

H12260

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.* OPR-Q191-KR-10

*Registry No.* H12260

### LOCALITY

*State* Alaska

*General Locality* Krenitzin Islands

*Sublocality* Ugamak Island

2010

### CHIEF OF PARTY

David D. Briggs, Fugro Pelagos, Inc.

### LIBRARY & ARCHIVES

DATE

<p style="text-align: center;">U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION</p> <p style="text-align: center;"><b>HYDROGRAPHIC TITLE SHEET</b></p>	<p>REGISTRY No</p> <p style="text-align: center;"><b>H12260</b></p>
<p><b>INSTRUCTIONS</b> – 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>Krenitzin Islands</u></p> <p>Sub-Locality <u>Ugamak Island</u></p> <p>Scale <u>1:10,000</u> Date of Survey <u>June 10, 2010 to July 7, 2010</u></p> <p>Instructions dated <u>4/1/2010</u> Project No. <u>OPR-Q191-KR-10</u></p> <p>Vessel <u>F/V PACIFIC STAR, R/V R2, R/V D2</u></p> <p>Chief of party <u>David D. Briggs, Fugro Pelagos, Inc.</u></p> <p>Surveyed by <u>Briggs, Reynolds, Farley, Rokyta, Lydon, Lopez, Tixier, Goodall, Cain</u></p> <p>Soundings by <u>Reson Seabat 7101 and 7125</u></p> <p>SAR by <u>Adam Argento+A1</u> Compilation by <u>Cathleen Barry</u></p> <p>Soundings compiled in <u>Fathoms and Feet</u></p>	
<p>REMARKS: <u>All times are UTC. UTM Zone 3N.</u></p> <p><u>The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS)</u></p> <p><u>naautical charts. All separates are filed with the hydrographic data. Revisions and end notes in red were</u></p> <p><u>generated during office processing. The processing branch concurs with all information and recommendations in</u></p> <p><u>the DR unless otherwise noted. 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</u></p> <p><u>National Geophysical Data Center (NGDC) and can be retrieved via <a href="http://www.ngdc.noaa.gov/">http://www.ngdc.noaa.gov/</a>.</u></p>	

## A. Area Surveyed <sup>1</sup>

H12260 (Sheet A) is located in the area near Ugamak Island.

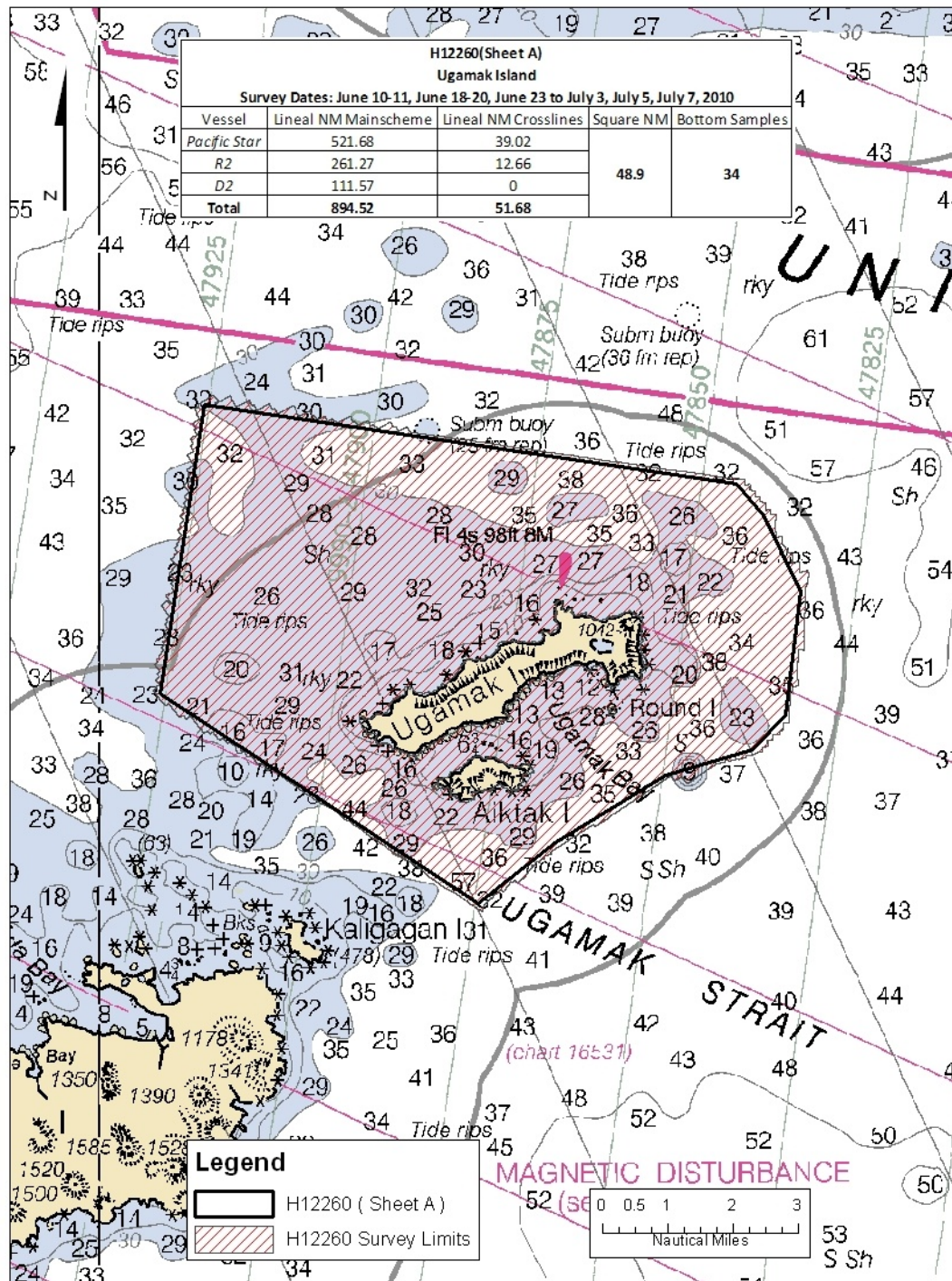


Figure 1 H12260 Area Surveyed

## **B. Data Acquisition and Processing**

Refer to the OPR-Q191-KR-10 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.

### **B.1 Equipment & Vessels**

The F/V Pacific Star, along with launches R2 and D2 acquired all sounding data for H12260.

F/V Pacific Star, 162 feet in length with a draft of 16 feet, was equipped with a hull mounted Reson SeaBat 7125 dual-frequency multibeam echosounder system for the OPR-Q191-KR-10 project. The Reson 7125 operates at two user-selectable frequencies of 400 and 200 kHz. The 7125 forms 256 or 512 beams over 128° with a beam width of 0.5° (across-track) in the 400 kHz mode, and 256 beams over 128° with a beam width of 1° (across-track) in the 200 kHz mode. It allows the operator to select equi-angle or equi-distant beam spacing. For this project, both the 400 kHz and 200 kHz systems were configured for 256 equi-angle beams. The selection of these frequencies as well as range scale, gain, power levels, ping rates, etc. was a function of water depth and data quality and was noted on the survey line logs (see Separate 1). All 7125 multibeam data files were logged in the S7K format using WinFrog Multibeam v3.09.02. The vessel was equipped with two AML sound velocity and pressure sensors (SV&P), and a Brooks Ocean Moving Vessel Profiler (MVP), for sound velocity profiles. Vessel attitude and position were measured using an Applanix Position and Orientation System for Marine Vessels (POS MV) 320 V4. OTT RLS radar sensors were installed on the port and starboard gunwales of F/V Pacific Star to obtain a more precise static draft measurement. Samples were taken over a 10 minute period and averaged to determine the vessel's draft. Traditional static draft measurement techniques were also employed as a substitute to the OTT RLS measurements when required.

R/V R2, a Pacific Star launch, is 29 feet in length with a draft of 3 feet. For this survey, R2 was initially equipped with a hull mounted Reson SeaBat 7101 multibeam echosounder. The Reson 7101 on R2 was fitted with a stick projector and operated at a frequency of 240 kHz. The system forms either 239 or 511 beams across a 150° swath width. All 7101 multibeam data files were logged in the S7K format using WinFrog Multibeam v3.09.02. On the 26<sup>th</sup> of June (JD177), the 7101 transducer and receiver were replaced with an extended range 7101 system. The extended range 7101 head did not change any of the original specifications of the Reson beam forming or WinFrog Multibeam logging. R2 was equipped with two AML sound velocity and pressure sensors (SV&P) for sound velocity profiles, and vessel attitude and position were measured using an Applanix Position and Orientation System for Marine Vessels (POS MV) 320 V4.

R/V D2, a Pacific Star launch, is 29 feet in length with a draft of 3 feet. For this survey, D2 was equipped with a hull mounted Reson SeaBat 7101 multibeam echosounder. The Reson 7101 on D2 was fitted with a stick projector and operated at a frequency of 240 kHz. The system forms

either 239 or 511 beams across a 150° swath width. All 7101 multibeam data files were logged in the S7K format using WinFrog Multibeam v3.09.02. On the 19<sup>th</sup> of June (JD170), D2 struck a rock causing the 7101 transducer and receiver to become inoperable. On the 26<sup>th</sup> of June (JD177), due to hull mounting restrictions, the sonar head on R2 was installed on D2 and the head was rotated 25° to the starboard for the remainder of the project. D2 was equipped with two AML sound velocity and pressure sensors (SV&P) for sound velocity profiles, and vessel attitude and position were measured using an Applanix Position and Orientation System for Marine Vessels (POS MV) 320 V4.

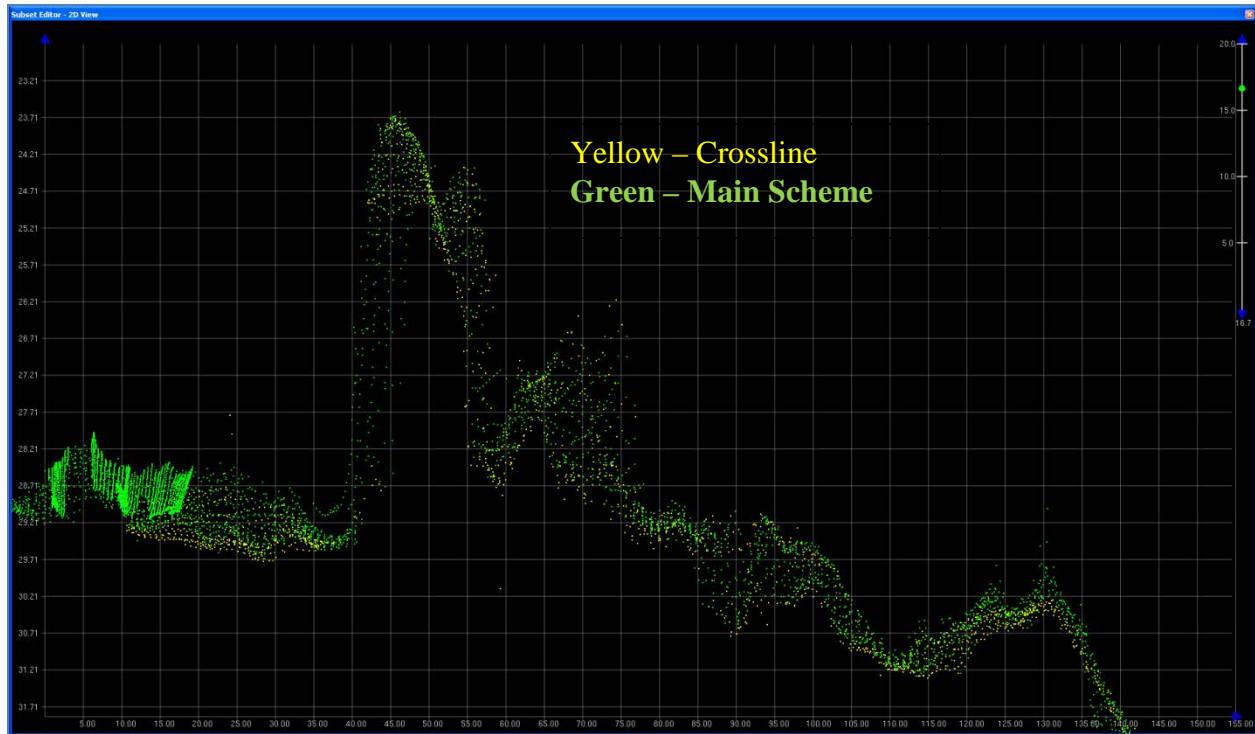
Refer to OPR-Q191-KR-10 Data Acquisition and Processing Report for a complete listing of equipment and vessel descriptions.

## B.2 Quality Control

### Crosslines

Crosslines were planned and well distributed throughout the survey to ensure adequate quality control. Total crossline length surveyed was 51.7 nautical miles or 5.8 percent of the total main scheme line length. Each crossline was compared to the entire main scheme line plan through a 2m CUBE surface, using the CARIS HIPS QC report routine

The majority of QC Reports fall well within the required accuracy specifications. The one exception is several crosslines run by R2 in shallow areas near Ugamak Island. The R2 QC report beams fall below the 95% confidence level due to steep slopes and significant rock ledges. Good conformity was still seen between the main scheme lines and crosslines. Main scheme lines are shown in green and crosslines in yellow. Quality Control Results are located in Separate IV.<sup>2</sup>



**Figure 2 Profile of 2A01-TIE02**

Note: The QC reports were generated based on the IHO Order 1a accuracy specification:

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

Where, a=0.5 and b=0.013, d=depth

### Uncertainty Values

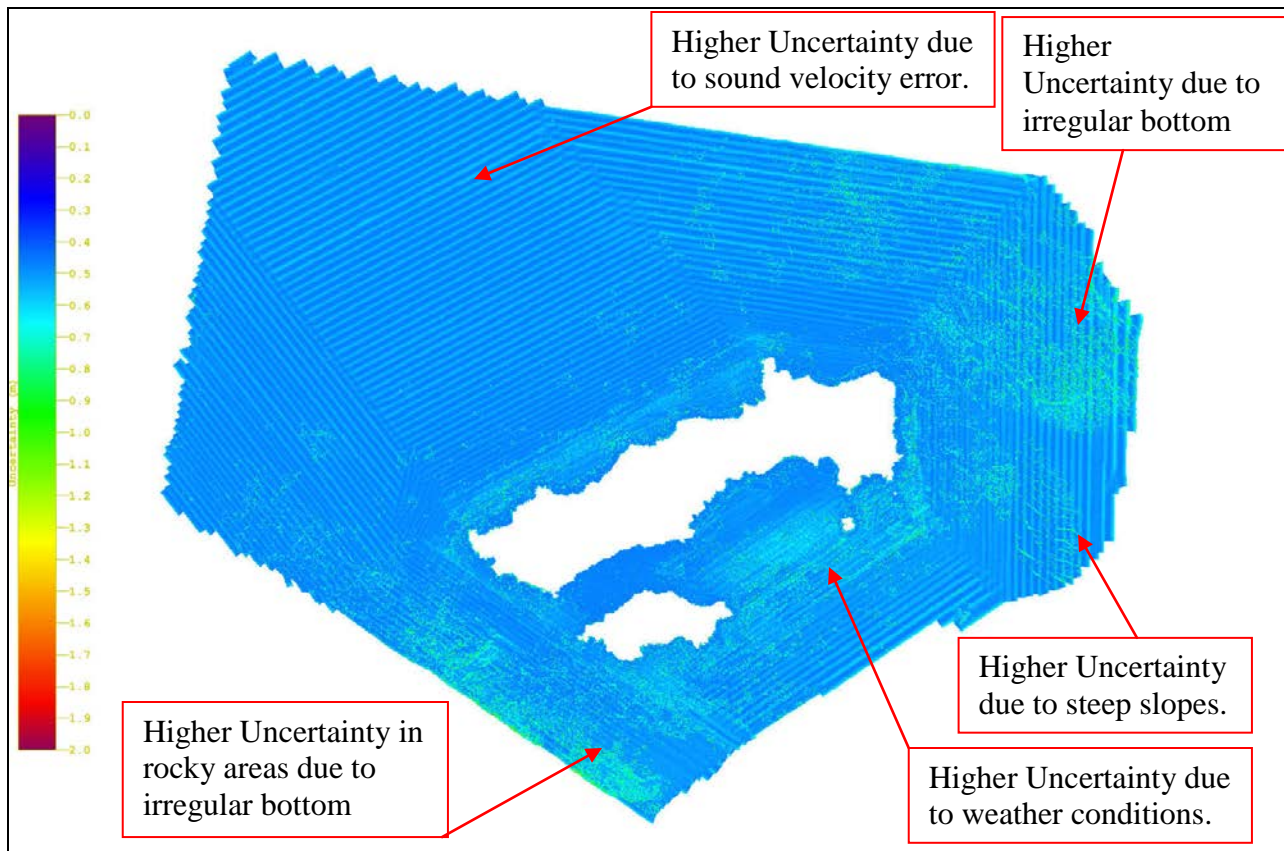
The majority of H12260 had uncertainty values of 0.26m to 0.49m, which met project specifications (**Figure 3**).

As seen in the uncertainty surface graphic, uncertainty is generally lowest near the sonar nadir beams and increases toward the outside of each swath. This is expected and primarily a result of sound velocity error uncertainty and bottom detection.

Oscillations on the uncertainty surface along and across the track are due to vessel roll, which affect mostly the outer beams.

Higher uncertainties exist in rocky areas as a result of the steep slopes and irregular bottom topography.

