H12141

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. H12141

LOCALITY

State Alaska

General Locality Northern Glacier Bay

Sublocality Reid Inlet to Queen Inlet

2009

CHIEF OF PARTY

Captain David O. Neander, NOAA

LIBRARY & ARCHIVES

DATE

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

HYDROGRAPHIC TITLE SHEET

REGISTRY No

H12141

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

FIELD No:

State **Alaska**

General Locality **Northern Glacier Bay**

Sub-Locality **Reid Inlet to Queen Inlet**

Scale **1:40,000** Date of Survey **September 26, 2009 - October 21, 2009**

Instructions dated **9/2/2009** Project No. **OPR-O351-FA-09**

Vessel(s) **NOAA Ship Fairweather (S220), FA Launches 1010 & 1018, Ambar 2302, RA Launches 2801 & 2802**

Chief of party **Captain David O. Neander, NOAA**

Surveyed by **FAIRWEATHER Personnel**

Soundings by **Reson 7111, Reson 8160, Reson 8101, Reson 7125**

SAR by **Adam Argento** Compilation by **Katie Reser**

Soundings compiled in **Fathoms**

REMARKS: **All times are UTC. UTM Zone 8N.**

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Revisions and end notes in red were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non sequential.

All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via http://www.ngdc.noaa.gov/.

Descriptive Report to Accompany Hydrographic Survey H12141

Project OPR-O351-FA-09
Glacier Bay, Alaska
Scale 1:40,000
September/October 2009
NOAA Ship *Fairweather*
Chief of Party: Captain David O. Neander, NOAA

A. AREA SURVEYED

The survey area is located in Northern Glacier Bay, within the sub-locality of Reid Inlet to Queen Inlet. This survey corresponds to Sheet B in the sheet layout provided with the Project Instructions, as shown in Figure 1 below.

Data acquisition was conducted from September 26 to October 21, 2009 (Dn269 to Dn294).

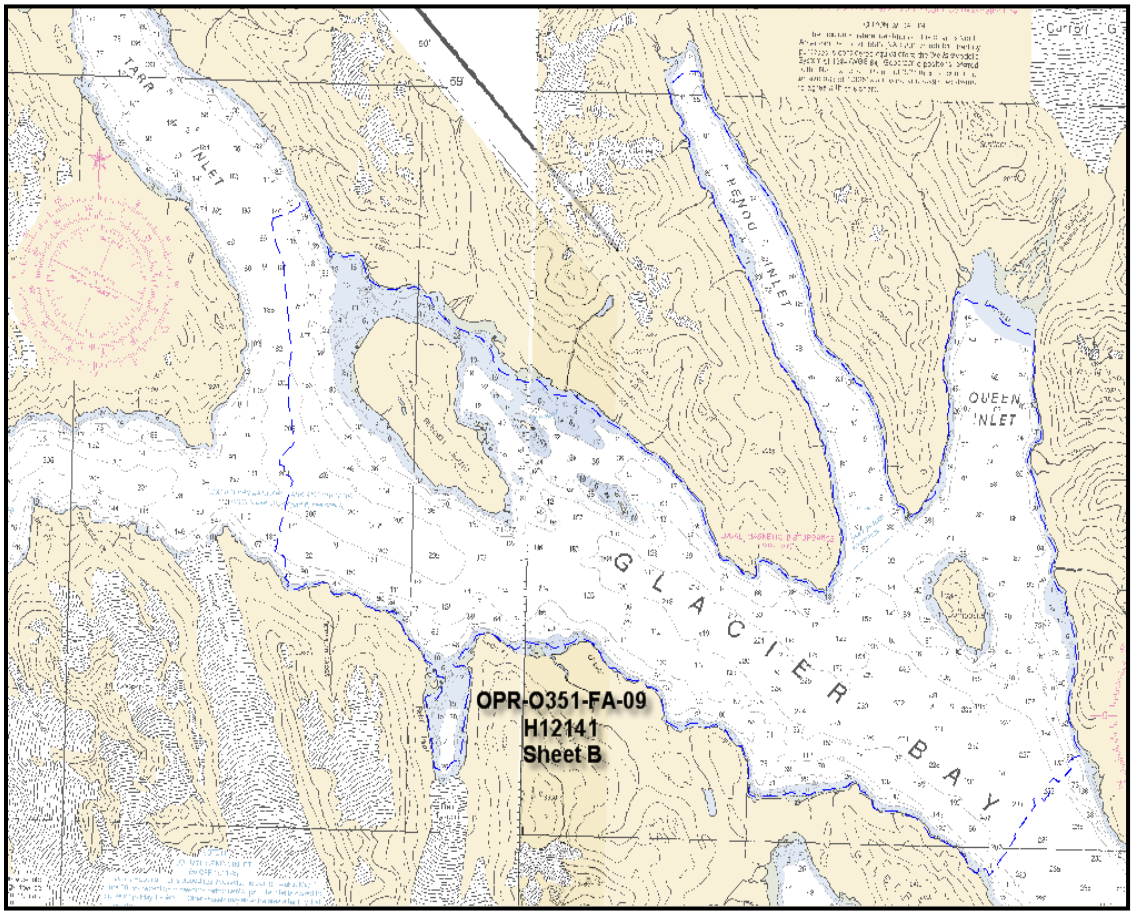


Figure 1: H12141 Survey Outline

One-hundred percent multibeam echosounder (MBES) coverage was obtained in the survey area to at least the 8-meter curve. 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 shoreline window very limited shoreline verification was conducted near low water on the last day of acquisition for H12141. Nearshore mainscheme bathymetric data were acquired for H12141 by half-stepping shoreward, which worked well in the normally steep and deep shorelines encountered in Glacier Bay.

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

MAIN SCHEME - Mileage		
0	**Single Beam MS**	
688.48	**Multibeam MS mileage**	
	142.09	FAIRWEATHER S-220
	115.27	Launch 1010
	136.91	Launch 1018
	163.44	Launch 2801
	130.78	Launch 2802
0	**SideScan MS**	
688.48	**Total MS**	
CROSSLINE - Mileage		
0	**Single Beam XL**	
37.60	**Multibeam XL**	
	6.61	FAIRWEATHER S-220
	0.00	Launch 1010
	0.00	Launch 1018
	21.83	Launch 2801
	9.16	Launch 2802
37.60	**Total XL**	
OTHER		
0	**Developments/AWOIS - Mileage**	
0	**Shoreline/Nearshore Investigation - Mileage**	
5	**Total # of Investigated Items**	
0	**Total Bottom Samples**	
54.16	**Total SNM**	
Sept 26,29; Oct 6,7,8,9,10,11,13,14,15 and 21		**Specific Dates of Acquisition**
269, 272, 279, 280, 281, 282, 283, 284, 286, 287, 288 and 294		**Specific Dn#s of Acquisition**

Table 1: H12141 Survey Statistics

A.1. Area Description

Historically, Glacier Bay was home to the Hoonah Tlingit who were forced out of the bay by advancing glaciers during the Little Ice Age which ended around the early part of the nineteenth century. The earliest known European accounts of Glacier Bay were in 1794 from a survey party attached to the H.M.S. Discovery, Captained by George Vancouver. At the time of the survey Icy Strait was choked with ice and Glacier Bay was a small indentation in a massive Glacier stretching across what is now the entrance to the park. Since that time the ice in the bay has retreated over 60 miles and is one of the best documented and most studied retreating glacial systems in the world.

Glacier Bay became a National Monument on February 25, 1925, and was established as a national park and preserve on December 2, 1980. Much of the Park is managed as wilderness, and was declared a World Heritage Site in 1992.

With its numerous calving tidewater glaciers, steep sided Fjords, abundant wildlife and austere beauty, Glacier Bay is a must see for the many tourists that flood Alaska on cruise ships, private vessels and by other means every year between late May and Late September. During this period the park, from its headquarters in Bartlett Cove near the entrance to the Bay, enforces a strict quota on number of vessels allowed within Park boundaries which greatly enhances the enjoyment of a visit to this spectacular area.

Figure 2: Looking north up Tarr Inlet towards the Grand Pacific Glacier (Tide gauge on right).

B. DATA ACQUISTION 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), and the Addendum to the *Fairweather 2009 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 7111 & 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 Stations	MBES, Shore Stations	MBES, Shore Stations	MBES, Shore Stations	Shoreline, Shore Stations

Table 2: Vessel Inventory

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

B.2. Quality Control

Data acquired using MBES systems on all platforms comform to expected standards.

B.2.1. Crosslines

Multibeam crosslines for this survey totaled 37.6 linear nautical miles (lnm), comprising 5.46% of the 688.48 lnm of mainscheme MBES hydrography. Crosslines were filtered down to 45 degrees on both port and starboard (Note: Filtering the crosslines to 45°often results in greater than 50% rejected data upon query). Both mainscheme and crossline mileage for all vessels is summarized in Table 1 above.

