

H11108

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. RA-10-02-02

Registry No. H-11108

LOCALITY

State Alaska

General Locality Peril Strait

Sublocality Bear Bay to Povorotni Island

2002

CHIEF OF PARTY

..... CAPT James C. Gardner, NOAA

LIBRARY & ARCHIVES

DATE

HYDROGRAPHIC TITLE SHEET

H11108

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.
RA-10-02-02

State Alaska

General Locality Peril Strait

Sublocality Bear Bay to Povorotni Island

Scale 1:10,000

Date of Survey 4/04/2002-5/21/2002

Instructions Date 3/21/2002

Project No. OPR-O112-RA-02

Vessel NOAA Ship launches 2121, 2122, 2123, 2124, 2125, 2127

Chief of Party CAPT James C Gardner, NOAA

Surveyed by RAINIER Personnel

Soundings taken by echo sounder Knudsen 320M, Reson SeaBat 8101 and 8125

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by R. Davies

Automated plot by HP Designjet 1050C

Verification by R. Davies, E. Domingo

Soundings in Fathoms and tenths

at

MLLW

REMARKS: Time in UTC. UTM Projection Zone 8

Revisions and annotations appearing as endnotes were

generated during office processing.

All separates are filed with the hydrographic data.

As a result, page numbering may be interrupted or non-sequential

Descriptive Report to Accompany Hydrographic Survey H11108

Project OPR-O112-RA-02

Peril Strait, Alaska

Scale 1:10,000

April-May 2002

NOAA Ship RAINIER

Chief of Party: Captain James C. Gardner, NOAA

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-O112-RA-02, dated March 21, 2002, and the Draft Standing Project Instructions dated March 21, 2001. The survey area is located north of Sitka in Peril Strait. This survey corresponds to sheet "D" in the sheet layout provided with the Letter Instructions.

One hundred percent shallow-water multibeam (SWMB) coverage was obtained in the survey area in waters 8 meters and deeper. In waters from 4 meters to 8 meters, SWMB data were obtained at 25-meter line spacing, and in these areas additional coverage was obtained to obtain least depths over features or shoals. Vertical-beam echo sounder (VBES) data were acquired in depths from 4 to 40 meters to define the four-meter curve and to aid in the planning of SWMB data acquisition.

Data acquisition was conducted from April 4 to May 21, 2002 (DN 94 to 141).

B. DATA ACQUISITION AND PROCESSING

A complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods can be found in the *OPR-O112-RA-02 Data Acquisition and Processing Report*,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

Data were acquired by RAINIER survey launches (vessel numbers 2121, 2122, 2123, 2124, 2125, and 2127). Vessels 2123, 2124 and 2125 were used to acquire shallow-water multibeam (SWMB) soundings and sound velocity profiles. Vessels 2121 and 2122 were used to acquire vertical-beam echo soundings (VBES) and detached positions (DPs) for shoreline verification. Vessel 2127 was used to acquire detached positions (DPs) for shoreline verification. Vessel 2121 was also used to collect bottom samples. No unusual vessel configurations or problems were used or encountered during this survey.²

