H12374

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:	H12374

LOCALITY

State:	Alaska
General Locality:	Chatham Strait
Sub-locality:	3 NM E of Point Conclusion

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:
HYDROGRAPHIC TITLE SHEET		**H12374**

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:	**Alaska**
General Locality:	**Chatham Strait**
Sub-Locality:	**3 NM E of Point Conclusion**
Scale:	**10000**
Dates of Survey:	**09/25/2011 to 10/08/2011**
Instructions Dated:	**08/19/2011**
Project Number:	**OPR-O322-FA-11**
Field Unit:	**NOAA Ship *Fairweather***
Chief of Party:	**CAPT David O. Neander, NOAA**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	**Multibeam Echo Sounder Backscatter**
Verification by:	**Pacific Hydrographic Branch**
Soundings Acquired in:	**Meters at Mean Lower Low Water**
HCell Compilation Units:	***Fathoms at Mean Lower Low Water***

Remarks:

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 Rednotes 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 http://www.ngdc.noaa.gov/.

Table of Contents

List of Tables

List of Figures

Descriptive Report to Accompany Survey H12374

Project: OPR-O322-FA-11

Locality: Chatham Strait

Sublocality: 3 NM E of Point Conclusion

Scale: 1:10000

September 2011 - October 2011

NOAA Ship *Fairweather*

Chief of Party: CAPT David O. Neander, NOAA

A. Area Surveyed

The survey area is mid channel of Chatham Strait 3NM E of Point Conclusion.

A.1 Survey Limits

Data was acquired within the following survey limits:

Northeast Limit	Southwest Limit
56.375 N 134.4568 W	56.16617 N 134.621 W

Table 1: Survey Limits

Survey Limits were acquired in accordance with the requirements in the Project Instructions and the HSSD.

A.2 Survey Purpose

The purpose of this survey is to provide a contemporary survey to update National Ocean Service (NOS) nautical charting products. It covers 61.77 square nautical miles of an emerging critical and category one area as identified in the 2010 Hydrographic Survey Priorities (NHSP).

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

A.4 Survey Coverage

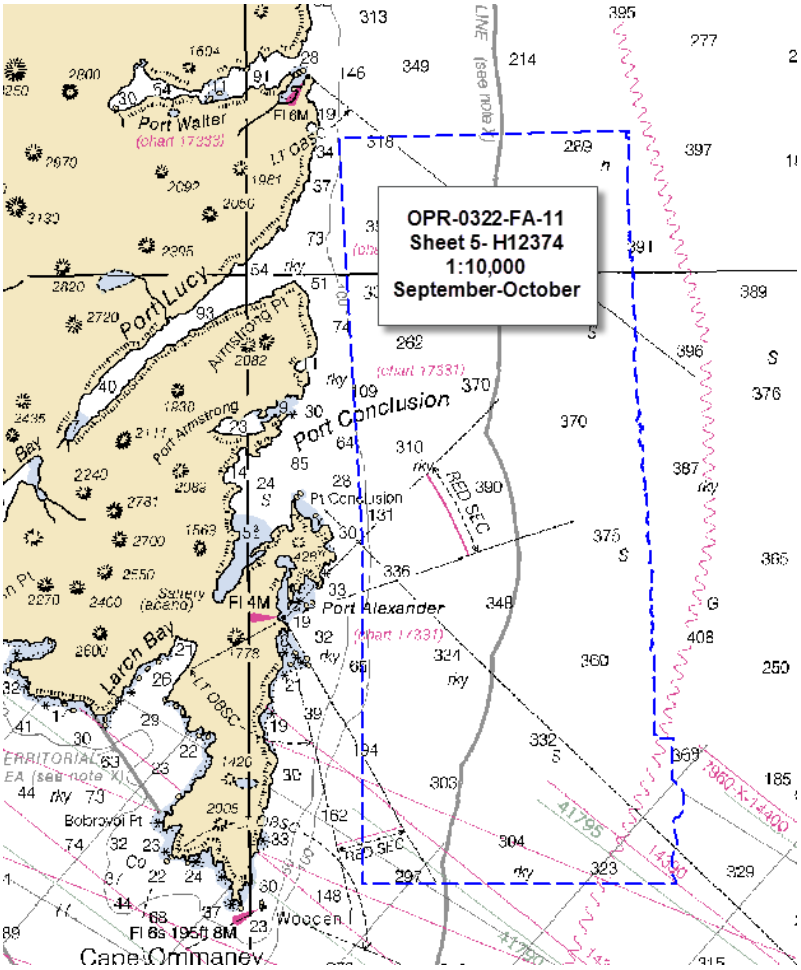


Figure 1: H12374 Survey Outline

Survey Coverage was in accordance with the requirements in the Project Instructions and the HSSD.

A.5 Survey Statistics

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

	HULL ID	*S220*	*Total*
LNM	**SBES Mainscheme**	0	0
	MBES Mainscheme	141.92	141.92
	Lidar Mainscheme	0	0
	SSS Mainscheme	0	0
	SBES/MBES Combo Mainscheme	0	0
	SBES/SSS Combo Mainscheme	0	0
	MBES/SSS Combo Mainscheme	0	0
	SBES/MBES Combo Crosslines	12.55	12.55
	Lidar Crosslines	0	0
Number of Bottom Samples			0
Number of DPs			0
Number of Items Items Investigated by Dive Ops			0
Total Number of SNM			0

Table 2: Hydrographic Survey Statistics

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

Survey Dates
09/25/2011
09/26/2011
09/30/2011
10/04/2011
10/07/2011
10/08/2011

Table 3: Dates of Hydrography

A.6 Shoreline

No shoreline existed within the limits of H12374.

A.7 Bottom Samples

No bottom samples were collected within the limits of H12374.

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	***S220***
LOA	70.4 meters
Draft	4.7 meters

Table 4: Vessels Used

B.1.2 Equipment

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

Manufacturer	Model	Type
RESON	8160	MBES
Brooke Ocean	MVP200	Sound Speed System
RESON	SVP70	Sound Speed System
Applanix	POS/MV V4	Vessel Attitude System
Applanix	POS/MV V4	Positioning System

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Surface differencing in CARIS HIPS and SIPS was used to assess crossline agreement with main scheme lines. Percentage of crosslines collected to main scheme lines is 8.8%. Differences in crosslines to main scheme lines are believed to be caused by sound velocity and change in slope. Generally the greatest differences in depth was found in areas where the change of slope is more abrupt. See figure 2 for the location of greatest consistent change in depth of approximately 91m, located on a slope where the depth changes from approximately 200 to 600 meters.

The surface difference is submitted in Separates\Digital data folder. See figure 2 for graphical representation of variances between crosslines and main scheme and figure 3 for statistical information.

