



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE- Office of Coast Survey  
Hydrographic Surveys Division: Atlantic Hydro Branch  
Norfolk, Virginia 23510

October 26, 2011

MEMORANDUM TO: Joyce Miller  
Oceanographer, NOAA National Marine Fisheries Service  
Pacific Islands Fisheries Science Center

THRU: CDR Richard T. Brennan, NOAA  
Chief, Atlantic Hydrographic Branch

FROM: Sarah Eggleston  
Physical Scientist, Atlantic Hydrographic Branch

SUBJECT: Review of Hydrographic Survey W00158

I have reviewed hydrographic survey W00158 to ensure compliance with the NOS Hydrographic Survey Specifications and Deliverables (NOS HSSD). The acceptance review focused on identifying systematic errors and deficiencies in the deliverables which would prohibit the survey from being used to update the nautical chart.

Based upon this review, survey W00158 was found to be compliant with the specifications necessary for Office of Coast Survey's Outside Source Data (OSD).

The observations provided in the SAR document below are an effort to improve our common goal, as members of the Office of Coast Survey team for efficient and accurate transmission of data from "ping to chart."

From this point forward, Atlantic Hydrographic Branch assumes responsibility for the integrity and maintenance of the submitted data package. The raw data for this survey has been sent to the National Geophysical Data Center.

Based upon this review, it is concluded that W00158 has no deficiencies that would require its non-acceptance. Minor deficiencies and cosmetic edits that have been identified were resolved at AHB. It is therefore recommended that W00158 be accepted.

Reviewed and approved: \_\_\_\_\_  
Castle Eugene Parker  
Hydrographic Team Lead  
Atlantic Hydrographic Branch



# Survey Acceptance Review Checklist

Survey Registry Number:	W00158
Survey Location:	American Samoa, Banktop and Slope Environments around Tutalia
Survey Project Number:	OSD-AHB-09
Field Unit:	NOAA Ship <i>Hi'ialakai</i> and NOAA R/V <i>Ahi</i>
Survey Year:	2006
DST Team Member:	Leonard Tyson
SAR Reviewer:	Casie Carrott / <a href="#">PS Eggleston</a>
SAR Reviewer 2:	<a href="#">Gene Parker</a>

**LEVEL OF EFFORT TO COMPLETE SURVEY:**

**OVERALL SURVEY RATING:**

No  Yes **Is this survey Outside Source Data?**

If yes, what is the source:

No  Yes **Were additional Dangers to Navigation Submitted?**

If yes, how many additional DtoNs were submitted?

<u>Section</u>	<u>Done</u>	<u>N/A</u>
1. Data Management Team (DMT) Check-In	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Data Package Compliance Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Housekeeping Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. HVF Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. SVP Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Bathymetry Line Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Designated Sounding Regeneration	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. MBES Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. VBES Review	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Side Scan Sonar Review	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Designated Sounding Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Preliminary Surface Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. AHB Surface Creation	<input type="checkbox"/>	<input type="checkbox"/>
14. Full Surface Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15. Recompute Outdated Surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16. HIPS Flier Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17. Create a Temporary Combined Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18. Fledermaus Review	<input type="checkbox"/>	<input checked="" type="checkbox"/>
19. Preliminary Sounding Selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20. Pydro Feature Review	<input type="checkbox"/>	<input checked="" type="checkbox"/>
21. Contractor Feature Review	<input type="checkbox"/>	<input checked="" type="checkbox"/>



# 1. Data Management Team (DMT) Check-In

Hide the Data Management Section

<b>Start Data Management Check-In</b>
<input checked="" type="checkbox"/>

*This is a check list to ensure the integrity of the deliverables from the field to the branch. This action item will be performed and maintained by the Data Management Team (DMT). Please check-off as the task is completed. Also note any problems and note any special data handling instructions. This checklist should be completed within **2 business days** of arrival.*

Arrival Date:

Check-in Date:

## Log Data In

- Log transmittal, scan, and return to sender.
- Send initial survey arrival acknowledgement e-mail.
- Media List Submitted?
  - Yes (If yes, compare the media listing properties to the USB drive properties)
  - No If no:  Perform a .dir dump of the submitted data. (This is proof of delivery and content.)
- Compare LTD with USB parent directory properties:

	<i>Bytes</i>	<i>Files</i>	<i>Folders</i>
<i>LTD</i>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<i>USB</i>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Data submitted by Pacific Hydrographic Branch. Five survey submitted together. Data properties not details per survey. Total of 117 GB, 1204 files were submitted.

- Log in Survey Tracker as per AHB Check-in SOP.
- Upload survey data to AHB networked storage device.

## 1.2 Data Stewardship Housekeeping

Copy the following items to the appropriate AHB\_HXXXXXX subfolders:

- Field Unit PSS submission to the AHB\_HXXXXXX/PSS folder
- Field Unit DR submission (including all appendices and separates) to the AHB\_HXXXXXX/Reports/DR folder
- Field Unit Fieldsheets submission to the AHB\_HXXXXXX/Fieldsheets folder
- Final Tides from R:/TIDEHTS folder to the AHB\_HXXXXXX/Tide\_Heights folder

Copy the following items to the appropriate R:/survey/ folder:

- Field submitted DAPR
- Field submitted HVFs

Send to NGDC (raw and offsite backup of processed) as per AHB Check-in SOP

Date Sent (Raw):

Date Sent (Processed):

Send electronic copy of DR to:

Applicable State Historic Preservation Office (SHPO)

State:

National Marine Sanctuaries ([bruce.terrell@noaa.gov](mailto:bruce.terrell@noaa.gov); [frank.cantelas@noaa.gov](mailto:frank.cantelas@noaa.gov))

Chief of HSD Operations ([james.m.crocker@noaa.gov](mailto:james.m.crocker@noaa.gov))

Chief of Navigation Services Division ([howard.danley@noaa.gov](mailto:howard.danley@noaa.gov))

Chief of the Atlantic Hydrographic Branch ([richard.t.brennan@noaa.gov](mailto:richard.t.brennan@noaa.gov))

Zip with password and upload to ftp site ([ftp://spo.nos.noaa.gov/Public/DR\\_4\\_SHPO](ftp://spo.nos.noaa.gov/Public/DR_4_SHPO))

Date:  e-mail sent to SHPO with password and ftp location.

Inform Chief of AHB that the survey is ready for review.

<input checked="" type="checkbox"/>	<b>End Data Management Check-In</b>
-------------------------------------	-------------------------------------



## 2. Data Package Initial Compliance Review

Hide Data Package Initial Compliance Review Section

<input checked="" type="checkbox"/>	<b>Start Data Package Initial Compliance Review</b>
-------------------------------------	---

### 2.1 Read and Review the Project Instructions/Statement of Work

What was the coverage requirement for the survey (i.e. Complete, Object Detection, Other)?

Complete Coverage

[This survey is Outside Source Data and does not have associated Project Instructions.](#)

No  Yes Were there any special requirements? If yes, list any special requirements below.

No  Yes Was there any required correspondence?

No  Yes Were any AWOIS items assigned for this **SURVEY** (refer to MapInfo Tables)?  
How many AWOIS items were assigned?

No  Yes Were Bottom Samples assigned for this survey?

No  Yes Was a Chart Evaluation File Review or Shoreline Review required?

### 2.2 Read and Review the Descriptive Report

No  Yes Was the Descriptive Report submitted in both Word and Adobe PDF format?

No  Yes Was more than one version of the Descriptive Report Submitted? (also comment here if the Word and PDF

versions differ from one another.

This project does not have a traditional Descriptive Report or DAPR. Information that is generally contained in the DAPR is an ensemble within a DAPR folder located in the Reports folder of the survey folder. DAPR information documentation was obtained from the survey vessels' website: [http://www.soest.hawaii.edu/pibhmc/pibhmc\\_documentation.htm](http://www.soest.hawaii.edu/pibhmc/pibhmc_documentation.htm)

Review the submitted PDF version of the Descriptive Report, were the following sections included:

Yes	No	Section/Page
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cover Sheet
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Title Sheet
<input type="checkbox"/>	<input type="checkbox"/>	Main Body (sections A,B,C,D)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Approval (Signature) Page
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Appendix I: Dangers to Navigation
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Appendix II: Survey Feature Report
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Appendix III: Final Progress Sketch and Survey Outline
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Appendix IV: Tides and Water Levels
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Appendix V: Supplemental Survey Records and Correspondence

Review the submitted Separates folders, were the following files included:

Yes	No	Section/Page
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Separate I: Acquisition and Processing Logs for each vessel
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Separate II: Sound Speed Data (not required if CARIS data submitted)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Separate III: Project Instructions/Statement of Work
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Separate IV: Crossline Comparisons
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Separate V: Side Scan Contact Listing and Images (not required if included in Pydro)

What coverage method was employed by the field unit (i.e. 200% SSS w/VBES, 100% MBES w/100% SSS, etc)?

100% MBES

Benthic mapping

Were the applicable coverage requirements (MBES and SSS) met? See HSSD 5.1.2.1

How many AWOIS items were addressed in Appendix II?

Were all assigned features (AWOIS Items) adequately addressed for this survey? *See DR/LI/SOW*

Were bottom samples collected?

Was the Aid to Navigation (AtoN) report completed and sent to MCD? Refer to Appendix V.

Was the Chart Evaluation File Review or Shoreline Review completed? Refer to Appendix V.

Were Survey Junctions (within 1 year, same field unit) adequately reviewed? *See FPM 4.5.2*

Were DtoNs submitted to MCD? *See DR, App. 1.*

Was the approved tides request submitted to CO-OPS? (NOAA Only) *See DR, App. 4*

What type of tide correction and water levels were applied?

Observed Water Levels

Select...

Were Coast Pilot recommendations sent to [Coast.Pilot@noaa.gov](mailto:Coast.Pilot@noaa.gov)? *See DR, App. 5*

No  Yes Were there any boilerplate errors evident in the DR?

### **2.3 Read and Review the submitted Data Acquisition and Processing Report (DAPR)**

Does the submitted DAPR include the following sections:

Yes	No	Section/Page
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cover Sheet
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Title Sheet
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Main Body (Sections A,B,C)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Approval (Signature) Page
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Any specifically mentioned Appendices

[DAPR is a compilation of documents found at the projects website \(reference site from DR section above\).](#)

No  Yes Were there any boilerplate errors evident in the DAPR?

