

H12142

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No.

Registry No. H12142

LOCALITY

State Alaska

General Locality Northern Glacier Bay

Sublocality Scidmore Bay to Tidal Inlet

2009

CHIEF OF PARTY

..... Captain David O. Neander, NOAA

LIBRARY & ARCHIVES

DATE

<p style="text-align: center;">U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION</p> <p style="text-align: center;">HYDROGRAPHIC TITLE SHEET</p>	<p>REGISTRY No</p> <p style="text-align: center;">H12142</p>
<p>INSTRUCTIONS – The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.</p>	<p>FIELD No:</p>
<p>State <u>Alaska</u></p> <hr/> <p>General Locality <u>Northern Glacier Bay</u></p> <hr/> <p>Sub-Locality <u>Scidmore Bay to Tidal Inlet</u></p> <hr/> <p>Scale <u>1:40,000</u> Date of Survey <u>October 20, 2009 - November 10, 2009</u></p> <hr/> <p>Instructions dated <u>9/2/2009</u> Project No. <u>OPR-O351-FA-09</u></p> <hr/> <p>Vessel(s) <u>NOAA Ship Fairweather (S220), FA Launches 1010 & 1018, Ambar 2302, RA Launches 2801 & 2802</u></p> <hr/> <p>Chief of party <u>Captain David O. Neander, NOAA</u></p> <hr/> <p>Surveyed by <u>FAIRWEATHER Personnel</u></p> <hr/> <p>Soundings by <u>Reson 7111, Reson 8160, Reson 8101, Reson SeaBat 7125</u></p> <hr/> <p>SAR by <u>Adam Argento</u> Compilation by <u>Katie Reser</u></p> <hr/> <p>Soundings compiled in <u>Fathoms</u></p>	
<p>REMARKS: <u>All times are UTC. UTM Zone 8N.</u></p> <hr/> <p><u>The purpose of this survey is to provide contemporary surveys to update</u></p> <hr/> <p><u>National Ocean Service (NOS) nautical charts.</u></p> <hr/> <p><u>Revisions and end notes in red were generated during office processing.</u></p> <hr/> <p><u>Page numbering may be interrupted or non sequential.</u></p> <hr/> <p><u>All pertinent records for this survey, including the Descriptive Report, are archived at the</u></p> <hr/> <p><u>National Geophysical Data Center (NGDC) and can be retrieved via http://www.ngdc.noaa.gov/.</u></p>	

Descriptive Report to Accompany Hydrographic Survey H12142

Project OPR-O351-FA-09
Northern Glacier Bay, Alaska

Scale 1:40,000

October-November 2009

NOAA Ship *Fairweather*

Chief of Party: Captain David O. Neander, NOAA

A. AREA SURVEYED

The survey area was located in Northern Glacier Bay, Alaska, within the sub-locality of Scidmore Bay to Tidal Inlet. This survey corresponds to Sheet C in the sheet layout provided with the Project Instructions, as shown in Figure 1 below.

Data acquisition was conducted from October 20 to November 10, 2009 (DN 293 to DN 314).

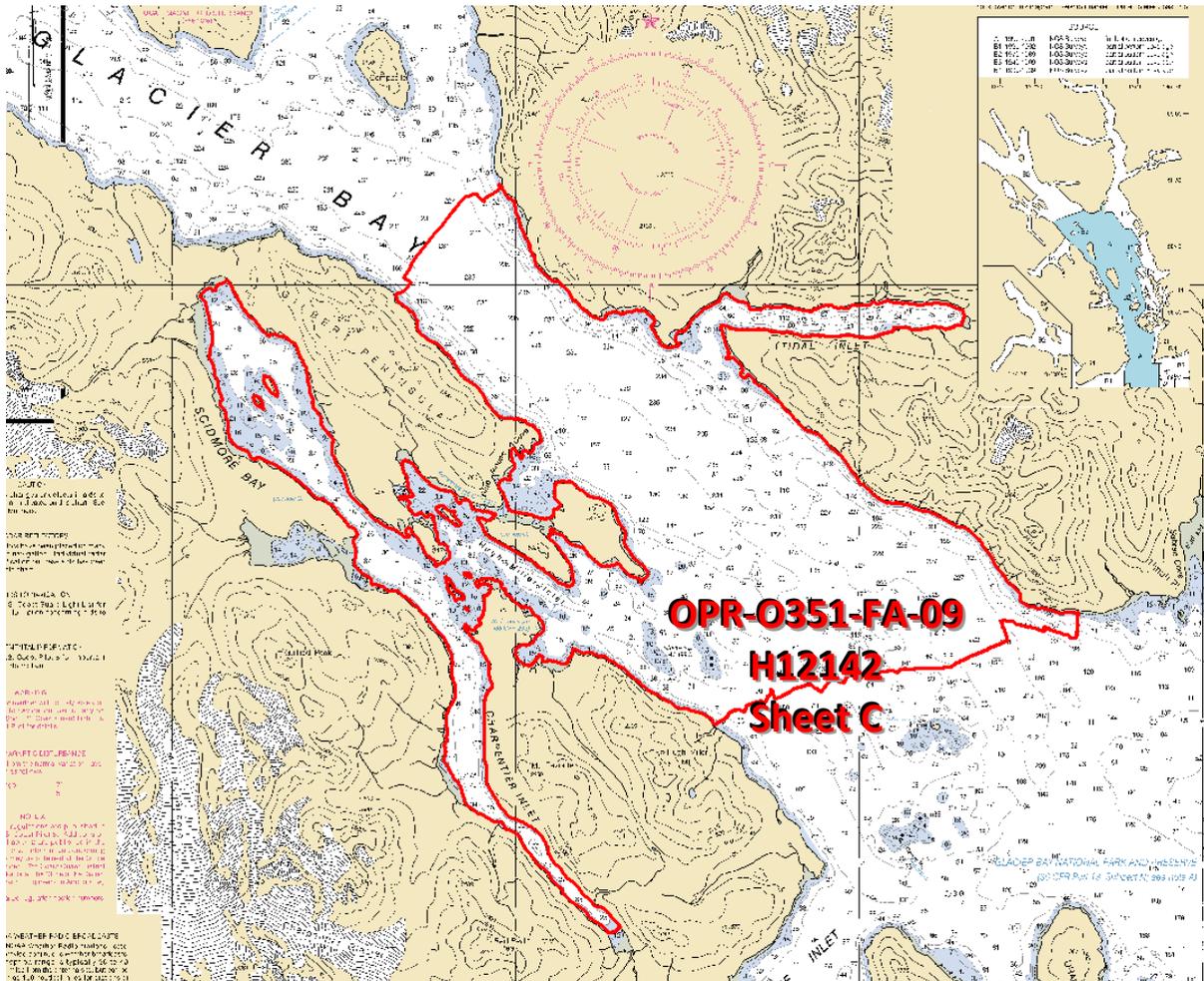


Figure 1: H12142 Survey Outline.

One-hundred percent multibeam echosounder (MBES) coverage was obtained in the survey area to at least the 8-meter curve in the survey area. Data were acquired as close to shore as safely possible. Additional coverage was obtained in order to determine least depths over features or shoals.

Due to time constraints and lack of a suitable tide window very limited shoreline verification was conducted to determine the inshore limit of hydrography and for feature verification of H12142, as per section 3.5.5.3 of the Field Procedures Manual April 2009 (FPM). Shoreline features were given S-57 attribution and included for submission in Notebook .hob files.

Mainscheme and crossline mileage for MBES and shoreline acquisition were calculated and are displayed in Table 1 below.

MAIN SCHEME - Mileage	
0	Single Beam MS
<u>532.50</u>	Multibeam MS mileage
	101.05 FAIRWEATHER S-220
	29.45 Launch 1010
	80.73 Launch 1018
	142.26 Launch 2801
	179.01 Launch 2802
0	Side Scan MS
<u>532.50</u>	Total MS
CROSSLINE - Mileage	
0	Single Beam XL
<u>28.98</u>	Multibeam XL
	9.49 FAIRWEATHER S-220
	0.00 Launch 1010
	0.00 Launch 1018
	11.23 Launch 2801
	8.25 Launch 2802
<u>28.98</u>	Total XL
OTHER	
0	Developments/AWOIS - Mileage
5	Shoreline/Nearshore Investigation - Mileage
30	Total # of Investigated Items
8	Total Bottom Samples
<u>44.03</u>	Total SNM
<u>October 20, 23, 26, 29, 30; November 3 - 10</u>	Specific Dates of Acquisition
<u>293, 296, 299, 302, 303, 307 - 314</u>	Specific Dn#s of Acquisition

Table 1: H12142 Survey Statistics.

B. DATA ACQUISITION AND PROCESSING

A complete description of data acquisition/processing systems and survey vessels along with quality control procedures and data processing methods are included and described in the *NOAA Ship Fairweather 2009 Data Acquisition and Processing Report (DAPR)*, submitted under separate cover. Items specific to this survey and any deviations from the aforementioned report are discussed in the following sections. This hydrographic survey was completed as specified by Hydrographic Survey Project Instructions OPR-O351-FA-09, dated September 2, 2009.

B.1. Equipment and Vessels

Equipment and vessels used for data acquisition and survey operations during this survey are listed below in Table 2.

	FAIRWEATHER	Launch 1010	Launch 1018	Launch 2801	Launch 2802	Ambar 2302
Hull Registration Number	S220	1010	1018	2801	2802	2302
Builder	Aerojet-General Shipyard	The Boat Yard, Inc.	The Boat Yard, Inc.	All American Marine	All American Marine	Marine Silverships, Inc
Length Overall	231 feet	28' 10"	28' 10"	28' 10"	28' 10"	23'
Beam	42 feet	10' 8"	10' 8"	10' 8"	10' 8"	9' 4"
Draft, Maximum	15' 6"	4' 0" DWL	4' 0" DWL	4' 0" DWL	4' 0" DWL	1' 4"
Cruising Speed	12.5 knots	24 knots	24 knots	24 knots	24 knots	22 knots
Max Survey Speed	6 knots	6 knots	6 knots	6 knots	6 knots	
Primary Echo-sounder(s)	RESON 8111 & RESON 8160	RESON 8101	RESON 8101	RESON 7125	RESON 7125	
Sound Velocity Equipment	SBE 19plus, MVP 200, SVP70	SBE 19plus	SBE19plus	SBE19plus	SBE19plus	
Attitude & Positioning Equipment	POS/MV V4	POS/MV V4	POS/MV V4	POS/MV V4	POS/MV V4	
Type of operation	MBES	MBES, Shore Station	MBES, Shore Station	MBES, Shore Station	MBES, Shore Station	Shoreline, Shore Station

Table 2: Vessel Inventory.

No vessel configurations used during data acquisition deviated from the DAPR.

B.2. Quality Control

B.2.1. Crosslines

Multibeam crosslines for this survey totaled 29.98 linear nautical miles (lnm), comprising 5.44% of the 532.50 lnm of mainscheme MBES hydrography. Both main scheme and crossline mileage are summarized in Table 1 above.

Surface differencing in CARIS Bathy DataBASE was used to assess crossline agreement with main scheme. Figure 2 shows a visual depiction of the differences spatially.

The most significant difference is approximately one meter in 60 meters of water. The issues that caused this were due to both a transducer offset and tide correction offset discussed in sections B.2.4.4. and B.2.4.5., respectively. Otherwise, in flat areas the crosslines show agreement within 0.3 meters.¹ Areas of disagreement are isolated to steeply sloping areas.² CARIS HIPS Subset Editor was also used to assess crossline/main scheme agreement and supports the results observed with surface differencing.

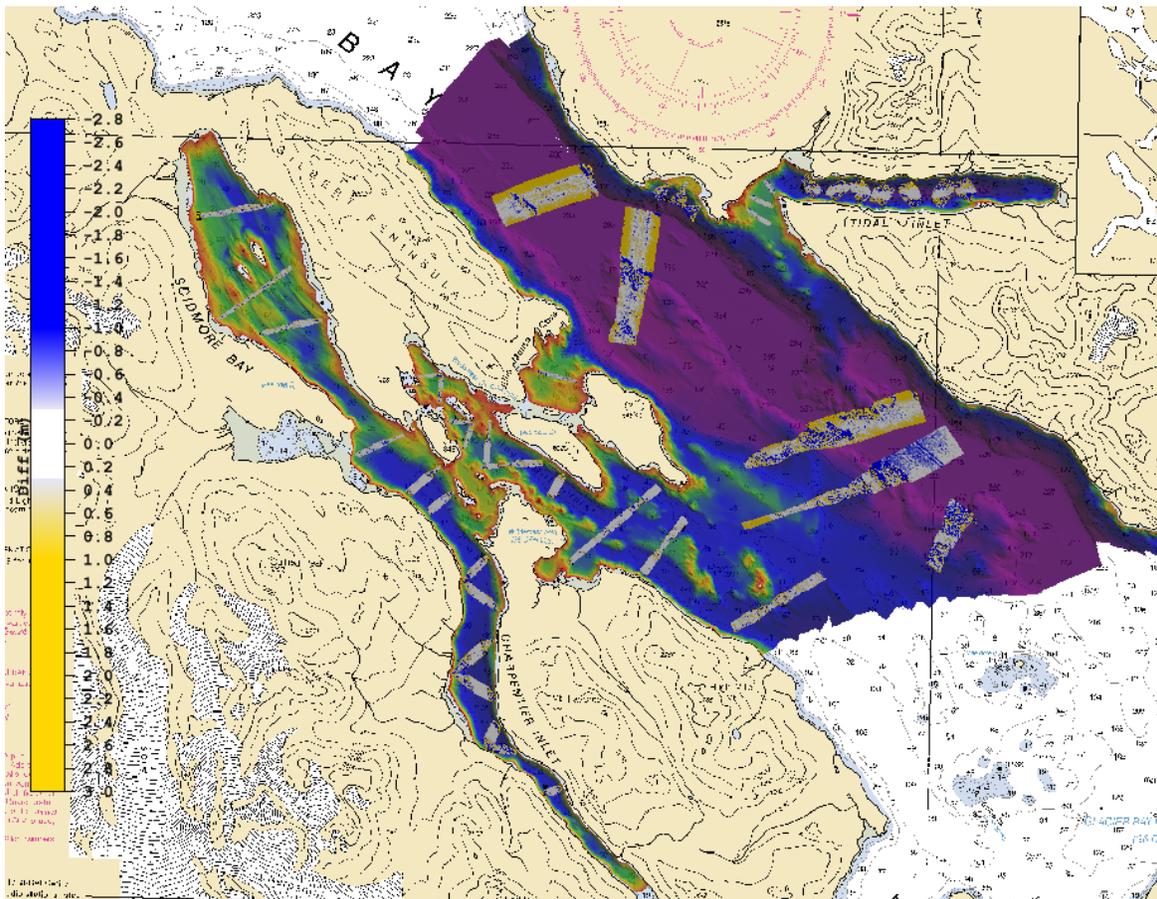


Figure 2: Crossline and main scheme differences (white indicates agreement, warm colors indicate a XLs deeper than main scheme and cool colors indicate XLs are shallower).

