

H11714

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic Survey

Field No. N/A

Registry No. H11714

LOCALITY

State Alaska

General Locality Akutan Pass

Sublocality Kalekta Bay

2007

CHIEF OF PARTY

Dean Moyles

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;">H11714</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: N/A</p>
<p>State <u>Alaska</u></p> <p>General Locality <u>Akutan Pass</u></p> <p>Sub-Locality <u>Kalekta Bay</u></p> <p>Scale <u>1:10,000</u> Date of Survey <u>06/20/07 - 07/27/07</u></p> <p>Instructions dated <u>6/15/2007</u> Project No. <u>OPR-Q191-KR-07</u></p> <p>Vessel <u>R/V Davidson (1066485), R/V R2 (623241), R/V D2 (647782)</u></p> <p>Chief of party <u>Dean Moyles</u></p> <p>Surveyed by <u>Orthmann, Reynolds, Gill, Mount, Stock, Farley, Briggs, Poeckert, et al.</u></p> <p>Soundings by <u>RESON 8101 (R2 & D2 - HULL MOUNT), RESON 8111 (DAVIDSON - HULL MOUNT)</u></p> <p>SAR by <u>Kurt Brown</u> Compilation by <u>Andrew Clos</u></p> <p>Soundings compiled in <u>Fathoms and feet at MLLW</u></p>	
<p>REMARKS: <u>All times are UTC. UTM Projection 03</u></p> <p><u>The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Revisions and end notes in red were generated during office processing. 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>	



A - Area Surveyed

H11714 (Sheet C) is bound by the coordinates listed below, which encompasses Kalekta Bay.

Hydrographic data collection began on June 20, 2007 and ended on July 27, 2007.

Table 1 – H11714 Sheet Limits

Sheet Limits Task Order # 1 H11714 Sheet C Scale 1:10,000		
Point #	Positions on NAD83	
	Degrees Latitude (N)	Degrees Longitude (W)
1	54-02-49.20 N	166-16-30.36 W
2	54-02-49.20 N	166-23-27.60 W
3	53-56-13.92 N	166-23-27.60 W
4	53-56-13.92 N	166-16-30.36 W

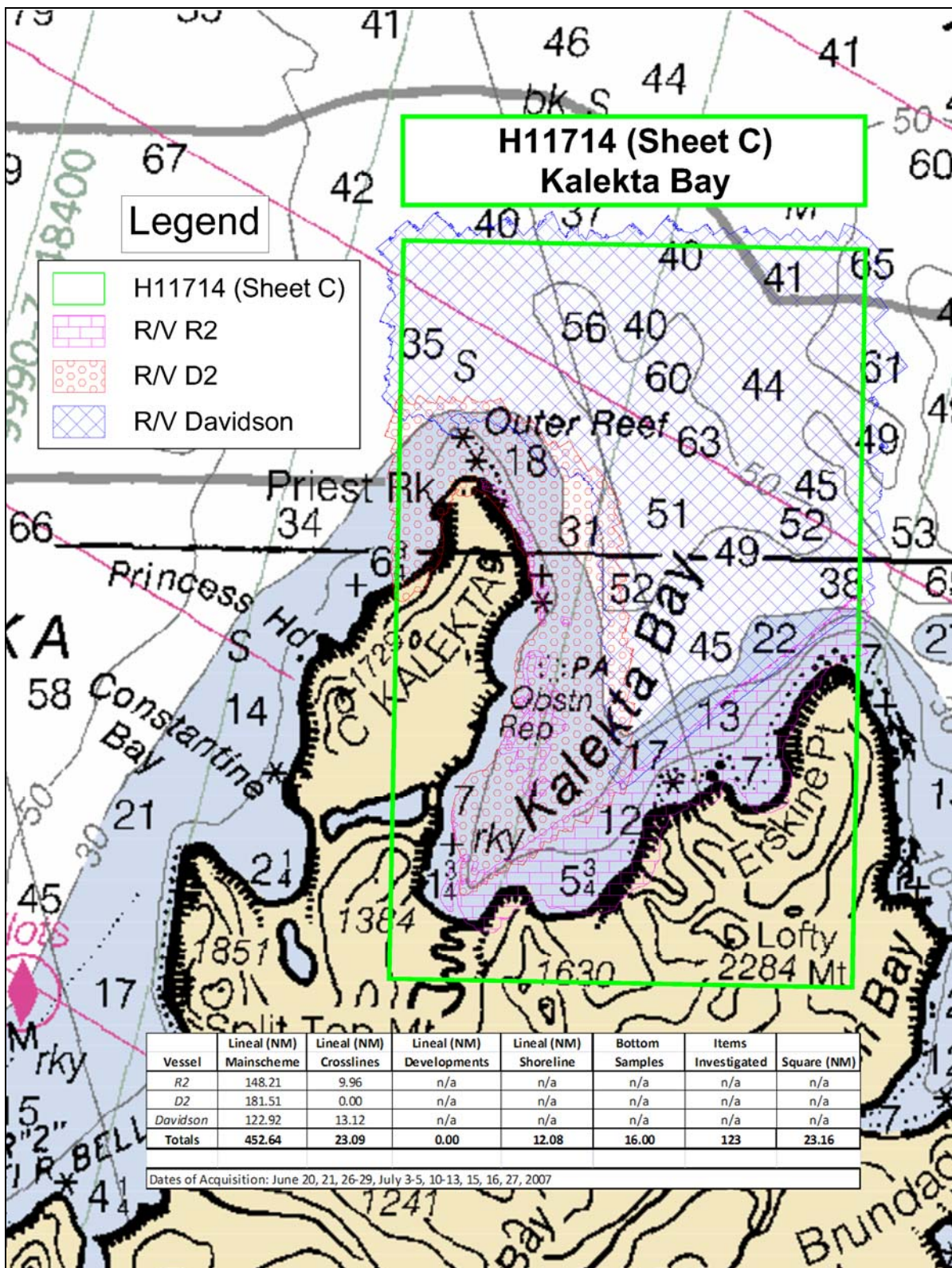


Figure 1 H11714 Area Surveyed



B – Data Acquisition & Processing

Refer to the OPR-Q191-KR-07 Data Acquisition and Processing Report 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, and R/V D2 acquired all soundings for H11714. 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. 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-Q191-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 23.09 nautical miles or 5.10 percent of the total main scheme line length, exceeding the 5 percent planned. 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.¹

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.

