

F00601

NOAA Form 76-35A

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

DESCRIPTIVE REPORT

Type of Survey: Field Examination

Registry Number: F00601

LOCALITY

State: Alaska

General Locality: North Coast of Unalaska Island, AK

Sub-locality: Dutch Harbor

2011

CHIEF OF PARTY
CAPT David O. Neander

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

F00601

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: **North Coast of Unalaska Island, AK**

Sub-Locality: **Dutch Harbor**

Scale: **5,000**

Dates of Survey: **07/28/2011 to 07/29/2011**

Instructions Dated: **07/06/2011**

Project Number: **OPR-Q328-FA-11**

Field Unit: **NOAA Ship *Fairweather***

Chief of Party: **CAPT David O. Neander**

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**

H-Cell Compilation Units: ***fathoms at Mean lower low water***

Remarks:

Descriptive Report to Accompany Survey F00601

Project: OPR-Q328-FA-11

Locality: North Coast of Unalaska Island, AK

Sublocality: Dutch Harbor

Scale: 1:5000

July 2011 - July 2011

NOAA Ship *Fairweather*

Chief of Party: CAPT David O. Neander

A. Area Surveyed

The survey area is located in North Coast of Unalaska Island, AK, within the sub-locality of Dutch Harbor.

A.1 Survey Limits

Data was acquired within the following survey limits:

Northeast Limit	Southwest Limit
53.87 N 166.46 W	53.96 N 166.66 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 project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. Survey data has been requested by the Alaska Department of Environmental Conservation to place two mooring buoys in Wide Bay and Broad Bay near Dutch Harbor. Buoys will provide a place of refuge for transiting ships. Alaska has also requested a survey and bottom samples for the Dutch Harbor entrance sand bar area.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

A.4 Survey Coverage

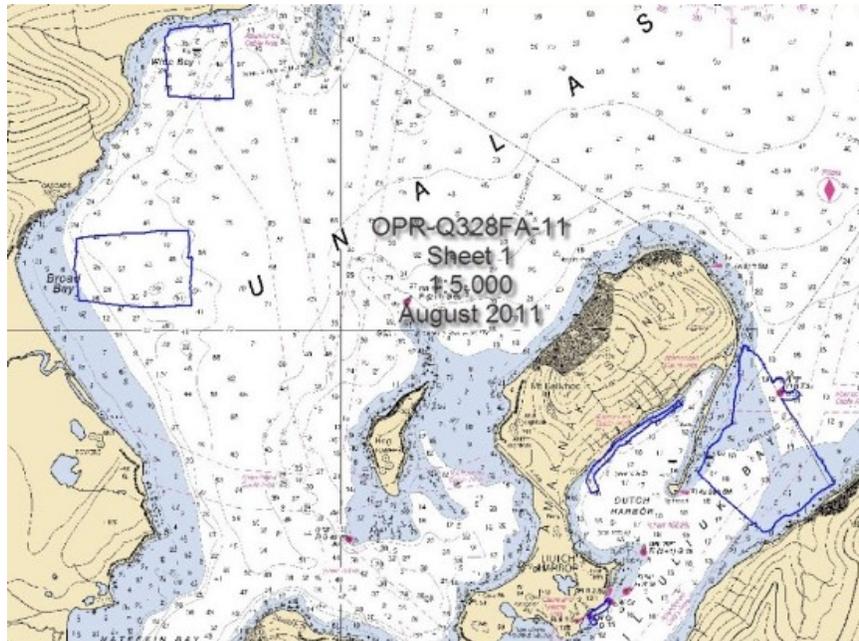


Figure 1: F00601 Survey Outline

In addition to the coverage requirement of this project, we acquired extra data in Broad Bay and Dutch Harbor's pier area. This extra data was acquired in response to the concerns expressed by Captain Carter Whalen and Mayor Shirley Marquardt who verbally requested current bathymetry for the safe maneuvering of vessels in the harbor as well as extending the broad bay extents to the east for the suggested moorage position.

A.5 Survey Statistics

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

	HULL ID	2808	Total
LNM	SBES Mainscheme	0.00	0.00
	MBES Mainscheme	40.97	40.97
	Lidar Mainscheme	0.00	0.00
	SSS Mainscheme	0.00	0.00
	SBES/MBES Combo Mainscheme	0.00	0.00
	SBES/SSS Combo Mainscheme	0.00	0.00
	MBES/SSS Combo Mainscheme	0.00	0.00
	SBES/MBES Combo Crosslines	0.00	0.00
	Lidar Crosslines	0.00	0.00
	Number of Bottom Samples		
Number of DPs			0
Number of Items Items Investigated by Dive Ops			0
Total Number of SNM			1.36

Table 2: Hydrographic Survey Statistics

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

Survey Dates
07/28/2011
07/29/2011

Table 3: Dates of Hydrography

The LNM value, depicted above, was obtained in CARIS HIPS. LNM value imported from Pydro PSS differ from the value obtained in CARIS HIPS. The SNM value, depicted above, was obtained in CARIS Notebook and derived from the submitted survey outline.

A.6 Shoreline

According to Project Instructions, there is no shoreline verification requirement for this project.

A.7 Bottom Samples

13 samples taken of 16 assigned.

Thirteen bottom samples from the field are included in the HCell to be charted, and two bottom samples were imported from the ENC to be retained.

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	2808
LOA	8.64 meters
Draft	1.12 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	7125	MBES
RESON	SVP 71	Sound Speed System
Applanix	POS/MV V4	Positioning System
Applanix	POS/MV V4	Vessel Attitude System
SeaBird	SBE 19plus	Sound Speed System

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Cross lines were not collected due to time constraints. However, the hydrographer believes that overlap was sufficient to positively identify any systemic data errors.

The data is adequate for charting despite not meeting the crossline requirements.

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
2808	2		0.5

Table 7: Survey Specific Sound Speed TPU Values

All data meet the data accuracy specifications as stated in the NOS Hydrographic Surveys Specifications and Deliverables (HSSD) dated April 2011.

The TPU values for tide are in meters and the TPU for sound speed are in meters per second.

B.2.3 Junctions

There are no contemporary surveys that junction with this survey.

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.2.6 Factors Affecting Soundings

B.2.6.1 Tides

Vertical offsets were observed in surfaces. The MBES data were reviewed in CARIS subset mode with appropriate reference surfaces. The reference surface accurately depicts the seafloor and does not exceed IHO specification.

