

H10779

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-10-29-97  
Registry No. .... H-10779

### LOCALITY

State ..... Alaska  
General Locality ..... Northwest Prince William Sound  
Sublocality ..... Blue Fiord and Derickson Bay

1997

CHIEF OF PARTY  
CAPT Alan D. Anderson, NOAA

### LIBRARY & ARCHIVES

DATE ..... NOV 30 1998

HYDROGRAPHIC TITLE SHEET

H-10779

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-10-29-97

State Alaska

General locality Northwest Prince William Sound

Locality Blue Fiord and Derickson Bay

Scale 1:10,000 Date of survey Sept. 18 to Oct. 30, 1997

Instructions dated 8/27/97, Change #1 9/24/97 Project No. OPR-P125-RA

Vessel NOAA Ship RAINIER Launches (2121), (2122), (2123), (2124), (2125), (2126)

Chief of party CAPT Alan D. Anderson, NOAA

Surveyed by CAPT A. Anderson, LT G. Noll, LCDR D. Kruth, LT S. Lemke, LT K. Bailey, LT D. Baird, LTJG L. Krepp, ST K. Callahan, ST J. Creech, ST J. Ruhland

Soundings taken by echo sounder, hand lead, pole DSF-6000N, Kundsens 320M

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: R. Davies Automated plot by HP Design Jet 650C

Verification by R. Davies, M. Bigelow, R. Mayor

Soundings in fathoms ~~feet~~ at ~~M&W~~ MLLW and tenths

REMARKS: Time in UTC, revisions and marginal notes in black were generated during office processing. All separates are filed with the hydrographic data, as a result page numbering may be interrupted or non-sequential.

All depths listed in this report are referenced to mean lower low water unless otherwise noted.

*Surf & Awaits 9/3/98 mcr*

**PROGRESS SKETCH**

OPR-P125-97

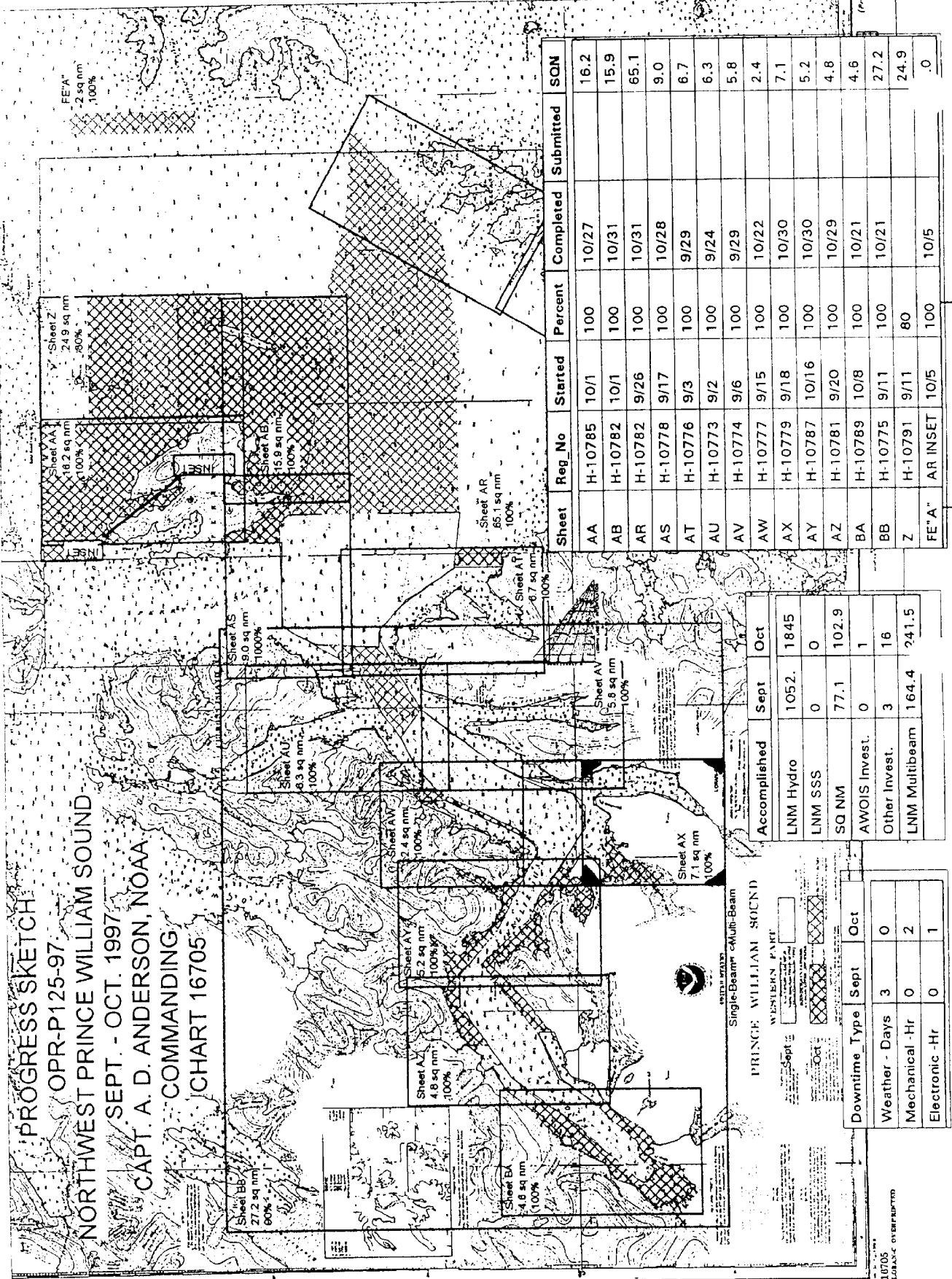
NORTHWEST PRINCE WILLIAM SOUND

SEPT. - OCT. 1997

CAPT. A. D. ANDERSON, NOAA

COMMANDING

CHART 16705



Sheet	Reg No	Started	Percent	Completed	Submitted	SON
AA	H-10785	10/1	100	10/27		16.2
AB	H-10782	10/1	100	10/31		15.9
AR	H-10782	9/26	100	10/31		65.1
AS	H-10778	9/17	100	10/28		9.0
AT	H-10776	9/3	100	9/29		6.7
AU	H-10773	9/2	100	9/24		6.3
AV	H-10774	9/6	100	9/29		5.8
AW	H-10777	9/15	100	10/22		2.4
AX	H-10779	9/18	100	10/30		7.1
AY	H-10787	10/16	100	10/30		5.2
AZ	H-10781	9/20	100	10/29		4.8
BA	H-10789	10/8	100	10/21		4.6
BB	H-10775	9/11	100	10/21		27.2
Z	H-10791	9/11	80			24.9
FE"A"	AR INSET	10/5	100	10/5		0

