H12680

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Survey

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H12680

LOCALITY

State(s):	Alaska
General Locality:	Kodiak, AK
Sub-locality:	Alitak Bay Approach to Humpy Cove

2014

CHIEF OF PARTY
CDR. David J Zezula, NOAA.

LIBRARY & ARCHIVES

Date:

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

REGISTRY NUMBER:

HYDROGRAPHIC TITLE SHEET

H12680

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

State(s):	**Alaska**
General Locality:	**Kodiak, AK**
Sub-Locality:	**Alitak Bay Approach to Humpy Cove**
Scale:	**10000**
Dates of Survey:	**05/16/2014 to 06/16/2014**
Instructions Dated:	**04/21/2014**
Project Number:	**OPR-P335-FA-14**
Field Unit:	**NOAA Ship Fairweather**
Chief of Party:	**CDR. David J Zezula, NOAA.**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	**Multibeam Backscatter**
Verification by:	**Pacific Hydrographic Branch**
Soundings Acquired in:	**meters at Mean Lower Low Water**

Remarks:

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. 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 NOAA's National Centers for Environmental Information (NCEI) and can be retrieved via https://www.ncei.noaa.gov/

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Descriptive Report to Accompany Survey H12680

Project: OPR-P335-FA-14

Locality: Kodiak, AK

Sublocality: Alitak Bay Approach to Humpy Cove

Scale: 1:10000

May 2014 - June 2014

NOAA Ship Fairweather

Chief of Party: CDR. David J Zezula, NOAA.

A. Area Surveyed

The survey area is located at Kodiak Island, within the sub-locality of Alitak Bay Approach to Humpy Cove.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
56° 56' 55.12" N 154° 13' 4.22" W	56° 44' 36.46" N 153° 59' 51.98" W

Table 1: Survey Limits

Survey Limits were acquired in accordance with the requirements in the Project Instructions and the HSSD Dated April,2014.

A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products. The project will include areas off the South Coast of Kodiak Island, AK. This project area also addresses survey request number 030001; need for survey due to increasing number of passenger vessels, tour vessels, and large fishing fleet vessels.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

The 4-meter depth contour and the mean high water inshore limit were met with the following exception: areas where vegetation (i.e., kelp) at or near the surface made it impossible to safely navigate the survey. The 4m curve was not reached at the southeast corner of the sheet due to the area being foul with rocks as seen in the image below.

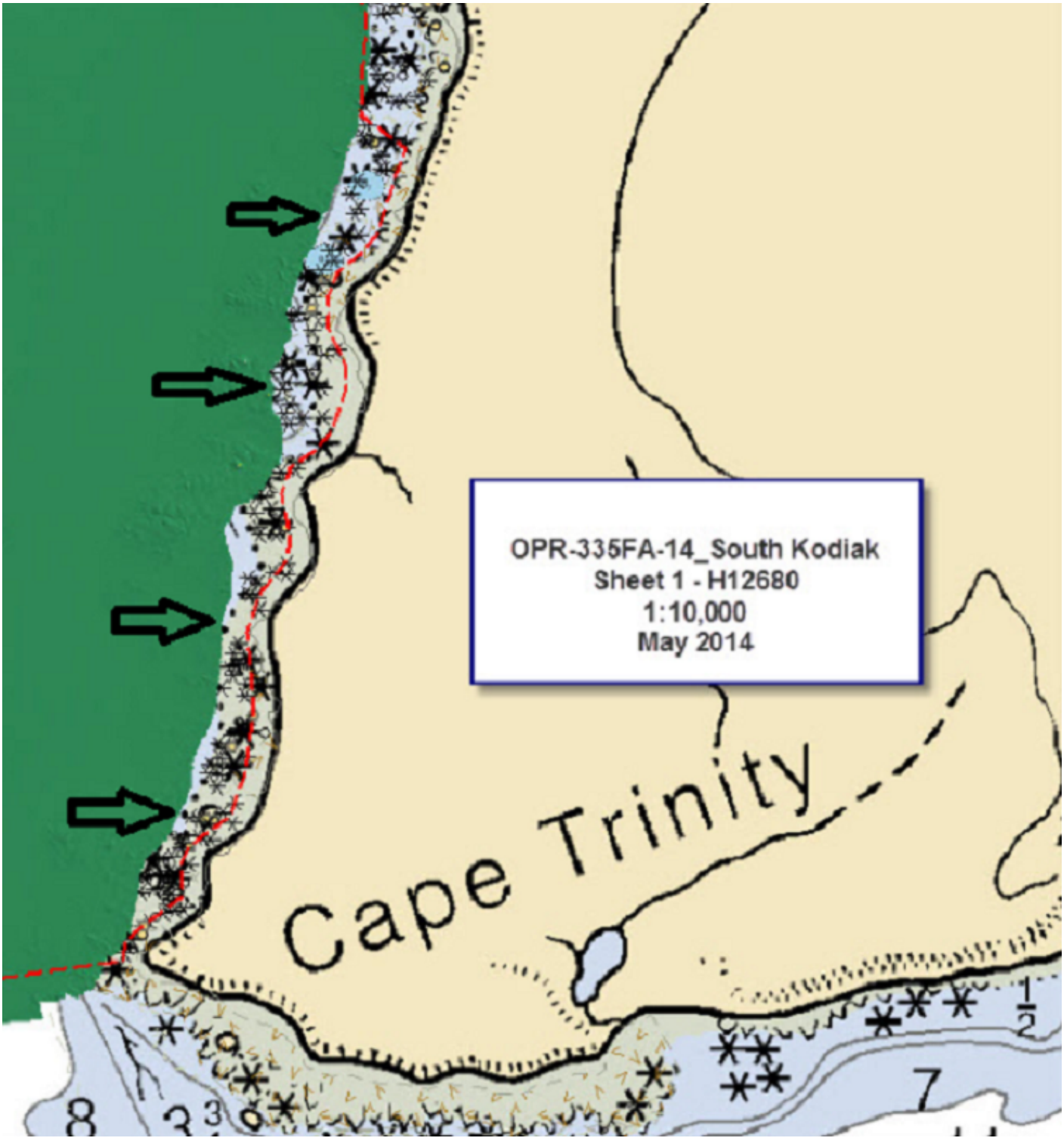


Figure 1: H12680 Sheet limit not met do to coverage fouled by rocks

A.4 Survey Coverage

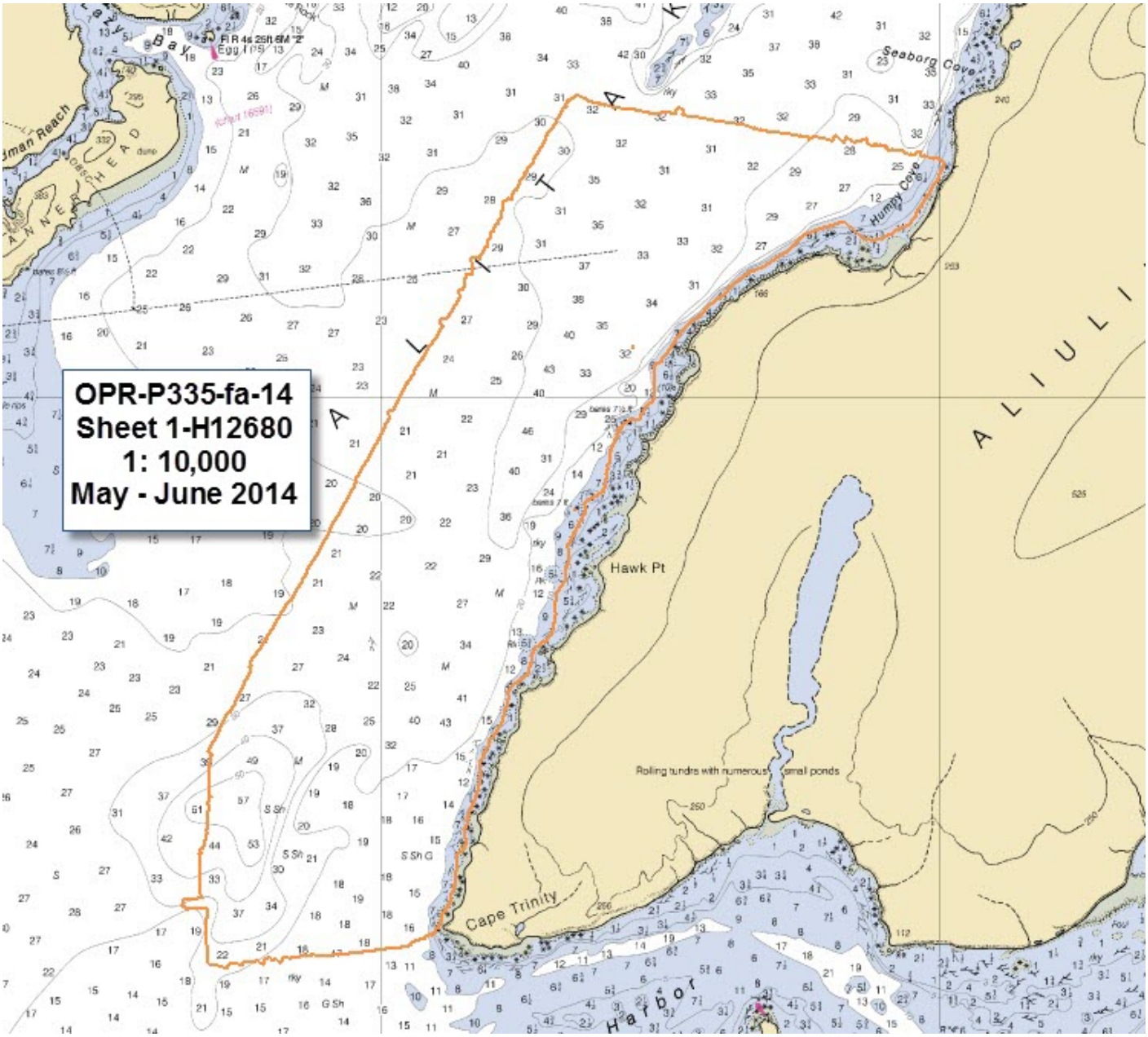


Figure 2: H12680 Survey Outline

Survey Coverage was in accordance with the requirements in the Project Instructions and the HSSD.

A.5 Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey:

	HULL ID	*2805*	*2806*	*2807*	*2808*	*Total*
LNM	**SBES Mainscheme**	0	0	0	0	0
	MBES Mainscheme	70.35	100.39	100.59	99.54	370.87
	Lidar Mainscheme	0	0	0	0	0
	SSS Mainscheme	0	0	0	0	0
	SBES/SSS Mainscheme	0	0	0	0	0
	MBES/SSS Mainscheme	0	0	0	0	0
	SBES/MBES Crosslines	21.00	0	0	0	21
	Lidar Crosslines	0	0	0	0	0
Number of Bottom Samples						8
Number of AWOIS Items Investigated						0
Number Maritime Boundary Points Investigated						0
Number of DPs						0
Number of Items Investigated by Dive Ops						0
Total SNM						22.24

Table 2: Hydrographic Survey Statistics

The following table lists the specific dates of data acquisition for this survey:

Survey Dates	Day of the Year
05/16/2014	136
05/17/2014	137
05/20/2014	140
05/21/2014	141
06/16/2014	167

Table 3: Dates of Hydrography

Two Detached Positions (DP) were acquired as part of survey H12680.

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the Data Acquisition and Processing Report (DAPR) for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the DAPR are discussed in the following sections.

B.1.1 Vessels

The following vessels were used for data acquisition during this survey:

Hull ID	*2805*	*2806*	*2807*	*2808*
LOA	8.64 meters	8.64 meters	8.64 meters	8.64 meters
Draft	1.12 meters	1.12 meters	1.12 meters	1.12 meters

Table 4: Vessels Used

B.1.2 Equipment

The following major systems were used for data acquisition during this survey:

Manufacturer	Model	Type
Reson	7125	MBES
Applanix	POS MV V4	Positionong and Attitude System
Reson	SVP-71	Sound Speed System
Sea-Bird Electronics	SBE 19 Plus	Conductivity,Temperature,and Depth Sensor

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Crosslines acquired for this survey totaled 6% of mainscheme acquisition.

Surface differencing in CARIS HIPS and SIPS was used to assess crossline agreement with mainscheme lines. Figure 6 depicts an 8-meter surface made with mainscheme lines only and an 8-meter surface made with crosslines only. This difference surface is submitted digitally in the Separates II folder. The two surfaces agree within plus or minus 0.5 meters, therefore crosslines agree with mainscheme lines within the total allowable vertical and horizontal uncertainty in their common areas.There is notable disagreement in areas with steep slopes as seen in figure 4.

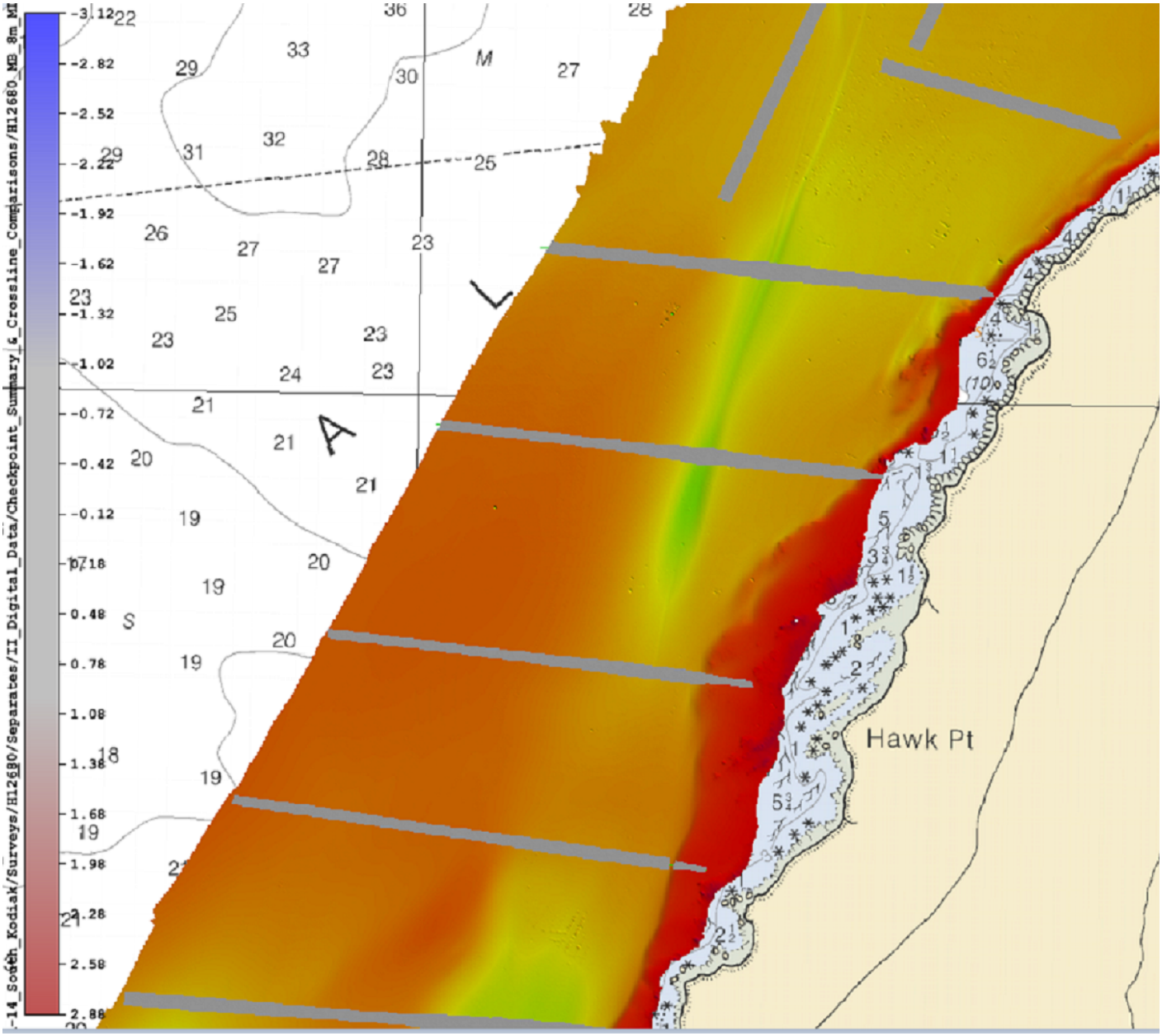


Figure 3: H12680 Graphical representation between crossline and mainscheme surfaces.

