

# 10056

Diagram No. 4116-2

NOAA FORM 76-35A

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

## DESCRIPTIVE REPORT

Type of Survey ..... Hydrographic  
Field No. .... FA-10-7-82  
Office No..... H-10056

### LOCALITY

State ..... Hawai'i  
General Locality East Coast of Oahu  
Locality ..... Kailua Bay and Vicinity

1982

CHIEF OF PARTY  
CDR W.F. Forster

### LIBRARY & ARCHIVES

DATE ..... August 8, 1984

# 10056

*Area 6*  
*CHTS*

- 19357
- 19340
- 19007
- 19004
- 19010
- 540

*to sign off on*  
*Record by [unclear]*

HYDROGRAPHIC TITLE SHEET

H-10056

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form,  
filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

FA-10-7-82

State Hawaii

General locality East Coast of Oahu

Locality Kailua Bay and Vicinity

Scale 1:10,000

Date of survey October 12 - November 19, 1982

Instructions dated July 30, 1982

Project No. OPR-T126

Vessel 2020, 2023, 2024, 2025, 2027

Chief of party CDR W. F. Forster, NOAA

Surveyed by LT Baxter, LT Ramsey, LTJG Tuell, ENS Francis, ENS Bailey, ENS Steele,  
ENS Koch, ENS Migaiolo

Soundings taken by echo sounder, hand lead, pole Ross Fineline 5000

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Verified ~~XXXXXXXX~~ by L. T. Deodato

Automated plot by \_\_\_\_\_

Evaluated ~~XXXXXXXX~~ by G. E. Kay

Soundings in fathoms ~~XXXX~~ at MLLW ~~XXXX~~

REMARKS: Annotations in black were made during evaluation

STANDARDS C/D 8-14-84

C. Kay

ALDIS - 8/30/84 [signature]

SURF - 8/30/84 [signature]

SC4-22-97

158 00

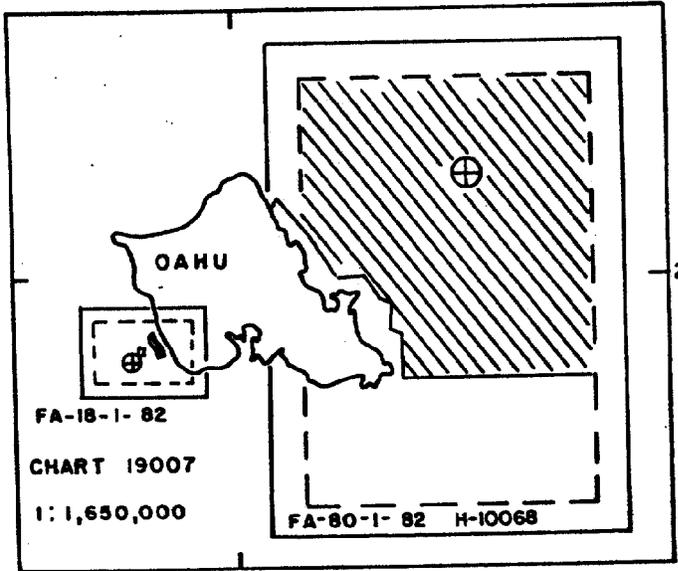
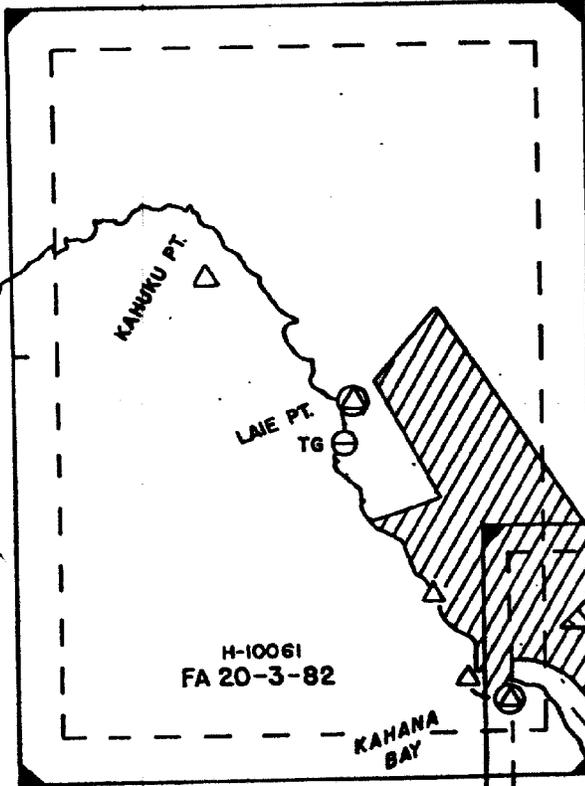
157 50

157 40

	OCT	NOV
SQ NM SOUNDING LINE	19	579
LMN SOUNDING LINE	651.3	1364.4
BOTTOM SAMPLES	58	140
NANSEN CAST	1	2
WATER SAMPLES ANALYZED	11	31
HYDRO CONTROL STATIONS	10	1
TIDE GAGE INSTALLED	1	1

- △ STATIONS ESTABLISHED
- ⊙ STATIONS RECOVERED
- ⊖ TIDE GAGE
- ⊕ NANSEN CAST

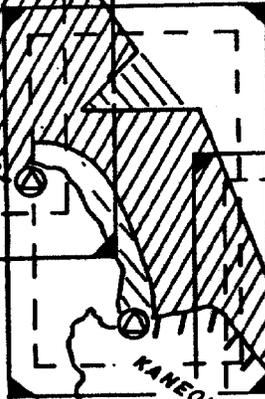
21 50



21 30

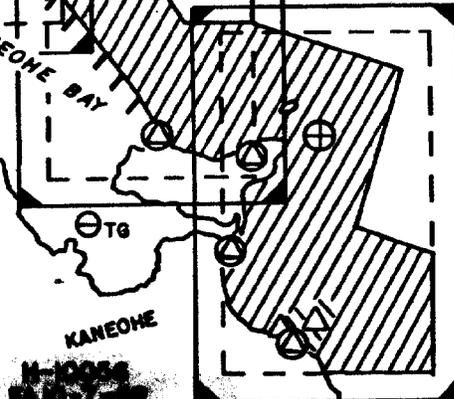
21 40

158 00



21 30

H-10058  
FA 10-8-82



**MONTHLY PROGRESS SKETCH**

**OPR-T126-FA-82**

**ISLAND OF OAHU, HAWAII**

**NOAA SHIP FAIRWEATHER (S-220)**

**CDR. WALTER F. FORSTER, CMDG.**

**CHART 19340**

**1:80,000**

21 20

MAKAPUU PT. △

A. Project

This survey was conducted in accordance with Project Instructions OPR-T126-FA-82, dated 30 July 1982; Change No. 1, dated 7 September 1982; Change No. 2, dated 17 November 1982; and Change No. 3, dated ~~February~~ <sup>30 January</sup> 1983. ✓

The PMC OPORDER, Hydrographic Manual (4th Edition), and the Data Requirements Letter are also applicable.

B. Area Surveyed

The area covered by H-10056 lies on the east coast of the Island of Oahu, centered in Kailua Bay and vicinity. Concurrent junctions were obtained with H-10058 and H-10068, as shown in the attached Monthly Progress Sketch. ✓

Hydrography was conducted between JD 290 and JD 321. Survey operations were intermittent during this period as resources were shifted to other surveys during periods of rough weather in Kailua Bay.

C. Sounding Vessels

Hydrography on this survey was conducted by FAIRWEATHER (2020), launches FA-3 (2023), FA-4 (2024), FA-5 (2025), and inflatable skiff (2027). Bottom samples were collected by FA-5 (2025). FAIRWEATHER performed two Nansen casts on JD 291 and JD 332 (see Table II, Nansen Casts). No unusual sounding equipment configurations were used. No significant problems were encountered. ✓

D. Sounding Equipment and Corrections to Echo Soundings

All survey launches were equipped with Ross Finline 5000 narrow beam echo sounders. See Table I, Sounding Equipment. Belt tension and phase checks were performed every morning and when paper was changed. ✓

Table I

Sounding Equipment

<u>Vessel</u>	<u>Instrument</u>	<u>Model</u>	<u>Analog</u>	<u>Digitizer</u>	<u>Inverter</u>	<u>Transceiver</u>
FAIRWEATHER (2020)	Raytheon	LSC	C256	203	--	416
FA-3 (2023)	Ross Finline 5000		1097	1054	1046	1047
FA-4 (2024)	Ross Finline 5000		1054	1046	1054	1046
	(on JD 300 changed to:		1047	1046	1054	1046)
FA-5 (2025)	Ross Finline 5000		1036	1036	1052	1054
Avon (2027)	Raytheon	DE- <del>798</del> <sup>11</sup> 6261		--	--	--

Fathometer initial was checked frequently during the day for correct paper alignment. All data was scanned at least twice to compare analog values to corresponding digitized values and to insert peaks and deeps between soundings. The effects of excessive wave and swell action were corrected at this time in accordance with Section 4.9.8.2 of the Hydrographic Manual. Depths on this survey range between 1.5 and 173 fathoms. ✓

All malfunctions and equipment casualties were corrected in a timely manner resulting in no loss of data due to sounding equipment failure or malfunction. On JD 300 Ross fathometer s/n 1054, aboard survey launch 2024, failed to record properly during morning phase calibration and was replaced with Ross fathometer s/n 1047. This fathometer remained in launch 2024 through the end of the project. ✓

Velocity correctors used on this survey were calculated from Nansen cast 002 taken on JD 291, and verified by cast 004 taken on JD 332. See Table II, Nansen Casts, for location of casts. Due to close agreement between the two Nansen casts, velocity of sound correctors from cast 002, as compiled in velocity Table II, Separate D, Abstracts of Corrections to Echo Soundings, are to be applied to all sounding data acquired on this survey. Reversing thermometers and Beckman salinometers used to determine water temperature and salinity were calibrated in March 1982 by Northwest Regional Calibration Center, Seattle, Washington. ✓

Bar checks were used to provide data to compute TRA correctors. Bar checks were performed on a daily basis in sheltered waters adjacent to the working grounds, due to heavy sea conditions in the survey area. Lead line comparisons conducted on the working grounds provided TRA corrector values for Avon (2027). ✓

Table II

Nansen Casts

<u>Number</u>	<u>Date</u>	<u>Depth</u>	<u>Latitude</u>	<u>Longitude</u>
002	JD 291	500 m	21°31'59"N	157°42'52"W
004	JD 332	3500 m	21°50'24"N	157°28'30"W

 ✓

FAIRWEATHER hydrographic survey launches 2023, 2024 and 2025 were individually tested for settlement and squat on 10 and 23 March 1982 at Shilshole Bay Marina in Seattle, Washington. After installation of side scan sonar equipment in 2024, both 2023 and 2024 were retested on 30 July 1982 in Womans Bay, Kodiak, Alaska. Vessel 2023 was retested to resolve a difference between the 10 March 1982 settlement and squat curve historical data for that launch. The 10 March 1982 curve was confirmed and used for all settlement and squat corrector computations for the 1982 field season. Survey launch 2026 was acquired by FAIRWEATHER in September 1982 and tested on 9 October 1982 in Kaneohe Bay, Oahu, Hawaii. No settlement and squat test was done for Avon (2027) since it was used at slow speed exclusively. ✓

Settlement and squat tests were conducted in accordance with Section 4.9.4.2 of the Hydrographic Manual. The survey launches were tested at speeds from idle to 2700 RPM, in 200 RPM increments. A Zeiss Ni 2 level was used to ✓

read a stadia rod held over the transducer when the launch speed was attained. A tide staff was read simultaneously with the stadia rod to correct for tidal influences. These test results were used to determine speeds by RPM at which settlement and squat correctors would be applicable. See Table III, Restricted Speeds by RPM, for these values.

