

H11852

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. RA-10-24-08
Registry No. H11852

LOCALITY

State Alaska
General Locality West of Prince of Wales Island
Sublocality Klawock Inlet to Big Salt Lake

2008

CHIEF OF PARTY

..... Captain Donald W. Haines, NOAA

LIBRARY & ARCHIVES

DATE

<p style="text-align: center;">U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION</p> <p style="text-align: center;">HYDROGRAPHIC TITLE SHEET</p>	<p>REGISTRY No</p> <p style="text-align: center;">H11852</p>
<p>INSTRUCTIONS – The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.</p>	<p>FIELD No:</p> <p style="text-align: center;">RA-10-24-08</p>
<p>State <u>Alaska</u></p> <p>General Locality <u>West of Prince of Wales Island</u></p> <p>Sub-Locality <u>Klawock Inlet to Big Salt Lake</u></p> <p>Scale <u>1:10,000</u> Date of Survey <u>October 11, 2008 - November 9, 2008</u></p> <p>Instructions dated <u>4/9/2008</u> Project No. <u>OPR-O190-RA-08</u></p> <p>Vessel(s) <u>RA6 (1015), RA1 (1101), RA2 (1103), RA4 (2801), RA5 (2802)</u></p> <p>Chief of party <u>Captain Donald W. Haines, NOAA</u></p> <p>Surveyed by <u>RAINIER Personnel</u></p> <p>Soundings by <u>Reson SeaBat 7125, Tilted Reson SeaBat 8125, Reson SeaBat 8101, Knudsen 320M</u></p> <p>SAR by <u>Fernando Ortiz</u> Compilation by <u>Katie Reser</u></p> <p>Soundings compiled in <u>Fathoms</u></p>	
<p>REMARKS: <u>All times are UTC. UTM Zone 8N.</u></p> <p><u>The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts.</u></p> <p><u>Revisions and end notes in red were generated during office processing.</u></p> <p><u>Page numbering may be interrupted or non sequential.</u></p> <p><u>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/.</u></p>	

Descriptive Report to Accompany Hydrographic Survey H11852

Project OPR-O190-RA-08
West of Prince of Wales Island, AK
Klawock Inlet to Big Salt Lake
Scale 1:10,000
October – November, 2008
NOAA Ship *Rainier* (s221)
Chief of Party: Captain Donald W. Haines, NOAA

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-O190-RA-08 dated April 9, 2008 and all other applicable direction¹, with the exception of deviations noted in this report. The survey area is Klawock Inlet to Big Salt Lake, west of Prince of Wales Island, Alaska. This survey corresponds to sheet “L” in the sheet layout provided with the Letter Instructions. The Purpose of this project is to provide contemporary survey data to update National Ocean Service (NOS) nautical charts.

Sheet “L” as surveyed (figure 1) does not include coverage inside Big Salt Lake and environs due to hazards associated with its north and south entrances and a determination that only the smallest of vessels are capable of operating there and only with local knowledge, see supplemental correspondence “Alternate Gauge Location for OPR-O190-RA-2008.pdf”. Additionally, due to time constraints, the shoal areas east of Peratrovich and Klawock Islands were surveyed mainly with VBES at 50m line spacing. A tilted MBES was used inside Klawock Harbor and elsewhere during the survey for limited shoreline verification. Insufficient data density in some northern areas of H11852 have resulted in significant holidays.

Except as noted in this report, complete multibeam echosounder (MBES) coverage was achieved in the survey area in waters 8 meters and deeper. In depths less than 8 meters additional MBES coverage was acquired to identify least depths over significant features or shoals, as appropriate for this survey. Except as noted below, vertical beam echo sounder (VBES) data were acquired in depths from approximately 4 to 8 meters to aid in the planning of SWMB data acquisition and provide inshore bathymetry in navigationally significant areas. Total mileage acquired by each vessel and system is reference in Table 1

Limited Shoreline Verification was performed for the survey area.

¹ NOS Hydrographic Surveys Specifications and Deliverables (April 2008), OCS Field Procedures Manual for Hydrographic Surveying (May 2008), and all Hydrographic Surveys Technical Directives issued through the dates of data acquisition.

Data Acquisition Type	Hull Number with Mileage (nm)					Total
	1101	1103	1015	2801	2802	
VBES (mainscheme)	-	44.7	-	-	-	44.7
MBES (mainscheme)	28.9	-	25.8	31.9	34.6	121.2
VBES + SSS (mainscheme)	-	-	-	-	-	-
Crosslines	-			.6	6.2	6.8
Developments			-	-		
Shoreline	-	-	-	-	-	-
Bottom Samples	-	1	-	-	-	1
Total Number of Items Investigated	-	2	-	-	-	2
Total Area Surveyed (sq. nm)	-	-	-	-	-	3.8

Table 1: Survey Statistics, H11852

Data acquisition was conducted from October 11 through November 9, 2008 (DN285-DN314).

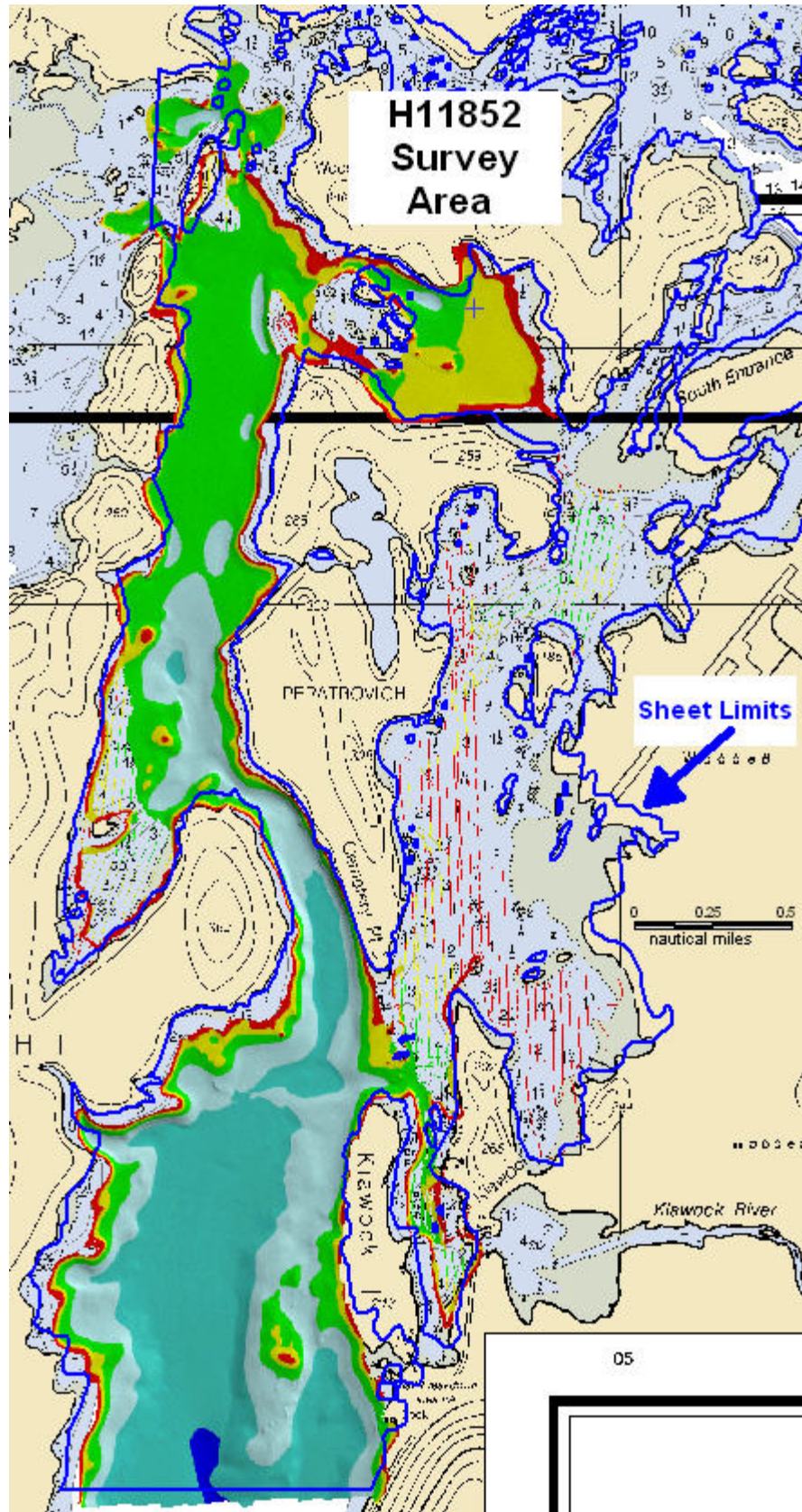


Figure 1: H11852 Survey Limits, 4m Final Combined BASE Surface (Chart 17405).

B. DATA ACQUISITION AND PROCESSING

A complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods can be found in the Fall *OPR-O190-RA-08 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.

Final Approved Water Levels have been applied to this survey. See Section C. for additional information.

B1. Equipment and Vessels

Data for this survey were acquired by the following vessels:

Hull Number	Name	Acquisition Type
1101	RA-1	“Tilted” Reson 8125 Multibeam Echosounder
1103	RA-2	Vertical Beam Echosounder Bottom Samples
1015	RA-6	Reson 8101 Multibeam Echosounder
2801	RA-4	Reson 7125 Multibeam Echosounder
2802	RA-5	Reson 7125 Multibeam Echosounder

Table 2: Data Acquisition Vessels for H11852.

Sound speed profiles were measured with SEACAT 19+ profilers in accordance with the Specifications and Deliverables.

B2. Quality Control

Crosslines

Multibeam Echosounder (MBES) crosslines totaled 6.8 nautical miles, comprising 5.6% of main scheme MBES hydrography. The mainscheme bathymetry was manually compared to the XL nadir beams in CARIS subset mode. Crossline depths matched or were within 0.2m of the mainscheme in water up to 30 meters of depth. In deeper areas up to 55m, XL and mainscheme data were consistent within 0.4 m.¹

A statistical Quality Control Report has been conducted on representative data acquired with each system used on this survey. Results of these tests are included in the updated 2008 *Rainier* Hydrographic System Readiness Review package submitted with this survey.

Junctions

The following contemporary surveys junction with H11852 (See Figure 2):²

Registry #	Scale	Date	Junction side
H11851	1:10,000	2008	West
H12000	1:10,000	2008	South

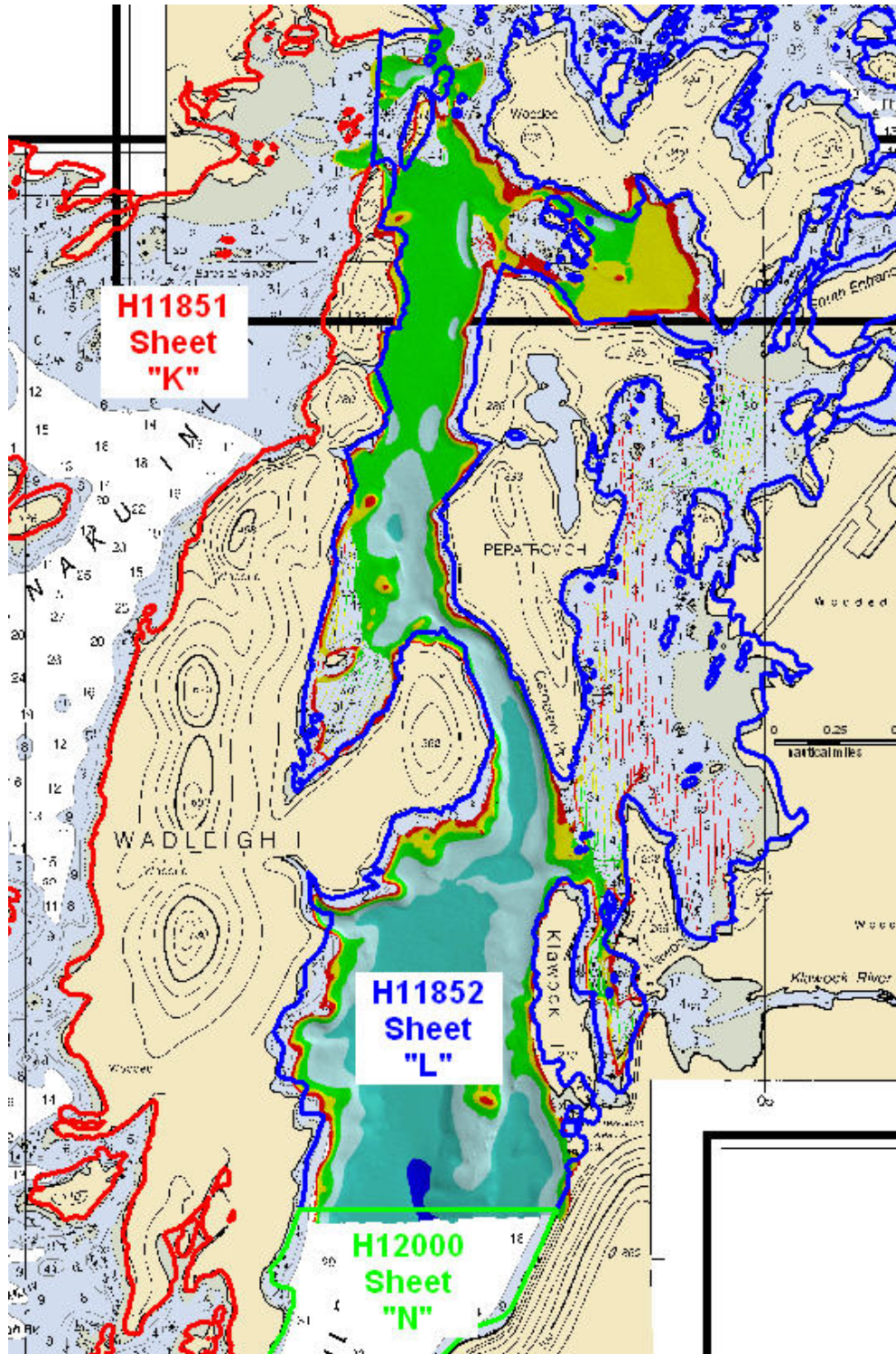


Figure 2: H11852 Junction Surveys.

Surveys H11851 and H1200 were manually compared to survey H11852 using Caris subset mode. Both surveys agreed well with negligible differences and none observed in excess of 0.3 meters.³ Areas with the greatest offsets are likely due to minor tidal variations and sound speed errors.

Data Quality Factors

Sound Speed Artifacts

Dramatic sound speed artifacts are present in some of the data, especially for launch 2802, DN313 in Klawock Harbor (figures 3-4) and within the main channel of Klawock Inlet, west of Klawock Island (figures 5-6). The most likely cause is related to the significant influence of freshwater from the Klawock River. This fresh water lens proved to be problematic during acquisition and application of sound speed correctors.

After correction for sound speed in HDCS, some lines still exhibited pronounced "smiles" or "frowns" indicative of suboptimal correctors. Despite the best efforts of the Hydrographer to conduct sufficient CTD casts and to post-process sound speed correctors, sound speed artifacts were still pronounced in Klawock Harbor. In response, the Hydrographer rejected large portions of the outer-beams that were either obviously in error, or in doubt. The Vertical-Beam Echosounder (VBES) data in this area, being less affected by sound speed errors than that from Shallow Water Multibeam (SWMB), provided a reference during this process. As a result, the coverage inside Klawock Harbor appears "skunk striped" in nature (figure 4). All rejected data was examined for significant features but none were located.⁴ The Hydrographer feels that the only viable solutions in an area such as Klawock Harbor would be continuous sound velocity profiling.

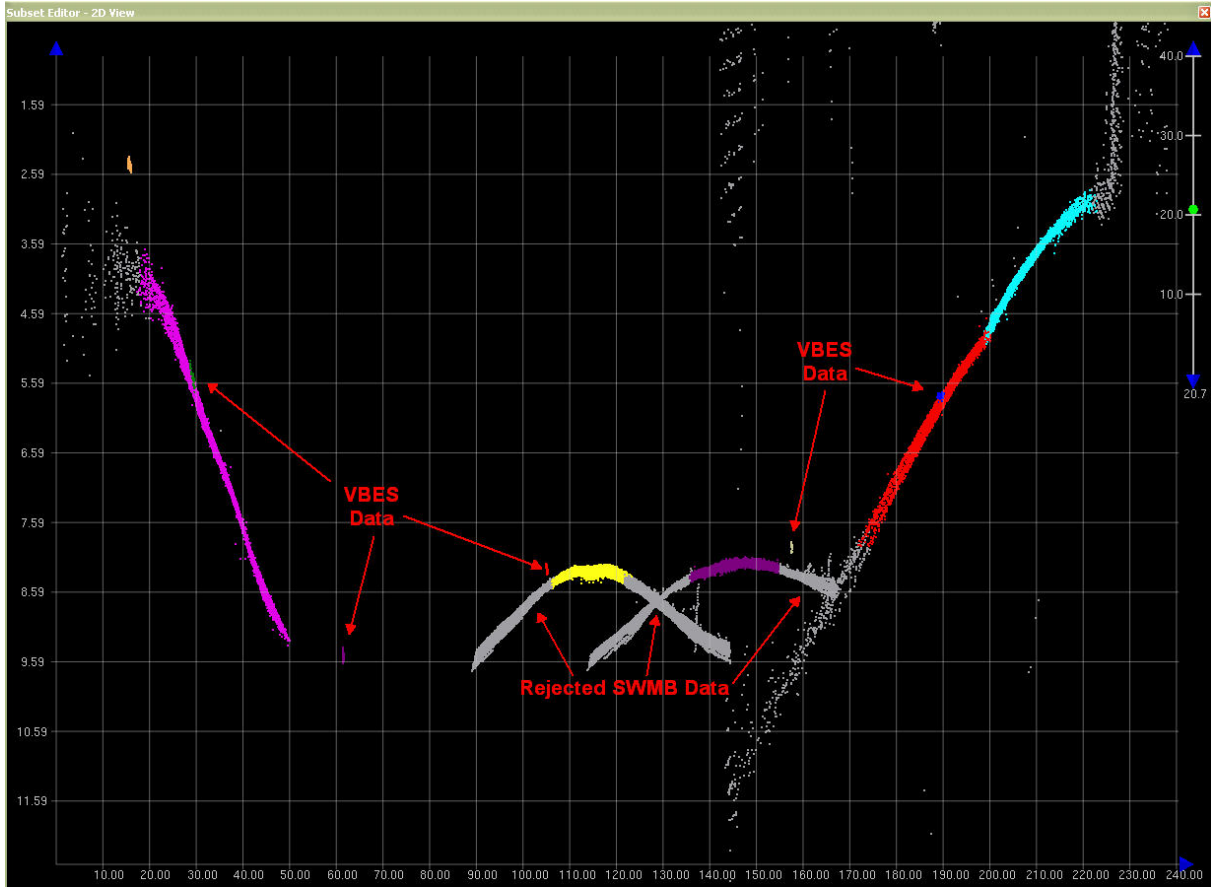


Figure 3: Klawock Harbor Sound Speed Issues.

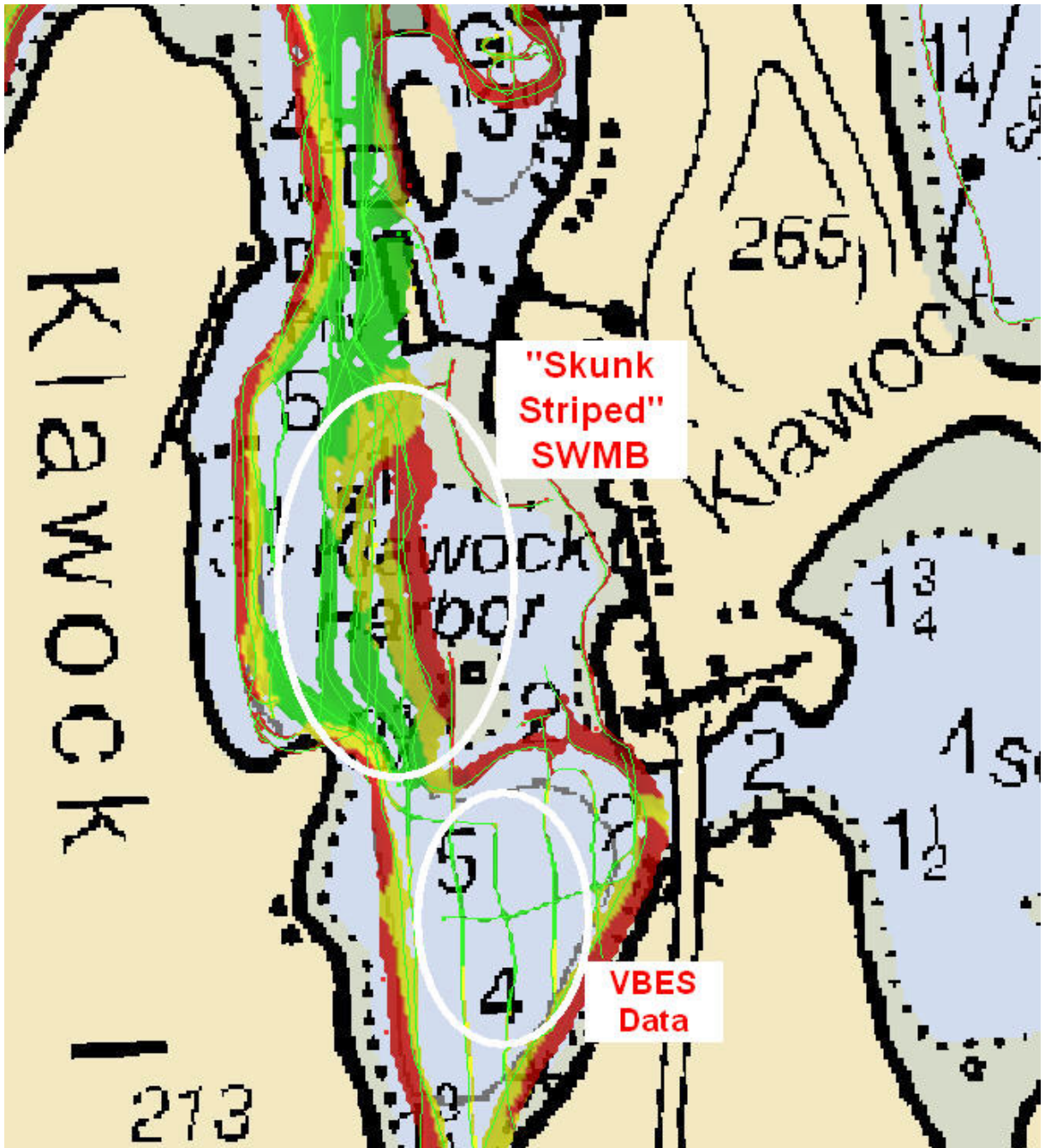


Figure 4: Klawock Harbor Data “Skunk Striped” Due to Rejected Soundings.

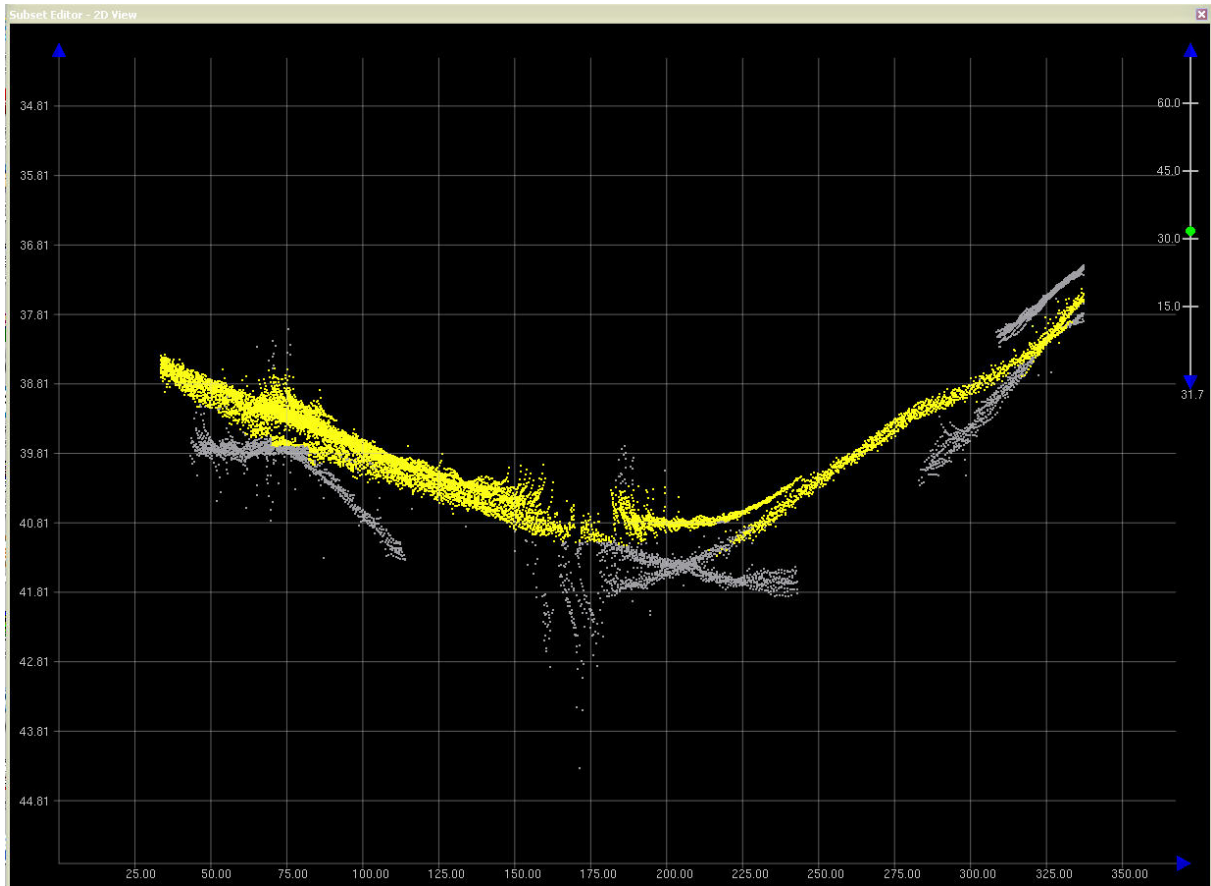


Figure 5: Sound Speed Issue, Main Channel Klowock Inlet.