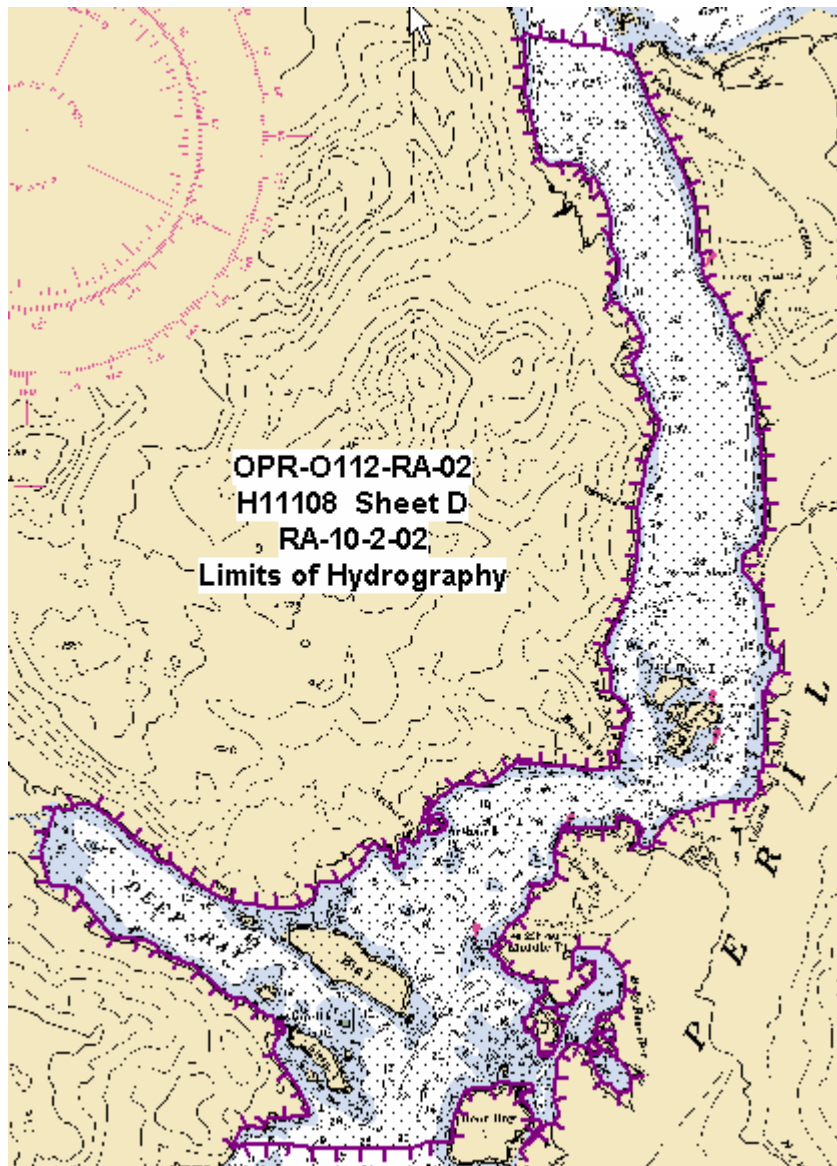


Figure 1. H11108 Survey Limits.

B2. Quality Control

Crosslines

Vertical Beam Echo Sounder (VBES) crosslines totaled 3.54 nautical miles, comprising 6.47% of mainscheme hydrography. Crosslines generally agreed within 1 meter of mainscheme hydrography.

Shallow-Water Multibeam (SWMB) crosslines totaled 11.82 nautical miles, comprising 6.80% of SWMB hydrography. The Quality Control Report (CARIS HIPS) for the checkline file averaged 99.84471%, with a depth tolerance factor of 0.023, which conforms to International Hydrographic Organization Order 2 specifications detailed in Special Publication S-44, Edition 4.³ See Appendix V for the detailed report.⁴

Junctions

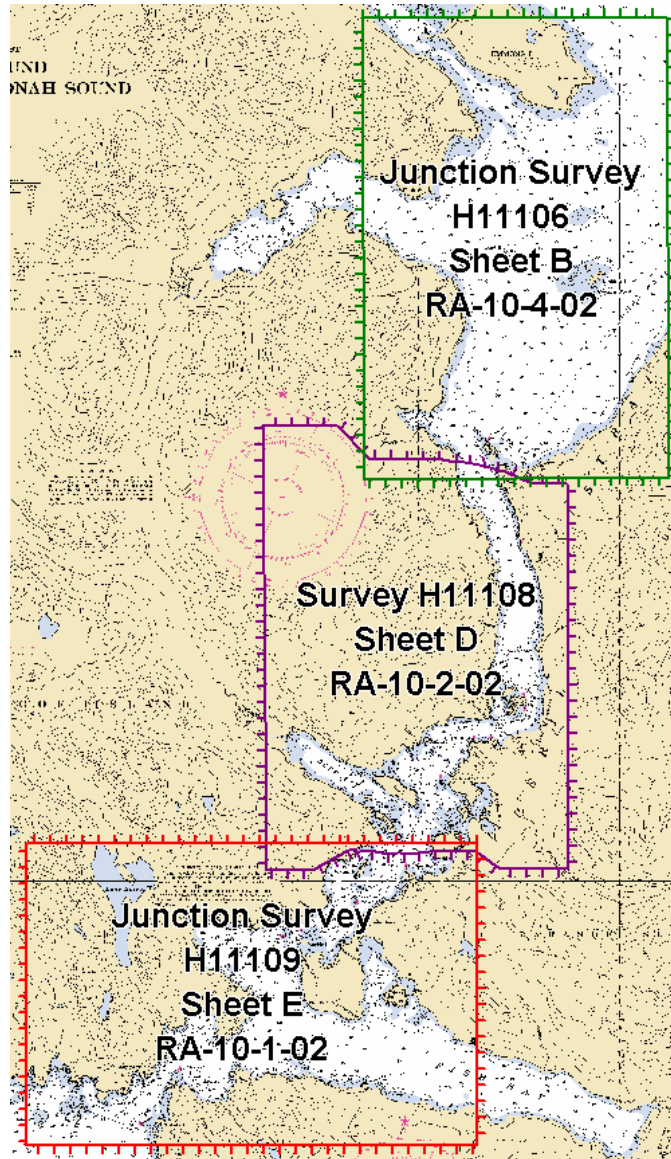


Figure 2. H11108 Junction Surveys.