### **2.4 Read and Review the Horizontal and Vertical Control Report?**

No  Yes Was a Horizontal and Vertical Control Report (HVCR) required for this survey?

Does the submitted HVCR include the following sections:

**Yes No Section/Page**

<input type="checkbox"/>	<input type="checkbox"/>	Cover Sheet
<input type="checkbox"/>	<input type="checkbox"/>	Title Sheet
<input type="checkbox"/>	<input type="checkbox"/>	Main Body (Sections A & B)
<input type="checkbox"/>	<input type="checkbox"/>	Approval (Signature) Page

## 2.5 Submitted Data Package Review

Open all CARIS data. Did all data open without error and comply with the PI/SOW?

MBES Lines

The following lines were isolated from the other HDCS data, because they did not fall within a currently charted area:

- Himba06060\_d01.mb121
- Himba06060\_d02.mb121
- Himba06060\_d03.mb121
- Himba06060\_d04.mb121
- Himbb06060\_d01.mb121
- Himbb06060\_d02.mb121
- Himbb06060\_d03.mb121
- Himbb06060\_d04.mb121
- Himbb06060\_d05.mb121
- Himbb06060\_d06.mb121
- Himbb06060\_d07.mb121
- Himbb06060\_d08.mb121
- Himba06061\_d01.mb121
- Himba06061\_d02.mb121
- Himba06061\_d03.mb121
- Himba06061\_d04.mb121
- Himba06061\_d05.mb121
- Himbb06061\_d02.mb121
- Himbb06061\_d03.mb121
- Himbb06061\_d04.mb121
- Himbb06061\_d05.mb121
- Himba06062\_d06.mb121
- Himba06062\_d07.mb121
- Himba06062\_d08.mb121
- Himba06062\_d09.mb121
- Himba06062\_d10.mb121
- Himba06062\_d11.mb121
- Himba06062\_d12.mb121
- Himba06064\_d04.mb121
- Himba06064\_d05.mb121
- Himba06064\_d06.mb121

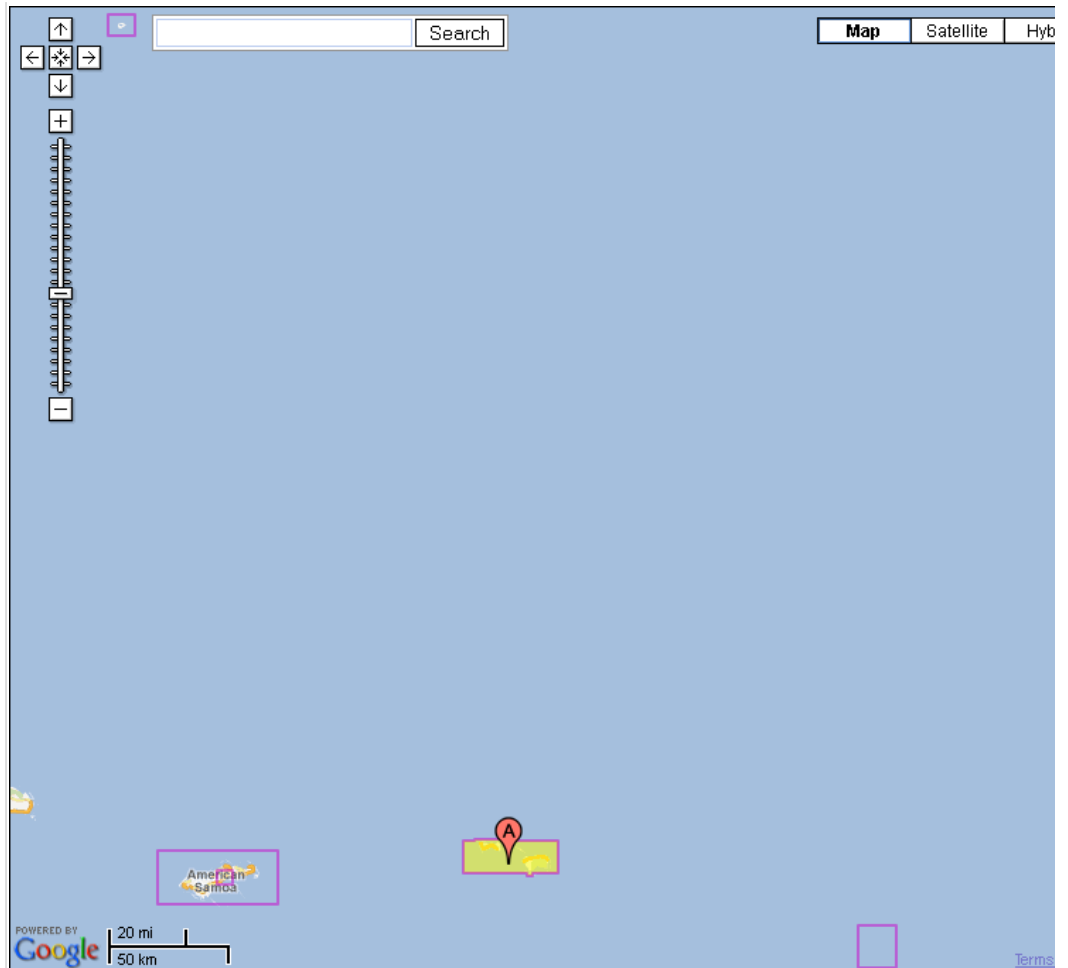
The lines that fall in areas that there is currently no chart for were used to create BASE surfaces for submission to NGDC, but are not recommended for use during compilation (see note in Additional Notes section).

The following images illustrate how the above mentioned lines fall outside of the charted areas:



NOAA RNC Overview of charts for the survey area below:





A number of lines would not open due to a "no ship nav" error. These lines were moved into a separate project folder.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	AHB Reviewer converted and created fieldsheets.
<input type="checkbox"/>	AHB Reviewer created BASE surfaces.
<input type="checkbox"/>	

- SSS Lines
- VBES Lines
- Fieldsheets
- BASE grids or BAGs
- Mosaics

Were all required deliverables received? Check for the following:

<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SSS Image Files	<input type="text"/>
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Designated Soundings	<input type="text"/>
<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> S-57 Feature File (KR)	<input type="text"/>
<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Pydro PSS (NOAA)	<input type="text"/>
<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Tide Data	<input type="text"/>
<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Sound Velocity Data	<input type="text"/>
<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Supporting Data (list all supporting data)	<input type="text"/>

Is the data package free from old, outdated, extraneous, rejected and/or duplicate:

- Survey Data
- Reports
- MapInfo Tables/Workspaces
- Data Products
- Pydro .PSS Files

<input type="checkbox"/>	<b>End Inventory and Documentation Review</b>
<input checked="" type="checkbox"/>	

### 3. Housekeeping Review and Survey Complexity Estimate Section

Hide Housekeeping Review Section

<input type="checkbox"/>	<b>Start Housekeeping Review</b>
<input checked="" type="checkbox"/>	

Have all of the following items been copied to the appropriate AHB\_HXXXXXX sub-folders?

- Field Unit PSS submission to the AHB\_HXXXXXX/PSS folder
- Field Unit DR submission (including appendices and separates) to the AHB\_HXXXXXX/Reports/DR folder.
- Field Unit Fieldsheets to the AHB\_HXXXXXX/Fieldsheets folder.
- Final Tides from R:/TIDEHTS folder to the AHB\_HXXXXXX/Tide\_Heights folder.
- Contract Surveys Only: Copy all Danger to Navigation submissions from X:/KR/DtoNs to AHB\_HXXXXXX/DTONs. Once copied, verify the file size and number of files before deleting the X:/drive files.

Have the following items been copied to the appropriate R:/survey/ folder:

- Field submitted DAPR
- Field submitted HVFs

- Download the latest RNC from [\\ocs-s-mcdnas1\gpchartscells\\$\Charts](\\ocs-s-mcdnas1\gpchartscells$\Charts) and place the files in the AHB\_HXXXXXX/Raster Charts directory. List all affected Raster Navigation Charts (RNC) for this survey. **See LI, SOW & DR (When reviewing charts, remove any charts from the Raster folder that are not affected by the survey)**

Chart Number	Edition Number	Date	NM Date	LNM Date	Scale
83484	11	2006-07-01	2010-02-13	2010-02-02	1:15000

- Download the latest ENC from [\\ocs-s-mcdnas1\gpchartscells\\$\Cells](\\ocs-s-mcdnas1\gpchartscells$\Cells) or <http://nauticalcharts.noaa.gov/MCD/enc/download.htm> and place the files in the AHB\_HXXXXXX/ENC directory. List all affected Electronic Navigation Charts (ENC) for this survey. **See LI, SOW & DR (When reviewing charts, remove any charts from the Raster folder that are not affected by the survey)**

Chart #	Title	Ed. #	App. Date	Issue Date	Cell Name

No ENCs available for this area.

### Survey Complexity Estimate Section

Check any of the following that pertain to this survey, for each checked box select the category that best fits the survey:

### Charting/Compilation Complication

### Percent of survey with this complication

<input type="checkbox"/> Areas with high vessel traffic	<u>None</u>
<input type="checkbox"/> Fairways	<u>None</u>
<input type="checkbox"/> Army Corps of Engineers (ACOE) maintained channels	<u>None</u>
<input type="checkbox"/> Areas with critical under-keel clearance	<u>None</u>
<input type="checkbox"/> Dump sites	<u>None</u>
<input type="checkbox"/> Fish havens	<u>None</u>
<input type="checkbox"/> Spoil areas	<u>None</u>
<input type="checkbox"/> Coral reefs	<u>None</u>
<input type="checkbox"/> Marine sanctuaries	<u>None</u>
<input type="checkbox"/> Fishing Limits	<u>None</u>
<input type="checkbox"/> Areas of historical/cultural significance	<u>None</u>
<input type="checkbox"/> Significant discrepancies from the chart	<u>None</u>
<input type="checkbox"/> Widespread or specific areas of shoaling	<u>None</u>
<input type="checkbox"/> Significant shoreline changes	<u>None</u>

For each of the following, select the category that best describes this survey.