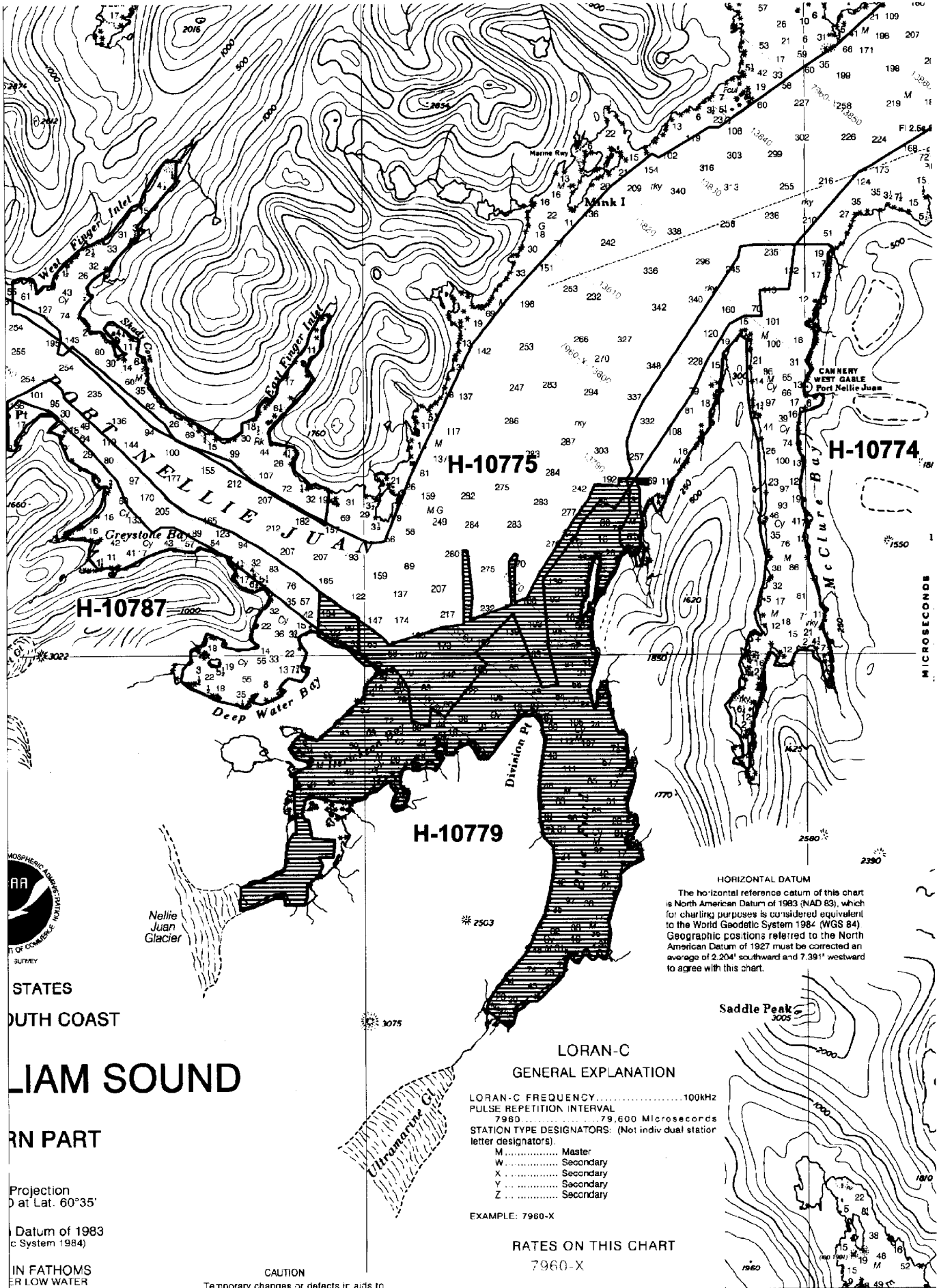
Accomplished	Sept	Oct
LNM Hydro	1052.	1845
LNM SSS	0	0
SQ NM	77.1	102.9
AWOIS Invest.	0	1
Other Invest.	3	16
LNM Multibeam	164.4	241.5

Downtime Type	Sept	Oct
Weather - Days	3	0
Mechanical - Hr	0	2
Electronic - Hr	0	1

PRINCE WILLIAM SOUND  
Single-Beam & Multi-Beam

WESTERN PARTY  
Sept  Oct





UNITED STATES  
SOUTHERN COAST  
GREENLAND  
SOUTHERN PART

Projection  
at Lat. 60°35'  
Datum of 1983  
Geodetic System 1984  
DEPTHS IN FATHOMS  
FOR LOW WATER

Nellie Juan Glacier

H-10775

H-10774

H-10787

H-10779

HORIZONTAL DATUM  
The horizontal reference datum of this chart is North American Datum of 1983 (NAD 83), which for charting purposes is considered equivalent to the World Geodetic System 1984 (WGS 84). Geographic positions referred to the North American Datum of 1927 must be corrected an average of 2.204' southward and 7.391' westward to agree with this chart.

LORAN-C  
GENERAL EXPLANATION

LORAN-C FREQUENCY.....100kHz  
PULSE REPETITION INTERVAL  
7960.....79,600 Microseconds  
STATION TYPE DESIGNATORS: (Not individual station letter designators).  
M.....Master  
W.....Secondary  
X.....Secondary  
Y.....Secondary  
Z.....Secondary

EXAMPLE: 7960-X

RATES ON THIS CHART  
7960-X

CAUTION  
Temporary changes or defects in aids to navigation

MICROSECONDS

## Descriptive Report to Accompany Hydrographic Survey H-10779

Field Number RA-10-29-97

Scale 1:10,000

September-October 1997

**NOAA Ship RAINIER**

Chief of Party: Captain Alan D. Anderson, NOAA

### A. PROJECT ✓

This basic hydrographic survey was completed in Northwest Prince William Sound as specified by Project Instructions OPR-P125-RA dated August 27, 1997 and change number 1, dated September 24, 1997. Survey H-10779 corresponds to sheet AX as defined in the sheet layout. This survey will provide data to supersede surveys performed in 1961, 1948, and 1917. Requests for hydrographic surveys and updated charts in this area have been received from the Defense Mapping Agency, the U.S. Coast Guard, the Southwest Alaska Pilot's Association, cruise ship lines, and local fishermen.

### B. AREA SURVEYED ✓ *See Enac Report, section B*

The survey area is Blue Fiord and Derickson Bay. The survey's northern limit is latitude ~~60° 32' 00" N~~<sup>60° 31' 50" N</sup>. The survey's southern limit is ~~60° 25' 40" N~~<sup>60° 25' 50" N</sup>, the western limit is 148° 22' 50" W and the eastern limit is 148° 13' 40" W. Data acquisition was conducted from September 18 to October 30, 1997 (DN 261-303).

### C. SURVEY VESSELS ✓

Data were acquired by RAINIER and its survey launches as noted in the Survey Information Summary printout appended to this report.

### D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

All data were acquired and preliminary processing was accomplished using the Hydrographic Data Acquisition and Processing System (HDAPS). Using the sounding and shoreline data in MapInfo facilitated charted and prior survey comparisons. Final Detached Positions and Soundings based on predicted tides were saved in MapInfo 4.1 format. A complete listing of software for HDAPS is included in Appendix VI. \*

### E. SONAR EQUIPMENT

Neither Side Scan Sonar nor multi-beam echo sounder equipment were used on this survey.

*Concur*

\* Filed with the hydrographic data.

## F. SOUNDING EQUIPMENT ✓

The Raytheon DSF-6000N is a dual frequency (100 kHz, 24 kHz paper trace echosounder). Serial numbers are included on the headers of the daily Raw Master Printouts.\* No new problems, which affect survey data, were encountered. DSF-6000N soundings generally were acquired in meters using the High + Low, high frequency digitized setting, but in depths over 300 meters, low frequency was scanned in place of the high when the fathometer lost its high frequency trace. *Final plotted soundings have been shown on the smooth sheet, in fathoms*

## G. CORRECTIONS TO ECHO SOUNDINGS ✓

Four sound velocity casts were acquired within the survey limits as shown in the appended Survey Information Summary report. The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 219), calibrated December 15, 1996. Velocity correctors were computed using the PC programs SEACAT and VELOCITY, version 3.3 (1997), in accordance with Field Procedures Manual (FPM) section 2.4.3. Printouts of the sound velocity profile, data, and correctors used in field processing are included in the "Separates to be Included with Survey Data, IV. Sounding Equipment Calibrations and Corrections".\*

A static transducer depth was determined using FPM Fig 2.2 for vessels 2121, 2122, 2123, and 2125 in the spring of 1997. Settlement and squat correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2, using FPM Fig. 2.3, and are included with project data for OPR-P125-RA-97. The data for vessels 2121, 2122, and 2123 were collected in Shilshole Bay, Washington in March 1997. The data for 2124 and 2126 were collected in 1996. The data for vessel 2125 were collected in Young Bay, Alaska in March 1997. All offset tables\* contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset tables 1-6 correspond to the last digit of the vessel number. The offset tables are included with project data for OPR-P125-RA-97. The launches are not equipped with heave, roll and pitch sensors.

