (CENTRAL FAJARDO, NORTH STACK, 1941) was recovered and photo-identified.

There were many triangulation stations that could not be recovered especially around the naval base. It is believed that much of this control was destroyed during construction of the base.

4. VERTICAL CONTROL

All tidal bench marks in the area were searched for. The one at Playa de Fajardo was recovered but the two in Ensenada Honda could not be found.

5. CONTOURS AND DRAINAGE

Contours were not a part of the work requirements for this project.

The drainage patterns can be distinguished on the photographs.

6. WOODLAND COVER

Woodland cover has been classified in accordance with the requirements for topographic maps. Wooded areas are adequately covered by the field inspection photographs.

Swamp areas were designated as mangrove. There is considerable mangrove throughout the area.

7. SHORELINE AND ALONGSHORE FEATURES

The mean high water line was inspected from a small boat and by walking along the shoreline.
The shoreline in places was visited at low water. The mean low water line is shown on the photographs in green ink.

The foreshore is steep in some places and somewhat flat in other places.

Docks, piers, wharves, etc. are adequately covered on the field inspection photographs.

One submerged cable was identified on the photographs.

8. OFFSHORE FEATURES

Some offshore rocks were visited and their heights above MHW were noted. Coral is distinguishable on the photographs.

9. LANDMARKS AND AIDS

Landmarks and aids to navigation located by photogrammetric methods are shown on the contact prints. One landmark, a tower on Pineros Island, was identified on the field inspection photographs.

All landmarks and aids to be charted or deleted are adequately covered on Form 567.

10. BOUNDARIES, MONUMENTS, AND LINES

Boundaries were excluded by the project instructions.

11. OTHER CONTROL

Existing objects suitable for photo hydro control were identified on the field inspection photographs. These are shown on the photographs by three digit numbers. Many of the landmarks and aids can be used for photo hydro control.

12. OTHER INTERIOR FEATURES

All buildings and roads have been classified in accordance with project instructions dated 30 August 1961.

13. GEOGRAPHIC NAMES

An investigation of geographic names was not required by the project instructions. It was noticed that the geographic names on the existing charts and quads of this area agree with one another and with the general opinion of the local people.

14. SPECIAL REPORTS AND SUPPLEMENTAL DATA

Contact photographs were forwarded to the Washington office by Letter of Transmittal No. PH-6106-3 dated 20 November 1961.

Submitted
5 December 1961

Michael L. Olivier
Chief of Photogrammetry
2. **AREAL FIELD INSPECTION**

   T/12139, T/12141, T/12143, T/12145, and T/12152 through T/12157.

   These shoreline sheets are located on the eastern coast of Puerto Rico. The area is undeveloped except for the village of Fajardo and the Roosevelt Roads Naval Reservation.

   Field inspection was performed on photographs 59-S-3940 through 59-S-3949 and 59-S-3915 through 59-S-3923. Some difficulty of interpretation of the apparent MHML was encountered around mangrove areas.

   Three housing areas within the naval station were not field inspected. It is believed that the 1961 photographs will cover these spots. Also a small marina in Ensenada Honda was left for the 1961 photographs. A new marina, under construction, on the south side of Cayo Obispo (a small island just east of Playa de Fajardo) was left for field edit.

3. **HORIZONTAL CONTROL**

   All Coast and Geodetic Survey control stations except four within the project limits were searched for. HOUSE, 1901; KID, 1941; MONTE, 1941; and NORTH, 1941 were not searched for because no descriptions were furnished. Only those stations as specified on the project diagram were photo-identified. One U. S. Geological Survey control station (CENTRAL FAJARDO; NORTH STACK, 1941) was recovered and photo-identified.

   There were many triangulation stations that could not be recovered especially around the naval base. It is believed that much of this control was destroyed during construction of the base.

4. **VERTICAL CONTROL**

   All tidal bench marks in the area were searched for. The one at Playa de Fajardo was recovered but the two in Ensenada Honda could not be found.

5. **CONTOURS AND DRAINAGE**

   Contours were not a part of the work requirements for this project.

   The drainage patterns can be distinguished on the photographs.

6. **WOODLAND COVER**

   Woodland cover has been classified in accordance with the requirements for topographic maps. Wooded areas are adequately covered by the field inspection photographs.

   Swamp areas were designated as mangrove. There is considerable mangrove throughout the area.

7. **SHORELINE AND ALONGSHORE FEATURES**

   The mean high water line was inspected from a small boat and by walking along the shoreline.
21. Area Covered: T-12146; T-12136 through T-12139; T-12141 through T-12148; T-12152 through T-12161.

22. Method:

Five stereoplanigraph bridges were run in order to provide pass points for Kelsh compilation of the project.

Strip #4 was adjusted on a linear basis. All other strips were adjusted on a least-squares basis on the IBM 650 computer. Satisfactory adjustments were obtained for all strips in the project.