How many BASE surfaces / BAG files exist in this survey:

none were submitted.  
they will be created  
during Office Processing.

How many Raster Charts are affected by this survey?

3

How many ENCs are affected by this survey?

0

Contractor Surveys only) How many reported features were submitted with this survey?   
(NOAA Surveys only) In Pydro, query the Feature Info (Data → Stats → Feature Info). Fill in the following:

Feature Count:

SSS:

DP:

Bathy:

AWOIS:

GP:

Are the following basic required documents in the field submission?

Data Acquisition and Processing Report (DAPR)

AHB compiled its own.

Descriptive Report (DR)

AHB compiled its own.

Project Instructions (PI) / Statement of Work (SOW)

There is no formal SOW for this OSD.

Open all CARIS data. Did all data open without error and comply with PI/SOW?

Data issues will be further explained in the following sections of this SAR.

**SEND AN E-MAIL TO THE HYDRO TEAM LEAD DETAILING ANY DEFICIENCIES OR LACK THEREOF SO THAT IT CAN BE DETERMINED WHETHER TO REQUEST FURTHER INFORMATION FROM THE FIELD.**

<input checked="" type="checkbox"/>	<b>End Housekeeping Review</b>
<input type="checkbox"/>	

**DO NOT MAKE ANY SIGNIFICANT CHANGES TO THE DATA WITHOUT FIRST CONSULTING WITH THE HYDRO TEAM LEAD AND/OR BRANCH CHIEF. THIS INCLUDES: DO NOT CLEAN ANY DATA, RECREATE ANY GRIDS, REAPPLY CORRECTORS, OR MAKE ANY OTHER TIME INTENSIVE CHANGES WITHOUT GETTING PRIOR APPROVAL.**

#### 4. HVF Review

Hide HVF Review Section

<input checked="" type="checkbox"/>	<b>Start HVF Review</b>
<input type="checkbox"/>	

*Note: For surveys submitted by SAIC, contact the AHB Liaison or Hydrographic Team Lead (PS Parker) for SAIC prior to proceeding with HVF and Bathymetry Review.*

How many HVFs were submitted?

Offsets and Alignments: Examine each of the following HVF entries (as applicable) for each vessel. Do entries match those listed in the DAPR?

Swath(s): Time Correction, X, Y, Z, Pitch, Roll, Yaw

*Hi'ialakai and Ahi alignments/offsets were used in separate vessel zero HVF files. All correctors were saved as part of the submitted GSF files.*

- Navigation: Time Correction
- Gyro: Time Correction
- Heave: Time Correction
- Pitch: Time Correction
- Roll: Time Correction
- Draft: Apply?, [Check Error]
- SVP(s): Offset X, Offset Y, Offset Z, Pitch, roll, Azimuth
- Tow Point: Delta X, Delta Y, Delta Z, Layback Error
- Waterline Height: Apply? Waterline

Total Propagated Error (MBES, VBES only): Check all HVF entries for TPE Offsets and StdDev.

- Do sensor uncertainties fall within recommended values? *See HSTD 2007-2/10*
- If discrepancies were found between the HVF files and the DAPR/HSTD 2007-2/10 in the above checks,

were they adequately explained in the DR?

4.0 Drawing of Survey Sensors

**NOAA Ship HI'IALAKAI**  
**Sensor Survey, Plan View**

20 Feb 2005

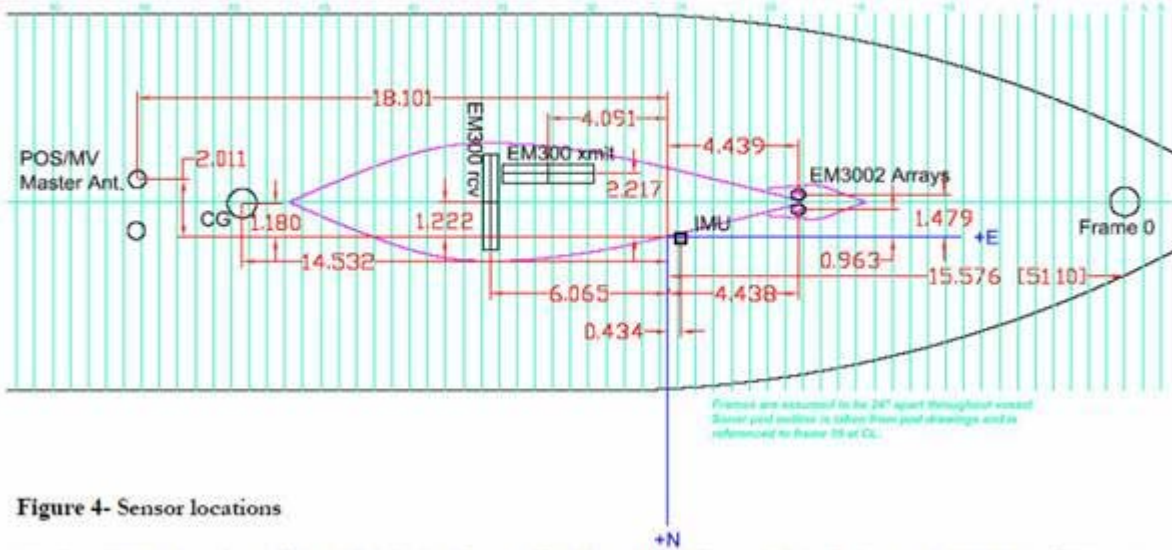


Figure 4- Sensor locations

An AutoCAD drawing of the ship (scaled from ship blue prints) is available in Appendix III *Vessel Reports Offsets\_Diagrams\_CalibrationReport*.

Documentation from the vessels' website provided the TPE offsets for the vessel files. Hi'ialakai vessel offsets were obtained from the above diagram taken from HI'-Systems-Cert-Rep.pdf, and the AHI vessel offsets were obtained AHI0402\_FGDC.pdf. Both folders are located in the DAPR folder of the survey.

End HVF Review



5. SVP Review

Hide SVP Review Section

Start SVP Review



Were all individual days included in the master SVP file? If no, check DR to ensure these casts were not purposefully excluded.

SVP data is applied in real-time by the field unit. No SVP casts were submitted with the survey.

Do all SVP positions fall within the survey area? If no, double check SVP positions with the positions listed in the acquisition logs.

End SVP Review



6. Bathymetry Line Review

Hide Bathymetry Line Review

<b>Start Bathymetry Line Review</b>
<input type="checkbox"/>

Perform an extended query of all bathymetry lines in CARIS.  
Enter number of bathymetry lines queried:

291

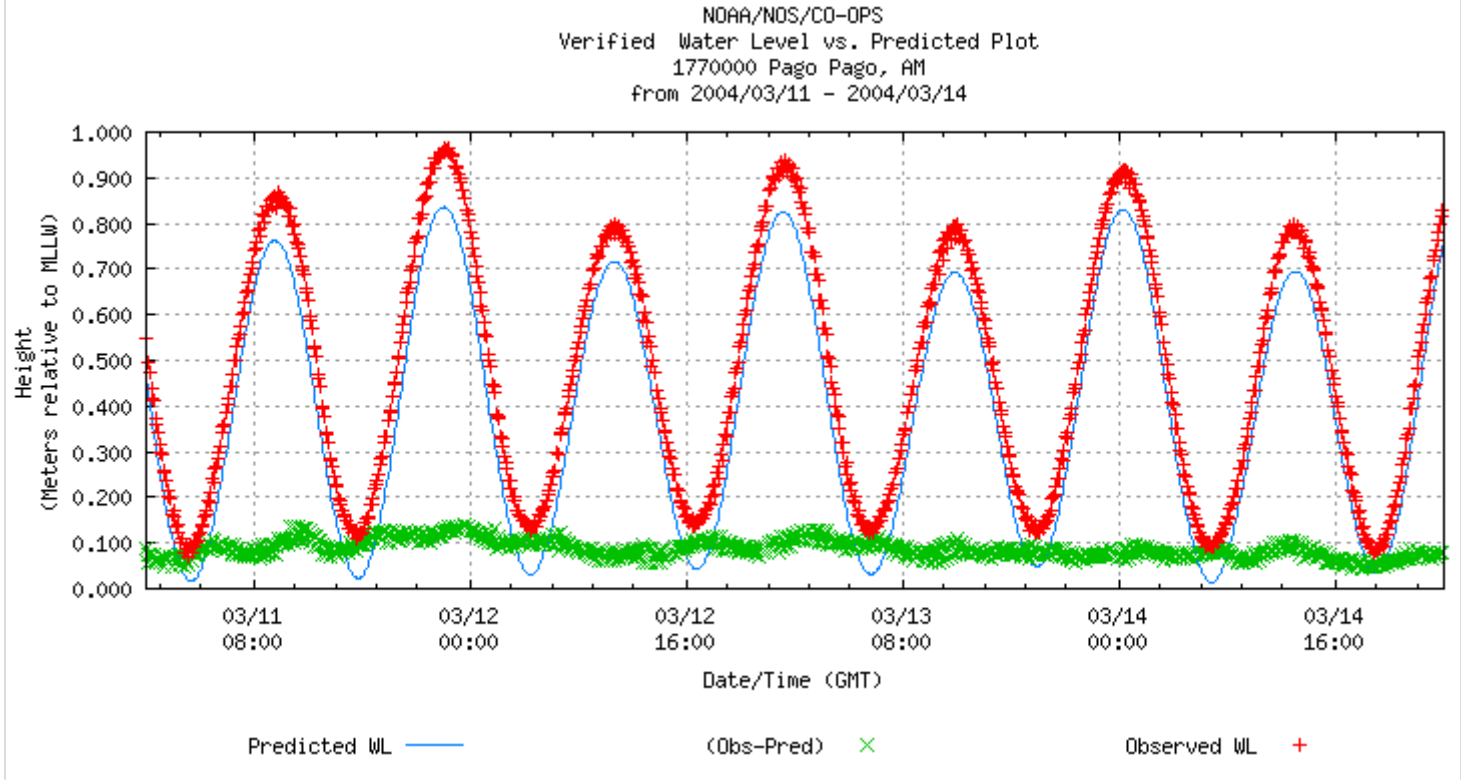
- Do all lines have true heave applied?  
   Do all lines have sound velocity applied?

Do all lines have tides applied?

