H11707

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. n/a

Registry No. H11707

LOCALITY

State Alaska

General Locality Chatham Strait

Sublocality Surprise Harbor to Murder Cove

2007

CHIEF OF PARTY

Dean Moyles

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H11707

HYDROGRAPHIC TITLE SHEET

INSTRUCTIONS - The hydrographic sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the office.

FIELD NO. n/a

State: Alaska

General Locality: Chatham Strait

Sublocality: Surprise Harbor and Murder Cove

Scale: 1:10,000 Date of Survey: 5/09/2007-6/01/2007

Instructions Dated: 6/15/2006 Project No.: OPR-O322-KR-07

Vessel: R/V Davison, R/V R2, R/V D2, Shoreline Skiff

Chief of Party: Dean Moyles

Surveyed by: Orthomann, Renyolds, Gill, Mount, Stock, Farley, Griggs, Poeckert, et al.

Soundings taken by echo sounder: Reson Seabat 7125 & 8125

Graphic record scaled by: N/A

Graphic record checked by: N/A

Evaluation by: Tyanne Faulkes Automated plot by: N/A

Verification by: Tyanne Faulkes

Soundings in: Fathoms and Feet at MLLW

REMARKS: Time in UTC. UTM Projection Zone 8

Revisions and annotations appearing as endnotes were generated during office processing.

As a result, page numbering may be interrupted or non-sequential

All separates are filed with the hydrographic data.

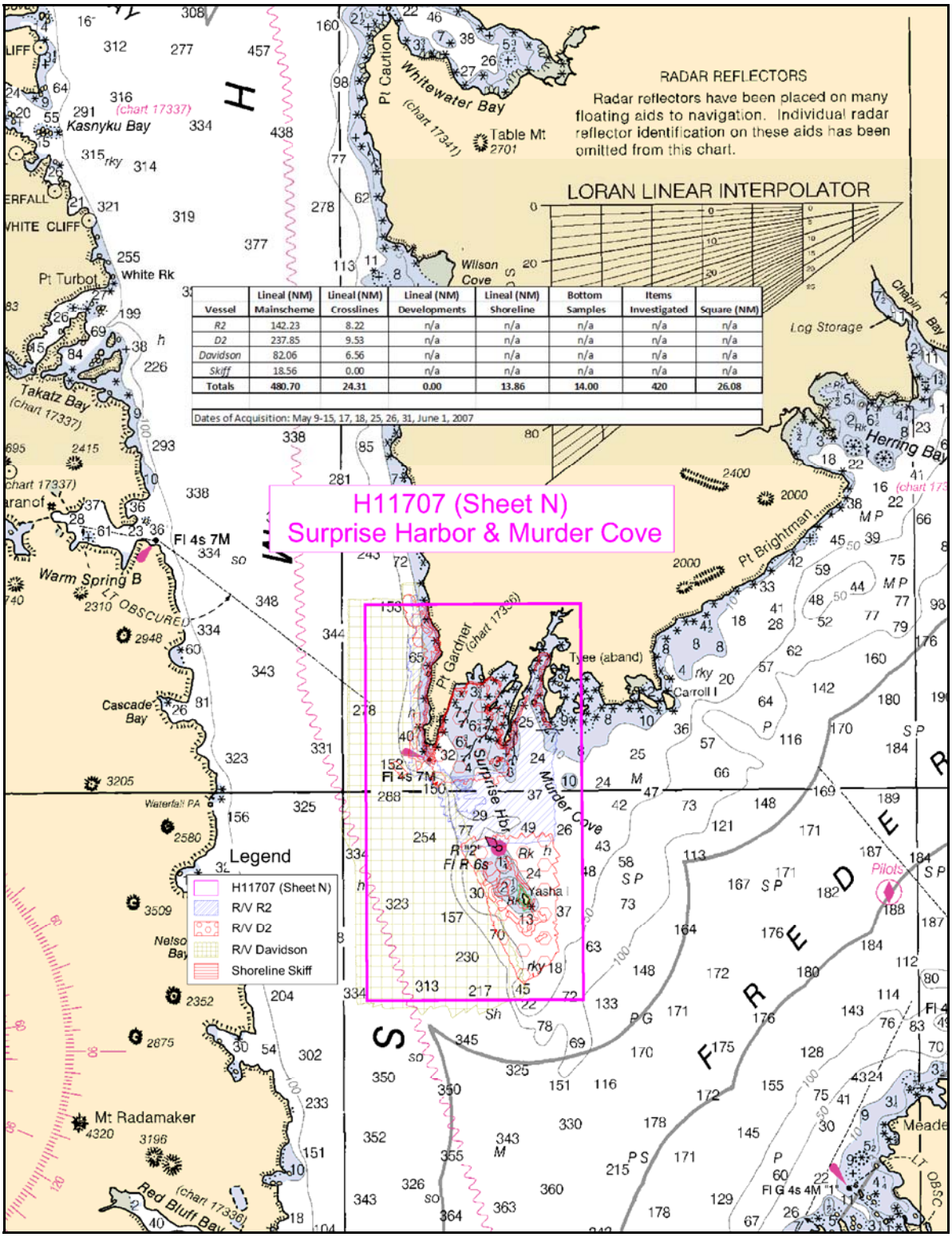
A - Area Surveyed

H11707 (Sheet N) is bound by the coordinates listed below, which encompass Surprise Harbor and Murder Cove.

Hydrographic data collection began on May 9, 2007 and ended on June 1, 2007.

Table 1 – H11707 Sheet Limits

Sheet Limits H11707 Sheet N Scale 1:10,000		
Point #	Positions on NAD83	
	Degrees Latitude (N)	Degrees Longitude (W)
1	56-56-00.59 N	134-31-39.14 W
2	56-56-00.59 N	134-39-10.88 W
3	57-03-33.85 N	134-39-10.88 W
4	57-03-33.85 N	134-31-39.14 W



Vessel	Lineal (NM) Mainscheme	Lineal (NM) Crosslines	Lineal (NM) Developments	Lineal (NM) Shoreline	Bottom Samples	Items Investigated	Square (NM)
R2	142.23	8.22	n/a	n/a	n/a	n/a	n/a
D2	237.85	9.53	n/a	n/a	n/a	n/a	n/a
Davidson	82.06	6.56	n/a	n/a	n/a	n/a	n/a
Skiff	18.56	0.00	n/a	n/a	n/a	n/a	n/a
Totals	**480.70**	**24.31**	**0.00**	**13.86**	**14.00**	**420**	**26.08**

Figure 1 H11707 Area Surveyed

B – Data Acquisition & Processing

Refer to the OPR-O322-KR-07 Data Acquisition and Processing Report[1] for a detailed description of all equipment, survey vessels, processing procedures, and quality control features. Items specific to this survey and any deviations from the Data Acquisition and Processing Report are discussed in the following sections.

Equipment & Vessels

The R/V Davidson, R/V R2, R/V D2, and the Shoreline Skiff acquired all soundings for H11707. The R/V Davidson, 175 feet in length with a draft of 17.75 feet, was equipped with a 100 kHz Reson 8111 with option 033 (pseudo Side Scan) for multibeam data acquisition. R/Vs R2 & D2, 29 feet in length with a draft of 5.7 feet, were equipped with a 240 kHz Reson 8101 with option 033 (pseudo Side Scan) for multibeam data acquisition. The Shoreline Skiff, 24 feet in length with a draft of 1.42 feet, was equipped with a 455 kHz Reson 8125 with option 033 (pseudo Side Scan) for multibeam data acquisition. All vessels were also equipped with two AML sound velocity and pressure sensors (SV&P) for sound velocity profiles. Vessel attitude and position were measured using an Applanix Position and Orientation System for Marine Vessel (POS/MV 320) (v4) with XTF files logged in Triton ISIS (v7.0.413.9).

Heights were taken on features awash or above the water level by visual estimation, using simultaneous comparison to a known reference (the vessel's bow).

Refer to OPR-O322-KR-07 Data Acquisition & Processing Report for a complete listing of equipment and vessel descriptions.

Quality Control

Crosslines

Crosslines were planned and well distributed throughout the survey to ensure adequate quality control. Total crossline length surveyed was 24.31 nautical miles or 5.06 percent of the total main scheme line length, exceeding the 5 percent planned.[2] Each crossline was compared to all main scheme lines it intersected, using the CARIS HIPS QC report routine.

The majority of QC Reports fall well within the required accuracy specifications. However, beams that fall below the 95 percent confidence level in the QC report are associated with areas and conditions illustrated below. It should be noted that these locations are in agreement with the surrounding adjacent lines and are considered well within the required specifications.[3]

The majority of beams that fall below the 95 percent confidence level are located in areas having extremely steep slopes and/or rocks. Figures 2 and 3 below provide examples.

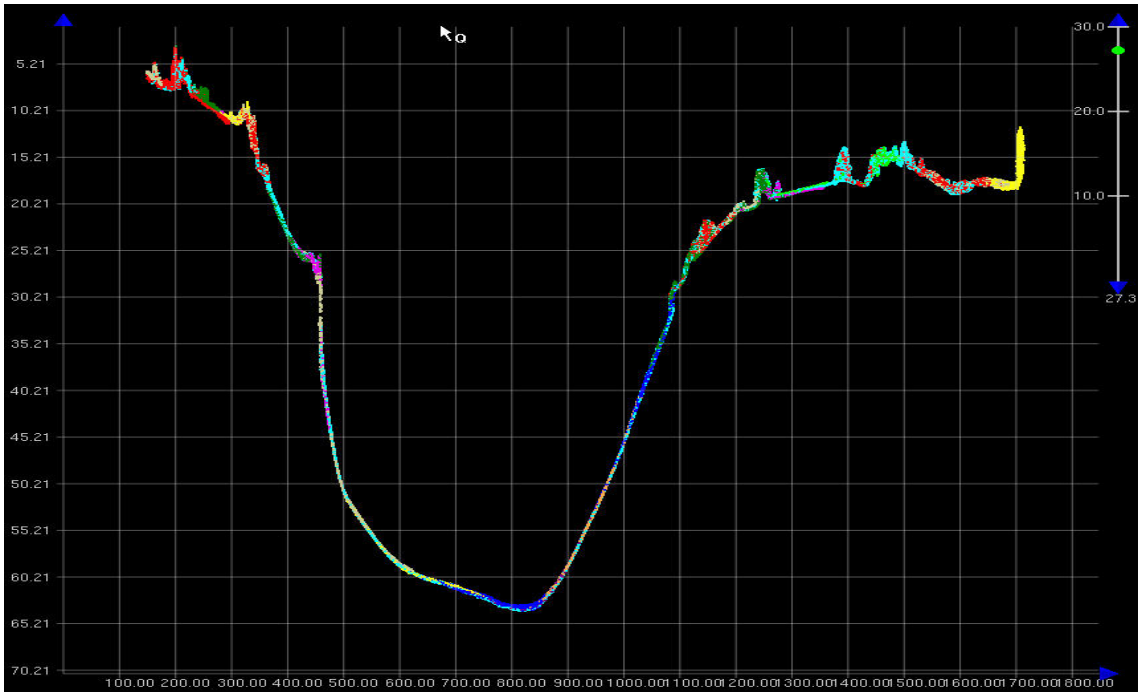


Figure 2 Profile of 1N03-TIE08A

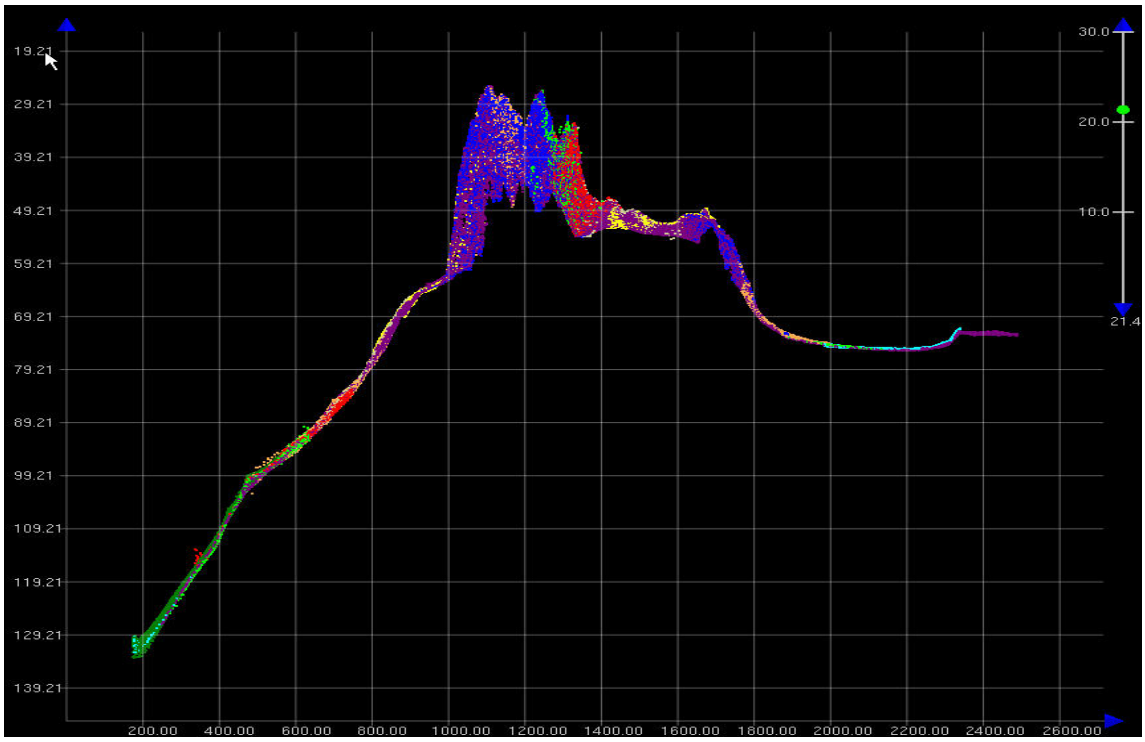


Figure 3 Profile of 2N05-TIE02

Note: The QC reports were generated based on the given accuracy specification of:

$$\pm\sqrt{[a^2 + (b*d)^2}$$

where, a = 0.5, b = 0.013, and d = depth.