The following contemporary survey junctions with H11108:

<u>Registry #</u>	<u>Scale</u>	<u>Date</u>	<u>Junction side</u>
H11106	1:10,000	2002	North
H11109	1:10,000	2002	South

Survey H11106 junctions well with this survey, a cursory comparison indicates differences are generally less than one fathom.⁵

Survey H11109 junctions well with this survey, a cursory comparison indicates differences are generally less than one fathom.⁶

Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after the application of smooth tides.⁷

Data Quality Factors

Some areas displayed tide related offsets of up to 0.5m, generally offsets were seen between SWMB lines run in adjacent areas but run on different days. The Hydrographer feels these offsets may be remedied after applying final approved (smooth) tides and the updated tide zone file during final processing at Pacific Hydrographic Branch.⁸

No other unusual conditions were encountered during the survey that affected the expected accuracy and quality of survey data.⁹

B3. Data Reduction

Data reduction procedures for survey H11108 conform to those detailed in the *OPR-O112-RA-02 Data Acquisition and Processing Report (DAPR)*.

C. VERTICAL AND HORIZONTAL CONTROL

A complete description of vertical and horizontal control for survey H11108 can be found in the *OPR-O112-RA-02 Horizontal and Vertical Control Report*,¹⁰ 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 from U.S. Coast Guard beacon at Biorka Island (305 kHz) were utilized during this survey. Launch-to-launch DGPS performance checks using U.S. Coast Guard beacon Level Island (295 kHz) as the check station were performed weekly in accordance with Section 3.2 of the FPM. Copies of the performance checks are included in the *OPR-O112-RA-02 Horizontal and Vertical Control Report*.

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 H11108.

RAINIER personnel installed Sutron 8210 “bubbler” tide gauges at the following subordinate stations to provide information for N/OPS1 to determine time and height correctors in accordance with the Project Instructions:

Station Name	Station Number	Type of Gauge	Date of Installation	Date of Removal
Povorotni Island	945-1936	30-day	March 31, 2002	May 22, 2002
Sergius Narrows	945-1853	30-day	April 1, 2002	May 26, 2002
Scraggy Island	945-1805	30-day	April 2, 2002	May 25, 2002

The station at Scraggy Island (945-1805) was occupied in lieu of Scraggy Point (945-1802) as specified by the Letter Instructions following consultation with N/OPS1.

All data were reduced to MLLW using unverified observed tides from station Sitka, AK using the tide file 9451600.tid and time and height correctors using the zone corrector file 0112RA2002CORP.zdf.

The Pacific Hydrographic Branch will apply final approved (smooth) tides to the survey data during final processing. ¹¹ A request for delivery of final approved (smooth) tides for survey H11108 was forwarded to N/OPS1 on May 30, 2002 in accordance with FPM 4.8. A copy of the request is included in Appendix IV. ¹²

D. RESULTS AND RECOMMENDATIONS

D.1 Automated Wreck and Obstruction Information System (AWOIS) Investigations

No AWOIS items were located within the limits of H11108. ¹³

D.2 Chart Comparison

Survey H11108 was compared with charts 17323 (10th Ed.; July 10, 1993, 1:40,000) ¹⁴, chart 17320 (15th Ed.; March 6, 1999, 1:217,828).

Chart 17323

Depths from survey H11108 generally agreed within 1 fathom of depths on chart 17323. ¹⁵ In many instances, this survey found shoaler soundings between charted soundings even though agreement at the position of the charted depths was good. ¹⁶ This can be attributed to increased bottom coverage using SWMB methods. In the north near-shore portions of the survey charted soundings were found to be 1 to 5 fathoms shoaler than survey depths. This could be attributed to the cartographic representation of the soundings along the shore and contour lines at the scale of this chart. ¹⁷

The Hydrographer has determined that data accuracy standards and bottom coverage requirements have been met and survey data are adequate to supersede charted data in their common areas.¹⁸

Chart 17320¹⁹

Depths from survey H11108 generally agreed within 1 fathom of depths on chart 17320.