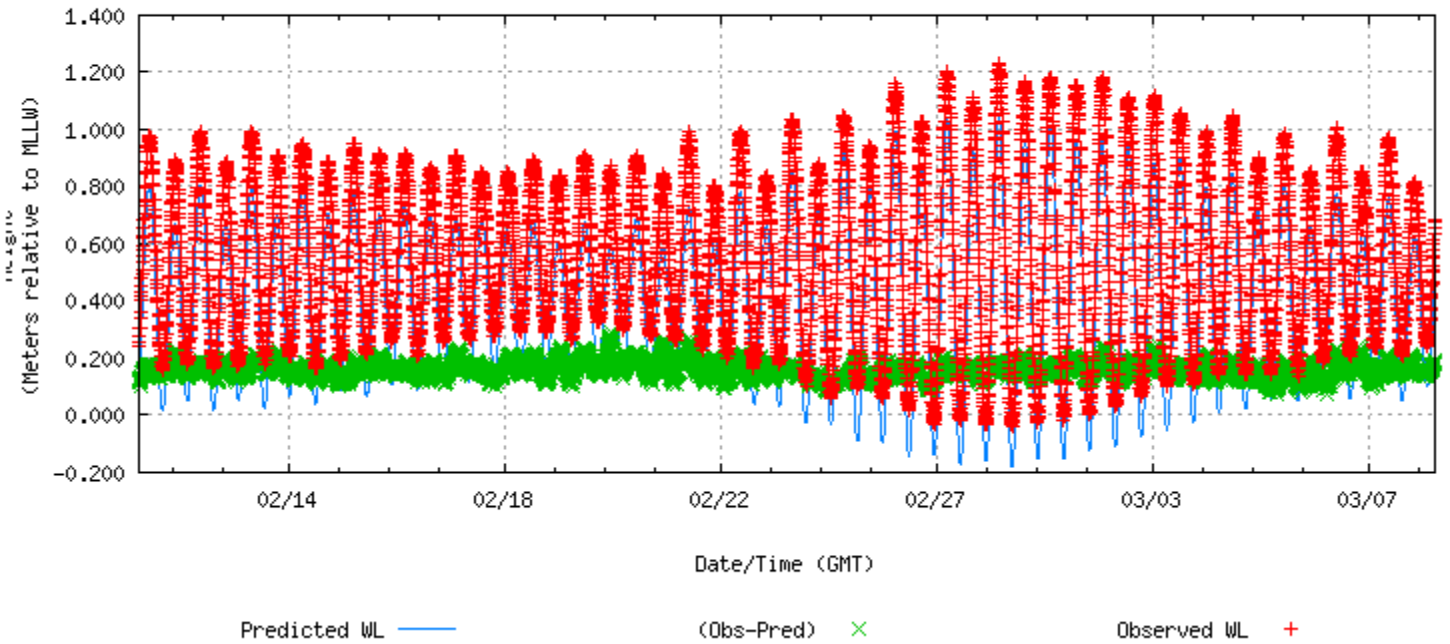
Do all lines have final water levels applied?

Observed Tides were applied rather than Verified.  
Tide values were applied in real time, and there is no documentation with the survey to indicate what tide gauge was used for this survey.

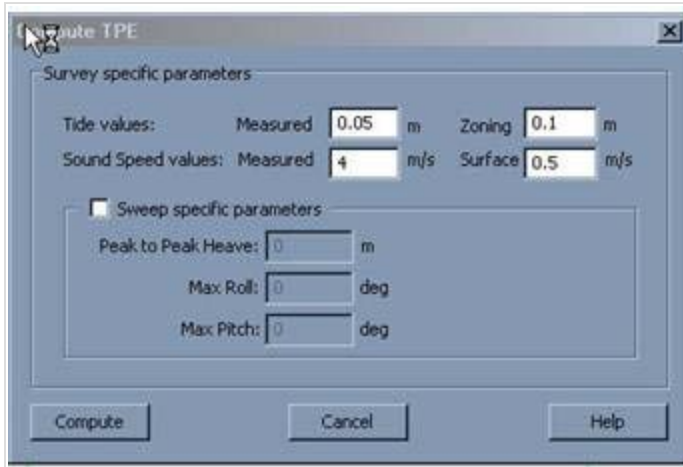
Based on a review of listed tide gauges on the tides and currents website, a general tide range and predicted vs. observed comparison was reviewed based on the Pago Pago station. For Pago Pago the full tide range is less than a meter, and for the dates of the survey variation between predicted and verified tides was within approximately 0.2m.



NOAA/NDS/CO-OPS  
 Verified Water Level vs. Predicted Plot  
 1770000 Pago Pago, AM  
 from 2006/02/11 - 2006/03/08



- Was the final tide zone file used?
- Has TPE been computed?



- Spot check the TPE for various soundings. Are the results reasonable/valid? If not, explain.
- Were all the lines merged? If any lines were left un-merged by the field unit, merge all lines.

<b>End Bathymetry Line Review</b>	
<input checked="" type="checkbox"/>	

## 7. Designated Sounding Regeneration

- Hide Designated Sounding Regeneration Section

<b>Start Designated Sounding Regeneration</b>	

<input checked="" type="checkbox"/>	
-------------------------------------	--

Regenerate designated soundings (critical sounding layer).

**End Designated Sounding Regeneration**

<input checked="" type="checkbox"/>	
-------------------------------------	--

## 8. MBES Review

Hide MBES Review

Check here if this section is N/A. (You **MUST** include a comment as to why it is N/A)

--

**Start MBES Review**

<input checked="" type="checkbox"/>	
-------------------------------------	--

Open MBES HDCS lines in Caris HIPS and examine:

Was 5% cross line coverage achieved over the full survey extent (4% for 2009 surveys) ?

If skunk stripe MBES was run, were splits done to adequately develop shoals and features?

Do cross lines agree with main scheme lines?

Were cross line data acquired with the same hardware as main scheme lines?

**End MBES Review**

<input checked="" type="checkbox"/>	
-------------------------------------	--

## 9. VBES Review

Hide VBES Review Section

Check here if this section is N/A. (You **MUST** include a comment as to why it is N/A)

No VBES data.

## 10. Side Scan Sonar Review

Hide Side Scan Sonar Review Section

Check here if this section is N/A. (You **MUST** include a comment as to why it is N/A)

No side scan sonar data.

## 11. Designated Sounding Review

Hide Designated Sounding Review Section

**Start Designated Sounding Review**

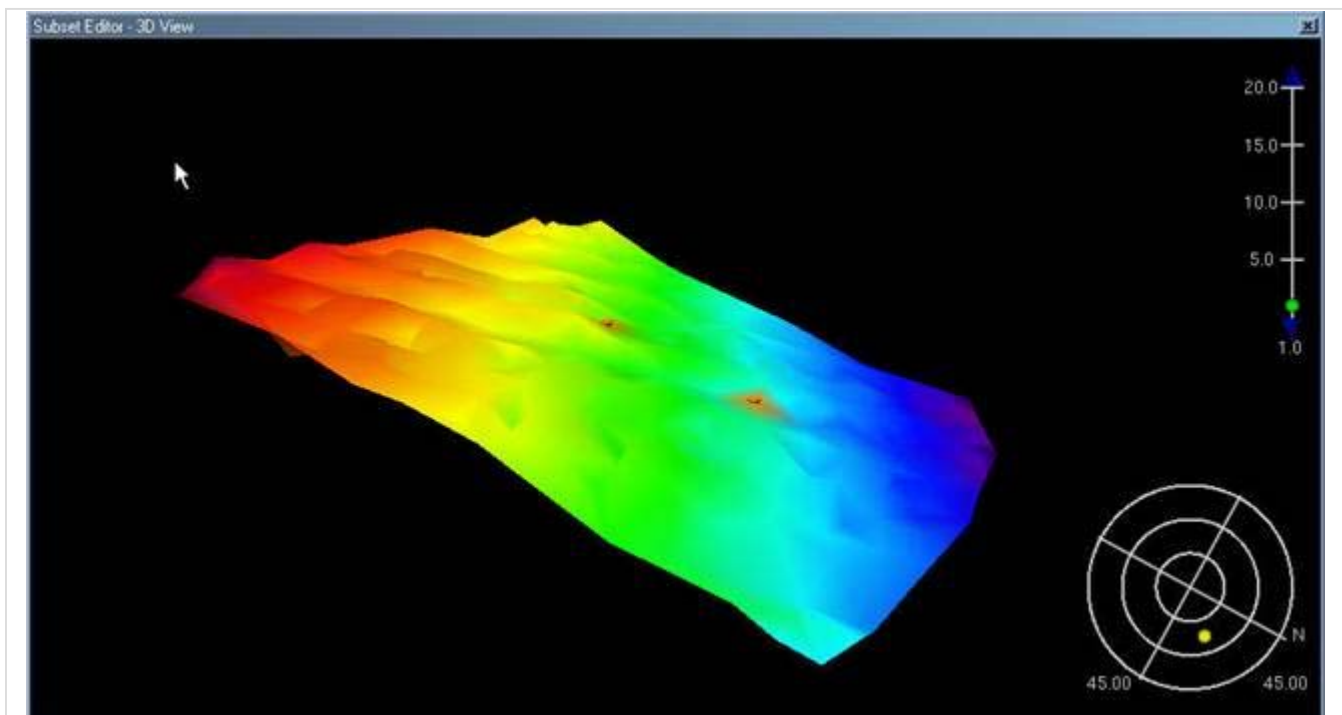
<input checked="" type="checkbox"/>	
-------------------------------------	--

- Choose one of the following methods of feature change documentation:
  - Open the PSS in Pydro for entry of Office Notes and importing of new line features



- Generate a record for feature changes (Excel, Word, etc.) that includes line number, ping, and beam of former designated soundings and day/line number of new designated sounding (where applicable). This will assist with inserting the specific Bathy / Line feature into the PSS and to assist with removing outdated bathy / line features that have been superseded. Any outdated bathy / feature will need to be removed from the PSS through the Stats Menu and remove the specific line. If multiple features source the same line, then reject the feature that is to be removed.
- Open a subset in Caris HIPS around designated soundings and examine HDCS data points for proper selection / designation of the shoalest depth(s).
- Spot check bathy data in subset editor to ensure field unit developed potential features and/or shoal areas properly. Designate additional soundings as needed.