The Coastal and Estuarine Oceanography Branch (N/OES334) through N/CS31 provided predicted tides for the project on diskette for the Cordova, Alaska reference station (945-4050). HDAPS listings of the data used in generating tidal correctors are included in Appendix V\* of this report. Tidal correctors as provided in the project instructions for H-10779 are shown on the appended Survey Information Summary report, *attached to this report.*

Valdez, Alaska (945-4240) and Cordova, Alaska (945-4050) are the primary control stations for datum determination at all subordinate stations. RAINIER personnel installed Sutron 8200 tide gages at Applegate Island (945-4794) on September 1, 1997 and Blue Fiord (945-4818) on September 2, 1996. The gages were removed on October 30, 1997.

\* Filed with the hydrographic data

Refer to the Field Tide Notes and supporting data in Appendix V<sup>\*</sup> for individual gage performance and level closure information. This information has been forwarded to N/OES212 in accordance with HSG 50 and FPM 4.3. A request for approved tides was forwarded to N/OES23 in accordance with FPM 4.2.3. *Approved tide note, dated Feb 5, 1998 is attached to this report.*

The small bay between the head of Derickson Bay and the face of the Nellie Juan Glacier is connected to Derickson Bay by a narrow, shallow entrance. Numerous observations by the hydrographer at all stages of tide indicate that the tide datum inside is identical to the datum in Derickson Bay. Therefore an additional tide gage was not installed.

Use of Blue Fiord tide gage data is recommended for final datum reduction. *CONCURRED*

#### **H. CONTROL STATIONS** *See Eumc Report, section H*

The horizontal datum for this project is NAD 83. Station ROCK, recovered in 1996 and checked in 1997, was used to verify and establish local geodetic control for this survey. See the OPR-P125-RA-97 Horizontal Control Report for more information. *Control station list is attached to this report.*

#### **I. HYDROGRAPHIC POSITION CONTROL** *See Eumc Report, section I*

All soundings were positioned using differential GPS. Primary hydrographic control was based on a VHF differential reference station at ROCK and repeated on a second VHF frequency by the ship. Backup hydrographic control was based on the USCG beacons located at the Kenai Peninsula and Cape Hinchinbrook. Stations on Kodiak Island and Potato Point were also received in this area.

Launch-to-launch DGPS performance checks were performed in accordance with Section 3.4.4 of the FPM. Two observations of position were made from two different DGPS base stations while the launches were rafted together with their GPS antennae within 2-3 meters of each other. RAINIER also used SHIPDIM, version 2.2R (April 1996) with a Trimble Centurion P-code receiver and an Ashtech sensor (both differentially-corrected) to monitor the performance of the USCG Beacon. Periodic comparisons and occasional performance checks were logged with the SHIPDIM system. Some outliers were noted, but none indicated systematic or continuous errors in the beacons. The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-P125-RA-97.

#### **J. SHORELINE** *See Eumc Report, section J*

The shoreline manuscript from Coastal Mapping survey CM-92012 was supplied by N/CS341 in Standard Digital Data Exchange Format (SDDEF). The digital files from DM-10194 were projected to the survey grid with OPR-P125-RA-97 geodetic

*\* Filed with the hydrographic data*

parameters using program Shore version 2.0, provided by N/CS32, and plotted on the field sheets using HDAPS and MapInfo.

Limited shoreline verification was conducted in accordance with the Project Instructions. For this survey the general limit of safe navigation of a survey launch is 5-50 meters offshore of apparent low tide, generally 3-10 meters of depth at Mean Lower Low Water. Features shown on the SHORELINE FEATURES layer in the MapInfo workspace inshore of the NALL are the hydrographer's representation of the shoreline while slowly transiting along the shore, and are intended to aid chart compilation, and depict the area at survey scale.

Shoreline manuscript and field features were compared to an enlargement of chart 16705 BSB version. This raster image was registered in MapInfo and plotted at survey scale by RAINIER personnel for HDAPS sounding comparison. There was general agreement between the charted and manuscript shoreline and the shoreline that the hydrographer found on this survey. <sup>Concur</sup> Charted shoreline features that were not found on the manuscript were verified by field positions when offshore of the NALL. Discrepancies between charted and field shoreline should thus be resolved in favor of the manuscript shoreline and field work as shown on the final field Detached Position and Bottom Sample plot. <sup>Concur</sup> The following discrepancies between charted, prior and current survey shoreline features should be shown as portrayed in the "Detached Position and Bottom Sample" Mapinfo workspace. *Shoreline verification data has been analyzed during office processing and shown on the smooth sheet as warranted.*

One uncharted prior survey rock at  $60^{\circ} 29' 31.5''N$ ,  $148^{\circ} 14' 53.2''$  was searched for and not found. Lowwater verification and 25 m line spacing showed steep shoreline with no indication of this rock, however, the work is not considered a disproof because of poor water clarity. A number of charted rocks inshore of the NALL line were not verified or disproved. The hydrographer recommends continuing to chart these rocks. They are shown in blue and green on the DP Plot. <sup>Concur</sup> *Several rocks have been transferred to the smooth sheet from prior surveys conducted in 1961.*

Figure 1: Positioned Shoreline Features and/or shoreline rock disproofs.

Position numbers	Latitude	Longitude	Comment
20260--20261	$60^{\circ} 28' 56.8''$	$148^{\circ} 21' 33.2''$	Disproof: 10 minute search <i>Concur</i>
20263--20264	$60^{\circ} 28' 55.6''$	$148^{\circ} 21' 28.4''$	T-Sheet Rock (disproof) <i>Concur</i>
50020--50023	$60^{\circ} 28' 53.5''$	$148^{\circ} 18' 41.7''$	T-Sheet Reef (chart rock) <i>Concur</i>
20235	$60^{\circ} 28' 49.3''$	$148^{\circ} 18' 39.1''$	New Rock <i>chart rock (H)</i>
50009	$60^{\circ} 28' 52.0''$	$148^{\circ} 18' 08.2''$	New Rock <i>chart rock (H)</i>
Not Positioned, Charted rock should be charted as ledge	$60^{\circ} 29' 04.3''$	$148^{\circ} 18' 24.4''$	Rock is a charted version of new ledge off of the island <i>chart as rock due to scale</i>
40041 ✓	$60^{\circ} 27' 26.4''$	$148^{\circ} 14' 16.0''$	New Rock (4) <i>chart as rock</i>
20035 ✓	$60^{\circ} 28' 54.7''$	$148^{\circ} 14' 06.8''$	New Rock (4) <i>chart as me rock</i>
20034 ✓	$60^{\circ} 28' 55.4''$	$148^{\circ} 14' 08.8''$	New Rock (4) <i>due to scale</i>
20021 ✓	$60^{\circ} 30' 22.8''$	$148^{\circ} 14' 57.4''$	New Rock (6) <i>chart as rock</i>

\* This rock was brought forward from prior survey H-8595 (1961) at lat.  $60/29/31.5N$ , long.  $148/14/53.8W$ .



## K. CROSSLINES ✓

Crosslines agreed within 2 meters with mainscheme hydrography, [(XL 20516.4, DN267, VN2122, 80.4 fm) vs. (MS 40122.1, DN261, VN2124, 79.3 fm)], except in areas of steep bathymetry, where some variation was encountered. A total of 7.1 nautical miles of crosslines was run, comprising 7.2% of mainscheme hydrography.

## L. JUNCTIONS *See Enac Report, section L*

This survey junctions with the following 1997 surveys: RA-40-03-97, H-10775, 1:40,000 on the north, RA-10-33-97, H-10787, 1:10,000 on west, and RA-10-26-97, H-10774, 1:10,000 on the east. Soundings on these surveys were found to be in good agreement. Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after reduction to final vertical datum.

## M. COMPARISON WITH PRIOR SURVEYS *See Enac Report, section M*

Prior surveys H-8595, (1:10,000, 1961), H-8594, (1:10,000, 1961), H-7794 (1:40,000, 1948), and H-8606, (1:10,000, 1961) cover this survey. H-8595 covers the Blue Fiord portion, H-8594 covers Derickson Bay and the survey's eastern edge, H-7794 covers the northern edge, and H-8606 covers a small portion of the northeastern corner of the survey area. Shoreline comparisons are described in section J.

