H10773

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-10-24-97

Registry No. H-10773

LOCALITY

State Alaska

General Locality Northwest Prince William Sound

Sublocality Southern Culross Passage

1997

CHIEF OF PARTY
CAPT Alan D. Anderson, NOAA

LIBRARY & ARCHIVES

DATE JAN 27 1999

☆U.S. GOV. PRINTING OFFICE: 1987—756-980

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-10773

HYDROGRAPHIC TITLE SHEET

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-10-24-97

State: Alaska

General locality: Northwest Prince William Sound

Locality: Southern Culross Passage

Scale: 1:10,000 Date of survey: Sept.2 to Oct. 18, 1997

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

Vessel: RA-1(2121), RA-3(2123), RA-5(2125)

Chief of party: CAPT Alan D. Anderson, NOAA

Surveyed by: CAPT A. Anderson,LT G.Noll,LCDR D.Kruth,LCDR T.Niichel,LT K.Bailey,LT D.Baird LTJG E.VanDenAmeele,LTJG S.Smith, ST K. Callahan, ST J.Cheech

Soundings taken by echo sounder, hand lead, pole: DSF-600N, Knudsen 320M

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Evaluation by: C. Barry Automated plot by: HP Design Jet 650C

Verification by: M. Bigelow, R. Mayor, C. Barry

Soundings in fathoms ~~feet~~ at ~~Mean~~ 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.

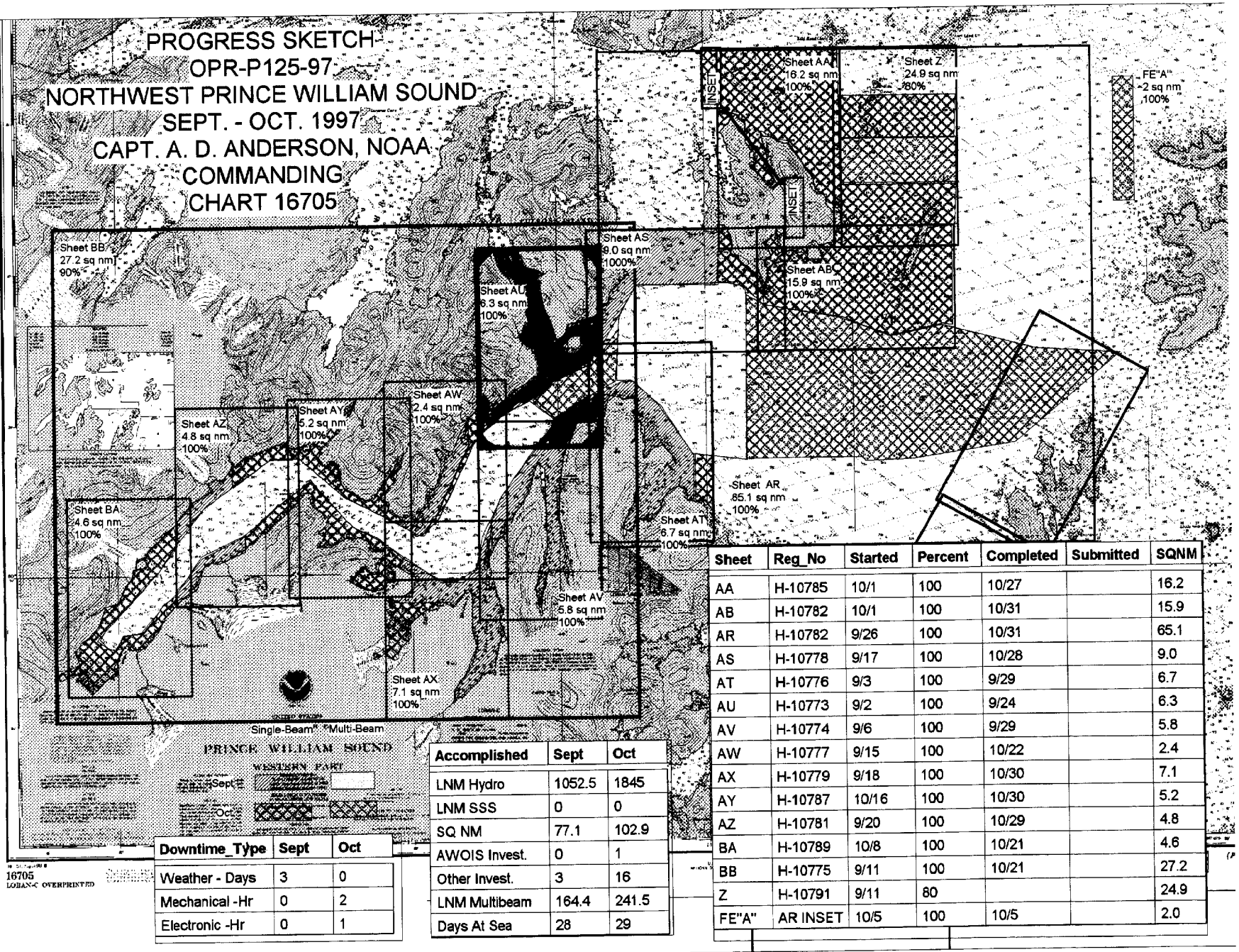
All depths listed in this report are referenced to mean lower low water unless otherwise noted.