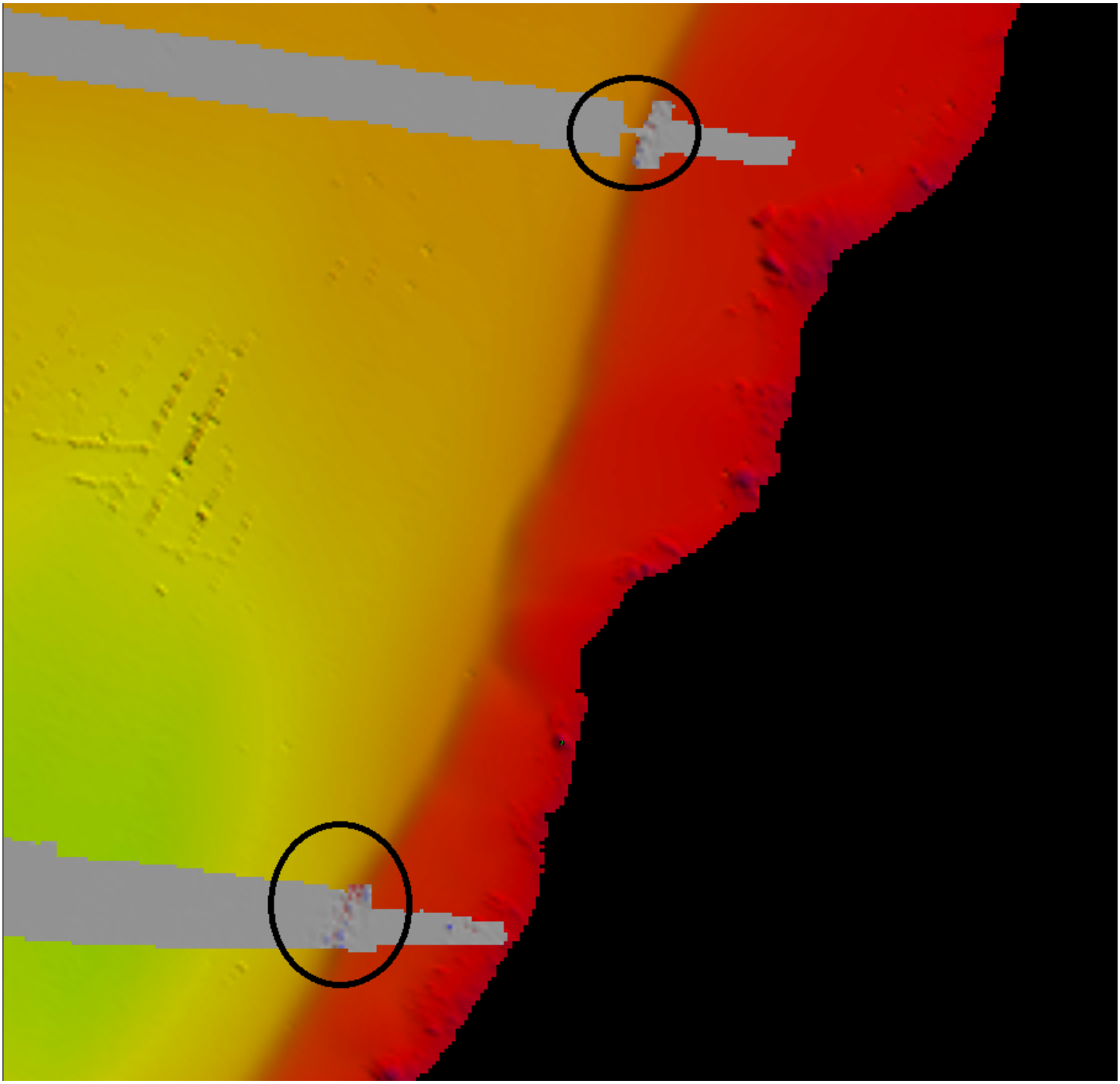


Figure 4: H12680 Disagreement between surfaces with steep slopes

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Measured	Zoning
0.01 meters	0.08 meters

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
2805	2 meters/second		0.5 meters/second
2806	2 meters/second		0.5 meters/second
2807	2 meters/second		0.5 meters/second
2808	2 meters/second		0.5 meters/second

Table 7: Survey Specific Sound Speed TPU Values

B.2.3 Junctions

The areas of overlap between the sheets were reviewed in CARIS Subset Editor for sounding consistency and in CARIS BathyDatabase by surface differencing 8-meter combined surfaces to assess surface agreement. The soundings and surfaces are in agreement within half a meter. The junction agreement is within the total allowable vertical and horizontal uncertainity in their common areas and depths.

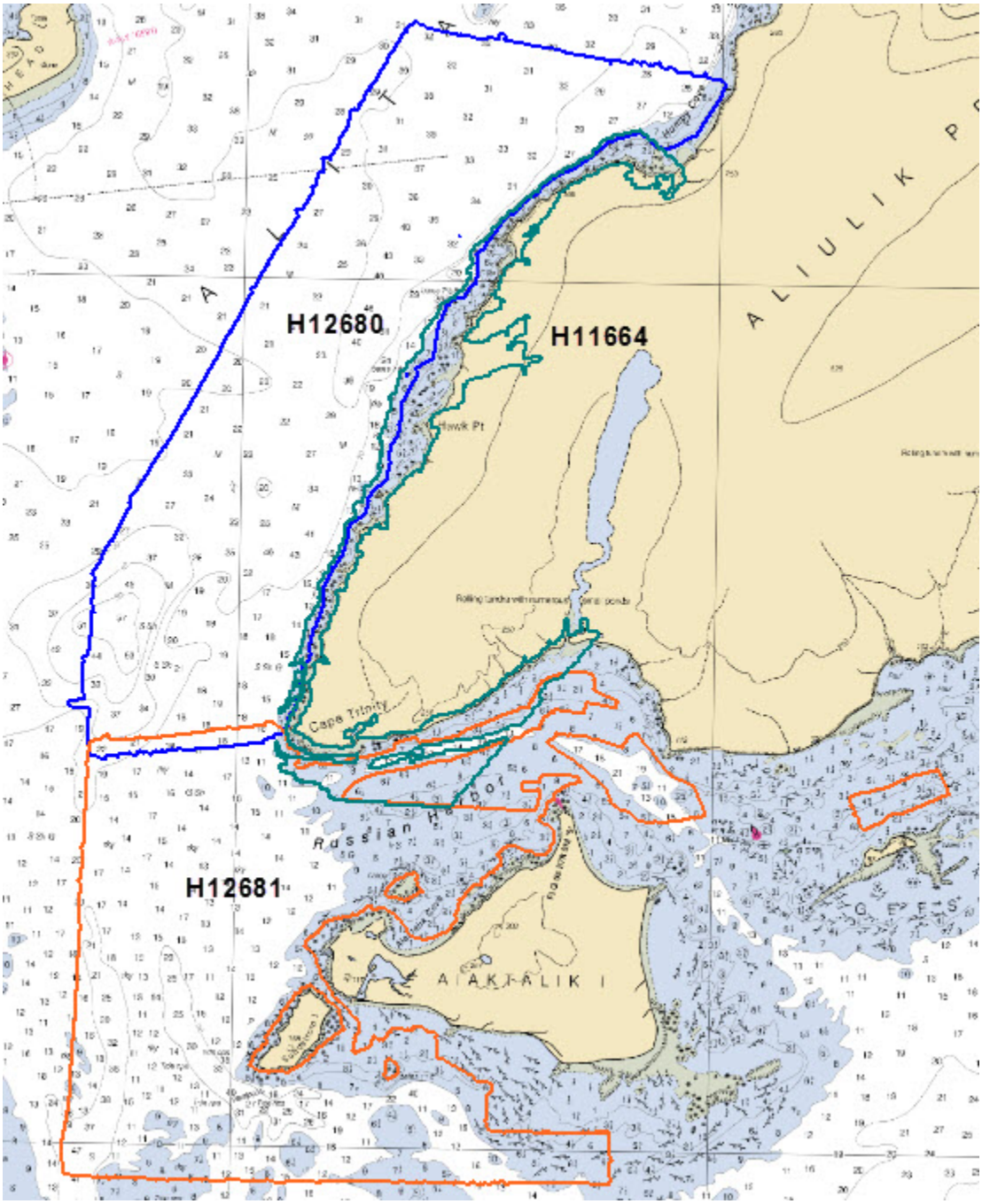


Figure 5: Junction between H12680, H12681, and H11664.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12681	1:40000	2014	NOAA Ship FAIRWEATHER	S
H11664	1:10000	2007	TENIX LADS	E

Table 8: Junctioning Surveys

H12681

Surface differencing in CARIS HIPS and SIPS was used to assess junction agreement between H12680_MB_8m_MLLW_Combined and H12681_MB_8m_MLLW_Combined. The difference between the surfaces were generally less than 0.5 m. See figure figures bellow for graphical representation and for statistical information of the surface differencing.

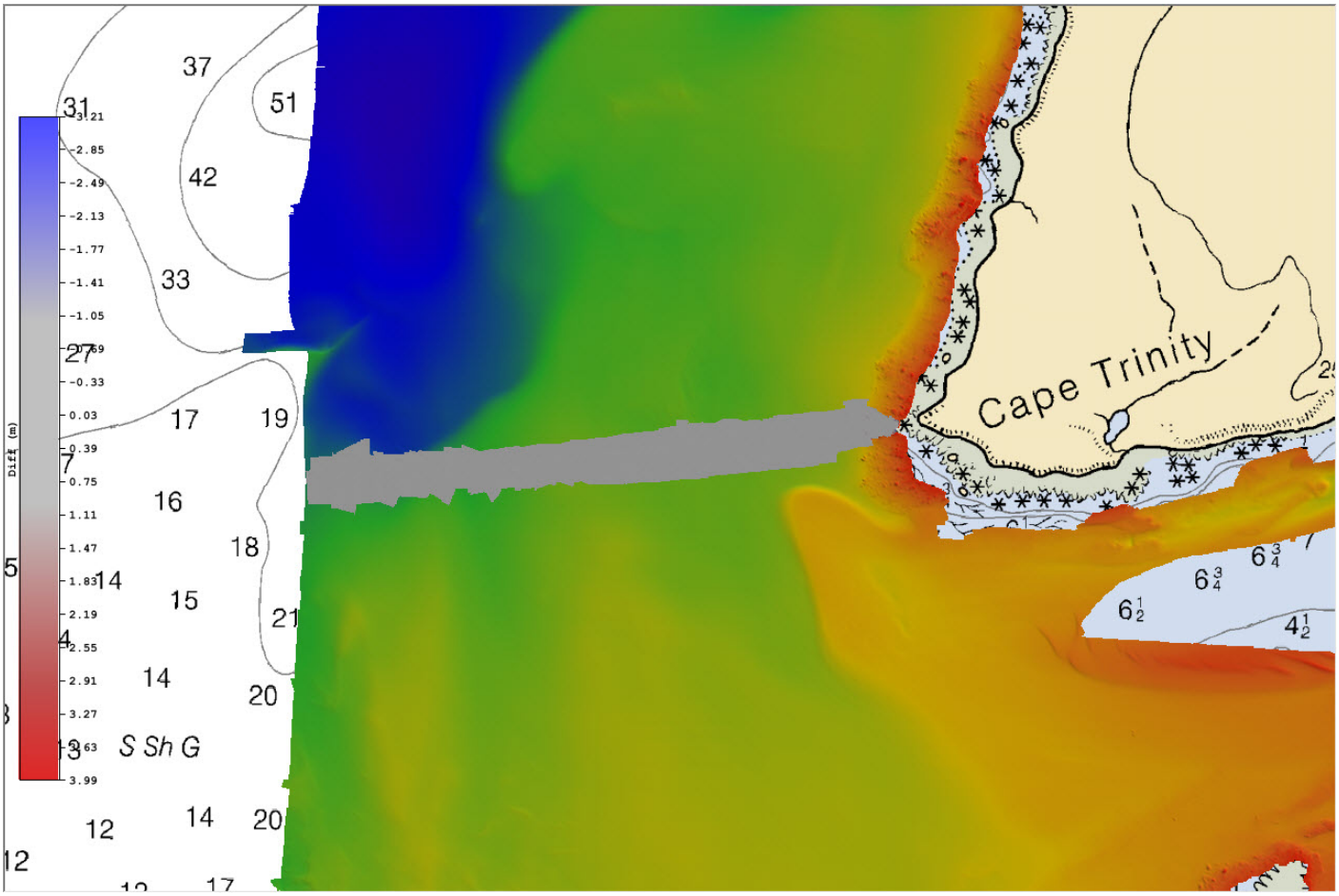


Figure 6: Graphical representation of differences between junction H12680 and H12681.

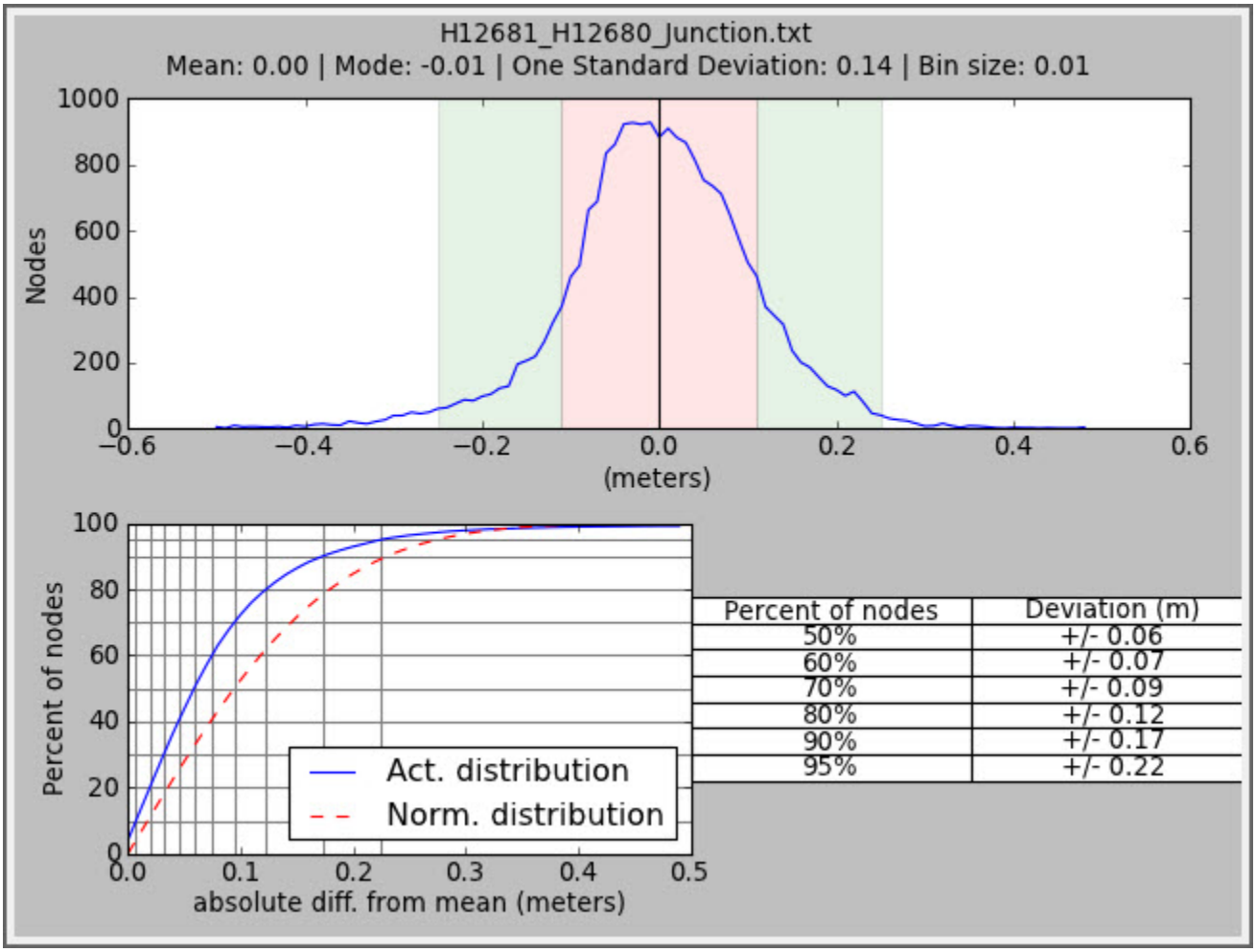


Figure 7: Statistical information for junction comparison between sheet H12680 and H12681.

H11664

Surface differencing in CARIS Bathy database was used to assess junction agreement between H12680_MB_8m_MLLW_Combined surface and H11664_LI_BASE_3m. Survey H12680 was compared to the LIDAR junction survey H11664, which was completed in 2007 by TENIX LADS. The difference at the 95 percent confidence level was +/- 1.07m, please see statistical information on the image below. The areas of greatest differences were in very rocky and dynamic sections of the surveys and also where the LIDAR coverage was very sparse.