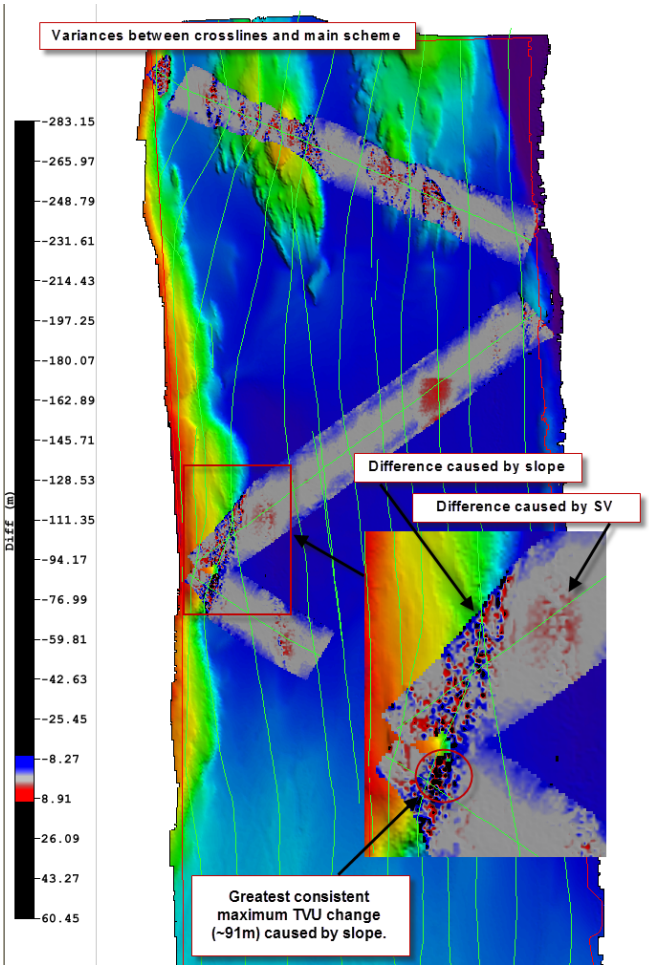
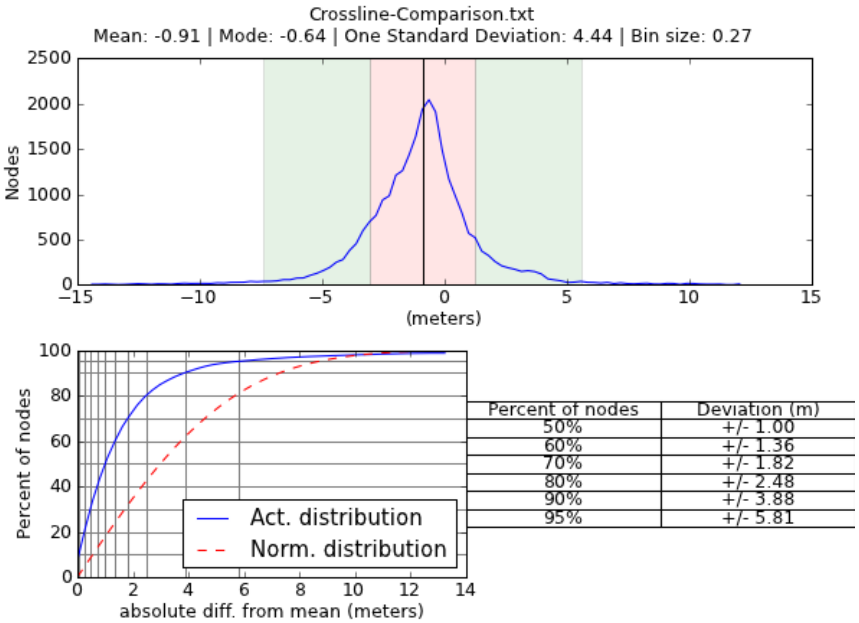


Figure 2: Graphical representation of differences between crossline and main scheme surfaces.



Percent of nodes	Deviation (m)
50%	+/- 1.00
60%	+/- 1.36
70%	+/- 1.82
80%	+/- 2.48
90%	+/- 3.88
95%	+/- 5.81

Figure 3: Statistical information for differences between crossline and main scheme.

Due to the variable topography and possible sound speed refraction, differences in the crossline to mainscheme comparison are to be expected. The data is adequate for charting.

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Measured	Zoning
0.01	0.1

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
S220	0.5	0.5	0.5

Table 7: Survey Specific Sound Speed TPU Values

Tide TPU values are in meters; SVP TPU values are in meters per second.

B.2.3 Junctions

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12373	1:10000	2011	NOAA Ship FAIRWEATHER	N
H11917	1:20000	2008	NOAA Ship FAIRWEATHER	E
H12064	1:20000	2010	NOAA Ship FAIRWEATHER	E
H12372	1:10000	2011	NOAA Ship FAIRWEATHER	W
H12371	1:10000	2011	NOAA Ship FAIRWEATHER	N

Table 8: Junctioning Surveys

H12373

The areas of overlap between the sheets are reviewed in CARIS Subset Editor for sounding consistency to assess surface agreement. The junction agreement is generally within the total allowable vertical uncertainty in their common areas and depths for all surfaces. Data overlap between all surveys was achieved except for junction between H12374 and H11917. See figure 4 for planned areas of overlap.

Surface differencing in CARIS HIPS and SIPS was used to assess junction agreement between all sheets for sounding consistency to assess surface agreement as well. Differences in junctions are believed to be caused by sounding velocity and change in slope which can be found in all junctions.

See figure 5 for a graphical representation of junction comparison variances between H12374 32m_Combine surface and H12373 32m_Combine surface and figure 6 for statistical information between surfaces.

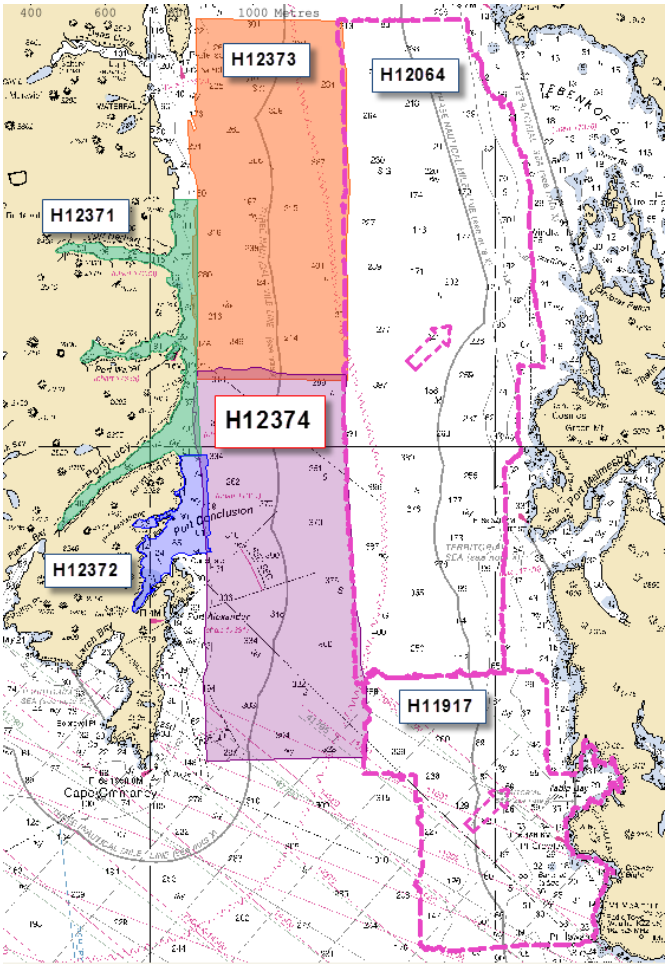


Figure 4: Junctions between H12373, H12371, H12372, H11917 and H12064.

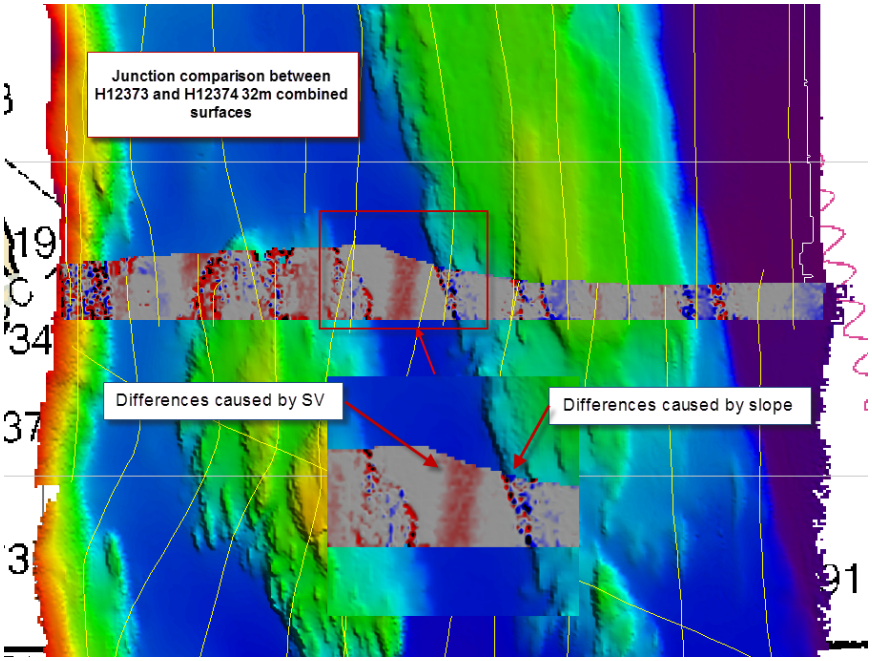


Figure 5: Graphical representation between H12374 and H12373.

