FORM C&GS-504

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

DESCRIPTIVE REPORT

Type of Survey: Shoreline (Photogrammetric)

Field No. Office No. T-13140

LOCALITY

State: Puerto Rico
General locality: Southwest Coast
Locality: Isla De Ratones

1966-71

CHIEF OF PARTY

Alfred C. Holmes, Director, USGS

LIBRARY & ARCHIVES

DATE
**PROJECT NO. (III):**
PH-6708

**FIELD OFFICE (III):**
None

**PHOTOGRAMMETRIC OFFICE (III):**
Atlantic Marine Center, Norfolk, VA

**CHIEF OF PARTY**

**OFFICER-IN-CHARGE**
Alfred C. Holmes, Director

**INSTRUCTIONS DATED (IV) (III):**
OFFICE - Nov. 14, 1967
OFFICE - SUPPLEMENT 1 - Nov. 4, 1968
OFFICE - AMENDMENT 1 - Dec. 9, 1968

**METHOD OF COMPILATION (III):**
Wild B-8 Plotter

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

**STEREOGRAPHIC PLOTTING INSTRUMENT SCALE (III):**
1:2,500 Pantographed To 1:5000

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

**DATE REPORTED TO NAUTICAL CHART BRANCH (IV):**

**APPLIED TO CHART NO.**

**DATE:**

**DATE REGISTERED (IV):**
JUN 1975

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

**REFERENCE STATION (III):**
Rey, 1966

**LAT.:**
17°58'39.0778'" 1201.4M

**LONG.:**
66°40'36.38536" 1070.5M

**PLANE COORDINATES (IV):**
y = 52.411.70 Ft.
x = 415.402.80 Ft.

**STATE**
Puerto Rico

**ZONE**
1

**HAN 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.
## DESCRIPTIVE REPORT - DATA RECORD

**T-13140**

### FIELD INSPECTION BY (III):

None

### MEAN HIGH WATER LOCATION (III) [STATE DATE AND METHOD OF LOCATION]:

Air Photo Compilation - Date of Photography - Nov. 15, 16, 1966

### PROJECTION AND GRIDS RULED BY (IV):

|--------------------|---------------------|

### PROJECTION AND GRIDS CHECKED BY (IV):

|--------------------|---------------------|

### CONTROL PLOTTED BY (III):

- Aerotriangulation Points: - B. Nicholson
- Triangulation Stations: - C. E. Blood

<table>
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<th>DATE: Nov. 7, 1968</th>
<th>Dec. 6, 1968</th>
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### CONTROL CHECKED BY (III):

- Aerotriangulation Points: - J. Steinberg
- Triangulation Stations: - B. Wilson

<table>
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### RADIAL PLOT OR STEREOSCOPIC CONTROL EXTENSION BY (III):

|--------------------|---------------------|

### STEREOSCOPIC INSTRUMENT COMPILATION (III):

- Wild B-8

|-------------------------------------------|----------------|

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<th>CONTOURS Inapplicable</th>
<th>DATE:</th>
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### MANUSCRIPT DELINEATED BY (III):

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<tr>
<th>C.H. Bishop</th>
<th>DATE: March 1969</th>
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### SCRIBING BY (III):

<table>
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<tr>
<th>C. Parker</th>
<th>DATE: July 20, 1972</th>
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### PHOTOGRAMMETRIC OFFICE REVIEW BY (III):

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<th>Compilation: C.H. Bishop</th>
<th>DATE: Mar. 4, 1969</th>
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<td>Field Edit: R.J. Pate</td>
<td>May 28, 1969</td>
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<tr>
<td>Scribing and Stick Up: P. Margiotta</td>
<td>7/72, 8/72</td>
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### REMARKS:

Field Edit By: - R.E. Kesselring

Additional work - 1971 (see page 198)
CAMERA (Kind or Source) (III):

Wild RC-8 & RC-9 "L" and "M"

PHOTOGRAPHS (III)

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<tr>
<th>NUMBER</th>
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<th>TIME</th>
<th>SCALE</th>
<th>STAGE OF TIDE</th>
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<td>66-L-(c)-8394 thru</td>
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<td>10:37</td>
<td>1:15,000</td>
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<td>66-L-(c)-8396</td>
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PREDICTED TIDE (III)

