

H11484

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No.

Registry No. H11484

LOCALITY

State Alaska

General Locality Semidi Islands

Sublocality Vicinity of Semidi and Chirikof Islands

2005

CHIEF OF PARTY

..... Captain John E. Lowell, Jr., NOAA

LIBRARY & ARCHIVES

DATE

HYDROGRAPHIC TITLE SHEET

H11484

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 AlaskaGeneral Locality Semidi IslandsSublocality Vicinity of Semidi and Chirikof IslandsScale 1:100,000Date of Survey June 11, 2005-August 16, 2005Instructions Dated 6/27/2005Project No. S-P909-RA/FA-05Vessel NOAA Ship FAIRWEATHERChief of Party CAPT John E. Lowell Jr., NOAASurveyed by ST Keene, CST Morgan, LT WetzlerSoundings taken by echo sounder Reson 8111 ERGraphic record scaled by N/AGraphic record checked by N/AEvaluation by B. JohnstonAutomated plot by HP Designjet 1050CVerification by B. Johnston, K. ReserSoundings in Fathoms and Feet

at

MLLWREMARKS: Time in UTC. UTM Projection Zone 4Revisions and annotations appearing as endnotes were
generated during office processing.As a result, page numbering may be interrupted or non-sequentialAll separates are filed with the hydrographic data.

Descriptive Report to Accompany Hydrographic Survey H11484

Project S-P909-RA/FA-05

Semidi Islands, Alaska

Scale 1:100,000

June – August, 2005

NOAA Ship FAIRWEATHER

Chief of Party: Captain John E. Lowell, Jr., NOAA

A. AREA SURVEYED

The survey area was located in the Semidi Islands, within the sub-locality of the vicinity of Semidi and Chirikof Islands. This survey corresponds to Sheet B in the sheet layout provided with the Draft Letter Instructions dated June 3, 2005, as shown in Figure 1 below. Final Letter Instructions were not received. The survey area is bounded on the Southwest corner at 55°35'00"N, 157°45'00"W and the Northeast corner at 56°37'00"N, 155°02'00"W.

There was some initial confusion about the correct project number to be used for this survey. The official number, S-P909-FA, was confirmed in supplemental correspondence included in Appendix IV.