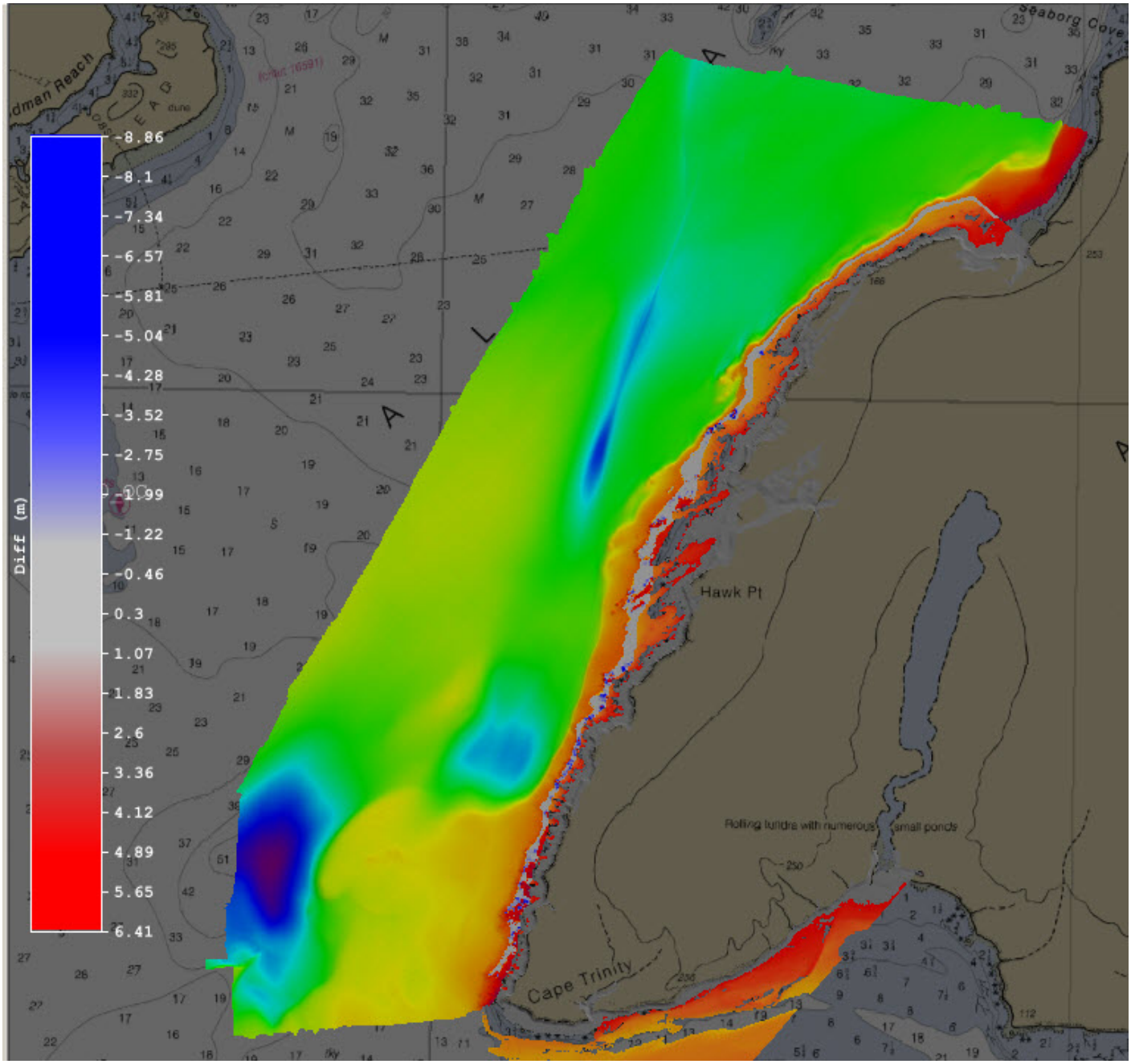
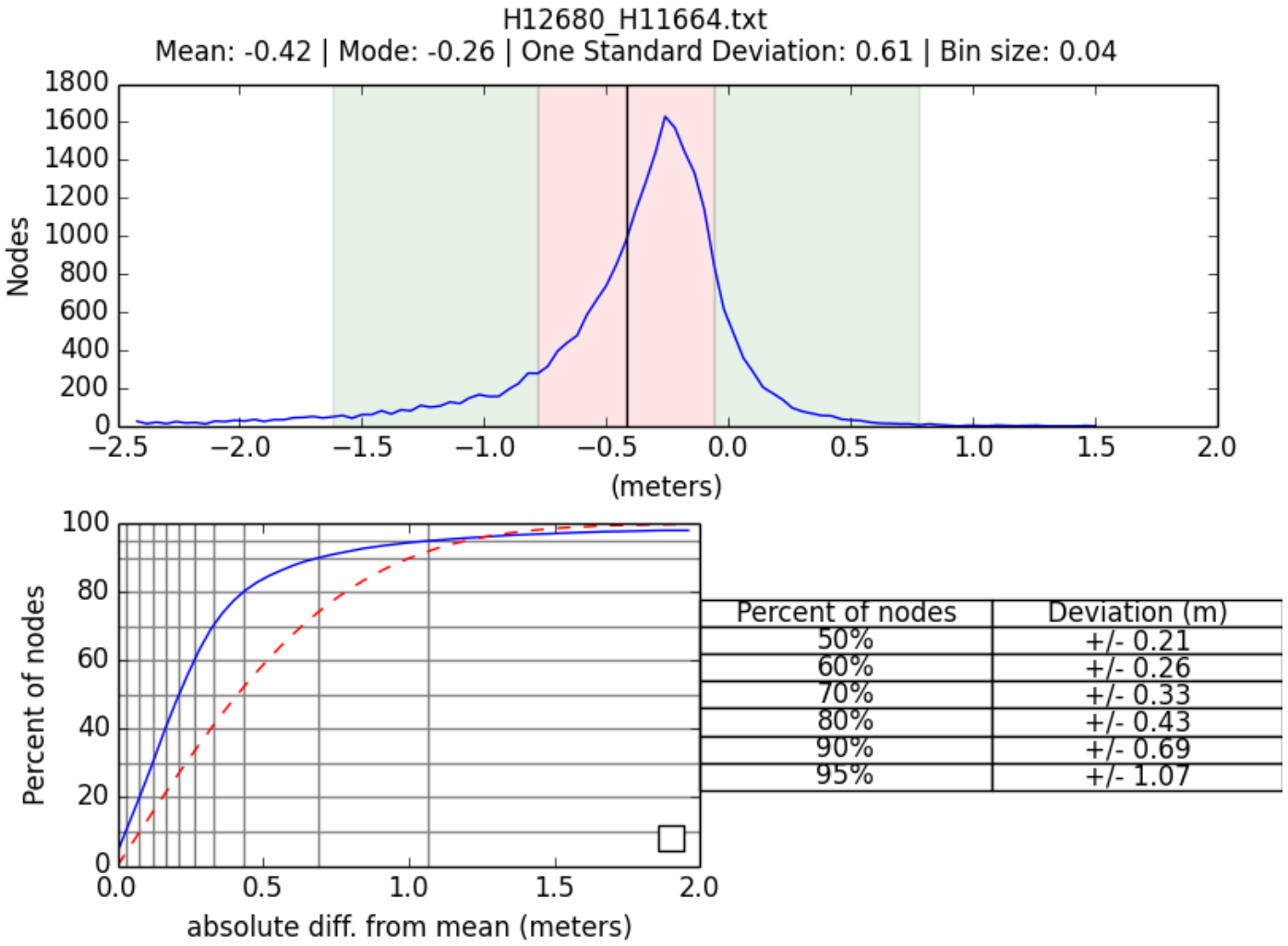


Figure 8: Graphical representation of differences between junction H12680 and H11664.



Percent of nodes	Deviation (m)
50%	+/- 0.21
60%	+/- 0.26
70%	+/- 0.33
80%	+/- 0.43
90%	+/- 0.69
95%	+/- 1.07

Figure 9: Statistical information for junction comparison between sheet H12680 and H11664.

B.2.4 Sonar QC Checks

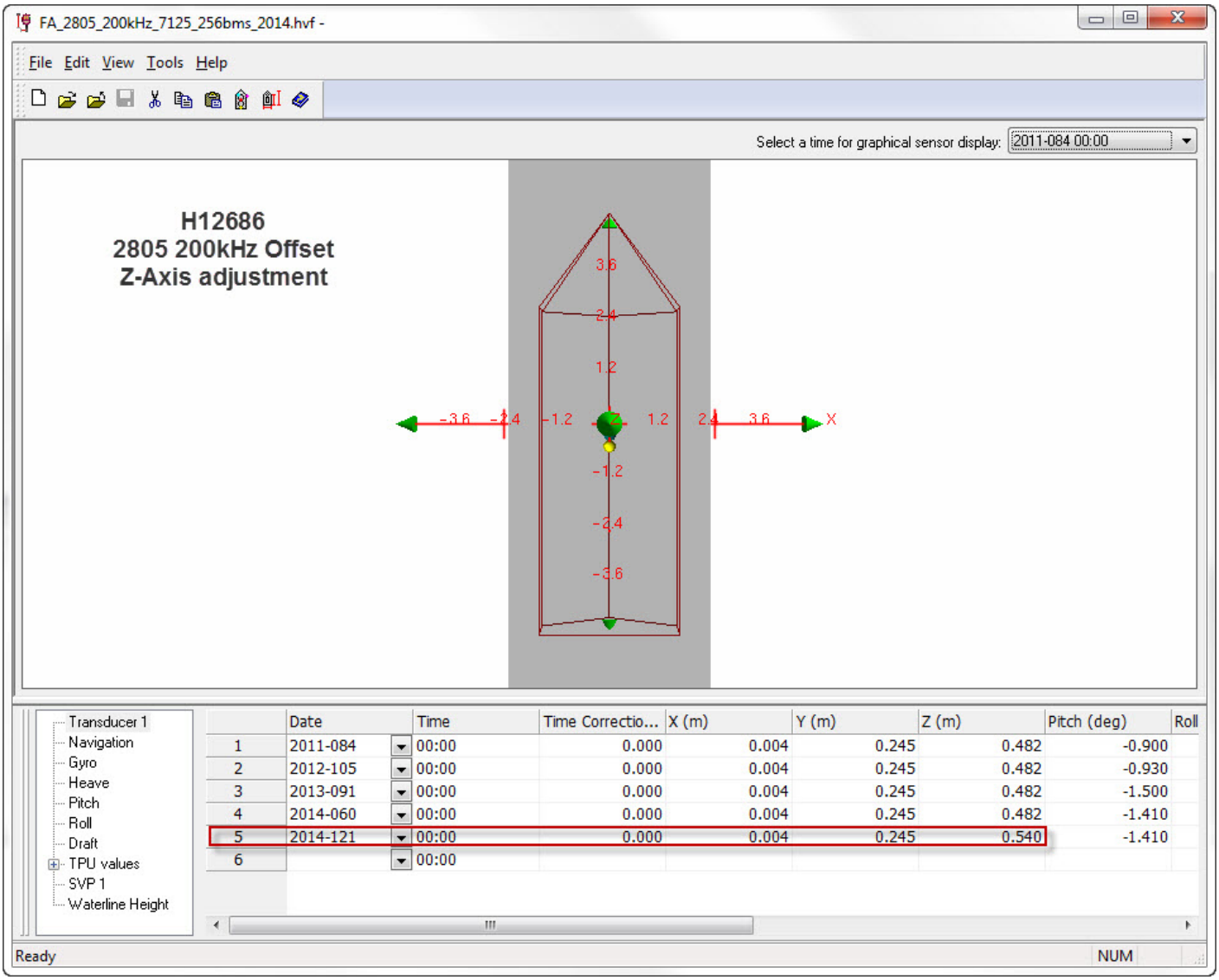
Sonar system quality control checks were conducted as detailed in the quality control section of the DAPR.

B.2.5 Equipment Effectiveness

RESON 7125 200kHz Offset

For data collected on survey H12680, with launch 2805 200kHz on day number 136, there is an observable vertical offset, which varies with water depth as seen in the images below. This error is due to an incorrect setting in the RESON hardware configuration, specifically the mounting bracket offsets for the receiver reference point to projector reference point. The offset was observed while reviewing reference surface data collected following acquisition of this project (see figures 8 and 9). The "Z" value in the 2805 200kHz HVF

(Transducer 1) was modified to account for the difference imposed by the incorrect setting, which resolved this vertical offset; the value was modified to 0.540 meters from 0.482 meters as shown in Figure 7.



	Date	Time	Time Correctio...	X (m)	Y (m)	Z (m)	Pitch (deg)	Roll
1	2011-084	00:00	0.000	0.004	0.245	0.482	-0.900	
2	2012-105	00:00	0.000	0.004	0.245	0.482	-0.930	
3	2013-091	00:00	0.000	0.004	0.245	0.482	-1.500	
4	2014-060	00:00	0.000	0.004	0.245	0.482	-1.410	
5	2014-121	00:00	0.000	0.004	0.245	0.540	-1.410	
6		00:00						

Figure 10: FA 2805 200kHz HVF Z-axis Offset adjustment.

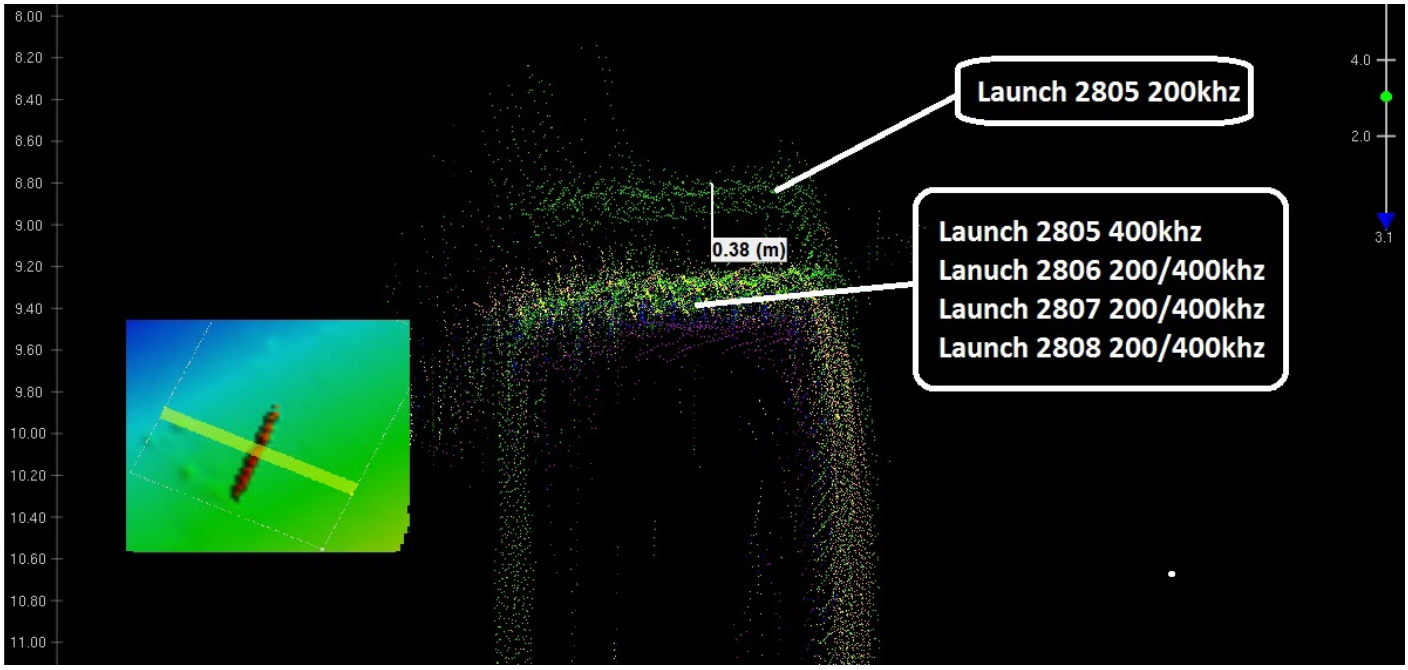


Figure 11: H12680 2805 200kHz Offset 3D View.

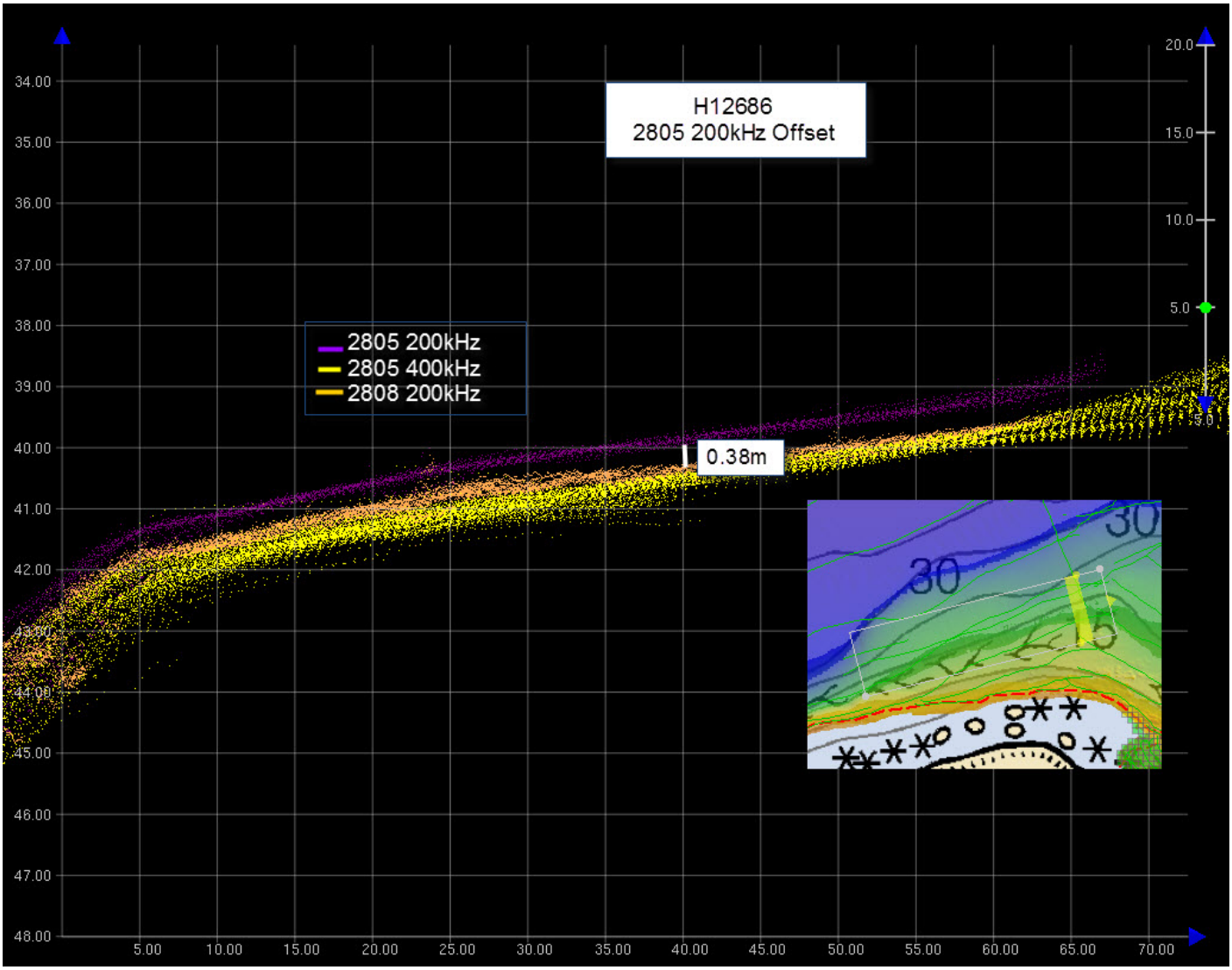


Figure 12: H12680 2805 200kHz Offset 2D View.