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<th>REFERENCE STATION</th>
<th>RATIO OF RANGES</th>
<th>MEAN RANGE</th>
<th>RANGE</th>
<th>DIURNAL</th>
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<tr>
<td>Galveston, Texas</td>
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SUBORDINATE STATION:

Playa De Ponce

WASHINGTON OFFICE REVIEW BY (IV):

Bernard Kurs, AMC

DATE: Feb. 1973

PROOF EDIT BY (IV):

DATE:

NUMBER OF TRIANGULATION STATIONS SEARCHED FOR (III): 4

RECOVERED: 2

IDENTIFIED: 1

NUMBER OF BM(S) SEARCHED FOR (III): None

RECOVERED: None

IDENTIFIED: None

NUMBER OF RECOVERABLE PHOTO STATIONS ESTABLISHED (III): 1

NUMBER OF TEMPORARY PHOTO HYDRO STATIONS ESTABLISHED (III): None

REMARKS:


<table>
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<tr>
<th>Compilation Record</th>
<th>Completion Date</th>
<th>Remarks</th>
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<tr>
<td>Alongshore Area For Hydro.</td>
<td>March 1969</td>
<td>Superseded</td>
</tr>
<tr>
<td>Field Edit Applied; Compilation Complete</td>
<td>May 1969</td>
<td>Superseded</td>
</tr>
<tr>
<td>Additional Field Edit Applied Dated March 1971</td>
<td>July 1971</td>
<td>Superseded</td>
</tr>
<tr>
<td>Field Edit Final Review</td>
<td>Feb. 1973</td>
<td></td>
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</table>
SUMMARY TO ACCOMPANY

DESCRIPTIVE REPORT

T-13140

Shoreline survey T-13140 is one of twenty-one similar surveys in project PH-6708. The project is located on the south coast of Puerto Rico and extends from Cabo Rojo to Cayo Herberia. This survey extends from Penon de Ponce to most of Laguna de las Salinas.

There was no field work preceding the compilation of this manuscript.

Compilation was at 1:5,000 scale by B-8 plotter using November, 1966 photography. (See item 31 of compilation report) A copy of the manuscript classified "Incomplete" along with ozalids and specially prepared photographs were furnished for the preparation of the boat sheet, location of photo hydro signals and field edit use.

The manuscript was a vinylite sheet 2 minutes in longitude by 2 minutes in latitude. The first field edit was done in 1969. In 1971 the field editor made some extensive changes to the original field edit. These were applied in 1971. (See portion of field edit report of 13123 attached to 1969 field edit) After the latest field edit was applied the manuscript was scribed, stuck-up and reproduced on cronaflex. Final review was at AMC in February, 1973. One cronaflex and negative of the final reviewed survey are being forwarded for record and registry.
FIELD INSPECTION REPORT
PH-6708
T-13140

There was no field inspection prior to compilation.
PHOTOGRAMMETRIC PLOT REPORT
Job PH-6708
Puerto Rico

October 31, 1967

21. **Area Covered**

This report covers the southwest part of Puerto Rico, consisting of eight (8) 1:10,000 scale T-sheets, T-13118 thru T-13125, and thirteen (13) 1:5,000 scale T-sheets, T-13128 thru T-13140. Photography covering sheets T-13126 and T-13127 was not bridged at this time due to lack of control.

22. **Method**

Analytic aerotriangulation methods were used to bridge Strip 1, 1:60,000 scale color diapositives, using premarked and office identified control. Numerous tie points were located to control the compilation photography. Strips 3, 5, 5A, 6, 7 and 8 were bridged by analytic methods. Strips 2 and 4 were bridged by stereoplanigraph in order to facilitate the work.

The attached sketch of the strips bridged shows the placement of triangulation used in the final strip adjustment. Closures to control are shown for each strip on the IBM readout, along with all bridge points on Puerto Rico plane coordinates.

23. **Adequacy of Control**

Horizontal control is adequate to control Strip 1. All other strips were bridged using tie points and horizontal control and is adequate.