However, since a variance of a difference, rather than a variance from a mean is being used, the a and b values were defined in the user defined option within the CARIS HIPS QC Report routine:

$$a = 0.5*\sqrt{2} = 0.707$$
$$b = 0.013*\sqrt{2} = 0.018$$

Uncertainty Values (CARIS BASE Surface)

The majority of H11707 had an uncertainty of about 0.20 to 0.60 meters, except for the deep areas having extremely steep slopes or deemed to be rocky, where values ranged from 0.7 to 1.5 meters. No uncertainty values were greater than the IHO level Order 1.[4]

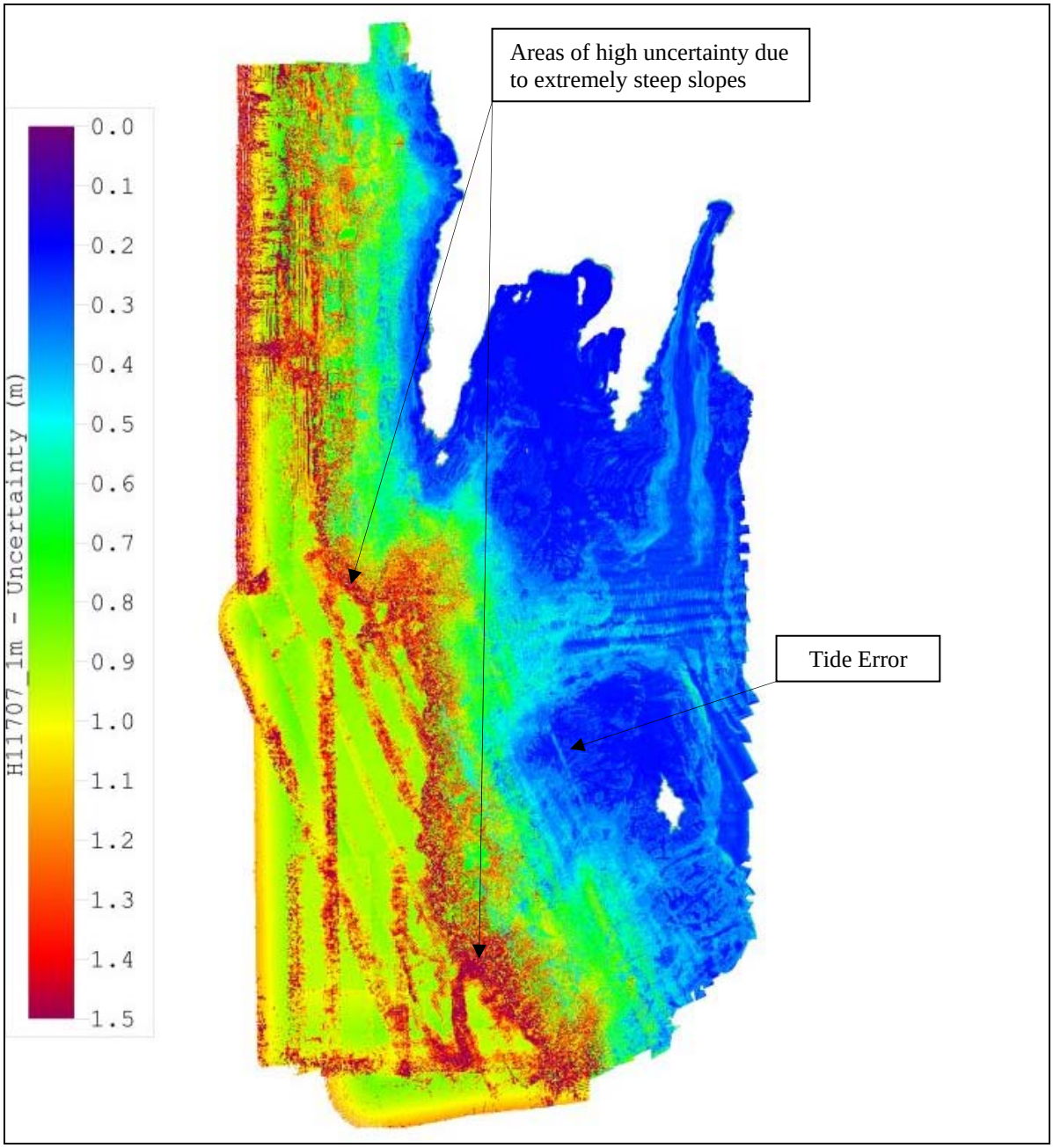


Figure 4 H11707 Uncertainty DTM

Survey Junctions

H11707 (Sheet N) junctions with:

Registry #	Scale	Date	Junction Side
H11708	1:20,000	2007	West

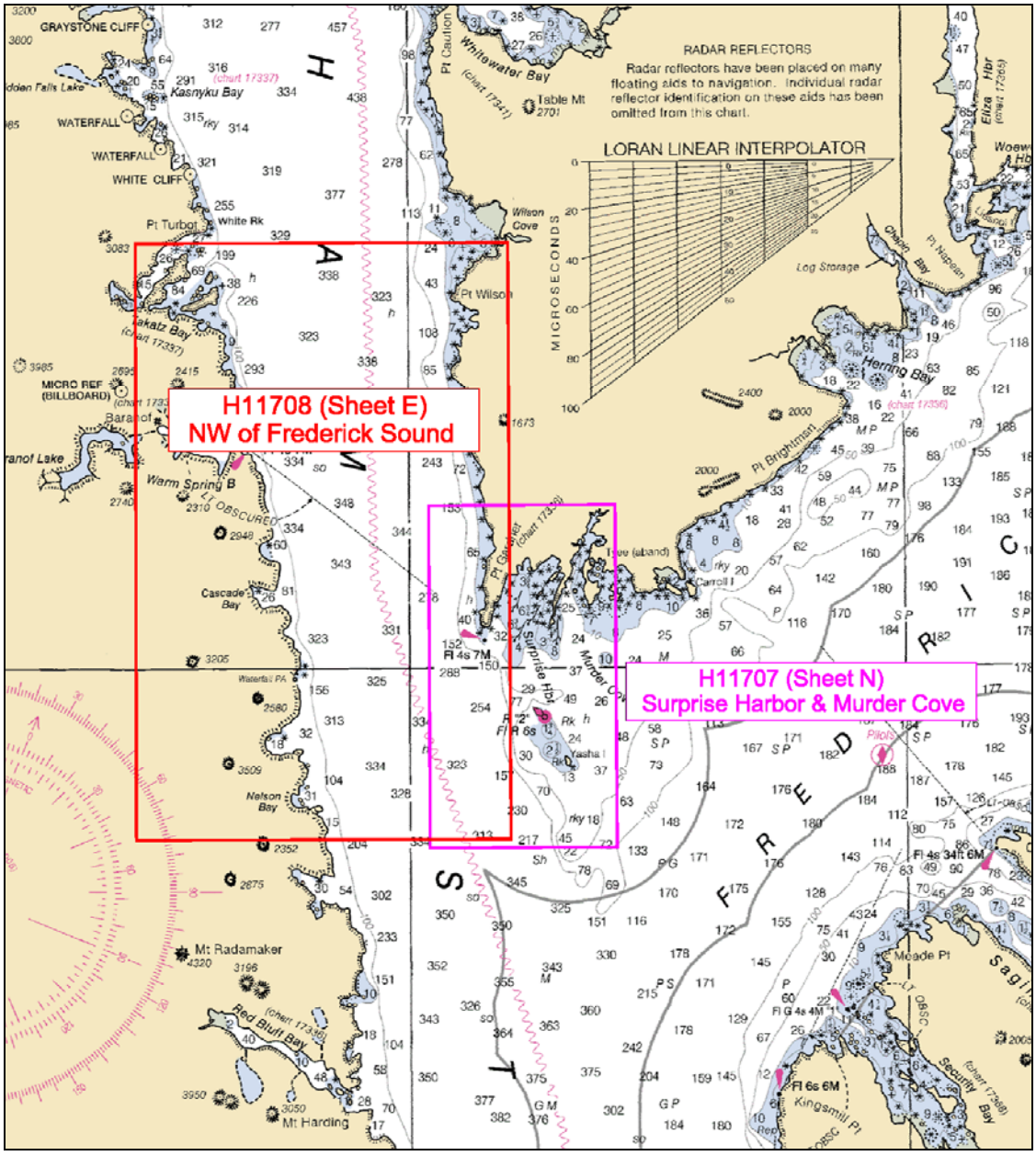


Figure 5 H11707 Survey Junctions

The surveys are in agreement along their common borders. The agreement was noted in the field using the CARIS CUBE surfaces during subset cleaning. The conformity is also apparent in the final combined BASE surfaces.[5]

Quality Control Checks

During the hydrographic survey OPR-O322-KR-07 the survey vessels conducted a number of confidence checks. These consisted of the vessels running two lines in the opposite direction over a reference surface (normally the patch test site). The data sets collected with the Reson 8125 (Shoreline Skiff), 8101 (R2 & D2), and 8111 (Davidson) compared within 5 to 10 centimeters.

Positioning system confidence checks were conducted on a daily basis using the POS/MV controller software. The controller software had numerous real time displays that were monitored throughout the survey to ensure the positional accuracies specified in the NOS Hydrographic Surveys Specifications and Deliverables (April 2007) were achieved. These include, but were not limited to the following: GPS Status, Position Accuracy, Receiver Status (which included HDOP), and Satellite Status. During periods of high HDOP and/or low number of available satellites, survey operations were suspended.

Data Quality

In general, the multibeam data quality for H11707 was excellent. Two notable problems follow:

- During data acquisition and routine processing, a general downward and/or upward cupping was noticed in the across track sounding profiles for certain areas. This is possibly due to a high volume of thermal layering and strong undercurrents in the water column. This problem was addressed by conducting SVP casts more frequently and reducing the line spacing interval. Even though this SVP error is noticeable on the uncertainty surface DTM in Figure 4 above, the data are well within the required specifications.[6]
- During routine processing, tidal offsets were noticed in the survey area West of Yasha Island. In addition to tide gauge information, GPS heights from the survey vessels were examined and used to derive final tide zoning in this area. No uncertainty values were greater than the IHO level Order 1.[7]

Corrections to Echo Soundings

Refer to the OPR-O322-KR-07 Data Acquisition and Processing Report for a detailed description of all corrections to echo soundings. No deviations from the report occurred.

Data Processing

Refer to the OPR-O322-KR-07 Data Acquisition and Processing Report for a detailed description of the processing flow.

The final Bathymetric with Associated Statistical Error (BASE) surface for H11707 is called H11707 and it contains six different BASE surfaces of different resolutions.[8] To ensure sufficient overlap between these surfaces the follow parameters were used:

Depth Threshold: 0 to 20 meters, resolution = 1m, Name in BASE Surface H11707_1m
Depth Threshold: 15 to 45 meters, resolution = 2m, Name in BASE Surface H11707_2m
Depth Threshold: 40 to 60 meters, resolution = 4m, Name in BASE Surface H11707_4m
Depth Threshold: 50 to 150 meters, resolution = 5m, Name in BASE Surface H11707_5m
Depth Threshold: 130 to 500 meters, resolution =10m, Name in BASE Surface H11707_10m
Depth Threshold: 400 to Max depth, resolution = 15m, Name in BASE Surface H11707_15m

The final S57 file for this project is called "H11707_S57_Features.000". This file contains all shoreline and bottom sample feature data for this project in S57 format as required in the Specifications and Deliverables.