The offset described in section B.2.5 was reduced by adjusting the z-value in the HIPS Vessel File. While a change to a static offset value may not entirely eliminate an offset that varies with depth, data were reviewed at the Pacific Hydrographic Branch and are adequate to supersede previous data.

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Casts were conducted at a minimum of at least every four hours during launch acquisition.

Casts were conducted more often in areas where the input of freshwater had an effect on the speed of sound in the water column and when there was a change in surface sound velocity greater than two meters per second.

B.2.8 Coverage Equipment and Methods

All equipment and survey methods were used as detailed in the DAPR.

B.2.9 IHO uncertainity

All data meet the data accuracy specifications as stated in the NOS Hydrographic Surveys Specifications and Deliverables (HSSD) dated April 2014. It was found that 100% of nodes in the 1-meter, 2-meter, 4-meter, and 8-meter grids meet or exceed IHO Order 1 specifications for all depths of survey H12680, see Standards Compliance Review in Appendix II. To assess vertical accuracy standards, a child layer titled “IHO_1” was created for each of the 1-meter, 2-meter, 4-meter, and 8-meter (72-100m) and "IHO_2" for the 8-meter (100-160m) finalized surfaces using the equations stated in section C. 2.1 of the DAPR.

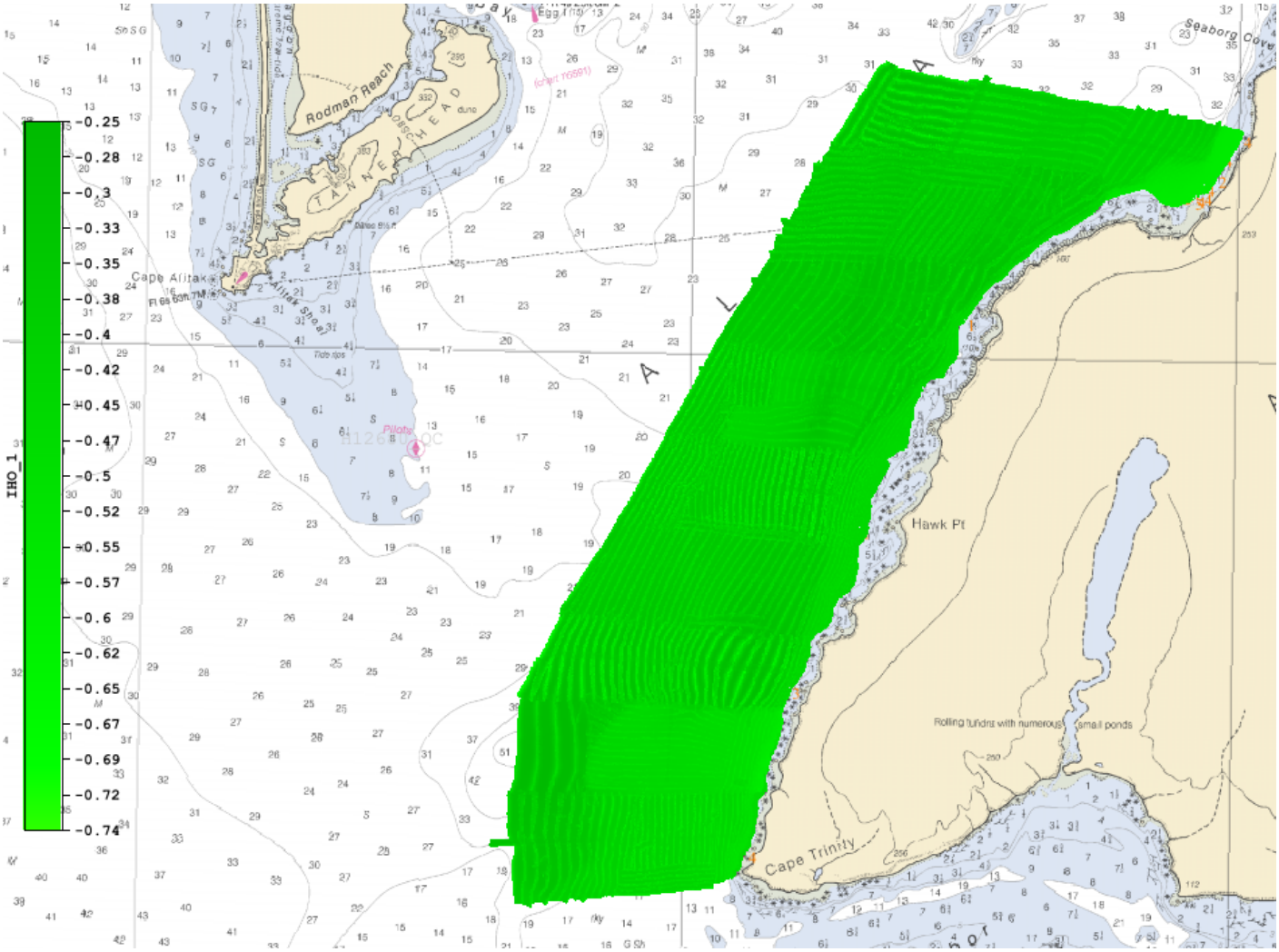


Figure 13: H12680 IHO Uncertainty Layer.

B.2.10 H12680 Density

Density requirements for H12680 were achieved with at least 99.92% of finalized surface nodes containing five or more soundings, see Standards Compliance Review in Appendix II.

B.2.11 Holiday Assessment

Complete coverage, per coverage requirements described in the project instructions, was obtained within the limits of H12680. The least depths of all navigationally significant features are represented by H12680, however some holidays do exist and examples are described below.

Acoustic shadowing prevented full coverage on downslope areas of a few rocky outcrops. Most holidays of this nature were near or outside the survey sheet limit. Examples of these holidays are shown in figures 14 and 15.

Holidays exist where multibeam coverage did not cover the top of a rock. These holidays were found after the project area was departed, leaving no opportunity for further development. Several of this type of holiday exist outside the near shore sheet limit. Examples are shown in figure 16 and 17 below. Other examples of this exist at:

56:46:47.22N, 154:07:52.83W
56:46:12.81N, 154:08:14.50W
56:46:24.05N, 154:08:13.74W
56:46:54.18N, 154:07:47.91W
56:47:01.76N, 154:07:44.01W

Holidays exist where multibeam coverage was not obtained on the top of rock in the vicinity of other larger rocks. The large rocks in proximity made it unsafe to survey the holidays. These figures are shown in figure 18 and 19.

Throughout the survey there were several small holidays that could not be surveyed due to departure of the survey area. These holidays had the backscatter from the surrounding area examined to confirm that no features were present. These holidays are shown in figures 20 and 21.

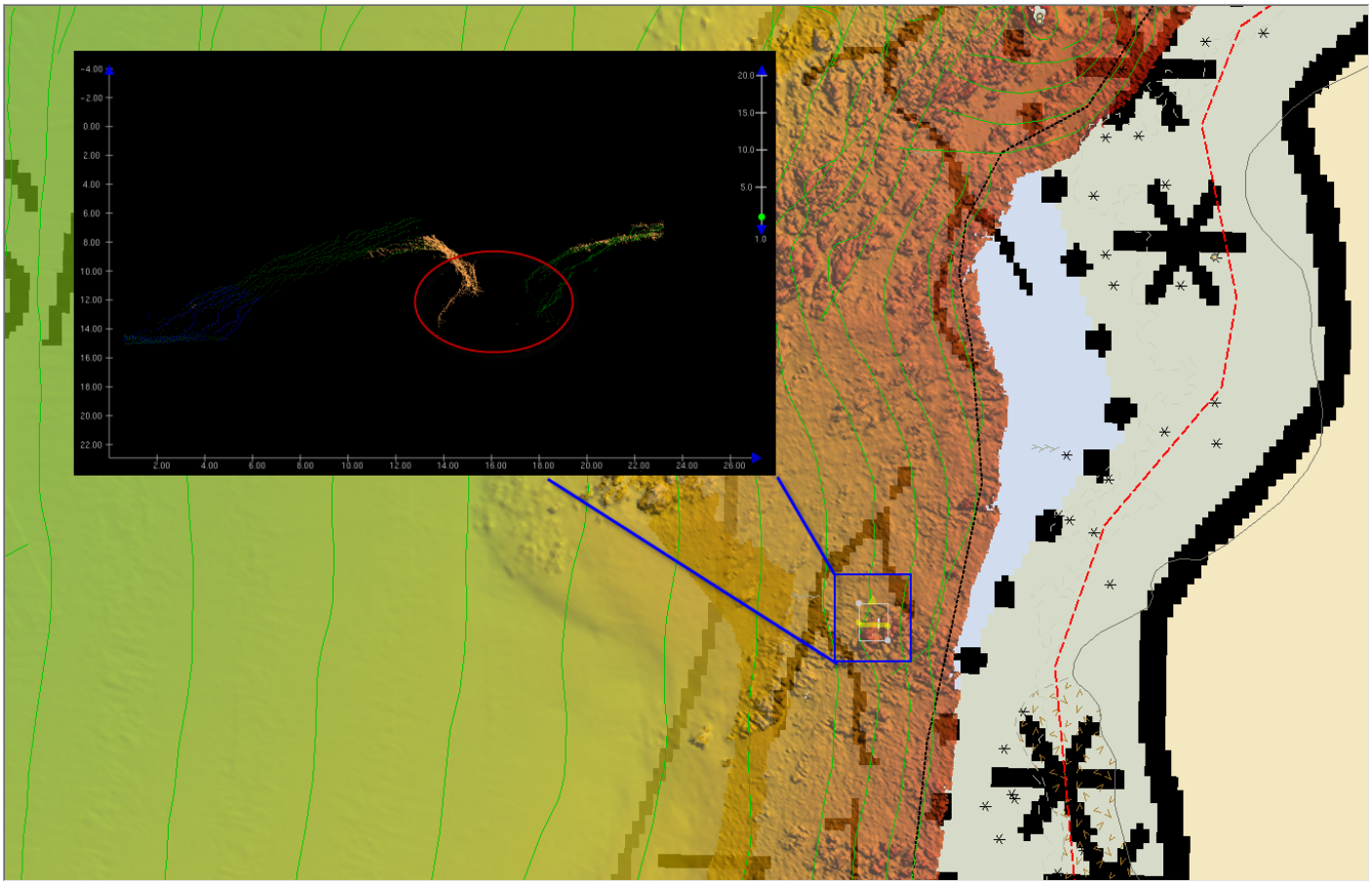


Figure 14: Acoustic shadow holiday example 1 (56:45:21.77N, 154:08:42.61W)

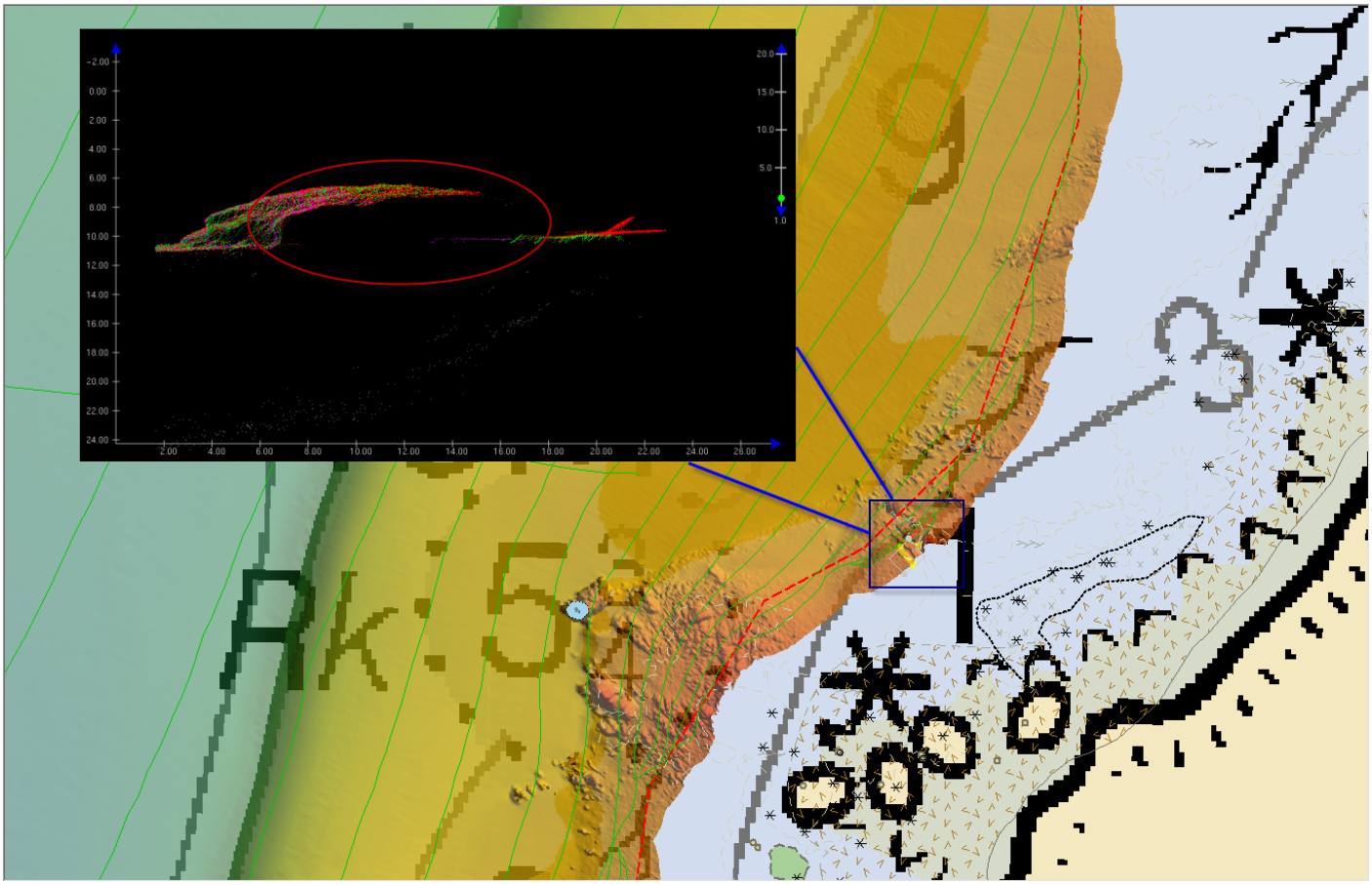


Figure 15: Acoustic shadow holiday example 2 (56:47:38.22N, 154:07:03.67W)

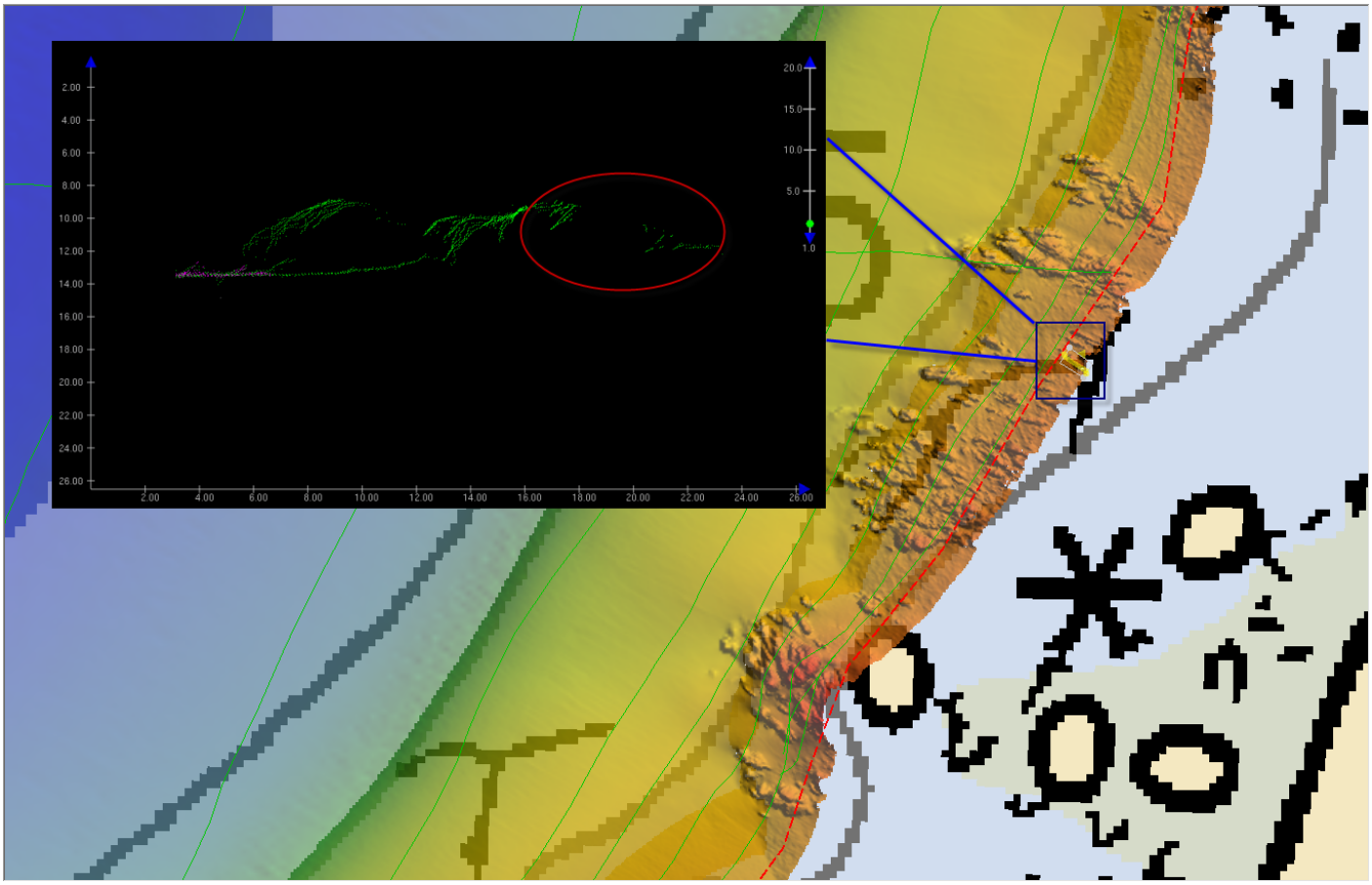


Figure 16: Missing rock high point example 1 (56:46:47.22N, 154:07:52.83W)