These RPM ranges were not used to collect data during the project, eliminating the need to apply any settlement and squat correctors. For further information, see Corrections to Echo Soundings Report, OPR-T126-FA-82. ✓

Table III

Restricted Speeds by RPM

<u>Launch</u>	<u>Restricted RPM's</u>
FA-3 (2023)	2250 - full
FA-4 (2024)	2450 - full
FA-5 (2025)	2300 - full

E. Hydrographic Sheets

All field sheets were plotted aboard FAIRWEATHER using two PDP8/E computers, s/n 09524 and s/n 01021, and one Complot plotter, s/n 5557-5. Hydrographic data for this survey will be forwarded to the Pacific Marine Center in Seattle, Washington for verification and final plotting. The final field sheets are plotted on two 21 by 36 inch, and one 19 by 36 inch sheet of mylar. All sheets have a skew of 000° and are at a scale of 1:10,000. ✓

Developments A and B at a scale of 1:5000, are plotted on one 12 by 13 inch mylar sheet, skewed 000°. Development C, at a scale of 1:2500, is plotted on one 8 by 26 inch mylar sheet, skewed 000°.

F. Control Stations

Horizontal control operations on this survey were conducted by FAIRWEATHER personnel.

Five stations were recovered and three new stations established for hydrographic position control purposes. See Table IV, Control Stations, for an explanation of how each station was utilized.

A satisfactory check angle could not be obtained at Pako 1932 using the published position. A new position for Pako was established using triangulation techniques from two existing stations: Pahu 1910 and Mokolii Island 2 1976. For further details see Section E, Techniques, Horizontal Control Report, OPR-T126-FA-82. No other problems or anomalies in ties and closures were encountered on this survey. Station Mokulua Island 2 was located by the "A Point" method from Cape 1952, 1964. No other unconventional survey methods were used. ✓

Some difficulty was experienced in obtaining permission to locate and recover stations on private property in the survey area. This was especially true along the densely populated shoreline areas. As a result, control configurations could not always be established as desired. In all instances alternate options were used to avoid weak geometric configurations

The Old Hawaiian Datum was used throughout this project. All positions meet or exceed third order class I standards.

Table IV  
Control Stations

<u>Hydrographic Signal Number</u>	<u>Station Name</u>
110	<u>Mokulua Island 2</u> - Monumented; established by "A Point" method from Cape 1952, 1964; used as electronic control station.
200	<u>Lanikai 1952</u> - Recovered as described; used a electronic control station and as a theodolite initial.
201	<u>Lanikai 1952 RM3 1982</u> - Monumented; established by one direct method from Lanikai 1952; used as electronic control station.
220	<u>Cape 1952, 1964</u> - Recovered as described; used as electronic control station.
300	<u>Mokapu 1872, 1962</u> - Recovered as described; used as electronic control station.
302	<u>TP-1</u> - Not monumented; located by resection from: Mokapu 1872, 1962; Pyramid Rock Light 1967; and Mokolii Island 2 1976; used as electronic control station.
310	<u>Pako 1932</u> - Recovered as described; new position established by triangulation from Pahu 1910 and Mokolii Island 2 1976; used as electronic control station.
400	<u>Mokolii Island 2 1976</u> - Recovered as described; used as electronic control station.

304 Castle, 1932  
101 HAKAPUHA Point South Redut, 1982

### G. Hydrographic Position Control

Hydrographic positioning was accomplished using Motorola Mini-Ranger III in range-range and range-azimuth configurations.

Baseline calibrations and systems checks were conducted in accordance with Appendix M and S of the PMC OORDER. Details of the baseline calibrations in support of this survey are contained in the Electronic Control Report, OPR-T126-FA-82. ✓

Systems checks were conducted using sextant fix, theodolite intersection, multi-rate comparison and the baseline crossing techniques.

Systems checks were conducted in the survey area on calm days, confirming the BLC corrector values and providing general confirmation of the signal list position for those stations tested. ✓

Two non-critical systems checks conducted by vessel 2025 on JD 291 and JD 292 failed to meet accuracy requirements for a 1:10,000 scale survey. These baseline crossings were conducted following the procedures as outlined in Appendix S of the PMC OORDER, but the data was not meant to determine the variance among the individual observations in the field. The variance between the five baseline crossing values was excessive due to the heavy swell conditions and was therefore rejected. Data collected by 2025 on JD 291 and JD 292 is adequately supported by critical systems checks conducted on JD 289 and JD 294.

No loss of electronic positioning accuracy occurred on this survey and no data was lost due to equipment malfunction. ✓

Mini-Ranger console and transponder combinations used during this survey are shown in Table V, Electronic Control Equipment.

Table V

#### Electronic Control Equipment

<u>Console</u>	<u>Transponder Codes:</u>	5	6	7	8	9	A	B	C
701		X		X					
702		X					X		X
703		X							
B0323		X	X	X				X	X

No unusual weather conditions, including Hurricane Iwa, adversely affected positional accuracy on this survey. No hydrography was conducted with weak control geometry or less than minimum signal strength values as determined by BLC data. Launch Mini-Ranger antennas are located over the transducers, eliminating ANDIST corrections to the data. An antenna offset of 32 meters was applied by RK 112 to hydrography conducted by FAIRWEATHER. For further details see the Electronic Control Report, OPR-T126-FA-82, Island of Oahu. ✓

#### H. Shoreline

Shoreline for this survey was taken from a 1:10,000 scale paper base enlargement of TP-00720, A 1:20,000 scale Class I registered shoreline manuscript. Mylar manuscripts were not available. ✓

Shoreline was visually compared to TP-00720 and chart 19357 during hydrographic survey operations in accordance with Section 4.2 of the Project Instructions. Total compliance with Sections 4.2.1.1 and 4.2.1.2 of the Project Instructions was not possible due to surf conditions alongshore and the inaccessible nature of the coastline. The area between Kapoho Point and Mokapu Point is the most extensive example of the failure to hydrographically verify the shoreline. Additional examples exist on the southeast shore of Mokalua Island, seaward of the reefs at Lanikai and along the eastern shore of Moku Manu Island. ✓

Numerous coral reefs and submerged coral heads exist alongshore between Alala Point and Wailea Point. Initial field inspection revealed that compilation and field edit on TP-00720 did not adequately detail these features. Hydrographic methods were employed to redefine the reef limits and locate or verify coral heads. High surf during the major portion of the project stopped the work in the shoal waters around these reefs before all isolated coral heads could be located. Photographs associated with TP-00720 were not made available to the field unit, as specified in Section 4.1.1 of the Project Instructions. The coral heads previously mentioned are quite distinct and should be easily seen on aerial photographs. Review or recompilation of these photographs is recommended to locate coral heads not located hydrographically. ✓

#### Specific Shoreline Items

A rock retaining wall at the high water line at Alala Point was not shown on TP-00720 and was added to the final field sheet. The ends of the retaining wall were located in relation to hydrographic positions taken immediately offshore. ✓

A restricted boat access is marked by a buoyed line on the swimming beach in southern Kailua Bay. The float line is approximately 100 meters offshore, but was not positioned due to the presence of swimmers in the water and warning signals from the lifeguards on the beach to keep the launch to seaward. ✓

The sewer outfall shown on TP-00720 at 21°27.2'N, 157°<sup>43.7</sup>44.3'W was searched for but not found. Surf conditions are heavy in the area. Local residents confirm the existence of this sewer outfall as detailed on TP-00720. ✓

Shoreline from TP-00720 is not totally adequate for charting. Major portions of the shoreline, as shown on TP-00720, were verified hydrographically, but details of coral formations offshore from Lanikai are lacking. Portions ✓

of the missing information were collected hydrographically, but review and recompilation of aerial photographs is recommended to provide completeness.

The general position and shoreline of offshore islands were verified during the course of hydrography. One control station, Mokulua Island 2 1982, was located seaward of the main shoreline. ✓

#### I. Crosslines

A total of 38.4 nautical miles of crosslines was run on this survey comprising 12% of the total hydrography. All crosslines are oriented normal to the mainscheme.

Ninety-five percent of all crosslines meet the requirements of Section 1.1.2 of the Hydrographic Manual. Soundings not meeting the comparison criteria lack exact positional coincidence or are located over irregular or steeply sloping bottom. ✓

#### J. Junctions

This survey junctions with three contemporary surveys: H-10058 and H-10068, conducted by FAIRWEATHER during the 1982 field season, and H-8990, conducted by McARTHUR in 1966. ✓

All junctions meet the requirements of Section 4.3.4.2 of the Hydrographic Manual with one exception. A failure to junction with H-10068 exists at 21°24'00"N, 157°40'15"W, in 50 to 150 fathoms. Fortunately, H-8990 extends to cover this area, providing junction between H-10056, H-10068 and H-8990.

#### K. Comparison With Prior Surveys

Two prior surveys overlap the limits of this survey and were studied for comparison as required by Section 6.10 of the Project Instructions.

Survey H-5331, at 1:5000 scale, was conducted in 1933 and covers the central portion of Kailua Bay. Agreement is excellent, meeting the requirements of Section 4.5.8 of the Hydrographic Manual. ✓

Survey H-3252, at 1:20,000 scale was conducted in 1910 and overlap the extreme northern portion of this survey in the area of Mokapu Point. Sounding density is light on H-3252 with no significant discrepancies. No indication of dumping activity is apparent in comparison with H-3252.

*This is a junction survey*  
One contemporary survey, H-8990, conducted in 1967 at a scale of 1:12,500, was compared as a ~~prior~~ survey due to the large overlap of hydrography on the southern portion of this survey. The excessive overlap was caused by late receipt of survey H-8990 by this field unit. Good agreement exists for both soundings and contours between this survey and H-8990, meeting the requirements of Section 1.1.2 of the Hydrographic Manual.

Three other prior surveys of this area are H-4830\*, H-4831, and H-4832. These surveys were not provided by C353 for comparison with this survey. Those surveys listed in Section 6.10.1 of the Project Instructions were not received until quite late in the survey, limiting comparison with prior soundings during hydrography. ✓

*\*not within limit of H-10058*

L. Comparison With Charts

Comparisons were made with chart 19357, Island of Oahu, 16th Edition, dated December 1981, scale 1:80,000. A photographic enlargement to 1:10,000 was used to aid in direct comparison.

Those soundings not meeting the requirements of Section 1.1.2 of the Hydrographic Manual are listed in Table VI, Chart Comparison.

Table VI

Chart Comparisons *depths have been changed to ALLW*

<u>Position</u>	<u>Chart Depth</u>	<u>H-10056 Depth</u> *	<u>Pos. No.</u>	<u>Recommendation</u>
21°24'14"N 157°42'00"W ✓	7.0	<del>8.2</del> 7.2	4181 + 4	Retain charted depth due to lack of posi- tional coincidence between soundings.
21°24'00"N ✓ 157°41'13"W ✓	20.0	<del>18.0</del> 18.3	4218 + 1	Chart shoaler sounding.
21°26'07"N ✓ 157°43'28"W ✓	in vicinity of 6.0 - 6.5	<del>1.8</del> 10.0	4677 ✓	Chart shoaler sounding.
21°28'40"N ✓ 157°42'33"W ✓	22	<del>18</del> 22.0	4728 ✓	Chart shoaler sounding.
21°28'38"N ✓ 157°43'13"W ✓	in vicinity of 4	<del>2.8</del> 2.6	4760 -	Chart shoaler sounding.
21°28'40"N ✓ 157°43'12"W ✓	in vicinity of 10	<del>4.1</del> 9.2	4748 ✓	Chart shoaler sounding.

\* Please refer to final smooth sheet, site Evaluation Report section 7. for comparison  
 \* Some field tabulated depth are in error and were corrected during Verification

Diver's Investigation

Diver's investigations were conducted in the vicinity of Mokolea Rock to locate least depths on a shoal area. Circle search techniques were used to locate least depth points, which were measured by fiberglass tape and hydrographically positioned. See sounding volumes for positions of circle search. Table VII, Diver's Least Depths, details these findings. ✓

Table VII

## Diver's Least Depths

<u>Position</u>	<u>Charted Depth</u>	<u>Least Depth H-10056</u>	<u>Pos. No.</u>	<u>Recommendations</u>
21°26'17"N ✓ 157°43'15"W ✓	6.5	3.89	4634 ✓	Superceed chart with shoaler depth. <i>Concur chart from smooth chart</i>
21°26'10"W ✓ in vicinity of 157°43'30"W ✓	6.5	2.7	4635 ✓	Superceed chart with shoaler depth. <i>concur chart from smooth chart</i>
21°25'18"N ✓ 157°44'02"W ✓	2.5	1.84	4636 ✓	Superceed chart with shoaler depth. <i>concur chart from smooth chart</i>
21°24'34"N ✓ 157°43'13"W ✓	3.0	<sup>2.6</sup> 3.0	4637 ✓	Agrees with chart. <i>Chart according to present survey</i>

Charted Danger Zones and Prohibited Areas

The charted "Danger Zone" seaward of the Kaneohe Bay Marine Corps Air Station Weapons Training Range on Mokapu Point is correct and should be retained as charted. ✓

The charted "Prohibited Area" extending from Mokapu Point to Kapoho Point is a "Naval Defensive Sea Area" and should be retained as charted.

