

H10774

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-10-26-97
Registry No. H-10774

LOCALITY

State Alaska
General Locality Northwest Prince William Sound
Sublocality McClure Bay and Vicinity

1997

CHIEF OF PARTY
CAPT Alan D. Anderson, NOAA

LIBRARY & ARCHIVES

DATE JAN 27 1999

HYDROGRAPHIC TITLE SHEET

H-10774

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-10-26-97

State Alaska

General locality Northwest Prince William Sound

Locality McClure Bay and Vicinity

Scale 1:10,000 Date of survey Sept. 6 to Oct. 29, 1997

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

Vessel RA-1(2121), RA-2(2122), RA-3(2123), RA-4(2124), RA-5(2125), RA-6(2126)

Chief of party CAPT Alan D. Anderson, NOAA

Surveyed by CAPT A. Anderson, LT G. Noll, LCDR D. Kruth, LCDR T. Nichel, LT D. Baird
LTJG L. Krepp, ST K. Callahan, ST J. Cheech, 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. Shipley Automated plot by HP Design Jet 650C

Verification by M. Bigelow, D. Doles, R. Mayor, R. Shipley

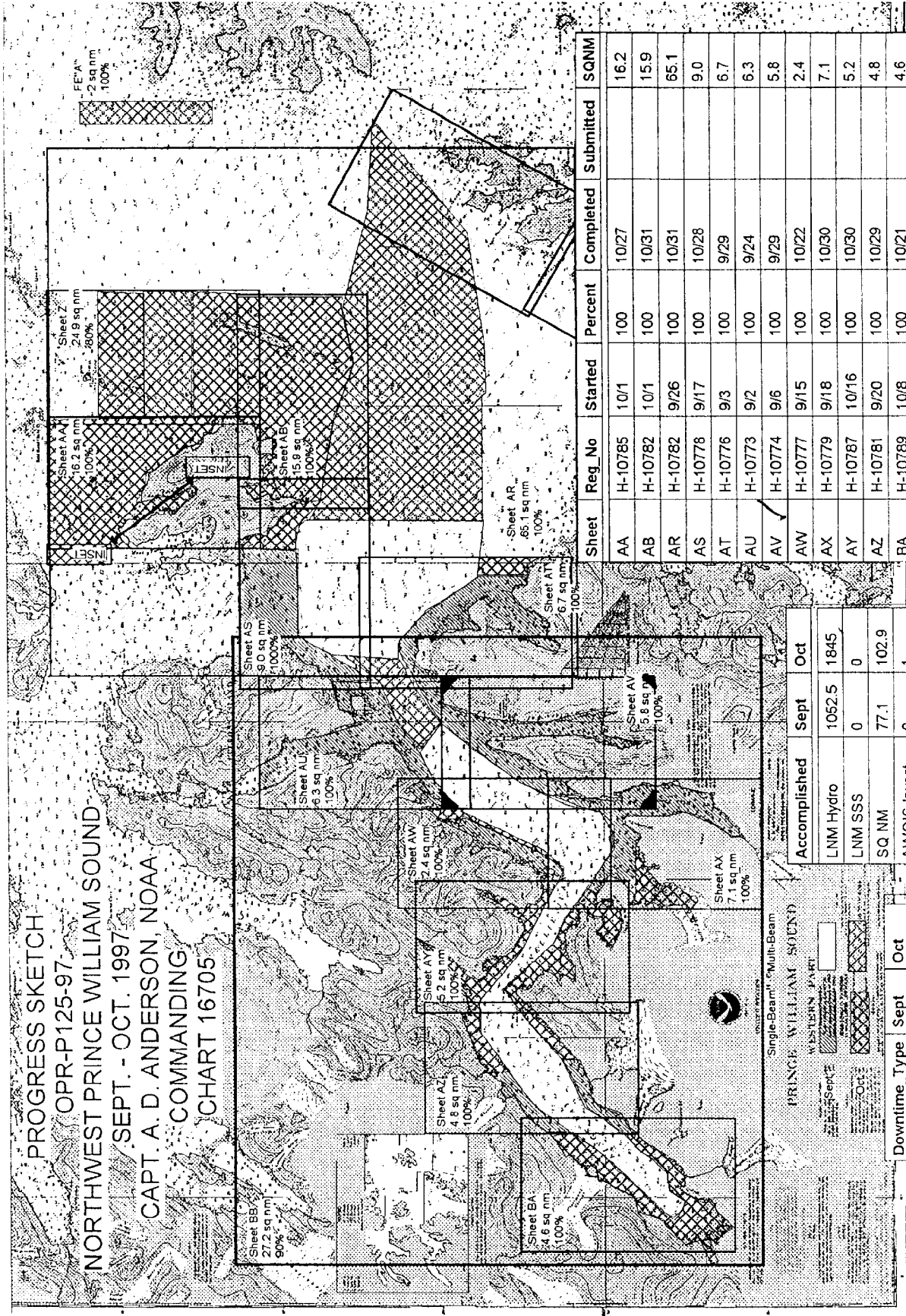
Soundings in fathoms ~~feet~~ at ~~MLW~~ MLLW and tenths

REMARKS: All times are 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.

AWOS/SURE 1/25/97 MCR

PROGRESS SKETCH
 OPR-P125-97
 NORTHWEST PRINCE WILLIAM SOUND
 SEPT. - OCT. 1997
 CAPT. A. D. ANDERSON, NOAA
 COMMANDING
 CHART 16705