AWOIS/SURF

12/8/99 mcR

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

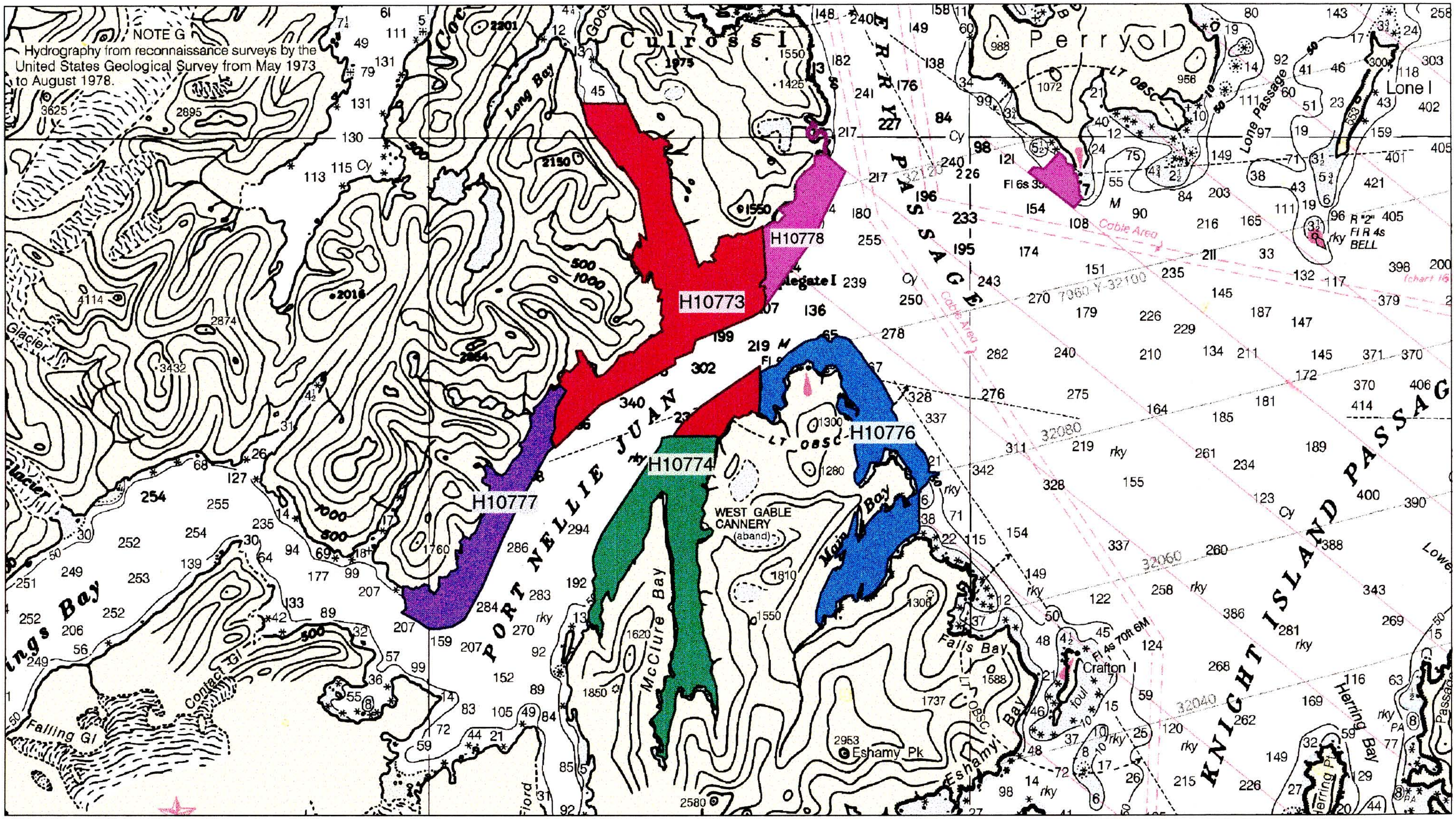
U.S. GOVERNMENT PRINTING OFFICE: 1986 - 652-007/41215



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


NOTE G
Hydrography from reconnaissance surveys by the United States Geological Survey from May 1973 to August 1978.
Culross I
Perry I
Lone I
Lone Passage
PERRY PASSAGE
KNIGHT ISLAND PASSAGE
PORT NELLIE JUAN
Long Bay
McClure Bay
Main Bay
Falls Bay
Eshamy Bay
Herring Bay
Crafton I
Eshamy Pk
WEST GABLE CANNERY (aband)
Contact Gl
Falling Gl
Glacier
Cable Area
H10773
H10774
H10776
H10777
H10778

Descriptive Report to Accompany Hydrographic Survey H-10773

Field Number RA-10-24-97
Scale 1:10,000
September 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.* Survey H-10773 corresponds to sheet AU 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 Southern Culross Passage. The survey's northern limit is latitude 60° 40' 41.5" N. The survey's southern limit is 60° 34' ~~59.5~~ 29.0 N, the western limit is 148° 15' 32.8" W and the eastern limit is 148° 07' ~~30~~ 07" W. Data acquisition ceased approximately one-~~quarter~~ half mile off shore in Port Nellie Juan within the survey limits. This boundary is the junction with H-10775 that was surveyed using IDSSS multi-beam. Data acquisition was conducted from September 02 (DN 245) to October 18, 1997 (DN 291).

C. SURVEY VESSELS ✓

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

Hydrographic data were acquired and preliminary processing was accomplished using HYPACK version 997 and bottom samples were collected using HDAPS. Using raster image and shoreline data in MapInfo facilitated charted and prior survey comparisons. Final Detached Positions, including bottoms samples, and soundings based on predicted tides were saved in MapInfo 4.1 format. All data are submitted in HPS format except bottom samples, which were collected using HDAPS. A complete listing of software for HYPACK, HPS, and 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

* CHANGE #1 DATED 9/24/97
** FILED WITH THE HYDROGRAPHIC DATA

F. SOUNDING EQUIPMENT ✓

The Raytheon DSF-6000N is a dual frequency (100 kHz, 24 kHz), paper trace echo sounder. 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 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.

G. CORRECTIONS TO ECHO SOUNDINGS ✓ SEE EVAL. REPT. SECTION G.

Two
~~Five~~ sound velocity casts were acquired for this survey 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, 2123, and 2125 in the spring of 1997. The dynamic draft data for vessels 2121 and 2123 were collected in Shilshole Bay, Washington in March 1997. The dynamic draft 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). Tidal correctors as provided in the project instructions for H-10773 are shown on the appended Survey Information Summary report. ATTACHED

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 gauges at Applegate Island (945-4794) on September 1, 1997 and Herring Point (945-4691) on September 2, 1997. The Applegate gauge was removed on October 30, 1997 and the Herring Point gauge was removed on October 31, 1997.

Refer to the Field Tide Notes and supporting data in Appendix V for individual gage performance and level closure information. This information was forwarded to N/OES212 on November 21 in accordance with HSG 50 and FPM 4.3. A request for approved tides was forwarded to N/OES23 on November 3 in accordance with FPM 4.2.3. TIDE NOTE DATED FEB. 5, 1998 IS ATTACHED

H. CONTROL STATIONS ✓ SEE EVAL. REPT. 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 STATIONS LIST IS ATTACHED

I. HYDROGRAPHIC POSITION CONTROL ✓ SEE EVAL. REPT. SECTION I

All soundings were positioned using differential GPS. Primary hydrographic control was based on VHF differential reference station at ROCK, which was also repeated on a second VHF frequency by the ship. USCG beacons located at the Kenai Peninsula and Cape Hinchinbrook were used as secondary stations. Stations on Kodiak Island and Potato Point were also received in this area. Cape Hinchinbrook was used as the reference station for all positions when data were converted from HYPACK to HPS. The station was chosen

* FILED WITH THE HYDROGRAPHIC DATA

to yield the worst possible EDE for all positions, insuring any soundings with poor positioning were rejected from the survey.

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. FILED WITH THE HYDROGRAPHIC DATA

J. SHORELINE ✓ SEE EVAL. REPT. 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-10188,✓ DM- 10293,✓ and 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 *notes_au* 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 manuscript and field features were compared to an enlargement of chart 16705 BSB version, 1996, 16th edition.* This was converted to a raster image and registered in MapInfo for HPS sounding comparison. There was general agreement between the charted and manuscript shoreline and what the hydrographer found on this survey. * AND 16705 17TH Ed., 9/27/97

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. Shoreline verification data was analyzed during office processing and shown on the smooth sheet as warranted.

A 50-meter radius search was conducted on all charted and manuscript features that were not found during the survey. These areas were also developed with a minimum line spacing of 25 meters to insure the feature did not exist. It is recommended to remove the following features from their respective sources. DO NOT CONCUR Refer to the smooth sheet for graphic portrayal of these areas. The present survey found features near or at the charted locations except as noted below.