Final chart comparisons will be made at the Pacific Hydrographic Branch after the application of smooth tides.²⁰

D.3 Shoreline

Shoreline Source

A complete source shoreline for this survey was not provided. A preliminary partial digital manuscript (DM) from photogrammetric projects AK9703A (north) and A9703B (south) was supplied by N/NGS3 in the form of a cartographic feature file (CFF). RAINIER conducted limited shoreline verification of the CFF. In the absence of CFF MHW or CFF MLLW, RAINIER personnel digitized the largest scale charts in MapInfo and displayed in HYPACK for field verification. In addition, features shown on the current edition of chart 17323 that were not depicted on the shoreline source document were digitized in MapInfo by RAINIER personnel and displayed in Hypack for field verification.

Shoreline Verification

Limited shoreline verification was conducted near predicted low water in accordance with the Standing Project Instructions and FPM sections 6.1 and 6.2. Detached positions (DPs) taken during shoreline verification were recorded in HYPACK and on DP forms, and processed in Pydro. These indicate revisions to features and features not found on the verified shoreline. In addition, annotations describing shoreline were recorded on hard copy plots of digital shoreline. DP forms are included in Section I of the *Separates to be Included with Survey Data*.²¹

A detailed Detached Position and Bottom Sample plot,²² in both paper copy and MapInfo format, is provided showing all detached positions and bottom samples with notes relating to each feature. The updated shoreline and features are also depicted on the final sounding plot. Verified CFF shoreline that did not require revision is in MapInfo table H11108_CFF_Shoreline and shown in black. New MHW features and changes to the MHW shoreline, CFF or charted, are displayed in red on the MapInfo table²³“H11108_Shoreline_Updates”, additionally new or changes to low water features are displayed in pink. Charted shoreline, when used for reference purposes or when source data were not available, is depicted in the MapInfo table “H11108_Charted_Shoreline.” and displayed in brown.²⁴

Source Shoreline Changes and New Features

The CFF rock at Pos# 710419, 57:29:58.43N, 135:33:27.27W (466583.9E, 6373134.3N) was disproved with VBES and 100% SWMB. The Hydrographer recommends not charting the CFF rock.²⁵

The CFF and charted rocks are highpoints of the CFF ledge with a seaward most extent at Pos# 71035, 57:27:27.44N, 135:31:57.65W (468039.2E, 6368453.2N). The Hydrographer recommends not charting the CFF rock, removal of the charted rock, and charting of the ledge as depicted on the DPBS plot.²⁶

The charted rock at 57:26:41.72N, 135:35:08.14W (464852.2E, 6367065.8N) was disproved with 100% SWMB. A new highpoint and extent of the CFF reef was located at Pos# 1118326, 57:26:42.93N, 135:35:08.66W (464843.9E, 6367103.3N). The Hydrographer recommends removal of the charted rock and charting the reef as depicted on the DPBS plot.²⁷

The two charted rocks located at 57:26:27.82N, 135:35:38.5W (464342.5E, 6366640.3N) are highpoints of the CFF reef. New extents of the CFF reef are defined by Pos# 110646 & 111815, 57:26:27.25N, 135:35:40.84W (464303.1E, 6366623.0N). The Hydrographer recommends removal of the charted rocks from the chart and charting of the reef as depicted on the DPBS plot.²⁸

The CFF rock at Pos# 710427, 57:26:28.21N, 135:36:29.49W (463492.2E, 6366660.0N) is the new extent and highpoint of the CFF ledge in that vicinity. The Hydrographer recommends not charting the CFF rock and charting the CFF ledge as depicted on the DPBS plot.²⁹

The charted rock position at 57:25:58.53N, 135:36:09.21W (463822.3E, 6365739.0N) was disproved with 100% SWMB. The CFF MLLW at Pos# 1106181, 57:25:59.29N, 135:36:11.64W (463781.9E, 6365763.0N) was found to be a ledge. The Hydrographer recommends removal of the charted rock from the chart and charting the ledge as depicted on the DPBS plot.³⁰

The charted rock position at 57:25:40.12N, 135:35:48.28W (464166.3E, 6365166.9N) was disproved with 100% SWMB. The CFF MLLW at Pos# 1106164, 57:25:40.20N, 135:35:49.51W (464145.8E, 6365169.5N) was found to be a ledge. The Hydrographer recommends removal of the charted rock from the chart and charting the ledge as depicted on the DPBS plot.³¹

