

H12320

NOAA Form 76-35A

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

**DESCRIPTIVE REPORT**

Type of Survey: Navigable Area

Registry Number: H12320

**LOCALITY**

State: Alaska

General Locality: Kodiak Island

Sub-locality: Narrow Strait to Marmot Bay

**2011**

CHIEF OF PARTY  
CAPT David O. Neander, NOAA

**LIBRARY & ARCHIVES**

Date:

NOAA FORM 77-28 (11-72)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
<b>HYDROGRAPHIC TITLE SHEET</b>			<b>H12320</b>
INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.			
State:	<b>Alaska</b>		
General Locality:	<b>Kodiak Island</b>		
Sub-Locality:	<b>Narrow Strait to Marmot Bay</b>		
Scale:	<b>40000</b>		
Dates of Survey:	<b>06/16/2011 to 07/01/2011</b>		
Instructions Dated:	<b>04/06/2011</b>		
Project Number:	<b>OPR-P136-FA-11</b>		
Field Unit:	<b>NOAA Ship <i>Fairweather</i></b>		
Chief of Party:	<b>CAPT David O. Neander, NOAA</b>		
Soundings by:	<b>Multibeam Echo Sounder</b>		
Imagery by:	<b>Multibeam Echo Sounder Backscatter</b>		
Verification by:	<b>Pacific Hydrographic Branch</b>		
Soundings Acquired in:	<b>meters at Mean lower low water</b>		
H-Cell Compilation Units:	<b><i>meters at Mean lower low water</i></b>		
Remarks: <i>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. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non sequential. All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via <a href="http://www.ngdc.noaa.gov">http://www.ngdc.noaa.gov</a></i>			

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## Descriptive Report to Accompany Survey H12320

Project: OPR-P136-FA-11

Locality: Kodiak Island

Sublocality: Narrow Strait to Marmot Bay

Scale: 1:40000

June 2011 - July 2011

**NOAA Ship *Fairweather***

Chief of Party: CAPT David O. Neander, NOAA

### A. Area Surveyed

The survey area is located north of Kodiak Island, AK, within the sub-locality of Narrow Strait to Marmot Bay

#### A.1 Survey Limits

Data was acquired within the following survey limits:

Northeast Limit	Southwest Limit
58.02 N 152.07 W	57.86 N 152.49 W

*Table 1: Survey Limits*

Northern and eastern limits were adjusted from the initial Project Instruction to include parts of sheet H12319, see Appendix V for documentation of this change. The limits are shown in Figure 1.

***Correspondence authorizing this change is appended.***

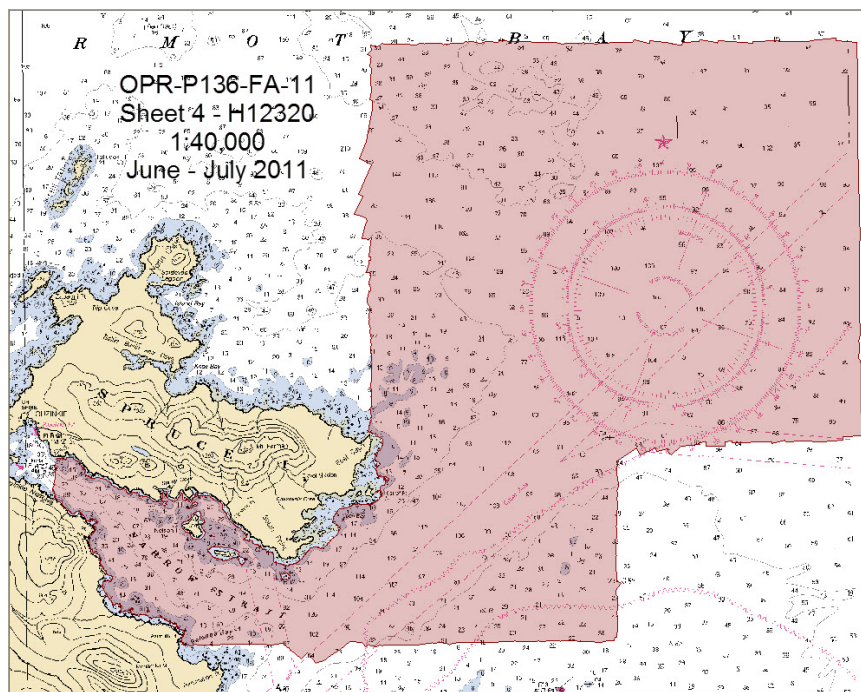
#### A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products.

#### A.3 Survey Quality

The entire survey is adequate to supersede previous data.

## A.4 Survey Coverage



*Figure 1: H12320 Survey Outline*

The survey coverage deviated somewhat from the requirements described in the Project Instructions. Safety considerations limited the near shore extent of survey coverage in some areas. In areas where rocks and shoals were prevalent, a near shore NALL was generated for safe survey operations. Near shore survey coverage was also limited by the presence of kelp in numerous areas throughout the project area.

## A.5 Survey Statistics

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

	<b>HULL ID</b>	<b>2808</b>	<b>2806</b>	<b>S220</b>	<b>2805</b>	<b>Total</b>
<b>LNM</b>	<b>SBES Mainscheme</b>	0.00	0.00	0.00	0.00	0.00
	<b>MBES Mainscheme</b>	162.12	162.73	139.55	199.89	664.29
	<b>Lidar Mainscheme</b>	0.00	0.00	0.00	0.00	0.00
	<b>SSS Mainscheme</b>	0.00	0.00	0.00	0.00	0.00
	<b>SBES/MBES Combo Mainscheme</b>	0.00	0.00	0.00	0.00	0.00
	<b>SBES/SSS Combo Mainscheme</b>	0.00	0.00	0.00	0.00	0.00
	<b>MBES/SSS Combo Mainscheme</b>	0.00	0.00	0.00	0.00	0.00
	<b>SBES/MBES Combo Crosslines</b>	4.88	15.31	12.65	16.94	49.78
	<b>Lidar Crosslines</b>	0.00	0.00	0.00	0.00	0.00
<b>Number of Bottom Samples</b>						16
<b>Number of DPs</b>						7
<b>Number of Items Items Investigated by Dive Ops</b>						0
<b>Total Number of SNM</b>						74

Table 2: Hydrographic Survey Statistics

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

<i>Survey Dates</i>
06/16/2011
06/20/2011
06/21/2011
06/22/2011
06/23/2011
06/24/2011
06/25/2011
06/26/2011
06/27/2011
06/28/2011
06/29/2011
06/30/2011
07/01/2011

*Table 3: Dates of Hydrography*

## **A.6 Shoreline**

Shoreline was investigated in accordance with the Project Instructions and the HSSD.

## **A.7 Bottom Samples**

Bottom Samples were acquired in accordance with the Project Instructions or the HSSD. Sixteen bottom samples were collected within the sheet limits of H12320. Bottom samples are included in this sheets Final Feature File and Final Feature Report located in Appendix II.

*Seven new bottom samples, nine currently charted bottom types, and additional rocky seabed areas created during office processing are recommended for charting.*

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

### **B.1 Equipment and Vessels**

Refer to the Data Acquisition and Processing Report (DAPR) for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional

information to supplement sounding and survey data, and any deviations from the DAPR are discussed in the following sections.

### B.1.1 Vessels

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

Hull ID	2805	2807	2808	S220	1905
LOA	8.64 meters	8.64 meters	8.64 meters	70.4 meters	5.79 meters
Draft	1.12 meters	1.12 meters	1.12 meters	4.7 meters	0.66 meters

Table 4: Vessels Used



Figure 2: Launch 2808 With Mounted LANDMark Marine Laser Scanner

A LANDMark Marine Laser Scanner was mounted on survey launch 2808 to gather point cloud data of shoreline features while concurrently acquiring multibeam data. The mounting configuration for the laser scanner is illustrated in Figure 2. For more specific information refer to Applanix LANDMark Marine Test Report prepared by Physical Scientist Grant Froelich of Pacific Hydrographic Branch, included in Appendix V of this report.

**Test was run on both surveys H12317 and H12320. Applanix LANDMark Marine Test Report is appended to the Descriptive report of junctioning survey H12317.**

## B.1.2 Equipment

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

<b>Manufacturer</b>	<b>Model</b>	<b>Type</b>
Reson	7125	MBES
Reson	7111	MBES
Applanix	POS/MV V4	Vessel Attitude System
Applanix	POS/MV V4	Positioning System
Reson	SVP70	Sound Speed System
Reson	SVP 71	Sound Speed System
Brooke Ocean	MVP 200	Sound Speed System
SeaBird	CBE 19plus	Sound Speed System

*Table 5: Major Systems Used*

## B.2 Quality Control

### B.2.1 Crosslines

Surface differencing in CARIS HIPS was used to assess crossline agreement with main scheme lines on sheet H12320. Percentage of crosslines collected to main scheme lines is 8.72%. Figure 3 depicts a difference between a 16 meter surface made with main scheme lines only and a 16 meter surface made with crosslines only. The areas of extreme disagreement are the result of steeply sloping regions where even a slight horizontal offset results in major differences in depth. There is a holiday in the main scheme lines that was filled by the crossline. Figure 4 shows the statistical analysis of the difference between the main scheme and crossline surfaces, with 80% of nodes having a difference of less than one meter.

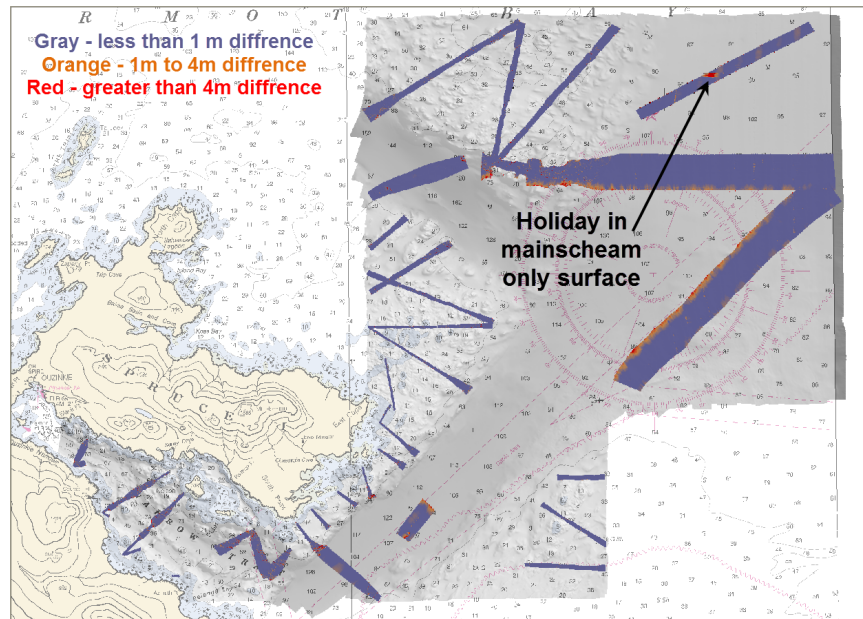


Figure 3: Graphical representation of surface differencing between the mainscheme and crossline 16 meter surfaces.

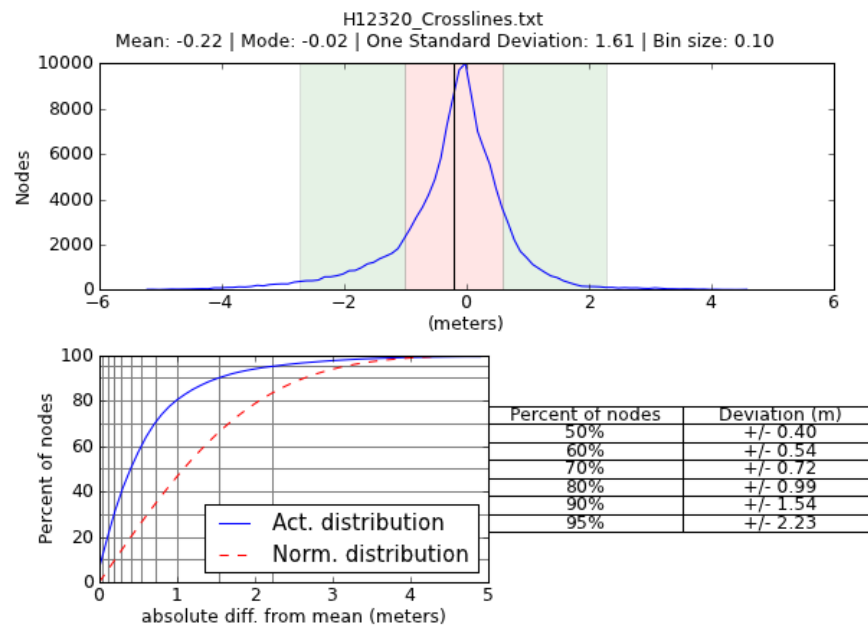


Figure 4: Statistical information for the surface differencing between the main scheme and crossline 16 meter surfaces.



