H11168

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-40-02-02

Registry No. H-11168

LOCALITY

State ALASKA

General Locality SOUTH WEST PRINCE WILLIAM SOUND

Sublocality SOUTHERN ENTRANCE TO MONTAGUE STRAIT

2002

CHIEF OF PARTY
CAPT. J.C. GARDNER, NOAA

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H11168

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-40-02-02**

State **Alaska**

General Locality **South West Prince William Sound**

Sublocality **Southern Entrance to Montague Strait**

Scale **1:20,000** Date of Survey **June 30 - Sept. 4, 2002**

Instructions Date **July 9, 2003** Project No. **OPR-P139-RA-02**

Vessel **Noaa Ship Rainier, 2120 and Launches 2122, 2124, 2125, 2126**

Chief of Party **Capt. J.C. Gardner**

Surveyed by **RAINIER Personnel**

Soundings taken by echo sounder, hand lead, pole **Seabeam/Elac 1050D, 1180, Reson 8101,Knudsen 320M**

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.**

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 H11168

Project OPR-P139-RA-02
Southwest Prince William Sound, Alaska
Scale 1:40,000
June 30-September 4, 2002
NOAA Ship RAINIER
Chief of Party: Captain James C. Gardner, NOAA

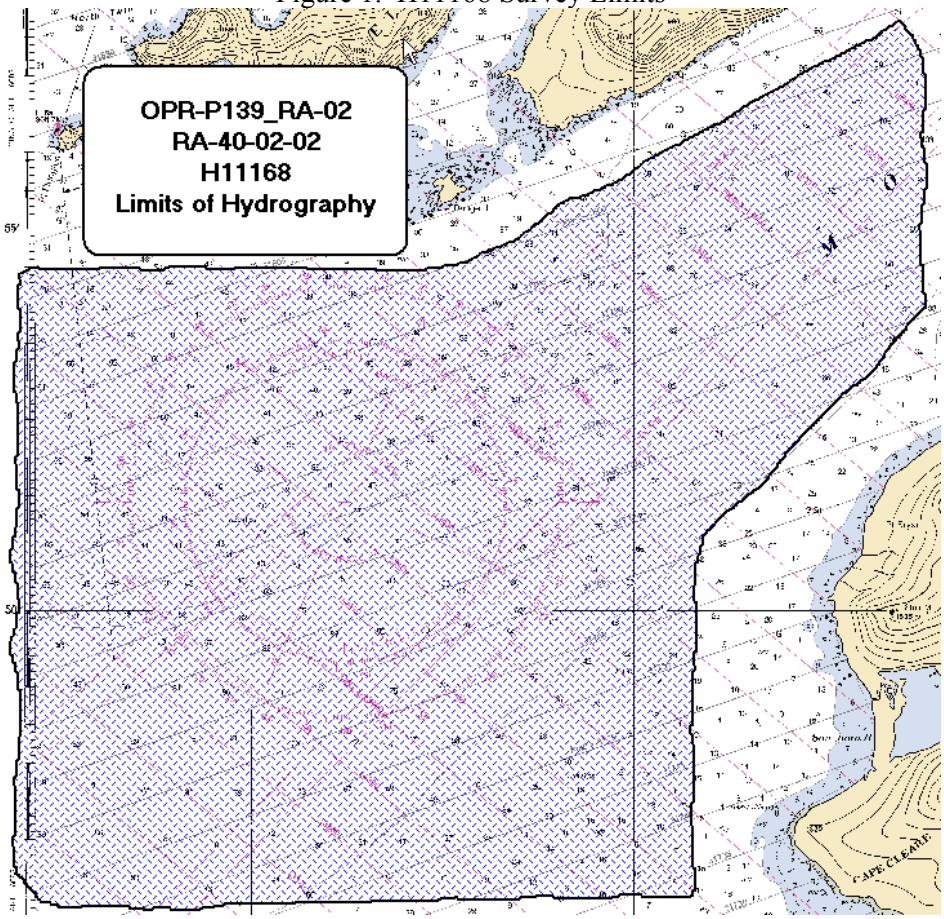
A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-P139-RA02, dated July 10, 2002, and the Standing Project Instructions dated May 15, 2002. The survey area is located in the southwest portion of Prince William Sound, Alaska. This survey area includes the southern entrance to Montague Strait. This survey corresponds to sheet "BD" in the sheet layout provided with the Letter Instructions.

One hundred percent shallow-water multibeam (SWMB) coverage was obtained in the survey area.[1]

Data acquisition was conducted from June 30 through September 4, 2002 (DN181-248).