Surface differencing in CARIS BASE Editor was used to assess crossline agreement with main scheme data. Figure 3 below shows the color coded crossline difference surface in relation to the 16m main scheme surface. A fairly thorough check of difference values along all lines found most values to be 1 meter or less with only a very small number falling above 5 meters. The vast majority of the values

greater than 1 meter occur along the steep and deep nearshore sections while the flatter central portions show much better correlation.[1] CARIS Subset Editor was also used to assess crossline/main scheme agreement and supports the results observed with surface differencing.

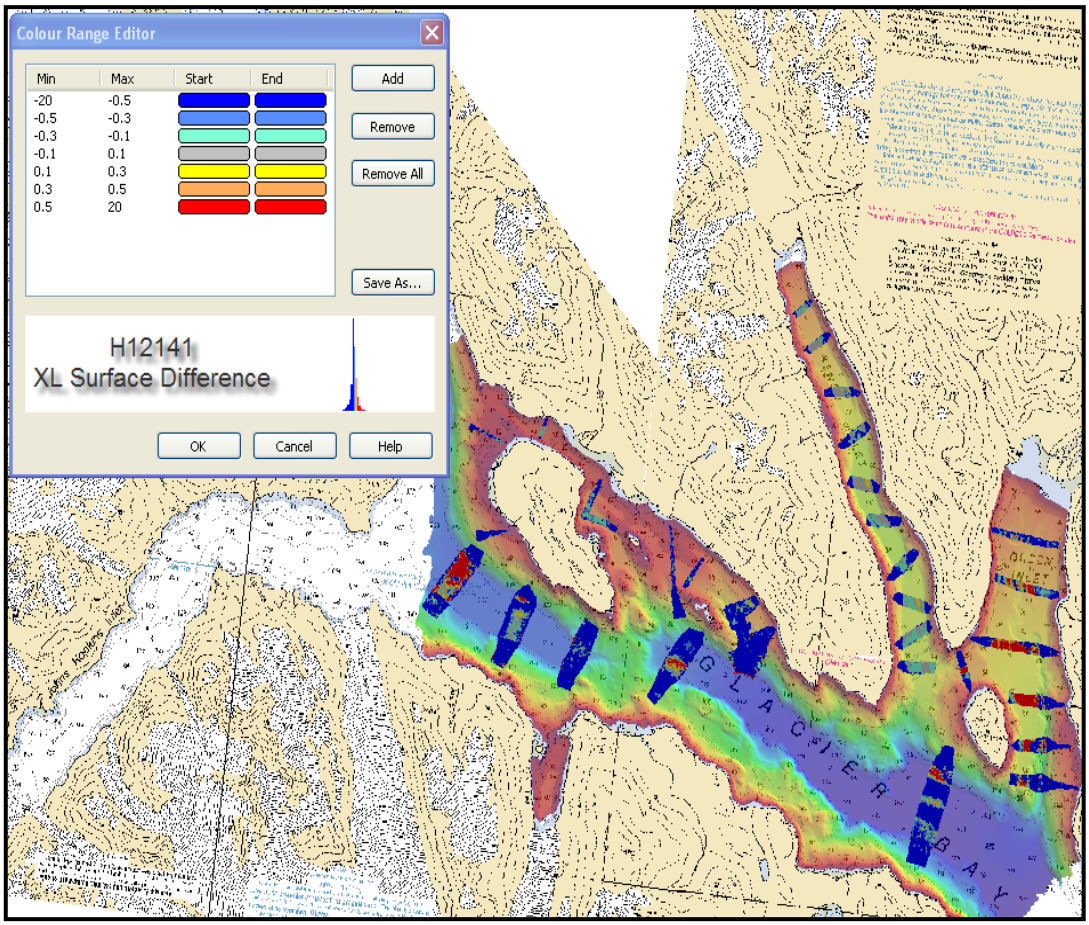


Figure 3: H12141 Crosslines

B.2.2. Junctions

Survey H12141 junctions with H12140 and H12142, which are Sheets A and C, respectively, of the same project.[2] The area of overlap between the sheets was reviewed for consistancy in CARIS Subset Editor and visually by the Hydrogapher, and data were found to be in general agreement within one meter. The sheet limits and area of overlap for Sheets A, B and C are shown in Figure 4.

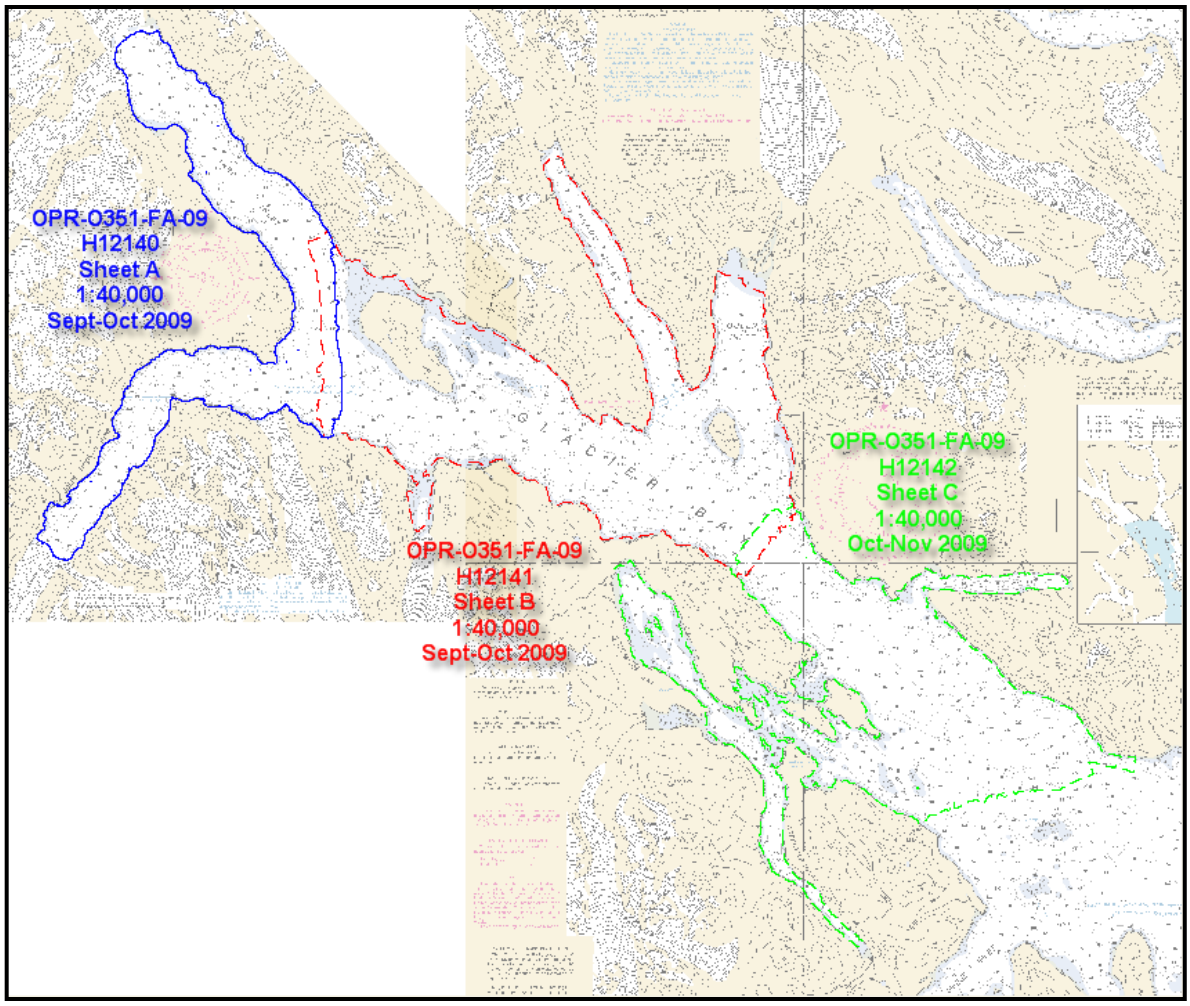


Figure 4: Junction between H12141, H12140 and H12142

B.2.3. Quality Control Checks

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

B.2.4. Data Quality Factors

COVERAGE ASSESSMENT

For holidays larger than 3 nodes across, the corresponding multibeam backscatter side scan was examined and no navigationally significant items were found. Figure 5 below shows the one holiday, which occurs in 398 meters of water. Due to the great depth and relatively flat nature of the seafloor, as indicated by surrounding coverage, this holiday is not of navigational significance.[3]