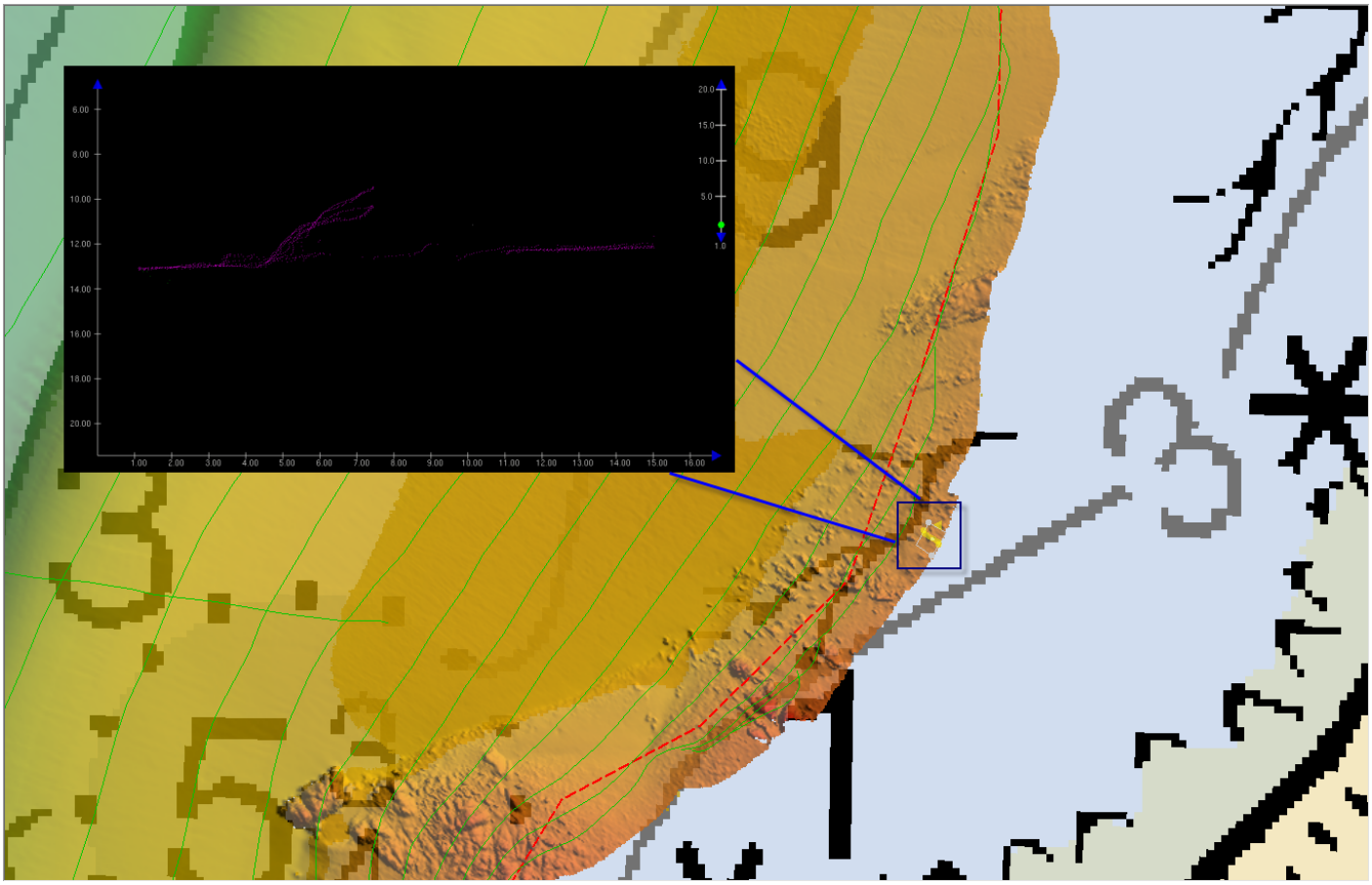


Figure 17: Missing rock high point example 2 (56:47:42.45N, 154:06:56.68W)

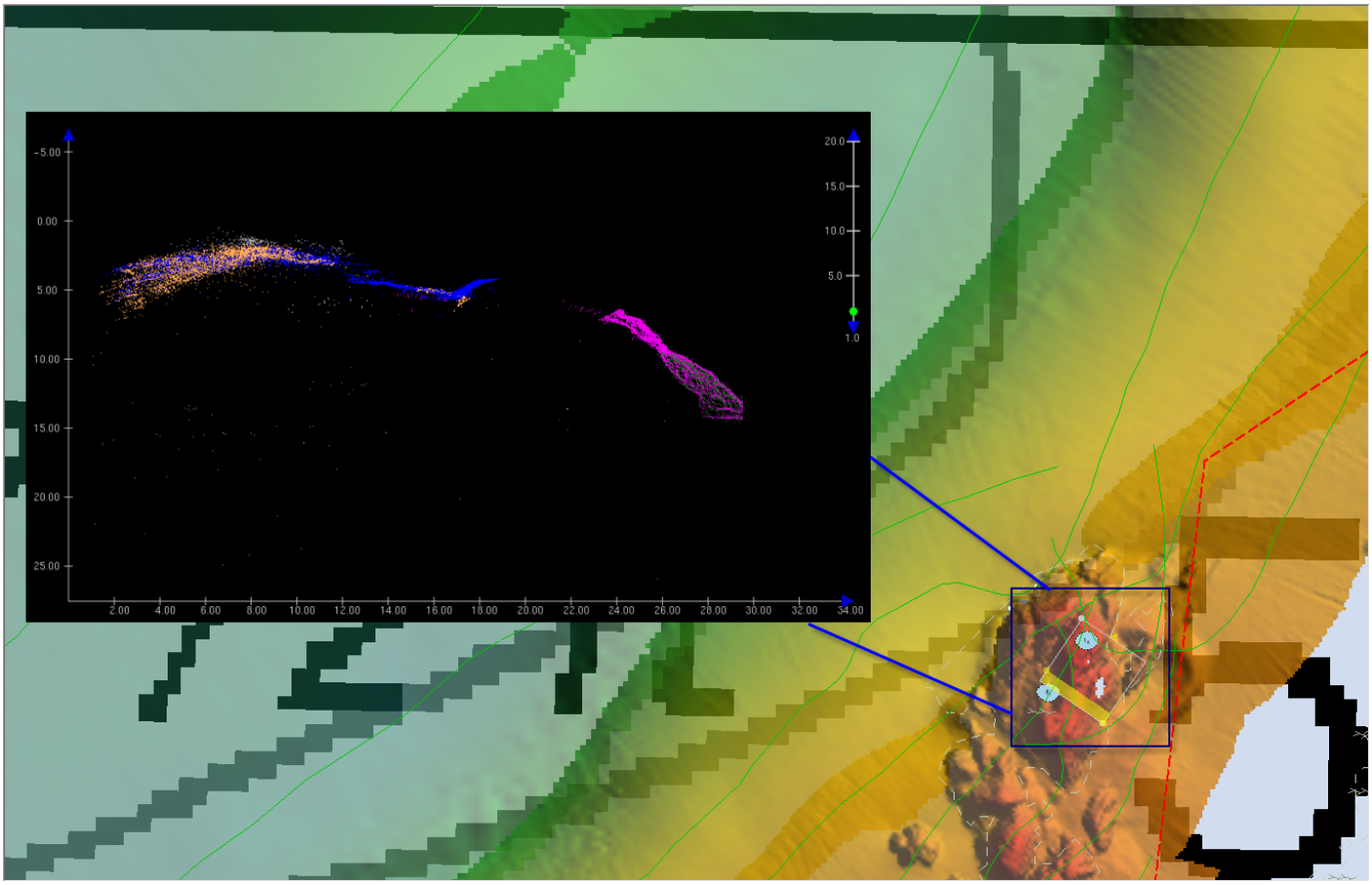


Figure 18: Missing rock high point near shoal feature (56:49:52.14N, 154:05:22.69W)

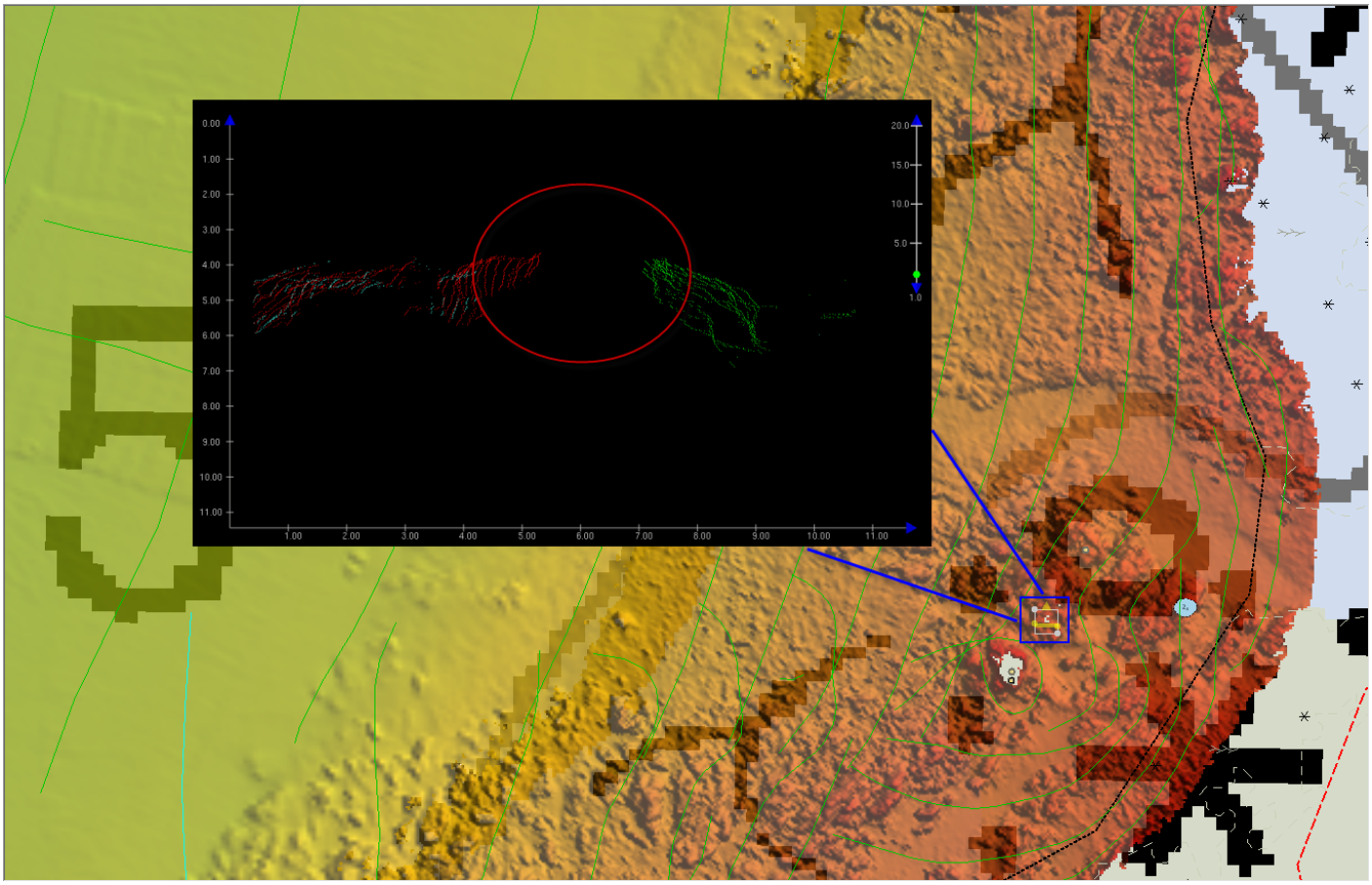


Figure 19: Missing rock high point near shoal feature (56:46:54.18N, 154:07:47.91W)

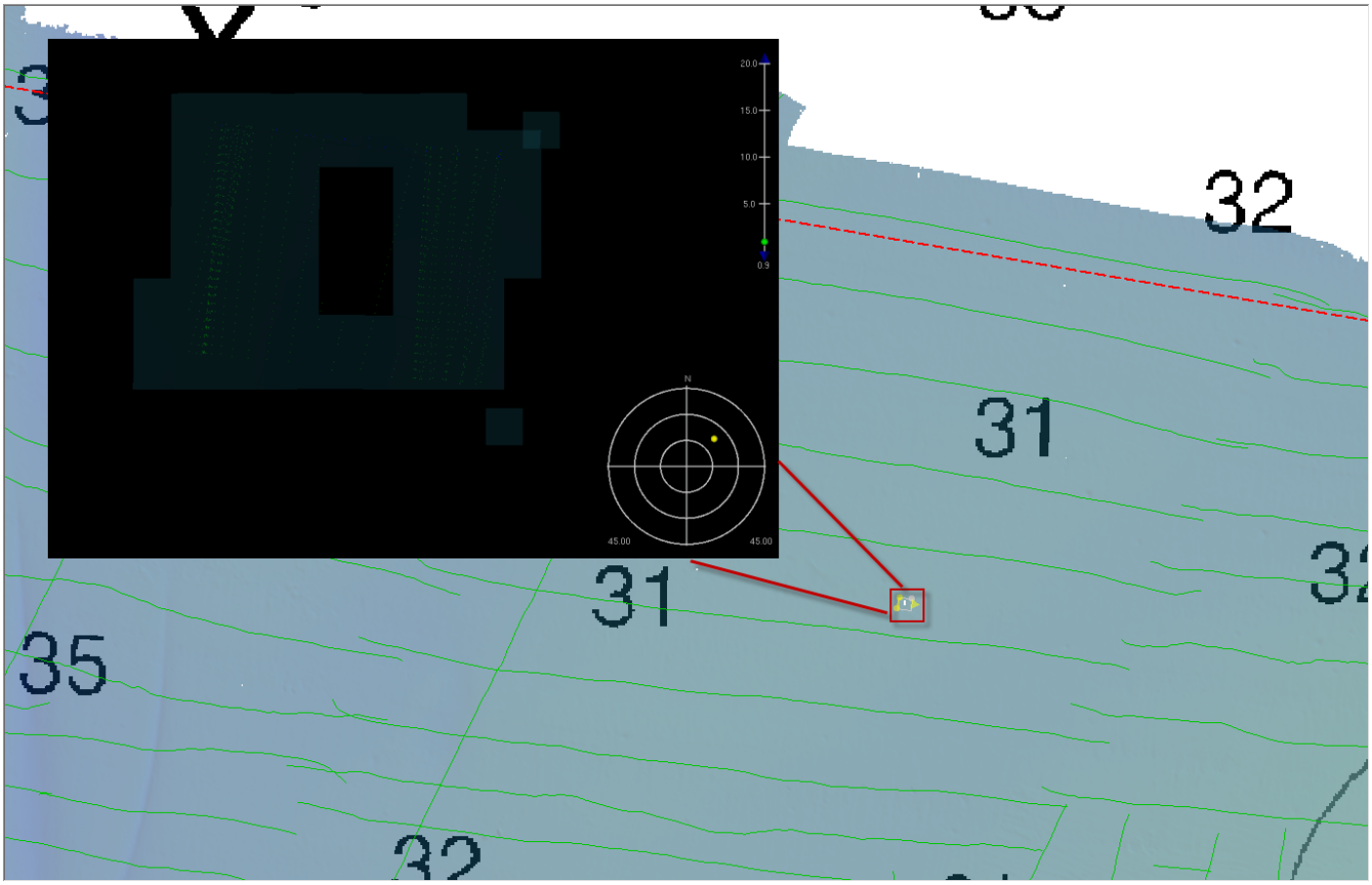


Figure 20: General holiday example 1 (56:52:13.32N, 154:04:19.94W)