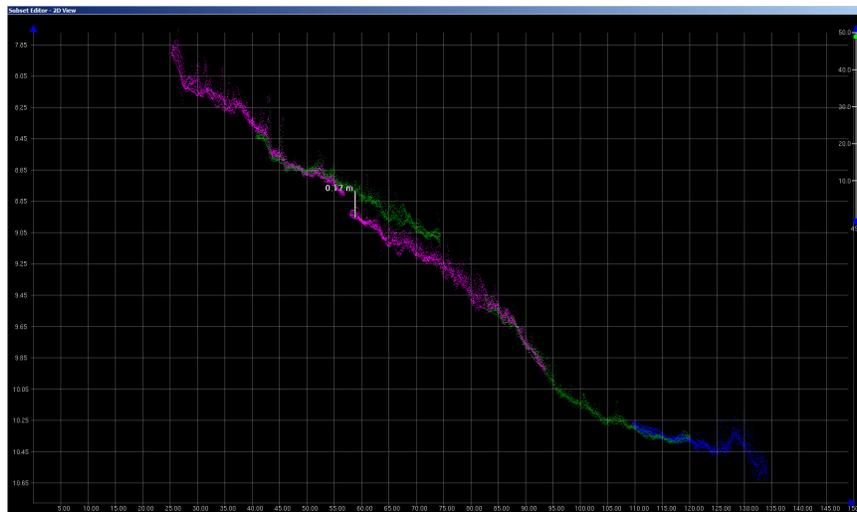


Figure 2: F00601 Tide Offsets

The data is adequate for charting despite the vertical offset observed.

B.2.6.2 Sound Speed

Sound speed artifacts were observed in surfaces. The artifacts appear in areas where there is an out flow of fresh water from a stream. The MBES data were reviewed in CARIS subset mode with appropriate

reference surfaces. The reference surface accurately depicts the seafloor and does not exceed IHO specification.

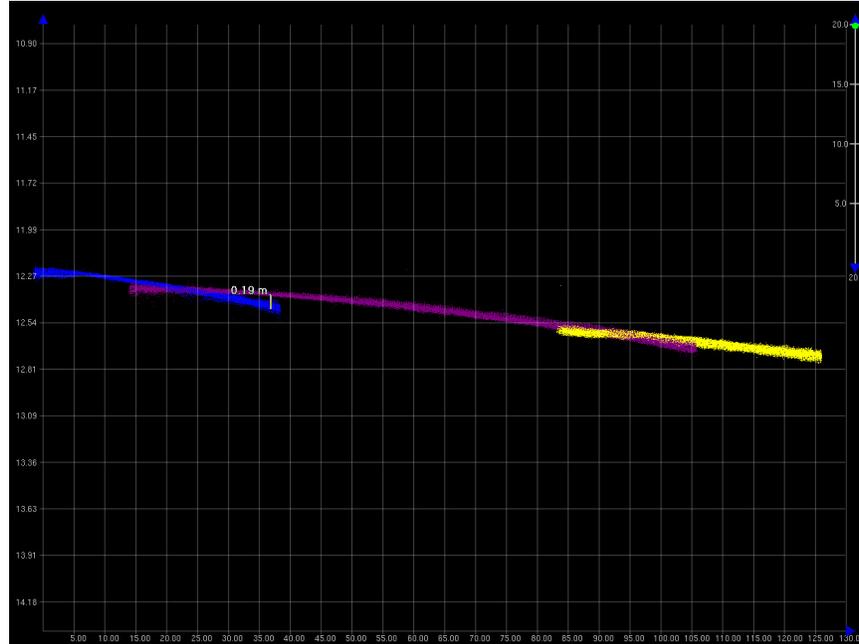


Figure 3: F00601 Sound Velocity Artifacts

The data is adequate for charting despite the sound speed artifacts.

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 Coverage Assessment

Complete multibeam coverage was obtained within the limits of F00601. For holidays larger than three surface grid nodes, the corresponding backscatter was examined and no navigationally significant items were found. The least depths of all navigationally significant features are represented by F00601.

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.

It was found that 99.99% of nodes in the combined 8-meter grid meet or exceed IHO Order 1 specifications for all depths of survey F00601, see Standards Compliance Review in Appendix V. To assess vertical accuracy standards, a child layer titled “IHO1” was created for each of the 0.5-meter, 1-meter, 4-meter, and 8-meter finalized surfaces using the equation as stated in section C. 2.1 of the DAPR.

B.2.11 Density

Density requirements for F00601 were achieved with at least 98.47% 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 s7k file and submitted directly to NGDC, and is not included with the data submitted to the Branch.

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	Bathy DataBASE	3.2	0	4	09/17/2011	Processing
Caris	HIPS/SIPS	7.1	0	2	08/02/2011	Processing
Caris	HIPS/SIPS	7.1	0	1	05/09/2011	Processing
Caris	Notebook	3.1	1	0	02/25/2011	Processing
NOAA	Pydro	11.7 -8-9	0	r3548 - r3585- r3600-r3603	09/21/2011	Processing
Applanix	PosPAC	5.4	1	0	07/15/2011	Processing

Table 8: Software Updates

The following Feature Object Catalog was used: 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
F00601_8m_Combined	CUBE	8 meters	-	NOAA_8m	Complete MBES
F00601_8m_Final_72to160	CUBE	8 meters	72 meters - 160 meters	NOAA_8m	Complete MBES
F00601_4m_Final_36to80	CUBE	4 meters	36 meters - 80 meters	NOAA_4m	Complete MBES
F00601_1m_Final_19to40	CUBE	1 meters	19 meters - 40 meters	NOAA_1m	Object Detection
F00601_0.5m_Final_0to20	CUBE	0.5 meters	0 meters - 20 meters	NOAA_0.5m	Object Detection
F00601_8m	CUBE	8 meters	-	NOAA_8m	Complete MBES
F00601_4m	CUBE	4 meters	-	NOAA_4m	Complete MBES
F00601_1m	CUBE	1 meters	-	NOAA_1m	Complete MBES
F00601_0.5m	CUBE	0.5 meters	-	NOAA_0.5m	Complete MBES

Table 9: CARIS Surfaces

The 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, one, four, eight meters. The NOAA CUBE parameters mandated in HSSD were used for the creation of all CUBE BASE surfaces in Survey F00601.

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.

The 8-meter combined base surface, F00601_8m_Combined.csar, was verified during the Survey Acceptance Review and was used as the basis for compilation.