The premarked paneling at station PAGEN was removed prior to photography and the subpoint could not be identified. It was decided, therefore, to end Strip 1 with photo 66-M-625 and Strip 5 with photo 66-L-8433. However, it is believed that sheet T-13125 can be adequately compiled.

Station GUANICA L.H. 1900 does not have a valid position. Geodesy did not tie to this station during the 1966 work, and no adjustment was made to the new Puerto Rico datum. (Station has been reported destroyed.) The positions shown on Form 725d computed by Geodesy is arbitrary. Therefore, GUANICA L.H. Subpoint 1 and subpoint 2 are unreliable and were not held in the bridge.
It is to be noted that all horizontal control used on this job and the final pass point positions are on the new Puerto Rico Datum. A Xerox copy of triangulation station positions issued by Geodesy is submitted to the Compilation office with this job. Previously published GP's and plane coordinates should not be used for plotting.

24. **Supplemental Data**

Vertical control needed for the adjustment was taken from USGS quadrangles.

25. **Photography**

The definition and quality of the RC-9 "M" and RC-8 "L" color photography was fair and good respectively. Smoke covers parts of some photographs on Strips 3 and 5A, but should not hinder compilation of the shoreline.

Although sheets T-13137 thru T-13140 are covered by 1:15,000 scale photographs, these photographs were not bridged, nor can they be used for compilation on the plotter because of water areas. Strip 3, therefore, should be used to compile the above sheets.

Ratio prints have been ordered for the 1:30,000 and 1:15,000 scale photographs to compilation scale, on black and white base.

Several points were transferred to ratio print 66-L-8394 in order that a reef on T-13140 may be compiled graphically.

Respectfully submitted

[Signature]

I. I. Saperstein

Approved and Forwarded

[Signature]

Henry F. Zichert, Chief
Aerotriangulation Section
<table>
<thead>
<tr>
<th>STATION</th>
<th>SOURCE OF INFORMATION</th>
<th>LATITUDE OR Y COORDINATE</th>
<th>DISTANCE FROM GRID OR PROJECTION LINE</th>
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<tr>
<td>Rey, 1966</td>
<td>Geodesy Pad 77089</td>
<td>17° 58' 39.0778&quot; N</td>
<td>1201.4 (643.2)</td>
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<td></td>
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<td>66° 40' 36.38536&quot; W</td>
<td>1070.5 (694.8)</td>
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<td>Cave 2, 1966</td>
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<td>17° 58' 54.14686&quot; N</td>
<td>1664.6 (180.0)</td>
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<td>66° 41' 55.62179&quot; W</td>
<td>1636.4 (128.9)</td>
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COMPUTED BY A.C. Rauck, Jr.   DATE Nov. 18, 1968   CHECKED BY C. Blood   DATE Nov. 21, 1968
COMPILATION REPORT

MAP MANUSCRIPT T-13140

PROJECT PH-6708

31. DELINEATION


In order to use Strip 3 to compile T-13137 thru T-13140, it was necessary to plot controls and compile on worksheets at 1:6,000 scale and photographically enlarge to 1:5,000 scale (see Amendment I to office instructions, dated Dec. 9, 1968.)

The enlargement ratio required to compile at 1:5,000 scale from 1:30,000 scale bridge strip 3 with the B-8 plotter was not possible. It was, therefore considered more expedient to compile T-13135 thru T-13140 at 1:6,000 scale, drop shoreline pass points common to both the 1:15,000 photos and the 1:30,000 models, and then enlarge photographically to 1:5,000 scale, at a ratio of 1 = 1.2.

This enlargement was then transferred to the 1:5,000 manuscripts and the 1:5,000 scale ratio prints processed for hydro-support data.

The use of the 1:30,000 scale models from strip 3, enabled the compiler to adequately cover all inshore areas and much of the offshore areas of shoal, coral reefs, small islands and etc., which would not have been possible with the 1:15,000 offshore photos which were not bridged.

The alongshore and shoreline features of the mainland were further refined with the models set utilizing the 1:15,000 scale inshore plates: - 56L(c) 8475 thru 8484.

32. CONTROL

See PHOTOGRAMMETRIC PLOT REPORT dated October 31, 1967.