Dumping Ground

In accordance with Section 6.5.3 of the Project Instructions, that portion of the 10 nm by 4 nm dumping ground shown on chart 19357, coincident with H-10056, was investigated for removal. The 50 meter line spacing required in the referenced Project Instructions was amended based upon the bottom regularity shown by initial survey lines run at 100 and 200 meter intervals, and local knowledge cited in the following section. A radio message authorizing this change is included at the end of this portion of the report.

The history for the Title 33 dumping ground was obtained from Mr. David Kern, a marine engineer with the U.S. Army Corps of Engineers. This dump site is officially classified as discontinued and has not been used since the late 1960's. The dump site was used to dispose of dredge spoils from Kaneohe Bay. ✓

A limited amount of military hardware was dumped by the Navy at the end of World War II. Detailed records on the dump site are incomplete, but do indicate that most dumping was conducted beyond the 100 fathom depth curve. No known hazards exist due to dumping, and the local presumption is that most material has been carried to deeper water by bottom transport mechanisms.

No indication of shoaling or dangers to navigation due to dumping were found on H-10056 or during comparison with charts and prior surveys. The nature

of bottom samples in the dump site area were not significantly different from samples taken outside the dumping grounds. Removal of the dump site designation from future charts is recommended. ✓

#### Charted Buoys

The only charted buoy on H-10056 is the privately maintained black can "FH", reportedly owned by the U.S. Navy. This buoy was searched for but not found. Further inquiry to the local U.S. Navy representative may resolve the existence of this buoy. ✓

#### Shoreline, Rocks and Nearshore Features

Overall shoreline agreement is adequate between chart 19357 and H-10056, except for the shoreline of Mokulua, Popoia and Moku Manu Islands. This difference is attributed to scale differences between the two documents and is not deemed significant. *see section N. of this report.* ✓

Rocks shown alongshore between Kapoho Point and Mokapu Point were not located during hydrography. As previously discussed in Section H, Shoreline, this area could not be surveyed due to the dangerous surf conditions. Neither could these rocks be located from shore due to the very rugged terrain which limits overland access to the shoreline. The failure to locate these charted rocks is not considered to be an inadequacy based upon the information provided in Change No. 1, paragraph 4: Supplement to Project Instruction. ✓

*see eval rept. sec 2.*

The size and shape of the coral reefs and heads between Alala Point and Wailea Point differs between H-10056 and chart 19357. The hydrographically revised coral reef limits and newly located coral heads shown on the final field sheet should be used to update future editions of the chart.

#### M. Adequacy

This survey is accurate and adequate to superceed all prior surveys. Wind, sea, and surf conditions during this survey made close shore, shallow water hydrography difficult or impossible in some instances. Failures to hydrographically verify the shoreline and certain nearshore features has been discussed in detail in Section N., Shoreline and Section L., Comparison With Charts. ✓

*see Sec. 6 eval rept.*

Hydrography conducted inside Kailua Bay, and inside the coral reefs between Alala Point and Wailea Point presented particular problems. Weather conditions limited access to the few infrequent days of calm wind and low surf. Additionally, the highly populated and developed nature of the shoreline resulted in local residents restricting the number of locations of control stations. ✓

Review of Separate G, Abstract of Positions, reveals that a considerable quantity of range-azimuth hydrography in Kailua Bay was rejected in order to insure legibility of the final field sheet.

Station Lanikai RM3 was established to control positions of this survey not visible from the main station, Lanikai 1952. Unfortunately, the two stations were frequently confused by field parties surveying Kailua Bay, resulting in uneven line spacing, excessively dense soundings and erroneous annotations on the raw data. This problem was detected in the field and corrected by ✓

reviewing all raw records and rejecting portions of the data which could not be verified as to the control station used. A supplemental plot was made to determine where additional hydrography would be required, and the appropriate hydrography was accomplished.

Skiff hydrography inshore of Mokulua Island, between Alala Point and Wailea Point contains many soundings which should have been developed by further hydrography. The shallow, coral infested waters and surf conditions made this a very difficult area to survey. The existing hydrography is deemed adequate for charting at this time and does not warrant further effort or development. The area is primarily used by surfers. Local mariners avoid this area, or proceed with local knowledge in very shallow draft small craft. ✓

Only one reconnaissance line was run in the entrance to ~~Kanainui Channel~~ <sup>Kauninui Canal</sup> at Kapoho Point. This was done using the shallow draft Avon (2027). This area is very shallow and is subject to potentially dangerous surf caused by the shape of the shoreline and the presence of the channel. This area is detailed as "shallow" and with "breakers" on the final field sheet and is adequate as such for charting.

Undeveloped soundings are listed in Table VIII, Undeveloped Soundings. These soundings adequately characterize the rugged bottom found alongshore on this survey. Bottom features consist primarily of rock outcroppings and coral formations. These soundings were not fully developed due to deteriorating weather. The lack of developments in these areas does not compromise the adequacy of this survey. *Concur, SEE Evaluation Sec. 9 for specific items recommended for additional field work.* ✓

The above methioned shortcomings are minor and do not compromise the overall adequacy of this survey.

Table VIII

*see Evaluation Report Section 9*

## Undeveloped Soundings

<u>Position</u>	<u>Depth</u>	<u>Pos. No.</u>	<u>Comments</u>
21°25'30"N ✓ 157°44'21"W ✓	5.2	6383 ✓	Correct as shown. Irregular bottom.
21°25'05"N ✓ 157°44'21"W ✓	1.9 1.7	6543 ✓ 6396 ✓	Not coincident, very irregular bottom, use 1.7
21°25'12"N ✓ 157°42'46"W ✓	8.6	4040 + 1½	Undeveloped peak.
21°25'12"N ✓ 157°42'59"W ✓	6.4	4041 + 3	Undeveloped peak.
21°25'20"N ✓ 157°43'27"W ✓	3.9	6050 ✓	Undeveloped area of highly irregular bottom.
21°24'18"N ✓ 157°42'58"W ✓	1.9	9887 ✓	Undeveloped peak.
21°23'57"N ✓ 157°42'07"W ✓	4.7	4325 ✓	Undeveloped peak.
21°24'38"N ✓ 157°43'24"W ✓	1.7	6516 + 4	Undeveloped peak.
21°24'34"N ✓ 157°43'27"W ✓	1.9	6506 + 4	Undeveloped peak.
21°27'17"N ✓ 157°43'31"W ✓	3.2	2839 ✓	Submerged rock or coral. Appears to be developing offshore submerged reef.*
21°27'21"N ✓ 157°43'29"W ✓	2.3	2833 + 3	Submerged rock or coral. Appears to be a developing offshore submerged reef.*
21°27'27"N ✓ 157°43'25"W ✓	3.9	2834 + 2	Submerged rock or coral. Appears to be a developing offshore submerged reef.*
21°27'31"N ✓ 157°43'28"W ✓	3.2	2821 + 1	Submerged rock or coral. Appears to be a developing offshore submerged reef.*
21°27'34"N ✓ 157°43'27"W ✓	2.9	2817 ✓	Submerged rock or coral. Appears to be a developing offshore submerged reef.*
21°27'37"N ✓ 157°43'24"W ✓	4.0	2811 ✓	Submerged rock or coral. Appears to be a developing offshore submerged reef.*
21°27'40"N ✓ 157°43'27"W ✓	2.7	2806 + 2	Submerged rock or coral. Appears to be a developing offshore submerged reef.*

*See Evaluation Report Section 9*

<u>Position</u>	<u>Depth</u>	<u>Pos. No.</u>	<u>Comments</u>
21°27'14"N ✓ 157°43'23"W ✓	3.9	2801 ✓	Submerged rock or coral. Appears to be a developing offshore submerged reef.*
21°27'40"N ✓ 157°43'19"W ✓	6.2	2804 + 2	Submerged rock or coral.
21°27'50"N ✓ 157°43'48"W ✓	2.3	2452 ✓	Submerged rock or coral.
21°27'51"N ✓ 157°43'39"W ✓	3.5	2747 + 2	Submerged rock or coral.
21°27'52"N ✓ 157°43'39"W ✓	3.5	2656 + 3	Submerged rock or coral.
21°27'55"N ✓ 157°43'43"W ✓	4.3	4486 + 3	Submerged rock or coral.
21°28'00"N ✓ 157°43'17"W ✓	4.7	2626 + 1	Submerged rock or coral.
21°28'04"N ✓ 157°43'20"W ✓	5.6	2828 + 1	Submerged rock or coral.
21°28'07"N ✓ 157°43'07"W ✓	3.9	2206 ✓	Submerged rock or coral.
21°28'10"N ✓ 157°43'22"W ✓	4.9	2204 + 4	Submerged rock or coral.
21°28'12"N ✓ 157°43'28"W ✓	3.9	2723 + 2½	Submerged rock or coral.
21°28'25"N ✓ 157°42'55"W ✓	9.7	2714 + 1½	Submerged rock or coral.
21°28'27"N ✓ 157°43'02"W ✓	4.7	2226 + 3	Submerged rock or coral.
21°28'24"N ✓ 157°42'58"W ✓	7.0	2307 + 4	Submerged rock or coral.
21°28'55"N ✓ 157°43'16"W ✓	16	4519 + 3 3/4	Submerged rock or coral.

Area bounded by: 21°24'45"N to 21°25'45"N      Very irregular bottom with numerous  
157°43'30"W to 157°44'00"W      2-3 fm shoals and coral.

\*The combination of these soundings indicate the possibility of a shoal close to and parallel with shore.

#### N. Aids to Navigation

Only one aid to navigation, a privately maintained buoy "FH", is located within the survey area. This buoy was searched for but not found, and was verbally reported as removed by the U.S. Navy by local personnel at the Naval Support Facility Kaneohe Bay. ✓

#### O. Statistics

	<u>2020</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2027</u>	<u>Total</u>
Vessels		<del>106</del>	<del>77</del>	<del>68</del>	<del>26</del>	<del>278</del>
Positions	54	1111	110	100	169	2744
Nautical Miles	5.7	126.5	82.5	73.0	23.0	310.7
Square Miles	1.4	33.0	21.5	19.0	6.0	81
Bottom Samples	0	0	0	80	0	80
Current Stations	-	-	-	-	-	0
Velocity Cast	-	-	-	-	-	2
Tide Stations	-	-	-	-	-	0

38.4 nm of crosslines were run comprising 12% of the hydrography run. No magnetic or current stations were established within the survey limits.

#### P. Miscellaneous

Tidal currents, longshore currents, undertow, and rip currents are common to this area. No formal current studies were performed during this project. Field observations and local knowledge was compiled in accordance with Section 8.2.3 of the Project Instructions. For further information see memo to N/MOP, subject: Currents, OPR-T126-FA-82, Hawaiian Islands, dated January 21, 1983, appended to this report. ✓

Bottom samples were obtained and preserved in accordance with Change No. 1: Supplement to Project Instructions, July 30, 1982. Samples were forwarded to the Smithsonian Institute.

Q. Recommendations

This survey should be used in conjunction with other contemporary surveys to update existing charts of this area. Full compliance with the requirements ✓ of the Hydrographic Manual was not possible in those areas where wind and surf caused hazardous conditions. This situation does not compromise the overall adequacy of this survey, and should not delay verification and compilation of this data.

Controlled photographs were not provided for this project. Review and recompilation of that portion of TP-00720 containing near shore reefs between Alala and Wailea Points is recommended to provide additional details not obtainable by hydrographic methods, as discussed in Section ~~X~~<sup>H</sup>, Shoreline. *See reduction report Section 2*

Controlled shoreline photographs should be made available to field units for the remainder of the Oahu Island project.

R. Automated Data Processing

The following is a list of the Hydroplot programs used for data acquisition and processing during this survey.