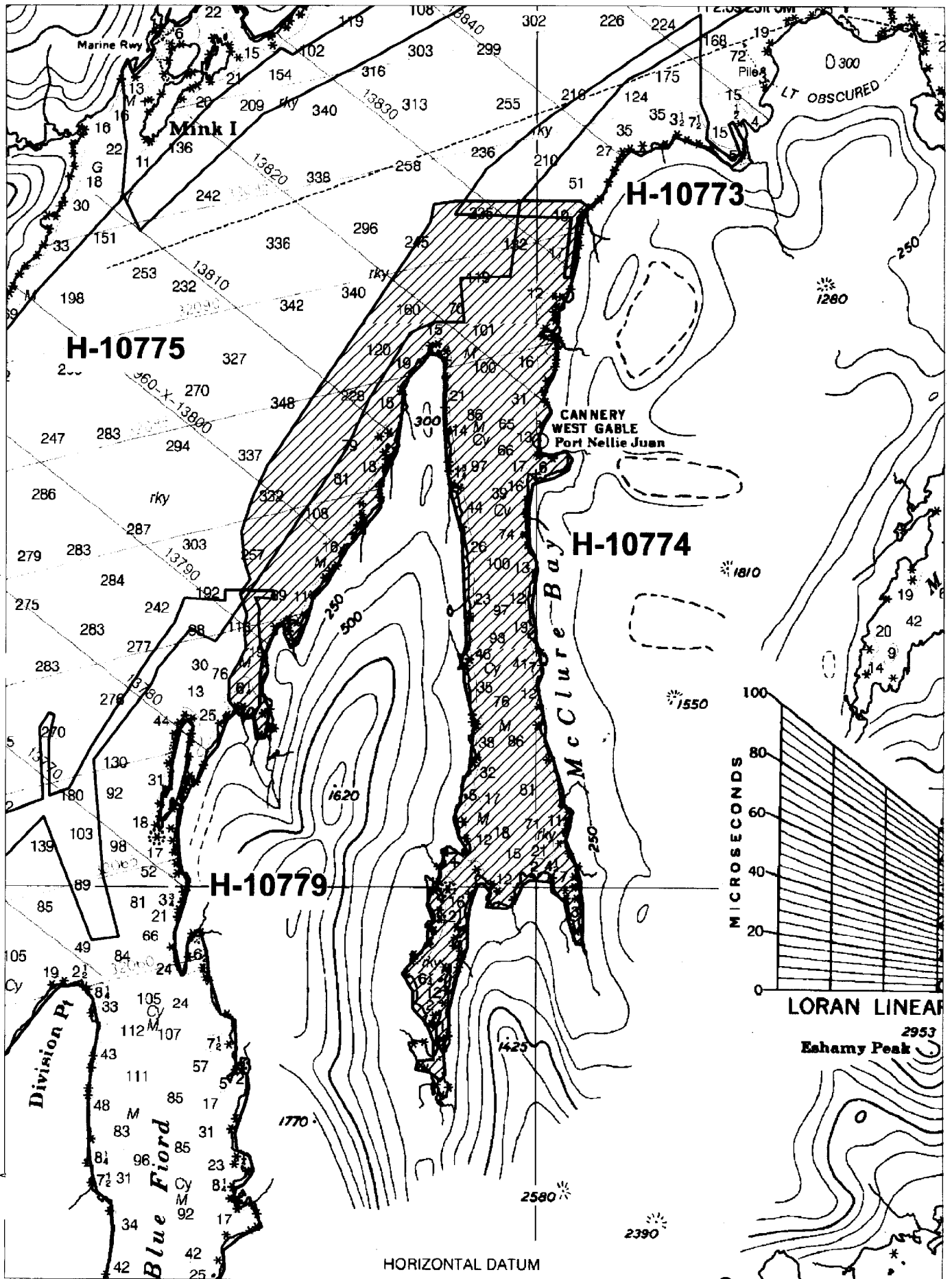


Sheet	Reg. No	Started	Percent	Completed	Submitted	SQNM
AA	H-10785	10/1	100	10/27		16.2
AB	H-10782	10/1	100	10/31		15.9
AR	H-10782	9/26	100	10/31		65.1
AS	H-10778	9/17	100	10/28		9.0
AT	H-10776	9/3	100	9/29		6.7
AU	H-10773	9/2	100	9/24		6.3
AV	H-10774	9/6	100	9/29		5.8
AW	H-10777	9/15	100	10/22		2.4
AX	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		2.0

Accomplished	Sept	Oct
LNM Hydro	1052.5	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
Days At Sea	28	29

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

16705
 UTMAN, DESIGNED



Descriptive Report to Accompany Hydrographic Survey H-10774

Field Number RA-10-26-97

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-10774 corresponds to sheet AV as defined in the sheet layout. This survey will provide data to supersede surveys performed in 1961 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 EVAL REPORT, SECTION B

The survey area is McClure Bay and vicinity. The survey's northern limit is latitude $60^{\circ} 34' 35''$ N. The survey's southern limit is $60^{\circ} 28' 32.9''$ N, the western limit is $148^{\circ} 14' 59''$ W and the eastern limit is $148^{\circ} 09' 19.6''$ W. Data acquisition was conducted from September 6 to October 29, 1997 (DN 249-302).

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. *CANCEL*

F. SOUNDING EQUIPMENT ✓

The Raytheon DSF-6000N is a dual frequency (100 kHz, 24 kHz paper trace echosounder). The Knudsen 320M is a dual frequency, thermal depth sounder using the same transducer frequencies. 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

* FILED WITH SURVEY RECORDS

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
G. CORRECTIONS TO ECHO SOUNDINGS ✓ IN FATHOMS.**

Five sound velocity casts were acquired within the survey limits as shown in the appended Survey Information Summary report. ^{ATTACHED TO THIS 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. The static draft and offsets for RAINIER, 2120, were collected in 1995. 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-10774 are shown on the appended Survey Information Summary 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 Fjord (945-4818) on September 2, 1996. The gages were removed on October 30, 1997.

Refer to the Field Tide Notes and supporting data in Appendix V * 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.

Use of Applegate Island tide gage data is recommended for final datum reduction, as the island lies directly across Port Nellie Juan from the mouth of McClure Bay.

APPROVED TIDE NOTE DATED FEBRUARY 5, 1998 IS ATTACHED

H. CONTROL STATIONS SEE EVAL. 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. **THE CONTROL STATIONS USED FOR THIS SURVEY ARE LISTED IN THIS REPORT.**

*** FILED WITH SURVEY RECORDS**

I. HYDROGRAPHIC POSITION CONTROL ✓ *SEE EVAL 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 EVAL. 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 parameters using program Shore version 2.0, provided by N/CS32, and plotted on the survey using HDAPS.

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 NOTES 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. *Shoreline verification data was analyzed during office processing and shown on the smooth sheet as warranted.* 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. 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. ^{CONTR}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. *See comments below.*

Chart recommendation	Latitude	Longitude	Comment
Hydrographer recommends that the offshore charted rock should not be shown	60-33-57.1 N	148-09-46.53 W	Lowwater verification and 30 meter line spacing in the area showed no indication of the westernmost rock
Land bridge* should be added to shoreline	60° 29' 44.0"	148° 10' 57.3"	Lowwater verification of grassy land bridge

* Feature is of such small extent and detail as to add no value to survey area. This feature has not been portrayed on the smooth sheet.

CONTR

Land bridge* should be added to shoreline	60° 29' 27.4"	148° 11' 03.8"	Lowwater verification of grassy land bridge
Leave prior rock uncharted**	60° 33' 34.62"	148° 11' 13.89"	Lowwater Verification and 50 m line spacing showed no indication of rock

* See comments on previous page.

** DO NOT CONCUR. AREA IS PORTRAYED AS A LEDGE ON SMOOTH SHEET, ~~PL~~ CHART AS ROCK.

K. CROSSLINES ✓ See Eval Rpt, section K.

Crosslines agreed within 2 meters with mainscheme hydrography, except in areas of steep bathymetry, where extreme variations were encountered. Within McClure Bay crosslines and mainscheme soundings match well on fairly flat bottom. ^{Concur} Crosslines do not agree in an area of steep bathymetry outside McClure Bay. ^{Concur} Some but not all crossline fathograms show low frequency traces that rise above high frequency traces, and agree with the shoaler mainscheme soundings in those areas, (DN251, VN5, fix 50218.1, high frequency trace 80.4 fm, low frequency trace 69 fm). Outside McClure Bay the crosslines agree with multibeam soundings, and differ ^{from 20 to} by up to 60 fathoms with mainscheme soundings. [(fix 40,159, DN249, VN2124, 105.5 fathoms) VS (fix 20,774.5, DN267, VN2122, 120.3 fathoms) VS (IDSSS position 60° 33' 35.99", 148° 11' 56.1", 123.6 fathoms)]. Further discussion of discrepancy is in section L below. A total of 21.72 nautical miles of crosslines was run, comprising 28.9% of mainscheme hydrography. * Fix 40,159 Lat 60/33/34.83, Long. 148/11/57.1 (108 Excess) Fix 20,774.5 Lat 60/33/36.2, Long. 148/11/56.9 (123)

L. JUNCTIONS ✓ SEE EVAL REPORT, SECTION L.

This survey junctions with the following 1997 surveys: RA-10-24-97, H-10773, 1:10,000 on the northeast, RA-40-03-97, H-10775, 1:40,000 on the north and west, and RA-10-29-97, H-10779, 1:10,000 on the south. ^{WEST} Soundings on these surveys were found to be in good agreement, except in the extremely steep areas of the survey, where the H-10775 ^{Multibeam} soundings were found to be deeper than single-beam data on the western limits of this survey. A review of the data used for comparisons as well as the systems used to collect that data has revealed no definitive causes for differences of this magnitude. It is noted that the differences occur in areas with very steep slopes, deep water, and potential localized water column anomalies. Under these conditions, inherent differences in measurement systems such as beam width, frequency, power output, receiver sensitivity, bottom tracking function and timing latency, are exaggerated. It is probable that the mainscheme soundings on the deep steeply sloping bottoms are shoal biased because of beam spreading, especially below 200 meters. The multibeam data from H-10775 would be expected to be more accurate below 200 meters because of narrower beam widths, higher power, and a more favorable angle of incidence with the bottom. ^(108 Excess) It therefore is recommended that the multibeam data from H-10775 offshore of the 200-meter curve ^{Concur} be used for charting purposes.

Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after reduction to final vertical datum.

M. COMPARISON WITH PRIOR SURVEYS ✓ SEE EVAL. REPORT, SECTION M.

Prior surveys H-8595, (1:10,000, 1961), H-8606, (1:10,000, 1961), and H-3793, (1:20,000, 1917), cover this survey. H-8595 covers the bay portion, and H-8606 covers the mouth and western portion of the survey area that H-~~3793~~ ³⁷⁹³ covers in entirety but less thoroughly. Prior survey depths that were shoaler, were developed during this survey by ten-meter line spacing and should be superseded by

soundings from this survey. Two exceptions occur at positions 60° 31' 09.41"N, 148° 10' 02.39"W, where 13 fm in H-8595 should supercede the 17.5 fm of H-10774, position 60° 31' 09.41"N, 148° 10' 02.39"W, where the 2.5 fm in H-8595 should supersede the 3 to 8 fm in H-10774, and position 60° 32' 23.59"N, 148° 13' 19.83"W. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey. (See figure 2).

Figure 2: Prior Survey Shoaler Depths

Feature	H-10774	latitude	longitude	fix	Survey recommendation
13 fm in H-8595	17.5 fm	60° 31' 09.41"	148° 10' 02.39"	60,065.7	prior depths not disproved: chart prior depth*
2.5 fm in H-8595	3 to 8 fm	60° 31' 09.41"	148° 10' 02.39"	60,048	" " "*"

* Do not concur. 13 fm plots between 10.1 and 17.4 fathoms on present survey. 2.5 fms plots between 0.5 and 7 fathoms on present survey. Chart these areas based on the present survey data. The present survey agrees fairly well with prior soundings. H-8606 does have a number of discrepancies. In those areas, the prior survey depths would correspond more closely with mainscheme than with crossline soundings in the areas of steep bathymetry. Shoaler depths were developed with denser sounding coverage. (See figure 3).

Figure 3: Significant differences from priors. Depths developed in H-10774, (1:10,000, 1997).

Prior Survey	H-10774**	Latitude	Longitude	Fix	Hydrographer's Findings	
9.8 fm H-8606	8.9 fm ✓	60° 31' 23.16"	148° 13' 56.03"	20,021.8	Entrance to bay is generally in agreement with prior. Concur	Chart area based on present survey information
9.8 fm H-8606	4.9 fm ✓	60° 31' 17.12"	148° 13' 49.06"	40,389.2	Previous rock to SE has been repositioned with D.P. 50234	" "
249 fm in H-8606 385 in H-3793	328 fm ✓	60° 33' 02"	148° 12' 54.16"	40,054.4	Current survey soundings are up to 100 fms deeper than H-8606; Agree with H-3793's soundings	Do not concur Chart area based on present survey information.
5 fm on H-8606	2.1 fm ✓ 1.9	60° 33' 18.31"	148° 11' 52.26"	40168.1	Sounding significantly shoaler than prior survey	Chart ledge is back 50 meters to northeast.
5 fm on H-8595	4.7 fm ✓	60° 30' 38.73"	148° 10' 53.75"	60685.3	" " "	Chart 4 1/2 fms
14 fm on H-8595	7.7 fm ✓	60° 30' 23.11"	148° 10' 40.46"	60580.5	" " "	Chart 7 1/2 fms
7 fm on 16705	2.3 fm ✓	60° 31' 31.16"	148° 10' 00.18"	50507	Sounding shoaler than chart. Agrees with prior.	Chart ledge is rock 100 meters East of 2.9.06.
5 to 15 fm H-8606	1 fm ✓	60° 33' 23.33"	148° 09' 56.96"	60336.2	50 m line spacing shows shoaler depth	Chart rock 100 meters East of 1 fathom sounding
.8 to 3 fm H-8606	0.55 fm ✓	60° 33' 32.21"	148° 09' 52.97"	50382.4	10 m line shows shoaler depth	Chart 4

**Based on approved tides

Though prior surveys H-8595, H-3973, and especially H-8606 had discrepancies in depths from the current survey in areas of steep bathymetry, generally they concurred. (See figure 4). Crossline and multibeam data agree closely with the 1917 leadline survey. Sonar equipment used in the 1961 surveys was in a youthful stage, and lines were run parallel to the contours, potentially introducing error. The shoal bias in areas of deep and steep bathymetry on H-8606 is also likely caused by beam spreading as with the mainscheme work on this survey.

Figure 4: General depth comparisons ✓

H-3973 (fm)	H-10774 (fm)	Latitude	Longitude	Fix
7	5.8 ✓	60° 30' 06.3"	148° 10' 51.5"	20,076.3
280	274.5 ✓	60° 32' 42.97"	148° 13' 03.16"	40,487.8
H-8595 (fm)	H-10774 (fm)	latitude	longitude	fix
60	59.1 ✓	60° 32' 33.45"	148° 10' 50.40"	61,023
26	30.1 ✓	60° 32' 31.77"	148° 10' 55.45"	60,760.3

N. ITEM INVESTIGATIONS ✓

None. CONCUR

O. COMPARISON WITH THE CHART SEE EVAL. REPORT, SECTION O.

Chart 16705, 1:80,000, 15th edition, 10/01/90 is the largest scale chart covering the survey area. H-10774 soundings are in general agreement with the chart. One significant difference (see figure 3) was noted at position $60^{\circ} 31' 31.16'' N, 148^{\circ} 10' 00.18'' W$. (2.5 fm charted 7 fm). A detailed comparison of soundings can be found in Section M.

Non-sounding features are discussed in Section J. Final sounding comparisons will be made at PHB after reduction to final vertical datum.

Dangers to Navigation ✓ See Eval Rpt, section O.

A shoal northwest of a cove outside McClure Bay was reported to the Seventeenth Coast Guard District on November 21, 1997 as a danger to navigation. The fix position 40345.4 corresponds with a depth of 3.7 fm (6.2 fm), at position Latitude $60^{\circ} 31' 18.04'' N$, Longitude $148^{\circ} 13' 57.44'' W$. Copies of the correspondence can be found in Appendix I of this report. Chart 34 fathom depth.

* Attached as Danger to navigation letter dated November 21, 1997.

P. ADEQUACY OF SURVEY ✓ See Eval Rpt., section P.

Survey H-10774 is complete and adequate to supersede prior soundings and features in their common areas. Three exceptions occur. Refer to section M for the positions where prior survey soundings should supersede H-10774. Outside McClure Bay, the deeper soundings from overlapping H-10775 multibeam survey (which often agree with the H-10774 crossline soundings), should supersede shoaler mainscheme soundings from this survey in depths greater than 200 fathoms. *Concur*

* H-10774 is adequate to supersede the prior surveys within the common area except as specified in the evaluation report, section M.
Q. AIDS TO NAVIGATION ✓ See Eval Rpt., section Q.

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

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 ✓


None.

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

* Filed with SURVEY RECORDS



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

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

NOAA Ship RAINIER
November 21, 1997

**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



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.

