NOAA FORM 76-35 (3-76)
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT

Map No.  T-12555  Edition No.  1
Job No.  PH-6402
Map Classification  FINAL FIELD EDITED MAP
Type of Survey  SHORELINE

LOCALITY
State HAWAII
General Locality HAWAII ISLAND, WEST COAST
KAILUA TO SOUTH CAPE
Locality HUMUHUMU POINT

1963 TO 1979

REGISTRY IN ARCHIVES

DATE

*U.S. GOVERNMENT PRINTING OFFICE:1978-669-248
NOAA FORM 76-36A  U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.

DESCRIPTIVE REPORT - DATA RECORD

PHOTOGRAMMETRIC OFFICE
Coastal Mapping Division
Atlantic Marine Center, Norfolk, VA

OFFICER-IN-CHARGE
R. Matsushige

I. INSTRUCTIONS DATED

1. OFFICE

Compilation Oct. 28, 1969
Amendment 1 Jan. 3, 1973
Memo Sept. 1, 1978

Control/Field Inspection May 8, 1964

II. DATUMS

1. HORIZONTAL: □ 1927 NORTH AMERICAN
   ☑ MEAN HIGH-WATER
   ☑ MEAN LOW-WATER
   ☑ MEAN LOWER LOW-WATER
   □ MEAN SEA LEVEL

   OTHER (Specify)
   Old Hawaiian

2. VERTICAL:
   ☑ MEAN HIGH-WATER
   ☑ MEAN LOW-WATER
   ☑ MEAN LOWER LOW-WATER
   □ MEAN SEA LEVEL

   OTHER (Specify)

3. MAP PROJECTION
   Polyconic

4. GRID(S)
   STATE Hawaii
   ZONE 1

5. SCALE 1:10,000

III. HISTORY OF OFFICE OPERATIONS

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<tr>
<th>OPERATIONS</th>
<th>NAME</th>
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<td>C. Blood</td>
<td>Jan. 1973</td>
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<td>R. White</td>
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<td>A. Shands</td>
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<td>6. APPLICATION OF FIELD EDIT DATA</td>
<td>I. Perkinson</td>
<td>Aug. 1979</td>
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<td>7. COMPILATION SECTION REVIEW</td>
<td>J. Roderick</td>
<td>Oct. 1979</td>
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<td>8. FINAL REVIEW</td>
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<td>Oct. 1979</td>
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<td>9. DATA FORWARDED TO PHOTOGRAMMETRIC</td>
<td>J. Hancock</td>
<td>Apr. 1987</td>
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<td>11. MAP REGISTERED - COASTAL SURVEY</td>
<td>P. Damorey</td>
<td>Aug. 1977</td>
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NOAA FORM 76-36A SUPERSEDES FORM CG-56 161 SERIES
* U.S. G.P.O. 1972-769382/582 REG. #6
1. COMPILATION PHOTOGRAPHY

<table>
<thead>
<tr>
<th>NUMBER AND TYPE</th>
<th>DATE</th>
<th>TIME</th>
<th>SCALE</th>
<th>STAGE OF TIDE</th>
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<tr>
<td>63S(P) 7977-7982*</td>
<td>Aug.31,1963</td>
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<td>1:30,000</td>
<td>1.1 FT. above MLLW</td>
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<td>63S(C) 7989-7994**</td>
<td>Aug.31,1963</td>
<td>09:57</td>
<td>1:15,000</td>
<td>1.1 FT. above MLLW</td>
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REMARKS
*Bridging/compilation photographs, **Compilation/hydro support photographs.

2. SOURCE OF MEAN HIGH-WATER LINE:

The mean high water line was compiled from office interpretation of the compilation photographs using stereo instrument and graphic methods.

3. SOURCE OF MEAN LOW-WATER OR MEAN LOWER LOW-WATER LINE:

No mean lower low water line was compiled.

4. CONTEMPORARY HYDROGRAPHIC SURVEYS (List only those surveys that are sources for photogrammetric survey information.)

<table>
<thead>
<tr>
<th>SURVEY NUMBER</th>
<th>DATE(s)</th>
<th>SURVEY COPY USED</th>
<th>SURVEY NUMBER</th>
<th>DATE(s)</th>
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<tbody>
<tr>
<td>H-9808</td>
<td>1979</td>
<td>Registered</td>
<td>H-9812</td>
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5. FINAL JUNCTIONS

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<th>EAST</th>
<th>SOUTH</th>
<th>WEST</th>
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<tr>
<td>None</td>
<td>T-12556</td>
<td>None</td>
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REMARKS
### History of Field Operations