Are all selected designated soundings appropriate?



The above are two of three designated soundings assigned by the field, which least depths are 1042 and 1029 meters(left to right).

- Correct all errant designated soundings and enter appropriate note via the chosen review documentation method above.
- If any designated soundings were changed, **regenerate critical sounding layer** as necessary.

	<b>End Designated Sounding Review</b>
<input checked="" type="checkbox"/>	

## 12. Preliminary Surface Review

Hide Preliminary Surface Review Section

	<b>Start Preliminary Surface Review</b>
<input checked="" type="checkbox"/>	

- In CARIS HIPS, open all fieldsheets and bathymetry lines (MBES, VBES)

Do all lines and fieldsheets open? If no, check error messages in Output Window and document.

No Field sheets and BASE surfaces were submitted, all field sheets and BASE surfaces were created by the AHB Reviewer.

Close all fieldsheets that contain no BASE surfaces.

Delete all finalized (not original) surfaces that are outdated (stale).

<input checked="" type="checkbox"/>	<b>End Preliminary Surface Review</b>
-------------------------------------	---------------------------------------

### 13. AHB Surface Creation

Hide AHB Surface Creation

Check here if this section is N/A. (You **MUST** include a comment as to why it is N/A)

AHB Reviewer created the original surfaces.

### 14. Full Surface Review

Hide Full Surface Review

<input checked="" type="checkbox"/>	<b>Start Full Surface Review</b>
-------------------------------------	----------------------------------

Do the DR coverage extents and the coarse grid extents agree?

Do the surfaces match?

Is the HDCS bathymetry data set complete?

Note: If NO, document, stop ESAR and contact field unit for resubmission.

Delete the coarse resolution surface.

Was the field-submitted surface created at an appropriate resolution (See HSSD 5.1.2.1)?

Note: If NO, create a new surface at an appropriate resolution and note.

Is the IHO order in accordance with NOAA S& D? See HSSD 5.1.2.1

Was any deviation explained adequately?

Are there an appropriate number of fieldsheets for the data (maximum of 25 million nodes per fieldsheet)?

Note: If NO, create new fieldsheets with appropriate extents and note.

For CUBE surfaces only, was the appropriate Deep/Shallow setting selected?

Note: If NO, recreate the surface(s) with the appropriate setting and note.

Pre-2009 Parameters:  Deep  Shallow  Default (not permitted)

Parameters for 2009 surveys:  NOAA\_0.5m  NOAA\_1m  NOAA\_2m

NOAA\_4m  NOAA\_8m  NOAA\_16m

Do all surfaces, including CUBE, contain (at a minimum) Uncertainty, Depth, and Std Dev. Layers?

Note: If NO, recreate surface with appropriate settings and note.

	<b>End Full Surface Review</b>
<input checked="" type="checkbox"/>	

## 15. Recompute Outdated Surfaces

Hide Recompute Outdated Surfaces

Check here if this section is N/A. (You **MUST** include a comment as to why it is N/A)

No Outdated surfaces to regenerate.

## 16. HIPS Flier Review

Hide HIPS Flier Review Section

	<b>Start HIPS Flier Review</b>
<input checked="" type="checkbox"/>	

Is the depth range (min. and max. values) for all surfaces realistic for the survey?

Note: If NO, note and look for flier soundings / reject as necessary.

Are the surfaces free of any unusually high values for StdDev and Hypothesis Count?

Note: If NO, note and look for flier soundings / reject as necessary.

Are the surfaces free of any obvious systematic errors that exceed IHO Order specifications for the survey? See HSSD 5.1.1

	<b>End HIPS Flier Review</b>
<input checked="" type="checkbox"/>	

## 17. Create a Temporary Combined Surface

Hide Temporary Combined Surface Section

	<b>Start Creation of a Temporary Combined Surface</b>
<input checked="" type="checkbox"/>	

Create a new combined surface from all non-finalized source grids in either CARIS HIPS or CARIS Bathy DataBASE. Use 2 meter resolution or the most appropriate resolution of the field-submitted surfaces if greater than 2m.

	<b>End Creation of the Temporary Combined Surface</b>
<input checked="" type="checkbox"/>	

## 18. Fledermaus Review

Hide Fledermaus Review Section

Check here if this section is N/A. (You **MUST** include a comment as to why it is N/A)

AHB Reviewer did not find any fliers up to this point.

## 19. Preliminary Sounding Selection

Hide Preliminary Sounding Selection Section

### Start Preliminary Sounding Selection



Open the newly-created combined surface in Caris Bathy DataBASE or Field Sheet Editor.



Create a temporary sounding set. A shoal-biased 100m radius is a standard default selection criteria. Adjust as necessary.



Is the bathy free of any significant fliers? *Note: If NO, investigate, document, note flier location(s), and reject in Caris HIPS.*



Delete the newly-created combined surface.



Recompute and finalize surfaces (if necessary)

- Check the apply designated soundings box
- Choose Final uncertainty from: greater of std dev & uncertainty

Choose level of Survey Adequacy:



A Adequate to supersede all features and bathy within the common area.



A- Retain a few charted soundings or features



B+ Some features interpreted from bathymetry



B Bathymetry only. Retain all seabed areas, charted shoals, and features



C Choose a few soundings or features to apply to chart



D DtoNs only or a Chart Letter



F Direct Archival, this survey is not suitable for nautical chart update.

### End Preliminary Sounding Selection



## 20. Pydro Feature Review

Hide Pydro Feature Review Section

Check here if this section is N/A. (You **MUST** include a comment as to why it is N/A)

No PSS submitted.

## 21. Contractor Feature Review

Hide Contractor Feature Review Section

Check here if this section is N/A. (You **MUST** include a comment as to why it is N/A)

No submitted feature file.

<input type="checkbox"/>	<b>Start Contractor Feature Review</b>
<input type="checkbox"/>	

## 22. Finishing Touches

Hide Finishing Touches Section

<input checked="" type="checkbox"/>	<b>Start Finishing Touches</b>
<input checked="" type="checkbox"/>	

- Verify that no surfaces are flagged as outdated (stale) and that all surfaces are finalized with designated soundings applied.
- Delete all temporary/preliminary surfaces, except the pre-finalized surfaces associated with the final set.
- List final set of surfaces including name and resolution (text boxes below):

Final Surfaces
W00158_MBES_MI_4m_Final_1of6
W00158_MBES_MI_8m_Final_2of6
W00158_MBES_MI_16m_Final_3of6
W00158_MBES_MI_32m_Final_4of6
W00158_MBES_MI_64m_Final_5of6
W00158_MBES_MI_128m_Final_6of6
W00158_128m_Combined_MI
W00158_MBES_RA_1m_Final_1of9
W00158_MBES_RA_2m_Final_2of9
W00158_MBES_RA_4m_Final_3of9
W00158_MBES_RA_8m_Final_4of9
W00158_MBES_RA_16m_Final_5of9
W00158_MBES_RA_32m_Final_6of9
W00158_MBES_RA_64m_Final_7of9
W00158_MBES_RA_128m_Final_8of9
W00158_MBES_RA_256m_Final_9of9
W00158_256m_Combined_RA
W00158_MBES_SI_1m_Final_1of9
W00158_MBES_SI_2m_Final_2of9
W00158_MBES_SI_4m_Final_3of9
W00158_MBES_SI_8m_Final_4of9
W00158_MBES_SI_16m_Final_5of9
W00158_MBES_SI_32m_Final_6of9
W00158_MBES_SI_64m_Final_7of9
W00158_MBES_SI_128m_Final_8of9
W00158_MBES_SI_256m_Final_9of9
W00158_256m_Combined_SI
W00158_MBES_TI_1m_Final_1of8

W00158_MBES_TI_2m_Final_2of8
W00158_MBES_TI_4m_Final_3of8
W00158_MBES_TI_8m_Final_4of8
W00158_MBES_TI_16m_Final_5of8
W00158_MBES_TI_32m_Final_6of8
W00158_MBES_TI_64m_Final_7of8
W00158_MBES_TI_128m_Final_8of8
W00158_128m_Combined_TI

- Copy all applicable \*.hns & \*.xml files to **E-SAR Final Products\GRIDS** directory.
- Ensure each DR section has been reviewed and verification notes have been made (to version that was copied into the AHB\_HXXXXX\Reports\DR folder). **In any case where clarification is required make Evaluation Report Notes in the ESAR.** Make sure the DR body and appendices have been copied to the AHB\_HXXXXX\Reports\DR directory.
- Author ESAR memo, create pdf of checklist and append to memo.
- Clean AHB template folder of false starts, drafts, etc.

<b>End Finishing Touches</b>
<input checked="" type="checkbox"/>

### 23. Additional Verification Notes

Any feature that requires revision and presents an unusual charting situation, and requires clarification should be documented in this section of the report (text box below). Text descriptions and screen images should be inserted in this section for clarification. These additional notes add value to the survey review and verification. It also provides clarification and assists the Pre-Compile Team and the H-Cell compiler by providing information. These notes can also reduce additional verification time by eliminating redundant data review. Remember, something inserted is better than none; comments that do not include notes for clarification are of no value!

Depth ranges were based on current HSSDM specs, extended to the survey depths.

