H11469

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic Survey

Field No. N/A

Registry No. H11469

LOCALITY

State Alaska

General Locality Cape Decision

Sublocality Port McArthur to Point Saint Albans

2005

CHIEF OF PARTY

Commander John Lowell, NOAA

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28 (11-72)

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

REGISTRY No

H11469

HYDROGRAPHIC TITLE SHEET

INSTRUCTIONS – The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD No

State **Alaska**

General Locality **Cape Decision**

Sub-Locality **Port McArthur to Point Saint Albans**

Scale **1:20,000** Date of Survey **April 23 - May 31, 2005**

Instructions dated **3/21/2005** Project No. **OPR-O167-FA**

Vessel **FAIRWEATHER, Launch 1010, Launch 1018, Ambar 2302, Monark 1706**

Chief of party **CDR John E. Lowell, Jr., NOAA**

Surveyed by **SST Abrams, CST Morgan, LT Wetzler**

Soundings by echo sounder, hand lead, pole **Reson 8101, Reson 8111ER**

Graphic record scaled by **N/A**

Graphic record checked by **N/A** Automated Plot **N/A**

Verification by **Sarah Wolfskehl** Evaluation by **Kurt Brown**

Soundings in **Meters** at **MLLW**

REMARKS: **All times are UTC.**

The purpose of this survey was to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All Separates are filed with the hydrographic data. Revisions and end notes in red were generated during office processing. Page numbering may be interrupted or non-sequential.

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537

Descriptive Report to Accompany Hydrographic Survey H11469

Project OPR-O167-FA
Cape Decision, Alaska
Scale 1:20,000
April – May 2005
NOAA Ship FAIRWEATHER
Chief of Party: Captain John E. Lowell, Jr., NOAA

A. AREA SURVEYED

The survey area was located in Cape Decision, within the sub-locality of Port McArthur to Point Saint Albans. Survey H11469 corresponds to Sheet F in the sheet layout provided in Change 1 to the Hydrographic Survey Letter Instructions OPR-O167-FA-05[1], as shown in Figure 1 below. Data were acquired outside of the final limit to delineate the Point Saint Albans shoal area. Other survey data outside of the final limit were acquired in compliance with the original survey limit, before the final limit was received. See Appendix IV for related correspondence.

Data acquisition was conducted from April 23 to May 31, 2005 (DN 113 to DN 151).

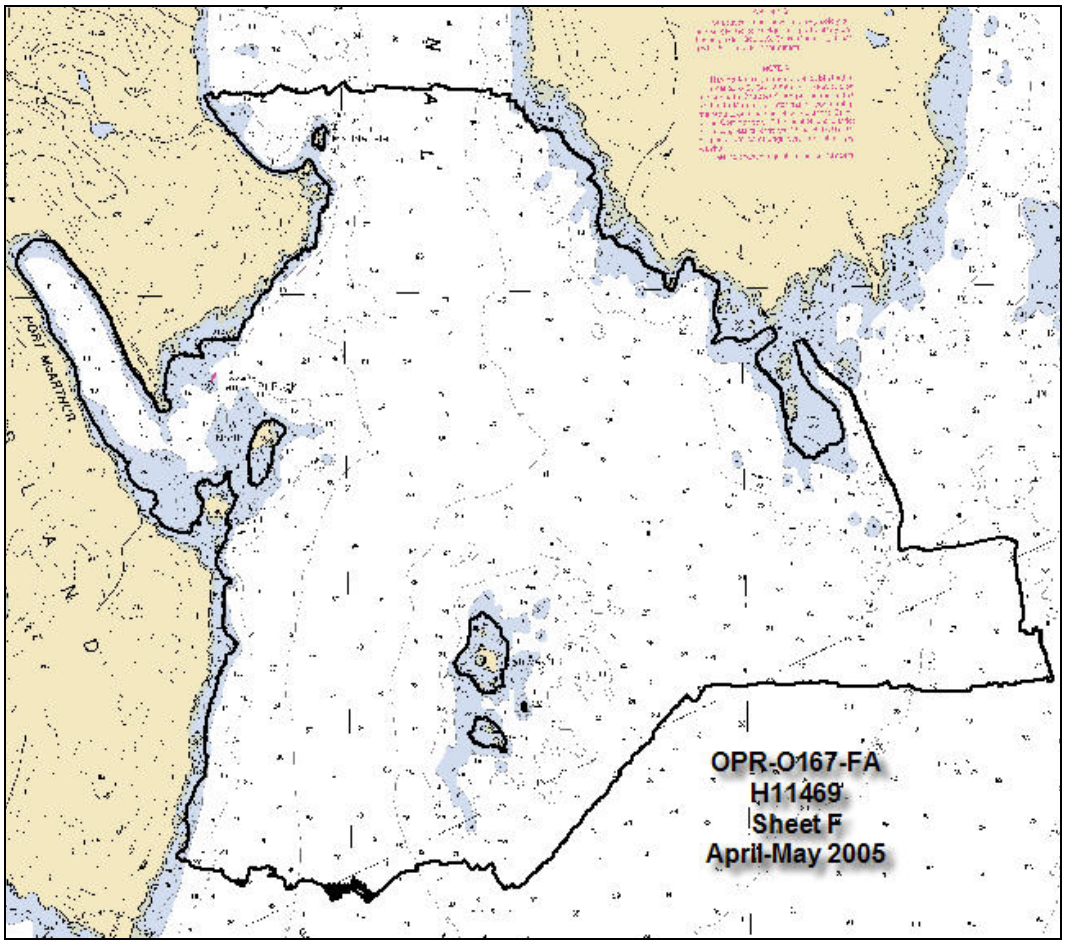

Figure 1: H11469 Survey Outline

One hundred percent multibeam echosounder (MBES) coverage was obtained in the survey area at least to depths of eight meters, except where safety conditions did not permit[2]. When conditions allowed, multibeam echosounder (MBES) data were acquired parallel to contours and at line spacing of no less than 25 meters in depths between four and eight meters. Additional coverage was obtained in order to determine least depths over features or shoals.

Shoreline data were acquired for H11469. These data were attributed as S-57 objects for submittal.

B. DATA ACQUISTION AND PROCESSING

A complete description of data acquisition/processing systems and survey vessels can be found in the *NOAA Ship FAIRWEATHER Hydrographic Systems Certification Report 2005*[3], submitted under a separate cover. Quality control procedures and data processing methods are listed and described in the *OPR-O167-FA-05 Data Acquisition and Processing Report* (DAPR)[4], submitted under separate cover. Items specific to this survey and any deviations from the aforementioned report are discussed in the following sections.

Hydrographic survey H11469 was completed as specified by Change 1 to Hydrographic Survey Letter Instructions OPR-O167-FA, dated May 13, 2005.

B1. Equipment and Vessels

Equipment and vessels used for data acquisition and survey operations during this survey are listed below in Table 1.

	FAIRWEATHER	Launch 1010	Launch 1018	MonArk	Ambar 550	Ambar 700
Hull Registration Number	S220	1010	1018	1706	1803	2302
Builder	Aerojet-General Shipyard	The Boat Yard, Inc.	The Boat Yard, Inc.	MonArk	Marine Silverships, Inc	Marine Silverships, Inc
Length Overall	231 feet	28’ 10”	28’ 10”	17’	18’	23’
Beam	42 feet	10’ 8”	10’ 8”	7’	8’ 6”	9’ 4”
Draft, Maximum	15’ 6”	4’ 0” DWL	4’ 0” DWL	1’ 3”	1’ 5”	1’ 4”
Cruising Speed	12.5 knots	24 knots	24 knots	20 knots	20 knots	22 knots
Max Survey Speed	10 knots	10 knots	10 knots			
Primary Echosounder	RESON 8111 & RESON 8160	RESON 8101	RESON 8101			
Sound Velocity Equipment	SBE 19plus & 45, MVP 200	SBE 19plus	SBE19plus			
Attitude & Positioning Equipment	POS/MV V3	POS/MV V3	POS/MV V3			
Type of operations	MBES	MBES, Tides	MBES	Shoreline	Tides, HORCON	Shoreline

Table 1: Vessel Inventory

No vessel configurations used during data acquisition deviated from the DAPR.

B2. Quality Control

All survey sounding data were manually examined by the Hydrographer in CARIS subset mode. The internal consistency and integrity of the data were found to be good[5].

Crosslines

Shallow water multibeam crosslines for this survey totaled 36.74 linear nautical miles (lnm), comprising 8.7% of the 421.22 lnm of total SWMB hydrography. Figures were obtained from the Pydro data statistics tool.