	Feature	Latitude (N)	Longitude (W)	Line spacing of disproval	
✓	2 Charted rocks	60° 36' 47.185"	148° 09' 26.953"	25m developments	See Eval Rpt, Section M
✓	2 Charted rocks	60° 36' 56.923"	148° 09' 21.406"	10m developments	See Eval Rpt, Section O.
✓	Charted rock	60° 37' 07.111"	148° 08' 58.495"	10m developments	Survey found 05 SDG (See Eval Rpt, Section M)
✓	DM rock	60° 37' 01.290"	148° 09' 20.509"	10m developments	Ledge plots 50 meters to East
✓	DM rock	60° 37' 03.904"	148° 09' 04.982"	10m developments	6' Pattern SDG found. Ledge located 30 meters to West
✓	Charted rock	60° 35' 15.252"	148° 15' 17.712"	10m developments	Reef (4) shown on smooth sheet
✓	Charted rock	60° 37' 16.032"	148° 08' 13.204"	10m developments	Ledge and 0m rock on smooth sheet

The following table lists new rocks found outside of the NALL that were not depicted on the chart or manuscript. All new positions were verified by detached field positions

Fix	Depth (meters)	Depth (fathoms)	Latitude	Longitude	Smooth Sheet Portrayal
11245	0.40	0.22	60° 34' 58.747"	148° 15' 22.005"	* cov 1 ft
11246	-0.10	-0.05	60° 35' 00.398"	148° 15' 21.845"	* (1)
11247	0.90	0.50	60° 34' 59.778"	148° 15' 22.021"	Ø5 Rk
11248	-0.10	-0.05	60° 34' 58.496"	148° 15' 16.146"	* (1)
11274	0.40	0.22	60° 37' 37.439"	148° 09' 58.652"	* cov 1 ft
11280	0.90	0.50	60° 37' 42.247"	148° 09' 44.538"	Ø5 Rk
11281	1.40	0.77	60° 37' 43.100"	148° 09' 43.196"	* (1)
11287	-2.00	-1.10	60° 37' 43.723"	148° 09' 37.250"	* (1)
11297	1.00	0.55	60° 37' 50.592"	148° 09' 28.876"	Ø5 Rk
11304	0.50	0.27	60° 37' 59.706"	148° 09' 20.526"	* cov 1 ft
11316	0.30	0.17	60° 38' 10.812"	148° 09' 00.886"	* cov 1 ft
11447	1.80	0.98	60° 39' 50.204"	148° 11' 20.899"	1 Rk
11452	0.20	0.12	60° 39' 53.379"	148° 11' 08.384"	* (1)
12606	0.30	0.17	60° 35' 00.390"	148° 08' 23.940"	* cov 1 ft
31262	-0.60	-0.33	60° 37' 39.917"	148° 09' 33.410"	* (3)
31265	0.10	0.05	60° 37' 01.540"	148° 09' 09.816"	* (3)
31333	-0.20	-0.12	60° 35' 39.251"	148° 14' 35.181"	* (1)
31351	1.00	0.55	60° 35' 43.852"	148° 14' 56.821"	Ø5 Rk
31425	1.70	0.93	60° 35' 57.322"	148° 13' 00.793"	1 Rk
32331	0.70	0.38	60° 36' 12.612"	148° 11' 23.212"	* cov 2 ft
32353	-0.30	-0.17	60° 36' 40.102"	148° 11' 19.840"	* (1)
32372	-0.30	-0.17	60° 37' 05.232"	148° 11' 22.980"	* (1)
32413	0.90	0.50	60° 37' 38.381"	148° 11' 47.265"	Ø5 Rk

K. CROSSLINES ✓

Crosslines agreed within 1 meter with mainscheme hydrography, except in areas of steep bathymetry. There were a total of 15.73 nautical miles of crosslines, comprising 10% of mainscheme hydrography.

L. JUNCTIONS ✓ SEE EVAL. REPT. SECTION L

This survey junctions with the 1994 survey H-10637, 1:10,000 on the north. The survey also junctions with the 1997 surveys: H-10778, 1:10,000 and H-10776, 1:10,000 to the east, H-10777, 1:10,000 to the west, H-10774, 1:10,000 to the south, and H-10775, 1:40,000 through the center. The survey junctions with H-10775 approximately one quarter mile off shore in Port Nellie Juan. Soundings on both the 1996 and 1997 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 EVAL. REPT. SECTION M

The following prior surveys cover the survey area. H-8606, 1:10,000, 1961, covers the southern areas of the survey, Port Nellie Juan and Mink Island. H-8607, 1:10,000, 1961 covers the Northern areas, Culross Passage and Applegate Island. H-3973, 1:10,000, 1917 coves Port Nellie Juan and is the least detailed of the surveys. The prior soundings agreed well with the present survey, except where shoaler depths were found during this survey with denser sounding coverage. A charted 33 fathom depth at 60° 36' 30.384" N, 148° 10'

37.844" W was not found with 50 meter line spacing. A 35* fathom depth was found on this survey 30 meters to the south of the 33 fathom sounding found on the prior survey H-8606. Large discrepancies of up to 80 fathoms exist between the survey and prior survey H-8606 100-600 meters off shore in Port Nellie Juan. CONCUR There seems to be good agreement between the survey and prior survey H-3973 in these areas leading the hydrographer to believe that the H-8606 survey may not have been accurate in deep water. It is recommended that soundings from survey H-10773 supersede those from prior surveys. CONCUR Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.
PRIOR SURVEY H-8608, 1961, 1:10,000, COVERS THE NORTHERN MOST EXTENT OF THE SURVEY AREA. * Depths of 17^8 to 33 fathoms also exist within 200 meters north of prior 35 fathom sounding.

N. ITEM INVESTIGATIONS ✓ THERE WERE NO AWOIS ITEMS ASSIGNED TO THIS SURVEY

Three least depth dives were performed on September 24, 1997 (DN 267).

Position	Latitude (N)	Longitude (W)	Depth (fathoms)*	Depth (meters)
✓ 35885	60° 36' 55.343"	148° 09' 54.458"	5.2^0 RK	9.61
✓ 35886	60° 37' 52.511"	148° 10' 37.682"	3.97 RK	7.26.7
✓ 35887	60° 36' 07.253"	148° 12' 01.231"	3.85 RK	6.9

Chart 5 RK
Chart 3½ RK
Chart 3½ RK

✓1. A 5.7 fathom depth was encountered during hydrographic operations on a previously charted 6 fathom shoal. A least depth dive on this site led to the discovery of a shoaler depth of 5.2 fathoms.

✓2. A 4.2 fathom depth was encountered during hydrographic operations on a previously charted 9 fathom shoal. A least depth dive on this site led to the discovery of a shoaler depth of 3.9 fathoms.