33. SUPPLEMENTAL DATA

None
34. **CONTOURS AND DRAINAGE**

Contours are inapplicable.

No drainage, other than ponds was delineated.

35. **SHORELINE AND ALONGSHORE DETAILS**

The mean high water line and all alongshore details were delineated from office interpretation of the photographs.

36. **OFFSHORE DETAILS**

Coral limits, shallow limits, islands and all other offshore details were delineated from office interpretation of the photographs. Cayo Ratones, Arredife Ratones, and the shallow area around these features were compiled graphically after photo centers were located.

37. **LANDMARKS AND AIDS**

None

38. **CONTROL FOR FUTURE SURVEYS**

None

39. **JUNCTIONS**

A satisfactory junction was made with T-13139 to the West. There are no contemporary surveys to the North and South and no contemporary survey at 1:5,000 scale to the East.

40. **HORIZONTAL AND VERTICAL ACCURACY**

No statement.
46. COMPARISON WITH EXISTING MAPS

A comparison was made with USGS Quadrangle PUNTA CUEHARA, PR, scale 1:20,000, dated 1958.

47. COMPARISON WITH NAUTICAL CHARTS

Comparison was made with CHART 902, South Coast of Puerto Rico, scale 1:100,000, 8th Edition, dated March 15, 1965.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None

ITEMS TO BE CARRIED FORWARD

None

Submitted:

Charles H. Bishop
Charles H. Bishop
Cartographer
March 5, 1969

Approved:

Alfred C. Holmes
RADM, NOAA
Director, Atlantic Marine Center
December 11, 1972

GEOGRAPHIC NAMES
FINAL NAME SHEETS
Ph-6708 (Puerto Rico)

TP-13140

Arrecife Ratones
Cayo Arenas
El Balneario
Isla de Ratones
Laguna de las Salinas
Mar Caribe
Penon de Ponce
Puerta Cucharas
49. **NOTES FOR THE HYDROGRAPHER:**

None
**PHOTOGRAMMETRIC OFFICE REVIEW**

**T-13140**

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<th>1. PROJECTION AND GRIDS</th>
<th>2. TITLE</th>
<th>3. MANUSCRIPT NUMBERS</th>
<th>4. MANUSCRIPT SIZE</th>
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**CONTROL STATIONS**

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<th>5. HORIZONTAL CONTROL STATIONS OF THIRD-ORDER OR HIGHER ACCURACY</th>
<th>6. RECOVERABLE HORIZONTAL STATIONS OF LESS THAN THIRD-ORDER ACCURACY (Topographic stations)</th>
<th>7. PHOTO HYDRO STATIONS</th>
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**BENCH MARKS**

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<th>8. BENCH MARKS</th>
<th>9. PLOTTING OF SEXTANT FIXES</th>
<th>10. PHOTOGRAMMETRIC PLOT REPORT</th>
<th>11. DETAIL POINTS</th>
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<td>XX</td>
<td>RJP</td>
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**ALONGSHORE AREAS (Nautical Chart Data)**

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<th>12. SHORELINE</th>
<th>13. LOW-WATER LINE</th>
<th>14. ROCKS, SHOALS, ETC.</th>
<th>15. BRIDGES</th>
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**AIDS TO NAVIGATION**

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<th>16. AIDS TO NAVIGATION</th>
<th>17. LANDMARKS</th>
<th>18. OTHER ALONGSHORE PHYSICAL FEATURES</th>
<th>19. OTHER ALONGSHORE CULTURAL FEATURES</th>
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**PHYSICAL FEATURES**

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<th>20. WATER FEATURES</th>
<th>21. NATURAL GROUND COVER</th>
<th>22. PLANETABLE CONTOURS</th>
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**STEREOSCOPIC INSTRUMENT CONTOURS**

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<th>23. STEREOSCOPIC INSTRUMENT CONTOURS</th>
<th>24. CONTOURS IN GENERAL</th>
<th>25. SPOT ELEVATIONS</th>
<th>26. OTHER PHYSICAL FEATURES</th>
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**CULTURAL FEATURES**