B.5.3 TrueHeave

To enable the application of TrueHeave three 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 vessel and days: Launch 2808 days 209, 210.

B.5.4 Critical Soundings

Designation of soundings followed procedures as outlined in section 5.2.1.2 of the HSSD. Survey F00601 requires 6 designated soundings to accurately represent the seafloor, no soundings were designated as Danger to Navigation. A 50-centimeter resolution surface was created in lieu of excessive designated soundings.

B.5.5 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 F00601 Data Log spreadsheet. All data logs are submitted digitally in the Separates I folder.

C. Vertical and Horizontal Control

No HVCR is being submitted for this survey.

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
Unalaska, AK	9462620

Table 10: NWLON Tide Stations

File Name	Status
9462620.tid	Verified Observed

Table 11: Water Level Files (.tid)

File Name	Status
Q328FA2011CORP.zdf	Final

Table 12: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 08/02/2011. The final tide note was received on 08/05/2011.

See attached Tide Note dated August 4, 2011

Preliminary zoning is accepted as the final zoning for project OPR-N395-FA-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 Post Processing Kinematic (PPK) method is the primary method of positioning of MBES soundings on F00601. Correctors from a GPS base station established on Unalaska Island, AK were used for post processing all vessel-day POSMV files. All SBET files and their associated error files (SMRMSG) were applied to the CARIS HDCS data in HIPS and SIPS for improved positioning accuracy.

The following CORS Stations were used for horizontal control:

HVCR Site ID	Base Station ID
HAYSTACK_AK2004	AV09

Table 13: CORS Base Stations

DGPS was used during real-time acquisition of MBES data as well as for the positioning of the AWOIS item and bottom sample sites.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Cold Bay, AK - 289 kHz

Table 14: 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
16529	1:10000	16	10/2010	09/28/2010	10/09/2010
16528	1:40000	17	07/2008	08/07/2008	07/10/2008

Table 15: Largest Scale Raster Charts

16529

Soundings from survey F00601 generally agreed within one to two fathoms with charted depths on chart 16529. Contours generated in CARIS HIPS closely approximated the charted 5, and 10 fathom contours. Notable exceptions to this general agreement are listed and shown in the figures below. Dutch Harbor: a 3 fathom charted contour was surveyed farther offshore.

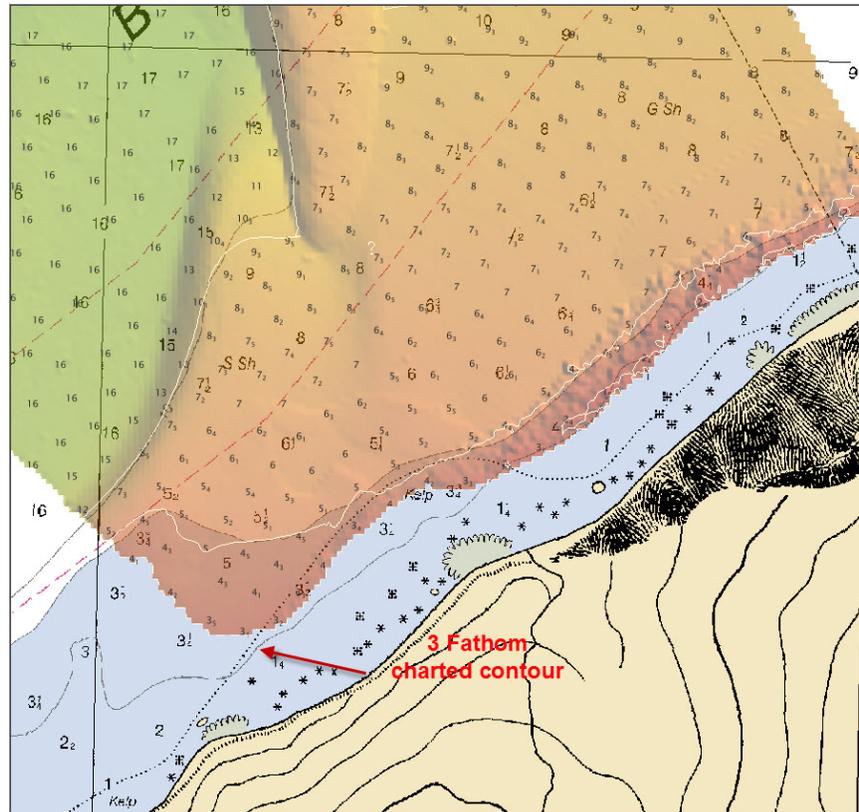


Figure 4: Disagreement between charted contour (16529) and surveyed contour on Dutch Harbor.

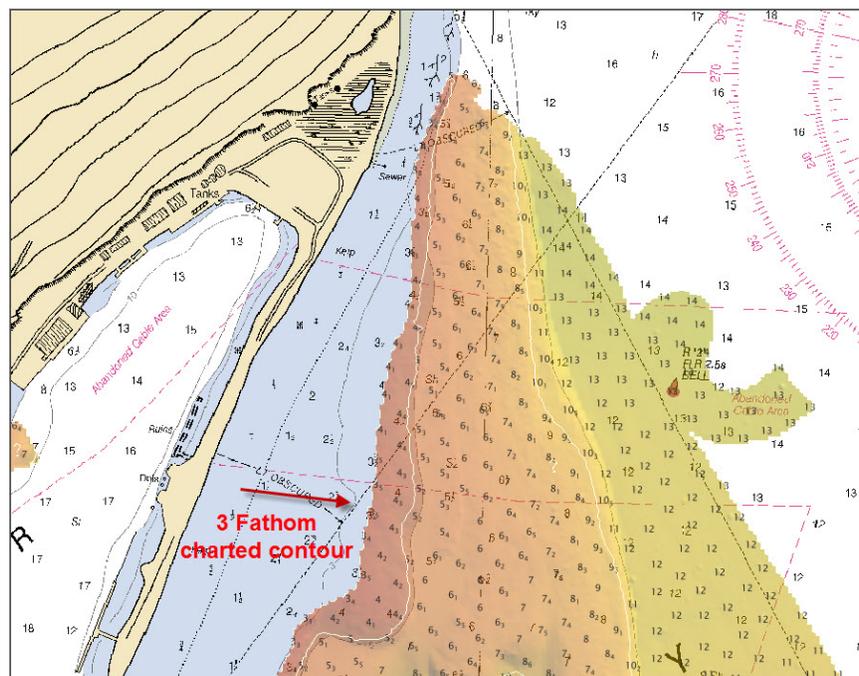


Figure 5: Disagreement between charted contour (16529) and surveyed contour on Dutch Harbor. Update charted contours and depths based on new survey data.