### B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Measured	Zoning
0.01meters	0.1meters

*Table 6: Survey Specific Tide TPU Values*

Hull ID	Measured - CTD	Measured - MVP	Surface
2805	2.0meters/second		0.5meters/second
2806	2.0meters/second		0.5meters/second
2808	2.0meters/second		0.5meters/second
S220		0.5meters/second	0.5meters/second

*Table 7: Survey Specific Sound Speed TPU Values*

### B.2.3 Junctions

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12317	1:10000	2011	NOAA Ship FAIRWEATHER	W

*Table 8: Junctioning Surveys*

### H12317

The areas of overlap for adjacent sheet H12317, shown in Figure 5, were reviewed in CARIS Subset Editor for sounding consistency and in CARIS HIPS and SIPS by surface differencing the 16 meter combined surfaces to assess surface agreement. The soundings and surfaces are in general agreement within one meter, this is within the total allowable vertical uncertainty in the common areas. The areas where the difference is greater than one meter are in rocky and steep slope bottoms. In these areas very slight horizontal offsets can result in significant vertical differences between the two sheets. The differencing is displayed graphically in Figure 6 and statistically in Figure 7.

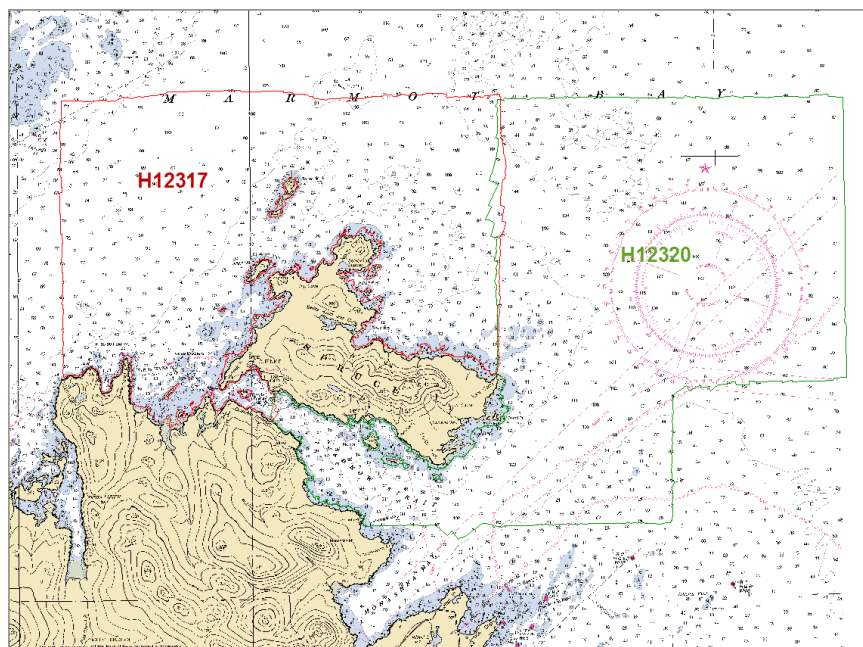


Figure 5: Junctions between sheet H12317 and H12320.

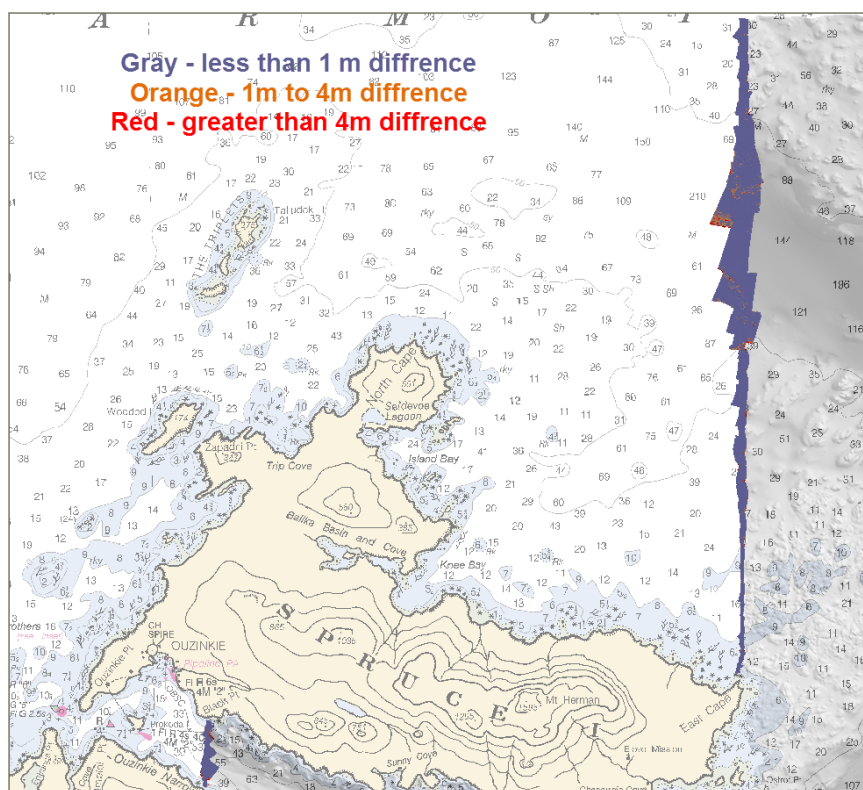


Figure 6: Graphical representation of junction comparison between sheet H12317 and H12320.

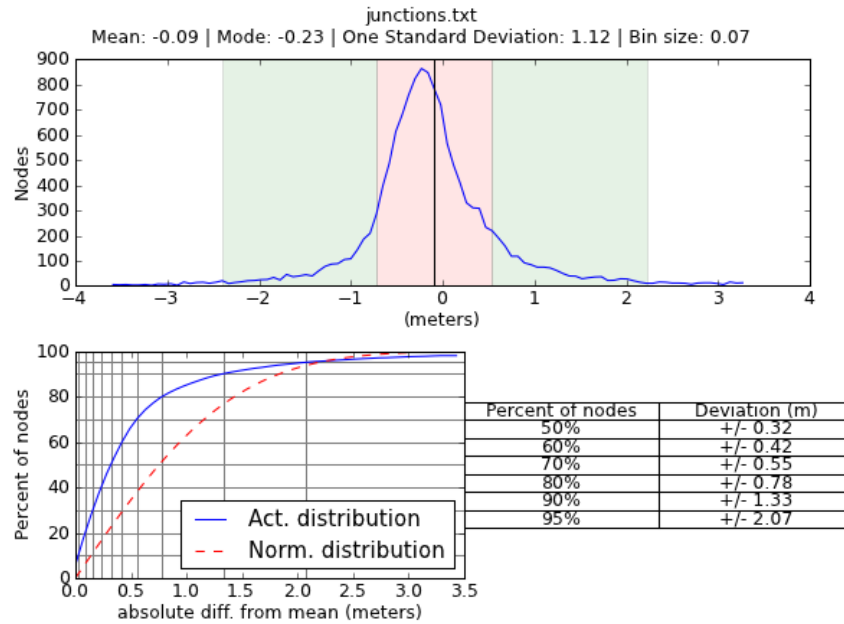


Figure 7: Statistical information for junction comparison between sheet H12317 and H12320.

## B.2.4 Sonar QC Checks

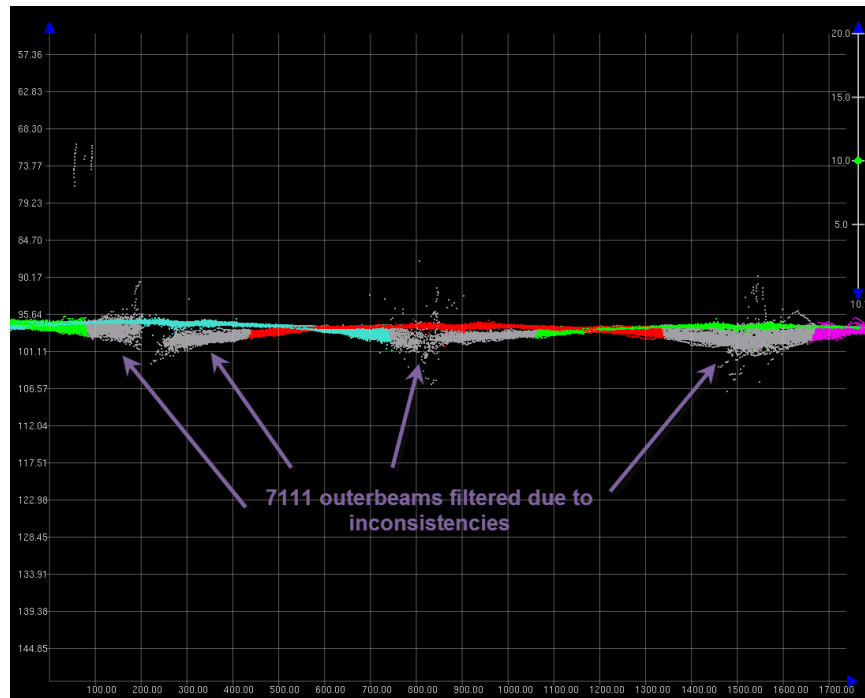
Sonar system quality control checks were conducted as detailed in the quality control section of the DAPR.

## B.2.5 Equipment Effectiveness

### B.2.5.1 RESON 7111 Issues

Data acquired on sheet H12320 with the RESON 7111 system installed on Fairweather S220 displayed some inconsistencies, shown in Figure 8. These inconsistencies could be contributed to sound velocity. The outermost RESON 7111 beams frequently had characteristics that did not agree with other overlapping data. For this reason all survey lines conducted using the RESON 7111 were filtered to exclude data outside nadir by more than 68 degrees on both the port and starboard sides of the swath. Filtering of this nature did result in some coverage gaps. In an effort to minimize these gaps some filtered data was re-accepted after close inspection in CARIS HIPS Subset mode. An example of the 7111 outerbeam inconsistency is pictured in Figure 8.

After filtering the RESON 7111 data the surface was tearing badly in places. These areas were examined in CARIS HIPS Subset mode and additional inconsistent nodes were rejected to reduce the surface tearing. See Figure 9 for a representative example.



*Figure 8: RESON 7111 data on sheet H12320 displayed using CARIS Subset Editor with a vertical exaggeration of 10.*

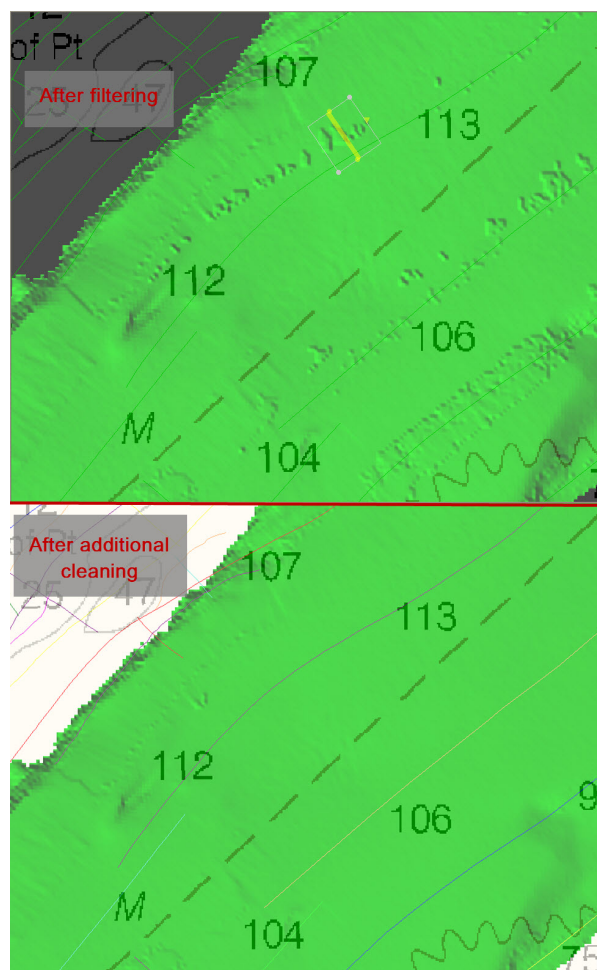


Figure 9: Surface tearing 16 meter finalized surface with an exaggeration of 3

*Data is adequate for charting.*

## B.2.6 Factors Affecting Soundings

### B.2.6.1 None Exist

There were no other factors that affected corrections to soundings.

## B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Sound speed measurements were conducted and applied as discussed in the Corrections to Echo Soundings section of the DAPR.

More precisely, during acquisition of sheet H12320 launches would manually deploy a CTD approximately every 2-3 hours. When working in close proximity with other launches casts would be shared between

launches, this was the case on day number 175. The ship used automatic MVP operation at an interval of one cast every 30 minutes.