✓3. A 3.7 (5) fathom shoal was discovered in-between 100 meter line spacing of the prior survey 8606 that reported an 8 to 9 fathom depth in this area. The least depth dive resulted in a deeper depth of 3.8 fathoms. Only predicted tides, not real tides have been applied to the depth measured by the echo sounder; this may account the difference between the two depths from this survey. CONCUR
* After application of approved tides

O. COMPARISON WITH THE CHART ✓ SEE EVAL REPT. SECTION O

Charts 16700, 1:200,000, 25th edition, 9/21/96 and 16705, 1:80,000, 16th edition, 8/24/96* are the largest scale charts covering the survey area. Comparison of soundings is described 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. *AND 16705, 1:80,000, 17TH Ed., 9/27/97

Dangers to Navigation ✓ SEE EVAL. REPT. SECTION O. (b)

The following dangers to navigation were reported to the Seventeenth Coast Guard District on November 20, 1997. Copies of the correspondence can be found in ~~Appendix I of~~ this report. DANGERS TO NAVIGATION CORRESPONDENCE IS ATTACHED

Feature	Depth (fathoms)	Latitude (N)	Longitude (W)	Position	Depth (meters)
✓ Submerged rock	3 3/4	60° 37' 52"	148° 10' 37"	35886 *	6.7 2.2 (3.7 Fms) RK
✓ Submerged rock	5 3/4	60° 37' 04"	148° 09' 57"	19077	10.9 (5.9 Fms) RK
✓ Submerged rock	5	60° 36' 55"	148° 09' 54"	35885 *	9.6 (5 RK)

* SEE ATTACHED DANGER TO NAVIGATION LETTER FROM RAINIER

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

Survey H-10773 is complete and adequate to supersede prior soundings and features in their common areas. Do not CONCUR

Q. AIDS TO NAVIGATION ✓

No navigational aids exist within the survey area. CONCUR

R. STATISTICS ✓ SURVEY INFORMATION SUMMARY IS ATTACHED

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.

T. RECOMMENDATIONS ✓

The hydrographer recommends that minimum bottom sample spacing on surveys be increased to twenty centimeters at the scale of the survey unless the hydrographer needs denser spacing to show variability of characteristics or to delimit anchorage areas. Concur

U. REFERRAL TO REPORTS ✓

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

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

Respectfully Submitted,

Jason C. Creech
Survey Technician, NOAA

Approved and Forwarded,

Alan D. Anderson
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 1 Dec 1997 ✓

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

ADVANCE INFORMATION

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

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

* THERE ARE DUPLICATES OF THESE POSITION NUMBERS IN THE SOUNDING LISTING. WHEN RESEARCHING BASED ON THESE POSITION NUMBERS, REFERENCE THE INFORMATION SHOWN UNDER THE DP LISTING.

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.