16528

Soundings from survey F00601 generally agreed within one to two fathoms with charted depths on chart 16528. Contours generated in CARIS HIPS closely approximated the charted 10, 20, 30, and 50 fathom contours. Notable exceptions to this general agreement are listed and shown in the figures below. Broad Bay: a 29 fathom charted depth was surveyed with MBES and found to have a least depth of 20 fathoms. Dutch Harbor: a 3 fathom charted contour was surveyed farther offshore.

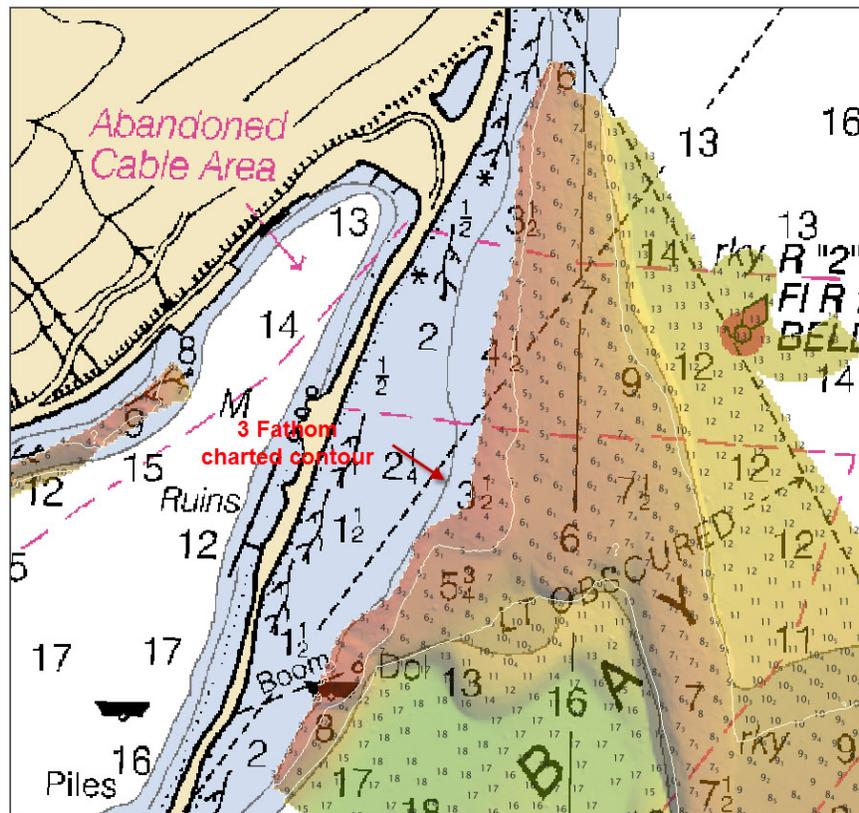


Figure 6: Disagreement between charted contour (16528) and surveyed contour on Dutch Harbor

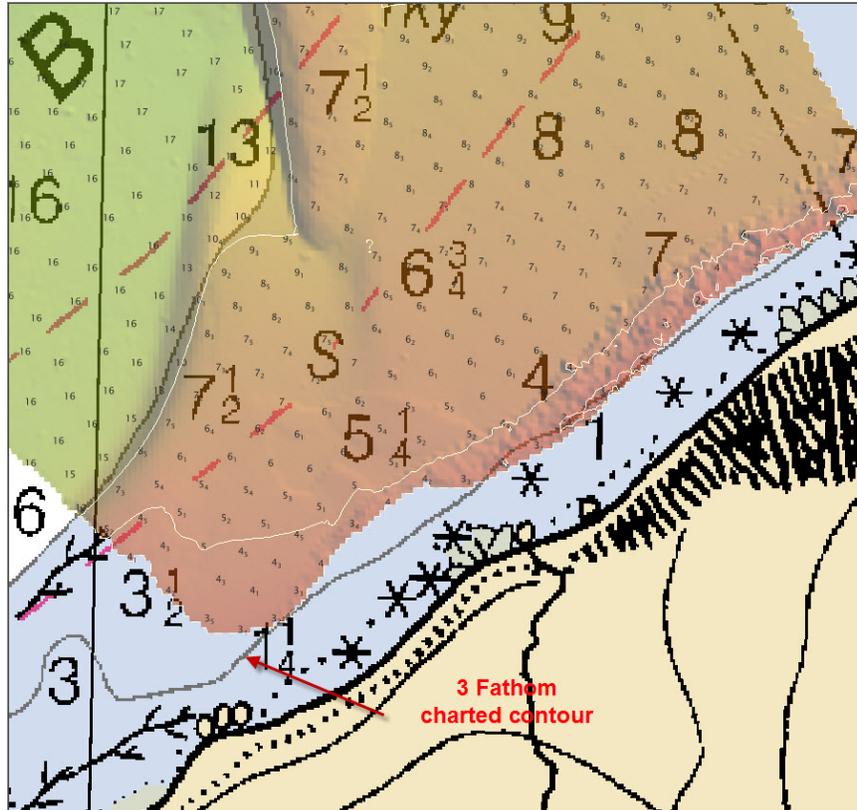


Figure 7: Disagreement between charted contour (16528) and surveyed contour on Dutch Harbor