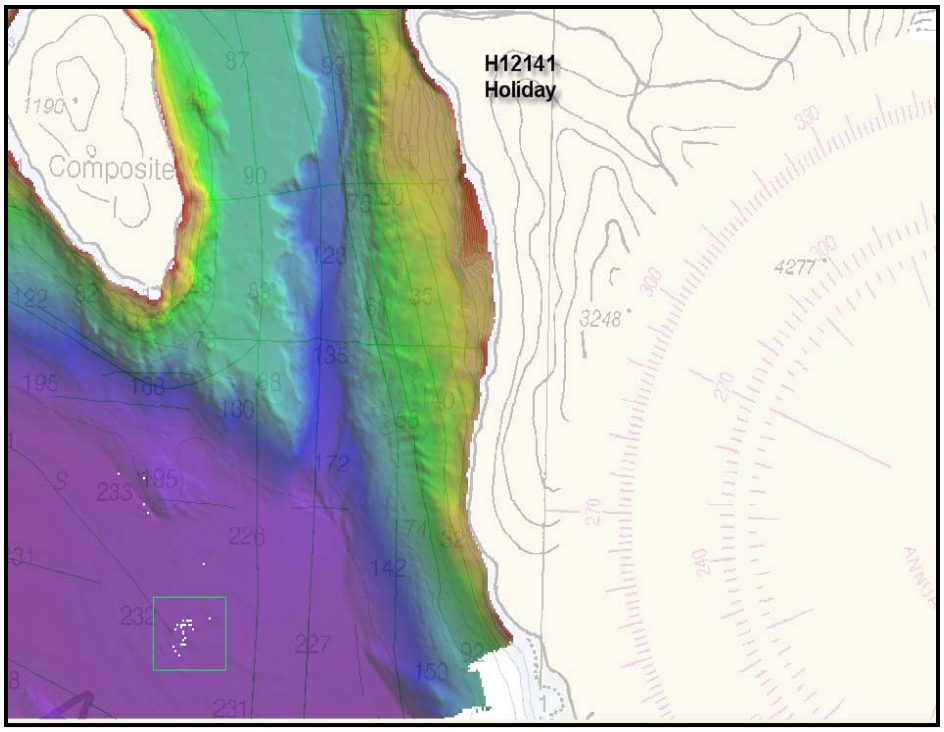


Figure 5: Holiday on 16m combined surface in 398 meters of water.

POSITIONING:

The POSMV occassionally ran in course acquisition (CA) mode during data acquisition on the various acquisition platforms due to loss of differential global positioning system (DGPS) corrections. However, post processed kinematic (PPK) navigation files in the form of Applanix POSPac Smoothed Best Estamate of Trajectory (SBET) files were applied to all data. The application of SBET files in CARIS HIPS during the evening processing routine substantially improves the positioning accuracy of the data (from +/- approximately 50cm to +/- approximately 5cm).[4]

TRUEHEAVE:

TrueHeave was successfully applied to all MBES data from all acquisition platforms.

To enable the application of TrueHeave some POS/MV TrueHeave files were “fixed” using the *fixTrueHeave.exe* utility provided by CARIS. “Fixed” files were assigned an additional *.fixed suffix and are included along with the original TrueHeave files. “FixTrueHeave” was performed for the following vessels and days[5]:

- 1010: Dn282, 283 and 284
- 1018: Dn280,282 and 283
- 2801: Dn281 and 287

- 2802: Dn282 and 286

SOUND VELOCITY

No significant sound velocity problems were encountered during data acquisition on H12141. There were, however, a number of sound velocity profiles which exhibited rather odd extended depth points parallel to the sea floor (see figure 6). Although this occurred in several places it was most common in the upper portions of Queen Inlet, and seemed to be closely related to the "blue glacial mud" bottom type common in the area. MBES Data was not adversely affected by this when applying sound velocity so it was deemed unnecessary to remove the extended depth points.

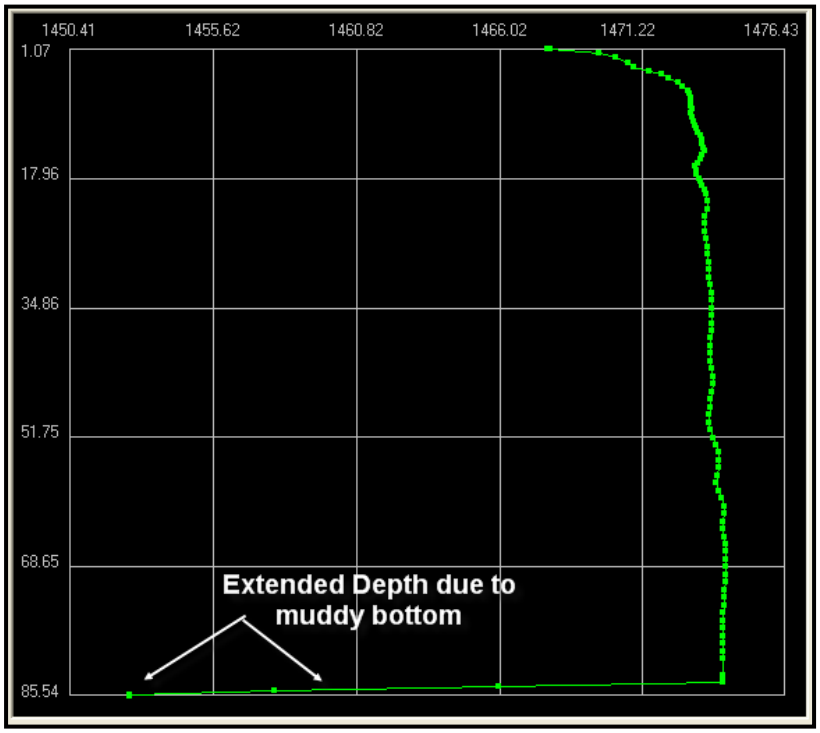


Figure 6: Odd extended depth points.

BOTTOM SAMPLES

No bottom samples were collected for survey H12141 due to time constraints.[6]

DESIGNATED SOUNDINGS

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

Eight soundings have been designated for H12141 (Figure 7). Of these, seven were designated to preserve shoal depths and one was submitted as a DTON. Three of the eight including the DTON are located at the head of Rendu Inlet, which has seen rapid shoaling due to glacial outwash, and three are at the head of

Queen Inlet which is represented as “unsurveyed” on the existing chart. All of the designated soundings are close ashore.[7]

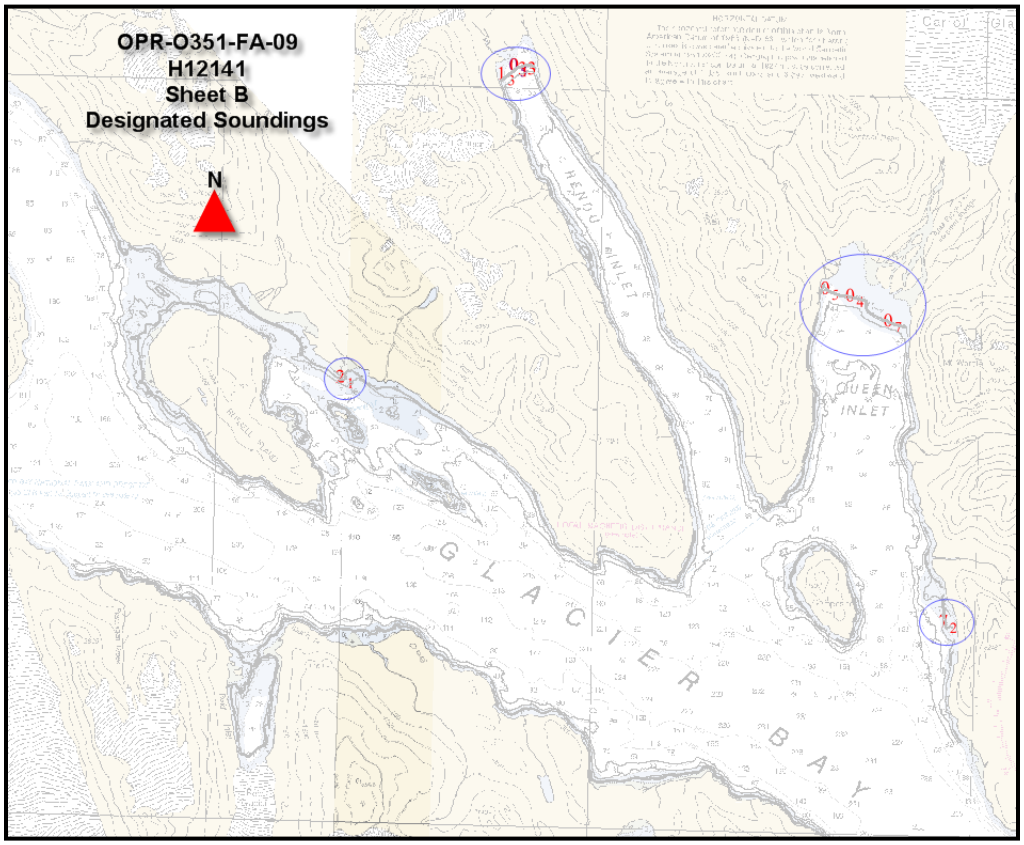


Figure 7: H12141 designated soundings.