The Hydrographer has determined, through manual examination of the data, that the crossline agreement is within NOAA HSSDM specifications[6].

Junctions

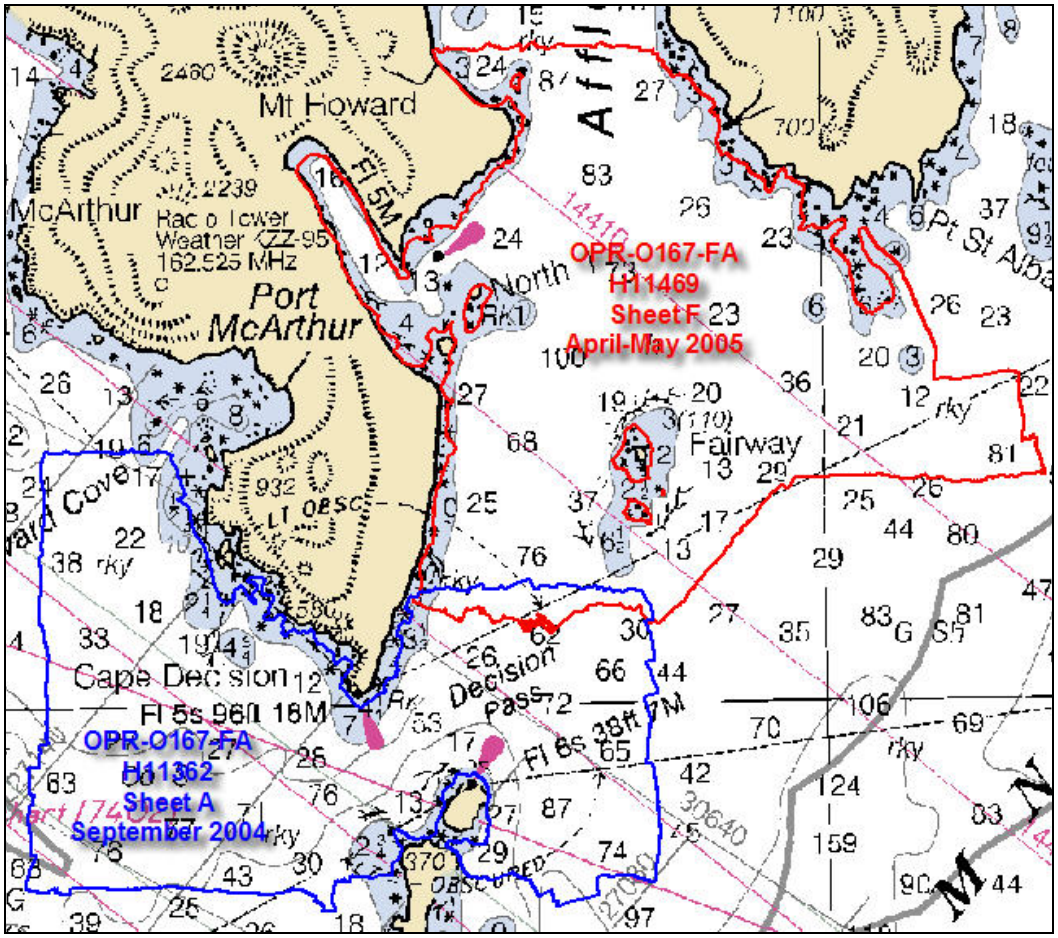

Figure 2: Junction Between H11469 and H11362 (scales 1:20,000 and 1:10,000)

Survey H11469 junctions with H11362, which is Sheet A of the same project from the previous year. The area of overlap between the sheets was about 250 meters wide. The area of overlap between the sheets was reviewed in Caris Subset Editor for consistency and data were found to be in good general agreement within one meter. The sheet limits and area of overlap for H11469 and H11362 are shown in Figure 2 above.

Quality Control Checks

MBES quality control checks were conducted as discussed in the quality control section of the *OPR-O167-FA-05 Data Acquisition and Processing Report.*

Data Quality Factors

MIDNIGHT INCORRECT TIME STAMPING

On May 12, 2005 (DN 132), line 133-2358 acquired by Launch 1018 was affected by a midnight time stamping error. The error caused the data acquired after midnight to have the incorrect time stamp. An HSTP supplied macro, SetXTFRawNavYMD.py, was used to create two new XTF files with the correct stamps: 132-2358_bm (before midnight) and 132-2358_am (after midnight). These two files were converted to HDCS and included in the survey. The original HDCS file 132-2358 was deleted but the XTF file 132-2358 is included with the corrected XTF files. Refer to the *OPR-O167-FA-05 Data Acquisition and Processing Report* for more information.

SOUND VELOCITY:

Data were affected by sound velocity errors in several areas of the survey. The area most affected by sound velocity error was the entrance to Port McArthur. The affected lines were swath filtered to 55 degrees port and starboard. The remaining data showed small signs of sound velocity error, but were within NOAA HSSDM specifications. Overlap was sufficient to provide coverage in the affected area.

There were several lines from May 30, 2005 (DN 150), acquired by Launch 1010 along the east side of the sheet, that exhibited some sound velocity error. Instead of using the concatenated .svp file, an individual cast was applied to these lines, which reduced the amount of sound velocity error in the data.

ROLL

HDCS line 125-2348-1, acquired by Launch 1010 on May 5, 2005 (DN 125), shows evidence of roll bias in CARIS Subset editor and the 2 meter BASE surface standard deviation layer. The source of this roll is unknown and only part of the line appears to be affected. The affected outer beams are approximately 2 meters off the rest of the dataset in approximately 40 meters depth. The outer beams of the affected part of this line do not meet NOAA HSSDM specifications. Data has been reviewed by the Hydrographer in subset mode. Because there is sufficient overlap with the adjacent lines, the BASE surface is minimally affected. The Hydrographer recommends that the data is adequate to supersede prior surveys in their common areas due to increased bottom coverage collected on the current survey and the age of the prior surveys being 1886 and 1937[7].

KELP

There was kelp in most near shore areas, most notably around Point Saint Albans, the Fairway Islands, North and South Island. The kelp at times restricted the inshore limit of hydrography such that coverage to 4 or 8 meters was not possible in some areas. Coverage was obtained as far inshore as was feasible until the aquatic vegetation restricted safe navigation.

COVERAGE

Coverage assessment was done using the BASE surface resolutions in Table 2.

Depth Ranges		**Resolutions**
Lo (m)	*Hi (m)*	*Res. (m)*
0	35	0.8
25	70	2
60	170	5
150	300	12
280	550	22

Table 2: Fairweather Depth Ranges and Resolutions

During the survey, no official guidance was available to FAIRWEATHER as to what resolutions to use to assess coverage using the BASE surface. Coverage resolutions in Table 2 were developed based on discussions and presentations at the 2005 Field Procedures Workshop that recommended resolutions of four to eight percent of water depth. FAIRWEATHER used these resolutions to assess coverage after the survey was completed. Because coverage resolutions differed between acquisition and processing of the survey, some small holidays exist in the 0.8 and 2 meter BASE surfaces (0 to 70 meter depth range). None of the holidays are more than 20 by 20 meters square. The data around the holidays were examined in CARIS Subset Editor. No shoals, navigationally significant features, or systematic problems were found in the examination of the data adjacent to the holidays[8]. In the case that the holiday was larger than 3 nodes across, the corresponding multibeam backscatter was examined and no navigationally significant items were found nor were the small holidays over any high points.

Accuracy Standards

Total propagated error (TPE) filters were applied in CARIS HIPS to all sounding data from survey H11469. Only those soundings that satisfied the International Hydrographic Organization (IHO) requirements for both horizontal and vertical accuracy based on depth were accepted, as specified in the *NOS Hydrographic Surveys Specifications and Deliverables*. Data for this survey meet the prescribed accuracy standards, except where noted in the Data Quality Factors section of this document[9].

B3. Corrections to Echo Soundings

Data reduction procedures for survey H11469 conform to those detailed in the *OPR-O167-FA-05 Data Acquisition and Processing Report,* with the exceptions as discussed below[10].

On May 12, 2005 (DN 132), debris were inadvertently trapped between the transducer arm and hull stop on Launch 1018, resulting in a different roll bias for that day. The roll bias was determined by comparing adjacent lines from DN 132 and adjusted for that day in the 1018 HVF. With the adjusted roll bias value, data from that day meet specifications. Refer to the *OPR-O167-FA-05 Data Acquisition and Processing Report* for further detail.

