

**W00257**

NOAA FORM 76-35A

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

**DESCRIPTIVE REPORT**

*Type of Survey*      **Hydrographic Multibeam Survey**  
*Project No.*         **AHI-07-03**  
*Registry No.*        **W00257**

**LOCALITY**

*State*                 **Nothern Mariana Islands**  
*General Locality*   **North Pacific Ocean**  
*Sub-locality*        **Asuncion Island and Vicinity**

**2007**

CHIEF OF PARTY  
**N/A**  
HYDROGRAPHER  
**N/A**

LIBRARY & ARCHIVES

DATE                    **June 08, 2007**

**HYDROGRAPHIC TITLE SHEET**

**W00257**

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

Territory: **Northern Mariana Islands**

General Locality: **North Pacific Ocean**

Sub-Locality: **Asuncion Island and Vicinity**

Scale: **N/A**

Dates of Survey: **05/23/2007 to 06/08/2007**

Instructions Dated: **N/A**

Project Number: **AHI-07-03**

Field Unit: **NOAA R/V AHI**

Chief of Party: **N/A**

Soundings by: **Reson 8101 ER Multibeam Echo Sounder**

Imagery by: **N/A**

Verification by: **Atlantic Hydrographic Branch**

Soundings Acquired in: **meters at Mean Lower Low Water**

Remarks: **Multibeam Hydrographic Survey**  
**Data collection in meters, referenced to MLLW**  
**UTM Zone 55N**

*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 Red notes were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. The final disposition of features is addressed in the Appendix III Feature Report. The discussion of surveyed features in the body of the Descriptive Report are a record of the field unit's report and were not edited for content during AHB processing. 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/>.*

*Outside source survey W00257 was submitted without a formal report. The following was included as the body of the Descriptive Report and contains the metadata for this survey.*

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: 20070824

Title: Reson 8101ER Multibeam Sonar Data from Cruise

AHI0703

Geospatial\_Data\_Presentation\_Form:

Generic Sensor Format (GSF) digital data

Description:

Abstract: Reson 8101ER multibeam Data were collected between

23 May - 9 June 2007 aboard NOAA Survey Launch Acoustic

Habitat Investigator (AHI) at Maug Islands, Pagan Island,

Saipan Island, Tinian Island, Aguijan Island, Anatahan

Island, Sarigan Island, Zealandia Bank, Guguan Island,

Alamagan Island, Agrihan Island, Asuncion Island, Supply

Reef, and Uracus Island, Western Pacific during cruise

AHI0703. 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 - 350 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 HI0703 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: 8101-2.07-2D4D

Firmware, wet: 8101-1.06-2F6B

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 March 2007 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:

Roll Bias, deg 0.15

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: 20070523

Ending\_Date: 20070608

Currentness\_Reference: ground condition

Status:

Progress: In Work

Maintenance\_and\_Update\_Frequency: As needed

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: 144.8798

East\_Bounding\_Coordinate: 146.5000



North\_Bounding\_Coordinate: 20.5518

South\_Bounding\_Coordinate: 14.9000

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: Maug Islands

Place\_Keyword: Pagan Island

Place\_Keyword: Saipan Island

Place\_Keyword: Tinian Island

Place\_Keyword: Aguijan Island

Place\_Keyword: Anatahan Island

Place\_Keyword: Sarigan Island

Place\_Keyword: Zealandia Bank

Place\_Keyword: Guguan Island

Place\_Keyword: Alamagan Island

Place\_Keyword: Agrihan Island

Place\_Keyword: Asuncion Island

Place\_Keyword: Supply Reef

Place\_Keyword: Uracus Island

Place:

Place\_Keyword\_Thesaurus: CoRIS Place Thesaurus Version 1.0

Place\_Keyword: OCEAN BASIN > Pacific Ocean > Northwest Pacific Ocean > Maug Islands,

Pagan Island, Saipan Island, Tinian Island, Aguijan Island, Anatahan Island, Sarigan

Island, Zealandia Bank, Guguan Island, Alamagan Island, Agrihan Island, Asuncion Island,

Supply Reef, Uracus Island

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: National Oceanic and Atmospheric Administration

(NOAA) Pacific Islands Fisheries Science Center (PIFSC)

Coral Reef Ecosystem Division (CRED) Pacific Islands Benthic

Habitat Mapping Center (PIBHMC) and the Joint Institute for

Marine and Atmospheric Research (JIMAR)

Contact\_Position: Oceanographer

Contact\_Address:

Address\_Type: mailing and physical address

Address: 1680 East-West Road, POST Bldg, Rm 833

City: Honolulu

State\_or\_Province: Hawaii

Postal\_Code: 96822

Country: USA

Contact\_Voice\_Telephone: (808) 956-5239

Contact\_Facsimile\_Telephone: (808) 956-6530

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: 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: 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 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: 20070824

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: 2007

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.

Distribution\_Information:

Distributor:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Joyce E. Miller

Contact\_Organization: NOAA PIFSC CRED PIBHMC and JIMAR

Contact\_Position: Oceanographer

Contact\_Address:

Address\_Type: mailing and physical address

Address: 1680 East-West Road, POST Bldg, Rm 833

City: Honolulu

State\_or\_Province: Hawaii

Postal\_Code: 96822

Country: USA

Contact\_Voice\_Telephone: (808) 956-5239

Contact\_Facsimile\_Telephone: (808) 956-6530

Contact\_Electronic\_Mail\_Address: Joyce.Miller@noaa.gov

Resource\_Description: Reson 8101ER Multibeam Sonar Data from  
Cruise AH10701 (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](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: 20070824

Metadata\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Joyce E. Miller

Contact\_Organization: NOAA PIFSC CRED PIBHMC and JIMAR

Contact\_Position: Oceanographer

Contact\_Address:

Address\_Type: mailing and physical address

Address: 1680 East-West Road, POST Bldg, Rm 833

City: Honolulu

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Country: USA

Contact\_Voice\_Telephone: (808) 956-5239

Contact\_Facsimile\_Telephone: (808) 956-6530

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

W00257

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

- W00257\_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- W00257\_GeoImage.pdf

The survey evaluation and verification has been conducted according to 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**  
Chief, Atlantic Hydrographic Branch