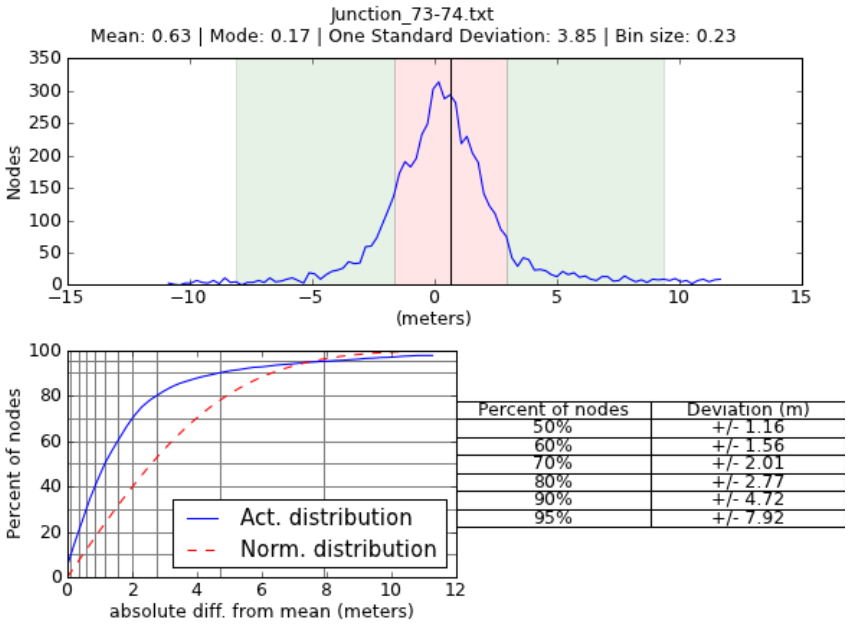


Figure 6: Statistical information for junction comparison between sheet H12374 and H12373.

Due to the variable topography and possible sound speed refraction, differences in the junction area are to be expected. The data is adequate for charting.

H11917

See figure 7 for statistical information of variances of junction comparison between H12374 32m_Combine surface and H11917 32m_Combined surface and figure 8 for graphical representation of data gap between

sheets H12374 and H11917. Due to insufficient overlap between sheet limits a data gap between the two surveys is present.

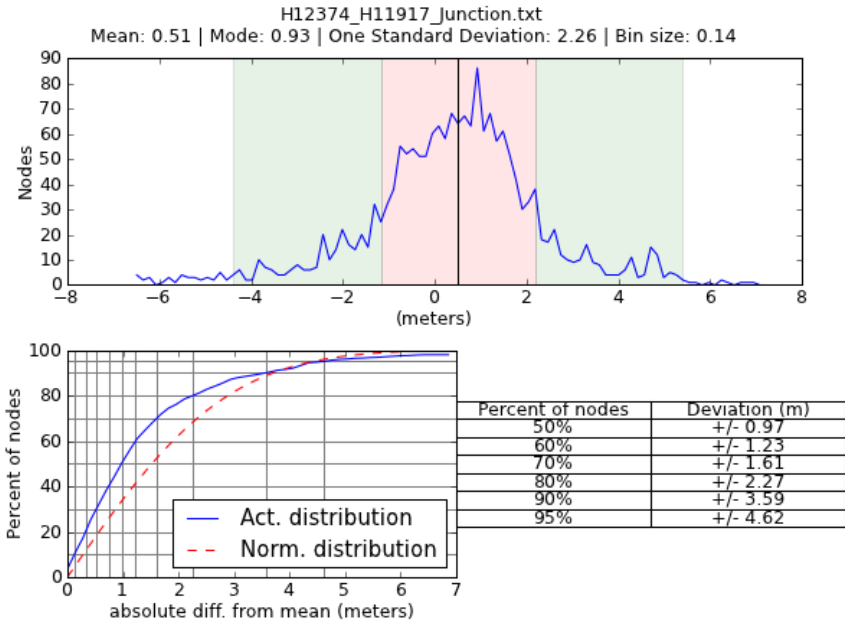


Figure 7: Statistical information for junction comparison between sheet H12374 and H11917.

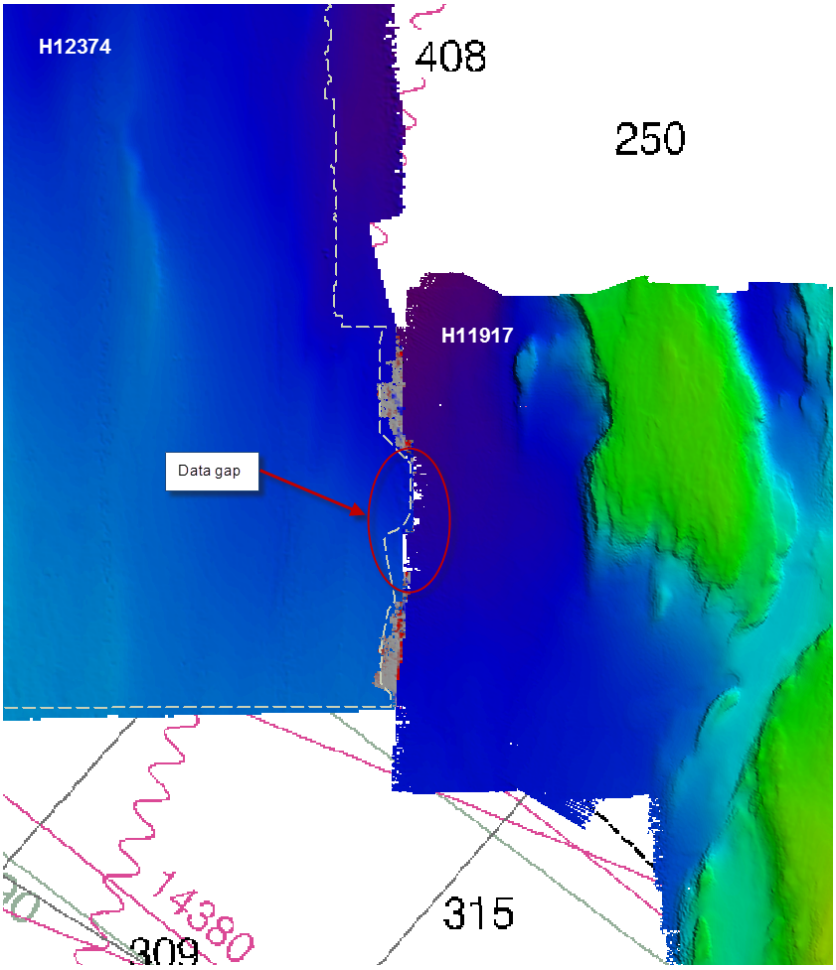


Figure 8: Graphical representation of differences between junction H12374 and H11917.

Do not concur. Gaps exist at this junction because data were rejected unnecessarily. The SAR reviewer re-accepted soundings in this area to increase the overlap and performed an new junction comparison using surface differencing. On average, the difference was 2.6 meters where 93.3 percent of nodes fall within IHO Order 2 in depths between 550-600 meters. Due to the variable topography and possible sound speed refraction, differences in the junction area are to be expected. The data is adequate for charting.

H12064

See figure 9 for statical information for junction comparison between H12374 32m_Combine surface and H12064 32m_Combined surface.

