

11963

11963

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-11963

LOCALITY

State HawaiiGeneral locality MolokaiLocality Kaluaaha1961 - 196A2

CHIEF OF PARTY

H.J. Seaborg, Honolulu District Office

M.J. Tonkel, Baltimore District Office

LIBRARY & ARCHIVES

DATE _____

DESCRIPTIVE REPORT - DATA RECORD

T-11963

PROJECT NO. (II):

PH-6201

FIELD OFFICE (II):

Honolulu District Office

CHIEF OF PARTY

H. J. Seaborg

PHOTOGRAMMETRIC OFFICE (III):

Baltimore District Office

OFFICER-IN-CHARGE

M. J. Tonkel

INSTRUCTIONS DATED (II) (III):

II April 25, 1962
III May 31, 1962
III December 14, 1962 Amendment 1

METHOD OF COMPILATION (III):

Kelsh Plotter

MANUSCRIPT SCALE (III):

1:5,000

STEREOSCOPIC PLOTTING INSTRUMENT SCALE (III):

1:5,000

DATE RECEIVED IN WASHINGTON OFFICE (IV):

DATE REPORTED TO NAUTICAL CHART BRANCH (IV):

APPLIED TO CHART NO.

DATE:

DATE REGISTERED (IV):

GEOGRAPHIC DATUM (III):

Old Hawaiian Datum

VERTICAL DATUM (III):

MEAN SEA LEVEL EXCEPT AS FOLLOWS:

Elevations shown as (25) refer to mean high water

Elevations shown as (5) refer to sounding datum

i.e., mean low water or mean lower low water

REFERENCE STATION (III):

MAPULEHU, 1925

LAT.:

LONG.:

☒ ADJUSTED☐ UNADJUSTED

PLANE COORDINATES (IV):

STATE

ZONE

Y = 267,686.74

X = 452,877.68

Hawaii

2

NUMERALS INDICATE WHETHER THE ITEM IS TO BE ENTERED BY (II) FIELD PARTY, (III) PHOTOGRAMMETRIC OFFICE,
(IV) WASHINGTON OFFICE.

WHEN ENTERING NAMES OF PERSONNEL ON THIS RECORD GIVE THE SURNAME AND INITIALS, NOT INITIALS ONLY.

DESCRIPTIVE REPORT - DATA RECORD

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

1961 Photography with field inspection.

PROJECTION AND GRIDS RULED BY (IV):		DATE
F. E. Buck		July 1962
PROJECTION AND GRIDS CHECKED BY (IV):		DATE
W. Masula		July 1962
CONTROL PLOTTED BY (III):		DATE
H. R. Rudolph		July 1962
CONTROL CHECKED BY (III):		DATE
J. Steinberg		July 1962
RADIAL PLOT OR STEREOSCOPIC CONTROL EXTENSION BY (III):		DATE
STEREOSCOPIC INSTRUMENT COMPILATION (III):	PLANIMETRY	DATE
	J. T. Richter	July 1962
	CONTOURS	DATE
MANUSCRIPT DELINEATED BY (III):		DATE

DESCRIPTIVE REPORT - DATA RECORD

CAMERA (KIND OR SOURCE) (III):



RC-8 "W"

PHOTOGRAPHS (III)

NUMBER	DATE	TIME	SCALE	STAGE OF TIDE
61W994 - 996	24 Sept. 1961	1147	1:15,000	0.9' above MLLW

TIDE (III)