The detached position at Pos#111724, 57:26:09.04N, 135:33:57.67W (466018.7E, 6366045.2N) is the new extent of a ledge. The CFF rock in that vicinity is the highpoint of the ledge. The Hydrographer recommends not charting the CFF rock and charting the ledge as depicted on the DPBS plot.³²

The detached positions at Pos# 111727 & 111726, centered at 57:26:03.73N, 135:33:56.57W

(466035.7E, 6365880.9N) represent new extents to the charted ledge. The CFF rock in that vicinity is a highpoint of that ledge. The Hydrographer recommends not charting the CFF rock and charting the ledge as depicted on the DPBS plot. ³³

The CFF MLLW at Pos# 1105107, 57:25:49.73N, 135:33:28.56W (466499.2E, 6365444.1N) is a ledge. The charted rock at 57:25:48.83N, 135:33:28.11W (466506.5E , 6365416.2N) was found to be a highpoint of that new ledge. The Hydrographer recommends removing the charted rock and charting the ledge as depicted on the DPBS plot. ³⁴

The CFF MLLW at Pos# 1105188, 57:25:30.00N, 135:33:54.18W (466499.2E, 6365444.1N) is a ledge. The charted (17323) rock at 57:25:28.72N, 135:33:53.17W (466070.3E, 6364803.0N) was found to be the highpoint of that ledge by the Hydrographer during shoreline verification and with VBES. The Hydrographer recommends removal of the rock from the chart and charting the ledge as depicted on the DPBS plot. ³⁵

Charted Features

The charted (17323) ledge was disproved by Hydrographer during shoreline verification, Pos# 71031, 57:30:28.43N, 135:33:03.41W (466988.7E, 6374058.8N). The Hydrographer recommends removal of the ledge from the chart. ³⁶

The charted (17323) rock at Pos# 111725, 57:26:09.80N, 135:33:52.37W (466107.3E, 6366068.1N) was disproved with VBES and 100% SWMB. The Hydrographer recommends removal of the rock from the chart. ³⁷

A new reef was positioned by Pos# 110571, 110573 & 110572, 57:25:48.61N, 135:33:59.35W (465985.4E, 6365413.6N). Two charted rocks in the vicinity are highpoints of that reef. The Hydrographer recommends removal of the charted rocks and charting of the new reef as depicted on the DPBS plot. ³⁸

A new reef is located at Pos# 110569, 57:25:45.74N, 135:34:00.33W (465968.4E, 6365325.2N). The charted rock in the vicinity is a highpoint of the reef. The Hydrographer recommends removal of the charted rock and charting of the new reef as depicted on the DPBS plot. ³⁹

Recommendations

The Hydrographer recommends that the shoreline as depicted on the Detached Position and Bottom Sample plot and final sounding plot supersede and complement shoreline information compiled on the CFF and charts as noted. In addition, field notes made by the Hydrographer, including verification of source features or charted features if no source shoreline was available are submitted in the digital MapInfo file "H11108_Shoreline_Notes." ⁴⁰

D.4 Dangers to Navigation

One danger to navigation was found and reported to the Marine Charting Division for verification and final submission to the Seventeenth Coast Guard District on April 11, 2003. A copy of the preliminary Danger to Navigation Report is included in this report.⁴¹

D.5 Aids to Navigation

Survey H11108 included eight aids to navigation (ATONs).⁴² Each of the ATONs was found to serve its intended purpose.⁴³

Detached positions were taken on each ATON for check purposes only. The following fixed ATON was positioned using static GPS survey methods, see the Horizontal and Vertical Control Report for OPR-O112-RA-02 for further information.

BIG ROSE ISLAND LIGHT 21	Lt List# 25245	Ellipsoid Height 10.99
	Latitude 57:27:26.63383	Longitude 135:32:19.83649

D.6 Miscellaneous

Bottom samples were collected and are depicted on the Detached Position and Bottom Sample Plot. In general, the survey bottom samples do not agree from the charted bottom samples in common areas.⁴⁴

E. APPROVAL

As Chief of Party, I have ensured that standard field surveying and processing procedures were followed in producing this examination in accordance with the Hydrographic Manual, Fourth Edition, Hydrographic Survey Guidelines, Field Procedures Manual and the NOS Hydrographic Surveys Specifications and Deliverables, as updated for 2001.