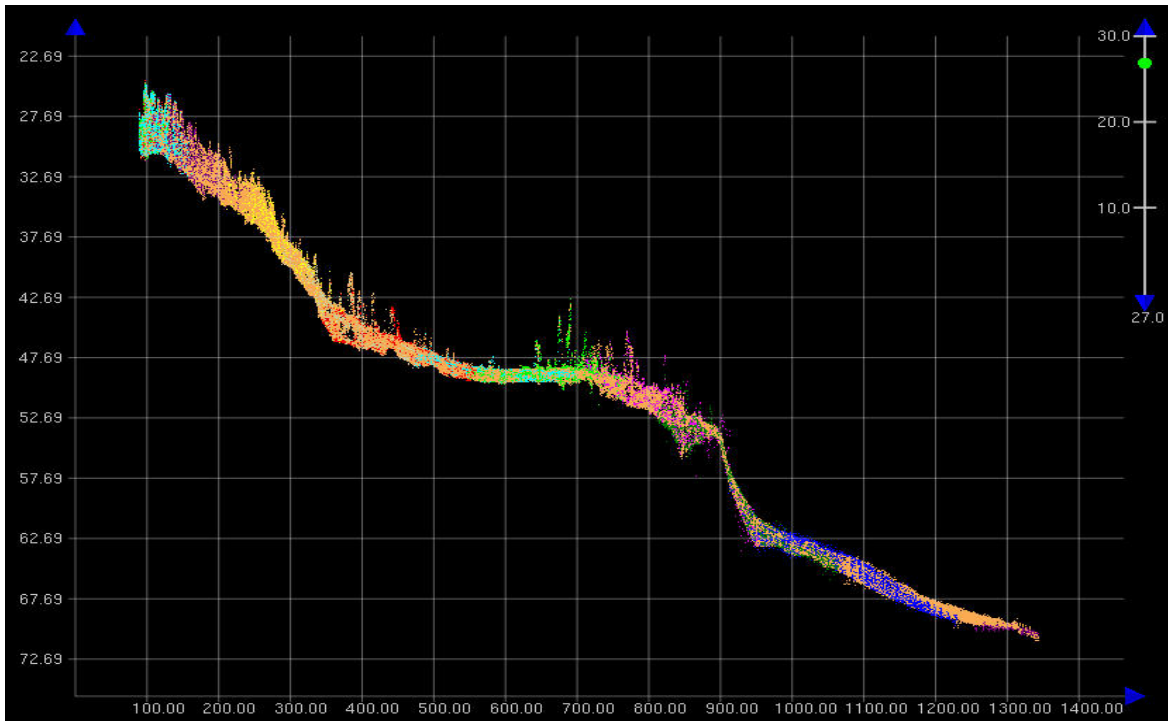


Figure 2 Profile of 1C06-TIE02

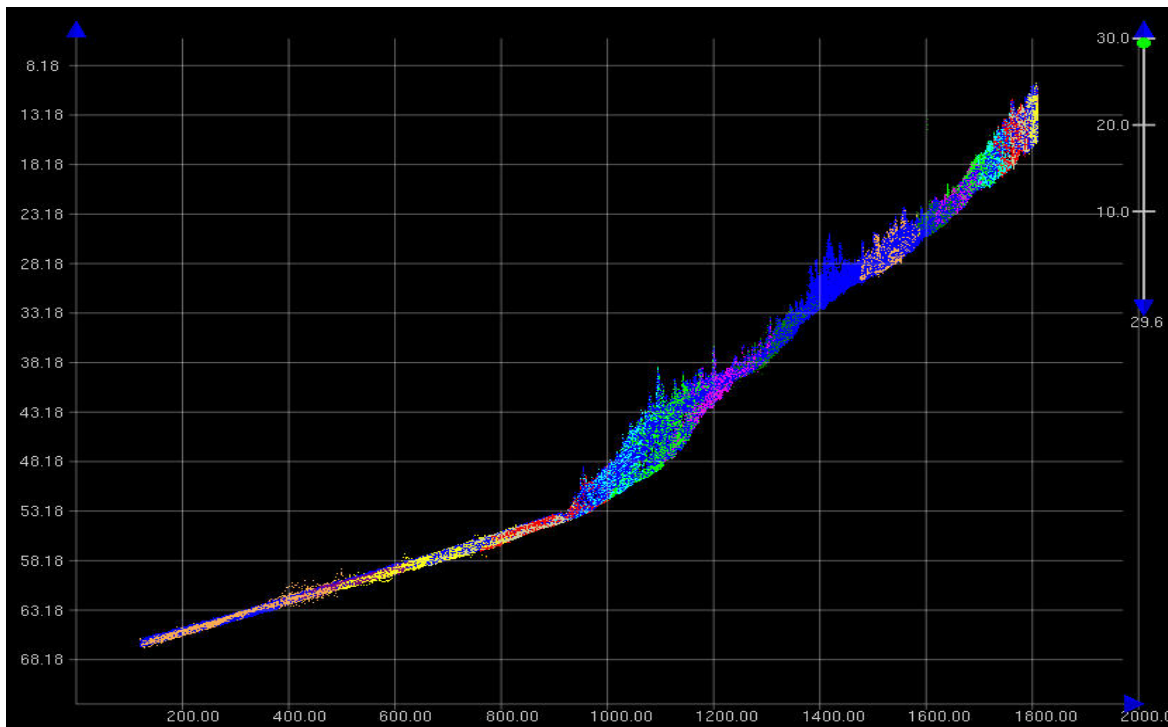


Figure 3 Profile of 2C07-TIE01

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 $d = \text{depth}$.

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 H11714 had an uncertainty of about 0.20 to 0.40 meters, except for the deep water areas having extremely steep slopes or deemed to be rocky, where values ranged from 0.50 to 0.90 meters. No uncertainty values were greater than the IHO level Order 1.²