The present survey agrees fairly well with prior soundings. Shoaler depths were developed with denser sounding coverage. Depths from prior surveys H-8595 and H-7794 generally concurred with the current survey. (See figure 2). The current survey is from one to five fathoms deeper than H-8594. Depths from prior survey H-8594 had some discrepancies in areas where the zero fathom curve moved inshore 50 to 200 meters on the current survey. Two significant new nearby shoalings in the current survey were not found on the prior H-8594 main scheme line, indicating a definite change in the bottom characteristics of Derickson Bay. The hydrographer attributes the changes to a landslide possibly during the 1964 earthquake. It appears that a significant amount of material has moved downslope and across the bay up to 0.5 NM. (See figure 3). Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.

Figure 2: General depth comparisons.

H-8595 (fm)	H-10779 (fm)	Latitude (N)	Longitude (W)	Fix
18	17.86 ✓	60° 28' 26.1"	148° 14' 21.3"	20,174.3
46	45.46 ✓	60° 26' 52.3"	148° 15' 01.0"	20,095.7

H-8594 (fm)	H-10779 (fm)	latitude	longitude	fix
69	68.97 ✓	60° 28' 57.4"	148° 19' 36.5"	50,039.5
H-7794 (fm)	H-10779 (fm)	latitude	longitude	fix
280	281.63 ✓	60° 31' 02.3"	148° 16' 37.4"	20,545.2

Figure 3: Significant differences from priors. Depths developed in H-10779, (1:10,000, 1997).

Prior Survey	H-10779	Latitude	Longitude	Fix	Hydrographer's Findings
56 fm H-8594	34.4 fm ✓ 5	60° 28' 50.4"	148° 20' 51.4"	50,340.4	Current survey found an irregular feature with two high points.
54 fm H-8594	33.9 fm ✓ 5	60° 28' 48.1"	148° 20' 25.0"	50,346.3	
49 fm H-8594	53.6 fm ✓	60° 28' 49.0"	148° 20' 15.1"	50,081.3	Possible movement of above shoal or inaccurate prior position.
-0.5 fm H-8594	32.8 fm ✓ 9	60° 28' 40.3"	148° 21' 19.5"	50,131.5	Zero meter curve has <del>been</del> shifted inshore 200 m
0 fm H-8594	39.4 fm ✓ 5	60° 28' 31.5"	148° 20' 28.4"	50,091.8	Zero meter curve has <del>been</del> shifted inshore 200 m
0.4 fm H-8594	2 fm ✓ 1.9	60° 30' 03.1"	148° 14' 45.0"	50,237.0	Zero meter curve has shifted inshore 50 m <del>curve</del>
52 fm H-8594	56.9 fm ✓	60° 30' 03.1"	148° 15' 11.0"	50,235.1	Current survey is 1 to 5 fms deeper in vicinity <del>curve</del>

#### N. ITEM INVESTIGATIONS ✓

No Awois items were assigned to this survey. ~~Curve~~

#### O. COMPARISON WITH THE CHART

Chart 16705, 1:80,000, 16<sup>th</sup> edition, 8/24/96\* is the largest scale chart covering the survey area. H-10779 soundings are in general agreement with the chart. This survey found significant changes in most of the bottom of Derickson Bay. ~~Curve~~ Coastline was charted much shoaler than found in this survey, and two areas of significant shoaling were not shown on the chart, at weather at Latitude 60° 28' 48.1"N, Longitude 148° 20' 25.0"W, 33 fm SW) and The bay in front of Nellie Juan Glacier was uncharted, due to 1.3-2 km glacial retreat since the chart was compiled. This bay was surveyed within H-10779. ~~Curve~~

\* During office processing, survey H-10779 was compared with chart 16705 17<sup>th</sup> Ed., Sept. 27, 1997.

A detailed comparison of soundings can be found in Section M.

Non-sounding features are discussed in Section J. The charted rock in the small anchorage inlet at position  $60^{\circ} 28' 32.1''\text{N}$ ,  $148^{\circ} 19' 10.6''\text{W}$  is charted offshore of its position on the prior survey, which places it in the center of the inlet. That charted rock was not found during this survey. It is probable that the rock was moved for cartographic clarity, however it gives the impression to the mariner that the inlet is impassible. Given the importance of this inlet to recreational boaters, and the fact that the center of the inlet appears to be clear, it is recommended that this rock be removed from the chart at this scale or represented in some other fashion. *Do not remove, retain rock as charted.*

Final sounding comparisons will be made at PHB after reduction to final vertical datum.

### **Dangers to Navigation**

Two shoals, one northwest of Blue Fiord and one inside Blue Fiord, were reported to the Seventeenth Coast Guard District on November 21, 1997 as dangers to navigation. The fix position 60296.3 corresponds with a depth of  $3 \frac{1}{4}$  fm (6.2 m), at position Latitude  $60^{\circ} 28' 41.3''\text{N}$ , Longitude  $148^{\circ} 14' 16.1''\text{W}$ . On the junction, but well developed in adjoining survey H-10774, the fix position 40345.4 corresponds with a depth of  $3 \frac{1}{4}$  fm (3.5 depth) (6.2 m), at position Latitude  $60^{\circ} 31' 18''\text{N}$ , Longitude  $148^{\circ} 13' 57.4''\text{W}$ . Copies of the correspondence can be found in ~~Appendix I~~ of this report. \* 3.1 fm sounding after application of approved tides. Chart 3 bottom depth.

### **P. ADEQUACY OF SURVEY**

Survey H-10779 is complete and adequate to supersede prior soundings and features in their common areas. *Do not remove, see sections M and O of EURE Report.*

### **Q. AIDS TO NAVIGATION**

No navigational aids exist within the survey area. *CONCL*

### **R. STATISTICS**

Refer to the Survey Information Summary attached to this report.

### **S. MISCELLANEOUS**

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. No unusual tidal currents or magnetic variations were found during this survey. Secchi disk observations were not performed.

**T. RECOMMENDATIONS** ✓

The small bay in front of the Nellie Juan Glacier is known locally as the Nellie Juan Lagoon. See form 76-155 in the appendix to this report. *Not submitted with this report.*

The area of Western Prince William Sound is seeing increased pleasure craft traffic. It is recommended that the following information be added to the chart if possible.

The entrance to Nellie Juan Lagoon is boulder strewn at low tide, however it is navigable by small craft at higher stages of tide. Local knowledge is recommended. Numerous berg bits can be expected inside the lagoon.

A sheltered small boat anchorage is found inside the narrow inlet in Derickson Bay at Latitude 60° 28' 39.7"N, Longitude 148° 19' 16.5"W. A note on the chart, or an anchorage symbol would be useful to the mariner looking for shelter in this area. *Due to scale and the size of the inlet a note was not placed on the chart.*

**U. REFERRAL TO REPORTS** ✓

The following supplemental reports contain additional information relevant to this survey:

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
OPR-P125-RA Horizontal Control Report	November, 1997	N/CS34
OPR-P125-RA 1997 Coast Pilot Report	December, 1997	N/CS26
Project related data for OPR-P125-RA	Incremental	N/CS34

Respectfully Submitted,

Joan M. Ruhland  
Survey Technician, NOAA

Approved and Forwarded,

Alan D. Anderson  
Captain, NOAA  
Commanding Officer

# Survey Information Summary

**Project:** OPR-P125-97 **Project Name:** NORTHWEST PRINCE WILLIAM SOUND

**Instructions Dated:** 8/27/97 **Project Change Info:** **Change #** 1 **Dated** 9/24/97

**Sheet Letter:** AX **Registry Number:** H-10779

**Sheet Number:** RA-10-29-97

**Survey Title:** BLUE FIORD AND DERICKSON BAY

**Data Acquisition Dates:** **From:** 18-Sep-97 261 **To:** 30-Oct-97 303

## Vessel Usage Summary

VESNO	MS	SPLITS	DEV	XL	S/L	DP	BS	DIVE
2122	2	4	2	5	2	2		
2124	7	8	4	1	1	1		
2125	2	3	2	2	1	2	3	
2126	3		2					

## Sound Velocity Cast Information

Launch Table #	Ship Table #	Cast DN	Max Depth	Position	Applicable DN
2		260	632	60/35/30 148/10/20	263-267
4		277	979	60/35/09 147/44/27	279-292
6		300	597.7	60/43/45 147/50/30	302
7		303	610	60/33/20 148/13/21	303