23. Adequacy of Control:

The horizontal control provided complied with project instructions, and was adequate. The following control failed to hold in bridging:

Δ Pinerita 2, 1941-Sub, Pt. 2. This station had been designated as a poor image pt. at the time of bridging, and may safely be disregarded due to the proximity of other control that held in bridging.

24. Supplemental Data:

None

25. Photography:

The photography was adequate for the needs of aerotriangulation.

Submitted by:

R. E. Puechse

Approved:

E. H. Ramey, Chief
Aerotriangulation Section
TRIANGULATION LIST

1. GUAYANES 2, 1923-SUB.1+2
2. CAYATA, 1901-SUB. 1+2
3. PASTO VIEJO EASTERN
   SUGAR ASSN. W.H. CON.
   STACK, 1941
4. HUMACAO PLAYA CH.
   (USGS) 1934
5. NIJUABO CH.(USGS) 1934
6. COLON (USGS) 1941-SUB.1+2
7. LOMA 1941-SUB.1+2
8. HONDA 1941-SUB.1+2
9. CAGRAS 15. LT, 1941
10. MINOQ, 1926-SUB. 1+2
11. MINERA 2, 1971-SUB.1+2
12. CIEZ, DE PEPE 27, 1923
13. PENEGO, 1941-SUB. 1+2
14. CENTRAL FATAHO
    NORTH STACK, 1741
15. CAPE, 1901-SUB. 1+2
16. CAPE SAN JUAN LIGHT-
    HOUSE, 1900
17. LURRILLO CH.(USGS)
    1934
18. PALMER (USGS) 1939-SUB. 1+2
19. RIO GRANDE CHURCH
    (USGS) 1934-SUB.1+2
20. SANTA INEZ, 1922-SUB.1+2
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<th>STATION</th>
<th>SOURCE OF INFORMATION (INDEX)</th>
<th>DATUM</th>
<th>LATITUDE OR Y COORDINATE</th>
<th>LONGITUDE OR X COORDINATE</th>
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<td>199 876.0</td>
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<td>PT SAN DIEGO 1902</td>
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<td>773 655.6</td>
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COMPUTED BY V. P. Cackowski  DATE 4/3/62

CHECKED BY R. R. Wagner  DATE 4/13/62
COMPILATION REPORT
T-12139

PHOTограмMETRIC FLOT REPORT

See pages 86-8A.

The stereotriangulation bridge was run in the Washington Office. The report is included with T-12157-Descriptive Report.

31. Delineation

The Kelsh Plotter was used. Only the shoreline and offshore details were shown.

32. Control

See item Photogrammetric FLOT Report.

33. Supplemental Data

None.

34. Contours and Drainage

Inapplicable.

35. Shoreline and Alongshore Details

Shoreline inspection was done on 1959 ratio photographs. Compilation was done from 1961 photos. The inspection was fair and with office interpretation it is believed that the shoreline meets the required accuracy. No low water line was shown.

Color photographs 50-5-2617 and 2818 were used to assist in interpreting coral ledge along eastern limits.

36. Offshore Details

Where a fairly sharp line could be seen on the photographs the coral symbol was shown. In most of the area, the breakers prevented this, hence a dashed line was shown and labeled approximate limits of coral.

37. Landmark and Aids

None.
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<th>Compilation Record</th>
<th>Completion Date</th>
<th>Remarks</th>
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<tr>
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<td>May 1962</td>
<td>Superseded</td>
</tr>
<tr>
<td>Compilation complete, no additions</td>
<td>June 1966</td>
<td>Superseded</td>
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<td>No field edit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some revisions in final review</td>
<td>June 1967</td>
<td></td>
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</tbody>
</table>
38. CONTROL FOR FUTURE SURVEYS

None.

39. JUNCTIONS

This map comprises the northeast portion of 1:10,000 scale map T-121h5. It joins T-121h2 (1:5,000 scale) to the south and T-121h1 (1:10,000 scale) to the east. There is no survey to the north.

40. HORIZONTAL AND VERTICAL ACCURACY

No statement.

46. COMPARISON WITH EXISTING MAPS

Comparison has been made with USGS quadrangle FAJARDO, PUERTO RICO, 1:20,000 scale, revised in 1958. The limits of coral do not agree, but the exact limits could not be determined from the photographs. The shoreline is in fair agreement.

47. COMPARISON WITH NAUTICAL CHARTS

Comparison has been made with chart 917, scale 1:50,000 edition of May 1930 revised Oct. 1959 and chart 921 scale 1:10,000, edition of Dec. 1930 and corrected to Sept. 1958. Same differences as stated under Item 46, appear here.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None.

ITEMS TO BE CARRIED FORWARD

None.