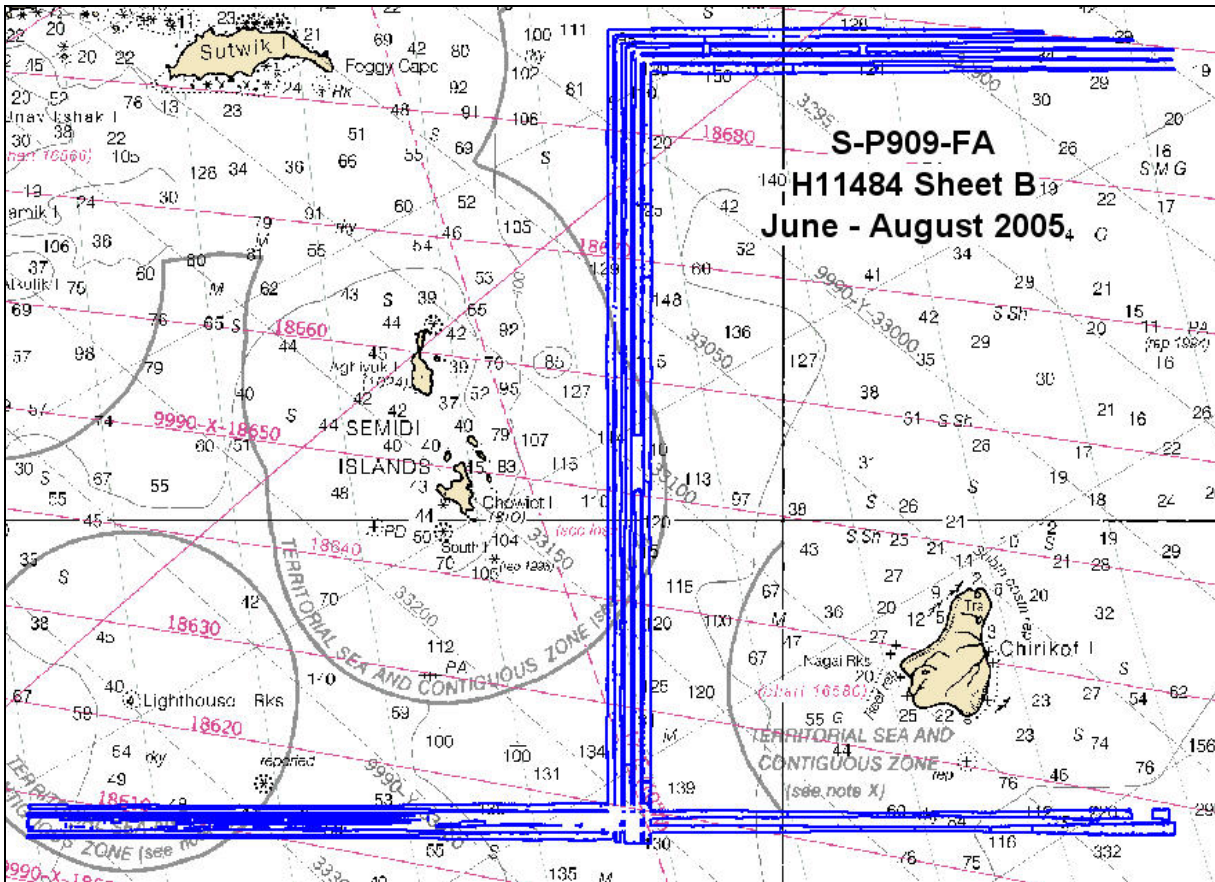


Figure 1: S-P909 H11484 Sheet B Survey Outline

Data acquisition was conducted from June 11 to August 16, 2005 (DN 162 to DN 229).

This project was requested as a reconnaissance survey to update sparsely charted and uncharted regions. Full bottom coverage was not required. Within the assigned survey region, multibeam data were acquired at 1,000 meter line spacing. On June 14, 2005, the FAIRWEATHER received supplemental correspondence, included in Appendix IV, which provided boundaries for additional areas in which multibeam data could be acquired for charting. These areas were filled as possible during transit to and from other project areas in Southwest Alaska.

B. DATA ACQUISITION AND PROCESSING

A complete description of data acquisition and processing systems and survey vessels can be found in the *NOAA Ship FAIRWEATHER Hydrographic Systems Certification Report 2005*, submitted under a separate cover. Quality control procedures and data processing methods are listed and described in the *OPR-P183-FA-05 Data Acquisition and Processing Report (DAPR)*¹, submitted under separate cover. Items specific to this survey and any deviations from the aforementioned report are discussed in the following sections.

B1. Equipment and Vessels

Equipment and vessels used for data acquisition and survey operations during this survey are listed below in Table 1. No vessel configurations used during data acquisition deviated from those described in the DAPR.

	FAIRWEATHER
Hull Registration Number	S220
Builder	Aerojet-General Shipyard
Length Overall	231 feet
Beam	42 feet
Draft, Maximum	15' 6"
Cruising Speed	12.5 knots
Max Survey Speed	10 knots
Primary Echosounder	RESON 8111 & RESON 8160
Sound Velocity Equipment	SBE 19plus & 45, MVP 200
Attitude & Positioning Equipment	POS/MV V3
Type of operations	MBES

Table 1: Vessel Inventory

B2. Quality Control

Multibeam data for survey H11484 were manually examined by the Hydrographer in CARIS subset mode for internal consistency and integrity. With a required line spacing of 2000m, there was limited overlap between lines, so comparison was limited.

Crosslines

Due to the nature of the survey, no crosslines were acquired for survey H11484.²

Junctions

Survey H11484 junctions with survey H11483, which is Sheet A of project S-P909-RA. Data from the RAINIER survey were not available for comparison.³ The sheet limits and area of overlap for Sheets A and B are shown in Figure 2.