## Tide Zone Information

Zone #	Time Corr.	Height Corr.
PWS40		X0.96

## Tide Gage Information

Tide Gage #	Gage Name	Installed	Removed
945-4794	APPLEGATE ISLAND	9/1/97	10/30/97
945-4818	BLUE FIORD	9/5/97	10/30/97

## Statistics Summary

Type	Total:	Percent XL:	7.2%
BS	30	SQNM:	7.1
DEV	30.38		
DP	9		
MS	144.74		
S/L	22		
SPLIT	48.17		
XL	10.42		



CONTROL STATIONS as of 12 Feb 1998 ✓

No	Type	Latitude	Longitude	H	Cart	Freq	Vel Code	MM/DD/YY	Station Name
1		060:14:18.000	146:38:48.000	0	0	0.0	0.0	04/06/96	CAPE HINCHINBROOK USCG BECON
2		060:27:20.117	148:39:54.333	0	0	0.0	0.0	10/01/97	DON DGPS
3		060:03:23.000	146:41:48.000	0	0	0.0	0.0	03/01/96	POTATO POINT USCG BEACON
4		060:39:13.513	147:58:26.500	18	0	0.0	0.0	00/00/00	ROCK



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
**Office of NOAA Corps Operations**  
**Pacific Marine Center**  
 1801 Fairview Avenue East  
 Seattle, Washington 98102-3767

NOAA Ship RAINIER  
 November 21, 1997

Commander (mon)  
 Seventeenth Coast Guard District  
 Post Office Box 25517  
 Juneau, Alaska 99802-5517

**ADVANCE  
 INFORMATION**

Dear CDR Hamblett:

The following dangers to navigation should be included in the Local Notice to Mariners. These features were positioned by the NOAA Ship RAINIER while conducting hydrographic surveys in western Prince William Sound, Alaska. The dangers are shown graphically on the two attached chartlets. They affect chart 16705, 16TH ED., 1996, 1:80,000, and chart 16700, 25TH ED., 1996, 1:200,000. All positions are on the NAD 83 datum and depths have been corrected to Mean Lower Low Water using predicted tides.

Feature Type	Depth (fm)	Latitude (N)	Longitude (W)	Position Number	Depth Meters	Survey Number
Rock	5.75	60:37:04.7	148:09:57.4	19077	10.9	H-10773
Rock	5.25	60:36:55.3	148:09:54.5	35885	9.6	H-10773
Rock	3.75	60:37:52.5	148:10:37.7	35886	7.2	H-10773
Shoal	3.25	60:31:18.0	148:13:57.4	40345+4	6.2	H-10774
Shoal	6.25	60:31:32.7	148:05:13.0	20631+5	11.7	H-10776
Shoal	8.25	60:32:01.1	148:04:03.8	40422+0	15.4	H-10776
Rock Awash	-0.25	60:31:49.7	148:20:14.6	2153	-0.3	H-10777
Rock Awash	-1.5	60:31:42.6	148:20:33.4	2183	-2.6	H-10777
Shoal	3.25	60:28:41.3	148:14:16.1	60296+3	5.9	H-10779
Shoal	6.5	60:44:17.0	147:56:55.0	20132+6	11.9	H-10785
Rock	2.5	60:44:29.0	147:56:10.7	20285+3	4.5	H-10785
Shoal	4.25	60:43:13.1	147:55:48.2	20325+5	7.7	H-10785
Rock	0.75	60:45:53.9	147:55:18.2	41053+0	1.7	H-10785
Rock	2.5	60:45:18.4	147:54:42.9	41130+3	5	H-10785
Rock	0.75	60:42:33.2	147:52:07.9	41231+0	1.5	H-10785
Shoal	5.5	60:43:43.8	147:56:17.1	41232+0	10.3	H-10785
Rock	3.5	60:43:48.5	147:56:23.9	60262+3	6.6	H-10785
Shoal	5.5	60:43:29.7	147:55:56.3	60350+3	10.1	H-10785
Rock	0.25	60:42:56.0	147:55:48.4	60485+0	0.8	H-10785
Rock	3.75	60:39:23.2	147:46:35.0	16246	7	H-10786
Rock	1.5	60:40:37.2	147:44:57.2	18846	3.3	H-10786
Rock	2.5	60:40:28.4	147:44:50.5	18944	4.6	H-10786
Shoal	8.5	60:40:14.5	147:46:59.1	19596	15.7	H-10786
Rock Awash	0	60:40:09.9	147:53:47.9	20248	0.2	H-10786
Rock	2.5	60:41:05.1	147:45:45.7	21266	4.8	H-10786
Shoal	7.25	60:40:50.5	147:50:44.1	21310	13.7	H-10786
Rock	5.25	60:39:45.0	147:51:14.9	54206	9.5	H-10786



**ADVANCE  
INFORMATION**

Feature Type	Depth (fm)	Latitude (N)	Longitude (W)	Position Number	Depth Meters	Survey Number
Rock	0.75	60:39:55.5	147:53:18.5	55197	1.7	H-10786
Rock Awash	-0.25	60:39:06.9	147:55:54.7	58138	-0.3	H-10786
Rock	6.5	60:39:18.9	147:55:12.0	58193	12.3	H-10786
Shoal	5.5	60:39:57.9	147:54:08.2	59548	10.4	H-10786
Rock	1.5	60:40:18.9	147:54:26.2	60113	2.7	H-10786
Shoal	6.25	60:40:10.4	147:54:42.7	90005	11.4	H-10786
Shoal	4.5	60:40:03.5	147:55:29.7	90007	8.6	H-10786
Rock	2.25	60:39:27.0	147:53:18.3	90010	4	H-10786
Rock	2.5	60:39:53.9	147:51:28.5	90011	4.5	H-10786
Rock	2.5	60:40:33.8	147:46:14.5	90013	4.6	H-10786
Shoal	3.5	60:32:46.5	148:21:55.1	20055+8	6.6	H-10787
Rock	1.25	60:34:32.2	148:26:08.8	61567+1	2.2	H-10787
Shoal	3.25	60:30:56.7	148:22:32.8	61679+3	5.8	H-10787
Shoal	8.75	60:41:56.2	147:43:54.7	20247+9	16.1	H-10791
Shoal	7.25	60:42:44.2	147:43:44.3	20468+3	13.5	H-10791
Rock	4	60:41:11.4	147:49:47.6	20578+3	7.4	H-10791
Rock	2.25	60:41:45.0	147:50:30.2	20630+3	4.2	H-10791
Rock Awash	-0.25	60:42:01.6	147:45:02.1	40244+0	-0.6	H-10791
Shoal	5.25	60:41:17.1	147:45:30.0	40323+2	9.8	H-10791
Shoal	6.5	60:42:08.6	147:44:06.5	40336+8	12.3	H-10791
Rock	1	60:42:02.5	147:44:41.2	40393+3	1.9	H-10791
Shoal	3.5	60:46:25.1	147:48:31.9	40459+1	6.5	H-10791
Shoal	3.25	60:44:25.0	147:49:08.0	41125+5	6.2	H-10791
Rock	0.5	60:44:49.6	147:49:02.6	41455+4	1.3	H-10791
Shoal	7.5	60:46:30.0	147:48:11.8	60637+6	13.8	H-10791

This is advance information subject to office review. Questions concerning this letter should be directed to the Chief, Pacific Hydrographic Branch, (206) 526-6835. Refer to survey project OPR-P125-RA-97 and Danger to Navigation message RA-7-97. More information on current RAINIER survey projects may be obtained by e-mail; contact the Field Operations Officer at FOO.RAINIER@NOAA.GOV.