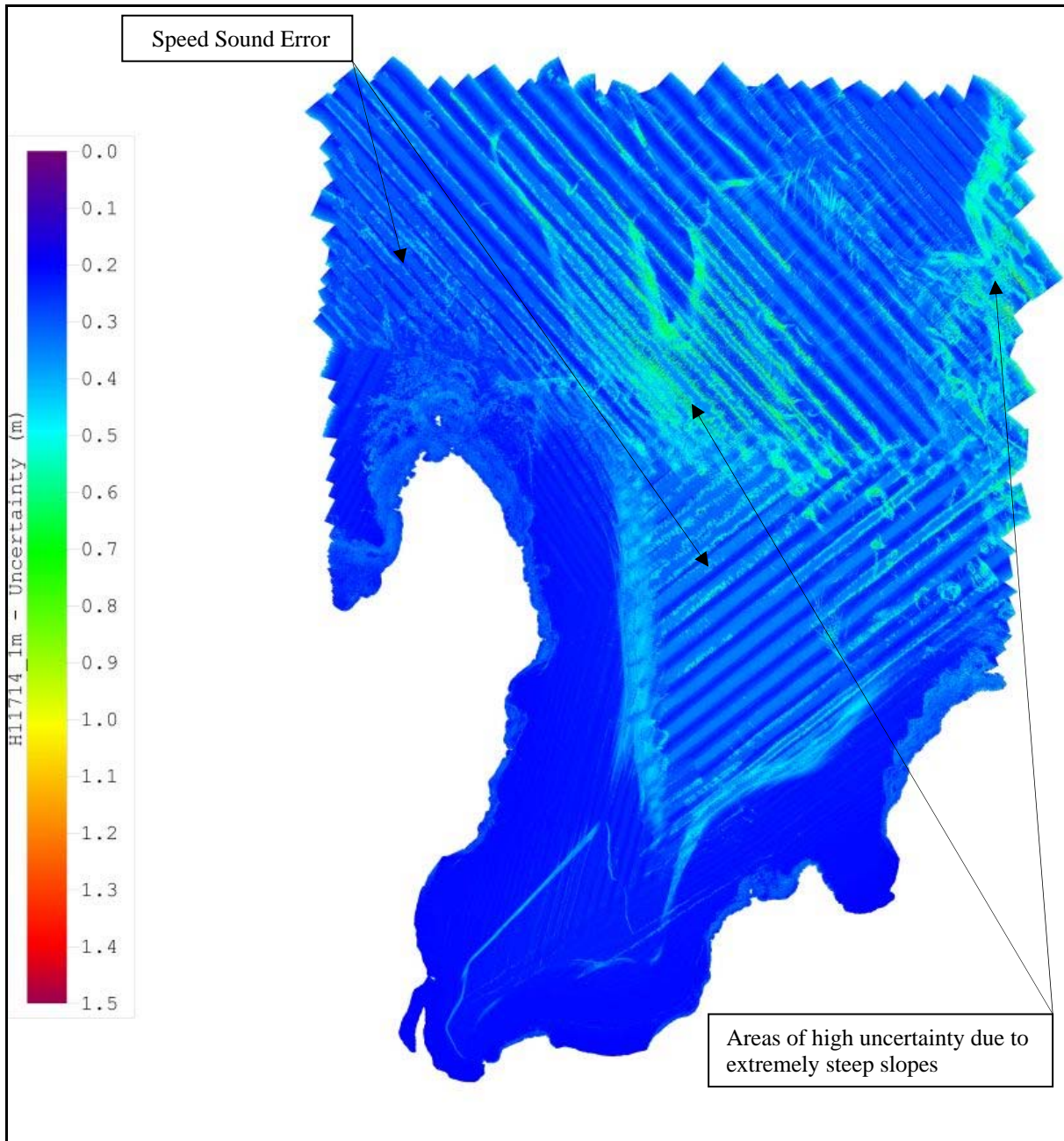


Figure 4 H11714 Uncertainty DTM

Survey Junctions

H11714 (Sheet C) junctions with³:

Registry #	Scale	Date	Junction Side
H11715	1:10,000	2007	East

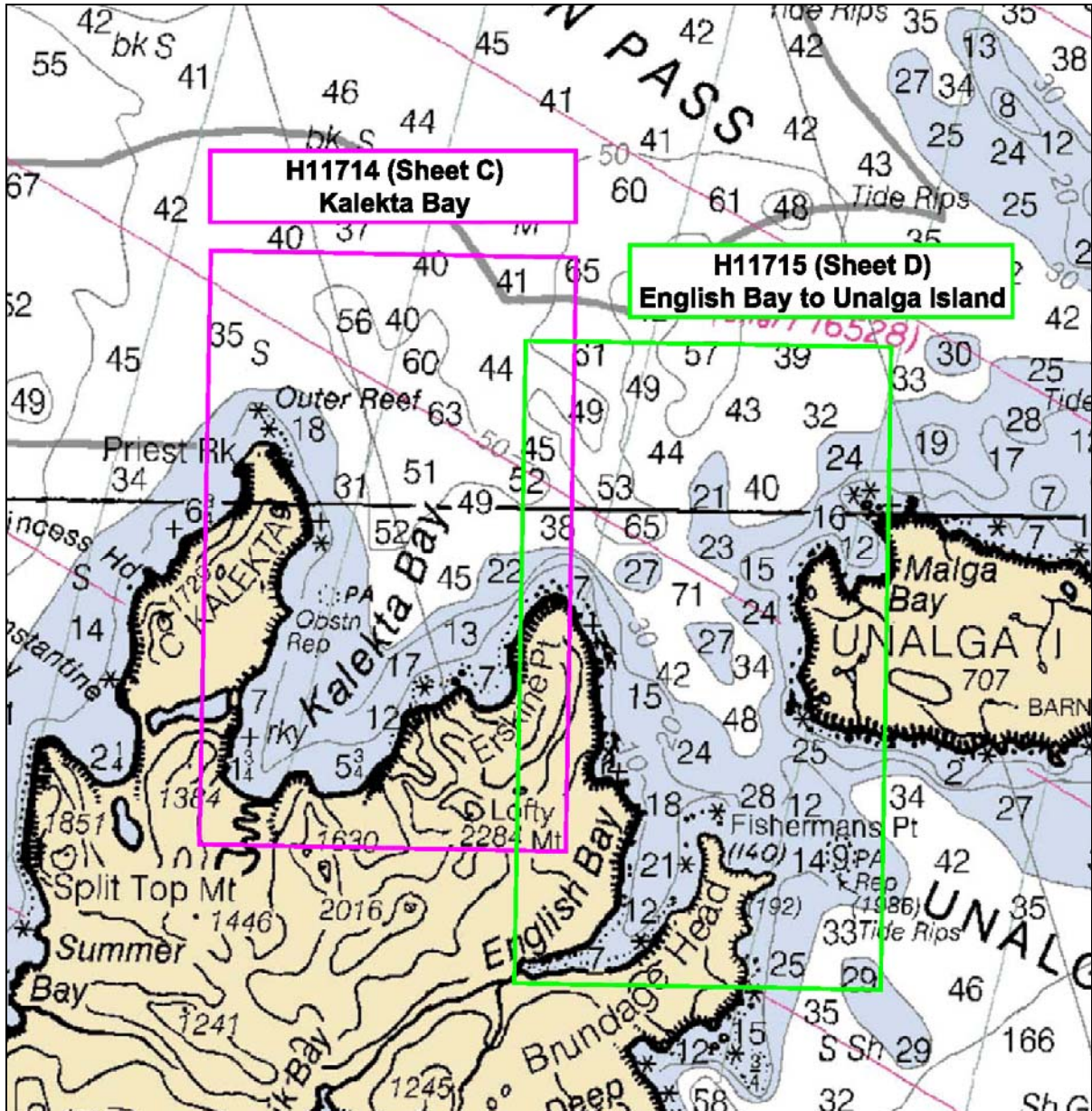


Figure 5 H11714 Survey Junctions

The surveys are in agreement along their common borders.⁴ 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.