The digital data and supporting records have been reviewed by me, are considered complete and adequate for charting purposes, and are approved. All records are forwarded for final review and processing to N/CS34, Pacific Hydrographic Branch.

Survey H11108 is complete and adequate to supersede charted soundings in their common areas. No additional work is required for this survey.⁴⁵

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

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Data Acquisition and Processing Report for OPR-O112-RA-02	6/17/02	N/CS34
Horizontal and Vertical Control Report for OPR-O112-RA-02	02/12/03	N/CS34
Tides and Water Levels Package for OPR-O112-RA-02	5/15/02	N/OPS1
Coast Pilot Report for OPR-O112-RA-02	TBD ⁴⁶	N/CS26

Approved and Forwarded: James C. Gardner 4-14-03
 James C. Gardner
 Captain, NOAA
 Commanding Officer

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

Survey Sheet Manager: Lynette V. Morgan 4-14-03
 Lynette V. Morgan
 Senior Survey Technician, NOAA

Field Operations Officer: Richard A. Fletcher 4/14/03
 Richard A. Fletcher
 Lieutenant Commander, NOAA

Revisions Compiled During Office processing and Certification.

¹ Filed with the project records.

² Concur

³ Do not concur, after office review this survey conforms to IHO order 1 specifications.

⁴ Filed with the hydrographic records.

⁵ Concur, the junction with H11106 was not formally completed since this survey was processed previously. However, the standard depth curves on the present survey were drawn considering both data sets and therefore should be used with the common area. An "Adjoins" note have been added to the smooth sheet.

⁶ The junction with survey H11108 and survey H11109 are complete. A "Joins" note has been added to the smooth sheets where applicable.

⁷ The, results of the comparison after applications of approved tides are considered good.

⁸ After the application of smooth tides, no apparent offset were seen between adjacent lines.

⁹ Concur

¹⁰ Filed with the project records.

¹¹ Approved tide note dated September 5, 2002 is attached.

¹² Filed with the hydrographic records.

¹³ Concur

¹⁴ This survey was compared with chart 17323, scale 1:40,000, dated October 1, 2004.

¹⁵ Concur

¹⁶ Concur

¹⁷ Concur, these soundings have been offset seaward of their true position.

¹⁸ Concur

¹⁹ Chart 17320, scale 1:217,828, was not compared with because survey H11108 falls completely within the limits of chart 17323, scale 1:40,000.

²⁰ With the application of smooth tides, no changes to the comparison were noticed. This survey is adequate to supersede all charted soundings and features within the common area, except where noted in this report.

²¹ Filed with the hydrographic records.

²² Filed with the hydrographic records.

²³ Changes in the CFF shoreline or charted shoreline have been drawn in dashed red or solid red on the smooth sheet depending on the accuracy of the positioning.

²⁴ Shoreline verification conducted by the hydrographer and portrayed on the detached position plot has been analyzed during office processing and shown on the smooth sheet as warranted. Several revisions to the CFF shoreline have been shown in dashed red on the smooth sheet.

²⁵ Concur, chart area as shown on the smooth sheet.

²⁶ Concur, chart area as shown on the smooth sheet.

²⁷ Concur with clarification, remove charted rock and chart ledge at the above location.

²⁸ Concur with clarification, due to scale of the chart 2 rocks awash at the above location.

²⁹ Concur, chart area as shown on the smooth sheet.

³⁰ Concur, chart area as shown on the smooth sheet.

³¹ Concur, chart area as shown on the smooth sheet.

³² Concur, chart area as shown on the smooth sheet.

³³ Concur, chart area as shown on the smooth sheet.

³⁴ Concur, chart area as shown on the smooth sheet.

³⁵ Concur, chart area as shown on the smooth sheet.

³⁶ Concur, chart area as shown on the smooth sheet.

³⁷ Concur, chart area as shown on the smooth sheet.

³⁸ Concur with clarification, due to scale of the chart the reef have been shown as two rocks, see Hdrawing for depiction of this area.

³⁹ Concur with clarification, due to scale of the chart the reef has been shown as a rock, see Hdrawing for depiction of this area.

⁴⁰ Shoreline verification conducted by the hydrographer and portrayed on the detached position plot has been analyzed during office processing and shown on the smooth sheet as warranted. A few minor revisions to the CFF shoreline have been shown in dashed red on the smooth sheet.

⁴¹ See attached copy.

⁴² Concur

⁴³ The evaluator recommends that MCD use the latest information to chart aids to navigation.

⁴⁴ Concur, bottom characteristics have been shown on the smooth sheet as positioned by the present survey.