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<th>27. ROADS</th>
<th>28. BUILDINGS</th>
<th>29. RAILROADS</th>
<th>30. OTHER CULTURAL FEATURES</th>
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**BOUNDARIES**

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<th>32. PUBLIC LAND LINES</th>
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**MISCELLANEOUS**

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<th>33. GEOGRAPHIC NAMES</th>
<th>34. JUNCTIONS</th>
<th>35. LEGIBILITY OF THE MANUSCRIPT</th>
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<table>
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<tr>
<th>36. DISCREPANCY OVERLAY</th>
<th>37. DESCRIPTIVE REPORT</th>
<th>38. FIELD INSPECTION PHOTOGRAPHS</th>
<th>39. FORMS</th>
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<tr>
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**REVIEWER**

<table>
<thead>
<tr>
<th>Charles H. Bishop</th>
<th>3/4/69</th>
</tr>
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<tbody>
<tr>
<td>Albert C. Rauck, Jr.</td>
<td></td>
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**REMARKS**

Field Edit Applied From: Field Edit Ozalid; Field Edit Report (For Buildings) Color Contact Photographs: Nos. 66-L-8393, 8394, & 8396; Matte Ratio Photographs Nos. 66-L-8393 thru 8396. 1971 Field Edit: 66-L-8347
52. ADEQUACY OF COMPILATION

Compilation was adequate. Some minor shoreline changes were recommended, one change was relatively more important, and attention was called to several mangrove bushes in the water. Two "piers in ruins" were omitted and the classification was changed on two of the compiled piers. Bluff delineation was adequate and accurate. The ponds in the vicinity of Laguna de las Salinas were reclassified as intermittent, as were the bays along the westerly shore of this lake.

54. RECOMMENDATIONS

None.

55. EXAMINATION OF PROOF COPY

Sr. Oscar Padilla, Urb. Estella Box 28, Guayanilla, Puerto Rico, will be happy to examine a proof copy of the map. Sr. Padilla is the senior harbor pilot of Bahía de Guayanilla.

56. GEOGRAPHIC NAMES

All the geographic names on this sheet are correct. According to local authorities, one name should be included on the map. This name is BALNEARIO EL TUQUE; Balneario means bathing resort and El Tuque is a proper name.

The name PENTON DE PONCE is appropriately placed. It refers, in modern times, to the hill and the highway cut on the face of it. In the early days this was a resting place on the journey from Ponce to Mayaguez and the name applied to the hill and its rocky face.

Local authorities consulted on geographic names are listed below.

I. Sr. Oscar Padilla
   Urb. Estella Box 28
   Guayanilla, Puerto Rico

   Sr. Padilla is the senior harbor pilot of Bahía de Guayanilla and has been a resident for 64 years.
II. Sr. Gilberto Castro Perez  
Bo Playa  
Guayanilla, Puerto Rico  

Sr. Castro is a boat operator and has been a local resident for nine years.

III. Sr. Daniel Santiago  
Bo Playa  
Guayanilla, Puerto Rico  

Sr. Santiago is a harbor pilot and has been a local resident for three years. He is retired from the U.S. Merchant Service.

IV. Sr. Faustino Allongo  
R.F.D. 2  639 H  
Ponce, Puerto Rico  

Sr. Allongo is a contractor and has been a local resident and fisherman for twenty years.

V. Sr. Ramon Torres Echevarria  
Ext. Mariani A-110  
Ponce, Puerto Rico  

Sr. Torres is a mechanical engineer and prominent local sports fisherman. He has been a resident for 36 years.

The harbor pilots mentioned above are licensed by the Puerto Rican Pilot Service.

57. LANDMARKS AND NONFLOATING AIDS TO NAVIGATION

There are no landmarks or fixed aids to navigation within the limits of this map. None of the buildings mapped are suitable for chart 902.

58. ROCKS, REEFS, SHOALS AND FOUL AREAS

No rocks were compiled on this map. A few large bare rocks, on the coral ledge along the mainland, were indicated on the field edit ozalid and appropriately cross referenced. Heights and stages of tide were given.