C – Horizontal & Vertical Control

Refer to the OPR-O322-KR-07 Horizontal and Vertical Control Report[9] for a detailed description of the horizontal and vertical control used. No deviations from the report occurred. A summary of the project's horizontal and vertical control follows.

Horizontal Control

The horizontal control datum for this survey was the North American Datum of 1983 (NAD83). All raw positions were originally collected in WGS84 and transformed to NAD83 during the post-processed kinematic GPS (PPK) routine.

It was necessary to acquire dual frequency GPS data at known locations on the ground so that a PPK solution could be used for final positioning. Sub-contractor John Oswald and Associates LLC (JOA) established two local control points: station "Angoon A" and station "Angoon B" in Angoon, AK. Refer to Appendix II in the "OPR-O322-KR-07 Horizontal &Vertical Control Report" for additional information.

Vessel position was determined in real time using a Trimble Zephyr L1/L2 GPS antenna, which was connected to a Trimble BD950 L1/L2 GPS card residing in the POS/MV. The POS/MV was set up via Com 2 to accept USCG differential corrections, which were output from a CSI MBX-3S Coast Guard beacon receiver. Note: since the pseudo range corrections received by the POS/MV are based on the NAD83 position of the reference station antenna, all DGPS-based final positions are NAD83. However, final positions were determined by a

post-processed kinematic (PPK) solution using POSPac 4.3 processing software, which output a final solution in NAD83. (Refer to the "2007-NOAAProcessingProcedures" document for PPK processing procedure).

Table 2 - DGPS Stations

Station	ID	Latitude	Longitude	Freq.	Tx. Rate
Biorka, AK USCG	890	56°51'18" N	135°32'05"W	305	100BPS
Level Island, AK USCG	891	56°28'03" N	133°04'32" W	295	100BPS

Vertical Control

All sounding data were initially reduced to mean lower low water (MLLW) using unverified tidal data from three tide stations located in Warm Spring Bay, False Bay, and Mitchell Bay, AK. Sub-contractor John Oswald & Associates LLC (JOA) operated the gauges and e-mailed the data to the R/V Davidson at the end of every Julian day.

Table 3 - Tide Gauges

Gauge	Model	Gauge Type	Location	Latitude	Longitude	Operational
9451625	H350XL/355	Digital Bubbler	Warm Spring Bay, AK	57º05'18"N	134º49'30" W	April-September
9452328	H350XL/355	Digital Bubbler	False Bay, AK	57º40'00"N	134º56'06" W	April-September
9451953	H350XL/355	Digital Bubbler	Mitchell Bay, AK	57º32'24"N	134º25'30" W	August-September

TIDES

All sounding data were reduced to MLLW initially using unverified tidal data from the three tide stations located in Warm Spring Bay, False Bay, and Mitchell Bay, AK. Tidal data for a twenty-four hour period UTC (Alaska Daylight Time to UTC was +8 hours) was assembled by JOA and e-mailed to the R/V Davidson at the end of every Julian Day. A cumulative file for the gauges was updated each day by appending the new data. Refer to the OPR-O322-KR-07 Horizontal and Vertical Control Report for additional tidal information and station descriptions.

The tidal zoning was modified by JOA, providing a more elaborate zoning scheme from those zones issued in the Statement of Work. For additional information, refer to JOA's Final Technical Report.

November 5, 2007, JOA issued verified tidal data and final zoning for H11696, H11697, H11698, H11699, H11702, H11703, H11704, H11705, H11706, H11707, & H11708 of OPR-O322-KR-07. On January 2, 2008, JOA issued verified tidal data and final zoning for H11700 & H11701 of OPR-O322-KR-07. All sounding data were then re-merged using CARIS HIPS and SIPS tide routine. Verified tidal data were used for all final Navigation BASE surfaces and S57 Feature files.

D – Results and Recommendations

Chart Comparison

H11707 survey was compared with charts:

Chart No.	Scale	Edition	Edition Date
17336	Various	9th	Mar. 2007
17320	217,828	17th	Nov. 2005[10]

Note: Electronic chart US3AK3BM does not cover survey area

Comparison of Soundings[11]

In general, the soundings from chart 17336_5 coincide with the soundings from H11707 to within 1 to 5 fathoms; areas that do vary to any degree are as follows:

- Item # 1: Hydrographic survey H11707 revealed a depth of 37 fathoms in the vicinity of a 20 fathom sounding on chart 17336_5 located at 57º05’04” N, 134º48’40” W. This area was surveyed with 100% multibeam coverage.
- Item # 2: Hydrographic survey H11707 revealed a depth of 29 fathoms in the vicinity of a 36 fathom sounding on chart 17336_5 located at 57º00’30” N, 134º33’52” W. This area was surveyed with 100% multibeam coverage. The shoaling is centered in the area depicted below.
- Item # 3: Hydrographic survey H11707 revealed a depth of 18 fathoms in the vicinity of a 6 fathom sounding on chart 17336_5 located at 57º01’37” N, 134º33’35” W. This area was surveyed with 100% multibeam coverage.
- Item # 4: Hydrographic survey H11707 revealed a depth of 44 fathoms in the vicinity of a 29fathom sounding on chart 17336_5 located at 56º59’35” N, 134º34’34” W. This area was surveyed with 100% multibeam coverage.
- Item # 5: Hydrographic survey H11707 revealed a depth of 40 fathoms in the vicinity of a 29 fathom sounding on chart 17336_5 located at 56º59’32” N, 134º35’05” W. This area was surveyed with 100% multibeam coverage.
- Item # 6: Hydrographic survey H11707 revealed a depth of 55 fathoms in the vicinity of a 37 fathom sounding on chart 17336_5 located at 56º59’43” N, 134º36’00” W. This area was surveyed with 100% multibeam coverage.
- Item # 7: Hydrographic survey H11707 revealed a depth of 254 fathoms in the vicinity of a 323 fathom sounding on chart 17336_5 located at 56º59’35” N, 134º37’56” W. This area was surveyed with 100% multibeam coverage. The shoaling is centered in the area depicted below.

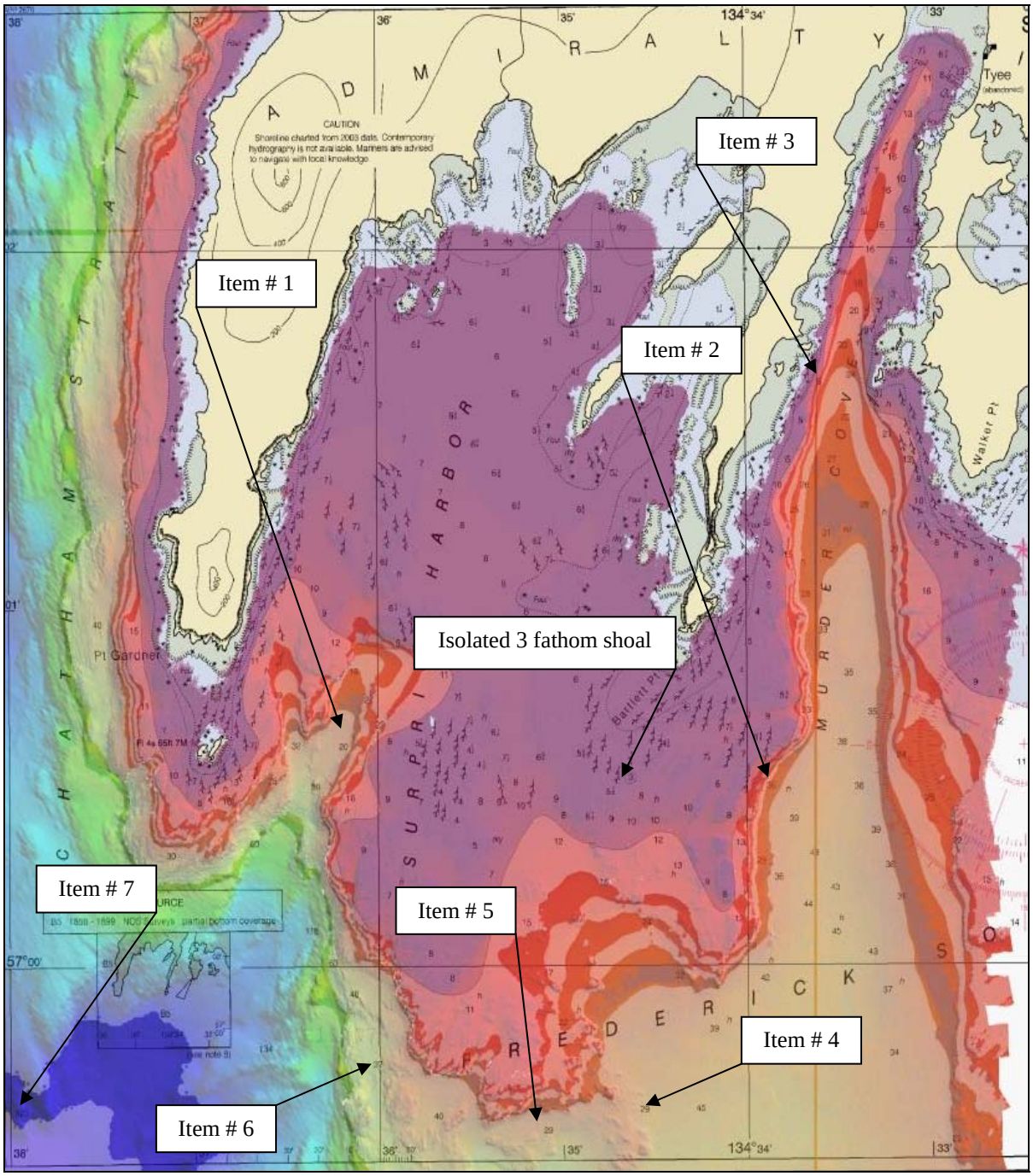


Figure 6 H11707 Chart Comparison (Chart 17336_5)

It should also be noted that the soundings from H11707 coincide with chart 17320 to within 1 to 5 fathoms.[12]

Automated Wreck and Observation Information System

There were no AWOIS items assigned to H11707.[13]

Charted Features

All charted features residing on charts incorporated within H11707 (see Listing of Charts above) were investigated and are as follows:

- Isolated 3 fathom shoal located at 57º00'31" N and 134º34'37" W; survey lines were conducted to provide 200% coverage over the area. The multibeam data was reviewed in CARIS HIPS and the shoal was not located. H11707 survey did reveal significant shoaling in two areas; one with a least depth of 0.5 fathoms (1.00 m) located at 57º00'35" N and 134º34'45" W and the other with a least depth of 0.6 fathoms (1.02 m) located at 57º00'36" N and 134º34'32" W. It is noted above in Figure 6 H11707 Chart Comparison (Chart 17336_5). It is recommended that the 3 fathom shoal be removed from the charts and the charts updated to reflect the submitted H11707 CARIS BASE Surface.[14]

Dangers to Navigation

Nine Dangers to Navigation were located during the survey of H11707. The Dangers to Navigation were reported on May 27, 2007 and reviewed June 4, 2007 (See Appendix I for submitted reports).[15]

Bottom Samples

The R/V Davidson, R/V R2, and R/V D2 were fitted to obtain bottom samples as specified in the Statement of Work. The purpose of this was to characterize the bottom in charted anchorages and for general bottom classification.[16]

Samples were taken with a Van Veen grab sampler and position was recorded with WinFrog (v3.7.0). Sediment retrieved from the sampler was analyzed and then encoded with the appropriate S57 attributes. Positions and descriptions of all samples are found in the H11707_S57_Features file.

Aids to Navigation

Throughout survey operations the position and description of all charted Aids to Navigation were recorded and logged as specified in the Statement of Work. Positions and descriptions were recorded and logged using WinFrog (v3.7.0). All Aids to Navigation surveyed in H11707 were compared to current charts and Light List VI to ensure they are correct and undamaged as per the April 2007 Specifications and Deliverables. No deviations to note.[17]

Shoreline Verification Results

Remote Sensing Division (RSD) provided the shoreline detail (AK0401B) for this survey. Since the RSD shoreline was the official shoreline source provided by NOAA, primary focus was given to its verification during this survey. However, charted features were investigated if practical as were any significant new features observed during the course of shoreline verification. Significant features were deemed to be those potentially dangerous to navigation and / or seaward of the 4m contour.