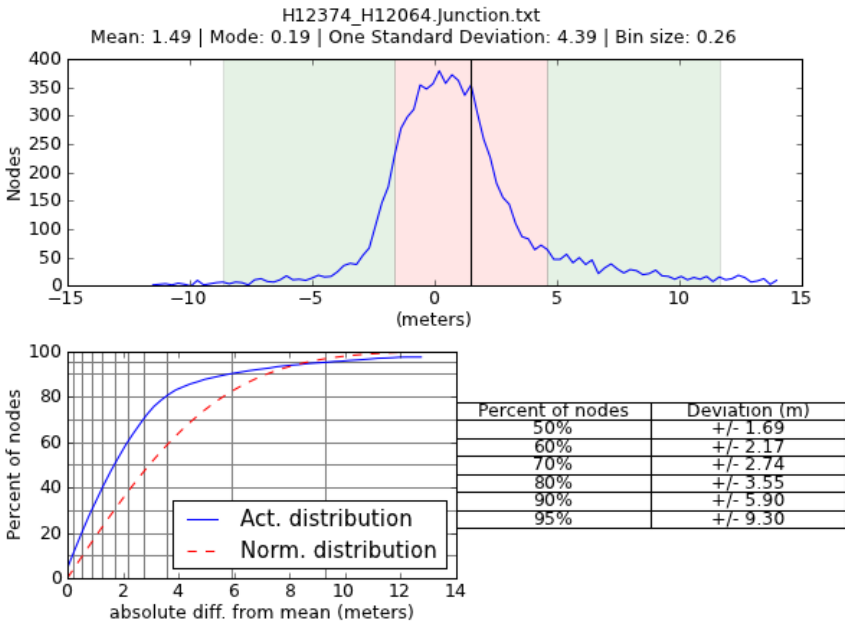


Figure 9: Statistical information for junction comparison between sheet H12374 and H12064.

Due to the variable topography and possible sound speed refraction, differences in the junction area are to be expected. The data is adequate for charting.

H12372

See figure 10 for statistical information for junction comparison between H12374 32m_Combine surface and H12372 32m_Combined surface.

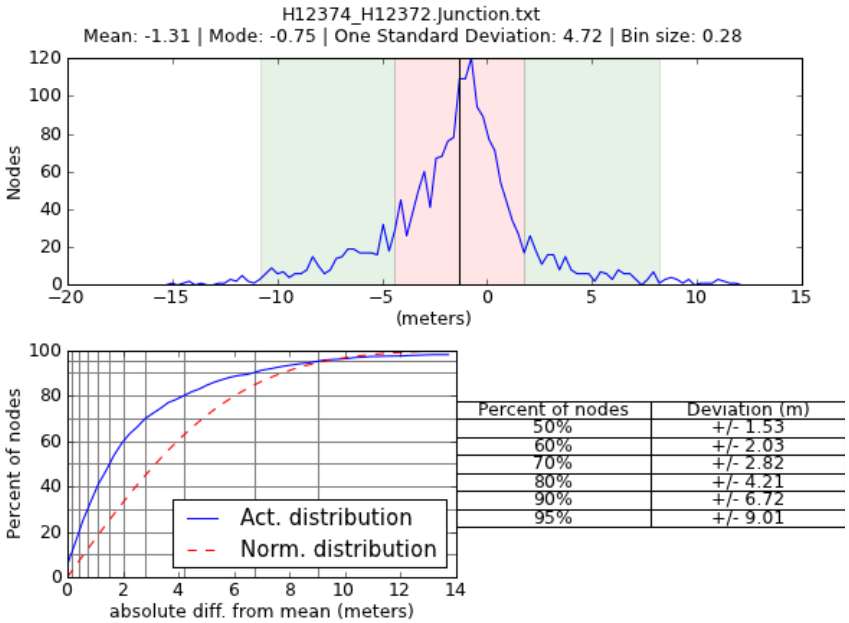


Figure 10: Statistical information for junction comparison between sheet H12374 and H12372.
Due to the variable topography and possible sound speed refraction, differences in the junction area are to be expected. The data is adequate for charting.

H12371

See figure 11 for statistical information for junction comparison between H12374 32m_Combine surface and H12371 16m_Combined surface.

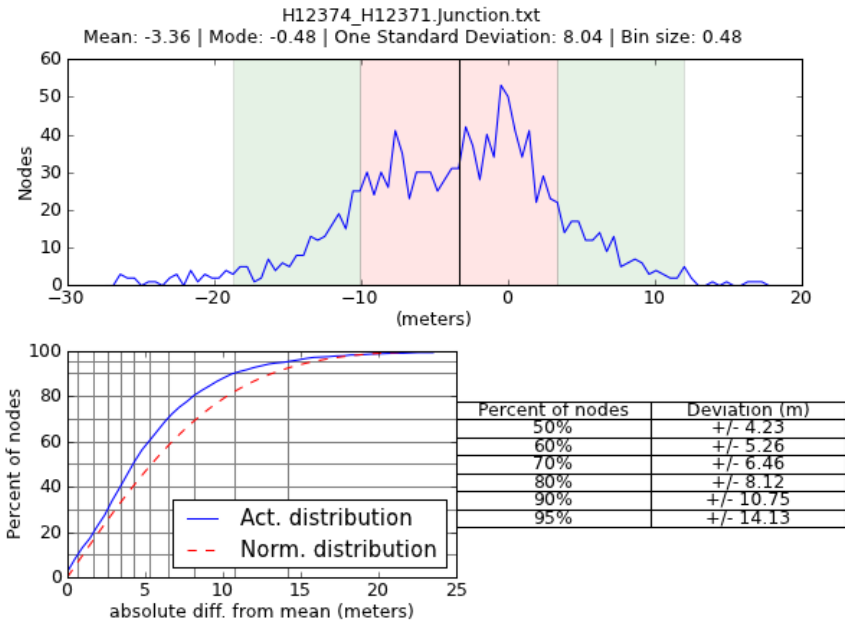


Figure 11: Statistical information for junction comparison between sheet H12374 and H12371.
Due to the variable topography and possible sound speed refraction, differences in the junction area are to be expected. The data is adequate for charting.

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 Equipment Effectiveness

No unusual conditions were encountered which would downgrade or otherwise affect the equipment operational effectiveness.

B.2.6 Factors Affecting Soundings

B.2.6.1 Factors Affecting Soundings

No factors were present that affected 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.

B.2.8 Coverage Equipment and Methods

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

B.2.9 Density

Density requirements for H12374 were achieved with at least 98.14% of finalized surface nodes containing five or more soundings except for the 8m_Final_100to160 finalized layer which passed at 83.19%. Sufficient density was believed to have not been achieved due to the majority of the data lying close to the sheet limits contained of mostly outer beams; see Standards Compliance Review in Appendix V.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All data reduction procedures conform to those detailed in the DAPR.

Do not concur. The field rejected high-quality data, thus causing a data gap between two adjoining surveys that affected the field's ability to meet coverage requirements and junction analysis requirements. During the SAR, some of the data rejected in error was re-accepted, thus mitigating the issues with junction analysis and coverage requirements. The data is adequate for charting.

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.

The data will be archived at NGDC. The branches are not currently processing backscatter data.

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	3	10/24/2011	Processing
Caris	HIPS/SIPS	7.1	0	2	08/08/2011	Processing
NOAA	Pydro	11.7-10	0	r3563-r3638	07/15/2011	Processing
Caris	Notebook	3.1	1	0	09/02/2011	Processing
Caris	Notebook	3.1	0	3	02/25/2011	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
H12374_8m	CUBE	8 meters	-	NOAA_8m	Complete MBES
H12374_16m	CUBE	16 meters	-	NOAA_16m	Complete MBES
H12374_32m	CUBE	32 meters	-	NOAA_32m	Complete MBES
H12374_8m_Final_72to160	CUBE	8 meters	72 meters - 160 meters	NOAA_8m	Complete MBES
H12374_16m_Final_144to320	CUBE	16 meters	144 meters - 320 meters	NOAA_16m	Complete MBES
H12374_32m_Final_288to800	CUBE	32 meters	288 meters - 800 meters	NOAA_32m	Complete MBES
H12374_32m_Combine	CUBE	32 meters	-	NOAA_32m	Complete MBES

Table 10: CARIS Surfaces

All field sheets 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 resolution of one meter. The NOAA CUBE parameters mandated in HSSD were used for the creation of all CUBE BASE surfaces in Survey H12374.

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 TVU at that depth, the noisy data have been rejected and the surface recomputed. This was primarily accomplished by manual cleaning in CARIS HIPS and SIPS.

The SAR Reviewer created a new 32-meter resolution surface and re-accepted soundings that had been unnecessarily rejected by the field. Reviewer also created a new 32-meter combined surface based on the re-accepted coverage. Both of these surfaces will be sent to NGDC as BAGs. The 32-meter combined surface, H12374_32m_Office_Combined.csar, was used as the basis of compilation.

