H12140

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. H12140

LOCALITY

State Alaska

General Locality Northern Glacier Bay

Sublocality Tarr Inlet to Johns Hopkins 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

H12140

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: Tarr Inlet to Johns Hopkins Inlet

Scale: 1:40,000 Date of Survey: September 29, 2009 - October 11, 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 8111, Reson 8160, Reson 8101, Reson 7125

SAR by: Anthony Lukach 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 H12140

Project OPR-O351-FA-09
Northern Glacier Bay, Alaska
Tarr Inlet to Johns Hopkins Inlet
Scale 1:40,000
September - October 2009
NOAA Ship *Fairweather* (S220)
Chief of Party: Captain David O. Neander, NOAA

A. AREA SURVEYED

The survey area is located in Glacier Bay National Park, within the sub-locality of Tarr Inlet to Johns Hopkins Inlet. This survey corresponds to Sheet A in the sheet layout provided with the Project Instructions, depicted in Figure 1 below.

Data acquisition was conducted from September 29 to October 11, 2009 (DN 272 to DN 284).

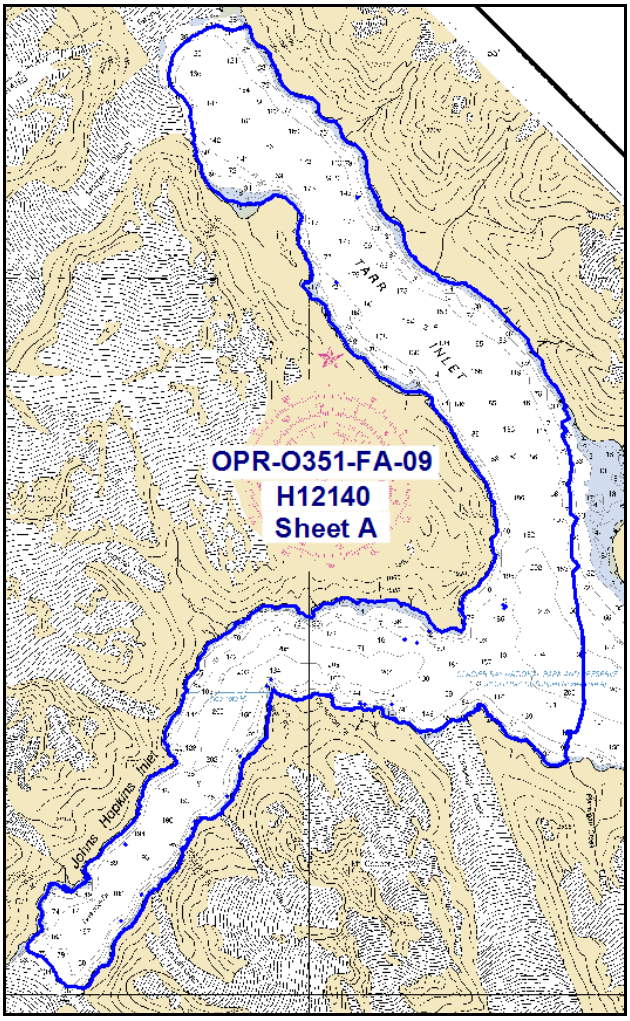


Figure 1: H12140 Survey Outline

Complete Multibeam Echosounder (MBES) coverage was obtained in the survey area to the 8-meter curve. Data were acquired between the 8-meter curve and the MHW Buffer line as safety permitted. Additional coverage was obtained in order to determine least depths over features or shoals. Exceptions to this are detailed in section B.2.

Limited shoreline verification was conducted seaward of the Navigable Area Limit Line (NALL) for H12140, 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.

Main scheme (MS) and crossline (XL) mileage for MBES and shoreline acquisition is displayed in Table 1 below.

MAIN SCHEME (MS) - Mileage		
0	**Single Beam MS**	
255.74	**Multibeam MS mileage**	
	122.89	FAIRWEATHER S-220
	28.68	Launch 1010
	69.40	Launch 1018
	31.58	Launch 2801
	3.20	Launch 2802
0	**SideScan MS**	
255.74	**Total MS**	
CROSSLINE (XL) - Mileage		
0	**Single Beam XL**	
13.74	**Multibeam XL**	
	8.76	FAIRWEATHER S-220
	0.00	Launch 1010
	0.00	Launch 1018
	0.00	Launch 2801
	4.99	Launch 2802
13.74	**Total XL**	
OTHER		
0	**Developments/AWOIS - Mileage**	
0	**Shoreline/Nearshore Investigation - Mileage**	
0	**Total # of Investigated Items**	
0	**Total Bottom Samples**	
34.77	**Total SNM**	
9/29/09, 9/30/09, 10/1/09, 10/10/09, 10/11/09		**Specific Dates of Acquisition**
272, 273, 274, 283, 284		**Specific Dn#s of Acquisition**

Table 1: H12140 Survey Statistics

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), submitted under separate cover. Items specific to this survey and any deviations from the DAPR 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.

B1. 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, Inc	All American Marine, Inc	Marine Silverships, Inc
Length Overall	231’	28’ 10”	28’ 10”	28’ 10”	28’ 10”	23’
Beam	42’	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 Echosounder	RESON 8111 RESON 8160 RESON 7111	RESON 8101	RESON 8101	RESON 7125	RESON 7125	
Sound Velocity Equipment	SBE 19plus & 45, MVP 200, SVP70	SBE 19plus	SBE 19plus	SBE 19plus, SVP71	SBE 19plus, SVP71	
Attitude & Positioning Equipment	POS/MV V4	POS/MV V4	POS/MV V4	POS/MV V4	POS/MV V4	
Type of operations	MBES	MBES, Shore Station	MBES, Shore Station	MBES	MBES	Shore Station

Table 2: Vessel Inventory

B2. Quality Control

Tarr and John Hopkins Inlets encompass areas of extreme relief, as depicted in Figure 2. Data contain considerable amounts of down-slope noise due to the steep slopes. Down-slope noise that affected the surface beyond IHO Order 1 (in depths less than 100m) or IHO Order 2 (in depths greater than 100m) error limits was manually rejected by the Hydrographer to ensure that the BASE surfaces appropriately represent the seafloor.

Crosslines

Multibeam crosslines for this survey totaled 13.74 linear nautical miles (lnm), comprising 5.3% of the 255.74 lnm of total MBES hydrography. Both main scheme and crossline mileage are summarized in Table 1 above.