Visual inspection during shoreline verification determined the RSD shoreline to be very accurate. RSD foul areas commonly needed some adjustment but the MHW line and point features provided by RSD were particularly good. Any discrepancies are detailed below.[18]

The Hydrographer recommends that the RSD MHW from AK0401B supersede previously charted shoreline where any discrepancies occur unless noted below.[19]

The following tables itemize any errors or discrepancies found in the RSD source and charted shoreline. Note that RSD and charted features that were found to be positioned accurately are not itemized here and are not included S57 feature file. New features (features not in the RSD source/chart but found during field investigation) do appear in the S57 feature file but are generally not itemized here.[20]

RSD Source (AK0401B) Changes and Discrepancies				
RSD Feature	RSD Position	Remarks	Actions Taken in S57 Feature File / Recommendations	Applicable DP form(s)
Rock	57 01 17.39 N 134 32 56.91 W	RSD Rock 45744 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD142_039
Rock	57 00 52.89 N 134 34 32.83 W	RSD Rock 45165 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD142_176

RSD Source (AK0401B) Changes and Discrepancies				
RSD Feature	RSD Position	Remarks	Actions Taken in S57 Feature File / Recommendations	Applicable DP form(s)
Rock	57 00 59.69 N 134 34 51.16 W	RSD Rock 46166 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD142_187
Rock	57 01 03.72 N 134 34 51.53 W	RSD Rock 45167 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD142_184
Rock	57 01 02.16 N 134 35 12.12 W	RSD Rock 45168 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD142_185
Rock	57 01 03.08 N 134 34 33.07 W	RSD Rock 45700 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD142_180
Rock	57 01 21.26 N 134 34 32.13 W	RSD Rock 45703 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD142_199
Rock	57 01 22.06 N 134 34 47.81 W	RSD Rock 45169 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD152_015
Rock	57 01 21.97 N 134 34 56.21 W	RSD Rock 45170 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD152_013

RSD Source (AK0401B) Changes and Discrepancies				
RSD Feature	RSD Position	Remarks	Actions Taken in S57 Feature File / Recommendations	Applicable DP form(s)
Rock	57 01 24.42 N 134 34 56.60 W	RSD Rock 45171 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD152_018
Rock	57 01 30.51 N 134 35 03.87 W	RSD Rock 45762 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD152_022
Rock	57 01 38.07 N 134 36 08.95 W	RSD Rock 44865 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD152_141
Rock	57 01 43.24 N 134 36 06.62 W	RSD Rock 44864 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD152_137
Rock	57 01 17.21 N 134 36 28.16 W	RSD Rock 45711 not found, full MBES coverage at position. Shoaling was observed at this position.	Do not chart.	JD152_164

Charted Feature Changes and Discrepancies				
Chart No. and Feature	Charted Position	Remarks	Recommendations	Applicable DP form(s)
17336 Rock	57 01 17.39 N 134 32 56.91 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD142_039
17336 Ledges	Centered at: 57 01 20.92 N 134 32 57.83 W	Ledge exists but doesn't conform to MBES data.	Remove existing ledge and chart ledge as depicted in the S-57 feature file.	N/A

Charted Feature Changes and Discrepancies				
Chart No. and Feature	Charted Position	Remarks	Recommendations	Applicable DP form(s)
17336 Ledges	Extents: 57 01 39.92 N 134 33 04.89 W 57 01 36.98 N 134 32 59.48 W	Ledge exists but doesn't conform to MBES data. Continuation of the ledge to the North and South is correct as charted.	Revise existing ledge extents as depicted in the S-57 feature file.	N/A
17336 Ledges	Centered at: 57 01 38.68 N 134 33 16.53 W	Ledge exists but doesn't conform to MBES data.	Remove existing ledge and chart ledge as depicted in the S-57 feature file.	N/A
17336 Ledges	Extents: 57 01 46.92 N 134 33 11.21 W 57 01 39.91 N 134 33 11.18 W	Ledge exists but doesn't conform to MBES data. Continuation of the ledge to the East is correct as charted.	Revise existing ledge extents as depicted in the S-57 feature file.	N/A
17336 Ledges	Extents: 57 01 55.81 N 134 33 01.98 W 57 02 12.03 N 134 33 00.59 W	Ledge exists but doesn't conform to MBES data. Continuation of the ledge to the North is correct as charted.	Revise existing ledge extents as depicted in the S-57 feature file.	N/A
17336 Ledges	Centered at: 57 02 20.09 N 134 33 00.72 W	Ledge exists but doesn't conform to MBES data.	Remove existing ledge and chart ledge as depicted in the S-57 feature file.	N/A
17336 Submerged Rock	57 02 23.21 N 134 33 11.94 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD142_113
17336 Kelp	57 02 21.16 N 134 33 13.94 W	Charted kelp not found through investigation.	Remove.	JD142_114
17336 Kelp	57 02 13.24 N 134 33 19.32 W	Charted kelp not found through investigation.	Remove.	JD142_121
17336 Submerged Rock	57 01 50.14 N 134 33 31.86 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	N/A

Charted Feature Changes and Discrepancies				
Chart No. and Feature	Charted Position	Remarks	Recommendations	Applicable DP form(s)
17336 Submerged Rock	57 00 43.25 N 134 34 19.71 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD142_167
17336 Ledges (2)	Extents: 57 00 58.94 N 134 34 10.37 W 57 00 54.97 N 134 34 25.73 W	Ledges exist but don't conform to MBES data and were observed to be one continuous ledge. Continuation of the ledge to the North is correct as charted.	Revise existing ledge extents as depicted in the S-57 feature file.	JD142_170 JD142_171
17336 Rock	57 00 52.89 N 134 34 32.83 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD142_176
17336 Rock	57 00 57.96 N 134 34 37.42 W	Charted rock not found, full MBES coverage at position.	Remove.	JD142_178
17336 Rocks (2)	Centered at: 57 00 59.87 N 134 34 51.69 W	Charted rocks not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD142_187
17336 Rocks (2)	Centered at: 57 01 03.36 N 134 34 52.00 W	Charted rocks not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD142_184
17336 Rock	57 01 02.16 N 134 35 12.12 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD142_185

Charted Feature Changes and Discrepancies				
Chart No. and Feature	Charted Position	Remarks	Recommendations	Applicable DP form(s)
17336 Rock	57 01 01.98 N 134 34 33.92 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD142_179
17336 Rock	57 01 03.08 N 134 34 33.07 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD142_180
17336 Ledges (2)	Extents: 57 01 21.82 N 134 34 20.36 W 57 01 13.65 N 134 34 32.23 W 57 01 06.06 N 134 34 19.82 W	Ledges exist but don't conform to MBES data and were observed to be one continuous ledge.	Remove existing ledges and chart ledge as depicted in the S-57 feature file.	JD142_197
17336 Rock[21]	57 01 30.20 N 134 34 32.42 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD142_199
17336 Rock	57 01 21.26 N 134 34 32.13 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD142_199
17336 Ledge	Centered at: 57 01 30.95 N 134 34 18.09 W	Ledge exists but doesn't conform to MBES data and was observed to extend beyond the charted ledge extents.	Remove existing ledge and chart ledge as depicted in the S-57 feature file.	JD142_207

Charted Feature Changes and Discrepancies				
Chart No. and Feature	Charted Position	Remarks	Recommendations	Applicable DP form(s)
17336 Ledge	Centered at: 57 01 37.85 N 134 34 13.75 W	Ledge exists but doesn't conform to MBES data and was observed to extend beyond the charted ledge extents.	Remove existing ledge and chart ledge as depicted in the S-57 feature file.	JD142_211
17336 Ledge	Centered at: 57 01 37.22 N 134 34 31.93 W	Ledge exists but doesn't conform to MBES data and was observed to extend beyond the charted ledge extents.	Remove existing ledge and chart ledge as depicted in the S-57 feature file.	JD142_223
17336 Rock	57 01 34.16 N 134 34 40.19 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	N/A
17336 Ledges	Extents: 57 01 31.06 N 134 34 50.77 W 57 01 29.01 N 134 34 55.09 W	Ledge exists but doesn't conform to MBES data. Continuation of the ledge to the North is correct as charted.	Revise existing ledge extents as depicted in the S-57 feature file.	N/A
17336 Rock	57 01 21.10 N 134 34 48.26 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_015
17336 Rock	57 01 22.06 N 134 34 47.81 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_015
17336 Rock	57 01 21.97 N 134 34 56.21 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_013

Charted Feature Changes and Discrepancies				
Chart No. and Feature	Charted Position	Remarks	Recommendations	Applicable DP form(s)
17336 Rock	57 01 24.42 N 134 34 56.60 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_018
17336 Ledge	Centered at: 57 01 27.32 N 134 34 56.62 W	Ledge exists but doesn't conform to MBES data and was observed to extend beyond the charted ledge extents.	Remove existing ledge and chart ledge as depicted in the S-57 feature file.	N/A
17336 Rock	57 01 30.51 N 134 35 03.87 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_022
17336 Ledge	Centered at: 57 02 11.30 N 134 34 20.91 W	Ledge exists but doesn't conform to MBES data and was observed to extend beyond the charted ledge extents.	Remove existing ledge and chart ledge as depicted in the S-57 feature file.	JD152_048
17336 Ledge	Centered at: 57 02 11.65 N 134 34 33.51 W	Ledge exists but doesn't conform to MBES data and was observed to extend beyond the charted ledge extents.	Remove existing ledge and chart ledge as depicted in the S-57 feature file.	JD152_050
17336 Rock	57 02 05.07 N 134 34 59.82 W	Charted rock not found, full MBES coverage at position.	Remove.	N/A
17336 Kelp	57 02 06.96 N 134 35 29.37 W	Charted kelp not found through investigation.	Remove.	JD152_093
17336 Ledge	Centered at: 57 02 03.11 N 134 35 27.06 W	Ledge not found in specified area with full MBES coverage.	Remove	N/A

Charted Feature Changes and Discrepancies				
Chart No. and Feature	Charted Position	Remarks	Recommendations	Applicable DP form(s)
17336 Rock	57 01 53.78 N 134 35 49.01 W	Charted rock not found with full MBES coverage and was observed to be positioned 25m to the Northeast.	Remove existing rock and chart rock as depicted in the S-57 feature file.	JD152_125
17336 Rock	57 01 55.12 N 134 35 57.51 W	Charted rock not found with full MBES coverage and was observed to be positioned 30m to the Northwest.	Remove existing rock and chart rock as depicted in the S-57 feature file.	JD152_117
17336 Rock	57 01 41.11 N 134 36 05.19 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_139
17336 Rock	57 01 38.07 N 134 36 08.95 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_141
17336 Rock	57 01 43.24 N 134 36 06.62 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_137
17336 Ledge	Centered at: 57 01 27.27 N 134 36 27.13 W	Ledge exists but doesn't conform to MBES data. Continuation of the ledge to the Southwest is correct as charted.	Revise existing ledge extents as depicted in the S-57 feature file.	N/A
17336 Rock	57 01 17.10 N 134 36 28.16 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_164

Charted Feature Changes and Discrepancies				
Chart No. and Feature	Charted Position	Remarks	Recommendations	Applicable DP form(s)
17336 Ledge	Extents: 57 01 03.93 N 134 36 40.99 W 57 00 50.04 N 134 36 51.24 W	Ledge exists but doesn't conform to MBES data. Continuation of the ledge to the North and West is correct as charted.	Revise existing ledge extents as depicted in the S-57 feature file.	N/A
17336 Ledge	Centered at: 57 00 46.14 N 134 36 52.50 W	Ledge not found in specified area with full MBES coverage.	Remove	N/A
17336 Ledge	Centered at: 57 00 35.81 N 134 36 56.54 W	Ledge exists but doesn't conform to MBES data and was observed to extend beyond the charted ledge extents.	Remove existing ledge and chart ledge as depicted in the S-57 feature file.	N/A
17336 Ledge	Centered at: 57 00 36.86 N 134 36 51.78 W	Ledge exists but doesn't conform to MBES data and was observed to extend beyond the charted ledge extents.	Remove existing ledge and chart ledge as depicted in the S-57 feature file.	N/A
17336 Rock	57 00 47.57 N 134 37 02.61 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_191
17336 Rock	57 00 47.87 N 134 37 07.96 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_194
17336 Rock	57 00 53.56 N 134 37 11.43 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	N/A