C. HORIZONTAL AND VERTICAL CONTROL

A complete description of horizontal and vertical control for survey H11469 can be found in the *OPR-O167-FA-05 Horizontal and Vertical Control Report*[11], submitted under separate cover. A summary of horizontal and vertical control for this survey follows.

Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS (DGPS) was the sole method of positioning. Differential corrections were obtained from the U.S. Coast Guard beacon at Level Island (295 kHz).

Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) primary tide station at Sitka, AK (945-1600) served as control for datum determination and as the primary source for water level reducers for survey H11469.

FAIRWEATHER personnel installed one Sutron 8210 "bubbler" tide gauge at the tertiary station listed below. Gauge #09 (S/N 002332) was the gauge used. The gauge was installed in order to provide information to Center for Operational Oceanographic Products and Services (CO-OPS N/OPS1) for the determination of time and height correctors, in accordance with the Project Instructions.

Station Name	Station Number	Type of Gauge	Date of Installation	Date of Removal
Kuiu Island	945-0913	Tertiary 30 Day	April 22, 2005	May 31, 2005

CO-OPS does not provide calibration or quality assurance documentation to the FAIRWEATHER. FAIRWEATHER personnel are responsible for installation and removal of the water level gauges. CO-OPS is responsible for delivering approved (smooth) vertical correctors to the processing branch for application to the hydrographic data set.

Refer to the *OPR-O167-FA-05 Horizontal and Vertical Control Report* further information about the tide station.

All data were reduced to MLLW using verified tides from station Sitka, AK by applying tide file 9451600.tid and time and height correctors through the revised predicted zone corrector file O167FA2005CORP.zdf.

The Pacific Hydrographic Branch will apply approved (smooth) tides to the survey data during final processing[12]. A request for delivery of approved (smooth) tides for survey H11469 was forwarded to CO-OPS (N/OPS1) on June 7, 2005 in accordance with the Preliminary Field Procedures Manual v1.1, dated March 2005 (FPM). A copy of the request is included in Appendix III.

The OPR-O167-FA-05 Horizontal and Vertical Control Report was originally transmitted to CO-OPS (N/OPS1) on August 22, 2005. The report was not received by CO-OPS, and was transmitted again on October 31, 2005. A delay in delivery of final approved vertical correctors to the Pacific Hydrographic Branch may result from the non-receipt of the original report transmission.

D. RESULTS AND RECOMMENDATIONS

D.1 Chart Comparison

Survey H11469 was compared with charts 17360 (33rd Ed.; May 1, 2003, 1:217,828), 17320 (16th Ed.; December 1, 2003, 1:217:828), 17386 (3rd Ed.; May 12, 2001, 1:40,000), and 17402 (10th Ed.; August 1, 2002, 1:40,000). Chart 17360 was corrected through Notice to Mariners (NM) May 17/03 and Local Notice to Mariners (LNM) Apr 29/03. Chart 17402 was corrected through NM Aug 31/02, LNM Aug 20/02. Chart 17320 was corrected through NM Dec 20/03, LNM Dec 2/03[13]. Chart 17386 did not state what NM and LNM it had been corrected through. The most recent NM 42/05 and the most recent LNM 18/05 were consulted. There were no new changes within the survey area.

The 5 meter resolution BASE surface was brought into Pydro with the Insert BASE/Weighted Grids function. The BASE surface soundings were then excessed to survey scale and shoal biased. The affected charts in the survey area were brought into Pydro. The Hydrographer manually compared the charted soundings to the shoal biased, excessed BASE soundings in the Chart window.

Chart 17360

Depths from survey H11469 generally agreed within one to two fathoms with depths on chart 17360. Some of the shoaler depths represented on the chart near the shoreline appear to have been pulled off shore for cartographic representation, but remain accurate within the scale of the chart.

Chart 17320

Depths from survey H11469 generally agreed within one to two fathoms with depths on chart 17320. Some of the shoaler depths represented on the chart near the shoreline appear to have been pulled off shore for cartographic representation, but remain accurate within the scale of the chart.

Chart 17386

Depths from survey H11469 generally agreed within one to two fathoms with depths on chart 17386. Several charted depths were up to 10 fathoms deeper or shoaler than the survey soundings. This is most likely due to the increased coverage of SWMB. In near shore areas the 5 and 10 fathom curves should be

adjusted to match shoaler soundings. Some of the shoaler depths represented on the chart near the shoreline appear to have been pulled off shore for cartographic representation, but remain accurate within the scale of the chart.

Chart 17402

Depths from survey H11469 generally agreed within one to two fathoms with depths on chart 17402. In near shore areas the 5 and 10 fathom curves should be adjusted to match shoaler soundings. Some of the shoaler depths represented on the chart near the shoreline appear to have been pulled off shore for cartographic representation, but remain accurate within the scale of the chart.

Chart Comparison Recommendations

The Hydrographer has determined that bottom coverage requirements have been met and data accuracy is as discussed in the Accuracy Standards portion of this report[14]. The BASE surfaces with the application of designated soundings are adequate to supersede prior surveys in their common areas. Final chart comparisons will be made at the Pacific Hydrographic Branch after the application of approved (smooth) tides[15].

Automated Wreck and Obstruction Information System (AWOIS) Investigations

There were no AWOIS items located within the limits of H11469[16].

Dangers to Navigation

Three dangers to navigation were found and reported to the Mapping and Charting Division for final submission to the Seventeenth Coast Guard District on October 23, 2005[17]. A copy of the Danger to Navigation Report is included with the PSS[18]. See Appendix IV for the email receipt of the three dangers to navigation.

D.2 Additional Results

Shoreline Source

Source shoreline for this sheet was taken from photogrammetric survey AK0202 (NAD 83) GC-10546, at the scale of 1:30,000 and preliminary source imagery dated October 2003. The cartographic feature file (CFF) shoreline was imported to CARIS Notebook 2.2 Beta as an editable layer named H11469_Edited_CFF_Shoreline.hob, with all objects having S57 attribution. In addition, features from the current editions of charts 17360, 17320, 17385, and 17402 that were not depicted by the source shoreline data were digitized with S57 attribution in CARIS Notebook into H11469_Charted_Shoreline.hob file, to be displayed for field verification.

Shoreline Verification

FAIRWEATHER personnel conducted limited shoreline verification at times near predicted low water, in accordance with the Standing Project Instructions. Detached positions (DPs) and generic positions (GPs)

acquired during shoreline verification were recorded in TerraSync and on paper DP forms. Scanned copies of the DP forms are included in the digital Separates folder and hard copies can be found with the *Separates to be Included with Survey Data*[19]. In addition, annotations describing shoreline were recorded on hard copy plots of the digital shoreline.

Shoreline Data Processing

Positions acquired during shoreline verification operations were processed in GPS Pathfinder Office and inserted into Pydro using the Generic GPs/DPs Import tool. Features were entered as Detached Positions (DPs) when tide correctors were required, while Generic Positions (GPs) were used if no tide correction was needed. The DPs and GPs indicate new features, revisions to features, or features not found during shoreline verification. A Carto Action code of Add, Modify, Delete, or None was assigned to each item in Pydro, and all features were S57 attributed.

All accepted and primary detached and generic positions were imported from the Pydro .xml to four separate stand alone .hob files in CARIS Notebook 2.2 Beta and later the update CARIS Notebook 2.2. These were named H11469_Add_Features.hob, H11469_Modify_Features.hob, H11469_Delete_Features.hob, or H11469_None_Features.hob.

Source Shoreline Changes, New Features and Charted Features

Items for survey H11469 associated with a detached or generic position that needed further discussion were flagged Report in Pydro. Investigation or survey methods were listed under the Remarks tab and, when appropriate, recommendations to the cartographer were included in the Recommendations tab. A survey feature report for shoreline items was generated and included as H11469 Shoreline Features Report.pdf in Appendix I.

Three .hob layers, named H11469_Add.hob, H11469_Modify.hob and H11469_Delete.hob, were created in CARIS Notebook for features without associated DPs. New items were digitized to the Add layer, while existing features from the CFF and chart were transferred to the Modify or Delete layers, depending on the cartographic action deemed appropriate by the Hydrographer. Features to be retained as depicted by the source shoreline file were left in the H11469_Edited_CFF_Shoreline.hob file. Field notes made by the Hydrographer on the boat sheets and DP forms were transferred to the remarks field for each feature.