B.2.2. Junctions

Survey H12142 junctions with H12141 and H12143, which are Sheet B and Sheet D respectively of the same project (Figure 3).³ The area of overlap between the surveys was reviewed in CARIS HIPS Subset Editor and in CARIS Bathy Database using surface differencing. The junction soundings and surfaces from H12141 and H12142 in the middle of the western arm of Glacier Bay in deep flat areas approximately 400-450 meters deep are in agreement within one meter.⁴ Significant vertical differences between surfaces upwards of 15 meters exist along the steeply sloping walls of the Bay due to slight horizontal positioning differences between the soundings contributing to the surfaces. The small area of overlap between H12143 and H12142 exhibits similar sounding and surface junction characteristics due to the steep slope of the wall.⁵

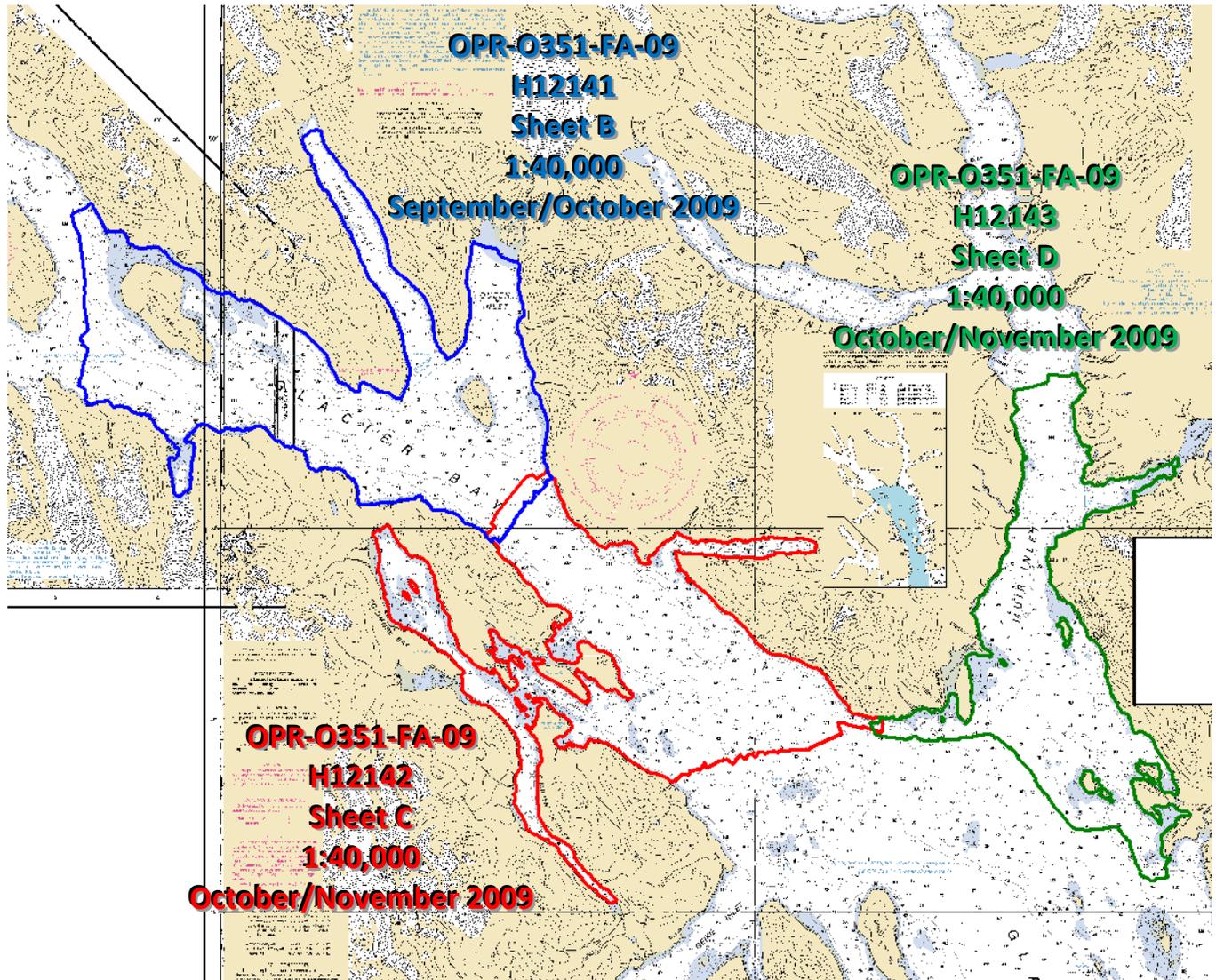


Figure 3: Junction between H12142 and H12141.

B.2.3. Quality Control Checks

MBES quality control checks were conducted as discussed in the quality control section B of the DAPR.

B.2.4. Data Quality Factors

COVERAGE ASSESSMENT

For holidays larger than three surface nodes, the corresponding multibeam side scan were examined and no navigationally significant items were found; additionally, the least depths are represented.⁶

Two significant holidays exist within H12142: one in position 58° 45' 09" N, 136° 31' 39" W due to masking of a down slope rock (Figure 4), and a second in position 58° 46' 29" N, 136° 32' 08" W due to significant down slope noise (Figure 5).

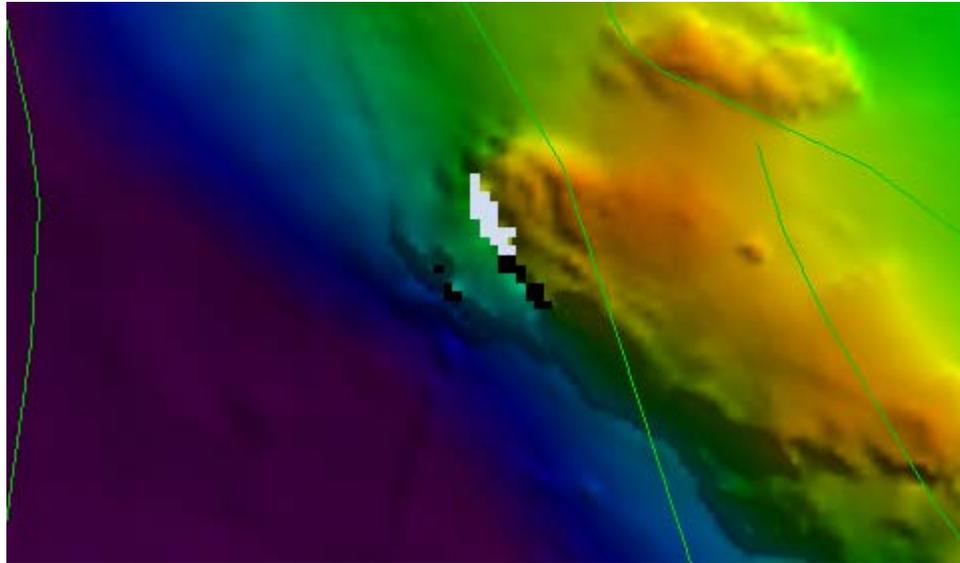


Figure 4: Observed down slope holiday.

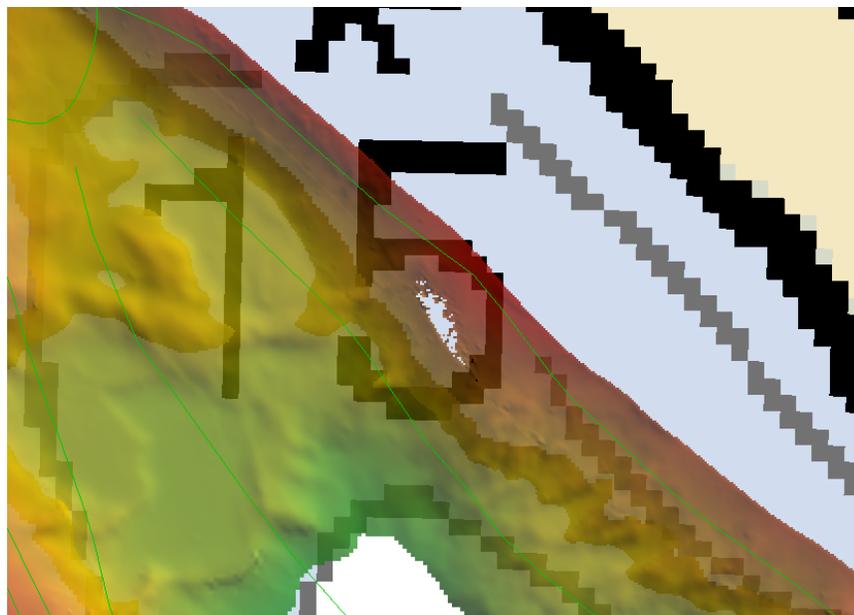


Figure 5: Holiday due to down-slope noise.

RESON 7111 OFFSET

A systematic vertical bias exists in *Fairweather* (S220) Reson 7111 data biasing the data deeper by approximately 0.6 meters relative to other vessels in areas of overlapping data (Figure 7).

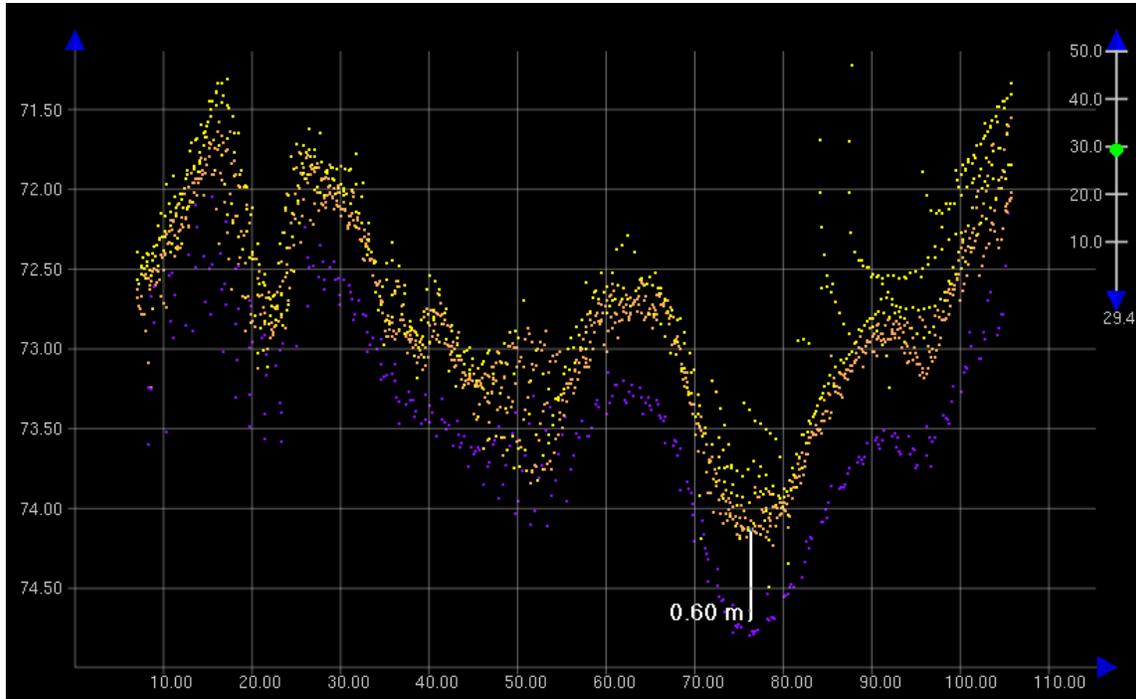


Figure 7: Offset between S220 Reson 7111 (purple) and vessels 2801 (orange) and 2802 (yellow).

To evaluate where the bias caused the data to be outside of vertical accuracy standards, the value of the offset, 0.6 meters, was combined as a absolute error with the total propagated uncertainty of surface nodes by depth. In CARIS HIPS a child layer was computed for each finalized surface by subtracting the combined uncertainty and bias of 0.6 meters from the allowable error.

The area of Reson 7111 data that do not meet vertical accuracy standards is on the Southwest side of Glacier Bay, Southeast of an unnamed island that defines the Southeast extents of Blue Mouse Cove (Figure 8). The child layers shown in Figure 8 are colored red for values less than zero where the sum of the uncertainty and the bias is greater than the allowable error. Values greater than zero have been colored green. The tracklines of the Reson 7111 data are shown in yellow with an approximate delineation of the affected area as a dashed black line. Areas in the figure colored red that do not coincide with Reson 7111 tracklines were collected from different platforms and are not affected by the bias and should be disregarded in this analysis.

While these Reson 7111 data in the delineated area do not meet accuracy requirements they do meet coverage requirements and are shoaler than charted soundings. The Hydrographer recommends that they be used to supercede the chart.¹⁰

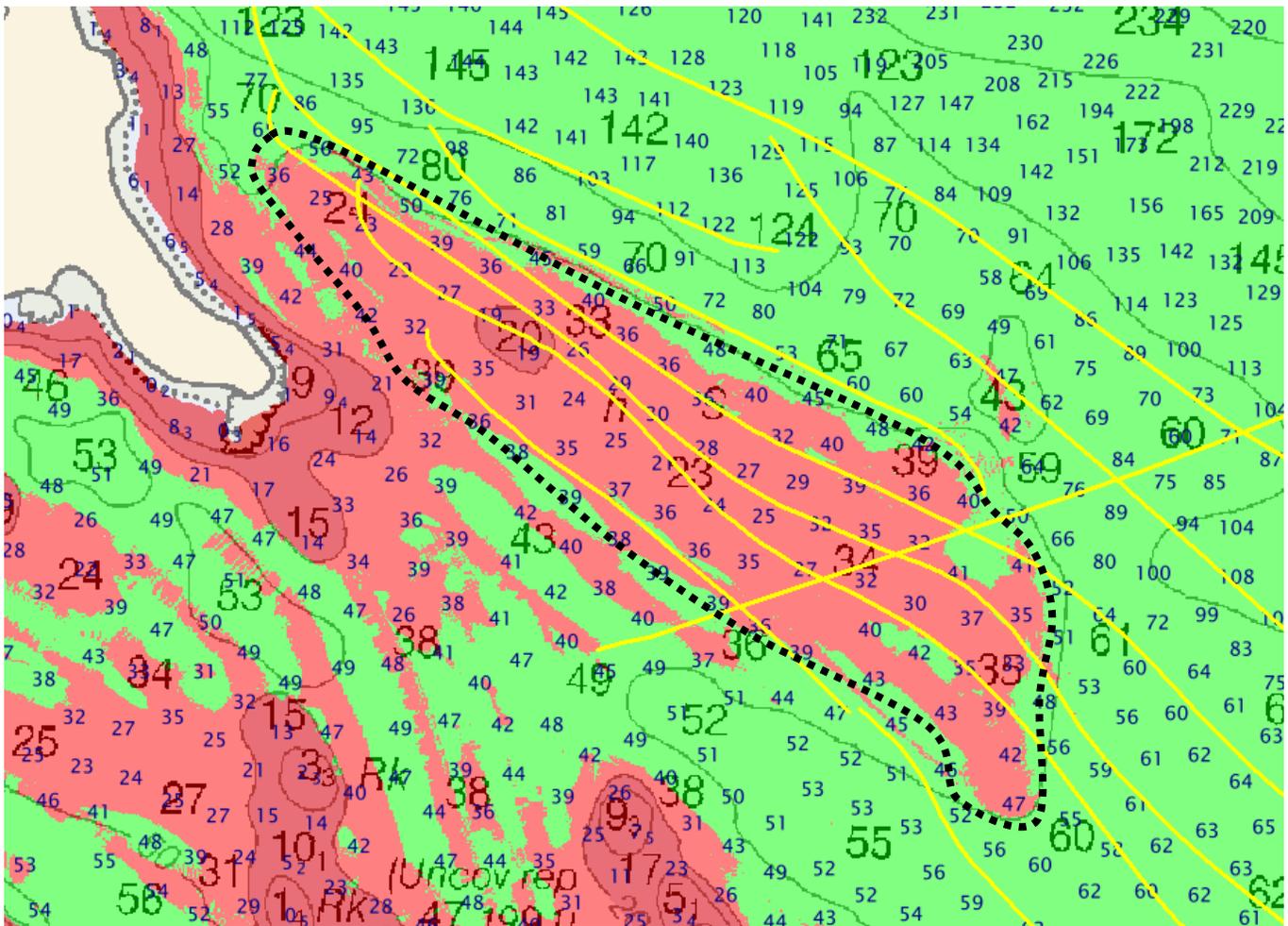


Figure 8: Delineation of Reson 7111 data out of IHO error specifications shown in red.