Charted Feature Changes and Discrepancies				
Chart No. and Feature	Charted Position	Remarks	Recommendations	Applicable DP form(s)
17336 Rock	57 00 56.70 N 134 37 11.20 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_201
17336 Rock	57 00 58.54 N 134 37 09.76 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_202
17336 Rock	57 01 03.05 N 134 37 11.01 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_205
17336 Rock	57 01 05.19 N 134 37 11.73 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_207
17336 Rock	57 01 07.56 N 134 37 10.96 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_208
17336 Rock	57 01 22.60 N 134 37 05.01 W	Charted rock not found, full MBES coverage at position.	Remove.	JD152_221
17336 Rock	57 01 28.93 N 134 37 10.56 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_231
17336 Ledge	57 01 27.34 N 134 36 58.76 W	Ledges were observed to continue to the North from this position.	Revise existing ledge extents to extend North as depicted in the S-57 feature file.	JD152_232 JD152_251 JD152_255 JD152_269 JD152_279 JD153_003 JD153_020

Charted Feature Changes and Discrepancies				
Chart No. and Feature	Charted Position	Remarks	Recommendations	Applicable DP form(s)
17336 Rock	57 01 48.29 N 134 37 06.18 W	Charted rock not found, full MBES coverage at position.	Remove.	N/A
17336 Rock	57 02 07.12 N 134 36 58.79 W	Charted rock not found, full MBES coverage at position. Shoaling was observed at this location.	Remove.	JD152_265
17336 Rock	57 02 38.60 N 134 36 35.72 W	Charted rock not found, full MBES coverage at position.	Remove.	N/A
17336 Submerged Rock	57 01 50.74 N 134 34 58.90 W	Charted rock not found, full MBES coverage at position.	Remove.	N/A
17336 Rock	57 02 06.45 N 134 34 42.77 W	Charted rock not found, full MBES coverage at position.	Remove.	N/A
17336 Ledge	Centered at: 57 02 03.02 N 134 35 38.59 W	Ledge exists but doesn't conform to MBES data. Continuation of the ledge to the Northwest is correct as charted.	Revise existing ledge extents as depicted in the S-57 feature file.	N/A
17336 Ledge	Centered at: 57 01 53.44 N 134 35 39.09 W	Ledge exists but doesn't conform to MBES data.	Revise existing ledge extents as depicted in the S-57 feature file.	N/A
17336 Ruins (2)	Centered at: 57 02 27.35 N 134 32 50.41 W	Ruins are confirmed through observation and MBES data investigation.	Retain charted ruins as depicted on chart 17336.	JD142_099

Shoreline Correlator Sheet

ArcMap (v9.2) with the Shoreline Correlator add-on, written by the Fugro Pelagos Inc. GIS department, aided in the processing of the investigation results. The Correlator utilized the WinFrog log files to create an individual DP form for all acquired DPs. The Correlator was mapped to the log file, tide file, photos, NOAA Chart (largest scale available), and CARIS BASE Surfaces to calculate and display the desired information for each DP. The DP forms and raw field records can be found on the Project USB Drive under; OPR-O322-KR-07\H11707\Final_Deliverables\Reports\Descriptive Report\H11707 Shoreline.

DP ITEM NUMBER : JD142_207 DP Form

Date:	22 May, 2007
Julian Day:	142
UTC Time:	22:13:57
Latitude:	57 01 29.42 N
Longitude:	134 34 22.26 W
Northing:	6320231.96
Easting:	525931.07
Raw (+Depth) or (-Height) (m):	-2.00
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	0.74
Corrected to MLLW (m):	-2.74
Corrected to MLLW (fathoms):	-1.50
Corrected to MLLW (feet):	-8.99

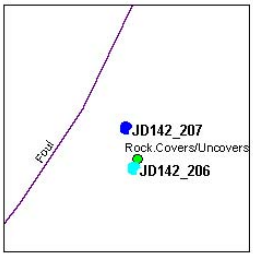
DP Comment: N_cht'd rk and ledge ok ledge should encompass rk

Correlating DP Item Numbers:
N/A N/A
N/A N/A

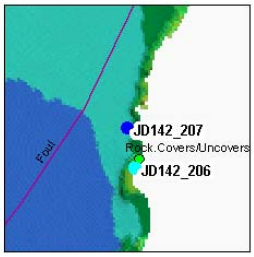
Correlating MB Least Depth:
None

Remarks/Recommendations:
Ledge inaccurate. Remove existing ledge and chart ledge as depicted in the S-57 feature file.

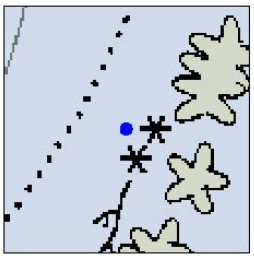
Chart: 17336_5 Topo: Carto Code: None



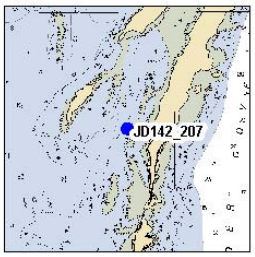
DPs and RSD AK0401B
200m x 200m



DPs, RSD AK0401B , and MBES coverage
200m x 200m



DP and Chart
200m x 200m



DP and Chart
2000m x 2000m

E – Approval Sheet

Approval Sheet

For

H11707

Standard field surveying and processing procedures were followed in producing this survey in accordance with the following documents:

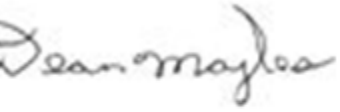
OPR-O322-KR-07 Statement of Work and 2007 Specifications & Deliverables;
Fugro Pelagos, Inc. Acquisition Procedures (2007- NOAAAcquisitionProcedures);
Fugro Pelagos, Inc. Processing Procedures (2007-NOAAProcessingProcedures);

The data were reviewed daily during acquisition and processing.

This report has been reviewed and approved. All records are forwarded for final review and processing to the Chief, Pacific Hydrographic Branch.

Approved and forwarded,

Dean Moyles,
Lead Hydrographer
Fugro Pelagos, Inc. Survey Party

X 

Dean Moyles
ACSM Certified

[1] Filed with project records.
[2] Concur.
[3] Concur.
[4] Concur.
[5] Concur.
[6] Concur.
[7] Concur.
[8] New fieldsheets and base surfaces were created during office review using the same resolutions and thresholds outlined below. The new combined surface is used in compilation.
[9] Filed with project records.
[10] Chart 17320, 18th Edition dated March 2008 was used for chart comparison and compilation.
[11] Concur with clarification. Chart as shown in HCell.
[12] Concur.
[13] Concur.
[14] Concur.
[15] All DtoNs submitted by the field and during office review have been updated on the charts. Some of the depths of the DtoNs were changed during final compilation. Chart as shown in the HCell.
[16] Do not concur. No bottom samples were submitted by the field. Retain charted bottom samples.
[17] Use the latest ATONIS listing.
[18] Discrepancies are noted in the Blue Notes in the HCell.
[19] All items listed below, with one exception, have been addressed as necessary in the HCell and are explained as necessary in the Blue Notes.
[20] Concur with clarification. All items addressed in the tables have been reviewed during compilation and are either included in the HCell or have been blue-noted to be removed or modified as appropriate.
[21] Rock does not exist on 17336.

H11707 DtoN Report

Registry Number: H11707

State: Alaska

Locality: Chatham Strait

Sub-locality: Suprise Harbor and Murder Cove

Project Number: OPR-O322-KR-07

Survey Dates: 05/13/2007 - 05/18/2007

Charts Affected

Number	Version	Date	Scale
17336	8th Ed.	05/31/1997	1:20000
17320	17th Ed.	11/01/2005	1:217828
16016	20th Ed.	11/01/2003	1:969756
531	23rd Ed.	01/01/2006	1:2100000
500	8th Ed.	06/01/2003	1:3500000
530	31st Ed.	06/01/2005	1:4860700
50	6th Ed.	06/01/2003	1:10000000

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Shoal	2.33 m	57° 01' 22.3" N	134° 35' 54.3" W	---
1.2	Shoal	1.09 m	57° 00' 34.6" N	134° 34' 46.0" W	---
1.3	Shoal	1.34 m	57° 00' 35.3" N	134° 34' 30.2" W	---

1 - Danger To Navigation

1.1) Profile/Beam - 8418/96 from h11707 / d2 / 2007-133 / 2n03-sh048

DANGER TO NAVIGATION

Survey Summary

Survey Position: 57° 01' 22.3" N, 134° 35' 54.3" W

Least Depth: 2.33 m

Timestamp: 2007-133.16:16:18.167 (05/13/2007)

Survey Line: h11707 / d2 / 2007-133 / 2n03-sh048

Profile/Beam: 8418/96

Charts Affected: 17336_5, 17320_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

Sounding of 2.33 meters on shoal.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11707/d2/2007-133/2n03-sh048	8418/96	0.00	000.0	Primary

Hydrographer Recommendations

Chart least depth on shoal.

Cartographically-Rounded Depth (Affected Charts):

1 ¼fm (17336_5, 17320_1, 16016_1, 530_1)

1fm 1ft (531_1)

2.3m (500_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)