Diurnal

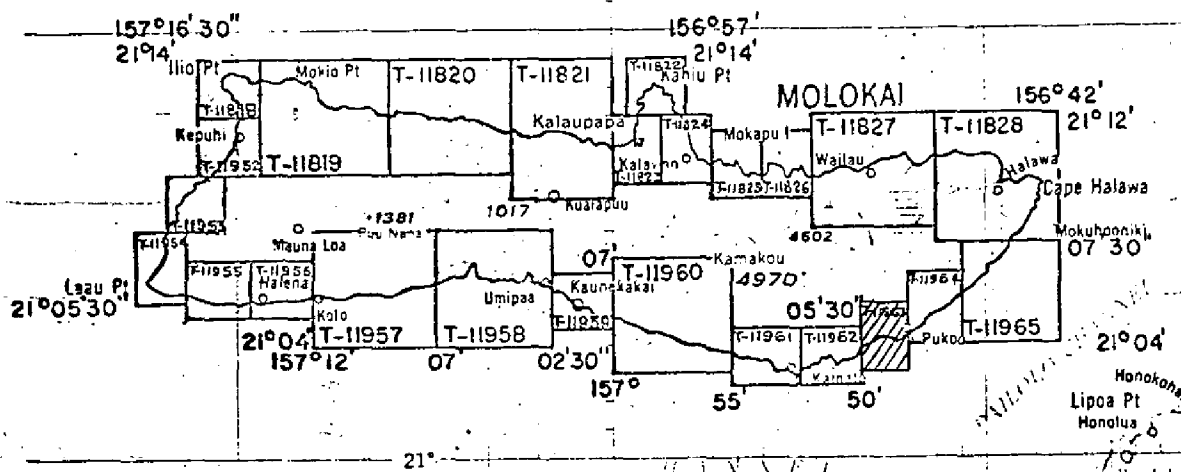
T-11963

COMPILATION RECORD	COMPLETION DATE	REMARKS
Alongshore area for hydro	Aug 1963	
Final Review	Jan 1971	

PROJECT PH-6201

SHORELINE MAPPING

1:5,000 AND 1:10,000 SCALES
MOLOKAI ISLAND HAWAII



Official Mileage for Cost Accounts

Sheet No.	Shoreline Lin. Mi.	Area Sq. Mi.	Sheet No.	Shoreline Lin. Mi.	Area Sq. Mi.
11818	4	4	11952	3	3
11819	6	6	11953	3	3
11820	6	6	11954	2	2
11821	4	4	11955	3	3
11822	3	3	11956	3	3
11823	1	1	11957	6	6
11824	3	3	11958	5	5
11825	3	3	11959	3	3
11826	3	3	11960	6	6
11827	6	6	11961	3	3
11828	9	9	11962	4	4
			11963	3	3
			11964	3	3
			11965	3	3
Total			98	98	

SUMMARY TO ACCOMPANY
DESCRIPTIVE REPORT T-11963

Shoreline survey T-11963 is one of twenty-five similar surveys in project PH-6201. The surveys of this project cover the entire coast line of Molokai. This survey covers that part of the south coast extending from Pukoo Harbor westward to Ualapue Fishpond. See page 5 for the area within the project.

Field work preceded compilation. This consisted of identification of horizontal control, shoreline and field inspection and selection of landmarks for nautical charts.

Compilation was at 1:5,000 scale by Kelsh Instrument methods using the photography of October 1960 and September 1961. Cronaflex copies of the compilation manuscript along with ozalids and specially prepared photographs were furnished for transfer of the shoreline to the boat sheet, field edit use and photo-hydro support.

There is no field edit report or field edit sheet for this survey. It is believed to have been field edited in conjunction with hydrography in the area and no discrepancies noted.

The manuscript was a vinylite sheet 2 minutes 30 seconds in latitude by 2 minutes in longitude which was scribed and reproduced on cronaflex. Final review was in the Atlantic Marine Center in January 1971. One cronaflex positive and a negative of the final reviewed survey are forwarded for record and registry.

FIELD INSPECTION REPORT

Map Manuscripts
T-11952 thru 11965
T-11916 thru 11828

Project PH-6201

January - October 1962

2. AERIAL FIELD INSPECTION

The area covered by this report encompasses the whole of the island of Molokai. This is the fifth largest of the group of islands that form the State of Hawaii. The island was originally formed by the eruption of two volcanos. One was located somewhere near the east end of the island and the other somewhere near the west end. Following these eruptions the numerous deep drainages were created by stream erosion and the ocean created the great cliffs along the north coast. A later eruption formed the Maianalua Peninsula on the north central coast. The Kauhako Crater remains as evidence of this eruption. The highest peak is Kanakou which is 4958 feet above sea level.