<u>Number</u>	<u>Program Name</u>	<u>Version Date</u>
RK 201	Grid Signal and Lattice Plot	4/18/75
RK 211	Non Real Time Plot	1/30/76
RK 212	Visual Station Load and Plot	4/1/74
RK 300	Utility Package	10/21/82
RK 330	Data Reformat and Check	5/4/76
PM 360	Electronic Corrector Abstract	2/2/76
AM 500	Predicted Tide Generator	11/10/72
RK 530	Velocity Correctors	5/10/76
RK 561	Geodetic Calibration	2/19/75
AM 602	Elinore	5/21/75

List of Separates Following Text

- A. Hydrographic Sheet Projection Parameter Printouts
- B. Field Tide Note and Abstracts of Times of Hydrography
- C. Geographic Names List
- D. Abstracts of Corrections to Echo Soundings  
Velocity Corrector Tape Printout  
TC/TI Tape Printouts
- E. Abstracts of Corrections to Electronic Position Control  
Shore Station and Vessel Equipment
- F. List of Stations
- G. Abstracts of Positions
- H. Bottom Sample Log Sheets
- ~~I. Landmarks for Charts~~ *NONE*
- J. Approval Sheet

001                   PARAMETER LISTING# FA 10-7N-82  
002 FEST=86840  
003 CLAT=2286000  
004 CMED=157/50/00  
005 GRID=30  
006 PLSCL=10000  
007 PLAT=21/27/17  
008 PLON=157/45/16.8  
009 VESNO=2020  
010 YR=82  
011 ANDIST=0.0

001                   PARAMETER LISTING# FA 10-7C-82  
002 FEST=86840  
003 CLAT=2286000  
004 CMED=157/50/00  
005 GRID=30  
006 PLSCL=10000  
007 PLAT=21/25/11  
008 PLON=157/45/16.8  
009 VESNO=2020  
010 YR=82  
011 ANDIST=0.0

001                   PARAMETER LISTING# FA 10-7S-82  
002 FEST=86840  
003 CLAT=2286000  
004 CMED=157/50/00  
005 GRID=30  
006 PLSCL=10000  
007 PLAT=21/22/46  
008 PLON=157/45/16.8  
009 VESNO=2020  
010 YR=82  
011 ANDIST=0.0

## Field Tide Note

OPR-T126-FA-82✓

### Island of Oahu, Hawaiian Islands

Field tide reduction of sounding was based on predicted tides from Honolulu, Oahu. Correctors were interpolated by the Hydroplot system using program AM 500. All times of both predicted and recorded tides were based on Universal Coordinated Time (UCT). Predicted tides were acceptable for hydrography with no discrepancies attributable to tide errors.

#### Honolulu Standard Gauge (161-2340)✓

The permanent tide station at Honolulu, Oahu (161-2340)✓ was the primary controlling gauge for project OPR-T126-FA-82, Island of Oahu. Levels were run by FAIRWEATHER personnel at the beginning and end of the project. Opening levels run on 7 October 1982 (JD 280) to four existing benchmarks were closed to 4.3 mm over the entire run of .49 km. Closing levels, run on 23 November 1982 (JD 327) to the same four benchmarks were closed to 5.0 mm over the entire run of .50 km. No changes in elevation were observed during hydrographic operations. Tide marigrams from station 161-2340 (Honolulu)✓ will be transmitted by the local tide observer in charge of this station.

#### Mokuoloe Island Subordinate Gauge (161-2480)✓

The permanent tide station located on Mokuoloe Island (161-2480)✓ was used for controlling the entire survey area along the northeast coast of Oahu. Opening and closing levels were run by FAIRWEATHER personnel to three existing benchmarks at the beginning and end of the project. Opening levels run on 8 October 1982 (JD 281) were closed to 2.1 mm over a run of .49 km. Closing levels, run on 24 November 1982 (JD 328) were closed to 2.0 mm over a run of .50 km. No changes in elevation were observed during hydrographic operations. Tide marigrams will be transmitted by the local tide observer in charge of this station.

#### Laiemaloo Subordinate Gauge (161-2702)✓

Tide station Laiemaloo (161-2702)✓ was used to control survey operations run between Kaoio Point and longitude 158°00.0'W along the northeast coast of Oahu. A 1-10 foot scale Metercraft bubbler tide gauge (#7601-7536-34)✓ was installed on 25 October 1982 (JD 298). Two gauge problems developed (see Tide Gauge Problems section) which were field corrected. The gauge then functioned properly until removal on 22 November 1982 (JD 326). Opening and closing levels were run by FAIRWEATHER personnel to five existing benchmarks. Opening levels, run on 26 October 1982 (JD 299) closed to 7 mm over a run of 3.0 km. Closing levels, run on 22 November 1982 (JD 326) closed to 4 mm over the 3.0 km run. An apparent shift in the tide gauge orifice of 4 mm downward was discovered after the running of the closing levels. The orifice movement is a result of the heavy surf conditions in this area. The apparent orifice movement of 4 mm downward is not significant enough that correctors be applied to tide data from this station.

Waimanalo Subordinate Gauge (161-2396)

Tide station Waimanalo (161-2396) was used to control survey operations from the southern limit of hydrography northward to Makapu Point on the northeast coast of Oahu. Investigation of the historical tide station site proved that all the historical benchmarks had been destroyed by recent construction and renovations. A new tide station site, and five new benchmarks were established on the University of Hawaii pier located approximately one mile south of the historical site. Five benchmarks stamped 2376A - 2376E consecutively, were set in the northern cement curb along the length of the pier, running shoreward from the tide gauge location. State survey mark U-11, located at the western limit of the pier, was included in the leveling runs, opening levels, run on 12 October 1982 (JD 285) to all six marks, closed to 1.3 mm over a run of .65 km. Closing levels, run on 24 November 1982 (JD 328) to the same marks, closed to 1.8 mm over a .65 km run. No changes in elevation were seen during hydrographic operations. A 1-10 foot scale Metercraft bubbler gauge (#7601-7536-31) was installed on 11 October 1982 (JD 284) and ran well until removed on 29 November 1982 (JD 333).

Gauge Problems

Laiemaloo Tide Gauge (161-2702)

On 27 October 1982 (JD 300) tide gauge #7601-7536-34 located at tide station Laiemaloo (161-2702) began to malfunction. An interrupted pen trace, caused by corroded pen pivots on the recording mechanism of the gauge, was randomly seen between Julian dates 300 to 312. All periods of lost tidal trace were recoverable by interpolation of the marigram and no hydrography was lost as a result of this malfunction.

Table 1, Periods of Interrupted Tidal Trace, is a listing by Julian dates of periods in which no tidal trace was recorded on the marigram.

On 06 November 1982 (JD 310), gauge #7601-7536-34 located at station Laiemaloo (161-2702) was found to be jammed. No tidal record was gathered between 0100, 4 November 1982 (JD 308) to 0200, 6 November 1982 (JD 310). No hydrography, controlled by this gauge, was run during this period.

Table 1  
Times of Lost Tidal Record  
Laiemaloo Tide Station (161-2702)

<u>Julian Day</u>	<u>Times (+10)</u>
300	1928-1936
300	1939-2155
301	0945-0950
301	1533-1600
301	1945-2250
301	2315-2340
302	0650-0725
302	0825-0905
302/303	2110-0135
303	0720-1345
303/304	2025-0120
304	0225-0305

Table 1 continued

<u>Julian Day</u>	<u>Times (+10)</u>
304	0631-0708
304	0840-0850
304	0930-1450
304/305	2345-0000
305	1017-1235
307	1058-1735
307	2117-2143
307	2215-2232
312	2020-2035

Miscellaneous

All tidal records were based on a +10 time meridan corresponding to Universal Coordinated Time (UCT).

On 23 November 1982 (JD 327) Hurricane Iwa struck the islands of Oahu, Kauai, and Niihau. A tidal surge of 3-5 feet was predicted for the area on and around these islands. Although the gauge located at station Laiemaloo (161-2702) was removed prior to the hurricane and station Wiamanalo (161-2376) showed no sign of tidal surge, a close inspection of data from both permanent gauge sites should be made on this date to see if either location experienced a tidal surge.

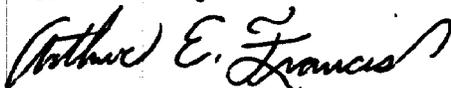
Because the tidal records from the permanent gauge sites will not be transmitted until a later date by the local tide observers, a comparison between adjacent tide gauges could not be made, and should be performed at a later date when all tidal records are available. A recommendation for zoning and time correctors could not be made for the same reasons.

For station Laiemaloo gauge, zero was equivalent to 0.880 feet (0.268 meters) on the adjacent staff. Gauge zero for station Wiamanalo was equivalent to 1.420 feet (-0.433 meters) on the adjacent tide staff. Gauge to staff comparisons for both permanent sites should be taken from historical data because records from both sites were unavailable for determination.

The gauge at station Laiemaloo (161-2702) was only under operation for a period of 28 days. Its removal was necessitated by the approach of Hurricane Iwa.

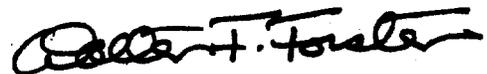
Times of hydrography abstracts are appended to this field note.

Submitted by:



Arthur E. Francis  
Ensign, NOAA

Approved by:



Walter F. Forster  
Commander, NOAA  
Commanding Officer











GEOGRAPHIC NAMES

Name on Survey  
HAWAII, EAST COAST OF OAHU  
KAILUA BAY AND VICINITY

A ON CHART NO. 19357  
1938, 1939  
B ON PREVIOUS SURVEY  
NO. 5288, 5331  
C ON U.S. QUADRANGLE  
MAPS  
D FROM LOCAL  
INFORMATION  
E ON LOCAL MAPS  
F P.O. GUIDE OR MAP  
G RAND McNALLY  
ATLAS  
H U.S. LIGHT LIST  
K

	A	B	C	D	E	F	G	H	K	
HAWAII (Title)										1
ALALA POINT	X		X							2
FORT HASE COVE	X		X							3
<del>KAHEKILI LEAP</del>	X		X							4
KAILUA	X		X							5
KAILUA BAY	X		X							6
KAPOHO POINT	X	X	X							7
KAWAINUI CANAL	X		X							8
KII POINT	X		X							9
LANIKAI	X		X							10
MOKAPU PENINSULA	X	X	X							11
MOKAPU POINT	X	X	X							12
MOKOLEA ROCK	X	X	X							13
MOKULUA ISLANDS	X		X							14
MOKUMANU ISLANDS	X		X							15
<del>OAHU ISLAND</del>	X	X	X							16
PUKAULUA POINT	X		X							17
<del>ULUPAU CRATER</del>	X	X	X							18
<del>ULUPAU HEAD</del>	X		X							19
POPOIA ISLAND										20
										21
										22
										23
										24
										25

Approved:

*Charles E. Harrington*  
Chief Geographer - N/C62x5

21 Nov. 1983











VELOCITY TABLE II  
OPR-T126-FA-82  
OAHU IS., HAWAII  
(USED FOR SHIPBOARD FINAL FIELD SHEET PLOT)  
H-10056, H-10058, H-10059, H-10061

000012 0 0000 0002 001 000000 000000  
000029 0 0001  
000049 0 0002  
000065 0 0003  
000085 0 0004  
000104 0 0005  
000122 0 0006  
000141 0 0007  
000159 0 0008  
000178 0 0009  
000197 0 0010  
000216 0 0012  
000280 0 0014  
000320 0 0016  
000360 0 0018  
000390 0 0020  
000430 0 0022  
000468 0 0024  
000513 0 0026  
000545 0 0028  
000595 0 0030  
000740 0 0035  
000837 0 0040  
000971 0 0045  
001200 0 0050  
001340 0 0055  
001560 0 0060  
001840 0 0065  
002320 0 0070  
999999 0 0075

VELOCITY TABLE II  
OPR-T126-FA-82  
OAHU IS., HAWAII  
(USE FOR PMC SMOOTH PLOT OF ALL LAUNCH HYDRO)  
H-10056, H-10058, H-10059, H-10061

000012 0 0000 0002 001 000000 000000  
000029 0 0001  
000049 0 0002  
000065 0 0003  
000085 0 0004  
000104 0 0005  
000122 0 0006  
000141 0 0007  
000159 0 0008  
000178 0 0009  
000197 0 0010  
000202 0 0011  
000216 0 0012  
000248 0 0013  
000280 0 0014  
000300 0 0015  
000320 0 0016  
000340 0 0017  
000360 0 0018  
000375 0 0019  
000390 0 0020  
000410 0 0021  
000430 0 0022  
000468 0 0024  
000513 0 0026  
000545 0 0028  
000595 0 0030  
000640 0 0032  
000690 0 0034  
000725 0 0036  
000770 0 0038  
000837 0 0040  
000860 0 0042  
000900 0 0044  
000950 0 0046  
001000 0 0048  
001040 0 0050  
001090 0 0052  
001120 0 0054  
001190 0 0056  
001250 0 0058  
001310 0 0060  
001360 0 0062  
001410 0 0064  
001480 0 0066  
001530 0 0068  
001560 0 0070  
001660 0 0072  
001730 0 0074  
001820 0 0076  
001900 0 0078  
002000 0 0080  
999999 0 0085