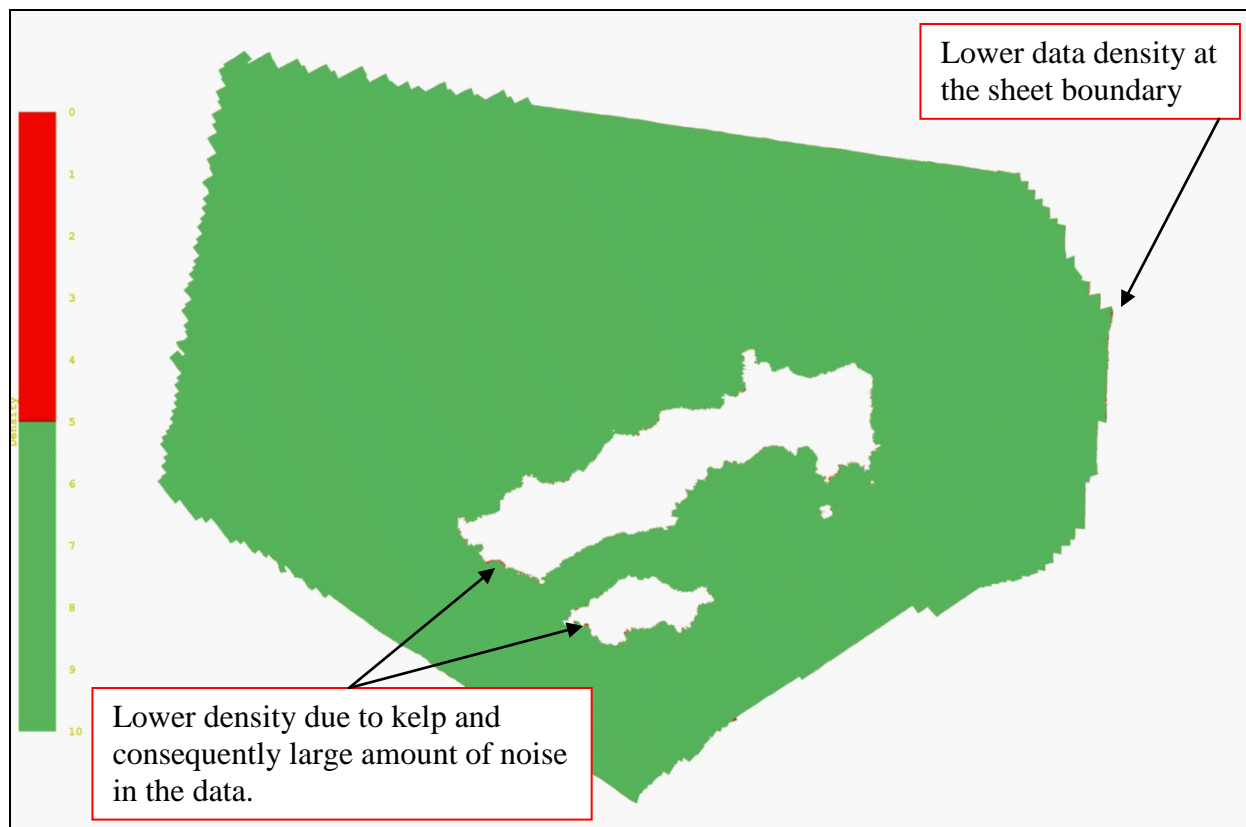




**Figure 3 Uncertainty DTM**

### Data Density

The NOS Hydrographic Surveys Specifications and Deliverables, April 2010, required 95% of all nodes to be populated with at least five soundings. Survey H12260 met these project specifications. The nodes that fell below five pings were mainly in the nearshore areas with high concentrations of kelp, and on the sheet boundary. Multiple lines were run in shoreline areas in an effort to achieve the required data density (**Figure 4**).



**Figure 4 Density DTM**

Detection requirements were met by minimizing vessel speed when necessary, using sonar range scales appropriate to the water depth to maximize ping rates, and maximizing swath overlap. These variables were adjusted in real-time by the online acquisition crew based on the WinFrog QC and coverage displays. The shipboard processing crew provided feedback after preliminary processing and coverage creation in CARIS HIPS, and reported re-runs or in-fills as necessary to the acquisition crew.



### Survey Junctions

H12260 (Sheet A) junctions with:

Registry #	Date	Junction Side
H12261	2010	South
H12262	2010	West
H12263	2010	West

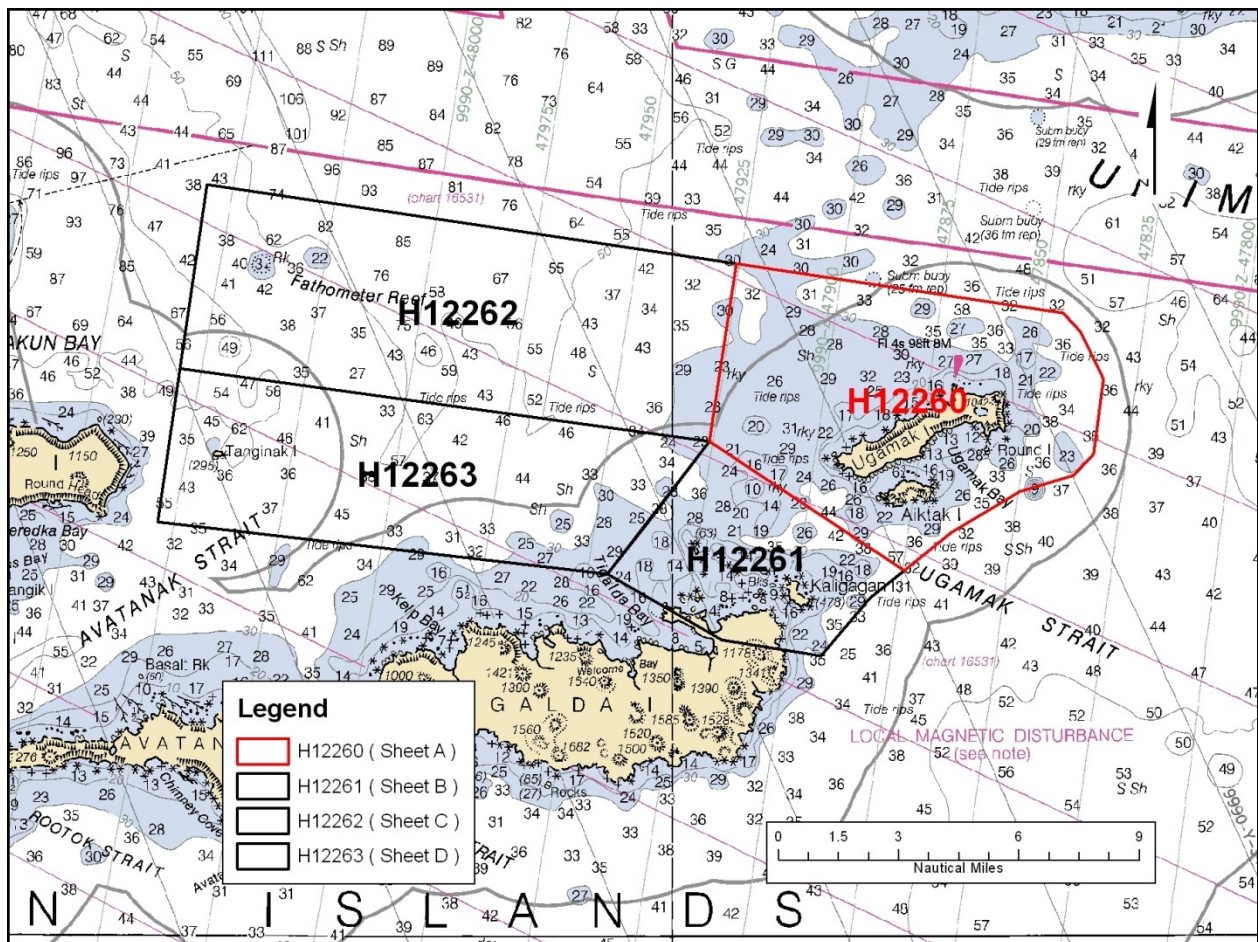


Figure 5 H12260 Survey Junctions

The surveys are in agreement along their common borders. The agreement was noted in the field using the CUBE surfaces during subset cleaning. The conformity is also apparent in the Finalized BASE Surfaces.

### Quality Control Checks

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 were achieved. These include, but are 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.

Sonar system confidence checks were performed weekly by comparing post processed depth information collected by multiple vessels surveying over a common area. In addition, bar checks were performed to maintain a high confidence level. Sound Velocity Probe confidence checks were conducted weekly by producing comparable sound velocity data between all vessels. This was conducted by having all sound velocity profiling equipment (MVP and SVPs) perform a cast in close proximity to each other in a near simultaneous time period.

### Data Quality

In general, the multibeam data quality for H12260 was good. Two notable problems follow:

1. A general downward and/or upward cupping is noticeable 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 in the data, it is within required specifications.<sup>3</sup>
2. Data density requirements and bathymetric coverage to the 4m contour were not obtained in some areas around Ugamak Island; due to the high concentrations of kelp. The kelp in the rocky near-shore areas resulted in large amounts of noise in the data set that were removed during subset cleaning, yielding lower data density numbers and no bathymetric coverage to the 4m contour. Multiple attempts were made to achieve the desired data density and coverage requirements, however, due to consistent poor data quality and safety concerns survey operations were halted.<sup>4</sup>

The Pacific Star, R2 and D2 collected sound velocity profiles every two hours (or less) to compensate for velocity changes over time. Profiles were collected on alternate ends of lines, or often in the middle of lines, to minimize the spatial aspect of sound velocity changes.

Refer to the OPR-Q191-KR-10 Data Acquisition and Processing Report for a detailed description of the survey equipment and methodology used over the course of this survey.

### B.3 Corrections to Echo Soundings

Refer to the OPR-Q191-KR-10 Data Acquisition and Processing Report for a detailed description of all corrections to echo soundings. No deviations from the report occurred.

### B.4 Data Processing

Refer to the OPR-Q191-KR-10 Data Acquisition and Processing Report for a detailed description of the processing flow.

In order to provide more accurate project wide TPU values, all full water column sound speed cast measurements were statistically analyzed in MBTools, via the SVP Statistics utility. This utility calculated a mean, variance, and standard deviation at a user specified depth interval. The standard deviation was then used to produce a TPU value of higher accuracy that was vessel and sheet specific.

TPU models for the 7101 and 7125 system were found to be incorrectly applied in CARIS v7.0. The DeviceModel.xml file was edited to correct the sonar TPU values. See the Data Acquisition and Processing Report Section B for a more specific description of the issue and corrective action. TPU values specific to H12260 are shown in **Table 1**.

**Table 1 H12260 TPU Values**

Vessel	Measured	Surface
1-Pacific Star	0.915	0.250
2-R2	0.930	0.250
2-D2	0.981	0.250

The final fieldsheet for H12260 is called “H12260\_(Sheet\_A)”, and it contains four BASE surfaces. The following parameters were used:

- 0-22 meters: 1 m resolution, name “H12260\_1m\_Final”
- 20-44 meters: 2 m resolution, name “H12260\_2m\_Final”
- 40-80 meters: 4 m resolution, name “H12260\_4m\_Final”
- 80-176 meters: 8 m resolution, name “H12260\_8m\_Final”

Notes:

- Maximum depth was approximately 110m; therefore, resolutions coarser than 8m were not computed.
- Final CUBE BASE surfaces were created with CARIS v 7.0 in the CARIS Spatial Archive (CSAR) format. These surfaces are located under the “H12260(Sheet\_A)\CARIS\Fieldsheets” directory.<sup>5</sup>

The final S57 file for this project is called “H12260\_S57\_Features.000”.<sup>6</sup> This file contains the object and metadata S57 objects as required in the Specifications and Deliverables.

### **C. Vertical and Horizontal Control**

Refer to the OPR-Q191-KR-10 Horizontal and Vertical Control Report for a detailed description of the horizontal and vertical control used on this survey. 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).

For real-time DGPS corrections, a CSI MBX-3 unit was tuned to the Cold Bay, Alaska USCG DGPS site. The unit output differentially corrected positions at 1 Hz to the (POS MV) 320 V4 where it was integrated with inertial data and a position for the top-center of the IMU was generated. This position was logged concurrently with the bathymetry from WinFrog and the POS file with Fugro Pelagos PosMvLogger. It was later corrected for offsets to the multibeam echosounder (MBES) by CARIS HIPS in post processing.

Final positioning was done using post-processed kinematic (PPK) methods. Applanix POSPac v5.3 software was used in conjunction with the POS files and local 1Hz base station data to generate a higher accuracy position which was applied in processing, replacing the real-time position records.

See OPR-Q191-KR-10 Horizontal and Vertical Control Report for a more detailed description of PPK positioning methods used.

#### Vertical Control

All sounding data were reduced to MLLW initially using observed tidal data from two John Oswald and Associates (JOA) tide stations located in Akun Bay and Tigalda Bay, AK and one NOAA COOPS tide station located in King Cove, 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 F/V Pacific Star at the end of every Julian Day. A cumulative file for the gauges was updated each day by appending the new data. It should be noted that these unverified tides were used in the field for preliminary processing only. The NOAA supplied tidal zoning was modified by JOA, providing a more elaborate zoning scheme than those zones issued in the Statement of Work.

On March 29, 2011, JOA issued verified tidal data and final zoning for H12260, H12261, H12262, H12263, & H12264 of OPR-Q191-KR-10. All sounding data was then re-merged using

CARIS HIPS and SIPS tide routine. Verified tidal data was used for all final Navigation BASE surfaces and S57 Feature files.

For additional information, refer OPR-Q191-KR-10 Horizontal and Vertical Control Report.

**Table 2 Tide Gauge**

Gauge	Location	Latitude	Longitude
946-2719	Akun Island, AK	54° 14' 20" N	165° 32' 28" W
946-2782	Tigalda Bay, AK	54° 07' 05" N	164° 58' 35" W
945-9881	King Cove, AK	55° 03' 42" N	162° 19' 36" W

## D. Results and Recommendations

### D.1 Chart Comparison

H12260 survey was compared with charts shown in **Table 3**.

**Table 3 Chart Comparisons**

Chart Number	Type	Scale	Edition	Edition Date
16520	Raster	1:300,000	23	August-2008
16531	Raster	1:80,000	7	February-2002
US3AK61M	ENC	n/a	16	January-2011
US4AK6FM	ENC	n/a	7	October-2010

### Comparison of Soundings

A comparison of soundings was accomplished by overlaying the latest edition of NOAA charts and ENCs onto the final BASE surfaces in CARIS HIPS & SIPS. The general agreement between the charted soundings and H12260 soundings is noted. A more detailed comparison was undertaken for any charted shoals or other dangerous features.

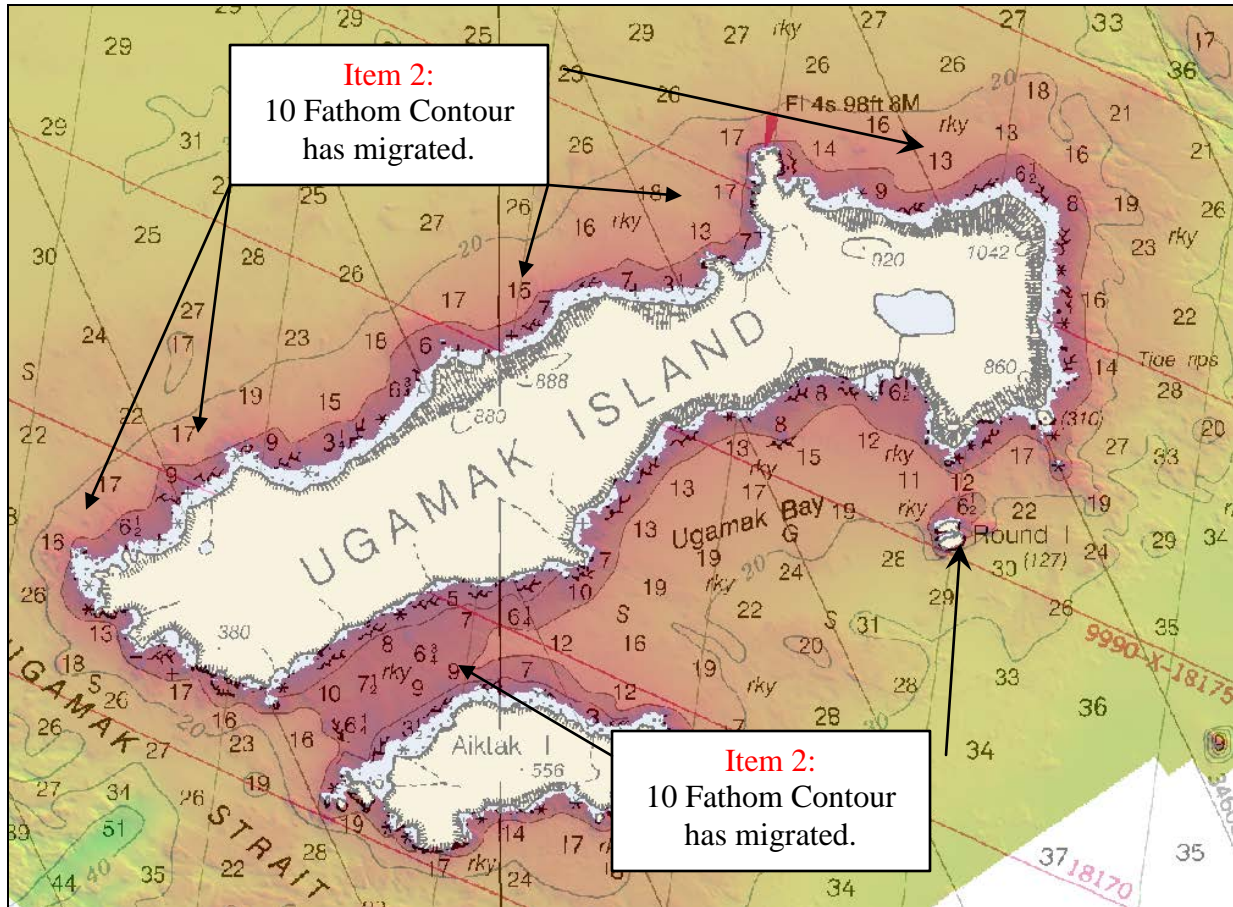
Agreement between the H12260 BASE surface depths and the charted soundings for all applicable ENC and Raster charts was within +/- 1 to 3 fathoms.<sup>7</sup> Since the survey area was ensonified with 100% multibeam coverage, shoaler depths were discovered between the charted soundings. Additionally, contours in the area were adequate, but require revision from the high resolution data. In these areas, when necessary, the sounding was designated to ensure its inclusion in the finalized BASE surface. Exceptions follow:

1. Charted contours were in general found to be adequate, but the 100% multibeam

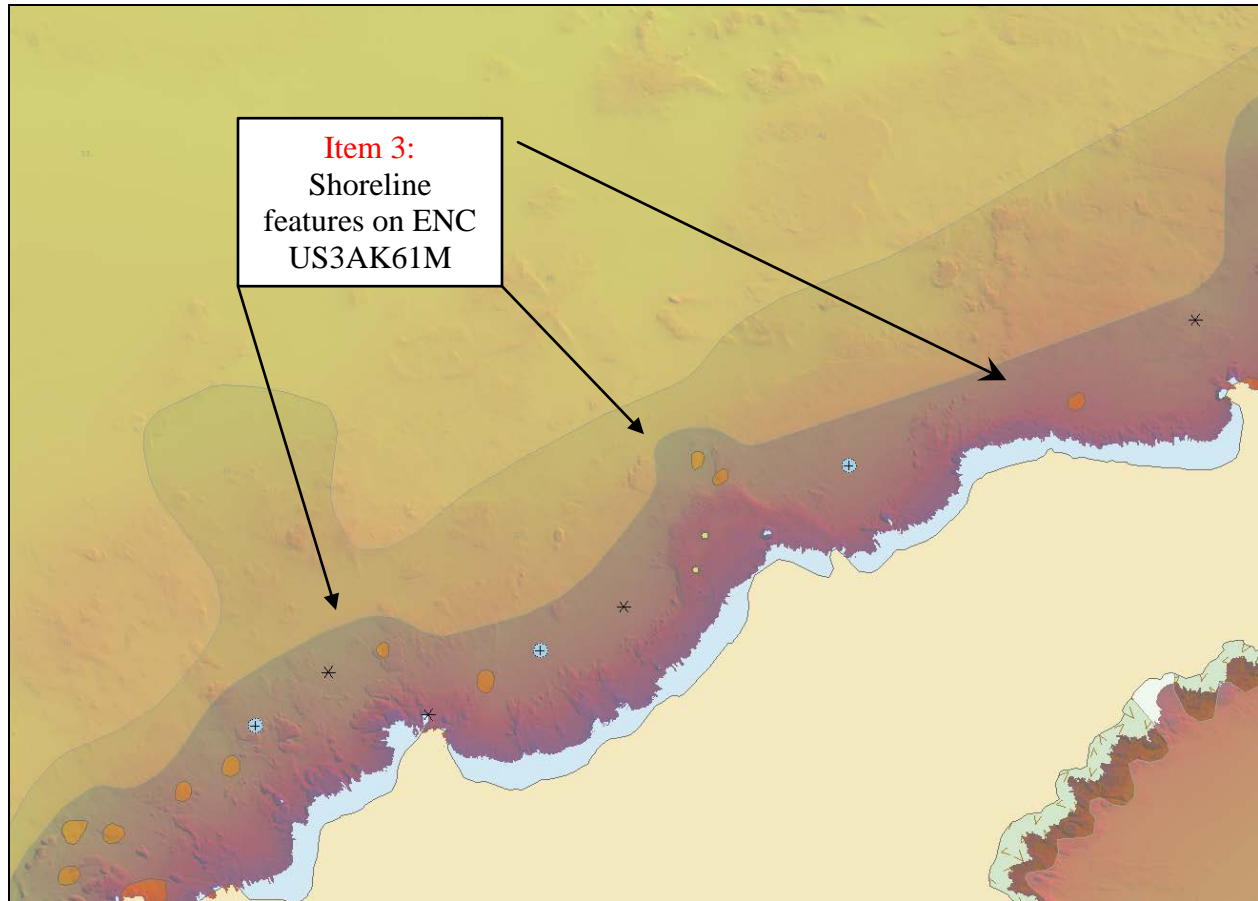
coverage discovered discrepancies between charted and observed contours. Hydrographer recommends contours and soundings should be modified to agree with the H12260 survey.

2. Conformity to the charts was found to be poor in some areas. Deviations from the charts were found mainly around the 10 fathom contour. Hydrographer recommends contours and soundings should be modified to agree with the H12260 survey.
3. Shoreline features on ENC US3AK61M need to be updated to agree with this survey; ENC US4AK6FM, and RNC 16531 charts. The ENC has numerous erroneous and incorrectly positioned islets and rocks.
4. Hydrographic survey H12260 revealed a depth of 18.68 fathoms in the vicinity of a 27 fathom sounding on chart 16531 located at 54°12'22"N 164°54'04"W. This area was surveyed with 100% multibeam coverage. The shoaling is centered in the area depicted below.<sup>8</sup>
5. Hydrographic survey H12260 revealed a depth of 16.96 fathoms in the vicinity of a 26 fathom sounding on chart 16531 located at 54°13'43"N, 164°49'24"W. This area was surveyed with 100% multibeam coverage. The shoaling is centered in the area depicted below.<sup>9</sup>
6. Hydrographic survey H12260 revealed a depth of 12.55 fathoms in the vicinity of a 19 fathom sounding on chart 16531 located at 54°12' 14"N, 164°45'30"W. This area was surveyed with 100% multibeam coverage. The shoaling is centered in the area depicted below.<sup>10</sup>
7. Hydrographic survey H12260 revealed a depth of 10.26 fathoms on the 20 fathom contour boundary on chart 16531 located at 54°10'55"N, 164°51'32"W. This area was surveyed with 100% multibeam coverage. The shoaling is centered in the area depicted below.<sup>11</sup>





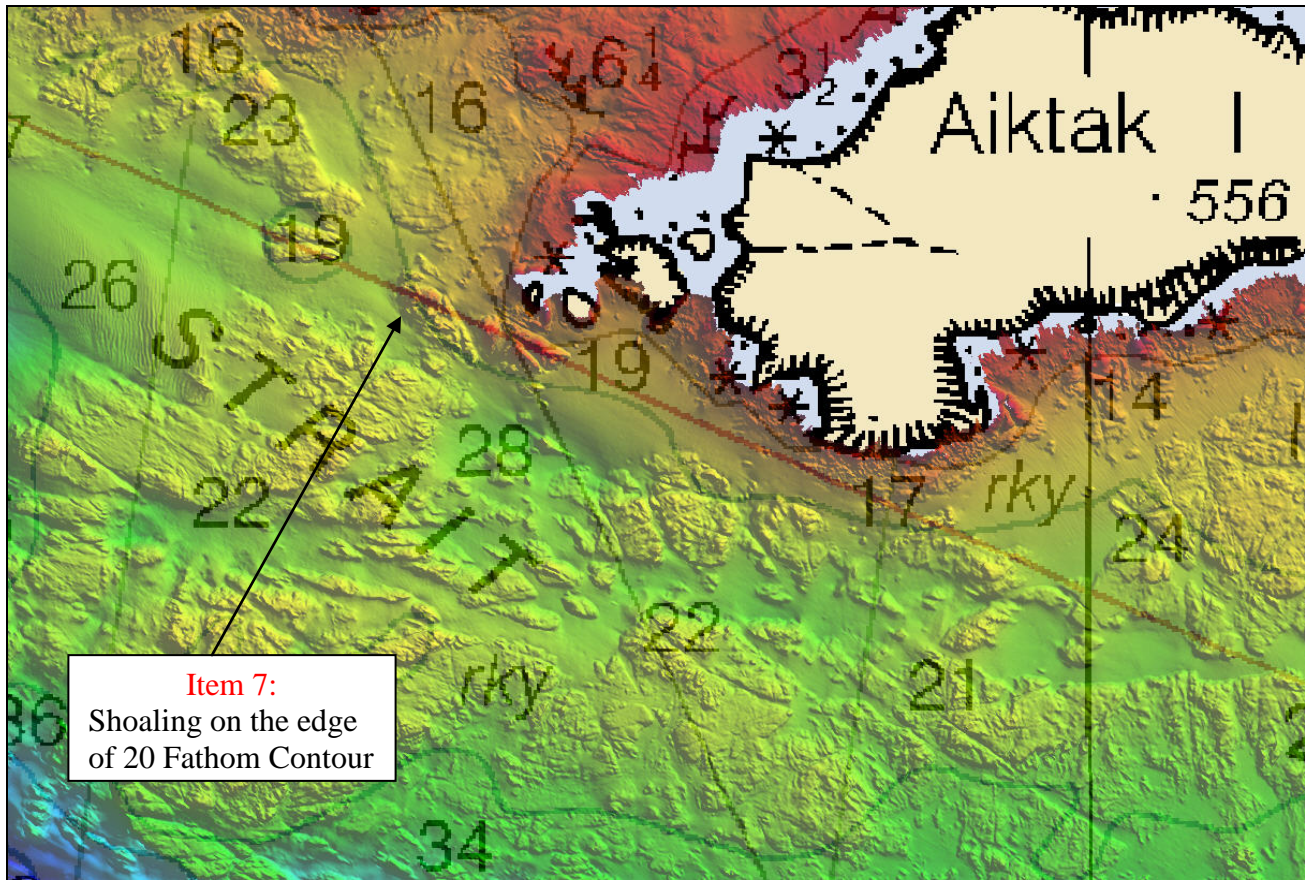
**Figure 6 Bathymetry overlaid on Chart 16531**



**Figure 7 Bathymetry overlaid on ENC US3AK61M**







**Figure 9 Bathymetry overlaid on Chart 16531**

The Hydrographer recommends that soundings within the survey limits of H12260 supersede all prior survey and charted depths.

#### Automated Wreck and Observation Information System (AWOIS)

There were no AWOIS items assigned for investigation.

#### Charted Features

There were no charted features labeled ED, PD, or PA within the limits of H12260.

### Dangers to Navigation

Five dangers to navigation were found and reported during this survey. Refer to Appendix I (Danger to Navigation Reports) for details.<sup>12</sup>

### D.2 Additional Results

None to note.

### Bottom Samples

The F/V Pacific Star and launches (R2 and D2) were fitted to obtain bottom samples as specified in the Statement of Work. Thirty-four samples were obtained in survey H12260.<sup>13</sup>

Samples were taken with a Van Veen grab sampler and positions were recorded with WinFrog Multibeam v 3.09.02. Samples retrieved were analyzed and then encoded with the appropriate S57 attributes. Positions and descriptions of samples are found in the H12260\_S57\_Features.000 file.

### Aids to Navigation

One aid to navigation exists on the charts (listed in **Table 3**) for the H12260.

The charted aid to navigation was found to be serving its intended purpose:

1. FI 4s 98ft 8M at 54 13 45.44N, 164 48 01.34W

No uncharted aids to navigation were found in the survey area.

### Shoreline Features <sup>14</sup>

Traditional shoreline verification was not a requirement in this task order, but positions were collected on a number of shoreline features. FPI's effort should not be considered complete feature verification (verify or disprove rocks, islets, shoreline, etc), our intent was only to identify holes within our MBES coverage.

The following table itemizes any discrepancies found with charted feature on the applicable RNC or ENC charts.



Shoreline Investigation Results			
Chart No. and Feature	Charted Position	Remarks	Recommendations
16531, 16520, US3AK61M,US4AK6FM Feature: Underwater Rock <sup>15</sup>	Not currently Charted.	100% coverage or least depth was not obtained, due to safety reasons.	Included in the S-57 feature file. Position: 54° 12' 16.61"N 164° 52' 29.88"W
16531, 16520, US3AK61M,US4AK6FM Feature: Islet <sup>16</sup>	54° 12' 28.98"N 164° 51' 53.02"W	Islet with rocks. The US4AK6FM ENC seems to represent the area more accurately.	Update charts based on US4AK6FM ENC, height of the islet should be 3.4m referenced to MHW; height was obtained during data collection.
16531, 16520, US3AK61M,US4AK6FM Feature: Islet <sup>17</sup>	54° 12' 56.89"N 164° 50' 24.99"W	Represented on RNC 16531 as a Black Dot (islet) and on the ENC US4AK6FM as an Obstruction area.	Update height of the islet to be 3.4m referenced to MHW; height was obtained during data collection. Recommend an islet be added to the ENCs and RNC 16520 and the position be adjusted to agree with the MB coverage.
16531, 16520, US3AK61M,US4AK6FM Feature: Underwater Rock <sup>18</sup>	Not currently Charted.	100% coverage or least depth was not obtained, due to safety reasons.	Included in the S-57 feature file. Position: 54° 12' 44.14"N 164° 45' 39.70"W
16531, 16520, US3AK61M,US4AK6FM Feature: Underwater Rock <sup>19</sup>	Not currently Charted.	100% coverage or least depth was not obtained, due to safety reasons.	Included in the S-57 feature file. Position: 54° 12' 28.08"N 164° 45' 52.75"W





16531, 16520, US3AK61M,US4AK6FM Feature: Rock <sup>20</sup>	54° 12' 23.73"N 164° 45' 47.56"W	Represented on RNCs and US3AK61M ENC as one Rock and on the US4AK6FM ENC as two rocks.	Chart has an islet with a height of 0.9m referenced to MHW; height was obtained during data collection. The position of the islet should be adjusted to agree with the MB coverage.
16531, 16520, US3AK61M,US4AK6FM Feature: Islet/Rock <sup>21</sup>	54° 11' 17.89"N 164° 48' 45.03"W	Represented on RNC 16531 as a Black Dot (Islet) and on the ENC US4AK6FM as a rock.	Update height of the islet to be 2.9m referenced to MHW; height was obtained during data collection. Recommend an islet be added to the ENCs and RNC 16520 and the position be adjusted to agree with the MB coverage.
16531, 16520, US3AK61M,US4AK6FM Feature: Rock <sup>22</sup>	54° 10' 51.95"N 164° 48' 52.02"W	Represented as a rock on RNCs and ENCs.	Recommend the position be adjusted to agree with the MB coverage.
16531, 16520, US3AK61M,US4AK6FM Feature: Rock Awash <sup>23</sup>	54° 11' 29.13"N 164° 52' 27.87"W	Represented as a rock awash on RNCs and ENCs.	Recommend the position be adjusted to agree with the MB coverage.
16531, 16520, US3AK61M,US4AK6FM Feature: Rock Awash <sup>24</sup>	Not currently Charted.	100% coverage or least depth was not obtained, due to safety reasons. Located between two rock awash symbols on RNC 16520 and ENC US3AK61M, as kelp on RNC US3AK61M, and within a kelp area on ENC US4AK6FM.	Included in the S-57 feature file. Position: 54° 13' 10.58"N 164° 45' 42.95"W

## E. Approval Sheet

### Approval Sheet

For

**H12260**

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

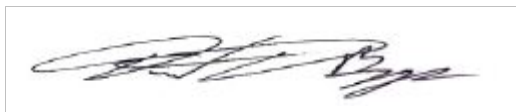
OPR-Q191-KR-10 Statement of Work  
NOS Hydrographic Surveys Specifications and Deliverables, April 2010 Edition  
Fugro Pelagos, Inc. Acquisition Procedures (2010-MBES\_Acquisition\_Procedures\_R0);  
Fugro Pelagos, Inc. Processing Procedures (2010-MBES\_Processing\_Procedures\_R0)

The data were reviewed daily during acquisition and processing, and the survey is complete and adequate for its intended purpose.

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,

David D Briggs,  
Lead Hydrographer  
Fugro Pelagos, Inc.  
May 15, 2011



David D Briggs,  
Lead Hydrographer

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## Revisions and Corrections performed during office processing and certification.

<sup>1</sup> Details typically incorporated into Section A, such as survey purpose, dates of acquisition, general and specific descriptions of the survey area, general overview of coverage, and shoreline verification, were not included in this section of this report. The information has been included in subsequent sections of the report.

<sup>2</sup> The effect of slope and rocky seafloor on confidence level are as expected. Resulting depths were used for updating the chart, but enclosed inside rocky area features as an added precaution.

<sup>3</sup> The data is adequate for charting despite the presence of sound speed artifacts.

<sup>4</sup> In areas in which bathymetric coverage to 4 m was not achieved due to the presence of kelp, the rocky nature of the seafloor is encoded for chart production, in addition to the kelp features, in order to convey an additional degree of danger to the mariner.

<sup>5</sup> An 8-meter combined surface, H12260\_8m\_Combined.csar, was created during office processing and was used as the basis for compilation.

<sup>6</sup> The submitted feature file was used during compilation to update features with respect to the largest scale ENC.

<sup>7</sup> During office processing differences of up 6 fathoms were noted between 16531 charted depths and H12260 surveyed depths as noted in Section D.1, items 4-7.

<sup>8</sup> See Figure 8. A 19 fm depth was selected for charting.

<sup>9</sup> See Figure 8. A 17 fm depth was selected for charting.

<sup>10</sup> See Figure 8. A 12 fm depth was selected for charting.

<sup>11</sup> See Figure 9. A 13 fm depth nearby was selected for charting, and new contours included in the survey scale chart update product.

<sup>12</sup> Five DTONs were submitted by the field in two separate reports, and all were applied to the chart by MCD. See the attached *Fugro Dangers to Navigation Report 1* and *Fugro Dangers to Navigation Report 2*. Six DTONs were submitted by PHB in a single report, and three were applied to the chart by MCD. See the attached, *PHB submitted DTONs*. All reported DTONs are included in the chart update product.

<sup>13</sup> Due to chart scale and conflict with newly delineated rocky seabed areas, only 19 of the 34 bottom samples are included in the chart update product.

<sup>14</sup> During office processing it was discovered that shoreline applied to the October 2011 edition of ENC US4AK6FM was both more up-to-date and more features intensive than the most recent equivalent scale raster chart, 16531. An offset of 15-30 meters was also noted between the more recent ENC and older RNC shoreline and features. These discrepancies were addressed during compilation of depths and features to the chart update product.

<sup>15</sup> Compiled to the chart update product as a 1fm 1 ft depth.

<sup>16</sup> A ledge was compiled to the chart update product surrounding the charted islands and including the charted rocks and islet.

<sup>17</sup> Compiled to the chart update product as a reef with a new islet high point (elevation 11.2 ft).

<sup>18</sup> Feature compiled to the chart update product as a 2 fm 2 ft submerged rock.