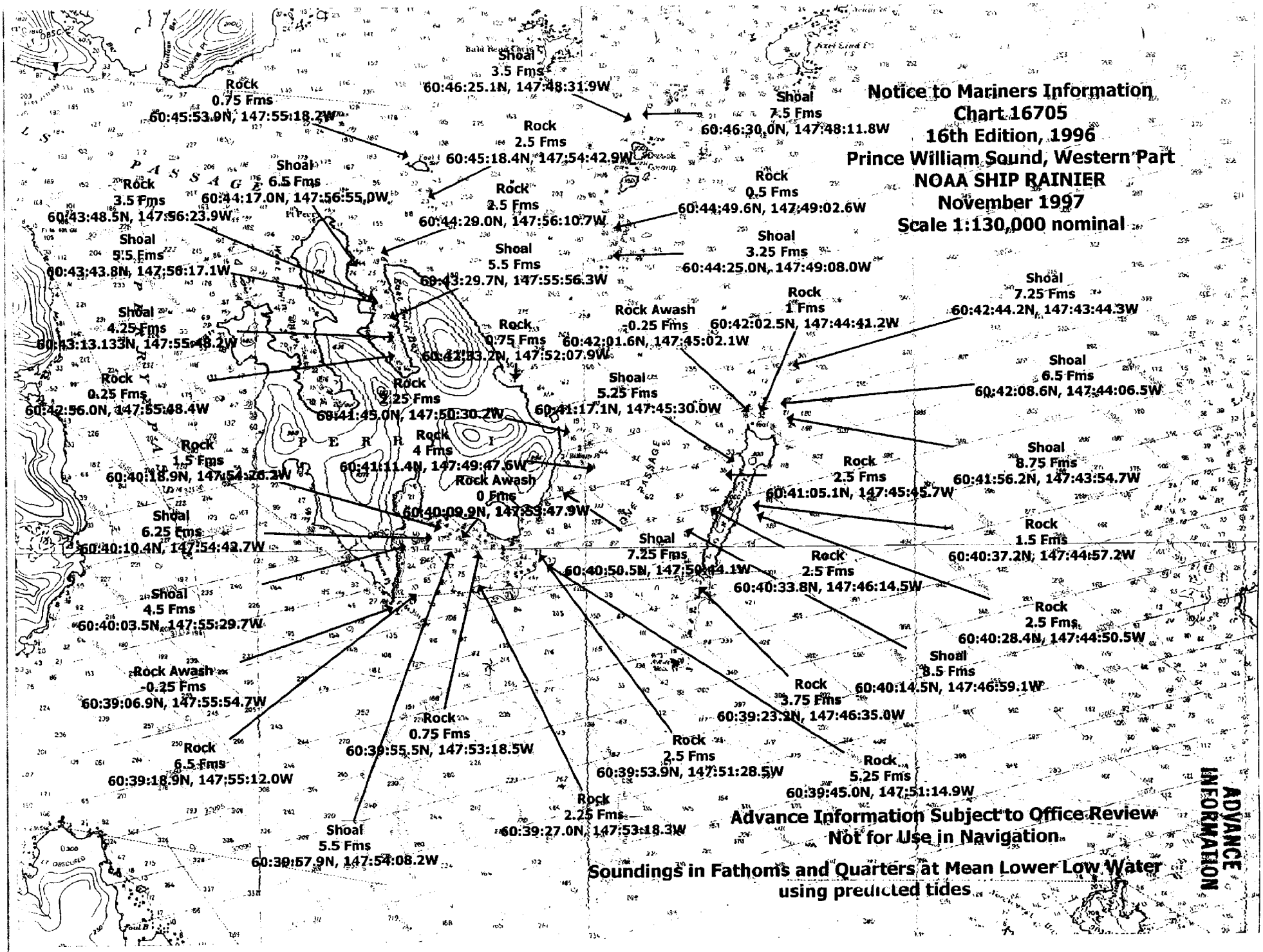
Sincerely,

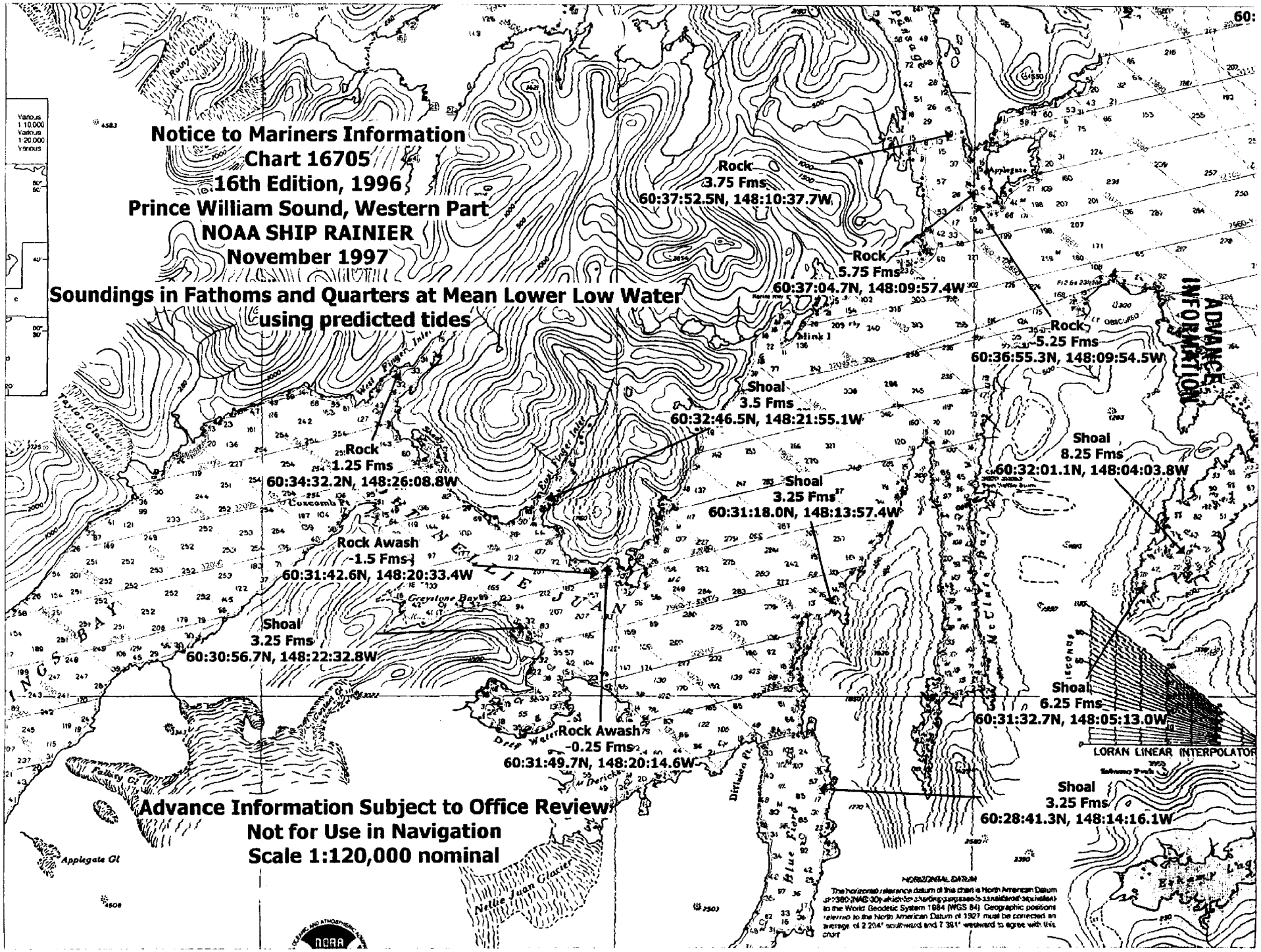
Alan D. Anderson

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
Scale 1:130,000 nominal
Shoal 3.5 Fms 60:46:25.1N, 147:48:31.9W
Rock 0.75 Fms 60:45:53.9N, 147:55:18.2W
Shoal 7.5 Fms 60:46:30.0N, 147:48:11.8W
Rock 2.5 Fms 60:45:18.4N, 147:54:42.9W
Rock 0.5 Fms 60:44:49.6N, 147:49:02.6W
Shoal 6.5 Fms 60:44:17.0N, 147:56:55.0W
Rock 3.5 Fms 60:43:48.5N, 147:56:23.9W
Rock 2.5 Fms 60:44:29.0N, 147:56:10.7W
Shoal 3.25 Fms 60:44:25.0N, 147:49:08.0W
Shoal 5.5 Fms 60:43:43.8N, 147:56:17.1W
Shoal 5.5 Fms 60:43:29.7N, 147:55:56.3W
Shoal 7.25 Fms 60:42:44.2N, 147:43:44.3W
Rock 1 Fms 60:42:02.5N, 147:44:41.2W
Rock Awash 0.25 Fms 60:42:01.6N, 147:45:02.1W
Rock 0.75 Fms 60:42:33.2N, 147:52:07.9W
Shoal 4.25 Fms 60:43:13.133N, 147:55:48.2W
Shoal 6.5 Fms 60:42:08.6N, 147:44:06.5W
Rock 0.25 Fms 60:42:56.0N, 147:55:48.4W
Rock 2.25 Fms 60:41:45.0N, 147:50:30.2W
Shoal 5.25 Fms 60:41:17.1N, 147:45:30.0W
Rock 4 Fms 60:41:11.4N, 147:49:47.6W
Shoal 8.75 Fms 60:41:56.2N, 147:43:54.7W
Rock 1.5 Fms 60:40:18.9N, 147:54:26.2W
Rock 2.5 Fms 60:41:05.1N, 147:45:45.7W
Rock Awash 0 Fms 60:40:09.9N, 147:53:47.9W
Shoal 6.25 Fms 60:40:10.4N, 147:54:42.7W
Rock 1.5 Fms 60:40:37.2N, 147:44:57.2W
Shoal 7.25 Fms 60:40:50.5N, 147:50:14.1W
Rock 2.5 Fms 60:40:33.8N, 147:46:14.5W
Shoal 4.5 Fms 60:40:03.5N, 147:55:29.7W
Rock 2.5 Fms 60:40:28.4N, 147:44:50.5W
Shoal 8.5 Fms 60:40:14.5N, 147:46:59.1W
Rock Awash -0.25 Fms 60:39:06.9N, 147:55:54.7W
Rock 3.75 Fms 60:39:23.2N, 147:46:35.0W
Rock 0.75 Fms 60:39:55.5N, 147:53:18.5W
Rock 6.5 Fms 60:39:18.9N, 147:55:12.0W
Rock 2.5 Fms 60:39:53.9N, 147:51:28.5W
Rock 5.25 Fms 60:39:45.0N, 147:51:14.9W
Rock 2.25 Fms 60:39:27.0N, 147:53:18.3W
Shoal 5.5 Fms 60:39:57.9N, 147:54:08.2W
Advance Information Subject to Office Review
Not for Use in Navigation
Soundings in Fathoms and Quarters at Mean Lower Low Water
using predicted tides
ADVANCE INFORMATION


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
Rock
3.75 Fms
60:37:52.5N, 148:10:37.7W
Rock
5.75 Fms
60:37:04.7N, 148:09:57.4W
Rock
5.25 Fms
60:36:55.3N, 148:09:54.5W
Shoal
3.5 Fms
60:32:46.5N, 148:21:55.1W
Rock
1.25 Fms
60:34:32.2N, 148:26:08.8W
Shoal
3.25 Fms
60:31:18.0N, 148:13:57.4W
Shoal
8.25 Fms
60:32:01.1N, 148:04:03.8W
Rock Awash
-1.5 Fms
60:31:42.6N, 148:20:33.4W
Shoal
3.25 Fms
60:30:56.7N, 148:22:32.8W
Shoal
6.25 Fms
60:31:32.7N, 148:05:13.0W
Rock Awash
-0.25 Fms
60:31:49.7N, 148:20:14.6W
Shoal
3.25 Fms
60:28:41.3N, 148:14:16.1W
Advance Information Subject to Office Review
Not for Use in Navigation
Scale 1:120,000 nominal
ADVANCE INFORMATION
LORAN LINEAR INTERPOLATOR
HORIZONTAL DATUM
NOAA

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

July 22, 1998

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

Dear Sir,

During office review of hydrographic survey H-10773, Alaska, Northwest Prince William Sound, Southern Culross Passage, nine additional features were found and are considered to be potential dangers to navigation.