The climate of the island varies considerably depending on the elevation and location in relation to the prevailing trade winds. The mean annual temperature at sea level is about 74 degrees. The temperature seldom varies more than 10 degrees except at the higher elevations. The yearly rainfall varies from about 7 inches around Kaunakakai to over 150 inches in the high mountain sections of the northeast.

The only port in use on the island is located at Kaunakakai. A small wharf connected to the shore by a long mole is used to load and unload barges, and serve small commercial and private boats. At one time a railroad connected the wharf to the area now known as Hoolehua Homesteads. It was abandoned soon after completion as the sugar plantation it was constructed to serve was a failure. The economy of the island is almost wholly dependent on the growing of pineapple and cattle ranching.

The wharf located at Kolo was used for a time to load pineapple from the Maunaloa area. It was later abandoned and since that time has been partially destroyed by fire. The wharf located at Kamalo is now in poor condition and seldom used except by an occasional small fishing or pleasure boat. The wharf located at Pukoo is no longer in evidence. Located at Haleolon is a small harbor protected by a breakwater. This is a private harbor and is used to load sand and cinder barges for shipment to Oahu. A small private airstrip is located along the easterly breakwater.

Located on the Makenalua Peninsula is the small settlement of Kalau-papa. The settlement is maintained by the State of Hawaii, Department of Health for the treatment of Hansen's Disease (Leprosy). Special permission must be obtained from the state before visiting this area. No facilities for serving the public are permitted on the peninsula. The U.S. Coast Guard maintains an isolated light station at the northern tip of the peninsula. The area is served by limited airplane service and supplies are brought in by barge at infrequent intervals. A small wharf protected by a short breakwater is located at the settlement. This area is isolated from the remainder of the island except for a foot trail that leads down the steep rocky cliffs from the top of the pali southwest of the settlement.

Shoreline around the island vary from the almost vertical rock cliffs along most of the north and east coast, to the narrow and relatively flat coastal areas along the south coast. Most of the south coast is protected by an offshore reef. A few sandy beaches are located along the south and west coasts. Most of the north coast is accessible only by boat and any landings there should be attempted with extreme caution.

Photography was adequate for the identification of horizontal control and shoreline inspection for most of the island. A few sections of the shoreline along the northeast coast of the island were in complete shadow from the most vertical cliffs.

The shoreline for the entire island was visually inspected on the mean high water noted on the field photographs. The shoreline along the north coast except for the Makenalua Peninsula was inspected by cruising offshore in a small boat. The work was difficult due to the small size of the boat, the rough seas, and strong winds. A few landings were made on the more prominent points along the northeast coast. The remainder of the island was inspected by walking the shoreline in the more accessible areas, and by observations from vantage points along bluffs and cliffs where the shoreline could not be otherwise visited. Scattered sections of the shoreline along the south coast were obscured by overhanging Keawe trees and dense growths of Mangrove trees.

3. HORIZONTAL CONTROL

(a) The following described intersection stations were located by traverse or triangulation as nautical aids, aeronautical aids, and landmarks.

Kolokai Lighthouse
 Kolokai Airport Beacon
 Waihuna, Aero Beacon Red Light
 Kaulapuu, Aero Beacon Red Light