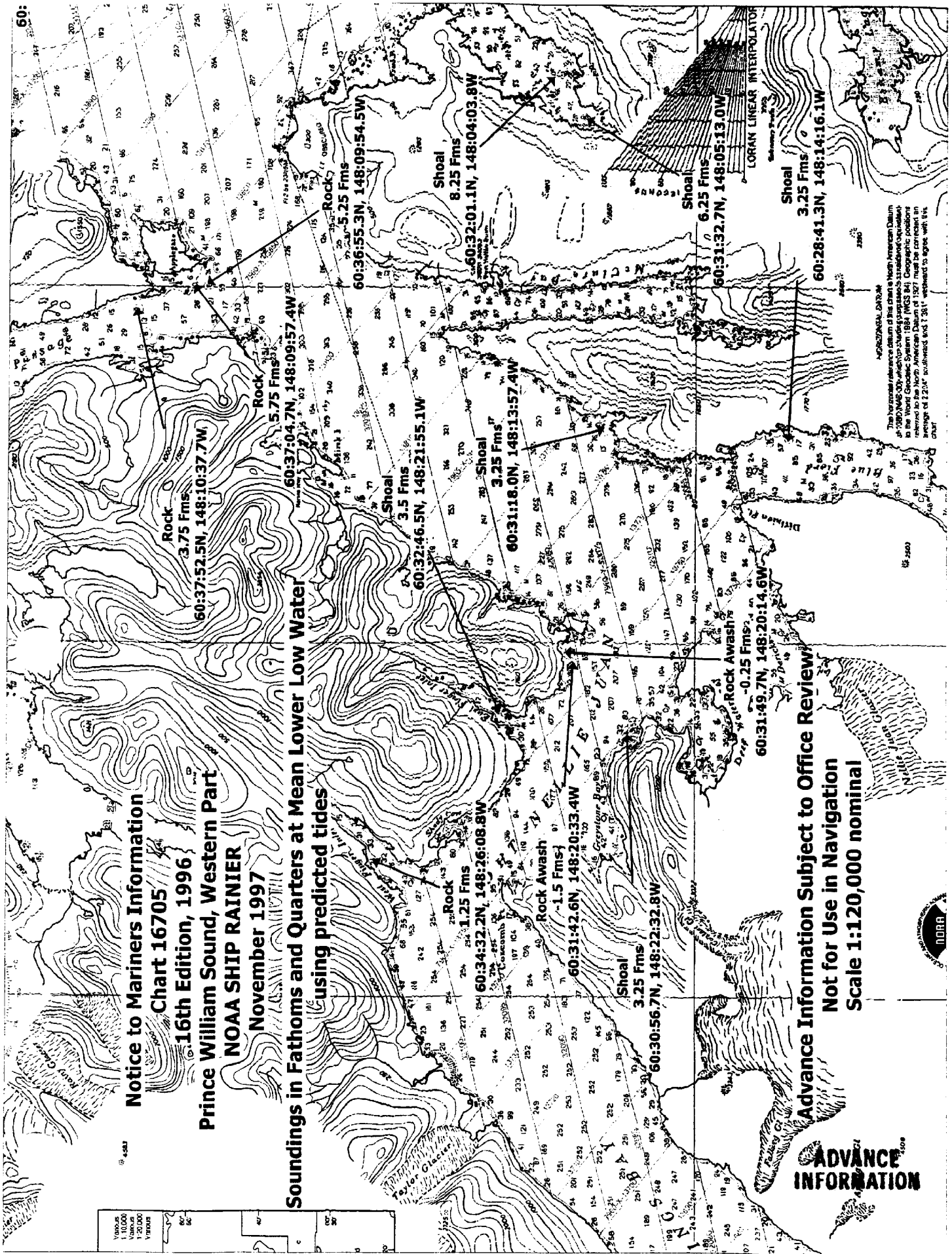
Sincerely,



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). Where necessary, soundings are adjusted to this datum. Geographic positions in the World Geodetic System (WGS 84) are indicated by a 'G' followed by the position. Geographic positions referred to the North American Datum of 1983 must be corrected an average of 7.2" southward and 7.3" westward to agree with the chart.

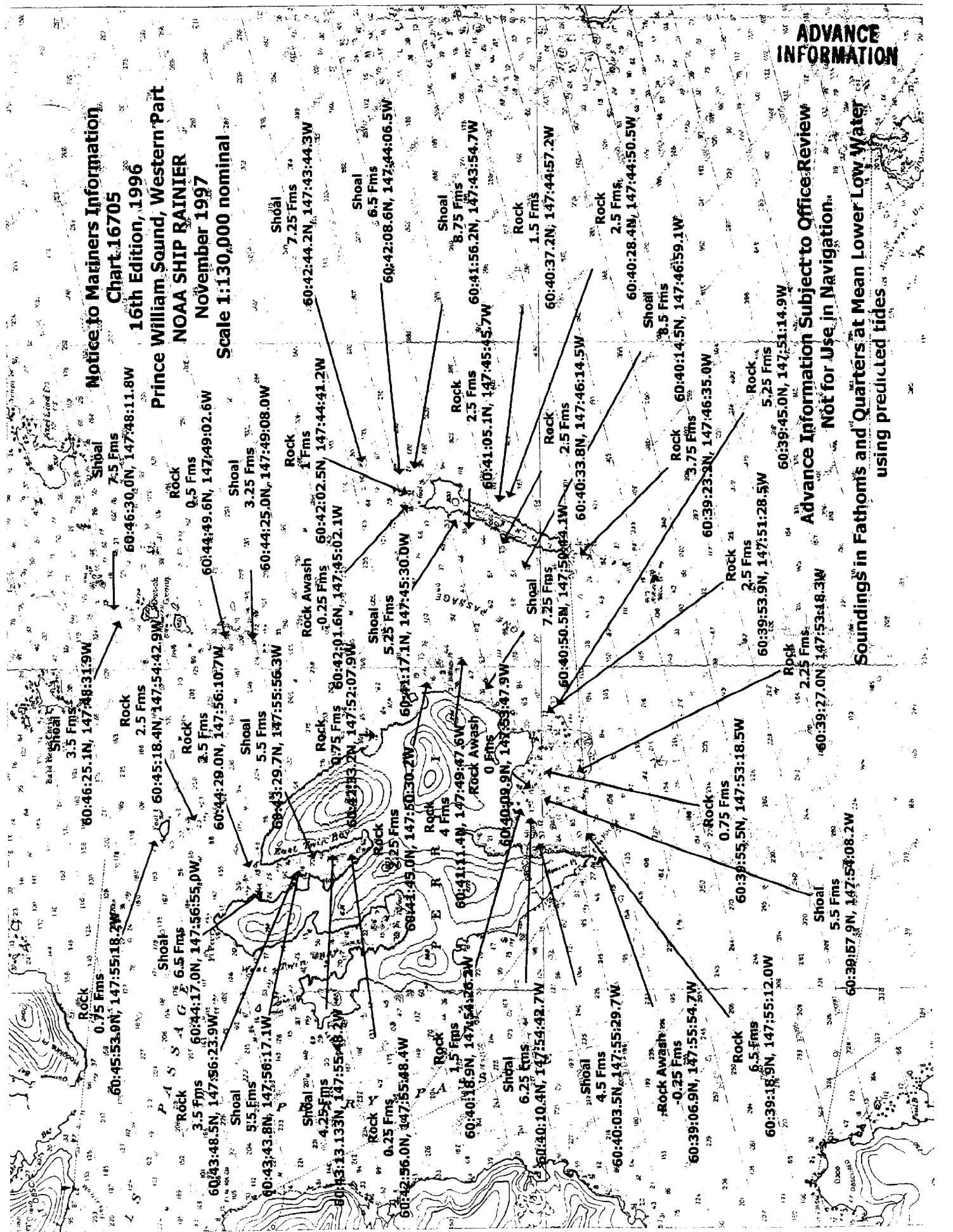


Notice to Mariners Information
Chart 16705
16th Edition, 1996
Prince William Sound, Western Part
NOAA SHIP RAINIER
November 1997
Scale 1:130,000 nominal

ADVANCE
INFORMATION

Advance Information Subject to Office Review
Not for Use in Navigation.