TIDE CORRECTORS

Data collected on DN 314 by launches 2801 and 2802 are shoaler than adjacent data by 0.28 to 0.35 meters. The Hydrographer has determined that the bias is due to residuals at the Juneau, AK, tide gauge (9452210) that were not experienced in the project area due to significant distance between Juneau and the survey area. The tertiary tide gauge installed by *Fairweather* at Composite Island, AK, (9452682) was immediately adjacent to the project area and is the primary source of tide correctors for all other days of acquisition. However, the Composite Island gauge was removed one day prior to the last day of acquisition on H12142 (DN 314) because the Composite Island gauge was not a planned gauge for vertical control of H12142.

To identify the differences in residuals between the project area and the Juneau gauge a comparison was made of the zoned tides between Juneau and Composite Island for four days prior to the removal of Composite Island (Figure 9). The comparison shows a difference in residuals of +/- 0.3 meters peaking at the ebb and flood of the tide. As the data were collected by launches 2801 and 2802 on DN 314 during an

ebbing tide it is the belief of the hydrographer that the biases seen are due to residuals at the Juneau gauge.

As the bias is less than the minimum IHO Order 1 allowable error it is still within specification.¹¹ Additionally it should be noted that the bias causes a shoaling of depths relative to unaffected data and the data should be used to supercede the chart.¹²

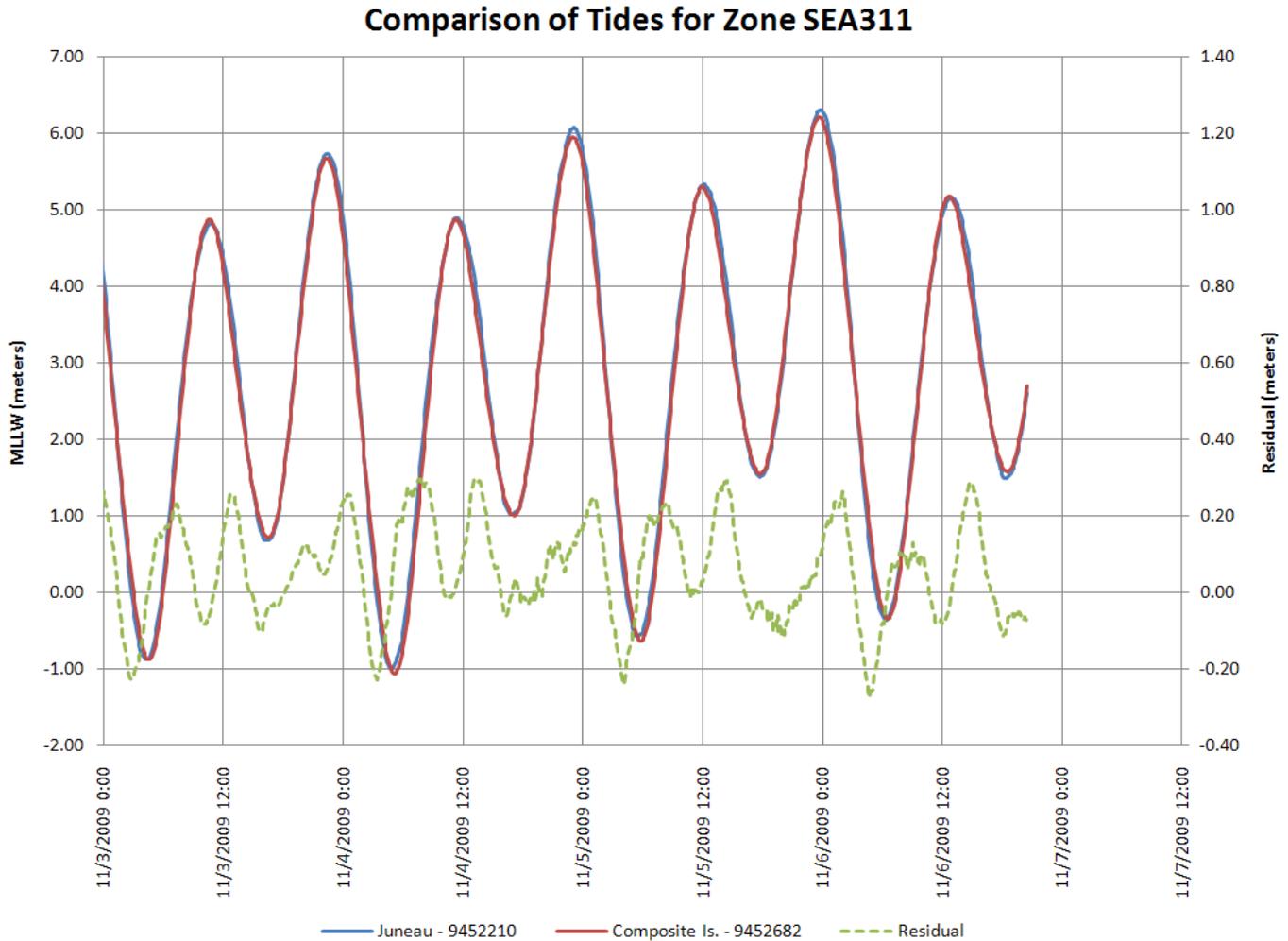


Figure 9: Comparison of Zoned Tides based on Gauges Juneau and Composite Island.

BOTTOM SAMPLES

Bottom samples were collected in a limited manner on survey H12142 due to time constraints.¹³ Possible anchorage sites were prioritized at the discretion of the Chief of Party.

DESIGNATED SOUNDINGS

Designation of soundings followed procedures outlined in section 5.1.1.3 of the NOS Hydrographic Surveys Specifications and Deliverables (HSSDM) dated April 2009.

Sixteen soundings are designated within H12142. Two were selected as a Danger to Navigation, eight are selected as chart features and are contained within the H12142_Final_Feature_File.hob, and six were selected to preserve shoal depths.¹⁴

B.2.5. Accuracy Standards

Accuracy standards were assessed by computing a child layer for each finalized BASE surface constructed as the difference between the error allowed for the depth of the node and the computed uncertainty of each node. All child layer nodes had values greater than zero indicating that the uncertainty of every node is less than the total allowable vertical error based on IHO Order 1 and 2 specifications.¹⁵

With the exceptions discussed in this report, all data meet the accuracy requirements specified in the 2009 HSSDM.¹⁶

B.3. Corrections to Echo Soundings

Data reduction procedures for survey H12142 conform to those detailed in the DAPR except where noted in this report.

B.4. Data Processing

Initial data acquisition and processing notes are included in the acquisition and processing logs. Additional processing information such as application of final tides and sound velocity are contained in the Reviewer_Qry tab of the H12142_Data_Log spreadsheet. All of the logs are submitted digitally in the Separates I folder.

Data processing procedures for survey H12142 conform to those detailed in the DAPR except where noted in this report. Data were processed initially using CARIS HIPS & SIPS v7.0, Hotfix 6. During the course of H12142, the computers used for processing and finalizing data for submission were updated to CARIS HIPS & SIPS v7.0, Service Pack 1, Hotfix 5. Additional processing details regarding Total Propagated Uncertainty (TPU/TPE) and Combined Uncertainty and Bathymetry Estimator (CUBE) Surfaces and Parameters utilized, along with any deviations from the processing procedures outlined in the DAPR, are discussed below.

TPE VALUES

The survey specific parameters used to compute TPE in CARIS for H12142 are listed in Table 3-5.

Tide values:	Measured	0.01 m	Zoning	0.20 m
Sound Speed Values:	Measured	1.00 m/s	Surface	1.00 m/s

Table 3: Survey Specific CARIS TPE Parameters for vessels 1010 and 1018

Tide values:	Measured	0.01 m	Zoning	0.20 m
Sound Speed Values:	Measured	1.00 m/s	Surface	0.50 m/s

Table 4: Survey Specific CARIS TPE Parameters for vessels 2801 and 2802

Tide values:	Measured	0.01 m	Zoning	0.20 m
Sound Speed Values:	Measured	0.50 m/s	Surface	0.50 m/s

Table 5: Survey Specific CARIS TPE Parameters for vessel S220

CUBE SURFACES

The CARIS HIPS CUBE surface resolutions and parameters utilized are listed below in Table 6.¹⁷ The CUBE parameters .xml file is included with digital data in the vessel configuration folder.

Fieldsheet Name	Surface Name	Depth Ranges (m)	Resolution (m)	CUBE Parameters
H12142	H12142_1m	All	1	NOAA_1m
	H12142_2m	All	2	NOAA_2m
	H12142_4m	All	4	NOAA_4m
	H12142_8m	All	8	NOAA_8m
	H12142_16m	All	16	NOAA_16m
	H12142_1m_-5-23_Final	-5-23	1	
	H12142_2m_18-40_Final	18-40	2	
	H12142_4m_35-80_Final	35-80	4	
	H12142_8m_75-160_Final	75-160	8	
	H12142_16m_135-500_Final	135 plus	16	

Table 6: Depth Ranges, Resolutions, and CUBE Parameters

HIPS DEVICE MODEL FOR RESON 7111

During initial processing of H12142 the uncertainty values associated with CUBE surfaces created with Reson 7111 data were unusually high and well outside of allowable IHO vertical tolerances. Reson and CARIS were contacted and ultimately the device model for the CARIS HIPS device model was corrected with appropriate parameters for the Reson 7111. All Reson 7111 HIPS HDCS data have been remerged using the updated device model and affected CUBE surfaces regenerated. Additional documentation regarding this issue is included in Appendix V Supplemental Survey Records & Correspondence of this report.¹⁸

RESON 7111 REAL-TIME PITCH STABILIZATION:

The Reson 7111 is a pitch-stabilized system that is designed to apply real time pitch corrections to improve beam steering. However, during post acquisition analysis of the Reson 7111 data acquired on H12143, a junction survey, a small Hypack Hysweep .7k file was sent to LT Samuel Greenaway at the University of New Hampshire for decoding and it was determined that real-time pitch data was not applied in real-time during acquisition of that individual file. Though *Fairweather* is not equipped with tools to determine whether all Reson 7111 files acquired on OPR-O351-FA-09 were pitch-corrected during real-time data acquisition, it is suspected that none of the files acquired were pitch stabilized. The Reson 7111 CARIS HVF used to process data acquired on OPR-O351-FA-09 is set to apply pitch during post processing. Furthermore, the weather during acquisition was generally calm resulting in small pitch measurements, and is not attributable to any surface artifacts. Though this and various other issues with the Reson 7111 system remain under investigation these data are adequate to supersede the chart.¹⁹

SWATH FILTER

As discussed in section B.2.4. data from DN 309 collected by launch 1010 were swath filtered. Data greater than 65° to port or starboard of nadir were rejected.²⁰

C. HORIZONTAL AND VERTICAL CONTROL

A complete description of horizontal and vertical control for survey H12142 can be found in the *OPR-O351-FA-09 Horizontal and Vertical Control Report*, submitted under separate cover. A summary of horizontal and vertical control for this survey follows.

C.1. Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Single Base Post Processed Kinematic (PPK) was the primary method of positioning of MBES soundings on H12142. Precise Point Positioning (PPP) was used as a secondary method of positioning MBES soundings. Differential correctors from the U.S. Coast Guard beacon at Gustavus (288 kHz) were used during real-time acquisition when not otherwise noted in the acquisition logs, and were the sole method of positioning of detached positions (DP) and bottom samples as there is currently no functionality for applying Single Best Estimated Trajectory (SBET) files to these types of data.

During data acquisition on H12142 a static Global Positioning System (GPS) base station “SOG 1970” was used to compute all PPK solutions until static GPS base station “BRIE” was installed on DN 308. Due to incomplete datafiles on DN 307 and DN 308 at both stations, PPP was used for positioning on those days. See Table 7 for a listing of correctors by day number.

Method	<i>Fairweather</i> S220	Launch 1010	Launch 1018	Launch 2801	Launch 2802
PPK w/ SOG 1970	293,296, 299, 302, 303			302	302
PPP	307			308	308
PPK w/ BRIE	312 - 314	309	308 - 310	309 - 314	309 – 312, 314

Table 7: Horizontal correctors for vessels.

Vessel POS/MV files were post processed into SBET files using Applanix POSPac software and applied to the MBES data along with their associated error files (smrmsg files) in CARIS HIPS for increased horizontal positioning accuracy. For further detail and a discussion of quality control checks see the Acquisition and Processing logs for the particular days located in the Separates I folder. All raw base station files are submitted with the HVCR digital data for this project.

C.2. Vertical Control

The vertical datum for this project is Mean Lower Low Water (MLLW) as specified in the Project Instructions. The operating National Water Level Observation Network (NWLON) primary tide station at

Elfin Cove, AK (945-2634), served as control for datum determination and as the preliminary primary source for water level correctors for survey H12142.

Fairweather personnel installed Sutron 8210 “bubbler” tide gauges at the tertiary stations listed below in Table 8. The gauges were installed in order to provide information to the Center for Operational Oceanographic Products and Services (CO-OPS N/OPS1) for the determination of time and height correctors, in accordance with the Project Instructions.

Station Name	Station Number	Type of Gauge	Date of Installation	Date of Removal	Gauge #	S/N
Composite Island	945-2682	Tertiary 30 Day	September 25, 2009	Nov 6, 2009	12	85173
Muir Inlet	945-2584	Tertiary 30 Day	September 26, 2009	Nov 7, 2009	10	97043
Wachusett Inlet	945-2632	Tertiary 30 Day	October 12, 2009	Nov 9, 2009	17	79049
Tarr Inlet	945-2749	Tertiary 30 Day	October 8, 2009	Nov 8, 2009	14	86002

Table 8: Tide Gauge Information.

Refer to the OPR-O351-FA-09 Horizontal and Vertical Control Report for further information about the tide stations.

A request for delivery of final approved (smooth) tides for survey H12142 was forwarded to N/OPS1 on November 20, 2009 in accordance with the Field Procedures Manual (FPM), dated April 2009. A copy of the request is included in Appendix IV.