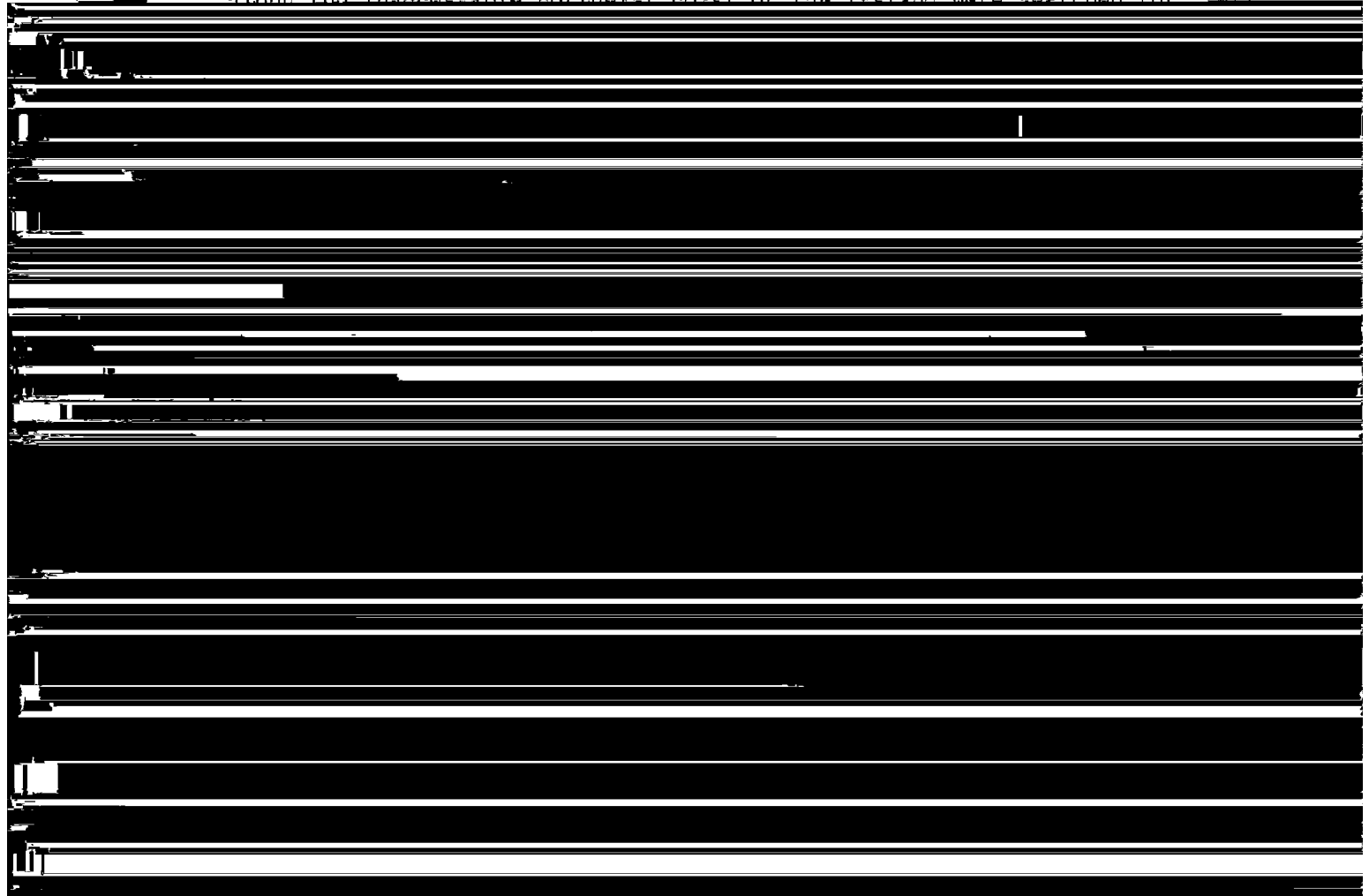
Holohai VOR (133K)
 Puu Anahu, Tank
 Ilio Pt., Coast Guard Loran Mast
 Waiahewahewa, Aero Beacon Red Light
 Lahu Pt. Light
 Kaunakakai Harbor, Entrance Range, Front Light
 Kaunakakai Harbor, Entrance Range, Rear Light

(b) No datum adjustments were made by the field party.

(c) WAILI 2, 1945 was the only control station identified that was not established by the Coast and Geodetic Survey. This station was established by the Territory of Hawaii and can be considered as third order accuracy. The station was destroyed before it could be tied to the 1962 work. HELENA, 1962 which is located about a half mile west of this station was later identified. All other control stations identified were established by the Coast and Geodetic Survey or tied to by the geodetic party during the 1962 season. Many of the old stations could not be recovered and new stations had to be established to meet the control requirements.

(d) Control stations were positively identified in all areas indicated on the control diagram.

(e) All control stations within the limits of the project except for a few along the inaccessible northeast coast of the island were searched for. Part



A total of 13 U. S. Geological Survey bench marks were searched for. These marks were used in conjunction with the tellurometer traverse work on the island and for use in determining the elevation of landmarks. All marks were listed on Form 685 which was submitted to the Honolulu District Officer.