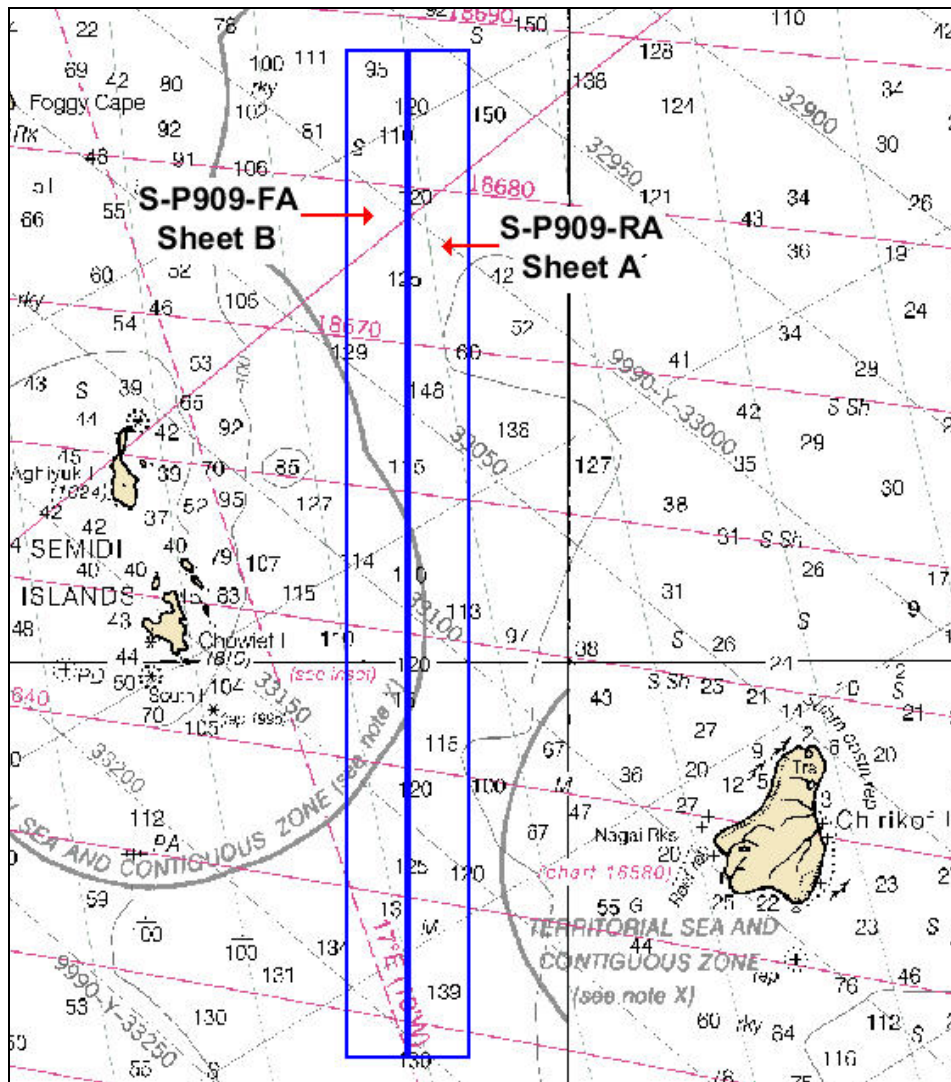


Figure 2: Junction Between S-P909-FA H11484 and S-P909-RA H11483

Quality Control Checks

MBES quality control checks were conducted as discussed in the quality control section of the *OPR-P183-FA-05 Data Acquisition and Processing Report*.

Data Quality Factors

SOUND VELOCITY:

Sound velocity casts were conducted regularly using a Brooke's Ocean Technology MVP 200. However, due to the dynamic water column within the survey area, there was still some sound velocity error evident in the data. All lines were filtered to reject any data past 62° from nadir. This reduced the amount of error, but measured depths at the outer beams still differ from depths measured at nadir by two to three meters in some places. This error puts the data outside of International Hydrographic Organization (IHO) accuracy requirements based on depth in some areas.⁴

Accuracy Standards

Total propagated error (TPE) filters were applied in CARIS HIPS to all sounding data from survey H11484. 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*.

These TPE filters only address errors associated with individual soundings. Systematic problems, such as sound velocity error, as mentioned in the Data Quality Factors section above, are unaffected by the filters and must be addressed separately. Though all data were filtered to IHO specifications based on depth, some error still exists in the data set. Data for survey H11484 does not meet IHO accuracy requirements based on depth in all areas, as noted above.⁵

B3. Corrections to Echo Soundings

Data reduction procedures for survey H11484 conform to those detailed in the DAPR, or as described below.

POSITIONING:

Differential GPS (DGPS) correctors could not be received within the survey area. All data were acquired with uncorrected GPS positioning.⁶

INCORRECT TIME STAMP:

A time stamp problem exists in the ISIS sonar suite software used for data acquisition, causing navigation data for lines logged through or after midnight UTC to become corrupted. The raw XTF files can be fixed as described in the DAPR, creating new files with the suffix “_dt.xtf.” Both the uncorrected and corrected XTF files have been submitted with the digital data, but only the corrected HDCS files are included.

Data for survey H11484 with corrected time stamps exist for DN172 and DN188.