Depth	Resolution	IHO Order
0-20m	1	1
18-40m	2	1
36-80m	4	1
72-160m	8	2
144-320m	16	2
288-640m	32	2
576-1280m	64	2
1152-2560m	128	2
2304-5120m	256	2

Depth Ranges for each fieldsheet, and the corresponding grid resolutions:

- RA (Rose Atoll): -0.46m to 3566.08m      Grid Resolutions: 1,2,4,8,16,32,64,128,256
- SI (Swains Island): 7.93m to 4883.50m      Grid Resolutions: 1,2,4,8,16,32,64,128,256
- TI (Tutuila Island): 0.01m to 2255.40m      Grid Resolutions: 1,2,4,8,16,32,64,128
- NC (No Chart): 53.65m to 2221.92m      Grid Resolutions: 4,8,16,32,64,128
- NC2 (No Chart 2): 582.32m to 3018.75m      Grid Resolutions: 64,128,256

MI (Manua Islands): 45.40m to 2422.16m Grid Resolutions: 4,8,16,32,64,128

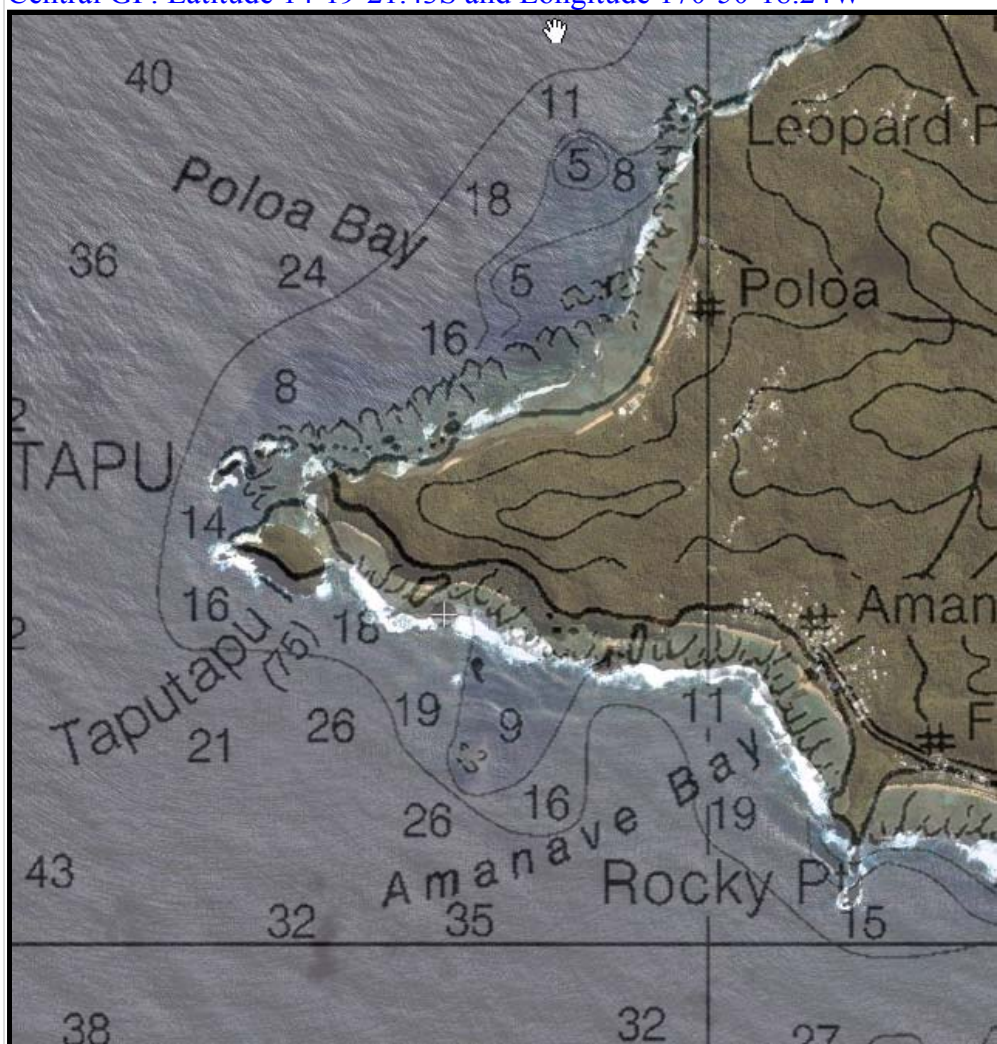
Final grids are in two separate folders. The "For NGDC" folder is all survey grids. The "For Compile" folder only includes the survey areas that fall on an existing chart.

There are a number of lines with navigation issues over a portion of the line. All useable data was included in the final grids despite the data drop out.

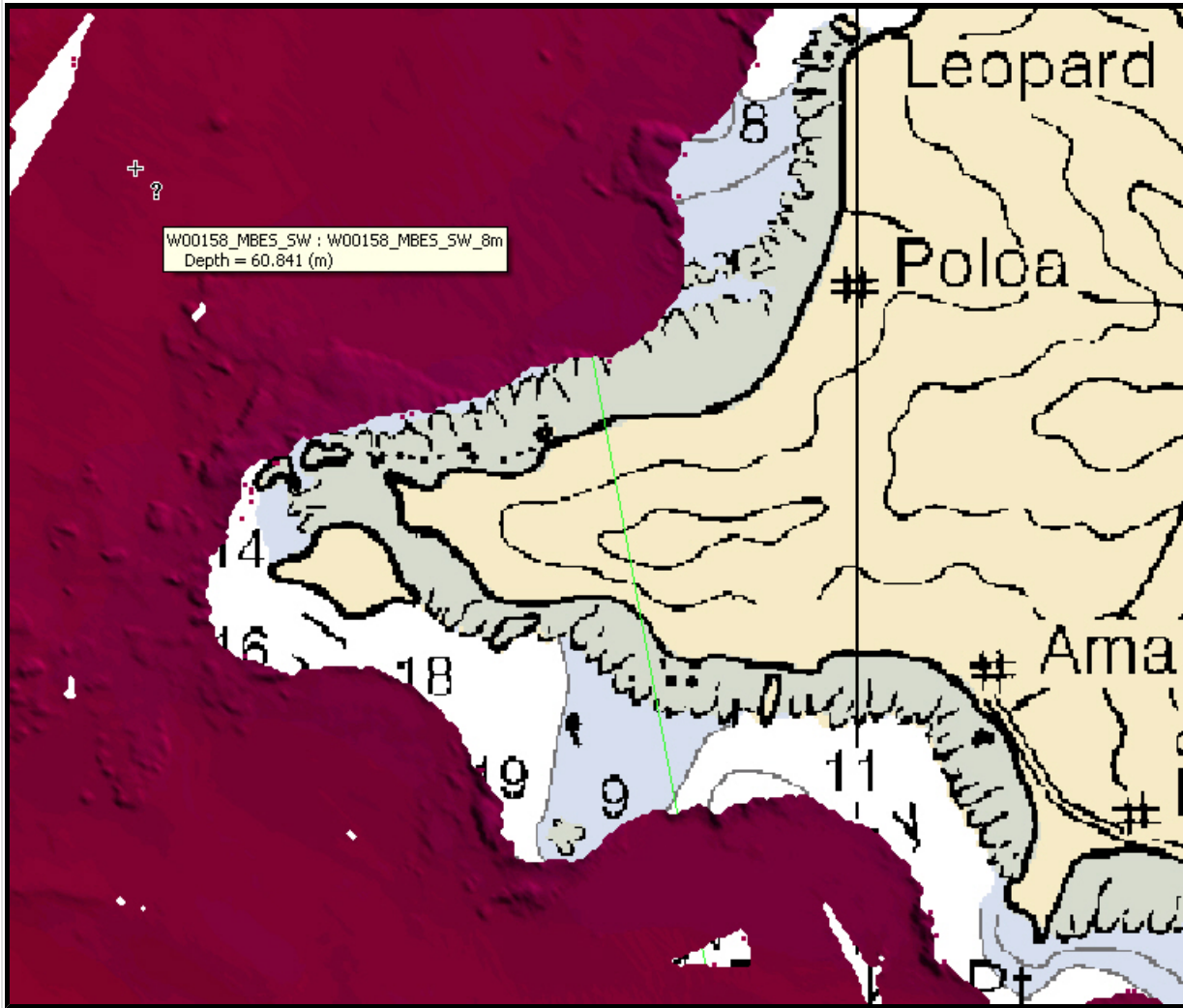
This is a bathymetry only survey. All seabed areas, charted shoals, and features are to be retained. There is no PSS or feature file.

The following images from HIPS data and imagery from NOAA GeoGarage, represent areas where ship track lines run over charted land. However, the GeoGarage images depict that the chart is correctly charted.