B.2.5. Accuracy Standards

To assess vertical accuracy standards an “IHO_1” child layer was created for the 1meter thru 8 meter finalized surfaces using logic equation:

(IHO-1: ((0.5^2 +((Depth*0.013)^2))^0.5)-Uncertainty),

and an “IHO_2” child layer was created for both the 8 meter and 16m finalized surfaces

(IHO-2: ((1^2 +((Depth *0.023)^2))^0.5)–Uncertainty).

It should be noted that both IHO order 1 (72 to 100) and order 2 (100 to 160) child layers were created for the 8 meter surface since it overlaps the order 1 and order 2 boundary (order1<100 meters, order 2>100 meters). These equations quantify the difference between the IHO order (1 or 2) allowable errors for the depth of the node minus the uncertainty of the node.

A color map was used to assess the IHO uncertainty difference layer (green for positive values (pass) and red for negative values (Fail)). Figure 8 shows the IHO child layer for the combined surface which was created from the finalized surfaces listed in the figure. This layer indicates that the CARIS-reported

uncertainty of greater than 95% of the nodes from all finalized surfaces is within the vertical error tolerances allowed by IHO Order 1 and/or IHO Order 2 standards for their depths and therefore meets IHO accuracy standards.[8]

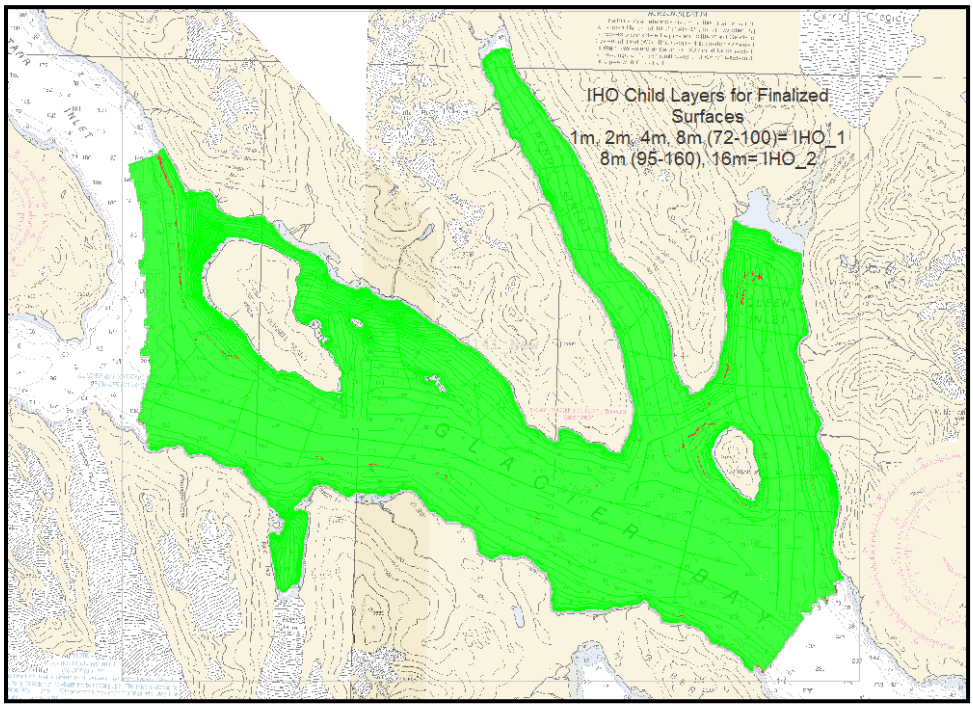


Figure 8: IHOness child layer for combined surface.

B.3. Corrections to Echo Soundings

Data reduction procedures for survey H12141 conform to those detailed in the DAPR, with the exceptions discussed below.

B.4. Data Processing

Initial data acquisition and processing notes are included in the acquisition and processing logs. Additional processing such as final tides and sound velocity applied is most accurately tracked in the survey wide query in the “Reviewer Qry” tab of the H12141_Data_Log spreadsheet. All of the logs are included in the digital Separates I folder.

Data processing procedures for survey H12141 conform to those detailed in the DAPR. Data were processed initially using CARIS HIPS & SIPS v6.1, Service Pack 2, and Hotfix 8. After completion of all acquisition and subsequent processing using CARIS v6.1 all data were updated to CARIS HIPS & SIPS v7.0, Hotfix 6. Final surface generation and other processing was done using CARIS HIPS & SIPS v7.0, Service Pack 1, Hotfix 5. Additional processing details regarding Total Propagated Uncertainty (TPU/TPE) and CUBE (Combined Uncertainty and Bathymetry Estimator) Surfaces and Parameters utilized, along with any deviations from the processing procedures outlined in the DAPR are discussed below.

TPE/TPU VALUES:

The survey specific parameters used to compute TPE/TPU in CARIS for H12141 are listed in Table 3.

Tide values:	Measured	0.01 m	Zoning	0.2 m
Sound Speed Values:7111/8160	Measured	0.50 m/s	Surface	0.50 m/s
Sound Speed Values:8101	Measured	1.0	Surface	1.0
Sound Speed Values:7125	Measured	1.0	Surface	0.5

Table 3: Survey Specific CARIS TPE Parameters

CUBE SURFACES:

The CARIS HIPS BASE (Bathymetry Associated with Statistical Error) surfaces created, the associated resolutions and depth ranges and the CUBE parameters used for each surface are listed below in Table 5.[9] Once the data had been converted to CARIS 7.0, and bugs ironed out, only one fieldsheet was necessary for the entire project. This saved considerable time over the multiple fieldsheets historically needed. Due to the steep and deep character of Glacier Bay a substantial amount of downslope noise is produced during normal operations and cleaning this sometimes results in the fairly large percentages of rejected data encountered during query.

The NOAA CUBE parameters mandated in Hydrographic Surveys Technical Directive 2009-2 were used for the creation of all CUBE BASE surfaces in Survey H12141.

Fieldsheet Name	Surface Name	Depth Ranges (m)	Resolution (m)	CUBE Parameters
H12141_New	H12141 _1m	All	1	NOAA_1m
	H12141_2m	All	2	NOAA_2m
	H12141_4m	All	4	NOAA_4m
	H12141_8m	All	8	NOAA_8m
	H12141_16m	All	16	NOAA_16m
	H12141_1m_Final_0to23	0-23	1	
	H12141_2m_Final_15to40	15-40	2	
	H12141_4m_Final_32to80	32-80	4	
	H12141_8m _Final_72to100	72-100	8	
	H12141_8m_Final_95to160	95-160	8	
	H12141_16m_Final_145plus	145 plus	16	
	H12141_16m_Combined	All	16	

Table 5: Depth Ranges, Resolutions, and CUBE Parameters

HIPS DEVICE MODEL FOR RESON 7111:

During initial processing of H12141 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.[10]

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 H12141 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. Additionally the weather during acquisition was primarily calm and the pitch attitude measurements small. Though the Reson 7111 data acquired on H12141 meet IHO accuracy requirements this issue remains under investigation.[11]

C. HORIZONTAL AND VERTICAL CONTROL

A complete description of horizontal and vertical control for survey H12141 can be found in the *OPR-O351-FA-09 Horizontal and Vertical Control Report* (HVCR), 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). Differential correctors from the U.S. Coast Guard beacon at Gustavus, Alaska (288 kHz) were used during real-time acquisition.

The Post Processing Kinematic method (PPK) was the primary method of horizontal positioning for soundings during H12141. Correctors from a GPS base station established on horizontal control mark Composite on Composite Island were used for post processing all vessel-day POSPac files. All raw base station files are submitted with the HVCR digital data for this project. Smoothed Best Estimate of Trajectory (SBET) files were applied to all MBES data in CARIS HIPS. This processing method provides much improved horizontal position accuracy over DGPS alone, particularly in steep or fjord like terraine where temporary signal degradation during acquisition is common.

All data has been reviewed and meets the horizontal accuracy requirements of the NOS Hydorgraphic Surveys Specifications and Deliverables Dated April, 2009.

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 primary source for water level correctors for survey H12141.

Fairweather personnel installed Sutron 8210 "bubbler" tide gauges at the tertiary stations listed below in Table 6. 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. Refer to the *OPR-O351-FA-09 Horizontal and Vertical Control Report* for further information about the tide stations.

