

W00242

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey **Outside Source Sruvey**
Project No. **OSD-AHB-12**
Registry No. **W00242**

LOCALITY

State **Hawaii**
General Locality **Northwestern Hawaiian Islands**
Sub-locality **French Frigate Shoals**

2005

CHIEF OF PARTY

HYDROGRAPHER

LIBRARY & ARCHIVES

DATE **April 23, 2005**

HYDROGRAPHIC TITLE SHEET

State: Hawaii

General Locality: Northwestern Hawaiian Islands

Locality: French Frigate Shoals

Scale: N/A Date of Survey: 20050404 - 20050423

Instructions Dated: N/A Project Number: OSD-AHB-12

Vessels: NOAA Ship Hi'ialakai and NOAA R/V AHI

Chief of Party: N/A

Surveyed by: NOAA Pacific Island Fisheries Science Center

Soundings method: Reson 8101ER

Verification by: **Atlantic Hydrographic Branch**

Soundings in: Feet: _____ Fathoms: X Meters: _____ at MLW: _____ MLLW: X

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Revisions and Rednotes were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non-sequential. All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via <http://www.ngdc.noaa.gov/>.

Remarks: UTC time used exclusively
UTM Zone 03N

Project: OSD-AHB-12
Registry: W00242

Identification_Information:

Citation:

Citation_Information:

Originator: Joyce E. Miller

Publication_Date: 200607

Title: Reson 8101ER Multibeam Sonar Data from Cruise
AHI-05-01

Geospatial_Data_Presentation_Form:

Generic Sensor Format (GSF) digital data

Online_Linkage: ftp://ftp.soest.hawaii.edu/pibhmc

Description:

Abstract: Reson 8101ER multibeam Data were collected from 8-19 April 2005 aboard NOAA Survey Launch Acoustic Habitat Investigator (AHI) at French Frigate Shoals in Northwestern Hawaiian Islands during cruise AHI-05-01. These multibeam data were collected using SAIC ISS-2000 software in the Generic Sensor Format and processed using SABER editing software. Sound velocity corrections from a Seabird SBE19 CTD sensor and motion corrections from a POS-MV vertical reference were applied to the data in real time. Predicted tides were applied to the data in real time.

Horizontal accuracy is 20m (no differential GPS correctors applied), vertical accuracy is depth dependent (~1% of water depth), WGS84 datum. These data are not to be used for navigation. Depths mapped range from 10-150m. The AHI was deployed from the NOAA Ship Hi'ialakai and concurrent mapping was done using Simrad EM300 and EM3002D sonars aboard the ship; metadata for HI-05-01 are submitted separately.

Purpose: The data were collected in support of Coral Reef Conservation Program goals to map all shallow (0-30 m) coral reefs in US Pacific waters and priority moderate (> 30 m) depth areas by 2009. The data are being used to provide bathymetric and backscatter data for previously unmapped areas; in support of ecosystem management requirements for benthic habitat mapping and location of Essential Fish Habitat; and to study the geologic features of the area.

Supplemental_Information:

Data were collected aboard the R/V AHI (Acoustic Habitat Investigator), a 8 m (25') survey launch owned and operated by the NOAA Pacific Islands Fisheries Science Center in Honolulu, HI. The R/V AHI's survey sensors include a 240 kHz RESON 8101-ER sonar which measures bathymetry and acoustic backscatter imagery, a TSS/Applanix POS/MV Model 320 which measures time, position, velocity, attitude and heading, and a Seabird SBE 19 CTD used to measure sound velocity profiles.