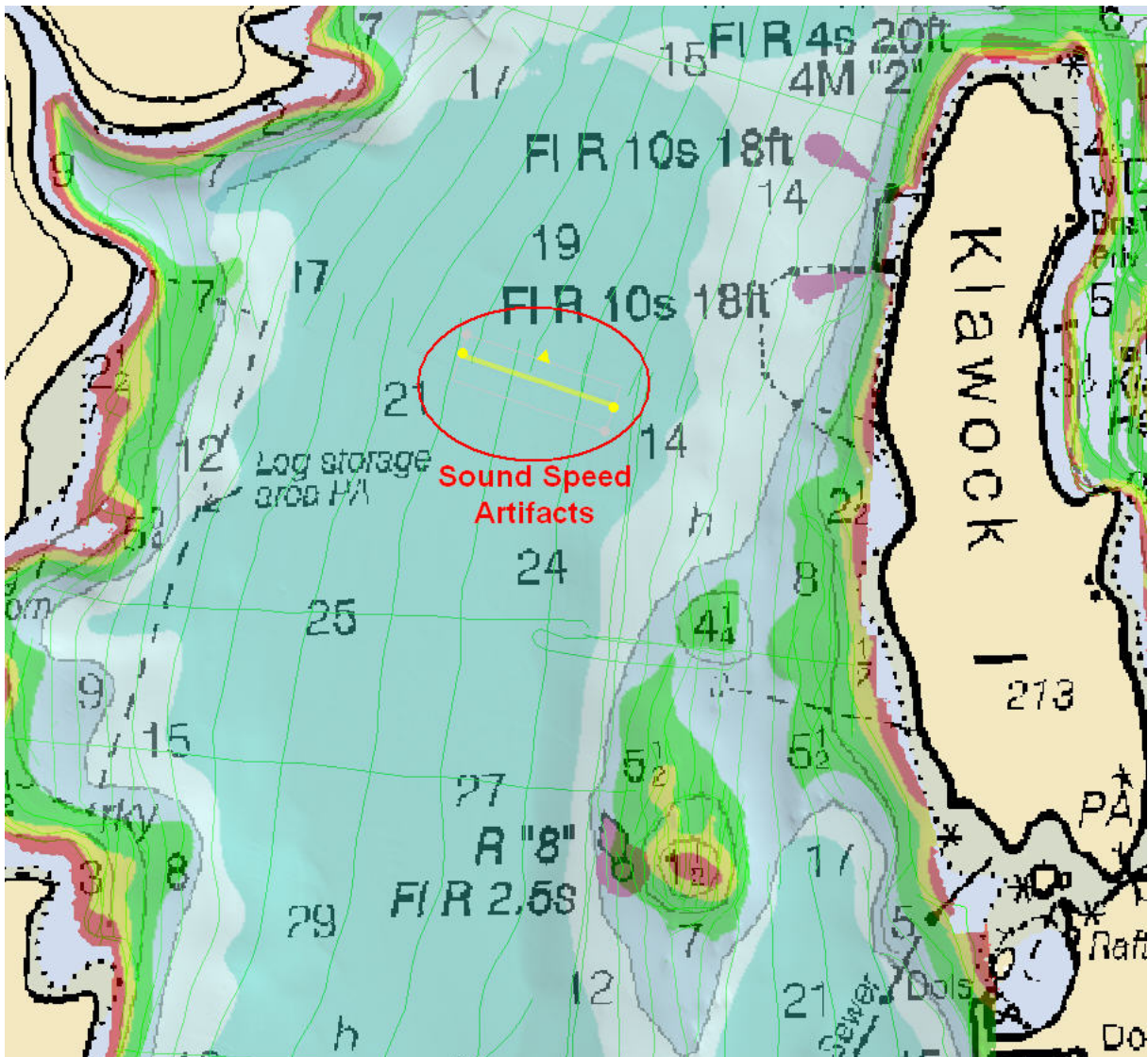


Figure 6: Location of Sound Speed Issue, Main channel Klawock Inlet.

Additional holidays and artifacts were apparent in the data near shore where sound speed errors caused gaps in coverage and surface irregularities that might not otherwise have occurred (figures 7-8).⁵

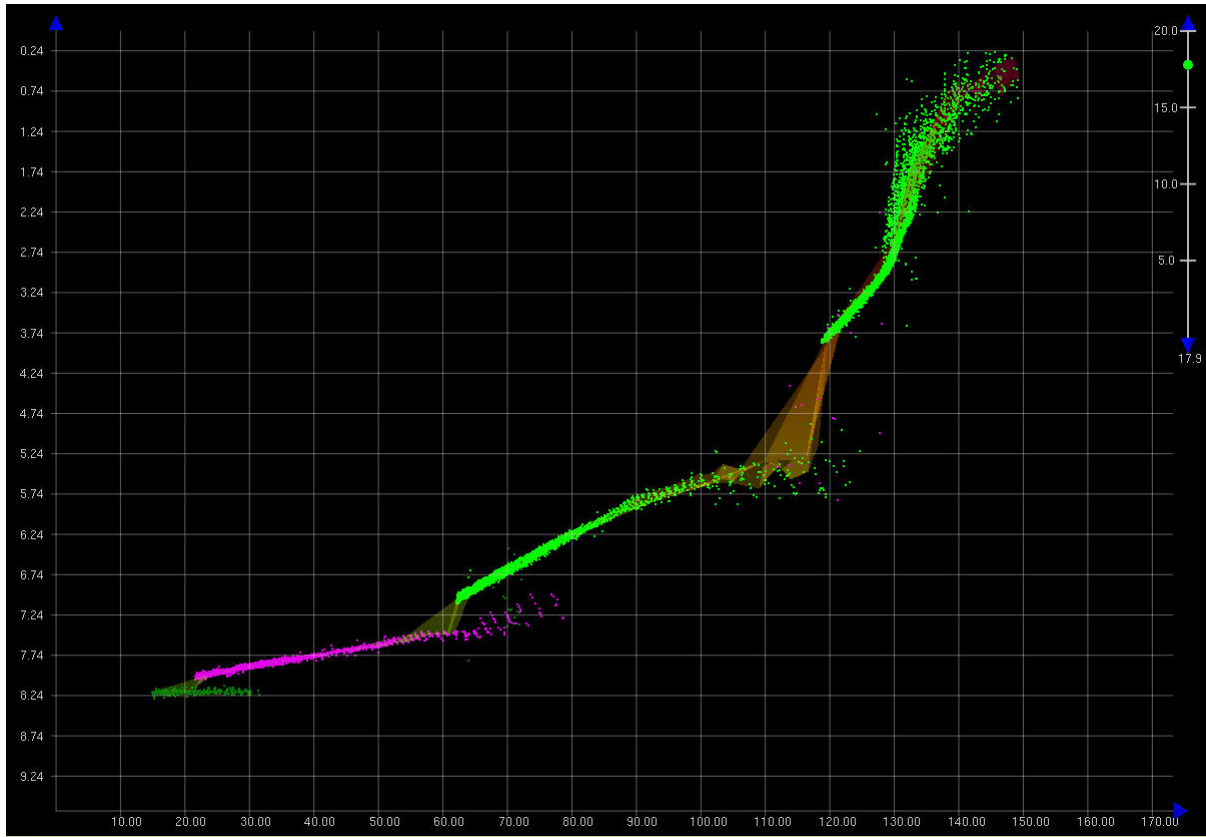


Figure 7: Sound Speed Error Induced Holidays and Data Artifacts.

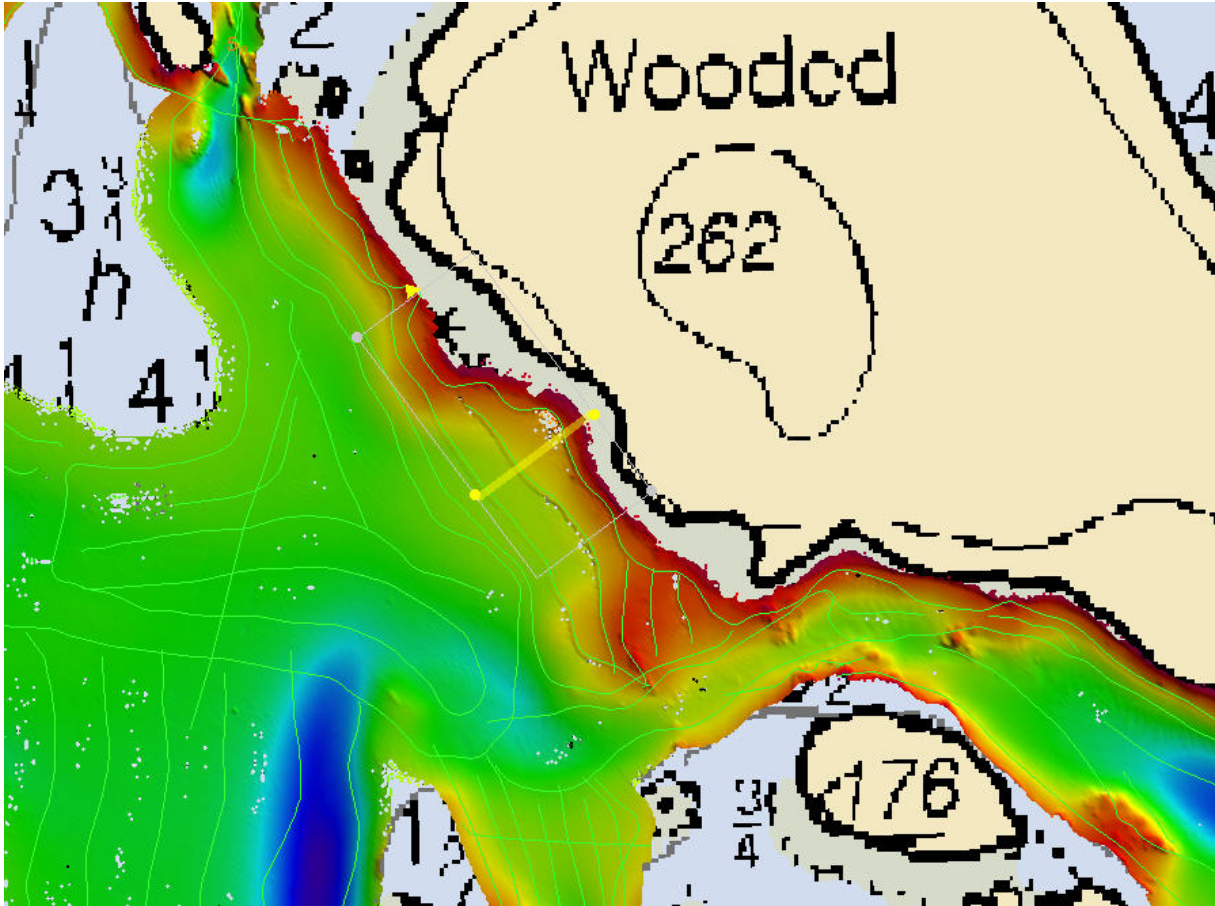


Figure 8: Location of Sound Speed Induced Error example.

Density of Soundings

The data collected by the Reson 8101 on launch 1015 on DN 311 exhibit outer-beam sounding density insufficient to support 1m, and, to a lesser extent, 2m resolution BASE surfaces (figures 9-12). The probable cause was that for the water depth in those areas, too large a matrix grid size was created during Hypack/Hysweep acquisition. As a result, the hydrographer thought complete coverage was being achieved when in fact it was not. This deficiency was discovered only after leaving the working grounds at the end of the field season, making resurvey impossible. Systematic analysis of the data using Caris subset editor was used to examine the areas with less dense soundings; no significant features were discovered.⁶

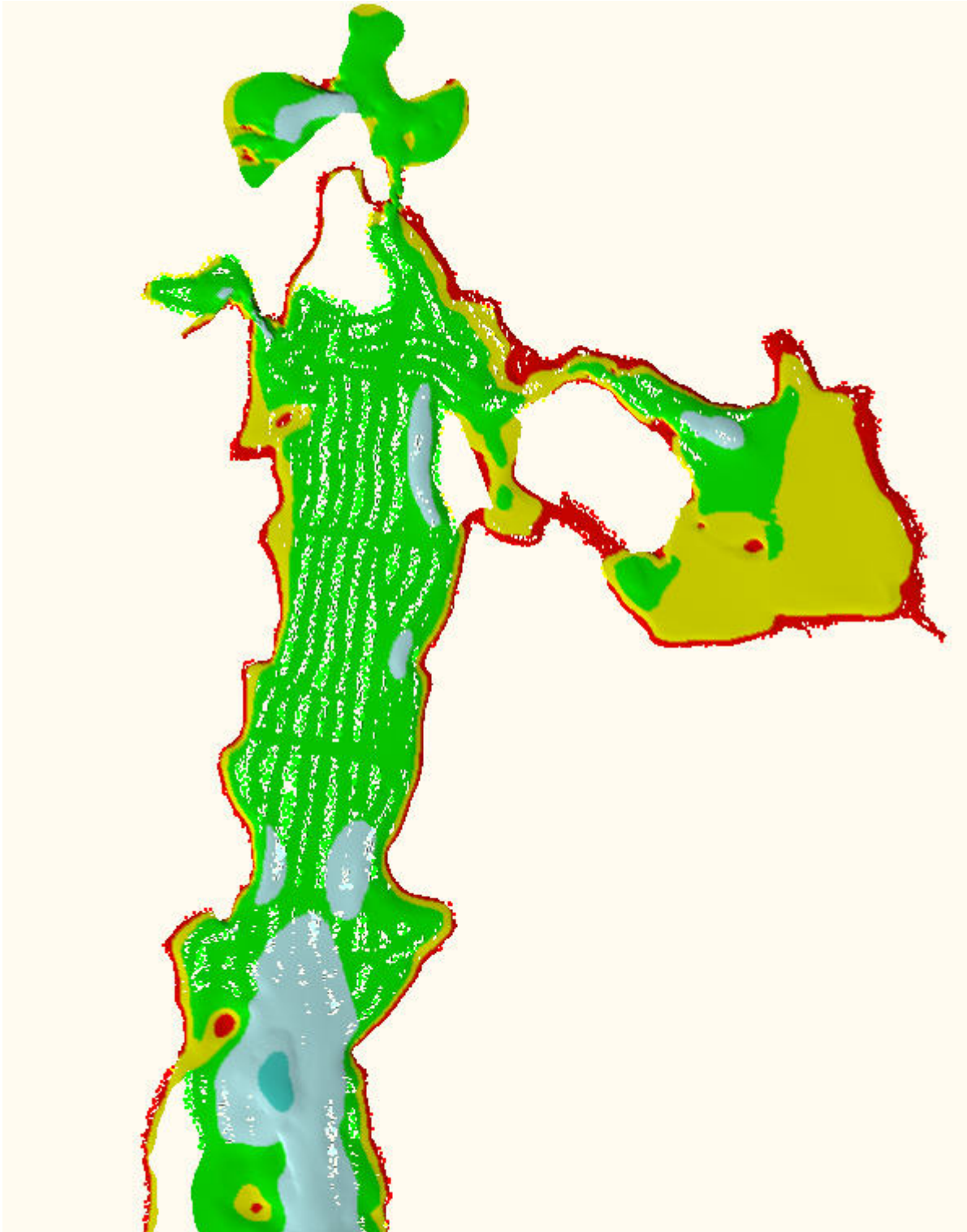


Figure 9: Insufficient Sounding Density, 1m Resolution BASE Surface.

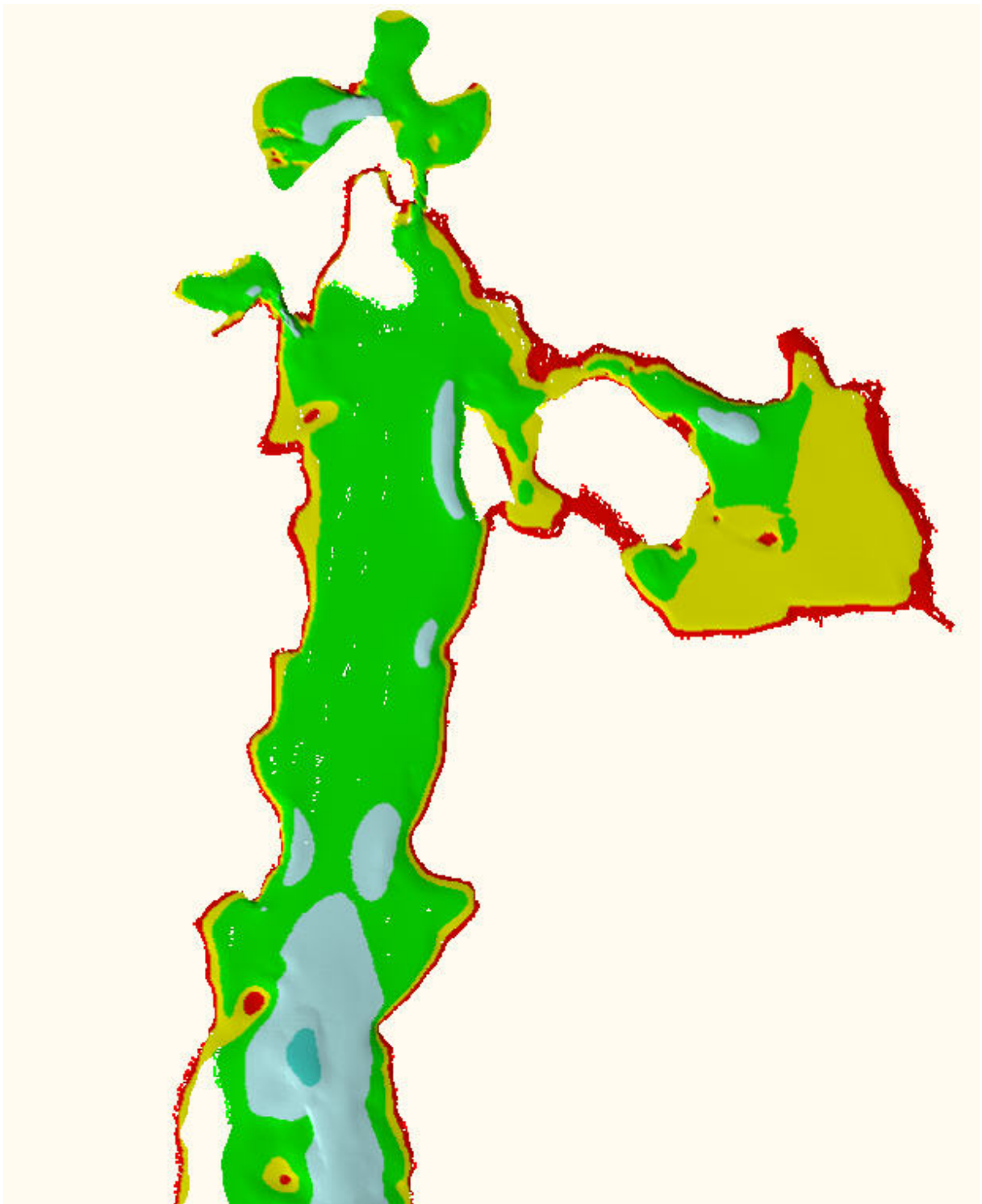


Figure 10: Insufficient Sounding Density, 2m Resolution BASE Surface.

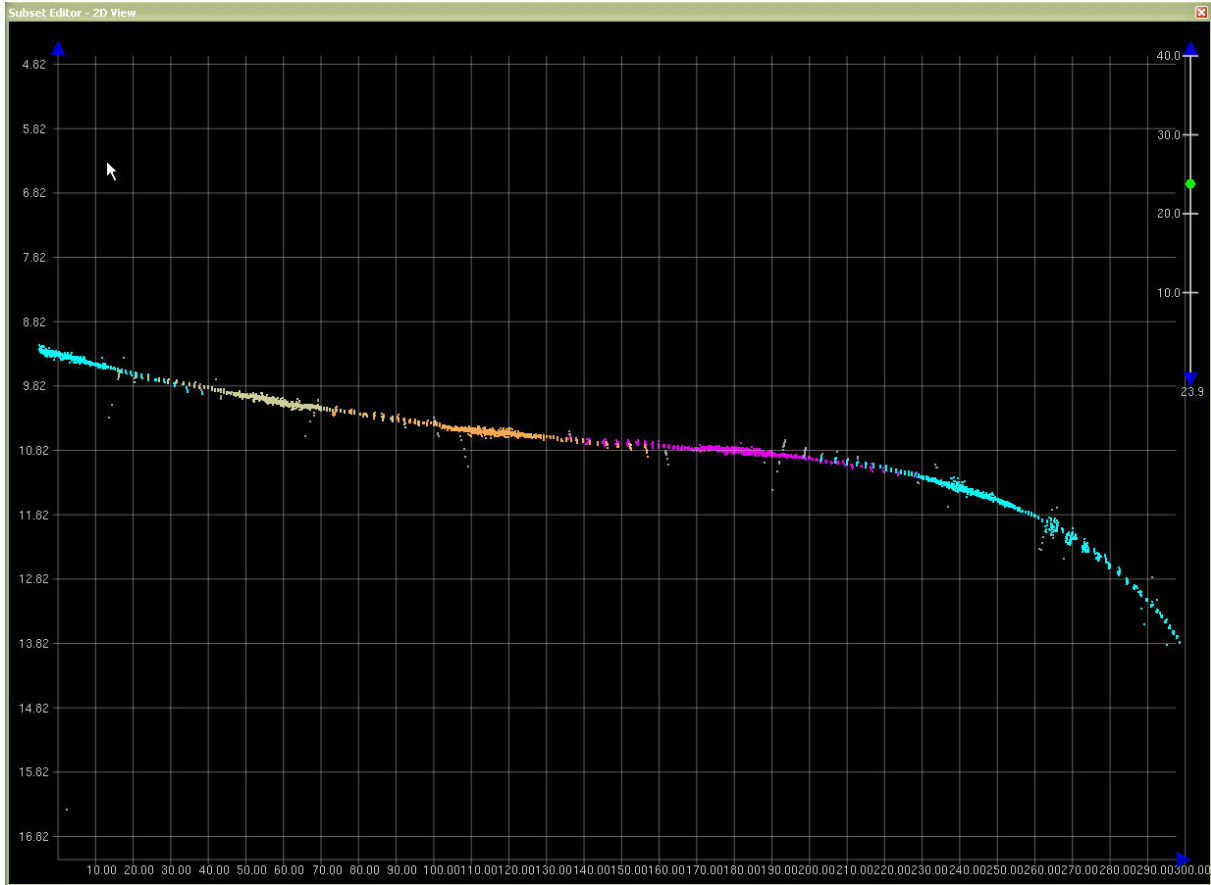


Figure 11: Insufficient Sounding Density, Subset view of 1m BASE Surface.

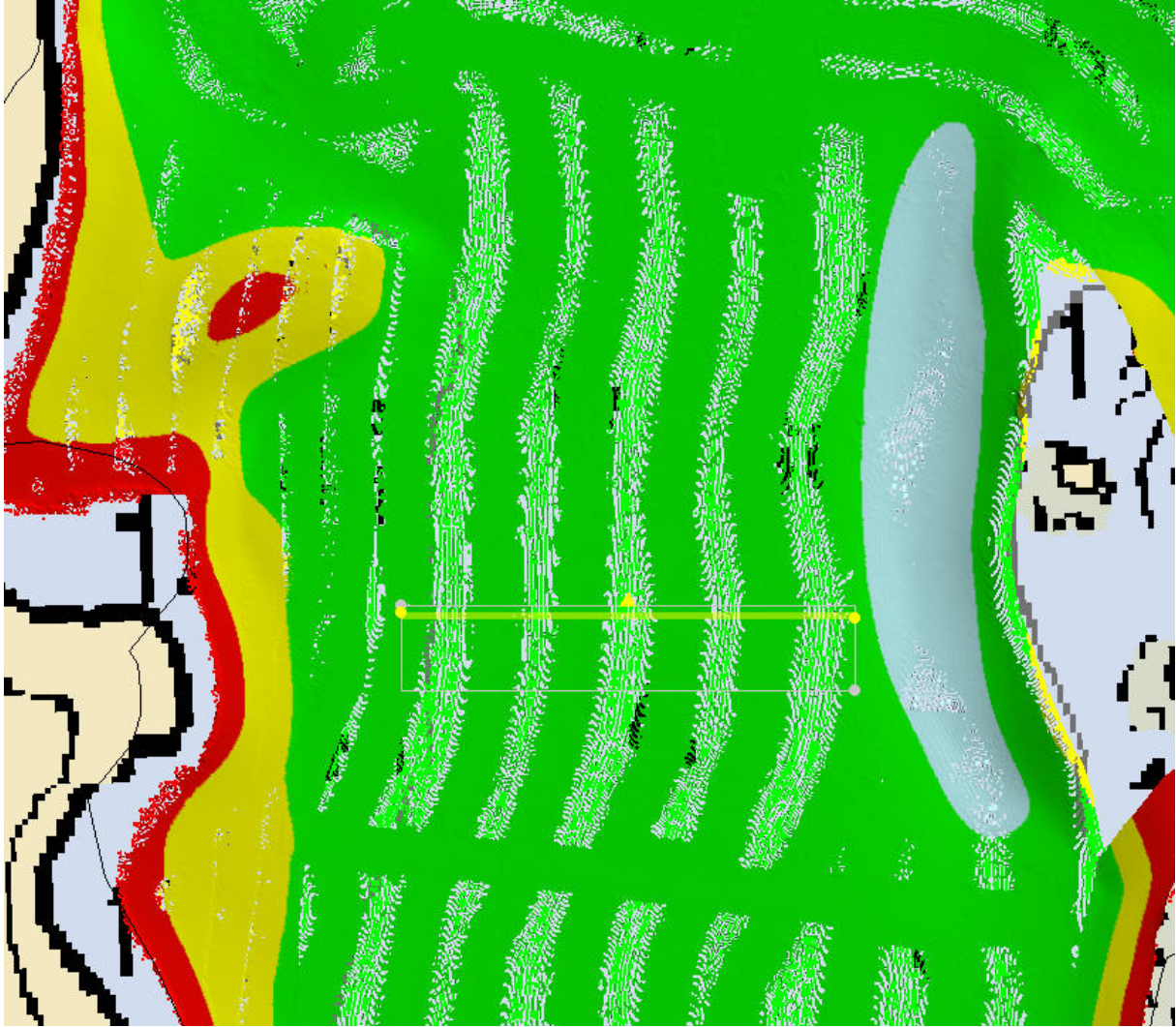


Figure 12: Location of Subset View - 1m BASE Surface.