**I. FIELD INSPECTION OPERATION**

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<th>Operation</th>
<th>Name</th>
<th>Date</th>
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<tbody>
<tr>
<td>1. CHIEF OF FIELD PARTY</td>
<td>R. Newsom</td>
<td>Feb.-Sept 1964</td>
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<tr>
<td>2. HORIZONTAL CONTROL</td>
<td>E. Cline</td>
<td>Aug. 1964</td>
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<tr>
<td>3. VERTICAL CONTROL</td>
<td>E. Cline</td>
<td>Aug. 1964</td>
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<tr>
<td>4. LANDMARKS AND AIDS TO NAVIGATION</td>
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<tr>
<td>5. GEOGRAPHIC NAMES INVESTIGATION</td>
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<td>6. PHOTO INSPECTION</td>
<td>E. Cline</td>
<td>Aug. 1964</td>
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<td>7. BOUNDARIES AND LIMITS</td>
<td>N.A.</td>
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</table>

**II. SOURCE DATA**

1. HORIZONTAL CONTROL IDENTIFIED
   - Photo Number: 63(S)7842*
   - Station Name: NA PUU A PELE, 1891 (Direct and Sub. Pt.)

2. VERTICAL CONTROL IDENTIFIED
   - None

3. PHOTO NUMBERS (Clarification of details)
   - 63(S) 7842-7844 (1:30,000 scale matte contacts)

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED
   - None

### Other Field Records
- Form 152 (CSI)
- Project Field Report
# History of Field Operations

**Operation:** [x] Field Edit Operation

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<tr>
<th>Operation</th>
<th>Name</th>
<th>Date</th>
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<td>Chief of Field Party</td>
<td>(NOAA Ship FAIRWEATHER)</td>
<td>Feb. 1979</td>
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<td>Cdr. B. Williams</td>
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<td>Horizontal Control</td>
<td>J. Quinlan</td>
<td>Mar. 1979</td>
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<tr>
<td>Vertical Control</td>
<td>None</td>
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<td>Landmarks and Aids to Navigation</td>
<td>Recovered (Triangulation Stations)</td>
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<tr>
<td>Geographic Names Investigation</td>
<td>None</td>
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<td>Photo Inspection</td>
<td>L. Roberts</td>
<td>Feb. 1979</td>
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<tr>
<td>Boundaries and Limits</td>
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## Source Data

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</table>

3. Photo Numbers (Clarification of details)

635(C)7990-7994 (Cronaque ratios, 1:10,000 scale)

4. Landmarks and Aids to Navigation Identified

None

5. Geographic Names: [x] None

6. Boundary and Limits: [x] None

7. Supplemental Maps and Plans

None

8. Other Field Records (Sketch books, etc. DO NOT list date submitted to the Geodesy Division)

1. Field edit report
2. Field edit paper print
## RECORD OF SURVEY USE

### I. MANUSCRIPT COPIES

<table>
<thead>
<tr>
<th>DATA COMPILED</th>
<th>DATE</th>
<th>REMARKS</th>
<th>MARINE CHARTS</th>
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<td>Field edit applied, compilation complete</td>
<td>Oct. 1979</td>
<td>Class I manuscript</td>
<td>Nov. 1979</td>
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<td>Final review</td>
<td>April 1987</td>
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### II. LANDMARKS AND AIDS TO NAVIGATION

None

#### 1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

<table>
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<th>NUMBER</th>
<th>CHART LETTER</th>
<th>NUMBER ASSIGNED</th>
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<th>REMARKS</th>
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#### 2. REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: None

#### 3. REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: None

### III. FEDERAL RECORDS CENTER DATA

1. Bridging Photographs; Duplicate Bridging Report; Computer Readouts.
2. Control Station Identification Cards; Form NOS 567 Submitted by Field Parties.
3. Source Data (except for Geographic Names Report) as listed in Section II, NOAA Form 76-36C. Account for Exceptions:

### IV. SURVEY EDITIONS

(This section shall be completed each time a new map edition is registered)

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SUMMARY TO ACCOMPANY
DESCRIPTIVE REPORT

T-12555

This 1:10,000 scale Final Field Edited Map is one of nineteen maps that comprise PH-6402, Hawaii Island, West Coast, Kailua to South Cape. The project consists of sixteen 1:10,000 scale maps (T-12546 thru T-12561) and three 1:5,000 scale inset maps (T-11796, T-11797, T-13312).

The purpose of this map was to furnish data in support of hydrographic operations and to provide current shoreline data for marine charts.

This map includes shoreline along the southwest coast of Hawaii Island from Longitude 155° 48' 45" to Longitude 155° 52' 30".