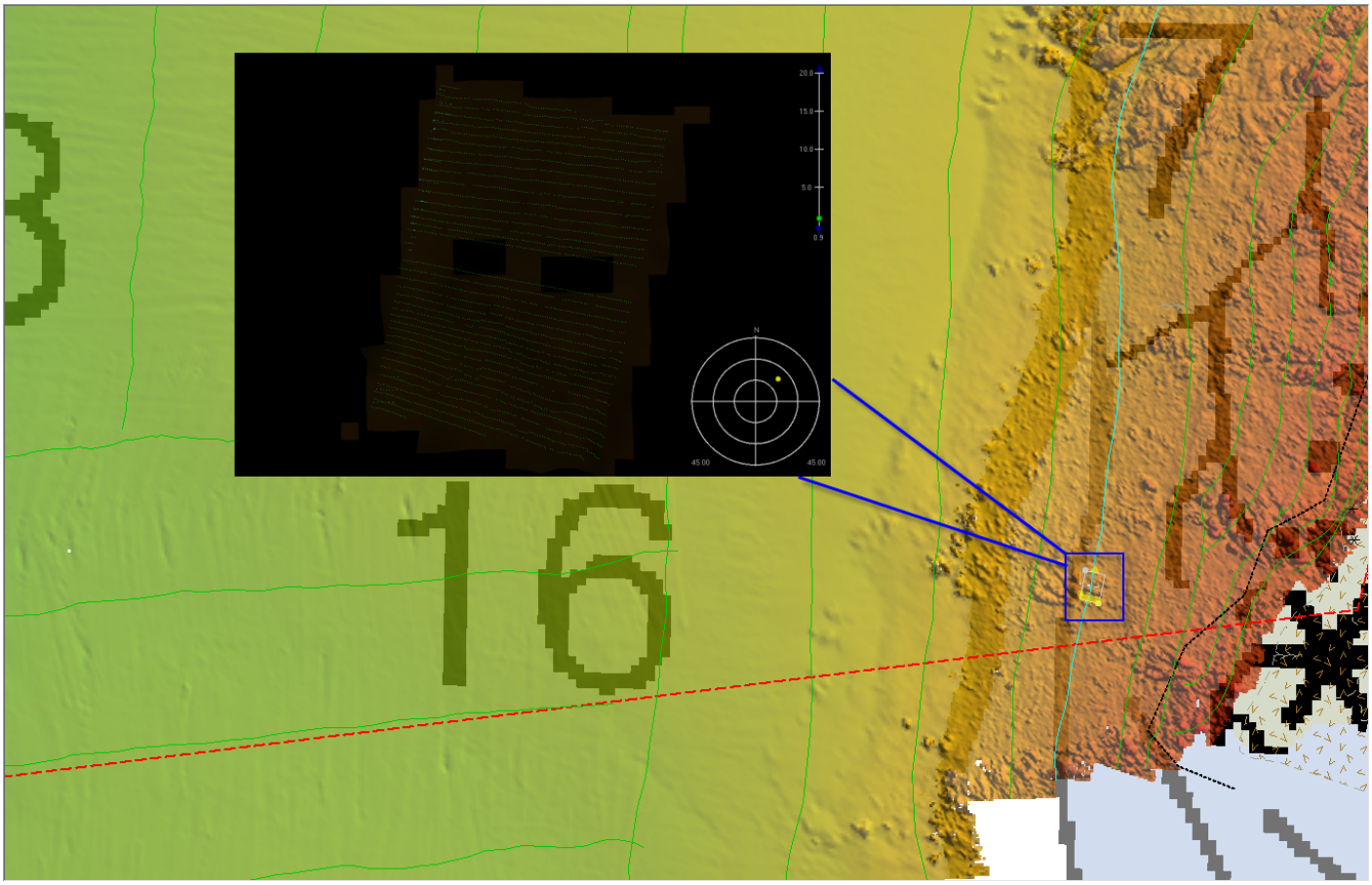


Figure 21: General holiday example 2 (56:44:48.47N, 154:09:07.69W)

The data gap shown in Figure 20 spans only 3 grid nodes and is not considered a 'holiday' under current Specifications.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All data reduction procedures conform to those detailed in the DAPR.

B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Backscatter was logged in 7k files and submitted directly to NGDC to be archived and to PHB where the data will be processed. One line per vessel per day of Backscatter was processed by the field unit.

B.5 Data Processing

B.5.1 Software Updates

There were no software configuration changes after the DAPR was submitted.

The following Feature Object Catalog was used: NOAA Extended Attribute Files V5.3.2

Due to an error in CARIS HIPS version 8.1.8 that causes TPU to be recomputed incorrectly, HIPS was reverted to 8.1.7 for Survey H12680. TPU and all surfaces were re-computed and the IHO uncertainty statistics was re-evaluated.

B.5.2 Surfaces

The following surfaces and/or BAGs were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12680_MB_1m_MLLW	CUBE	1 meters	-	NOAA_1m	Complete MBES
H12680_MB_2m_MLLW	CUBE	2 meters	-	NOAA_2m	Complete MBES
H1260_MB_4m_MLLW	CUBE	4 meters	-	NOAA_4m	Complete MBES
H12680_MB_8m_MLLW_	CUBE	8 meters	-	NOAA_8m	Complete MBES
H12680_MB_1m_MLLW_Final	CUBE	1 meters	0 meters - 20 meters	NOAA_1m	Complete MBES
H12680_MB_2m_MLLW_Final	CUBE	2 meters	18 meters - 40 meters	NOAA_2m	Complete MBES
H12680_MB_4m_MLLW_Final	CUBE	4 meters	36 meters - 80 meters	NOAA_4m	Complete MBES
H12680_MB_8m_MLLW_Final	CUBE	8 meters	72 meters - 160 meters	NOAA_8m	Complete MBES
H12680_MB_8m_Combined_MLLW_Final	CUBE	8 meters	-	NOAA_8m	Complete MBES

Table 9: Submitted Surfaces

The NOAA CUBE parameters mandated in HSSD were used for the creation of all CUBE BASE surfaces in Survey H12680.The surfaces have been reviewed where noisy data, or ‘fliers’ are incorporated into the gridded solution causing the surface to be shoaler or deeper than the true seafloor. Where these spurious soundings cause the gridded surface to be shoaler or deeper than the reliably measured seabed by greater than the maximum allowable TVU at that depth, the noisy data have been rejected and the surface recomputed.

As delivered from the field hydrographer, surface H12680_MB_4m_MLLW_Final had a depth range of 38 to 80 meters.

H12680_MB_8m_MLLW_Office_Final.csar was used for cartographic compilation.

B.5.3 Data Logs

Data acquisition and processing notes are included in the acquisition and processing logs, and additional processing such as final tide and sound velocity application is noted in the H12680 Data Log spreadsheet. All data logs are submitted digitally in the Separates I folder.

C. Vertical and Horizontal Control

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying HVCR.

C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

Standard Vertical Control Methods Used:

Discrete Zoning

The following National Water Level Observation Network (NWLON) stations served as datum control for this survey:

Station Name	Station ID
Alitak, AK	9457804
Kodiak Island, AK	9457292

Table 10: NWLON Tide Stations

The following subordinate water level stations were established for this survey:

Station Name	Station ID
Japanese Bay	9457634

Table 11: Subordinate Tide Stations

File Name	Status
9457292.tid	Final Approved
9457804.tid	Final Approved

Table 12: Water Level Files (.tid)

File Name	Status
H12680CORF.zdf	Final

Table 13: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 08/01/2014. The final tide note was received on 08/26/2014.

Final zoning and water level files were received for survey H12680 on 08/26/2014.

Tide note is attached

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD83).

The projection used for this project is UTM Zone 5 North.

The following PPK methods were used for horizontal control:

Single Base

Vessel kinematic data were post processed using Applanix POSPac processing software and the Single Base method was used as described in the DAPR. Smooth Best Estimate of Trajectory (SBET) and associated error (RMS) data were applied to all MBES data in CARIS HIPS and SIPS.

The following user installed stations were used for horizontal control:

HVCR Site ID	Base Station ID
9677	Aiaktalik Island

Table 14: User Installed Base Stations

The following DGPS Stations were used for horizontal control:

DGPS Stations
Kodiak 313 kHz (100 BPS)

Table 15: USCG DGPS Stations

C.3 Additional Horizontal or Vertical Control Issues

3.3.1 True Heave file Issues

The POS files on DN137 from 2808 200kHz corresponding to the following HDCS lines: 2014M_1372240, 2014M_1372246, 2014M_137250, and 2014M_1372208 were not transferred properly and subsequently deleted. This resulted in an error where the delayed heave file and navigation times do not match.

Line 2014M_1372208 does not exist as part of H12680. The correct name of the line referred to in section C.3 is 2014M_1372308.

D. Results and Recommendations

D.1 Chart Comparison

A comparison was performed between survey H12680 and charts 16590_1, 16591_1, and ENC US4AK5LM, using CARIS sounding and contour layer derived from the 8-m combined surface. The contours and soundings have been overlaid on the chart to assess differences. All data from H12680 should supersede charted data.

D.1.1 Raster Charts

The following are the largest scale raster charts, which cover the survey area:

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
16590	1:81529	11	09/2007	04/15/2014	04/05/2014
16591	1:20000	9	01/2004	03/03/2014	03/08/2014

Table 16: Largest Scale Raster Charts

16590

Soundings from survey H12680 generally agreed within one to two fathoms with charted depths on chart 16590. Contours generated in CARIS HIPS and SIPS closely approximate the Charted 3, 10, 20, 30, 40, and 50 fathom contours with the notable exceptions shown in the figures below.

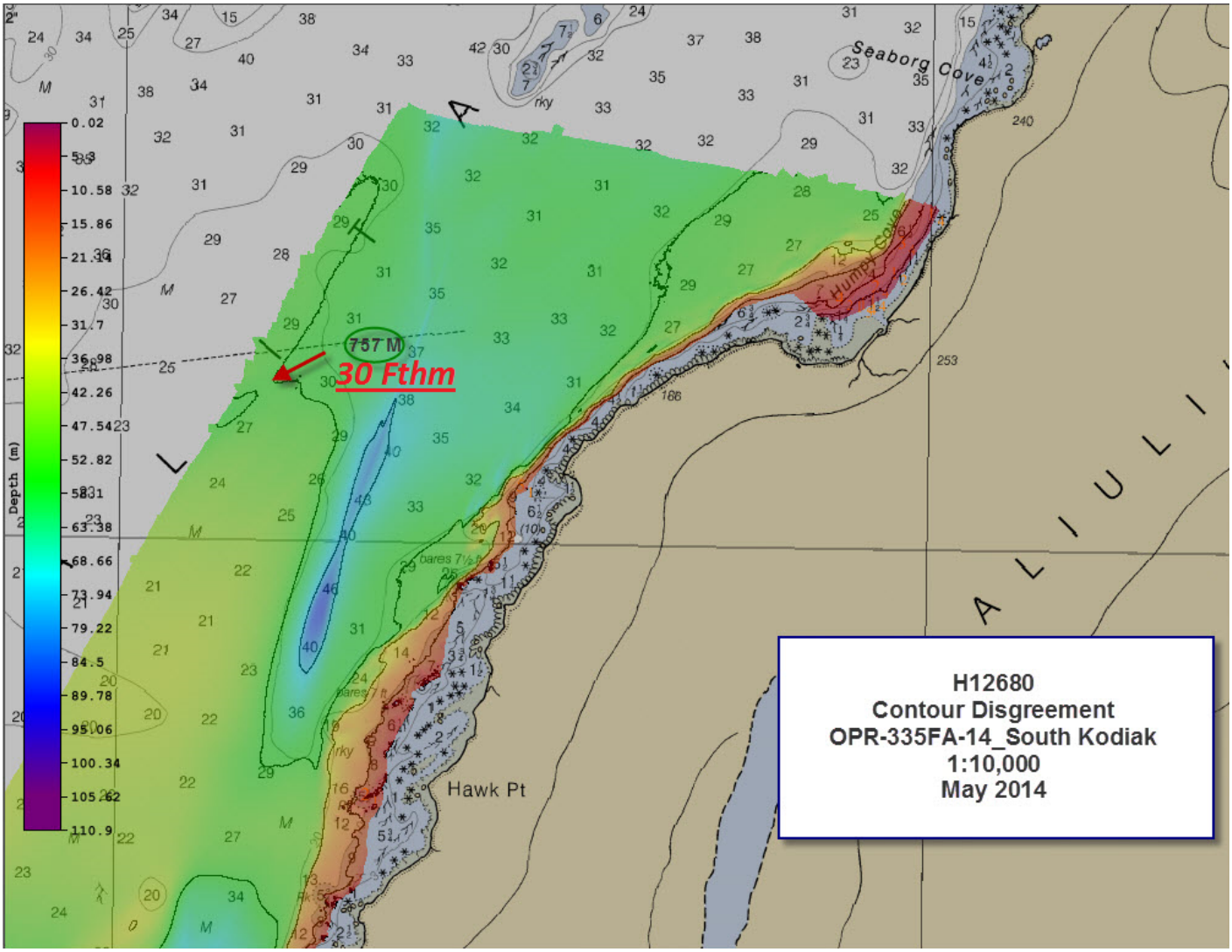


Figure 22: H12680 northwest corner 30f contour discrepancy.

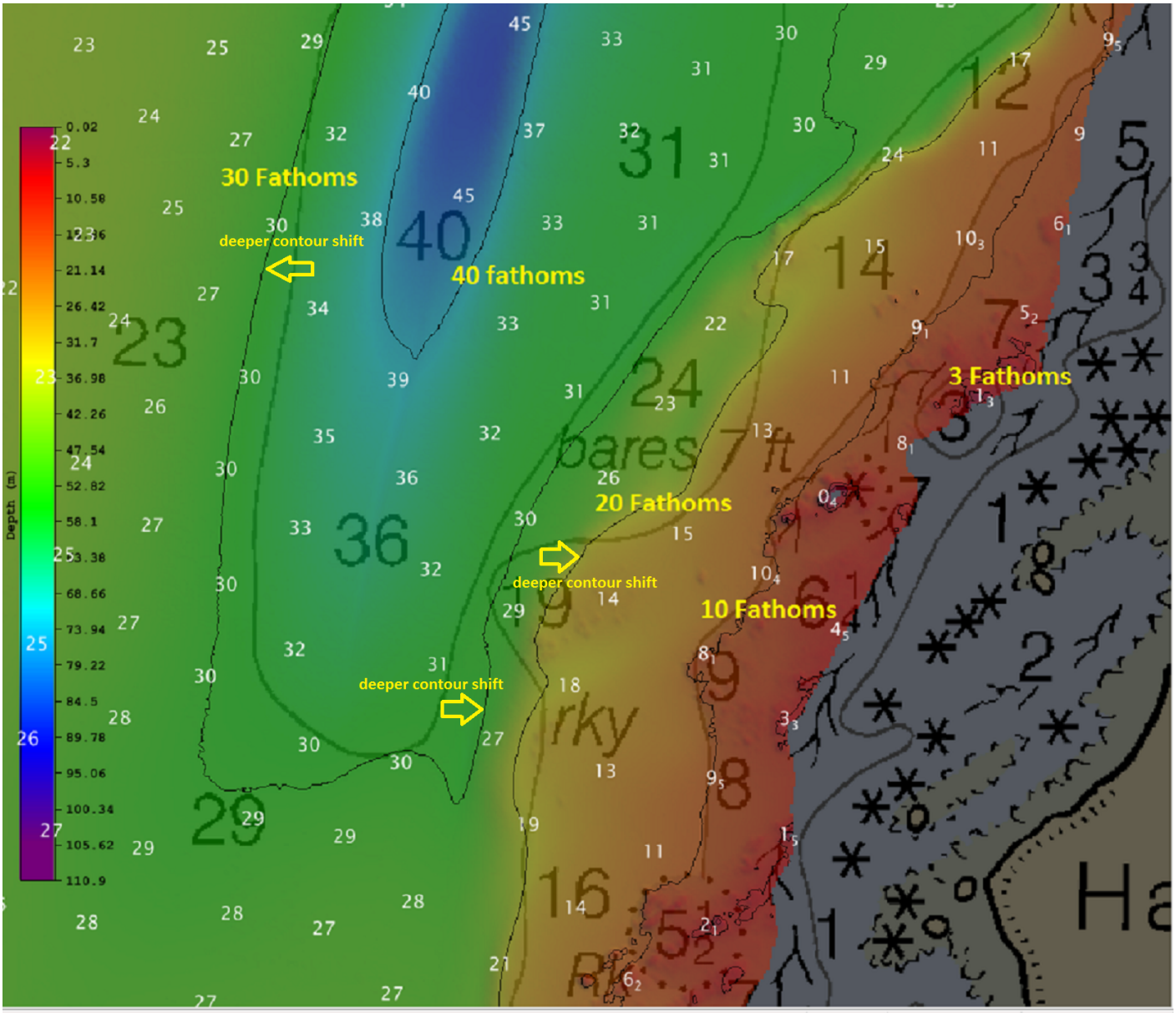


Figure 23: H12680 southeast corner contour layout.

16591

Soundings from survey H12680 generally agreed within one to two fathoms with charted depths on chart 16591. Contours generated in CARIS HIPS and SIPS closely approximated the charted 3, 10, 20, 30, 40,and 50 fathom contours. Chart 16591 covers the top half portion of survey H12680. Notable exceptions to this general agreement are shown in the figures below.

D.1.2 Electronic Navigational Charts

The following are the largest scale ENCs, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US4AK5MM	1:20000	1	04/15/2014	04/01/2014	NO
US4AK5LM	1:81529	7	09/03/2014	09/03/2014	NO

Table 17: Largest Scale ENCs

US4AK5MM

Soundings from survey H12680 generally agreed within one to two fathoms with charted depths on US4AK5MM.Contours generated in CARIS HIPS closely approximated the charted 3,10,20,30,40, and 50 fathom contours.

US4AK5LM

Soundings from survey H12680 generally agreed within one to two fathoms with charted depths on US4AK5LM. Contours generated in CARIS HIPS closely approximated the charted 3,10,20,30,40, and 50 fathom contours. See discussion from Chart 16590 for more details.

D.1.3 AWOIS Items

No AWOIS items were assigned for this survey.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

All charted features for this survey are addressed in the H12680_Final_Feature_File.

D.1.6 Uncharted Features

No uncharted features exist for this survey.

D.1.7 Dangers to Navigation

One Danger to Navigation was found within the survey limits of H12680 and was reported to the Marine Chart Division on 10/09/2014 . A large rock exists with a 2.2 fathom least depth in close proximity to a charted sounding of 5.5 fathoms. The Danger to Navigation Report is included in Appendix III of this report. A confirmation e-mail was received on 10/10/2014. Submission and confirmation e-mail are in the supplemental survey records and correspondence folder.