Figure 1. H11168 Survey Limits



B. DATA ACQUISTION 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-P139-RA-02 Data Acquisition and Processing Report, 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 and her survey launches (vessel numbers 2120, 2122, 2124, 2125, and 2126. Vessels 2120, 2124, 2125 and 2126 were used to acquire shallow-water multibeam (SWMB) soundings and sound velocity profiles. Vessel 2122 was used to collect bottom samples.

B2. Quality Control

Crosslines

Shallow-Water Multibeam (SWMB) crosslines totaled 64.07 nautical miles, comprising 7.69% of SWMB hydrography. The Quality Control Report (CARIS HIPS) for the checkline file averaged 97.486% for launches 2124 and 2125 (RESON 8101 & 8125), 99.177% for launch 2126 (ELAC 1180), and 99.303% for the Rainier-2120 (ELAC 1050D), 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, as well as NOS Hydrographic Surveys Specifications and Deliverables Manual. See Appendix V for the detailed report.[2]

Junctions

The following contemporary surveys junction with H11168:

Registry #	Scale	Date	Junction side
H11105	1:40,000	2000	Northeast
H11007	1:10,000	2000	Northeast
H11012	1:10,000	2000	Northeast
H11008	1:10,000	2002	Southeast
H11167	1:10,000	2002	Northwest
H11166	1:10,000	2002	Northeast

Survey H11005 junctions well with this survey, with differences generally less than one fathom.[3]

Survey H11007 junctions well with this survey, with differences generally less than one fathom.[4]

Survey H11008 junctions well with this survey, with differences generally less than two fathoms.[5]

Survey H11012 junctions well with this survey, with differences generally less than two fathoms.[6]

Surveys H11167 and H11166 were not completed prior to submittal of survey H11168. Comparisons of the junction with these surveys will be discussed in the Descriptive Reports for H11167 and H11166. Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after the application of smooth tides.[7]