### **B.2.8 Coverage Equipment and Methods**

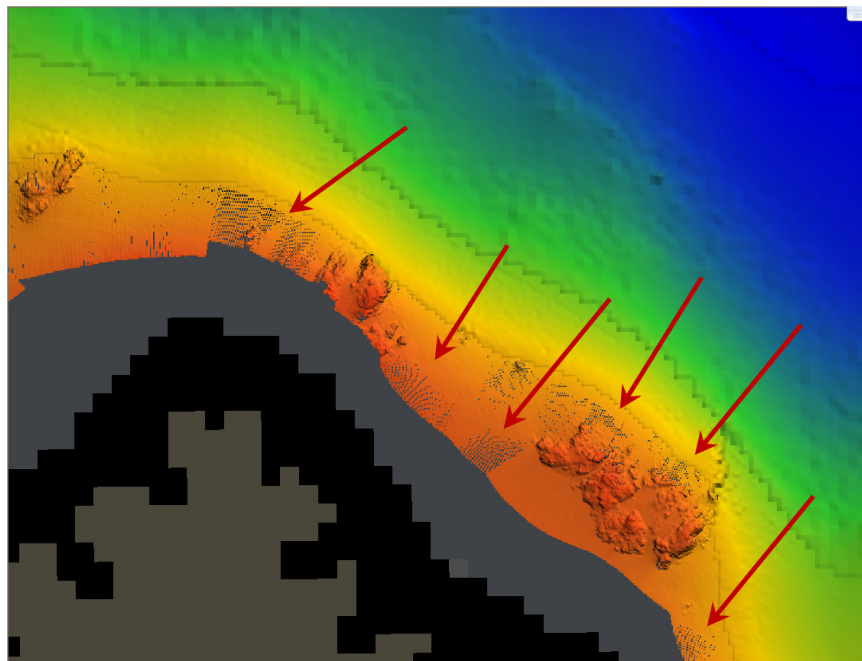
All Equipment and survey methods were used as detailed in the DAPR.

### **B.2.9 Holiday Assessment**

Complete multibeam coverage was obtained within the limits of H12320. For holidays larger than three surface grid nodes, the corresponding multibeam side scan was examined and no navigationally significant items were found. The least depths of most navigationally significant features are represented by H12320. There are a few rocks with a least depth of less than four meters that were positioned but the least depth was not found.

Most holidays resulted from shadows generated in areas with very dynamic and complex sea floor. In particular areas with steep slopes resulted in small data gaps that persisted as holidays. Upon further investigation the shoalest features were consistently represented.

Holidays are apparent in the 50 centimeter surface near the coastline in several areas, such as north of Course Point in Figure 10. The least depth is accurately represented and the density passes the standards compliance.



*Figure 10: Holidays in the 50 centimeter surface north of Course Point*

*Data is adequate for charting.*

#### **B.2.10 IHO Uncertainty**

All data meet the data accuracy specifications as stated in the NOS Hydrographic Surveys Specifications and Deliverables (HSSD) dated April 2011. To assess vertical accuracy standards, a child layer titled "IHO\_1" was created for each of the 0.5 meter, 2 meter, 4 meter, and 8 meter finalized surfaces up to depths of 100 meters using the equation as stated in section C. 2.1 of the DAPR. A child layer titled "IHO\_2" was created for the 8 meter and 16 meter finalized surfaces for depths over 100 meters using the equation as stated in section C. 2.1 of the DAPR. The resulting analysis is presented in Standards Compliance Review in Appendix V.

#### **B.2.11 Density**

Density requirements for H12320 were achieved with at least 96.7 % of finalized surface nodes containing five or more soundings, see Standards Compliance Review in Appendix V.

### **B.3 Echo Sounding Corrections**

#### **B.3.1 Corrections to Echo Soundings**

All Data reductions procedures conform to those detailed in the DAPR.

#### **B.3.2 Calibrations**

All sounding systems were calibrated as detailed in the DAPR.

### **B.4 Backscatter**

Backscatter was logged as a 7k file and submitted directly to NGDC to be archived and to PHB where the data will be processed.

*Specific processing methods have not been established and no backscatter has been processed as of this writing.*

### **B.5 Data Processing**

#### **B.5.1 Software Updates**

The following software updates occurred after the submission of the DAPR:

Manufacturer	Name	Version	Service Pack	Hotfix	Installation Date	Use
Caris	HIPS/SIPS	7.1	0	1	05/09/2011	Processing
Caris	HIPS/SIPS	7.1	0	2	08/08/2011	Processing
Caris	HIPS/SIPS	7.1	0	3	11/07/2011	Processing
Caris	Notebook	3.1	0	3	02/25/2011	Processing
Caris	Notebook	3.1	1	0	09/02/2011	Processing
NOAA	Pydro	11.7-10	0	r3548-r3638	07/15/2011	Processing
Applanix	PosPAC	5.4	1	0	07/15/2011	Processing

*Table 9: Software Updates*

The following Feature Object Catalog was used: Object catalog version #5

### **B.5.2 Surfaces**



The following CARIS surfaces were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12320_05m	CUBE	0.5 meters	-	NOAA_0.5m	Complete MBES
H12320_2m	CUBE	2 meters	-	NOAA_2m	Complete MBES
H12320_4m	CUBE	4 meters	-	NOAA_4m	Complete MBES
H12320_8m	CUBE	8 meters	-	NOAA_8m	Complete MBES
H12320_16m	CUBE	16 meters	-	NOAA_16m	Complete MBES
H12320_05m_Final_0to20	CUBE	0.5 meters	0 meters - 20 meters	NOAA_0.5m	Complete MBES
H12320_2m_Final_17to40	CUBE	2 meters	17 meters - 40 meters	NOAA_2m	Complete MBES
H12320_4m_Final_34to80	CUBE	4 meters	34 meters - 80 meters	NOAA_4m	Complete MBES
H12320_8m_Final_68to160	CUBE	8 meters	68 meters - 160 meters	NOAA_8m	Complete MBES
H12320_16m_Final_156to400	CUBE	16 meters	156 meters - 400 meters	NOAA_16m	Complete MBES
H12320_16m_Combined	CUBE	16 meters	-	NOAA_16m	Complete MBES

*Table 10: CARIS Surfaces*

All field sheet extents were adjusted using the Base 16 Calculator tool to ensure coincident nodes among all bathymetric surfaces regardless of the field sheet in which they are contained given the standard surface resolutions of half, two, four, eight, and sixteen meters. The NOAA CUBE parameters mandated in HSSD were used for the creation of all CUBE BASE surfaces in Survey H12320.

The shoaler limit of the depth brackets were extended to reduce the display gaps at the junctions of the finalized surface changes in resolution.

A finalized 32 meter surface was not created even though a small portion of the survey extended deeper than 320 meters. The finalized 16 meter surface extends from 156 to 400 meters to include all of the data from the deepest parts of the survey and to be consistent with the depth brackets of the 32 meter defined in section 5.2.2.2 of the HSSD. All density requirements were met within the 16 meter surface.

The surfaces have been reviewed where noisy data, or 'fliers' are incorporated into the gridded solution causing the surface to be shoaler than the true seafloor. Where these spurious soundings cause the gridded surface to be shoaler than the reliably measured seabed by greater than the maximum allowable vertical uncertainty at that depth, the noisy data have been rejected and the surface recomputed.

### **B.5.3 Data Logs**

Data acquisition and processing notes are included in the acquisition and processing logs, and additional processing such as final tide and sound velocity application is noted in the H12320 Data Log spreadsheet. All data logs are submitted digitally in the Separates I folder.

### **B.5.4 Critical Soundings**

Designation of soundings followed procedures as outlined in section 5.2.1.2 of the HSSD accept as noted below.

A 50 centimeter resolution surface was created in lieu of excessive designated soundings with a 1 meter surface. With the 50 centimeter resolution surface survey H12320 requires 13 critical soundings. Four soundings are outstanding to mark Dangers to Navigation (DTON). The remaining nine are designated soundings required to accurately represent the sea floor.

### **B.5.5 TrueHeave**

To enable the application of TrueHeave, some POS/MV files were "fixed" using the fixTrueHeave.exe utility from CARIS. Fixed files were assigned an additional \*.fixed suffix. This was performed for the following vessels and days:

Launch 2805 days 173, 174, 175, 176, 178, 179, 180, and 181;

Launch 2806 days 173, 176, 177, and 180;

Launch 2808 days 174, 175, 177, and 178.

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

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

### **C.1 Vertical Control**

The vertical datum for this project is Mean lower low water.

Standard Vertical Control Methods Used:

Discrete Zoning

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

Station Name	Station ID
Kodiak Island, AK	9457292

*Table 11: NWLON Tide Stations*

File Name	Status
9457292.tid	Verified Observed

*Table 12: Water Level Files (.tid)*

File Name	Status
P136FA2011CORP.zdf	Final
P136FA2011CORP--.zdf	Final

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

A request for final approved tides was sent to N/OPS1 on 07/11/2011. The final tide note was received on 07/13/2011.

Final zoning and water level files were received for survey H12320. Preliminary zoning is accepted as the final zoning for project OPR-P136-FA-2011, H12320, during the time period between June 16 - July 1, 2011.

P136FA2011CORP.zdf was the tide file used for all correctors to soundings in CARIS HIPS. To enable the application of the tide file in CARIS Notebook the original .zdf file needed to be edited to include only one tide station. P136FA2011CORP--.zdf reflects this edit whose only difference is to exclude tide station 9457292 from the tide station list. It was determined by the field that this excluded tide station had no effect on the tide zones where hydrography was collected. Both files are submitted in the tides folder of the processed data.

*Tide note appended.*

**C.2 Horizontal Control**

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

The following PPK methods were used for horizontal control:

## Single Base

Vessel kinematic data were post-processed using Applanix POSPac processing software and SingleBase methods as described in the DAPR. The Post Processing Kinematic (PPK) method is the primary method of positioning of MBES soundings on H12320. Correctors from the GPS base station established near the Three Brothers Islands was used for post processing all vessel-day POSMV files. Smooth Best Estimate of Trajectory (SBET) and associated error (SMR) data were applied to all MBES data in CARIS Hips with the exception of the following lines:

The SBET for launch 2807 on day number 173 line number 2011M\_1732154 could not be applied since the line is longer than the SBET.

The SBET for launch 2805 on day number 179 line numbers 2011M\_1792159, 2011M\_1792156, 2011M\_1792201 and day number 174 line number 2011M\_1741901 was not applied because of gaps in the IMU data.

The SBET for S220 on day number 181 line numbers 2011M\_1820017 and 2011M\_1820041 was not applied.

The following CORS Stations were used for horizontal control:

HVCR Site ID	Base Station ID
Kodiak 5	KOD5

*Table 14: CORS Base Stations*

The following user installed stations were used for horizontal control:

HVCR Site ID	Base Station ID
TRIPLET	TRIP

*Table 15: User Installed Base Stations*

Differential correctors from the U.S. Coast Guard beacon at Kodiak, AK (313 kHz) were used during real-time acquisition when not otherwise noted in the acquisition logs, and were the sole method of positioning of detached positions (DP) and bottom samples as there is currently no functionality for applying SBET files to these types of data.

For further details regarding the processing and quality control performed see the H12320 POSPAC Processing Log spreadsheet located in the SBET folder with the GNSS data. Also see the OPR-P136-FA-11 Horizontal and Vertical Control Report, submitted under separate cover.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Kodiak, AK (313 kHz)

*Table 16: USCG DGPS Stations*

## D. Results and Recommendations

### D.1 Chart Comparison

#### D.1.1 Raster Charts

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

Chart	Scale	Edition	Edition Date	LNLM Date	NM Date
16594	1:78900	13	04/1998	08/29/2011	08/29/2011

*Table 17: Largest Scale Raster Charts*

#### 16594

Soundings from survey H12320 generally agreed within 5 fathoms with charted depths on chart 16594. Contours generated in CARIS HIPS closely approximated the charted 3, 10 and 50 fathom contours. Notable exceptions to this general agreement are listed and shown in the figures below.

In Icon Bay the surveyed 10 fathom contour projects farther off shore, to the south, than the charted 10 fathom contour, see Figure 11. There are two surveyed 5 fathom soundings to the south of the charted 10 fathom contour.

Southeast of Ostrof Point the charted 50 fathom contour is approximately 120 meters north west of the surveyed 50 fathom contour, shown in Figure 12.

Northeast of East Cape there are discrepancies between the charted depths and surveyed soundings as well as the corresponding contours, see Figure 13. A charted depth of 38 fathoms is seaward of the surveyed contour and the surveyed soundings are greater than 50 fathoms in the vicinity. The second discrepancy in the same area are surveyed soundings as shoal as 31 fathoms seaward of the charted 50 fathom contour. The least depth of the shoals along this 50 fathom contour are not accurately charted, four such shoals are shown in Figure 14. The first is the 31 fathom shoal mentioned previously. To the south is a 15 fathom sounding between charted depths of 43 and 21 fathoms. There is a shoal to the northwest with a least depth of 20 fathoms between charted depths of 31 and 33. Further northwest is a surveyed sounding of 15 fathoms in the vicinity of charted depth of a 25 fathoms.

In the northwestern most corner of the sheet there are two inconsistent soundings, see Figure 15. The first is an 18 fathom surveyed sounding between the charted depths of 30 and 23 fathoms. The second is a 19 fathom surveyed sounding between two charted 23 fathom depths.