As per the final *Tide Note for Hydrographic Survey* dated March 26, 2010, and received April 6, 2010, all data were reduced to MLLW using the final approved water levels (smooth tides) from the following stations in order of precedence: Composite Island, Glacier Bay, AK (9452682); Tarr Inlet, Glacier Bay, AK (9452749); Wachusett Inlet, Glacier Bay, AK (9452632); and Juneau, Gattineau Channel, Stephens Pass, AK (9452210). The stations were used by applying the tide files 9452682.tid, 9452749.tid, 9452632.tid, and 9452210.tid in addition to time and height correctors through the zone corrector file H12142CORF.zdf.²¹ **It will not be necessary for the Atlantic Hydrographic Branch to reapply the final approved water levels (smooth tides) to the survey data during final processing.**²²

D. RESULTS AND RECOMMENDATIONS

D.1. Chart Comparison

Chart comparison procedures were followed as outlined in section 4.5 of the FPM and section 8.1.3-D.1 of the HSSDM, utilizing CARIS Bathy DataBase software program.

Survey H12142 was compared with the following charts listed in Table 9. As per the most recent Notice to Mariners there were no new changes within the survey area.

NOAA Chart Number	Chart Scale	Edition Number	Edition Date	Updated with Notice to Mariners through
17318	1:80,000	7 th Ed.	March, 2009	November 1, 2009

Table 9: NOAA Charts compared with Survey H12142.

D.1.1. Chart 17318

Depths from survey H12142 generally agree within one to two fathoms with depths on chart 17318 with some exceptions.²³

The deepest section of the main basin of Glacier Bay is consistently 3-5 fathoms shoaler than charted. At the entrance to Tidal Inlet two shoals were found to be approximately five fathoms shoaler than charted (Figure 10). A shoal East of the entrance to Hugh Miller Inlet was found to be four fathoms shoaler than charted (Figure 11).²⁴ At the Southeast termination of Chapentier Inlet the shoreline has shifted approximately 280 meters Northwest (Figure 12).²⁵

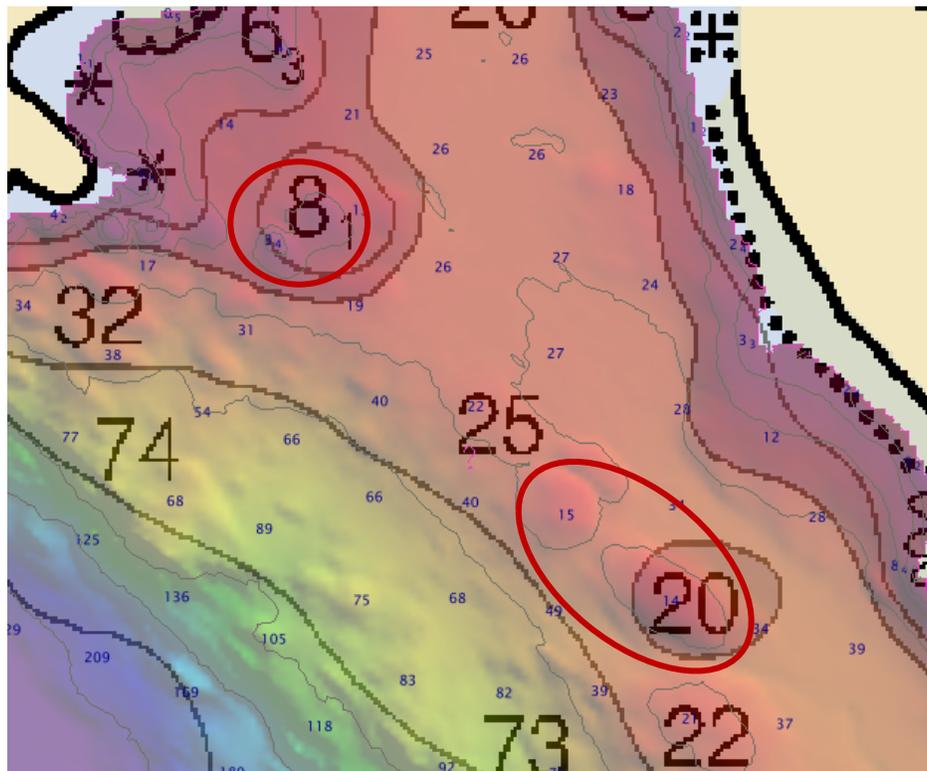


Figure 10: New shoal at entrance to Tidal Inlet.

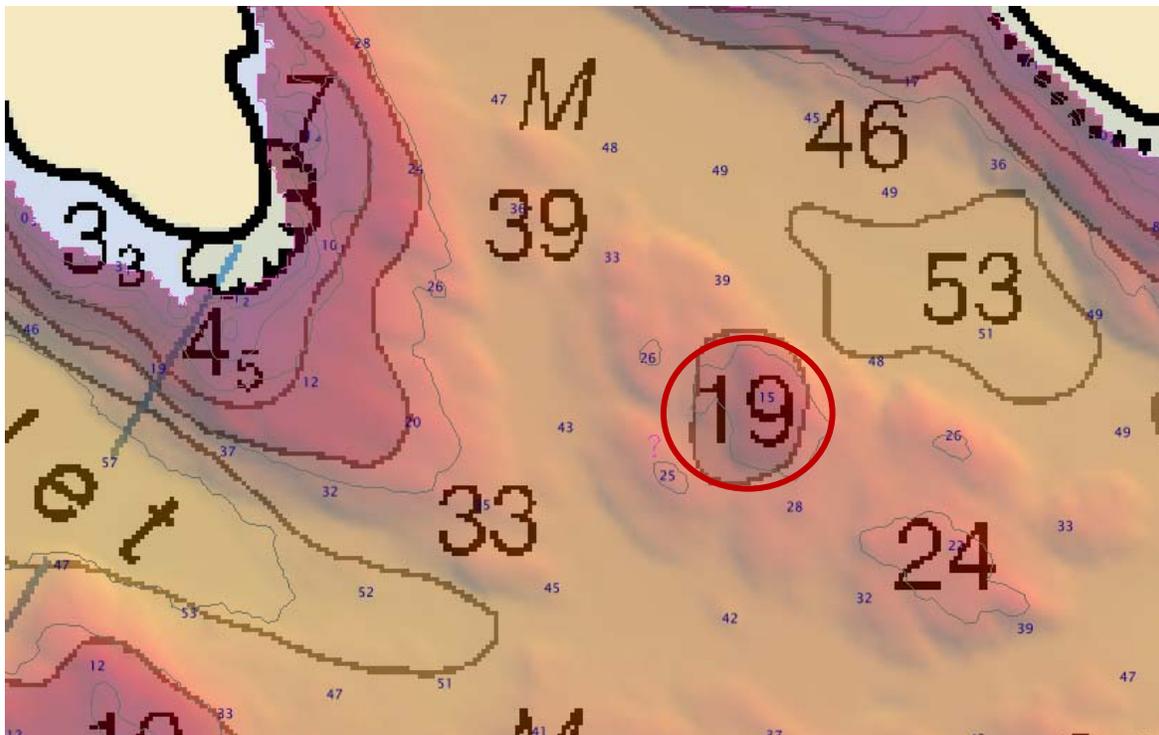


Figure 11: Shoaler sounding east of Hugh Miller Inlet.

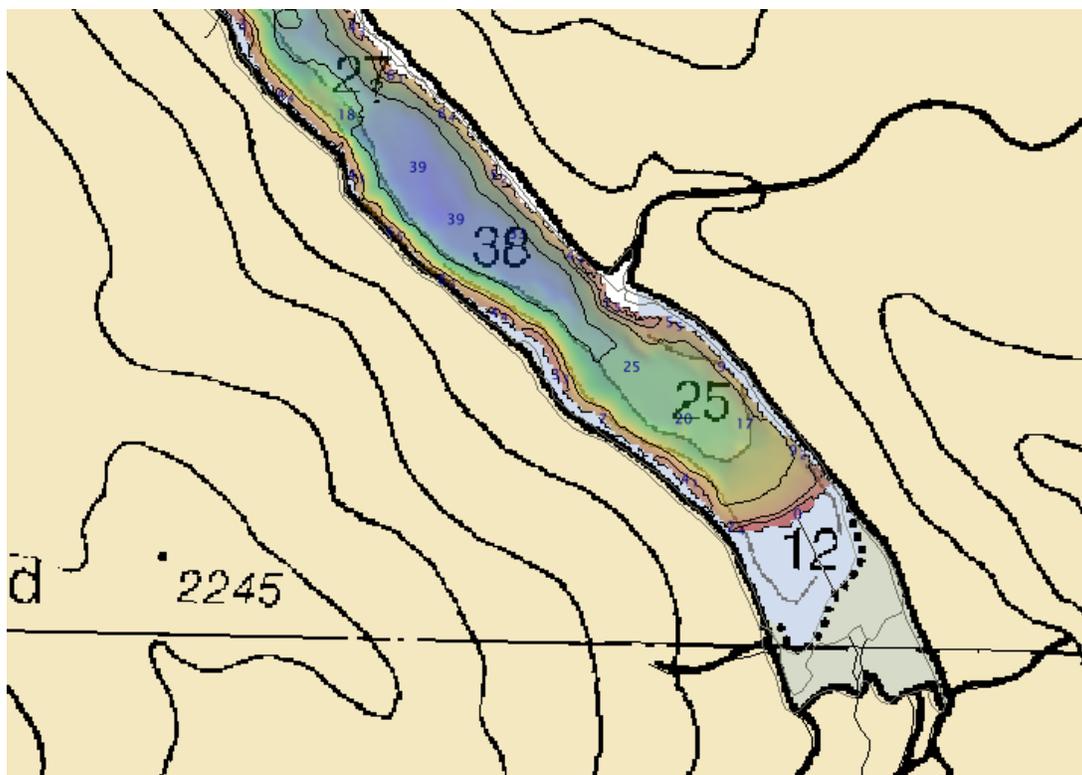


Figure 12: Extent of Charpentier Inlet.

D.1.2. Chart Comparison Recommendations

The Hydrographer has determined that bottom coverage requirements have been met and data accuracy meets requirements specified by the *HSSDM* with the exception of the area discussed in section B.2.4. **All surveyed soundings are adequate to supersede prior surveys in their common areas.**²⁶

D.2. Automated Wreck and Obstruction Information System (AWOIS) Investigations

There were no AWOIS items located within the limits of H12142.²⁷

D.3. Dangers to Navigation

There were no dangers to navigation found within the survey limits.²⁸

D.4. Additional Results

D.4.1. Shoreline Source

A composite source file (CSF) in .000 format from HSD's Operations Branch was provided with the Project Instructions. The original file was imported into CARIS Notebook, converted to a .hob file, clipped to the sheet limits, and named H12142_Original_Composite_Src.hob to be included with the deliverables. This file was copied and named H12142_Feature_File.hob to be utilized during field verification. Shoreline sources that were included in the composite source file for survey H12142 included Geographic Cell (GC), Digital Data (DD), prior survey, and charted features from charts 17318, (Table 10). No additional features from the current edition of chart 17318 were noted.

D.4.2. Shoreline Verification

Fairweather personnel were unable to conduct limited shoreline verification at times near predicted low water, as directed in the Project Instructions and section 3.5.5.3 of the FPM. Areas that required feature investigations were visited at the lowest stage of tide available, which corresponded to 1.8 to 2.1 meters above MLLW on DN 302 and 1.8 to 2.7 meters of tide on DN 314. Detached positions (DPs) were acquired and edits to the daily field H12142_Feature_File_TR2_Dn302.hob and H12142_Feature_File_TR2_Dn314.hob were recorded in CARIS Notebook, on paper DP forms, and on boat sheets. Scanned copies of the DP forms and boat sheets with field annotations are included in the digital Separates I folder.

Chart 17318 (1: 80,000) was the largest scale chart for the project area. A Mean High Water (MHW) Buffer Line, offset 64 meters (0.8 mm at scale of 1:80,000) from the composite source MHW, was used during shoreline verification to determine the Navigable Area Limit Line (NALL). The NALL, that defines the inshore limit of multibeam acquisition, was determined in the field as the farthest off-shore of either the MHW buffer listed above, the 4-meter depth contour, or the inshore limit of safe navigation.

D.4.3. Shoreline Data Processing

Acquired and edited positions during shoreline verification operations were processed in CARIS Notebook. Features that required tide correction were processed using the Load Tide function in CARIS Notebook. Approved water levels were applied to tide correct features where appropriate.

New features and features requiring revision were given S57 attribution. As outlined in section 4.4.10 of the FPM, features were delineated, attributed and placed on either the survey edited H12142_Final_Feature_File.hob (compiled from the field daily files) or H12142_Disprovals.hob files. Features not on the disprovals layer nor labeled with the survey source indication that were of an ambiguous nature or that required a field remark were flagged with a marker note for further clarification.

Source features collected or edited by the field have source indication (SORIND) and source date (SORDAT) attribute fields populated to reflect the survey number (US,US,survey,H12142) and final survey date 20091110. Unmodified source shoreline features were left with their original SORIND and SORDAT values. The SORIND/SORDAT information for shoreline features included in the final Notebook .hob files is listed in Table 10.

Shoreline Source	SORIND	SORDAT
RSD	US,US,graph,survey H09142	19700000
RSD	US,US,graph,GC10779	20040600
Chart	US,US,graph,Chart 17318	20010113
Survey	US,US,survey,H12142	20091110

Table 10: SORIND/SORDAT Shoreline Features

D.5. Source Shoreline Changes, New Features and Charted Features

In accordance with section 4.4.10 of the FPM, field notes made by the Hydrographer were provided in the Remarks field for features and when appropriate, recommendations to the cartographer were included in the Recommendations field.

Items disproved by the Hydrographer and deemed to not be included in the H12142_Final_Feature_File.hob file were moved to the H12142_Disprovals .hob file.²⁹

In numerous cases the charted (17318) zero contour conflicts with hydrography, in all cases GC shoreline should be used.³⁰

Numerous charted (17318) foul areas are in conflict with hydrography. After discussion with representatives from both the Pacific Hydrographic Branch and the Atlantic Hydrographic Branch, it has been decided to leave the foul area features intact for shore side personnel to manage.³¹

D.5.1. Shoreline Recommendations

The Hydrographer recommends that the shoreline depicted in the CARIS Notebook files and final sounding files supersede and complement shoreline information compiled on the CSF and charts.³²

D.6. Aids to Navigation

There were no aids to navigation within the survey limits.³³

D.7. Bottom Samples

Bottom samples were collected on November 10, 2009 (DN314) and are included as seabed classifications along with the other S57 features in the Notebook H12142_Final_Feature_File .hob file.³⁴

D.8. Supplemental Reports

Listed below are supplemental reports submitted separately that contain additional information relevant to this survey:

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Hydrographic Systems Readiness Review 2009	May 15, 2009	N/CS34
Data Acquisition and Processing Report 2009	December 21, 2009	N/CS34
Horizontal and Vertical Control Report for OPR-O351-FA-09	May 28, 2010	N/CS34
Tides and Water Levels Package for OPR-O351-FA-09	November 20, 2009	N/OPS1
Coast Pilot Report for OPR-O351-FA-09	TBD	N/CS26



UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration
NOAA Marine and Aviation Operations
NOAA Ship FAIRWEATHER S-220
1010 Stedman Street
Ketchikan, AK 99901

June 21, 2010

MEMORANDUM FOR: LCDR Richard T. Brennan, NOAA
Chief, Atlantic Hydrographic Branch

FROM: CAPT David O. Neander, NOAA *David J. Zezula* David J. Zezula
Commanding Officer 2010.06.30
11:13:05 -07'00'

TITLE: Approval of Hydrographic Survey H12142,
OPR-O351-FA-09

As Chief of Party, I have ensured that standard field surveying and processing procedures were adhered to during acquisition and processing of hydrographic survey H12142 in accordance with the Hydrographic Manual, Fourth Edition; Field Procedures Manual, April 2009; and the NOS Hydrographic Surveys Specifications and Deliverables, as updated for April 2009. Additional guidance was provided by applicable Hydrographic Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required. All data and reports are respectfully submitted to N/CS33, Atlantic Hydrographic Branch.