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
Port Alexander	9451054

Table 11: NWLON Tide Stations

File Name	Status
9451054	Verified Observed

Table 12: Water Level Files (.tid)

File Name	Status
0322FA2011CORP.zdf	Final

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

A request for final approved tides was sent to N/OPS1 on 10/11/2011. The final tide note was received on 12/07/2011.

Preliminary zoning is accepted as the final zoning for project OPR-0322-FA-11.
See attached Tide Note dated October 24, 2011.

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

The following CORS Stations were used for horizontal control:

HVCR Site ID	Base Station ID
Port Alexander	AB48

Table 14: CORS Base Stations

The following user installed stations were used for horizontal control:

HVCR Site ID	Base Station ID
Patterson Point	PAT

Table 15: User Installed Base Stations

Vessel kinematic data were post-processed using Applanix POSPac processing software and SingleBase methods described in the DAPR. Smooth Best Estimate of Trajectory (SBET) and associated error (RMS) data were applied to all MBES data in CARIS HIPS.

For further details regarding the processing and quality control checks performed see the H12374 POSPAC Processing logs in submitted GNSS folder or OPR-0322-FA-11 Horizontal and Vertical Control report, submitted under separate cover.

Differential correctors were used from the U.S. Coast Guard station Annette Island as the primary USCG beacon at the beginning of the project, but due to poor signal was changed to Level Island for real-time acquisition.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Level Island (295kHz)
Annette Island (323kHz)

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	LNM Date	NM Date
17320	1:217828	18	03/2008	03/04/2008	03/01/2008
17331	1:10000	8	06/2007	05/29/2007	06/09/2007
17333	1:20000	7	10/2004	10/23/2007	10/03/2007

Table 17: Largest Scale Raster Charts

17320

Sounding agreement between surveyed soundings on sheet H12374 varied between 1 to 95 fathoms on chart 17320. Generally charted fathoms were deeper then surveyed soundings. The greatest difference of 82 fathoms was found at the charted depth of 262 fathoms, the surveyed sounding is 344 fathoms; see figure 12.

See figure 13 for contour trends which are digitized in CARIS HIPS and SIPS, depicting discrepancies with chart H17320.

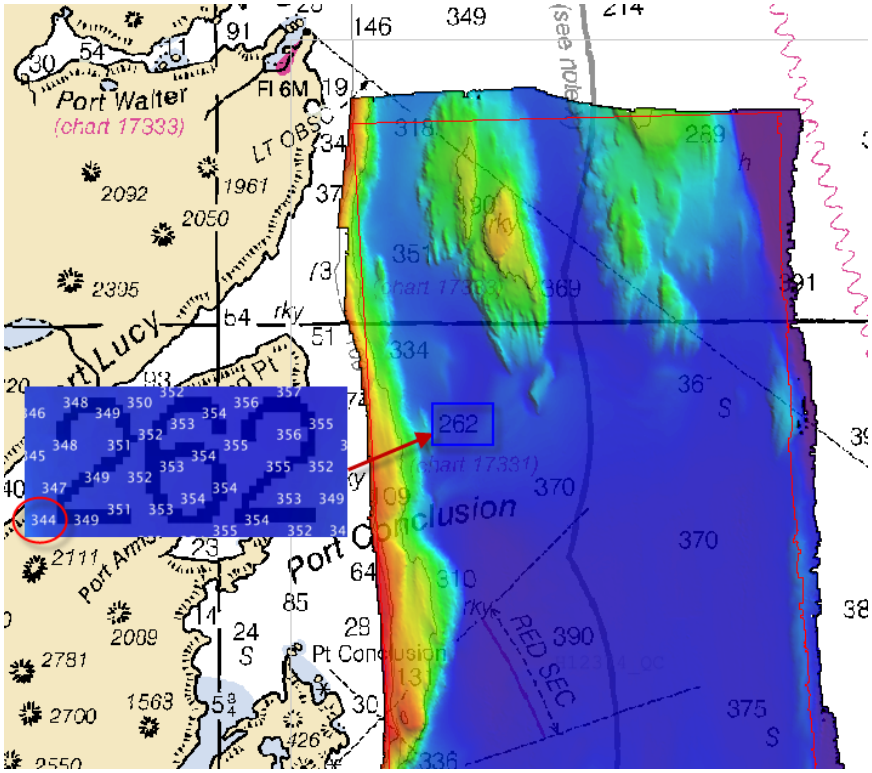


Figure 12: Chart 17320 depth difference between surveyed soundings on north west portion of sheet H12374.

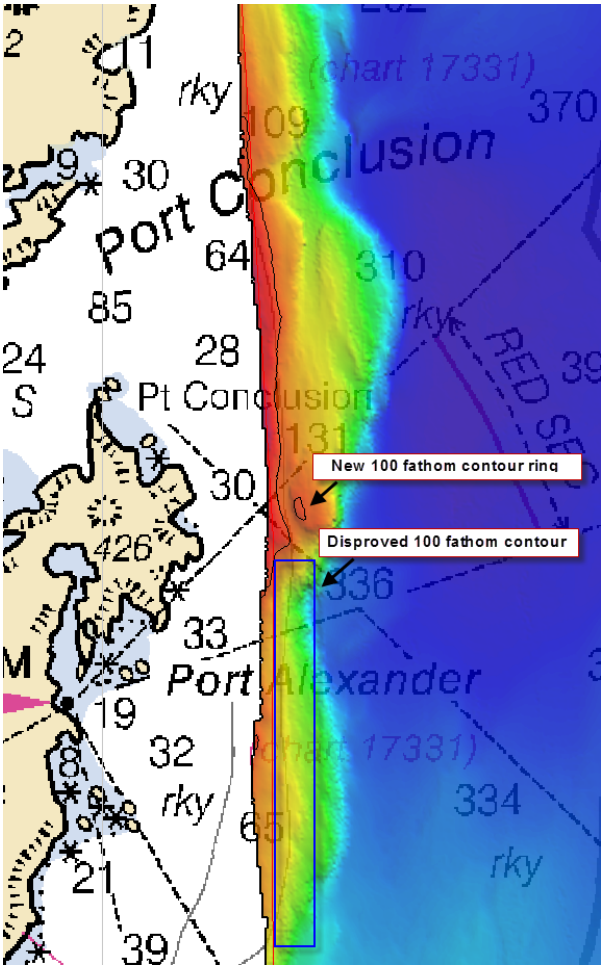


Figure 13: Chart 17320 and new surveyed 100 fathom contour.

Update charted depths and contours based on new survey data.

17331

Sounding agreement between surveyed soundings on sheet H12374 varied between 0 to 26 fathoms on chart 17331. Generally charted fathoms were deeper then surveyed soundings. The greatest difference of 26 fathoms was found at the charted depth of 124 fathoms, the surveyed sounding is 98 fathoms; see figure 14.