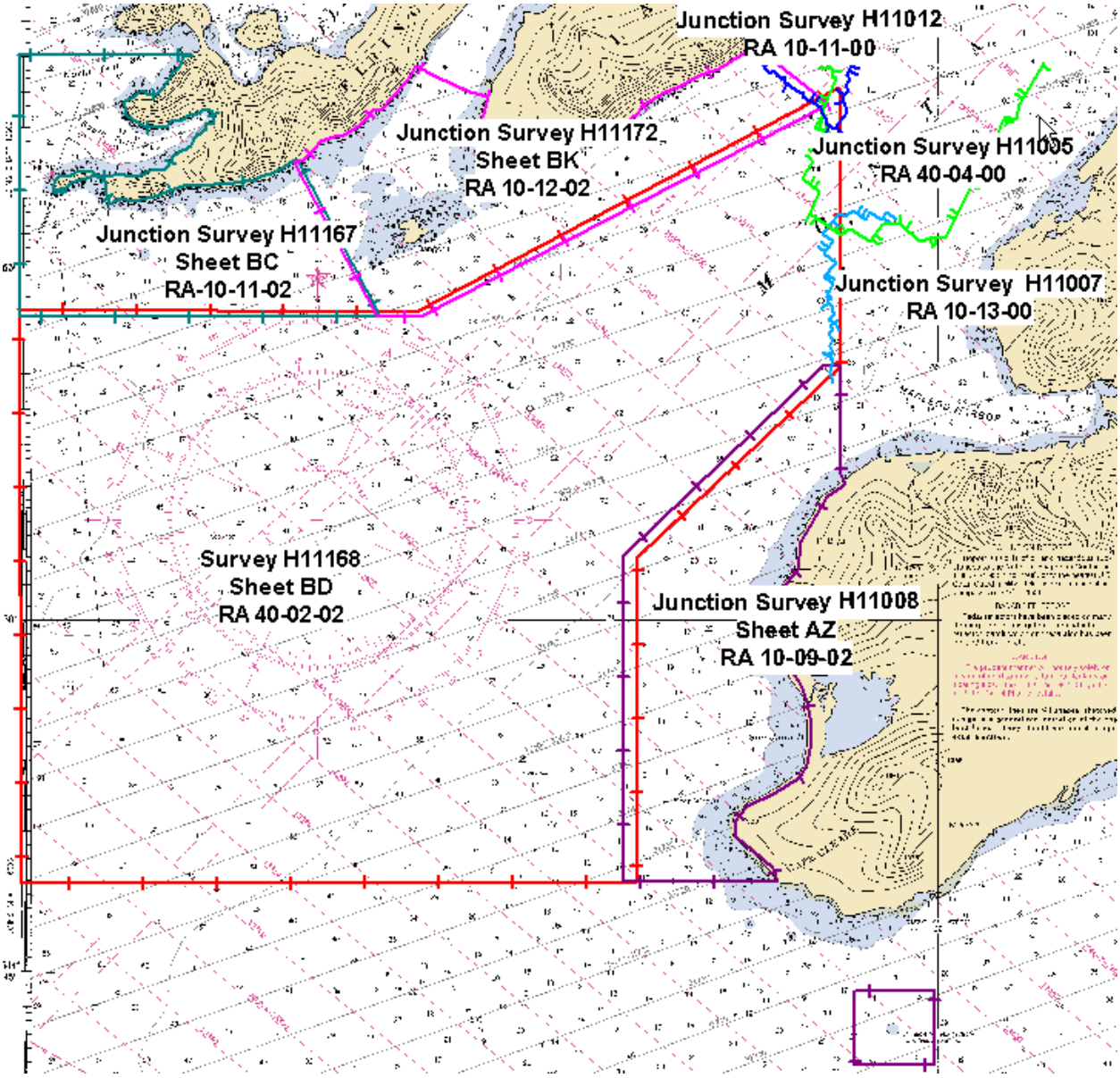


Figure 2. H11168 Junction Surveys

Data Quality Factors

Due to the prior loss of two CTDs, there was a shortage of equipment on the Rainier to take Sound Velocity casts. Because of this CTD shortfall, SV casts often had to be shared between launches that were not necessarily working in the same geographic area. After correction for sound velocity in HDCS, some lines still exhibited the characteristic "smiles" and "frowns" indicative of inaccurate sound velocity corrections. To correct these sound velocity problems, correctors were often applied based on the geographic position of the cast, rather than the time the cast was collected. Such application was performed on a line-by-line basis only on individual lines that exhibited profound sound velocity problems. Despite the best efforts of the Hydrographer to conduct sufficient sound velocity casts distributed both spatially and temporally, and to correct for sound velocity errors in post processing

through methods previously mentioned, sound velocity errors were still noticeable in several regions. To compensate, where possible, the Hydrographer rejected soundings obviously in error on the outer beams.

B3. Data Reduction

Data reduction for survey H11168 conforms to those detailed in the OPR-P139-RA-02 Data Acquisition and Processing Report with the exception of vessel RA6.[8]

The firmware on the TSS inertial motion sensor was changed over the 2001/2002 winter inport and the sign was reversed on the analog input. This affected only the ELAC 1180 data on RA6 through DN 228. The heave value for the ELAC 1180 data was corrected in post processing through the Pydro utility program "Postacquisitiontools".

C. VERTICAL AND HORIZONTAL CONTROL

A complete description of vertical and horizontal control for survey H11168 can be found in the OPR-P139-RA-02 Horizontal and Vertical Control Report, 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 beacons at Cape Hinchenbrook (292 kHz) and Potato Point (298 kHz) were utilized during this survey. Launch-to-launch DGPS performance checks were performed weekly in accordance with Section 3.2 of the FPM. Copies of the performance checks are included in the OPR-P139-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 Cordova, AK (945-4050) served as control for datum determination and as the primary source for water level reducers for survey H11168.

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
Latouche	945-4713	30-day	June 30, 2002	September 11,2002
Point Elrington	945-4814	30-day	June 30, 2002	September 8, 2002
Bainbridge Pt.	945-4755	30-day	August 9, 2002	September 9, 2002
Guguak	945-4751	30-day	August 6, 2002	September 12, 2002

Data from the primary tide station at Cordova 9454050 were used to create the observed tide file "9454050.tid". This observed tide file and the zone definition file "P139RA2002CORP.zdf" were used to apply tide correctors to all data.