I acknowledge that all of the information contained in this report is complete and accurate to the best of my knowledge.

In addition, the following individuals were responsible for oversight of acquisition and processing of this survey:

Weston Renoud Weston Renoud
2010.06.18 19:56:14 Z

HSST Weston Renoud
Survey Manager

Briana J. Welton Briana Welton
I have reviewed this document
2010.06.17 22:25:17 Z

LT Briana Welton
Field Operations Officer

Briana J. Welton Briana Welton
I have reviewed this document
2010.06.17 22:25:48 Z

CST Lynnette V. Morgan
Chief Survey Technician

Attachment



Revisions and Corrections Compiled During Office Processing and Certification

¹ Concur.

² Concur with clarification. Higher disagreement is expected in areas of steep slopes. The data has been inspected and deemed adequate for charting.

³ A common junction was made with H12143 which has already been compiled. A common coverage junction was made with H12141. A common junction with the bathymetry and features will be made when that survey is compiled.

⁴ Concur.

⁵ Concur with clarification. Higher disagreement is expected in areas of steep slopes. The data has been inspected and deemed adequate for charting.

⁶ Concur. The significant holidays identified were a result of rejecting down-slope noise and the least depths are represented in the data. The holidays were not preserved in the HCell coverage.

⁷ The data from the lines with "fixed" TrueHeave files applied are acceptable and show no evidence of heave errors.

⁸ Concur. The remaining data is adequate for charting after the data affected by the SV error was rejected.

⁹ Concur. The remaining data is adequate for charting after the data affected by the SV error was rejected.

¹⁰ Concur. Since the depths are shoaler, and therefore more conservative, than what is currently charted and full coverage was achieved, the data should be used to supersede charted depths in the common area.

¹¹ Concur.

¹² Concur.

¹³ All bottom samples collected during the survey are included in the HCell.

¹⁴ Concur. All DTONs have been applied to the chart and all are addressed in the HCell.

¹⁵ Concur.

¹⁶ Concur. The data is adequate to supersede charted data in the common area.

¹⁷ A 16-meter combined surface created during the SAR was used as the basis for compilation.

¹⁸ See attached correspondence.

¹⁹ Concur. The data from the Reson 7111 are adequate to supersede charted data in the common area.

²⁰ Concur. The remaining data is adequate for charting after the swath filter was applied to the data from launch 1010, DN 309.

²¹ See attached Tide Note dated March 26, 2010.

²² H12142 was submitted to Pacific Hydrographic Branch for review and compilation.

²³ Concur.

²⁴ Concur. Chart depths as depicted in the HCell.

²⁵ Concur. Update the coastline with the latest GC source.

²⁶ Concur.

²⁷ Concur.

²⁸ Do not concur. As stated in the Designated Soundings paragraph in section B.2.4 of this report, there were two DTONs identified during this survey. Both DTONs have been applied to the chart and both are addressed in the HCell. See attached DTON Reports.

²⁹ The submitted hob files were used in the compilation of HCell H12142.

³⁰ Concur.

³¹ Chart features as depicted in the HCell.

³² Concur with clarification. The shoreline files were applied as appropriate to chart scale. Chart features as depicted in the HCell.

³³ Concur.

³⁴ Eight bottom samples were collected during H12142 and are included in the HCell. Eight charted bottom samples were imported from the ENC to be retained. Six charted bottom samples were blue noted to be removed because they were in conflict with new bottom samples collected during the survey.

H12142 Danger to Navigation Report #1

Registry Number: H12142
State: Alaska
Locality: Glacier Bay National Park
Sub-locality: Scidmore Bay to Tidal Inlet
Project Number: OPR-O351-FA-09
Survey Date: 11/05/2009

Shoal sounding found at entrance to Tidal Inlet, Glacier Bay, AK. All data corrected with final, zoned tides.

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
17318	7th	03/01/2009	1:80,000 (17318_1)	USCG LNM: 05/19/2009 (08/18/2009) CHS NTM: None (07/31/2009) NGA NTM: 07/14/2001 (08/29/2009)
17300	31st	09/01/2005	1:209,978 (17300_1)	[L]NTM: ?
16760	10th	11/18/2000	1:300,000 (16760_1)	[L]NTM: ?
16016	21st	10/01/2007	1:969,756 (16016_1)	[L]NTM: ?
531	24th	07/01/2007	1:2,100,000 (531_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

* Correction(s) - source: last correction applied (last correction reviewed--"cleared date")

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Shoal	6.79 m	58° 49' 02.5" N	136° 24' 54.4" W	---

1 - Danger To Navigation

1.1) Profile/Beam - 104/35 from h12142 / fa_1018_reson8101_2009 / 2009-309 / 2009c_3092212

DANGER TO NAVIGATION

Survey Summary

Survey Position: 58° 49' 02.5" N, 136° 24' 54.4" W
Least Depth: 6.79 m (= 22.26 ft = 3.710 fm = 3 fm 4.26 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 0.091 m ; TVU (TPEv) ± 0.420 m
Timestamp: 2009-309.22:12:33.875 (11/05/2009)
Survey Line: h12142 / fa_1018_reson8101_2009 / 2009-309 / 2009c_3092212
Profile/Beam: 104/35
Charts Affected: 17318_1, 17300_1, 16760_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

Shoal sounding found with complete multibeam coverage at entrance to Tidal Inlet in Glacier Bay National Park, AK.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12142/fa_1018_reson8101_2009/2009-309/2009c_3092212	104/35	0.00	000.0	Primary

Hydrographer Recommendations

Chart shoal sounding.

Cartographically-Rounded Depth (Affected Charts):

3 $\frac{3}{4}$ fm (17300_1, 16760_1, 16016_1, 530_1)

3fm 4ft (17318_1, 531_1)

6.8m (500_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20091110

SORIND - US,US,survey,H12142

STATUS - 1:permanent

TECSOU - 3:found by multi-beam

Feature Images

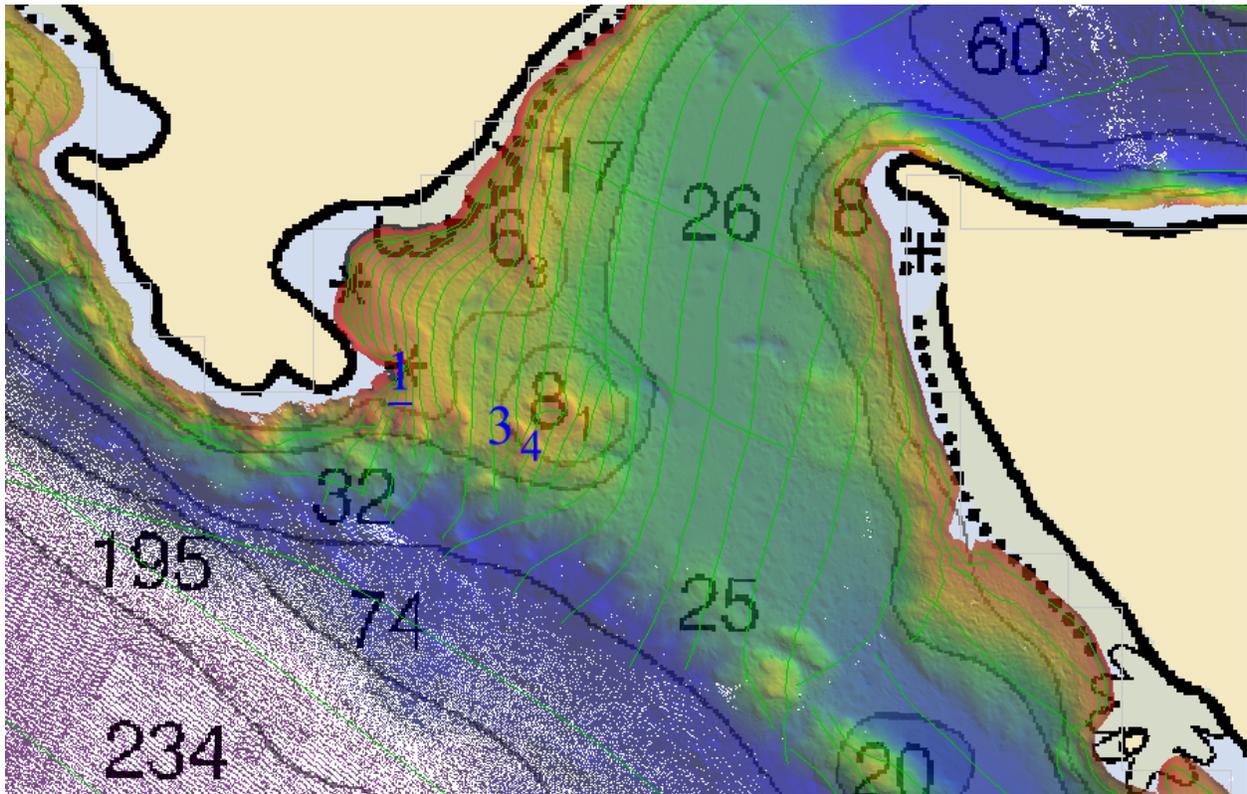


Figure 1.1.1

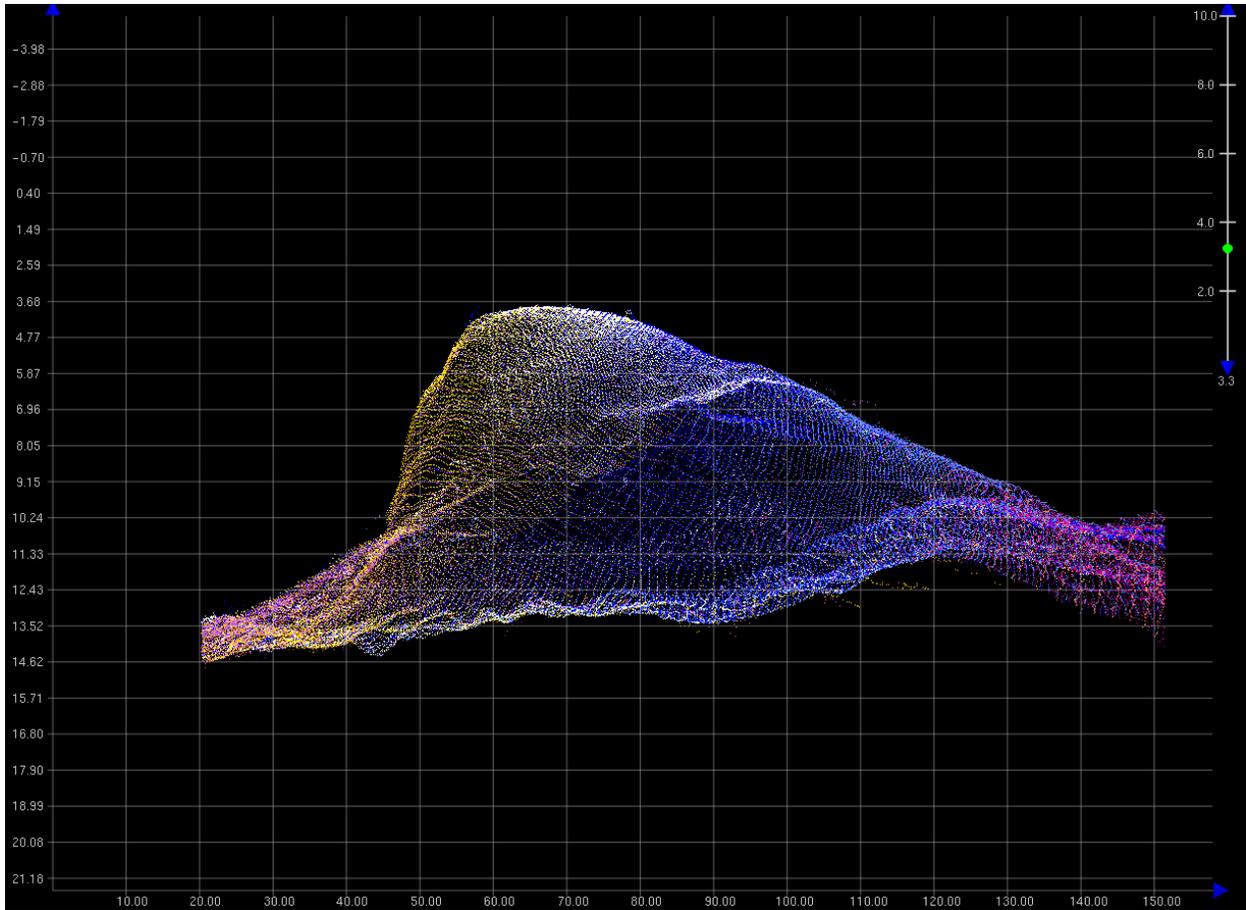


Figure 1.1.2

H12142 Danger to Navigation Report #2

Registry Number: H12142
State: Alaska
Locality: Glacier Bay National Park
Sub-locality: Scidmore Bay to Tidal Inlet
Project Number: OPR-O351-FA-09
Survey Date: 11/06/2009

Shoal sounding found at SE extent of Charpentier Inlet, Glacier Bay, AK. All data corrected with final, zoned tides.

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
17318	7th	03/01/2009	1:80,000 (17318_1)	USCG LNM: 05/19/2009 (08/18/2009) CHS NTM: None (07/31/2009) NGA NTM: 07/14/2001 (08/29/2009)
17300	31st	09/01/2005	1:209,978 (17300_1)	[L]NTM: ?
16760	10th	11/18/2000	1:300,000 (16760_1)	[L]NTM: ?
16016	21st	10/01/2007	1:969,756 (16016_1)	[L]NTM: ?
531	24th	07/01/2007	1:2,100,000 (531_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

* Correction(s) - source: last correction applied (last correction reviewed--"cleared date")

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Shoal	0.16 m	58° 40' 14.5" N	136° 27' 05.3" W	---

1 - Danger To Navigation

**1.1) Profile/Beam - 880/510 from h12142 /
2801_rsn7125_400khz_512bms_2009 / 2009-310 / 2009c_3101826**

DANGER TO NAVIGATION

Survey Summary

Survey Position: 58° 40' 14.5" N, 136° 27' 05.3" W
Least Depth: 0.16 m (= 0.53 ft = 0.089 fm = 0 fm 0.53 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 0.049 m ; **TVU (TPEv)** ± 0.398 m
Timestamp: 2009-310.18:27:33.351 (11/06/2009)
Survey Line: h12142 / 2801_rsn7125_400khz_512bms_2009 / 2009-310 / 2009c_3101826
Profile/Beam: 880/510
Charts Affected: 17318_1, 17300_1, 16760_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

Sedimentation has caused shoaling in the SE extent of Charpentier Inlet shifting the shoreline to the NW.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12142/2801_rsn7125_400khz_512bms_2009/2009-310/2009c_3101826	880/510	0.00	000.0	Primary

Hydrographer Recommendations

Remove 12 fathom sounding, chart as extent of inlet.