Attributes: QUASOU - 1:depth known

TECSOU - 3:found by multi-beam

Feature Images

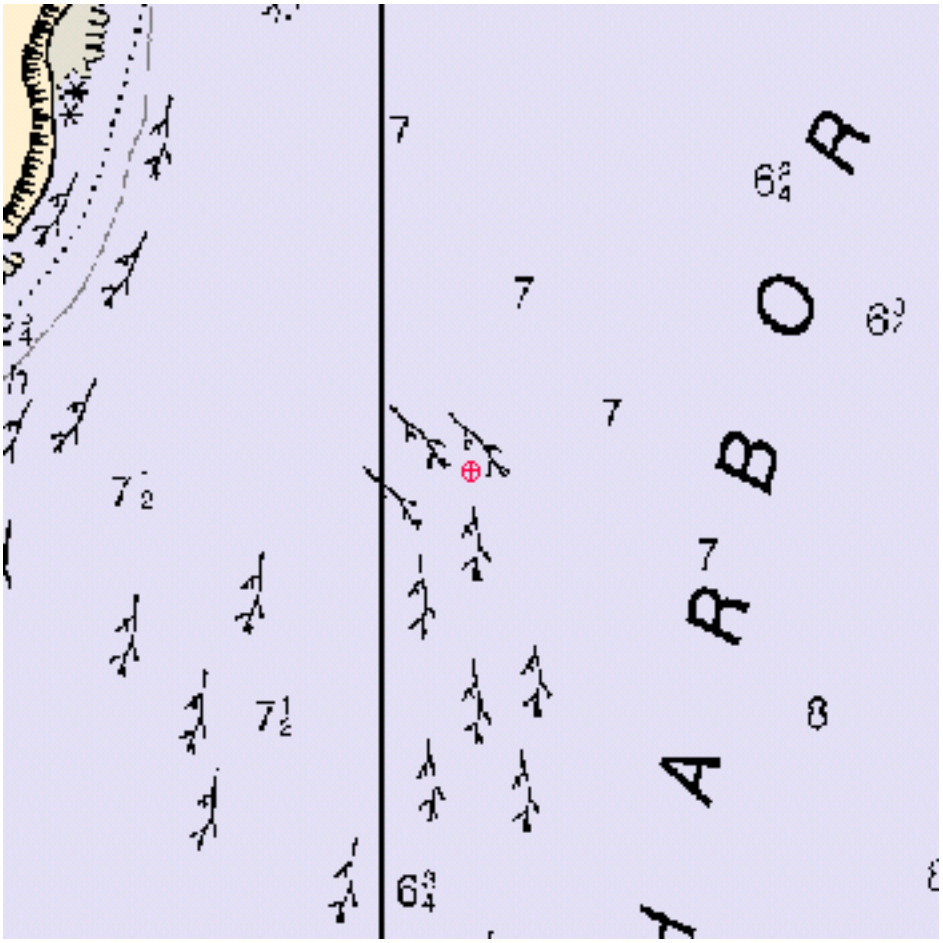


Figure 1.1.1

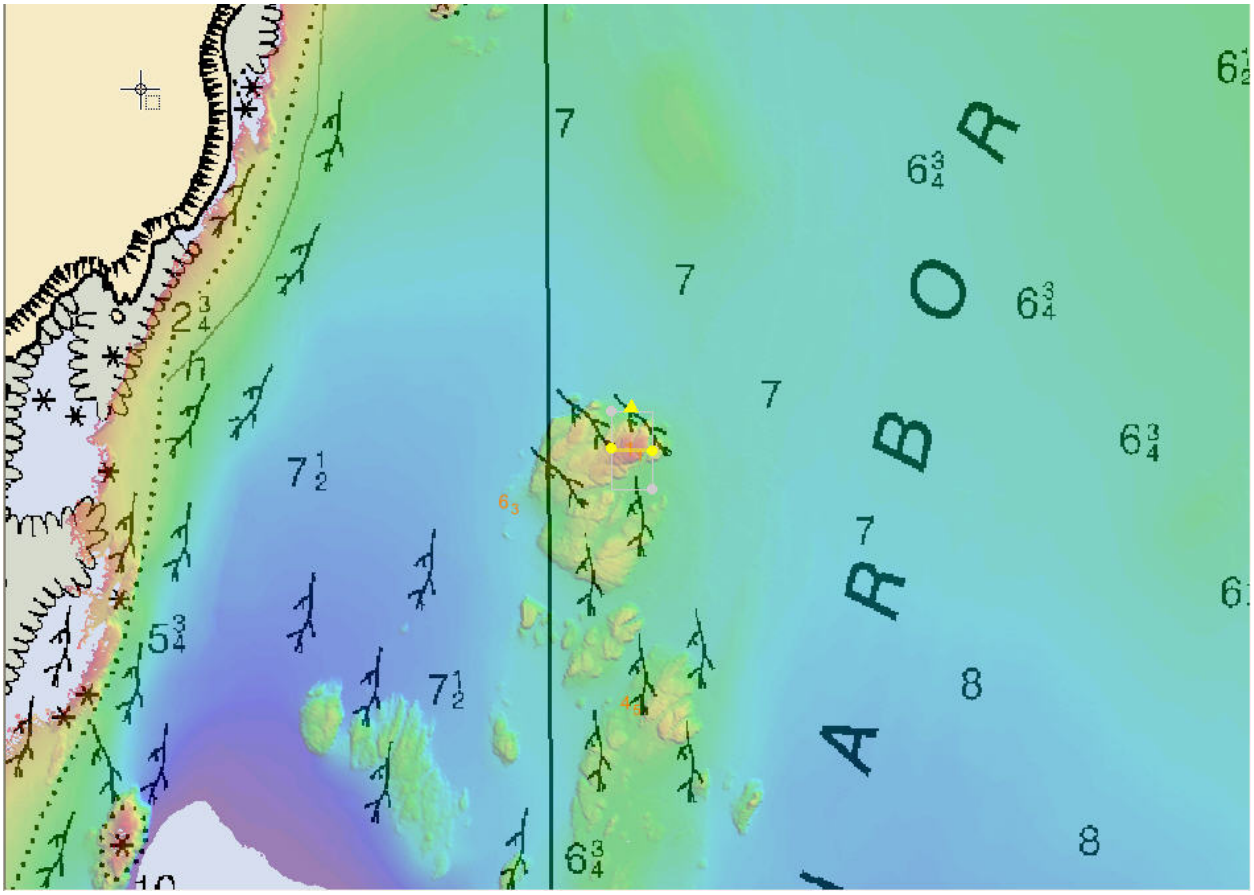


Figure 1.1.2

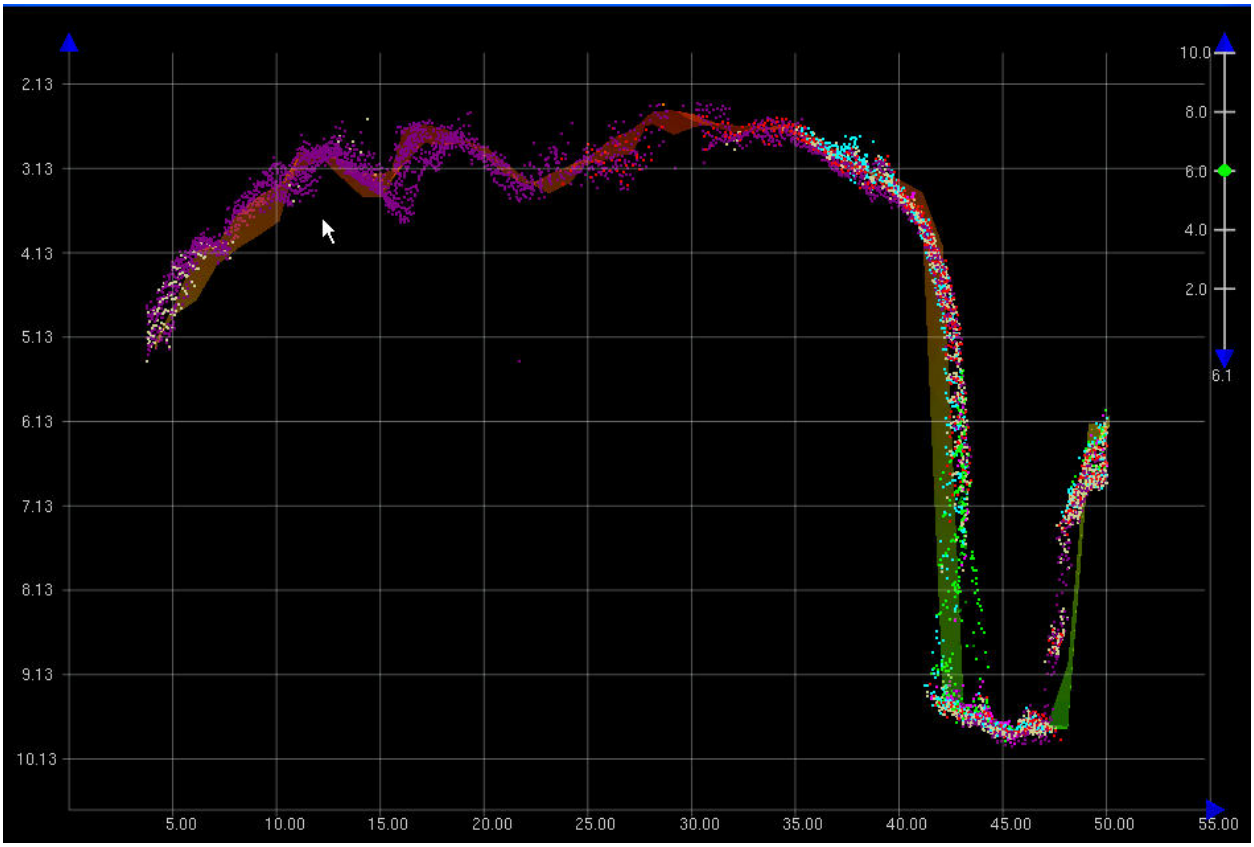

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Figure 1.1.3

1.2) Profile/Beam - 734/220 from h11707 / shoreline / 2007-137 / 4n03-sh018

DANGER TO NAVIGATION

Survey Summary

Survey Position: 57° 00' 34.6" N, 134° 34' 46.0" W

Least Depth: 1.09 m

Timestamp: 2007-137.23:57:14.742 (05/17/2007)

Survey Line: h11707 / shoreline / 2007-137 / 4n03-sh018

Profile/Beam: 734/220

Charts Affected: 17336_5, 17320_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

Sounding of 1.09 meters on shoal.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11707/shoreline/2007-137/4n03-sh018	734/220	0.00	000.0	Primary

Hydrographer Recommendations

Chart least depth on shoal.

Cartographically-Rounded Depth (Affected Charts):

0 ½fm (17336_5, 17320_1, 16016_1, 530_1)

0fm 3ft (531_1)

1.1m (500_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)