Shoreline Recommendations

The Hydrographer recommends that the shoreline depicted in the CARIS Notebook files and final sounding files supersede and complement shoreline information compiled on the CFF and charts[20].

Aids to Navigation

Survey H11469 included one (1) aid to navigation (ATON). A detached position was taken on the ATON for check purposes and the fixed ATON was also positioned using static GPS survey methods, see the *Horizontal and Vertical Control Report for OPR-O167-FA* for further information.. The ATON was found to be charted correctly and serves its intended purpose.

Light List Name	Light List Number	NAD83 (CORS 96) (EPOCH:2003.0000) N. Latitude (Pk to Pk Err. (m))	W. Longitude (Pk to Pk Err. (m))	Ellipsoid Ht. (m) (Pk to Pk Err. (m))	NAVD88 Ortho Ht. (m) (Pk to Pk Err. (m))	Satellite Ephemeris File
Lemon Point Rock Light	23435	56° 04' 22.23552" (0.022)	134° 06' 42.37318" (0.010)	7.134 (0.006)	7.094 (0.026)	Rapid

Bottom Samples

Bottom samples were collected on May 27 and 30, 2005 (DN 147 and DN 150) and are included as seabed classifications along with the other S57 features in the Pydro Preliminary Smooth Sheet[21]. The bottom sample positions were also imported to the Notebook H11469_Add_Features.hob file.

E. SUPPLEMENTAL REPORTS

Listed below are supplemental reports submitted separately that contain additional information relevant to this survey:

Title	Date Sent	Office
Hydrographic Systems Certification Report 2005	April 18, 2005	N/CS34
OPR-O167-FA-05 Data Acquisition and Processing Report	November 15, 2005	N/CS34
OPR-O167-FA-05 Horizontal and Vertical Control Report	August 22, 2005	N/CS34, N/OPS1
OPR-O167-FA-05 Horizontal and Vertical Control Report	Resent 10/31/05	N/OPS1

Revisions Compiled During Office Processing and Certification

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[1]Filed with Project Records
[2] Concur
[3] Filed with Project Records
[4] Filed with Project Records
[5] Concur
[6] Concur
[7] Concur
[8] Concur
[9] Concur
[10] Concur
[11] Filed with Project Records
[12] Final Approved Tides were applied on 9/6/06 by the Pacific Hydrographic Branch
[13] Chart comparisons were performed with the most recent edition of chart 17386, 1:40:000 (4th. Ed., May 1, 2006, NM 27/5/06) and chart 17402, 1:40,000 (11th Ed., Dec. 1, 2005, NM 10/12/05). ENC US2AK30M (7th Ed) covers the area of the survey, however was not used for comparison due to compilation scale. General agreement was found between the field comparison and office comparison.
[14] Concur
[15] See endnote 13
[16] Concur
[17] DTONs were noted when performing office chart comparisons
[18] Attached to this report
[19] Filed with the Hydrographic Record
[20] Concur
[21] Concur. Bottom Samples from the chart have been retained in adherence with the new seabed area guidelines. Rocky seabed areas have been digitized from the base surface and bottom samples have been retained were applicable.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NOAA Marine and Aviation Operations
NOAA Ship FAIRWEATHER S-220
1010 Stedman Street
Ketchikan, AK 99901

June 16, 2006

MEMORANDUM FOR: CDR Don Haines, NOAA
Chief, Pacific Hydrographic Branch

FROM: CAPT John E. Lowell, Jr, NOAA
Commanding Officer

TITLE: Approval of Hydrographic Survey H11469, OPR-O167-FA

As Chief of Party, I have ensured that standard field surveying and processing procedures were adhered to during acquisition and processing of hydrographic survey H11469 in accordance with the Hydrographic Manual, Fourth Edition; Hydrographic Survey Guidelines; Field Procedures Manual, March 2005 Version 1.1; and the NOS Hydrographic Surveys Specifications and Deliverables, as updated for March, 2003. Additional guidance was provided by applicable Hydrographic Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required. All data and reports are respectfully submitted to N/CS34, Pacific Hydrographic Branch.

I acknowledge that all of the information contained in this report is complete and accurate to the best of my knowledge.

In addition, the following individuals were responsible for oversight of acquisition and processing of this survey:

FOR Jess Abrams
Senior Survey Technician

CST Lynnette V. Morgan
Chief Survey Technician

Attachment

H11469 Features Report

Registry Number: H11469

State: Alaska

Locality: Cape Decision

Sub-locality: Port MacArthur to Point Saint Albans

Project Number: OPR-O167-FA

Survey Dates: April 23, 2005 - May 30, 2005

Items for survey H11469 associated with a detached or generic position that needed further discussion were flagged Report in Pydro. Investigation methods and recommendations were provided in the Remarks and Recommendations tabs.

Charts Affected

Number	Version	Date	Scale
17386	3rd Ed.	05/12/2001	1:40000
17402	10th Ed.	08/01/2002	1:40000
17320	16th Ed.	12/01/2003	1:217828
17360	33rd Ed.	05/01/2003	1:217828
17400	16th Ed.	06/02/2001	1:229376
16016	20th Ed.	11/01/2003	1:969756
531	22nd Ed.	03/01/2004	1:2100000
500	8th Ed.	06/01/2003	1:3500000
530	30th Ed.	03/23/2002	1:4860700
50	6th Ed.	06/01/2003	1:10000000

Features

Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude
11184	Sounding	-3.02 m	56° 02' 02.793" N	134° 02' 49.900" W
11143	Sounding	-0.63 m	56° 04' 05.606" N	134° 06' 33.786" W
11144	Sounding	-3.06 m	56° 02' 59.400" N	134° 06' 29.728" W
11145	Sounding	-0.57 m	56° 02' 33.904" N	134° 06' 30.737" W
11146	Sounding	-0.09 m	56° 02' 31.020" N	134° 06' 27.407" W
11147	Sounding	0.34 m	56° 02' 02.602" N	134° 06' 48.969" W

11141	Sounding	-0.05 m	56° 03' 55.683" N	134° 06' 12.561" W
11274	Sounding	0.39 m	56° 04' 42.267" N	134° 06' 22.038" W
11277	Sounding	-2.31 m	56° 06' 09.732" N	134° 05' 14.067" W
Chart GP1	GP	[None]	56° 05' 57.442" N	134° 05' 39.092" W
Chart GP2	GP	[None]	56° 04' 22.970" N	134° 08' 17.100" W
11321	Sounding	-1.50 m	56° 05' 15.156" N	134° 09' 08.637" W
11271	Sounding	-1.67 m	56° 04' 30.970" N	134° 07' 15.232" W
11273	Sounding	-1.11 m	56° 04' 23.739" N	134° 06' 43.293" W
11276	Sounding	-0.02 m	56° 05' 46.280" N	134° 05' 15.857" W
11278	Sounding	-1.86 m	56° 06' 00.800" N	134° 05' 17.265" W
1429/72	Sounding	10.56 m	56° 03' 56.015" N	134° 07' 22.553" W
811/59	Sounding	14.84 m	56° 04' 26.374" N	134° 06' 23.411" W
1061/7	Sounding	-0.02 m	56° 03' 39.030" N	134° 06' 17.682" W

1 - New Features

1.1) 11184

Survey Summary

Survey Position:	56° 02' 02.793" N, 134° 02' 49.900" W
Least Depth:	-3.02 m
Timestamp:	2005-118.19:04:06.000 (04/28/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-118 / tr1118_uwtroc_p.shp
Profile/Beam:	3/1
Charts Affected:	17386_1, 17402_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

CFF rk sig hp reef, DP'd for height, use CFF position

Hydrographer Recommendations

Retain rock symbol

Cartographically-Rounded Depth (Affected Charts):

-1 ½fm (17402_1, 17320_1, 17360_1, 17400_1, 16016_1, 530_1)

-1fm 4ft (17386_1, 531_1)

-3.0m (500_1, 50_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Attributes:	PICREP - 11184.jpg

Office Notes

Chart rock

Feature Images

Figure 1.1.1

1.2) 11143

Survey Summary

Survey Position:	56° 04' 05.606" N, 134° 06' 33.786" W
Least Depth:	-0.63 m
Timestamp:	2005-114.15:05:48.000 (04/24/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-114 / tr1114_uwtroc_p.shp
Profile/Beam:	1/1
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

new pos chd (17386) rk

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

0fm 2ft (17386_1, 531_1)

-.7m (500_1, 50_1)