The Pacific Hydrographic Branch will apply final approved (smooth) tides [9] to the survey data during final processing. A request for delivery of final approved (smooth) tides for survey H11168 was forwarded to N/OPS1 on September 16, 2002 in accordance with FPM 4.8. A copy of the request is included in Appendix IV.[10]

D. RESULTS AND RECOMMENDATIONS

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

No automated wreck and obstructions (AWOIS) are located within the limits of H11168.[11]

D.2 Chart Comparison [12]

Survey H11168 was compared with chart 16701 (17th Ed.; July 28, 1998, 1:81,436) and chart 16702 (10th Ed.; June 13, 1998, 1:40,000).[13]

Chart 16701

Depths from survey H11168 were generally two to five fathoms shoaler than depths on chart 16701[14]. The southwestern and northwestern corners showed the most extreme differences with some soundings as much as 10 fathoms shoaler.[15] In many instances, this survey also found shoaler soundings between charted soundings even though agreement at the position of the charted depths was good.[16] This may be attributed to increased bottom coverage using SWMB methods, but is more likely due to significant uplift from the 1964 Alaska earthquake.[17]

Chart 16702

Depths from survey H11168 generally agreed with depths on chart 16702 with the exception of a few soundings on the northwestern border of the sheet.[18] These soundings were between two and five fathoms shoaler than charted depths.

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.[19]

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

D.3 Shoreline

There is no shoreline within the limits of survey H11168.[21]

D.4 Dangers to Navigation

Fourteen dangers to navigation were found and reported to the Mapping and Charting Division for verification and final submission to the Seventeenth Coast Guard District on September 23, 2002. A copy of the preliminary Danger to Navigation Report is included in Appendix I[22]. A copy of the final report will be inserted by PHB following verification and submission to the U.S Coast Guard.[23]

D.5 Aids to Navigation

No aids to navigation (ATONs) are located within the limits of H11168.[24]

D.6 Miscellaneous

Bottom samples were collected and are depicted on the Detached Position and Bottom Sample Plot. Current bottom samples varied significantly from those depicted on the chart. This may be attributed to the aforementioned uplift from the 1964 Alaska earthquake.[25]

Due to the significant uplift at the south end of Montague Island, the hydrographer recommends that the area to the southeast of this survey be given a high priority for surveying to update the nautical chart.[26]

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 2002.

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 H11168 is complete and adequate to supersede charted soundings in their common areas. No additional work is required for this survey.[27]

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

Title	Date Sent	Office
Data Acquisition and Processing Report for OPR-P139-RA-02	1 October, 2002	N/CS34
Horizontal and Vertical Control Report for OPR-P139-RA-02	12 February, 2003	N/CS34
Tides and Water Levels Package for OPR-P139-RA-02	12 December, 2002	N/OPS1
Coast Pilot Report for OPR-P139-RA-02	TBD	N/CS26

Approved and Forwarded: James C. Gardner 3-6-03

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: Marsha L. Parsons

Marsha L. Parsons
Senior Survey Technician, NOAA

Field Operations Officer:

Richard A. Fletcher
Lieutenant Commander, NOAA

Revisions Compiled During Office Processing and Certification

[1] Concur

[2] Filed with the hydrographic records.

[3] Concur

[4] Concur

[5] Concur

[6] Concur

[7] SurveysH11167 and H11166 are in office processing and have smooth tides applied. The junctions were made and are excellent. Differences of less than 1 fathom were observed. A "joins" note is placed in the junction area.

[8] Concur

[9] See attached tide note dated October 24, 2003.

[10] Filed with the hydrographic records.

[11] Concur

[12] A prior survey comparison was not completed by PHB. The survey area was fully ensonified using 100% multibeam. The survey is adequate to supercede all prior surveys within the common area.

[13] Survey H11168 was compared with charts 16701, 20th Edition, dated Sept.1, 2004 and chart 16702, 11th Edition, dated July 1, 2003.

[14] Concur

[15] Concur

[16] Concur

[17] Concur

[18]Concur

[19] Concur

[20] With the application of smooth tides, no changes to the comparison were noticed. This survey is adequate to supersede all charted soundings within the common area.

[21] Concur

[22] Attached to this report.

[23] The preliminary danger to navigation letter was checked and was forwarded to the U.S. Coast Guard without any changes. No other dangers were discovered during office processing.

[24] Concur

[25] It is recommended that the charted bottom samples be superseded by the samples collected during survey H11168.