C. HORIZONTAL AND VERTICAL CONTROL⁷

Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS (DGPS) correctors could not be received within the survey area. All data were acquired with uncorrected GPS positioning.

Vertical Control

Tide data were not available for the survey area during data acquisition. Sounding data were merged with the zerotide.tid file, null tide correctors applied.

CO-OPS will provide final approved vertical correctors to the Pacific Hydrographic Branch, where final approved (smooth) tides will be applied to the survey data during final processing.⁸ A request for delivery of final approved (smooth) tides for survey H11484 was forwarded to N/OPS1 on August 22, 2005 in accordance with the Field Procedures Manual (FPM) 5.3.3.3. A copy of the request is included in Appendix III.

D. RESULTS AND RECOMMENDATIONS

D.1 Chart Comparison

The CARIS HDCS data were brought into Pydro by means of the Insert HIPS Line Bathy function. The data 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 soundings in the Chart window.

Using the bathymetric depths inserted in Pydro, survey H11484 was compared with charts 16013 (29th Ed.; November, 2003, 1:969,761) and 16580 (13th Ed.; January, 2005, 1:350,000). The most recent Notice to Mariners from 13/05 was also consulted and there were no new changes within the survey area.

Chart 16013

Chart 16013 has been corrected through Notice to Mariners (NM) Nov 22/03 and Local Notice to Mariners (LNM) Nov 11/03. Charted soundings within the survey area were sparse. In areas of common soundings, depths from survey H11484 generally agreed with the charted depths to within three to five fathoms.⁹

Chart 16580

Chart 16580 has been corrected through NM Jan 8/05 and LNM Dec 28/04. Charted soundings within the survey area were sparse. In areas of common soundings, depths from survey H11484 generally agreed with the charted depths to within three to five fathoms.¹⁰

Chart Comparison Recommendations

The Hydrographer has determined that bottom coverage requirements as stated in the Letter Instructions have been met. The BASE surfaces and associated HDCS data are considered adequate for charting.¹¹ Final chart comparisons will be made at the Pacific Hydrographic Branch after the application of smooth tides.¹²

Automated Wreck and Obstruction Information System (AWOIS) Investigations

There were no AWOIS items located within the limits of H11484.¹³

Dangers to Navigation

There were no dangers to navigation found within the survey limits.¹⁴

D.2 Additional Results

Aids to Navigation

There were no aids to navigation within the survey limits.¹⁵

Bottom Samples

Bottom samples were not collected for survey H11484.¹⁶

E. Supplemental Reports

The following is a list of supplemental reports containing additional information relevant to this survey, submitted separately:


<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Hydrographic Systems Certification Report 2005	April 18, 2005	N/CS34
OPR-P183-FA-05 Data Acquisition and Processing Report	November 15, 2005	N/CS34
S-P909-FA-05 Horizontal & Vertical Control Memo	August 22, 2005	N/CS34, N/OPS1



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

November 10, 2005

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

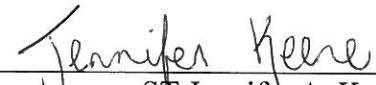
FROM: CAPT John E. Lowell, Jr, NOAA 
Commanding Officer


TITLE: Approval of Hydrographic Survey H11484,
S-P909-FA

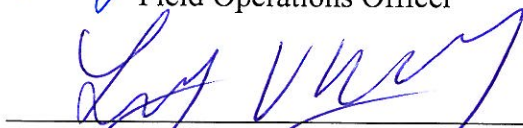
As Chief of Party, I have ensured that standard field surveying and processing procedures were adhered to during acquisition and processing of hydrographic survey H11484 in accordance with the Hydrographic Manual, Fourth Edition; Hydrographic Survey Guidelines; Field Procedures Manual, March 2005 Version 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:


ST Jennifer A. Keene
Survey Manager


for LT Mark A. Wetzler
Field Operations Officer


CST Lynette V. Morgan
Chief Survey Technician

Attachment



Revisions Compiled During Office Processing and Certification

- ¹ Filed with project records.
- ² Concur with clarification. Crosslines were not required by the Project Letter Instructions.
- ³ Junction comparisons were not required by the Project Letter Instructions.
- ⁴ Concur with clarification. Areas that did not meet IHO specifications were rejected during the survey acceptance review. All remaining data is adequate to supersede charted data in the common area.
- ⁵ Concur with clarification. See endnote 4.
- ⁶ There is no indication of positioning errors in the data.
- ⁷ A memo indicating there is no Horizontal and Vertical Control Report for this project was submitted. See attached memo.
- ⁸ Concur. Final approved water levels were applied during the survey acceptance review. See attached Tide Note dated September 30, 2005.
- ⁹ Concur with clarification. There were exceptions where there was differences up to 10 fathoms.
- ¹⁰ Concur with clarification. There were exceptions where there was differences from 10 fathoms to 30 fathoms.
- ¹¹ Concur.
- ¹² Final chart comparisons generally agreed with field comparisons. Exceptions are noted in endnotes 9 and 10.
- ¹³ Concur.
- ¹⁴ Concur.
- ¹⁵ Concur.
- ¹⁶ Concur with clarification. Two bottom samples were imported, one from each of ENC US3AK5KM and US2AK5FM, to be retained.



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

August 19, 2005

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

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

TITLE: S-P909-FA-05
Horizontal and Vertical Control Negative Report

A Horizontal and Vertical Control Report for S-P909-FA-05 has not been generated.

Section 5.8.1 of the Draft Hydrographic Survey Letter Instructions for project S-P909-FA-05, dated June, 2005, did not require subordinate water level stations. The National Water Level Observation Network (NWLON) station that the datum control for the project should be based off was not provided in the draft letter instructions received by the FAIRWEATHER. No leveling of any gauge was required by the NOAA Ship FAIRWEATHER.

No Aids to Navigation or prominent landmarks requiring high accuracy positioning were located within the project area. Position System Confidence Checks were not be conducted during this survey because USCG differential station correctors were very weak and only occasionally available. Section 5.5.2 of the NOS Hydrographic Surveys Specifications and Deliverables (HSSD), dated March 2003, describes the procedure as requiring the primary positioning system to be checked simultaneously against a separate system with a positional accuracy better than 10 meters.

Specific horizontal and vertical control information will be contained with the S-P909 Descriptive Reports as required.





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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : September 30, 2005

HYDROGRAPHIC BRANCH: Pacific Hydrographic Branch
HYDROGRAPHIC PROJECT: S-P909-FA-2005
HYDROGRAPHIC SHEET: H11484

LOCALITY: Vicinity of Semidi and Chirikof Islands, AK
TIME PERIOD: June 11 to August 16, 2005

TIDE STATION USED: Sand Point, AK 945-9450
Lat. 55 20.2' N Long. 160 30.1' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.988 meters

TIDE STATION USED: Kodiak, AK 945-7292
Lat. 57 43.8' N Long. 152 30.8' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.400 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: SWA147, SWA148, SWA149, SWA150, SWA151,
SWA152, SWA153, SWA154, SWA155, SWA156,
SWA159, SWA169, SWA170, SWA179, SWA180,
SS89, SS90, SS91, SS94, SS95, SS96, SS99,
SS100, SS101, SS104, SS105

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, REQUIREMENTS AND DEVELOPMENT DIVISION



Final tide zone node point locations for OPR-P909-FA-2005

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
SWA147	945-9450	-30	x1.21
-154.100108 55.528657			
-154.071048 55.660815			
-154.06022 55.834853			
-154.699237 55.79456			
-155.089371 55.790272			
-155.362993 55.560701			
-154.41287 55.53065			
-154.100108 55.528657			
SWA148	945-9450	-18	x1.21
-155.089371 55.790272			
-155.65796 55.784023			
-156.425537 55.827042			
-156.981997 55.897305			
-157.142303 55.760791			
-156.292961 55.629358			
-155.671598 55.573477			
-155.362993 55.560701			
-155.089371 55.790272			
SWA149	945-9450	-18	x1.25
-154.954487 55.937279			
-155.081499 55.931725			
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SWA150	945-7292	+18	x0.99
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-155.258835 56.523493			
SS100	945-7292	+24	x1.14
-155.258835 56.523493			
-155.719782 56.534137			
-155.996183 56.55001			
-156.080347 56.475447			
-155.606241 56.455911			
-155.298961 56.456224			
-155.258835 56.523493			
SS101	945-7292	+30	x1.14
-155.996183 56.55001			
-156.439676 56.585981			
-156.71866 56.63386			
-156.805961 56.659028			

-156.895859 56.565337
-156.72051 56.52476
-156.478477 56.494118
-156.080347 56.475447
-155.996183 56.55001

SS104

945-7292

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x1.11

-156.080347 56.475447
-156.478477 56.494118
-156.72051 56.52476
-156.895859 56.565337
-157.004841 56.503826
-156.927793 56.478454
-156.64511 56.424375
-156.199466 56.398178
-156.080347 56.475447