Horizontal Offset

A horizontal offset of approximately 0.5m was observed in CARIS subset mode between data from the tilted Reson 8125 and the Reson 7125 sonars (figures 13-14). Although these offsets occasionally cause the surface to deviate, all horizontal errors noted in the survey are within the limits prescribed by the Specifications and Deliverables.⁷

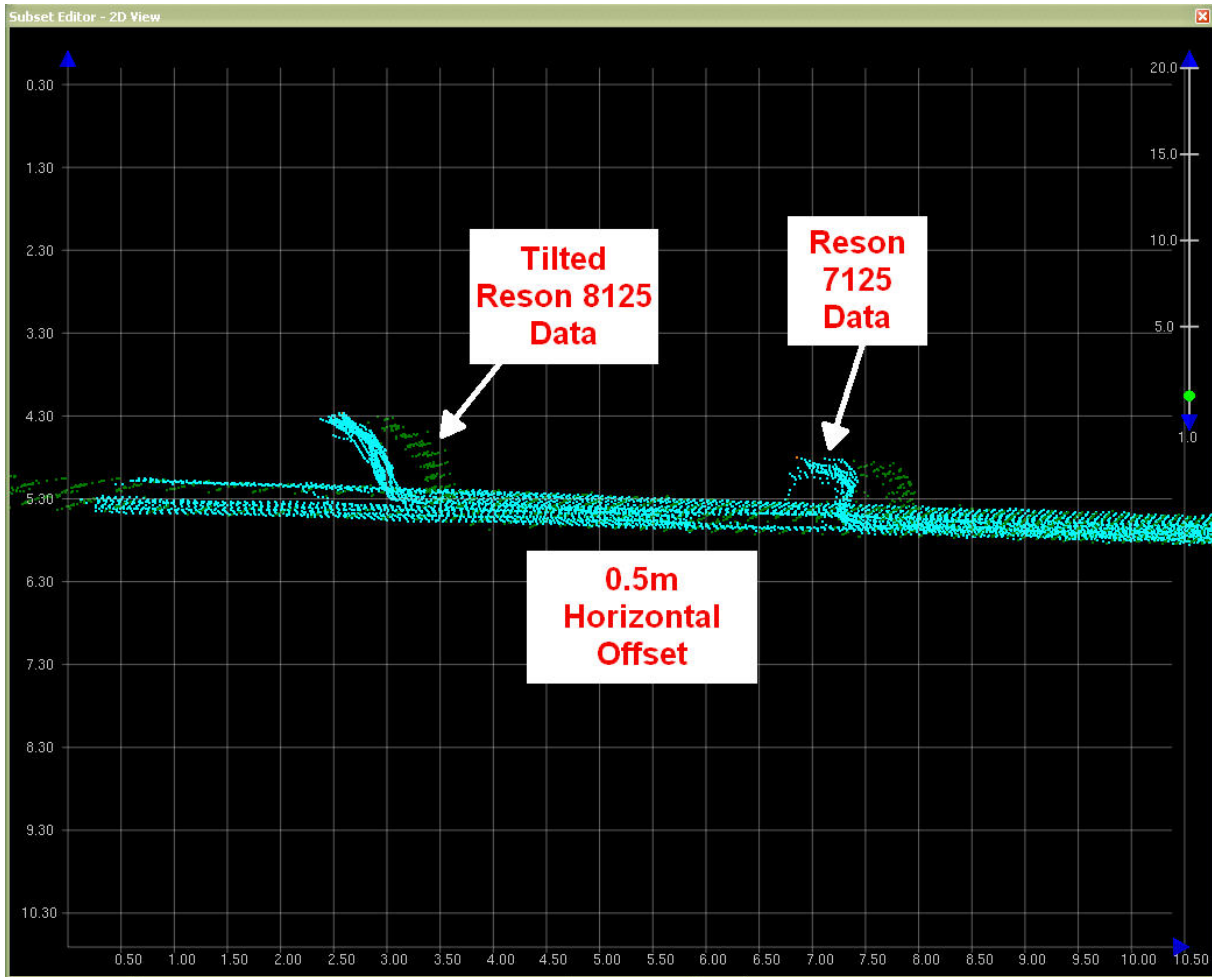


Figure 13: Horizontal Offset.

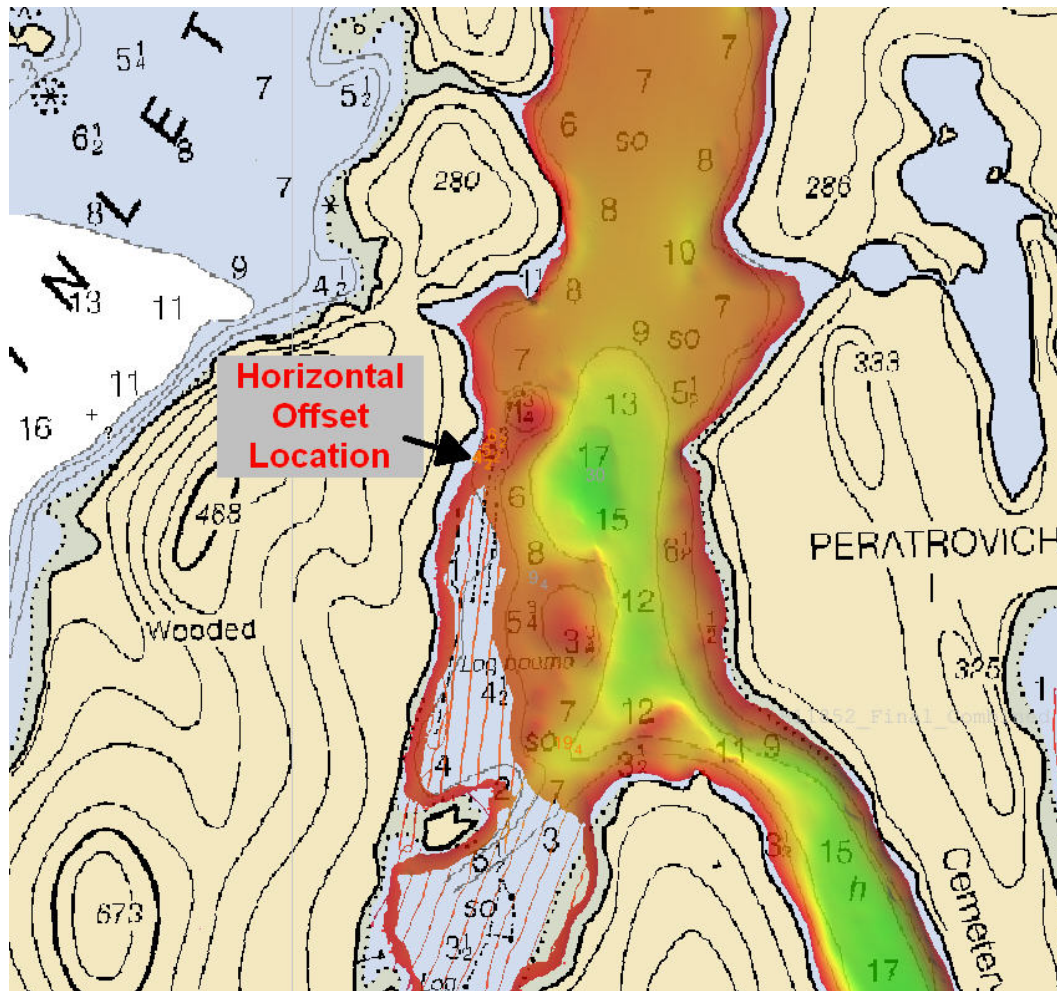


Figure 14: Horizontal Offset Location.

Holidays

H11852 data holidays are related to insufficient density of soundings, sound speed errors requiring aggressive sounding rejection and to navigation concerns with shoal or foul areas deemed unsafe to approach.⁸

B3. Data Reduction

Data reduction procedures for survey H11852 conform to those detailed in the *OPR-O190-RA-08 DAPR Fall*.

B4. Data Representation

Many BASE surfaces were used in processing H11852. Final BASE surface resolutions and depth ranges were set according to table 3 below, with field sheets smaller than 25×10^6 nodes. CUBE surfaces processed at one meter resolution were computed using “shallow” parameters, whereas surfaces with resolutions of two and four meters were computed using “deep” CUBE parameters. Vertical beam data were submitted in a separate 2-meter resolution uncertainty surface and as part of the final combined CUBE surface. The submission Field Sheet and BASE Surface structure are shown in Figures 15-17.

Depth Range (m)	Resolution (m)	Advanced Configuration
0-21.5	1	Shallow
18.5-52	2	Deep
46-115	4	Deep

Table 3: Depth range and surface resolutions for H11852.

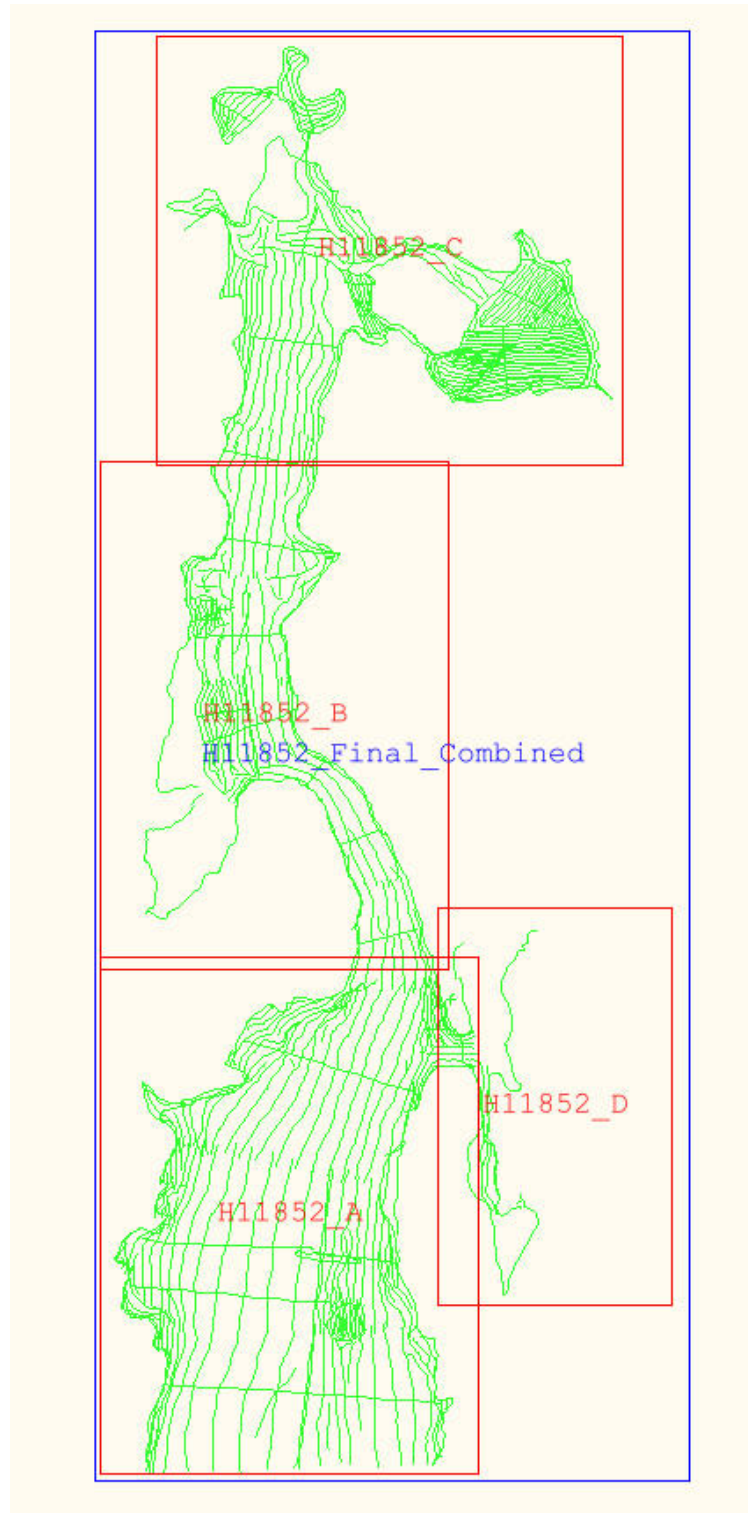


Figure 15: H11852 Field Sheet Layout (excluding VBES).

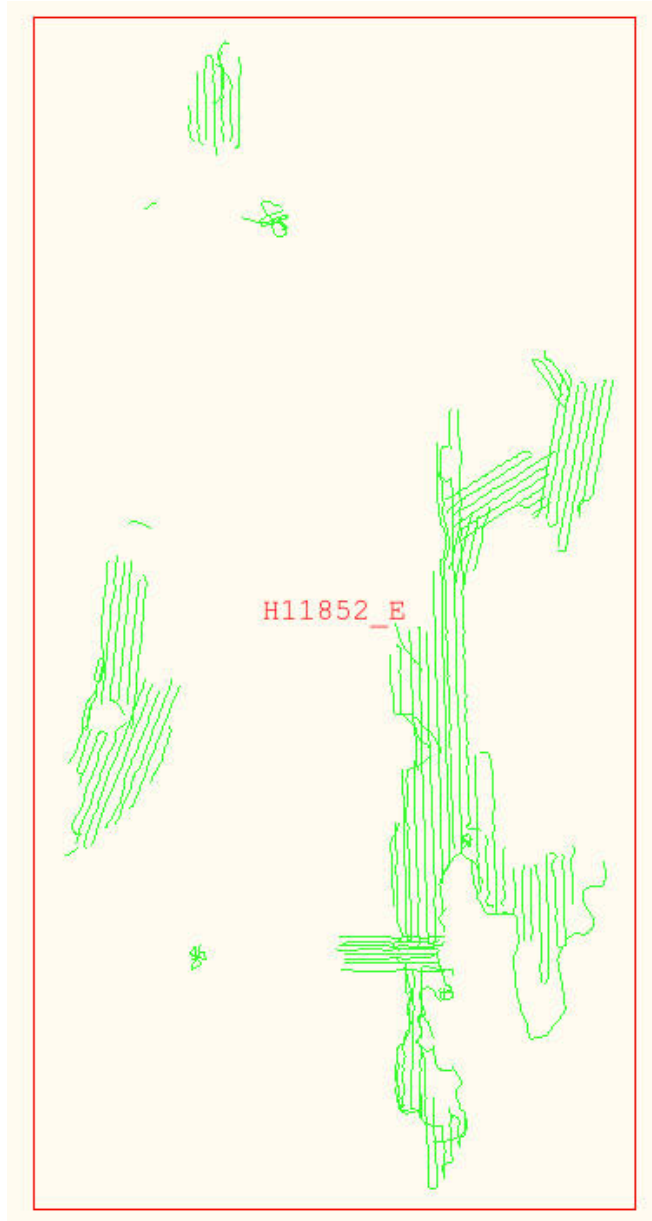


Figure 16: H11852 VBES Field Sheet Layout.

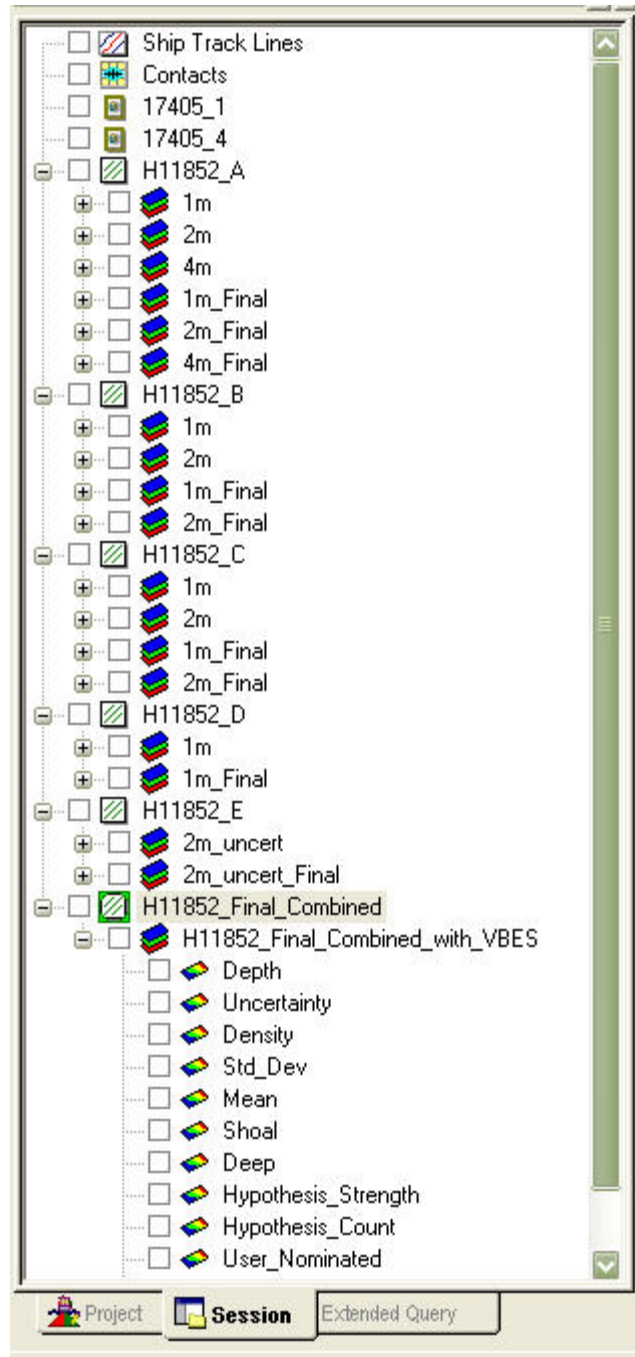


Figure 17: H11852 Field Sheets and BASE Surfaces.

Soundings were generated in CARIS Field Sheet Editor as a .HOB file from the final combined BASE surface for field review purposes. They are included for reference but not intended as a deliverable.

C. VERTICAL AND HORIZONTAL CONTROL

A complete description of vertical and horizontal control for survey H11852 can be found in the *OPR-O190-RA-08 Horizontal and Vertical Control Report*, as appended in May 2009, 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 GPS (DGPS) was the sole method of positioning. The differential corrector beacons utilized for this survey are given in Table 4.

Location	Frequency	Operator	Distance	Priority
Level Island	295 kHz	USCG	60nm	Primary
Biorka Island	305 kHz	USCG	130nm	Secondary
Annette Island	323 kHz	USCG	70nm	Secondary

Table 4: Differential Corrector Sources for H11852.

Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) primary tide station at Sitka, AK (945-1600) served as control for datum determination and as the primary source for water level reducers for survey H11852.

Rainier personnel installed Sutron 8210 “bubbler” tide gauge at the following subordinate station (table 5). Originally, the Hydrographic Survey Project Instructions and Water Level Instructions required the installation and continuous operation of a water level measurement system (tide gauge) at a subordinate station located in Big Salt Lake. Although *Rainier* personnel did install this subordinate tide gauge during the spring operations, observations in the field lead *Rainier* to conclude that Big Salt Lake was poorly suited to contribute to project wide tidal correctors. The entrance to Big Salt Lake is extremely shallow and narrow, constricting the free flow of water during the tidal cycle. In fact this restriction causes tides in Big Salt Lake to strongly deviate from those throughout the rest of the project area. Subsequent correspondence with CO-OPS removed the requirement for this tide station and replaced it with an alternate site, Shinaku Inlet (945-0618). This station is described in detail in the *OPR-O190-RA-08 Horizontal and Vertical Control Report* as appended in May 2009. Additional information regarding the alternate gauge location can also be found in Appendix V under Supplemental Correspondence.

Station Name	Station Number	Type of Gauge	Date of Installation	Date of Removal
Shinaku Inlet	945-0618	30-day	October 10, 2008	November 9, 2008

Table 5: Tide Station installed by Rainier personnel for H11852.

All data were reduced to MLLW using final approved water levels from station Sitka, AK (945-1600) using the tide file 9450618.tid. Final time and height correctors using the zone corrector file H12000CORF.zdf.

The request for Final Approved Water Levels for H11852 was submitted to CO-OPS on November 11, 2008 and the Final Tide Note was received on January 21, 2009. This documentation is included in Appendix IV.⁹

RESULTS AND RECOMMENDATIONS

D.1. Chart Comparison

D.1.a. Survey Agreement with Chart

Survey H11852 was compared with the following charts:

Chart	Scale	Edition and Date	Local Notice to Mariners Applied Through
17405	1:40,000	15 th Ed, May 2006	September 20, 2008
17400	1:229,376	17 th Ed., March 2007	September 20, 2008

Table 6: Charts compared with H11852.

Chart 17405

H11852 Soundings agreed with chart 17405 depths within 1 fathom except as noted in Figures 18-19 below.¹⁰ Red boxes drawn around chart depths show where H11852 soundings were more than 1 fathom shoaler than charted.

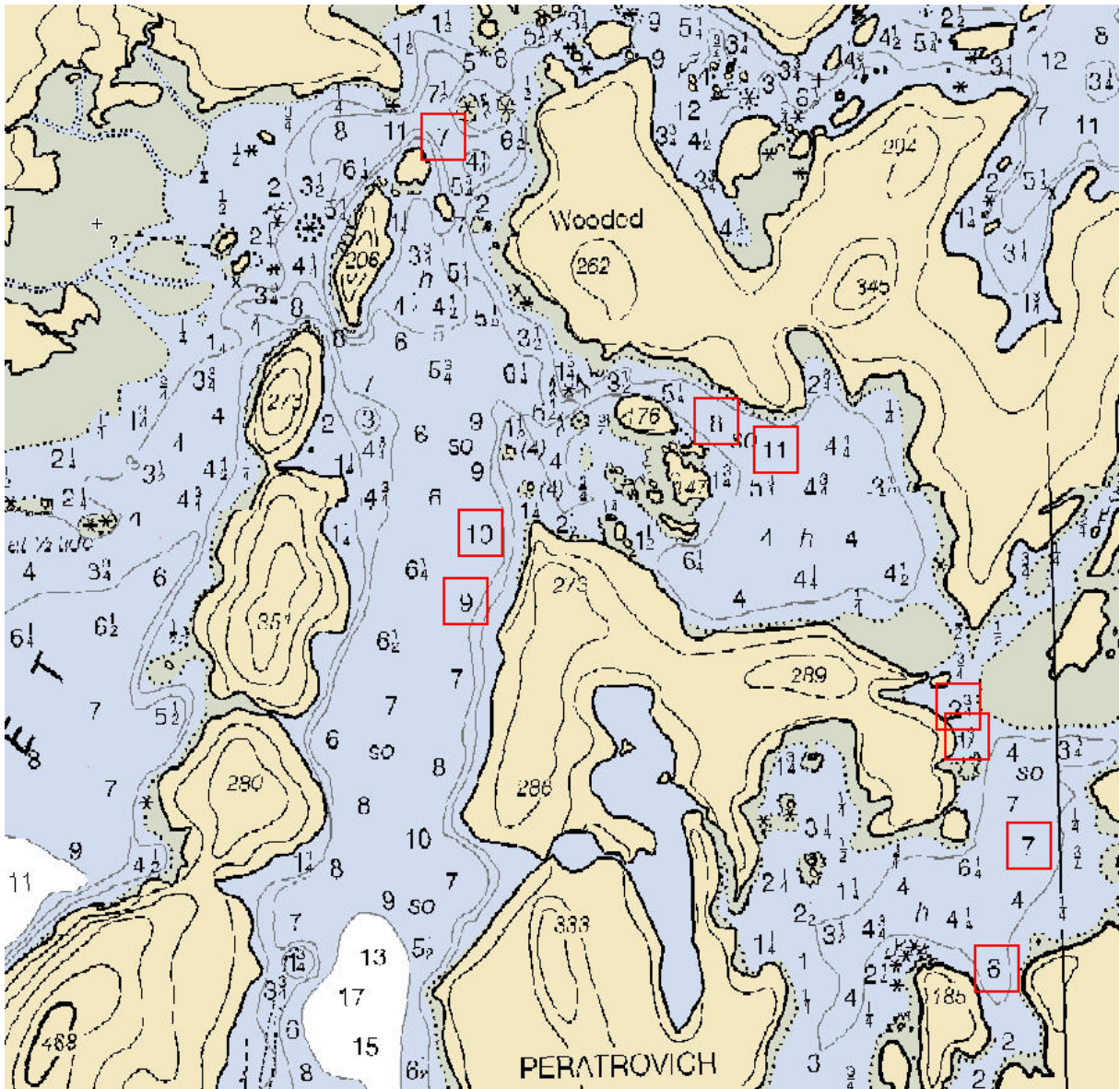


Figure 18: H11852 Soundings Shoaler than Charted (17405) Depths (north section)

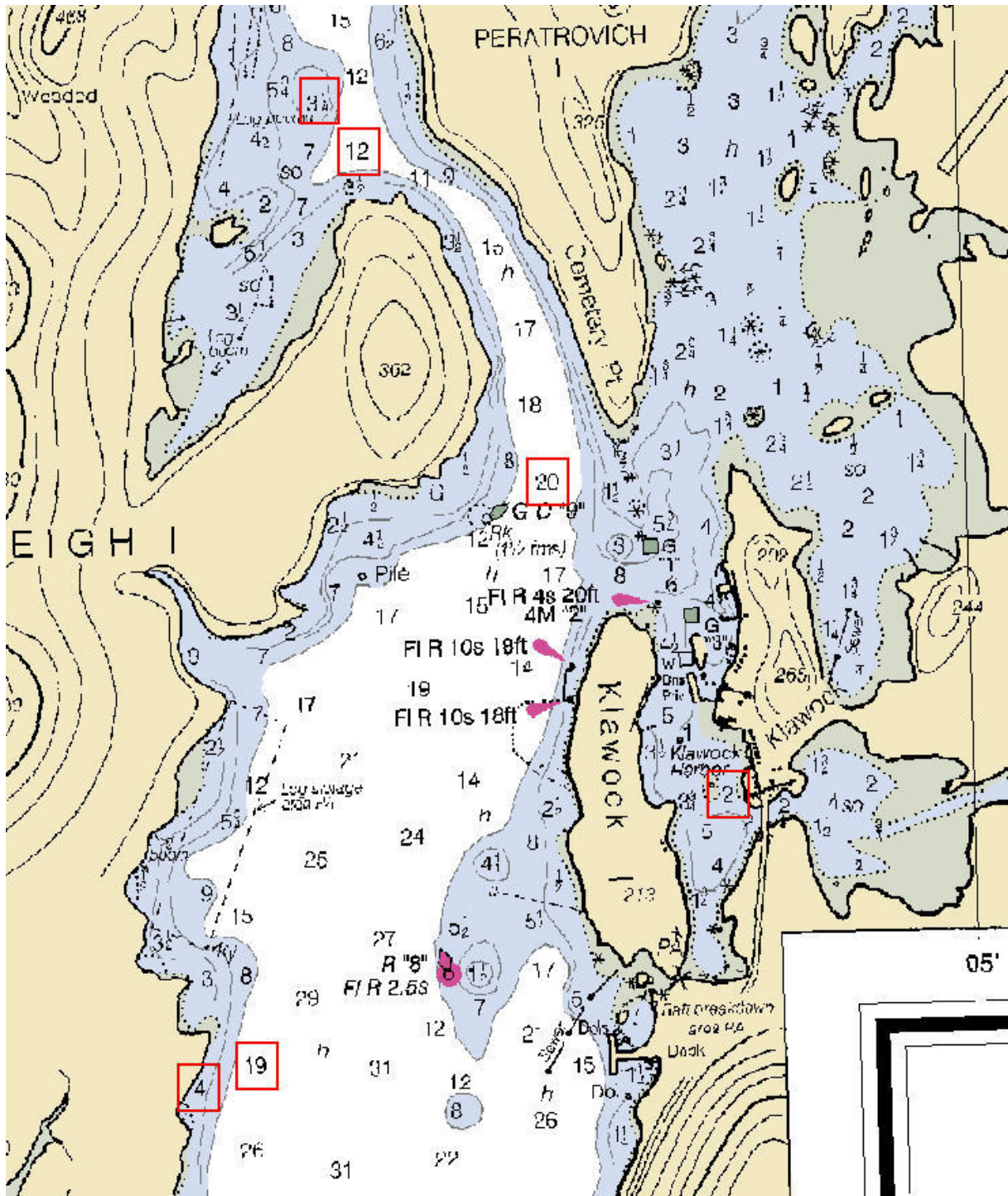


Figure 19: H11852 Soundings Shoaler than Charted (17405) Depths (south section)