South of South Point several surveyed least depths do not correspond to the charted depths, see Figure 16. There is a 9 fathom surveyed sounding in the vicinity of a 17 fathom charted depth to the east of the islets. To the south of the islets there is a 7 fathom surveyed sounding where the charted depth is 14 fathoms. To the south west of South Point is a 2 fathom 5 foot surveyed sounding where the charted depth is 8 fathoms. Just west of this is another 8 fathom charted depth with a surveyed sounding of 4 fathoms.

Northeast of Azimuth Point there are two charted 21 fathom depths with surveyed soundings as shoal as 14 fathoms in the vicinity, see Figure 17.

Northwest of Azimuth Point there are surveyed soundings as shoal as 7 fathoms 2 feet between two charted depths of 34 and 36 fathoms, shown in Figure 18. This discrepancy was submitted as a DTON in DTON Report #3 on December 7, 2011.

In the southeastern most corner of the sheet a surveyed sounding of 4 fathoms can be found near a charted depth of 8 fathoms, see Figure 19.

*Concur with general areas of shoaling listed above but specific depths listed may not match those recommended for charting.*

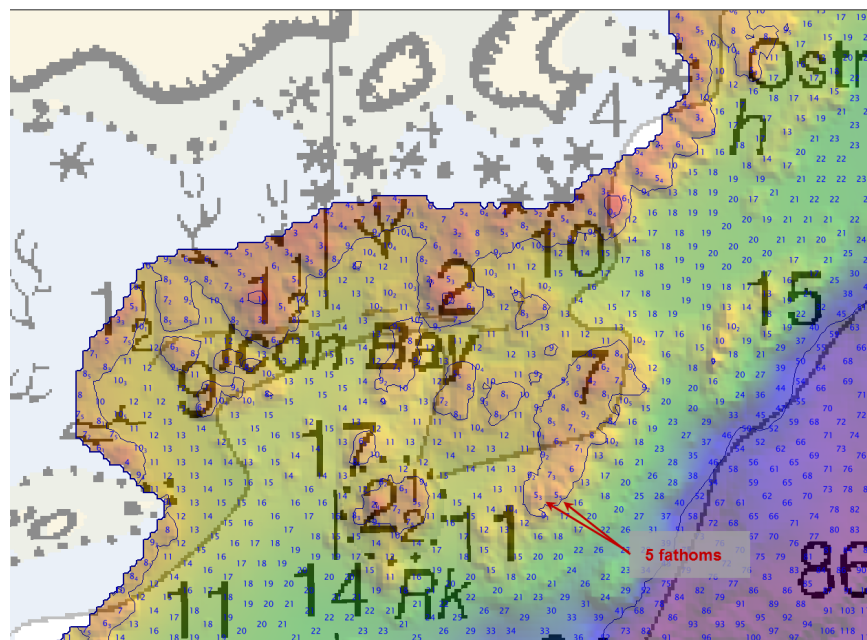


Figure 11: The 10 fathom contour in Icon Bay.

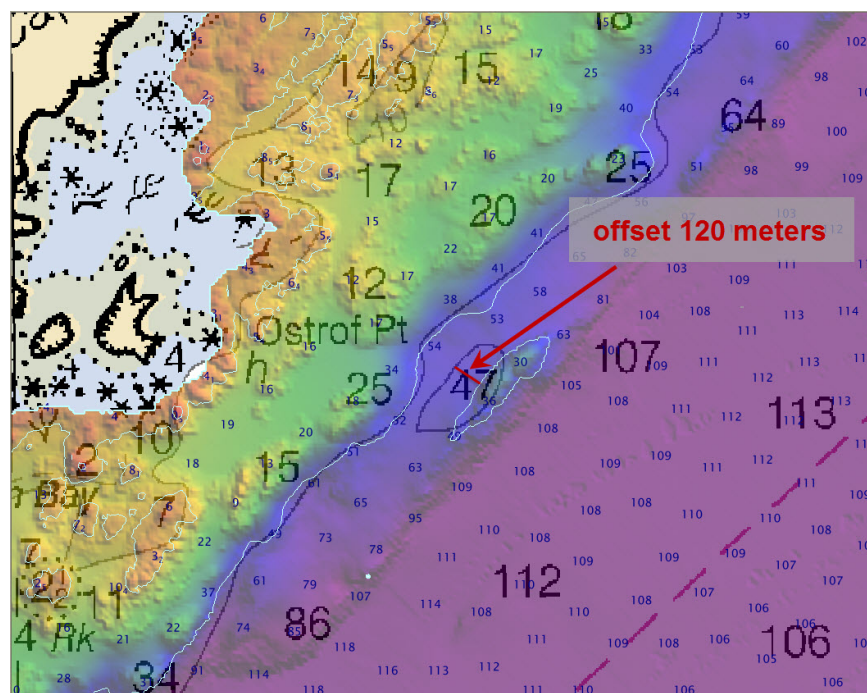


Figure 12: The 50 fathom contour southeast of Ostrof Point.

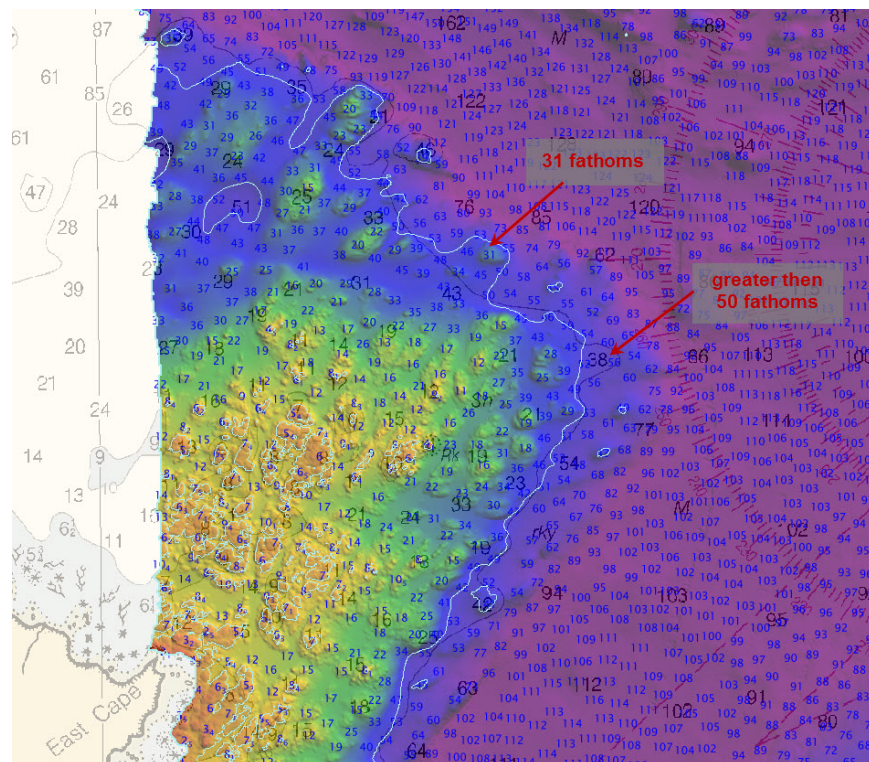


Figure 13: The 50 fathom contour northeast of East Point.



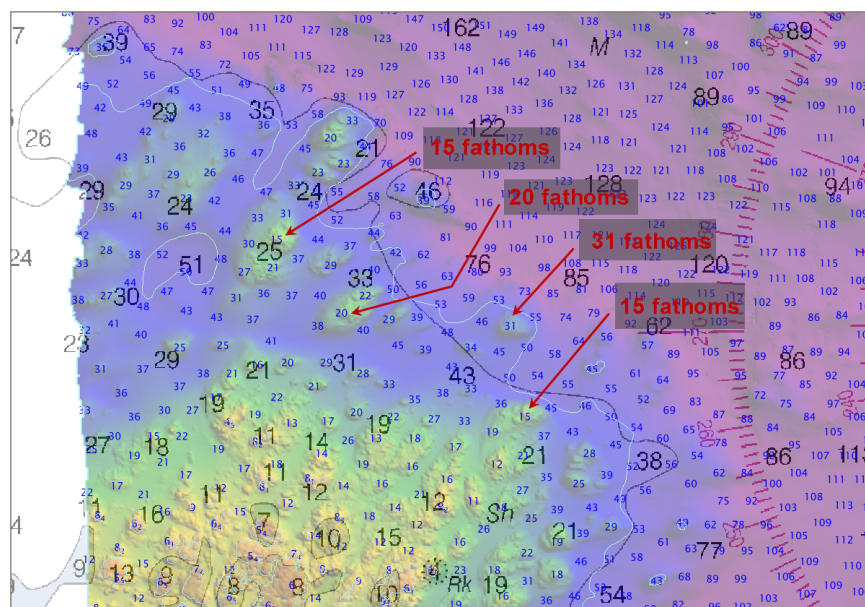


Figure 14: Least depth of soals near the 50 fathom contour north of East Point not accurately charted.

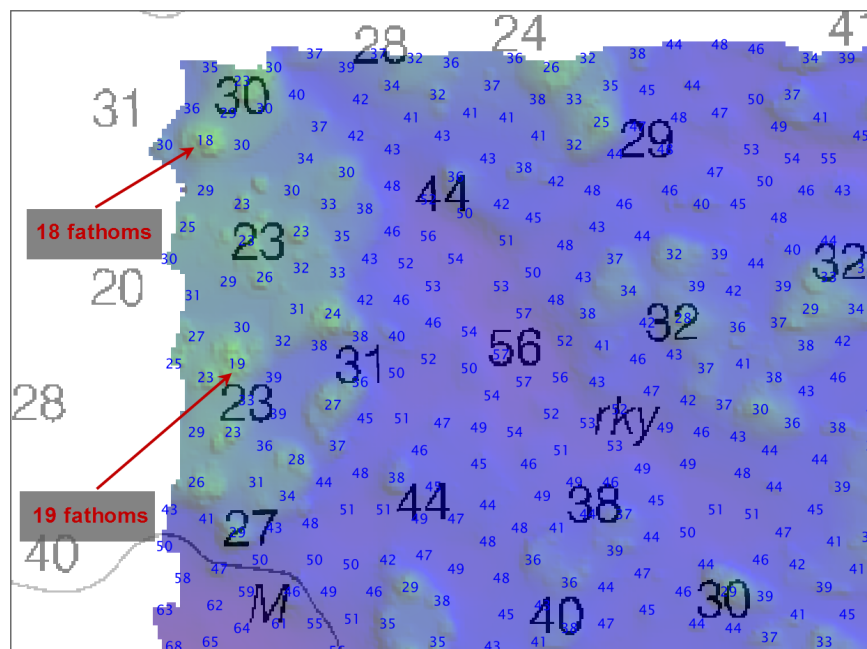


Figure 15: Surveyed soundings of 19 fathoms near charted depth of 23 fathoms.



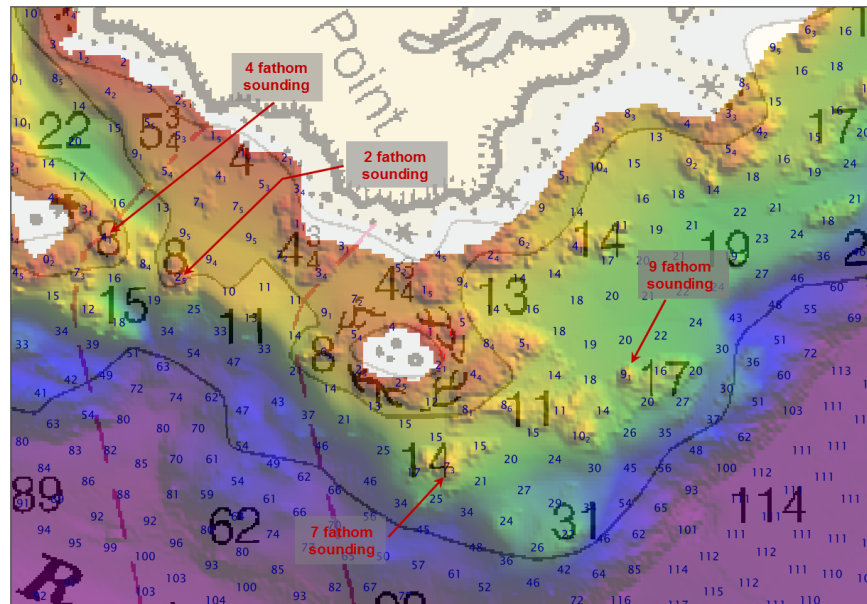


Figure 16: Several surveyed least depths do not correspond to the charted depths around South Point.