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



Author: FOO Rainier at Rainier
 Date: 11/21/97 11:32 AM
 Priority: Normal
 TO: akcgnav@alaska.net at RDC
 CC: dhill@pachydro.noaa.gov at RDC
 CC: ktimmons@pachydro.noaa.gov at RDC
 CC: navinfonet@nima.mil at RDC
 CC: Lynn [NDS-NCG22] Preston at RDC
 CC: Chief Survey Technician Rainier
 CC: CO Rainier
 Subject: Dangers to Navigation for Prince William Sound 1997

----- Message Contents -----

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 two chartlets in the hard copy version of this message forwarded separately. 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 Fathoms	Latitude (N)	Longitude (W) Number	Position Meters	Depth Number	Survey
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	5.0	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	7.0	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
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	4.0	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. Hard copy (letter) is being sent November 21, 1997 by regular mail.

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



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF COAST SURVEY
 Pacific Hydrographic Branch
 Seattle, Washington 98115-0070

August 10, 1998

Commander
 Seventeenth Coast Guard District
 Post Office Box 25517
 Juneau, Alaska 99802

Dear Sir,

During the office processing of hydrographic survey H-10774 in Alaska, Northwest Prince William Sound, McClure Bay and Vicinity, five (5) new dangers to navigation have been discovered. The dangers affect the following chart:

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Datum</u>
16705	17th Edition	Sept. 27, 1997	NAD83

It is recommended that these changes in depth and position be included in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6853.

Sincerely,

K.A. Kathryn A. Timmons
 Commander, NOAA
 Chief, Pacific Hydrographic Branch

Enclosure

cc: NIMA
 " N/CS261



Hydrographic Survey Registry Number: H-10774

Survey Title: State: Alaska
 Locality: Northwest Prince William Sound
 Sublocality: McClure Bay and Vicinity

Project Number: OPR-P125-RA

Survey Date: Sept.-Oct., 1997

Features are reduced to Mean Lower Low Water using actual tides.

Affected Nautical Charts:

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Datum</u>
16705	17th Edition	Sept. 1997	NAD83

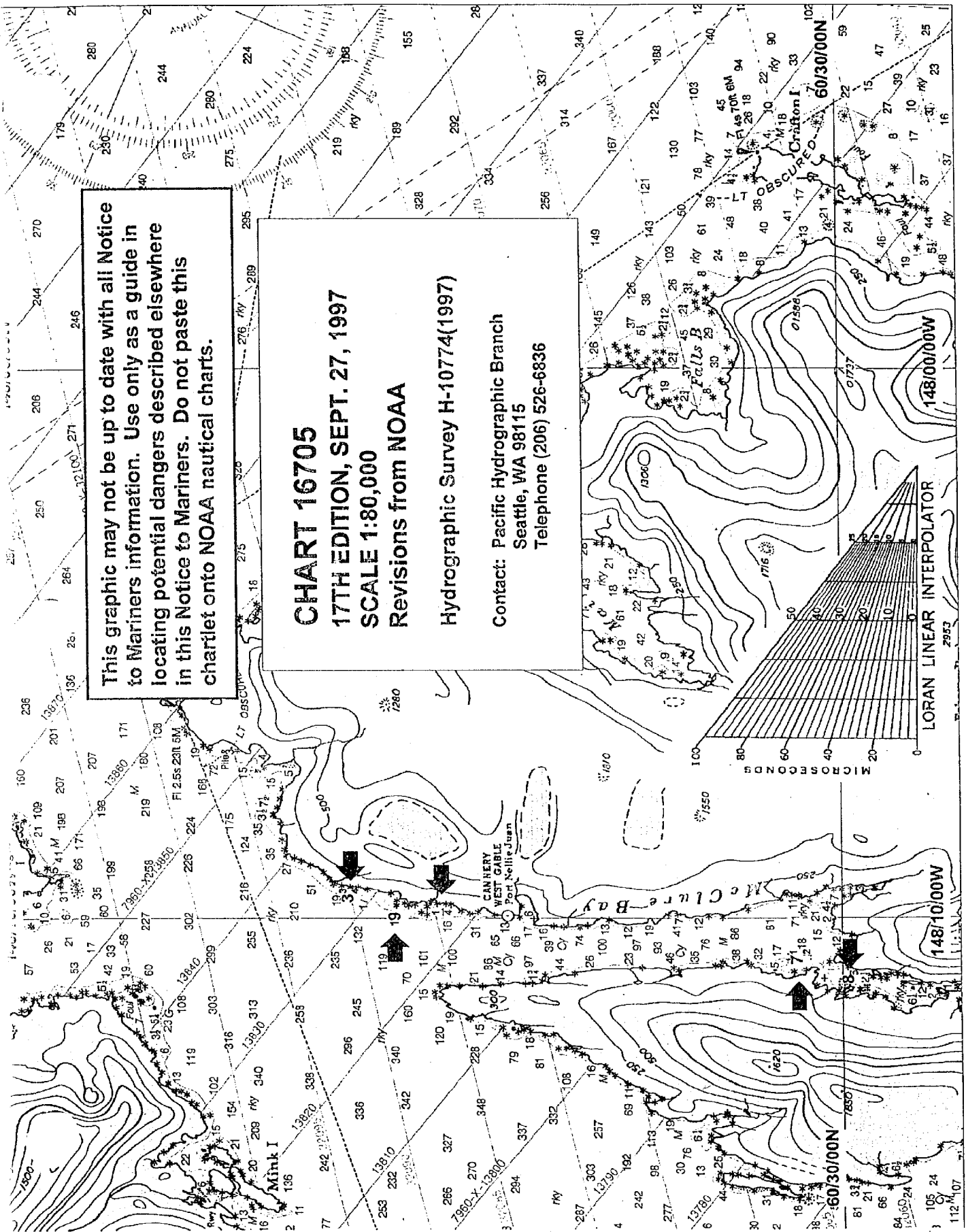
<u>Danger to Navigation</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
1. Shoal, 3 3/4 fm	60/34/21.6	148/09/33.7
2. Shoal, 9 fm	60/33/56.8	148/09/57.3
3. Shoal, 1/4 fm	60/33/32.2	148/09/52.9
4. Shoal, 7 1/2 fm	60/30/23.1	148/10/40.5
5. Shoal, 8 fm	60/29/55.5	148/11/06.5

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6853.

This graphic may not be up to date with all Notice to Mariners information. Use only as a guide in locating potential dangers described elsewhere in this Notice to Mariners. Do not paste this chartlet onto NOAA nautical charts.

CHART 16705
17TH EDITION, SEPT. 27, 1997
SCALE 1:80,000
Revisions from NOAA

Hydrographic Survey H-10774(1997)
Contact: Pacific Hydrographic Branch
Seattle, WA 98115
Telephone (206) 526-6836





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-10774

LOCALITY: Northwest Prince William Sound, AK

TIME PERIOD: Sep 6 - Oct 29, 1997

TIDE STATION USED: 945-4691 Herring Point, Knight Island Passage
Lat. 60° 28.5'N Lon. 147° 47.5'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.326 meters

TIDE STATION USED: 945-4729 Pt. Perry, Perry Island
Lat. 60° 45.1'N Lon. 147° 57.8'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.386 meters

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

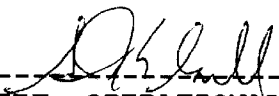
TIDE STATION USED: 945-4951 Kings Bay Inside
Lat. 60° 27.4'N Lon. 148° 39.9'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.418 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: PWS39, PWS42 & PWS43
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.



CHIEF, OPERATIONAL ANALYSIS BRANCH



Final tide zone node point locations for OPR P125-RA-97,
Sheet H-10774.