SS105

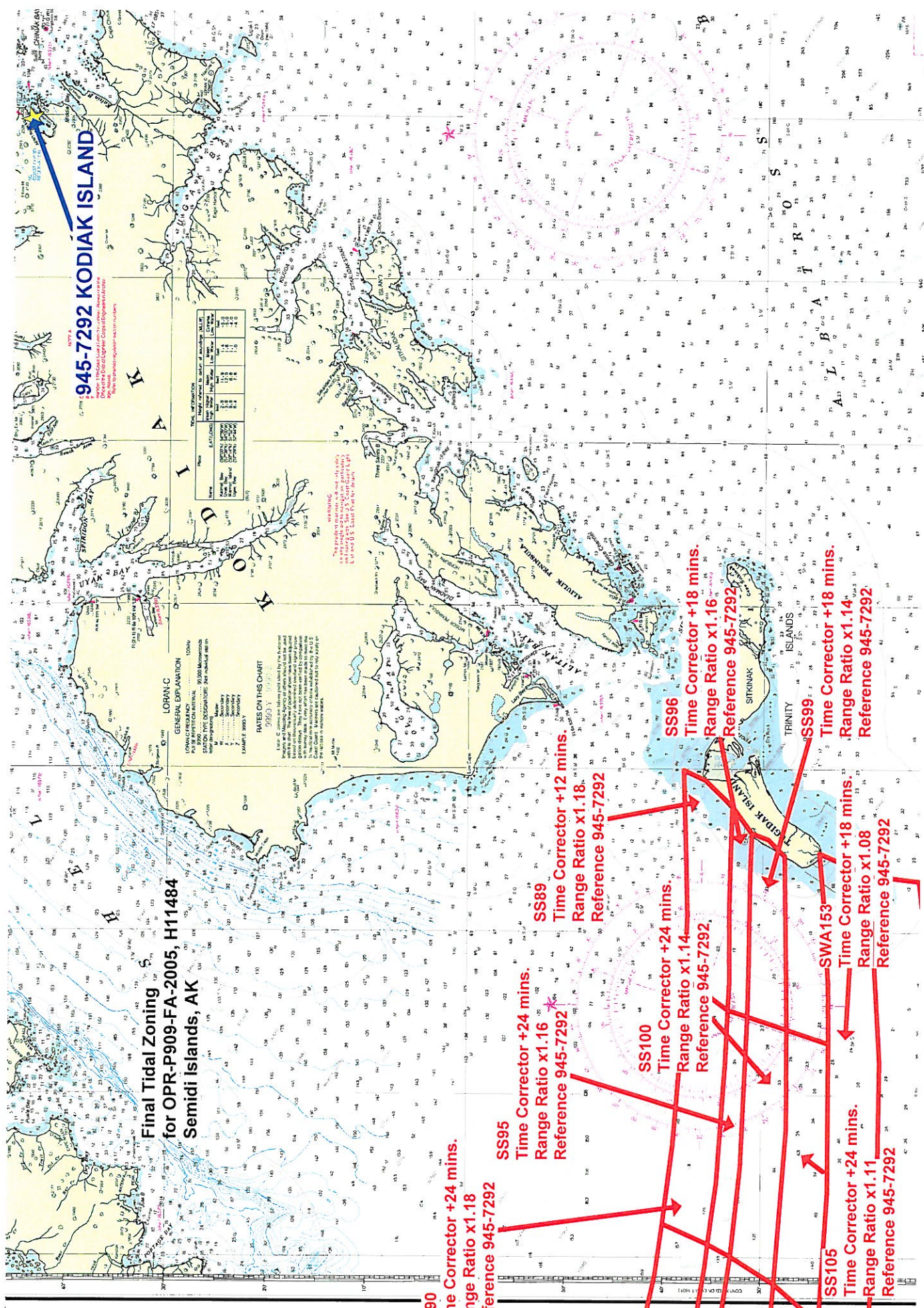
945-7292

+24

x1.11

-155.59396 56.384607
-155.800583 56.384674
-156.199466 56.398178
-156.080347 56.475447
-155.606241 56.455911
-155.298961 56.456224
-155.341686 56.384597
-155.59396 56.384607