Central GP: Latitude 14-19-21.43S and Longitude 170-50-18.24W

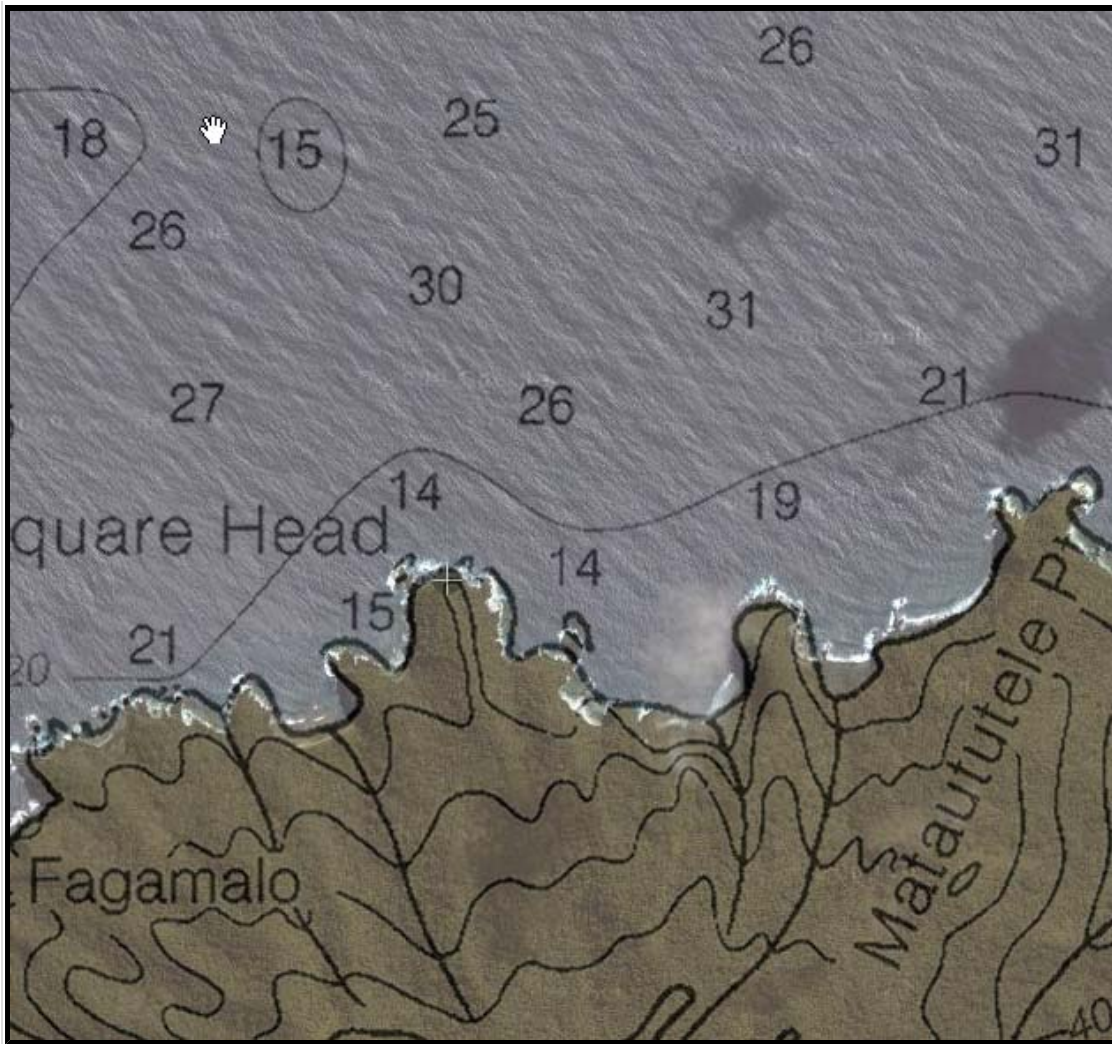


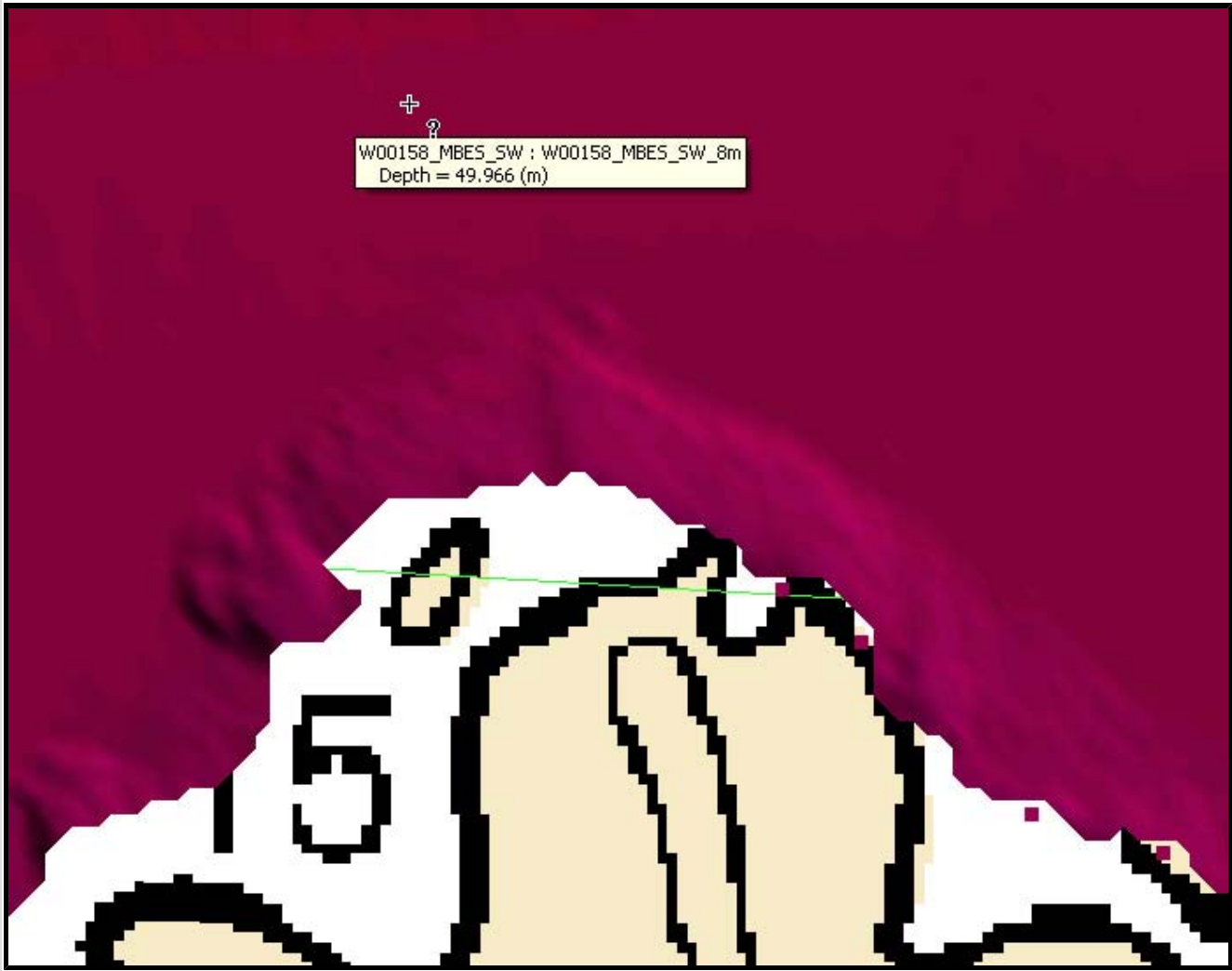




Central GP: Latitude 14-17-21.99S and Longitude 170-47-54.17W

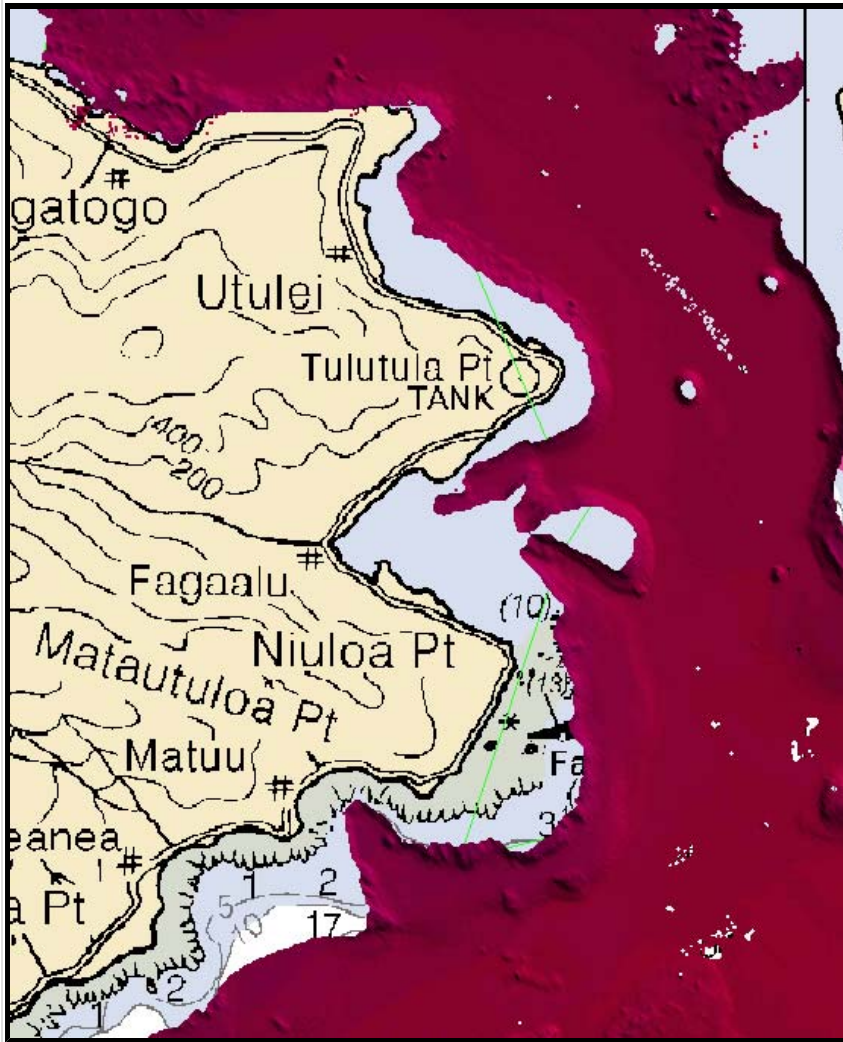






Central GP: Latitude 14-17-06.78S and Longitude 170-40-35.87W





## 24. Survey Rating

**Rate the survey on a scale of one to five using the criteria below.**

- One: This survey was returned to the field unit for additional work
- Two: Survey had major problems that required significant effort by the branch to fix
- Three: Survey had moderate problems the branch fixed
- Four: Survey had minor problems that were easily fixed by the branch
- Five: Fully compliant survey, all specs met.

## 25. Complete SAR

- Notify Chief that ESAR is done and ready for review and update Survey Tracker.
- Schedule SAR Review Meeting
- Check Here to Complete the SAR.

**Subject:** Re: [Fwd: [Fwd: [Fwd: Re: [Fwd: HI-06-02]]]]

**From:** Kyle Ryan <Kyle.Ryan@noaa.gov>

**Date:** 10/18/2010 12:54 AM

**To:** Gene Parker <Castle.E.Parker@noaa.gov>

**CC:** Richard T Brennan <Richard.T.Brennan@noaa.gov>, David Fischman <David.Fischman@noaa.gov>

Gene,

I spoke with Joyce shortly after I got your e-mail and she said she had addresses/forwarded it to the appropriate person. Something to do with empty "place holder" files or something. After I spoke with her, I had to take a short notice trip overseas and just got back. Have your questions been answered?

Kyle

Respectfully,

LT Kyle W. Ryan, NOAA Corps

Pacific Islands Navigation Manager, Office of Coast Survey

NOAA PSC, 737 Bishop Street (Mauka Tower) Suite 2250

Honolulu, HI 96813-3216

Office: (808) 532-3202

Fax: (808) 532-2002

Cell: (808) 294-7990

Gene Parker wrote:

Good Day Mr. Ryan,

Please reference the forwarded attached email regarding OCS Outside Source Data survey conducted by NOAA Ship Hi'ialakai.. W00158 is associated with NGDC project HI0602.