Surface differencing in Fledermaus was used to assess crossline agreement with main scheme, as depicted in Figure 2. The areas in which crosslines intersect mainscheme lines were reviewed in CARIS subset mode by the Hydrographer. The largest deviations were found in areas of steep slope, where slight horizontal positioning differences contributed to extreme apparent vertical offsets.[1] In areas of pronounced slopes differences as large as 10 to 30 meters were observed. In flat areas surfaces agreed well under 1 meter, typically less than 0.3 meters.

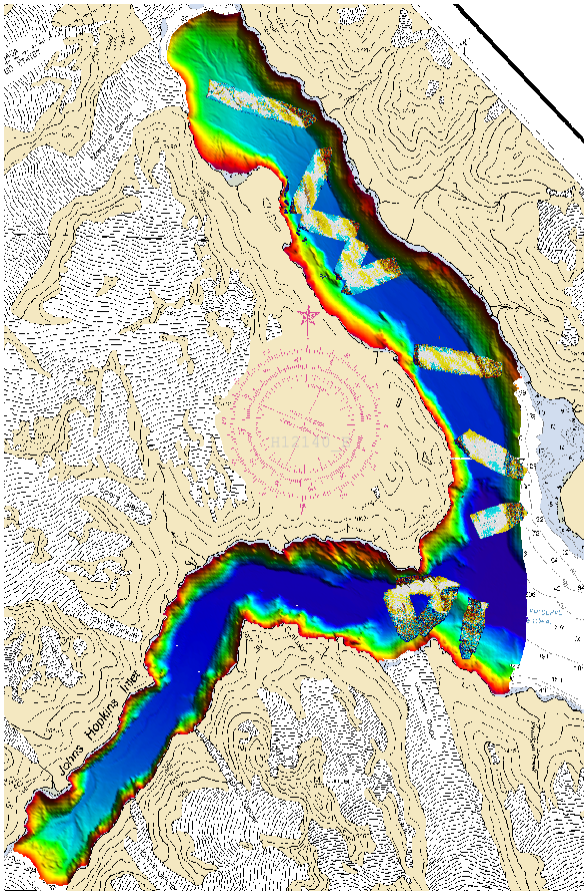


Figure 2: Crossline and main scheme differences (white indicates agreement, warm colors indicate a Xls shoaler than mainscheme and cool colors indicate XLs are deeper).

Crosslines were not obtained in the southern portion of Johns Hopkins Inlet due to operational constraints on acquisition time. Although the areas of steep slope exceeded IHO vertical uncertainty limits, it is likely that a horizontal positioning component within IHO uncertainty limits is creating extreme differences in the vertical component.

Junctions

Survey H12140 junctions with H12141, which is Sheet B of the same project.[2] The area of overlap between the sheets was reviewed in CARIS Subset Editor and Fledermaus for consistency and data were found to be in general agreement. Areas near nadir and with flat relief had excellent agreement within 1 meter in 200 to 300 meters depth. In shoal areas, the extreme relief yielded larger differences due to small horizontal offsets contributing to a reported vertical difference. When observed in CARIS Subset Editor, the offsets were within 0.5 meters in areas less than 4 meters depth.[3] The sheet limits and area of overlap for Sheets A and B are depicted in Figure 3.