Photo coverage for the project was adequately provided in August/September 1963 using the Wild RC-8 "S" camera. Photography consisted of 1:30,000 scale panchromatic photographs used for field inspection, aerotriangulation, and compilation. Color photographs at 1:15,000 scale were obtained for compilation and hydro support. Additional color photographs at 1:15,000 scale were obtained in March 1969 with the Wild RC-8 "E" camera. These supplemental photographs were used to compile inset maps T-11796 and T-11797. The stage of tide for all project photographs was based upon predicted tide data. No infrared photographs were provided.

Field work prior to aerotriangulation consisted of the recovery and establishment of horizontal control by photoidentification methods. In addition, a field inspection was performed for the project area utilizing the 1:30,000 scale contact photographs. This activity was conducted in February thru September 1964 in conjunction with adjoining project PH-6401.

Analytic aerotriangulation was adequately provided by the Washington Science Center in June 1969. Tie points from photo strip #4 contained in adjoining project PH-6401 were included in this bridge. Aerotriangulation activity included ruling the base manuscripts and also provided ratio prints for compilation and hydrographic/field edit operations.

Compilation for this map was performed at the Coastal Mapping Section, Atlantic Marine Center in January 1973. Copies of the initial compilation and hydrographic support data were forwarded to the hydrographer for field edit.

Field edit was conducted in conjunction with hydrographic surveys R-9808 and H-9812 by NOAA ship FAIRWEATHER personnel in February 1979.

Application of field edit was performed at the original compilation office in October 1979. Map copies were submitted to Marine Charts and to the hydrographer for smooth sheet application.
Final review was performed at the Atlantic Marine Center in April 1987. A comparison was made with the common hydrographic survey and nautical chart. The original base manuscript and related data along with a final Chart Maintenance Print and a Hydrographic Print were forwarded to the Washington Science Center for registration and distribution.
FIELD INSPECTION

T-12555

Field activity prior to compilation included a field inspection of the shoreline and the recovery / photoidentification of horizontal control necessary for project aerotriangulation. Results of the 1964 field inspection were submitted on the 1:30,000 scale contact photographs.
Memorandum

TO : Chief, Photogrammetric Field Operations
THRU : Honolulu Field Office

FROM : Lt(jg) Edward P. Cline

DATE: August 5, 1964

SUBJECT: Control Identification Project No. 21413

No problems were found in the control identification on Project 21413. The following is a list of the stations identified on the various Flight Lines:

FLIGHT STRIP NO. 5
WAIKAKUU, 4, 1951
KAPUKAWAA, 1884
OHEPUUUPUU, 1890

FLIGHT STRIP NO. 6
KAMOI, 1948
NAPUU a PELE, 1891
PUU KI, 1914
TANK, 1948
Supplemental Stations Pricked:
KAUNA POINT LIGHT, 1949

FLIGHT STRIP NO. 7
KALAB 2, 1948
PALAHEMO 1898
KAMILIO, 1898
KIPAEPAE, 1898
Supplemental Stations Pricked:
KALAB LIGHT, 1948
KALAB, 1887
MAHANA, 1898

The ratio prints provided by the Washington Office were of great assistance in the identification of the stations and they were very well placed.

Edward P. Cline

Edward P. Cline
21. Area Covered

This project extends along the southwest shore of Hawaii Island. It includes T-sheets 12546 through 12561 at 1:10,000 and T-sheets 11796, 11797 and 13312 at 1:5,000. This project joins PH-6401 which extends along the northwest shore of the island.

22. Method

Strips were bridged on the stereoplanigraph and adjusted by IBM 1620 methods. Strip #4 discussed in the report for PH-6401. Strip #10 was adjusted on five triangulation stations with tie points from Strips #4 and #11 as checks. Strip #11 was adjusted on five stations with one station and tie points as checks. The adjustment of Strip #12 met with considerable problems. These problems were due to control identification on stations KAMIL0, KIPAEPAA on the northeast end of the strip. Points were dropped from Strip #11 to enable model 63-S-7964 and 7965 to be set, thus enabling T-sheet 12561 to be completed.

T-sheets 12559 and 12560 must await further field work. Difficulties were also experienced in bridging Strip #13. This problem was resolved by dropping enough points from Strips #4 and #10 to set individual models between 63-S-8080 and 8085. All points between strips were averaged. Points were drilled by using the Wild PUG.

23. Adequacy of Control

Control provided by the field was adequate. The following stations could not be held in the bridging adjustments.