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	November 6, 2009	12	023513
Muir Inlet	945-2584	Tertiary 30 Day	September 26, 2009	November 7, 2009	10	010799
Wachusett Inlet	945-2632	Tertiary 30 Day	October 12, 2009	November 9, 2009	17	85173
Tarr Inlet	945-2749	Tertiary 30 Day	October 8, 2009	November 8, 2009	14	24444

Table 6: Tide Gauge Information

A request for delivery of final approved (smooth) tides for survey H12141 was forwarded to N/OPS1 on October 24, 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 Project Instructions, all data were reduced to MLLW using the final approved water levels (smooth tides) from the Tarr Inlet, Alaska station (945-2749) and the Composite Island, Alaska station (945-2682) by applying tide files 9452749.tid (Tarr Inlet) and 9452682.tid (Composite Island) and time and height correctors through the zone corrector file H12141CORF.zdf.[12] The gauge at Composite Island (tide file 9452682.tid) was off line between 12:45 UTC on 10/17/2009 and 00:06 UTC on 10/22/2009. According to the Tide Note dated 3/26/2010 this is the primary guage for zone SEA316 and the secondary guage for zone SEA317. Multibeam data collected on Dn294 (10/21/2009), the only operational day during the guage outage, was examined by the Hydrographer and no tide related issues were noted. The four shoreline features collected on Dn294 fell within zone SEA317 and used the Tarr Inlet guage as the primary gauge.

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.[13]

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 the CARIS Bathy DataBase software program.

Survey H12141 was compared with the charts listed in Table 7. 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	7th Ed.	March, 2009	November 1, 2009

Table 7: NOAA Charts compared with Survey H12141

D.1.1. Chart 17318

Depths from survey H12141 generally agreed within one to two fathoms with depths on chart 17318 although larger descrepencies are fairly common. Some of the shoaler depths represented on the chart near the shoreline appear to have been pulled off shore for cartographic representation, but remain accurate within the scale of the chart.

The head of Rendu Inlet, Queen Inlet and Reid Inlet show significant discrepancies with Chart 17318 due to shoaling as a result of the rapid sediment build up from glacial outwash streams. Figure 9 shows the difference between survey H12141 soundings (red) and charted depths (black) at the head of Rendu Inlet, figure 10 the difference at the head of Queen Inlet and figure 11 the head of Reid Inlet. Charted contours are also erroneous at the head of Rendu, Queen and Reid Inlets. Figure 12 shows sounding variance from northwest of Russell Island.[14]

The head of Rendu Inlet was classified as a DTON due to the navigationally significant difference with the chart.[15]

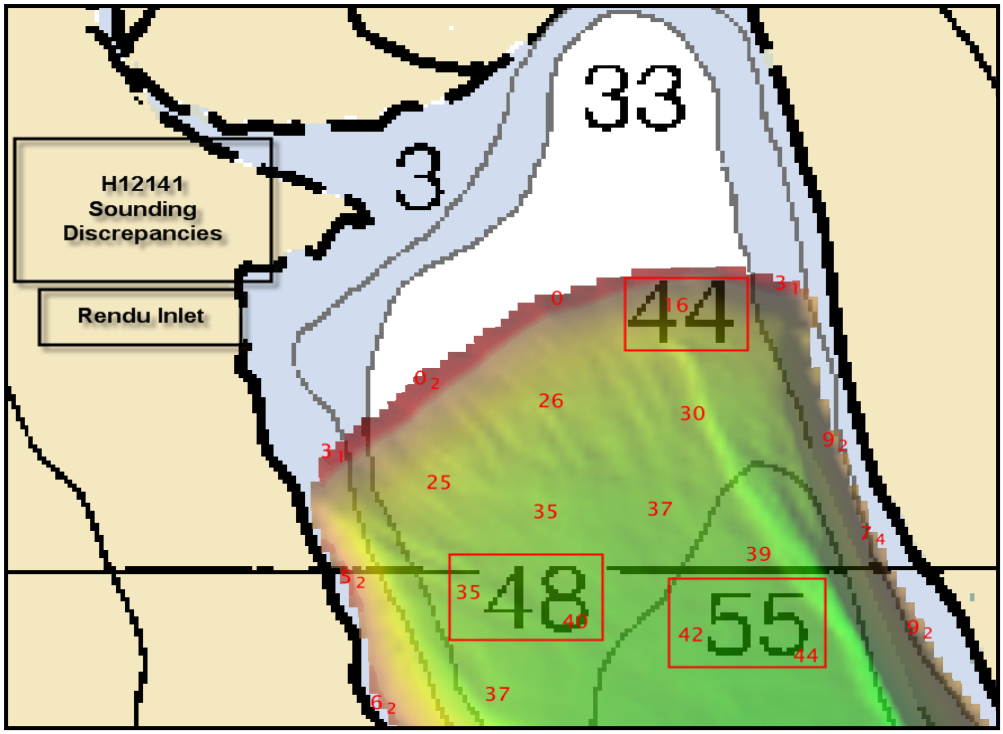


Figure 9 : Sounding (fathoms) discrepancies at head of Rendu Inlet

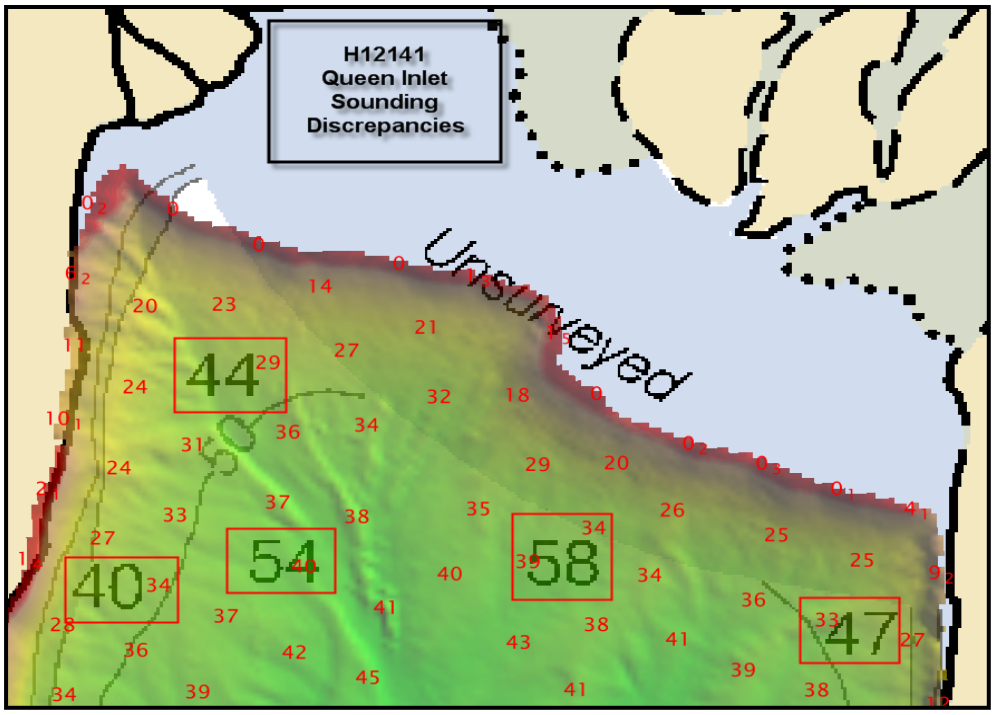


Figure 10: Sounding (fathoms) discrepancies at head of Queen Inlet

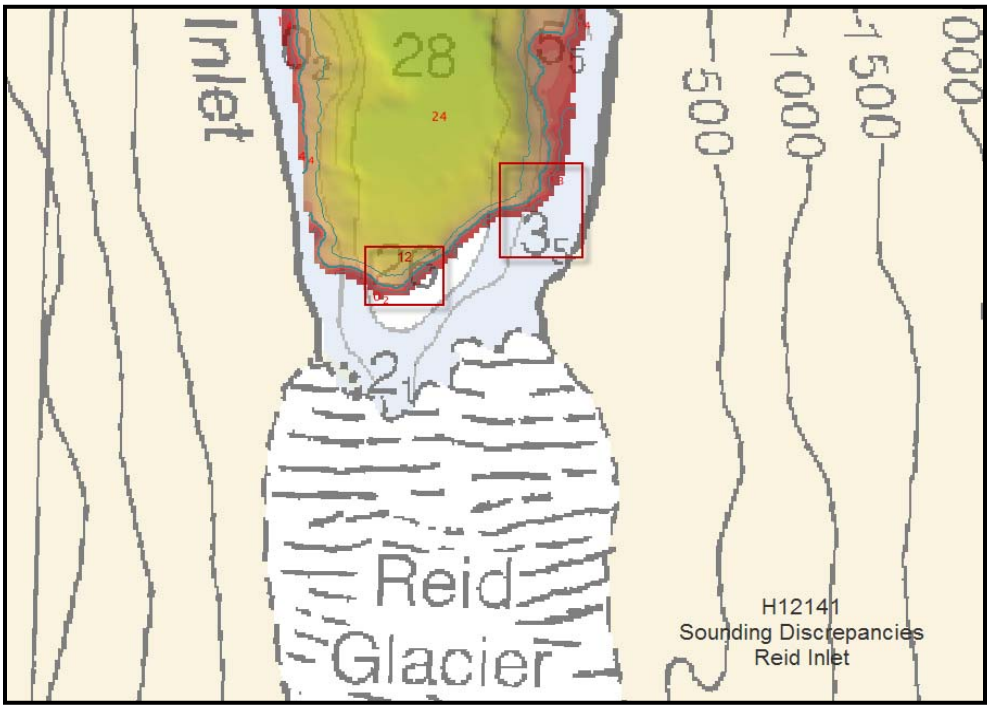


Figure 11: Sounding (fathoms) discrepancies at the head of Reid Inlet.