⁴⁵ Concur

⁴⁶ Dated 10/10/03

Hydrographic Survey Registry Number: H11108

Survey Title: State: Alaska
Locality: Peril Strait
Sub-locality: Bear Bay to Povorotni Island

Project Number: OPR-O112-RA-02

Survey Dates: April 4 to May 21, 2002

Depths are reduced to Mean Lower Low Water using observed tides.
Positions are based on the NAD83 horizontal datum.

CHARTS AFFECTED:

Chart	Scale	Edition	Date
17323	1:40,000	10 th	July 10, 1993

DANGERS TO NAVIGATION:

Feature	Depth(fms)	Latitude	Longitude
Sounding	2.57	57/25/47.567	135/36/04.848

COMMENTS: Shoal sounding.

Questions concerning this report should be directed to the Commanding Officer, NOAA Ship RAINIER, at (206) 553-4794 (inport November through mid-March), (877) 665-6533 (at sea, mid-March through November), or by e-mail at co.rainier@noaa.gov.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: September 5, 2002

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-O112-RA-2002
HYDROGRAPHIC SHEET: H11108

LOCALITY: Peril Strait, Alaska
TIME PERIOD: April 4 - May 21, 20020

TIDE STATION USED: 945-1853 Sergius Narrows
Lat. 57° 24.6' N Lon. 135° 37.6' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.703 meters

TIDE STATION USED: 945-1936 Provotorotni Island
Lat. 57° 30.9' N Lon. 135° 33.2' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.314 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SEA219, SEA220, SEA221, SEA222,
SEA223, SEA224, SEA225, SEA226

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.

Thomas V. Mero 9/11/02
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



Final tide zone node point locations for OPR-O112-RA-2002, H11108

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 SEA219	945-1853	0	1.05
-135.618952 57.42304			
-135.609422 57.425903			
-135.600833 57.426647			
-135.588488 57.422341			
-135.579502 57.416323			
-135.58939 57.411756			
-135.593468 57.411852			
-135.601951 57.416674			
-135.607129 57.418909			
-135.618952 57.42304			
Zone SEA220	945-1853	0	1.06
-135.602998 57.442829			
-135.593706 57.439181			
-135.586153 57.435865			
-135.56162 57.427734			
-135.560755 57.425174			
-135.570002 57.417213			
-135.579502 57.416323			
-135.588488 57.422341			
-135.600833 57.426647			
-135.630575 57.438512			
-135.64668 57.44826			
-135.635043 57.452237			
-135.602998 57.442829			
Zone SEA221	945-1853	0	1.08
-135.586153 57.435865			
-135.593706 57.439181			
-135.602998 57.442829			
-135.602998 57.442829			
-135.584256 57.449802			
-135.564006 57.441263			

-135.548703 57.436887
-135.549326 57.424893
-135.56162 57.427734
-135.586153 57.435865

Zone SEA222

945-1853

0

1.1

-135.548703 57.445179
-135.546782 57.447968
-135.546782 57.447968
-135.55559 57.453387
-135.566054 57.454534
-135.577765 57.453021
-135.584256 57.449802
-135.564006 57.441263
-135.548703 57.445179

Zone SEA223

945-1936

6

0.94

-135.55559 57.453387
-135.557775 57.45694
-135.558554 57.464775
-135.527399 57.462536
-135.529706 57.443737
-135.546782 57.447968
-135.55559 57.453387

Zone SEA224

945-1936

6

0.96

-135.558554 57.464775
-135.55466 57.478484
-135.531034 57.477785
-135.527399 57.462536
-135.558554 57.464775

Zone SEA225

945-1936

6

0.97

-135.55466 57.478484
-135.559073 57.493726
-135.537784 57.492747
-135.530513 57.484075
-135.531034 57.477785
-135.55466 57.478484