1. KEEI SOUTH BASE, 1948, SS #1 and SS #2, could not be held in Strip #13, as was the case of Strip #4 in PH-6401. No reasons could be determined for the lack of adjustment with other points.
2. KAMIKO, 1949 and SS #1  3. KIPAEFAE, 1948 and SS #1. Problems with these two stations could not be resolved. Re-identification of the stations is planned at the same time that work continues to the east.

4. McCANDLESS, 1948 SS #1 and SS #2 although held in the bridging could be seen on only one photograph in Strip #10 due to cloud coverage.

24. **Supplemental Data**

Ratio prints will be provided to aid in compilation. Local USGS quads were used to provide vertical points needed for the strip adjustment program.

25. **Photography**

Photography was not adequate to provide coverage of the 1:5,000 scale sheets. This inadequate coverage was caused by a change in the limits of the 1:5,000 areas after bridging was nearing completion. Photography was adequate in regard to definition and overlap.

Submitted by,

[Signature]

John D. Perrow, Jr.

Approved by,

[Signature]

Henry P. Eichert
Chief, Aerotriangulation Section
Notes to Compiler
PH-6402
Hawaii Island, Hawaii

The following points should be used in setting individual models along Strips #12 and #13.

(1) 63-S-7964-7965
Points 68803, 68804, 67100, 67101, 64100, 64101, 64102 and 64103.

(2) 63-S-8080-8081
Points 22330, 23310, 23800, 23801

(3) 63-S-8081-8082
Points 77331, 78333, 22801, 23800, McCANDLESS SS #1 and SS #2

(4) 63-S-8082-8083
Points 76331, 77331, 77333

(5) 63-S-8083-8084
Points 75331 HONAIUNAU ST, BENEDICT CATH, CH. SPIRE, 1948 plus points dropped from model 8082-8083.

(6) 63-S-8084-8085
Points 75331, 75333 plus points dropped from model 8083-8084.

Plates 63-S-7821 and 7824 were not used in bridging Strip #10.

Plates 63-S-7976, 7978, 7880, 7982 and 7984 were not used in Strip #11.
JOB PH-6402
SHORELINE MAPPING
HAWAII IS. WEST COAST
AILUA TO SOUTH CAPE
SCALE 1:10,000

OFFICE
1. POINT
2. KANAKU
3. HOAUNAU ST. BENEDICT
4. KEET S. BASE
5. McCANDLESS
6. WAIKAKU 4, 571
7. KAPUKAWA, 1962-1968
8. KAMOI, 1948
9. NA PUA PELE 1949
10. PUKU KI, 1949
11. TAIK, 1949
12. KIPEPAE, 1948
13. KUMALO, 1949
14. MAHANA, 1949
15. PALAHEMO, 1948
16. KALAE, 1948
17. KALAE2, 1948
18. KALAE LIGHT, 1948
19. OHEFOUPU, 1948
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<th>JOB NO.</th>
<th>GEOGRAPHIC DATUM</th>
<th>ORIGINATING ACTIVITY</th>
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<tr>
<td>T-12555</td>
<td>PH-6402</td>
<td>Old Hawaiian Datum</td>
<td>Coastal Mapping Section, AMC</td>
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<th>STATION NAME</th>
<th>SOURCE OF INFORMATION</th>
<th>AEROTRI-ANGULATION POINT NUMBER</th>
<th>COORDINATES IN FEET</th>
<th>GEOGRAPHIC POSITION</th>
<th>REMARKS</th>
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<td>G.P.</td>
<td>Pg. 18</td>
<td>x=</td>
<td>φ 19° 01' 48.274&quot;</td>
<td>λ 155° 51' 21.266&quot;</td>
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COMPUTED BY: A. C. Rauck, Jr.  DATE: 7-29-69
COMPUTATION CHECKED BY: R. White  DATE: 2-13-70
LISTED BY: DATE: 
LISTING CHECKED BY: DATE: 
HAND PLOTTING BY: DATE: 
HAND PLOTTING CHECKED BY: DATE: 

SUPERSEDES NOAA FORM 76-41, 2-71 EDITION WHICH IS OBSOLETE.
31. **DELINEATION:**

Delineation was by instrument methods using the Wild B-8 stereoplotters and 1:30,000 scale panchromatic compilation/bridging photographs. Ratio prints of the 1:15,000 scale color photographs were used graphically to supplement the compilation of minor detail and to assist in photo interpretation.

The field inspection supplied on the 1:30,000 scale contact prints was difficult to interpret. Individual rocks that could not be clearly identified during compilation were not compiled.

Photo quality and coverage were adequate.

32. **CONTROL:**

Refer to the Photogrammetric Plot Report, dated June 10, 1969.