Quality Control Checks

During the hydrographic survey OPR-Q191-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 8101 (R2 & D2), and 8111 (Davidson) compared within 5 to 10 centimeters.⁵

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 H11714 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. In addition to tide gauge information, GPS heights from the survey vessels were examined and used to derive final tide zoning and to provide a better understanding of the tides within this area. No uncertainty values were greater than the IHO level Order 1.⁷

Corrections to Echo Soundings

Refer to the OPR-Q191-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-Q191-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 H11714 is called H11714, and it contains four different BASE surfaces of different resolutions. To ensure sufficient overlap between these surfaces the follow parameters were used:

- Depth Threshold: 0 to 20 meters, resolution = 1m, Name in BASE Surface H11714_1m
- Depth Threshold: 15 to 45 meters, resolution = 2m, Name in BASE Surface H11714_2m
- Depth Threshold: 40 to 60 meters, resolution = 4m, Name in BASE Surface H11714_4m
- Depth Threshold: 50 to Max Depth, resolution = 5m, Name in BASE Surface H11714_5m

The final S57 file for this project is called “H11714_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.⁸

C – Horizontal & Vertical Control

Refer to the OPR-Q191-KR-07 Horizontal and Vertical Control Report 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. John Oswald and Associates LLC (JOA) established two local control points: station “Malga A” and station “Malga B” in Malga Bay on Unalga Island, AK. Refer to Appendix II in the “OPR-Q191-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 Station

Station	ID	Latitude	Longitude	Freq.	Tx. Rate
Cold Bay, AK USCG	898	55°11’25” N	162°42’24”W	289	100BPS



Vertical Control

All sounding data were initially reduced to mean lower low water (MLLW) using unverified tidal data from two tide stations located in Reef Bight and Biorka Village, 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	Gauge Type	Location	Latitude	Longitude	Operational
9462645	Sutron Xpert/Paroscientific Digiquartz (DAA H355 digital bubbler gauge)	Biorka Village, AK	53°49'44"N	166°12'59" W	June-August
9462662	Seabird SBE26 (w/submersible pressure gauge)	Reef Bight, AK	54°09'25"N	166°04'24" W	June-August

TIDES

All sounding data were reduced to MLLW initially using unverified tidal data from the two tide stations located in Reef Bight and Biorka Village, 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.

January 10, 2008, JOA issued verified tidal data and final zoning for OPR-Q191-KR-07. 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 Report in Appendix I, in the "OPR-Q191-KR-07 Horizontal & Vertical Control Report". 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.⁹

During the OPR-Q191-KR-07 survey there were some unusual conditions regarding tidal information to note. Refer to the "OPR-Q191-KR-07 Horizontal & Vertical Control Report", Appendix I, for a more detailed description (Tidal Zoning for Krenitzens.doc) and tidal data.



D – Results and Recommendations

Chart Comparison

H11714 survey was compared with charts:

Chart No.	Scale	Edition	Edition Date
16528 ¹⁰	40,000	16th	Jun. 1998
16520 ¹¹	300,000	22nd	Mar. 2004

Note: Electronic Charts US3AK61M (partially covers survey area), US5AK6CM

Comparison of Soundings

In general, the soundings from chart 16528 coincide with the soundings from H11714 to within 1 to 5 fathoms;¹² areas that do vary to any degree are as follows:

- Item # 1: Hydrographic survey H11714 revealed a depth of 14 fathoms in the vicinity of a 1 ¾ fathom sounding on chart 16528 located at 53°58'57" N, 166°21'06" W.¹³ This area was surveyed with 100% multibeam coverage.

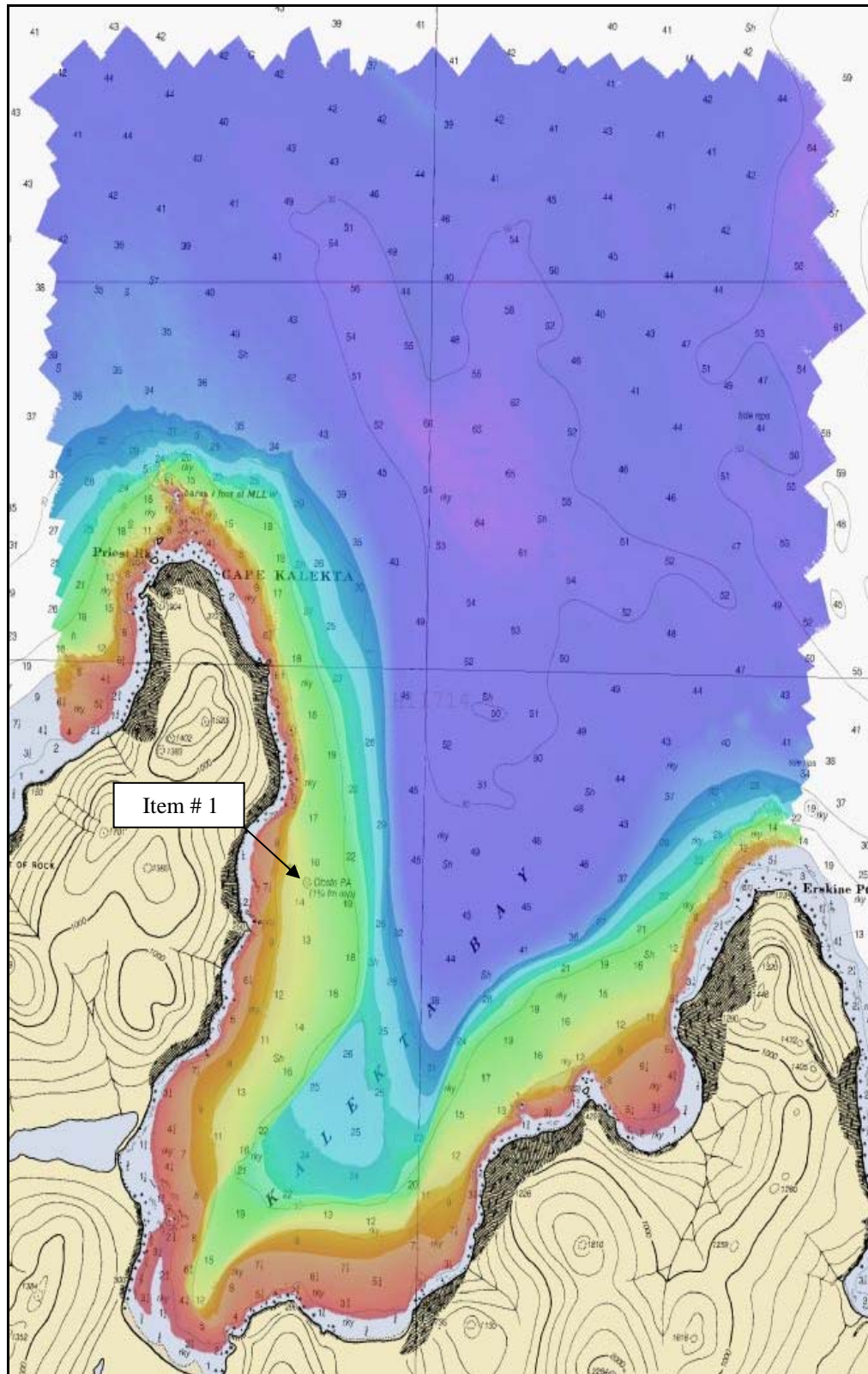


Figure 6 H11714 Chart Comparison (Chart 16528)

In general, the soundings from chart 16520 coincide with the soundings from H11714 to within 1 to 5 fathoms;¹⁴ areas that do vary to any degree are as follows:

- Item # 1: Hydrographic survey H11714 revealed a depth of 36 fathoms in the vicinity of a 22 fathom sounding on chart 16520 located at 53°59'19" N, 166°17'42" W.¹⁵ This area was surveyed with 100% multibeam coverage.
- Item # 2: Hydrographic survey H11714 revealed a depth of 21 fathoms in the vicinity of a 13 fathom sounding on chart 16520 located at 53°58'36" N, 166°18'31" W.¹⁶ This area was surveyed with 100% multibeam coverage.