Zone SEA226

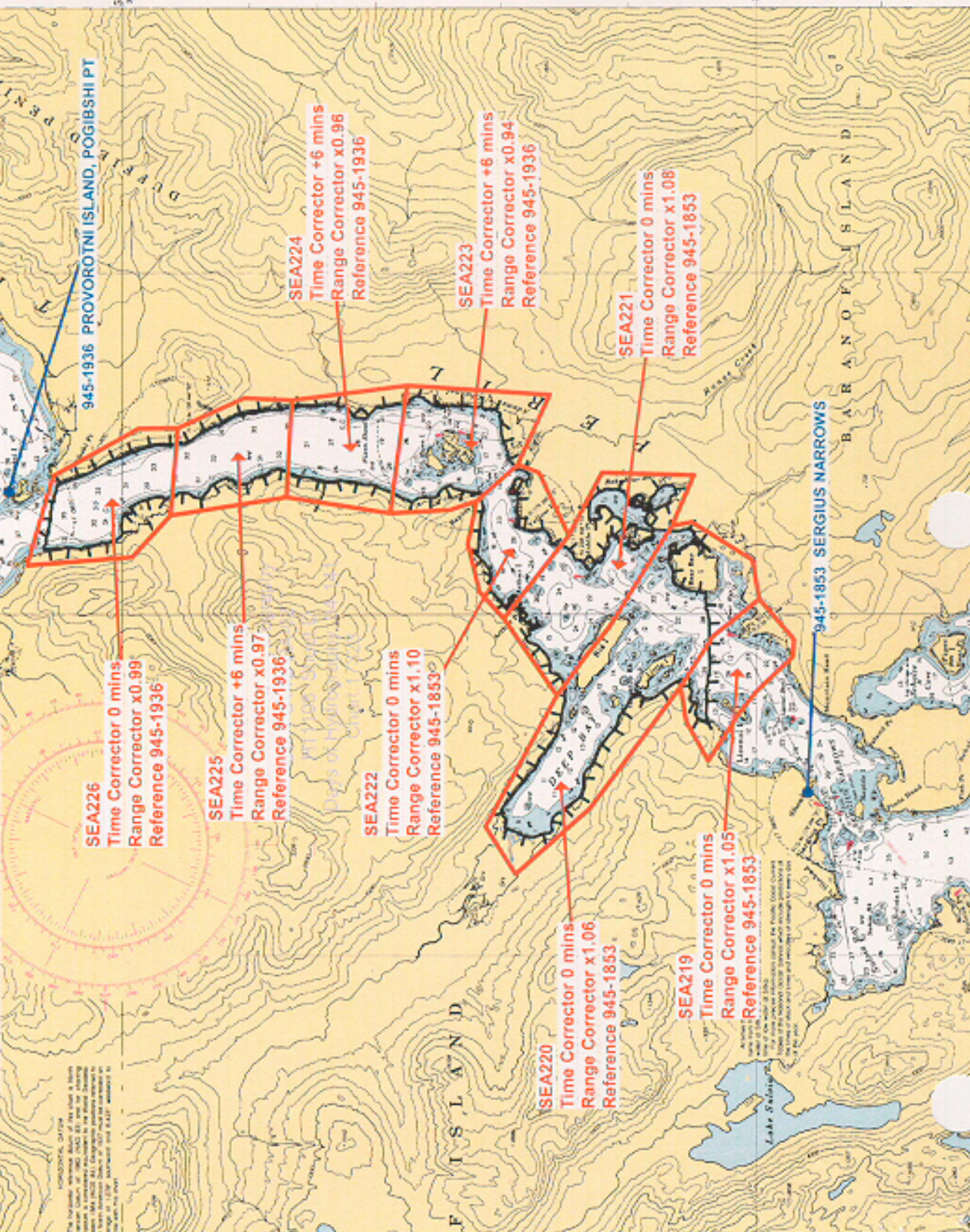
945-1936

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0.99

-135.537784 57.492747
-135.537977 57.497959
-135.549428 57.509099
-135.571262 57.512555
-135.569228 57.498756
-135.559073 57.493726
-135.537784 57.492747

Final Tide Zoning for OPR-0112-RA-2002 Sheet H11108 Sitka, AK

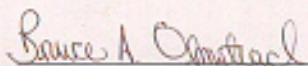


The hydrographic information shown on this chart is from the Hydrographic Survey of the United States Coast and Geodetic Survey, U.S. Navy, and the Hydrographic Survey of the United States Coast and Geodetic Survey, U.S. Navy, and the Hydrographic Survey of the United States Coast and Geodetic Survey, U.S. Navy.

APPROVAL SHEET
H11108


Initial Approvals:

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The survey records and digital data comply with NOS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.


Bruce Olmstead
Cartographic Team
Pacific Hydrographic Branch

Date: 1/11/2006

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


Donald W. Haines
CDR, NOAA
Chief, Pacific Hydrographic Branch

Date: 12 Jan. 2006

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H 11108

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
17323	12/01/05	Russ DAVIES	Full Part Before After Marine Center Approval Signed Via Full application Drawing No. of soundings, curves and features from the smooth sheet.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
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