100
110
120
130
140
150
160
170
180
190
200



**Final Tidal Zoning
for OPR-P909-FA-2005, H11484
Semidi Islands, AK**

SS90
Time Corrector +24 mins.
Range Ratio x1.18
Reference 945-7292

SS95
Time Corrector +24 mins.
Range Ratio x1.16
Reference 945-7292

SS89
Time Corrector +12 mins.
Range Ratio x1.18
Reference 945-7292

SS100
Time Corrector +24 mins.
Range Ratio x1.14
Reference 945-7292

SS96
Time Corrector +18 mins.
Range Ratio x1.16
Reference 945-7292

SS105
Time Corrector +24 mins.
Range Ratio x1.11
Reference 945-7292

SWA153
Time Corrector +18 mins.
Range Ratio x1.08
Reference 945-7292

SS99
Time Corrector +18 mins.
Range Ratio x1.14
Reference 945-7292

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H11484 HCell Report
Katie Reser, Physical Scientist
Pacific Hydrographic Branch

Introduction

The primary purpose of the HCell is to directly update NOAA ENC's with new survey information in International Hydrographic Organization (IHO) format S-57. HCell compilation of survey H11484 utilized Office of Coast Survey HCell Specifications Version 3.0, May 2008 and HCell User Guide Version 1.1, June 2008. HCell H11484 will be used to update charts 16580, 1:350,000 (14th Ed.; January 2008, NM 1/31/2009), 16013, 1:969,761 (30th Ed.; July 2006, NM 1/17/2009), US3AK5KM and US2AK5FM.

1. Compilation Scale

The density of soundings in the HCell is compiled as appropriate to emulate those soundings of charts 16580, 1:350,000 and 16013, 1:969,761. Position and density of non-bathymetric features included in the HCell have not been generalized from the scales of the hydrographic survey H11484, 1:100,000.

2. Soundings

2.1 Source Data

A 12-meter resolution Combined BASE surface, **H11484_Combd_12m**, was used as the basis for HCell production following Branch certification.

A survey-scale sounding (SOUNDG) feature object source layer was built from the **H11484_Combd_12m** surface in CARIS BASE Editor. A shoal-biased selection was made at 1:200,000 scale using a radius table with values shown in **Table 1**.

Upper limit (m)	Lower limit (m)	Radius (mm)
0 10		3
10 20		4
20 75		4.5
75 1000		5

Table 1

2.2 Sounding Feature Objects

In CARIS BASE Editor soundings were manually selected from the high density sounding layers from H11484 and imported into a new layer created to accommodate chart density depths. Manual selection was used to accomplish a density and distribution that more closely represents the seafloor morphology and that emulates density and distribution of soundings on charts 16580 and 16013 than is possible using automated methods. See section 10.1, Data Processing Notes, for details about the use of manual sounding selection for H11484. The sounding feature object source layer was imported

into the **H11484_HCell_Features.hob** file, which was used as a template to create the S-57 Composer product **H11484_CS.prd**.

3. Depth Areas

3.1 Source Data

Using the combined BASE surface **H11484_Combd_12m**, one depth area was generated. No depth contours were delivered per OCS HCell Specifications ver. 3.0 and HCell User Guide ver. 1.1.

3.2 Depth Area Feature Objects

One depth range, 35 meters to 705 meters, was used for all depth area objects. Upon conversion to NOAA charting units, this depth range is 19.1 fathoms to 385.5 fathoms.

4. Meta Areas

The following Meta object areas are included in HCell 11484:

M_QUAL M_CSCL
M_COVR

Meta area objects were constructed on the basis of perimeter lines delineating the surveyed limits and extents of data gaps inside the survey area. These perimeters were first used to create the Skin of The Earth (SOTE) layer, then were duplicated to the Meta object layers and attributed per the H-Cell Specifications, ver. 3.0 and HCell User Guide ver. 1.1.

5. Survey Features

H11484 contains no DTONs

H11484 contains no AWOIS items.

No bottom samples were collected with H11484. Two bottom samples were imported, one from each of ENC US3AK5KM and US2AK5FM, to be retained.

No additional features are included in the H11484 HCell.

Shoreline Features

There were no shoreline features for H11484.

6. Shoreline / Tide Delineation

Depth areas (DEPARE) were created for all SOTE features.

7. Attribution

All S-57 Feature Objects have been attributed as fully as possible based on information provided by the Hydrographer and in accordance with OCS H-Cell Specifications, ver. 3.0 and HCell User Guide ver. 1.1.