Attributes: QUASOU - 1:depth known

TECSOU - 3:found by multi-beam

Feature Images

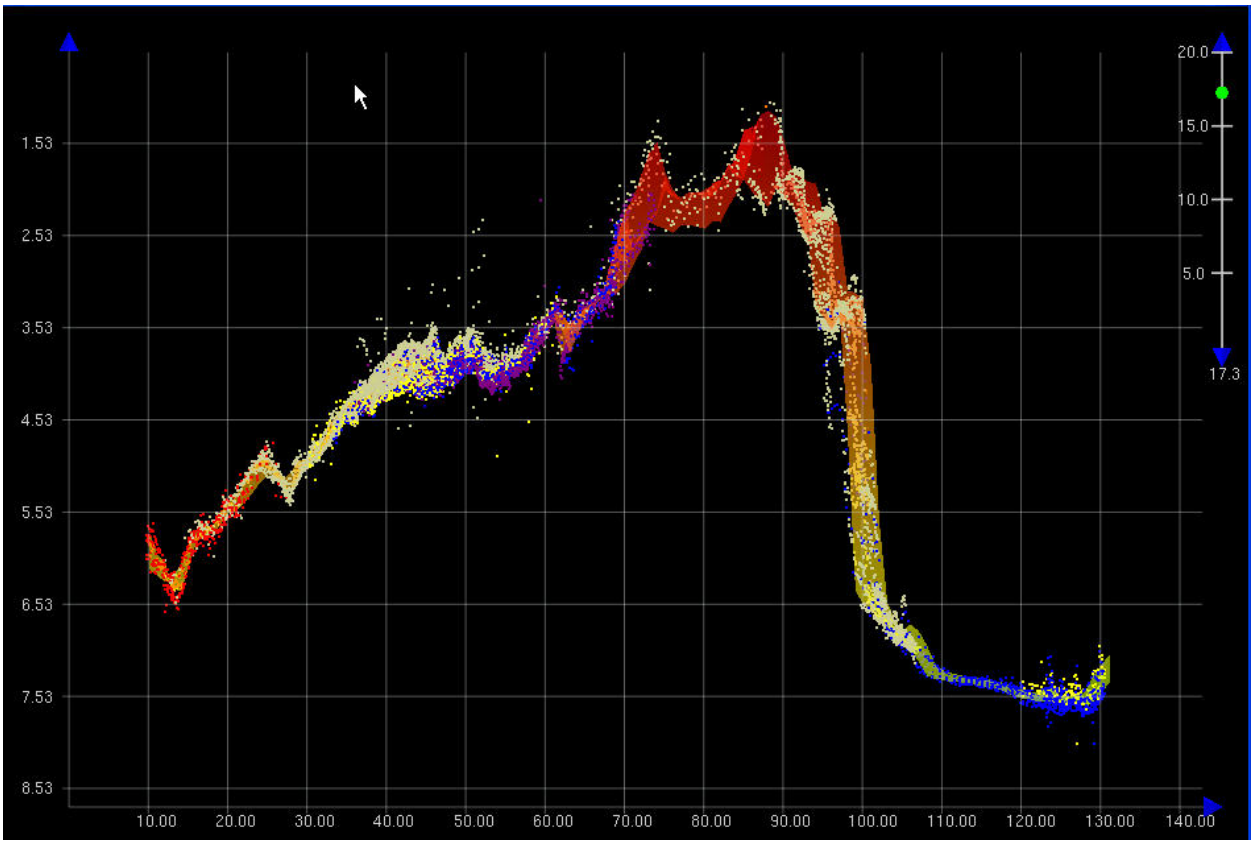

Figure 1.2.1

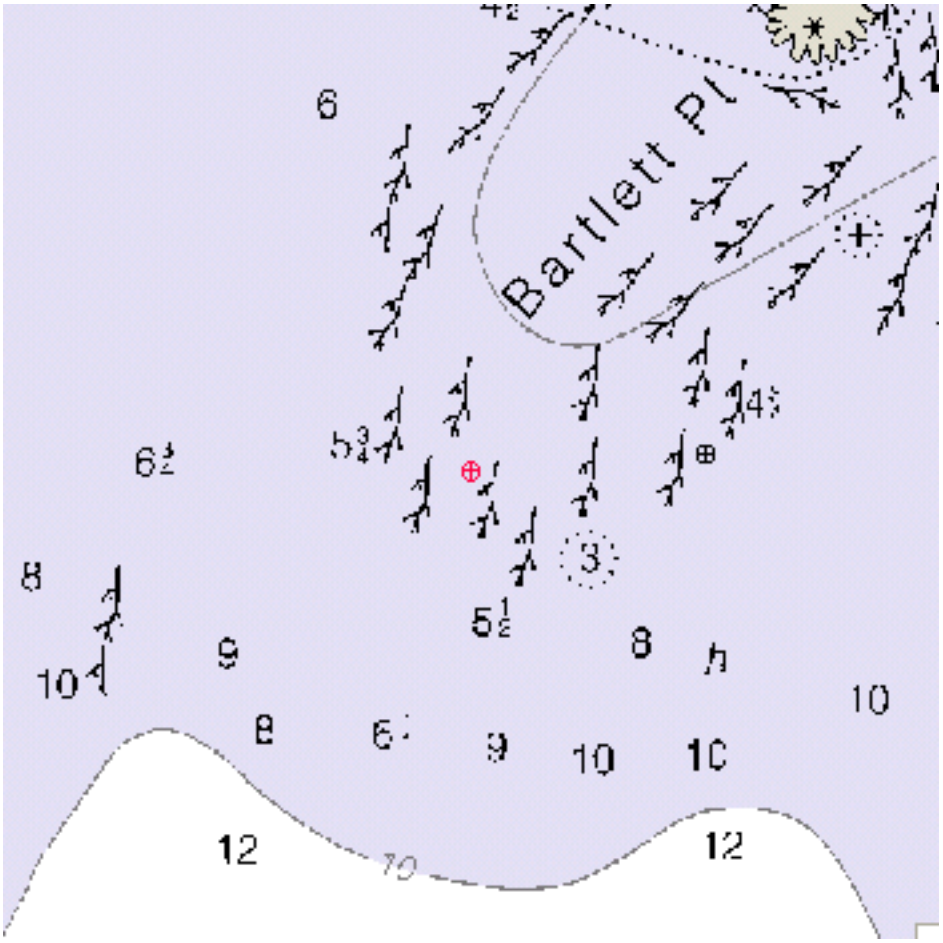

Figure 1.2.2

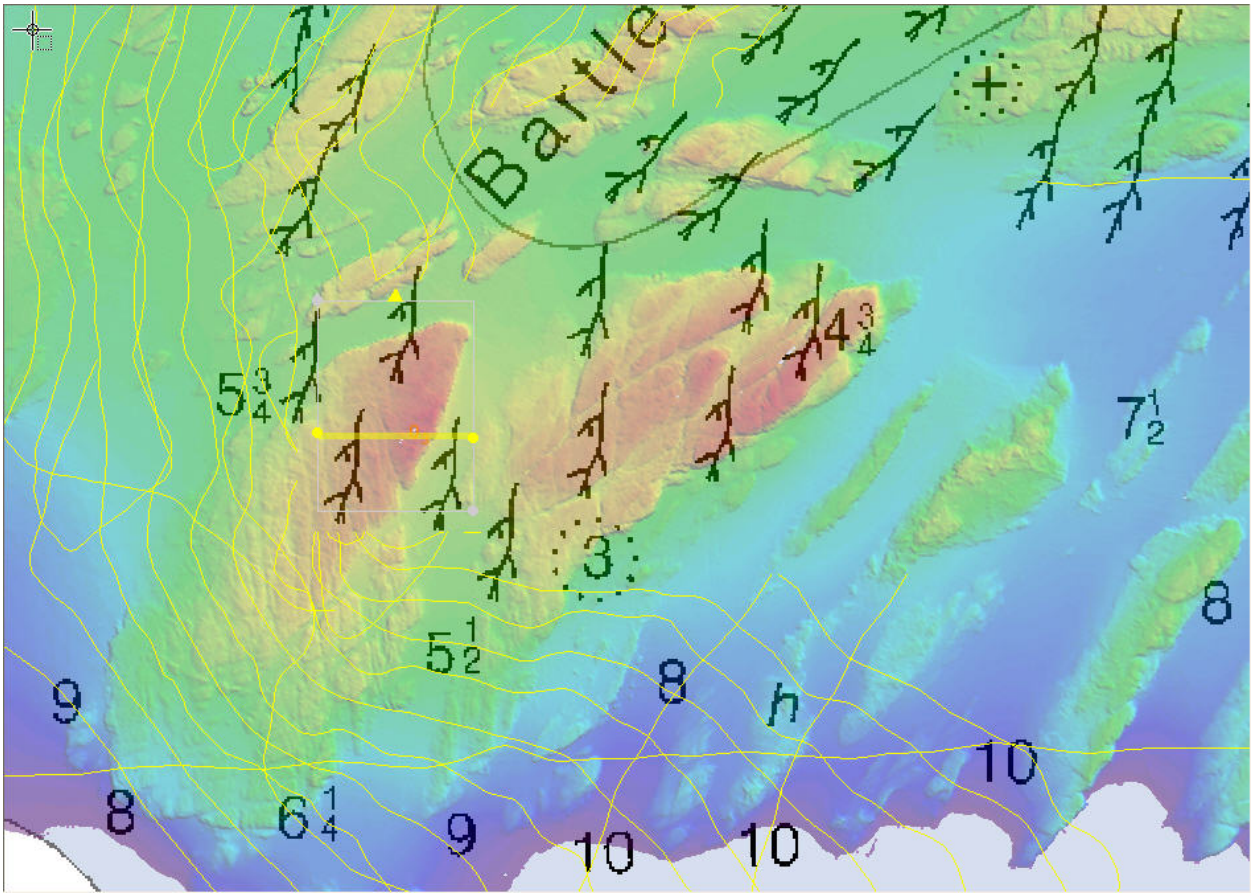

Figure 1.2.3

1.3) Profile/Beam - 266/219 from h11707 / shoreline / 2007-138 / 4n03-sh022

DANGER TO NAVIGATION

Survey Summary

Survey Position: 57° 00' 35.3" N, 134° 34' 30.2" W

Least Depth: 1.34 m

Timestamp: 2007-138.00:07:35.626 (05/18/2007)

Survey Line: h11707 / shoreline / 2007-138 / 4n03-sh022

Profile/Beam: 266/219

Charts Affected: 17336_5, 17320_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

Sounding of 1.34 meters on shoal.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11707/shoreline/2007-138/4n03-sh022	266/219	0.00	000.0	Primary

Hydrographer Recommendations

Chart least depth on shoal.

Cartographically-Rounded Depth (Affected Charts):

0 ¾fm (17336_5, 17320_1, 16016_1, 530_1)

0fm 4ft (531_1)

1.3m (500_1, 50_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)