5. CONTOURS AND DRAINAGE

Contours not applicable

Drainage is self evident on the photographs. All streams except for a few in the larger valleys of the northeast coast and near the east end of the south coast are intermittent. During the wet season there are dozens of waterfalls cascading from the tops of the cliffs and rims of the valleys of the northeast coast. Marsh areas have been indicated on the field photographs.

6. WOODLAND COVER

The mountainous areas of the northeast part of the island is covered with a dense growth of native ferns and hardwoods. A large stand of planted softwoods is located along the top of the pali in the north central part of the island. Keawe trees which were introduced to the island about 100 years ago cover most of the remainder of the island except for the cultivated areas. Along the mud flats of the south coast there are scattered stands of introduced Mangrove trees.

7. SHORELINE AND ALONGSHORE FEATURES

(a) The mean high water line was indicated on the photographs. Along some sections of the northeast coast the shoreline was obscured due to the shadows created on the photographs from the almost vertical cliffs. In some areas of the south coast the shoreline was partially obscured by low overhanging Kiawe trees. In most cases this overhang was less than 10 meters and the approximate correct location was indicated on the photographs. Also along the south coast there are scattered stands of Mangrove trees. In these areas the mean high water line was indicated as apparent shoreline.

The shoreline along the north, east, and small areas of the west and southwest coast contain many areas of alongshore rocks, projecting reefs and ledges, and almost vertical bluffs. These features combined with a normally heavy surf breaking along the shore tend to confuse the location of the mean high water line on the photographs.

Where possible especially along the beach areas and the more accessible sections of the coast the location of the mean high water line was determined by measurements to near by objects.

- (b) The low water line was not indicated on the photographs.
- (c) Where possible the character of the foreshore was indicated on the photographs.
- (d) The north, east, and sections of the west and southwest coast is bordered by rocky cliffs. In some cases these cliffs are over 2000 feet high. Along most of the south coast, sections of the west coast, and the Moonomi area the land has a more gradual slope with a small relatively flat area adjacent to the coast.
- (e) The only unnatural features to be found in the project area were located at Kalaupapa, Kamalo, Kaunakakai, Kolo, and Haleolono. All information regarding these features was indicated on the field photographs.
- (f) Not applicable
- (g) Along the south shore there are the remains of many fishponds. The stone walls for some of these have been completely leveled and for most of the others large sections of the walls have been leveled. The location of these fishponds is apparent on the photographs.

8. OFFSHORE FEATURES

Offshore rocks are located along many areas of the north, east, and sections of the west and southwest coast. Most of these rocks that are visible on the photographs are adjacent to the shore. In these areas it is probable that there are many rocks that are not visible on the photographs but are close enough to the surface of the water to consider the foreshore as being foul with submerged rocks. The height of many of the rocks along the shore were estimated at the time the shoreline was inspected.

A reef about 0.5 to 1.0 mile offshore is located along most of the south coast. Between the reef and the shore there are scattered areas of sand and many coral heads that project at low water.

9. LANDMARKS AND AIDS

(a) All charted landmarks were investigated by the field party. A total of 13 old landmarks were deleted from the charts and four old landmarks were retained. A total of 11 new landmarks were selected for charting. The old landmarks which were to be deleted were indicated on the sections of the charts on which they appeared. These sections of the charts will be submitted with the field records. All old landmarks that were retained and

(c) The geographic positions for the following charted aeronautical aids was determined by traverse or triangulation during the 1962 field season.

Molokai, Airport Beacon

Waiahewahewa, Aero Beacon Red Light

Waihura, Aero Beacon, Red Light

All public buildings with their function was indicated on the field photographs.

The main airport serving the island is located south of the Hoolehua Homestead area in the central section of the island. A small airport for use by small aircraft is located on the Makenalua Peninsula. A small private airstrip is located at Haleolon near the southwest end of the island.

No bridges or overhead cable crossings over navigable water are located in the project area. There are no submerged cables connecting the island with other areas.