Cartographically-Rounded Depth (Affected Charts):

0fm (17300_1, 16760_1, 16016_1, 530_1)

0fm 0ft (17318_1, 531_1)

.2m (500_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: QUASOU - 1:depth known
 SORDAT - 20091110
 SORIND - US,US,survey,H12142

TECSOU - 3:found by multi-beam

VERDAT - 12:Mean lower low water

Feature Images

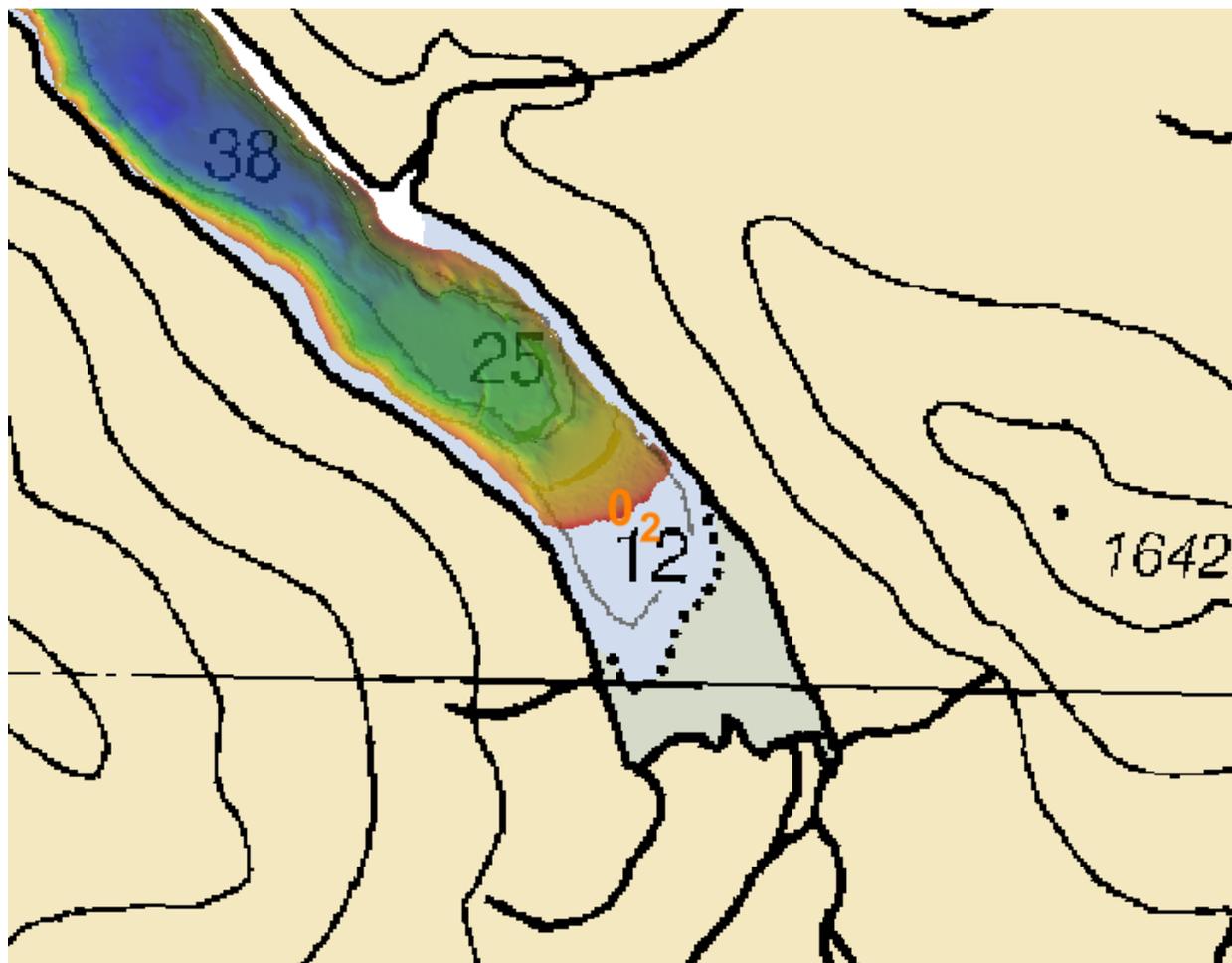


Figure 1.1.1

FOID	Acronym	Latitude	Longitude	userid	remarks	SORIND	SORDAT	WATLEV	VALSOU	obsdpt	obstmn	tidadj	tidflf	QUASOU	TECSOU	NATSUR	NATQUA	SCAMIN	INFORM	VALDCO	ELEVAT		
US 0000000433 00001	LNDELV	58-44-22.219N	136-29-21.711W		chd(17318) islet is GC(10779) islet, see dp 231412	US,US,survey,H12142	20091110															1.24	
0_1252010552 00056	UWTRC	58-46-31.050N	136-32-26.630W	231405	psf(17318) rk vfd, dp for ht	US,US,survey,H12142	20091110	4	-1.15	0.7	20091109T211959	1.85	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	5	9			239999				
0_1252010591 00073	UWTRC	58-45-46.166N	136-32-20.274W	230201	psf(H09142) rk vfd, hp ldg, check of depth -3.4	US,US,survey,H12142	20091110	4	-3.76	-1.7	20091029T233551	2.06	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	12				Rock or coral head (submerged or awash)				
0_1252010553 00058	UWTRC	58-48-21.214N	136-37-01.326W	231410	chd(17318) rk is GC(10779) rk vfd, dp for ht	US,US,survey,H12142	20091110	4	-4.51	-2.5	20091109T225522	2.01	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	12	9							
0_1252010552 00034	UWTRC	58-44-51.937N	136-31-28.744W	230204	chd(17318) rk vfd, swm ext GC(10779) reef	US,US,survey,H12142	20091110	4	-4.65	-3	20091030T000927	1.65	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	12	9			239999				
0_1252010591 00080	UWTRC	58-46-34.208N	136-31-53.166W	231401	psf(H09142) rk vfd, dp for ht	US,US,survey,H12142	20091110	4	-4.51	-2.6	20091109T205052	1.91	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	12				Rock or coral head (submerged or awash)				
0_1252010591 00123	UWTRC	58-48-30.694N	136-37-33.251W	231409	chd(17318) rk is psf(H09142) rk, hp GC reef	US,US,survey,H12142	20091110	4	-2.93	-1	20091109T224132	1.93	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	12				Rock or coral head (submerged or awash)				
US 0000000434 00001	OBSTRN				new ext foul	US,US,survey,H12142	20091110																
US 0000000683 00001	UWTRC	58-44-21.748N	136-24-17.063W	231414	new pos chd(17314) rk	US,US,survey,H12142	20091110	5	0.31	3	20091110T000622	2.69	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	5								
US 0000000190 00001	UWTRC	58-45-06.416N	136-31-24.235W	230203	new pos chd(17318) rk, hp foul	US,US,survey,H12142	20091110	4	-2.82	-1	20091029T235451	1.82	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	12								
0_1252010553 00037	UWTRC	58-46-31.909N	136-32-28.859W	231406	GC(10779) rk vfd, dp for ht	US,US,survey,H12142	20091110	4	-2.65	-0.8	20091109T212124	1.85	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	12	9							
0_1252010591 00081	UWTRC	58-46-35.227N	136-31-50.340W	231402	chd(17318) rk is psf(H09142) rk vfd, dp for ht	US,US,survey,H12142	20091110	4	-1.13	0.8	20091109T210026	1.93	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	5				Rock or coral head (submerged or awash)				
US 0000000664 00001	UWTRC	58-44-16.878N	136-24-15.843W	231413	new pos chd(17314) rk	US,US,survey,H12142	20091110	4	-1.11	1.5	20091109T235911	2.61	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	5								
0_1252010591 00105	UWTRC	58-46-30.914N	136-32-31.236W	231404	psf(H09142) rk vfd, hp GC(10779) reef	US,US,survey,H12142	20091110	4	-3.87	-2	20091109T211516	1.87	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	12				Rock or coral head (submerged or awash)				
0_1252010553 00032	UWTRC	58-48-36.932N	136-37-15.409W	231408	chd(17318) rk is GC(10779) rk vfd, dp for ht	US,US,survey,H12142	20091110	4	-2.89	-1	20091109T223515	1.89	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	12	9							
US 0000000182 00001	OBSTRN				new ext chd(17318) foul	US,US,survey,H12142	20091110	4			20091029T234926												
0_1252010553 00038	UWTRC	58-46-39.875N	136-32-10.575W	231403	chd(17318) rk is GC(10779) rk vfd, dp for ht	US,US,survey,H12142	20091110	4	-2.01	-0.1	20091109T210521	1.91	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	12	9							
0_1252010553 00031	UWTRC	58-49-16.958N	136-37-08.639W	231407	chd(17318) rk is GC(10779) rk vfd, dp for ht	US,US,survey,H12142	20091110	4	-2.2	-0.4	20091109T215641	1.8	I\2009_Processed_Data\Tide\OPR_0351_FA_09\Final_Tides\H12142\H12142CORF.zdf	1	12	9							
1C 0000049016 00001	SBDARE	58-45-34.008N	136-24-44.671W	531401	med S crs P	US,US,survey,H12142	20091110															2.3	
1C 0000049018 00001	SBDARE	58-44-40.859N	136-28-45.199W	531403	stk fine Silt	US,US,survey,H12142	20091110															3 5/1	
1C 0000049017 00001	SBDARE	58-45-40.092N	136-27-41.785W	131402	stk fine silt	US,US,survey,H12142	20091110															3 5/1	
1C 0000049019 00001	SBDARE	58-46-04.655N	136-31-12.132W	531404	med P brk Sh	US,US,survey,H12142	20091110															7,17	2.4
1C 0000049020 00001	SBDARE	58-46-55.258N	136-32-42.244W	531405	stk fine Silt	US,US,survey,H12142	20091110															3 5/1	
1C 0000049022 00001	SBDARE	58-46-23.111N	136-34-23.912W	531406	stk fine Silt	US,US,survey,H12142	20091110															3 5/1	
1C 0000049023 00001	SBDARE	58-48-26.657N	136-36-36.606W	531407	stk fine Silt	US,US,survey,H12142	20091110															3 5/1	
1C 0000049024 00001	SBDARE	58-44-41.309N	136-31-47.302W	531408	stk fine Silt	US,US,survey,H12142	20091110															3 5/1	
US 0000000420 00001	UWTRC	58-46-18.372N	136-31-25.219W		new rk	US,US,survey,H12142	20091110	5	0.19														
US 0000000419 00001	UWTRC	58-49-07.134N	136-25-11.656W		new pos chd(17318) rk	US,US,survey,H12142	20091110	4	-1.74														
US 0000000418 00001	UWTRC	58-46-33.642N	136-32-33.508W		new pos chd(17318) rk	US,US,survey,H12142	20091110	5	0														
US 0000000417 00001	UWTRC	58-46-37.995N	136-32-40.281W		new rk	US,US,survey,H12142	20091110	5	0.31														
US 0000000410 00001	UWTRC	58-44-25.376N	136-26-04.116W		new pos chd(17318) rk	US,US,survey,H12142	20091110	3	1.53														
US 0000000409 00001	UWTRC	58-45-19.567N	136-29-58.278W		new pos chd(17318) rk	US,US,survey,H12142	20091110	5	-0.48														
US 0000000366 00001	DEPCNT				new ext MLLW	US,US,survey,H12142	20091110																
US 0000000368 00001	SBDARE				new ext chd(17318) ldg	US,US,survey,H12142	20091110	4															9
0_1252010591 00118	UWTRC	58-47-57.602N	136-37-45.653W		chd(17318) rk is psf(H09142) rk vfd	US,US,survey,H12142	20091110	5	-0.6														1
US 00000002143 00001	UWTRC	58-45-12.584N	136-29-23.421W		new pos chd(17318) rk	US,US,survey,H12142	20091110	3	1.42														6
US 00000002144 00001	UWTRC	58-44-44.911N	136-26-01.625W		new pos chd(17318) rk	US,US,survey,H12142	20091110	3	4.57														6
US 0000000375 00001	SBDARE				new ext ldg	US,US,survey,H12142	20091110	4															9

0

Subject:
Re: Reson 7111 device model
From:
Corey Collins <corey.collins@caris.com>
Date:
Thu, 21 Jan 2010 14:41:14 -0400
To:
Eric Maillard <Eric.Maillard@reson.com>
CC:
foo fairweather <FOO.Fairweather@noaa.gov>, "glen.rice" <Glen.Rice@noaa.gov>, Brett Evans <Brett.Evans@reson.com>, Michael Mutschler <Michael.Mutschler@reson.com>, chiefst Fairweather <ChiefST.Fairweather@noaa.gov>, Jack Riley <Jack.Riley@noaa.gov>, Edward.J.Vandenameele@noaa.gov, Olivia Hauser <Olivia.Hauser@noaa.gov>, "caryn.arnold" <Caryn.Arnold@noaa.gov>, LCDR Rick Brennan NOAA <Richard.T.Brennan@noaa.gov>, Jeremy Nicholson <jeremy.nicholson@caris.com>

Hi Eric,

Thanks for the prompt replay and I will go ahead and get this fixed up in our software as soon as possible.

Regards,
Corey

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

Subject: Re: Reson 7111 device model
From: Eric Maillard <Eric.Maillard@reson.com>
To: Corey Collins <corey.collins@caris.com>, foo fairweather <FOO.Fairweather@noaa.gov>
Cc: "glen.rice" <Glen.Rice@noaa.gov>, "Brett Evans" <Brett.Evans@reson.com>, "Michael Mutschler" <Michael.Mutschler@reson.com>, "chiefst Fairweather" <ChiefST.Fairweather@noaa.gov>, "Jack Riley" <Jack.Riley@noaa.gov>, Edward.J.Vandenameele@noaa.gov, "Olivia Hauser" <Olivia.Hauser@noaa.gov>, "caryn.arnold" <Caryn.Arnold@noaa.gov>, "LCDR Rick Brennan NOAA" <Richard.T.Brennan@noaa.gov>, "Jeremy Nicholson" <jeremy.nicholson@caris.com>
Date: Thursday, January 21, 2010 2:39:31 PM

>
> Hi Corey,
>
>
>
> Yes, you should be using the same algorithm for 8111 and 7111.

>
>
>
> Thanks for looking into that,

>
> Eric

>
>
>
> From: Corey Collins [mailto:corey.collins@caris.com]
> Sent: Thursday, January 21, 2010 8:24 AM
> To: foo fairweather; Eric Maillard
> Cc: glen.rice; Brett Evans; Michael Mutschler; chiefst Fairweather; Jack Riley; Edward.J.Vandenameele@noaa.gov; Olivia Hauser; caryn.arnold; LCDR Rick Brennan NOAA; Jeremy Nicholson
> Subject: Re: Reson 7111 device model

>
>
>
> All,
>
> I think we have quickly gotten to the bottom of this. First a little background information on how the TPU algorithms are implemented in HIPS and SIPS. We initially received from UNH a list of devices that specific algorithms had been developed for. We implemented those and tagged specific device models from the devicemodels.xml file in HIPS to the pertinent TPU algorithms provided from UNH. Since receiving these algorithms a lot of clients have requested to be able to compute TPU for sonars not contained in the group of sonars as tested and studied by UNH. So what we have done in order to accommodate these clients, as we do not have access to specific sonars to test and develop algorithms for, we have added device models to the devicemodels.xml file and then used a set of generic TPU algorithms for those sonars. So after digging in regards to this situation with the 8111 and the 7111 on our end this is what we have discovered.