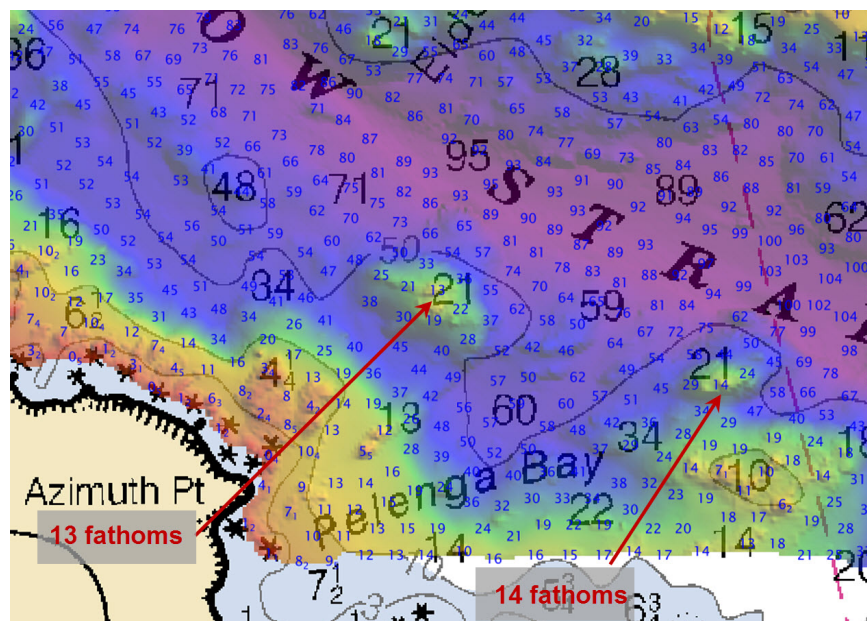


Figure 17: Two charted 21 fathom depths with nearby surveyed soundings of 14 fathoms.

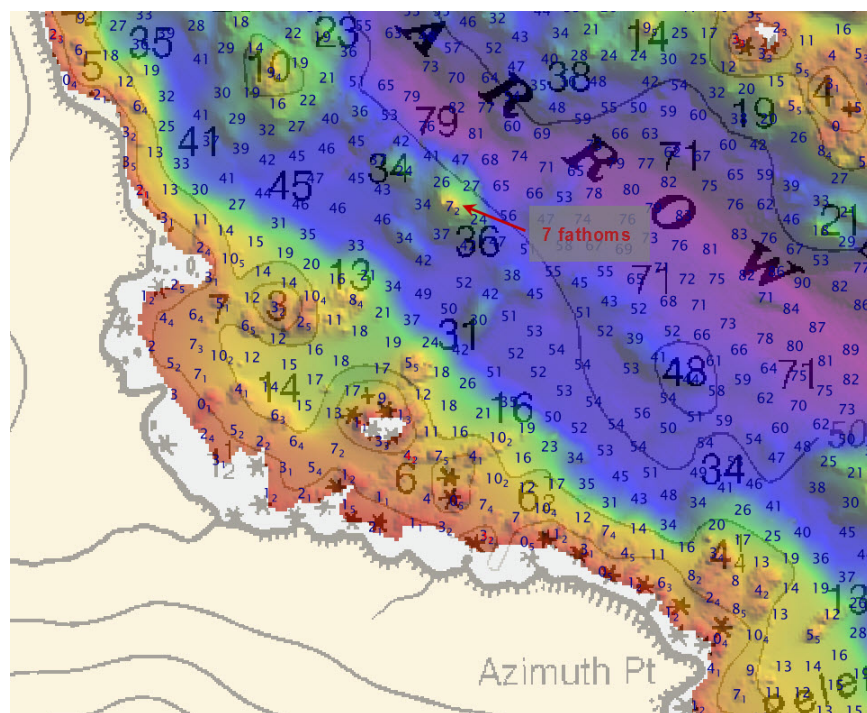


Figure 18: Surveyed sounding of 7 fathoms 2 feet is found between charted depths of 34 and 36 fathoms.

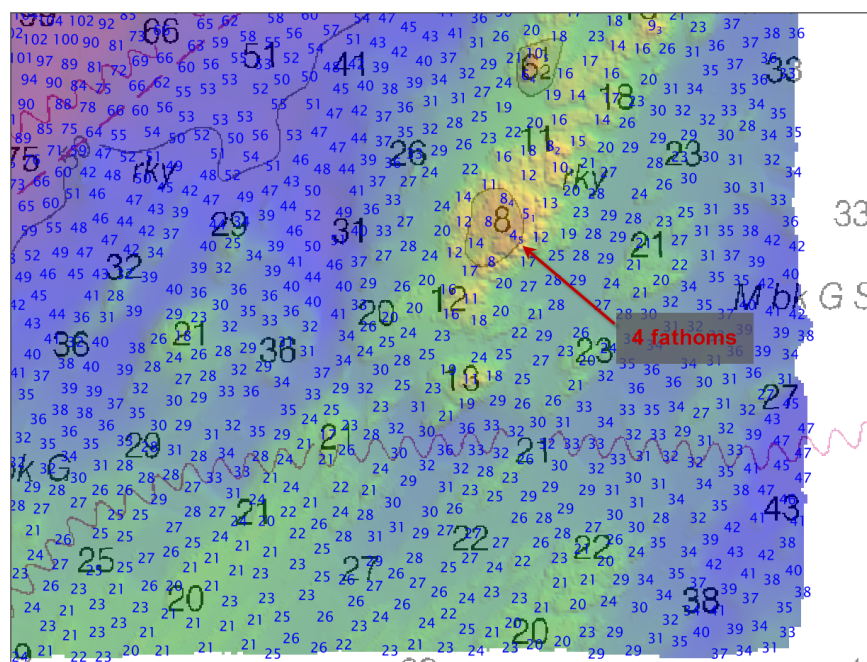


Figure 19: Surveyed sounding of 4 fathoms near a charted depth of 8 fathoms.

#### D.1.2 AWOIS Items

Number of AWOIS Items Addressed: 4

Number of AWOIS Items Not Addressed: 0

There were 4 AWOIS items located within the limits of H12320. Of the AWOIS items, all were addressed and are included in the H12320 Final Feature File and the H12320 Feature Report in Appendix II.

***AWOIS item investigation results are included in appended AWOIS report.***

### **D.1.3 Charted Features**

There was one PA charted feature, a wreck, located within the limits of H12320. The PA wreck was addressed and is included in the H12320 Final Feature File and the H12320 Feature Report in Appendix II.

***Charted wreck PA is associated with AWOIS 54015. Wreck not located, recommend removing from chart. AWOIS item investigation results are included in appended AWOIS report.***

### **D.1.4 Uncharted Features**

There were no uncharted features located within the limits of H12320.

### **D.1.5 Dangers to Navigation**

The following DTON reports were submitted to the processing branch:

<b>DTON Report Name</b>	<b>Date Submitted</b>
H12320_DTON_Report	2011-06-28
H12320_DTON_Report_2	2011-06-30
H12320_DTON_Report_3	2011-12-07

*Table 18: DTON Reports*

Four dangers to navigation were found within the limits of H12320. The first danger to navigation was reported to the Marine Chart Division in H12320\_DTON\_Report on June 28, 2011. A second danger to navigation was reported to the Marine Chart Division in H12320\_DTON\_Report\_2 on June 30, 2011. The third and fourth dangers to navigation were reported to the Marine Chart Division in H12320\_DTON\_Report\_3 on December 7, 2011. A copy of the preliminary Danger to Navigation Report, the preliminary Danger to Navigation Report #2, and the preliminary Danger to Navigation Report #3 are included in Appendix I.

### **D.1.6 Shoal and Hazardous Features**

All navigationally significant shoal features located within the limits of H12320 were investigated using MBES and/or shoreline acquisition techniques.

### **D.1.7 Channels**

There were no channels located within the limits of H12320.

## **D.2 Additional Results**

### **D.2.1 Shoreline**

Fairweather personnel conducted limited shoreline verification and reconnaissance at times near predicted negative or low tides within the survey limits. Annotations, information, and diagrams collected on DP forms and boat sheets during field operations are scanned and included in the digital Separates I folder. Shoreline verification procedures for survey H12320 conform to those detailed in the DAPR, with the exception discussed below.

As mentioned previously in this report a Landmark laser scanner mounted on Launch 2808 was used for supplementary shoreline acquisition and verification on sheet H12317 while concurrently acquiring multibeam data.

The Hydrographer recommends that the shoreline depicted in the CARIS Notebook files and final sounding files supersede and complement shoreline information compiled on the CSF and charts.

Feature processing procedures were followed as outlined in the DAPR. Within the survey area several charted ledges, reefs, and mean lower low water lines are in conflict with the contemporary hydrographic data. In accordance with agreements reached with the Hydrographic Branches, these features were not further processed by field personnel.

*In order to minimize field and processing time spent documenting and digitizing charted MLLW features, appropriate cartographic decisions regarding disproving charted MLLW features that were found to be in conflict with hydrography were conducted during office compilation.*

### **D.2.2 Prior Surveys**

Prior survey comparisons were not conducted by the field.

### **D.2.3 Aids to Navigation**

There were no ATONs located within the limits of H12320

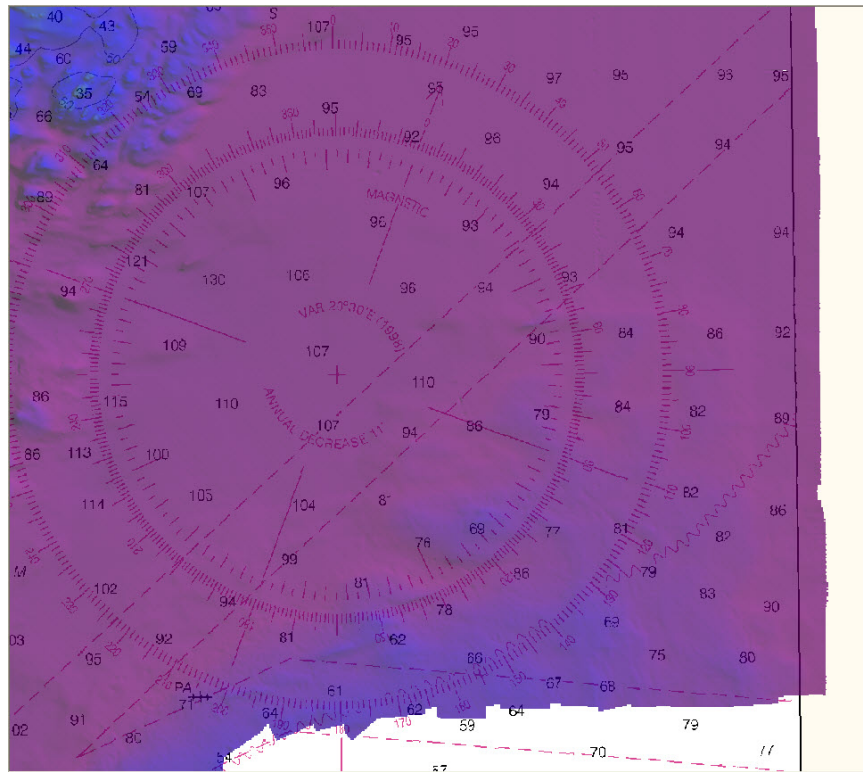
### **D.2.4 Overhead Features**

There were no overhead features located within the limits of H12320.

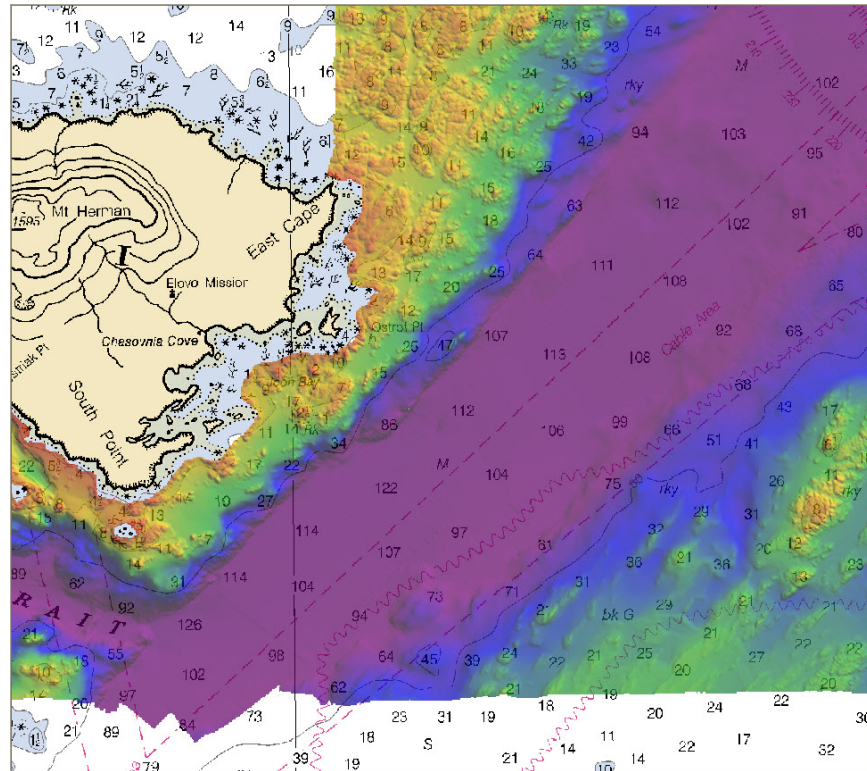


### D.2.5 Submarine Features

Charted cable areas are present in the deeper areas of H12320, see Figures 20 and 21. Although no evidence of the cable areas were observed in the multibeam data, recommend retain cable areas as charted.