R. E. Smith
Carto-photo aid

APPROVED AND FORWARDED:

V. Ralph Sobieralski
Tampa District Officer
GEOGRAPHIC NAMES
FINAL REVIEW LIST
Ph-6106
T-12139 (Shoreline)

- ATLANTIC OCEAN
- BAHIA LAS CABEZAS
- Cabeza Chiquita
- Laguna Aguas Prietas
- Laguna Grande
- PASAJE DE SAN JUAN

Names from FINAL NAME SHEET (#1 of 7) on FAJARDO, P.R. quadrangle
by the Geographic Names Section.

M.M. Slavney
M. M. Slavney
Final Review

Names approved
May 28, 1968

A. J. Wright
Frank W. Fielder
49. NOTES FOR THE HYDROGRAPHER

No marked topographic stations were established. Limits of coral reefs should be verified by the hydro party.

The coral areas were identified but not delimited by the field inspector. Limits shown are from study of Kelah models and color photographs, when available. The coral limits do not necessarily define the low-water line; this has been left for investigation by the hydrographer.
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<td>38. Field Inspection Photographs</td>
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<tr>
<td>Signature of Reviewer</td>
<td>William H. Shearman</td>
<td>Signature of Supervisor</td>
<td>James H. Snavley</td>
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40. Field completion additions and corrections to the manuscript - Additions and corrections furnished by the field completion survey have been applied to the manuscript. The manuscript is now complete except as noted in remarks on reverse side.
<table>
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<tr>
<th>Time of tide</th>
<th>Time</th>
<th>Height</th>
<th>Height x Ratio</th>
<th>Time of tide</th>
<th>Time</th>
<th>Height</th>
<th>Height x Ratio</th>
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<tbody>
<tr>
<td>High tide</td>
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<td></td>
<td></td>
<td>Low tide</td>
<td>12:00</td>
<td></td>
<td></td>
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<tr>
<td>Duration of rise or fall</td>
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**Diurnal 1.9**

**Mean range 1.1**

**Ratio of ranges 1.0**

<table>
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<th>Time at Ref. Sta.</th>
<th>Time difference</th>
<th>Corrected time at Subordinate station</th>
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<tr>
<td>10:53</td>
<td>-0:09</td>
<td>10:44</td>
</tr>
<tr>
<td>17:21</td>
<td>-0:11</td>
<td>17:20</td>
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**Computed by** [Signature] **Checked by** [Signature]
FIELD EDIT REPORT
T-12139

No field edit was done for T-12139.
GENERAL STATEMENT

See summary accompanying Descriptive Report (page 6)

COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS

Registered Survey 4205, 1:20,000, 1921 Puerto Rico Datum.

The shoreline and offshore details from No. 4205 are on the Comparison Print in blue.

The 8x enlargement required for comparison reveals shoreline differences to 50 meters, which isn't surprising. It is noted that 4205 shows none of the rocky islets offshore at latitude 18° 23.3', longitude 65° 37.55'; and showed no shoreline for Laguna Grande, in the southeast portion of T-12139.

This map supersedes the previously registered surveys for nautical chart constructions.

COMPARISON WITH MAPS OF OTHER AGENCIES

U.S.G.S. quad. FAJARDO, P.R., 1:20,000, 1958.

The quadrangle details are on the Comparison Print in purple.

The 8x enlargement required reveals shoreline differences to 45 meters, with some areas in fair agreement.

COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS.

Boatsheet EX-10-1-64(H-6814), 1:10,000, 1964 western limits are at longitude 65° 38.66'.

The boatsheet notes are on the Comparison Print in green.

COMPARISON WITH NAUTICAL CHARTS


Chart 921 western limits are at longitude 65° 38.37' and the chart details are on the Comparison Print in red. Chart 917, at 1:40,000, would require an 8x enlargement which precludes a valid comparison.

Chart 921 shows four islets near lat. 18° 23.3', long. 65° 37.55', that are not on T-12139. There was little inspection and no field edit in this area and the delineation is from careful examination of all the available photographs.
66. ADEQUACY OF RESULTS AND FUTURE SURVEYS

No accuracy tests were run. The map meets the Bureau requirements and the National Standards for Map Accuracy.

Reviewed by:

M.M. Slavney

Approved by:

Director, Atlantic Marine Center

Approved by:

Chief, Cartographic Branch

Chief, Chart Division

Chief, Operations Division

Chief, Photogrammetry Division
NOTES TO VERIFIER

T-12139 Project Ph-6106 (21042)
BOAT SHEET No. EX-10-1-64

There are some small rock islands and a ledge shown at latitude 18° 23.3', longitude 65° 37.55' that are not on the boatsheet.
## 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.

<table>
<thead>
<tr>
<th>CHART</th>
<th>DATE</th>
<th>CARTOGRAPHER</th>
<th>Adequately Applied</th>
<th>REMARKS &amp; FIELD</th>
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<tbody>
<tr>
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<td>904</td>
<td>11/5/74</td>
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