It is recommended that the enclosed Report of Dangers to Navigation be included in the Local Notice To Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6835.

Sincerely,

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

Enclosure

cc: NIMA
N/CS261

REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10773

Survey Title: State: Alaska
Locality: Northwest Prince William Sound
Sublocality: Southern Culross Passage

Project Number: OPR-P125-RA, NOAA Ship Rainier

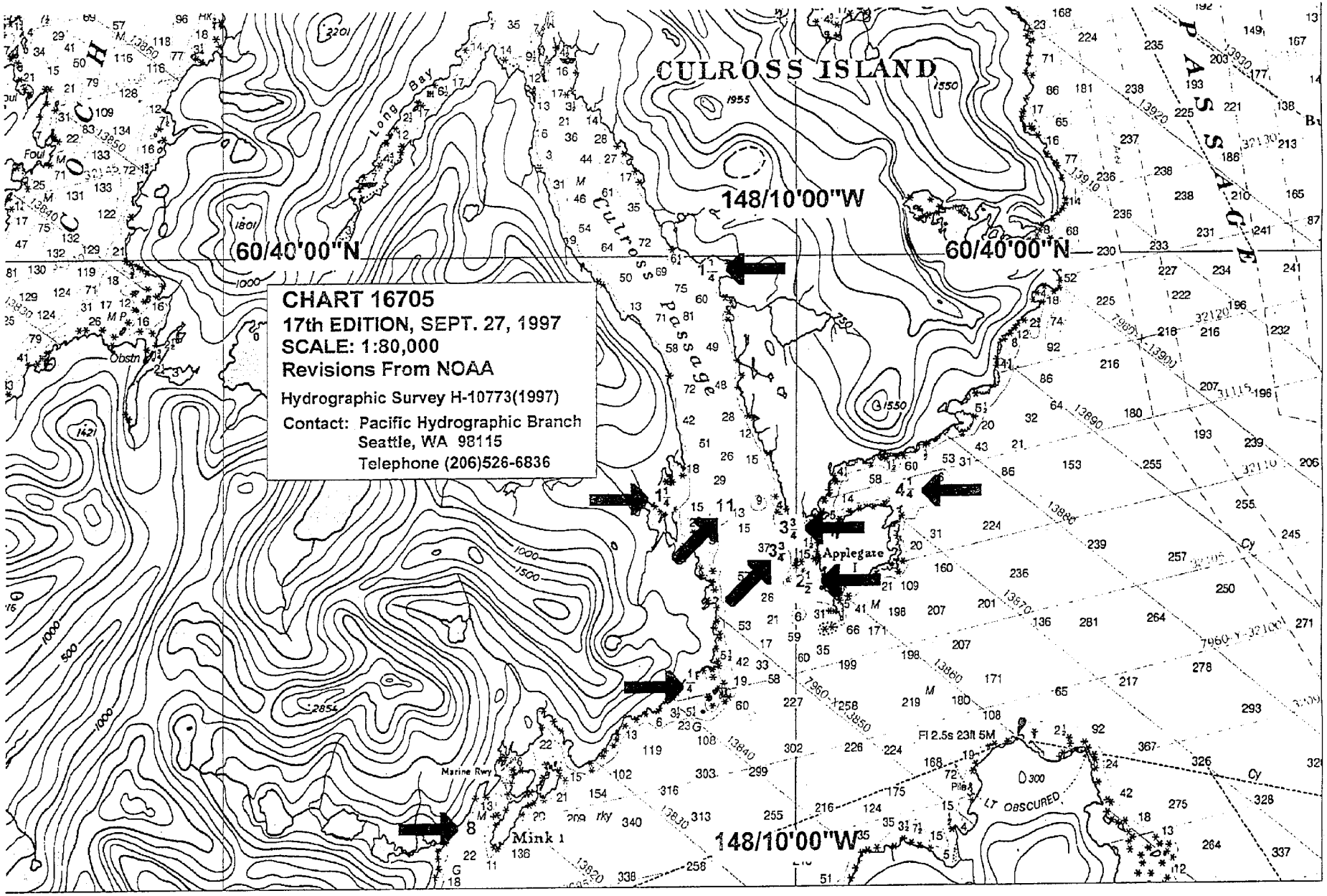
Survey Date: September 2- October 18, 1997

Soundings are reduced to Mean Lower Low Water using approved tides and are positioned on NAD 83.

Affected Nautical Chart	Edition	Date	Datum
16705	17th Edition	Sept. 27, 1997	NAD83

Danger to Navigation	Latitude (N)	Longitude (W)
1 ¼ fathoms, rock	60°39'50.204"	148°11'20.899"
1 ¼ fathoms, shoal	60°37'52.718"	148°12'06.899"
11 fathoms, shoal	60°37'46.993"	148°11'01.799"
3 ¾ fathoms, shoal	60°37'26.528"	148°10'04.202"
3 ¾ fathoms, shoal	60°37'34.616"	148°09'53.299"
4 ¼ fathoms, shoal	60°37'55.995"	148°07'53.801"
2 ½ fathoms, shoal	60°37'08.586"	148°09'39.979"
¼ fathom, shoal	60°36'20.357"	148°11'38.038"
8 fathoms, shoal	60°35'07.610"	148°15'27.271"

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch, at (206) 526-6835.


CULROSS ISLAND
PASSAGE
Culross Passage
Long Bay
148/10'00"W
60/40'00"N
CHART 16705
17th EDITION, SEPT. 27, 1997
SCALE: 1:80,000
Revisions From NOAA
Hydrographic Survey H-10773(1997)
Contact: Pacific Hydrographic Branch
Seattle, WA 98115
Telephone (206)526-6836
Applegate I
Mink I
Marine Rwy
Obstn
LT OBSCURED
Fl 2.5s 23ft 5M

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: AU **Registry Number:** H-10773

Sheet Number: RA-10-24-97

Survey Title: SOUTHERN CULROSS PASSAGE

Data Acquisition Dates: **From:** 02-Sep-97 245 **To:** 18-Oct-97 291

Vessel Usage Summary

VESNO	MS	SPLITS	DEV	XL	S/L	DP	BS	DIVE
2121	14	13	12	3	13	15		
2123	7	3	6	2	12	12		1
2125							1	

Sound Velocity Cast Information

Launch Table #	Ship Table #	Cast DN	Max Depth	Position	Applicable DN
1		247	786.4	60/35/12	
				148/12/54	
2		260	632	60/35/30	
				148/10/20	

Tide Zone Information

Zone #	Time Corr.	Height Corr.
PWS43		X0.94

Tide Gage Information

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

Statistics Summary

Type	Total:
BS	23
DEV	47.79
DIVE	2
DP	50
MS	155.07
S/L	20.97
SPLIT	95.19
XL	15.73

Percent XL:	10.1%
SQNM:	6.3

APPROVAL SHEET

for

H-10773

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: December 5, 1997

Approved and Forwarded,

Alan D Anderson

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-10773

LOCALITY: Northwest Prince William Sound, AK

TIME PERIOD: Sep 2 - Oct 18, 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.