The AHI's equipment serial numbers, software versions and sensor configuration settings are as follows:

RESON 8101-ER multibeam echosounder
Transducer serial #: 201004
Firmware, dry: 8101-2.07-2D4D
Firmware, wet: 8101-1.06-2F6B

R/V AHI POS/MV Model 320, version 3
PCS serial #: 474
IMU serial #: 203
Controller software: v 2.1
PCS Firmware: 2.16, Sep 15, 2004

Seabird SBE19 CTD:
Serial #: 3029

R/V AHI Lever Arm Distances and Alignment Offsets: The R/V AHI Reference Point (RP) is defined to be the intersection of the vessel's centerline, the cabin deck and the bulkhead immediately aft of the transducer. This is marked by a punch in the deck weld at that location. Positive X means the point is forward of the RP, positive Y means the point is to starboard of the RP, positive Z means the point is below the RP. The loaded waterline is defined as the intersection of the vessel's performance wing with the hull at the transom.

POS/MV Settings:

RP to IMU, m	0.80	0.00	0.08
RP to Primary GPS(port),m	0.85	-0.50	-2.29
RP to Vessel, m	0.16	0.00	0.77
IMU w.r.t. Ref. Frame, deg	0.00	0.00	0.00
RP to Heave lever arm, m	-0.67	0.00	0.00
RP to Sensor 1(MB transducer), m	0.16	0.00	0.77
RP to Sensor 2	0	0	0
Sensor 1 rotation Ref. Frame, deg	0	0	0
Sensor 2 rotation Ref. Frame, deg	0	0	0
Antenna Baseline Distance:	1.229		

ISS2000 Settings for RESON DTC:

Roll Bias, deg	0.58
Pitch Bias, deg	0.0
Gyro Bias, deg	0.0
Transducer depth, m	0.62

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20050404

Ending_Date: 20050423

Currentness_Reference: ground condition

Status:

Progress: In Work

Maintenance_and_Update_Frequency: As needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -166.3504

East_Bounding_Coordinate: -166.1922

North_Bounding_Coordinate: 23.8498

South_Bounding_Coordinate: 23.6548

Keywords:

Theme:

Theme_Keyword_Thesaurus: CoRIS Theme Thesaurus Version 1.0

Theme_Keyword: EARTH SCIENCE > Oceans > Bathymetry/Seafloor
Topography > Bathymetry

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: Bathymetry

Theme_Keyword: Multibeam sonar

Place:

Place_Keyword_Thesaurus: None

Place_Keyword: French Frigate Shoals

Place_Keyword: Northwestern Hawaiian Islands

Place_Keyword: Islands

Place:

Place_Keyword_Thesaurus: CoRIS Place Thesaurus Version 1.0

Place_Keyword: OCEAN BASIN > Pacific Ocean > Central Pacific Ocean
> Northwestern Hawaiian Islands > French Frigate Shoals

Place_Keyword: COUNTRY/TERRITORY > United States of America >
Hawaii > Honolulu

Access_Constraints: None.

Use_Constraints: These data are NOT TO BE USED FOR NAVIGATION

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Joyce E. Miller

Contact_Organization: Coral Reef Ecosystem Division,
Pacific Islands Fisheries Science Center

Contact_Position: Oceanographer

Contact_Address:

Address_Type: mailing and physical address

Address: Kewalo Research Facility, 1125B Ala Moana Blvd

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Contact_Facsimile_Telephone: (808) 592-7013

Contact_Electronic_Mail_Address: Joyce.Miller@noaa.gov

Browse_Graphic:

Browse_Graphic_File_Name: None

Browse_Graphic_File_Description: None

Browse_Graphic_File_Type: None

Data_Set_Credit: Joyce E. Miller Coral Reef Ecosystem Division,
NOAA Pacific Islands Fisheries Science Center

Native_Data_Set_Environment: Generic Sensor Format multibeam
data processed with SAIC SABER processing software on LINUX

operating system computers

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: Horizontal accuracy is ~20 m as data were collected using GPS with no differential corrections. Vertical accuracy of multibeam data is estimated at 1% of water depth; predicted tidal corrections were applied.