>
> The 8111 was indeed part of the original TPU algorithms provided to us by UNH and therefore it has specific algorithms that are being called and used. The 7111 was not in that list so we are using the generic TPU algorithms as described for Swath Sonars. So with that said, my question to Reson is, should we be using the same algorithms for the 7111 as we are using for the 8111?

>
> I apologize for not thinking of this beforehand, but if Reson confirms that we should be using the same algorithms as with the 8111 then we can have this fixed up very quickly.

>
> Regards,
> Corey

>
> ----- Original Message -----
> Subject: Re: Reson 7111 device model
> From: Corey Collins <corey.collins@caris.com>
> To: foo fairweather <FOO.Fairweather@noaa.gov>
> Cc: Eric Maillard <Eric.Maillard@reson.com>, "glen.rice" <Glen.Rice@noaa.gov>, Brett Evans <Brett.Evans@reson.com>, Michael Mutschler <Michael.Mutschler@reson.com>, chiefst Fairweather <ChiefST.Fairweather@noaa.gov>, Jack Riley <Jack.Riley@noaa.gov>, "Edward.J.Vandenameele@noaa.gov" <Edward.J.Vandenameele@noaa.gov>, Olivia Hauser <Olivia.Hauser@noaa.gov>, "caryn.arnold" <Caryn.Arnold@noaa.gov>, LCDR Rick Brennan NOAA <Richard.T.Brennan@noaa.gov>
> Date: Thursday, January 21, 2010 12:05:23 PM

>
> Hi Bri,
>
> We are looking now on our end as I think there is something amiss in our software. I hope to have feedback to provide on this next week at FPW. So as you put it below, I think this may be something silly and should be easy to fix on our end.

>
> Corey
>
> ----- Original Message -----
> Subject: Re: Reson 7111 device model
> From: foo fairweather <FOO.Fairweather@noaa.gov>
> To: Eric Maillard <Eric.Maillard@reson.com>
> Cc: "glen.rice" <Glen.Rice@noaa.gov>, Brett Evans <Brett.Evans@reson.com>, Michael Mutschler <Michael.Mutschler@reson.com>, Corey Collins <corey.collins@caris.com>, chiefst Fairweather <ChiefST.Fairweather@noaa.gov>, Jack Riley <Jack.Riley@noaa.gov>, "Edward.J.Vandenameele@noaa.gov" <Edward.J.Vandenameele@noaa.gov>, Olivia Hauser <Olivia.Hauser@noaa.gov>, "caryn.arnold" <Caryn.Arnold@noaa.gov>, LCDR Rick Brennan NOAA <Richard.T.Brennan@noaa.gov>

> Date: Wednesday, January 20, 2010 4:25:08 PM

>

> Hi Eric,

>

> I tried these values and the uncertainty actually increased slightly.

>

> Jack,

>

> I've attached our device model file with the values Eric suggested and our 7111 hvf for your review.

>

> All (HSTP, Reson, Caris),

>

> I'm at a loss as to what is going on with the 7111 uncertainty. Glen sent me some theoretical background material on device model creation but I honestly don't have time to digest it. Jack has agreed to come over to the ship on Monday while he's here in Seattle for FPW to noodle around. In the meantime, let us know if you think of something. Hopefully this is something simple and silly that can be fixed easily.

>

> Many thanks,

>

> Bri

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>
> If the above mentioned changes don't bring the uncertainty to a level compatible with the true performances of the system, we will have to start questioning the model itself.

>
>
>
> Hope this helps,

>
> Eric

>
>
>
> From: foo fairweather [mailto:FOO.Fairweather@noaa.gov]
> Sent: Tuesday, January 12, 2010 3:08 PM
> To: Eric Maillard
> Cc: glen.rice; Brett Evans; Michael Mutschler; Corey Collins; chiefst Fairweather
> Subject: Reson 7111 device model

>
>
>
> Hi Eric,

>
> Attached is the current device model that we're using. I believe this is the second iteration of it. We're still seeing relatively high uncertainty values with the 7111 (outside of IHO tolerances) The attached color maps is:

> 0-2 meters is green
> 2-4 meters is yellow
> 4-10 meters is red
> and the yellow lines that are selected are 7111 lines.

>
> Thanks,

>
> Bri

>
>
>
>
>
>
> ----- Original Message -----

>
> Subject:

>
>
> [Fwd: Re: Reson 8125 and 7111 manuals]

>
> Date:
>
>
> Tue, 03 Nov 2009 09:01:01 -0900

>
> From:
>
>
> foo.fairweather <foo.fairweather@noaa.gov>

>

> To:
>
>
> Brett Evans <Brett.Evans@reson.com>
>
>
> Hi Brett,
>
> This is the original email thread. I didn't originally type your
> correct email address.
>
> Thanks,
>
> Bri
>
> --
> LT Briana Welton
> Field Operations Officer
> NOAA Ship Fairweather
> 1010 Stedman St
> Ketchikan, AK 99901
> 907-254-2842 (ship's cell)
> 808-659-0054 (ship's sat)
>
>
>
>
>
>
>
> --
> LT Briana Welton
> Field Operations Officer
> NOAA Ship Fairweather
> 1010 Stedman St
> Ketchikan, AK 99901
> 907-254-2842 (ship's cell)
> 808-659-0054 (ship's sat)
>
> Fairweather communications are often unreliable. If you suspect email is not going to or from the foo.fairweather
> email account, try emailing briana.welton@noaa.gov or calling me on my personal cell at 520-227-9269.
>
>
>
>
>
> --
>
> _____
> Corey M. Collins
> CARIS HIPS/SIPS/Notebook Product Manager
> CARIS
> 115 Waggoners Lane, Fredericton, New Brunswick, Canada, E3B 2L4
> Tel: +1.506.458.8533 Fax: +1.506.459.3849
> _____

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>
>
> --

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> CARIS HIPS/SIPS/Notebook Product Manager
> CARIS
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--

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Subject: RE: RMA#502584: Reson 7111 transceiver

From: Brett Evans <Brett.Evans@reson.com>

Date: Fri, 21 May 2010 16:13:54 -0700

To: Caryn Arnold <Caryn.Arnold@noaa.gov>, "ops.fairweather" <ops.fairweather@noaa.gov>, Larry Loewen <Larry.Loewen@noaa.gov>

CC: Jim Lynn <Jim.Lynn@noaa.gov>, Olivia Hauser <Olivia.Hauser@noaa.gov>, chiefet fairweather <chiefet.fairweather@noaa.gov>, Matthew Jaskoski <matthew.jaskoski@noaa.gov>,

Edward.J.Vandenameele@noaa.gov, _NMAO MOP XO Fairweather <xo.fairweather@noaa.gov>, Todd Irby <Todd.Irby@noaa.gov>, co fairweather <co.fairweather@noaa.gov>, Michael Mutschler <Michael.Mutschler@reson.com>, Eric Schug <Eric.Schug@reson.com>, Justin Friesner <Justin.Friesner@reson.com>

Dear Caryn, Bri and All,

We plan to send Eric Schug to Ketchikan this weekend. His contact info is as follows:

Eric Schug

Direct: +1-805-964-6271 ex 550

Cell: +1-805-708-0097

E-mail: eric.schug@reson.com

He plans to travel on Sunday May 23 with the repaired 7111 Txcvr, spare parts and tools. He is scheduled to arrive in Ketchikan at approximately 4PM.

He was able to get in a have the PPD Test started this afternoon.

As he is only going to be able to travel with one large item (the 7111 Txcvr) we will send the 7125-SV Processor (RMA#502555) and large white ship case for 7111 Txcvr Box to Larry Loewen's attention in Seattle before May 27.

Re: faults on 7111 Txcvr Box - we found the reported faults to be related to the following:

"Two of the Receiver Cards were faulty. The problem with the Transceiver was that one of the Receiver Boards was overloading the Gain control signal therefore limiting the Gain range. The reduced Gain range made it appear as though the Transmit Power was too low. When the Gain set to 83dB in the UI the effective gain was ~15dB. The Gain control is an analog signal that sets the Gain in all channels in parallel.

The Transceiver, running with our test wet-end and 7111 Processor Box for the last 24 hours, is working now."

Please let me know if you have any questions.

Regards,
Brett Evans
RESON Support

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

From: Brett Evans

Sent: Thursday, May 20, 2010 1:33 PM

To: 'Caryn Arnold'; 'ops.fairweather'; 'Larry Loewen'

Cc: 'Jim Lynn'; 'Olivia Hauser'; 'chiefet fairweather'; 'Matthew

Jaskoski'; 'Edward.J.Vandenameele@noaa.gov'; '_NMAO MOP XO Fairweather';

'Todd Irby'; 'co fairweather'; Michael Mutschler; Justin Friesner; Eric Schug

Subject: RE: RMA#502584: Reson 7111 transceiver

Dear Caryn and All,

FYI, we received the Fairweather's 7111 Txcvr Box this morning.

We are working on it now and will send some more info on our findings shortly.

Regards,
Brett Evans
RESON Support

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

From: Brett Evans
Sent: Wednesday, May 19, 2010 5:26 PM
To: 'Caryn Arnold'; ops.fairweather; 'Larry Loewen'
Cc: Jim Lynn; Olivia Hauser; chiefet fairweather; Matthew Jaskoski;
Edward.J.Vandenameele@noaa.gov; _NMAO MOP XO Fairweather; 'Todd Irby';
co fairweather; Michael Mutschler; Justin Friesner
Subject: RE: RMA#502584: Reson 7111 transceiver

Dear Caryn, Bri and All,

Thanks for your email.

I just spoke with Caryn, and this is the plan:

1. We understand that the "loaner" 7111 Txcvr Box did not work upon receipt. At this point, we don't know what else can be done to troubleshoot it by telephone. (see #4 below)
2. The Fairweather 7111 Txcvr is due (per FedEx website) at RESON by 10:30am tomorrow. We will test it immediately upon receipt.
3. The Fairweather 7125-SV Processor (RMA#502555) has been tested but no fault found to date. We will continue to test it non-stop for the next 1-2 days. If still no fault found, we will ship it back to either Ketchikan or Seattle for scheduled in-port.
4. Tentatively, we plan to send a Sr. Level Engineer to the Fairweather with the 7111 Tx Box and 7125-SV Processor. We will try to get him and the equipment up there by Sunday, May 23rd as "Plan A". I will meet with our shipping manager tomorrow to discuss the logistics of getting the two boxes of equipment up to Ketchikan on short notice, assuming we have to ship it on Thursday or Friday.
5. "Plan B" is that our Engineer will meet the Fairweather in Seattle on May 27th.
6. Regardless, we will start to put together spare parts and tools for this trip. We will be prepared to test and repair either the 7111 Processor Box or the 7111 Txcvr Box.

Yes, both of these cases will be treated as Warranty RMA's.

Please let me know if you have any further questions. I can be reached by email or cell phone (805)701-6697 as main POC for this field visit.

Regards,
Brett Evans
RESON Support

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

From: Caryn Arnold [<mailto:Caryn.Arnold@noaa.gov>]
Sent: Wednesday, May 19, 2010 11:49 AM
To: ops.fairweather
Cc: Brett Evans; Jim Lynn; Justin Friesner; Olivia Hauser; chiefet
fairweather; Matthew Jaskoski; Larry Loewen;
Edward.J.Vandenameele@noaa.gov; _NMAO MOP XO Fairweather; 'Todd Irby';
co fairweather
Subject: Re: Reson 7111 transceiver

Hello All,

This is a critical piece of equipment for the upcoming projects. Since we still have Reson Support days I think this is a time to utilize some of them. If Reson can get the Fairweather transceiver working, will they

be able to send a Rep, along with the 7111 transceiver, to Ketchikan, AK

before the ship heads south on Sunday, May 23rd? At this time the Reson Rep could also return Launch 2806's 7125SV Processor. Reson hasn't been able to reproduce the power issue, however, the loaner from Reson that was installed is not having any problems. If a Reson Rep is going to the

ship then they could observe the 7125 in the field.

v/r,
Caryn

ops.fairweather wrote:

Hi Brett,

Does Eric have any more things for us to try to get the loaner 7111 transceiver working? The 7111 is the primary system we plan to use for

June- Sept and we haven't even patch tested it yet. It's critical that

we get that system back up before we in-port in Seattle May 27 so that

we can patch test it before the start of the upcoming ship projects, especially since we'll be operating in very remote areas over the next

four months.

Many thanks,

Bri

PS/FYI

Our schedule for the next few weeks/months:

~May 23/24: Start transit from Behm Canal (Ketchika, AK) to Seattle, doing a 1000-ftm contour survey for the Canadian Government on the way

south with the Reson 8160

May 27 -June 1: In port in Seattle

June 1 - July 2: Olympic Coast National Marine Sanctuary Survey

July 7 - Sept 8: Bering Strait Survey

On 5/18/2010 9:09 PM, Brett Evans wrote:

Hi Bri,

One of our engineers, Eric Schug, will call you shortly about the 7111.

Regards,

Brett Evans

RESON Support

From: Justin Friesner
Sent: Tuesday, May 18, 2010 1:52 PM
To: Brett Evans
Subject: Bri on fairweather

Brett,

Bri's number is 907-254-0032

justin

Justin P. Friesner

Senior Field Engineer

Reson Inc.