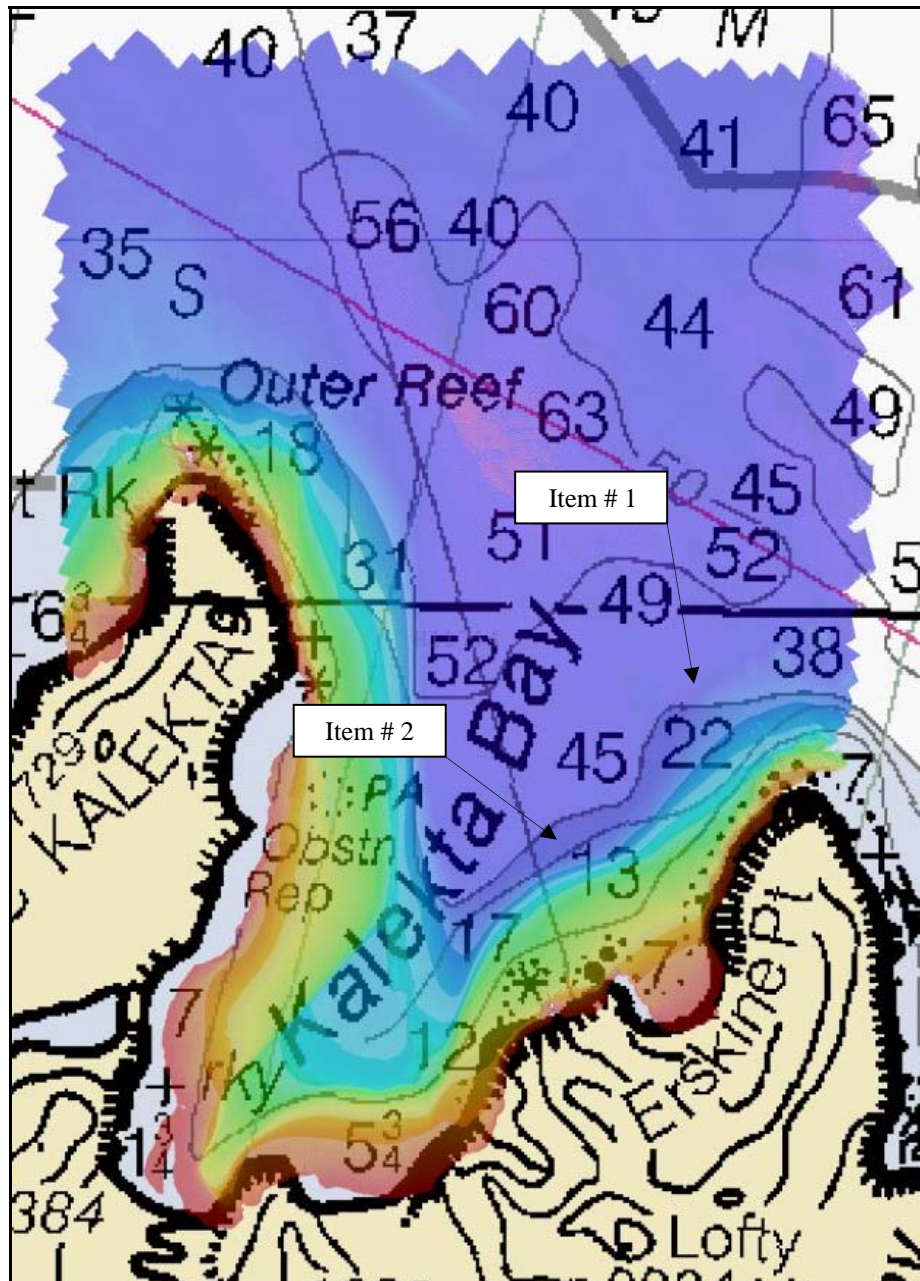


Figure 7 H11714 Chart Comparison (Chart 16520)



In general, the soundings from electronic chart US3AK61M coincide with the soundings from H11714 to within 5 to 15 meters;¹⁷ areas that do vary to any degree are as follows:

- Item # 1: Hydrographic survey H11714 revealed a depth of 67.2 meters in the vicinity of a 40.2 meter sounding on electronic chart US3AK61M located at 53°59'17" N, 166°17'45" W.¹⁸ This area was surveyed with 100% multibeam coverage.
- Item # 2: Hydrographic survey H11714 revealed a depth of 42 meters in the vicinity of a 23.7 meter sounding on electronic chart US3AK61M located at 53°58'37" N, 166°18'32" W.¹⁹ This area was surveyed with 100% multibeam coverage.
- Item # 3: Hydrographic survey H11714 revealed a depth of 55 meters in the vicinity of a 31 meter sounding on electronic chart US3AK61M located at 53°58'14" N, 166°19'38" W.²⁰ This area was surveyed with 100% multibeam coverage.
- Item # 4: Hydrographic survey H11714 revealed a depth of 40.6 meters in the vicinity of a 21.9 meter sounding on electronic chart US3AK61M located at 53°57'38" N, 166°20'03" W.²¹ This area was surveyed with 100% multibeam coverage.