An uncharted shoal was discovered north of a prominent arm which extends from the east side of Wadleigh Island, (Figure 20). The least depth on the shoal is approximately $2\frac{3}{4}$ fathoms; this shoal was reported as a Danger to Navigation, see section D.1.b.¹¹

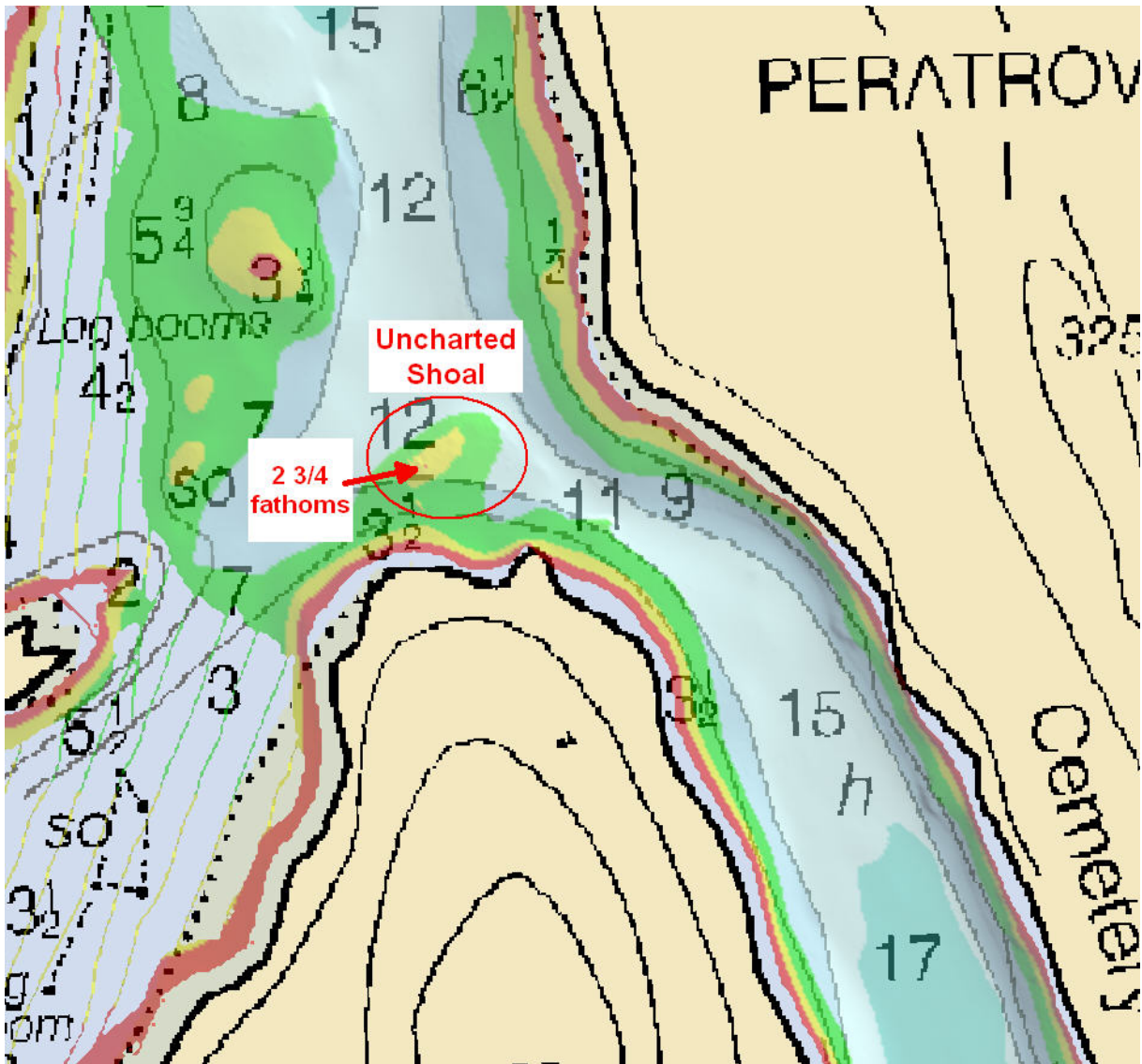


Figure 20: Uncharted Shoal (chart 17405).

A charted (17405) islet located in a small bay on the northeast end of Wadleigh Island was disproved using SWMB (Figure 21). Electronic Navigation Chart (ENC) US5AK4BM indicates the feature to be an islet; however on chart 17405, it appears simply as a small black dot, perhaps a mistake that was carried over to the ENC. Least depth in the area is approximately 3.75m; the hydrographer recommends deleting the charted “islet.”¹²

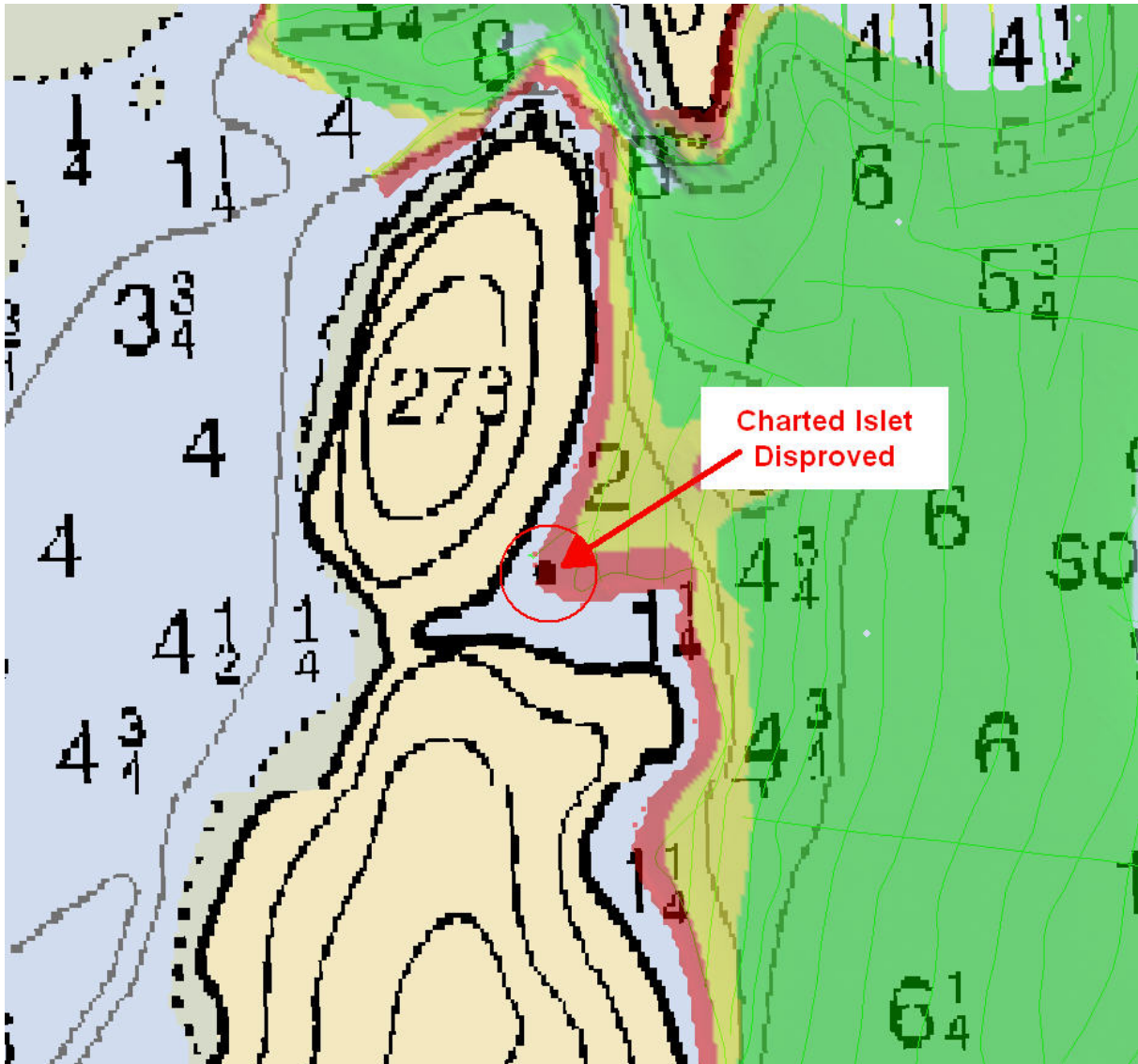


Figure 21: Charted (17405) Islet Disproved.

An uncharted ledge was discovered on the northeast shore of Wadleigh Island in the vicinity of a $1 \frac{1}{4}$ fathom depth (Figures 22-23). This ledge was reported as a Danger to Navigation, see section D.1.b.¹³

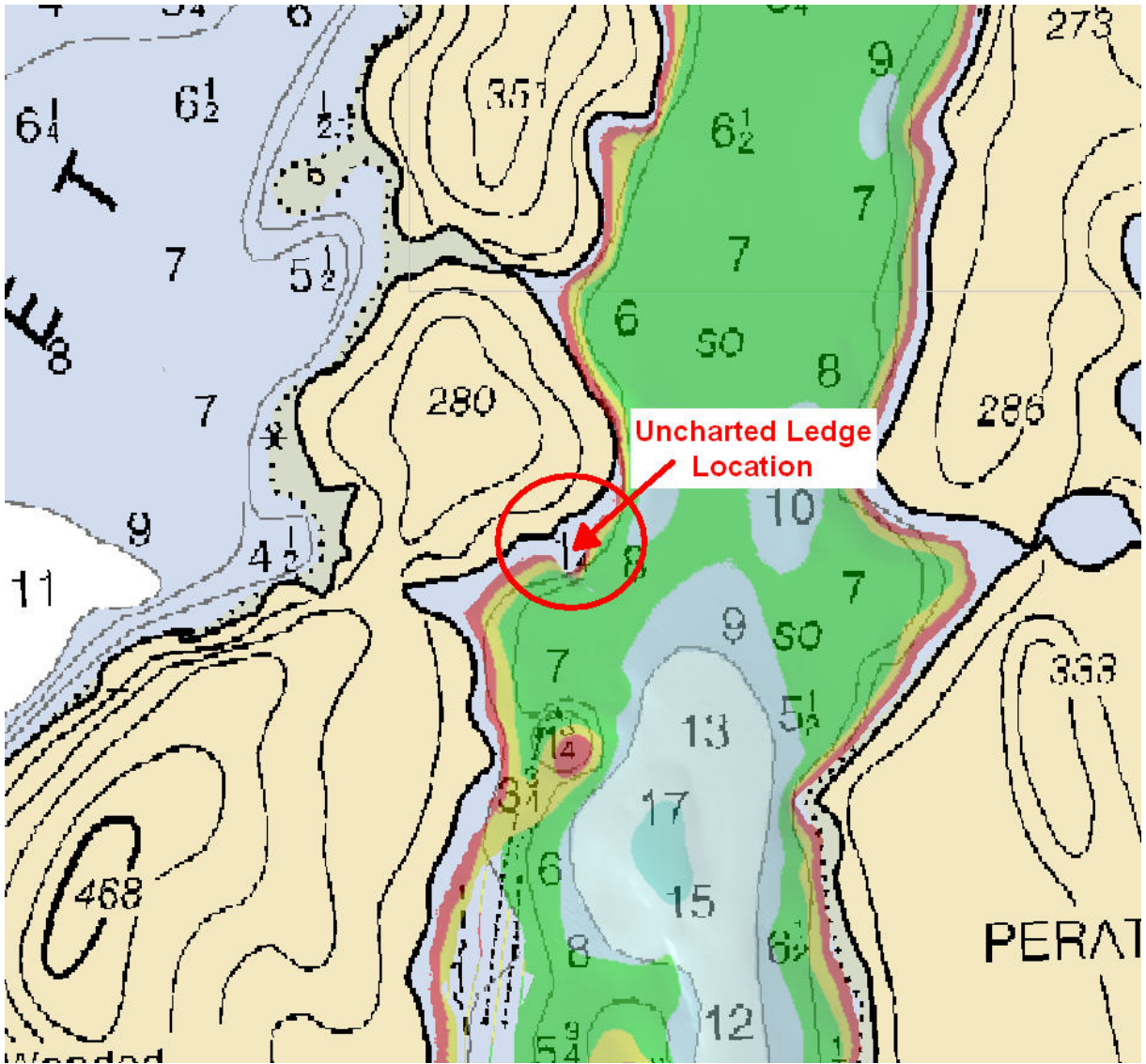


Figure 22: Location of Uncharted (17405) Ledge.

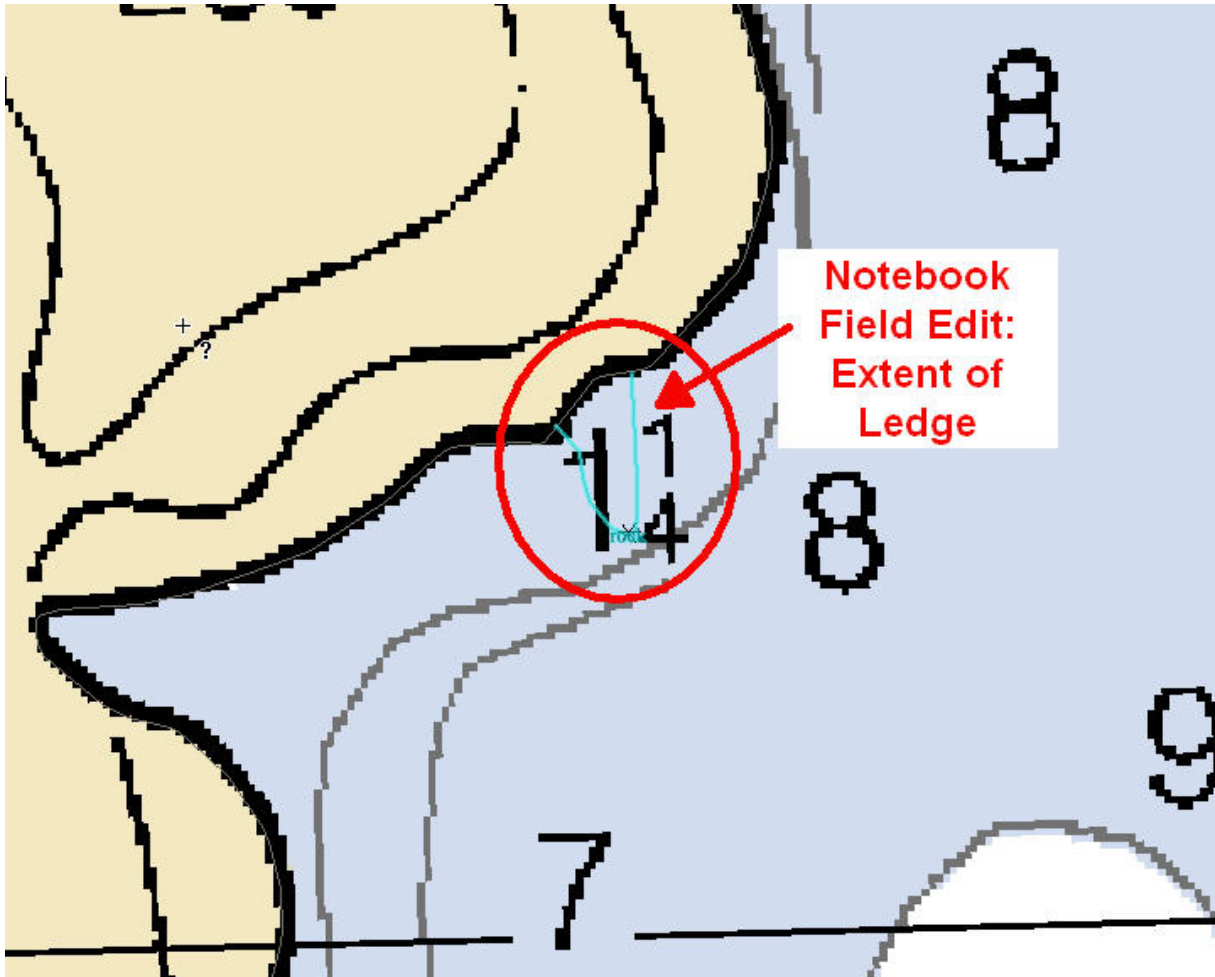


Figure 23: Extent of Uncharted (17405) Ledge.

A charted (17405) pile near the eastern shore of Wadleigh Island was not located visually, nor was it detected with VBES or SWMB; the hydrographer recommends deleting the charted feature (Figure 24).¹⁴

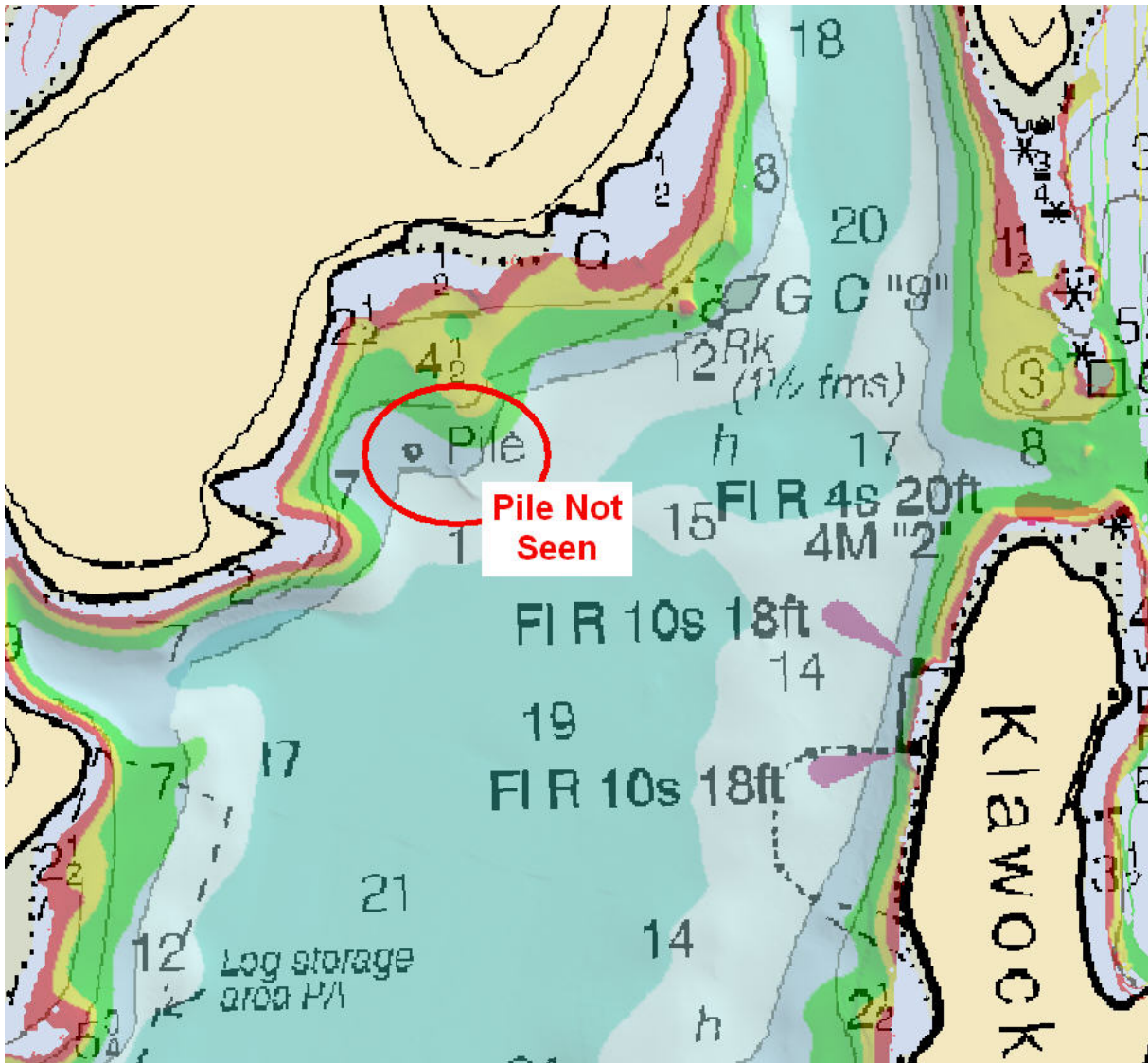


Figure 24: Charted (17405) Pile Not Detected.

Two charted (17405) log boom areas in a bay on the east side of Wadleigh Island were not observed as charted (Figure 25). The southern of the two log booms was seen in ruins; hydrographer recommends retaining as charted and assigning it a condition of “Ruined.”¹⁵ The charted log boom area immediately to the north is comprised of two separate features. The north east of these two was not seen at all; the hydrographer recommends deleting this section.¹⁶ The log boom section closest to shore was observed but was shorter than charted.¹⁷ In addition, an uncharted buoy was located and added to the field edited notebook layer.¹⁸ The hydrographer recommends charting these log boom features as per H11852_Field_Verified.HOB.¹⁹ It should be noted that log boom configurations in this area most likely change periodically as evidenced by log boom equipment seen on shore in the area.²⁰

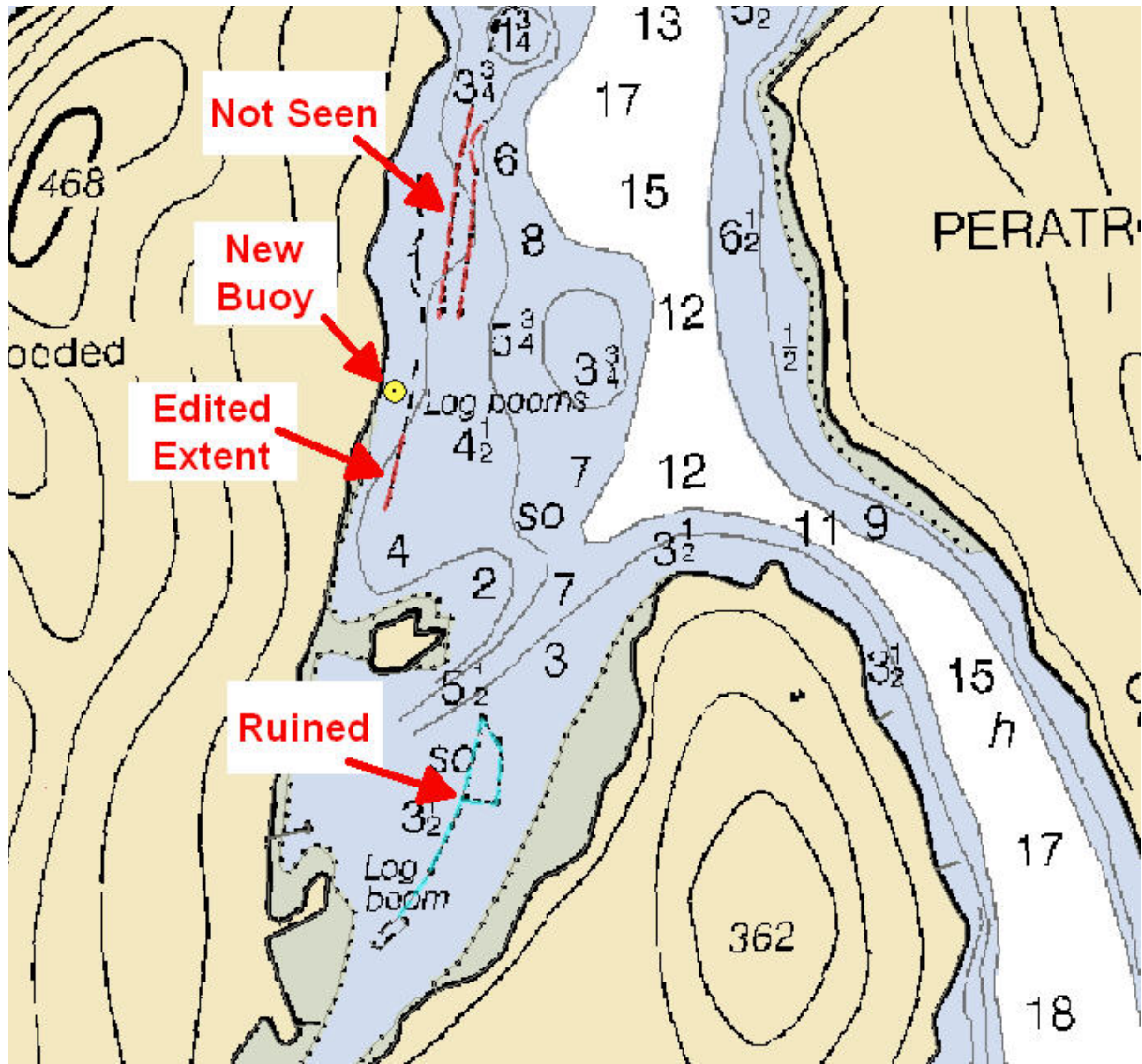


Figure 25: Log Boom Area Changes.