*Figure 20: Northern section of cable area*



*Figure 21: Southern section of cable area*

### **D.2.6 Ferry Routes and Terminals**

Although not depicted on navigational charts of the area, Alaska Marine Highway System ferry routes pass through the boundaries of survey H12320. These ferry routes run near the northern limit of the survey and also pass through Narrow Straight en route to and from Kodiak, Alaska. A geographical representation of these routes can be found as a System Map on the Alaska Marine Highway System website at [www.dot.state.ak.us/amhs/map.shtml](http://www.dot.state.ak.us/amhs/map.shtml).

***Recommend charting ferry routes per the Alaska Marine Highway System.***

### **D.2.7 Platforms**

There were no platforms located within the limits of H12320.

### **D.2.8 Significant Features**

There were no significant features located within the limits of H12320.

**D.2 Construction and Dredging**

There were no construction or dredging operations within the limits of H12320 during the period of acquisition.

## E. Approval Sheet

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

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

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

Report Name	Report Date Sent
Hydrographic Systems Readiness Review	2011-08-26
Data Acquisition and Processing Report	2011-09-08
Horizontal and Vertical Control Report for OPR-P136-FA-11	2011-09-14
Coast Pilot Report for OPR-P136-FA-11	2011-12-06

Approver Name	Approver Title	Approval Date	Signature
CAPT David O. Neander, NOAA	Chief of Party	11/07/2011	 2011.12.21 13:56:26 -08'00'
ENS Leslie Z. Flowers, NOAA	Sheet Manager	11/07/2011	 Leslie Z. Flowers 2011.12.21 22:30:51 Z
CST Lynnette V. Morgan	Chief Survey Technician	11/07/2011	 David Moehl 2011.12.22 09:23:17 -08'00'
LT Caryn M. Zacharias, NOAA	Field Operations Officer	11/07/2011	 Caryn M. Zacharias 2011.12.22 09:31:48 -08'00'



## F. Table of Acronyms

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

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

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



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

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE :** July 13, 2011

**HYDROGRAPHIC BRANCH:** Pacific  
**HYDROGRAPHIC PROJECT:** OPR-P136-FA-2011  
**HYDROGRAPHIC SHEET:** H12320

**LOCALITY:** Narrow Strait to Marmot Bay, North Coast of Kodiak Island, AK  
**TIME PERIOD:** June 16 - July 1, 2011

**TIDE STATION USED:** 945-7292 Kodiak Island, AK  
Lat. 57° 43.9'N Long. 152° 30.7' W  
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 2.397 meters

**REMARKS: RECOMMENDED ZONING**

Preliminary zoning is accepted as the final zoning for project OPR-P136-FA-2011, H12320, during the time period between June 16 - July 1, 2011.

Please use the zoning file "P136FA2011CORP" submitted with the project instructions for North Coast of Kodiak Island. Zones SWA98, SWA98A and SWA106A are the applicable zones for H12320.

**Refer to attachments for zoning information.**

**Note 1:** Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

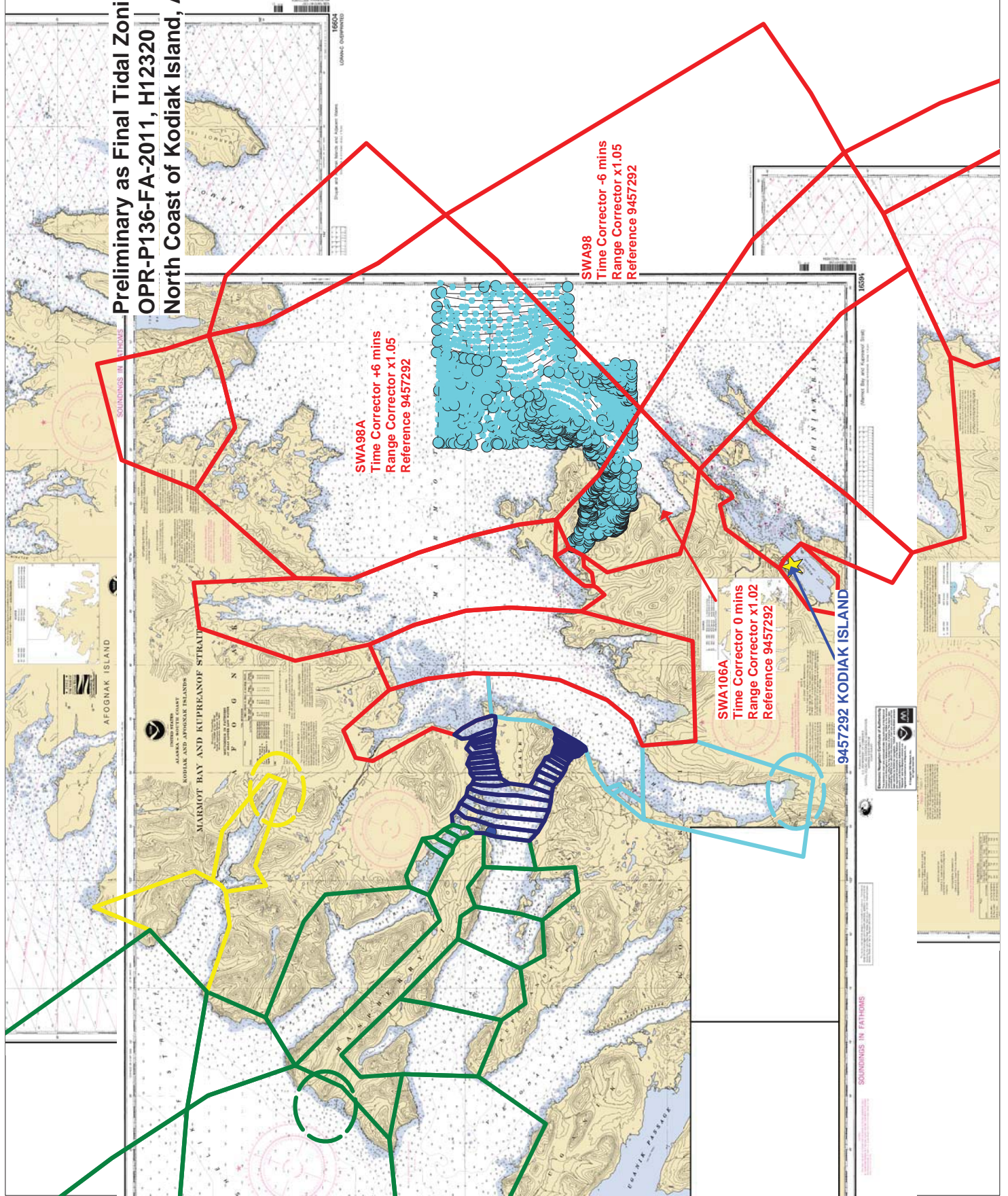
**Gerald  
Hovis**

Digitally signed by Gerald Hovis  
DN: cn=Gerald Hovis, o=Center for  
Operational Oceanographic Products  
and Services, ou=NOAA/NOS/CO-  
OPS/OD/PSB,  
email=gerald.hovis@noaa.gov, c=US  
Date: 2011.07.21 09:26:23 -04'00'

CHIEF, PRODUCTS AND SERVICES BRANCH



Preliminary as Final Tidal Zoning for  
OPR-P136-FA-2011, H12320  
North Coast of Kodiak Island, AK





**Subject:** RE: P136 proposed new sheet layouts

**From:** Kyle Ward <Kyle.Ward@noaa.gov>

**Date:** Wed, 08 Jun 2011 09:55:34 -0400

**To:** "chiefst.fairweather" <chiefst.fairweather@noaa.gov>, '\_OMAO MOP OPS Fairweather' <ops.fairweather@noaa.gov>, '\_OMAO MOP CO Fairweather' <co.fairweather@noaa.gov>

**CC:** "james.m.crocker" <James.M.Crocker@noaa.gov>, 'Mark Friese' <Mark.Friese@noaa.gov>, "J. Corey Allen" <Corey.Allen@noaa.gov>

Matt,

HSD approves the suggested changes to the sheet limits. Please be sure to make the name changes in the DR and include a copy of this email in the correspondence section of the applicable DRs. Please make sure the SNM changes are reflected in the monthly report spreadsheet.

The necessary name and SNM changes for the sheets are in red.

H12317, SNM = 56, Ouzinkie Harbor to Southern Portion of Marmot Bay

H12318, SNM = 60, Vicinity of Kazakof Bay and Duck Bay

H12319, SNM = 35, Northeaster Portion of Marmot Bay

H12320, SNM= 74, Narrow Strait to Marmot Bay

Mark and Corey,

I made the changes to survey tracker, Survey Details and Monthly Progress Estimate.

Regards,

Kyle

---

**From:** james.m.crocker [mailto:James.M.Crocker@noaa.gov]

**Sent:** Tuesday, June 07, 2011 8:39 AM

**To:** Kyle Ward

**Subject:** Fwd: P136 proposed new sheet layouts

----- Original Message -----

**Subject:** P136 proposed new sheet layouts

**Date:** Mon, 06 Jun 2011 17:27:25 +0000

**From:** FOO Fairweather <OPS.Fairweather@noaa.gov>

**To:** NOAA James Crocker <James.M.Crocker@noaa.gov>, NOAA Megan Greenaway <Megan.Greenaway@noaa.gov>, NOAA CO FA <CO.Fairweather@noaa.gov>, NOAA Chief ST Fairweather <ChiefST.Fairweather@noaa.gov>

CDR,

attached are images, \*.hob and \*.tab files for proposed changes to P136 sheets. The thinking behind this is to 1) ensure completion of the area around Spruce Island and southern Marmot Bay, 2) concentrate hydro in the areas that will fall within 20km radius of the Spruce Isl. HorCon base station. and 3) Reduce the number of sheet managers for the project. The priority would be H12317, H12320, H12319.

v/r/  
Matt

Matthew Jaskoski LT/NOAA  
Field Operations Officer  
NOAA Ship Fairweather  
1010 Stedman St  
Ketchikan, AK 99901  
907-254-2842 (ship's cell)  
808-659-0054 (ship's sat)  
907-254-0032 (FOO Cell)  
757-647-3356 (Personal Cell)

# H12320 Danger To Navigation Report

**Registry Number:** H12320  
**State:** Alaska  
**Locality:** North Coast of Kodiak Island, AK  
**Sub-locality:** Narrow Straight  
**Project Number:** OPR-P136-FA-11  
**Survey Dates:** June 16, 2011 - July 1, 2011

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
16594	13th	04/04/1998	1:78,900 (16594_1)	[L]NTM: ?
16580	14th	01/01/2008	1:350,000 (16580_1)	[L]NTM: ?
16013	30th	07/01/2006	1:969,761 (16013_1)	[L]NTM: ?
531	24th	07/01/2007	1:2,100,000 (531_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

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

## Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Rock	7.46 m	57° 56' 07.7" N	152° 16' 48.5" W	---



## **1 - Danger To Navigation**

**1.1) 5944/205****DANGER TO NAVIGATION****Survey Summary**

**Survey Position:** 57° 56' 07.7" N, 152° 16' 48.5" W  
**Least Depth:** 7.46 m (= 24.47 ft = 4.079 fm = 4 fm 0.47 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)**  $\pm 0.981$  m ; **TVU (TPEv)**  $\pm 0.352$  m  
**Timestamp:** 2011-174.18:14:53.595 (06/23/2011)  
**Survey Line:** h12320 / fa\_2806\_400khz\_rsn7125\_512bms\_2011 / 2011-174 / 2011m\_1741759  
**Profile/Beam:** 5944/205  
**Charts Affected:** 16594\_1, 16580\_1, 16013\_1, 531\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

The navigable area was covered with 100% MBES (Reson 7125 SV). The feature is a 4.08 fm sounding located between charted 10 and 19 fm depths.