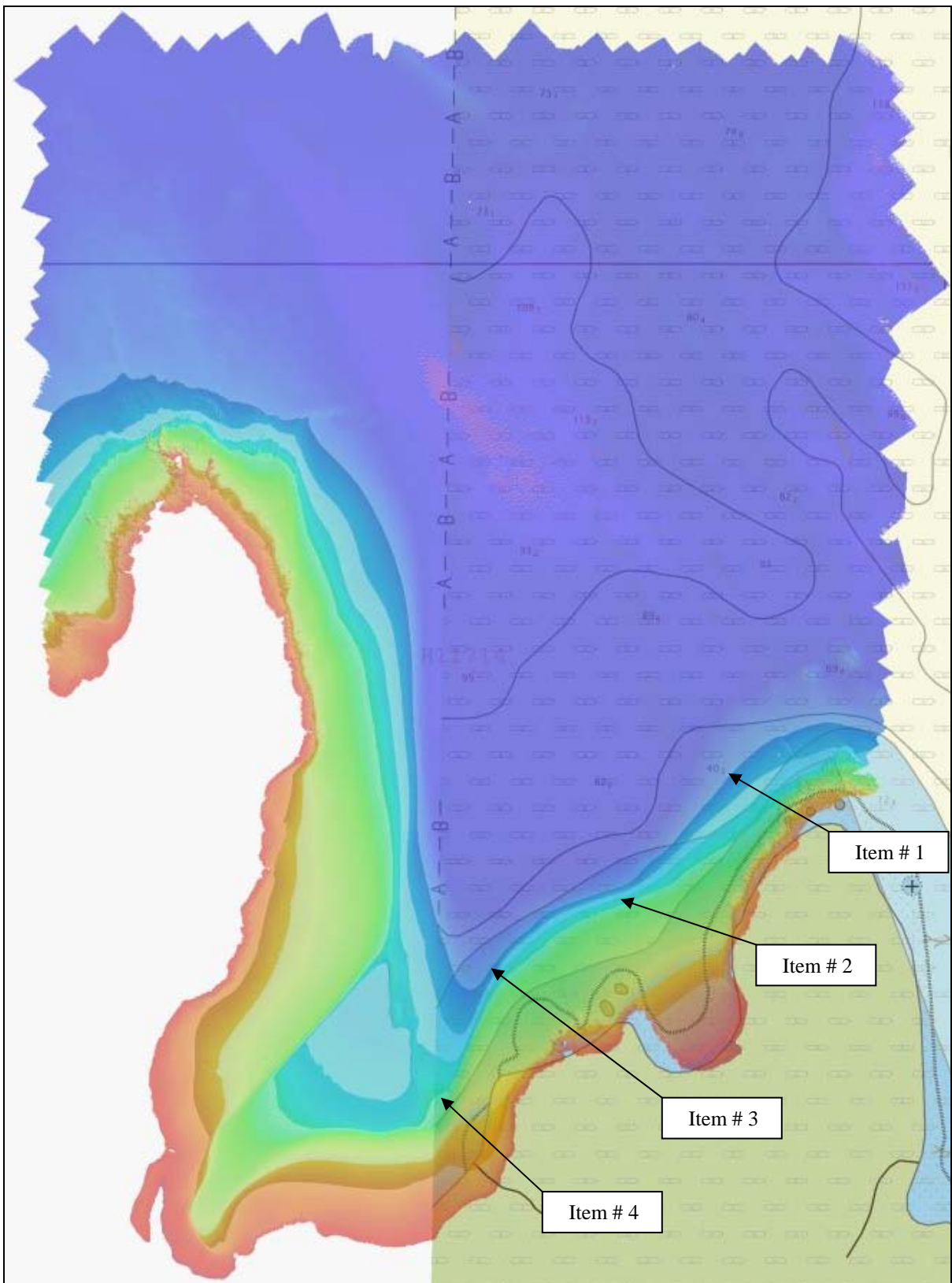


Figure 8 H11714 Electronic Chart Comparison (Chart US3AK61M)

In general, the soundings from electronic chart US5AK6CM coincide with the soundings from H11714 to within 5 to 15 meters;²² areas that do vary to any degree are as follows:

- Item # 1: Hydrographic survey H11714 revealed a depth of 25 meters in the vicinity of a 3.1 meter sounding on electronic chart US3AK61M located at 53°58'56" N, 166°21'06" W.²³ This area was surveyed with 100% multibeam coverage.

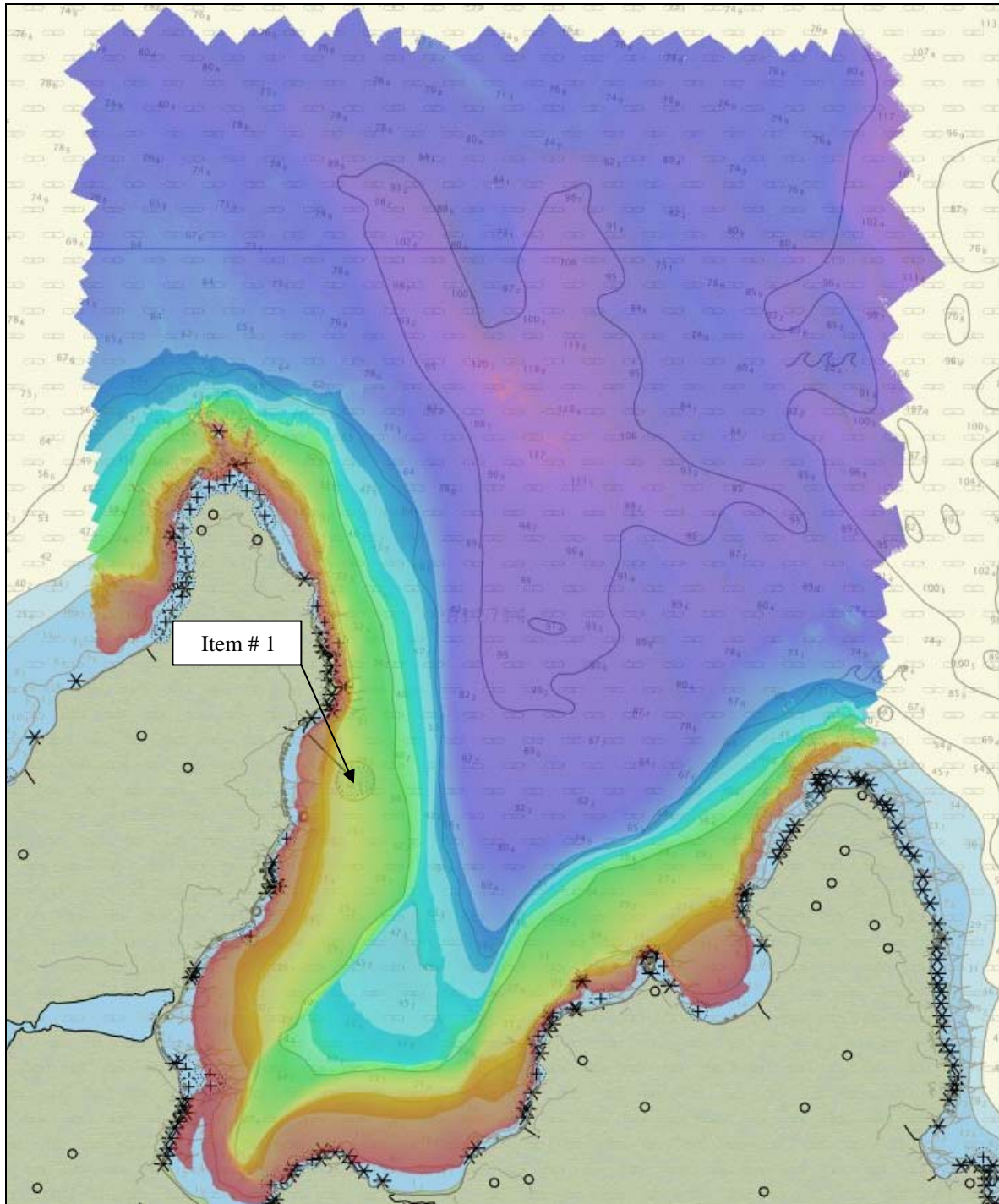


Figure 9 H11714 Electronic Chart Comparison (Chart US5AK6CM)



Automated Wreck and Observation Information System

There were no AWOIS items assigned to H11714.²⁴

Charted Features

All charted features residing on charts incorporated within H11714 (see Listing of Charts above) were investigated and are as follows:

- Obstr PA (1 ¾ fm rep) located at 53°58'57" N and 166°21'06" 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. It is noted above as Item # 1 in Figure 6 H11714 Chart Comparison (Chart 16528). The feature also appears as Item # 1 in Figure 9 H11714 Electronic Chart Comparison (Chart US5AK6CM). This area of shoaling can be found as well on chart 16520. It is recommended that the Obstr PA (1 ¾ fm rep) be removed from the charts and the charts updated to reflect the submitted H11714 CARIS BASE Surface.²⁵
- 3fm 1ft shoal²⁶ located at 54°00'48" N and 166°22'08" W; survey lines were conducted to provide 200% coverage over the area. The multibeam data was reviewed in CARIS HIPS and the shoal was located (and issued as a danger to navigation) at 54°00'48.19" N, 166°22'08.47" W with a least depth of 3fm 3ft. The area of shoaling was found on electronic chart US5AK6CM. It is recommended that the 3fm 1ft shoal be removed from the chart and the chart updated to reflect the submitted H11714 CARIS BASE Surface.²⁷

Dangers to Navigation

One Danger to Navigation was located during the survey of H11714.²⁸ The Danger to Navigation was reported on July 21, 2007 (See Appendix I for submitted reports).

Bottom Samples

The R/Vs Davidson, R2, and 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.

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 H11714_S57_Features file.²⁹

Aids to Navigation

There were no charted aids to navigation in the survey area. No uncharted aids to navigation were found in the survey area.³⁰

Shoreline Verification Results

Remote Sensing Division (RSD) provided the shoreline detail (CM-8306) for this survey.³¹ 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 features from source GC10581 (NOAA Shape File No. 103) very accurate, while all features in TP01357 (NOAA Shape File No. 102) were found to be positioned inaccurately. TP01357/file 102 features were frequently covered with MBES data in deep water.³²

The Hydrographer recommends that the RSD MHW from CM-8306 (GC10581 Shape File No. 103) supersede previously charted shoreline as well as point features from GC10581 (Shape File No. 106) where any discrepancies occur unless noted below. TP01357 (NOAA Shape File No. 102) should not be used for charting.³³

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 in the 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.


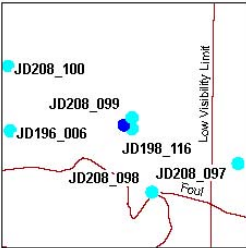
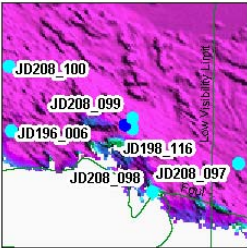
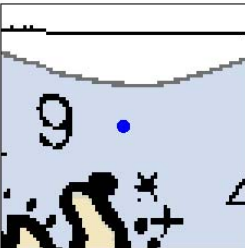
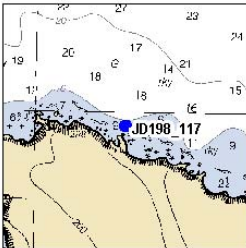
RSD Source (CM-8306) Changes and Discrepancies				
RSD Feature	RSD Position	Remarks	Actions Taken in S57 Feature File / Recommendations	Applicable DP form(s)
Foul areas	(All)	Foul areas generally did not extend seaward enough. Extremely dense mats of kelp were encountered seaward of these areas, thick enough to be obstructions to navigation.	Extend RSD foul/obstruction areas as depicted in the S57 file. ³⁴ Obstruction areas are also depicted as kelp areas with duplicate object geometry.	For an example of these see DP JD198_117_R2



Charted Feature Changes and Discrepancies				
Chart No. and Feature	Charted Position	Remarks	Recommendations	Applicable DP form(s)
16528 & US5AK6CM Islet/Land Area	53 59 29.17 N 166 21 17.07 W	Charted islet not found, full MBES coverage at position.	Remove. ³⁵	N/A
16528 & US5AK6CM Submerged Rock	53 58 06.42 N 166 22 02.03 W	Charted rock not found, full MBES coverage at position.	Remove. ³⁶	N/A
16528 & US5AK6CM Submerged Rock	53 57 21.63 N 166 22 22.54 W	Charted rock not found, full MBES coverage at position.	Remove. ³⁷	N/A

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 DVD under Reports\Descriptive Report\H11714 Shoreline.

DP ITEM NUMBER : JD198_117		DP Form																														
<table style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Date:</td><td style="padding: 2px;">17 July, 2007</td></tr> <tr><td style="padding: 2px;">Julian Day:</td><td style="padding: 2px;">198</td></tr> <tr><td style="padding: 2px;">UTC Time:</td><td style="padding: 2px;">21:36:39</td></tr> <tr><td style="padding: 2px;">Latitude:</td><td style="padding: 2px;">53 59 56.34 N</td></tr> <tr><td style="padding: 2px;">Longitude:</td><td style="padding: 2px;">166 09 19.14 W</td></tr> <tr><td style="padding: 2px;">Northing:</td><td style="padding: 2px;">5984026.27</td></tr> <tr><td style="padding: 2px;">Easting:</td><td style="padding: 2px;">424269.26</td></tr> <tr><td style="padding: 2px;">Raw(+Depth) or (-Height) (m):</td><td style="padding: 2px;">N/A</td></tr> <tr><td style="padding: 2px;">Draft Corrector (m):</td><td style="padding: 2px;">N/A</td></tr> <tr><td style="padding: 2px;">SV Corrector (m):</td><td style="padding: 2px;">N/A</td></tr> <tr><td style="padding: 2px;">Tide Corrector (m):</td><td style="padding: 2px;">0.05</td></tr> <tr><td style="padding: 2px;">Corrected to MLLW (m):</td><td style="padding: 2px;">N/A</td></tr> <tr><td style="padding: 2px;">Corrected to MLLW (fathoms):</td><td style="padding: 2px;">N/A</td></tr> <tr><td style="padding: 2px;">Corrected to MLLW (feet):</td><td style="padding: 2px;">N/A</td></tr> <tr><td style="padding: 2px;">DP Comment:</td><td style="padding: 2px;">B_tip of shoreline 87m 214. Foul area.</td></tr> </table>	Date:	17 July, 2007	Julian Day:	198	UTC Time:	21:36:39	Latitude:	53 59 56.34 N	Longitude:	166 09 19.14 W	Northing:	5984026.27	Easting:	424269.26	Raw(+Depth) or (-Height) (m):	N/A	Draft Corrector (m):	N/A	SV Corrector (m):	N/A	Tide Corrector (m):	0.05	Corrected to MLLW (m):	N/A	Corrected to MLLW (fathoms):	N/A	Corrected to MLLW (feet):	N/A	DP Comment:	B_tip of shoreline 87m 214. Foul area.	<div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;">Correlating DP Item Numbers:</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;">Correlating MB Least Depth: None</div> <div style="border: 1px solid black; padding: 2px;"> <p>Remarks/Recommendations: Example obstruction area extension / addition. RSD foul does not extend seaward enough. Dense kelp with rocks.</p> <p>Chart: 16528 Topo: Carto Code: None</p> </div>	
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Julian Day:	198																															
UTC Time:	21:36:39																															
Latitude:	53 59 56.34 N																															
Longitude:	166 09 19.14 W																															
Northing:	5984026.27																															
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Raw(+Depth) or (-Height) (m):	N/A																															
Draft Corrector (m):	N/A																															
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Corrected to MLLW (feet):	N/A																															
DP Comment:	B_tip of shoreline 87m 214. Foul area.																															
 <p style="font-size: small;">DPs and RSD CM-8306 300m x 300m</p>	 <p style="font-size: small;">DPs, RSD CM-8306, and MBES coverage 300m x 300m</p>	 <p style="font-size: small;">Chart 300m x 300m</p>	 <p style="font-size: small;">Chart 2000m x 2000m</p>																													