Sincerely,

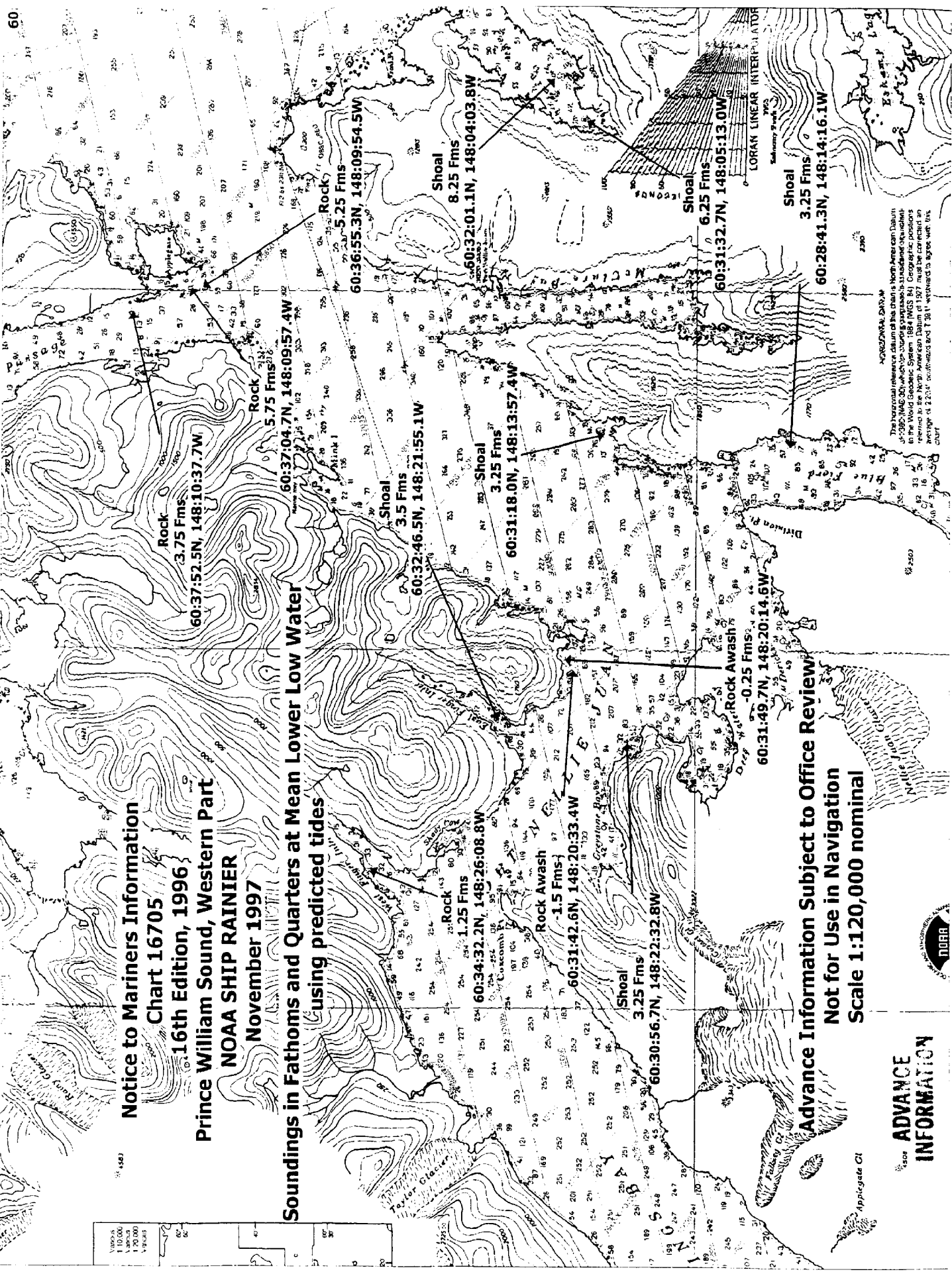


Alan D. Anderson  
Captain, NOAA  
Commanding Officer

Attachment

cc: NIMA  
PMC  
N/CS261  
N/CS34





**Notice to Mariners Information**  
**Chart 16705**  
**16th Edition, 1996**  
**Prince William Sound, Western Part**  
**NOAA SHIP RAINIER**  
**November 1997**

**Soundings in Fathoms and Quarters at Mean Lower Low Water**  
**using predicted tides**

**Advance Information Subject to Office Review**  
**Not for Use in Navigation**  
**Scale 1:120,000 nominal**

**ADVANCE INFORMATION**



The horizontal reference datum of this chart is North American Datum of 1983 (NAD 83), which is based on the geocentric datum of the Earth. The vertical datum is based on the North American Datum of 1983. The chart is based on a datum of 2.234' southward and 3.81' westward to agree with this chart.



APPROVAL SHEET

for


H-10779

RA-10-29-97

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Guidelines; and the 1994 version of the Field Procedures Manual in producing this survey. The data were examined daily during data acquisition and processing.

The field sheet and accompanying records have been reviewed by me and 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.

Approved and forwarded,

  
Alan D. Anderson  
Captain, NOAA  
Commanding Officer  
NOAA Ship RAINIER



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SERVICE

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

DATE: February 5, 1998

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-P125-RA-97  
HYDROGRAPHIC SHEET: H-10779

LOCALITY: Northwest Prince William Sound, AK

TIME PERIOD: Sep 18 - Oct 30, 1997

TIDE STATION USED: 945-4794 Applegate Island  
Lat. 60° 37.4'N Lon. 148° 09.9'W  
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.385 meters

TIDE STATION USED: 945-4818 Blue Fjord  
Lat. 60° 29.5'N Lon. 148° 14.7'W  
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.407 meters

TIDE STATION USED: 945-4951 Kings Bay Inside  
Lat. 60° 27.4'N Lon. 148° 39.9'W  
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.418 meters

REMARKS: RECOMMENDED ZONING  
Use zone(s) identified as: PWS39 & PWS40  
Refer to attachments for zoning information.

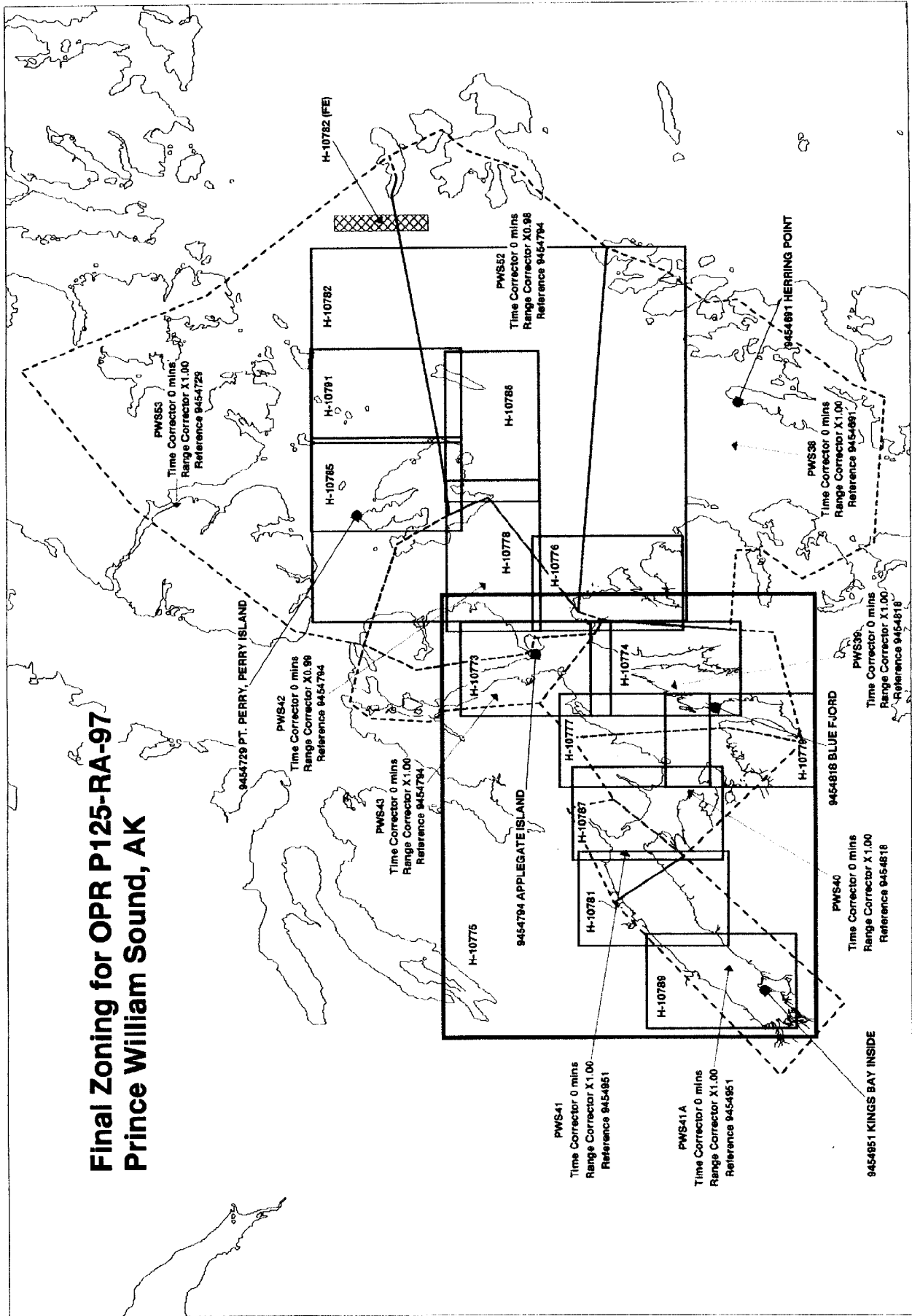
Note 1: Provided time series data are tabulated in metric units (Meters), relative to MLLW and on Greenwich Mean Time.