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
h12320/fa_2806_400khz_rsn7125_512bms_2011/2011-174/2011m_1741759	5944/205	0.00	000.0	Primary

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

4fm (16594\_1, 16580\_1, 16013\_1, 530\_1)

4fm 0ft (531\_1)

7.5m (500\_1, 50\_1)

**S-57 Data**

**Geo object 1:** Underwater rock / awash rock (UWTROC)  
**Attributes:** QUASOU - 6:least depth known  
 TECSOU - 3:found by multi-beam  
 VALSOU - 7.459 m

WATLEV - 3:always under water/submerged

## Feature Images

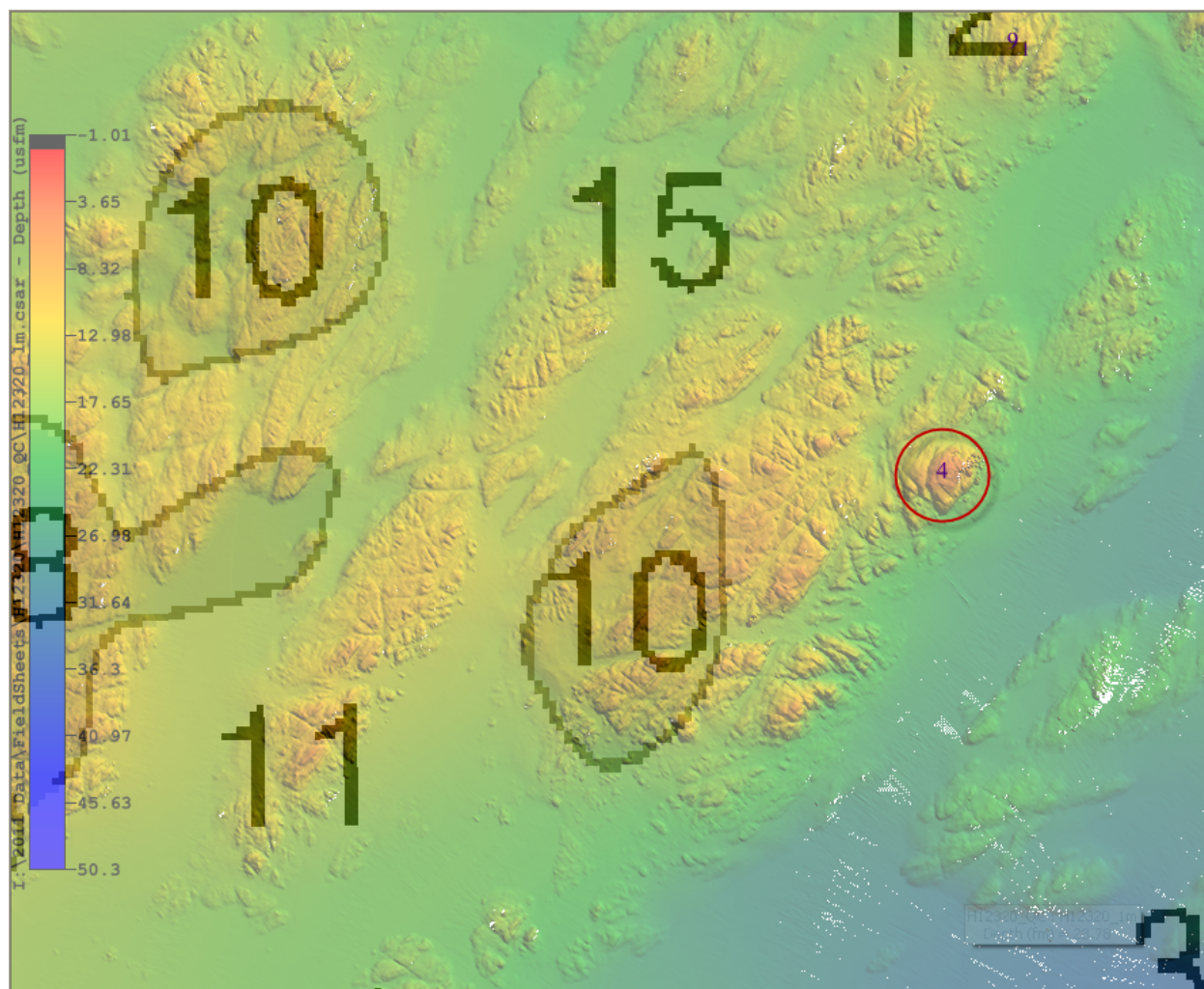


Figure 1.1.1

# H12320 Danger To Navigation Report Number Two

**Registry Number:** H12320  
**State:** Alaska  
**Locality:** North Coast of Kodiak Island, AK  
**Sub-locality:** Narrow Strait  
**Project Number:** OPR-P136-FA-11  
**Survey Dates:** June 16, 2011 - July 1, 2011

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
16594	13th	04/04/1998	1:78,900 (16594_1)	[L]NTM: ?
16580	14th	01/01/2008	1:350,000 (16580_1)	[L]NTM: ?
16013	30th	07/01/2006	1:969,761 (16013_1)	[L]NTM: ?
531	24th	07/01/2007	1:2,100,000 (531_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

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

## Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Rock	4.88 m	57° 53' 32.4" N	152° 19' 53.6" W	---

## **1 - Danger To Navigation**

## 1.1) DTON #2 2 fm Rock in Icon Bay

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 57° 53' 32.4" N, 152° 19' 53.6" W  
**Least Depth:** 4.88 m (= 16.01 ft = 2.668 fm = 2 fm 4.01 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 0.983$  m ; TVU (TPEv)  $\pm 0.309$  m  
**Timestamp:** 2011-173.18:45:13.802 (06/22/2011)  
**Survey Line:** h12320 / fa\_2808\_400khz\_rsn7125\_512bms\_2011 / 2011-173 / 2011\_\_1731841  
**Profile/Beam:** 1580/448  
**Charts Affected:** 16594\_1, 16580\_1, 16013\_1, 531\_1, 500\_1, 530\_1, 50\_1

#### Remarks:

The navigable area was covered with 100% MBES (Reson 7125 SV). The feature is a rock with a least depth substantially shallower than the surrounding charted depths.

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
h12320/fa_2808_400khz_rsn7125_512bms_2011/2011-173/2011__1731841	1580/448	0.00	000.0	Primary

#### Hydrographer Recommendations

[None]

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

2 ½fm (16594\_1, 16580\_1, 16013\_1, 530\_1)

2fm 4ft (531\_1)

4.9m (500\_1, 50\_1)

#### S-57 Data

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

**Attributes:** NATSUR - 9:rock

QUASOU - 6:least depth known

TECSOU - 3:found by multi-beam

VALSOU - 4.880 m

WATLEV - 3:always under water/submerged



## Feature Images

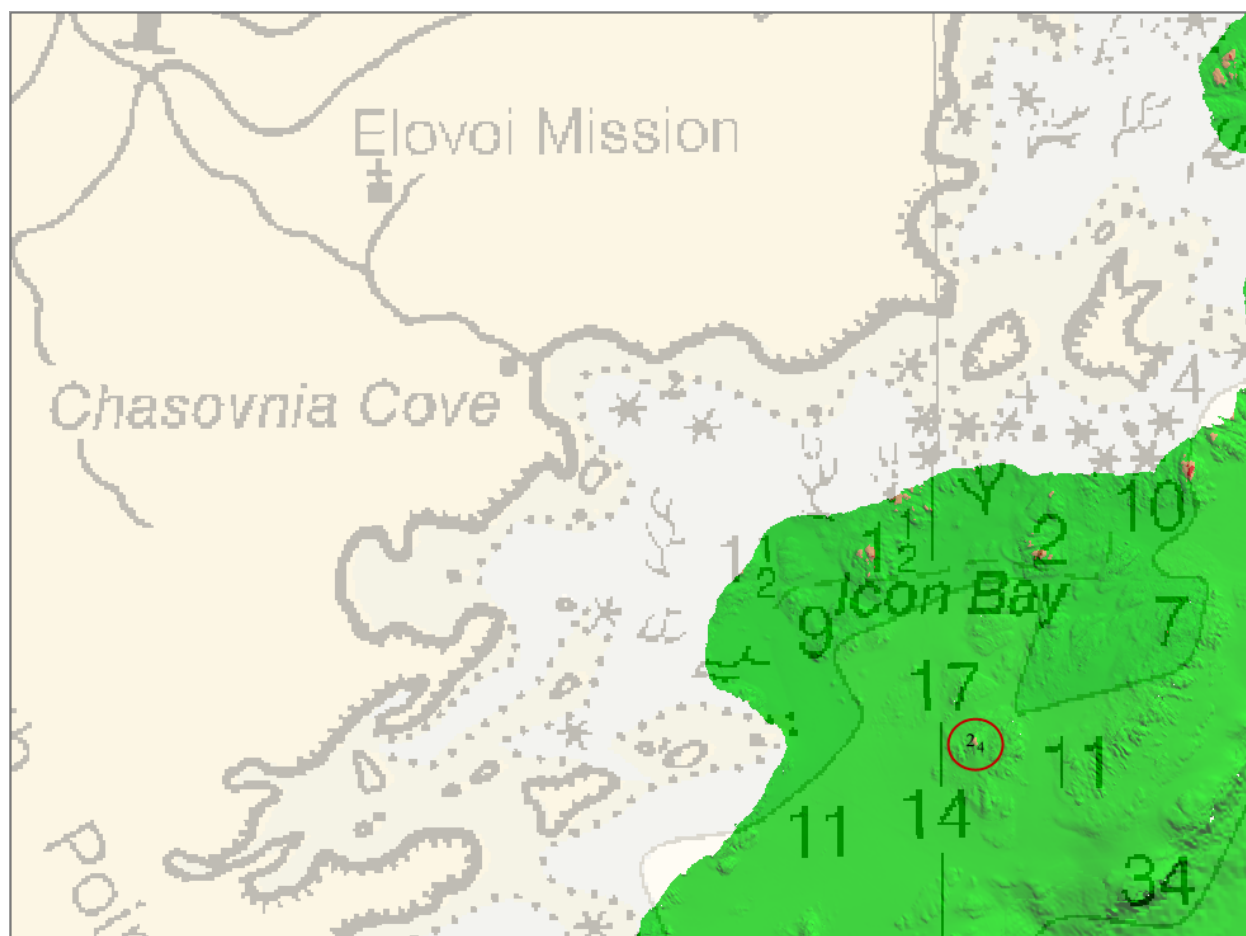


Figure 1.1.1

# H12320 Danger to Navigation Report #3

**Registry Number:** H12320  
**State:** Alaska  
**Locality:** North Coast of Kodiak Island, AK  
**Sub-locality:** Narrow Strait  
**Project Number:** OPR-P136-FA-11  
**Survey Dates:** June 16, 2011 - July 1, 2011

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
16594	13th	04/04/1998	1:78,900 (16594_1)	[L]NTM: ?
16580	14th	01/01/2008	1:350,000 (16580_1)	[L]NTM: ?
16013	30th	07/01/2006	1:969,761 (16013_1)	[L]NTM: ?
531	24th	07/01/2007	1:2,100,000 (531_1)	[L]NTM: ?
500	8th	06/01/2003	1:3,500,000 (500_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

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

## Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Rock	13.30 m	57° 52' 54.3" N	152° 26' 17.9" W	---
1.2	Rock	14.07 m	57° 56' 43.7" N	152° 18' 19.3" W	---

## **1 - Dangers To Navigation**

## 1.1) DTON #3 7 fm Rock between 36 34 fm chd depth

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 57° 52' 54.3" N, 152° 26' 17.9" W  
**Least Depth:** 13.30 m (= 43.63 ft = 7.271 fm = 7 fm 1.63 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 0.089$  m ; TVU (TPEv)  $\pm 0.286$  m  
**Timestamp:** 2011-180.23:19:36.124 (06/29/2011)  
**Survey Line:** h12320 / fa\_2805\_200khz\_rsn7125\_256bms\_2011 / 2011-180 / 2011x\_1802311  
**Profile/Beam:** 1392/163  
**Charts Affected:** 16594\_1, 16580\_1, 16013\_1, 531\_1, 500\_1, 530\_1, 50\_1

#### Remarks:

The navigable area was covered with 100% MBES (Reson 7125 SV). Final tides have been applied. The feature is a rock with a least depth substantially shallower than the surrounding charted depths.