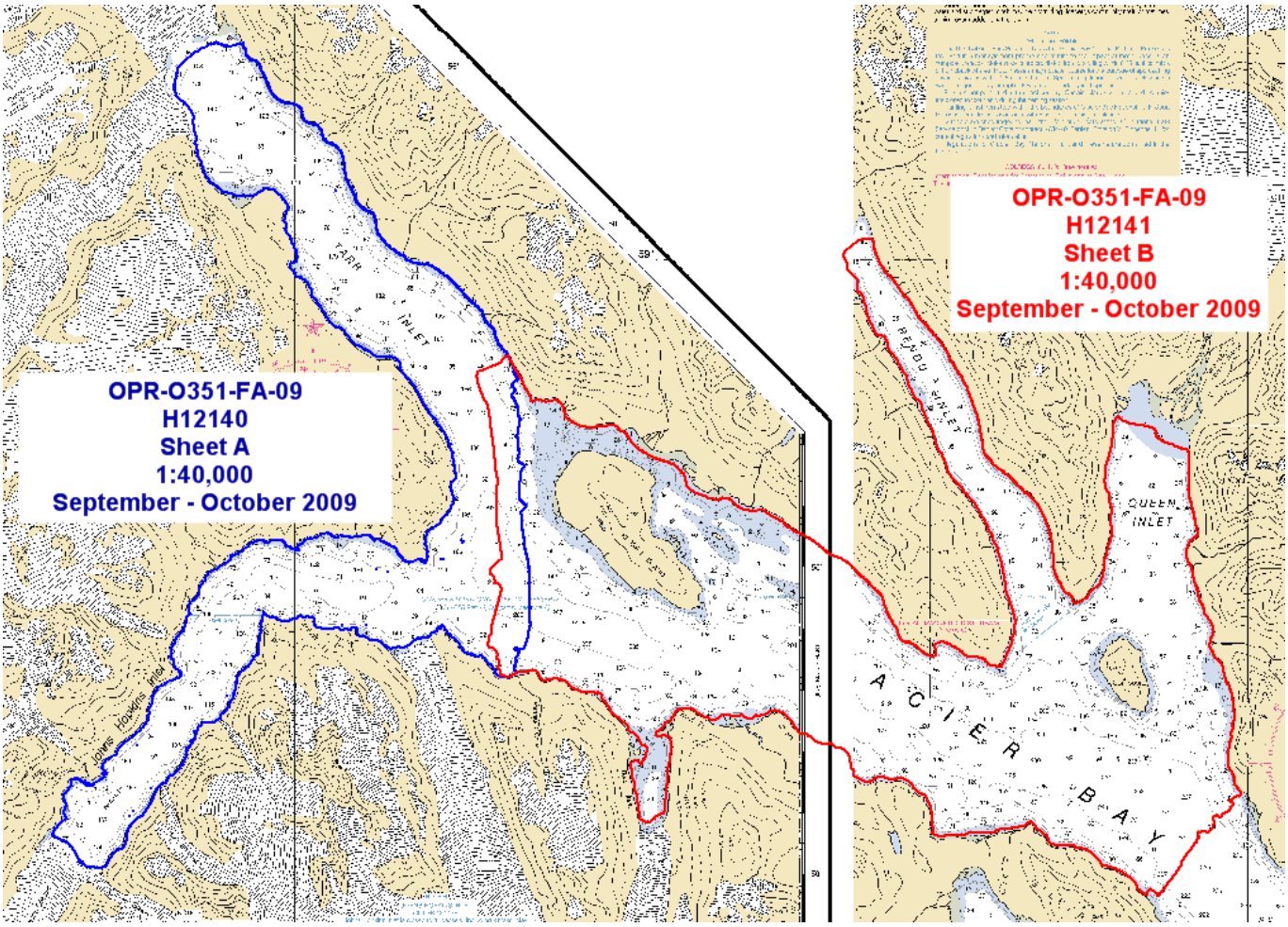


Figure 2: Junction Between H12140 and H12141

Quality Control Checks

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

DENSITY ANALYSIS

A Python script was used to compute the percentage of nodes populated with at least five soundings from the finalized BASE surfaces to determine if data density requirements are met. The 1m and 2m surfaces do not meet this specification due to the extreme relief near shore.[4] Table 3 details the statistical results of this analysis, and Figure 4 depicts a graphical representation of areas that had failing nodes.

Finalized Surface Resolution	Depth Range	Percentage of nodes with five or more soundings
1m	0 - 23	58.8%
2m	18 - 40	90.1%
4m	35 - 80	95.1%
8m	75 - 160	96.7%
16m	155 Plus	99.5%

Table 3: Five Soundings Per Node Density Analysis

COVERAGE ASSESSMENT

For holidays larger than three nodes, the corresponding multibeam backscatter side scan was examined and no navigationally significant items were found; additionally, the least depths are represented. Holidays found in the finalized BASE surfaces typically correspond to extremely steep slopes and areas where down-slope noise was removed.[5] Due to the steep nature of these areas, the Hydrographer has determined that all navigationally significant features have been detected.

The Mean High Water (MHW) buffer line was used in lieu of coverage to the 4 meter curve in several areas to determine the inshore limit of hydrography. In the areas by Johns Hopkins Glacier, Lamplugh Glacier, Grand Pacific Glacier, and Margerie Glacier, complete coverage was not possible due to glacial ice hazards.

In all gaps in coverage where MBES data acquisition to the 4 meter curve was not possible, both shoreline and MBES data were evaluated to determine if there were indications of navigationally significant items and none were found.

Data Quality Factors

TRUEHEAVE

PosPac TrueHeave data were applied to all MBES data for survey H12140.

To enable the application of TrueHeave some POS/MV files were “fixed” using the *fixTrueHeave.exe* utility from CARIS. Fixed files were assigned an additional *.fixed suffix. This was performed for the following vessels and days[6]:

- Launch 2802 DN 283
- Launch 1018 DN 273 and DN 274

SOUND VELOCITY

Due to melting glacial ice, river runoff, and the effects of tidal currents, a sharp demarcation of water masses was often visually observed in the field. This proved to be problematic in the acquisition and application of sound velocity correctors. After correction for sound velocity in HDCS, some lines still exhibited the characteristic "smiles" and "frowns" indicative of inaccurate sound velocity corrections, as depicted in Figure 4. Despite the best efforts of *Fairweather* personnel to conduct sufficient sound velocity casts distributed both spatially and temporally to accurately correct the sounding data, sound velocity artifacts are still noticeable in several regions. To compensate, the Hydrographer rejected soundings obviously in error on the outer beams by manually rejecting outer beam soundings when the surface was pulled outside of IHO error tolerance.[7]

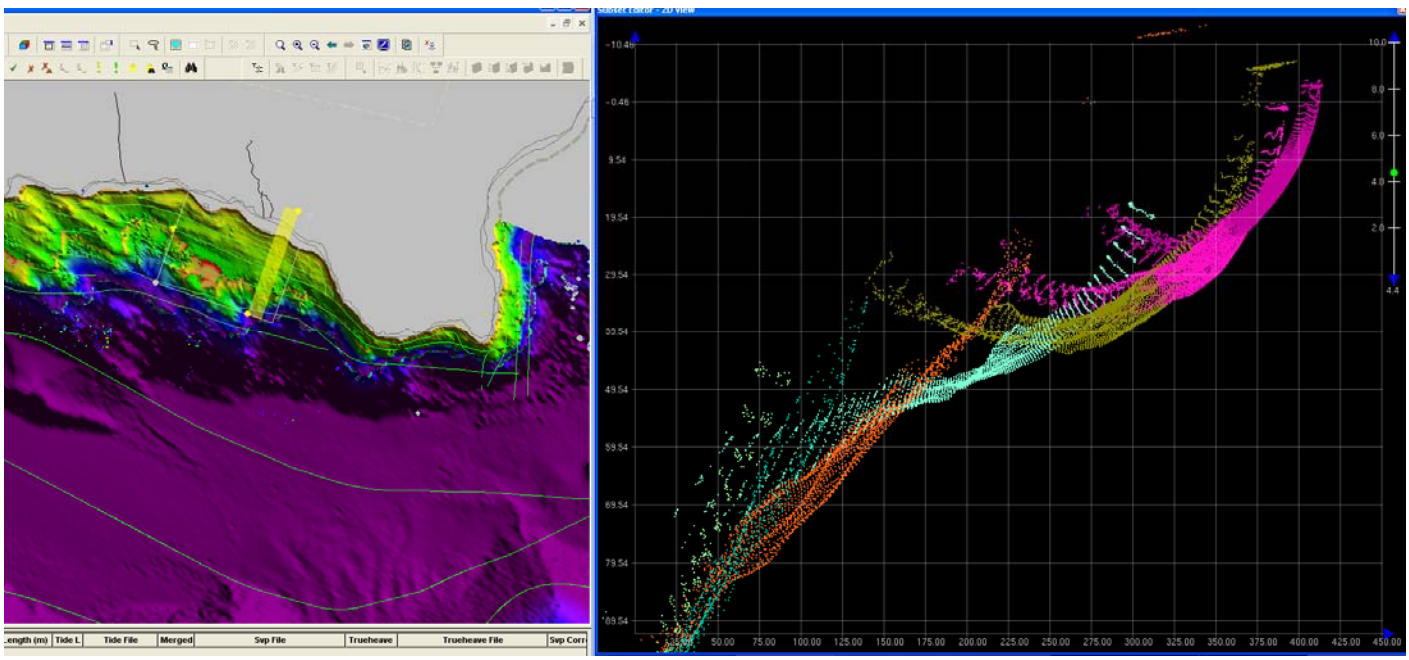


Figure 4: Launch 1018 DN 273 Sound Velocity Modeling Errors

VERTICAL OFFSETS

Soundings acquired with *Fairweather's* (S220) RESON 7111 MBES system are observed in many areas to exhibit a vertical offset. The RESON 7111 data are shoaler than surrounding by not more than two meters, as depicted in Figure 5. The degree of this offset does not exceed IHO Order 2 error limits and is typically only evident in water deeper than 250 meters.[8]