13. GEOGRAPHIC NAMES

Not Applicable

Approved:

H. J. Seaborg
H. J. Seaborg

OCT 30 1962

Respectfully submitted:

Leonard F. Van Scoy
Leonard F. Van Scoy

Aerotriangulation Report
MOLOKAI Island, Hawaii
Project PH-6201
July 1962

Aera Covered

This report discusses the results of aerotriangulation of three strips of photographs on the southeast portion of Molokai Island. It covers shoreline surveys T-11828 (in part) at 1:10,000 scale, T-11058 (in part) at 1:10,000 scale

ISLAND OF MOLOKAI, HAWAII
PH - 5201
STRIP 1

PHOTOGRAPHS 61-41-18
THRU 61-41-948 TAKEN 15
24 SEP 61

LIPEHI, 1915

SUB A (-0.3, +0.9)
SUB B (-0.2, +1.3)

88000

KUMIMI

SUB B (+4.8, -2.3)
SUB A (+2.8, -3.6)

90000

PUU MANO, 1915

HONOMUNI, 1925

92000

SUB B (-2.5, +3.5)
SUB A (-3.3, +3.3) MAPULEHU, 1925

96000

98000

KEAWANUI

SUB A (+2.3, -3.6)
SUB B (+0.5, -1.3)

HORIZONTAL CONTROL USE
IN ADJUSTMENT

5 JULY 1962

ISLAND OF MOLOKAI, HAWAII

PH - 6201

STRIP 2

PHOTOGRAPHS 61-W-715

THRU 61-W-733 TAKEN

23 SEP 61

157°04'30"

21°07'00"

SUB B (-0.3, +0.2)
SUB A (0, +0.1)

PUU E. KAHANUI

16

16000

16000

HALEALI, 1962 SUB B (+12.4, +0.2)
SUB A (+5.5, +5.5)

21000

24000

ONINI, 1915 (+0.2, 0)

27000

PUU PAPAI SUB A (+4.2, 0)

30000

RAYKAMA, 1961

SUB B (+4.5, -3.0)
SUB A (+7.0, -9.0)

32000

21°02'45"

156°51'15"



HORIZONTAL CONTROL USED
IN ADJUSTMENT

6 JULY 1962

OL

SUB B (-0.2, +2.7)
SUB A (0, 0)

KEAYANUI, 1915

ISLAND OF MOLOKAI, HAWAII
PH - 8201
STRIP 3
PHOTOGRAPHS 61-W-776
THRU 61-W-980 TAKEN
24 SEP 61

17

WUPEHU, 1915 SUB PT. B (0,0)
SUB PT A (+2.3, -1.0)

TIE PT. TO STRIP 1 - 87330
(+1.2, -1.5)

88310 - TIE PT. TO STRIP 1
(-5.5, -0.2)

SUB PT A (+0.2, +4.2)
SUB PT B (+1.0, +5.6) PULU O HOKU, 1913

76000

77000

78000

79000

HORIZONTAL CONTROL USED
IN ADJUSTMENT

19 JULY 1962

SUB PT C (+0.2, -0.5)
SUB PT B (0,0) KAPU POI A, 1952

U.S. DEPARTMENT OF COMMERCE
DESCRIPTIVE REPORT

P T-11963

PROJECT NO. PH 6201

SCALE OF MAP 1:5,000

SCALE FACTOR 1.000

[illegible]

1048006 METER

1048006 METER
E. L. Williams
TED AV.

DATE 2/15/63

CHECKED BY: D. M. Braant

DATE 3/1/63

COMM-DC-57843

PROJECT 21044 (FH-6201)

Preliminary Compilation Report
Surveys T-11359 thru T-1196531. DELINEATION

Stereoscopic instrument (Kelsh Plotter) methods were used for compilation with photography taken in 1961.

Interior details are incomplete.

32. CONTROL

The identification, density and placement of horizontal control was adequate.

33. SUPPLEMENTAL DATA

None

34. CONTOURS AND DRAINAGE

Contours - Inapplicable

Drainage was delineated by stereoscopic methods.