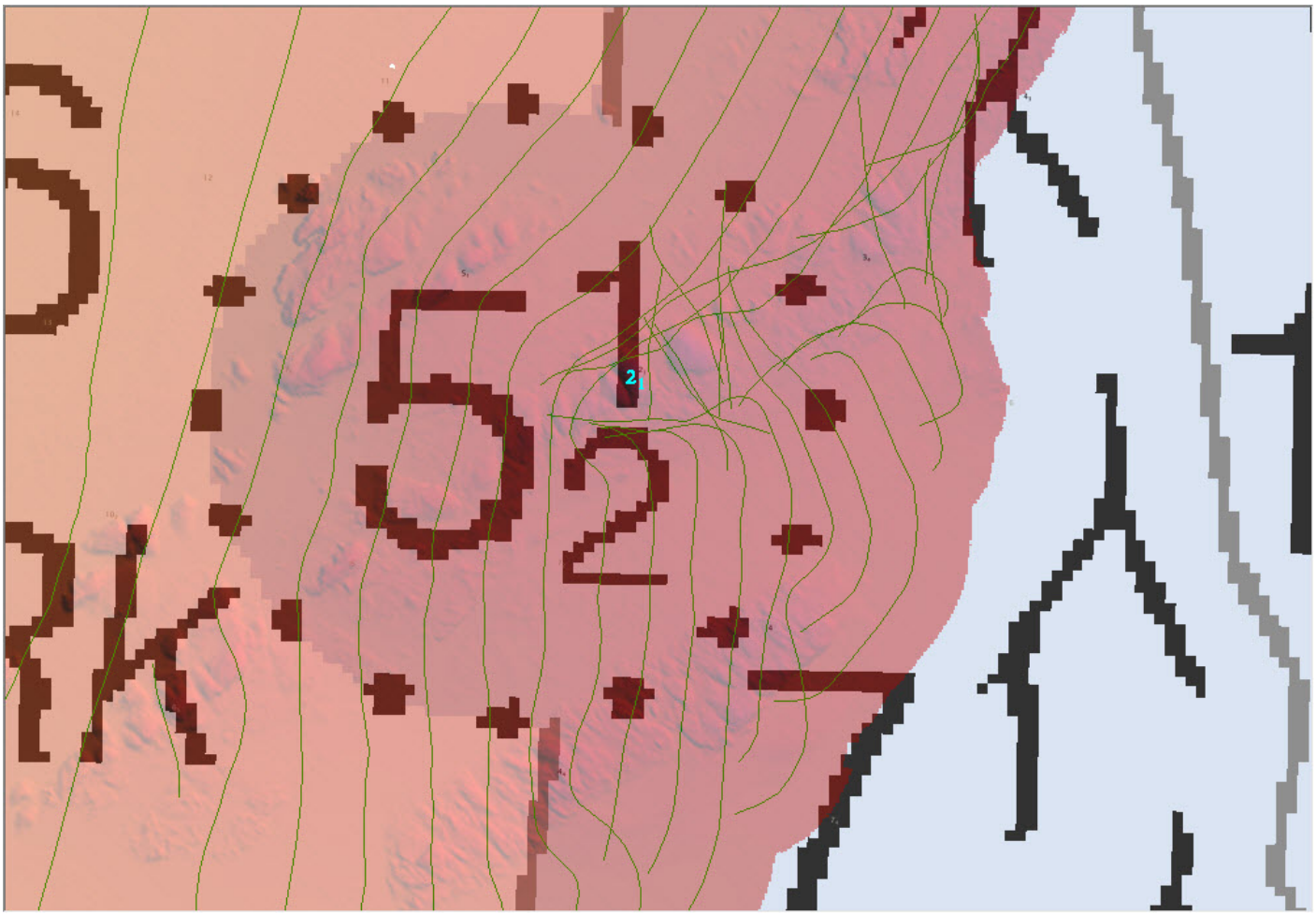


Figure 24: H12680 DTON with MBES Coverage.

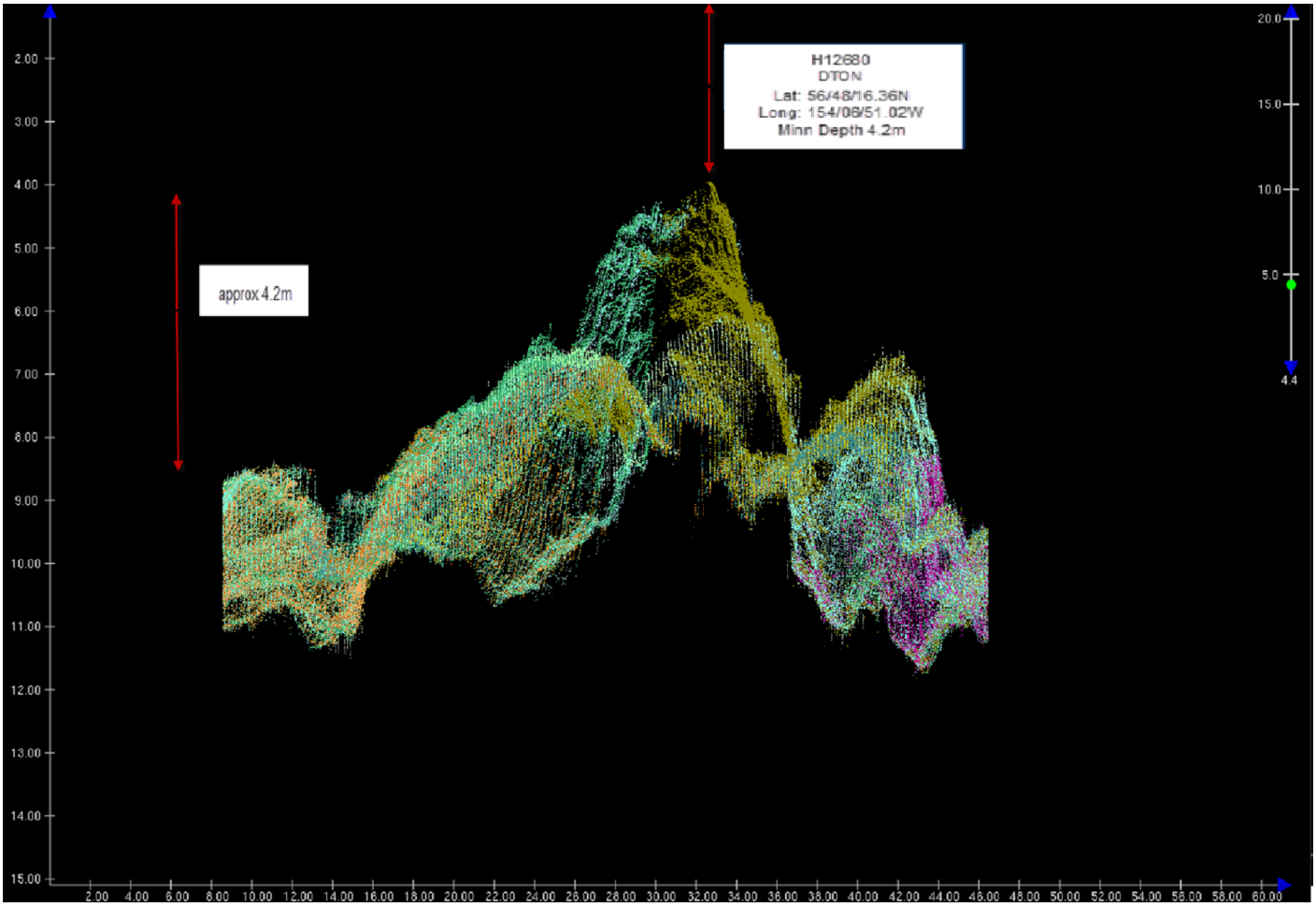


Figure 25: H12680 DTON East Alitak Bay 2D View.

D.1.8 Shoal and Hazardous Features

No shoals or potentially hazardous features exist for this survey.

D.1.9 Channels

No channels exist for this survey. There are no designated anchorages, precautionary areas, safety fairways, traffic separation schemes, pilot boarding areas, or channel and range lines within the survey limits.

D.1.10 Bottom Samples

Eight bottom samples were obtained in accordance with section 7.1 of the HSSD in areas designated by the feature object class (SPRING) in the Project Reference File (PRF). Each bottom sample was attributed and can be found in the H12680_Final_Feature_File.

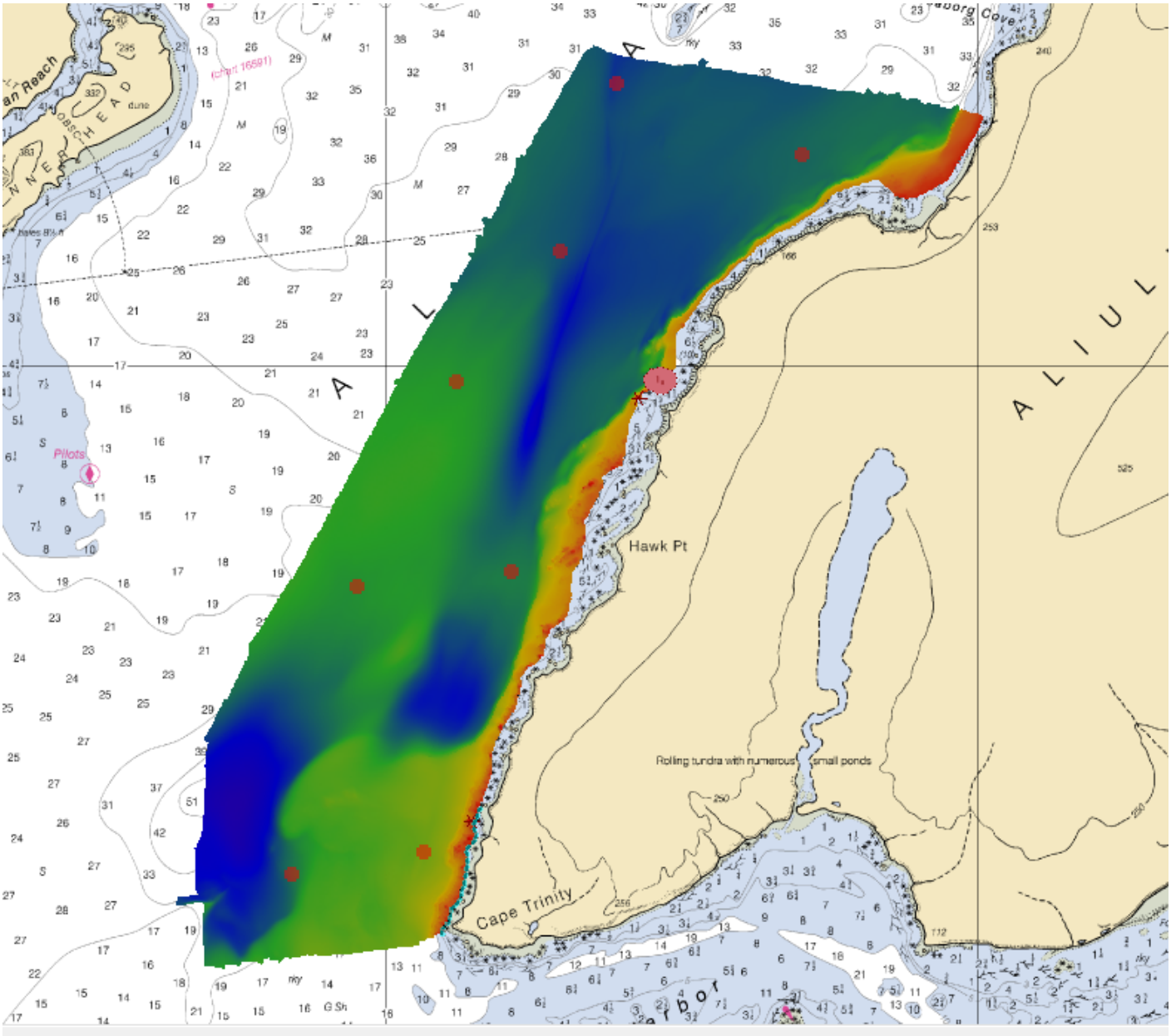


Figure 26: H12680 Bottom Samples Collected

D.2 Additional Results

D.2.1 Shoreline

Fairweather personnel conducted limited shoreline verification and reconnaissance at times near predicted negative of low tides within the survey limits. Annotations, information, and diagrams collected on DP forms and boat sheets during field operations are scanned and included in the digital Separates I folder. Shoreline verification procedures for survey H12680 conform to those in the DAPR.

D.2.2 Prior Surveys

No prior survey comparisons exist for this survey.

D.2.3 Aids to Navigation

No Aids To Navigation (ATONs) exist for this survey.

D.2.4 Overhead Features

No overhead features exist for this survey.

D.2.5 Submarine Features

No submarine features exist for this survey.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Platforms

No platforms exist for this survey.

D.2.8 Significant Features

No significant features exist for this survey.

D.2.9 Construction and Dredging

No present or planned construction or dredging exist within the survey limits.

D.2.10 New Survey Recommendation

No new surveys or further investigations are recommended for this area.

D.2.11 Inset Recommendation

No new insets are recommended for this area.

E. Approval Sheet

As Chief of Party, Field operations for this hydrographic survey were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to the Processing Branch.

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual, Field Procedures Manual, Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Report Name	Report Date Sent
Data Acquisition and Processing Report	2014-10-03
Horizontal and Vertical Control Report	2014-10-03
Coast Pilot Report	2014-09-10

Approver Name	Approver Title	Approval Date	Signature
CDR David J. Zezula Chief of Party	Chief of Party	06/01/2015	David Zezula 2015.06.14 20:20:05 -08'00'
LT Ryan Wartick	Field Operations Officer	06/01/2015	Digitally signed by Ryan Wartick DN: cn=Ryan Wartick, o=Fairweather, ou=OMAO, email=ryan.wartick@noaa.gov, c=US Date: 2015.05.30 08:38:50 -08'00'
LT Matthew Forney	Field Operations Officer	06/01/2015	Matthew Forney 2015.06.05 13:41:45 -08'00'
HCST Douglas Bravo	Chief Survey Technician	06/01/2015	2015.06.05 12:59:47 -08'00'
HSST Clinton Marcus	Sheet Manager	06/01/2015	Digitally signed by Clinton Marcus Date: 2015.05.29 11:58:23 -08'00'

F. Table of Acronyms

Acronym	Definition
AHB	Atlantic Hydrographic Branch
AST	Assistant Survey Technician
ATON	Aid to Navigation
AWOIS	Automated Wreck and Obstruction Information System
BAG	Bathymetric Attributed Grid
BASE	Bathymetry Associated with Statistical Error
CO	Commanding Officer
CO-OPS	Center for Operational Products and Services
CORS	Continually Operating Reference Staiton
CTD	Conductivity Temperature Depth
CEF	Chart Evaluation File
CSF	Composite Source File
CST	Chief Survey Technician
CUBE	Combined Uncertainty and Bathymetry Estimator
DAPR	Data Acquisition and Processing Report
DGPS	Differential Global Positioning System
DP	Detached Position
DR	Descriptive Report
DTON	Danger to Navigation
ENC	Electronic Navigational Chart
ERS	Ellipsoidal Referenced Survey
ERZT	Ellipsoidally Referenced Zoned Tides
FFF	Final Feature File
FOO	Field Operations Officer
FPM	Field Procedures Manual
GAMS	GPS Azimuth Measurement Subsystem
GC	Geographic Cell
GPS	Global Positioning System
HIPS	Hydrographic Information Processing System
HSD	Hydrographic Surveys Division
HSSD	Hydrographic Survey Specifications and Deliverables

Acronym	Definition
HSTP	Hydrographic Systems Technology Programs
HSX	Hypack Hysweep File Format
HTD	Hydrographic Surveys Technical Directive
HVCR	Horizontal and Vertical Control Report
HVF	HIPS Vessel File
IHO	International Hydrographic Organization
IMU	Inertial Motion Unit
ITRF	International Terrestrial Reference Frame
LNM	Local Notice to Mariners
LNM	Linear Nautical Miles
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NAIP	National Agriculture and Imagery Program
NALL	Navigable Area Limit Line
NM	Notice to Mariners
NMEA	National Marine Electronics Association
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NRT	Navigation Response Team
NSD	Navigation Services Division
OCS	Office of Coast Survey
OMAO	Office of Marine and Aviation Operations (NOAA)
OPS	Operations Branch
MBES	Multibeam Echosounder
NWLON	National Water Level Observation Network
PDBS	Phase Differencing Bathymetric Sonar
PHB	Pacific Hydrographic Branch
POS/MV	Position and Orientation System for Marine Vessels
PPK	Post Processed Kinematic
PPP	Precise Point Positioning
PPS	Pulse per second

Acronym	Definition
PRF	Project Reference File
PS	Physical Scientist
PST	Physical Science Technician
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
TPE	Total Porpagated Error
TPU	Topside Processing Unit
USACE	United States Army Corps of Engineers
USCG	United Stated Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDA	Global Positiong System timing message
ZDF	Zone Definition File

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : August 20, 2014

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-P335-FA-2014
HYDROGRAPHIC SHEET: H12680

LOCALITY: Alitak Bay Approach To Humpy Cove,Kodiak, AK
TIME PERIOD: May 16 - June 16, 2014

TIDE STATION USED: 945-7804 Alitak, AK
Lat. 56° 53.9'N Long. 154° 14.9' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.311 meters

ESTIMATED ZONING ERROR: 0.15 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SS72, SS73, SS74, SS75 & SS108.

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).