Neither a charted (17405) log boom area on the west side of Klawock Island, nor an adjacent pier ruin were observed during the survey. Log booms can be temporary in nature, therefore it is possible that one might be deployed at a future time although no equipment was seen on shore.²¹ Debris consistent with such structures was noted on the bottom.²² A second ruined pier, approximately 550m south of the log boom area was not detected as charted, although two piles were found that flank the near shore extent of this structure (figure 26).²³

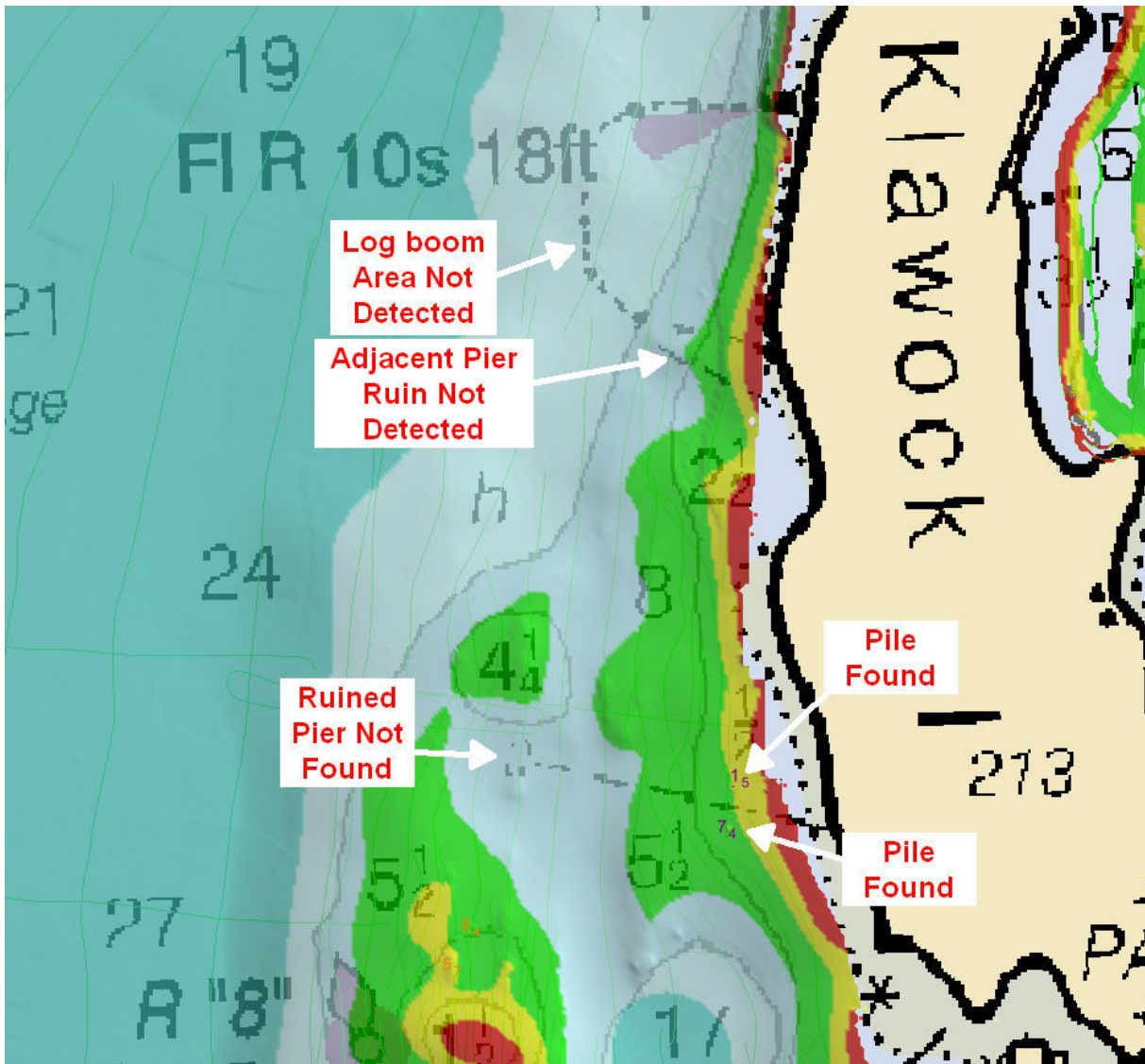


Figure 26: H11852 Status of Charted Features.

The Hydrographer recommends that survey soundings supersede all prior survey and charted depths in the common area.²⁴

Chart 17400

The three charted depths agree with H11852 within three fathoms.²⁵

D.1.b. Dangers to Navigation

Ten (10) Dangers to Navigation (DTONs) were found on survey H11852 and reported to the Marine Chart Division via emails on May 13, 2009 and May 15, 2009.²⁶ The original DTON submission packages are included in Appendix I.²⁷ Descriptions of each DTON are included in the Survey Feature Report in Appendix II.

D.1.c. Other Features

Automated Wreck and Obstruction Information System (AWOIS) Investigations

One (1) AWOIS item falls within the survey limits of H11852 and was assigned for full investigation.²⁸ A description of this AWOIS item investigation is included in the Survey Feature Report in Appendix II.²⁹

Additional Items

Additional features investigated within the limits of H11852 are described in the Survey Feature Report in Appendix II.

D.2. Additional Results

D.2.a. Prior Survey Comparison

A prior survey comparison was not required nor performed.

D.2.b. Shoreline Verification

Shoreline Source

The shoreline source data for H11852 is the composite source file provided with project OPR-O190-RA-08 by Operations Branch, Hydrographic Surveys Division.

Shoreline Verification

The project composite source file, clipped to H11852 limits, was displayed and edited on the survey vessel during acquisition using CARIS Notebook. The features from this file were also printed on a hard copy boat sheet for note taking in the field. All shoreline data is submitted in CARIS Notebook .hob files. Table 7 lists the names and a description of The HOB layer files included in the CARIS Notebook session H11852_NBK.wrk.

HOB File	Purpose and Contents
H11852_Composite_Source.hob	Original Source Data as provided for project OPR-O190-RA-08 “clipped” to the limits of H11852, sheet “L”
H11852_Field_Verified_Composite_Source.hob	Composite Source and Field verified features including edits and updates addressed by H11852.
H11852_Deleted.hob	Composite Source features deleted or modified for H11852.

Table 7. List and Description of Notebook HOB files.

Recommendations

The Hydrographer recommends that the shoreline as depicted in the Notebook .HOB files in table 7 supersede and complement previously acquired shoreline information depicted on existing chart products.³⁰

D.2.c. Aids to Navigation

There are eight (8) Aids to Navigation within the limits of H11852; all were found to be correctly charted and are serving their intended purpose.³¹

D.2.d. Overhead Features

Inside Klawock Harbor, at the margin of the survey area, is the low bridge over the mouth of the Klawock River. The chart is not annotated with a height and it is only possible for the smallest watercraft to pass beneath; it was not investigated further.³²

D.2.e. Submarine Cables and Pipelines

Survey H11852 includes two charted (17405) pipelines (sewer) in the vicinity of village of Klawock (Figure 27). The southern pipeline was observed in its charted position. The northern pipeline is located inside the Navigable Area Limit Line (NALL); the single VBES buffer line over the area was insufficient to locate the feature. The hydrographer recommends retaining as charted (17405).³³

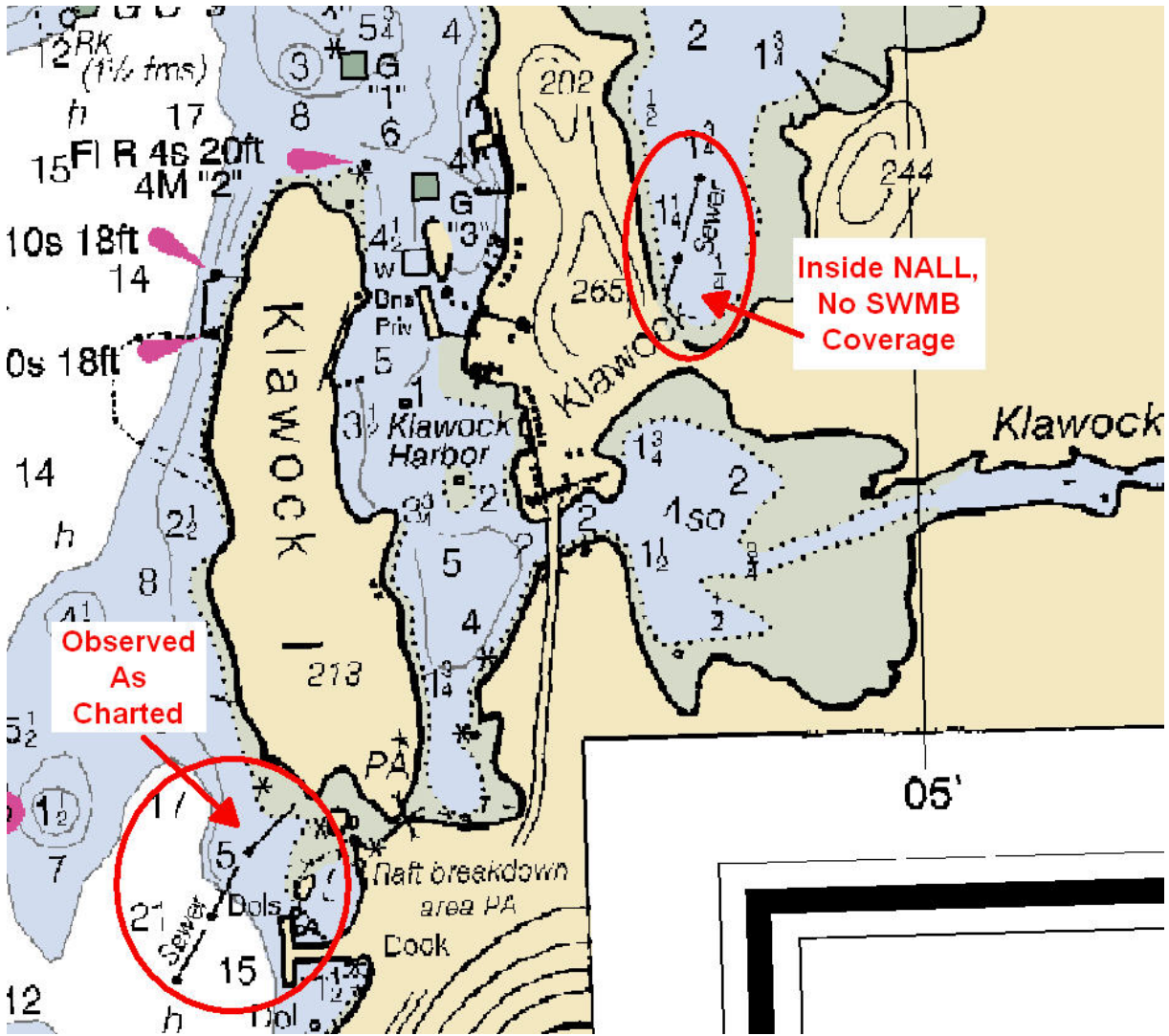


Figure 27: H11852 Pipelines.

D.2.f. Ferry Routes

There are no ferry routes charted within the limits of survey H11852, and none were observed to be operating in the area.³⁴

D.2.g. Bottom Samples

One bottom sample was performed, see H11852_Field_Verified_Composite_Source.HOB.³⁵

D.2.h. Other Findings

A possible cultural feature was located approximately 190m northeast of charted (17405) Red “8” buoy west of Klawock Island and is included in the Pydro feature report (figure 28).³⁶

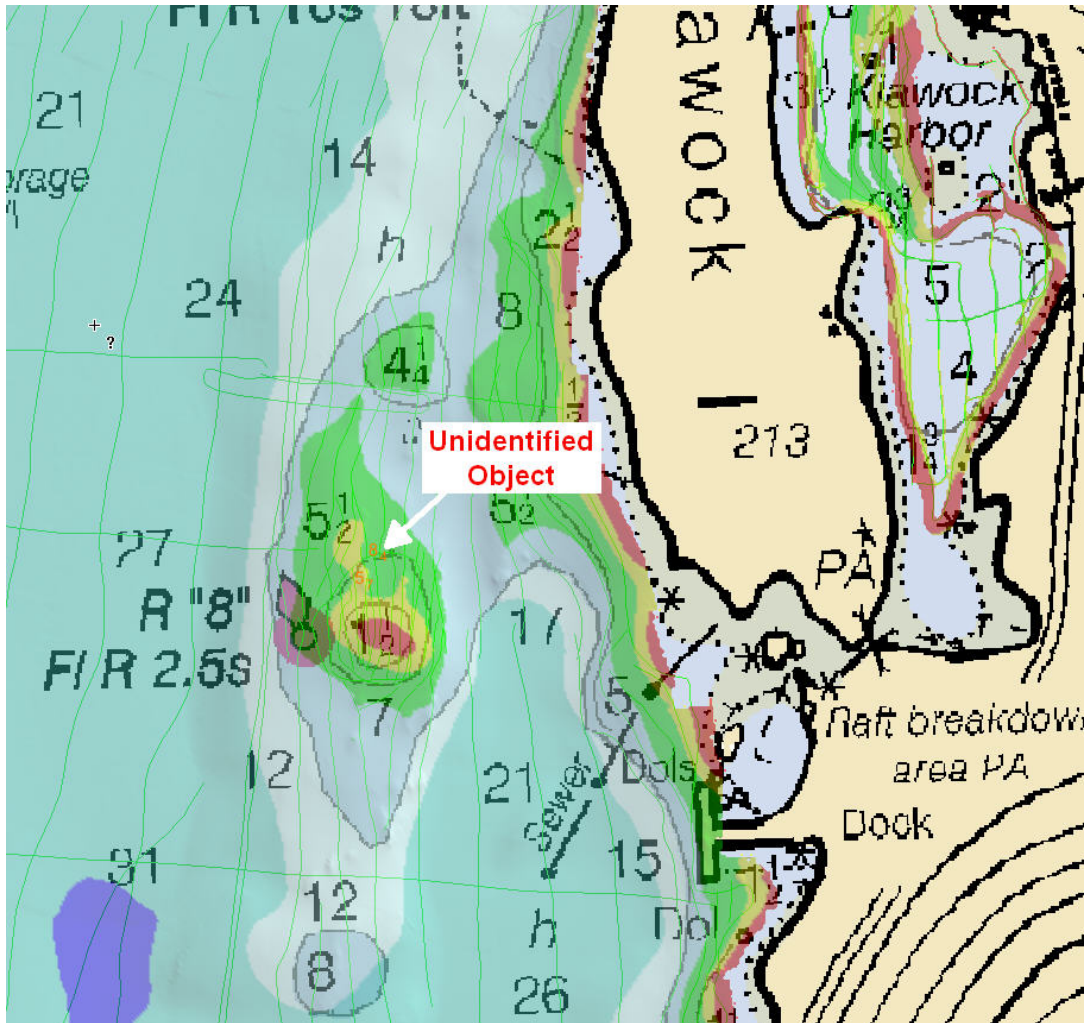


Figure28: Possible Cultural Feature, highlighted depths in meters.

Chart 17405 is insufficient for navigation in Klawock harbor as currently charted at a 1:40,000 scale. The fishing vessels and tugs with barges that use Klawock Harbor would benefit greatly from a larger scale depiction of the area. The hydrographer recommends adding a 1:10,000 scale inset to chart 17405 much like the inset for Craig Harbor.³⁷ This recommendation has been forwarded to the Alaskan Navigation Manager, LCDR Dave Zezula.

E. APPROVAL

As Chief of Party, Field operations for hydrographic survey H11852 were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports. The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual (April 2008), Field Procedures Manual (May 2008), Standing and Letter Instructions, and all HSD Technical Directives issued through November 2008. 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. All data and reports are respectfully submitted to N/CS34, Pacific Hydrographic Branch.

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

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Data Acquisition and Processing Report for OPR-O190-RA-08 (Fall)	May 4, 2009	N/CS34
Coast Pilot Report for OPR- O190-RA-08	<i>To be submitted under separate cover</i>	N/CS26
Horizontal and Vertical Control Report for OPR-O190-RA-08	May 4, 2009	N/CS34

Approved and Forwarded:



Donald W. Haines, CAPT/NOAA
I am approving this document
2009.05.15 09:11:49 -08'00'

Captain Donald W. Haines, NOAA
Commanding Officer

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

Survey Sheet Manager:



Barry Jackson
I am the author of this document
2009.05.15 15:13:01 Z

B. Jackson
Senior Survey Technician, NOAA

Chief Survey Technician:



James B Jacobson
I have reviewed this document
2009.05.15 15:15:04 Z

James B. Jacobson
Chief Survey Technician, NOAA Ship *Rainier*

Field Operations Officer:



I have reviewed this document
2009.05.15 09:09:53 -08'00'

Lieutenant Charles Yoos, NOAA
Field Operations Officer

Revisions and Corrections Compiled During Office Processing and Certification

¹ Concur.

² A common junction was made with H11851 which has already been compiled. A partial junction was made with H12000 which is being concurrently compiled. A small portion of LIDAR survey H11661 also junction with H11852 and was compiled concurrently with H11852 and is included in the HCell. No data from LIDAR included in HCell H11852 supersedes shoaler charted depths or has been used to disprove charted features.

³ Concur.

⁴ Concur with clarification. After rejecting the data affected by the sound speed errors, the remaining data is adequate to supersede charted data in the common area.

⁵ The small holidays that resulted from rejecting the data affected by sound speed errors were not significant and therefore were not preserved in the HCell coverage.

⁶ Concur. The data is adequate to supersede charted data in the common area despite low data density.

⁷ Concur. The data is adequate to supersede charted data in the common area despite the horizontal offset.

⁸ Only large holidays where unaddressed features, charted or uncharted, may exist in the gap were preserved in the HCell coverage.

⁹ See attached Tide Note dated January 14, 2009.

¹⁰ Concur.

¹¹ Concur with clarification. The shoal depth is included in the HCell as a submerged rock. See attached DTON Report.

¹² Concur. The islet has been blue noted to be removed in the HCell.

¹³ The ledge is included in the HCell. See attached DTON Report.

¹⁴ Concur. The pile has been blue noted to be removed in the HCell.

¹⁵ Concur. The log boom with the condition updated to ruined is included in the HCell.

¹⁶ Do not concur. It was indicated in the feature file that the log booms may be intermittent. Retain the log boom as charted.

¹⁷ The log boom was blue noted to be retained as charted due to the fact that the shortened boom seen during the survey may not reflect the full extent of the boom when in use.

¹⁸ The new buoy, categorized as a mooring mark, is included in the HCell.

¹⁹ Do not concur. See endnotes 16 through 20.

²⁰ The log booms should be retained as charted.

²¹ The log booms should be retained as charted.

²² The offshore portion of the ruined pier has been blue noted to be removed while the portion in the intertidal area was blue noted to be retained.

²³ The offshore portion of the ruined pier has been blue noted to be removed while the portion in the intertidal area was blue noted to be retained. The piles flanking the ruined pier are included in the HCell.

²⁴ Concur with clarification. Some charted depths in the area surveyed by singlebeam were blue noted to be retained because they were shoaler than the surrounding singlebeam depths.

²⁵ Concur.

²⁶ All but one DTON have been applied to the chart and the DTONs applied to the chart are included in the HCell. It appears that the one DTON not applied to the chart was excluded because it could not be accommodated at chart scale.

²⁷ See attached DTON Report.

²⁸ The AWOIS item was found to be a spherical mooring buoy at the position reported to be the center of the log storage area in the database. The buoy is included in the HCell and the Log Storage Area PA has been blue noted to be retained as charted.

²⁹ See attached Feature Report.

³⁰ Concur with clarification. The submitted hob files were used in the compilation of HCell H11852. During compilation, some modifications were made to accommodate chart scale. Chart features as depicted in the HCell.

³¹ Chart per latest ATONIS information.

³² Retain bridge as charted.

³³ Concur.

³⁴ Concur.

³⁵ The bottom sample is included in the HCell. Charted bottom samples were either imported into the HCell or blue noted to be retained.

³⁶ The feature is not included in the HCell because there were shoaler features nearby. See attached Feature Report for information about the possible cultural feature.

³⁷ Concur with clarification. It is recommended that an inset be developed for Klawock Harbor as time and resources allow.

H11852 DTONs

Registry Number: H11852
State: Alaska
Locality: West of Prince of Wales Island
Sub-locality: Klawock Inlet to Big Salt Lake
Project Number: OPR-O190-RA-08
Survey Dates: 10/29/2008 - 11/08/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
17405	15th	05/01/2006	1:40,000 (17405_4)	USCG LNM: None (09/09/2008) CHS NTM: None (07/25/2008) NGA NTM: None (09/20/2008)
17405	15th	05/01/2006	1:40,000 (17405_1)	USCG LNM: 10/23/2007 (09/09/2008) CHS NTM: None (07/25/2008) NGA NTM: None (09/20/2008)
17400	17th	03/01/2007	1:229,376 (17400_1)	[L]NTM: ?
16016	21st	10/01/2007	1:969,756 (16016_1)	[L]NTM: ?
531	24th	07/01/2007	1:2,100,000 (531_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

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

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Rock	0.53 m	55° 36' 03.2" N	133° 06' 24.8" W	---
1.2	Rock	-0.22 m	55° 36' 03.4" N	133° 06' 27.4" W	---
1.3	Rock	5.03 m	55° 34' 26.7" N	133° 07' 20.6" W	---
1.4	Rock	0.75 m	55° 33' 18.1" N	133° 06' 11.7" W	---
1.5	Rock	0.30 m	55° 33' 26.7" N	133° 07' 32.9" W	---
1.6	Rock	1.67 m	55° 35' 44.8" N	133° 05' 55.0" W	---
1.7	Rock	1.79 m	55° 36' 28.8" N	133° 07' 29.5" W	---

1.8	Rock	5.80 m	55° 34' 27.0" N	133° 07' 39.2" W	---
1.9	Rock	6.92 m	55° 33' 30.0" N	133° 06' 17.3" W	---

1 - Danger To Navigation

1.1) Profile/Beam - 3208/3 from h11852 / 1015_reson8101_hvf / 2008-311 / 800_2300

DANGER TO NAVIGATION

Survey Summary

Survey Position: 55° 36' 03.2" N, 133° 06' 24.8" W
Least Depth: 0.53 m (= 1.75 ft = 0.292 fm = 0 fm 1.75 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 1.962 m ; TVU (TPEv) ± 0.231 m
Timestamp: 2008-311.23:04:12.310 (11/06/2008)
Survey Line: h11852 / 1015_reson8101_hvf / 2008-311 / 800_2300
Profile/Beam: 3208/3
Charts Affected: 17405_1, 17405_4, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

High point on ledge that extends north from charted (17405) island (176 ft elevation). DTON 3824/7 also defines part of this ledge extension.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/1015_reson8101_hvf/2008-311/800_2300	3208/3	0.00	000.0	Primary

Hydrographer Recommendations

Chart as per digital data.

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (17405_1, 17405_4, 17400_1, 16016_1, 530_1)

0fm 2ft (531_1)

.5m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20081109

SORIND - us,us,nsurf,H11852

TECSOU - 3:found by multi-beam

VALSOU - 0.534 m

VERDAT - 12:Mean lower low water

WATLEV - 5:awash

Feature Images

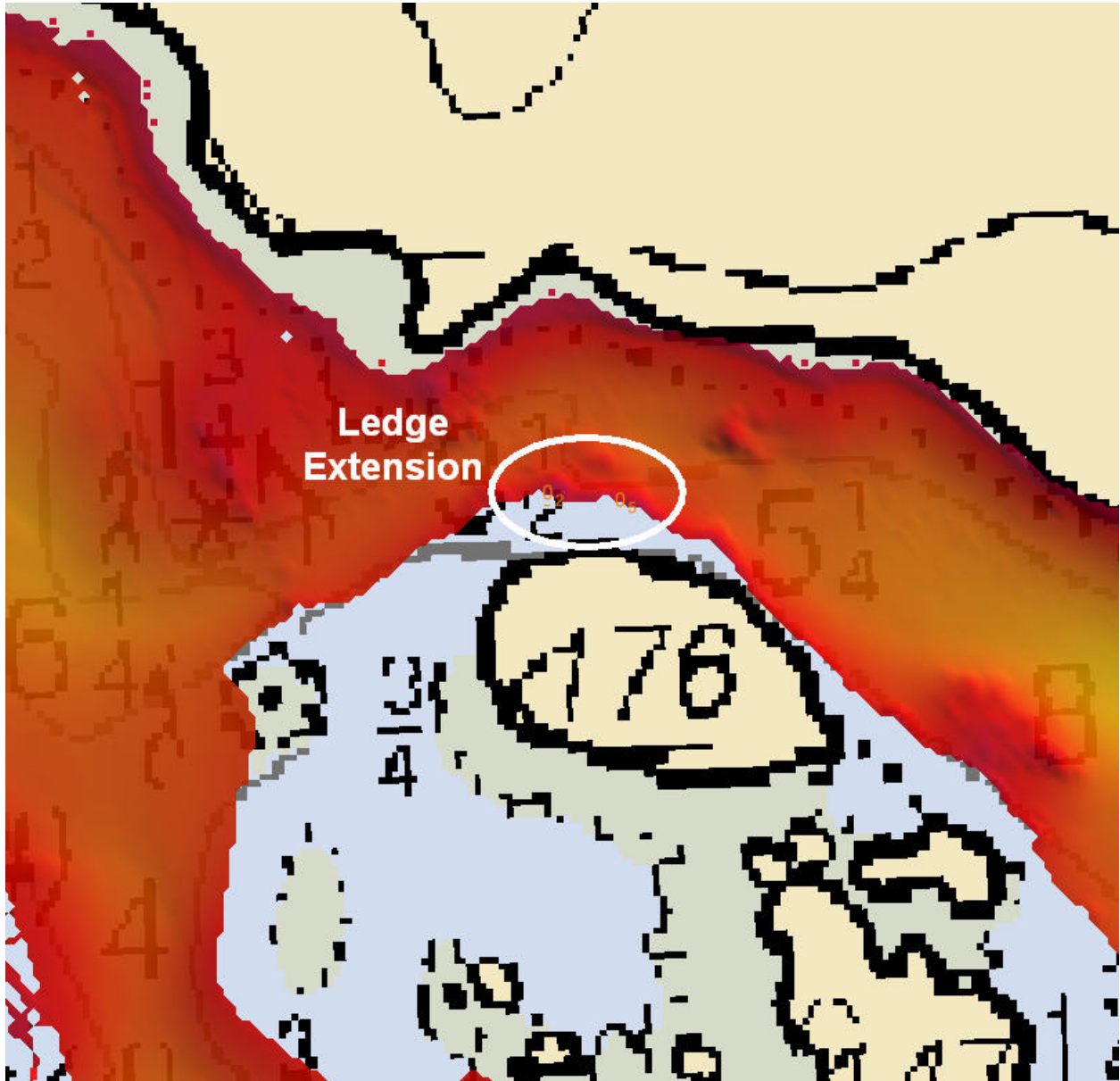


Figure 1.1.1

1.2) Profile/Beam - 3824/7 from h11852 / 1015_reson8101_hvf / 2008-311 / 800_2300

DANGER TO NAVIGATION

Survey Summary

Survey Position: 55° 36' 03.4" N, 133° 06' 27.4" W
Least Depth: -0.22 m (= -0.73 ft = -0.122 fm = 0 fm 5.27 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.962 m ; **TVU (TPEv)** ± 0.230 m
Timestamp: 2008-311.23:04:43.109 (11/06/2008)
Survey Line: h11852 / 1015_reson8101_hvf / 2008-311 / 800_2300
Profile/Beam: 3824/7
Charts Affected: 17405_1, 17405_4, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

High point on ledge that extends north from charted (17405) island with 176 ft elevation. DTON 3208/3 also defines part of this ledge extension.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/1015_reson8101_hvf/2008-311/800_2300	3824/7	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0fm (17405_1, 17405_4, 17400_1, 16016_1, 530_1)

0fm 0ft (531_1)

-.2m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)