<sup>19</sup> Feature compiled to the chart update product as a 1 fm 3 ft submerged rock.

<sup>20</sup> Rock features were deleted from the chart and a new islet (elevation 2.9 ft) was added.

<sup>21</sup> A new elevation of 9.5 ft was added to the charted islet.

<sup>22</sup> The charted rock was deleted and a new 0 fm 1 ft rock awash digitized from the Surface.

---

<sup>23</sup> Represented as a dangerous rock on the ENC and RNC. The dangerous rock was deleted and a new 0 fm 1 ft rock awash was digitized from the Surface 50 meters NNE of the charted dangerous rock location, at Lat. 54°11'30.83"N, Long. 164°52'27.15"W.

<sup>24</sup> A new ledge was extended seaward over the feature, eliminating the need for a rock awash in this location.

## REPORT OF DANGERS TO NAVIGATION

**Hydrographic Survey Registry Number:** H12260 (Sheet A)

**Survey Title:**      **State:**          Alaska  
                         **Locality:**      Pacific Ocean  
                         **Sub-locality:** Ugamak Island

**Project Number:**      OPR-Q191-KR-10

**Survey Dates:**      June 8, 2010 – June 26, 2010

**Survey Danger Acquisition Date and Time:** See feature.

Features are reduced to Mean Lower Low Water with Predicted tidal data from Tigalda Bay.

### CHARTS AFFECTED:

Chart Number	Type	Cell Name	Scale	Edition	Edition Date
16520	Raster	n/a	1:300,000	23	Aug-08
16531	Raster	n/a	1:80,00 *	7	Feb-02
16520	ENC	US3AK61M	n/a	13	June-10
16531	ENC	US4AK6FM	n/a	5	Oct-09

\* 1:80,000

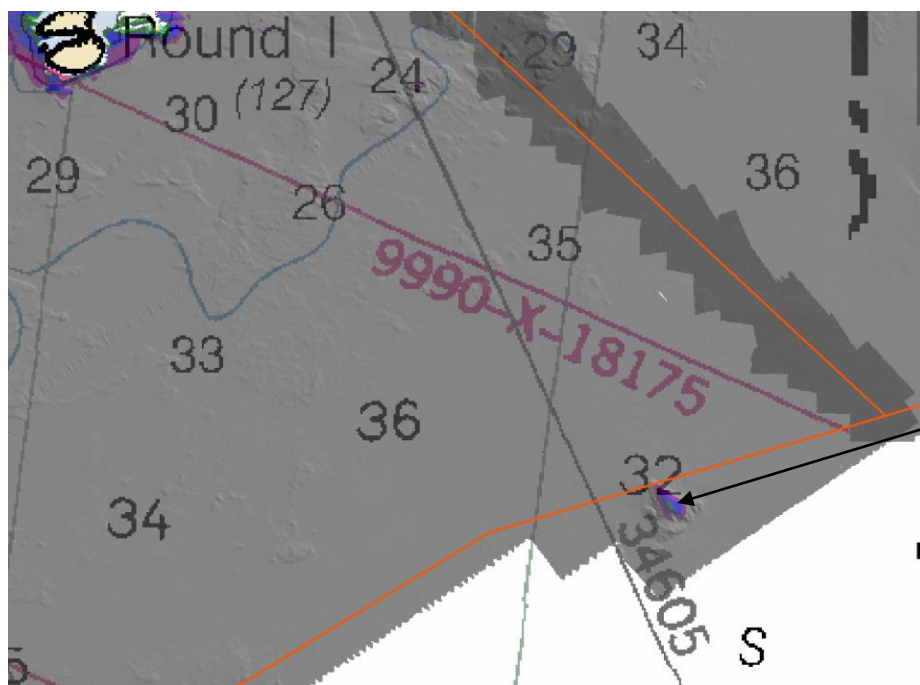
### DANGER:

Feature	Depth	Latitude	Longitude	Time (UTC)
1. Sounding	9.6 fathoms	54-11-10.16N	164-44-36.23W	2010-06-25 13:29:59.983

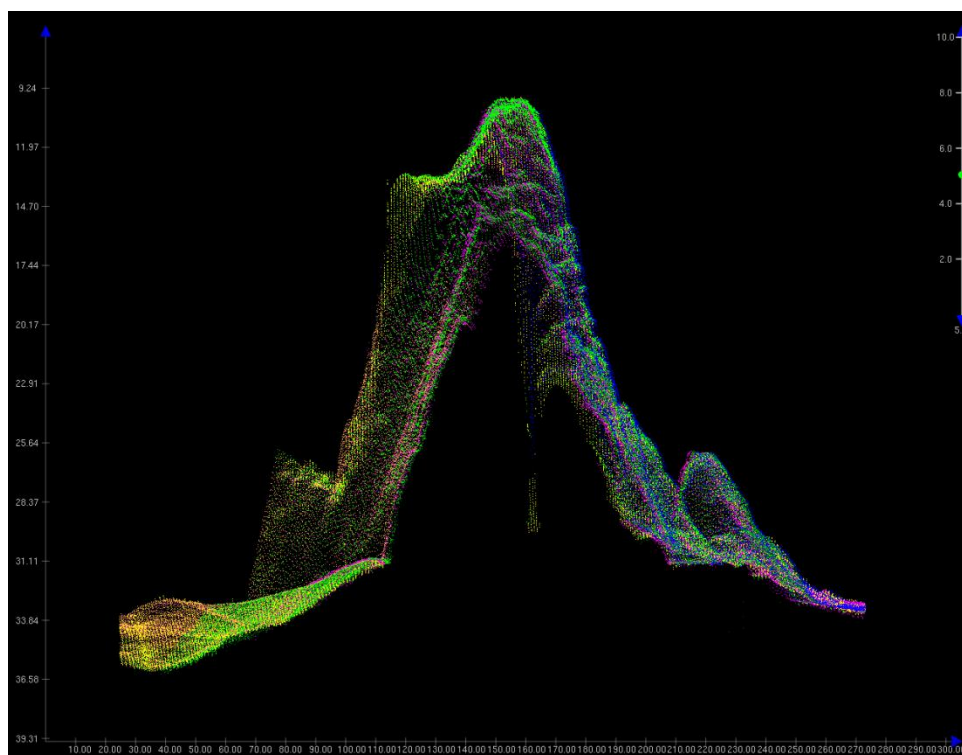
### PHB Notes:

DTON #1 was applied to the chart by MCD as a 9 fm shoal.

After final tides were applied and Surfaces recomputed, the shoal feature was compiled to the chart update product as a 10 fm 4 ft submerged rock.



DTON: A 9.6 fathom sounding acquired near a 32 fathom sounding (Chart 16531)



**DTON**

**COMMENTS:**

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch (N/CS34), at (206) 526-6835.



**REPORT OF DANGERS TO NAVIGATION****Hydrographic Survey Registry Number:** H12260 (Sheet A)

**Survey Title:**      **State:**          Alaska  
                          **Locality:**      Pacific Ocean  
                          **Sub-locality:** Ugamak Island

**Project Number:**      OPR-Q191-KR-10**Survey Dates:**      June 10, 2010 – July 7, 2010**Survey Danger Acquisition Date and Time:** See feature.

Feature is reduced to Mean Lower Low Water with final verified tidal data.

**CHARTS AFFECTED:**

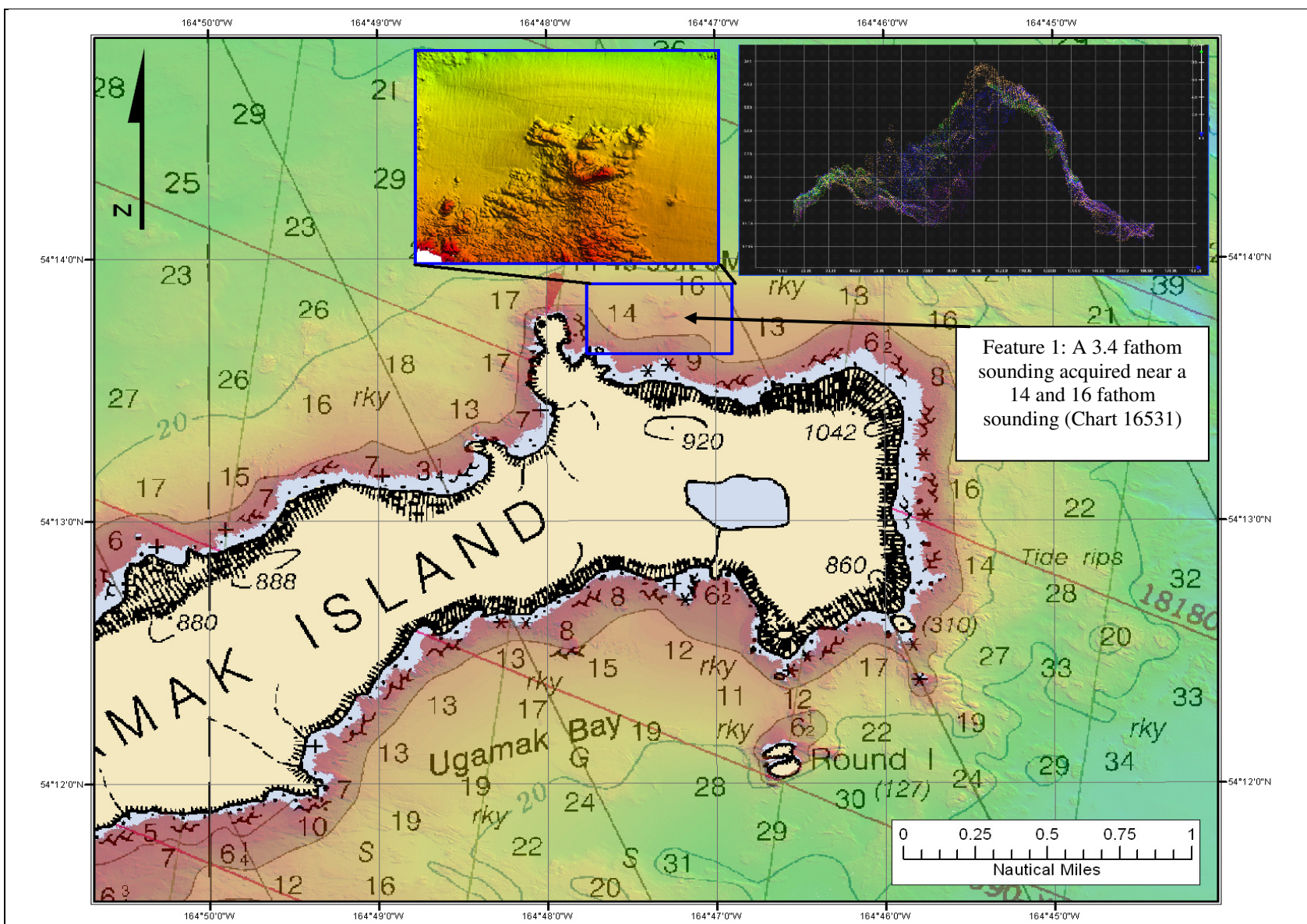
Chart Number	Type	Scale	Edition	Edition Date
16520	Raster	1:300,000	23	August-2008
16531	Raster	1:80,000	7	February-2002
US3AK61M	ENC	n/a	16	January-2011
US4AK6FM	ENC	n/a	7	October-2010

**DANGER:**

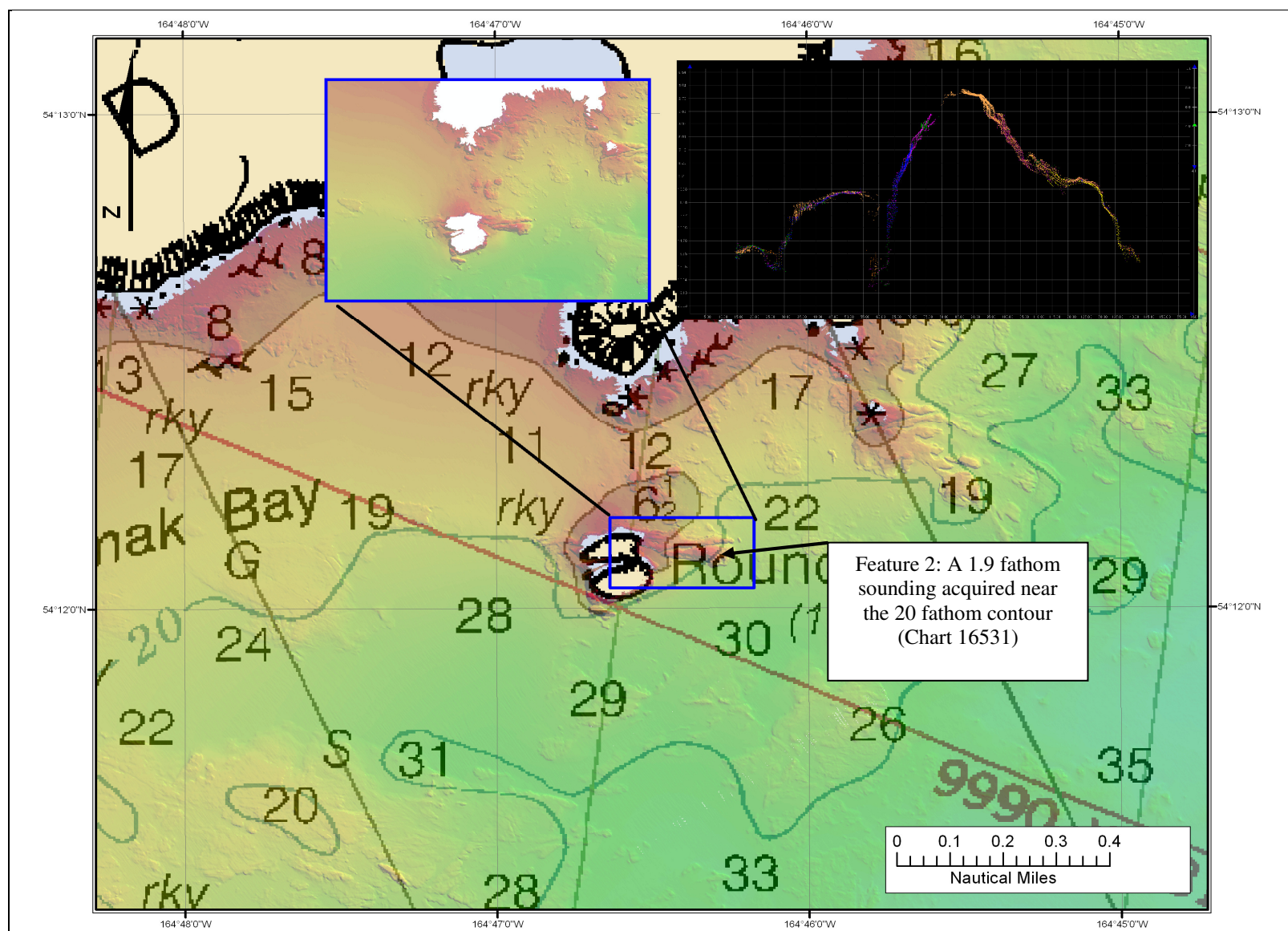
Feature	Depth	Latitude	Longitude	Time (UTC)
1. Rock	3.4 fathoms	54-13-46.85N	164-47-15.35W	2010-06-20 02:20:58.458
2. Rock	1.9 fathoms	54-12-06.64N	164-46-19.79W	2010-06-10 21:33:41.432
3. Rock	1.6 fathoms	54-11-39.62N	164-50-40.56W	2010-06-10 22:57:07.831
4. Rock	3.3 fathoms	54-11-15.78N	164-51-15.60W	2010-07-05 21:08:04.393

**PHB Notes:**

DTON #1 was applied to the chart by MCD as a 3-1/4 fm submerged rock;  
 It was compiled to the chart update product as a 3 fm 2 ft submerged rock.  
 DTON #2 was applied to the chart by MCD as a 1-3/4 fm submerged rock;  
 It was compiled to the chart update product as a 1 fm 5 ft submerged rock.  
 DTON #3 was applied to the chart by MCD as a 1-1/2 fm submerged rock;  
 It was compiled to the chart update product as a 1 fm 3 ft submerged rock.  
 DTON #4 was applied to the chart by MCD as a 3-1/4 fm submerged rock;  
 It was compiled to the chart update product as a 3 fm 2 ft submerged rock.