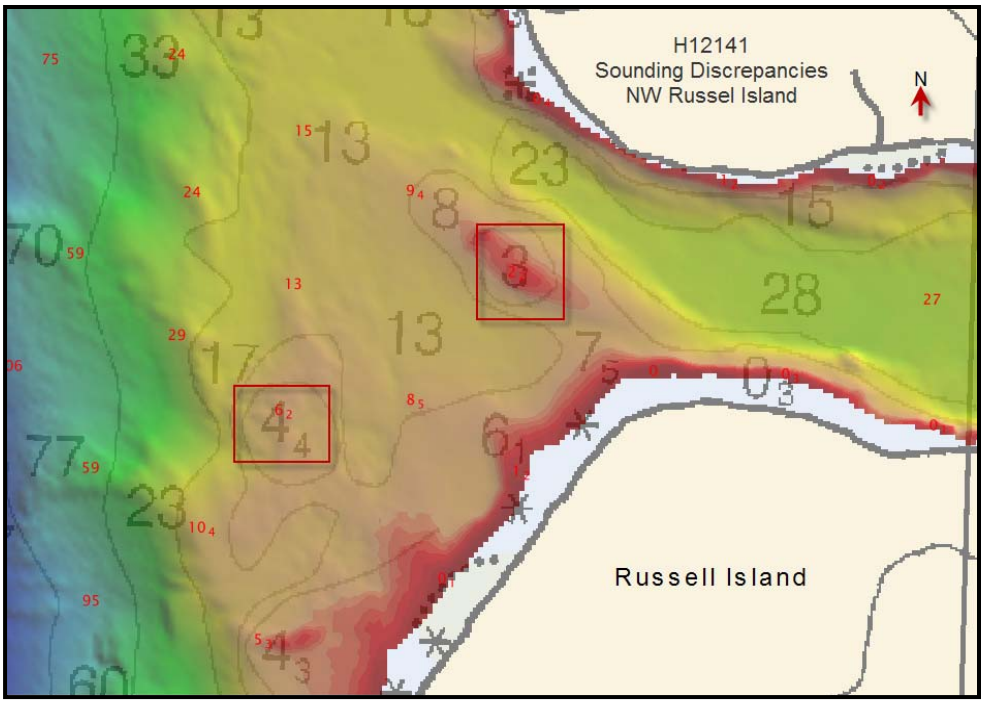


Figure 12: Sounding (fathoms) discrepancies along NW Russell Island.

D.1.2. Chart Comparison Recommendations

The current survey has defined the shoal edge of the extensive sediment flat at the head of Queen Inlet. This area is marked as "Unsurveyed" on the current chart (see figure 13). It is recommended by the Hydrographer that the "Unsurveyed" be removed and the new chart reflect the actual configuration of upper Queen Inlet.[16]

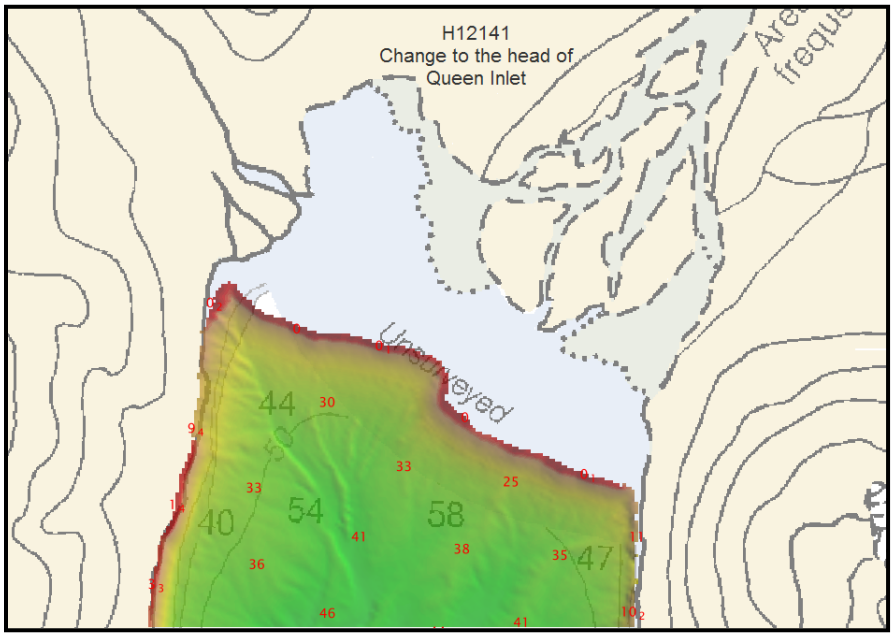


Figure 13: Change "Unsurveyed" at head of Queen Inlet

The Hydrographer has determined that bottom coverage requirements have been met and data accuracy meets requirements specified by the *HSSDM*. **The surveyed soundings are adequate to supersede prior surveys in their common areas.**

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

There were no AWOIS items located within the survey limits of H12141.

D.3. Dangers to Navigation

One danger to navigation was found and reported to the Marine Chart Division (MCD) for verification and final submission on January 5, 2010. A copy of the preliminary Danger to Navigation Report is included in Appendix I.[17] Receipt of this was not not acknowledged and the DTON was resubmitted on May 18, 2010.[18]

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 H12141_Original_Composite_Source.hob to be included with the deliverables. This file was copied and named H12141_Feature_File.hob to be utilized during field verification. Shoreline sources that were included in the composite source file for survey H12141 included Geographic Cell (GC), and charted features from chart 17318 (see Table 9). 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 on the last day of acquisition during the lowest stage of tide that was available, which corresponded to 5.41 feet of tide on Dn #294. Detached positions (DPs) were acquired and edits to the daily field H12141_Feature_File_TR2_Dn294.hob were recorded in CARIS Notebook and on paper DP forms and 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. It should be noted that there is a roughly 80 to 100 meter east-southeast offset in charted features within the overlap of chart 17318_1 and the Tarr Inlet inset, number 17318_3. Features from the composite source file and new features generally match up more closely with the inset, 17318_3. A Mean High Water (MHW) Buffer line provided with the project data , offset 64 meters (0.8 mm at scale of 1:80,000) from the composite source MHW, was used during the limited shoreline verification and as the inshore limit of hydrography during multibeam acquisition.

D.4.3. Shoreline Data Processing

Acquired and edited positions from shoreline verification operations were processed in CARIS Notebook. Features that required tide correction were processed using the Load Tide function in CARIS Notebook. Final 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 H12141_Final_Feature_File.hob (compiled from the field daily files) or H12141_Disprovals.hob.

Source features collected or edited in the field have source indication (SORIND) and source date (SORDAT) attribute fields populated to reflect the survey number (US,US,survy,H12141) and final survey date 20091021. 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 included in Table 9.

Shoreline Source	SORIND	SORDAT
RSD	US,US,graph,GC10779	20040600
Chart	US,US,graph,chart17318	20010113
Survey	US,US,survy,H12141	20091021

Table 9: SORIND/SORDAT Shoreline Features for Survey H12141

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 when appropriate, and recommendations to the cartographer were included in the Recommendations field.

Items disproved by the Hydrographer and deemed to not be included in the H12141_Final_Feature_File hob file were moved to the H12141_Disprovals hob file.[19]

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.[20]

D.6. Aids to Navigation

There were no aids to navigation within the survey limits.