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

		Tide Station Order	AVG Time Correction	Range Correction
Zone PWS39				
-148.114598	60.574838	945-4818	0	1.00
-148.135079	60.580714	945-4794	0	1.01
-148.237563	60.621003	945-4951	0	1.00
-148.288683	60.597501			
-148.274604	60.483349			
-148.296492	60.428791			
-148.133173	60.449775			
-148.114598	60.574838			
Zone PWS42				
-148.101183	60.592465	945-4794	0	0.99
-147.93198	60.657934	945-4729	0	1.00
-147.957558	60.686216	945-4691	0	1.01
-148.000248	60.724243			
-148.149283	60.748856			
-148.18628	60.710814			
-148.164093	60.631914			
-148.158371	60.62628			
-148.140411	60.624813			
-148.135079	60.580714			
-148.114598	60.574838			
-148.101183	60.592465			
Zone PWS43				
-148.135079	60.580714	945-4794	0	1.00
-148.140411	60.624813	945-4818	0	0.99
-148.158371	60.62628	945-4729	0	1.00
-148.164093	60.631914			
-148.18628	60.710814			
-148.149283	60.748856			
-148.234314	60.759316			
-148.241973	60.755184			
-148.259058	60.743334			
-148.264789	60.700742			
-148.247722	60.68983			
-148.237563	60.621003			
-148.135079	60.580714			

CONTROL STATIONS as of 8 Dec 1999 ✓

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

Survey Information Summary

Project: OPR-P125-97 **Project Name:** NORTHWEST PRINCE WILLIAM SOUND
Instructions Dated: 8/27/97 **Project Change Info:**

Change #	Dated
1	9/24/97

Sheet Letter: AV **Registry Number:** H-10774
Sheet Number: RA-10-26-97

Survey Title: MCCLURE BAY AND VICINITY

Data Acquisition Dates: From: 06-Sep-97 249 To: 29-Oct-97 302

Vessel Usage Summary

VESNO	MS	SPLITS	DEV	XL	S/L	DP	BS	DIVE
2122			3	1	3	3		
2124	4	2	2					
2125	1	1	5	1	6	8	2	
2126	1	4	5	4	8	7		

Sound Velocity Cast Information

Launch Table #	Ship Table #	Cast DN	Max Depth	Position	Applicable DN
1		247	786.4	60/35/12	244-256
				148/12/54	
2		260	632	60/35/30	257-270
				148/10/20	
3		273	564	60/40/27	271-276
				148/04/02	
4		277	979	60/35/09	277-292
				147/44/27	
5		293	963	60/39/07	293-297
				147/44/49	
6		300	597.7	60/43/45	298-302
				147/50/30	

Tide Zone Information

Zone #	Time Corr.	Height Corr.
PWS39		X0.95

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
945-4050	CORDOVA	1/1/70	12/31/99
945-4240	VALDEZ	1/1/70	12/31/99

Statistics Summary

Type	Total:
BS	17
DEV	51.99
DP	25
MS	75.11
S/L	18.73
SPLIT	39.61
XL	21.72

Percent XL:	28.9%
SQNM:	5.8

APPROVAL SHEET

for

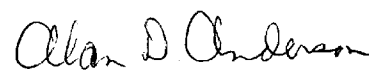
H-10774

Standard field surveying and processing procedures were followed in producing this examination in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and the Field Procedures Manual, as updated for 1994.

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.

DATE: January 7, 1998

Approved and Forwarded,



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

H-10774

GEOGRAPHIC NAMES

Name on Survey	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> A ON CHART NO. 16700, 16705 B ON PREVIOUS SURVEY NO. </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> C ON U.S. QUADRANGLE MAPS </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> D FROM LOCAL INFORMATION </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> E ON LOCAL MAPS </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> F P.O. GUIDE OR MAP </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> G RAND McNALLY ATLAS </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> H U.S. LIGHT LIST </div> </div>											
	A	B	C	D	E	F	G	H	K			
ALASKA (title)	X											1
MCCLURE BAY	X		X									2
PORT NELLIE JUAN	X		X									3
PORT NELLIE JUAN CANNERY (locale)	X		X									4
PRINCE WILLIAM SOUND (title)	X											5
												6
												7
												8
												9
												10
												11
												12
												13
												14
												15
												16
												17
												18
												19
												20
												21
												22
												23
												24
												25

Approved:

Dennis J. Rosenberg
Chief Geographer
MAR 13 1998

HYDROGRAPHIC SURVEY STATISTICS

H-10774

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

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

SHORELINE DATA	
SHORELINE MAPS (List):	DM 10194
PHOTOBATHYMETRIC MAPS (List):	N/A
NOTES TO THE HYDROGRAPHER (List):	N/A
SPECIAL REPORTS (List):	N/A
NAUTICAL CHARTS (List):	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			
SITATIONS 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	449.0		449.0
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		78.0	78.0
GEOGRAPHIC NAMES			
OTHER (Chart Compilation)		110.0	110.0
USE OTHER SIDE OF FORM FOR REMARKS			
TOTALS	449.0	188.0	527.0

Pre-processing Examination by Pacific Hydrographic Branch	Beginning Date 1/23/98	Ending Date 2/12/98
Verification of Field Data by M. Bigelow, R. Mayor, D. Doles, R. Shipley	Time (Hours) 449	Ending Date 11/1/98
Verification Check by B. Olmstead	Time (Hours) 14	Ending Date 12/4/98
Evaluation and Analysis by R. Shipley	Time (Hours) 78	Ending Date 1/7/99
Inspection by B. Olmstead, D. Hill	Time (Hours) 25	Ending Date 1/10/99

EVALUATION REPORT

H-10774

A. PROJECT

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

B. AREA SURVEYED

The survey area is adequately described in the hydrographer's report.

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 1.

The bottom consists mainly of mud, shingles and stones. Depths range from 0.5 to 335 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.

Processed 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 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 name text, line-type data, and minor symbolization. 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

See the hydrographer's report.

F. SOUNDING EQUIPMENT

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

G. CORRECTIONS TO SOUNDINGS

Soundings and elevations below Mean High Water (MHW) 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 the following tide gage: Applegate Island, gauge 945-4794. All other gauges listed in the approved tide note were not used for sounding reduction.

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:	-2.208 seconds	(-68.338 meters)
Longitude:	7.390 seconds	(112.747 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 was computed for survey operations. The quality of several positions exceed 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. The digitized file and the survey file were merged during MicroStation processing.

New rocks listed below were found by the hydrographer inshore of the NALL line and near the mean high water line. However, these features were not positioned during survey operations.

The rocks are depicted on the field sheet and no supporting position information is recorded in the survey records. These rocks have been shown on the smooth sheet.

<u>Latitude(N)</u>	<u>Longitude(W)</u>
60/32/34	148/12/07
60/32/56	148/11/10
60/32/29	148/11/02
60/29/59	148/10/50
60/29/05	148/11/20

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

There were no MHW revisions on this survey.

K. CROSSLINES

A crossline run on day 267 by vessel 2122 depicts consistently deeper depths 20-60 fathoms deeper than the mainscheme lines. The crossline extends from approximately latitude 60/33/15N, longitude 148/11/15W to latitude 60/34/06N, longitude 148/12/27W. As discussed by the hydrographer in section K., crossline depths agree much more closely with multibeam depths than with other single beam depths in the same area.

The Descriptive Report contains speculation on the causes of these large depth discrepancies between the main scheme and crossline soundings. However, the ship provided no indication in the hydrographic records of a systematic investigation in to their source. An office review of all available operational parameters and systematic check results for the echosounder in use does not disclose any obvious problem which may be the cause of the depth discrepancies. Without specific information identifying the exact conditions of operation, the evaluator cannot determine the reason for the discrepancy. The large unresolvable differences in depth between the crossline and mainscheme data caused a considerable amount of reprocessing of this survey. This resulted in the rejection of a significant number of mainscheme soundings, which are discredited by a single crossline. Accordingly, data identified in Table 1 below has been flagged as rejected and should not be used for revision of nautical charts. These data are not displayed on the smoothsheet.