VELOCITY TABLE IV  
OPR-T126-FA-82  
OAHU IS., HAWAII  
(USED FOR SHIPBOARD FINAL FIELD SHEET PLOT)

H-10068, H-10056

000032 0 0000 0004 001 000000 000000  
000205 0 0009  
000230 0 0010  
000260 0 0012  
000313 0 0014  
000357 0 0016  
000400 0 0018  
000440 0 0020  
000472 0 0022  
000509 0 0024  
000550 0 0026  
000600 0 0028  
000686 0 0030  
000784 0 0035  
000939 0 0040  
000990 0 0045  
001186 0 0050  
001328 0 0055  
001626 0 0065  
001783 0 0070  
002030 0 0075  
002270 0 0080  
002870 0 0090  
003620 0 0100  
004370 0 0110  
005170 0 0120  
006860 0 0140  
008200 0 0160  
009380 0 0180  
010530 0 0200  
011400 0 0220  
012300 0 0240  
013270 0 0260  
013880 0 0280  
015320 0 0300  
016930 0 0350  
018040 0 0400  
019720 0 0450  
020980 0 0500  
022120 0 0550  
023250 0 0600  
024500 0 0650  
999999 0 0700

VELOCITY TABLE LV  
OPR-T126-FA-82  
OAHU IS., HAWAII  
USE FOR PMC SMOOTH PLOT OF  
H-10068, H-10056

000032 0 0000 0004 001 000000 000000  
000205 0 0009  
000230 0 0010  
000245 0 0011  
000260 0 0012  
000286 0 0013  
000313 0 0014  
000335 0 0015  
000357 0 0016  
000378 0 0017  
000400 0 0018  
000420 0 0019  
000440 0 0020  
000472 0 0022  
000509 0 0024  
000550 0 0026  
000600 0 0028  
000640 0 0030  
000690 0 0032  
000730 0 0034  
000780 0 0036  
000820 0 0038  
000855 0 0040  
000890 0 0042  
000940 0 0044  
000980 0 0046  
001040 0 0048  
001080 0 0050  
001130 0 0052  
001190 0 0054  
001230 0 0056  
001300 0 0058  
001360 0 0060  
001410 0 0062  
001470 0 0064  
001530 0 0066  
001590 0 0068  
001650 0 0070  
001710 0 0072  
001780 0 0074  
001850 0 0076  
001910 0 0078  
002140 0 0080  
002400 0 0085  
002760 0 0090  
003000 0 0095  
003400 0 0100  
003800 0 0105

004370 0 0110  
005170 0 0120  
005840 0 0130  
006860 0 0140  
007180 0 0150  
008200 0 0160  
009380 0 0180  
010530 0 0200  
011400 0 0220  
012300 0 0240  
013270 0 0260  
013880 0 0280  
015320 0 0300  
016930 0 0350  
018040 0 0400  
019720 0 0450  
020980 0 0500  
022120 0 0550  
023250 0 0600  
024500 0 0650  
999999 0 0700

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2025 R/AZ (B.S.) SHEET : FA10-7-82  
 H-10056

TIME	DAY	PATTERN 1	PATTERN 2
202418	305	-00001	+85144
202418	306	-00001	+81588
194440		-00001	-64240
210321		-00001	-53549
192110	307	-00001	-28101
233813		-00002	-34445
235500		+00000	+00000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2025 R/R (B.S.) SHEET : FA10-7-82  
 H-10056

TIME		DAY		PATTERN 1		PATTERN 2
231402	▼	305	▼	-00003	▼	-00002
001003	▼	306	▼	-00003	▼	-00002
013700	▼		▼	+00000	▼	+00000
	▼		▼		▼	
184044	▼	306	▼	-00003	▼	-00002
202313	▼		▼	-00002	▼	-00002
230959	▼		▼	-00002	▼	+00000
232500	▼		▼	+00000	▼	+00000

## ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2025 R/AZ

SHEET : FA10-7S-82  
H-10056

TIME		DAY		PATTERN 1		PATTERN 2
202430	†	285	†	-00002	†	-05572
002930	†	292	†	-00002	†	-01589
193100	†		†	-00002	†	-54147
001530	†	293	†	-00002	†	-27436
011415	†		†	-00002	†	-07230
190145	†	294	†	-00002	†	-88277
214303	†	303	†	-00001	†	-03060
000100	†	304	†	-00001	†	-06501
001500	†		†	+00000	†	+00000

## ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2025 R/AZ

SHEET : FA10-7C-82  
R-10056

TIME		DAY		PATTERN 1		PATTERN 2
233045	▼	285	▼	-00002	▼	-96080
000000	▼	286	▼	-00002	▼	-35060
223630	▼	289	▼	-00001	▼	-95320
001145	▼	290	▼	-00001	▼	-87558
000920	▼	291	▼	-00001	▼	-74360
200620	▼		▼	-00002	▼	-89277
001520	▼	292	▼	-00002	▼	-84467
005020	▼		▼	-00002	▼	-61092
191815	▼		▼	-00002	▼	-87320
211120	▼	294	▼	-00002	▼	-47451
215800	▼	999	▼	+00000	▼	+00000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2020 R/R

SHEET : FA10-7C-82  
H-10056

TIME	DAY	PATTERN 1	PATTERN 2
141349	321	-00003	-00002
151900		+00000	+00000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023 R/R

SHEET : FA10-7S-82  
H-10056

TIME	DAY	PATTERN 1	PATTERN 2
211607	293	-00003	-00005
230900		+00000	+00000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023 R/R

SHEET : FA10-7N-82  
H-10056

TIME		DAY		PATTERN 1		PATTERN 2
231250	▼	291	▼	-00004	▼	-00004
000212	▼	292	▼	-00004	▼	-00004
000709	▼	293	▼	-00003	▼	-00004
003053	▼		▼	-00004	▼	-00005
020457	▼		▼	+00000	▼	+00000

ELECTRONIC CORRECTOR ABSTRACT  
VESSEL : 2023 R/AZ SHEET : FA10-7C-82  
H-10056

TIME		DAY		PATTERN 1		PATTERN 2
211215	▼	306	▼	-00002	▼	-19126
002600	▼	307	▼	-00005	▼	+97290
014100	▼		▼	+00000	▼	+00000

## ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023 R/AZ

SHEET : FA10-7S-82  
H-10056

TIME		DAY		PATTERN 1		PATTERN 2
012245	▼	305	▼	-00002	▼	-56003
204230	▼		▼	-00002	▼	-57443
003300	▼	306	▼	-00002	▼	-48053
015230	▼		▼	-00002	▼	-55539
213301	▼		▼	-00002	▼	+99231
233400	▼		▼	-00005	▼	+85539
234900	▼		▼	+00000	▼	+00000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023 R/AZ

SHEET : FA10-7N-82

H-10056

TIME		DAY		PATTERN 1		PATTERN 2
235545	▼	303	▼	-00004	▼	+86348
010230	▼	304	▼	-00004	▼	-15390
020445	▼		▼	-00004	▼	-87435
184415	▼		▼	-00004	▼	-72370
030000	▼	305	▼	-00004	▼	-91556
002900	▼		▼	+00000	▼	+00000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023 R/R

SHEET : FA10-70-82  
H-10056

TIME	DAY	PATTERN 1	PATTERN 2
193706	290	-00004	-00002
000409	291	-00004	-00002
220347	292	-00004	-00002
193902	293	-00003	-00004
232646		-00003	-00005
000017	294	-00003	-00005
003600		+00000	+00000

ELECTRONIC CORRECTOR ABSTRACT  
 VESSEL : 2024 R/R SHEET : FA10-7S-82  
 H-10056

TIME	DAY	PATTERN 1	PATTERN 2
220810	291	-00001	-00001
000026	292	-00001	-00001
204212		-00001	-00002
000000	293	-00001	-00002
195754		+00002	-00002
200014	294	+00002	-00002
224035	306	-00002	-00001
225300		+00000	+00000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2024 R/R D.P. SHEET : FA10-70-82  
H-10056

TIME	DAY	PATTERN 1	PATTERN 2
191700	305	-00001	-00001
233000		+00000	+00000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2024 R/R

SHEET : FA10-7N-82  
H-10056

TIME	DAY	PATTERN 1	PATTERN 2
184912	304	+00002	-00002
011513	305	-00001	-00001
025843		+00002	-00002
184519	306	-00001	-00002
230840	323	-00002	-00002
234751		+00002	-00002
000002	324	+00002	-00002
002610		+00000	+00000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2024 R/R

SHEET : FA10-7C-82  
H-10056

TIME	DAY	PATTERN 1	PATTERN 2
195853	306	-00001	-00001
214900		+00000	+00000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2024 R/AZ D.P. SHEET : FA10-75-82  
H-10056

TIME	DAY	PATTERN 1	PATTERN 2
212400	305	-00001	-59133
212500		+00000	+00000

ELECTRONIC CORRECTOR ABSTRACT  
VESSEL : 2027 R/R SHEET : FA10-7S-82  
H-10056

TIME	DAY	PATTERN 1	PATTERN 2
204300	324	-00001	-00004
215000	325	-00001	-00004
001220	326	-00001	-00004
003700		+00000	+00000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2027 R/AZ

SHEET : FA10-7S-82  
H-10056

TIME	DAY	PATTERN 1	PATTERN 2
002700	306	+00003	-28582
010500		+00003	+59250
191125		+00000	-41432
000110	307	+00000	-40010
003200		+00000	+00000



MOTOROLA Mini Ranger III System

Shore Stations and Vessel Equipment

Station /N	Station Name	XPDR Elev. above MSL	Console R/T	XPDR Code	Vessel	Julian Day	Purpose	Positions
201	LANIKAI 1952 RM3 1982		701	B	2023	290/291	R/R MS	2000 - 2120
201	"		701	B	2023	291	R/R XL	2121 - 2136
201	"		701	B	2023	291	R/R MS	2137 - 2203
201	"		701	B	2023	291/292	R/R MS	2204 - 2273
201	"		701	B	2023	292	R/R MS	2274 - 2329
201	"		701	B	2023	292	R/R MS	2330 - 2393
201	"		701	B	2023	292	R/R XL	2394 - 2401
201	"		701	6	2023	293	R/R MS	2479 - 2517
201	"		701	6	2023	293	R/R XL	2518 - 2529
201	"		701	6	2023	293	R/R MS	2529 - 2588
201	"		701	6	2023	293	R/R MS	2589 - 2594
201	"		701	7	2023	306	R/AZ MS	3054 - 3064
201	"		701	7	2023	307	R/AZ MS	3065 - 3111
201	"		B0323	C	2024	291/292	R/R MS	4000 - 4098
201	"		B0323	C	2024	292	R/R MS	4099 - 4135
201	"		B0323	C	2024	292/293	R/R MS	4136 - 4253
201	"		B0323	C	2024	293	R/R XL	4254 - 4299
201	"		B0323	6	2024	293	R/R MS	4300 - 4446
201	"		B0323	6	2024	293/294	R/R XL	4447 - 4462
201	"		B0323	6	2024	294	R/R MS	4463 - 4465
201	"		B0323	6	2024	294	R/R XL	4466 - 4477
201	"		B0323	B	2024	305	R/ DP R/ DIVER	4634 - 4635