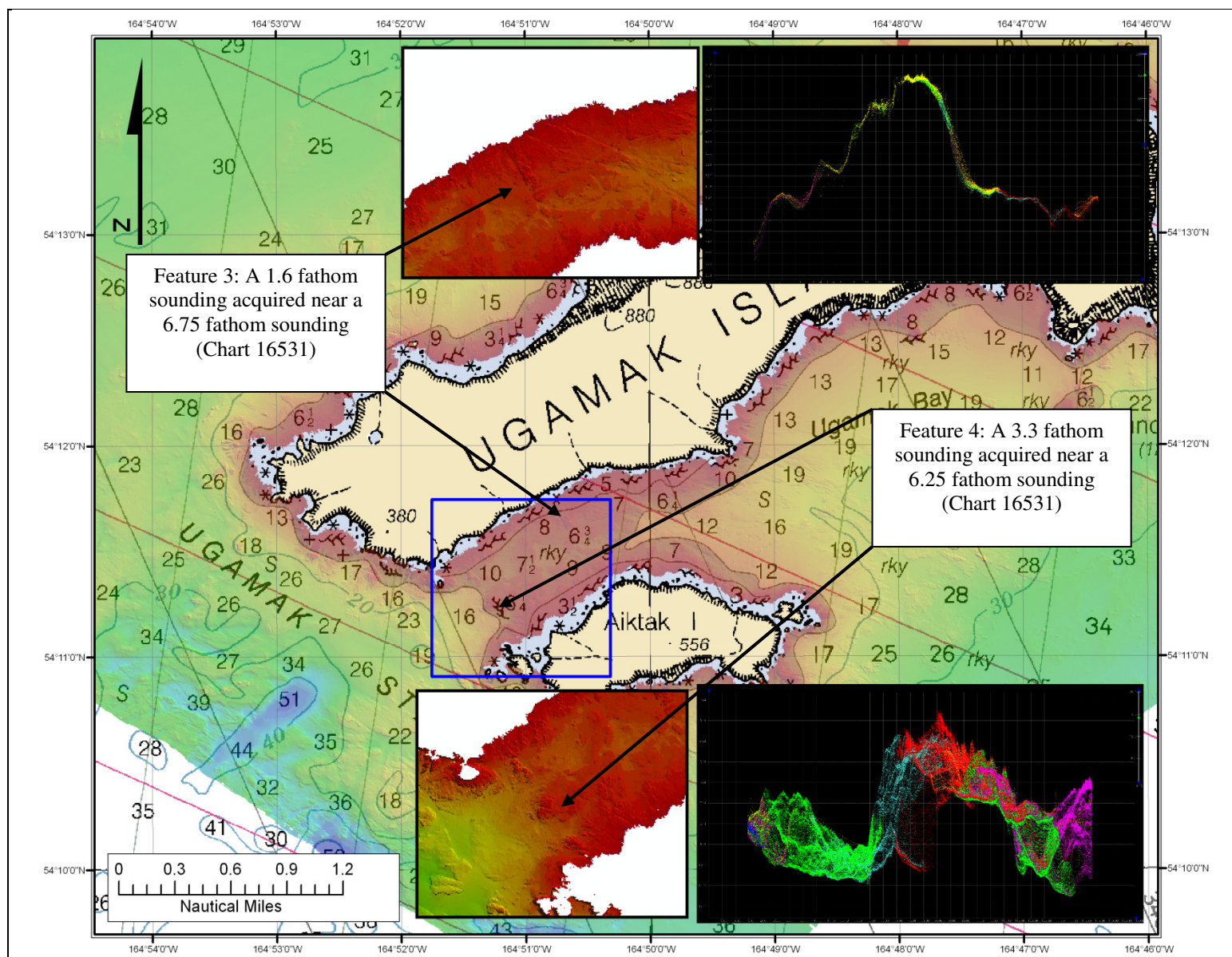


**Figure 1: Feature 1**



**Figure 2: Feature 2**





**Figure 3: Features 3 and 4.**

**COMMENTS:**

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch (N/CS34), at (206) 526-6835.

## PHB Submitted DTONs

**Registry Number:** H12260  
**State:** Alaska  
**Locality:** Krenitztin Islands  
**Sub-locality:** Ugamak Island  
**Project Number:** OPR-Q191-KR-10  
**Survey Dates:** 06/27/2010 - 07/05/2010

### Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
16531	7th	02/16/2002	1:80,000 (16531_1)	USCG LNM: 10/12/2010 (4/19/2011) CHS NTM: None (3/25/2011) NGA NTM: None (4/30/2011)
16520	23rd	08/01/2008	1:300,000 (16520_1)	[L]NTM: ?
16011	37th	11/01/2007	1:1,023,188 (16011_1)	[L]NTM: ?
16006	35th	04/01/2008	1:1,534,076 (16006_1)	[L]NTM: ?
513	7th	06/01/2004	1:3,500,000 (513_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

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

### Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Shoal	1.85 m	54° 13' 31.3" N	164° 45' 38.4" W	---
1.2	Shoal	2.87 m	54° 12' 27.9" N	164° 45' 52.5" W	---
1.3	Shoal	1.73 m	54° 12' 30.8" N	164° 47' 51.4" W	---
1.4	Shoal	0.31 m	54° 12' 43.3" N	164° 47' 33.4" W	---
1.5	Shoal	0.67 m	54° 12' 04.8" N	164° 49' 16.1" W	---
1.6	Shoal	0.53 m	54° 13' 22.8" N	164° 48' 12.7" W	---



PHB Notes:

DTON #1.1 was applied to the chart by MCD as a 1 fm shoal

It was compiled to the chart update product as a 1 fm submerged rock.

DTON #1.2 was not applied to the chart by MCD;

It was compiled to the chart update product as a 1 fm 3 ft submerged rock.

DTON #1.3 was applied to the chart by MCD as a 1 fm shoal;

It was compiled to the chart update product as a 0 fm 5 ft submerged rock.

DTON #1.4 was not applied to the chart by MCD;

It was compiled to the chart update product as a 0 fm 1 ft rock awash.

DTON #1.5 was not applied to the chart by MCD;

It was compiled to the chart update product as a 0 fm 2 ft submerged rock.

DTON #1.6 was applied to the chart by MCD as a rock awash;

It was compiled to the chart update product as a 0 fm 1 ft rock awash.

## **1 - Danger To Navigation**

**1.1) Profile/Beam - 1477/465 from sheet\_a03 / 3-d2 / 2010-184 / 3a03-sh208****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 54° 13' 31.3" N, 164° 45' 38.4" W  
**Least Depth:** 1.85 m (= 6.08 ft = 1.013 fm = 1 fm 0.08 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)**  $\pm 0.117$  m ; **TVU (TPEv)**  $\pm 0.477$  m  
**Timestamp:** 2010-184.01:51:26.201 (07/03/2010)  
**Survey Line:** sheet\_a03 / 3-d2 / 2010-184 / 3a03-sh208  
**Profile/Beam:** 1477/465  
**Charts Affected:** 16531\_1, 16520\_1, 16011\_1, 16006\_1, 500\_1, 513\_1, 530\_1, 50\_1

**Remarks:**

315m ENE off NE Ugamak Island, 1fm sdg.

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
sheet_a03/3-d2/2010-184/3a03-sh208	1477/465	0.00	000.0	Primary

**Hydrographer Recommendations**

submit as DTON

**Cartographically-Rounded Depth (Affected Charts):**

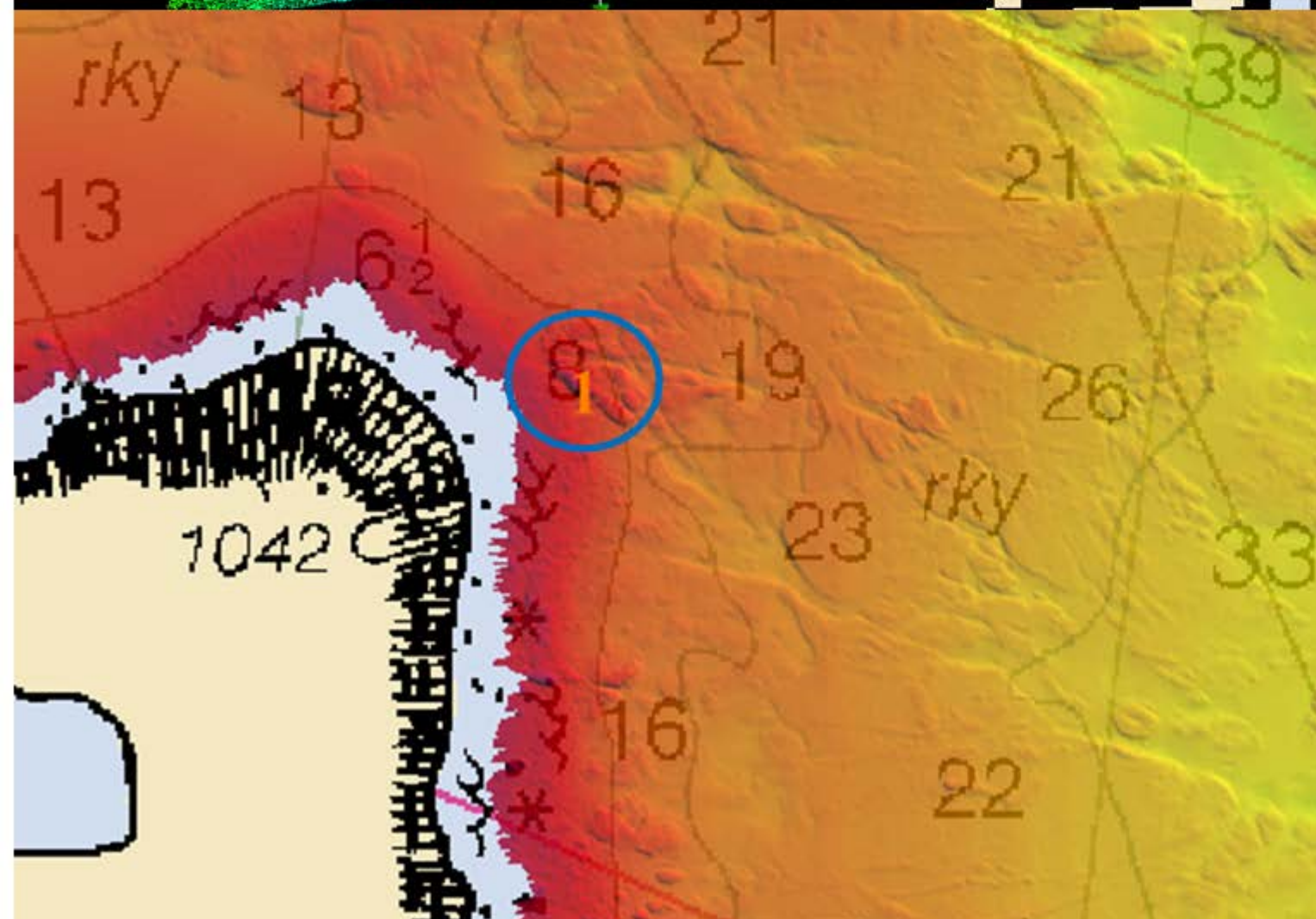
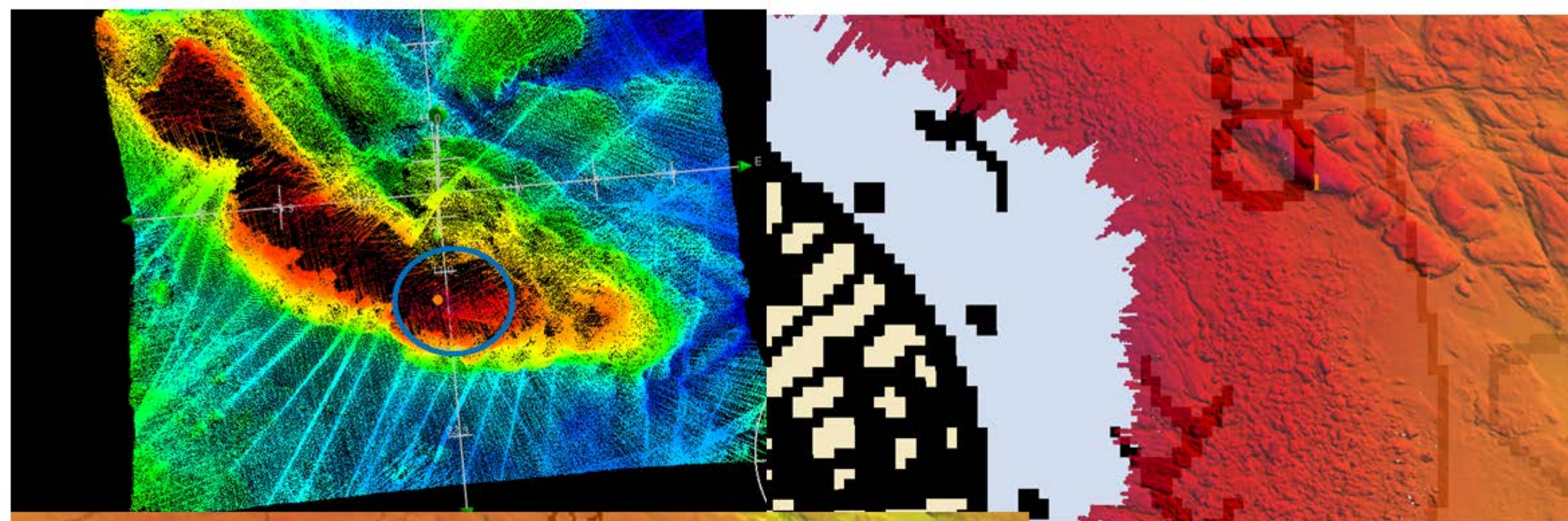
1fm (16531\_1, 16520\_1, 16011\_1, 16006\_1, 530\_1)

1.9m (500\_1, 513\_1, 50\_1)

**S-57 Data**

[None]





Charts affected:

16531

US3AK61M

US4AK6FM

State: AK

Uncharted coastal shoal eastern  
Ugamak Island, 1fm 0ft.

Datum: MLLW

N: 54-13-32.3

W: 164-45-40.0

**1.2) Profile/Beam - 1288/200 from sheet\_a04 / 3-d2 / 2010-178 / 3a04-sh106****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 54° 12' 27.9" N, 164° 45' 52.5" W  
**Least Depth:** 2.87 m (= 9.41 ft = 1.569 fm = 1 fm 3.41 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)**  $\pm 0.137$  m ; **TVU (TPEv)**  $\pm 0.487$  m  
**Timestamp:** 2010-178.18:25:59.143 (06/27/2010)  
**Survey Line:** sheet\_a04 / 3-d2 / 2010-178 / 3a04-sh106  
**Profile/Beam:** 1288/200  
**Charts Affected:** 16531\_1, 16520\_1, 16011\_1, 16006\_1, 500\_1, 513\_1, 530\_1, 50\_1

**Remarks:**

uncharted underwater rock, depth unknown, least depth 1fm 3ft.

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
sheet_a04/3-d2/2010-178/3a04-sh106	1288/200	0.00	000.0	Primary

**Hydrographer Recommendations**

chart as DTON

**Cartographically-Rounded Depth (Affected Charts):**

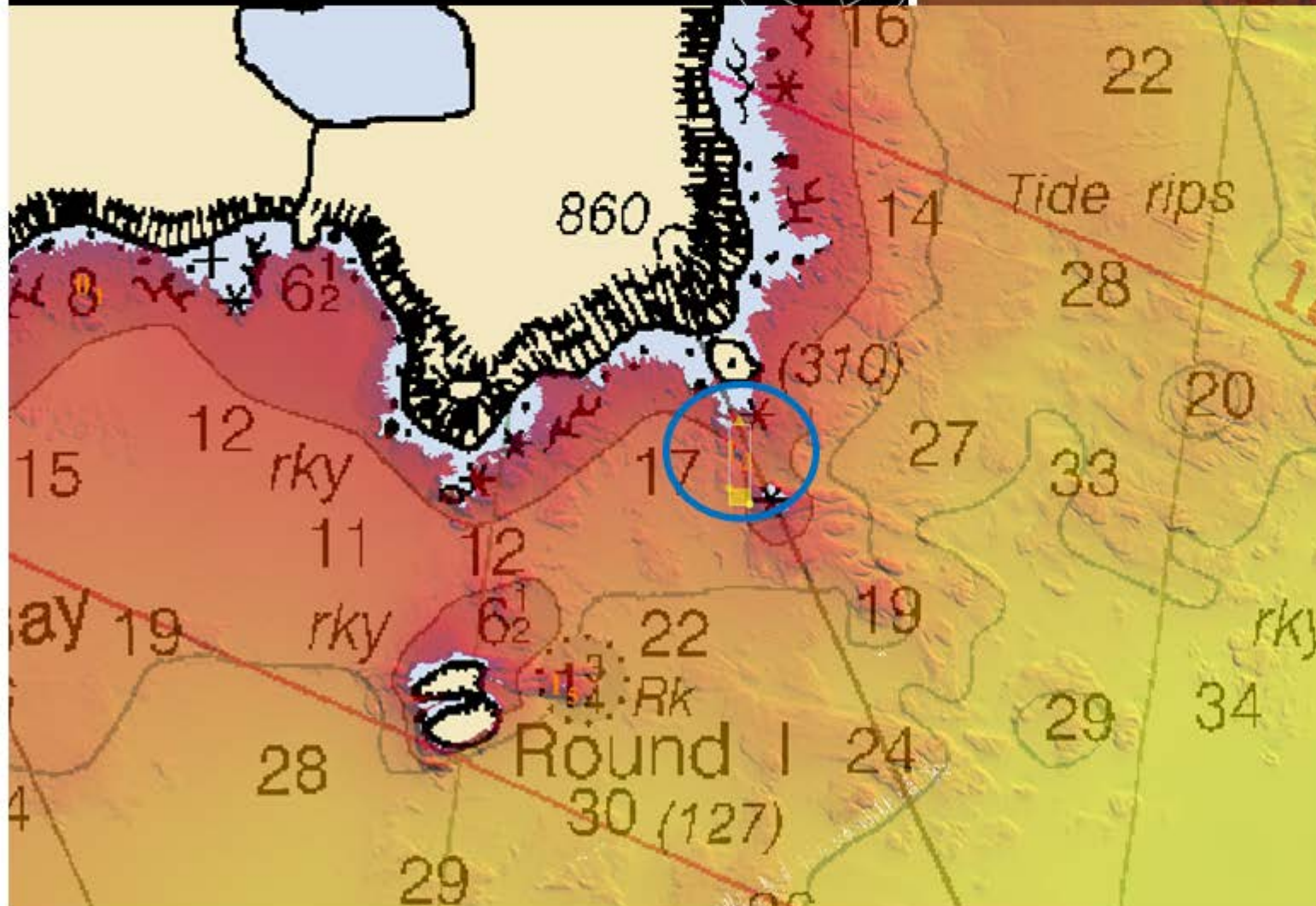
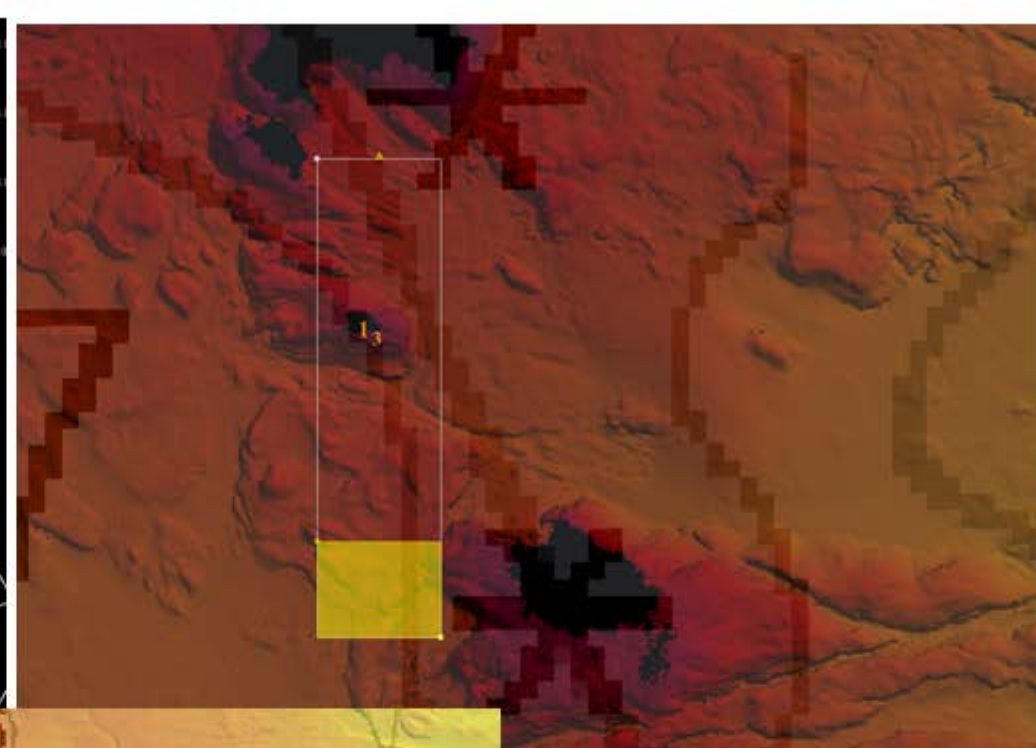
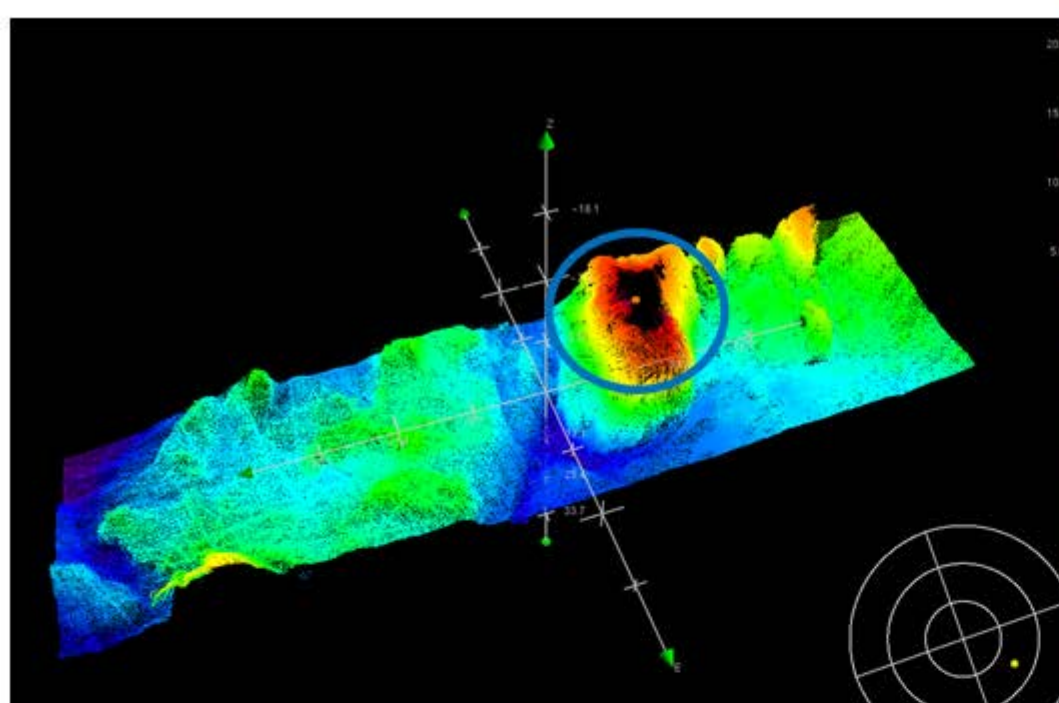
1 ½fm (16531\_1, 16520\_1, 16011\_1, 16006\_1, 530\_1)