Attributes: QUASOU - 1:depth known

SORDAT - 20081109

SORIND - us,us,nsurf,H11852

TECSOU - 3:found by multi-beam

VALSOU - -0.224 m

VERDAT - 12:Mean lower low water

WATLEV - 4:covers and uncovers

Feature Images

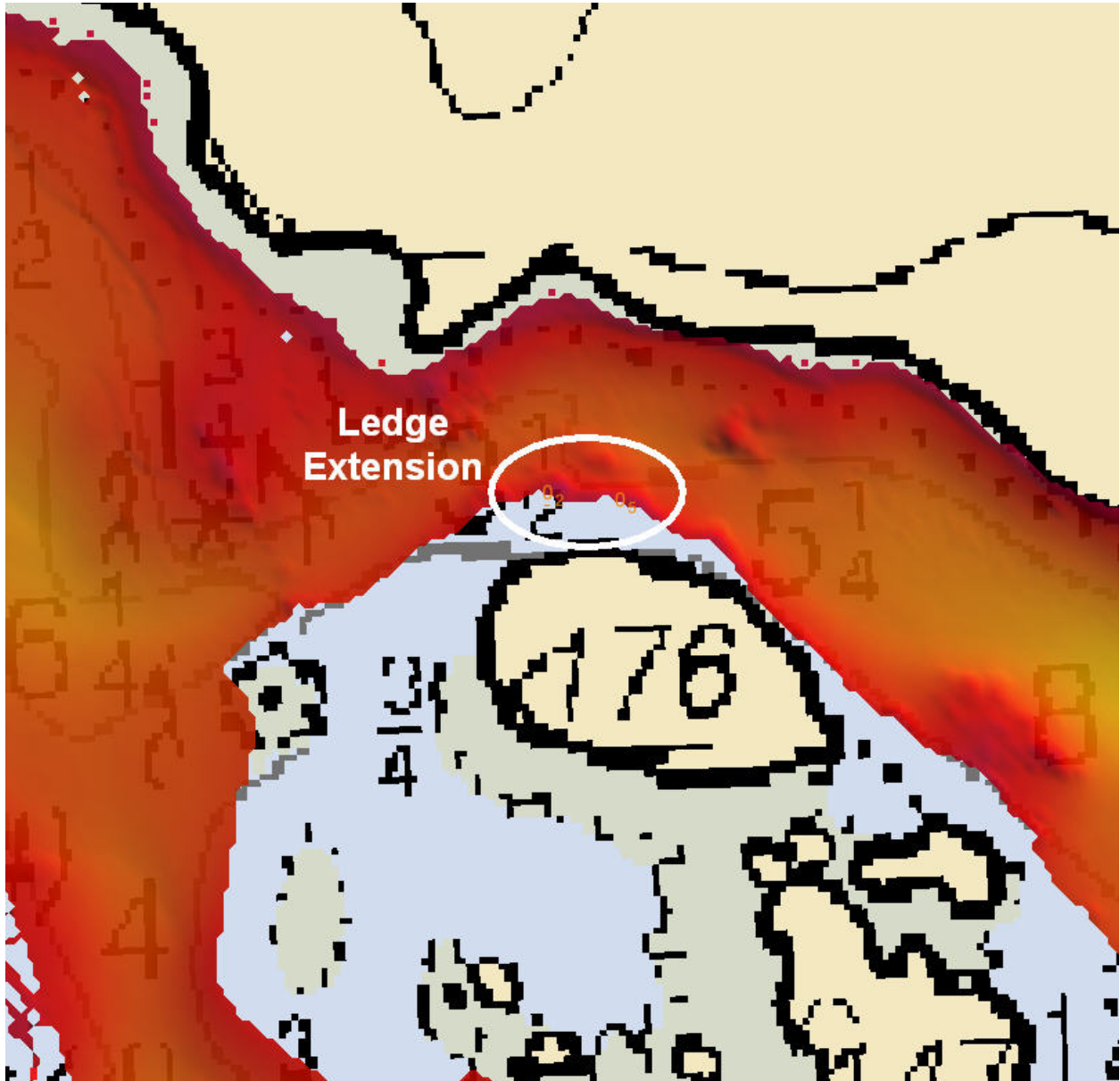


Figure 1.2.1

1.3) Profile/Beam - 108/14 from h11852 / 1015_reson8101_hvf / 2008-311 / 803_1923

DANGER TO NAVIGATION

Survey Summary

Survey Position: 55° 34' 26.7" N, 133° 07' 20.6" W
Least Depth: 5.03 m (= 16.52 ft = 2.753 fm = 2 fm 4.52 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.964 m ; **TVU (TPEv)** ± 0.235 m
Timestamp: 2008-311.19:23:36.544 (11/06/2008)
Survey Line: h11852 / 1015_reson8101_hvf / 2008-311 / 803_1923
Profile/Beam: 108/14
Charts Affected: 17405_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

5m Reef approx 130m off north end of prominent arm of Wadleigh Island in main channel area.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/1015_reson8101_hvf/2008-311/803_1923	108/14	0.00	000.0	Primary

Hydrographer Recommendations

Chart as per digital data.

Cartographically-Rounded Depth (Affected Charts):

2 $\frac{3}{4}$ fm (17405_1, 17400_1, 16016_1, 530_1)

2fm 4ft (531_1)

5.0m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20081109
 SORIND - us,us,nsurf,H11852

TECSOU - 3:found by multi-beam

VALSOU - 5.034 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

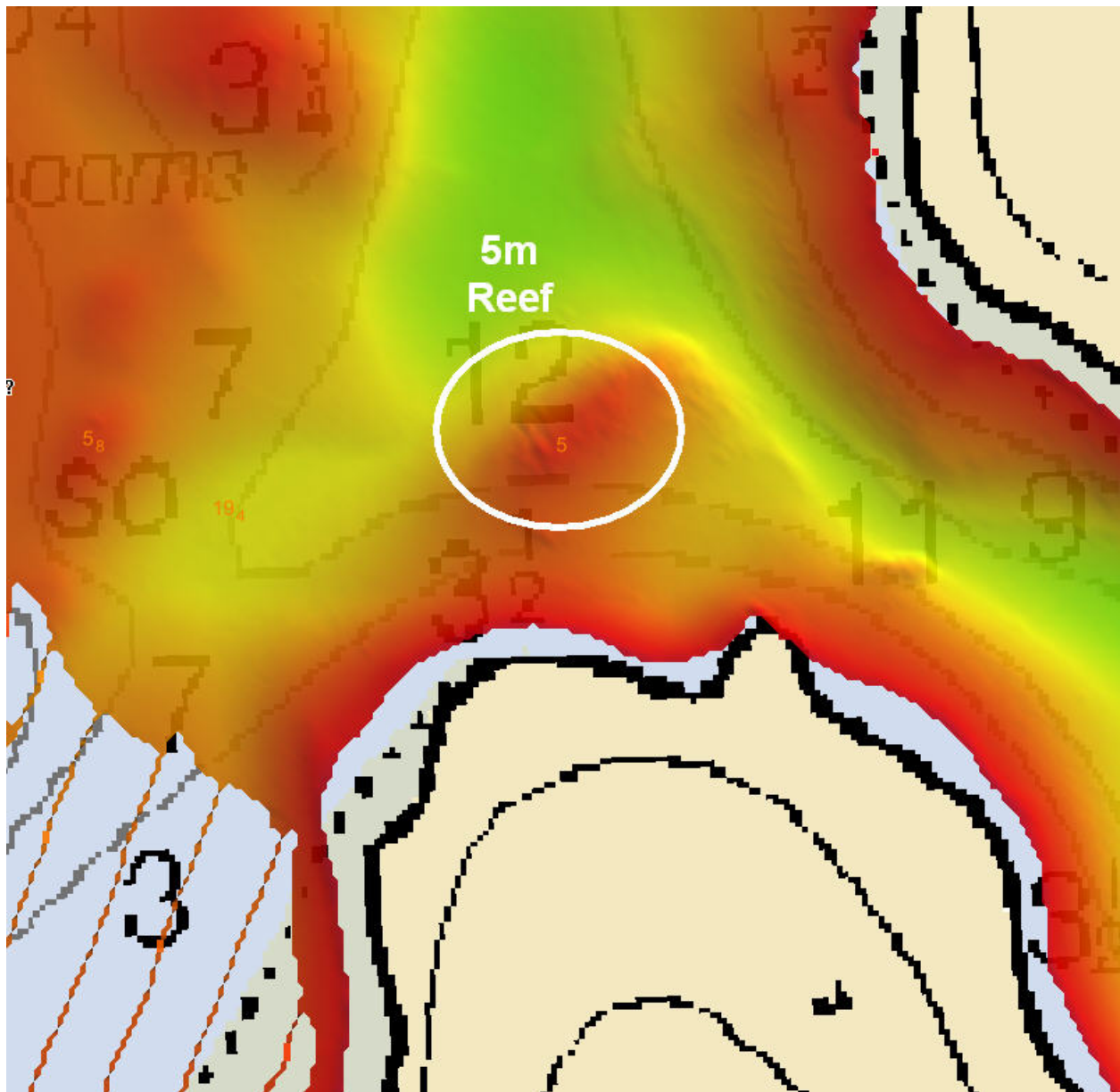


Figure 1.3.1

1.4) Profile/Beam - 3997/222 from h11852 / 1101_reson8125_hvf / 2008-303 / 000_2312

DANGER TO NAVIGATION

Survey Summary

Survey Position: 55° 33' 18.1" N, 133° 06' 11.7" W
Least Depth: 0.75 m (= 2.46 ft = 0.410 fm = 0 fm 2.46 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.966 m ; **TVU (TPEv)** ± 0.305 m
Timestamp: 2008-303.23:20:38.032 (10/29/2008)
Survey Line: h11852 / 1101_reson8125_hvf / 2008-303 / 000_2312
Profile/Beam: 3997/222
Charts Affected: 17405_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

0.7m Sounding on ledge extending from the east side of Klawock Island.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/1101_reson8125_hvf/2008-303/000_2312	3997/222	0.00	000.0	Primary

Hydrographer Recommendations

Chart as per digital data.

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (17405_1, 17400_1, 16016_1, 530_1)

0fm 2ft (531_1)

.8m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20081109
 SORIND - us,us,nsurf,H11852

TECSOU - 3:found by multi-beam

VALSOU - 0.750 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

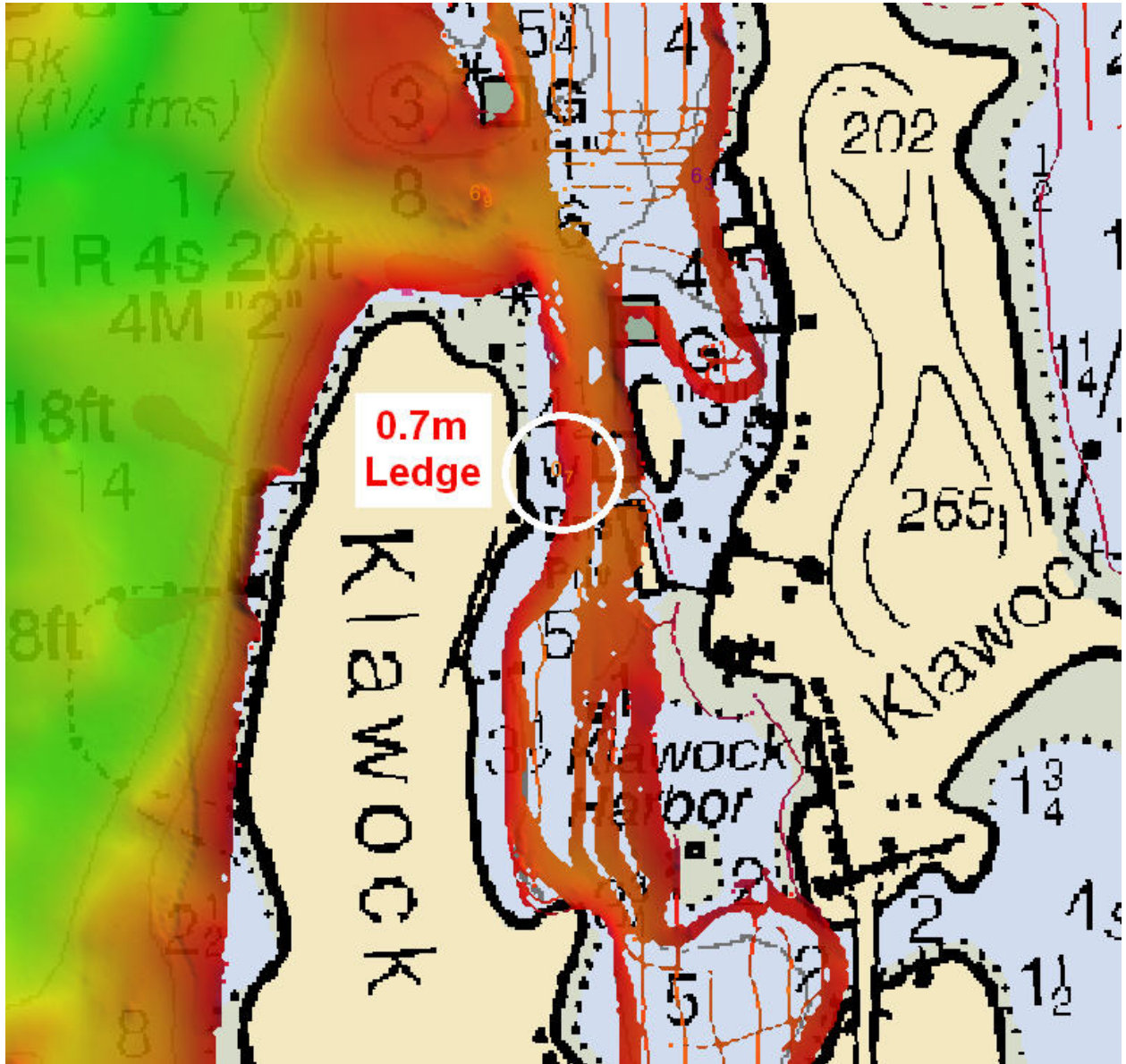


Figure 1.4.1

1.5) Profile/Beam - 652/223 from h11852 / 1101_reson8125_hvf / 2008-309 / 319_2156

DANGER TO NAVIGATION

Survey Summary

Survey Position: 55° 33' 26.7" N, 133° 07' 32.9" W
Least Depth: 0.30 m (= 0.99 ft = 0.166 fm = 0 fm 0.99 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.272 m
Timestamp: 2008-309.21:56:55.367 (11/04/2008)
Survey Line: h11852 / 1101_reson8125_hvf / 2008-309 / 319_2156
Profile/Beam: 652/223
Charts Affected: 17405_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

0.3 Sounding on ledge extending offshore from east side of Wadleigh Island.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/1101_reson8125_hvf/2008-309/319_2156	652/223	0.00	000.0	Primary

Hydrographer Recommendations

Chart as per digital data.

Cartographically-Rounded Depth (Affected Charts):

0fm (17405_1, 17400_1, 16016_1, 530_1)

0fm 1ft (531_1)

.3m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20081109
 SORIND - us,us,nsurf,H11852

TECSOU - 3:found by multi-beam

VALSOU - 0.303 m

VERDAT - 12:Mean lower low water

WATLEV - 5:awash

Feature Images

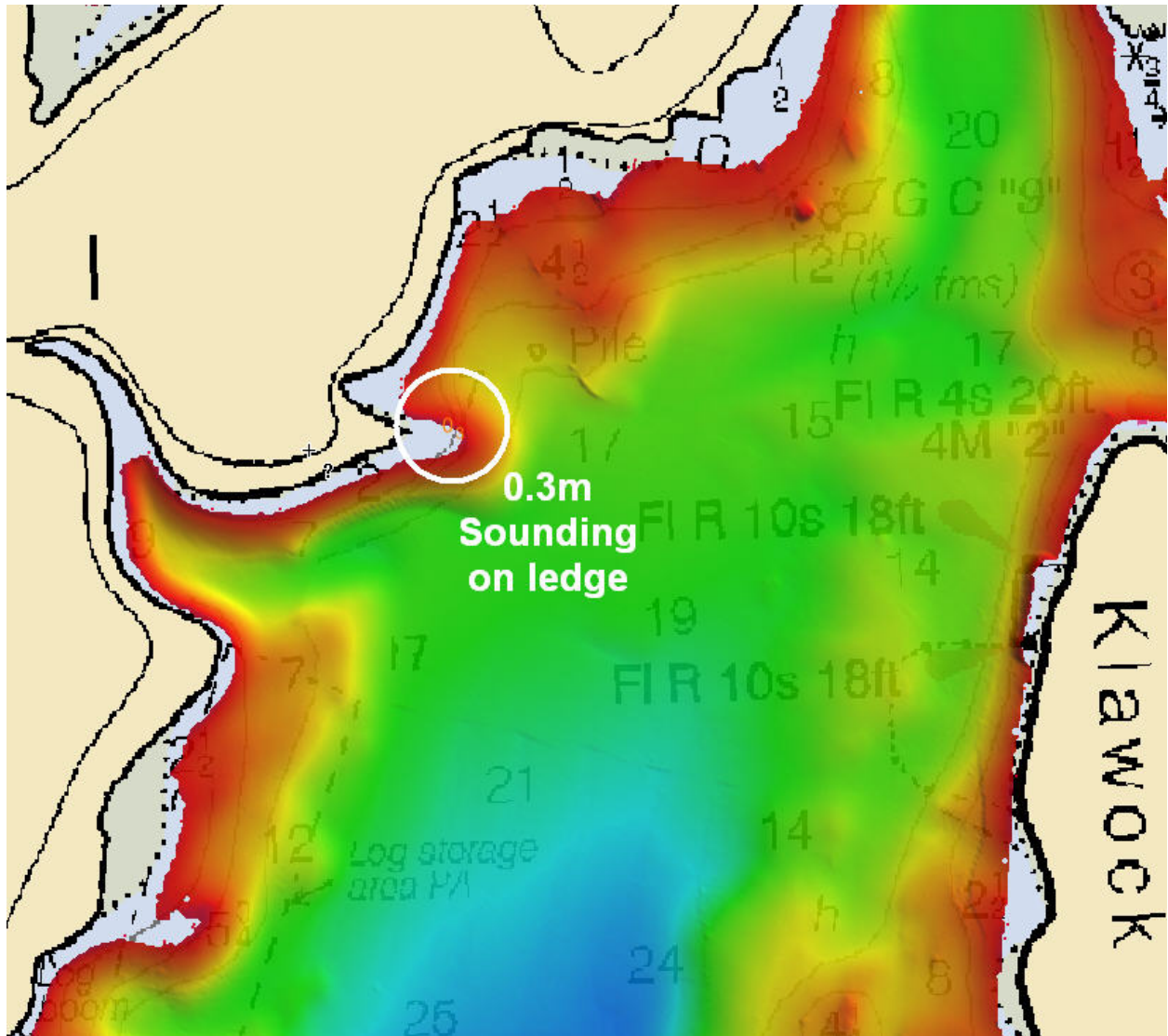


Figure 1.5.1

**1.6) Profile/Beam - 541/48 from h11852 /
2802_reson7125_hf_512beams_hysweep / 2008-312 / 014_2341**

DANGER TO NAVIGATION

Survey Summary

Survey Position: 55° 35' 44.8" N, 133° 05' 55.0" W
Least Depth: 1.67 m (= 5.48 ft = 0.913 fm = 0 fm 5.48 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.960 m ; **TVU (TPEv)** ± 0.230 m
Timestamp: 2008-312.23:42:08.161 (11/07/2008)
Survey Line: h11852 / 2802_reson7125_hf_512beams_hysweep / 2008-312 / 014_2341
Profile/Beam: 541/48
Charts Affected: 17405_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

1.6m Rock

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/2802_reson7125_hf_512beams_hysweep/2008-312/014_2341	541/48	0.00	000.0	Primary

Hydrographer Recommendations

Chart as per digital data.

Cartographically-Rounded Depth (Affected Charts):

0 $\frac{3}{4}$ fm (17405_1, 17400_1, 16016_1, 530_1)

0fm 5ft (531_1)

1.7m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20081109
 SORIND - us,us,nsurf,H11852

TECSOU - 3:found by multi-beam

VALSOU - 1.669 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

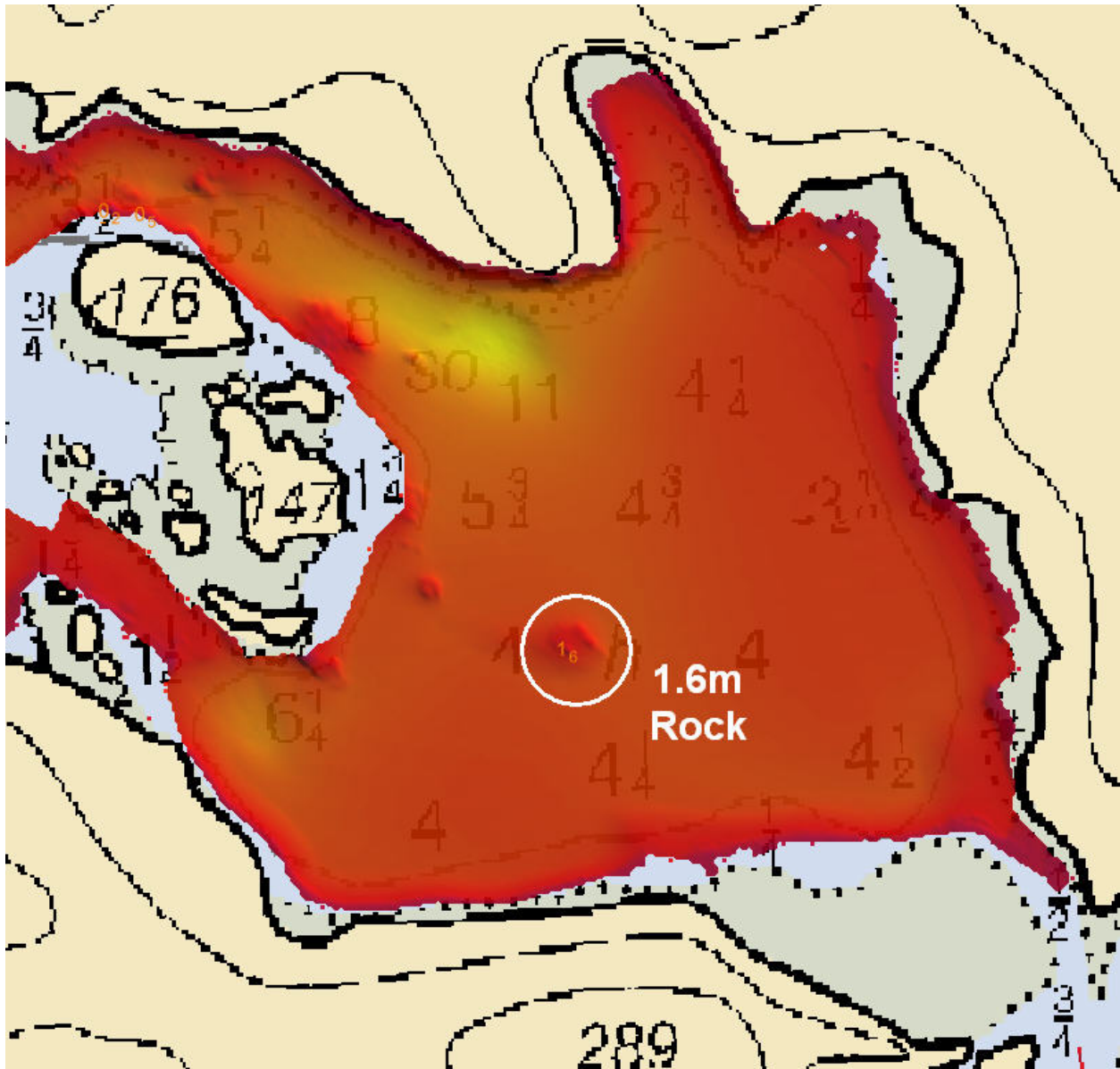


Figure 1.6.1

**1.7) Profile/Beam - 701/328 from h11852 /
2802_reson7125_hf_512beams_hysweep / 2008-312 / 910_1926**

DANGER TO NAVIGATION

Survey Summary

Survey Position: 55° 36' 28.8" N, 133° 07' 29.5" W
Least Depth: 1.79 m (= 5.87 ft = 0.979 fm = 0 fm 5.87 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.960 m ; **TVU (TPEv)** ± 0.230 m
Timestamp: 2008-312.19:27:20.973 (11/07/2008)
Survey Line: h11852 / 2802_reson7125_hf_512beams_hysweep / 2008-312 / 910_1926
Profile/Beam: 701/328
Charts Affected: 17405_4, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

1.8m Rk.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/2802_reson7125_hf_512beams_hysweep/2008-312/910_1926	701/328	0.00	000.0	Primary

Hydrographer Recommendations

Chart as per digital data.