E – Approval Sheet

Approval Sheet

For

H11714

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

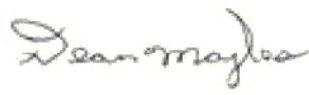
OPR-Q191-KR-07 Statement of Work and 2007 Specifications & Deliverables;
Fugro Pelagos, Inc. Acquisition Procedures (2007- NOAAAcquisitionProcedures);
Fugro Pelagos, Inc. Processing Procedures (2007-NOAAProcessingProcedures);

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 Concur.
- ² Concur.
- ³ H11715 has not been compiled yet, so a common junction was not created.
- ⁴ Concur.
- ⁵ Concur.
- ⁶ Concur.
- ⁷ Concur.
- ⁸ H11714_S57_features.000 was used in the compilation of H11714_CS.000
- ⁹ Concur.
- ¹⁰ Corrected through NM July 12th, 2008.
- ¹¹ Corrected through NM August 9th, 2008.
- ¹² Concur.
- ¹³ Concur. Charted 1¾ fathom obstruction was disproved by H11714.
- ¹⁴ Concur.
- ¹⁵ Concur.
- ¹⁶ Concur.
- ¹⁷ Concur.
- ¹⁸ Concur.
- ¹⁹ Concur.
- ²⁰ Concur.
- ²¹ Concur.
- ²² Concur.
- ²³ Concur.
- ²⁴ Concur.
- ²⁵ Concur. The charted 1 ¾ fm position approximate obstruction was disproved by H11714.
- ²⁶ Concur with clarification. The shoal is actually a rock on the highpoint of a rocky area.
- ²⁷ Concur with clarification. Depth of charted rock updated.
- ²⁸ DTON report appended to this report. The DTON is charted, has been compiled to the HCell and has been “blue noted” as a DTON.
- ²⁹ Concur. 17 of 18 collected bottom samples were retained during compilation. In addition, 16 charted bottom samples were retained.
- ³⁰ Concur.
- ³¹ Foul line from ENC is incorrectly shown as a line of islets in various portions of this survey. These islets have been removed during compilation and blue noted where appearing on the raster.
- ³² Concur.
- ³³ Concur. Survey compiled using all data provided by H11714.
- ³⁴ Concur. Foul/obstruction areas extended in the HCell throughout the survey.
- ³⁵ Concur. Charted islet disproved by H11714.
- ³⁶ Do not concur. Rocks in area located very near position of charted rock. Position and depth of the shoalest submerged rock has been updated.
- ³⁷ Concur.

Hydrographic Survey Registry Number: H11714

Survey Title: **State:** **ALASKA**
 Locality: **Akutan Pass**
 Sub-locality: **Kalekta Bay**

Project Number: OPR-Q191-KR-07

Survey Dates: June – July, 2007

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

Positions are based on the NAD83 horizontal datum.

Charts Affected:

Chart No.	Scale	Edition	Edition Date
16528	40,000	16th	June 1998
16520	300,000	22nd	March 2004

DANGER TO NAVIGATION:

Feature	Depth (fathoms)	Latitude	Longitude
Rock	3 fms 2 ft	54-00-48.25N	166-22-08.49W

COMMENTS:

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

H11714 HCell Report
Andrew Clos, Hydrographer Intern
Pacific Hydrographic Branch

1. Specifications, Standards and Guidance Used in HCell Compilation

HCell compilation of survey H11714 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 H11714 were compiled to the largest scale raster chart shown below:

Chart	Scale	Edition	Edition Date	NTM Date
16528	1:40,000	17th	08/2008	07/12/2008

The following ENC's were also used during compilation:

Chart	Scale
US5AK6CM	1:40,000

3. Soundings

A survey-scale sounding (SOUNDG) feature object layer was built from the 5-meter Combined Surface in CARIS BASE Editor. Shoal-biased selections were made at 1:15,000 (16528), survey scale using a Radius Table file with values shown in the table, below.

Shoal Limit (m)	Deep Limit (m)	Radius (mm)
0	10	3
10	20	4
20	50	4.5
50	200	5

In CARIS BASE Editor soundings were manually selected from the high density sounding layers (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.

4. Depth Contours

Depth contours at the intervals on the largest scale chart are included in the H11714_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 from Chart 16528	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 H11714_SS.000
3	5.4864	5.715	3.125	3
10	18.288	18.517	10.125	10
20	36.576	37.9476	20.750	20
30	54.864	56.236	30.750	30
50	91.44	92.812	50.750	50

Contours have not been deconflicted against shoreline features, soundings and hydrography, as all other features in the H11714_CS file and soundings in the H11714_SS have been. This may result in conflicts between the H11714_SS file contours and HCell features at or near the survey limits. Conflicts with M_QUAL, COALNE and SBDARE objects, and with DEPCNT objects representing MLLW, should be expected. HCell features should be honored over H11714_SS.000 file contours in all cases where conflicts are found.

5. Meta Areas

The following Meta object areas are included in HCell H11714:

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 deconflicted 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 H11714_CS HCell contains the following Objects:

\$CSYMB	Blue Notes-Notes to the MCD chart Compiler
COALNE	Coastline from ENC islets to be charted on RNC
LNDARE	Islets from ENC to be charted on RNC
LNDELV	Land elevation of new islet
M_QUAL	Data quality Meta object
OBSTRN	foul areas
SBDARE	Modified GC ledges and reefs, bottom samples, and rocky seabed areas
SOUNDG	Soundings at the chart scale density
UWTROC	New and retained/updated rocks
WATTUR	Areas of water turbulence
WEDKLP	New and retained kelp points

The H11714_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

H11714 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

H11714_CS.000	Base Cell File, Chart Units, Soundings and features compiled to 1:40,000
H11714_SS.000	Base Cell File, Chart Units, Soundings and Contours compiled to 1:15,000
H11714_DR.pdf	Descriptive Report including end notes compiled during office processing and certification, the HCell Report, and supplemental items
H11714_outline.gml	Survey outline
H11714_outline.xsd	Survey outline

11.2 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, SP 1	Validation of the base cell file.

12. Contacts

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

Andrew Clos
Hydrographer Intern
Pacific Hydrographic Branch
Seattle, WA
206-526-6853
Andrew.clos@noaa.gov

APPROVAL SHEET
H11714

Initial Approvals:

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 disproof 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.