#### Feature Correlation

Source	Feature	Range	Azimuth	Status
2011x_1802311	1392/163	0.00	000.0	Primary

#### Hydrographer Recommendations

[None]

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

7 ¼fm (16594\_1, 16580\_1, 16013\_1, 530\_1)

7fm 1ft (531\_1)

13.3m (500\_1, 50\_1)

#### S-57 Data

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

**Attributes:** NATSUR - 9:rock

QUASOU - 6:least depth known

TECSOU - 3:found by multi-beam

VALSOU - 13.297 m

WATLEV - 3:always under water/submerged

## Feature Images

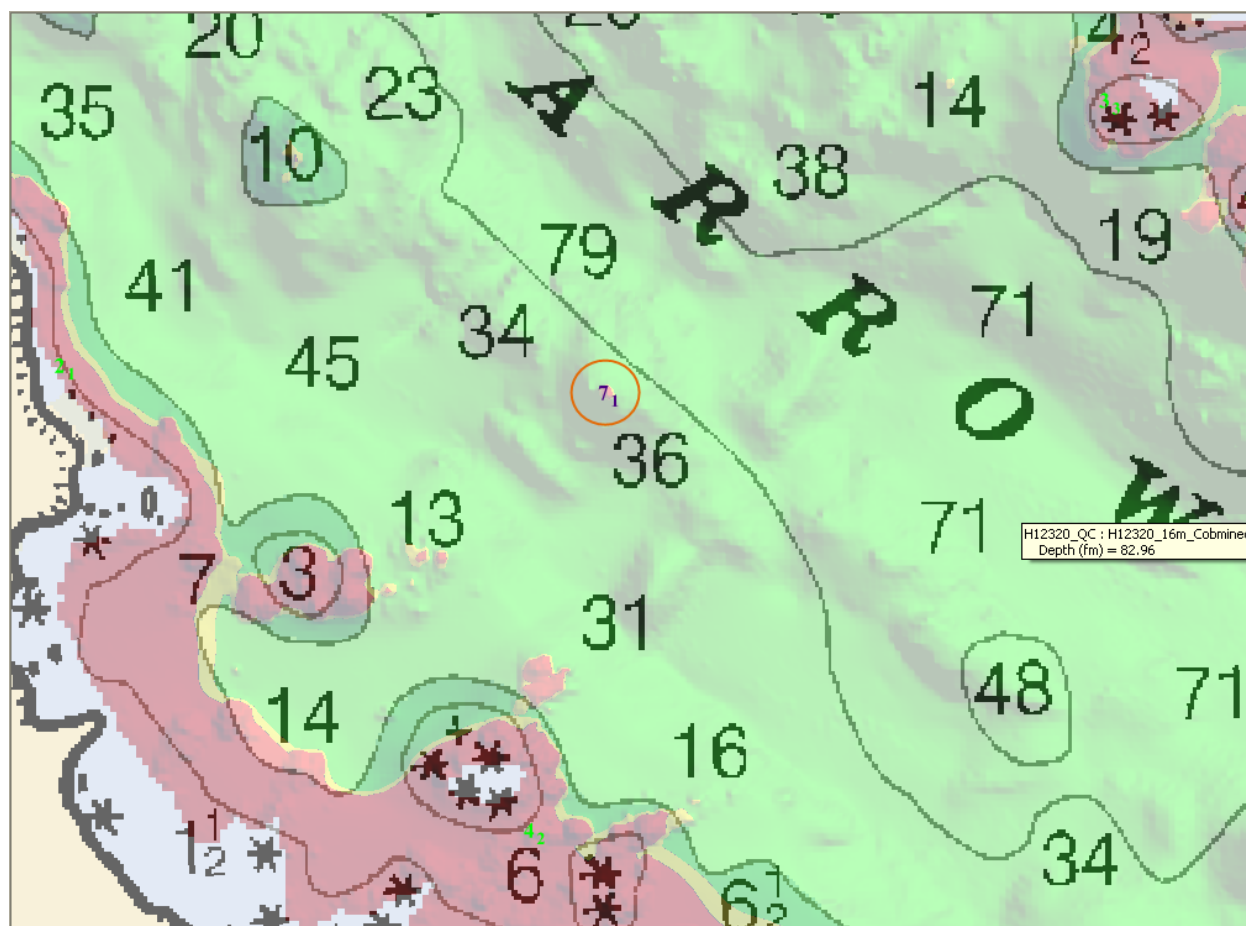


Figure 1.1.1

## 1.2) DTON #4 7 fm Rock between 19 11 fm chd depth

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 57° 56' 43.7" N, 152° 18' 19.3" W  
**Least Depth:** 14.07 m (= 46.18 ft = 7.696 fm = 7 fm 4.18 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 0.061$  m ; TVU (TPEv)  $\pm 0.314$  m  
**Timestamp:** 2011-175.23:44:46.032 (06/24/2011)  
**Survey Line:** h12320 / fa\_2806\_200khz\_rsn7125\_256bms\_2011 / 2011-175 / 2011m\_1752337  
**Profile/Beam:** 3327/117  
**Charts Affected:** 16594\_1, 16580\_1, 16013\_1, 531\_1, 500\_1, 530\_1, 50\_1

#### Remarks:

The navigable area was covered with 100% MBES (Reson 7125 SV). Final tides have been applied. The feature is a rock with a least depth substantially shallower than the surrounding charted depths.

#### Feature Correlation

Source	Feature	Range	Azimuth	Status
2011m_1752337	3327/117	0.00	000.0	Primary

#### Hydrographer Recommendations

[None]

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

7 ¾fm (16594\_1, 16580\_1, 16013\_1, 530\_1)

7fm 4ft (531\_1)

14.1m (500\_1, 50\_1)

#### S-57 Data

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

**Attributes:** NATSUR - 9:rock

QUASOU - 6:least depth known

TECSOU - 3:found by multi-beam

VALSOU - 14.075 m

WATLEV - 3:always under water/submerged



### Feature Images

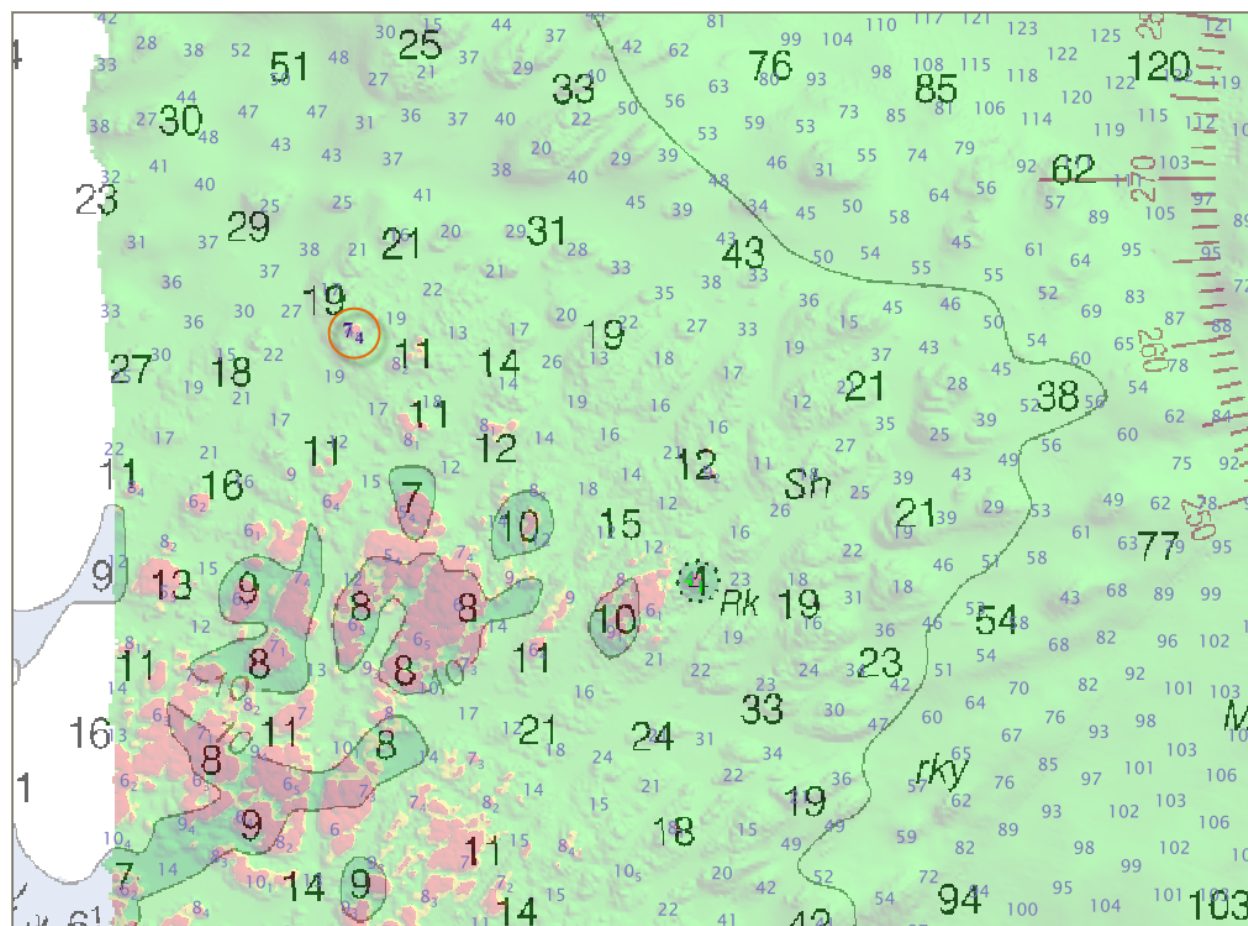


Figure 1.2.1

## **3 - AWOIS Features**

### 3.1) 0\_ 1302700075 00204 / H12320\_Final\_Feature\_File.000

#### Survey Summary

**Survey Position:** 57° 54' 19.3" N, 152° 19' 02.3" W  
**Least Depth:** -0.06 m (= -0.19 ft = -0.031 fm = 0 fm 5.81 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2011-167.17:07:13.000 (06/16/2011)  
**Dataset:** H12320\_Final\_Feature\_File.000  
**FOID:** 0\_ 1302700075 00204(FFFE4DA5A02B00CC)  
**Charts Affected:** 16594\_1, 16580\_1, 16013\_1, 531\_1, 500\_1, 530\_1, 50\_1

#### Remarks:

UWTROC/remrks: AWOIS (54026) - Geographic cell (10732) rock verified by field operations.

#### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12320_Final_Feature_File.000	0_ 1302700075 00204	0.00	000.0	Primary

#### Hydrographer Recommendations

Use geographic cell position as the seaward most low water extent in the area for maritime boundary updates.

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

0fm (16594\_1, 16580\_1, 16013\_1, 530\_1)

0fm 0ft (531\_1)

-1m (500\_1, 50\_1)

#### S-57 Data

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

**Attributes:** SORDAT - 20110630  
 SORIND - US,US,graph,H12320  
 TECSOU - 12:found by levelling  
 VALSOU - -0.057 m  
 WATLEV - 5:awash

Office Note: Concur.

## Feature Images



*Figure 3.1.1*



*Figure 3.1.2*

### 3.2) 0\_ 1302700075 00043 / H12320\_Final\_Feature\_File.000

#### Survey Summary

**Survey Position:** 57° 54' 57.4" N, 152° 12' 09.4" W  
**Least Depth:** [None]  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 1998-094.00:00:00.000 (04/04/1998)  
**Dataset:** H12320\_Final\_Feature\_File.000  
**FOID:** 0\_ 1302700075 00043(FFFE4DA5A02B002B)  
**Charts Affected:** 16594\_1, 16580\_1, 16013\_1, 531\_1, 500\_1, 530\_1, 50\_1

**Remarks:**

WRECKS/remrks: AWOIS (54015) - Charted wreck disproved by complete multibeam inside 500m search radius. Multibeam data in subset mode and associated backscatter were reviewed by Hydrographer.

#### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12320_Final_Feature_File.000	0_ 1302700075 00043	0.00	000.0	Primary

#### Hydrographer Recommendations

Remove wreck, chart surveyed soundings.

#### S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 1:non-dangerous wreck  
SORDAT - 19980404  
SORIND - US,US,graph,Chart 16594  
WATLEV - 3:always under water/submerged

Office Note: Concur.



### 3.3) US 0000007142 00001 / H12320\_Final\_Feature\_File.000

#### Survey Summary

**Survey Position:** 57° 54' 59.7" N, 152° 19' 05.0" W  
**Least Depth:** [None]  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2011-313.23:03:21.000 (11/09/2011)  
**Dataset:** H12320\_Final\_Feature\_File.000  
**FOID:** US 0000007142 00001(022600001BE60001)  
**Charts Affected:** 16594\_1, 16580\_1, 16013\_1, 531\_1, 500\_1, 530\_1, 50\_1

#### Remarks:

\$CSYMB/remrks: AWOIS (54037) - Seaward most extent of reef observed by field operations. GC (10732) low water is reef.

#### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12320_Final_Feature_File.000	US 0000007142 00001	0.00	000.0	Primary

#### Hydrographer Recommendations

Use geographic cell reef extents for maritime boundary point and chart reef.

#### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)  
**Attributes:** SORDAT - 20110630  
 SORIND - US,US,graph,H12320

Office Note: Concur.



### 3.4) US 0000011843 00001 / H12320\_Final\_Feature\_File.000

#### Survey Summary

**Survey Position:** 57° 54' 05.5" N, 152° 19' 07.4" W  
**Least Depth:** [None]  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2011-181.00:00:00.000 (06/30/2011)  
**Dataset:** H12320\_Final\_Feature\_File.000  
**FOID:** US 0000011843 00001(022600002E430001)  
**Charts Affected:** 16594\_1, 16580\_1, 16013\_1, 531\_1, 500\_1, 530\_1, 50\_1

#### Remarks:

\$CSYMB/remrks: AWOIS (54035) - Seaward most extent of ledge positioned by field operations. GC(10732) low water is ledge.

#### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12320_Final_Feature_File.000	US 0000011843 00001	0.00	000.0	Primary

#### Hydrographer Recommendations

Use surveyed extent for maritime boundary point and chart ledge.

#### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)  
**Attributes:** NINFOM - AWOIS(54035)  
 SORDAT - 20110630  
 SORIND - US,US,graph,H12320

Office Note: Concur.

## Feature Images



*Figure 3.4.1*

APPROVAL PAGE

H12320

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

The following products will be sent to NGDC for archive

- H12320\_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12320\_GeoImage.pdf

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

Approved: \_\_\_\_\_

**Peter Holmberg**

Cartographic Team Lead, Pacific Hydrographic Branch

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

Approved: \_\_\_\_\_

**CDR David Zezula, NOAA**

Chief, Pacific Hydrographic Branch