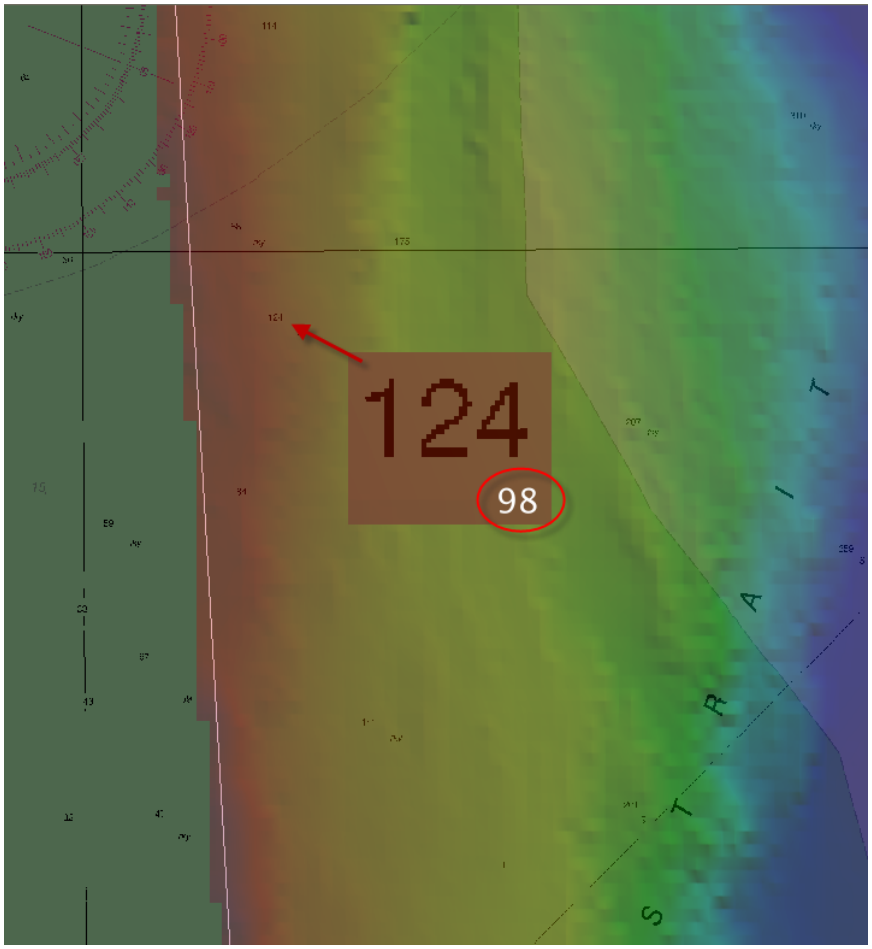


Figure 14: Chart 17331 depth differences between surveyed sounds on western portion of sheet H12374. ***Update charted depths and contours based on new survey data.***

17333

Sounding agreement between surveyed soundings on sheet H12374 varied between 0 to 95 fathoms on chart 17333. Generally charted fathoms were deeper then surveyed soundings. The greatest difference of 85 fathoms was found at the charted depth of 262 fathoms the surveyed sounding is 347 fathom; see figure 15.

See figure 16 for contour trends which were digitized in CARIS HIPS and SIPS, depicting discrepancies with chart H17333.

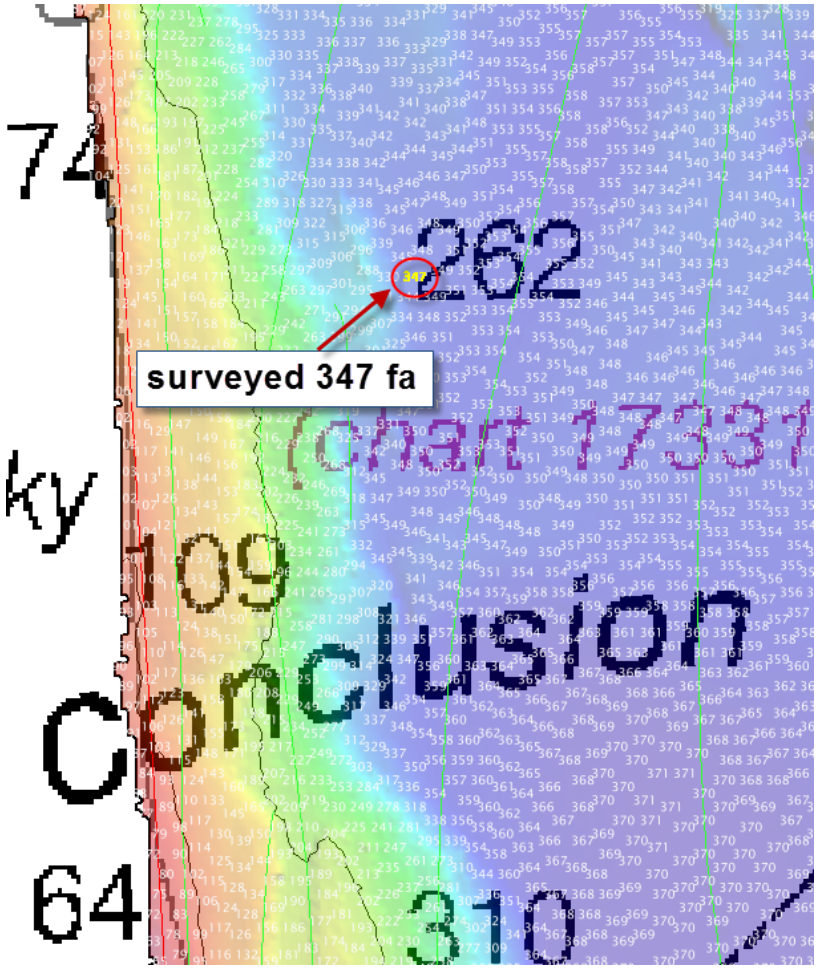


Figure 15: Chart 17333 depth differences between surveyed soundings on north east portion of H12374.

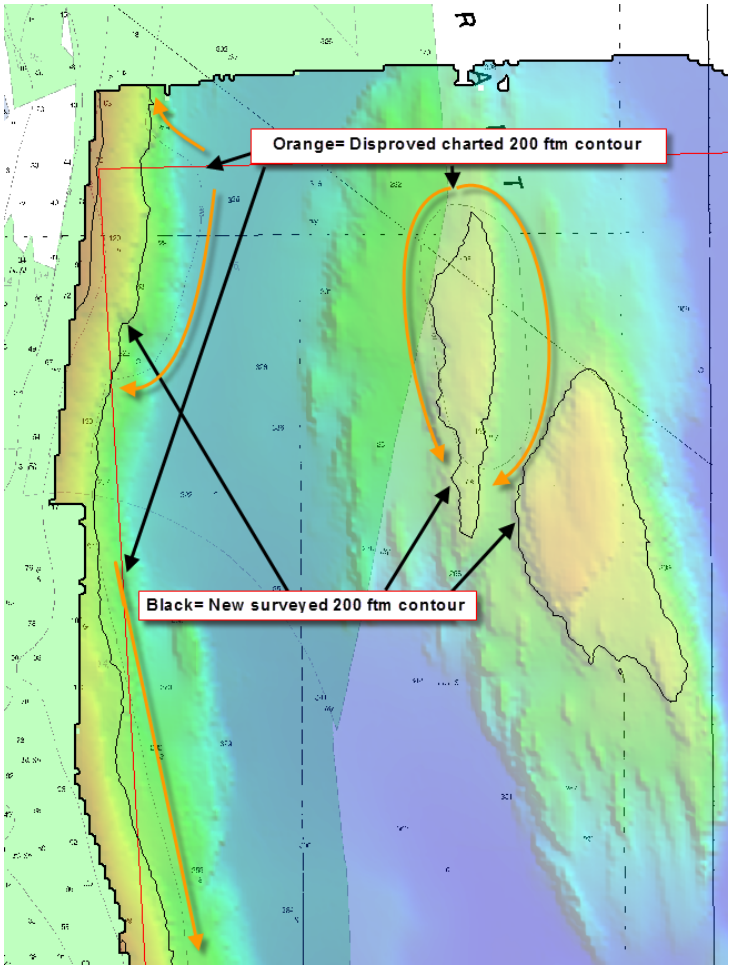


Figure 16: Chart 17333 with new surveyed 200 fathom contours.

The chart shown in figure 15 is chart 17320, not chart 17333. Update charted depths and contours based on new survey data.

D.1.2 Electronic Navigational Charts

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

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US3AK4PM	1:217828	9	03/21/2011	03/21/2011	NO
US5AK08E	1:10000	1	08/02/2011	08/02/2011	YES
US5AK09E	1:20000	1	08/02/2011	08/02/2011	YES

Table 18: Largest Scale ENCs

US3AK4PM

ENC US3AK4PM depths match RNC 17320, 17331 and 17333 therefore all charted depths correspond to surveyed soundings.

US3AK4PM at the same scale as chart 17320, and therefore, only matches that chart. The other 2 charts listed are larger scale charts. Update charted depths and contours based on new survey data.

US5AK08E

ENC US5AK08E depths match RNC 17320, 17331 and 17333 therefore all charted depths correspond to surveyed soundings.

US5AK08E at the same scale as chart 17331, and therefore, only matches that chart. The other 2 charts listed are smaller scale charts. Update charted depths and contours based on new survey data.

US5AK09E

ENC US5AK09E depths match RNC 17331 and 17333 therefore all charted depths correspond to surveyed soundings. ENC US5AK09E depths match RNC 17320 except for RNC charted depth 318 fathoms, in the northwest corner of sheet H12374 sheet limits, where ENC US5AK09E charted depth is 328 fathoms; see figure 17.