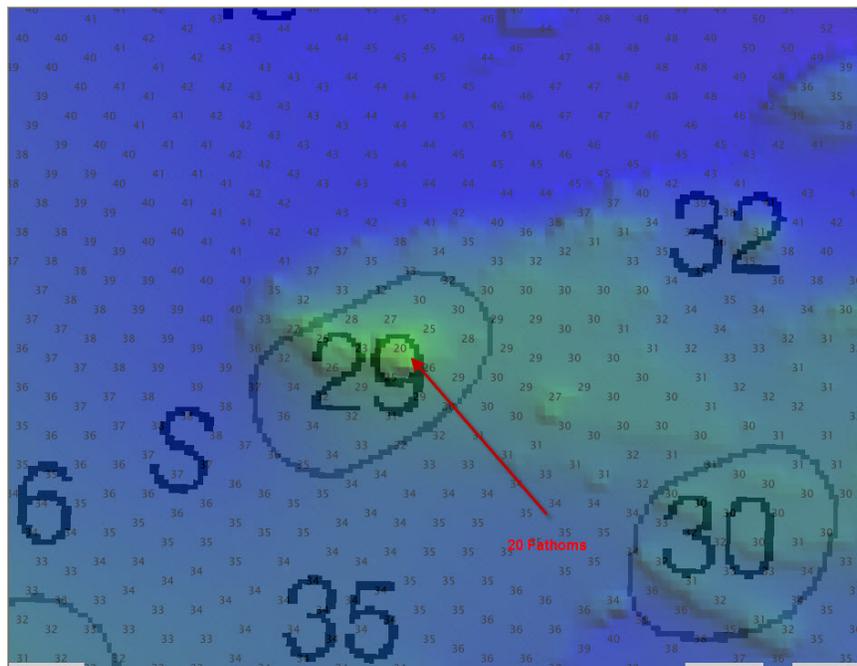


Figure 8: Disagreement between charted depth (16528) and surveyed soundings on Broad Bay.

Update charted contours and depths based on new survey data.

D.1.2 Electronic Navigational Charts

The following are the largest scale ENC's, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5AK6DM	1:10000	3	11/10/2008	12/03/2008	NO
USAK6CM	1:40000	10	12/15/2010	12/15/2011	NO
US5AK6EM	1:10000	4	12/29/2010	05/23/2011	NO

Table 16: Largest Scale ENC's

US5AK6DM

Soundings from survey F00601 generally agreed within one to two fathoms with charted depths on ENC US5AK6DM. Contours generated in CARIS HIPS closely approximated the charted 5, and 10 fathom contours. Notable exceptions to this general agreement are listed and shown in the figures below. Dutch Harbor: a 3 fathom charted contour was surveyed farther offshore.

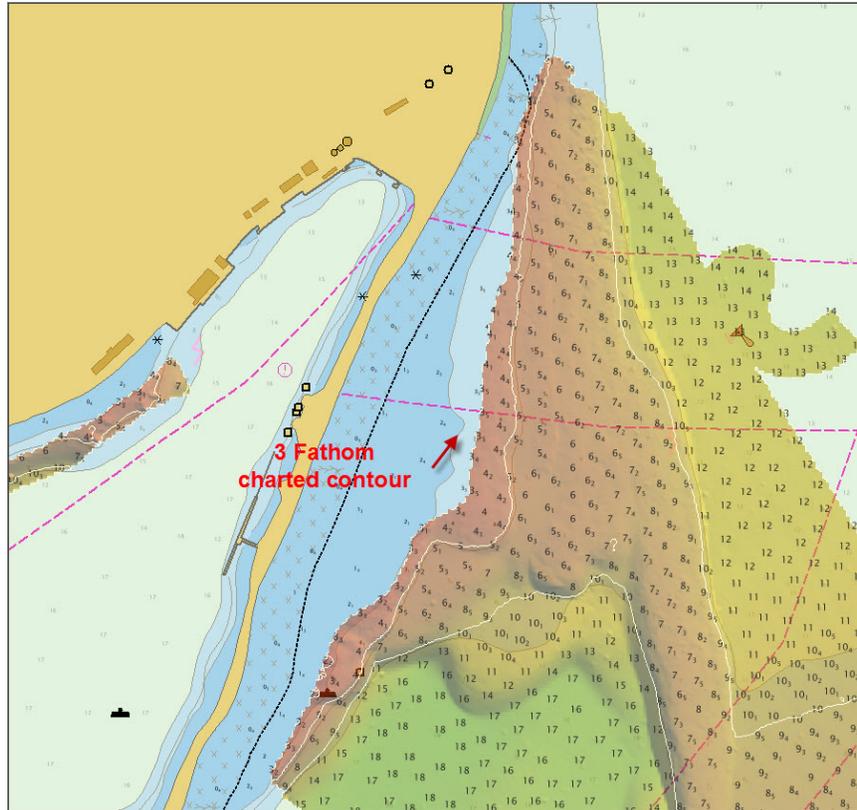


Figure 9: Disagreement between charted contour (US5AK6DM) and surveyed contour on Dutch Harbor

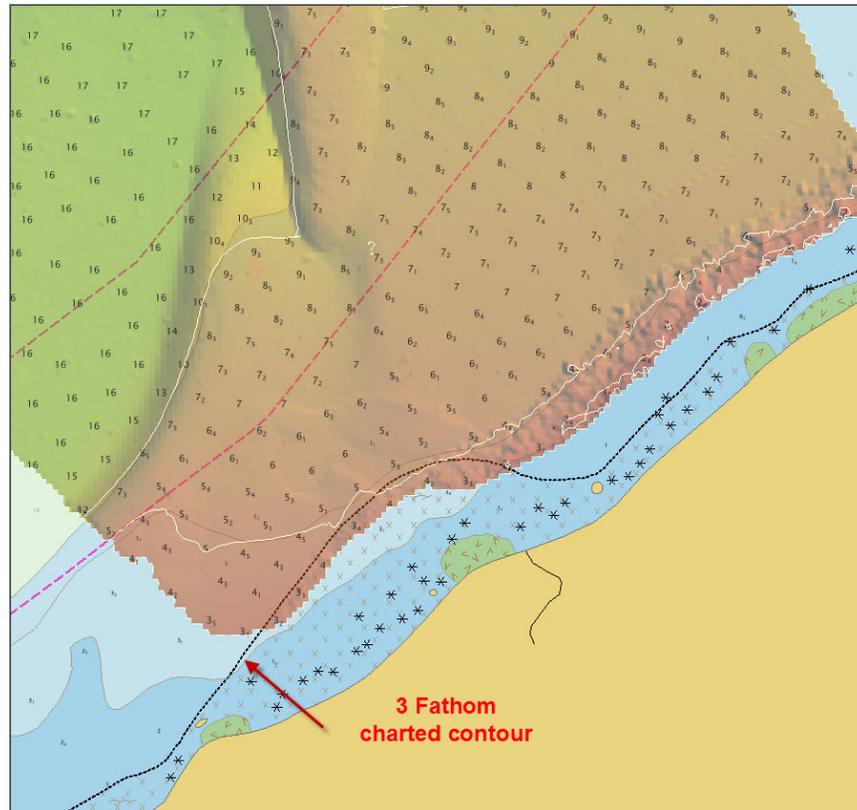


Figure 10: Disagreement between charted contour (US5AK6DM) and surveyed contour on Dutch Harbor
Update charted contours and depths based on new survey data.
USAK6CM

Soundings from survey F00601 generally agreed within one to two fathoms with charted depths on ENC US5AK6CM. Contours generated in CARIS HIPS closely approximated the charted 10, 20, 30, and 50 fathom contours. Notable exceptions to this general agreement are listed and shown in the figures below. Broad Bay: a 29 fathom charted depth was surveyed with MBES and found to have a least depth of 20 fathoms.