Reef delineation was good as far as it went. The reef around Cayo Arenas and a submerged coral reef at 17° 58.5'; 66° 41.1 were omitted. These were outlined on the photos and suitable information inked on the field edit ozalid. The coral along the mainland is probably awash at mean low water and should be symbolized on the chart. This applies
to the reef around Cayo Arenas also. The reef near Cayo Ratones is definitely submerged, except for a small area near the easterly end. Some fast shoreline and a few mangrove bushes were overlooked on this reef. Depths and times of observation were listed on the field edit ozalid for the reefs on this map.

59. PHOTOGRAPHY

Photography consisted of 1:5000 black and white copies of color photos and 1:15,000 and 1:30,000 color contact prints. The photography was good, except for the areas obscured by the sun. Most of the work on the reefs and water areas was done on the color prints. The ratio prints were used for indicating shoreline changes and etc.

60. DISPOSITION OF DATA

All data was forwarded to the Photo Branch, Atlantic Marine Center. Copies of Field edit, form 567's and form 526's were transmitted to the ship Whiting.

Richard E. Kesselring
Surveying Technician
VIII. Ronald J. Wirsching is a large coastal land owner in
area and a boat owner. He has been a local resident
for 27 years.

IX. Capt. William Suarez Williams is the Capt. of Port,
Puerto Rico Ports Authority, Ponce, Puerto Rico.

All of the above people can be contacted through the Ponce
Yacht and Fishing Club, Ponce, Puerto Rico.

57. LANDMARKS AND NONFLOATING AIDS TO NAVIGATION.

On this map manuscript there are two landmarks and two
nonfloating aids to navigation recommended as they exist on
current charts 927, 902, and 920.

58. ROCKS, REEFS, SHOALS, AND FOUL AREAS.

The reef and shoreline around Cayo Arenas has been incorrectly
compiled and should be shown as compiled on the overlapping
sheet T-13140 (1:5,000 Advance Manuscript).

The area Arrecife Ratones was studied by both the field
editor and the hydrographer. It is felt that neither the
compilation on this sheet (T-13123) nor the compilation on
Advance T-13140 containing the 1969 field edit for the same
area, show the correct compilation for the area. The delineation
shown on photo 66L8347 was checked by the hydrographer
with fixes and is considered the best representation of the
area in question.

Two submerged coral reefs off El Tuque, a submerged rock
reef at 66°39'35" - 17°58'30", and a system of rock reefs
and ledges parrelling the shoreline east of the above rock
61. **GENERAL STATEMENT**

See summary which is page 6 of the Descriptive Report.

62. **COMPARISON WITH REGISTERED SURVEYS**

A visual comparison was made with a copy of registered survey No. 2468 dated 1900 at 1:20,000 scale. There is only general agreement between the two. Many natural changes have taken place to alter the shoreline and islands with reefs off the shoreline.

Registered survey No. 2468 is superseded by T-13140 for nautical chart construction purposes.

63. **COMPARISON WITH MAPS OF OTHER AGENCIES**

A visual comparison was made with USGS Punta Cuchara, PR, quadrangle dated 1958 and at 1:20,000 scale. There are no essential differences except those made by natural changes.

64. **COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS**

A comparison was made with Boat Sheet H-9135, 1:10,000 scale, 1971. There were no significant changes in the shoreline.

65. **COMPARISON WITH NAUTICAL CHARTS**

A visual comparison was made with Chart 927 1:20,000 scale dated July 3, 1971. This chart covers about 85 percent of the shoreline and is in general agreement with T-13140 with the exception of Arricife Ratones. T-13140 is much more detailed being at 1:5,000 scale and is verified by soundings on the boat sheet. The remainder of the sheet is covered by chart 902, 1:100,000 scale and is in general agreement.

66. **ADEQUACY OF RESULTS AND FUTURE SURVEYS**

This survey meets with project instructions and the National Standards of Map Accuracy.
Reviewed by:

Bernard Kurs
Cartographer

Approved for forwarding:

Melvin J. Embach, CDR, NOAA
Chief, Coastal Mapping Division
Atlantic Marine Center

Approved:

Alfred C. Holmes
RADM, NOAA
Director, Atlantic Marine Center

Approved:

Chief, Photogrammetric Branch
Chief, Coastal Mapping Division