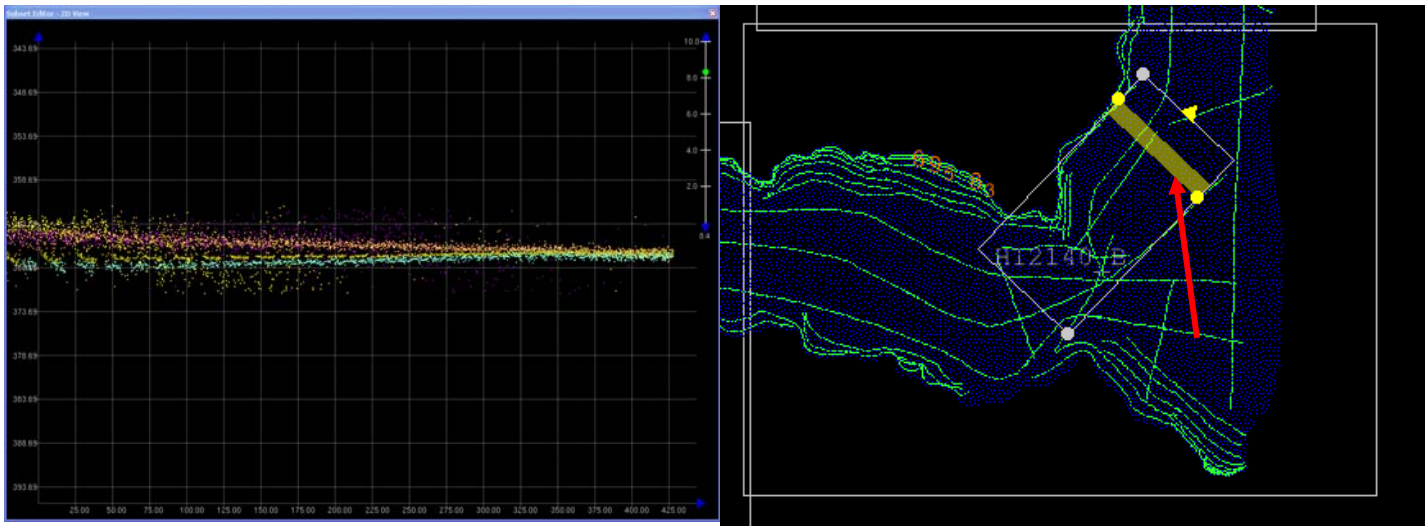


Figure 5: *Fairweather* (S220) Reson 7111 data shown as top two lines (purple and tan), Reson 8160 System shown as bottom two lines (yellow and cyan).

BOTTOM SAMPLES

Bottom samples were not collected as part of survey H12140 due to the steep and deep nature of the area.[9] Additionally, no significant anchor sites were identified.

DESIGNATED SOUNDINGS

There is one designated sounding for survey H12140 to ensure the surface represents the submitted danger to navigation. 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.

UNUSUAL CONDITIONS

Bergy bits and growlers were often encountered in the vicinity of Marjorie and Grand Pacific Glaciers. These hazards frequently caused survey launches to alter tracklines or slow survey speed. Although not immediately evident in the final data, the survey launches were not able to access some inshore areas due to these hazards.

ACCURACY STANDARDS

All data meet the data accuracy specifications as stated in the HSSDM.[10]

Based on statistics from Fledermaus, 98.32% of nodes in a combined 16m grid meet or exceed IHO Order 1 specifications for all depths and 99.98% of nodes in a combined 16m grid meet or exceed IHO Order 2 specifications. Areas of steep slopes in the survey area were the primary cause of nodes exceeding IHO error tolerance specifications. See Figure 6 for graphics of the tiered finalized surfaces showing IHO layers as appropriate, the 8m displays both Order 1 and 2 as needed.

