

W00238

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey **Hydrographic Survey**
Project No. **OSD-AHB-12**
Registry No. **W00238**

LOCALITY

State **Hawaii**
General Locality **Vicinity of French Frigate Shoals**
Sub-locality **Papahanaumokuakea Marine National
Monument**

2008

CHIEF OF PARTY
Pacific Islands Fisheries Science Center

LIBRARY & ARCHIVES

DATE **May 27, 2008**

NOAA FORM 77-28
(11-72)

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

REGISTRY NUMBER:

W00238

HYDROGRAPHIC TITLE SHEET

FIELD NUMBER:

State: Hawaii

General Locality: Vicinity of French Frigate Shoals

Locality: Papahānaumokuākea Marine National Monument

Scale: 1:40,000 Date of Survey: May 2008

Instructions Dated: _____ Project Number: OSD-AHB-12

Vessels: NOAA R/V AHI

Chiefs of Party: _____

Surveyed by: _____

Soundings taken by echosounder, hand lead line, or pole: Reson 8101ER Multibeam Sonar

Graphic record scaled by: N/A

Graphic record checked by: N/A

Protracted by: N/A Automated plot by: N/A

Verification by: _____

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

Remarks: Multibeam Hydrographic Survey

Data collection in meters, referenced to MLLW

UTM Zone 3N

Identification_Information:

Citation:

Citation_Information:

Originator: National Oceanic and Atmospheric Administration
Pacific Islands Fisheries Science Center Coral Reef
Ecosystem Division Pacific Islands Benthic Habitat
Mapping Center

Publication_Date: 20080528

Title: Reson 8101ER Multibeam Sonar Data from Cruise

AHI0804 Geospatial_Data_Presentation_Form:

Generic Sensor Format (GSF) digital data

Description:

Abstract: Reson 8101ER multibeam Data were collected between 2 - 29 May 2008 aboard NOAA Survey Launch Acoustic Habitat Investigator (AHI) at French Frigate Shoals in the Papahānaumokuākea Marine National Monument during cruise AHI0804. 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 using predicted tides downloaded from NOAA's National Ocean Service Center for Operational Oceanographic Products and Services (CO-OPS) website.

Horizontal accuracy is ~5m, DGPS from NavCom sensor from C&C Technologies was used, vertical accuracy is depth dependent (~1% of water depth), WGS84 datum. These data are not to be used

for

navigation. Depths mapped range from 5 - 200 m. The AHI was deployed from the NOAA Ship Hi'ialakai and concurrent mapping was done using the Simrad EM300 sonar aboard the ship; metadata for HI0804 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. A C&C Technologies NavCom sensor and the C-NAV RTG network, which is a global system for the distribution of differential GPS corrections, was used for navigation.

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: 8101-2.09 - E34D
Firmware, wet: 8101-1.08 - C215
Note: the Sonar processor used was a rental unit from Ashtead Technologies, because of a failure of the Reson sonar processor owned by PIFSC and normally used aboard the R/V AHI.

R/V AHI POS/MV Model 320, version 4.0000
PCS serial #: 2514
IMU serial #: 203
Controller software: v 3.4.0.0
PCS Firmware: 3.41

Seabird SBE19 CTD:
Serial #: 3029
Calibrated 12/28/2006

C&C Technologies NavCom Serial #5111

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. A vessel offset survey and patch test were performed in April 2008 and the settings shown here reflect these data.

POS/MV Settings:

RP to IMU, m	0.796	0.001	0.078
RP to Primary GPS(port),m	0.869	-0.472	-2.284
RP to Vessel, m	0.144	0.009	0.786
IMU w.r.t. Ref. Frame, deg	0.000	0.000	0.000
RP to Heave lever arm, m	-0.670	0.000	0.000
RP to Sensor 1(MB transducer), m	0.144	0.009	0.786
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 (determined in April 2008 patch test):

Roll Bias, deg 0.38
Pitch Bias, deg 0.05
Gyro Bias, deg 0.0
Transducer depth, m 0.62

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20080502

Ending_Date: 20080529

Currentness_Reference: ground condition

Status:

Progress: In Work

Maintenance_and_Update_Frequency: As needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -166.33

East_Bounding_Coordinate: -166.05

North_Bounding_Coordinate: 23.88

South_Bounding_Coordinate: 23.62

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: Northwestern Hawaiian Islands

Place_Keyword: Papahānaumokuākea Marine National Monument

Place_Keyword: French Frigate Shoals

Place:

Place_Keyword_Thesaurus: CoRIS Place Thesaurus Version 1.0

Place_Keyword: OCEAN BASIN > Pacific Ocean > Northwest Pacific

Ocean > 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_Organization_Primary:

Contact_Organization: Pacific Islands Benthic Habitat Mapping
Center (PIBHC),

Coral Reef Ecosystem Division (CRED), Pacific Islands Fisheries
Sciences Center (PIFSC),

NOAA National Marine Fisheries Service (NMFS)

Contact_Address:

Address_Type: mailing and physical address

Address: 1680 East-West Road POST 833

City: Honolulu
State_or_Province: HI
Postal_Code: 96822
Country: USA
Contact_Voice_Telephone: 808-956-5239
Contact_Facsimile_Telephone: 808-983-3730
Contact_Electronic_Mail_Address: nmfs.pic.credinfo@noaa.gov
Contact_Instructions: e-mail preferred
Browse_Graphic:
Browse_Graphic_File_Name: None
Browse_Graphic_File_Description: None
Browse_Graphic_File_Type: None
Data_Set_Credit: NOAA PIFSC CRED PIBHMC and JIMAR
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 ~5 m as
data were collected using DGPS using C-NAV satellite
correctors. 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: 5
Horizontal_Positional_Accuracy_Explanation: Multibeam
sonar data. 5 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 tide correctors applied
using data supplied by the NOAA CO-OPs program;
multibeam data vertical accuracy is ~1% of water depth.
Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: NOAA PIFSC CRED PIBHMC and JIMAR
Publication_Date: 20080630
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: 2008
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 ~10-350 m.

Process_Step:
Process_Date:08212008
Process_Description: None

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Pacific Islands Benthic Habitat Mapping
Center (PIBHC),
Coral Reef Ecosystem Division (CRED), Pacific Islands Fisheries
Sciences Center (PIFSC),
NOAA National Marine Fisheries Service (NMFS)

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Postal_Code: 96822
Country: USA
Contact_Voice_Telephone: 808-956-5239
Contact_Facsimile_Telephone: 808-983-3730
Contact_Electronic_Mail_Address:nmfs.pic.credinfo@noaa.gov
Contact_Instructions: e-mail preferred

Resource_Description: Reson 8101ER Multibeam Sonar Data from
Cruise AHI0701 (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: 20080528
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:

Contact_Organization: Pacific Islands Benthic Habitat Mapping
Center (PIBHMC),
Coral Reef Ecosystem Division (CRED), Pacific Islands Fisheries
Sciences Center (PIFSC),
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Contact_Facsimile_Telephone: 808-983-3730
Contact_Electronic_Mail_Address: nmfs.pic.credinfo@noaa.gov
Contact_Instructions: e-mail preferred
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

W00238

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

- W00238_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- W00238_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