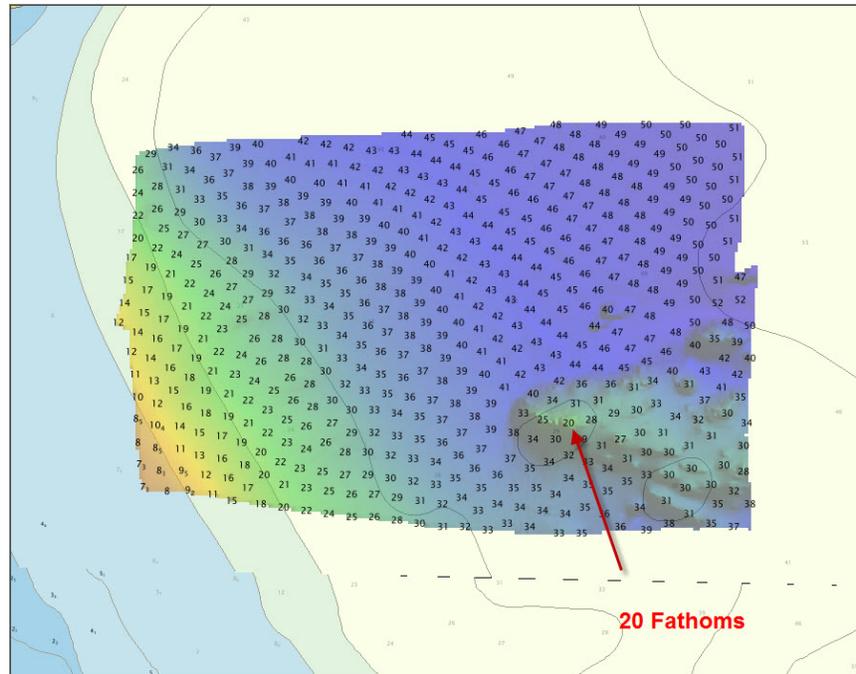


Figure 11: Disagreement between charted depth (US5AK6CM) and surveyed soundings on Broad Bay. Update charted contours and depths based on new survey data.
US5AK6EM

Soundings from survey F00601 generally agreed within one to two fathoms with charted depths on ENC US5AK6EM. Contours generated in CARIS HIPS closely approximated the charted 10 fathom contours.

D.1.3 AWOIS Items

Number of AWOIS Items Addressed: 1

Number of AWOIS Items Not Addressed: 0

There was one AWOIS item located within the limits of F00601. The AWOIS item was addressed and is included in the F00601 Final Feature File.



Figure 12: AWOIS item #54062

The AWOIS item # 54062 is included in the HCell. See attached AWOIS report.

D.1.4 Charted Features

Charted mooring buoy disproved during field operation. Charted Dolphin observed during field operation.
See F00601 Final Feature Report

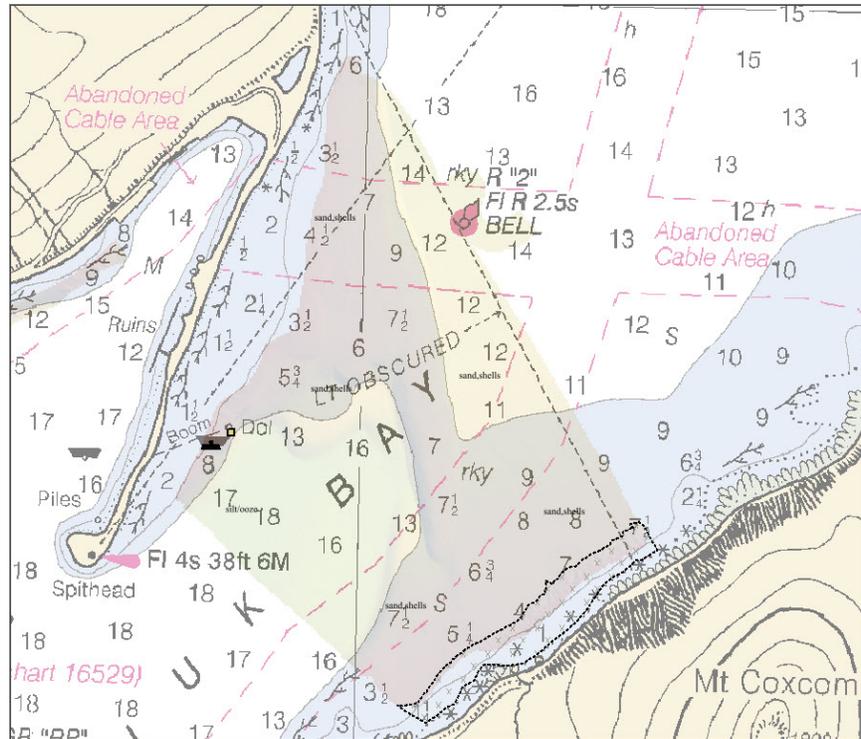


Figure 13: Dutch Harbor Mooring Buoy, Dolphin

The mooring buoy is included in the HCell at the surveyed position. A blue note was added to the chart 16528 to remove charted buoy PA.

D.1.5 Uncharted Features

New foul extent with rocks and kelp found during survey operation. See F00601 Final Feature Report



*Figure 14: New foul extent with rocks and kelp
A foul area and a coincident kelp area are included in the HCell.*

D.1.6 Dangers to Navigation

No Danger to Navigation reports was submitted.

D.1.7 Shoal and Hazardous Features

No charted shoals or hazardous features addressed.

D.1.8 Channels

No Channels addressed.

D.2 Additional Results

D.2.1 Shoreline

There is no Shoreline Verification requirement for this project.

D.2.2 Prior Surveys

No prior surveys were utilized for quality control.