2.9m (500\_1, 513\_1, 50\_1)

**S-57 Data**

[None]





Charts affected:

16531

US3AK61M

US4AK6FM

State: AK

Uncharted Rock off SE Ugamak  
Island, 1fm 3ft. Shoalest sounding  
not captured with MBES

Datum: MLLW

N: 54-12-28.0

W: 164-45-52.67

### 1.3) Profile/Beam - 622/208 from sheet\_a04 / 3-d2 / 2010-178 / 3a04-sh107

## DANGER TO NAVIGATION

### Survey Summary

**Survey Position:** 54° 12' 30.8" N, 164° 47' 51.4" W  
**Least Depth:** 1.73 m (= 5.68 ft = 0.947 fm = 0 fm 5.68 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 0.205$  m ; TVU (TPEv)  $\pm 0.538$  m  
**Timestamp:** 2010-178.19:16:24.953 (06/27/2010)  
**Survey Line:** sheet\_a04 / 3-d2 / 2010-178 / 3a04-sh107  
**Profile/Beam:** 622/208  
**Charts Affected:** 16531\_1, 16520\_1, 16011\_1, 16006\_1, 500\_1, 513\_1, 530\_1, 50\_1

#### Remarks:

330m SSE of mid-Ugamak Bay, 0fm 5ft sdg on the 10fm contour line.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
sheet_a04/3-d2/2010-178/3a04-sh107	622/208	0.00	000.0	Primary

### Hydrographer Recommendations

chart as DTON

#### Cartographically-Rounded Depth (Affected Charts):

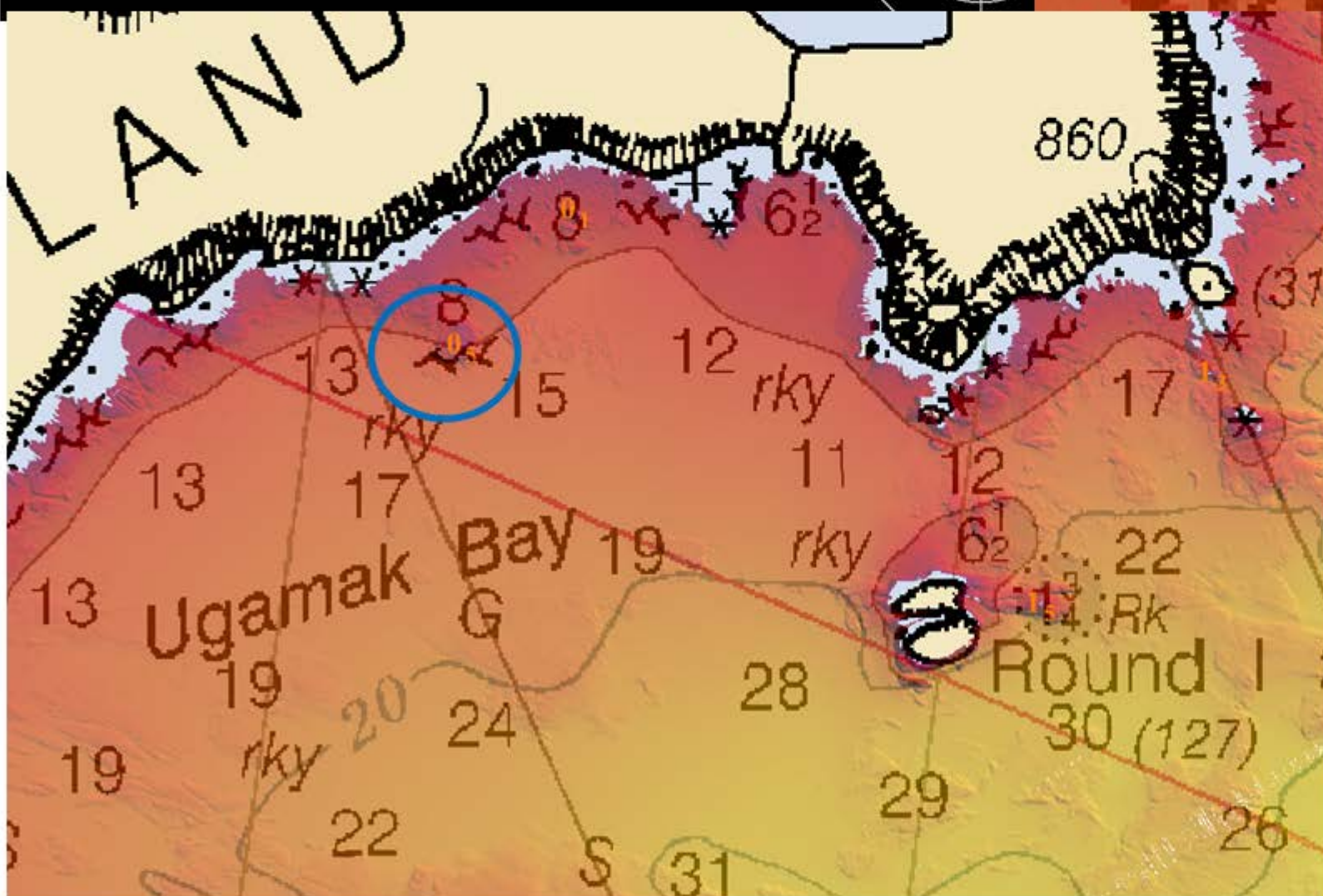
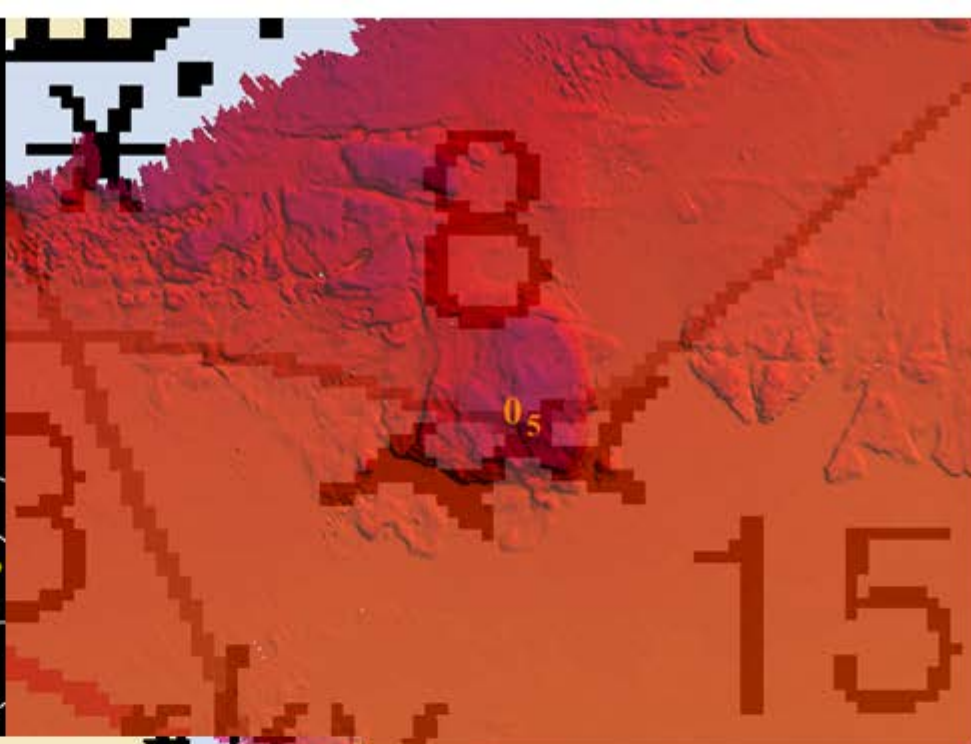
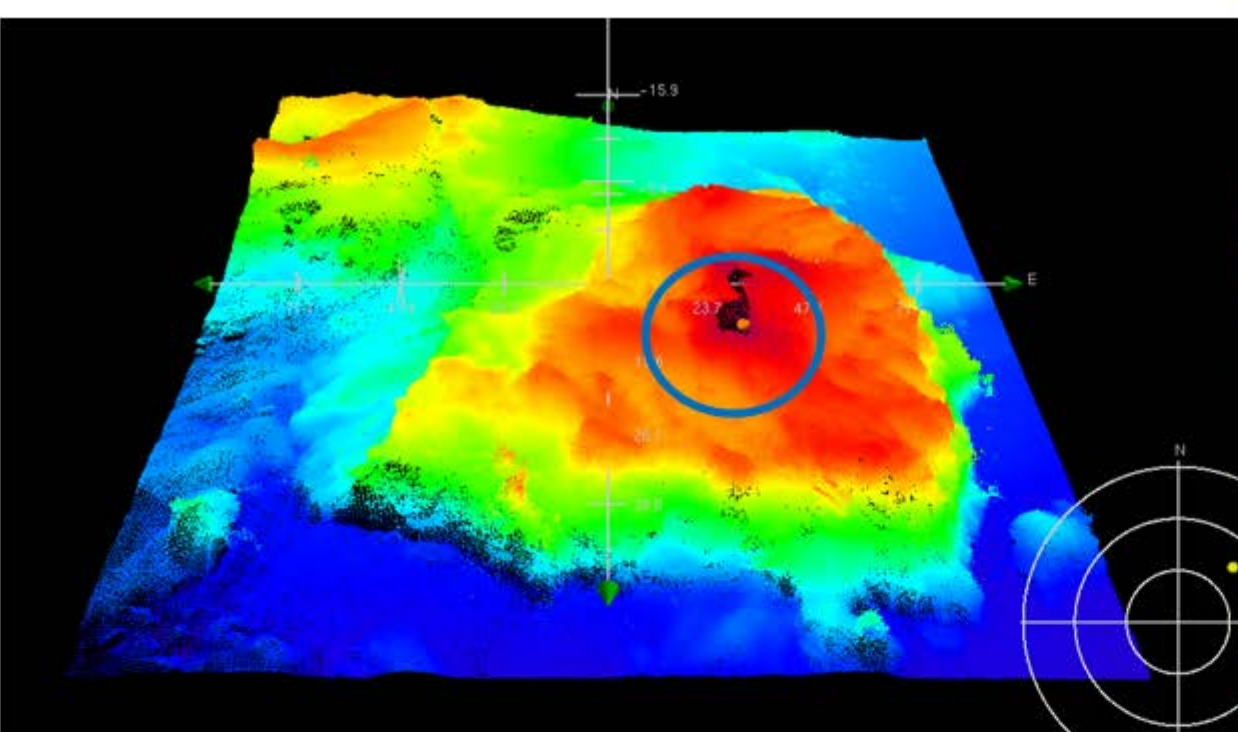
1fm (16531\_1, 16520\_1, 16011\_1, 16006\_1, 530\_1)

1.7m (500\_1, 513\_1, 50\_1)

### S-57 Data

[None]





Charts affected:

16531

US3AK61M

US4AK6FM

State: AK

Uncharted shoal off SE Ugamak  
Island, northern Ugamak Bay; 0fm  
1ft. Shoalest sounding captured with  
MBES

Datum: MLLW

N: 54-12-30.85

W: 164-47-51.4

## 1.4) Profile/Beam - 1217/454 from sheet\_a04 / 3-d2 / 2010-186 / 3a04-sh231

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 54° 12' 43.3" N, 164° 47' 33.4" W  
**Least Depth:** 0.31 m (= 1.02 ft = 0.170 fm = 0 fm 1.02 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 0.158$  m ; TVU (TPEv)  $\pm 0.506$  m  
**Timestamp:** 2010-186.18:39:38.593 (07/05/2010)  
**Survey Line:** sheet\_a04 / 3-d2 / 2010-186 / 3a04-sh231  
**Profile/Beam:** 1217/454  
**Charts Affected:** 16531\_1, 16520\_1, 16011\_1, 16006\_1, 500\_1, 513\_1, 530\_1, 50\_1

#### Remarks:

175m S of northern Ugamak Bay, 0fm 1ft sdg uncharted underwater rock.