Cartographically-Rounded Depth (Affected Charts):

1fm (17405_4, 17400_1, 16016_1, 530_1)
 -1fm 0ft (531_1)
 1.8m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20081109
 SORIND - us,us,nsurf,H11852

TECSOU - 3:found by multi-beam

VALSOU - 1.790 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

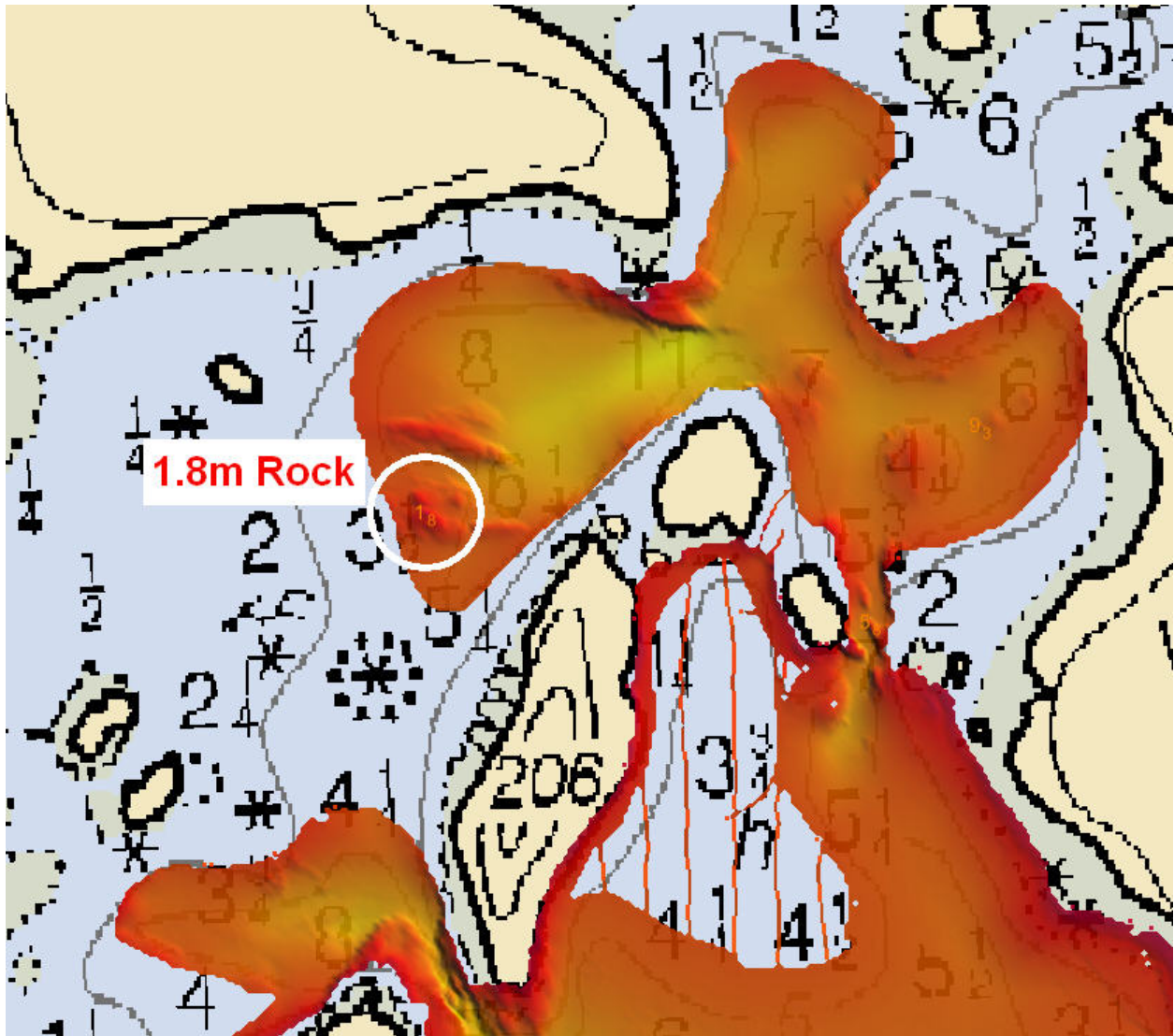


Figure 1.7.1

**1.8) Profile/Beam - 1716/21 from h11852 /
2802_reson7125_hf_512beams_hysweep / 2008-313 / 000_1908**

DANGER TO NAVIGATION

Survey Summary

Survey Position: 55° 34' 27.0" N, 133° 07' 39.2" W
Least Depth: 5.80 m (= 19.04 ft = 3.173 fm = 3 fm 1.04 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.965 m ; **TVU (TPEv)** ± 0.238 m
Timestamp: 2008-313.19:11:02.342 (11/08/2008)
Survey Line: h11852 / 2802_reson7125_hf_512beams_hysweep / 2008-313 / 000_1908
Profile/Beam: 1716/21
Charts Affected: 17405_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

5.8m Rk

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/2802_reson7125_hf_512beams_hysweep/2008-313/000_1908	1716/21	0.00	000.0	Primary

Hydrographer Recommendations

Chart as per digital data

Cartographically-Rounded Depth (Affected Charts):

3fm (17405_1, 17400_1, 16016_1, 530_1)

3fm 1ft (531_1)

5.8m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20081109
 SORIND - us,us,nsurf,H11852

TECSOU - 3:found by multi-beam

VALSOU - 5.802 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

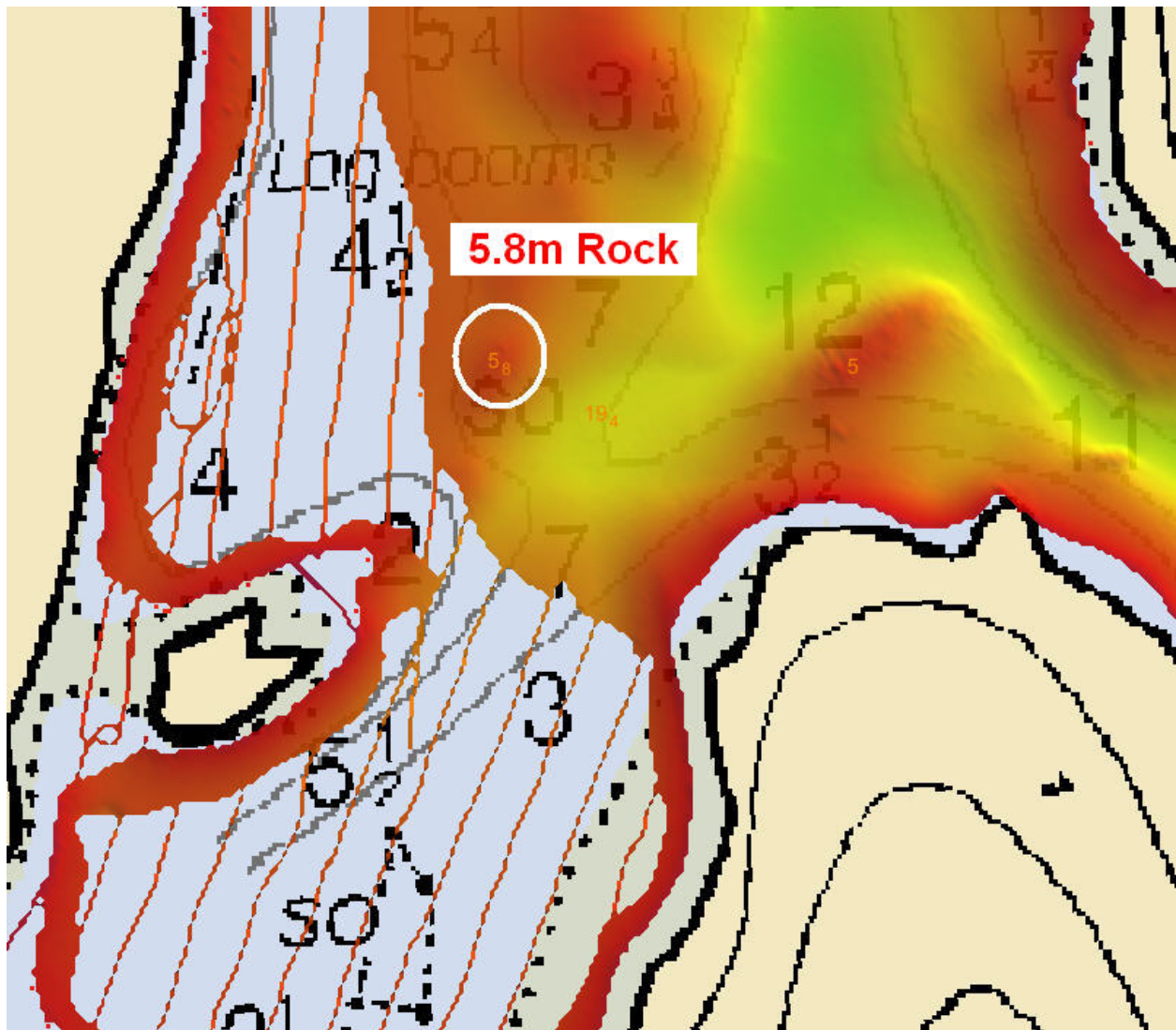


Figure 1.8.1

**1.9) Profile/Beam - 329/70 from h11852 /
2802_reson7125_hf_512beams_hysweep / 2008-313 / xl1**

DANGER TO NAVIGATION

Survey Summary

Survey Position: 55° 33' 30.0" N, 133° 06' 17.3" W
Least Depth: 6.92 m (= 22.72 ft = 3.787 fm = 3 fm 4.72 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.964 m ; **TVU (TPEv)** ± 0.237 m
Timestamp: 2008-313.18:18:07.805 (11/08/2008)
Survey Line: h11852 / 2802_reson7125_hf_512beams_hysweep / 2008-313 / xl1
Profile/Beam: 329/70
Charts Affected: 17405_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

6.9m Rk near the entrance to Klawock Harbor.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/2802_reson7125_hf_512beams_hysweep/2008-313/xl1	329/70	0.00	000.0	Primary

Hydrographer Recommendations

Chart as per digital data.

Cartographically-Rounded Depth (Affected Charts):

3 $\frac{3}{4}$ fm (17405_1, 17400_1, 16016_1, 530_1)

3fm 4ft (531_1)

6.9m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20081109
 SORIND - us,us,nsurf,H11852

TECSOU - 3:found by multi-beam

VALSOU - 6.925 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

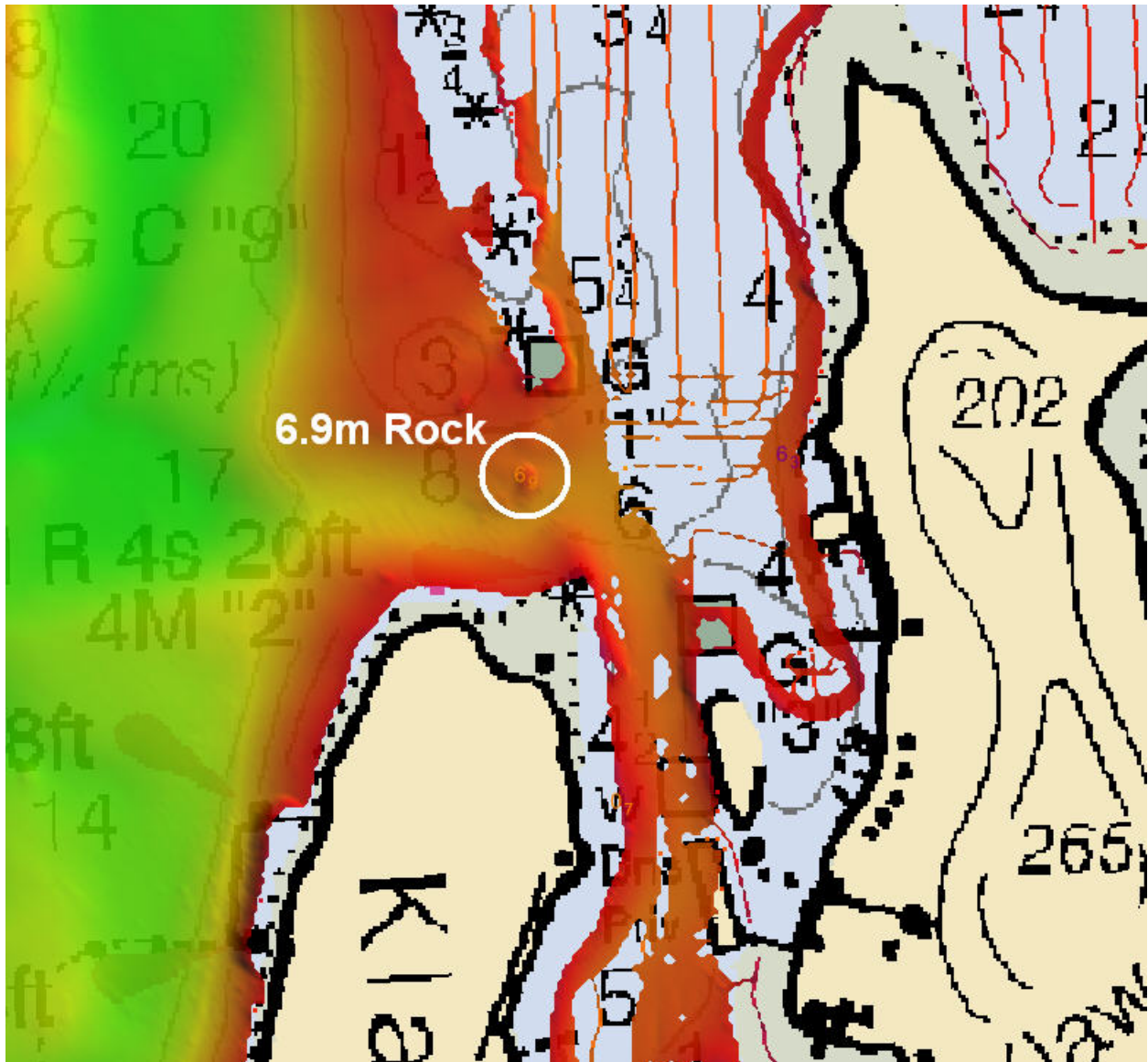


Figure 1.9.1

H11852 DTONS 2

Registry Number: H11852
State: Alaska
Locality: West of Prince of Wales Island
Sub-locality: Klawock Inlet to Big Salt Lake
Project Number: OPR-O190-RA-08
Survey Date: 11/04/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
17405	15th	05/01/2006	1:40,000 (17405_1)	USCG LNM: 10/23/2007 (09/09/2008) CHS NTM: None (07/25/2008) NGA NTM: None (09/20/2008)
17400	17th	03/01/2007	1:229,376 (17400_1)	[L]NTM: ?
16016	21st	10/01/2007	1:969,756 (16016_1)	[L]NTM: ?
531	24th	07/01/2007	1:2,100,000 (531_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

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

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Rock	1.72 m	55° 35' 06.9" N	133° 07' 37.5" W	---

1 - Danger To Navigation

1.1) Profile/Beam - 729/224 from h11852 / 1101_reson8125_hvf / 2008-309 / 310_2039

DANGER TO NAVIGATION

Survey Summary

Survey Position: 55° 35' 06.9" N, 133° 07' 37.5" W
Least Depth: 1.72 m (= 5.65 ft = 0.942 fm = 0 fm 5.65 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 1.969 m ; TVU (TPEv) ± 0.373 m
Timestamp: 2008-309.20:40:54.465 (11/04/2008)
Survey Line: h11852 / 1101_reson8125_hvf / 2008-309 / 310_2039
Profile/Beam: 729/224
Charts Affected: 17405_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

1.7 meter sounding on ledge.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/1101_reson8125_hvf/2008-309/310_2039	729/224	0.00	000.0	Primary

Hydrographer Recommendations

Chart as per digital data.

Cartographically-Rounded Depth (Affected Charts):

1fm (17405_1, 17400_1, 16016_1, 530_1)

0fm 5ft (531_1)

1.7m (500_1, 50_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20081109
 SORIND - us,us,nsurf,H11852

TECSOU - 3:found by multi-beam

VALSOU - 1.722 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

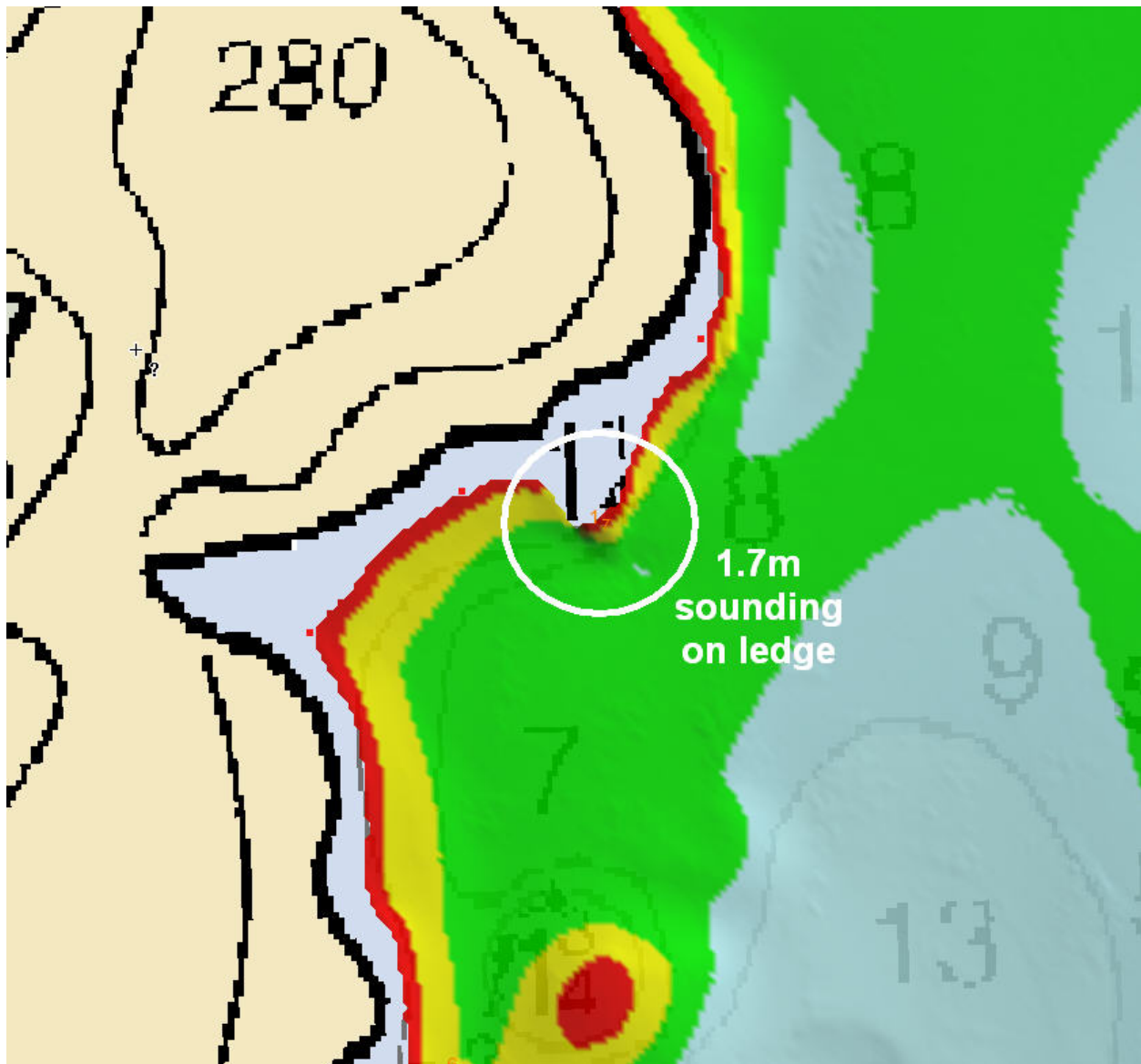


Figure 1.1.1

H11852 Features

Registry Number: H11852
State: Alaska
Locality: West of Prince of Wales Island
Sub-locality: Klawock Inlet to Big Salt Lake
Project Number: OPR-O190-RA-08
Survey Dates: 10/11/2008 - 11/08/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
17405	15th	05/01/2006	1:40,000 (17405_4)	USCG LNM: None (09/09/2008) CHS NTM: None (07/25/2008) NGA NTM: None (09/20/2008)
17405	15th	05/01/2006	1:40,000 (17405_1)	USCG LNM: 10/23/2007 (09/09/2008) CHS NTM: None (07/25/2008) NGA NTM: None (09/20/2008)
17400	17th	03/01/2007	1:229,376 (17400_1)	[L]NTM: ?
16016	21st	10/01/2007	1:969,756 (16016_1)	[L]NTM: ?
531	24th	07/01/2007	1:2,100,000 (531_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

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

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Rock	5.78 m	55° 36' 24.4" N	133° 07' 01.2" W	---
1.2	Shoal	-1.46 m	55° 32' 47.0" N	133° 06' 39.6" W	---
1.3	Shoal	7.41 m	55° 32' 45.0" N	133° 06' 40.6" W	---
1.4	Obstruction	8.45 m	55° 32' 41.4" N	133° 06' 58.5" W	---
2.1	AWOIS	[no data]	[no data]	[no data]	---
3.1	Rock	0.53 m	55° 36' 03.2" N	133° 06' 24.8" W	---
3.2	Rock	-0.22 m	55° 36' 03.4" N	133° 06' 27.4" W	---

3.3	Rock	5.03 m	55° 34' 26.7" N	133° 07' 20.6" W	---
3.4	Rock	0.75 m	55° 33' 18.1" N	133° 06' 11.7" W	---
3.5	Rock	0.30 m	55° 33' 26.7" N	133° 07' 32.9" W	---
3.6	Rock	1.67 m	55° 35' 44.8" N	133° 05' 55.0" W	---
3.7	Rock	1.79 m	55° 36' 28.8" N	133° 07' 29.5" W	---
3.8	Rock	5.80 m	55° 34' 27.0" N	133° 07' 39.2" W	---
3.9	Rock	6.92 m	55° 33' 30.0" N	133° 06' 17.3" W	---
3.10	Rock	1.72 m	55° 35' 06.9" N	133° 07' 37.5" W	---

1 - New Features

1.1) Profile/Beam - 192/62 from h11852 / 1015_reson8101_hvf / 2008-311 / 801_2228

Survey Summary

Survey Position: 55° 36' 24.4" N, 133° 07' 01.2" W
Least Depth: 5.78 m (= 18.95 ft = 3.159 fm = 3 fm 0.95 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.962 m ; **TVU (TPEv)** ± 0.234 m
Timestamp: 2008-311.22:29:16.073 (11/06/2008)
Survey Line: h11852 / 1015_reson8101_hvf / 2008-311 / 801_2228
Profile/Beam: 192/62
Charts Affected: 17405_4, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

Designated sounding on least depth of ledge feature which extends into channel area.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/1015_reson8101_hvf/2008-311/801_2228	192/62	0.00	000.0	Primary

Hydrographer Recommendations

chart as per digital data.

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 SORDAT - 20081109
 SORIND - us,us,nsurf,H11852
 TECSOU - 3:found by multi-beam
 VALSOU - 5.777 m
 VERDAT - 12:Mean lower low water
 WATLEV - 3:always under water/submerged

Feature Images

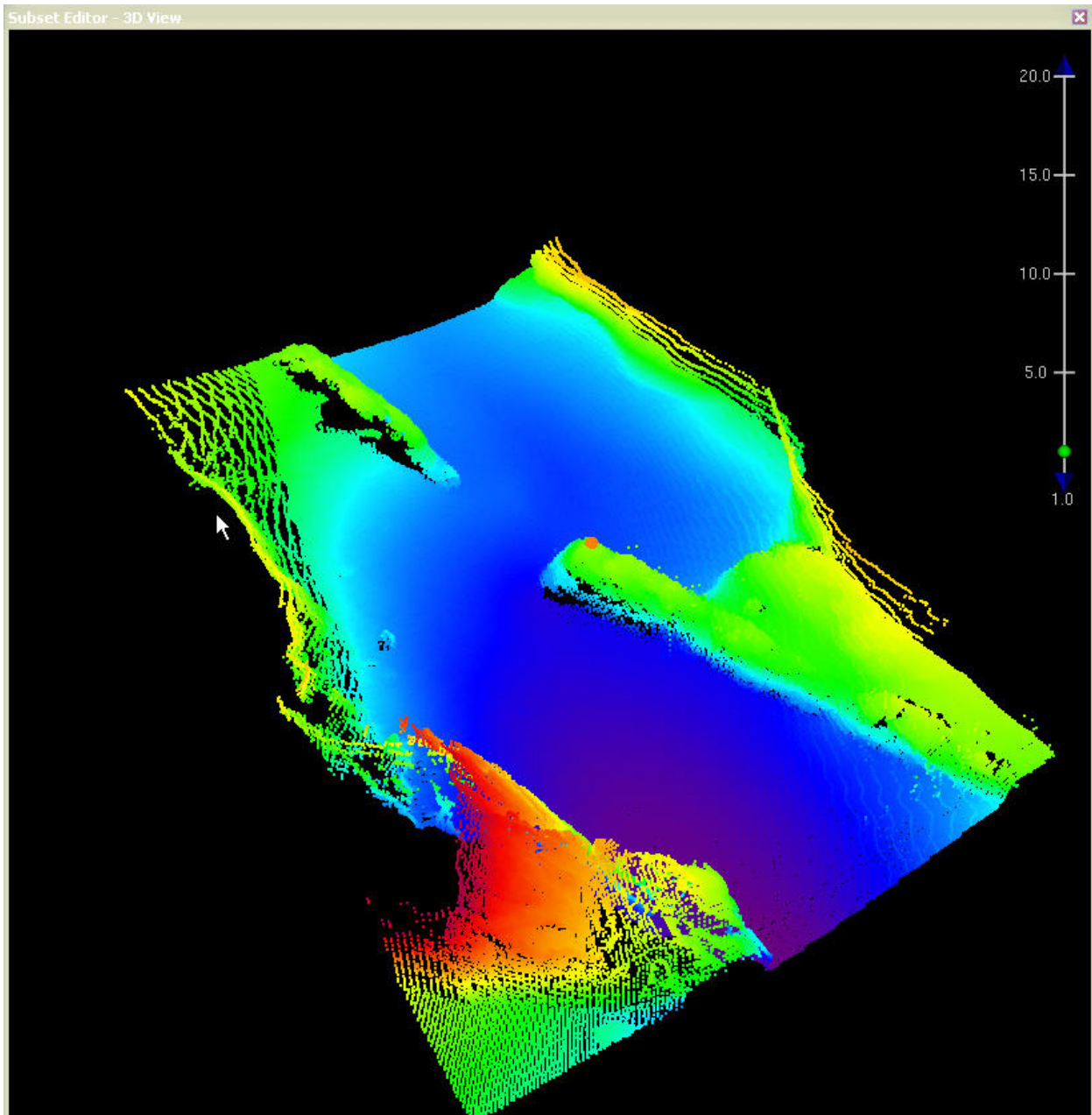


Figure 1.1.1

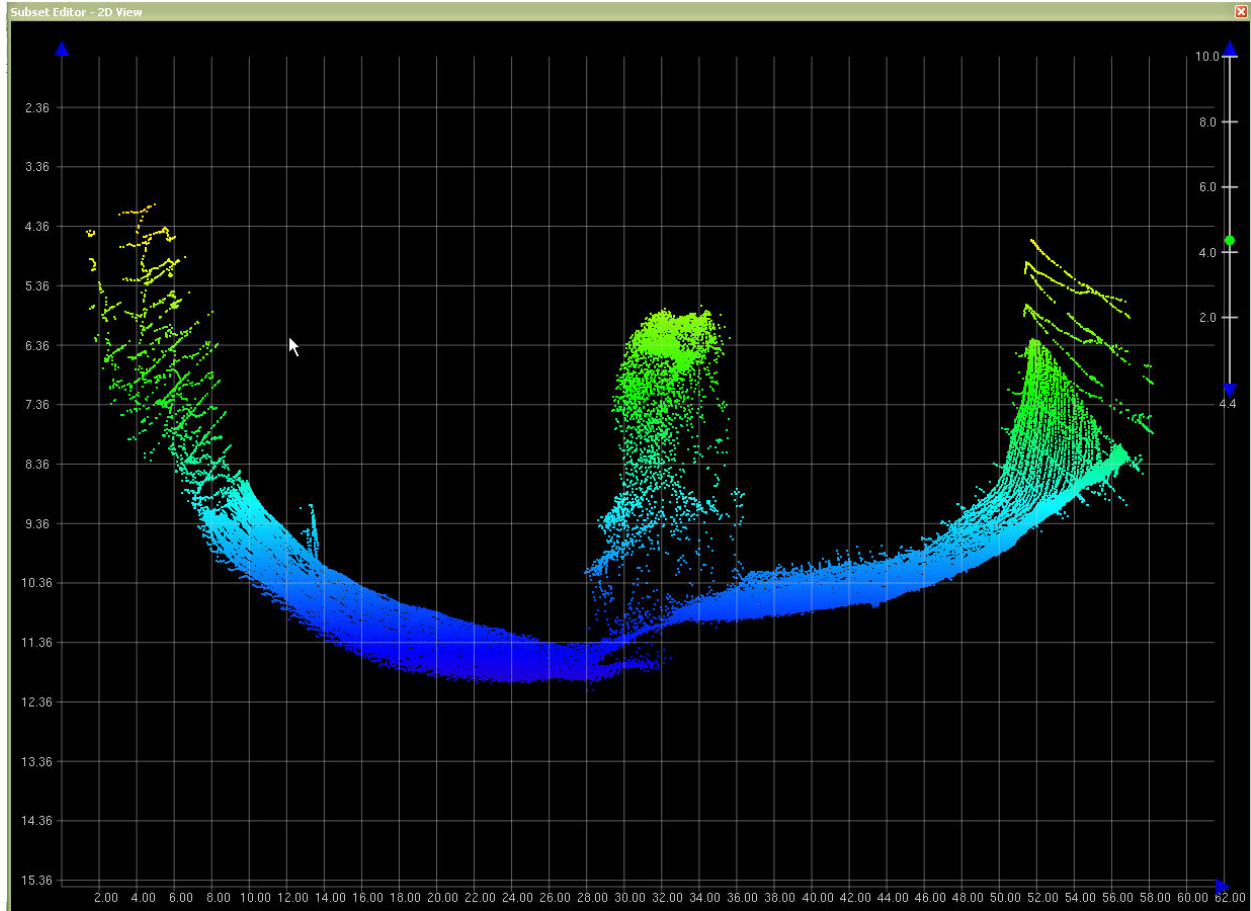


Figure 1.1.2

1.2) Profile/Beam - 551/239 from h11852 / 1101_reson8125_hvf / 2008-313 / 000_1716