Note 2: Use tide data from the appropriate station 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. All zones within a survey sheet may not have the same order of applicable tide stations.

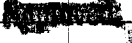
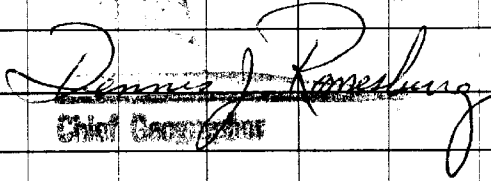
-----  
*B.S.G.*  
CHIEF, OPERATIONAL ANALYSIS BRANCH



# Final Zoning for OPR P125-RA-97 Prince William Sound, AK



NOAA FORM 76-155 (11-72)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION					SURVEY NUMBER H-10779					
GEOGRAPHIC NAMES												
Name on Survey	<small>           A ON CHART NO. 16700, 16705            B ON PREVIOUS SURVEY NO.            C ON U.S. QUADRANGLE MAPS            D FROM LOCAL INFORMATION            E ON LOCAL MAPS            F P.O. GUIDE OR MAP            G RAND McNALLY ATLAS            H U.S. LIGHT LIST            K         </small>											
	ALASKA (title)	X		X								
BLUE FIORD	X		X									2
DERICKSON BAY	X		X									3
DIVISION POINT	X		X									4
NELLIE JUAN GLACIER	X		X									5
NELLIE JUAN LAGOON					X							6
PORT NELLIE JUAN	X		X									7
PRINCE WILLIAM SOUND (title)	X		X									8
												9
												10
												11
												12
												13
												14
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 Chief Geographer

MAY 7 1998

**HYDROGRAPHIC SURVEY STATISTICS**

H-10779

RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		
DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDION FILES	2				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES				1	

SHORELINE DATA	
SHORELINE MAPS (List):	DM-10194
PHOTOBATHYMETRIC MAPS (List):	NA
NOTES TO THE HYDROGRAPHER (List):	NA
SPECIAL REPORTS (List):	NA
NAUTICAL CHARTS (List):	Chart 16705 17th Ed., September 27, 1997

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS			
	VERIFICATION	EVALUATION	TOTALS	
POSITIONS ON SHEET				
POSITIONS REVISED				
SOUNDINGS REVISED				
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS				
VERIFICATION OF SOUNDINGS				
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION VERIFICATION				
COMPILATION OF SMOOTH SHEET	69.5		69.5	
COMPARISON WITH PRIOR SURVEYS AND CHARTS				
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE TRAGS AND SWEEPS				
EVALUATION REPORT		32	32	
GEOGRAPHIC NAMES				
OTHER*				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	69.5	32	101.5

Pre-processing Examination by <b>M. Bigelow</b>	Beginning Date 4/15/98	Ending Date 4/16/98
Verification of Field Data by <b>R. Davies, M. Bigelow, R. Mayor</b>	Time (Hours) 69.5	Ending Date 8/14/98
Verification Check by <b>B. Olmstead</b>	Time (Hours) 7	Ending Date 8/10/98
Evaluation and Analysis by <b>R. Davies</b>	Time (Hours) 32	Ending Date 8/17/98
Inspection by <b>B. Olmstead</b>	Time (Hours) 5	Ending Date 8/17/98



## EVALUATION REPORT

H-10779

### A. PROJECT

The hydrographer's report contains a complete discussion of the project information.

### B. AREA SURVEYED

The survey area is adequately discussed in the hydrographer's report with the following supplemental information. The survey area is characterized by off lying islets, reefs, rocks and ledges fringing the shoreline. The Nellie Juan Glacier located south of Derickson Bay is presently active and discharges numerous small icebergs inside Nellie Juan Lagoon. A terminal moraine exists between the lagoon and the head of the Derickson Bay. The mariner should be aware that this moraine rises up rapidly from depths of 30-50 fathoms to very near the surface.

The hydrographer has determined the inshore limits of safe navigation by defining a Navigable Area Limit Line throughout the survey area. Charted features and soundings inshore of this limit line have not been specifically addressed during survey operations and should be retained as charted. A page-size plot of the charted area depicting the limits of supersession accompanies this report as Attachment I.

The bottom consists mainly of mud and clay. Depths range from 0 to 285 fathoms.

### C. SURVEY VESSELS

The hydrographer's report contains information relating to survey vessels.

### D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data were processed using the same Hydrographic Data Acquisition/Processing System (HDAPS) software used by the hydrographer, the Hydrographic Processing System (HPS), and MicroStation 95.

Digital data for this survey exists in the standard HPS format, that is a database format using the .dbf extension. In addition, the smooth sheet drawing is filed in the MicroStation format, i.e., dgn (extension). Copies of these files will be forwarded to the Hydrographic Surveys Division and a backup copy will be retained at PHB. Database records forwarded are in the Internal Data Format (IDF) and are in compliance with specifications in existence at the time of survey processing.

The drawing files necessarily contain information that is not part of the HPS data set such as geographic names text, line-type data, and minor symbolization. In addition, those soundings deleted from the drawing for clarity purposes remain unrevised in the HPS digital files to preserve the integrity of the original hydrographic data set. Cartographic codes used to describe the digital data are those authorized by Hydrographic Survey Guideline No. 35 and No. 75.

The data is plotted using a Modified Transverse Mercator projection and are depicted on a single sheet.

### E. SONAR EQUIPMENT

Neither Side Scan Sonar or multibeam echo sounder was used on survey H-10779.

## **F. SOUNDING EQUIPMENT**

Sounding equipment has been adequately addressed in the hydrographer's report.

## **G. CORRECTIONS TO SOUNDINGS**

The sounding data have been reduced to Mean Lower Low Water (MLLW). The reducers include corrections for an actual tide, dynamic draft, and sound velocity. These reducers have been reviewed and are consistent with NOS specifications.

Predicted tides were used for reduction of soundings during field processing. During office processing, tide reductions were derived from approved hourly heights zoned direct from Blue Fiord tide gage, 945-4818. The zone from Blue Fiord tide gage was expanded to include survey data collected in the vicinity of Nellie Juan Glacier. Applegate Island and Kings Bay Inside tide gages as listed on the approved tide note were not used for sounding reduction on the smooth sheet.

## **H. CONTROL STATIONS**

Section H and I of the hydrographer's report contain adequate discussions of horizontal control and hydrographic positioning.

The positions of horizontal control stations used during hydrographic operations are published values based on NAD 83. The geographic positions of all survey data are based on NAD 83. The smooth sheet is annotated with an NAD 27 adjustment tick based on values determined with the NGS program NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections:

Latitude:	-2.291 seconds	(-70.921 meters)
Longitude:	7.379 seconds	(112.710 meters)

The year of establishment of control stations originate with the horizontal control records for this survey.