MOTOROLA Mini Ranger III System

Shore Stations and Vessel Equipment

Station N	Station Name	XPDR Elev. above MSL	Console R/T	XPDR Code	Vessel	Julian Day	Purpose	Positions
300	MOKAPU 1872		701	A	2023	290/291	R/R MS	2000 - 2120
300	"		701	A	2023	291	R/R XL	2121 - 2136
300	"		701	A	2023	291	R/R MS	2137 - 2203
300	"		701	A	2023	291/292	R/R MS	2204 - 2273
300	"		701	A	2023	292	R/R MS	2274 - 2329
300	"		701	A	2023	292	R/R MS	2330 - 2393
300	"		701	A	2023	292	R/R XL	2394 - 2401
300	"		701	A	2023	293	R/R XL	2402 - 2409
300	"		701	A	2023	293	R/R MS	2479 - 2517
300	"		701	A	2023	293	R/R XL	2518 - 2529
300	"		701	7	2023	293	R/R MS	2529 - 2588
300	"		701	7	2023	293	R/R MS	2589 - 2594
300	"		701	7	2023	293	R/R MS	2595 - 2623
300	"		B0323	A	2024	291/292	R/R MS	4000 - 4098
300	"		B0323	A	2024	292	R/R MS	4099 - 4135
300	"		B0323	7	2024	292/293	R/R MS	4136 - 4253
300	"		B0323	7	2024	293	R/R XL	4254 - 4299
300	"		B0323	7	2024	293	R/R MS	4300 - 4446
300	"		B0323	7	2024	293/294	R/R XL	4447 - 4462
300	"		B0323	7	2024	294	R/R MS	4463 - 4465
300	"		B0323	7	2024	294	R/R XL	4466 - 4477
300	"		B0323	A	2024	306	R/R MS	4638 - 4654
300	"		B0323	A	2024	306	R/R DEV	4657 - 4708









*Listing from  
H-60058*

HYDROGRAPHIC CONTROL STATIONS  
OPR-TI26-FA-82  
FA 10-8-82  
OAHU, HAWAII

MOKAPU 1872            NGS QUAD 211573    1021  
300 3   21 27 26776 157 44 04665    250 0202 000000

CASTLE 1932            NGS QUAD 211573    1248  
304 3   21 27 31003 157 44 29468    250 0010 000000

PAKO 1932    NGS QUAD 2111573    1336 (FIELD POSITION; FAIRWEATHER 1982)  
310 3   21 27 50330 157 46 03951    250 0022 000000

MOKOLII ISLAND 2 1976        NGS QUAD 211574    1041  
400 3   21 30 45907 157 49 56052    250 0063 000000

KANELOHE B F RING LT (LT LST 3742.1) FAIRWEATHER 1982  
401 3   21 29 55842 157 50 08093    139 0007 000000

NOTE: FOR INFORMATION ON TECHNIQUES UTILIZED IN POSITIONING  
ALL STATIONS LABELED FAIRWEATHER 1982, SEE HORIZONTAL  
CONTROL REPORT OPR-TI26-FA-82, OAHU, HAWAII. FIELD  
VOLUME NUMBERS ARE LISTED ON THE INDIVIDUAL ABSTRACTS OF  
DIRECTIONS .



ABSTRACT OF POSITIONS

H- A-10056

Console 701 (2023)  
(or Mobile unit)

FA-3

FA- 10-7-82

DAY	POSITIONS	CONTROL CODE#	CONTROL STATIONS		TYPE OF HYDRO				DEVEL. #	IBS or DPs	Sheets where Plotted Main Sheet	Rejected or Duplicated Positions
			SI Area	M S <sub>2</sub> X <sub>POB</sub>	MS	XL	MS SPLITS	PSR #				
290/291	2000 - 2120	04	201/B	300/A	X						2009 2053, 2098	
291	2121 - 2136	04	201/B	300/A		X					2121/2122	
291	2137 - 2203	04	201/B	300/A	X						2187	
291/292	2204 - 2273	04	201/B	300/A	X						2210, 2247, 2248, 2254, 2232, 2253	
292	2274 - 2329	04	201/B	300/A	X						2322, 2323	
292	2330 - 2393	04	201/B	300/A	X						2388, 2389	
292	2394 - 2401	04	201/B	300/A		X					NONE	
293	2402 - 2409	04	201/B	300/A		X					NONE	
293	2410 - 2478	04	310/B	400/S	X						2413, 2414, 2415	
293	2479 - 2517	04	201/G	300/A	X						NONE	
293	2518 - 2529	04	201/G	300/A		X					2518	
293	2529 - 2588	04	201/G	300/F	X						2553	
293	2589 - 2594	04	201/G	300/F	X						2594	
293	2595 - 2623	04	201/G	300/G	X						2617, 2618	
303/304	2624 - 2664	03	302/A	300/A	X						NONE	
304	2665 - 2689	03	302/A	302/A		X					NONE	



ABSTRACT OF POSITIONS

DAY	POSITIONS	CONTROL CODE#	CONTROL STATIONS and XPDR			TYPE OF HYDRO				DEVEL. #	SPLITS.	PSR	SHEETS where Plotted Main Sheet	Enlargement	Duplicated or Positions
			S1	M	S2	MS	XL	MS	IBS or DPs						
291/292	4000 - 4098	04	201/C		300/A	X							10-75-82	NONE	
292	4099 - 4135	04	201/C		300/A	X							"	NONE	
292/293	4136 - 4253	04	201/C		300/7	X							"	4202, 4203, 4243 - 4249	
293	4254 - 4299	04	201/C		300/7		X						"	4268.	
293/294	4300 - 4446	04	201/G		300/7	X							"	4304	
293/294	4447 - 4462	04	201/G		300/7		X						"	4454 - 4456	
294	4463 - 4465	04	201/G		300/7	X							"	NONE	
294	4466 - 4477	04	201/G		300/7		X						"	NONE	
304	4478 - 4550	04	310/G		400/5	X							10-7N-82	4524, 4525, 4526, 4531	
304	4551 - 4562	04	310/G		400/5		X						10-7N-82	4563 - 4584	

CONTROL CODES: 01 Visual; 03 Range/Az; 04 Range/Range; 05 Hyperbolic; 06 Hyper/Visual; 09 Range/Visua. *ARC*

Console 80323 (2024)  
(or Mobile unit)

H-10056  
FA-10-7-82

ABSTRACT OF POSITIONS

DAY	POSITIONS	CONTROL CODE#	CONTROL STATIONS and XPR #		TYPE OF HYDRO				DEVEL. #	BS or DPS	Main Sheet	Rejected or Duplicated Positions
			SI	M	MS	XL	MS SPLITS.	PSR #				
304	4585 - 4626	04	200/B	302/A	X						10-7N-82	NONE
304	4627 - 4633	04	310/6	400/5	X						10-7N-82	NONE
305	4634 - 4635	04	201/B	220/C					X	DIVER	10-7C-82	NONE
305	4636 - 4637	03	220/C						X	DIVER	10-7S-82	NONE
306	4638 - 4654	04	300/A	400/5	X						10-7N-82	NONE
306	4655 - 4660	04	200/C	220/B					X		10-7C-82	NONE
306	4667 - 4708	04	220/B	300/A					X		10-7C-82	4667
306	4709 - 4710	04	200/C	220/B	X						10-7C-82	NONE
306	4711 - 4719	04	201/A	220/B					X		10-7J-82	NONE
323	4720 - 4737	04	200/9	400/5					X		10-7N-82	4733-4734
323	4738 - 4760	04	310/6	400/5					X		10-7N-82	4753
323	4760	04	310/6	400/5						X	10-7N-82	NONE

Console 702 (2025)  
(or Mobile unit)

H-1005%  
FA-10-7-82

ABSTRACT OF POSITIONS

DAY	POSITIONS	CONTROL CODE#	CONTROL STATIONS		TYPE OF HYDRO			DEVEL. #	IBS OF DPs	Sheets where Plotted Main Sheet	Rejected or Duplicated Positions
			S1	S2	MS	XL	MS SPLITS.				
285	6000- 6077	03	200/6		X					10-75-82	NONE
285/286	6078- 6104	03	200/6		X					10-7C-82	NONE
289/290	6105- 6170	03	201/C		X					10-7C-82	NONE
291	6171- 6206	03	201/B		X					10-7C-82	NONE
291/292	6207- 6303	03	201/6		X					10-7C-82	6303 ✓
292	6304- 6314	03	201/6		X					10-75-82	NONE
292	6315- 6353	03	201/6		X	X				10-7C-82	<del>NONE</del> OK NONE
292	6354- 6355	03	200/6		X					10-7C-82	NONE ✓
292	6356- 6485	03	200/6		X					10-75-82	6413-6417 ✓
293	6486- 6514	03	200/6		X	X				10-75-82	NONE
293	6515- 6532	03	200/6		X					10-75-82	6526-6532 ✓
294	6533- 6584	03	200/6		X					10-75-82	NONE ✓
294	6585- 6614	03	200/6		X					10-7C-82	NONE
303	6615- 6639	03	220/C		X					10-75-82	NONE
304/305	6640- 6669	04	201/B	200/C				X		10-75-82	NONE
305	6670- 6675	04	220/C	201/B				X		10-75-82	NONE ✓

05 Hyperbolic; 08 Hyper/Visual; 09 Range/Visual



ABSTRACT OF POSITIONS

H- 10056  
 Consol. 703  
 (or Mobile unit)  
 AVON 2027

AVON (2027)

FA- 10-75-82

DAY	POSITIONS	CONTROL CODE*	CONTROL STATIONS and XPDR #		TYPE OF HYDRO				DEVEL. #	BS or DPs	Main Sheet	Enlargement #	Rejected or Duplicated Positions
			S <sub>1</sub>	M	S <sub>2</sub>	Year	MS	XL					
306	9000 - 9066	03	201/8									10-75-82	9004
306	9067 - 9116	03	201/7									10-75-82	9101 - 9110
306	9117 - 9121	03	201/7									10-75-82	NONE
306	9121* - 9155	03	201/7									10-75-82	* 9121 DUPLICATED
306/307	9156 - 9169	03	201/7						X			10-75-82	9161, 9163, 9164, NONE 9165

CONTROL CODES: 01 Visual; 03 Range/Az; 04 Range/Range; 05 Hyperbolic; 08 Hyper/Visual; 09 Range/Visual

1 of 5

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

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

NOAA FORM 75-44  
(11-72)

CHECKED BY *DB* DATE CHECKED *3/11/83*

PROJ. NO. *OPR-T126-FA-82* YEAR *1982* FA *10-7-82*

REMARKS  
(Unusual conditions, cohesiveness, content of water, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (Fathoms)	WEIGHT OF SAM- PLER	AP. PEN- ETRA- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	OBS. INIT.
		LATITUDE	LONGITUDE							
<i>2025</i>										
<i>6640</i>	<i>305</i> <i>31 OCT 82</i>	<i>21/25/30</i>	<i>157/44/07</i>	<i>2.8</i>	<i>/</i>			<i>wh</i>	<i>fne S, Co, Wd</i>	
<i>6641</i>	<i>"</i>	<i>21/25/13</i>	<i>157/43/54</i>	<i>3.5</i>	<i>/</i>			<i>wh</i>	<i>fne S, Co, Wd</i>	
<i>6642</i>	<i>"</i>	<i>21/24/59</i>	<i>157/43/39</i>	<i>3.9</i>	<i>/</i>			<i>br</i>	<i>S</i>	
<i>6643</i>	<i>"</i>	<i>21/24/43</i>	<i>157/43/27</i>	<i>3.9</i>	<i>/</i>				<i>Co</i>	
<i>6644</i>	<i>"</i>	<i>21/24/28</i>	<i>157/43/09</i>	<i>2.6</i>	<i>/</i>			<i>wh</i>	<i>fne S, Co</i>	
<i>6645</i>	<i>"</i>	<i>21/24/15</i>	<i>157/42/53</i>	<i>2.7</i>	<i>/</i>			<i>br</i>	<i>S, Co, Wd</i>	
<i>6646</i>	<i>"</i>	<i>21/24/21</i>	<i>157/42/31</i>	<i>6.1</i>	<i>/</i>			<i>wh</i>	<i>fne S, Co, Wd</i>	
<i>6647</i>	<i>"</i>	<i>21/24/35</i>	<i>157/42/48</i>	<i>6.6</i>	<i>/</i>			<i>wh</i>	<i>S, Wd</i>	
<i>6648</i>	<i>"</i>	<i>21/24/50</i>	<i>157/43/03</i>	<i>5.9</i>	<i>/</i>				<i>Co</i>	
<i>6649</i>	<i>"</i>	<i>21/25/05</i>	<i>157/43/19</i>	<i>4.6</i>	<i>/</i>				<i>Co</i>	<i>visual (no sample)</i>
<i>6650</i>	<i>"</i>	<i>21/25/18</i>	<i>157/43/34</i>	<i>3.4</i>	<i>/</i>			<i>wh</i>	<i>fne S, Co, Wd</i>	
<i>6651</i>	<i>"</i>	<i>21/25/35</i>	<i>157/43/47</i>	<i>3.8</i>	<i>/</i>			<i>wh</i>	<i>fne S, Co, Wd</i>	
<i>6652</i>	<i>"</i>	<i>21/25/39</i>	<i>157/43/26</i>	<i>7.5</i>	<i>/</i>			<i>rd</i>	<i>S, Wd</i>	
<i>6653</i>	<i>"</i>	<i>21/25/24</i>	<i>157/43/13</i>	<i>7.9</i>	<i>/</i>			<i>wh</i>	<i>fne S</i>	
<i>6654</i>	<i>"</i>	<i>21/25/10</i>	<i>157/42/59</i>	<i>7.4</i>	<i>/</i>			<i>wh</i>	<i>fne S, Co</i>	
<i>6655</i>	<i>"</i>	<i>21/24/55</i>	<i>157/42/42</i>	<i>7.4</i>	<i>/</i>			<i>wh</i>	<i>fne S, Wd</i>	
<i>6656</i>	<i>"</i>	<i>21/24/41</i>	<i>157/42/25</i>	<i>7.5</i>	<i>/</i>			<i>wh</i>	<i>fne S, Wd</i>	

Use more than one line per sample if necessary.