<u>Table 1</u>	
<u>Starting Fix</u>	<u>Ending Fix</u>
40124+8	40125+0
40506+7	40507+1
40077+0	40077+7
40138+1 (single sounding)	
40503+4	40504+2
40067+5	40068+3
40148+1 (single sounding)	
40500+2	40501+2
40064+1	40065+1
40068+5	40065+9
40164+06 (single sounding)	
40165+0 (single sounding)	
40169+0 (single sounding)	
40175+7 (single sounding)	
40176+0 (single sounding)	
40058+0	40058+5

40498+0	40499+0
40147+0 (single sounding)	
40136+0 (single sounding)	
40137+0 (single sounding)	
40504+4	40504+5

L. JUNCTIONS

Survey H-10774 junctions with the following surveys:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10775	1997	1:40,000	West and Northwest Limits
H-10779	1997	1:10,000	Southwest Limit
H-10773	1997	1:10,000	North Limit

The junction with survey H-10779 is complete. A "Joins" note has been added to the smooth sheet where applicable. A few soundings from the junctional survey have been transferred within the common areas of H-10779 to better delineate the bottom configuration.

The junction with H-10773 reflects similar depth differences (10-40 FMS) between the 100 and 200 fathom depth curves as was noted in the crossline comparison in Section K. And, as with the multibeam comparison, depths with H-10773 reveal good agreement to 100 fathoms and below 200 fathoms. The echosounder used on H-10773 was a Knudsen 320M (single beam /dual frequency) and is believed to portray a more accurate representation of the bottom in depths ranging from 100-200 fathoms. Accordingly, data identified in Table 2 below has been flagged as rejected and should not be used for revision of nautical charts. These data are not displayed on the smoothsheet.

<u>Table 2</u>	
<u>Starting Fix</u>	<u>Ending Fix</u>
60246+0	60250+0
40092+1	40095+1

The junction with H-10775 was not formally completed since this survey was in preliminary stages of office processing. An "Adjoins" note has been added to the smooth sheet. However, a cursory inspection with a preliminary sounding plot was made and the following was noted. Several H-10774 soundings within the junction overlap are from 10-40 fathoms shoaler than H-10775 (multibeam) soundings. This area is defined between the 100 and 200 fathom depth curves and located as follows; latitude 60/32/00 N to latitude 60/34/00 N and from longitude 148/11/15 W to longitude 148/13/45 W. Agreement with multibeam data outside the specified area is satisfactory (0-3 fathoms) and reflects no consistent pattern of being shoaler and or deeper in comparison with the single beam dual frequency depth information. Analysis of these discrepancies during office processing provided no obvious problems with any systematic positional errors. It is believed that the multibeam data provides a more accurate representation of the bottom and should supersede data within the specified overlap area. Accordingly, soundings within the superseded area, and identified in table 3 below, have been flagged as rejected and should not be used for revision of nautical charts. Soundings above latitude 60/33/08N are common with crossline rejected data and can be found in section K, Crosslines.

These data are not displayed on the smoothsheet. Additional information regarding this situation is found in the hydrographer's report, section L.

Table 3

<u>Starting Fix</u>	<u>Ending Fix</u>
40494+0	40494+7
40177+0 (single sounding)	
40053+3	40054+0
40181+0 (single sounding)	
40182+0	40182+1
40492+5 (single sounding)	
40187+0 (single sounding)	
40044+4 (single sounding)	
40057+8	40058+0
40065+1	40065+2
40048+5	40049+1
40188+0	40188+1
40487+2	40487+7
40501+2	40502+0
40194+0 (single sounding)	
40034+4	40044+0
40199+0 (single sounding)	
40482+1	40482+5
40483+0 (single sounding)	
50005+0 (single sounding)	
40038+5	40039+0
50009+0 (single sounding)	
40479+8	40480+6
50013+0	50013+1
40034+0	40034+8
50017+0	50018+0
50019+0	50019+3
40477+0	40478+0

M. COMPARISON WITH PRIOR SURVEYS

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Datum</u>
H-3973	(1917)	1:20,000	Valdez

Prior survey H-3973 covers the entire area of the present survey and overlaps prior surveys conducted in 1961. The prior surveys conducted in 1961 have largely superceded the 1917 survey work within the common area. However, there are four charted soundings which originate from H-3973 that are within the present survey area. The soundings are in depths from 235 to 257 fathoms with the present soundings 3-30 fathoms shoaler. These differences may be attributed to greater sounding coverage, improved positioning and sounding methods and relative accuracy of the data acquisition techniques.

H-10774 is adequate to supercede the prior survey within the common area.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Datum</u>
H-8606	(1961)	1:10,000	NAD 27
H-8595	(1961)	1:10,000	NAD 27

Prior surveys H-8595 and H-8606 cover the entire area of the present survey. The present survey is generally shoaler from 1-3 fathoms throughout McClure Bay and out to approximately 200 fathoms along the Strait of Port Nellie Juan. In these areas, agreement with the prior depth curves generally depicts little change in configuration. However, comparison with the prior surveys in depths over 200 fathoms along the Strait of Port Nellie Juan reveals present survey depths shoaler by 20-50 fathoms. These differences are likely attributed to improper operation of sounding equipment over a steep bottom relief. Lesser differences are due to greater sounding coverage, improved positioning and sounding methods and relative accuracy of the data acquisition techniques. The depth discrepancies documented in the evaluation report, sections K, L, and M were also noted during the conduct of prior survey H-8606. The EDO and 808 fathometers were used during the 1961 survey and revealed similar depth discrepancies in areas of steep relief.

The following features were not addressed during survey operations and have been transferred to the smooth sheet in red from prior survey H-8606.

<u>Lat. (N)</u>	<u>Long. (W)</u>	<u>Feature</u>
60/33/56	148/09/42	reef
60/33/32	148/11/33	rock
60/31/16	148/13/45	rock
60/31/11	148/13/54	rock
60/33/18.5	148/11/55	4 fm sounding
60/33/17	148/11/55	4.7 fm sounding
60/33/15.5	148/11/56	3.2 fm sounding

The following features were not addressed during survey operations and have been transferred to the smooth sheet in violet from prior survey H-8595.

<u>Lat. (N)</u>	<u>Long. (W)</u>	<u>Feature</u>
60/32/53	148/09/36	rock
60/32/46	148/10/36	ledge
60/32/47.5	148/10/00.5	rock (cov 2ft at MLLW)
60/32/58	148/11/10	rock
60/32/04	148/10/04	rock
60/32/09.5	148/10/00.5	rock
60/31/05	148/09/57	ledge
60/30/52.5	148/09/48	rock
60/30/50.5	148/09/47	rock
60/30/35	148/11/00.5	rock
60/30/27	148/11/03	rock
60/30/04.5	148/10/50	rock
60/30/05.5	148/10/47	rock
60/30/07	148/10/49	rock
60/30/13	148/10/56	ledge
60/30/12.3	148/11/04.5	rock
60/29/58.5	148/11/11	rock (cov 2ft at MLLW)
60/29/58.5	148/11/16	rock
60/29/02.3	148/11/11.5	rock
60/29/23.5	148/11/08.5	rock
60/29/14	148/11/11.5	rock
60/29/12	148/11/11.5	rock
60/29/55.5	148/10/55	rock
60/29/52	148/10/57	rock
60/29/49.5	148/11/17	rock

60/29/36	148/11/27	rock
60/30/00	148/10/17	rock

With the transfer of features listed above, survey H-10774 is adequate to supersede the prior surveys within the common area.