S-57 Data

Geo object 1:	Underwater rock / awash rock (UWTROC)
Attributes:	INFORM - new pos chd (17386) rk
	RECDAT - 20050424
	VALSOU - -0.628 m
	WATLEV - 5:awash

Office Notes

Chart rock

Feature Images

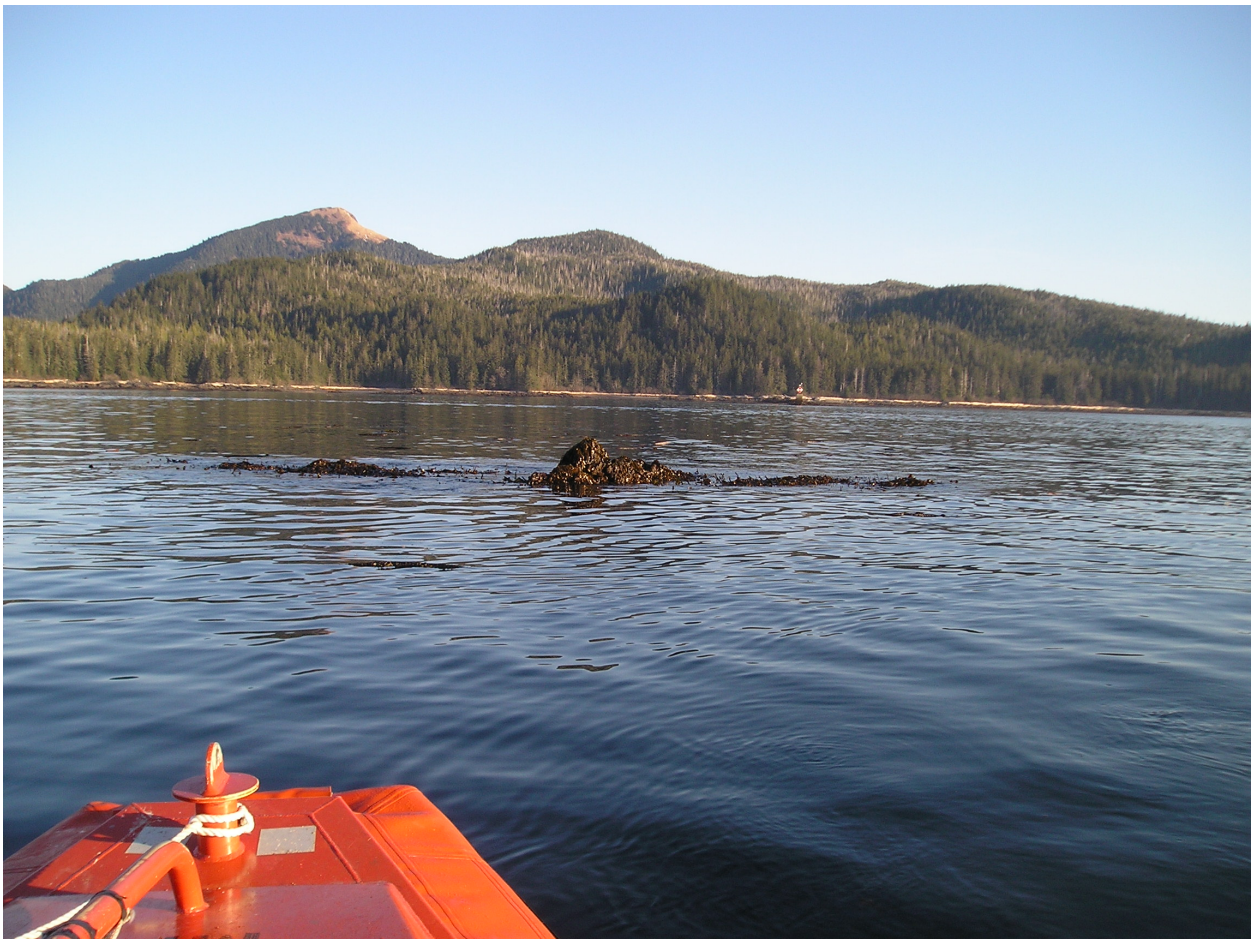


Figure 1.2.1

1.3) 11144

Survey Summary

Survey Position:	56° 02' 59.400" N, 134° 06' 29.728" W
Least Depth:	-3.06 m
Timestamp:	2005-114.15:36:03.000 (04/24/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-114 / tr1114_uwtroc_p.shp
Profile/Beam:	2/1
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

CFF rk vrd, DP'd for height, use CFF position

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

-1 ½fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

-1fm 4ft (17386_1, 531_1)

-3.1m (500_1, 50_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Attributes:	INFORM - CFF rk vrd, DP'd for height use CFF position
	PICREP - 11144.jpg

Office Notes

Chart rock

Feature Images

Figure 1.3.1

1.4) 11145

Survey Summary

Survey Position:	56° 02' 33.904" N, 134° 06' 30.737" W
Least Depth:	-0.57 m
Timestamp:	2005-114.15:54:10.000 (04/24/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-114 / tr1114_uwtroc_p.shp
Profile/Beam:	3/1
Charts Affected:	17386_1, 17402_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

chd (17386) rk vrd

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (17402_1, 17320_1, 17360_1, 17400_1, 16016_1, 530_1)

0fm 2ft (17386_1, 531_1)

-.6m (500_1, 50_1)

S-57 Data

Geo object 1:	Underwater rock / awash rock (UWTROC)
Attributes:	INFORM - chd (17386) rk vrd, DP'd for height
	RECDAT - 20050424
	VALSOU - -0.572 m
	WATLEV - 5:awash

Office Notes

Chart rock

Feature Images

Figure 1.4.1

1.5) 11146

Survey Summary

Survey Position:	56° 02' 31.020" N, 134° 06' 27.407" W
Least Depth:	-0.09 m
Timestamp:	2005-114.16:01:12.000 (04/24/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-114 / tr1114_uwtroc_p.shp
Profile/Beam:	4/1
Charts Affected:	17386_1, 17402_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

new rk

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0fm (17402_1, 17320_1, 17360_1, 17400_1, 16016_1, 530_1)

0fm 0ft (17386_1, 531_1)

-.1m (500_1, 50_1)

S-57 Data

Geo object 1:	Underwater rock / awash rock (UWTROC)
Attributes:	INFORM - new rk
	RECDAT - 20050424
	VALSOU - -0.085 m
	VERDAT - 12:Mean lower low water
	WATLEV - 5:awash

Office Notes

Chart rock

Feature Images

Figure 1.5.1

1.6) 11147

Survey Summary

Survey Position:	56° 02' 02.602" N, 134° 06' 48.969" W
Least Depth:	0.34 m
Timestamp:	2005-114.16:19:54.000 (04/24/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-114 / tr1114_uwtroc_p.shp
Profile/Beam:	5/1
Charts Affected:	17386_1, 17402_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

new rk

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (17402_1, 17320_1, 17360_1, 17400_1, 16016_1, 530_1)

0fm 1ft (17386_1, 531_1)

.3m (500_1, 50_1)

S-57 Data

Geo object 1:	Underwater rock / awash rock (UWTROC)
Attributes:	INFORM - new rk
	RECDAT - 20050424
	VALSOU - 0.344 m
	WATLEV - 5:awash

Office Notes

Chart rock

Feature Images

Figure 1.6.1

1.7) 11141

Survey Summary

Survey Position:	56° 03' 55.683" N, 134° 06' 12.561" W
Least Depth:	-0.05 m
Timestamp:	2005-114.14:42:34.000 (04/24/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-114 / tr1114_$csymb_p.shp
Profile/Beam:	1/1
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

swm ext chd (17386) ldg

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

0fm 0ft (17386_1, 531_1)

-.1m (500_1, 50_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Attributes:	INFORM - swm ext chd (17386) ldg
	PICREP - 11141_a.jpg

Office Notes

Chart new extents of ledge

Feature Images

Figure 1.7.1

1.8) 11274

Survey Summary

Survey Position:	56° 04' 42.267" N, 134° 06' 22.038" W
Least Depth:	0.39 m
Timestamp:	2005-127.15:07:50.000 (05/07/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-127 / tr1127_obstrn_p.shp
Profile/Beam:	1/1
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

chd (17386) rk is new ext chd obstn/reef

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0 ¼fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

0fm 1ft (17386_1, 531_1)

.4m (500_1, 50_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	CATOBS - 6:foul area
	INFORM - chd (17386) rk is new ext chd obstn
	RECDAT - 20050507
	VALSOU - 0.387 m
	WATLEV - 4:covers and uncovers

Office Notes

Chart new extents of ledge surrounding retained islet

Feature Images

Figure 1.8.1

1.9) 11277

Survey Summary

Survey Position:	56° 06' 09.732" N, 134° 05' 14.067" W
Least Depth:	-2.31 m
Timestamp:	2005-127.15:51:59.000 (05/07/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-127 / tr1127_uwtroc_p.shp
Profile/Beam:	1/1
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

chd (17386) rks are one obstrn, DP'd hp of 20m x 40m reef

The charted rocks at 56°06'11.388" , -134°05'15.048" and 56°06'08.655" , -134°05'10.985" are one obstruction connected at low water as reef. The detached position was taken on the high point of the obstruction.