## **I. HYDROGRAPHIC POSITION CONTROL**

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 3.75 meters was computed for survey operations. The quality of several positions exceeds limits in terms of horizontal dilution of precision (HDOP). These positions are isolated and occur randomly throughout the survey area. A review of the data, however, suggests that none of these fixes are used to position dangers to navigation. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable. DGPS performance checks were conducted in the field and found adequate.

NAD 83 is used as the horizontal datum for plotting and position computations.

Additional information concerning calibrations and system checks can be found in the hydrographer's report and in the separates related to horizontal position control and corrections to position data.

## **J. SHORELINE**

Shoreline map DM-10194, scale 1:20,000, was compiled on NAD83 and applies to this survey. Shoreline drawn on the smooth sheet originates from the above digital manuscript as provided

in digital format by the Coastal Mapping Program. This digitized file and the survey file was merged during MicroStation processing.

The hydrographer found two new rocks at approximately 60/30/02.5N, longitude 148/14/42W and latitude 60/27/08N, longitude 148/14/27W, inshore of the NALL line and near the mean high waterline. The two rocks are depicted on the field sheet and no supporting position information is recorded in the survey records. These two rocks have been shown on the smooth sheet at the above positions.

The shoreline map and the results of the fieldwork as portrayed on the smooth sheet should supersede charted shoreline.

There were no MHWL revisions on this survey.

#### **K. CROSSLINES**

Crosslines are discussed in the hydrographer's report.

#### **L. JUNCTIONS**

Survey H-10779 junctions with the following surveys:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10774	1997	1:10,000	Northeast
H-10775	1997	1:40,000	North
H-10787	1997	1:10,000	Northwest

The junction with surveys H-10774, H-10775 and H-10787 are complete. A "Joins" note has been added to the smooth sheet where applicable. A few soundings from survey H-10774 and H-10775 have been transferred within the common areas of H-10779 to better delineate the bottom configuration.

#### **M. COMPARISON WITH PRIOR SURVEYS**

<u>Survey</u>	<u>Scale</u>
H-7794(1948)	1:40,000
H-8594(1961)	1:10,000
H-8595(1961)	1:10,000
H-8606(1961)	1:10,000

Prior surveys H-7794, H-8594, H-8595 and H-8606 cover the entire area of the present survey. A sounding comparison with the present survey generally reveals differences of 1-5 fathoms in most areas. There appears to be no consistent pattern of shoaling and or an increase in depths since the prior survey work and the standard depth curves show little change in shape and or configuration. However, there area two distinct areas that depict much more significant change since 1961. The first area is located at the head of Derickson Bay along latitude 60/28/30N from longitude 148/20/00W to longitude 148/21/30W. Here, the present survey reveals general differences of 5-30 fathoms deeper along a terminal moraine that originates from the deposit of material from Nellie Juan Glacier. It appears that material from this moraine has slumped off into deeper water since 1961. A noticeable shoaling (7-20 fathoms) on the present survey approximately 0.5 nautical mile north of the terminal moraine supports this. Prior survey depths in this area were over fifty fathoms that now were found to range from 33-48 fathoms.

The second area of significant differences is located from latitude 60/31/00N to latitude 60/31/57N and from longitude 148/14/00W to longitude 148/15/30W. In this area the present survey found consistently deeper depths ranging from 10-50 fathoms.

Differences in the area between Derickson Bay and Nellie Juan Lagoon are largely due to glacial activity. The differences throughout the remainder of the survey area are primarily due to greater sounding coverage and improved positioning and sounding methods and relative accuracy of the data acquisition techniques.

Numerous prior survey rocks, ledges and soundings have been transferred to the present survey in color along the inshore areas of Blue Fiord, Derickson Bay and off Davidson Point. Most of these items fall near or inside the NALL line and were not specifically addressed by the hydrographer.

In accordance with the Hydrographic Guide No. 39, the effect of the 1964 Prince William Sound earthquake were considered in the comparison of this survey. Prince William Sound experienced a bottom uplift of 4-32 feet during the 1964 earthquake. However, due to the depths of water and the differences in data acquisition methods, no reasonable adjustment value for prior soundings could be determined.

Except for the soundings and features brought forward from the above prior surveys, survey H-10779 is adequate to supersede the prior surveys within the common area.

## **N. ITEM INVESTIGATIONS**

There were no AWOIS items assigned to this survey.

## **O. COMPARISON WITH CHART**

Survey H-10779 was compared with the following chart:

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16705	17 <sup>th</sup>	Sept. 27, 1997	1:80,000	NAD 83

### **a. Hydrography**

Charted hydrography originates with the previously discussed prior surveys and miscellaneous source data. The prior surveys have been adequately addressed in section M and require no further discussion except for the following.

Two rocks originating from a miscellaneous source at latitude 60/29/04N, longitude 148/18/24W and latitude 60/26/40N, longitude 148/15/30W are charted in depths exceeding ten fathoms. These features were not specifically investigated or addressed by the hydrographer. Hydrography in these areas reveal no indication that the rocks exist. However, one hundred percent bottom coverage was not accomplished. Although these rocks have probably been offset to seaward for cartographic clarity, evaluation could not identify any source document from which these items originate. The evaluator recommends retaining the rocks unless further research proves the source document in error.

The application of this survey to charts of a scale less than 1:40,000 may require the generalization of features such as ledges, and reefs. The recommended charting disposition of specific ledges or reefs is their depiction as isolated rocks. The application of this survey to charts of a scale greater than 1:40,000 may be accomplished without generalization of features.

With exceptions noted above and in Section M, survey H-10779 is adequate to supersede charted hydrography within the charted area.

b. Dangers to Navigation

One danger to navigation was discovered during survey operations and reported to the USCG on November 21, 1997. No additional dangers to navigation were found during office processing.

**P. ADEQUACY OF SURVEY**

Hydrography contained on survey H-10779 is adequate to:

- a. Delineate the bottom configuration, determine least depths, and draw the required depth curves;
- b. Reveal there are no significant discrepancies or anomalies requiring further investigation; and
- c. Show the survey was properly controlled and soundings are correctly plotted.

Hydrography on survey H-10779 was acquired in the field in metric units while the smooth sheet for this survey was compiled in fathoms to conform to the sounding unit of the existing NOS nautical charts in the area.

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual, April 1994 Edition with the exception of the following.

In the event that the field units submission of survey data will exceed four weeks from the completion of field work, the Chief of Party will submit a written explanation for the delay indicating the anticipated transmittal date to the Chief of the appropriate processing section. Marine Center ships will forward their explanation through the Marine Center Director. Fieldwork for survey H-10779 was completed on October 17, 1997 but not received for office processing until March 30, 1998.

The two-charted rocks mention in section O of this report should have been addressed. All charted features within the survey limits need to be verified or disproved.

**Q. AIDS TO NAVIGATION**

There are no fixed and floating aids to navigation within the survey area.

There were no features of landmark value located within the area of this survey.

**R. STATISTICS**

Statistics are itemized in the hydrographer's report.

**S. MISCELLANEOUS**


Miscellaneous information is discussed in the hydrographer's report. No additional miscellaneous items were noted during office processing.

#### **T. RECOMMENDATIONS**

This is a good hydrographic survey. Additional work on a low priority basis is recommended to verify or disprove the two rocks mention in section O of this report.

#### **U. REFERRAL TO REPORTS**

Referral to reports is discussed in the hydrographer's report.

  
Charles R. Davies  
Cartographer



APPROVAL SHEET  
H-10779

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproof of charted data. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Bruce A. Olmstead Date: 8/17/98  
Bruce A. Olmstead  
Senior Cartographer, Cartographic Section  
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 Evaluation Report.

Kathy Timmons Date: 8/24/98  
Kathy Timmons  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

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Final Approval

Approved:

Andrew A. Armstrong III Date: Nov 25, 1998  
Andrew A. Armstrong III  
Captain, NOAA  
Chief Hydrographic Surveys Division