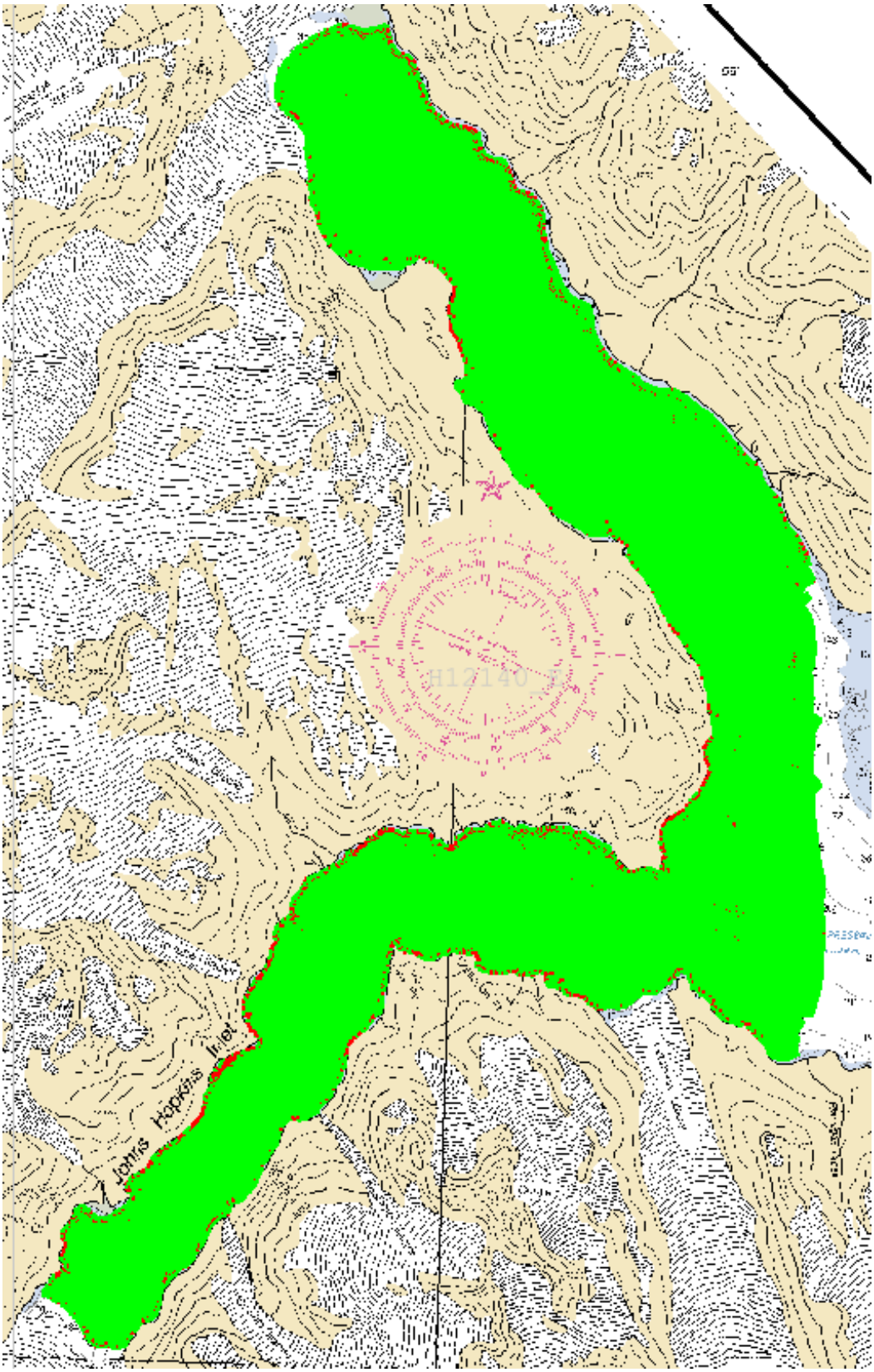


Figure 6: IHO Order 1 Pass (green) or Fail (red)

B3. Corrections to Echo Soundings

Data reduction procedures for survey H12140 conform to those detailed in the DAPR.

B4. Data Processing

Initial data acquisition and processing notes are included in the acquisition and processing logs. Additional processing actions such as final tides and sound velocity application are tracked in the survey wide query in the Reviewer_Qry tab of the H12140_Data_Log spreadsheet. All of the logs are included in Separates I.
Data processing procedures for survey H12140 conform to those detailed in the DAPR. Data were processed using CARIS HIPS & SIPS v6.1, Service Pack 2, and Hotfix 8. Additional processing details regarding Total Propagated Uncertainty/Total Propagated Error (TPU/TPE) and Combined Uncertainty and Bathymetry Estimator (CUBE) Surfaces and Parameters utilized, along with any the deviations from the processing procedures outlined in the DAPR.

TPU/TPE VALUES:
The survey specific parameters used to compute TPU/TPE in CARIS for H12140 are listed in Table 4.

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

Table 4: Survey Specific CARIS TPU/TPE Parameters

CUBE SURFACES:

The CARIS HIPS BASE surfaces created and the associated resolutions are listed below in Table 5.[11] An alternate set of finalized layers with increased overlap between resolutions was required to create H12140_Final_Combined_16m without gaps due to the extreme relief in the area. These surfaces were created by taking the lower resolution surfaces shoaler until gaps were no longer observed in the H12140_Final_Combined_16m surface. The field sheet layout is depicted below in Figure 10.

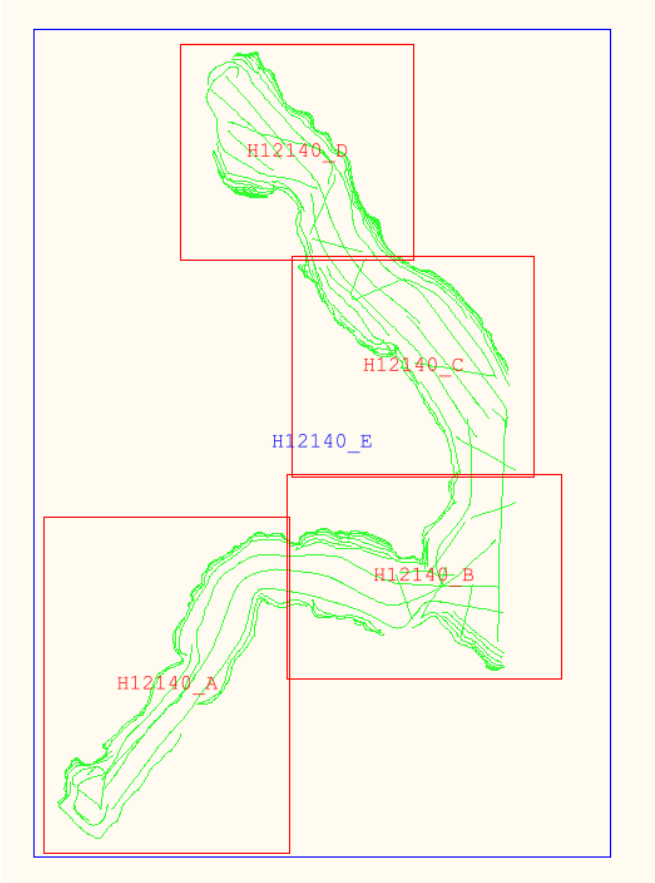


Figure 10: H12140 Field Sheet Layout

The CUBE parameters file names utilized for creating CUBE surfaces are included in Table 5. The CUBE parameters .xml file is included with the digital data in the vessel configuration folder.