D.6.1. Bottom Samples

Bottom samples were not collected due to time constraints and the great depth of much of the survey area. It is recommended that existing charted bottom characteristics be retained.[21]

D.7. Additional Recommendations

As has been mentioned several times in this report that the areas at the heads of Queen Inlet, Rendu Inlet, and Reid Inlet are experiencing rapid sediment buildup and shoaling due to high volumes of glacial

outwash. Although these areas most likely will not draw any large vessel traffic during the busy visitor season, many smaller vessels will explore these scenic fjords. It is recommended by the Hydrographer that a note be included on future charts warning of the potential changes which might be encountered at the heads of these Inlets (as well as the heads of all glacially fed inlets in Glacier Bay) due to the influx of glacial sediment.[22]

D.8. Supplemental Reports

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

Title	Date Sent	Office
Hydrographic Systems Readiness Review 2009	May 15, 2009	N/CS33
Data Acquisition and Processing Report 2009	December 21, 2009	N/CS33
Horizontal and Vertical Control Report for OPR-O351-FA-09	May 28, 2010	N/CS33
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

May 23, 2010

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

FROM: CAPT David O. Neander, NOAA
Commanding Officer
David O. Neander
2010.05.25 14:08:35
-07'00'

TITLE: Approval of Hydrographic Survey H12141,
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 H12141 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:

Brenna Campbell
2010.05.23 16:01:02 Z

HSST Brenna Campbell
Survey Manager

Briana Welton
I attest to the accuracy and
integrity of this document
2010.05.24 06:16:09 Z

LT Briana Welton
Field Operations Officer

Digitally signed by Lynnette
Morgan
Date: 2010.05.23 21:55:11 -08'00'

CST Lynnette V. Morgan
Chief Survey Technician

Attachment

Revisions and Corrections Compiled During Office Processing and Certification

[1] Concur with clarification. Higher disagreement is expected in areas of steep slopes. The data has been inspected and deemed adequate for charting.
[2] A common junction was made with H12142 which has already been compiled. A common coverage junction was made with H12140. A common junction with the bathymetry and features will be made when that survey is compiled.
[3] Concur with clarification. The holiday was not preserved in the HCell coverage.
[4] The positioning is within specification and the data is adequate for charting.
[5] The data from the lines with "fixed" TrueHeave files applied are acceptable and show no evidence of heave errors.
[6] Six charted bottom samples were imported from the ENC to be retained.
[7] Designated soundings are included in the HCell as proximity to features at chart scale allows.
[8] The data is adequate for charting.
[9] A 16-meter combined surface created during the SAR was used as the basis for compilation.
[10] See attached correspondence.
[11] The data from the Reson 7111 are adequate to supersede charted data in the common area.
[12] See attached Tide Note dated March 26, 2010.
[13] H12141 was submitted to Pacific Hydrographic Branch for review and compilation.
[14] Chart depths and features as depicted in the HCell.
[15] The location of the reported DTON is noted in the HCell.
[16] Do not concur. It is recommended in the HCell that the "Unsurveyed" label be repositioned to reflect the limits of the new survey data.
[17] See attached DTON Report.
[18] The DTON has been depicted on the charts.
[19] The submitted hob files were used in the compilation of HCell H12141.
[20] Concur with clarification. The shoreline files were applied as appropriate to chart scale. Chart features as depicted in the HCell.
[21] Six charted bottom samples were imported from the ENC to be retained.
[22] It is recommended that a note indicating the dynamic nature of the area be added to the chart. See general blue notes in the HCell.

H12141 Danger to Navigation Report

Registry Number: H12141
State: Alaska
Locality: Northern Glacier Bay
Sub-locality: Reid Inlet to Queen Inlet
Project Number: OPR-O351-FA-09
Survey Dates: September 26, 2009 - October 21, 2009

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 (08/11/2009) CHS NTM: None (07/31/2009) NGA NTM: 07/14/2001 (08/22/2009)
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	0.14 m	59° 00' 18.0" N	136° 42' 17.0" W	---

1 - Danger To Navigation

1.1) 4017/9

DANGER TO NAVIGATION

Survey Summary

Survey Position:	59° 00' 18.0" N, 136° 42' 17.0" W
Least Depth:	0.14 m (= 0.46 ft = 0.077 fm = 0 fm 0.46 ft)
TPU (±1.96σ):	**THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.410 m
Timestamp:	2009-286.23:34:23.020 (10/13/2009)
Survey Line:	h12141 / 2801_rsn7125_200khz_256bms_2009 / 2009-286 / 2009b_2862329
Profile/Beam:	4017/9
Charts Affected:	17318_1, 17300_1, 16760_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

Sediment from the glacial outwash at the head of Rendu Inlet is causing rapid shoaling across the entire head of the Inlet.

Included with the report are two S57 files; H12141_DTON_Soundings.000 and H12141_DTON_Contours.000.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12141/2801_rsn7125_200khz_256bms_2009/2009-286/2009b_2862329	4017/9	0.00	000.0	Primary

Hydrographer Recommendations

The Hydrographer recommends that the contours and soundings north of the newly charted sediment flats be modified to reflect the more recently charted southern extent. The S57 files listed under the Remarks tab should be used to modify Chart 17318.

Preliminay Zoning with verified tides are applied to the soundings.

Cartographically-Rounded Depth (Affected Charts):

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

0fm 0ft (17318_1, 531_1)

.1m (500_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)

Office Notes

[None]

Feature Images

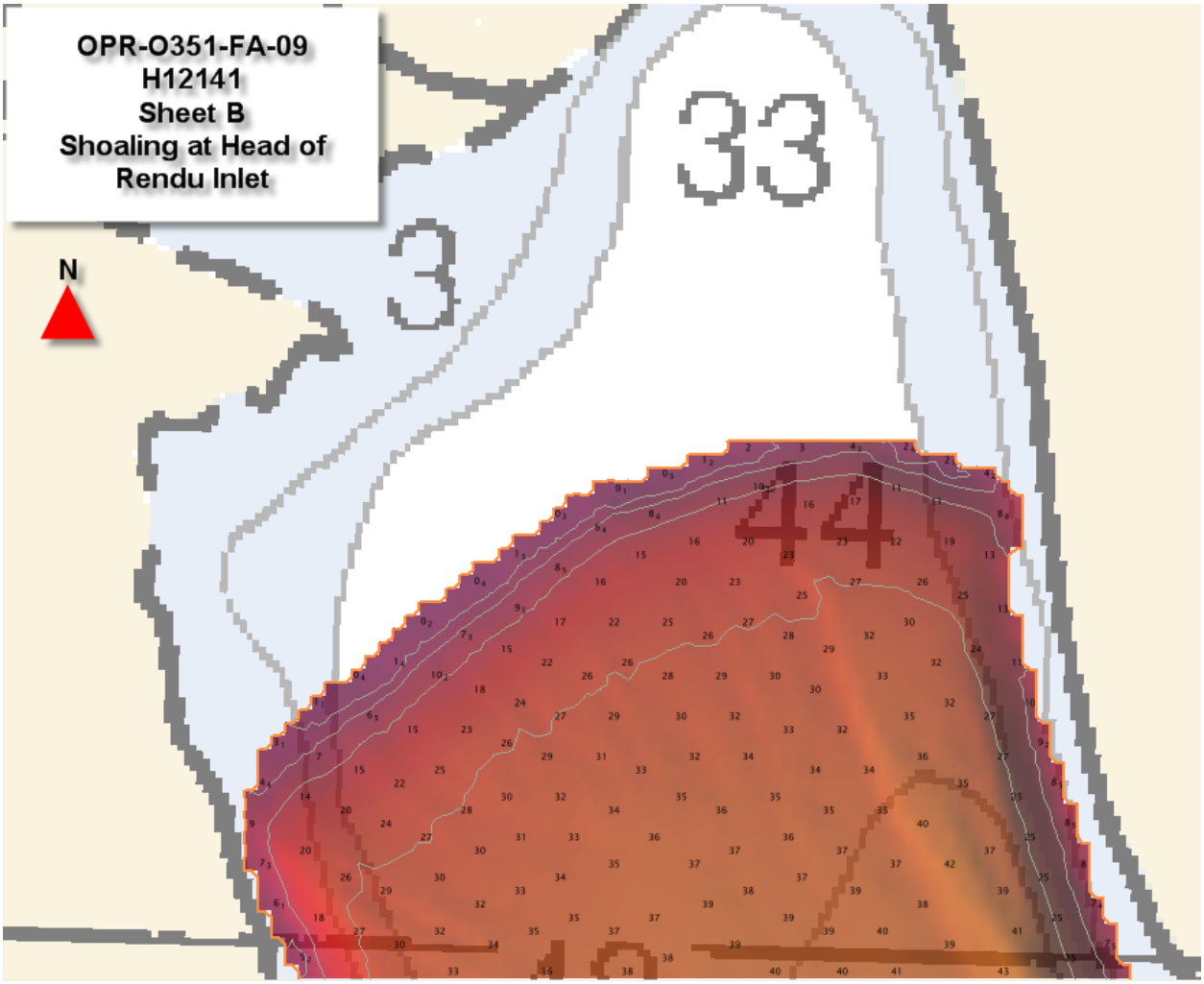


Figure 1.1.1

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
>
>
>
>
> On 1/15/2010 10:43 AM, Eric Maillard wrote:
>
> Hi Bri,
>
>
>
> I cannot figure out the problem with the model except in 301 beam mode.
>
> <Steering_Angle value="0" /> should be <Steering_Angle value="90" /> because it is a cylindrical array so the steering in equi-distant does not affect the beam width much.
>
>
>
>
>
> The other point I am not so sure about anymore is:
>
> <Range_Sampling_Distance value="0.124" />
>
>
>
> I compare this value to that of other systems and it seems that the relationship between this value and the sampling rate is not always as I would expect. If this parameter is supposed to represent the bottom detection sampling rate then a value similar to the 8111 is more accurate. It should read:
>
> <Range_Sampling_Distance value="0.031" />
>
> For all version of the 7111.
>
>

> 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
> _____

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 DEPARMENT 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: H12141

LOCALITY: Reid Inlet to Queen Inlet, Northern Glacier Bay, AK
TIME PERIOD: September 26 - October 21, 2009

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: 945-2682 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

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SEA316, SEA317, SEA318 and SEA319A

Refer to attachments for zoning 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).