100 Lopez Road

Goleta

CA 93117

USA

Tel: +1 805 964 6260

Fax: +1 805 964 7537

Cell: +1 805 708 5059

--

LT Briana Welton
Field Operations Officer
NOAA Ship Fairweather
1010 Stedman St
Ketchikan, AK 99901
907-254-2842 (ship's cell)
808-659-0054 (ship's sat)

Fairweather communications can be unreliable. If you suspect email is not going to or from the ops.fairweather email account, try emailing briana.welton@noaa.gov or calling

907-254-0032.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : March 26, 2010

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-O351-FA-2009
HYDROGRAPHIC SHEET: H12142

LOCALITY: Scidmore Bay to Tidal Inlet, Glacier Bay National Park, AK
TIME PERIOD: October 20 - November 10, 2009

TIDE STATION USED: 945-2682 Composite Island, AK
Lat. 58° 53.0' N Long. 136° 34.3' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.778 meters

TIDE STATION USED: 945-2749 Tarr Inlet, AK
Lat. 58° 57.9' N Long. 136° 52.7' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.854 meters

TIDE STATION USED: 945-2632 Wachusset Inlet, AK
Lat. 58° 56.8' Long. 136° 20.1'

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.849 meters

TIDE STATION USED: 945-2210 Juneau, AK
Lat. 58° 17.9' Long. 134° 24.6'

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.676 meters

REMARKS: RECOMMENDED ZONING

Use Zone(s) identified as: SEA311 and SEA316

Refer to attachments for grid information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

Note 2: Use tide data from the appropriate station with applicable zoning correctors for each zone according to the order in which they are listed in the tide zone corrector file (*.zdf). For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data are not available

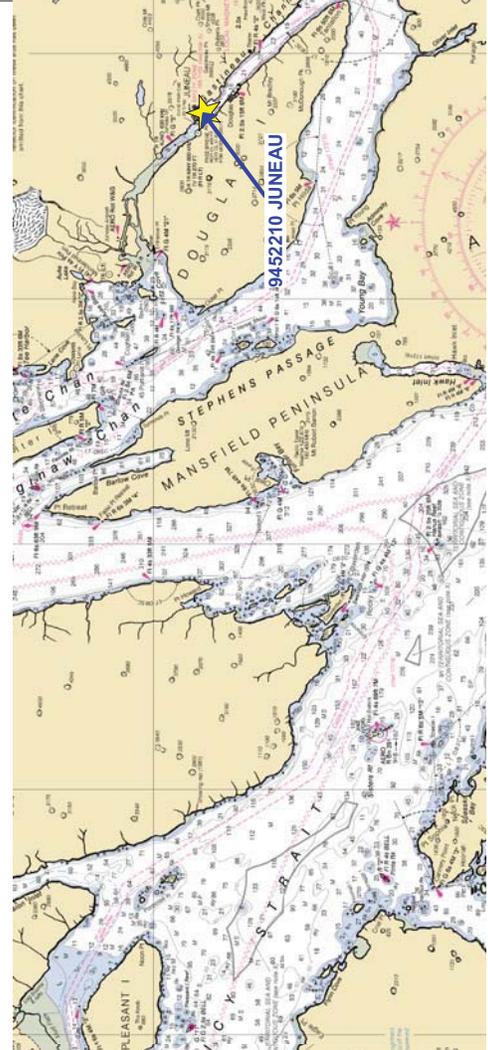
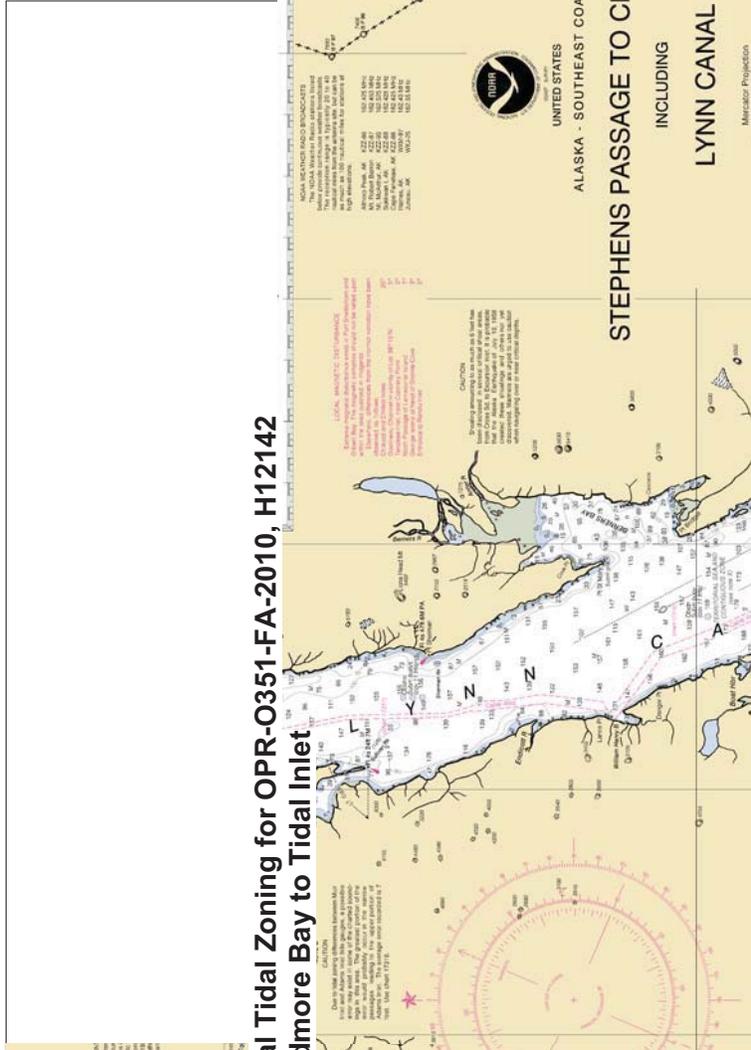
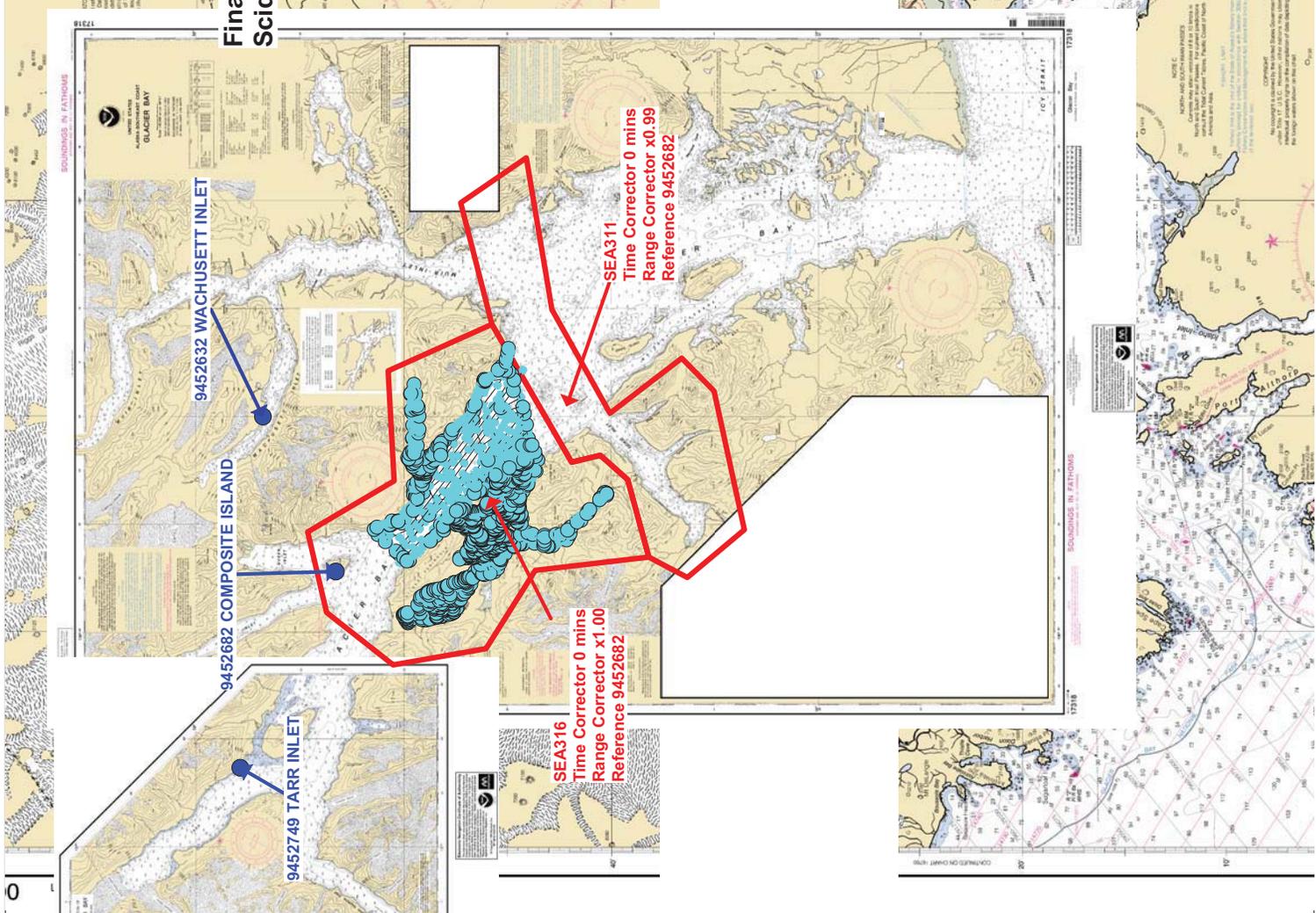
Peter J. Stone

Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=CO-OPS, ou=NOAA/
NOS, email=peter.stone@noaa.gov, c=US
Date: 2010.04.06 07:12:35 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION



**Final Tidal Zoning for OPR-0351-FA-2010, H12142
Scidmore Bay to Tidal Inlet**



H12142 HCell Report
Katie Reser, Physical Scientist
Pacific Hydrographic Branch

1. Specifications, Standards and Guidance Used in HCell Compilation

HCell compilation of survey H12142 used:

Office of Coast Survey HCell Specifications: Draft, Version: 4.0, 17 March, 2010.
HCell Reference Guide: Version 2.0, 22 February, 2010.

2. Compilation Scale

Depths and features for HCell H12142 were compiled to the largest scale raster chart(s) shown below:

Chart	Scale	Edition	Edition Date	NTM Date
17318	1:80,000	7 th	03/01/2009	07/02/2011

The following ENC(s) were also used during compilation:

Chart	Scale
US4AK3DM	1:80,000

3. Soundings

A survey-scale sounding (SOUNDG) feature object layer was built from a 16-meter multibeam combined surface in CARIS BASE Editor. A shoal-biased selection was made at 1:15,000 survey scale using a Radius Table file with values shown in the table, below.

Shoal Limit (m)	Deep Limit (m)	Radius (mm)
-5	10	3
10	20	4
20	50	4.5
50	500	5

In CARIS BASE Editor soundings were manually selected from the high density sounding layer (SS) and imported into a new layer (CS) created to accommodate chart density depths. Manual selection was used to accomplish a density and distribution that closely represents the seafloor morphology.

4. Depth Contours

Depth contours at the intervals on the largest scale chart are included in the *_SS HCell for MCD raster charting division to use for guidance in creating chart contours. The metric and fathom equivalent contour values are shown in the table below.

Chart Contour Intervals in Fathoms	Metric Equivalent to Chart Fathoms, Arithmetically Rounded	Metric Equivalent of Chart Fathoms, with NOAA Rounding Applied	Fathoms with NOAA Rounding Applied	Fathoms with NOAA Rounding Removed for Display on H12142_SS.000
0	0.000	0.2286	0.125	0
3	5.4864	5.715	3.125	3
5	9.144	9.3726	5.125	5
10	18.288	18.5166	10.125	10
20	36.576	37.9476	20.750	20
30	54.864	56.2356	30.750	30
50	91.44	92.8116	50.750	50
100	182.88	184.2516	100.750	100
200	365.76	367.1316	200.750	200

With the exception of the zero contours included in the *_CS file, contours have not been de-conflicted against shoreline features, soundings and hydrography, as all other features in the *_CS file and soundings in the *_SS have been. This may result in conflicts between the *_SS file contours and HCell features at or near the survey limits. Conflicts with M_QUAL and SBDARE objects, and with DEPCNT objects representing MLLW, should be expected. HCell features should be honored over *_SS.000 file contours in all cases where conflicts are found.

5. Meta Areas

The following Meta object areas are included in HCell H12142:

M_QUAL

The Meta area objects were constructed on the basis of the limits of the hydrography.

6. Features

Features addressed by the field units are delivered to PHB where they are deconflicted against the hydrography and the largest scale chart. These features, as well as features to be retained from the chart and features digitized from the Base Surface, are included in the HCell. The geometry of these features may be modified to emulate chart scale per the HCell Reference Guide on compiling features to the chart scale HCell.

7. S-57 Objects and Attributes

The *_CS HCell contains the following Objects:

\$CSYMB	Blue notes
*DEPCNT	Zero contours
*LNDARE	Islet
*LNDELV	Height on islet
M_QUAL	Data quality meta object
OBSTRN	Shoal
SBDARE	Bottom types, ledges and reef
SOUNDG	Soundings at the chart scale density
*UWTROC	Rocks

* The M_QUAL is adequate for NDB product searches except for features in these object classes which reside outside the M_QUAL limits.

The *_SS HCell contains the following Objects:

DEPCNT	Generalized contours at chart scale intervals
SOUNDG	Soundings at the survey scale density

8. Spatial Framework

8.1 Coordinate System

All spatial map and base cell file deliverables are in an LLDG geographic coordinate system, with WGS84 horizontal, MHW vertical, and MLLW (1983-2001 NTDE) sounding datums.

8.2 Horizontal and Vertical Units

DUNI, HUNI and PUNI are used to define units for depth, height and horizontal position in the chart units HCell, as shown below.

Chart Unit Base Cell Units:

Depth Units (DUNI):	Fathoms and feet
Height Units (HUNI):	Feet
Positional Units (PUNI):	Meters

During creation of the HCell in CARIS BASE Editor and CARIS S-57 Composer, all soundings and features are maintained in metric units with as high precision as possible. Depth units for soundings measured with sonar maintain millimeter precision. Depths on rocks above MLLW and heights on islets above MHW are typically measured with range finder, so precision is less. Units and precision are shown below.

BASE Editor and S-57 Composer Units:

Sounding Units:	Meters rounded to the nearest millimeter
Spot Height Units:	Meters rounded to the nearest decimeter

See the HCell Reference Guide for details of conversion from metric to charting units, and application of NOAA rounding.

9. Data Processing Notes

There were no significant deviations from the standards and protocols given in the HCell Specification and HCell Reference Guide.

10. QA/QC and ENC Validation Checks

H12142 was subjected to QA checks in S-57 Composer prior to exporting to the metric HCell base cell (000) file. The millimeter precision metric S-57 HCell was converted to chart units and NOAA rounding applied. dKart Inspector was then used to further check the data set for conformity with the S-58 ver. 2 standard (formerly Appendix B.1 Annex C of the S-57 standard). All tests were run and warnings and errors investigated and corrected unless they are MCD approved as inherent to and acceptable for HCells.

11. Products

11.1 HSD, MCD and CGTP Deliverables

H12142_CS.000	Base Cell File, Chart Units, Soundings and features compiled to 1:80,000
H12142_SS.000	Base Cell File, Chart Units, Soundings and Contours compiled to 1:15,000
H12142_DR.pdf	Descriptive Report including end notes compiled during office processing and certification, the HCell Report, and supplemental items
H12142_Outline.gml	Survey outline
H12142_Outline.xsd	Survey outline

11.2 Software

CARIS HIPS Ver. 7.0	Inspection of Combined BASE Surfaces
CARIS BASE Editor Ver. 3.2	Creation of soundings and bathy-derived features, meta area objects, and blue notes; Survey evaluation and verification; Initial HCell assembly.
CARIS S-57 Composer Ver. 2.2	Final compilation of the HCell, correct geometry and build topology, apply final attributes, export the HCell, and QA.
CARIS GIS 4.4a	Setting the sounding rounding variable for conversion of the metric HCell to NOAA charting units with NOAA rounding.
CARIS HOM Ver. 3.3	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding.
HydroService AS, dKart Inspector Ver. 5.1	Validation of the base cell file.
Northport Systems, Inc., Fugawi Marine ENC Ver.3.1.0.435	Independent inspection of final HCells using a COTS viewer.

12. Contacts

Inquiries regarding this HCell content or construction should be directed to:

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APPROVAL SHEET
H12142

The survey evaluation and verification has been conducted according to branch processing procedures and the HCell compiled per the latest OCS HCell Specifications.

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, S-57 classification and attribution of soundings and features, cartographic characterization, and verification or disapproval of charted data within the survey limits. The survey records and digital data comply with OCS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.

I have reviewed the HCell, accompanying data, and reports. This survey and accompanying digital data meet or exceed OCS requirements and standards for products in support of nautical charting except where noted in the Descriptive Report.