[26] Concur

[27] Concur

Hydrographic Survey Registry Number: H11168

Survey Title: State: Alaska
Locality: Southwest Prince William Sound
Sub-locality: Southern Entrance to Montague Strait

Project Number: OPR-P139-RA-02

Survey Dates: June 30 - September 5, 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
16701	1:81,436	18th	March 9, 2002
16702	1:40,000	10th	June 13, 1998

DANGERS TO NAVIGATION:

Feature	Depth(fms)	Latitude	Longitude
Shoal	3.8	59/54/09.4	148/14/22.5
Shoal	9.7	59/54/20.1	148/13/47.1
Shoal	10.1	59/54/05.2	148/13/38.5
Shoal	6.0	59/48/04.7	147/58/45.1
Shoal	6.2	59/47/37.4	147/58/54.2
Shoal	6.5	59/47/50.9	147/59/15.8
Shoal	8.6	59/48/38.6	147/58/48.0
Shoal	8.5	59/48/10.2	147/59/25.5
Shoal	8.8	59/47/54.4	148/00/08.8
Shoal	7.2	59/47/30.5	147/59/54.9
Shoal	8.1	59/47/14.6	147/59/23.9
Shoal	10.0	59/46/47.3	148/02/01.0
Shoal	9.0	59/46/32.9	147/59/03.7
Shoal	8.0	59/48/20.2	147/58/44.2

COMMENTS:

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: October 24, 2003

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-P139-RA-2002
HYDROGRAPHIC SHEET: H11168 (Revised)

LOCALITY: Southern Entrance to Montague Strait, Alaska
TIME PERIOD: June 30-September 5, 2002

TIDE STATION USED: 945-4050 Cordova, AK
Lat. 60° 33.4'N Lon. 145° 45.3'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.559 meters

TIDE STATION USED: 945-4713 LaTouche, AK
Lat. 60° 03.3'N Lon. 147° 54.4'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.255 meters

TIDE STATION USED: 945-4814 Point Elrington, AK
Lat. 59° 56.4'N Lon. 148° 13.8'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.005 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: CA133, CA134, PWS18, PWS19, PWS20 & PWS21.

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 **new 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 files. For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data are not available.

Thomas M. Meus 10/24/03

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

Final tide zone node point locations for OPR-P139-RA-2002, H11168 (Revised)

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 CA133	945-4814	0	0.98
	945-4713	0	0.90
	945-4050	-6	0.81
-147.929815 59.782623			
-148.655827 59.530663			
-148.603903 59.224053			
-148.703502 59.019171			
-148.321708 58.755213			
-148.087103 58.942309			
-147.853081 59.199026			
-147.734568 59.418061			
-147.816056 59.639479			
-147.929815 59.782623			
Zone CA134	945-4814	0	0.98
	945-4713	0	0.90
	945-4050	-6	0.81
-148.655827 59.530663			
-147.929815 59.782623			
-148.046435 59.859656			
-148.249602 59.93478			
-148.445818 59.954138			
-148.463554 60.035154			
-148.996033 60.050061			
-149.070356 59.957131			
-148.826452 59.763477			
-148.655827 59.530663			
Zone PWS18	945-4814	0	1.01
	945-4713	0	0.92
	945-4050	-6	0.84

-147.891299 59.856319
-147.959905 59.90201
-148.039826 59.940341
-148.101438 59.961313
-148.162288 59.945242
-148.071736 59.911068
-147.992521 59.877344
-147.897663 59.822389
-147.891299 59.856319

Zone PWS19	945-4814	0	0.98
	945-4713	0	0.90
	945-4050	-6	0.82

-148.249602 59.93478
-148.23717 59.938853
-148.202462 59.937466
-148.162288 59.945242
-148.071736 59.911068
-147.992521 59.877344
-147.897663 59.822389
-147.885989 59.791454
-147.929815 59.782623
-148.046435 59.859656
-148.249602 59.93478