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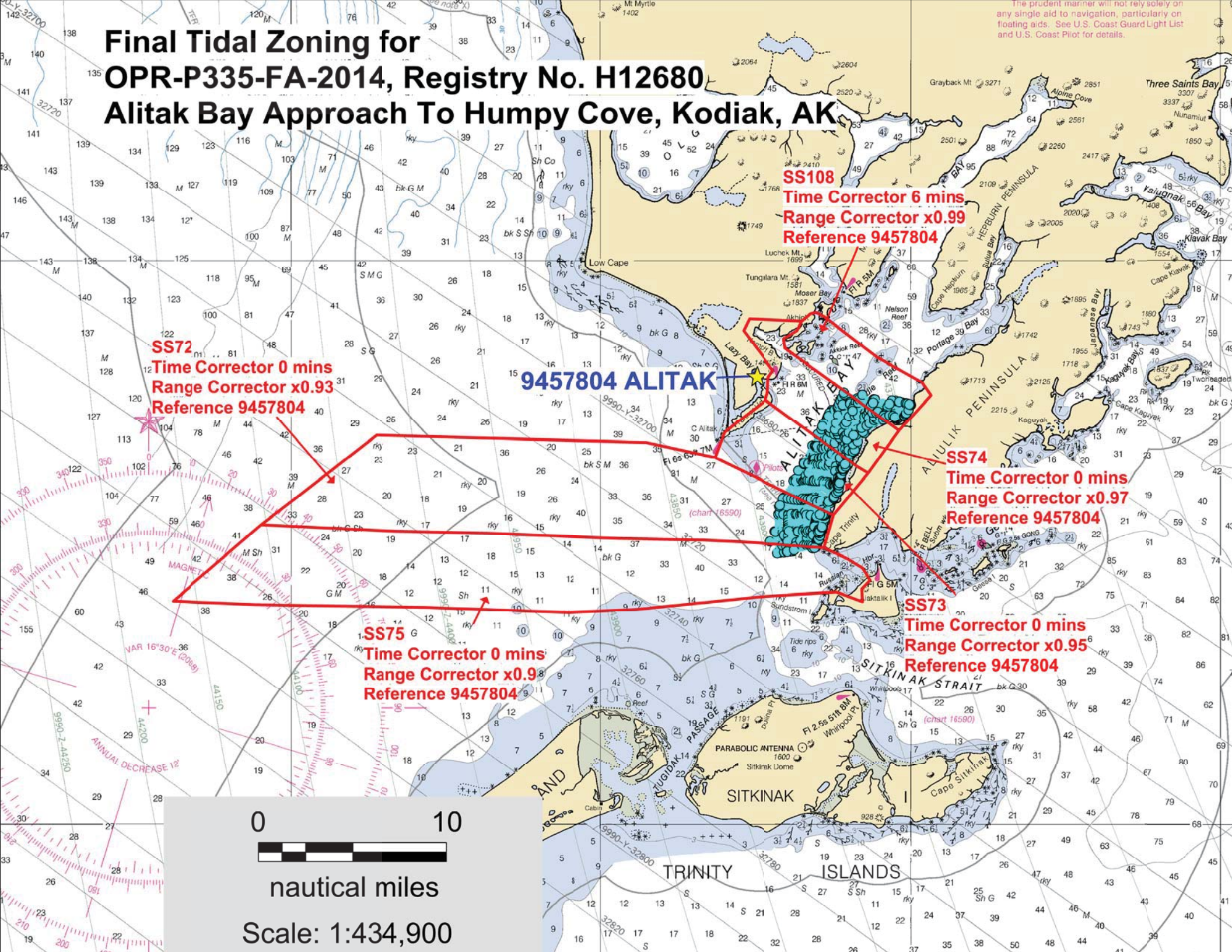
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOVIS.GERALD.THOMAS.JR.1365860250
Date: 2014.08.26 10:12:28 -04'00'

CHIEF, PRODUCTS AND SERVICES BRANCH


Final Tidal Zoning for
OPR-P335-FA-2014, Registry No. H12680
Alitak Bay Approach To Humpy Cove, Kodiak, AK
SS108
Time Corrector 6 mins
Range Corrector x0.99
Reference 9457804
SS72
Time Corrector 0 mins
Range Corrector x0.93
Reference 9457804
9457804 ALITAK
SS74
Time Corrector 0 mins
Range Corrector x0.97
Reference 9457804
SS73
Time Corrector 0 mins
Range Corrector x0.95
Reference 9457804
SS75
Time Corrector 0 mins
Range Corrector x0.9
Reference 9457804
0
10
nautical miles
Scale: 1:434,900

H12680 Danger to Navigation Report

Registry Number: H12680
State: Alaska
Locality: Alitak Bay
Sub-locality: Cape Trinity to Humpy Cove
Project Number: OPR-P335-FA-14
Survey Dates: 5/16/2014 - 6/16/2014

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
16590	11th	09/01/2007	1:81,529 (16590_1)	[L]NTM: ?
16580	14th	01/01/2008	1:350,000 (16580_1)	[L]NTM: ?
16013	30th	07/01/2006	1:969,761 (16013_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	Rock	3.90 m	56° 48' 17.0" N	154° 06' 51.4" W	---

1 - Dangers To Navigation

1.1) 368/476

DANGER TO NAVIGATION

Survey Summary

Survey Position:	56° 48' 17.0" N, 154° 06' 51.4" W
Least Depth:	3.90 m (= 12.81 ft = 2.135 fm = 2 fm 0.81 ft)
TPU (±1.96σ):	**THU (TPEh)** ±0.073 m ; **TVU (TPEv)** ±0.229 m
Timestamp:	2014-141.21:12:27.360 (05/21/2014)
Survey Line:	h12680 / fa_2807_400khz_7125_512bms_2014 / 2014-141 / 2014m_1412112
Profile/Beam:	368/476
Charts Affected:	16590_1, 16580_1, 16013_1, 531_1, 500_1, 530_1, 50_1

Remarks:

NEW UWTROC found by MBES. Final Tidal zoning applied. (H12680CORF.zdf) Least Depth 3.9m

Feature Correlation

Source	Feature	Range	Azimuth	Status
2014m_1412112	368/476	0.00	000.0	Primary

Hydrographer Recommendations

Hydrographer recommends removal of the 5.5 fathom sounding and chart new 2.1 fathom (3.9m) UWTROC.

Cartographically-Rounded Depth (Affected Charts):

2fm (16590_1, 16580_1, 16013_1, 530_1)

2fm 1ft (531_1)

3.9m (500_1, 50_1)

S-57 Data

Geo object 1:	Underwater rock / awash rock (UWTROC)
Attributes:	VALSOU - 3.904 m

Office Note: Concur

Feature Images

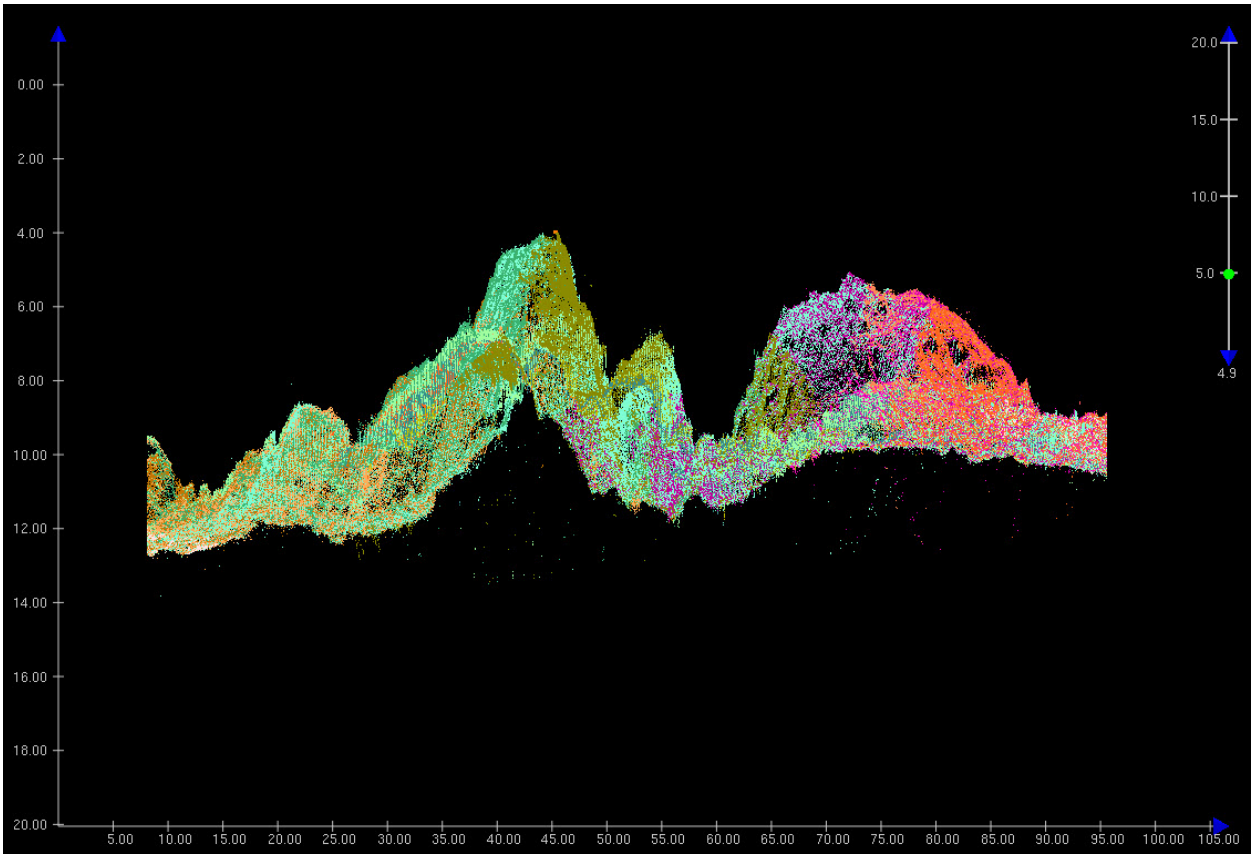


Figure 1.1.1

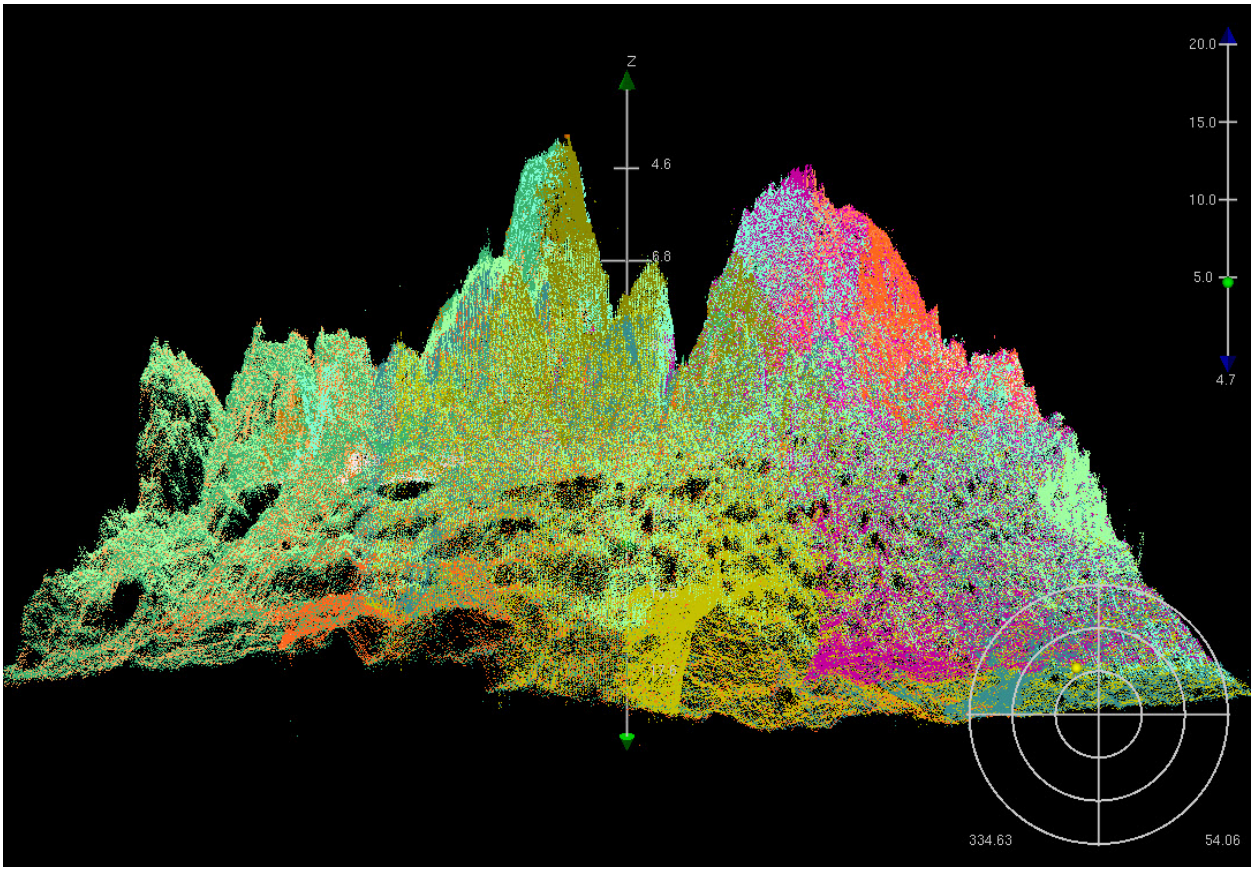


Figure 1.1.2

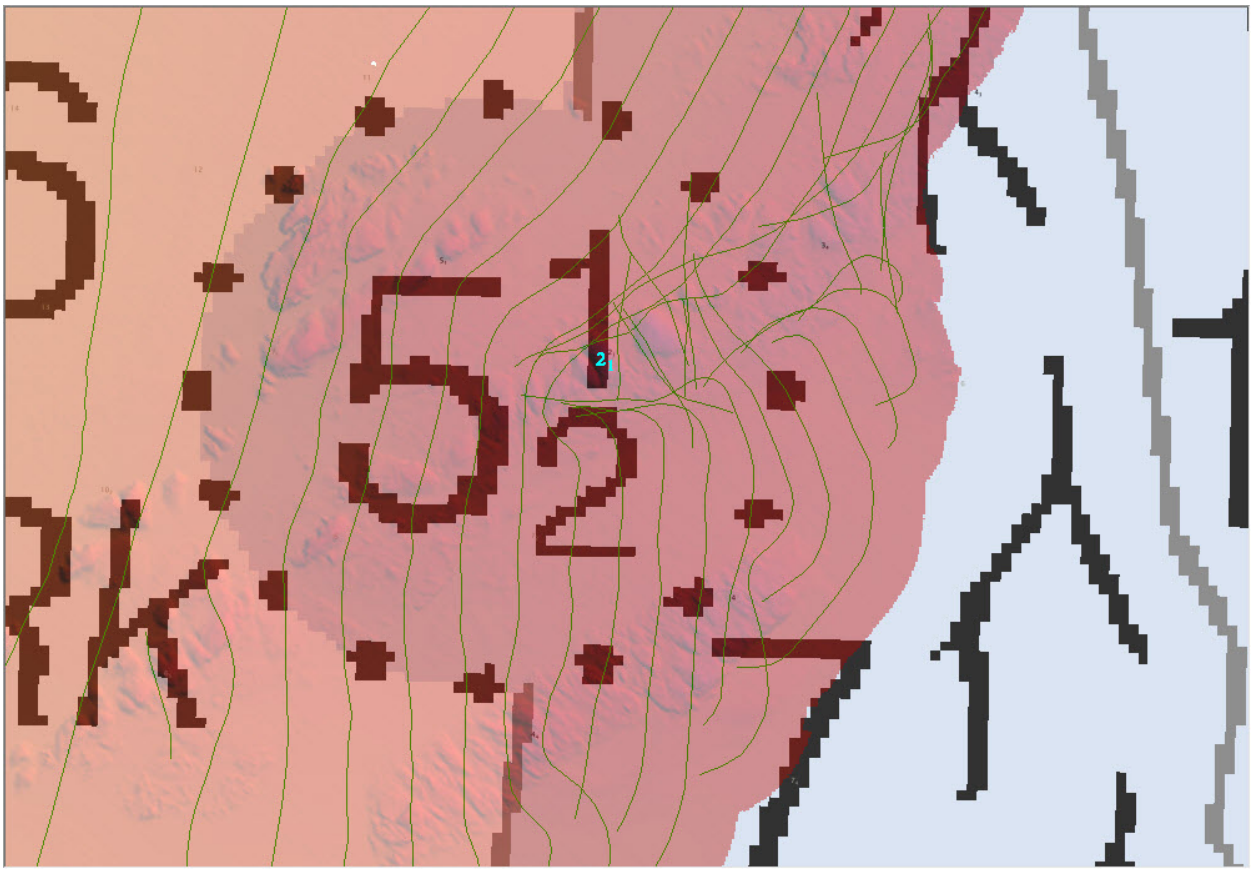


Figure 1.1.3

APPROVAL PAGE

H12680

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NGDC for archive

- H12680_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12680_GeoImage.pdf

The survey evaluation and verification has been conducted according current OCS Specifications.

Digitally signed by BROWN.KURT.E.1156712600
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=BROWN.KURT.E.1156712600
Date: 2016.04.07 09:14:11 -07'00'

Approved:_____

Kurt Brown
Physical Scientist, Pacific Hydrographic Branch

The survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

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For Benjamin K Evans
2016.04.07 07:59:46 -07'00'

Approved:_____

CDR Ben Evans, NOAA
Chief, Pacific Hydrographic Branch