Survey Summary

Survey Position: 55° 32' 47.0" N, 133° 06' 39.6" W
Least Depth: -1.46 m (= -4.80 ft = -0.799 fm = 0 fm 1.20 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.993 m ; **TVU (TPEv)** ± 6.511 m
Timestamp: 2008-313.17:18:31.514 (11/08/2008)
Survey Line: h11852 / 1101_reson8125_hvf / 2008-313 / 000_1716
Profile/Beam: 551/239
Charts Affected: 17405_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

designated sounding on Pile.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/1101_reson8125_hvf/2008-313/000_1716	551/239	0.00	000.0	Primary

Hydrographer Recommendations

See H11852_Field_Verified_Composite_Source.HOB

S-57 Data

[None]

1.3) Profile/Beam - 25/67 from h11852 / 1101_reson8125_hvf / 2008-313 / 000_1721

Survey Summary

Survey Position: 55° 32' 45.0" N, 133° 06' 40.6" W
Least Depth: 7.41 m (= 24.32 ft = 4.053 fm = 4 fm 0.32 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.962 m ; **TVU (TPEv)** ± 0.229 m
Timestamp: 2008-313.17:21:31.700 (11/08/2008)
Survey Line: h11852 / 1101_reson8125_hvf / 2008-313 / 000_1721
Profile/Beam: 25/67
Charts Affected: 17405_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

designated sounding on pile.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/1101_reson8125_hvf/2008-313/000_1721	25/67	0.00	000.0	Primary

Hydrographer Recommendations

See H11852_Field_Verified_Composite_Source.HOB

S-57 Data

[None]

1.4) Profile/Beam - 34/223 from h11852 / 2801_reson7125_hf_512_hysweep / 2008-285 / 000_2139

Survey Summary

Survey Position: 55° 32' 41.4" N, 133° 06' 58.5" W
Least Depth: 8.45 m (= 27.73 ft = 4.621 fm = 4 fm 3.73 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.962 m ; **TVU (TPEv)** ± 0.310 m
Timestamp: 2008-285.21:39:20.990 (10/11/2008)
Survey Line: h11852 / 2801_reson7125_hf_512_hysweep / 2008-285 / 000_2139
Profile/Beam: 34/223
Charts Affected: 17405_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

Obstruction, possible cultural feature.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11852/2801_reson7125_hf_512_hysweep/2008-285/000_2139	34/223	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: QUASOU - 1:depth known
 SORDAT - 20081109
 SORIND - us,us,nsurf,H11852
 TECSOU - 3:found by multi-beam
 VALSOU - 8.451 m
 VERDAT - 12:Mean lower low water
 WATLEV - 3:always under water/submerged

Feature Images

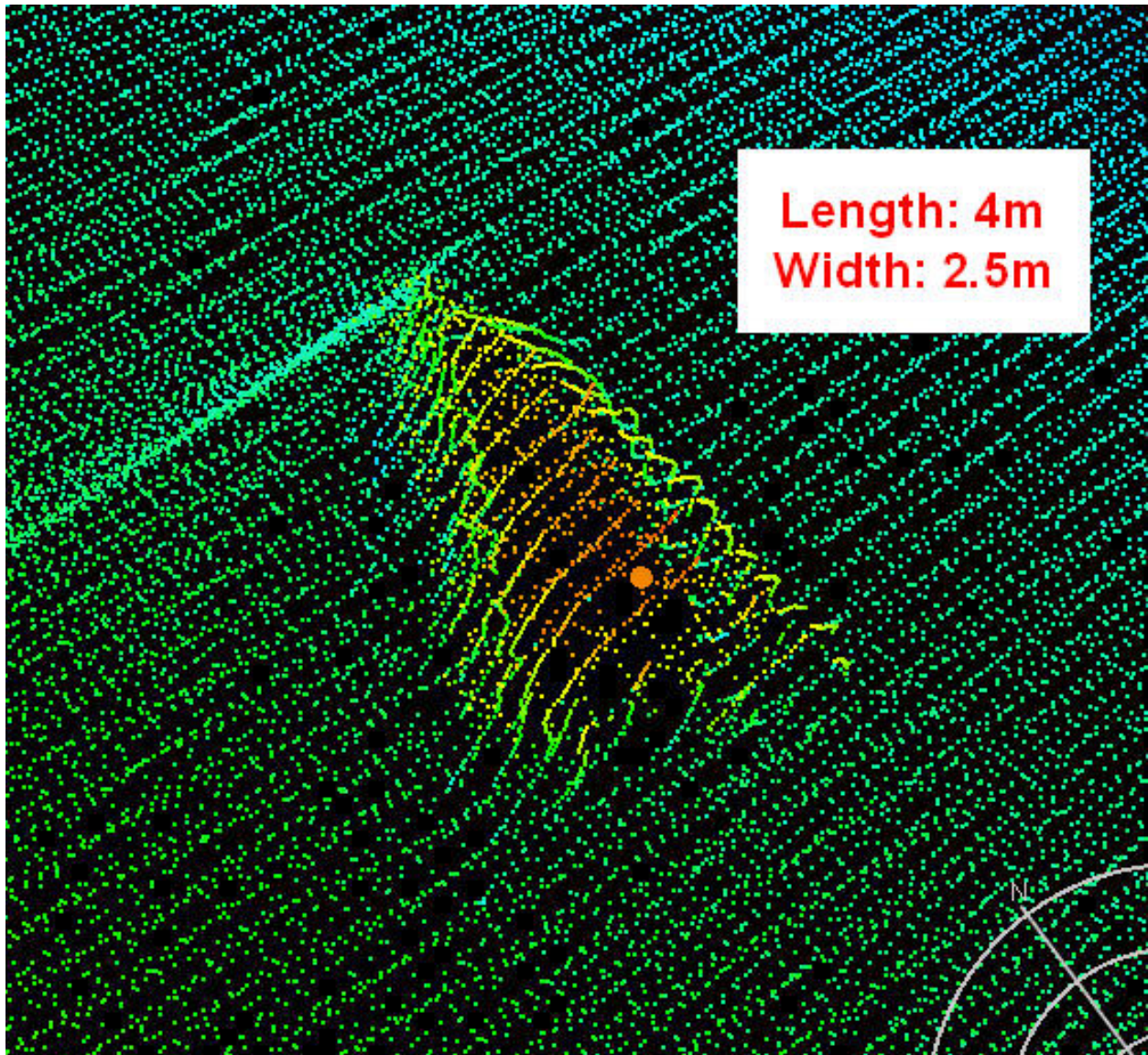


Figure 1.4.1

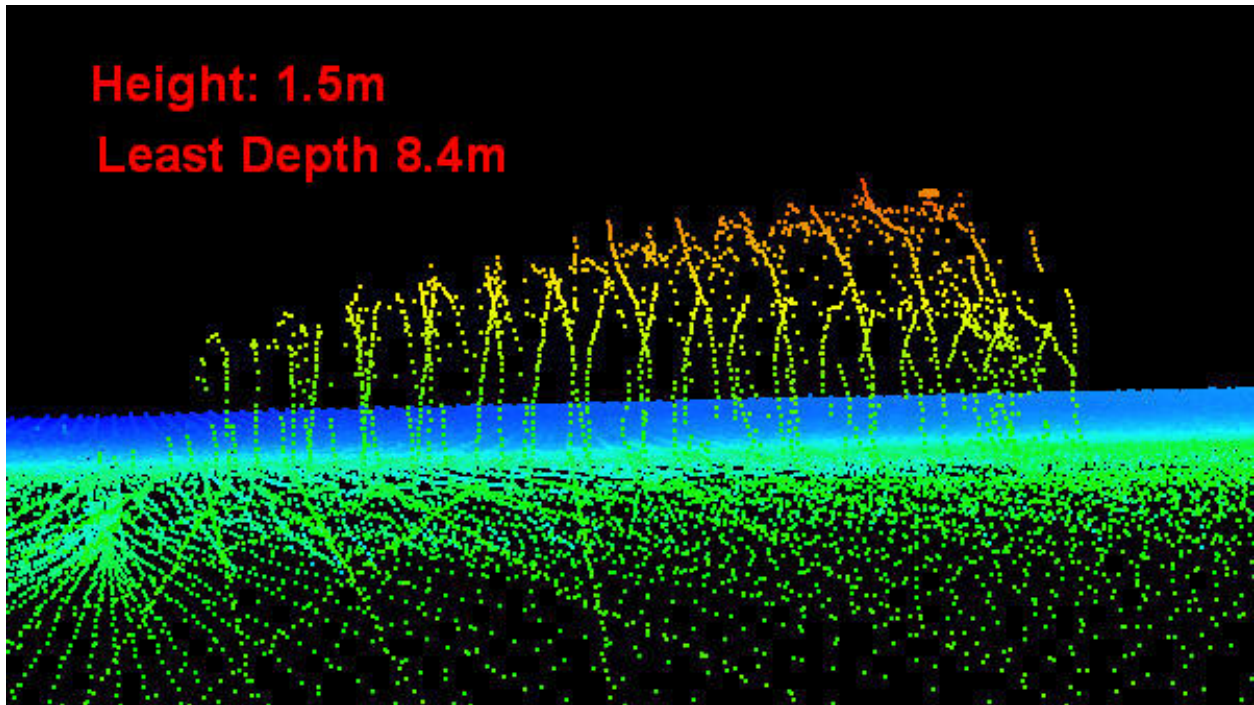


Figure 1.4.2

2 - AWOIS Features

2.1) AWOIS #53654 - OBSTRUCTION

No Primary Survey Feature for this AWOIS Item

Search Position: 55° 32' 58.7" N, 133° 08' 00.5" W
Historical Depth: [None]
Search Radius: 550
Search Technique: VS, DI, ES, MB, S2
Technique Notes: SEARCH ONLY REQUIRED WITHIN NAVIGABLE AREA.

History Notes:

SOURCE UNKNOWN--A LOG STORAGE PA IS CENTERED AROUND SCALED (CHART 17405) POSITION LAT. 55/32/58.7N LONG. 133/08/0.5W (NAD83). VERIFY THE EXTENTS OF THE BOOM AS DELINEATED BY THE FOLLOWING SCALED GP'S. ENTERED 4/08 BY JCA. ■SW CORNER: 55/32/44.5N 133/08/16.3W ■NW CORNER: 55/33/14.6N 133/07/56.6W ■NE CORNER: 55/33/10.9N 133/07/43.3W ■SE CORNER: 55/32/41.3N 133/08/03.3W

Survey Summary

Charts Affected: 17405_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

AWOIS record number 53654, chart 17405. History: Source unknown - A log storage PA is centered around scaled (chart 17405) position LAT. 55/32/58.7N LONG. 133/08/0.5W (NAD83).

Feature Correlation

Address	Feature	Range	Azimuth	Status
OPR-O190-RA-08 AWOIS	AWOIS # 53654	0.00	000.0	Primary

Hydrographer Recommendations

Retain as charted (17405). See Field_Verified_Composite_Source.HOB layer.

S-57 Data

Geo object 1: Buoy, special purpose/general (BOYSPP)
Attributes: BOYSHP - 3:spherical
 CATSPM - 14:mooring mark
 SORDAT - 20081109

SORIND - us,us,survy,H11852

Feature Images

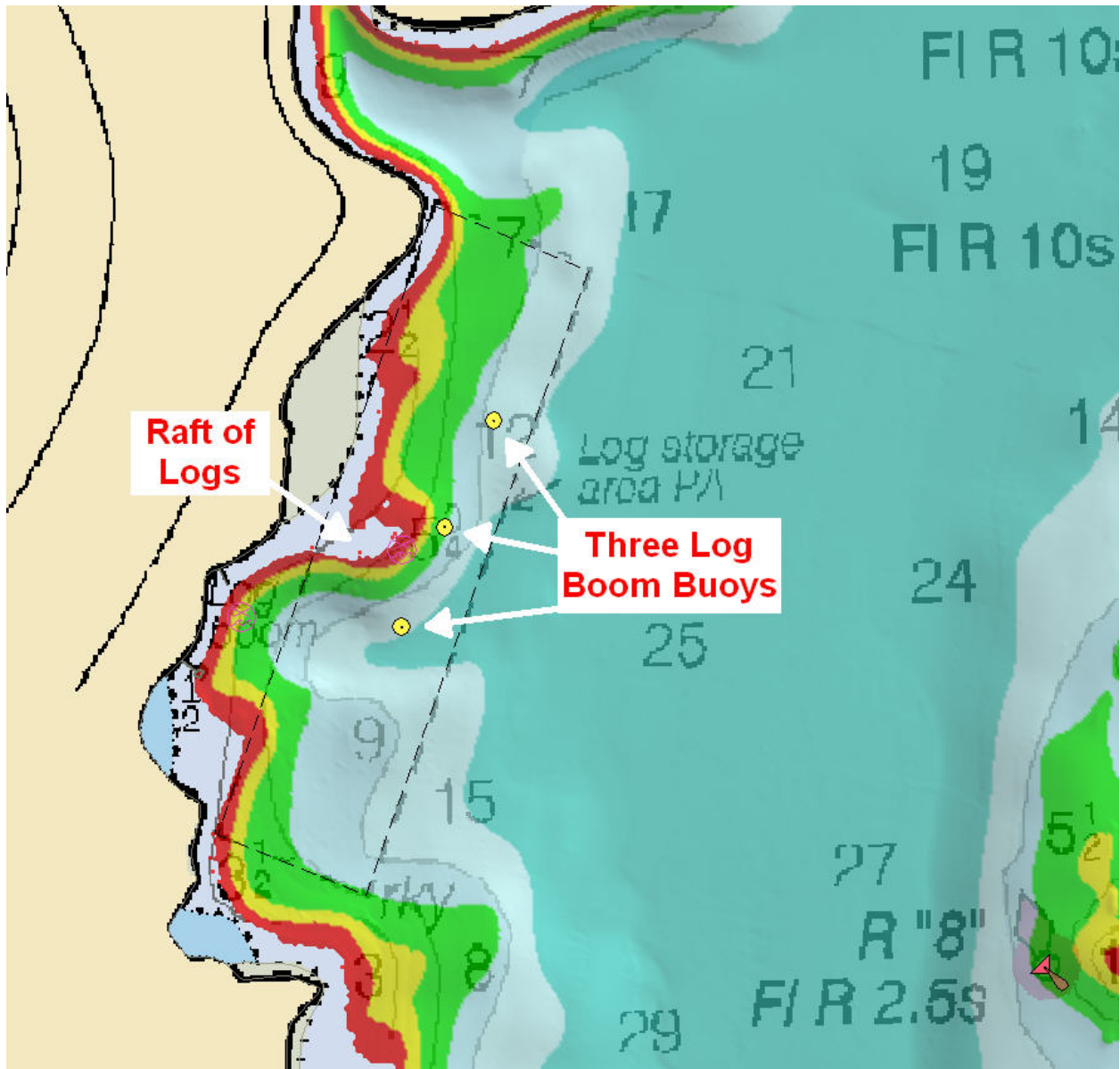


Figure 2.1.1



Figure 2.1.2



Figure 2.1.3



Figure 2.1.4



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : January 14, 2009

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-O190-RA-2008
HYDROGRAPHIC SHEET: H11852

LOCALITY: Klawock Inlet to Big Salt Lake, AK
TIME PERIOD: October 11 - November 9, 2008

TIDE STATION USED: 945-0618 Shinaku Inlet, AK
Lat. 55° 35.6'N Long. 133° 09.1' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.813 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SA229

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).

Peter J. Stone

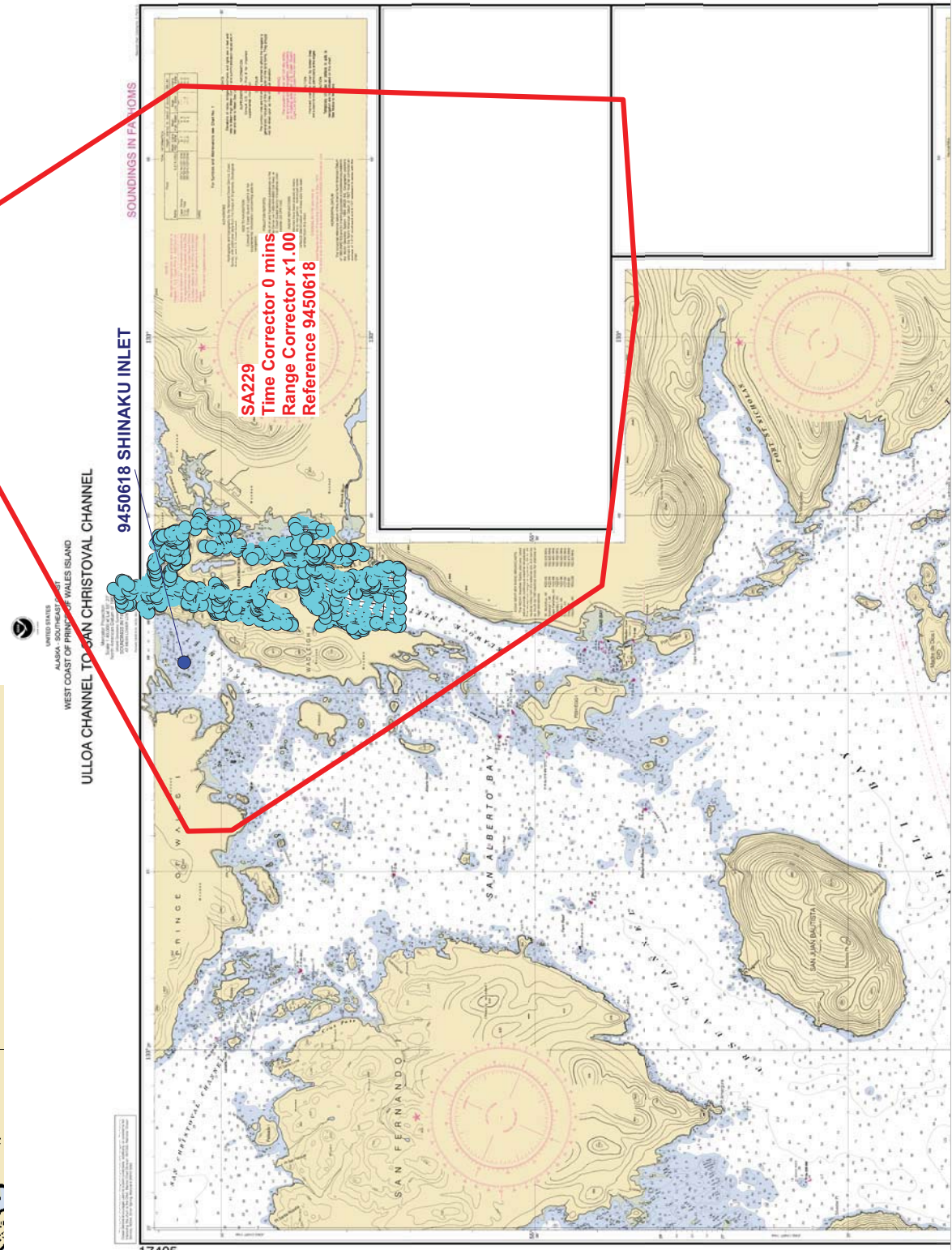
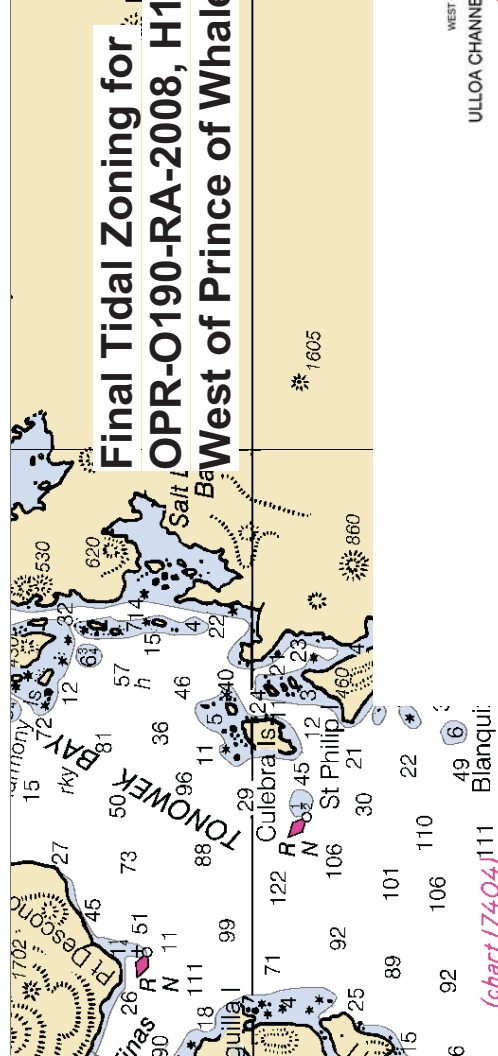
Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=CO-OPS, ou=NOAA/NOS,
email=peter.stone@noaa.gov, c=US
Date: 2009.01.16 09:03:29 -05'00'

CHIEF, OCEANOGRAPHIC DIVISION



Final Tidal Zoning for OPR-0190-RA-2008, H11852 West of Prince of Wales Island

* 1605



H11852 HCell Report
Katie Reser, Physical Scientist
Pacific Hydrographic Branch

1. Specifications, Standards and Guidance Used in HCell Compilation

HCell compilation of survey H11852 used:

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

2. Compilation Scale

Depths and features for HCell H11852 was compiled to the largest scale raster chart shown below:

Chart	Scale	Edition	Edition Date	NTM Date
17405	1:40,000	16 th	10/01/2008	11/27/2010

The following ENC was also used during compilation:

Chart	Scale
US5AK4BM	1:40,000

3. Soundings

A survey-scale sounding (SOUNDG) feature object layer was built from a 4-meter multibeam combined surface and a 3-meter finalized LIDAR surface in CARIS BASE Editor. A shoal-biased selection was made at 1:10,000 survey scale using a Radius Table file with values shown in the table, below.

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

In CARIS BASE Editor soundings were manually selected from the high density sounding layer (SS) and imported into a new layer (CS) created to accommodate chart density depths. Manual selection was used to accomplish a density and distribution that closely represents the seafloor morphology. In areas where there was an overlap between multibeam and LIDAR data, multibeam data was honored over LIDAR data except in cases where the LIDAR data was shoaler.

4. Depth Contours

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

Chart Contour Intervals in Fathoms	Metric Equivalent to Chart Fathoms, Arithmetically Rounded	Metric Equivalent of Chart Fathoms, with NOAA Rounding Applied	Fathoms with NOAA Rounding Applied	Fathoms with NOAA Rounding Removed for Display on H11852_SS.000
0	0.0000	0.2286	0.125	0
3	5.4864	5.715	3.125	3
5	9.144	9.373	5.125	5
10	18.288	18.517	10.125	10

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

5. Meta Areas

The following Meta object areas are included in HCell H11852:

M_QUAL

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

6. Features

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

7. S-57 Objects and Attributes

The *_CS HCell contains the following Objects:

\$CSYMB	Blue notes
BOYSPP	Mooring marks
COALNE	GC and charted coastline
DEPCNT	Zero contours
MORFAC	Dolphin
M_QUAL	Data quality meta object
OBSTRN	Obstructions
PILPNT	Pile
PONTON	Floating docks
SBDARE	Ledge and bottom samples
SLCONS	Piers and ruined pier
SOUNDG	Soundings at the chart scale density
UWTROC	Rocks
WRECKS	Wreck

The *_SS HCell contains the following Objects:

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

8. Spatial Framework

8.1 Coordinate System

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

8.2 Horizontal and Vertical Units

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

Chart Unit Base Cell Units:

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

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

finder, so precision is less. Units and precision are shown below.

BASE Editor and S-57 Composer Units:

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

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

9. Data Processing Notes

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

10. QA/QC and ENC Validation Checks

H11852 was subjected to QA checks in S-57 Composer prior to exporting to the metric HCell base cell (000) file. The millimeter precision metric S-57 HCell was converted to chart units and NOAA rounding applied. dKart Inspector was then used to further check the data set for conformity with the S-58 ver. 2 standard (formerly Appendix B.1 Annex C of the S-57 standard). All tests were run and warnings and errors investigated and corrected unless they are MCD approved as inherent to and acceptable for HCells.

11. Products

11.1 HSD, MCD and CGTP Deliverables

H11852_CS.000	Base Cell File, Chart Units, Soundings and features compiled to 1:40,000
H11852_SS.000	Base Cell File, Chart Units, Soundings and Contours compiled to 1:10,000
H11852_DR.pdf	Descriptive Report including end notes compiled during office processing and certification, the HCell Report, and supplemental items
H11852_Outline.gml	Survey outline
H11852_Outline.xsd	Survey outline

11.2 Software

CARIS HIPS Ver. 6.1	Inspection of Combined BASE Surfaces
CARIS BASE Editor Ver. 2.2	Creation of soundings and bathy-derived features, meta area objects, and blue notes; Survey evaluation and verification; Initial HCell assembly.
CARIS S-57 Composer Ver. 2.0	Final compilation of the HCell, correct geometry and build topology, apply final attributes, export the HCell, and QA.
CARIS GIS 4.4a	Setting the sounding rounding variable for conversion of the metric HCell to NOAA charting units with NOAA rounding.
CARIS HOM Ver. 3.3	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding.
HydroService AS, dKart Inspector Ver. 5.1	Validation of the base cell file.
Northport Systems, Inc., Fugawi Marine ENC Ver.3.1.0.435	Independent inspection of final HCells using a COTS viewer.

12. Contacts

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

Katie Reser
Physical Scientist
Pacific Hydrographic Branch
Seattle, WA
206-526-6864
katie.reser@noaa.gov

APPROVAL SHEET
H11852

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

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

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