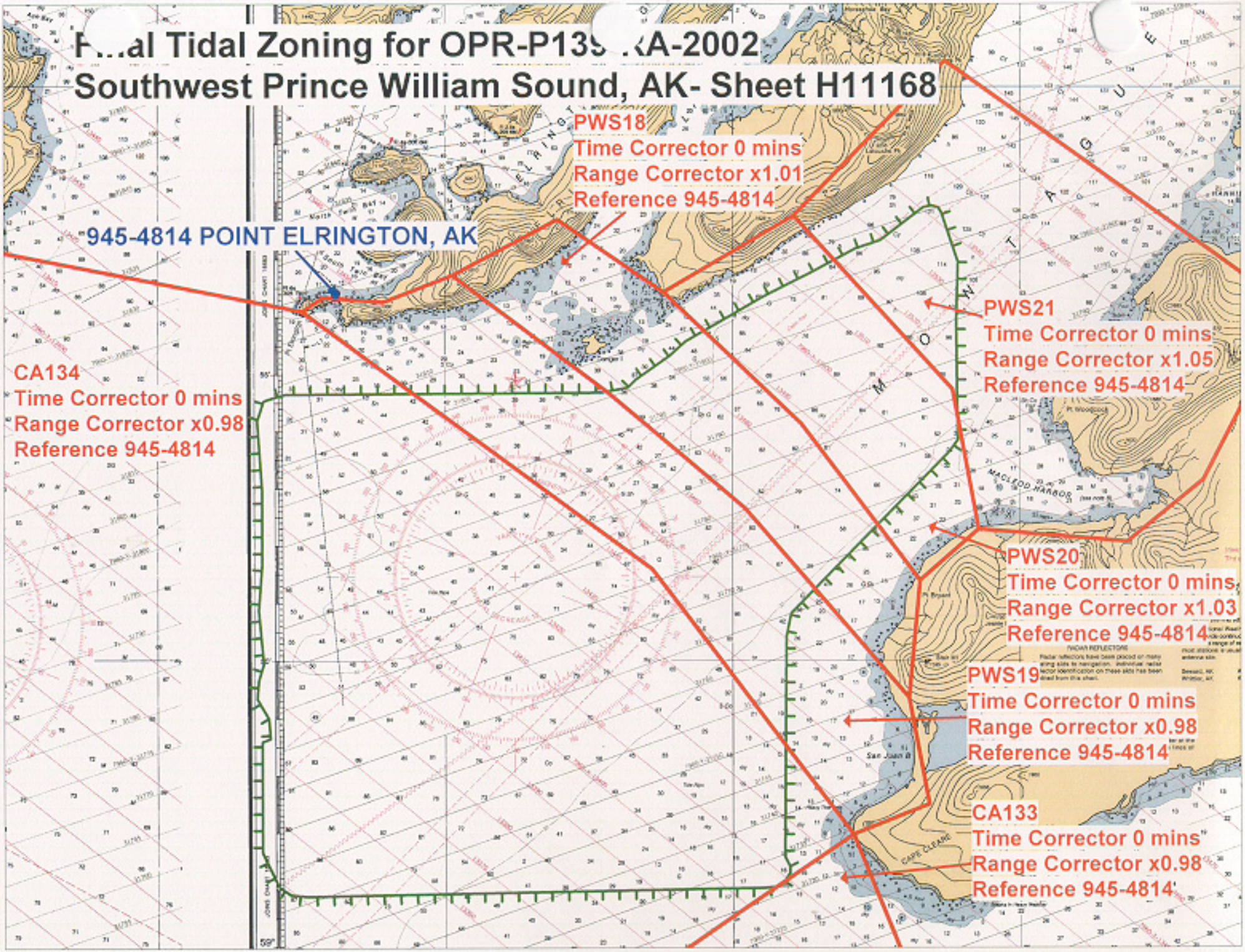
Zone PWS20	945-4814	0	1.03
	945-4713	0	0.94
	945-4050	-6	0.86

-147.891299 59.856319
-147.85719 59.871259
-147.872402 59.912061
-147.964395 59.962459
-148.039826 59.940341
-147.959905 59.90201
-147.891299 59.856319

Zone PWS21	945-4814	0	1.05
	945-4713	0	0.97
	945-4050	-6	0.88

-147.964395 59.962459
-147.877111 60.007383
-147.675836 59.935476
-147.726997 59.885609
-147.77106 59.86761
-147.85719 59.871259

-147.872402 59.912061
-147.964395 59.962459


Final Tidal Zoning for OPR-P135-KA-2002
Southwest Prince William Sound, AK- Sheet H11168
PWS18
Time Corrector 0 mins
Range Corrector x1.01
Reference 945-4814
945-4814 POINT ELRINGTON, AK
PWS21
Time Corrector 0 mins
Range Corrector x1.05
Reference 945-4814
CA134
Time Corrector 0 mins
Range Corrector x0.98
Reference 945-4814
PWS20
Time Corrector 0 mins
Range Corrector x1.03
Reference 945-4814
PWS19
Time Corrector 0 mins
Range Corrector x0.98
Reference 945-4814
CA133
Time Corrector 0 mins
Range Corrector x0.98
Reference 945-4814

APPROVAL SHEET
H11168

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.

Gary L. Nelson Date: 4 Feb 2005

Gary Nelson
Cartographic Team
Pacific Hydrographic Branch

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.

, LCDR/NOAA Date: 5 FEB 2005

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

Kyle R. Ward

Digitally signed by Kyle R. Ward
DN: CN = Kyle R. Ward, C = US,
O = HSD, OU = OPS
Reason: AWOIS and SURF check
Date: 2005.03.08 14:40:36 -05'00'