Would you contact Jonathan Weiss and/or Joyce Miller and see if OCS, specifically AHB can get a re-submission of W00158's (aka HI0602) MB121 files. The attached email should have email address for the scientific party. AHB has invested time and effort with this survey data to find out the original submission of the MB121 multibeam files were corrupt; not all the original submitted MB files were corrupt. AHB would like to continue verifying this data and apply to nautical chart but unable to continue based upon corrupted files and incomplete data submission. The last email correspondence I've had with NGDC's Dave Fischman was that it was in the UH court with a request to investigate the problem and determine if the lines in questions were corrupt at source level.

Please respond with any issues or questions regarding AHB's request.

AHB appreciates your assistance with this matter.

Regards,

Gene Parker

-----  
Subject:

[Fwd: [Fwd: Re: [Fwd: HI-06-02]]]

From:

Jonathan Weiss <[Jonathan.Weiss@noaa.gov](mailto:Jonathan.Weiss@noaa.gov)>

Date:

Wed, 23 Jun 2010 09:11:03 -1000

To:

[Richard.T.Brennan@noaa.gov](mailto:Richard.T.Brennan@noaa.gov), joyce Miller <[Joyce.Miller@noaa.gov](mailto:Joyce.Miller@noaa.gov)>

To:

[Richard.T.Brennan@noaa.gov](mailto:Richard.T.Brennan@noaa.gov), joyce Miller <[Joyce.Miller@noaa.gov](mailto:Joyce.Miller@noaa.gov)>

CC:

John Rooney <[John.Rooney@noaa.gov](mailto:John.Rooney@noaa.gov)>, Jeremy Taylor <[Jeremy.Taylor@noaa.gov](mailto:Jeremy.Taylor@noaa.gov)>, Frances Lichowski <[Frances.Lichowski@noaa.gov](mailto:Frances.Lichowski@noaa.gov)>, [Castle.E.Parker@noaa.gov](mailto:Castle.E.Parker@noaa.gov), Dave Fischman <[David.Fischman@noaa.gov](mailto:David.Fischman@noaa.gov)>

Hi All,

This is a response to the W000158 MB121 data conversion issue email that Joyce



forwarded from Richard Brennan. The data in question are indeed bad. See the email below that we sent to Dave Fischman a couple of months back regarding conversion issues for the same HI0602 files. Sorry for the confusion and please let us know if you have additional problems with any of our data.  
Jonathan

----- Original Message -----

Subject: [Fwd: Re: [Fwd: HI-06-02]]  
Date: Tue, 09 Mar 2010 02:05:28 -1000  
From: Jonathan Weiss <[Jonathan.Weiss@noaa.gov](mailto:Jonathan.Weiss@noaa.gov)>  
To: Dave Fischman <[David.Fischman@noaa.gov](mailto:David.Fischman@noaa.gov)>  
CC: joyce Miller <[Joyce.Miller@noaa.gov](mailto:Joyce.Miller@noaa.gov)>, Frances Lichowski <[Frances.Lichowski@noaa.gov](mailto:Frances.Lichowski@noaa.gov)>

Hello Dave,  
Sorry for the delay. Attached is a spreadsheet with statistics from our versions of the multibeam files you downloaded from NGDC confirming they are bogus (empty). Our processing software doesn't have a problem with this type of file so they often remain in master list files that we use to submit data to NGDC. We can provide you with similar spreadsheets for other datasets if necessary. Just let us know.  
Jonathan

----- Original Message -----

Subject: Re: [Fwd: HI-06-02]  
Date: Thu, 04 Mar 2010 08:37:45 -1000  
From: Jonathan Weiss <[Jonathan.Weiss@noaa.gov](mailto:Jonathan.Weiss@noaa.gov)>  
To: Joyce Miller <[Joyce.Miller@noaa.gov](mailto:Joyce.Miller@noaa.gov)>  
CC: Frances Lichowski <[Frances.Lichowski@noaa.gov](mailto:Frances.Lichowski@noaa.gov)>  
References: <[4B86EF48.4000909@noaa.gov](mailto:4B86EF48.4000909@noaa.gov)> <[4B8C0A6B.9060103@noaa.gov](mailto:4B8C0A6B.9060103@noaa.gov)> <[4B8C1380.1030206@noaa.gov](mailto:4B8C1380.1030206@noaa.gov)>

Hi Joyce,  
Attached is a spreadsheet confirming Dave Fishman's observations that the files mentioned in his email DO NOT contain multibeam data. We can generate similar spreadsheets for entire cruises if necessary. Let us know what you think.  
Jonathan

Joyce Miller wrote:

Hi Jonathan,

If you guys have the data out there, it probably makes the most sense for you to take a look and correspond with Dave. If that doesn't work, let me know and I can go up to POST. Thanks for taking care of this.

Yes, I did take the boat out and was interviewed by KGMB. Since I'm the designated boat driver (bad knee, can't jump) and have brought the boat in and out many times, it wasn't as stressful as it might have been. Jumping out of bed at 5:45 and going into overdrive for the next 10 hours was tiring, but all in all a good practice run. Send (small) jpegs as you get things surveyed. Also encourage Scott to finish up what we can on Aguijan (if not Guam) while we have the chance. Hope this portion of the cruise goes smoothly. And most important, have fun!

Joyce

Jonathan Weiss wrote:

Hi Joyce,

We heard about your adventure with the sailboat in response to the tsunami warning. It seems everyone on Oahu had a quite an exciting day. It's nice to hear about the NOS/NGA effort to incorporate our data into charts. I think there are two potential scenarios related to the problem Dave Fischman is seeing with the

data. One could be related to whatever software they are trying to use to read the GSF files. If they are using MB-System, the problem may be related to the software. I have been working some with Susan Merle to track down problems she is having with our MARAMP07 data. The other could be that we submitted files to NGDC that have very little or no data since SABER has no problem skipping over "empty" files included in lists used for PFM creation. We have only recently started creating detailed metadata files (using gsfmeta) for multibeam data submitted to NGDC to avoid this sort of situation. With such small file sizes (4 MB) it is most likely that the latter is the problem. We have the HI0602 data with us out here and one of us will check the status of the files in the list that Dave sent in his email in the next day or two and we will get back to you. There are two LINUX machines at POST but none are connected to a monitor/keyboard that sits in the front portion of POST833. You could use VNC to access them. Let me know if you plan to do that and I can provide more detailed instructions.  
Jonathan

Joyce Miller wrote:

Jonathan and Frances,

Looks like there is a major effort to use our data for charts just gearing up by NOS and NGA (National Geospatial-Intelligence Agency). So I anticipate that there will be a number of different questions coming up in the near future. I got this query from Dave Fischman. Is there any way I can get the list files for the various grids to check out which files are good or not? Are there any computers up and functioning at POST? I hope that we didn't send a bunch of empty files to NGDC, that wouldn't be good. I hate to bug you guys right now and am very willing to say that things have to wait until you all get back, but if I can take care of some of these questions, it would hopefully reduce future questions. I know that there have been a number of formatting issues that you have dealt with recently. Let me know what you think the best way to handle this is. Hope you are having a good Saipan inport.

Joyce

-----  
Subject:  
HI-06-02  
From:  
Dave Fischman <[David.Fischman@noaa.gov](mailto:David.Fischman@noaa.gov)>  
Date:  
Wed, 24 Feb 2010 15:41:36 -0700  
To:  
Joyce Miller <[Joyce.Miller@noaa.gov](mailto:Joyce.Miller@noaa.gov)>  
  
To:  
Joyce Miller <[Joyce.Miller@noaa.gov](mailto:Joyce.Miller@noaa.gov)>

Hi Joyce,


I got a request from the Atlantic Hydrographic Branch about survey HI-06-02. Apparently they are unable to convert the following gsf files with caris. All these files are less than 4 megs each. I am getting 0s when I run mbsystem mbinfo on them. Any thoughts?

thanks

himba06042.d01.mb121  
himba06043.d01.mb121  
himba06043.d06.mb121  
himba06044.d03.mb121  
himba06045.d01.mb121  
himba06045.d03.mb121

himba06045.d09.mb121  
himba06045.d11.mb121  
himba06045.d13.mb121  
himba06045.d15.mb121  
himba06045.d17.mb121  
himba06045.d19.mb121  
himba06045.d22.mb121  
himba06045.d24.mb121  
himba06045.d05.mb121  
himba06045.d07.mb121  
himba06046.d03.mb121  
himba06046.d02.mb121  
himba06058.d02.mb121  
himba06058.d04.mb121  
himba06064.d11.mb121  
himba06064.d13.mb121  
himba06064.d15.mb121  
himba06064.d17.mb121  
himba06064.d19.mb121  
himba06064.d01.mb121  
himba06064.d09.mb121  
himba06065.d03.mb121  
himba06065.d05.mb121  
himba06065.d19.mb121  
himba06066.d05.mb121  
himba06066.d07.mb121  
himba06066.d09.mb121  
himba06066.d11.mb121  
himba06066.d13.mb121  
himba06066.d15.mb121  
himba06066.d17.mb121  
himba06066.d19.mb121  
himba06066.d02.mb121  
himba06066.d04.mb121  
himba06067.d03.mb121  
himba06042.d02.mb121  
himba06043.d02.mb121  
himba06044.d02.mb121  
himba06044.d20.mb121  
himba06045.d02.mb121  
himba06045.d04.mb121  
himba06045.d10.mb121  
himba06045.d12.mb121  
himba06045.d14.mb121  
himba06045.d16.mb121  
himba06045.d18.mb121  
himba06045.d20.mb121  
himba06045.d23.mb121  
himba06045.d25.mb121  
himba06045.d06.mb121  
himba06045.d08.mb121  
himba06046.d04.mb121  
himba06058.d03.mb121  
himba06058.d12.mb121  
himba06064.d10.mb121  
himba06064.d12.mb121  
himba06064.d14.mb121  
himba06064.d16.mb121  
himba06064.d18.mb121  
himba06064.d20.mb121  
himba06064.d08.mb121  
himba06065.d02.mb121  
himba06065.d04.mb121  
himba06065.d01.mb121  
himba06066.d06.mb121





himba06066.d08.mb121  
himba06066.d10.mb121  
himba06066.d12.mb121  
himba06066.d14.mb121  
himba06066.d16.mb121  
himba06066.d18.mb121  
himba06066.d01.mb121  
himba06066.d03.mb121  
himba06067.d02.mb121  
himba06067.d01.mb121