Fieldsheet Name	Surface Name	Depth Ranges (m)	Resolution (m)	CUBE Parameters
H12140_A	1m_A	All	1	NOAA_1m
	2m_A	All	2	NOAA_2m
	1m_A_Final_0to23	0 to 23	1	NOAA_1m
	2m_A_Final_10to40	10 to 40	2	NOAA_2m
H12140_B	1m_B	All	1	NOAA_1m
	2m_B	All	2	NOAA_2m
	1m_B_Final_0to23	0 to 23	1	NOAA_1m
	2m_B_Final_10to40	10 to 40	2	NOAA_2m
H12140_C	1m_C	All	1	NOAA_1m
	2m_C	All	2	NOAA_2m
	1m_C_Final_0to23	0 to 23	1	NOAA_1m
	2m_C_Final_10to40	10 to 40	2	NOAA_2m
H12140_D	1m_D	All	1	NOAA_1m
	2m_D	All	2	NOAA_2m
	1m_D_Final_0to23	0 to 23	1	NOAA_1m
	2m_D_Final_10to40	10 to 40	2	NOAA_2m
H12140_E	4m_E	All	4	NOAA_4m
	8m_E	All	8	NOAA_8m
	16m_E	All	16	NOAA_16m
	4m_E_Final_25to80	25 to 80	4	NOAA_4m
	8m_E_Final_50to160	50 to 160	8	NOAA_8m
	16m_E_Final_100Plus	100 Plus	16	NOAA_16m
	H12140_Final_Combined_16m	All	16	NOAA_16m

Table 5: Depth Ranges, Resolutions, and CUBE Parameters

HIPS DEVICE MODEL FOR RESON 7111:

During initial processing of H12140 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 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.[12]

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 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-10 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-10 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 H12140 meet IHO accuracy requirements this issue remains under investigation.[13]

C. HORIZONTAL AND VERTICAL CONTROL

A complete description of horizontal and vertical control for survey H12140 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.

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 (288 kHz) served as the sole method of real-time positioning during MBES data acquisition. Precise Point Positioning (PPP) was the primary method of post processing POS/MV kinematic data. Although the base station "RUSS 2009" was set up for SingleBase post processing during H12140, the base station was only operable October 10-11, 2009 (DN 283 and DN 284) during acquisition of H12140 due to station power failures and bear activity on all other days of acquisition. All raw base station files are submitted with the HVCR digital data for this project.

Smoothed Best Estimate of Trajectory (SBET) files were created using both the PPP and SingleBase methods for H12140. The SBET files and their associated error files (SMRMSG) files were applied to the CARIS HDCS data in HIPS for improved kinematic accuracy. Refer to the *Apply_Error.log* and *Apply_SBET.log* file located in each vessel's SBET folder for a record of application of these files in CARIS HIPS. For further detail regarding the processing method used and quality control checks performed see the *H12140_POSPAC_Processing_Log.xls* spreadsheet located in the POSPac folder submitted with the digital data in the GNSS_Data folder.

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 initial control for datum determination and as the preliminary source for water level correctors for survey H12140.

Fairweather personnel installed four 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.

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 11, 2009	17	79049
Tarr Inlet	945-2749	Tertiary 30 Day	October 8, 2009	Nov 8, 2009	14	86002

Table 6: Tide Gauge Information

Refer to the *OPR-P357-FA-08 Horizontal and Vertical Control Report* for further information about the tide stations.

A request for delivery of final approved (smooth) tides for survey H12140 was forwarded to N/OPS1 on October 14, 2009 in accordance with the Field Procedures Manual (FPM), dated April 2009. A copy of the request is included in Appendix V.

As per the final tide note from CO-OPS, all data were reduced to MLLW using the final approved water levels (smooth tides) from the Tarr Inlet (945-2749) and Composite Island (945-2682) stations by applying tide files 9452749.tid and 9452682.tid, and time and height correctors through the zone corrector file H12140CORF.zdf.[14] **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.**[15]

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 Notebook version 3.1 software program.

Survey H12140 was compared with the following chart listed in Table 7. 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 1, 2009	January 26, 2010 (04/10)

Table 7: NOAA Chart compared with Survey H12140

Chart 17318

SOUNDING COMPARISON:

Soundings from survey H12140 were significantly different than depths on chart 17318. Typical variation is between 2 and 20 fathoms with the survey soundings exhibiting shoaler depths. These shoal depths were detected by this survey due to the extremely dynamic nature of glacial runoff and the increased coverage of modern multibeam survey techniques. There is one area south of Grand Pacific Glacier, detailed in DTON Report 1.1, that was deemed navigationally significant.[16] The Hydrographer recommends updating the charted depths with soundings from H12140.[17]

CONTOUR COMPARISON:

Depth curves from survey H12140 are significantly different than charted contours on chart 17318. Due to the extreme relief in the area and previous raster digitization technology, it is evident that the contours have been depicted further offshore than observed in the field. The Hydrographer recommends updating all contours per the digital data.

Chart Comparison Recommendations

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.**

Automated Wreck and Obstruction Information System (AWOIS) Investigations

There were no AWOIS items located within the limits of H12140 at the time of survey.

Dangers to Navigation

One danger to navigation was found and reported to the Marine Chart Division for verification and final submission to the Seventeenth Coast Guard District on November 18, 2009.[18] A copy of the preliminary Danger to Navigation Report is included in Appendix I.[19]

D.2 Additional Results

Shoreline Source

A composite source file (CSF) in .000 format from HSD's Operations Branch was provided with the Project Instructions. Shoreline sources that were included in the composite source file included Geographic Cell (GC) and charted features from chart 17318, as listed in Table 9. The original file was imported into CARIS Notebook, converted to a .hob file, clipped to the sheet limits, and named H12140_Original_Composite_Source.hob to be included with the deliverables. This file was copied and named H12140_Feature_File.hob to be utilized during field verification.

Shoreline Verification

Chart 17318 (1:80,000) was the largest scale chart for the project area at the time of survey. 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 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. All shoreline features provided in the composite source file seaward of the Navigable Area Limit Line (NALL) were verified or disproved during shoreline operations.

Shoreline Data Processing

No new features and features requiring revision were detected as part of H12140.[20] As outlined in section 4.4.10 of the FPM, features disproven with multibeam coverage were moved to the H12140_Disprovals.hob layer.

Disproven or 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,chart 17318	20011013

Table 9: SORIND/SORDAT Shoreline Features

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 H12140_Final_Feature_File .hob file were moved to the H12140_Disprovals .hob file.[21]

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.[22]

Aids to Navigation

There were no aids to navigation within the survey limits.