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

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

NOAA FORM 75-44  
(11-72)

VESSEL 2025	DATE	PROJ. NO.		YEAR	DEPTH	WEIGHT SAMPLER	AP. PENE- TRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.	
		SAMPLE POSITION											DATE CHECKED
		LATITUDE	LONGITUDE										
			OPR-T126-FA-82	1982								3/11/83	
6657	305 31 OCT 82	21/24/25	157/42/11		8.0	-			wh	fne S, Co, Wd			
6658	"	21/24/31	157/41/49		11.3	-				Co, Wd			
6659	"	21/25/07	157/43/02		10.2	-			wh	crs S			
6660	306 1 NOV. 82	21/25/01	157/42/21		11.4	-				Co			
6661	"	21/25/42	157/42/57		20.3	-				crs S			
6662	"	21/25/26	157/42/51		16.0	-		gy		crs S, brk Sh			
6663	"	21/25/21	157/42/18		17.5	-		rd		brk Sh, Wd			
6664	"	21/25/05	157/42/01		14.7	-				Wd, Co			
6665	"	21/24/52	157/41/44		15.1	-				Co			
6666	"	21/24/37	157/41/28		16.3	-			br	fne S			
6667	"	21/24/56	157/41/24		26.7	-				brk Sh, Co			
6668	"	21/25/13	157/41/40		26.3	-				brk Sh, S			
6669	"	21/25/28	157/41/56		31.2	-			br	fne S			
6670	"	21/25/10	157/44/44		3.1	-			wh	fne S, Wd			
6671	"	21/25/01	157/43/56		4.1	-				fne S			
6672	"	21/24/47	157/43/36		2.8	-			wh	fne S			
6673	"	21/24/21	157/44/02		2.4	-			wh	fne S			

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Use more than one line per sample if necessary.

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

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

NOAA FORM 75-44  
(11-72)

VESSEL	DATE	PROJ. NO.		YEAR	YEAR		AP. PROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, denuded cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
		OPR-T26-FA-82			FA 10-7-82							
		SAMPLE POSITION			DEPTH (Fathoms)	WEIGHT OF SAMPLER						
SERIAL NO.	LATITUDE	LONGITUDE	DEPTH (Fathoms)	WEIGHT OF SAMPLER	AP. PROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, denuded cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.		
2025				'82								
6674	306 1 Nov. 82	21/24/36	157/44/12	3.0				wh	fine S			SP
6675	"	21/24/51	157/44/29	6.2				wh	fine S			CB
6676	"	21/24/00	157/42/35	2.8					hrd			"
6677	"	21/24/07	157/42/14	5.8					hrd			"
6678	"	21/24/09	157/41/53	8.1					hrd			"
6679	"	21/24/17	157/41/30	12.7					fine S, brk sh			"
6680	"	21/24/21	157/41/13	18.5					fine S, brk sh.			"
6681	"	21/24/03	157/41/16	16.8					fine S, brk sh			"
6682	"	21/23/56	157/41/36	10.1					hrd, CO.			"
6683	"	21/23/49	157/42/01	4.3					hrd			"
6684	"	21/23/35	157/41/46	4.5					hrd			"
6685	"	21/25/36	157/43/05	13.0					hrd, CO.			"
6686	"	21/25/53	157/43/10	9.3					CO, wd			"
6687	"	21/25/53	157/43/39	6.7					hrd			"
6688	"	21/25/51	157/44/00	4.0					hrd			"
6689	"	21/26/08	157/43/52	4.5					hrd, (wd)			"
6690	"	21/26/11	157/43/20	6.4					hrd			"

CMS

3/11/83

\* U.S. GOVERNMENT PRINTING OFFICE: 1979-005-018/1004

Use more than one line per sample if necessary.

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

NOAA FORM 75-44  
(11-72)

VESSEL 2025	DATE	PROJ. NO. OPR-7126-FA-82		YEAR 82	DEPTH (Fathoms)	SAMPLE POSITION		WEIGHT OF SAM- PLER	AP. PROX. PENE- TRA- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom, relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
		LATITUDE	LONGITUDE											
6691	1 Nov 82 306	21/26/11	157/43/09	130								Co, wd		
6692	2 Nov 82 307	21/26/22	157/44/02	36								hrd		
6693	"	21/26/24	157/43/43	64								hrd		
6694	"	21/26/28	157/43/21	91								brk sh		
6695	"	21/26/30	157/43/01	238								hr Co		
6696	"	21/26/48	157/42/54	225								brk sh		
6697	"	21/26/44	157/43/14	145								Crs S, brk sh		
6698	"	21/26/42	157/43/36	79								hrd		
6701	"	21/27/55	157/43/02	101								fine S		
6702	"	21/27/67	157/42/41	243								fine S, brk sh, wd		
6703	"	21/27/52	157/43/22	48								fine S, wd		
6704	"	21/27/21	157/43/20	84								Co		
6705	"	21/27/22	157/42/58	176								Co		
6706	"	21/27/24	157/42/37	361								brk sh, fine S		
6707	"	21/27/41	157/42/50	124								Co, fine S		
6708	"	21/23/43	157/41/24	103								Co		
6709	"	21/23/48	157/41/02	225								fine S, Co, wd		

CHECKED BY  
EAK

DATE CHECKED  
3/4/83

FA10-7-82

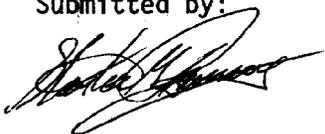
Use more than one line per sample if necessary.



Approval Sheet

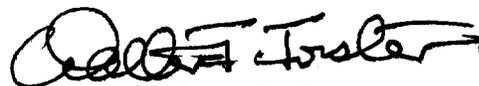
The Commanding Officer inspected all field sheets and field data on a daily basis. The three survey sheets that are included with this report are complete and adequate for charting purposes.

Submitted by:



Stanton M. Ramsey  
Lieutenant, NOAA

Approved by:



Walter F. Forster  
Commander, NOAA  
Commanding Officer

# HYDROGRAPHIC SURVEY STATISTICS

H-10056

**RECORDS ACCOMPANYING SURVEY:** To be completed when survey is processed.

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		5
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		5
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDIAN FILES					
ENVELOPES					
VOLUMES					
CAHIERS	2				
BOXES				1	

**SHORELINE DATA**

- SHORELINE MAPS (List):
- PHOTOBATHYMETRIC MAPS (List):
- NOTES TO THE HYDROGRAPHER (List):
- SPECIAL REPORTS (List):
- NAUTICAL CHARTS (List):

*OFFICE PROCESSING ACTIVITIES*  
The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			2789
POSITIONS REVISED	837	0	837
SOUNDINGS REVISED	374	0	374
CONTROL STATIONS REVISED			
	TIME - HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION	2	0	2
VERIFICATION OF CONTROL	8	4	12
VERIFICATION OF POSITIONS	49	30	79
VERIFICATION OF SOUNDINGS	178	6	184
VERIFICATION OF JUNCTIONS	2	1	3
APPLICATION OF PHOTOBATHYMETRY	0	0	0
SHORELINE APPLICATION/VERIFICATION	17	0	17
COMPILATION OF SMOOTH SHEET	44	4	48
COMPARISON WITH PRIOR SURVEYS AND CHARTS	0	8	8
EVALUATION OF SIDESCAN SONAR RECORDS	0	0	0
EVALUATION OF WIRE DRAGS AND SWEEPS	0	0	0
EVALUATION REPORT	4	21	25
OTHER Inspection Update	0	10	10
Digitization	8	0	8
Verification TOTALS	312	84	396

Pre-processing Examination by	Beginning Date	Ending Date
Verification of Field Data by L. T. Deodato	Time (Hours) 5/16/83	Ending Date 7/18/84
Verification Check by S. H. Otsubo, J. S. Green	Time (Hours) 58	Beginning Ending Date 6/13/84
Evaluation and Analysis by G. E. Kay	Time (Hours) 4/11/84	Ending Date 6/6/84
Inspection by	Time (Hours)	Ending Date

PACIFIC MARINE CENTER  
EVALUATION REPORT

REGISTRY NO: H-10056

FIELD NO: FA-10-7-82

Hawaii, East Coast of Oahu, Kailua Bay and Vicinity

SURVEYED: October 12 - November 19, 1982

SCALE: 1:10,000

PROJECT NO: OPR-T126

SOUNDINGS: Ross Finline Fathometer

CONTROL: Range/Azimuth  
Range/Range  
Motorola Mini-  
Ranger III/Wild T-2

Chief of Party.....Cdr. W. F. Forster

Surveyed by.....Lt. A. Ramsey  
Lt. T. Baxter  
Lt. (jg) G. Tuell  
Ens. F. Migaiolo  
Ens. A. Francis  
Ens. P. Bailey  
Ens. D. Koch  
Ens. P. Steele

Automated Plot by.....PMC Kynetics Plotter

Verified by.....L. T. Deodato

Evaluated by.....Gordon E. Kay

1. INTRODUCTION

H-10056 is a basic hydrographic survey conducted by the NOAA Ship FAIRWEATHER in accordance with the following:

- Project Instructions (P.I.) for OPR-T126-FA-82, dated July 30, 1982
- Change 1, dated September 7, 1982
- Change 2, dated November 17, 1982
- Change 3, dated January 20, 1983

The survey is situated along the east coast of Oahu, Hawaii, in the vicinity of Kailua Bay, extending from Mokulua Islands to Mokuapu Point.

The following data was changed during verification.

- a. Projection parameters were changed to center the hydrography on the smooth sheet and to change the projection to polyconic.
- b. Tide level values are from observed tides, see form 712.

## 2. CONTROL AND SHORELINE

Horizontal control and hydrographic positioning are adequately discussed in Descriptive Report paragraphs F and G, and Horizontal and Electronic Control Report for OPR-T126-FA-82.

The smooth sheet was plotted using geographic positions from the published geodetic control station listing of National Geodetic Service, on the Old Hawaiian Datum.

Shoreline shown on the smooth sheet in black comes from TP-00720 (Hawaii, Mokapu Point) 1:20,000, enlarged to 1:10,000.

Date of Photography	January 1975
Date of Field Edit	March 1976
Date of Final Review	April 1978

Shoreline in brown is from an enlargement of Chart 19357.

The Descriptive Report, paragraphs H and Q discuss the inadequate compilation of TP-00720, and the recommendation for recompilation of the manuscript between Alala Point and Wailea Point. This comment is inappropriate, since the manuscript does not cover the area. The southern limit of TP-00720 is just south of Kapoho Point, more than a mile to the north of the referenced area.

The field sheet from latitude 21°24'30"North, south to latitude 21°23'09" North contains numerous black rocks and coral reefs (with red shoreline changes) on them. The source of this information appears to be the USGS quad of Mokapu, Hawaii (N2122.5-W15739/7.5). Considering that this information was transferred from an unauthorized survey source, and that there is no hydrographic information to support this data, it is not shown on the smooth sheet.

## 3. HYDROGRAPHY

Soundings at crosslines are in good agreement. The hydrography contained within this survey is adequate to determine the bottom configuration and least depths, except as indicated in Section 9 of this report.

Standard depth curves were adequately drawn and developed with the exception of the 0, 1, and 2 fathom curves, where hydrography was terminated due to surf and wind conditions.