D.2.3 Aids to Navigation

Iliuliuk Bay Entrance Lighted Bell Buoy 2 is located within the survey area. There are also two private general warning marks; APL Shoal Lighted Buoy and Iliuliuk Bay Lighted Buoy

D.2.4 Overhead Features

No overhead features addressed.

D.2.5 Submarine Features

Charted abandoned Cable Areas, not observed.

The abandoned cable areas have been blue noted to be retained.

D.2.6 Ferry Routes and Terminals

No ferry routes addressed.

D.2.7 Platforms

No drilling structures, production platforms, or well heads addressed.

D.2.8 Significant Features

No unusual or scientifically significant features addressed.

D.2.9 Construction and Dredging

No construction or dredging addressed.

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.

Approver Name	Approver Title	Approval Date	Signature
CAPT David O. Neander, NOAA	Chief of Party	09/06/2011	 2011.10.10 17:18:32 -07'00'
HST Douglas A Bravo	Sheet Manager	09/06/2011	 Douglas Bravo 2011.10.11 02:28:16 Z
CST Weston J. Renoud	Chief Survey Technician	09/06/2011	 Digitally signed by Weston Renoud Date: 2011.10.10 16:26:15 -07'00'
LT Caryn M. Zacharias, NOAA	Field Operations Officer	09/06/2011	 Caryn M. Zacharias 2011.10.10 17:41:03 -07'00'

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 Station
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 Propagated Error
TPU	Topside Processing Unit
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDA	Global Positioning System timing message
ZDF	Zone Definition File

F00601 AWOIS REPORT

Registry Number: F00601
State: Alaska
Locality: North Coast of Unalaska Island, AK
Sub-locality: Dutch Harbor
Project Number: OPR-Q328-FA-11
Survey Date: 07/29/2011

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
16528	17th	07/01/2008	1:40,000 (16528_1)	USCG LNM: 11/2/2010 (5/17/2011) CHS NTM: None (4/29/2011) NGA NTM: None (5/28/2011)
16520	23rd	08/01/2008	1:300,000 (16520_1)	[L]NTM: ?
16500	10th	05/01/2005	1:300,000 (16500_1)	[L]NTM: ?
16011	37th	11/01/2007	1:1,023,188 (16011_1)	[L]NTM: ?
16006	35th	04/01/2008	1:1,534,076 (16006_1)	[L]NTM: ?
513	7th	06/01/2004	1:3,500,000 (513_1)	[L]NTM: ?
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	GP	[None]	53° 56' 54.3" N	166° 36' 52.4" W	54062

1 - Item Data

1.1) US 000000574 00001 / F00601_CS.000

Primary Feature for AWOIS Item #54062

Search Position: 53° 57' 00.0" N, 166° 36' 45.0" W
Historical Depth: [None]
Search Radius: 300
Search Technique: MB
Technique Notes: [None]

History Notes:

LNM22/93--17th CGD, 6/1/93; Relocate: mooring buoy (PA) from 53 57 00.0 N 166 36 00.0 W to (PA) 53 57 00.0 N 166 36 45.0 W. (KSJ 6/20/2011)

Survey Summary

Survey Position: 53° 56' 54.3" N, 166° 36' 52.4" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2011-210.00:00:00.000 (07/29/2011)
Dataset: F00601_CS.000
FOID: US 000000574 00001(02260000023E0001)
Charts Affected: 16528_1, 16500_1, 16520_1, 16011_1, 16006_1, 513_1, 530_1, 50_1

Remarks:

AWOIS #54062 - New position charted (16528) mooring buoy found during field operations.

Feature Correlation

Source	Feature	Range	Azimuth	Status
F00601_CS.000	US 000000574 00001	0.00	000.0	Primary
OPR-Q328-FA-11 AWOIS	AWOIS # 54062	223.21	217.3	Secondary (grouped)

Hydrographer Recommendations

Repositon charted (16528) mooring buoy (PA) to new survey location.

S-57 Data

Geo object 1: Mooring/warping facility (MORFAC)
Attributes: BOYSHP - 2:can (cylindrical)
CATMOR - 7:mooring buoy
COLOUR - 1:white
NINFOM - chart mooring buoy AWOIS item #54062
SORDAT - 20110729
SORIND - US,US,graph,F00601

Office Notes

Update Mooring Bouy based on new survey data

Feature Images



Figure 1.1.1



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : August 04, 2011

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-Q328-FA-2011
HYDROGRAPHIC SHEET: F00601

LOCALITY: Dutch Harbor, North Coast of Unalaska Island, AK
TIME PERIOD: July 28 - July 29, 2011

TIDE STATION USED: 946-2620 Unalaska, AK
Lat. 53° 52.8'N Long. 166° 32.2' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.011 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project OPR-Q328-FA-2011, F00601, during the time period between July 28 and July 29, 2011.

Please use the zoning file "Q328FA2011CORP" submitted with the project instructions for OPR-Q328-FA-2011. Zone BGS91 is the applicable zone for Registry No. F00601.

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: 2011.08.04 16:10:38 -04'00'