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
sheet_a04/3-d2/2010-186/3a04-sh231	1217/454	0.00	000.0	Primary

#### Hydrographer Recommendations

chart as DTON

#### Cartographically-Rounded Depth (Affected Charts):

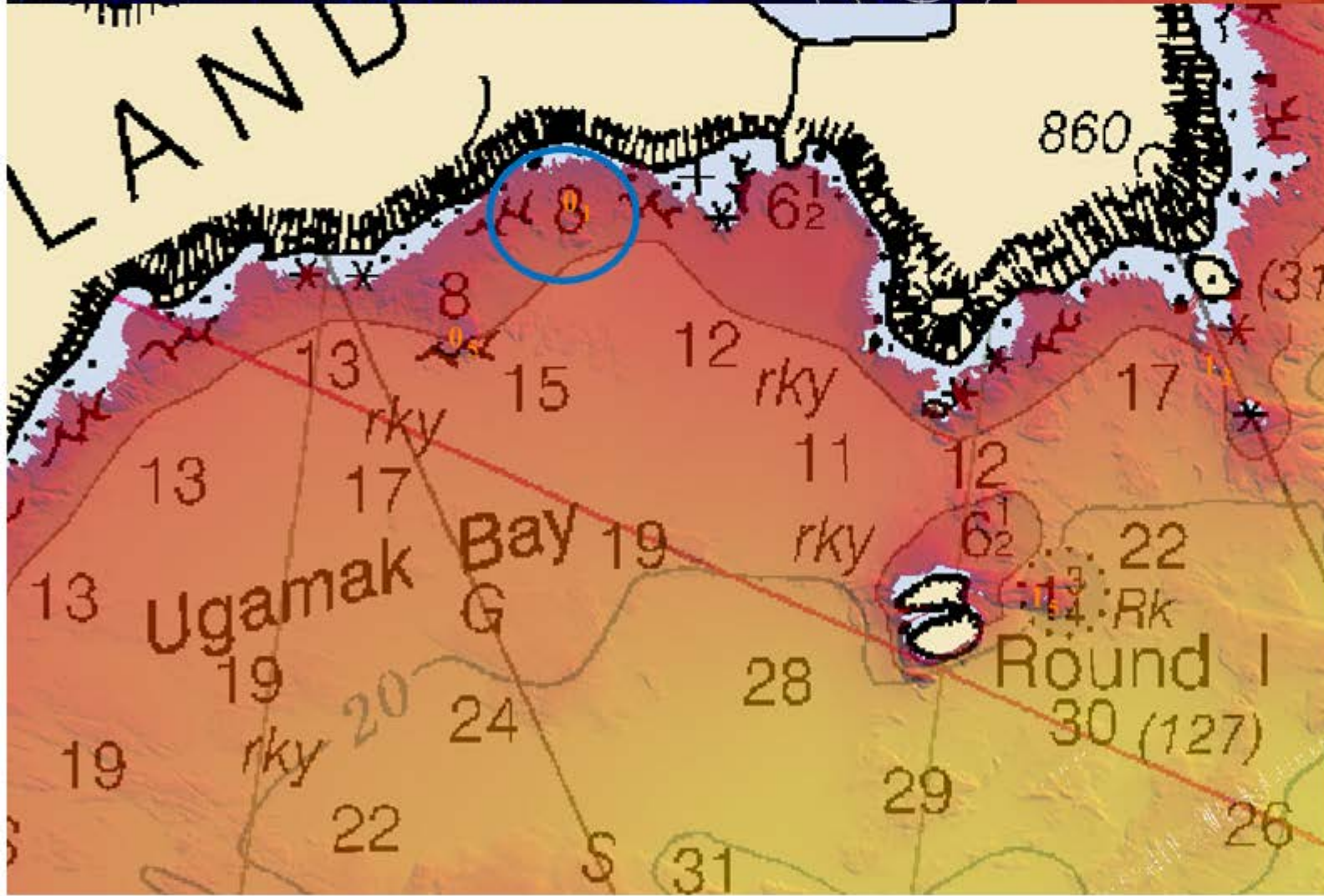
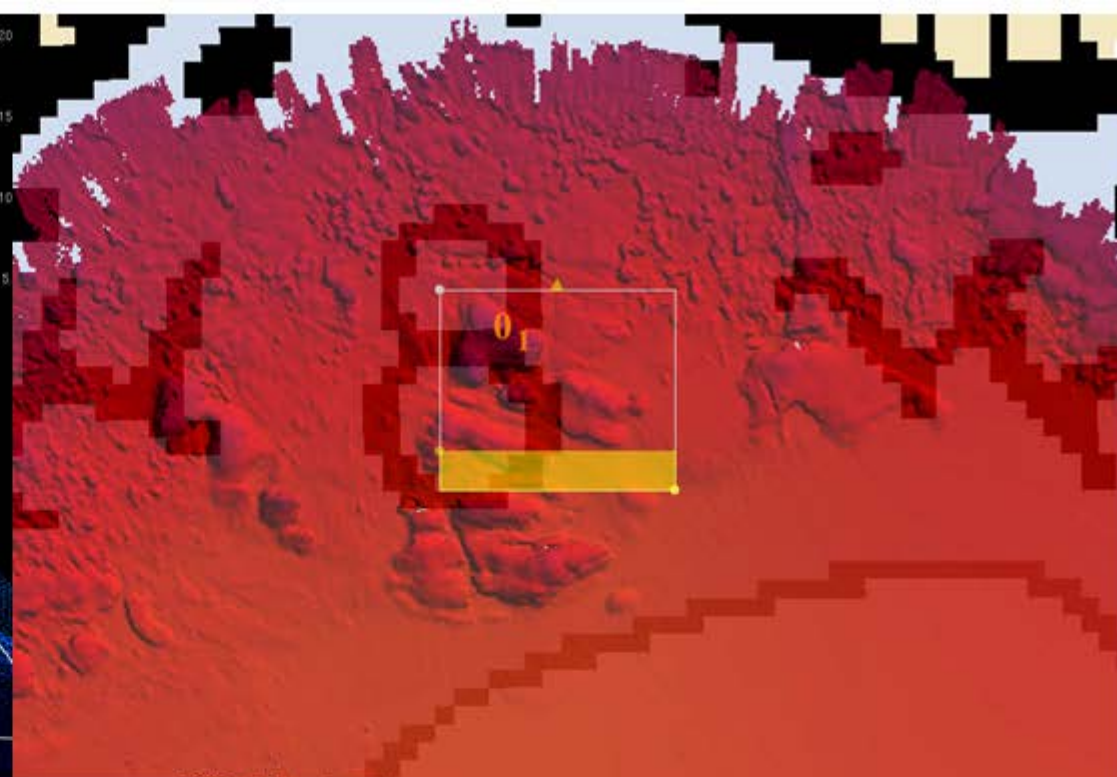
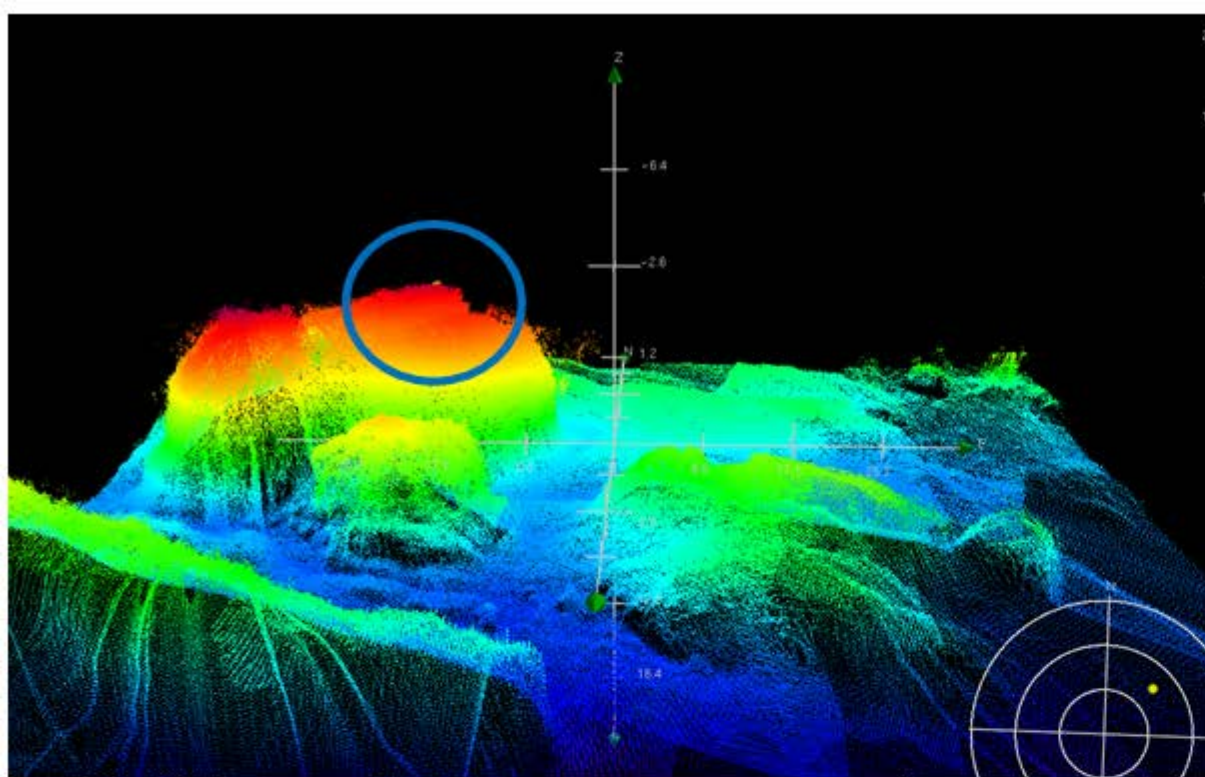
0fm (16531\_1, 16520\_1, 16011\_1, 16006\_1, 530\_1)

.3m (500\_1, 513\_1, 50\_1)

#### S-57 Data

[None]





Charts affected:

16531

US3AK61M

US4AK6FM

State: AK

Uncharted shoal off SE Ugamak Island, northern-mid Ugamak Bay;  
0fm 1ft. Shoalest sounding captured with MBES

Datum: MLLW

N: 54-12-43.5

W: 164-47-33.9

## 1.5) Profile/Beam - 1012/476 from sheet\_a04 / 3-d2 / 2010-186 / 3a04-sh232

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 54° 12' 04.8" N, 164° 49' 16.1" W  
**Least Depth:** 0.67 m (= 2.20 ft = 0.367 fm = 0 fm 2.20 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 0.123$  m ; TVU (TPEv)  $\pm 0.483$  m  
**Timestamp:** 2010-186.19:02:16.103 (07/05/2010)  
**Survey Line:** sheet\_a04 / 3-d2 / 2010-186 / 3a04-sh232  
**Profile/Beam:** 1012/476  
**Charts Affected:** 16531\_1, 16520\_1, 16011\_1, 16006\_1, 500\_1, 513\_1, 530\_1, 50\_1

#### Remarks:

least depth (0fm, 2ft) in western Ugamak bay, on the southern coast of Ugamack Island.

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
sheet_a04/3-d2/2010-186/3a04-sh232	1012/476	0.00	000.0	Primary

#### Hydrographer Recommendations

Chart as DTON

#### Cartographically-Rounded Depth (Affected Charts):

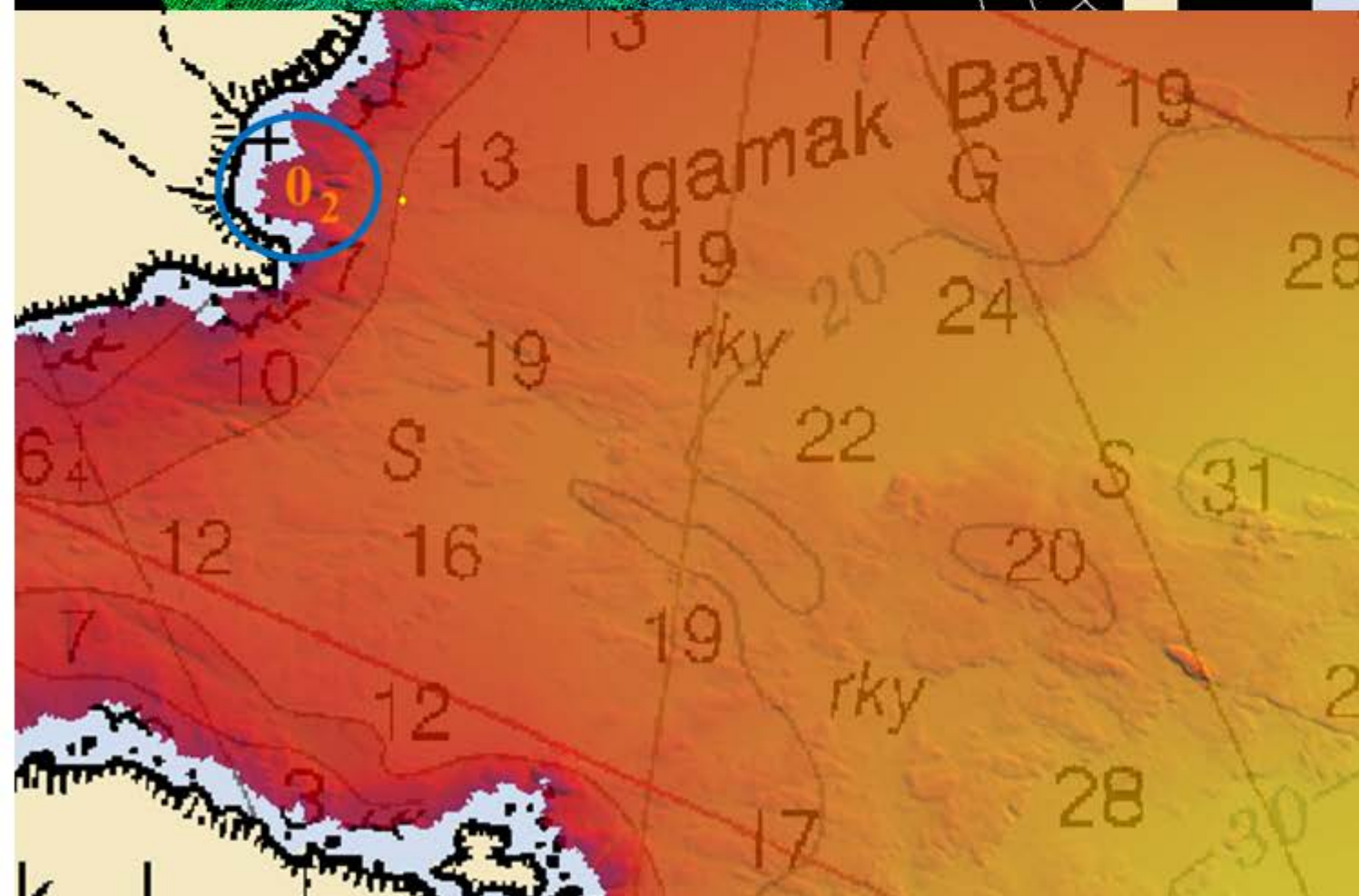
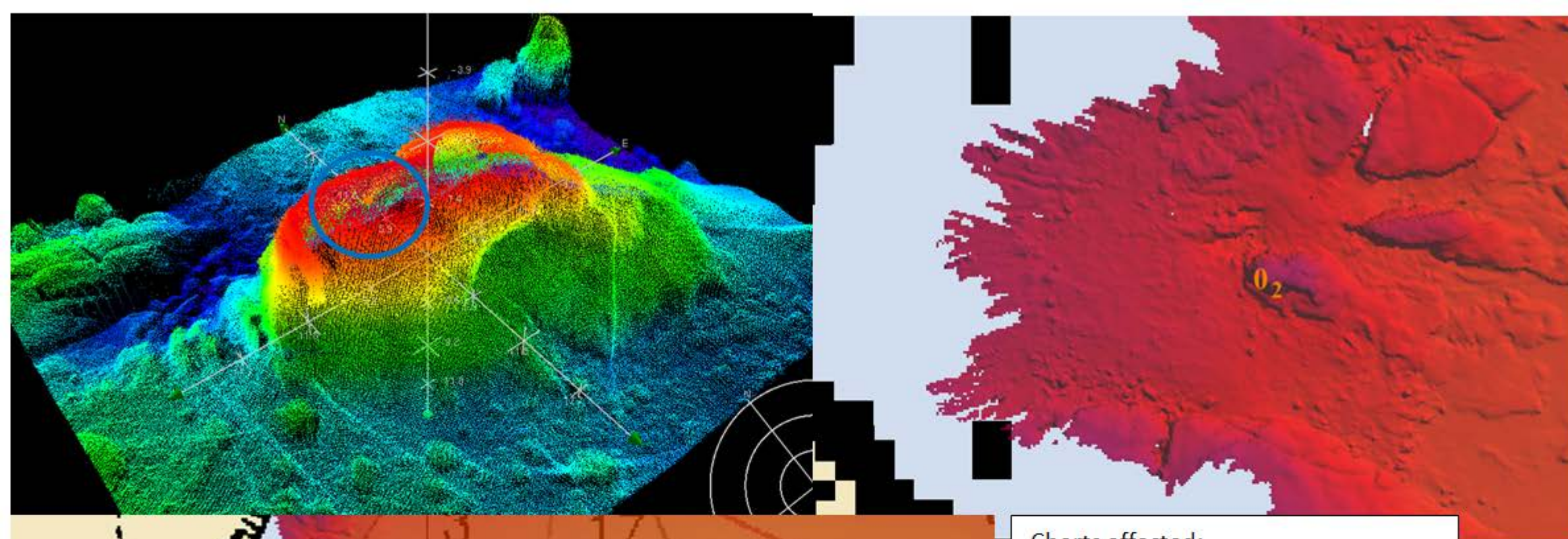
0 ¼fm (16531\_1, 16520\_1, 16011\_1, 16006\_1, 530\_1)

.7m (500\_1, 513\_1, 50\_1)

#### S-57 Data

[None]





Charts affected:

16531

US3AK61M

US4AK6FM

State: AK

Uncharted shoal in western Ugamak  
Bay; 0fm 2ft. Shoalest sounding  
captured with MBES.

Datum: MLLW

N: 54-12-64.8

W: 164-49-16.1

**1.6) Profile/Beam - 31913/473 from sheet\_a01 / 3-d2 / 2010-182 / 3a01-sh176****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 54° 13' 22.8" N, 164° 48' 12.7" W  
**Least Depth:** 0.53 m (= 1.75 ft = 0.291 fm = 0 fm 1.75 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 0.153$  m ; TVU (TPEv)  $\pm 0.512$  m  
**Timestamp:** 2010-182.21:26:51.285 (07/01/2010)  
**Survey Line:** sheet\_a01 / 3-d2 / 2010-182 / 3a01-sh176  
**Profile/Beam:** 31913/473  
**Charts Affected:** 16531\_1, 16520\_1, 16011\_1, 16006\_1, 500\_1, 513\_1, 530\_1, 50\_1

**Remarks:**

seaward terminus of unnamed bay on northern Ugamakl Island, uncharted underwater rock, 0fm 1ft.