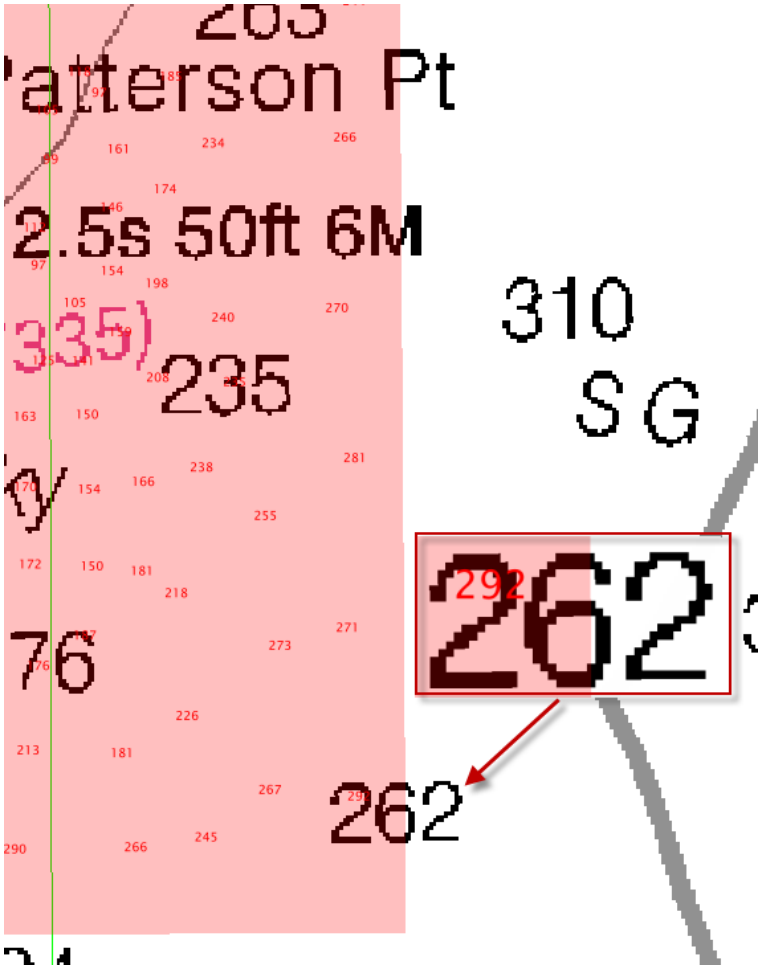


Figure 17: ENC US5AK09E charted depth 328 fathom in conflict with RNC 17320 charted depth 318 fathoms.

ENC US5AK09E charted depth is 326 fathoms at this location, not 328 fathoms. Figure 17 is an incorrect graphic and does not depict anything from chart 17320 within the boundaries of H12374. US5AK09E at the same scale as chart 17333, and therefore, only matches that chart. The other 2 charts listed are either larger or smaller scale. Update charted depths and contours based on new survey data.

D.1.3 AWOIS Items

None Exist

D.1.4 Charted Features

None Exist

A large section of charts 17331 and 17333 are covered with a green-tint, wire drag area that was not specifically addressed by the field. Due to full multibeam coverage in the area, it is recommended that the green-tint be removed in the common area and the chart updated with the new survey depths.

D.1.5 Uncharted Features

None Exist

D.1.6 Dangers to Navigation

No Danger to Navigation Reports were submitted for this survey.

D.1.7 Shoal and Hazardous Features

None Exist

D.1.8 Channels

None Exist

D.2 Additional Results

D.2.1 Shoreline

None Exist

D.2.2 Prior Surveys

Exist- Not Investigated

D.2.3 Aids to Navigation

Aids to navigation (ATON) located near Port Alexander was observed from sheet H12374. No discrepancies were identified therefore the hydrographer recommends to retain the charted ATON.

The ATON does not exist within the limits of H12374, and therefore was not formally investigated as a part of this survey. The ATON should be retained as charted.

D.2.4 Overhead Features

None Exist

D.2.5 Submarine Features

The charted cable, located in the southeast corner of sheet H12374 was observed however the hydrographer recommends retaining the cable due to deep depths; see figure 18.

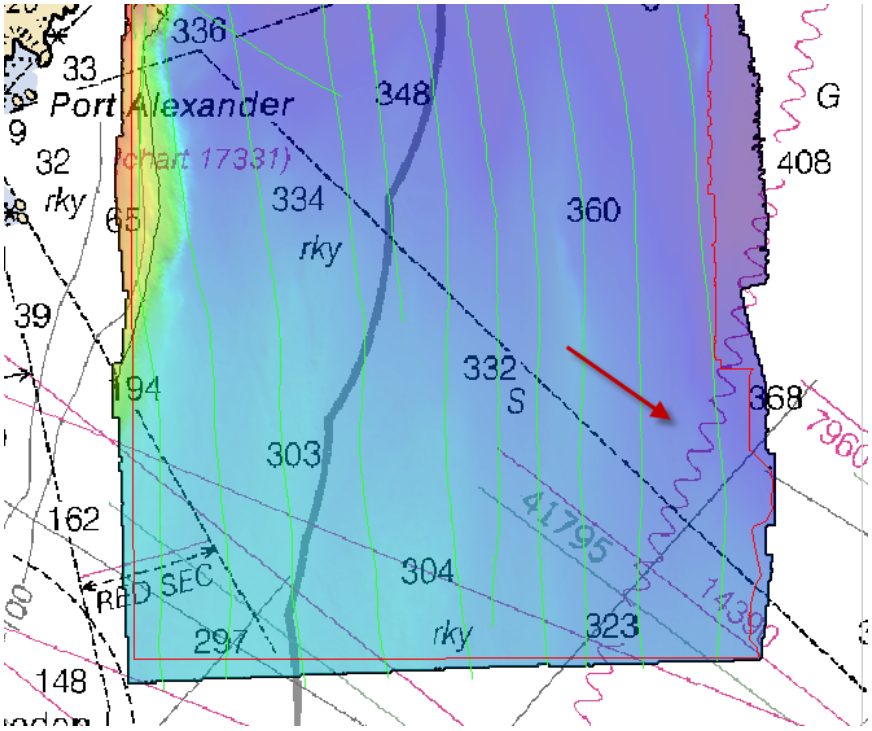


Figure 18: Cable not observed in multibeam in southeast corner of sheet H12374.

The charted cable was not observed in multibeam data, however, it is recommended that it be retain as charted.

D.2.6 Ferry Routes and Terminals

None Exist

D.2.7 Platforms

None Exist

D.2.8 Significant Features

None Exist

D.2.9 Construction and Dredging

None Exist

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 for OPR-O322-FA-11	2011-12-16
Horizontal and Vertical Control Report for OPR-O322-FA-11	2011-12-16
Coast Pilot Report for OPR-O322-FA-11	2011-12-06

Approver Name	Approver Title	Approval Date	Signature
CAPT David O. Neander, NOAA	Chief of Party	12/16/2011	2011.12.16 11:25:07 -08'00'
SST Christine L. Mallory	Sheet Manager	12/16/2011	Christine Mallory 2011.12.16 18:59:38 Z
CST Weston J. Renoud	Chief Survey Technician	12/16/2011	David Moehl 2011.12.16 11:02:40 -08'00'
LT Caryn M. Zacharias, NOAA	Field Operations Officer	12/16/2011	Caryn M. Zacharias 2011.12.16 11:12:19 -08'00'

F. Table of Acronyms

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

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

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

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : October 24, 2011

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-O322-FA-2011
HYDROGRAPHIC SHEET: H12374

LOCALITY: 3NM E of Point, Chatham Strait, AK
TIME PERIOD: September 25 - October 08, 2011

TIDE STATION USED: 945-1054 Port Alexander, AK
Lat. 56° 14.8'N Long. 134° 38.8' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.077 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project OPR-O322-FA-2011, H12374, during the time period between September 25 and October 08, 2011.

Please use the zoning file "O322FA2011CORP" submitted with the project instructions for OPR-O322-FA-2011. Zones SA231, SA232, SA475, SA476, and SA477 are the applicable zones for H12374.