E. 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/CS34
Data Acquisition and Processing Report 2009	December 17, 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

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
2010.05.27
12:45:17 -07'00'

TITLE: Approval of Hydrographic Survey H12140,
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 H12140 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:

Matthew Nardi
I attest to the accuracy and integrity of this document
2010.05.24 10:02:26 -08'00'

ENS Matthew Nardi
Survey Manager

Briana Welton
I have reviewed this document
2010.05.24 18:24:25 Z

LT Briana J. Welton
Field Operations Officer

Digitally signed by Lynnette Morgan
Date: 2010.05.25 16:06:33 -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 H12141 which has already been compiled.
[3] Due to the steep and deep nature of the survey area, depth differences due to horizontal offsets are to be expected. The data is adequate for charting despite these differences.
[4] The data is adequate for charting despite not meeting the data density specifications.
[5] Concur with clarification. The holidays that were a result of the steep and deep nature of the survey area were deemed navigationally insignificant and are not preserved in the HCell coverage.
[6] The data from the lines with "fixed" TrueHeave files applied are acceptable and show no evidence of heave errors.
[7] Concur with clarification. The data is acceptable for charting after the outer beams were rejected to mitigate the sound velocity errors.
[8] The shoaler data was preserved in the BASE surfaces and is adequate for charting despite the vertical offsets.
[9] Six charted bottom samples were imported from the ENC to be retained.
[10] The data is adequate to supersede charted data in the common area.
[11] A 16-meter combined surface created during the SAR was used as the basis for compilation.
[12] See attached correspondence.
[13] The data from the Reson 7111 are adequate to supersede charted data in the common area.
[14] See attached Tide Note dated March 26, 2010.
[15] H12140 was submitted to Pacific Hydrographic Branch for review and compilation.
[16] The location of the reported DTON is noted in the HCell.
[17] Chart depths as depicted in the HCell.
[18] The DTON has been depicted on the charts.
[19] See attached DTON Report.
[20] Charted point features were imported from the ENC to be retained. Line, area and disproved features were blue noted as appropriate.
[21] The submitted hob files were used in the compilation of HCell H12141.
[22] Concur with clarification. The shoreline files were applied as appropriate to chart scale. Chart features as depicted in the HCell.

H12140 Danger to Navigation Report

Registry Number: H12140

State: Alaska

Locality: Glacier Bay

Sub-locality: Tarr Inlet to John Hopkins Inlet

Project Number: OPR-O315-FA09

Survey Dates: September 29, 2009 - October 11, 2009

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
17318	7th	03/01/2009	1:80,000 (17318_3)	USCG LNM: None (08/11/2009) CHS NTM: None (07/31/2009) NGA NTM: None (08/22/2009)
17300	31st	09/01/2005	1:209,978 (17300_2)	[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
1.1	Shoal	0.15 m	59° 03' 27.4" N	137° 02' 11.8" W

1 - Danger To Navigation

1.1) 280/1

DANGER TO NAVIGATION

Survey Summary

Survey Position:	59° 03' 27.4" N, 137° 02' 11.8" W
Least Depth:	0.15 m (= 0.50 ft = 0.083 fm = 0 fm 0.50 ft)
TPU (±1.96σ):	**THU (TPEh)** ±0.983 m ; **TVU (TPEv)** ±0.429 m
Timestamp:	2009-275.00:04:52.705 (10/02/2009)
Survey Line:	h12140 / fa_1018_reson8101_2009 / 2009-274 / 2009a_2750003
Profile/Beam:	280/1
Charts Affected:	17318_3, 17300_2, 16760_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

Sediment from Grand Pacific Glacier has caused shoaling in the NE corner of Tarr Inlet in the area of the 91 fathom sounding.

Included along with the report are two files; H12140_DTON_soundings.hob and H12140_DTON_contours.hob.

Hydrographer Recommendations

Hydrographer recommends modification of the 10, 20, 50 and 100 fathom depth curves seaward. Additionally replace the 91 fathom sounding with 0 fathom. Remove the 28 fathom sounding located north of the 91 fathom sounding. Use the included files to modify chart 17318.

Preliminary zoning with verified tides are applied to the sounding set.

Cartographically-Rounded Depth (Affected Charts):

0fm (17300_2, 16760_1, 16016_1, 530_1)

0fm 0ft (17318_3, 531_1)

.2m (500_1, 50_1)

S-57 Data

[None]