33. **SUPPLEMENTAL DATA:**

None.

34. **CONTOURS AND DRAINAGE:**

Contours are inapplicable. Drainage was delineated from the compilation photographs.

35. **SHORELINE AND ALONGSHORE DETAILS:**

The shoreline, coral and foul limits were delineated from office interpretation of the photographs and from the annotated photographs resulting from the precompilation field inspection. Because of the small tide range, no mean lower low water line was compiled.

36. **OFFSHORE DETAILS:**

Compilation of offshore detail was performed as described in Item #31.

37. **LANDMARKS AND AIDS:**

There were no charted fixed aids or landmarks within the limits of this manuscript.
38. **CONTROL FOR FUTURE SURVEYS:**

None.

39. **JUNCTIONS:**

Refer to the Data Record Form 76-36B, Item 5.

40. **HORIZONTAL AND VERTICAL ACCURACY:**

Refer to the Photogrammetric Plot Report dated June 10, 1969.

46. **COMPARISON WITH EXISTING MAPS:**

A comparison was made with USGS quadrangle Pohue Bay, Hawaii, scale 1:24,000, dated 1962.

47. **COMPARISON WITH NAUTICAL CHARTS:**


**ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY:**

None.

**ITEMS TO BE CARRIED FORWARD:**

None.

Submitted by:

[Signature]

R. White
Cartographic Technician
January 1973

Approved:

[Signature]

Albert C. Rauch, Jr.
Chief, Coastal Mapping Section
ADDENDUM TO THE COMPILATION REPORT

T-12555

Field edit was performed in February 1979 by NOAA ship FAIRWEATHER personnel. Adequate field data was furnished to advance the manuscript to Class I.
GEOGRAPHIC NAMES
FINAL NAME SHEET
PH-6402 Hawaii
T-12555

Awili Point
Humuhumu Point
Island of Hawaii
Kaupuaa Point
Keawaiki
Kukihiki Point
Na Puu a Pele
Pacific Ocean

Approved by:
A. J. Wright
Chief Geographer

Prepared by:
Frank W. Pickett
Cartographic Technician
Description

Jagged lava flow cliffs, ranging from 5 to 30 feet in height, extend along much of the coastline, along with a few volcanic cinder cones. There are a few small black-sand beaches. Submerged ledges and submerged rocks are common with extreme depths just offshore.

Method

Most of the field edit was done on foot with a skiff standing-by offshore to confirm submerged features. Skiff activities were directed by the shore party via radio. Some of the field edit was done completely from the skiff because of exceptionally calm seas. Existing features were compared to the discrepancy print and to the color photographs. Changes and additions were depicted on the photographs. Rock heights, deletions, and answers to questions posed by the stereo compiler were written on the discrepancy print. Discrepancies noted between the field edit and the hydrographic data have been resolved.

Adequacy and Completeness of Compilation

Compilation of the manuscript was adequate.

Manuscript Accuracy

The manuscript, as compiled, compared very well with items inspected. The terrain did not allow for measurements to the mean high water line from photo identifiable points.

Recommendations

This manuscript should be accepted for charting purposes after the corrections have been applied.

Submitted by:

LeeAnne Roberts, Lt(jg), NOAA

Approved by:

Bruce I. Williams, Cdr, NOAA
Commanding Officer
NOAA Ship Fairweather
REVIEW REPORT
SHORELINE
T-12555

61. GENERAL STATEMENT:

Final review for this Final Field Edited Map was accomplished at the Atlantic Marine Center in April 1987. For a schedule of the office and field operations, refer to the Summary included with this Descriptive Report.

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS:

Not applicable.

63. COMPARISON WITH MAPS OF OTHER AGENCIES:

A comparison was made with USGS quadrangle Pohue Bay, Hawaii, 1:24,000 scale, dated 1962.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS:

A comparison was made with hydrographic surveys H-9808, FA-10-2-79 and H-9812, FA-10-3-79; both surveyed in 1979 at 1:10,000 scale. No significant differences were noted.

65. COMPARISON WITH NAUTICAL CHARTS:

A comparison was made with NOS Chart 19320, 13th edition, scale 1:250,000, July 10, 1982.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS:

This map complies with the Project Instructions, and meets the requirements for National Standards of Map Accuracy.

Submitted by:

Jerry L. Hancock
Final Reviewer

Approved for forwarding:

Billy H. Barnes
Chief, Photogrammetric Section, AMC

Approved:

J. O. Robson
Chief, Photogrammetric Production Sec.  
A. Y. Bynum
Chief, Photogrammetry Branch
**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 Revi

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