Attributes: QUASOU - 1:depth known

TECSOU - 3:found by multi-beam

VERDAT - 12:Mean lower low water

Feature Images

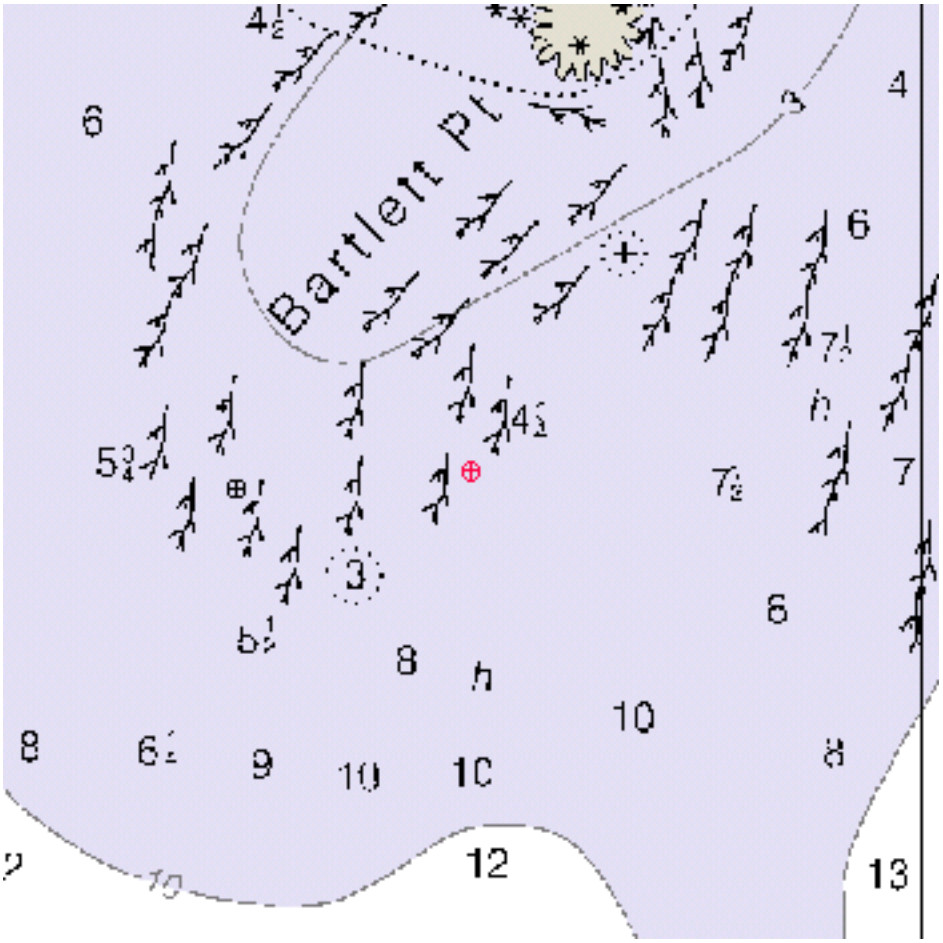

Figure 1.3.1

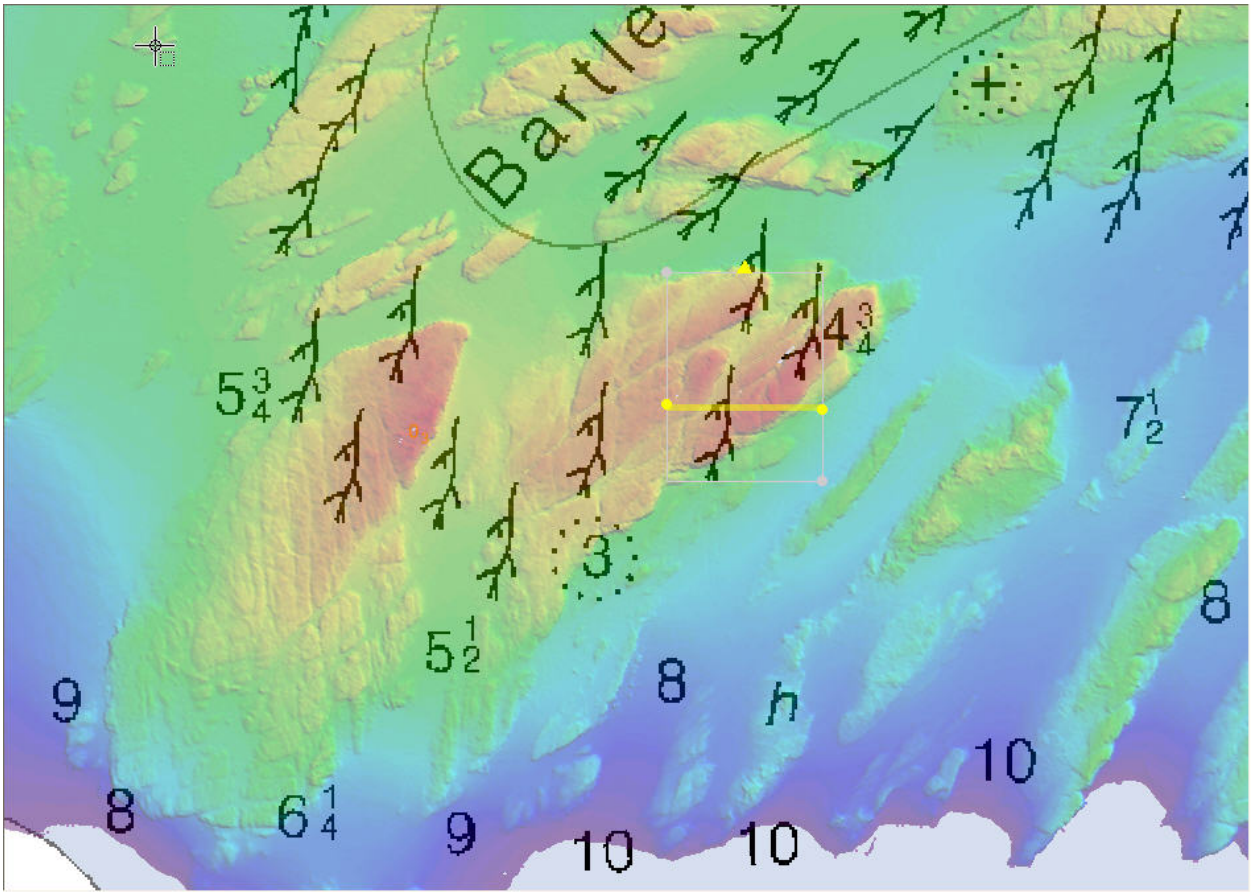

Figure 1.3.2

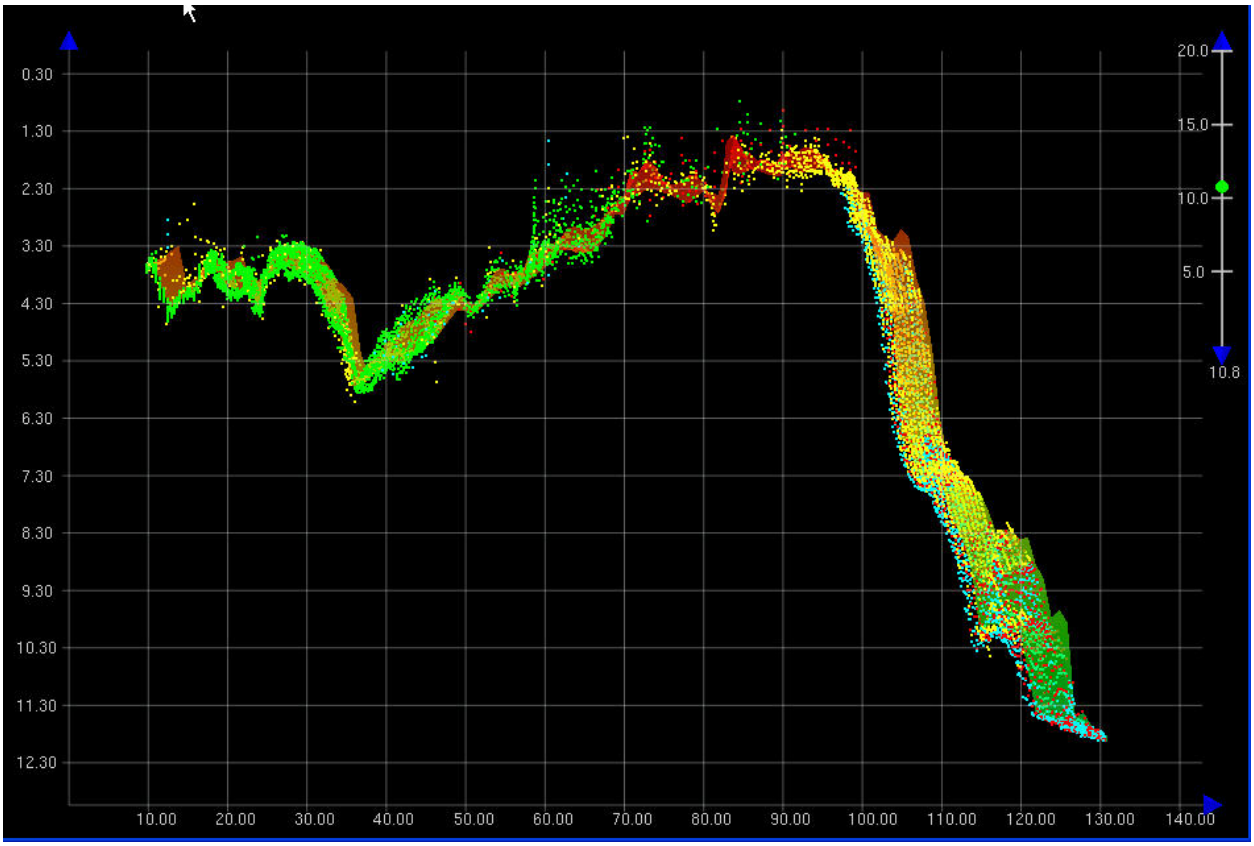
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Figure 1.3.3

Hydrographic Survey Registry Number: **H11707**

Survey Title: **State:** **ALASKA**
Locality: **Chatham Strait**
Sub-locality: **Surprise Harbor and Murder Cove**

Project Number: **OPR-O322-KR-07**

Survey Dates: **May 2007**

Depths are reduced to Mean Lower Low Water using preliminary tides.

Positions are based on the NAD83 horizontal datum.

Charts Affected:

Chart No.	Scale	Edition	Edition Date
16016	969,756	20th	Nov. 2003
17320	217,828	17th	Nov. 2005
17336	Various	9th	Mar. 2007

DANGER TO NAVIGATION:

Feature	Depth (fms ft)	Latitude	Longitude
Sounding	6 fms 1 ft	56-57-10.92N	134-33-01.31W
Sounding	6 fms 4 ft	56-57-57.34N	134-34-57.15W
Sounding	8 fms 4 ft	56-58-19.69N	134-35-38.26W
Sounding	6 fms 5 ft	57-00-06.65N	134-34-03.00W
Sounding	6 fms 0 ft	56-59-49.72N	134-35-16.12W
Sounding	6 fms 4 ft	57-00-49.62N	134-36-17.76W
Sounding	7 fms 2 ft	57-00-20.31N	134-32-43.69W
Sounding	2 fms 3 ft	57-01-06.98N	134-32-39.28W
Sounding	7 fms 4 ft	57-00-59.77N	134-33-04.71W

COMMENTS:

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch at (206) 526-6835.

H11707 HCell Report

Tyanne Faulkes, ERT Associate
Pacific Hydrographic Branch

Introduction

The primary purpose of the HCell is to provide new survey information in International Hydrographic Organization (IHO) format S-57 to update the largest ENC and RNC in the region: NOAA ENC: US3AK4PM; and NOAA RNCs: 17320 and 17336.

HCell compilation of survey H11707 utilized Office of Coast Survey HCell Specifications Version 3.1, with approved modifications to better align with PHB's HCell process and to meet MCD needs.

1. Compilation Scale

The density of soundings in the HCell are compiled as appropriate to emulate those soundings of Charts 17336 at 1:20,000 and 17320 at 1:217,828.

2. Soundings

A survey-scale sounding (SOUNDG) feature object source layer was built from the **H11707_Office_Combined_15m** surface in CARIS BASE Editor. A shoal-biased selection was made at 1:7,000 survey scale for the area of the survey covered by chart 17336 (1:20,000) and 1:15,000 survey scale for the area of the survey covered by chart 17320. These shoal-based selections were made using a Radius Table file with values shown in the table, below. The resultant sounding layer contains 35,364 depths ranging from 0-342 fathoms.

Upper limit (m)	Lower limit (m)	Radius (mm)
0	10	3
10	20	4
20	50	4.5
50	1000	5

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

3. Depth Areas and Depth Contours

3.1 Depth Areas

The extents of the highest resolution BASE Surface together with the extents of the soundings layer were used to digitize the hydrographic extents, which were then used to create the single, all encompassing depth area (DEPARE). Two depth ranges, from 0 to 626 meters was used for depth objects and the other from -3.900 to 0 meters was used for intertidal areas. Upon conversion to NOAA charting units, the depth range is 0 to 345 fathoms and -1.333 to 0 fathoms.

3.2 Depth Contours

Depth contours at the intervals on the largest scale chart are included in the H11707_SS HCell for MCD raster charting division to use for guidance in creating chart contours. The generalized metric and fathom equivalent contour values are shown in the table below.

Chart Contours in Fathoms	Metric Equivalent of Chart Contours	Metric Equivalent of Chart Contours NOAA Rounded	Actual Value of Chart Contours
0	0	0.2286	0.229
3	5.4864	5.715	5.175
10	18.288	18.5166	18.517
50	91.44	92.8116	92.812
100	182.88	184.2516	184.252

Contours delivered in the H11707_SS file have not been deconflicted against soundings and hydrography as all other features in the H11707_CS file and soundings in the H11707_SS have been. This results in conflicts between the H11707_SS file contours and HCell features at or near the survey limits. Conflicts with M_COVR, M_QUAL, and DEPARE objects should be expected. HCell features should be honored over H11707_SS.000 file contours in all cases where conflicts are found.

4. Meta Areas

The following Meta object areas are included in HCell H11707:

M_QUAL
M_COVR
M_CSCL

Meta area objects were constructed on the basis of the limits of the hydrography. (See 3.1 *Depth Areas*.)

5. Features

Features files **H11707_S57_Features.000** were delivered. The features files have been combined into one feature file for delivery to MCD for historical purposes called H11707_Features.000. There were nine DTON reported by the field unit and three reported during office review. These Dangers to Navigation were discovered to be depicted on the current rasters for Chart 17336 and 17320. They were also compiled to H11707_CS.000.

No bottom samples were submitted by the field. Bottom samples from charts 17337 and 17320 were deconflicted with the survey data. Bottom saples to be retained are blue-noted. The source of all features included in the H11707 HCell can be determined by the SORIND field.

New fouls have been delineated to reflect the bathymetry and features of survey H11707. Because the appropriate geometry of charted ledges were not available, the compliler used an OBSTRN line to identify the fouls within the survey limit. The compiler recommends charting the areas shoreward of the obstruction line as foul while retaining charted features such as ledges. This is also indicated in the NINFOM field.

In order to simplify the chart, kelp areas were delineated around charted kelp point symbols. Remove kelp point symbols and chart the new kelp areas. Charted kelp has been blue-noted in situations where they are to be retained.

6. S-57 Objects and Attributes

The H11707_CS HCell contains the following Objects:

SOUNDG	Chart scale soundings
DEPARE	All-encompassing depth area and intertidal areas
SBDARE	Bottom samples and rocky seabed areas
M_COVR	Data coverage Meta object
M_QUAL	Data quality Meta object
M_CSCL	Delineation of compilation scale
$CSYMB	Blue notes
OBSTRN	Foul areas
UWTROC	Rocks
WEDKLP	Kelp
DEPCNT	Zero contour
LNDARE	Islets and islands
COALNE	Coastline
WATTUR	Tide rips

The H11707_SS HCell contains the following Objects:

SOUNDG	Soundings at the survey scale density
DEPCNT	NOAA rounded contours at chart scale intervals

All S-57 Feature Objects in the H11707_CS HCell have been attributed as fully as possible based on information provided by the Hydrographer and in accordance with current guidance and the OCS HCell Specifications.

7. Blue Notes

Notes to the RNC and ENC chart compilers are included in the HCell as $CSYMB features with the Blue Note information located in the INFORM and NINFOM fields.

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
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, and therefore have lower precision. 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

Conversion to charting units and application of NOAA rounding is completed in the same step, at the end of the HCell compilation process.

Conversion to charting units with NOAA rounding ensures that:

- All depths deeper or equal to 11 fathoms display as whole fathoms.

- All depth units between 0 fathoms (MLLW) and 11 fathoms display as fathoms and whole feet.
- All depth units skyward of 0 fathoms (MLLW) to 2.0 feet above MHW display in feet for values that round to 5 feet or less, and in fathoms and feet above of that.
- All height units (HUNI) which have been converted to charting units, and that are 2.00 feet above MHW and greater, are shown in feet.

In an ENC viewer fathoms and feet depth units (DUNI) display in the format X.YZZZ, where X is fathoms, Y is feet, and ZZZ is decimals of the foot. In an ENC viewer, heights (HUNI) display as whole feet.

9. Data Processing Notes

9.1 Junctions

H11707 junctions with H11699 and H11708 which are being compiled at the same time as H11707. Junctions with H11699 and H11708 will be made when those surveys are compiled.

10. QA/QC and ENC Validation Checks

H11707 was subjected to QA checks in S-57 Composer prior to exporting to the HCell base cell (000) file. The millimeter precision metric S-57 HCell was converted to a 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 have been approved by MCD as inherent to and acceptable for HCells.

11. Products

11.1 HSD, MCD and CGTP Deliverables

- H11707_CS, Chart Units, Soundings compiled to 1:20,000 and 217, 828
- H11707_SS, Chart Units, Soundings compiled to 1:7,000 and 1:15,000
- H11707_Features, survey scale features compiled to 1:10,000
- H11707_DR including end notes compiled during office processing and certification, the HCell Report, and supplemental items
- H11707 Survey Outline to populate to SURDEX

11.2File Naming Conventions

- Chart units base cell file, chart scale soundings H11707_CS.000
- Chart units base cell file, survey scale soundings H11707_SS.000
- Chart units base file, survey scale features H11707_Features.000
- Descriptive Report H11707_DR.pdf
- Survey outline H11707_Outline.gml&*.xsd

11.3 Software

CARIS HIPS Ver. 6.1	Inspection of Combined BASE Surfaces
CARIS BASE Editor Ver. 2.3	Creation of soundings and bathy-derived features, creation of the depth area, meta area objects, and Blue Notes; Survey evaluation and verification; Initial HCell assembly.
CARIS S-57 Composer Ver. 2.1	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.
Newport Systems, Inc., Fugawi View ENC Ver.1.0.0.3	Independent inspection of final HCells using a COTS viewer.

12. Contacts

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

Tyanne Faulkes, ERT Associate, PHB, Seattle, WA; 206-526-6883;
Tyanne.Faulkes@noaa.gov

APPROVAL SHEET
H11707

Initial Approvals:

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

Digitally signed by Tyanne Faulkes
DN: cn=Tyanne Faulkes, o=USDOC/NOAA/NOS, ou=Pacific Hydrographic Branch, email=tyanne.faulkes@noaa.gov, c=US
Date: 2010.02.22 14:02:10 -08'00'

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

Digitally signed by Russ Davies
Date: 2010.02.22 14:23:06 -08'00'

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

Gary C. Nelson
2010.02.22 14:06:10 -08'00'

Digitally signed by David Scharff
DN: cn=David Scharff, o=OCS, ou=NOAA, email=david.scharff@noaa.gov, c=US
Reason: AWOIS and Surf Check complete
Date: 2010.02.25 12:48:38 -05'00'