In accordance with the Hydrographic Guideline 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, no reasonable adjustment value for prior soundings could be determined.

N. ITEM INVESTIGATIONS

No AWOIS items were assigned to this survey.

O. COMPARISON WITH CHART

Survey H-10774 was compared with the following chart:

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16705	17th	Sept. 27,1997	1:80,000	NAD83

a. Hydrography

Charted hydrography originates with the previously discussed prior surveys. The prior surveys have been adequately addressed in section M and require no further discussion. Many charted depths and features originating from the prior surveys have been generalized offshore on Chart 16705 and were found to be considerably more inshore of the charted depictions. Many of the contemporary photogrammetric shoreline rocks have been charted on top of the mean high waterline but were actually found in many cases to part of a ledge or reef feature at survey scale.

The compilation of charts from inshore survey H-10774 should take into account the significant overlap with offshore survey H-10775 and depth differences between these two contemporary surveys. The evaluator recommends charting the overlap area between these contemporary surveys using the multibeam sounding data as discussed in the evaluator's report, section L. Charts covering the survey area in depths less than 100 fathoms should be compiled using depths originating from H-10774.

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. Features from survey H-10774 have been generalized on chart 16705 along the shoreline where applicable.

Survey H-10774 is adequate to supersede charted hydrography within the common area.

b. Dangers to Navigation

One danger to navigation was discovered during survey operations and reported to USCG, NIMA, and N/CS261 on November 21, 1997. Five additional dangers to navigation were found during office processing and reported to the USCG. Copies of both reports are attached.

P. ADEQUACY OF SURVEY

With the exceptions noted below, hydrography contained on survey H-10774 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;
- c. Show the survey was properly controlled and soundings are correctly plotted;

An excessive depth discrepancy of 20-60 fathoms was noted by the hydrographer during the crossline to mainscheme comparison. This discrepancy was also noted in the comparisons with junctional surveys. The hydrographer provided speculation on numerous reasons for these differences. However, there is no indication in the hydrographic records of a systematic investigation into the source of this problem. This issue caused Pacific Hydrographic Branch over a hundred additional man-hours in analysis and reprocessing time. This also resulted in the rejection of a significant number of mainscheme soundings from this survey.

The five new rocks mentioned in section O of this report were not properly positioned.

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 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 forward their explanation through the Marine Center Director. Field work for survey H-10774 was complete on October 29, 1997 but not received for office processing until January 23, 1998.

Numerous features originating from prior surveys were not specifically addressed during survey operations. These items have been transferred to the smooth sheet and listed in the evaluation report, section M.

Q. AIDS TO NAVIGATION

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

The landmark (West Gable) in the vicinity of Port Nellie Juan Cannery was not verified during survey operations and should remain as charted. There were no other features of landmark value recommended by the hydrographer.

R. STATISTICS

Statistics are adequately itemized in the hydrographer's report.

S. MISCELLANEOUS


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

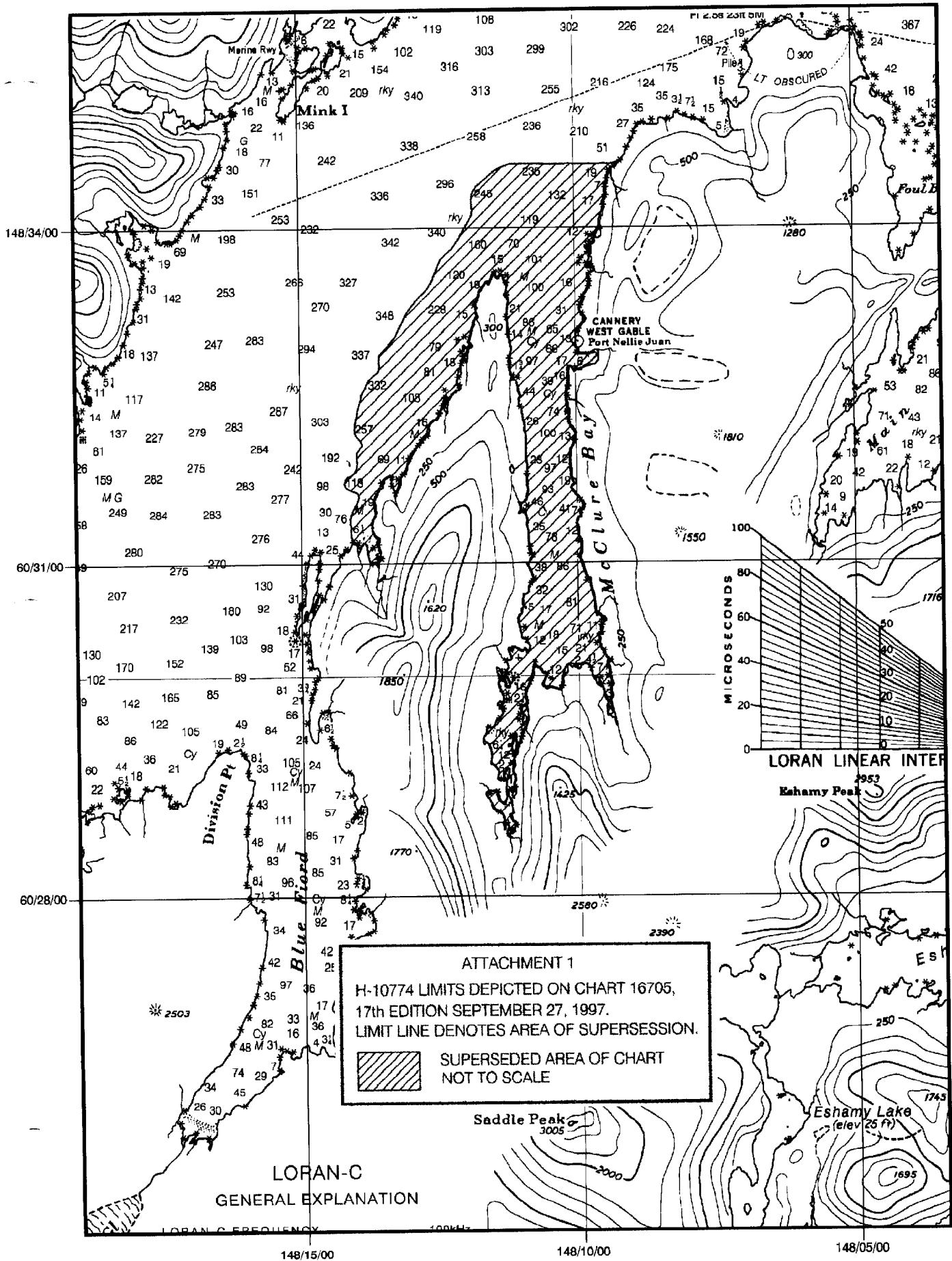
T. RECOMMENDATIONS


This survey is adequate for charting. An extensive amount of reprocessing was necessary to make this survey adequate. It was fortunate that the areas where the mainscheme soundings were deleted (addressed in Sections K, L, and M) had been covered by junction surveys. In addition, a significant number of prior survey features and soundings had to be brought forward because they were not properly addressed in the field.

U. REFERRAL TO REPORTS

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


Rick Shipley
Cartographer



ATTACHMENT 1
 H-10774 LIMITS DEPICTED ON CHART 16705,
 17th EDITION SEPTEMBER 27, 1997.
 LIMIT LINE DENOTES AREA OF SUPERSESION.
 SUPERSEDED AREA OF CHART
 NOT TO SCALE

LORAN-C
 GENERAL EXPLANATION

APPROVAL SHEET
H-10774

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 disproval of charted data. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Bruce A. Olmstead Date: 12/7/98
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.

James C. Gardner Date: 1/20/98
James C. Gardner
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Andrew A. Armstrong III Date: Jan 28, 1999
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