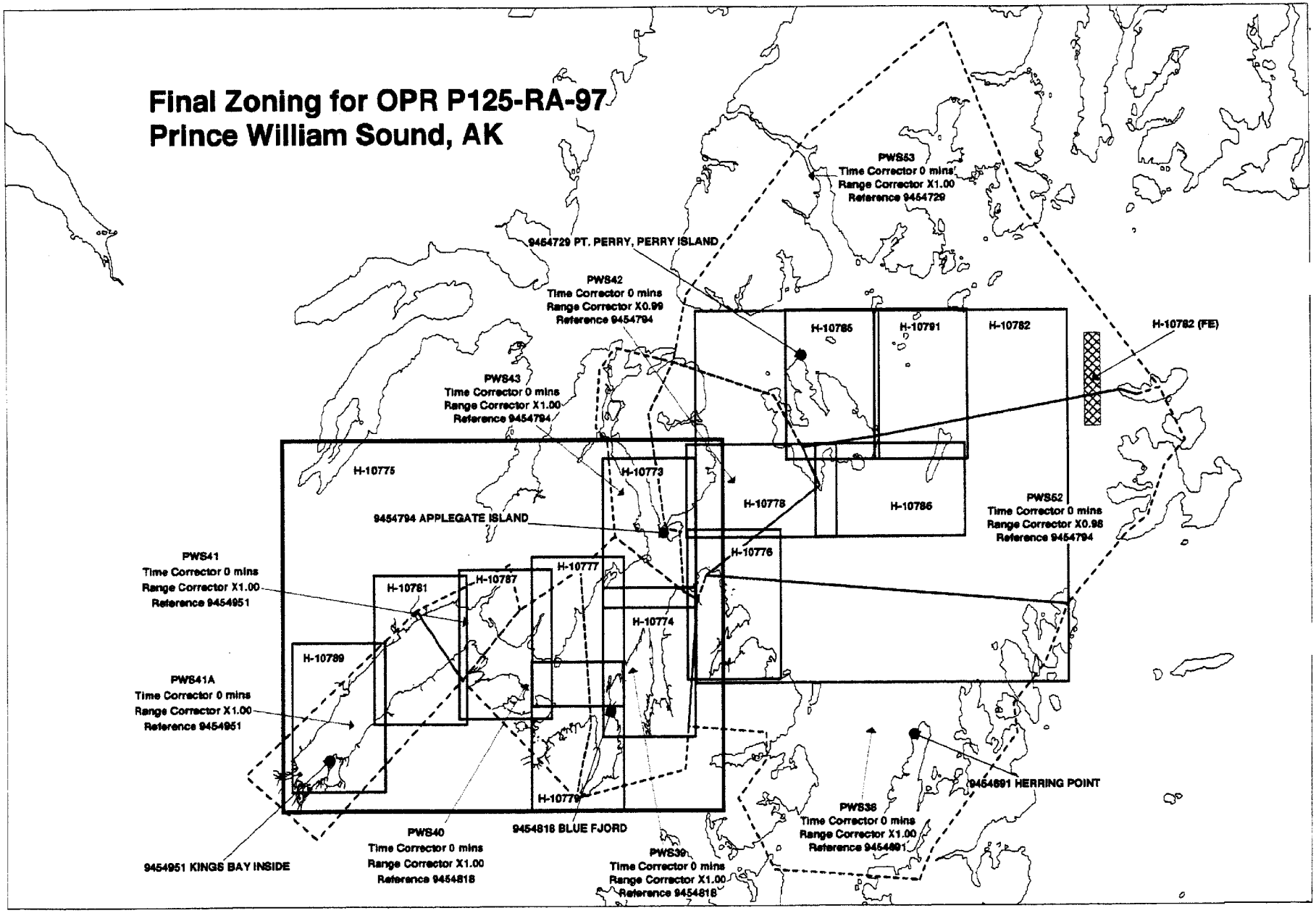
CHIEF, OPERATIONAL ANALYSIS BRANCH

Final tide zone node point locations for OPR P125-RA-97,
Sheet H-10773.

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			

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-10773

GEOGRAPHIC NAMES

Name on Survey	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	
ALASKA (title)	X									1
APPLEGATE ISLAND	X		X							2
CULROSS ISLAND	X		X							3
CULROSS PASSAGE	X		X							4
MINK ISLAND	X		X							5
~~PICTURESQUE COVE~~			~~X~~							6
PORT NELLIE JUAN	X		X							7
PRINCE WILLIAM SOUND (title)	X		X							8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Approved:

Dennis J. Lonsdale

FEB 20 1998

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27(H) (9-83)

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER: H-10773

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

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	1					
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES				1		

SHORELINE DATA

SHORELINE MAPS (List):	DM-10188, DM-10194, DM-10293
PHOTOBATHYMETRIC MAPS (List):	N/A
NOTES TO THE HYDROGRAPHER (List):	N/A
SPECIAL REPORTS (List):	N/A
NAUTICAL CHARTS (List):	Chart 16705, 17th Ed., Sept. 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	406		406
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		125	125
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	406	125	531

Pre-processing Examination by M. Bigelow	*Beginning Date* 12/5/97	*Ending Date* 12/20/97
Verification of Field Data by R. Mayor, C. Barry	*Time (Hours)* 406	*Ending Date* 9/16/98
Verification Check by B. Olmstead	*Time (Hours)* 10	*Ending Date* 9/16/98
Evaluation and Analysis by C. Barry	*Time (Hours)* 125	*Ending Date* 9/16/98
Inspection by B. Olmstead	*Time (Hours)* 8	*Ending Date* 9/17/98

EVALUATION REPORT

H-10773

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. In the Port Nellie Juan area of the survey, single beam data acquisition terminates seaward of 250 to 300 fathoms, approximately one-half mile from shore, to junction with multibeam survey H-10775. See section L for details on the junction with H-10775.

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. Page-size plots of the charted area depicting the limits of supersession accompany this report as Attachment 1.

The bottom consists mainly of gray mud. Depths range from 0 to 320 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 Hydrographic Data Acquisition/Processing System (HDAPS), HYPACK, Hydrographic Processing System (HPS), and MicroStation 95.

Digital data for this survey exists in the standard HPS format, a database format using the .dbf extension. In addition, the plot is filed both in the MicroStation drawing format, i.e., .dgn (extension), and in the more universally recognized graphics transfer format, .dxf (extension). Copies of these files will be retained at PHB until data forwarded to headquarters has been accepted and approved. 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

Side scan sonar and multibeam echo sounder equipment were not used during survey H-10773.

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 the following tide gauge: Applegate Island, AK, tide gauge 945-4794. The following tide gauges listed on the approved tide note were not used for sounding reduction: Herring Point, Knight Island Passage, AK, tide gauge 945-4691; Pt. Perry, Perry Island, AK, tide gauge 945-4729; Blue Fjord, AK, tide gauge 945-4818; and Kings Bay Inside, AK, tide gauge 945-4951.

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:	-2.204 seconds	(-68.220 meters)
Longitude:	7.399 seconds	(112.524 meters)

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 some 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.

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 maps DM 10188, DM 10194, and DM 10293, scale 1:20,000, were compiled on NAD83 and apply to this survey. Shoreline drawn on the smooth sheet in black originates from the above digital data as provided by the Coastal Mapping Program. The shoreline data and the hydrographic data were merged during MicroStation processing.