Feature Images

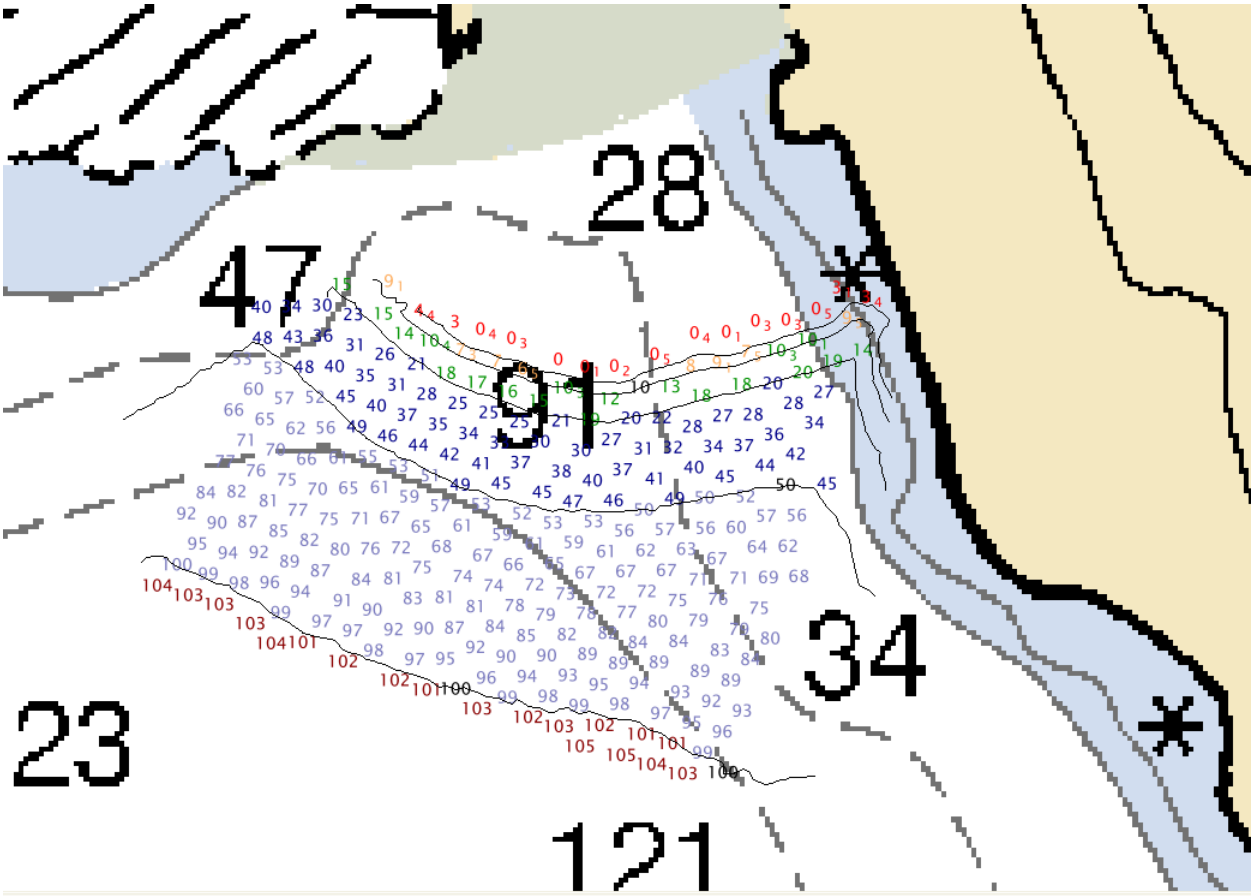


Figure 1.1.1

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: H12140

LOCALITY: Tarr Inlet to Johns Hopkins Inlet, AK
TIME PERIOD: September 29 - October 11, 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: SEA317 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).

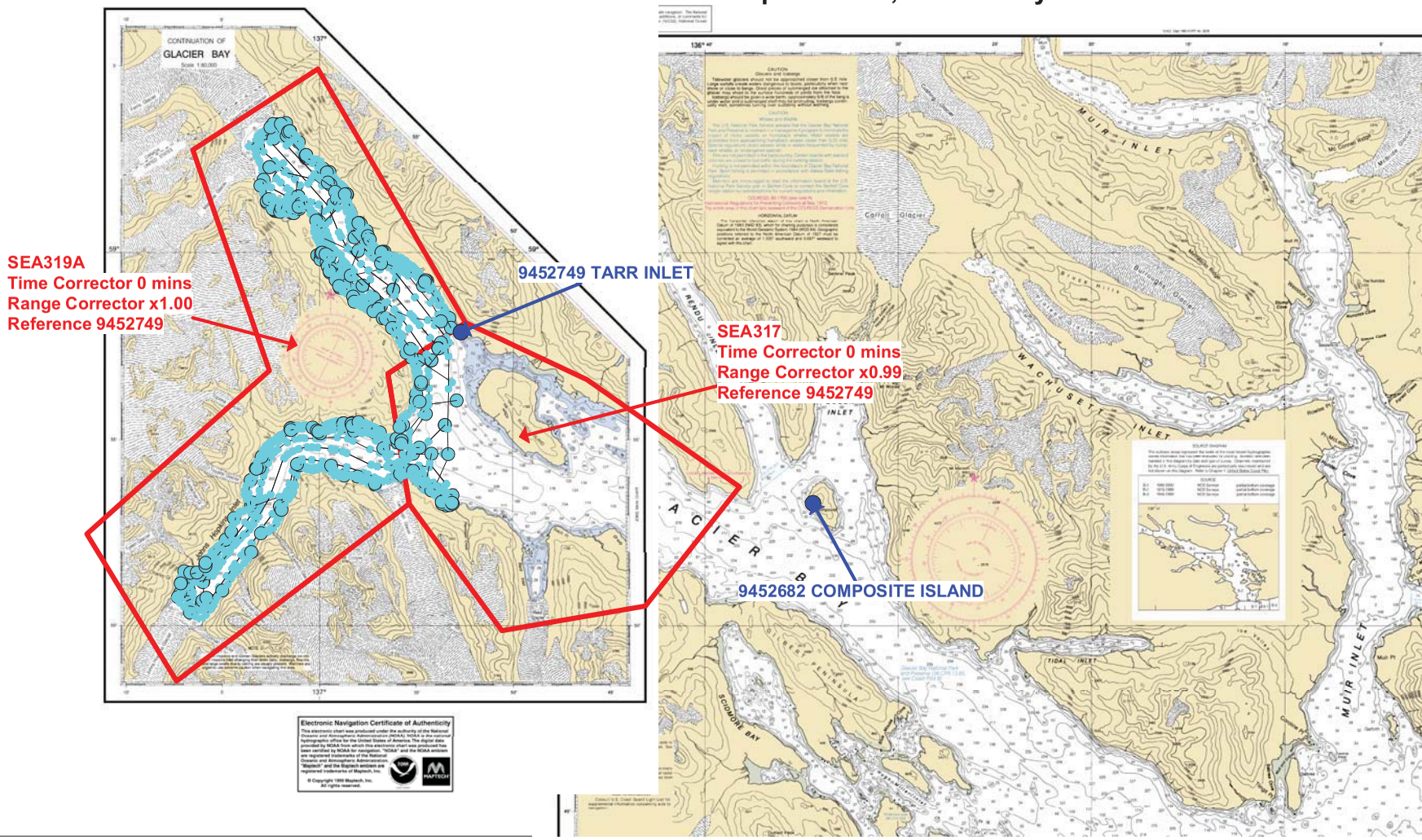
Note 2: Use tide data from the appropriate station with applicable zoning correctors for each zone according to the order in which they are listed in the Tidezone corrector file (*.ZDF). For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data 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 07:13:06 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION

Final Tidal Zoning for OPR-O351-FA-2010, H12140
Tarr Inlet to Johns Hopkins Inlet, Glacier Bay



PHB Compilation Log

General Survey Information	
Survey No.	H12140
Project No.	OPR-O351-FA-09
Project Area	Northern Glacier Bay
Field Unit	NOAA Ship Fairweather
Dates of Survey	September 29, 2009 – October 11, 2009
Survey Scale	1:40,000
CS Compilation Scale	1:80,000
SS Compilation Scale	1:15,000
UTM Zone	8N
SAR Reviewer	Anthony Lukach
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	2639	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**
H12141	10/21/2009	East

Surfaces	File Name
Combined	H12140_16m_Combined_Office.csar

Deliverables	
Product	**File**
CS HCell	H12140_CS.000
SS HCell	H12140_CS.000
HCell Report for MCD RNC Division	H12140_HR.pdf
Features Listing	H12140_FL.txt
Descriptive Report	H12140_DR.pdf
Survey Outline for SURDEX	H12140_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
H12140

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

Katie Reser
2011.09.23
12:44:27 -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: 2011.09.26 10:13:40 -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.

Digitally signed by Russ Davies
DN: cn=Russ Davies, o=ocs, ou=PHB, email=Russ.Davies@noaa.gov, c=US
Date: 2011.09.23 12:53:09 -07'00'