Logical_Consistency_Report: These data are believed to be logically consistent though no tests were performed

Completeness_Report: Varies

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report: Variable

Quantitative_Horizontal_Positional_Accuracy_Assessment:

Horizontal_Positional_Accuracy_Value: 20

Horizontal_Positional_Accuracy_Explanation: Multibeam sonar data. No DGPS corrections applied; 20 m accuracy

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report: Variable

Quantitative_Vertical_Positional_Accuracy_Assessment:

Vertical_Positional_Accuracy_Value: 1

Vertical_Positional_Accuracy_Explanation: Accuracy varies with water depth. Predicted tides were applied to the data in real time. Tide zoning and offset values were provided by the NOAA NOS CO-OPS program and predicted tides for the appropriate tide gauges were downloaded from the NOAA CO-OPS website. SAIC's ISS2000 and SABER software were used to produce predicted tide files for each tide zone. Multibeam data vertical accuracy is ~1% of water depth.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Joyce E. Miller,
Coral Reef Ecosystem Division, NOAA Pacific Islands
Fisheries Science Center

Publication_Date: 200607

Title: Reson 8101ER multibeam bathymetric data

Type_of_Source_Media: Digital data

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2005

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: Reson 8101ER

Source_Contribution: Reson 8101ER (240 kHz) bathymetry and imagery data were collected in depths of ~10-150 m.

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Joyce E. Miller

Contact_Organization: Coral Reef Ecosystem Division,

NOAA Pacific Islands Fisheries Science Center
Contact_Position: Oceanographer
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 Address: Kewalo Research Facility, 1125B Ala Moana Blvd
 City: Honolulu
 State_or_Province: Hawaii
 Postal_Code: 96814
 Country: USA
 Contact_Voice_Telephone: (808) 956-5239
 Contact_Facsimile_Telephone: (808) 592-7013
 Contact_Electronic_Mail_Address: Joyce.Miller@noaa.gov
Resource_Description: Reson 8101ER Multibeam Sonar Data from
 Cruise AHI-05-01 (R/V AHI)
Distribution_Liability: These data are not to be used for
 navigational purposes. NOAA makes no warranty regarding these
 data, expressed or implied, nor does the fact of distribution
 constitute such a warranty. NOAA cannot assume liability for
 any damages caused by any errors or omissions in these data,
 nor as a result of the failure of these data to function on a
 particular system.
Standard_Order_Process:
 Digital_Form:
 Digital_Transfer_Information:
 Format_Name: Generic Sensor Format, as described in
 http://www.ldeo.columbia.edu/res/pi/MB-System/formatdoc/gsf_spec.pdf
 Transfer_Size:
 Digital_Transfer_Option:
 Online_Option:
 Computer_Contact_Information:
 Network_Address:
 Network_Resource_Name:
 Fees: None
Metadata_Reference_Information:
 Metadata_Date: 200607
 Metadata_Contact:
 Contact_Information:
 Contact_Organization_Primary:
 Contact_Organization: Coral Reef Ecosystem Division,
 NOAA Pacific Islands Fisheries Science Center
 Contact_Person: Joyce E. Miller
 Contact_Address:
 Address_Type: Kewalo Research Facility, 1125B Ala Moana Blvd
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 Contact_Facsimile_Telephone: (808) 592-7013
 Contact_Electronic_Mail_Address: Joyce.Miller@noaa.gov
 Metadata_Standard_Name: FGDC Content Standards for Digital
 Geospatial Metadata
 Metadata_Standard_Version: FGDC-STD-001-1998
 Metadata_Time_Convention: Universal Time

APPENDIX I
TIDES AND WATER LEVELS

- None

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

- None

APPENDIX III

SURVEY FEATURES REPORT

- None

APPROVAL PAGE

W00242

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NGDC for archive

- W00242_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- W00242_GeoImage.pdf

The survey evaluation and verification has been conducted according current OCS Specifications, and the survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved: _____

LT Abigail Higgins, NOAA
Chief, Atlantic Hydrographic Branch