## 4. CONDITION OF SURVEY

The hydrographic records and final reports adequately conform to the requirements of the Hydrographic Manual (H.M.), 4th Edition revised through change number 3, with the following exceptions:

a. Numerous areas within the limits of this survey needed to be investigated by the ship. These areas include numerous rocks and isolated peaks not found on this survey which are shown on the prior surveys and chart (P.I. 1.9, H.M. 1.4.3, 4.5.9, and 4.5.10). (See section 9 of this report for exact location).

b. Line spacing exceeded the limit as set forth in P.I. 6.5.1 (Change #3 and H.M. 4.3.4). Change 3 required a maximum line spacing of 600 meters for areas to be charted at 1:25,000 (the area of this survey). Extensive areas on this survey have line spacing of 800 meters.

c. A comparison with prior surveys H-4831 and H-4832 was not made as required by H.M. 5.3.4.K.

#### 5. JUNCTIONS

H-10056 junctions the following:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Note</u>	<u>Color</u>	<u>Junctions on</u>
H-8990	1967	1:12,500	Adjoins	Orange	South
H-10058	1982	1:10,000	Joins	Red	West
H-10068	1982-83	1:80,000	Adjoins	Violet	East

The junctions have been satisfactorily effected with the "Joins" survey. Soundings in the junctional area of the "Adjoins" surveys are in agreement. There is an excessive amount of overlap on the junction area with H-8990; a butt junction has been effected, the data in the common area of H-8990 has been superseded by H-10056. Refer to H-10056 for depth curves in junctional area.

#### 6. COMPARISON WITH PRIOR SURVEYS

H-3252 (1910) 1:20,000. Present survey data compares well with this prior survey. H-10056 survey data continues further inshore than the prior and delineates better the inshore features, including portions of the one fathom curve. H-10056 is adequate to supersede H-3252 over their common areas.

H-3287 (1910) 1:20,000 - Present survey data compares well with this prior survey. H-10056 contains more hydrographic information which better delineates the subsurface terrain. H-10056 is adequate to supersede H-3287 over their common areas.

H-4831 (1927) 1:5,000 - Present survey data does not compare well with this prior survey. H-4831 continues further inshore (inside the breakers) than the present survey and better delineates inshore features (rocks, reefs, surfzone). This area is inside the limits of the request for additional work (see section 9), and at this time H-4831 is not superseded by H-10056. H-10056 can be used to supplement H-4831 over their common areas.

H-4832 (1927) 1:5,000 - Present survey data compares well with this prior survey. H-10056 survey data contains more hydrographic information and better delineates the inshore area. H-10056 is adequate to supersede H-4832 over their common areas.

Note to Compiler. U.S. Army Corps of Engineers blueprints, Numbers 19 and 20, are filed with H-4832, a comparison was only made to NOS "H" surveys.

H-5331 (1933) 1:5,000. Present survey data compares well with this prior survey. H-5331 survey continues further inshore than the present survey and it delineates better the inshore features (reefs, rocks). Soundings are in agreement along the entire 3-fathom/18 foot curve, where a butt junction has been made. H-10056 is adequate to supersede H-5331 in areas of common coverage in depths greater than 18 feet and adequate to supplement H-5331 in depths less than 18 feet/3 fathoms.

There is no presurvey review item or AWOIS file listing within the limits of H-10056.

#### 7. COMPARISON WITH CHART

Chart 19357, 1:80,000, 16th Edition, December 5, 1981

a. Hydrography. Charted soundings in depths greater than 18 feet/3 fathoms came from the aforementioned prior surveys and compare well with slight differences noted, generally within a few tenths of a fathom in areas of regular bottom topography. Survey data inside the three fathom curve is incomplete and the prior surveys have not been superseded. However, where shoaler soundings are identified in the present survey, they may be used to supplement prior surveys in areas where common coverage occurs. Charted rocks, all within 3 fathoms, were not located, and should continue to be charted from existing sources.

b. Controlling depths. There are no controlling depths located within the limits of H-10056.

c. Aids to navigation. There are no fixed and only one floating aid to navigation located within the limits of this survey, as follows:

A floating buoy - Privately maintained (U.S. Navy) - latitude 21°26'33" North, longitude 157°44'16" West, which was searched for but not found during the course of this survey, and should be removed from the chart.

There have been no dangers to navigation identified or reports submitted by the NOAA Ship FAIRWEATHER, or the Pacific Marine Center, Seattle, Washington.

H-10056 is adequate to supersede Chart 19357 in depths greater than 3 fathoms over their common areas. Charted information inshore of the above depth should continue to be charted from its existing sources supplemented by the present survey.

#### 8. COMPLIANCE WITH INSTRUCTIONS

H-10056 complies with the instructions and changes listed in section 1 of this report except where noted in section 4.

9. ADDITIONAL FIELD WORK

H-10056 is a good hydrographic survey offshore from the 3 fathom curve. Inshore of the 3 fathom curve H-10056 does not have adequate data to supersede the prior surveys. Additional field work would be necessary to supersede H-4831 and H-5331 inshore of the 3 fathom curve. In addition:

a. Least depths should be determined for the following shoal indications:

<u>Position Number</u>	<u>Depth (fathoms)</u>	<u>Latitude (North)</u>	<u>Longitude (West)</u>
3052/1	2.1	21°25'23.4"	157°43'56.0"
6274/2	2.1	21°25'26.4"	157°43'56.1"
4708/0	1.6	21°26'06.1"	157°43'27.2"
6591/0	1.9	21°25'37.3"	157°44'00.7"
6516/4	1.6	21°24'38.1"	157°43'24.7"

b. Additional line splits are needed to reduce the excessive line spacing (presently at 800 meters) to the required 600 meters maximum.

Any recommendation or future assignment for additional field work should be based on a charting requirement for updated source data inside the 3 fathom depth curve.

Respectfully,

*for f s q*  
 Gordon E. Kay  
 Cartographer  
 June 5, 1984

This survey has been verified and evaluated. I have examined this survey and it meets Charting and Geodetic Services survey standards and requirements for use in nautical charting except as noted in the Evaluation Report. This survey is recommended for approval.

*f s q*  
 James S. Green  
 Supervisory Cartographer

DATE: August 4, 1983

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 161-2396 - Waimanalo Hawaii  
161-2480 - Mokuoloe Hawaii

Period: October 12 - November 21, 1982

HYDROGRAPHIC SHEET: H-10056

OPR: T126

Locality: East Coast of Oahu Hawaii

Plane of reference (mean lower low water): 161-2396 = 2.22 ft.  
161-2480 = 2.80 ft.

Height of Mean High Water above Plane of Reference is 161-2396 = 1.4 ft.  
161-2480 = 1.7 ft.

REMARKS: Recommended Zoning

1. North of Latitude  $21^{\circ} 27.5'$ 
  - a. East of Longitude  $157^{\circ} 43.7'$  Zone Direct on 161-2396 Waimanalo, Hawaii
  - b. West of  $157^{\circ} 43.7'$  Zone Direct on 161-2480 Mokuoloe, Hawaii
2. South of  $21^{\circ} 27.5'$  Zone Direct on 161-2396 Waimanalo, Hawaii

*Donald Carrier*  
for Chief, Tidal Datums Section, Tides & Water  
Levels Branch

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10056

I have reviewed the smooth sheet, accompanying data, and reports of this hydrographic survey. Except as noted in the Evaluation Report, the hydrographic survey meets or exceeds Charting and Geodetic Services (C&GS) standards, complies with instructions, and is accurately and completely represented by the smooth sheet and digital data file for use in nautical charting. Further, it is suggested that no additional field work inshore of the 3-fathom curve (as noted in Section 9 of this report) be scheduled or required due to the limited navigability and use of that area.

*David W. Yeager* 7/13/84  
Chief, Nautical Chart Branch (Date)

CLEARANCE:

N/MCP2:LWMordock

SIGNATURE AND DATE:

*L. W. Mordock* 7/13/84

After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards with only the exceptions as noted above. The above recommendations are forwarded with my concurrence.

*Charles K. Townsend* 7/13/84  
Director, Pacific Marine Center (Date)

4116

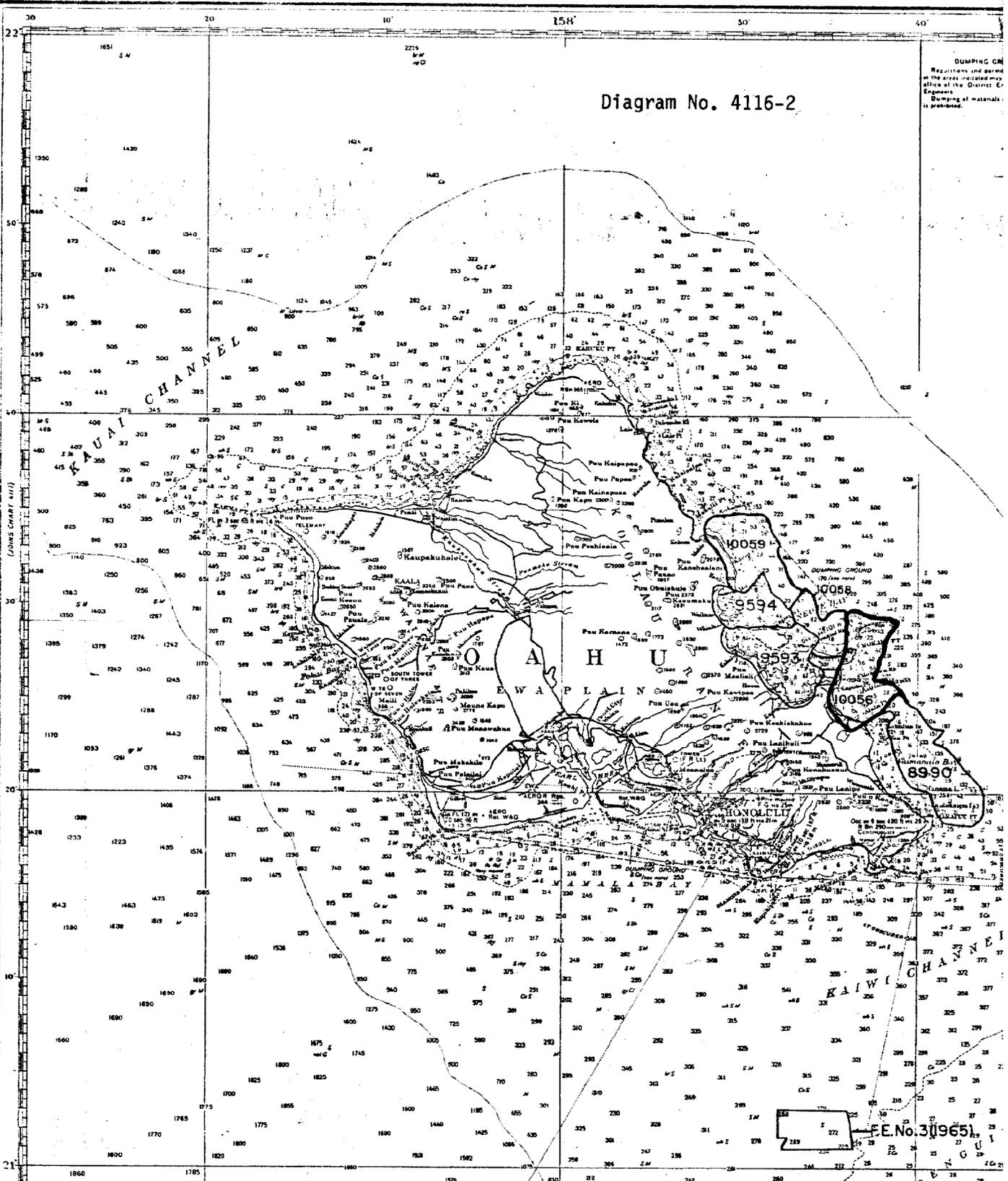


Diagram No. 4116-2

DUMPING ON  
Registers and served  
in the area indicated may  
office of the District En-  
gineers  
Dumping of materials  
is prohibited.

(JOINS CHART 4117)

EE No. 3 (1965)

Hydrographic Surveys

Number	Hydrographer	Scale	Date	Number	Hydrographer	Scale	Date
8578-80	W. R. Porter	10,000	1961				
8581-82	" " "	5,000	1961				
8576-77	" " "	10,000	1961				