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

-1 ¼fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

-1fm 1ft (17386_1, 531_1)

-2.3m (500_1, 50_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	CATOBS - 6:foul area
	INFORM - chd (17386) rks are one obstrn, DP'd hp of 20m x 40m reef
	VALSOU - -2.311 m
	WATLEV - 4:covers and uncovers

Office Notes

Chart new obstruction extents and reef as rock

Feature Images

Figure 1.9.1

1.10) Chart GP1

Survey Summary

Survey Position:	56° 05' 57.442" N, 134° 05' 39.092" W
Least Depth:	[None]
Timestamp:	2005-127.21:16:21 (05/07/2005)
GP Dataset:	ChartGPs - Digitized
GP No.:	1
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

chd (17400) rk disproval

During shoreline verification a 30 meter radius search of five minute duration in 1-2 meter visibility, calm seas. No rock was seen in 100% MB data.

Hydrographer Recommendations

Remove charted rock from Chart 17400.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

Remove rock from Chart 17400

1.11) Chart GP2

Survey Summary

Survey Position:	56° 04' 22.970" N, 134° 08' 17.100" W
Least Depth:	[None]
Timestamp:	2005-321.09:23:53 (11/17/2005)
GP Dataset:	ChartGPs - Digitized
GP No.:	2
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

chd (17320, 17360) rk disproval

Charted rock was not seen at low water or in 100% MB data.

Hydrographer Recommendations

Remove charted rock from Charts 17320 and 17360.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

Remove rock from chart 17320 and 17360

1.12) 11321

Survey Summary

Survey Position:	56° 05' 15.156" N, 134° 09' 08.637" W
Least Depth:	-1.50 m
Timestamp:	2005-132.09:07:45.000 (05/12/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-132 / tr1132_uwtroc_p.shp
Profile/Beam:	1/1
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

new subm rk is new ext chd (17386) LW

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0 ¾fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

0fm 5ft (17386_1, 531_1)

-1.5m (500_1, 50_1)

S-57 Data

Geo object 1:	Underwater rock / awash rock (UWTROC)
Attributes:	INFORM - new subm rk is new ext chd (17386) LW
	RECDAT - 20050512
	TECSOU - 5:found by lead-line
	VALSOU - -1.500 m
	WATLEV - 3:always under water/submerged

Office Notes

Chart rock

1.13) 11271

Survey Summary

Survey Position:	56° 04' 30.970" N, 134° 07' 15.232" W
Least Depth:	-1.67 m
Timestamp:	2005-127.14:27:05.000 (05/07/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-127 / tr1127_$csymb_p.shp
Profile/Beam:	1/1
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

new ext chd (17386) ldg

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0 ¾fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

0fm 5ft (17386_1, 531_1)

-1.7m (500_1, 50_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Attributes:	RECDAT - 20050507

Office Notes

Chart new extents of ledge

Feature Images

Figure 1.13.1

1.14) 11273

Survey Summary

Survey Position:	56° 04' 23.739" N, 134° 06' 43.293" W
Least Depth:	-1.11 m
Timestamp:	2005-127.14:51:53.000 (05/07/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-127 / tr1127_$csymb_p.shp
Profile/Beam:	3/1
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

N ext reef, ATON is S ext, 20m x 50m reef

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0 ½fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

0fm 3ft (17386_1, 531_1)

-1.1m (500_1, 50_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Attributes:	RECDAT - 20050507

Office Notes

Chart reef and foul area as depicted in HCell

Feature Images

Figure 1.14.1

1.15) 11276

Survey Summary

Survey Position:	56° 05' 46.280" N, 134° 05' 15.857" W
Least Depth:	-0.02 m
Timestamp:	2005-127.15:37:40.000 (05/07/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-127 / tr1127_$csymb_p.shp
Profile/Beam:	5/1
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

chd (17386) rk is new ext chd ldg

The charted rock at position 56°05'01.541" , -134°06'05.073" was found to be the new extent of the charted ledge.

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

0fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

0fm 0ft (17386_1, 531_1)

.0m (500_1, 50_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Attributes:	RECDAT - 20050507

Office Notes

Chart ledge and remove charted rock

Feature Images

Figure 1.15.1

1.16) 11278

Survey Summary

Survey Position:	56° 06' 00.800" N, 134° 05' 17.265" W
Least Depth:	-1.86 m
Timestamp:	2005-127.15:58:36.000 (05/07/2005)
DP Dataset:	h11469 / trb1_dpne / 2005-127 / tr1127_$csymb_p.shp
Profile/Beam:	6/1
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

CFF rk is new ext chd (17386) ldg

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

-1fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

-1fm 0ft (17386_1, 531_1)

-1.9m (500_1, 50_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Attributes:	RECDAT - 20050507

Office Notes

Chart new extents of ledge

Feature Images

Figure 1.16.1

2 - Dangers to Navigation

2.1) 1429/72

DANGER TO NAVIGATION

Survey Summary

Survey Position:	56° 03' 56.015" N, 134° 07' 22.553" W
Least Depth:	10.56 m
Timestamp:	2005-113.23:17:08.649 (04/23/2005)
Survey Line:	h11469 / 1018_8101 / 2005-113 / 113-2312
Profile/Beam:	1429/72
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

5.74 fathom sounding outside of charted (17402) 10 fathom curve. The sounding is the controlling depth for the entrance to Port McArthur.

Hydrographer Recommendations

The Hydrographer recommends charting as 5 fathoms and adjusting the 10 fathom curve. Submit as DtoN to MCD.

Cartographically-Rounded Depth (Affected Charts):

5 ¾fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

5fm 4ft (17386_1, 531_1)

10.5m (500_1, 50_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	QUASOU - 1,6:depth known,least depth known
	TECSOU - 3:found by multi-beam

Office Notes

Chart sounding as depicted in HCell

2.2) 811/59

DANGER TO NAVIGATION

Survey Summary

Survey Position:	56° 04' 26.374" N, 134° 06' 23.411" W
Least Depth:	14.84 m
Timestamp:	2005-113.23:41:19.519 (04/23/2005)
Survey Line:	h11469 / 1018_8101 / 2005-113 / 113-2338
Profile/Beam:	811/59
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

8.08 fathom sounding in charted (17402) 12 fathoms. The sounding is the controlling depth for the navigable channel near Lemon Point Rock.

Hydrographer Recommendations

The Hydrographer recommends charting as 8 fathoms. Submit as DtoN to MCD.

Cartographically-Rounded Depth (Affected Charts):

8fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

8fm 0ft (17386_1, 531_1)

14.8m (500_1, 50_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	QUASOU - 1,6:depth known,least depth known
	TECSOU - 3:found by multi-beam

Office Notes

Chart sounding as depicted in HCell

2.3) 1061/7

DANGER TO NAVIGATION

Survey Summary

Survey Position:	56° 03' 39.030" N, 134° 06' 17.682" W
Least Depth:	-0.02 m
Timestamp:	2005-147.00:14:45.456 (05/27/2005)
Survey Line:	h11469 / 1018_8101 / 2005-146 / 147-0013
Profile/Beam:	1061/7
Charts Affected:	17386_1, 17320_1, 17360_1, 17400_1, 16016_1, 531_1, 500_1, 530_1, 50_1

Remarks:

-0.07 fathom sounding in charted (17402) 1.33 fathoms. The sounding is the controlling depth in the small craft cut between North and South Islands.

Hydrographer Recommendations

The Hydrographer recommends charting as 0 fathom depth contour. Submit as DtoN to MCD.