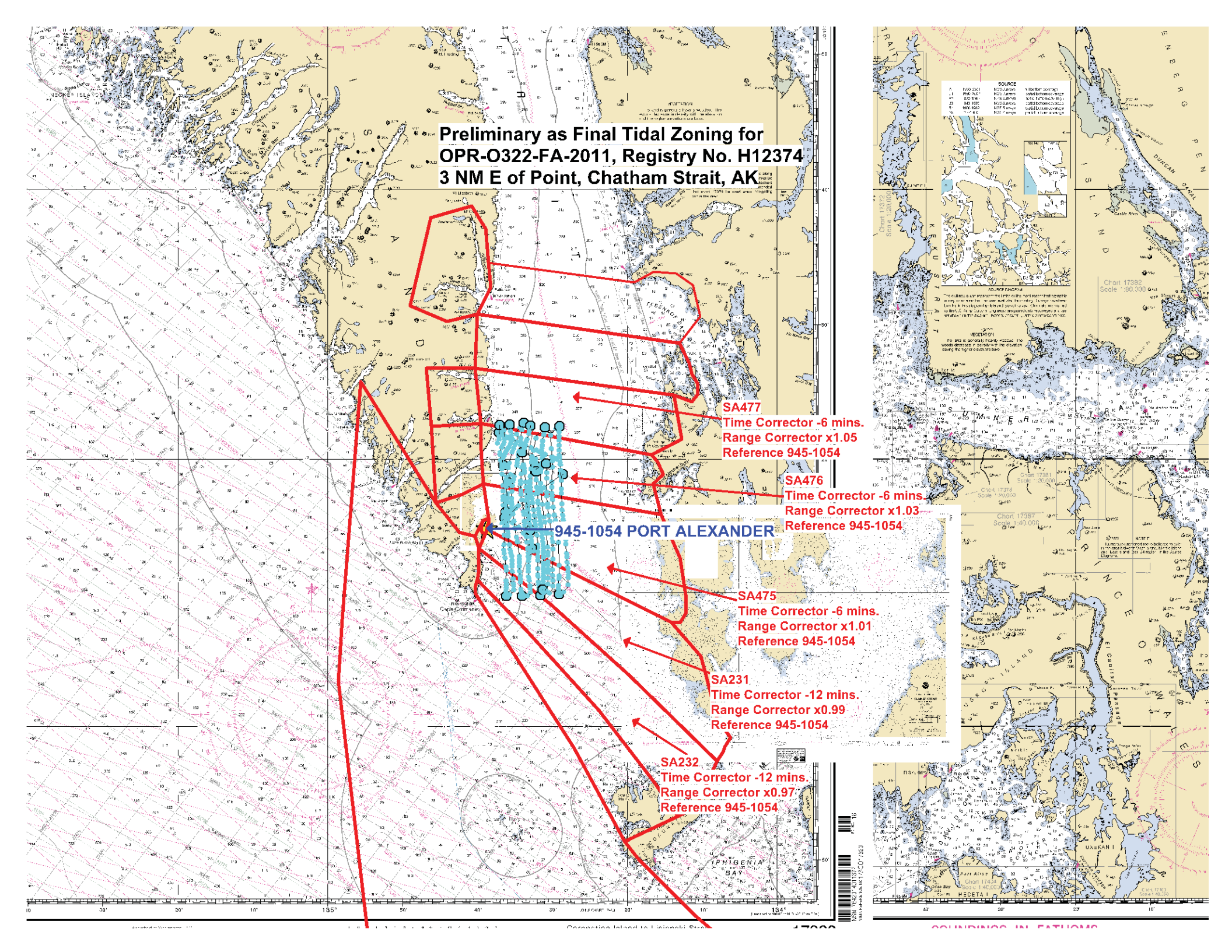
Refer to attachments for zoning information.

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: 2011.10.26 12:55:16 -04'00'

CHIEF, PRODUCTS AND SERVICES BRANCH


Preliminary as Final Tidal Zoning for
OPR-O322-FA-2011, Registry No. H12374
3 NM E of Point, Chatham Strait, AK
SA477
Time Corrector -6 mins.
Range Corrector x1.05
Reference 945-1054
SA476
Time Corrector -6 mins.
Range Corrector x1.03
Reference 945-1054
945-1054 PORT ALEXANDER
SA475
Time Corrector -6 mins.
Range Corrector x1.01
Reference 945-1054
SA231
Time Corrector -12 mins.
Range Corrector x0.99
Reference 945-1054
SA232
Time Corrector -12 mins.
Range Corrector x0.97
Reference 945-1054

PHB Compilation Log

General Survey Info

Survey Number	H12374	Field Unit	NOAA Ship Fairweather	State	AK	UTM Zone	8N
Project Number	OPR-O322-FA-11	Project Name (Locality)	Chatham Strait				
Start Date	09/25/2011	Sublocality	3NM E of Point Conclusion				
End Date	10/08/2011	Survey Scale	1:10,000	Compilation Scale	1:10,000		

Affected Raster Charts

Chart	KAPP	Scale	Edition	Date	NTM Date
17331	2663	1:10,000	8th	06/01/2007	03/31/2012
17333	2664	1:20,000	9th	11/01/2007	03/31/2012
17320	2644	1:217,828	18th	03/01/2008	03/31/2012

Add Chart | Remove Chart

Affected Electronic Charts

ENC	Scale
US3AK4PM	1:217,828

Add ENC | Remove ENC

Spatial Reference

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

Junction Surveys

Survey Number	Survey Date	Location Relative to Current Survey
H12371	10/07/2011	Northwest
H12372	10/08/2011	West
H12373	10/08/2011	North
H12064	10/22/2010	East
H11917	06/17/2008	Southeast

Add Survey | Remove Survey

PHB Compilation Log

Processing Info

HCell Compiler	Katie Reser	QC Reviewer	Peter Holmberg	SAR Reviewer	Kurt Mueller

Source Surfaces	
Resolution	File Name
32m	H12374_32m_Office_Combined.csar

Add Surface | Remove Surface

Supporting Documents	
Name	Version
Specs and Deliverables	Aug 2011
HCell Specs	6.1

Add Doc | Remove Doc

Software Used

Software	Version, HF	Used For
CARIS HIPS	7.1 HF3	SAR Review. Inspection of Combined BASE Surfaces.
Pydro	11.11	SAR Review. Generation of DTON and AWOIS Reports.
CARIS BASE Editor	3.2 SP1 HF2	Creation of soundings and bathy-derived features, meta area objects, and blue notes; Survey evaluation and verification; Initial HCell assembly.
CARIS S-57 Composer	2.2 SP1 HF3	Final compilation of the HCell, correct geometry and build topology, apply final attributes, export the HCell, and QA.
CARIS GIS	4.4a SP5 HF40	Set the sounding rounding variable for conversion of the metric HCell to NOAA charting units with NOAA rounding.
CARIS HOM	3.3 SP3 HF8	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding.
CARIS Plot Composer	5.1 SP1	Generate plots used for QC.
HydroService AS, dKart Inspector	6.0	Validation check of the HCell.

Product Info

Deliverables	
Chart Scale HCell	H12374_CS.000
Survey Scale HCell	H12374_SS.000
HCell Report for MCD	H12374_HR.pdf
Feature Listing	H12374_FL.txt
Descriptive Report	H12374_DR.pdf
Survey Outline	H12374_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
Height Units (HUNI)	Feet
Positional Units (PUNI)	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 (m)
3	-5	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	Chart Contours - NOAA Rounded
100 fm	182.88	184.2516	100.750 fm
200 fm	365.76	367.1316	200.750 fm

Add Contour | Remove Contour

Additional Info

Contact Information

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

HCell Compiler: Katie Reser

Phone Number: (206) 526-6864

Email: Katie.Reser@noaa.gov

Compilation Comments

APPROVAL SHEET
H12374

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

Katie Reser
2012.04.26
09:35:18 -07'00'

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

Digitally signed by Peter S. Holmberg
DN: cn=Peter S. Holmberg, o, ou, email=peter.holmberg@noaa.gov, c=US
Date: 2012.04.26 11:24:34 -07'00'

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.

Digitally signed by
Russ Davies
Reason: signing for
Dave Zezula
Date: 2012.04.26
11:01:09 -07'00'