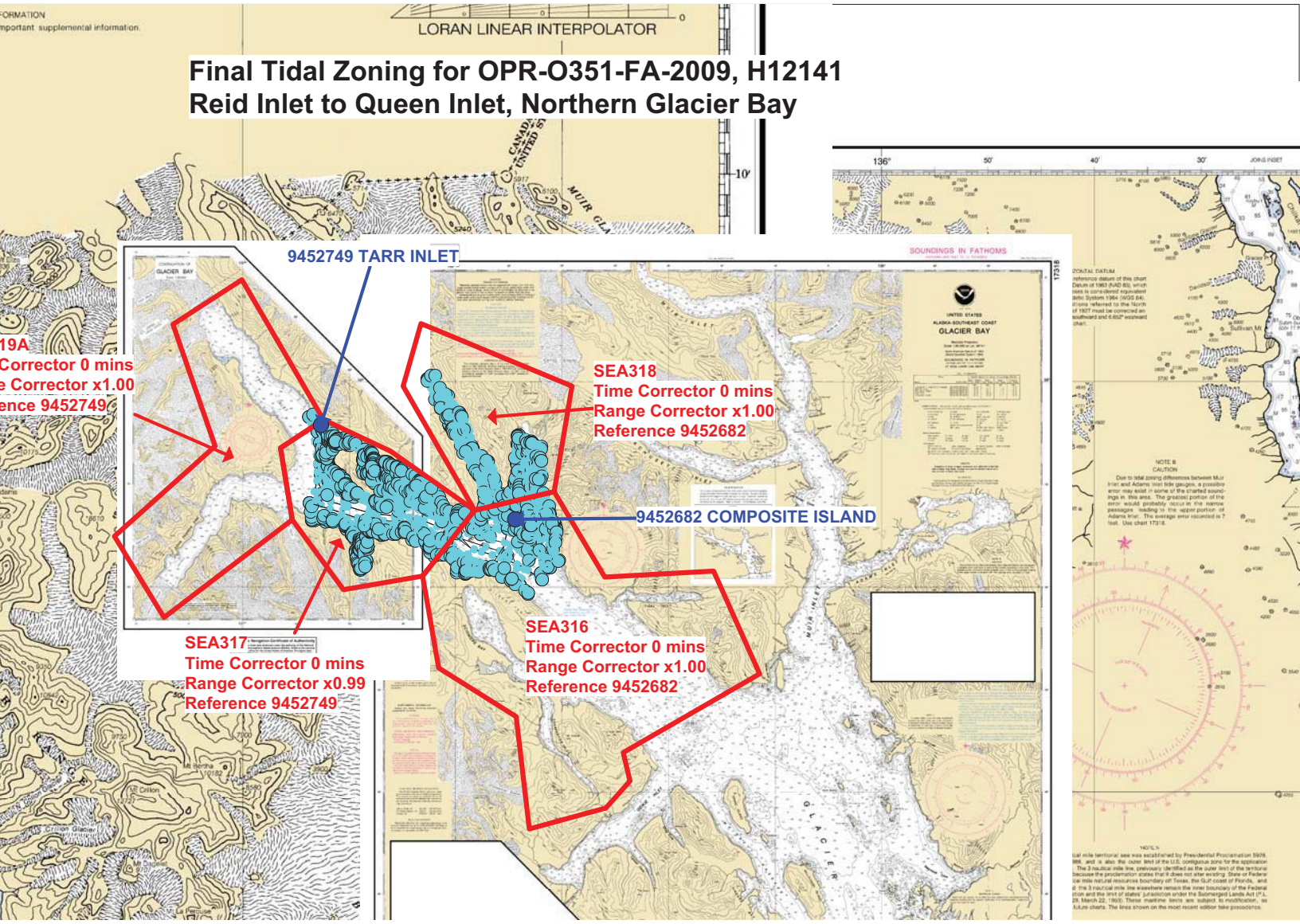
Note 2: Use tide data from the appropriate station with applicable zoning correctors for each zone according to the order in which they are listed in the Tidezone corrector file (*.ZDF). For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data 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 07:14:07 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION

Final Tidal Zoning for OPR-O351-FA-2009, H12141
Reid Inlet to Queen Inlet, Northern Glacier Bay



PHB Compilation Log

General Survey Information	
Survey No.	H12141
Project No.	OPR-O351-FA-09
Project Area	Northern Glacier Bay
Field Unit	NOAA Ship Fairweather
Dates of Survey	September 26, 2009 – October 21, 2009
Survey Scale	1:40,000
CS Compilation Scale	1:80,000
SS Compilation Scale	1:15,000
UTM Zone	8N
SAR Reviewer	Adam Argento
HCell Compiler	Katie Reser
QC Reviewer	Martha Herzog

Specifications and Standards Used	
Document	**Version and/or Date**
Office of Coast Survey HCell Specifications	6.1, August 3, 2011

Raster Charts						
Raster Chart Compiled To	**Chart**	**KAPP**	**Scale**	**Ed.**	**Date**	**NTM Date**
Largest Scale RNC Compiled To	17318	2638	1:80,000	7th	03/01/2009	07/02/2011

ENCs				
ENC Compiled To	**ENC**	**Scale**	**Ed.**	**Date**
Largest Scale ENC Compiled To	US4AK3DM	1:80,000	2nd	06/22/2011

Survey Junctions		
Registry Number	**Date of Survey**	**Direction Relative to Current Survey**
H12140	10/11/2009	Northwest
H12142	11/10/2009	Southeast

Surfaces	File Name
Combined	H12141_16m_Combined_SAR.csar

Deliverables	
Product	**File**
CS HCell	H12141_CS.000
SS HCell	H12141_CS.000
HCell Report for MCD RNC Division	H12141_HR.pdf
Features Listing	H12141_FL.txt
Descriptive Report	H12141_DR.pdf
Survey Outline for SURDEX	H12141_Outline.gml and .xsd

Spatial Framework	File Name
Coordinate System	LLDG
Horizontal Datum	WGS84
Vertical Datum	MHW
Sounding Datum	MLLW (1983-2001 NTDE)

Horizontal and Vertical Units

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.

Spatial Framework	File Name
DUNI (Depth Units)	Fathoms and Feet
HUNI (Height Units)	Feet
PUNI (Positional Units)	Meters

Radius Settings for SS Depths

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

Radius (mm)	Depth Range
3	-5m – 10m
4	10m – 20m
4.5	20m – 50m
5	50m – 500m

Chart Contours

Depth contours at the intervals on the largest scale chart(s) are included in the *_SS HCell for MCD raster charting division to use for guidance in creating chart contours. With the exception of the zero contours included in the *_CS file, contours have not been de-conflicted against shoreline features, soundings and hydrography.

Chart Units	Metric Units	Metric Units NOAA Rounded	Chart Units NOAA Rounded
0	0.000	0.2286	0.125
3	5.4864	5.715	3.125
5	9.144	9.3726	5.125
10	18.288	18.5166	10.125
20	36.576	37.9476	20.750
30	54.864	56.2356	30.750
50	91.44	92.8116	50.750
100	182.88	184.2516	100.750
200	365.76	367.1316	200.750

Meta Area	
Meta Object	**CATZOC(s)**
M_QUAL	A1
Meta Object	**CSCALE**
M_CSCL	N/A

Software Used for HCell Compilation and QC Review		
Software	**Version, HF**	**Used For**
CARIS HIPS and SIPS	7.0, SP 2, HF 7	Inspection of Combined BASE Surfaces.
Pydro	11.8	Generation of DTON and AWOIS Reports.
CARIS BASE Editor	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	2.2, HF 4	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	3.3, SP 3, HF 8	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding.
CARIS Plot Composer	Ver. 5.1, SP 1	Generate plots of CARIS Session files used for QC.
HydroService AS, dKart Inspector	5.1	Validation of the base cell file.
Northport Systems, Inc., Fugawi Marine ENC	3.1.0.435	Independent inspection of final HCells using a COTS viewer.

HCell Compilation Notes

Contact Information Inquiries regarding this HCell content or construction should be directed to:	
HCell Compiler	Katie Reser
Phone Number	206-526-6864
Email	katie.reser@noaa.gov

APPROVAL SHEET
H12141

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

Katie J. Reser

Katie Reser
2011.09.16
13:02:00 -07'00'

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 disproval 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.

Digitally signed by Martha Herzog
DN: cn=Martha Herzog, o=NOAA, ou=Pacific Hydrographic Branch, email=martha.herzog@noaa.gov, c=US
Date: 2011.09.16 13:27:13 -07'00'

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.

Gary C. Nelson

Digitally signed by NELSON.GARY.C.1365885318
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=NELSON.GARY.C.1365885318
Date: 2011.09.16 13:18:22 -07'00'