Cartographically-Rounded Depth (Affected Charts):

0fm (17320_1, 17360_1, 17400_1, 16016_1, 530_1)

0fm 0ft (17386_1, 531_1)

.0m (500_1, 50_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	QUASOU - 1,6:depth known,least depth known
	TECSOU - 3:found by multi-beam
	VERDAT - 12:Mean lower low water

Office Notes

Chart submerged 0.6 fathom rock

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : March 2, 2006

HYDROGRAPHIC BRANCH: Pacific Hydrographic Branch
HYDROGRAPHIC PROJECT: OPR-O167-FA-2005
HYDROGRAPHIC SHEET: H11469

LOCALITY: Port MacArthur to Point Saint Albans, Cape Decision, AK
TIME PERIOD: April 23 - May 31, 2005

TIDE STATION USED: 945-0913 Kuiu Island, AK
Lat. 56 02.2′ N Long. 134 06.9' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.052 meters

TIDE STATION USED: 945-1600 Sitka, AK
Lat. 57 03.1' N Long. 135 20.5' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.791 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SA219, SA220, SA230 & SA474

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).

Note 2: Use tide data from the appropriate station with applicable zoning correctors for each zone according to the order in which they are listed in the Tidezone corrector file (*.ZDF). For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data are not available.

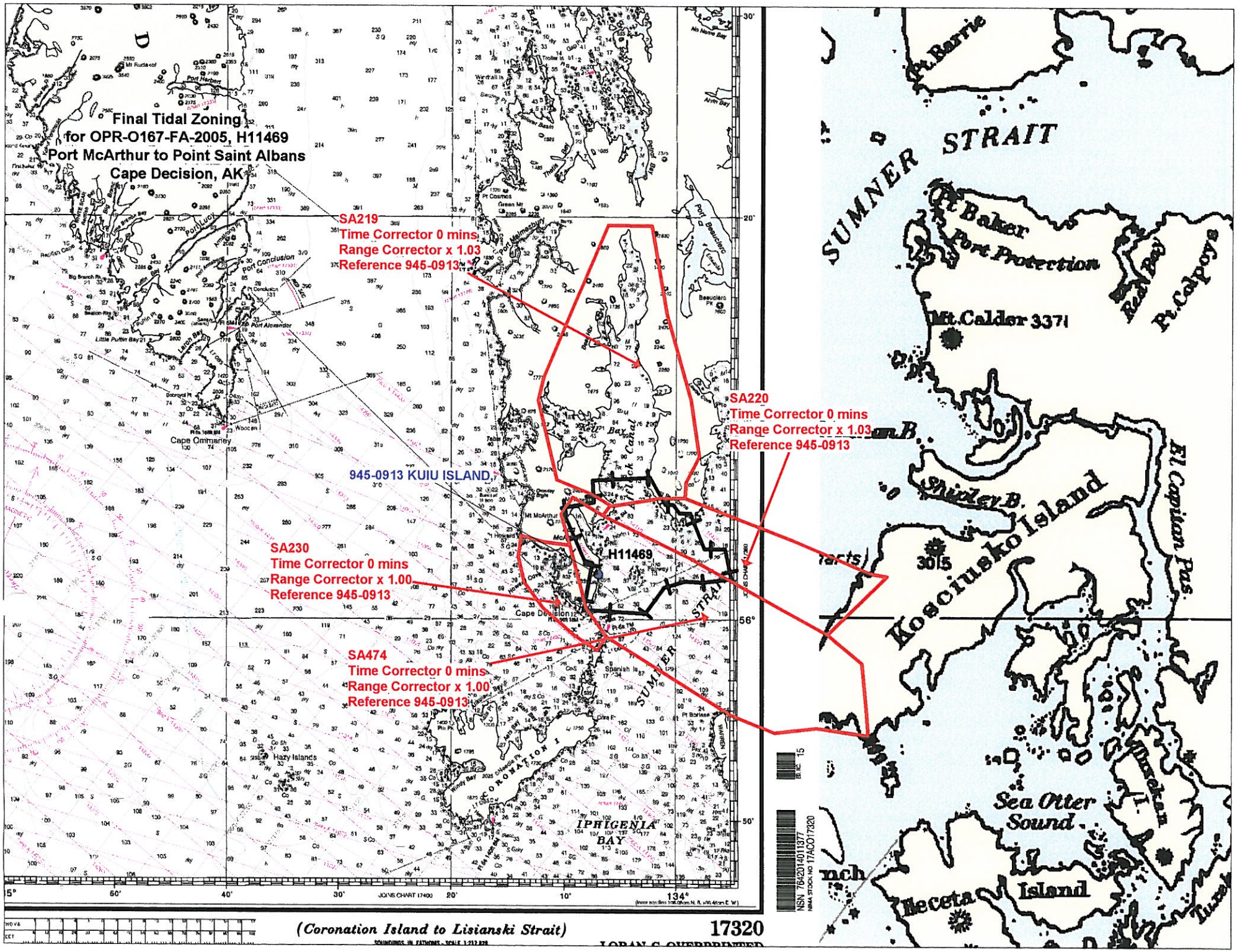
CHIEF, PRODUCTS AND SERVICES DIVISION

Final tide zone node point locations for OPR-O167-FA-2005, H11469

Format: Tide Station (in recommended order of use)
Average Time Correction (in minutes)
Range Correction
Longitude in decimal degrees (negative value denotes Longitude West),
Latitude in decimal degrees

	Tide Station Order	AVG Time Correction	Range Correction
Zone SA219	945-0913	0	1.03
-134.125716 56.103848	945-1600	-6	1.16
-134.177207 56.115484			
-134.204899 56.181466			
-134.197469 56.19992			
-134.101944 56.326296			
-134.037054 56.325953			
-134.013839 56.252415			
-133.978161 56.181606			
-133.965281 56.135166			
-133.984914 56.113851			
-133.986965 56.100298			
-134.02499 56.100074			
-134.094615 56.093882			
-134.097523 56.094651			
-134.125716 56.103848			
Zone SA220	945-0913	0	1.03
-134.097523 56.094651	945-1600	-6	1.16
-134.108822 56.085794			
-133.982323 56.051299			
-133.849498 56.010574			
-133.77518 55.987536			
-133.687057 56.035869			
-133.711065 56.038147			
-133.823423 56.064696			
-133.986965 56.100298			
-134.02499 56.100074			
-134.094615 56.093882			
-134.097523 56.094651			
Zone SA230	945-0913	0	1.00
-134.103618 55.985751	945-1600	-6	1.12
-134.116446 55.974103			
-134.152043 55.986887			
-134.1975 56.009473			
-134.225381 56.030552			

-134.234444 56.051619			
-134.229566 56.069165			
-134.196563 56.063958			
-134.157697 56.061355			
-134.133307 56.009351			
-134.103618 55.985751			
Zone SA474	945-0913	0	1.00
-133.853342 55.905959	945-1600	-6	1.13
-133.790829 55.910042			
-133.714505 55.903509			
-133.717304 55.925575			
-133.723878 55.963757			
-133.77518 55.987536			
-133.849498 56.010574			
-133.982323 56.051299			
-134.108822 56.085794			
-134.153367 56.100996			
-134.170435 56.087094			
-134.157697 56.061355			
-134.133307 56.009351			
-134.103618 55.985751			
-133.918824 55.920763			
-133.853342 55.905959			


Final Tidal Zoning
for OPR-O167-FA-2005, H11469
Port McArthur to Point Saint Albans
Cape Decision, AK
SA219
Time Corrector 0 mins
Range Corrector x 1.03
Reference 945-0913
SA220
Time Corrector 0 mins
Range Corrector x 1.03
Reference 945-0913
945-0913 KUIU ISLAND
SA230
Time Corrector 0 mins
Range Corrector x 1.00
Reference 945-0913
SA474
Time Corrector 0 mins
Range Corrector x 1.00
Reference 945-0913
H11469
SUMNER STRAIT
Kosciusko Island
Sea Otter Sound
Port Protection
Mt. Calder 3371
Cape Ommaney
Hazy Islands
IPHIGENIA BAY
CORONATION I.
Spanish Is.
Pt. Cosmos
Port Conclusion
Port Malmesbury
Port Alexander
Shrader B.
El Capitan Pas.
Pt. Baker
Pt. Calpoya
Red Bay
Pt. Barrie
Fleeeta
Island
JOINS CHART 17400
(Coronation Island to Lisianski Strait)
17320

H11469 HCell Report

Sarah Wolfskehl, Physical Scientist
Pacific Hydrographic Branch

Introduction

The primary purpose of the HCell is to provide new survey information in International Hydrographic Organization (IHO) format S-57 to update the largest scale ENC and RNC in the region: NOAA ENC, US2AK3OM, and NOAA RNC, 17386.