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
sheet_a01/3-d2/2010-182/3a01-sh176	31913/473	0.00	000.0	Primary

**Hydrographer Recommendations**

chart as DTON

**Cartographically-Rounded Depth (Affected Charts):**

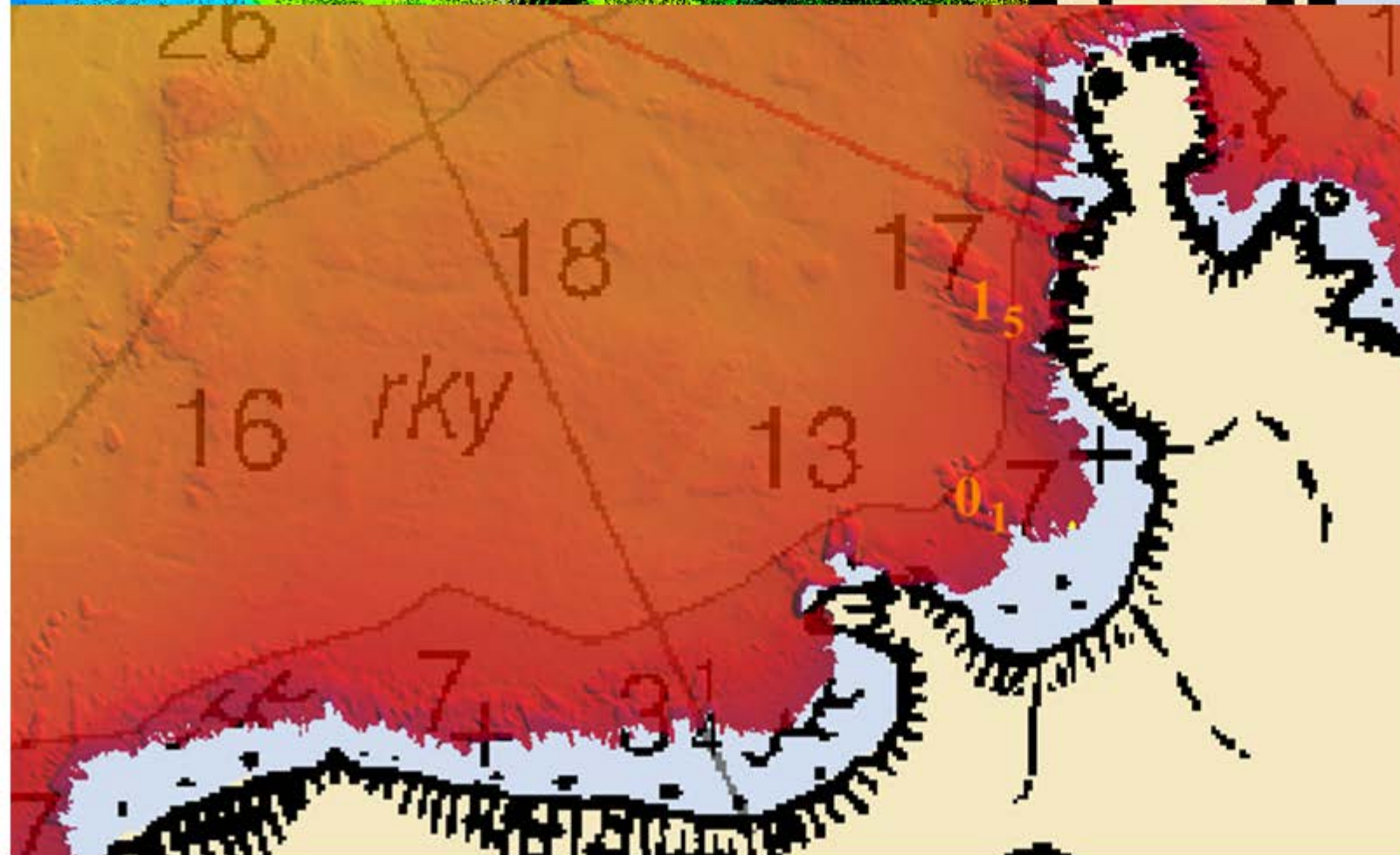
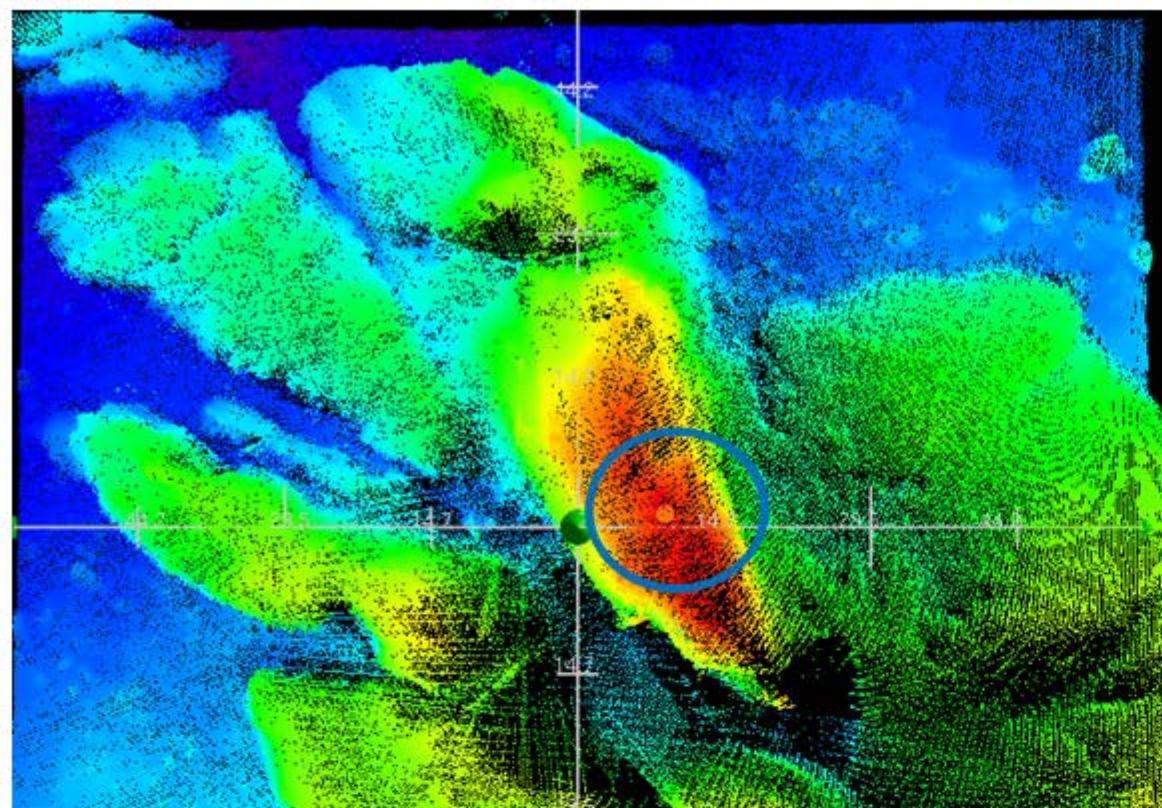
0 ¼fm (16531\_1, 16520\_1, 16011\_1, 16006\_1, 530\_1)

.5m (500\_1, 513\_1, 50\_1)

**S-57 Data**

[None]





Charts affected:

16531

US3AK61M

US4AK6FM

State: AK

Uncharted shoal in mid-bay in  
unnamed bay, northern Ugamak  
Island, 0fm 1ft.

Datum: MLLW

N: 54-13-22.0

W: 164-48-12.0





## APPENDIX V – SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

The following emails are included since they are recommendations or directives from NOAA that affected the survey.

**FW: S7K Format**  
[Dean Moyles](#)  
**Sent:** Thursday, March 31, 2011 8:12 AM  
**To:** [David Briggs](#)

FYI

---

**From:** Dean Moyles  
**Sent:** Friday, May 21, 2010 4:29 PM  
**To:** 'Crescent.Moegling@noaa.gov'; 'David.Scharff'  
**Subject:** S7K Format

Dave/Crescent

We have upgraded our two 7125's and 8101's to the 7125 SV and 7101, with these upgrades comes new records that can be logged by Fugro Pelagos in our WinFrog Multibeam software. The 7028 (7k Snippet Data) was put in place to replace the 7008 (Beam formed data and snippets), it is only functional different from the 7008 by the variable sample length, thus reducing the file sizes. We have been looking at the 7028 snippet data in our version of Geocoder, and we are very pleased with the results, so it is our intention the logged these instead of the 7008 records. If you guys have any objections please let us know.

In addition to this we will be collecting the 7027 records which include among other things the real-time uncertainty. We are working with Reson and CARIS to prove and integrate this in to our work flow.

*Dean Moyles*  
*Senior Hydrographer (ACSM certified)*  
*Fugro Pelagos, Inc.*  
*San Diego, CA 92123*  
*Phone (858) 292-8922*  
*Fax (858) 292-5308*  
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Toshi,

Thanks for the response, you will have two surface for the sheets which will have dynamic bottom issues.

David

---

**From:** Toshi Wozumi [Toshi.Wozumi@noaa.gov]  
**Sent:** Friday, March 04, 2011 11:12 AM  
**To:** David Briggs  
**Cc:** David.Scharff; Dean Moyles; Crescent Moegling; Gary Nelson  
**Subject:** Re: Dynamic Bottom Issues

Hi David,

We've asked for two surfaces in the past so that we can combine them to preserve the shoal soundings. As long as the deeper soundings are being rejected in the dataset, submitting just one surface would not be a problem. We just wanted to avoid relying on CUBE to preserve the shoal soundings in dynamic bottom areas. If you have any further questions let me know.

Thanks,  
Toshi

On 3/3/2011 11:29 AM, David Briggs wrote:

Toshi,

We are encountering some dynamic bottom issues in our 2010 Krenitizin Islands data. The dynamic bottom issues are the result of infills performed several weeks after the mainscheme lines had been completed. In the past, California State Mapping Project 2008 and 2009, we would keep the shoaler data and reject the deeper data for the final products. I discussed this with Crescent in 2010 and she told me that PHB was taking a different approach of keeping all of the data and producing 2 separate surfaces, one of the mainscheme and one of the busted infills.

Which approach would you prefer for the final products? What ever we do, the issues and actions will be documented in the DRs.

Thanks,  
David

*David D Briggs  
Lead Hydrographer*

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Website: [www.fugro-pelagos.com](http://www.fugro-pelagos.com)*

--  
Toshi Wozumi  
Physical Scientist  
Pacific Hydrographic Branch  
206-526-4763

David,

Just the spread sheet, if your still creating the sketches as part of your own requirements it would be nice to see but the monthly progress sketches are no longer a requirement.

Correct, we only need them once a month.

Dave

David Briggs wrote:

> Dave,  
>  
> Just two question,  
>  
> Do you still want the area plot submitted showing what has been accomplished by each boat for the monthly progress sketch or just this spreadsheet?  
>  
> This is only to be completed monthly?  
>  
> Thanks,  
> David  
>  
> -----  
> From: David.Scharff [David.Scharff@noaa.gov]  
> Sent: Tuesday, June 15, 2010 12:04 PM  
> To: David Briggs  
> Subject: [Fwd: new progress reporting template]  
>  
> Hi David,  
>  
> I actually meant to send this to you as you're the lead in the field.  
> Let me know if you have any questions.  
>  
> Thanks,  
> Dave  
>  
> ----- Original Message -----  
> Subject: new progress reporting template  
> Date: Tue, 15 Jun 2010 14:44:50 -0400  
> From: David.Scharff <David.Scharff@noaa.gov>  
> To: James Hailstones <JHailstones@fugro.com>  
>  
>  
>  
> Hi James,  
>  
> Not sure if you noticed the change in the 2010 Specs (8.1.1) regarding  
> this new progress reporting spreadsheet. This has to be sent on the  
> fifth day of the month to progress.sketches@noaa.gov. Personally I have  
> no problem with your progress reports but I guess this is an attempt to  
> keep the reporting uniform for all our hydro vessels. Let me know if you  
> have any questions.  
>  
> Thanks,  
> Dave

David,

1. The new specification should be online any day now but I have attached a copy for your review. Section 5 should answer your question , or confuse you more :-). Take a look at the new specs and let me know you need additional clarification.  
2. The shape files you have been sending us have worked well and are easy to convert to MapInfo. ArcMap would probably work as well.

Dave

David Briggs wrote:

> Dave,  
>  
> I just want to clarify a few things from the current project instructions.  
>  
>  
> 1.  
> Under the coverage section, the second coverage type states  
> "All significant shoals or features in waters less than 30m  
> deep". Is this a reference towards AWOIS or features in shipping  
> channels?  
> 2.  
> Under the survey outline section, the instruction state to  
> deliver the outline in a MapInfo format. Is an ArcMap format an  
> acceptable substitute?  
>  
>  
>  
> Also, the 2010 Specs and Deliverables have not yet been uploaded to  
> the NOS site. Do you know if the new specs will be published soon?  
>  
>  
> Thanks,  
>  
>  
> David  
>  
>





---

**Dean Moyles**

**From:** David Briggs  
**Sent:** Friday, April 01, 2011 1:38 PM  
**To:** Crescent.Moegling@noaa.gov  
**Cc:** Toshi.Wozumi@noaa.gov; David.Scharff; Dean Moyles; Gary Nelson; Katie Reser  
**Subject:** RE: Shoreline Verification Reporting

Crescent,

We did determine the height of the rocks via leveling. Do you still want us to attribute the rocks with VALSOU = unknown and QUASOU = depth unknown?

Thanks,  
David

---

**From:** Crescent Moegling [Crescent.Moegling@noaa.gov]  
**Sent:** Friday, April 01, 2011 11:09 AM  
**To:** David Briggs  
**Cc:** [Toshi.Wozumi@noaa.gov](mailto:Toshi.Wozumi@noaa.gov); David.Scharff; Dean Moyles; Gary Nelson; Katie Reser  
**Subject:** Re: Shoreline Verification Reporting

Hi David,

I forwarded your question on to Katie who is currently the Carto Team Lead on how best to include (or not) these features in your submission). She indicated this is useful information, particularly when it falls within a MBES holiday. Please submit it as whatever the feature is (UWTROC, OBSTRN, etc) with VALSOU = unknown and QUASOU = depth unknown.

Thanks!

Crescent

On 4/1/2011 9:58 AM, David Briggs wrote:  
Toshi,

We have a few shoreline feature positions, detached positions, which were collected last summer in our 2010 season. We were not required in the Project Instructions to perform any shoreline verification, but collected a few positions on rocks. Our effort should not be considered a complete feature verification (verify or disprove rocks, islets, shoreline, etc) and our intent was only to identify holes within our MBES coverage.

Since this was not a complete feature verification project, how do you want us to report this information. Should we include the information in S-57 as well as the DRs? Only comment in the DRs? Only produce a feature report?

Thanks,  
David

--  
Crescent Moegling  
Hydrographic Team Lead  
Pacific Hydrographic Branch  
206.526.6840

# PHB Compilation Log

## General Survey Info

Survey Number	H12260	Field Unit	Fugro Pelagos	State	Alaska	UTM Zone	3N
Project Date	OPR-Q191-KR-10	Project Name (Locality)	Krenitzin Islands				
Start Date	06/10/2010	Sublocality	Ugamak Island				
End Date	07/07/2010	Survey Scale	1:10,000	Compilation Scale	1:80,000		

Affected Raster Charts					
Chart	KAPP	Scale	Edition	Date	NTM Date
16520	2518	1:300,000	23rd	08/01/2008	12/03/2011
16531	2525	1:80,000	7th	02/16/2002	01/07/2012
Add Chart	Remove Chart				

Affected Electronic Charts	
ENC	Scale
US3AK61M	1:300,000
US4AK6FM	1:80,000
Add ENC	Remove ENC

Spatial Refrence	
Horizontal Datum	WGS84
Coordinate System	LLDG
Sounding Datum	MLLW
Vertical Datum	MHW

Junction Surveys		
Survey Number	Survey Date	Location Relative to Current Survey
H12261	07/07/2010	S
H12262	07/06/2011	W
H12263	07/08/2011	SW
Add Survey	Remove Survey	

# PHB Compilation Log

Processing Info

SAR Reviewer

Adam Argento

HCell Compiler

Cathleen Barry

HCell Reviewer

Pete Holmberg

Source Surfaces

Resolution

8m

File Name

H12260\_8m\_Combined.csar

Add Surface

Remove Surface

Supporting Documents

Name

Specs and Deleverables

Version

April 2011

HCell Specs

6.1

Add Doc

Remove Doc

Select Software Used

HydroService, dKart Inspector

Software	Version, Hot Fix	Used For
CARIS HIPS	7.0 SP2 HF	SAR Review. Inspection of Combined BASE Surfaces.
CARIS BASE Editor	3.2, SP1 HF5	Creation of soundings and bathy-derived features; HCell compilation.
CARIS S-57 Composer	2.2, SP1 HF4	CARIS Product creation, CARIS validation tests; export the HCell to S-57.
CARIS GIS	4.4	Setting the sounding rounding variable for conversion of the metric HCell to NOAA charting units with NOAA rounding.
CARIS HOM	3.3	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding.
HydroService, dKart Inspector	6.0	IHO S-58 Validation checks of the HCell.

Reset Table

Product Info

Deleverables

Survey Scale HCell

H12260\_CS.000

HCell Report for MCD

H12260\_SS.000

Feature Listing

H12260\_HR.pdf

Descriptive Report

H12260\_FL.txt

Survey Outline

H12260\_DR.pdf

Chart Scale HCell

H12260\_Outline.gml and .xsd

Horizontal and Vertical Units

During creation of the HCell 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.

Depth Units (DUNI)

Fathoms

Positional Units (PUNI)

Feet

Height Units (HUNI)

Meters

# PHB Compilation Log

Radius Setting		
A survey-scale sounding (SOUNDG) feature object layer was built from the Combined Surface in CARIS BASE Editor. A shoal-biased selection was made at survey scale using a Radius Table file with values shown below.		
Radius (mm)	Min. Depth (m)	Max Depth
3	0	10
4	10	20
4.5	20	50
5	50	500

Contours			
Depth contours at the intervals on the largest scale chart are included in the SS HCell for MCD raster charting division to use for guidance in creating chart contours. With the exception of the zero contours included in the *_CS file, contours have not been deconflicted against shoreline features, soundings and hydrography.			
Charted Contours	Metric Equivalent	Metric NOAA Rounded	Charted NOAA Rounded
0	0	0.2286	0.125
3	5.4864	5.715	3.125
5	9.144	9.3726	5.125
10	18.288	18.5166	10.125
20	36.576	37.9476	20.75
30	54.864	56.2365	30.75
40	73.152	74.5236	40.75
50	91.44	92.8166	50.75
Add Contour	Remove Contour		

## Additional Info

Contact Information		Compilation Comments
Inquiries regarding this HCell content or construction should be directed to:		In addition to the deliverables listed above, a Geospatial PDF file was created and archived for this survey.  NOTE: HCell H12260 features were compiled to the ENC; depths were compiled to the RNC.
HCell Compiler	Cathleen Barry	
Phone Number	206-526-6841	
Email	cathleen.barry@noaa.gov	

APPROVAL SHEET  
H12260

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 with approved exceptions described in the HCell Report.

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.