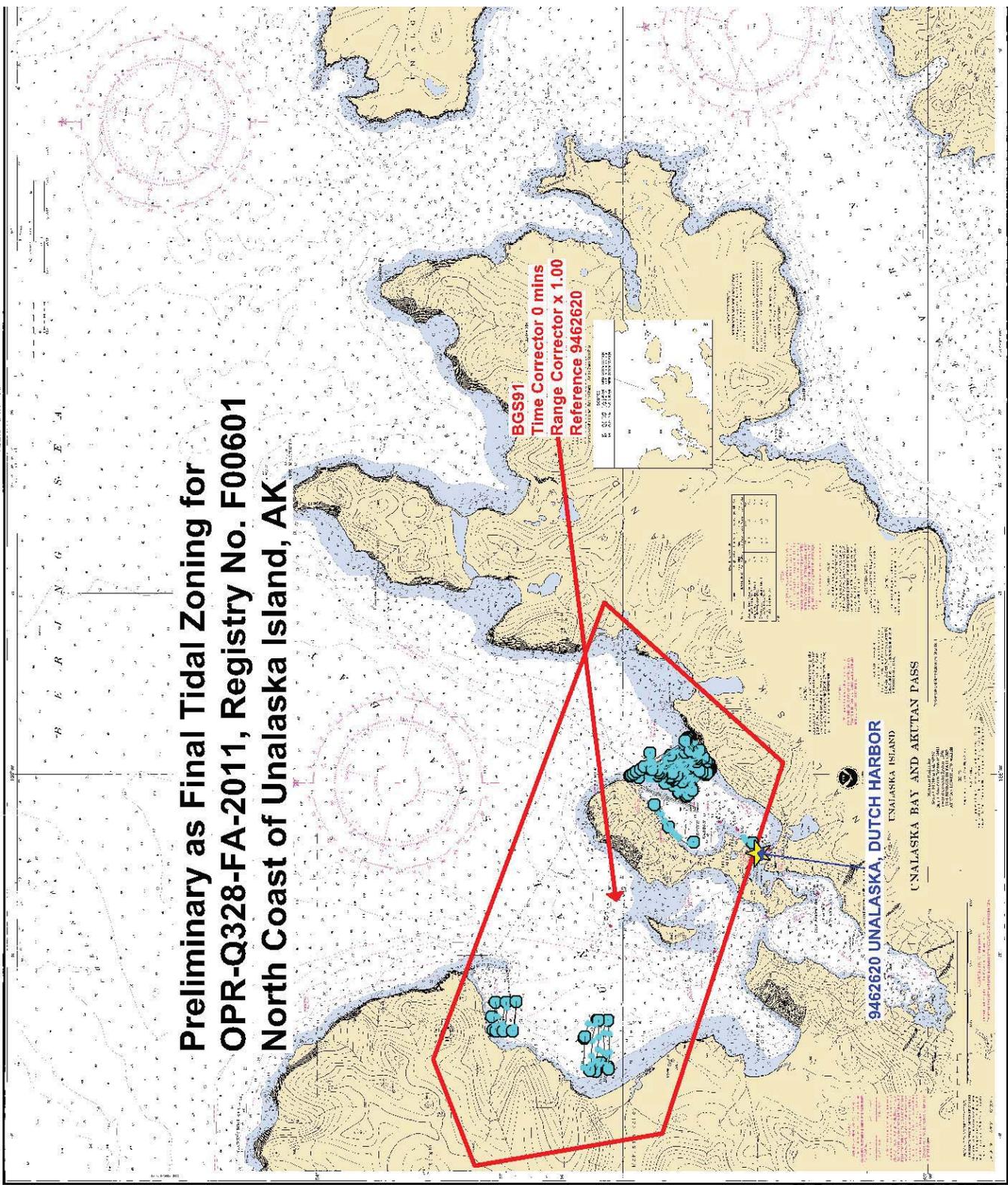
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**Preliminary as Final Tidal Zoning for
OPR-Q328-FA-2011, Registry No. F00601
North Coast of Unalaska Island, AK**

**BGS91
Time Corrector 0 mins
Range Corrector x 1.00
Reference 9462620**



16528
SOUNDINGS IN FATHOMS
UNALASKA BAY AND ARUTAN PASS
UNALASKA, DUTCH HARBOR
UNALASKA ISLAND
9462620



PHB Compilation Log

General Survey Info

Survey Number	<input type="text" value="F00601"/>	Field Unit	<input type="text" value="FAIRWEATHER"/>	State	<input type="text" value="AK"/>	UTM Zone	<input type="text" value="3N"/>
Project Number	<input type="text" value="OPR-Q328-FA-11"/>	Project Name (Locality)	<input type="text" value="North Coast of Unalaska Island, AK"/>				
Start Date	<input type="text" value="07/28/2011"/>	Sublocality	<input type="text" value="Dutch Harbor"/>				
End Date	<input type="text" value="07/29/2011"/>	Survey Scale	<input type="text" value="5,000"/>	Compilation Scale	<input type="text" value="10,000"/>		

Affected Raster Charts

Chart	KAPP	Scale	Edition	Date	NTM Date
16528_1	2522	1:40,000	17	07/01/2008	01/07/2012
16529_1	2523	1:10,000	16	10/01/2010	01/07/2012

Affected Electronic Charts

ENC	Scale
US5AK6CM	1:40,000
US5AK6DM	1:10,000
US5AK6EM	1:10,000

Spatial Reference

Horizontal Datum	<input type="text" value="WGS84"/>
Coordinate System	<input type="text" value="LLDG"/>
Sounding Datum	<input type="text" value="MLLW"/>
Vertical Datum	<input type="text" value="MHW"/>

Junction Surveys

Survey Number	Survey Date	Location Relative to Current Survey
N/A		(NE, SW, NNW, ect.)

HCell Compiler	<input type="text" value="Fernando Ortiz"/>	QC Reviewer	<input type="text" value="Katie Reser"/>	SAR Reviewer	<input type="text" value="Adam Argento"/>
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Source Surfaces

Resolution	File Name
8m	F00601_8m_Combined

PHB Compilation Log

Processing Info

Supporting Documents	
Name	Version
Specs and Deliverables	April 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	12.1	SAR Review. Generation of Features Reports.
CARIS BASE Editor	3.2 SP1 HF2	Creation of soundings and bathy-derived features, meta area object, 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	Setting the sounding rounding variable for conversion of the metric HCell to NOAA charting units with NOAA rounding. (For Fathoms and Feet chart units only.)
CARIS HOM	3.3 SP3 HF8	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding. (For Fathom and Feet chart units only)
CARIS Plot Composer	5.1	Generate plots of CARIS Session files used for QC.
HydroService, dKart Inspector	6.0	Validation check of the base cell file.

Product Info

Deliverables		Horizontal and Vertical Units	
Chart Scale HCell	F00601_CS.000	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.	
Survey Scale HCell	F00601_SS.000	Depth Units (DUNI)	Fathoms
HCell Report for MCD	F00601_HR.pdf	Height Units (HUNI)	Feet
Feature Listing	F00601_FL.txt	Positional Units (PUNI)	Meters
Descriptive Report	F00601_DR.pdf		
Survey Outline	F00601_Outline.gml and .xsd		

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	-4.7	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
2fm	3.6576	3.8862	2.125
3fm	5.4864	5.715	3.125
5fm	9.144	9.3726	5.125
10fm	18.288	18.5166	10.125
20fm	36.576	37.9476	20.75
30fm	54.864	56.2356	30.75
50fm	91.44	92.8116	50.75
Add Contour	Remove Contour		

Additional Info

Contact Information	
Inquiries regarding this HCell content or construction should be directed to:	
HCell Compiler	Fernando Ortiz
Phone Number	206.526.6859
Email	fernando.ortiz@noaa.gov

Compilation Comments

APPROVAL SHEET
F00601

Initial Approvals:

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

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

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