HCell compilation of survey H11469 utilized Office of Coast Survey HCell Specifications Version 3.1, with approved modifications to better align with PHB's HCell process and to meet MCD needs.

1. Compilation Scale

Depths for HCell H11469 were compiled to the largest scale chart in the region, 17386, 1:40,000. Density and distribution of soundings and features emulate chart 17386.

2. Soundings

A survey-scale sounding (SOUNDG) feature object layer was built from the 12-meter combined surface in CARIS BASE Editor. A shoal-biased sounding set was made at the survey scale, 1:20,00, using a Radius Table with values shown in the table, below. The resultant sounding layer contains 12,455 depths ranging from 0 to 198.64 meters.

Upper limit (m)	Lower limit (m)	Radius (mm)
0	10	2
10	20	3
20	50	3.5
50	200	4

In CARIS BASE Editor chart scale soundings were manually selected from the survey scale high density sounding layers and imported into a new layer. Manual selection was used to accomplish a density and distribution that closely represents the seafloor morphology.

3. Depth Areas and Depth Contours

3.1 Depth Areas

The Base Surface H11469_12m_combined.bag was used to auto generate a depth area. This depth area was cropped to junction with HCell H11362, which has previously been compiled.

3.2 Depth 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. The generalized metric and fathom equivalent contour values are shown in the table below.

Chart Contours in Fathoms	Metric Equivalent of Chart Contours	Metric Equivalent of Chart Contours Generalized	Actual Value of Chart Contours
3	5.4864	5.715	3.125
5	9.144	9.3726	5.125
10	18.288	18.5166	10.125
20	36.576	37.9476	20.750
50	91.44	92.8116	50.750

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

4. Meta Areas

The following Meta object areas are included in HCell H11469:

M_QUAL
M_COVR

Meta area objects were constructed on the basis of the limits of the hydrography. (See 3.1 *Depth Areas*.)

5. Features

Shoreline features for H11469 were delivered from the field in several .hob files described in the DR. The files contain new features, modification to GC or charted features, and disprovals. These were deconflicted against GC shoreline, the chart and hydrography during office processing.

Three DTONs were reported in survey H11469. All DTONs were charted as reported in the HCell. See the Features Report section of this report for specific DTON information.

The source of all features included in the H11469 HCell can be determined by the SORIND field.

5.1 Mean High Water Used for HCells

For the purpose of compilation of intertidal depth areas within this survey, the CO-OPS *"Height of High Water Above the Plane of Reference"* is used from *"Tide Note for Hydrographic Survey"* which is included in this report. The MHW(-h) value from the primary tide station is used for defining the DRVAL1 (Depth Range Value) attribute field for the DEPARE component of the feature, where DRVAL2 is 0.0.

6. S-57 Objects and Attributes

The *_CS HCell contains the following Objects:

$CSYMB	Blue Notes
DEPARE	The all-encompassing depth area
DEPCNT	Modified GC MLLW
LNDARE	Islets retained from the chart
M_COVR	Data coverage Meta object
M_QUAL	Data quality Meta object
OBSTRN	Obstruction area object
SBDARE	Modified GC ledges and reefs, bottom samples, and rocky seabed areas
SOUNDG	Soundings at the chart scale density
UWTROC	Rock features
WATTUR	Tide Rips
WEDKLP	Kelp

The *_SS HCell contains the following Objects:

DEPCNT	Generalized contours at chart scale intervals
SOUNDG	Soundings at the survey scale density

All S-57 Feature Objects in the *_CS HCell have been attributed as fully as possible based on information provided by the Hydrographer and in accordance with current guidance and the OCS HCell Specifications.

7. Blue Notes

Notes to the RNC and ENC chart compilers are included in the HCell as $CSYMB features with the Blue Note information located in the INFORM field. By agreement with MCD, the NINFOM field is populated with an abbreviated version of the Blue Note (30 characters or less), describing the chart disposition, to be used by MCD in generating their Chart History spreadsheet.

8. Spatial Framework

8.1 Coordinate System

All spatial map and base cell file deliverables are in an LLDG geographic coordinate system, with WGS84 horizontal, MHW vertical, and MLLW (1983-2001 NTDE) sounding datums.

8.2 Horizontal and Vertical Units

DUNI, HUNI and PUNI are used to define units for depth, height and horizontal position in the chart units HCell, as shown below.

Chart Unit Base Cell Units:

Depth Units (DUNI):	Fathoms and feet
Height Units (HUNI):	Feet
Positional Units (PUNI):	Meters

During creation of the HCell in CARIS BASE Editor and CARIS S-57 Composer, all soundings and features are maintained in metric units with as high precision as possible. Depth units for soundings measured with sonar maintain millimeter precision. Depths on rocks above MLLW and heights on islets above MHW are typically measured with range finder, so precision is less. Units and precision are shown below.

BASE Editor and S-57 Composer Units:

Sounding Units:	Meters rounded to the nearest millimeter
Spot Height Units:	Meters rounded to the nearest decimeter

Conversion to charting units and application of NOAA rounding is completed in the same step, at the end of the HCell compilation process.

Conversion to fathoms and feet charting units with NOAA rounding ensures that:

- All depths deeper or equal to 11 fathoms display as whole fathoms.
- All depth units between 0 fathoms (MLLW) and 11 fathoms display as fathoms and whole feet.
- All depth units skyward of 0 fathoms (MLLW) to 2.0 feet above MHW display in feet for values that round to 5 feet or less, and in fathoms and feet skyward of that.
- All height units (HUNI) which have been converted to charting units, and that are 2.00 feet above MHW and greater, are shown in feet.

In an ENC viewer fathoms and feet depth units (DUNI) display in the format X.YZZZ, where X is fathoms, Y is feet, and ZZZ is decimals of the foot. In an ENC viewer, heights (HUNI) display as whole feet.

9. Data Processing Notes

9.1 Junction with H11362

H11469 junctions with H11362, submitted in October 2008. Comparison between the junction area was made to ensure the most shoal soundings were retained from each survey.

10. QA/QC and ENC Validation Checks

H11469 was subjected to QA checks in S-57 Composer prior to exporting to the HCell base cell (000) file. The millimeter precision metric S-57 HCell was converted to a chart units and NOAA rounding applied. dKart Inspector was then used to further check the data set for conformity with the S-58 ver. 2 standard (formerly Appendix B.1 Annex C of the S-57 standard). All tests were run and warnings and errors investigated and corrected unless they are MCD approved as inherent to and acceptable for HCells.

11. Products

11.1 HSD, MCD and CGTP Deliverables

H11469_CS.000	Base Cell File, Chart Units, Soundings and features compiled to 1:40,000.
H11469_SS.000	Base Cell File, Chart Units, Soundings compiled to 1:20,000.
H11469_DR.doc	Descriptive Report including end notes compiled during office processing and certification, the HCell Report, and supplemental items.
H11469_outline.gml	Survey outline to populate SURDEX.

11.2 Software

CARIS HIPS Ver. 6.1	Inspection of Combined BASE Surfaces
CARIS BASE Editor Ver. 2.1`	Creation of soundings and bathy-derived features, creation of the depth area, meta area objects, and Blue Notes; Survey evaluation and verification; Initial HCell assembly.
CARIS S-57 Composer Ver. 2.0	Final compilation of the HCell, correct geometry and build topology, apply final attributes, export the HCell, and QA.
CARIS GIS 4.4a	Setting the sounding rounding variable for conversion of the metric HCell to NOAA charting units with NOAA rounding.
CARIS HOM Ver. 3.3	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding.
HydroService AS, dKart Inspector Ver. 5.1	Validation of the base cell file.

12. Contacts

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

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Physical Scientist, PHB
Seattle, WA
206-526-6859
Sarah.Wolfskehl@noaa.gov

APPROVAL SHEET
H11469

Initial Approvals:

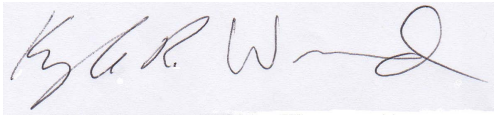
The survey evaluation and verification has been conducted according to branch processing procedures and the H-Cell compiled per the latest OCS H-Cell Specifications.

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 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 Kurt Brown
Date: 2009.06.24
11:01:44 -07'00'

I have reviewed the H-Cell, 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.

David Neander
2009.06.24
13:04:14 -07'00'



AWOIS and SURF Check
completed
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