35. SHORELINE AND ALONGSHORE DETAILS

Shoreline inspection was adequate. The highwater line was delineated using the reference distances from prominent objects where they were recorded on the field inspection photographs.

The low water line (where shown) was delineated from office interpretation of the photographs.

36. OFFSHORE DETAILS

Offshore details (reef lines, etc.) were delineated from office interpretation of the photographs. The color photography was used as an aid for compiling the offshore details.

37. LANDMARKS AND AIDS

Landmarks and aids for surveys T-11959 thru T-11965 are reported on Forms 567. Copies of these forms are a part of this report.

38. CONTROL FOR FUTURE SURVEYS

There are no recoverable topographic stations on this group of surveys.

An incomplete copy of these surveys showing the shoreline and offshore details along with a set of ratio photographs with pass points and field identified photo-hydro signals was prepared and submitted for the use of the hydrographic party.

39. JUNCTIONS

Junctions for surveys T-11959 thru T-11965 are in agreement.

40. HORIZONTAL AND VERTICAL ACCURACY

See Item 23 of the Aerotriangulation Report bound with this report.

46. COMPARISON WITH EXISTING MAPS

Comparison was made with the following U.S.G.S. Quadrangles:

Kanalo, Hawaii	1:24,000 Scale	1952
Halawa, Hawaii	" "	"
Kaunakai, Hawaii	" "	"

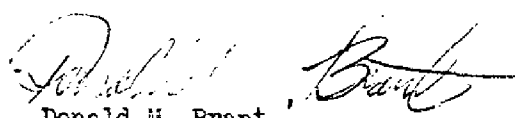
47. COMPARISON WITH NAUTICAL CHARTS

Chart No. 4130	1:80,000	3rd Ed. 1936	Revised 6/2/58
Chart No. 4120	1:80,000	1st Ed. 1942	Revised 8/1/60
Chart No. 4121	1:5,000	1st Ed. 1928	Revised 9/17/57


Items to be applied to Nautical Charts immediately: None

Items to be carried forward: None

Respectfully submitted,
22 January 1964


Donald M. Brant
Carto. (Photo.)

Approved and Forwarded


Miller J. Tonkel
CDR. C. & G.-S.
Baltimore District Office

September 11, 1970

GEOGRAPHIC NAMES

FINAL NAME SHEET

PH-6201 (Molokai Island, Hawaii)

T-11963

Kalohi Channel

Kaluaaha (village)

Kaopeahina Fishpond

Niaupala Fishpond

Pipio Fishpond

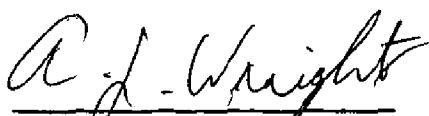
Pukoo Fishpond

Pukoo Harbor

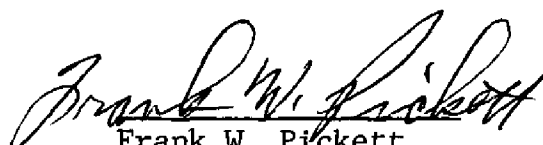
Ualapue Fishpond

Molokai

Approved by:


A. Joseph Wraight
Chief Geographer

Prepared by:


Frank W. Pickett
Cartographic Technician

PHOTOGRAMMETRIC OFFICE REVIEW

T- 11963

1. PROJECTION AND GRIDS DMB	2. TITLE DMB	3. MANUSCRIPT NUMBERS DMB	4. MANUSCRIPT SIZE DMB
CONTROL STATIONS			
5. HORIZONTAL CONTROL STATIONS OF THIRD-ORDER OR HIGHER ACCURACY DMB	6. RECOVERABLE HORIZONTAL STATIONS OF LESS THAN THIRD-ORDER ACCURACY (Topographic stations) DMB		7. PHOTO HYDRO STATIONS DMB
8. BENCH MARKS DMB	9. PLOTTING OF SEXTANT FIXES XX	10. PHOTOGRAMMETRIC PLOT REPORT DBM	11. DETAIL POINTS DMB
ALONGSHORE AREAS (Nautical Chart Data)			
12. SHORELINE DMB	13. LOW-WATER LINE DMB	14. ROCKS, SHOALS, ETC. DMB	15. BRIDGES XX
16. AIDS TO NAVIGATION DMB	17. LANDMARKS DMB	18. OTHER ALONGSHORE PHYSICAL FEATURES DMB	19. OTHER ALONGSHORE CULTURAL FEATURES DMB
PHYSICAL FEATURES			
20. WATER FEATURES DMB	21. NATURAL GROUND COVER DMB		22. PLANETABLE CONTOURS XX
23. STEREOSCOPIC INSTRUMENT CONTOURS XX	24. CONTOURS IN GENERAL XX	25. SPOT ELEVATIONS XX	26. OTHER PHYSICAL FEATURES DMB
CULTURAL FEATURES			
27. ROADS DMB	28. BUILDINGS DNB	29. RAILROADS DMB	30. OTHER CULTURAL FEATURES DMB
BOUNDARIES			
31. BOUNDARY LINES XX		32. PUBLIC LAND LINES XX	
MISCELLANEOUS			
33. GEOGRAPHIC NAMES DMB	34. JUNCTIONS DMB		35. LEGIBILITY OF THE MANUSCRIPT DMB
36. DISCREPANCY OVERLAY DMB	37. DESCRIPTIVE REPORT DMB	38. FIELD INSPECTION PHOTOGRAPHS DMB	39. FORMS DMB
40. REVIEWER D.M. Brant		SUPERVISOR, REVIEW SECTION OR UNIT Joseph Steinberg	
41. REMARKS (See attached sheet)			
FIELD COMPLETION ADDITIONS AND CORRECTIONS TO THE MANUSCRIPT			
42. Additions and corrections furnished by the field completion survey have been applied to the manuscript. The manuscript is now complete except as noted under item 43.			
COMPILER		SUPERVISOR	
43. REMARKS			

REVIEW REPORT T-11963

SHORELINE

JANUARY 8, 1971

61. GENERAL STATEMENT:

See Summary, which is page 6 of the Descriptive Report.

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS:

Comparison was made with copies of registered surveys No. 4112, 1:5,000 scale, dated April 1925 and No. 3531, 1:20,000 scale, dated 1915. The passage of time has made those surveys obsolete. They are superseded by T-11963 for nautical chart construction purposes.

63. COMPARISON WITH MAPS OF OTHER AGENCIES:

Comparison was made with U.S.G.S. KAMALO and HALAWA, HAWAII, quadrangles. These are 1:24,000 scale surveys, 1952 editions. The surveys are in good general agreement, no major conflicts were noted during final review.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS:

Comparison was made with a copy of boat sheet H-8829, PF-5-2-65. It was noted that sounding lines penetrate the coral reef area to the west of Pukoo Harbor. As the coral area as delineated on T-11963 appears to be depictive of the entire area it was not changed during final review.

65. COMPARISON WITH NAUTICAL CHARTS:

Comparison was made with charts 4121, 6th edition, September 30, 1968 and 4130, 6th edition, February 10, 1969. The charts and survey T-11963 are in good general agreement except for the limits of the reef area on the west side of Pukoo Harbor. This has been noted on the comparison print in red.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS:

This survey complies with instructions and meets the National Standards of Map Accuracy.

Reviewed by:

Leo F. Beugnet
Leo F. Beugnet
Cartographer

Approved by:

Allen L. Powell
Allen L. Powell, RADM, NOAA
Director, Atlantic Marine Center

Approved by:

Charles Lerner Chief, Photogrammetric Branch, *Jack E. Guth* Chief, Photogrammetry Division

U. S. COAST AND GEODETIC SURVEY

TO BE CHARTED

STRIKE OUT ONE

NONTECHNICAL AIDS OR LANDMARKS FOR CHARTS

Molokai Island, Hawaii

25 Jan. 1963

I recommend that the following objects which have ~~been~~ been inspected from seaward to determine their value as landmarks be charted on ~~the~~ the charts indicated.

The positions given have been checked after listing by Donald M. Brant

Miller J. Tonkel

Chief of Party.

[illegible]

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804. Positions of charted landmarks and *nonfloating aids* to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