8. Layout

8.1 CARIS S-57 Composer Scheme

SOUNDG	Chart scale soundings
DEPARE	Group 1 objects (Skin of the Earth)
SBDARE	Bottom samples
M_COVR	Data coverage meta object
M_QUAL	Data quality meta object
\$CSYMB	Blue notes

8.2 Blue Notes

Notes regarding data sources are in S-57 Composer as a \$CSYMB feature with the blue note located in the INFORM field and the survey registry number, chart number, chart edition and edition date located in the NINFOM field. The blue notes are included in the HCell when it is exported to .000. The blue notes are also included as a separate ASCII file **H11484_Bluenotes.txt**.

9. Spatial Framework

9.1 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.

9.2 Horizontal and Vertical Units

During creation of sounding sets in CARIS BASE Editor, and creation of the HCell in CARIS S-57 Composer, units are maintained as metric with millimeter resolution. NOAA rounding is applied at the same time that conversion to chart units is made to the metric HCell base cell file, at the end of the HCell compilation process.

A CARIS environment variable, `uslXsounding_round`, controls the depth at which rounding occurs. Setting this variable to NOAA fathoms and feet displays all soundings from 0 to equal to or greater than 11 fathoms as whole units.

In an ENC viewer fathoms and feet display in the format `X.YZZZ`, where X is fathoms, Y is feet, and ZZZ is decimals of the foot. For fathoms and feet between 0 and 10 fathoms 4.5 feet (10.75 fms), soundings round to the deeper foot if the decimals of the foot are `X.Y75000` or greater. For fathoms and feet deeper or equal to 11 fathoms, soundings round to the deeper fathom if feet and decimals of the foot are `X.45000` (`X.Y75000`) or greater. Drying heights are in feet and are rounded using arithmetic methods. In an ENC viewer, heights greater than 6 feet will register in fathoms and feet using the above stated rules.

S-57 Composer Units

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

Chart Unit Base Cell Units

Depth Units (DUNI):	Fathoms and feet
Height Units (HUNI):	Feet (or fathoms and feet above 6 feet)
Positional Units (PUNI):	Meters

10. QA/QC

10.1 Data Processing Notes

Manual chart scale sounding selections were made for this survey. Experience has shown that in areas where bathymetry is steep sided, as in the case of this extremely steep edged fjord, automated sounding selection is impractical. None of the default sounding suppression options offered in CARIS BASE Editor or S-57 Composer yields an acceptable density and distribution of depths, generally bunching soundings nearshore with too sparse coverage seaward. While the customized options are more practical for this type of terrain, an inordinate amount of time must be spent in experimentation with variations on the algebraic terms in order to devise the most suitable formula, and manual adjustments are still required to the resulting sounding set.

10.2 ENC Validation Checks

H11484 was subjected to QA and Validation checks in S-57 Composer prior to exporting to the HCell base cell (000) file. Full millimeter precision was retained in the export of the metric S-57 base cell data set. This data set was converted to a chart unit 000 file. dKart Inspector 5.1 was then used to further check the data set for conformity using the S-58 ver. 2 standard (formerly Appendix B.1 Annex C of the S-57 standard). All tests were run and errors investigated and corrected where necessary.

11. Products

11.1 HSD, MCD and CGTP Deliverables

- H11484 Base Cell File, Chart Units, Soundings compiled to 1:350,000
- H11484 Base Cell File, Chart Units, Soundings compiled to 1:200,000
- H11484 Descriptive Report including end notes compiled during office processing and certification
- H11484 HCell Supplemental Report
- H11484 Blue Notes ASCII file

11.2 File Naming Conventions

S-57 Composer Product prefix: H11484_CS.prd and H11484_SS.prd

MCD Chart units base cell file: US311484_CS.000

MCD Chart units base cell file, survey scale soundings: US311484_SS.000

11.3 Software

HIPS 6.1:	Management and inspection of Combined BASE surfaces
BASE Editor 2.1: S-57	Combination of Product Surfaces and initial creation of the bathymetry-derived features
CARIS Notebook 3.0:	Management and inspection of shoreline files
S-57 Composer 2.0:	Assembly of the HCell, S-57 products export, QA
HOM 3.3:	Assembly of the HCell, S-57 products unit conversion and sounding rounding
GIS 4.4a:	Setting the sounding rounding variable
Pydro v7.3 (r2252)	Creation of Feature and DTON reports
dKart Inspector 5.1:	Validation of the base cell file

12. Contacts

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

Katie Reser, Physical Scientist, PHB, Seattle, WA; 206-526-6864;
Katie.Reser@noaa.gov.

APPROVAL SHEET
H11484

Initial Approvals:

The survey evaluation and verification has been conducted according to branch processing procedures and the HCell 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 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.