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

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10773 junctions with the following surveys:

Survey	Year	Scale	Area
H-10637	1994	1:10,000	North
H-10774	1997	1:10,000	South
H-10775	1997	1:40,000	Mid-Channel
H-10776	1997	1:10,000	East
H-10777	1997	1:10,000	West
H-10778	1997	1:10,000	East

The junctions with surveys H-10775, H-10776 and H-10778 are complete. Comparison of H-10773 single beam soundings and H-10775 multibeam soundings in the common area show good agreement. These soundings were generally found to agree within 1-2 fathoms with no consistent pattern of deeper or shoaler depths. Some soundings from the junctional surveys H-10776 and H-10778 have been transferred within the common area of H-10773 to better delineate the bottom configuration. A "Joins" note has been added to the smooth sheet where applicable.

The junction with H-10637 was not formally completed since this survey was processed previously. However, depths are in good agreement within the common area. Some soundings from the junctional survey H-10637 have been transferred within the common area of H-10773 to better delineate the bottom configuration. Because standard depth curves have not been brought into coincidence, standard depths on H-10773 have been drawn to reflect both data sets within the common area. An "Adjoins" note has been added to the smooth sheet.

The junction with survey H-10777 was not formally completed since this survey is in preliminary office processing. The junction with this survey will be addressed in the evaluation report for survey H-10777.

There is disparity between H-10773 and H-10774 junctional soundings offshore of 100 fathoms. While curves correspond closely, H-10774 soundings are shoaler than H-10773 soundings by 10 to 40 fathoms. A comparison using the prior surveys as a baseline for examination of soundings was not practical because the accuracy of these soundings has been called into question (see section M). A comparison was made of soundings between the two nearshore single beam surveys and the offshore multibeam survey, H-10775. This examination revealed good agreement between soundings from H-10773 and H-10775, but poor agreement between soundings from H-10774 and H-10775. Based on this comparison, data on H-10774 have been rejected within the junctional area and a butt junction has been affected with H-10773. See the H-10774 Evaluation Report for further discussion of this issue.

M. COMPARISON WITH PRIOR SURVEYS

Prior surveys H-8606, H-8607 and H-8608 cover the entire area of the present survey. A discussion of comparison of these prior surveys with the present survey follows.

Survey	Year	Scale
H-8608	(1961)	1:10,000

The maximum water depth in the area of H-8608 prior survey coverage is 73 fathoms. In comparison with H-10773, soundings were found to generally agree within 1-2 fathoms, with the smooth sheet soundings chiefly *shoaler* than the prior survey soundings. In some areas of

20–60 fathoms water depth, the smooth sheet soundings were found to be 3 to 4 fathoms *shoaler* than the prior survey.

Survey	Year	Scale
H-8606	(1961)	1:10,000
H-8607	(1961)	1:10,000

The area of common coverage with these prior surveys ranges from the mean high water line to depths of 320 fathoms. In comparison with H-10773, soundings were found to generally differ by 1-4 fathoms. However, larger differences, ranging from 4-11 fathoms, are readily seen in isolated areas in depths less than 50 fathoms. Average differences of 7-16 fathoms are generally seen when comparing to the prior surveys between 50 and 100 fathoms. The area of greatest difference occurs in depths over 150 fathoms where the present survey reveals average differences of 31-43 fathoms. The present survey reveals a consistently deeper trend throughout the common area with the prior surveys. A comparison with the current photogrammetric shoreline and the prior survey reveals no significant discrepancies.

Depth discrepancies of a few fathoms may be attributed to greater sounding coverage, improved positioning, sounding methods and relative accuracy of the data acquisition techniques. Additionally, the descriptive report for H-8606 mentions discrepancy of echo sounder depths along the steep slopes between the EDO and 808 fathometers. While the bottom configuration at 50-200 fathoms is relatively gentle, the earlier echo sounder problems may potentially be a contributing factor. A comparison made between the nearshore single beam survey, H-10773, and the offshore multibeam survey, H-10775, revealed good agreement between soundings. This finding supports the theory that an undetected problem with data acquisition or processing occurred during the 1961 survey.

Numerous prior rocks and ledges have been brought forward in color to the smooth sheet. These features generally fall outside the NALL and were not specifically addressed by the hydrographer.

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, however no conclusive adjustment value for prior soundings could be determined.

With the inclusion of prior soundings and features brought forward outside the NALL line, survey H10773 is adequate to supersede the prior surveys within the common area.

N. ITEM INVESTIGATIONS

There were no AWOIS items assigned to this survey. Three "least depth" dives were performed on September 24, 1997. They were adequately addressed in section N of the hydrographer's report.

O. COMPARISON WITH CHART

Survey H-10773 was compared with the following chart:

Chart	Edition	Date	Scale
16705	17th	Sept. 27, 1997	1:80,000

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.

Two rocks, charted at Lat. 60°36'47"N, Long. 148°09'27"W, do not appear on the 1961 prior survey. Further historical research identified the source for these two rocks as prior survey H-3973 (1917, 1:20,000). These rocks are discredited on H-3973 with the annotation "corr. RHC 10/24/58" clearly stated on an otherwise difficult to decipher prior survey image. During the present survey an investigation was conducted using 25 meter line spacing with no indication of the charted rocks. Prior survey H-8606 and the present survey, which are in good agreement in this area, show 23-44 fathoms water depth at the location of the charted rocks. The evaluator recommends that these rocks be deleted from the chart.

Two rocks, charted at Lat. 60°36'57"N, Long. 148°09'21"W, do not appear on any source document. An investigation was conducted using 10 meter line spacing with no indication of either charted rock. Prior survey H-8606 and the present survey, which are in good agreement in this area, show 10-25 fathoms water depth at the location of the charted rocks. A reef at the soutwest tip of Applegate Island exists 80-170 meters east of the charted positions of the rocks and is likely part of the same feature. The evaluator recommends that these rocks be deleted from the chart.

The evaluator recommends that the islets at Lat. 60°37'15"N, Long. 148°09'31"W and Lat. 60°36'6"N, Long. 148°11'36"W be deleted from the chart. The first feature, located in a cove on the western shore of Applegate Island, originates from an unascertainable source. The islet is charted shoreward of the NALL, and no indication of the feature is evident in present or prior survey records. The second item also originates from an unascertainable source, with no evidence in present survey records or on prior survey H-8606, to support its presence on the chart.

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 areas on the present survey containing features, which might be subject to generalization, are alongshore and inside the NALL.

H-10773 is adequate to supersede charted hydrography within the common area.

b. Dangers To Navigation

Three (3) dangers to navigation were discovered during survey operations and reported to the USCG on November 21, 1997. Nine (9) additional dangers to navigation were found during office processing. These were reported to the USCG, NIMA and N/CS1 on July 22, 1998. Copies of both reports are attached.

P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10773 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.

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 following exceptions:

The transfer of H-10773 survey data from the field unit to PHB did not occur in a timely manner. 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-10773 was complete on October 18, 1997 but not received for office processing until January 5, 1998.

A few features originating from prior surveys, seaward of the NALL, were not specifically addressed during survey operations. These items have been transferred to the smooth sheet.

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.

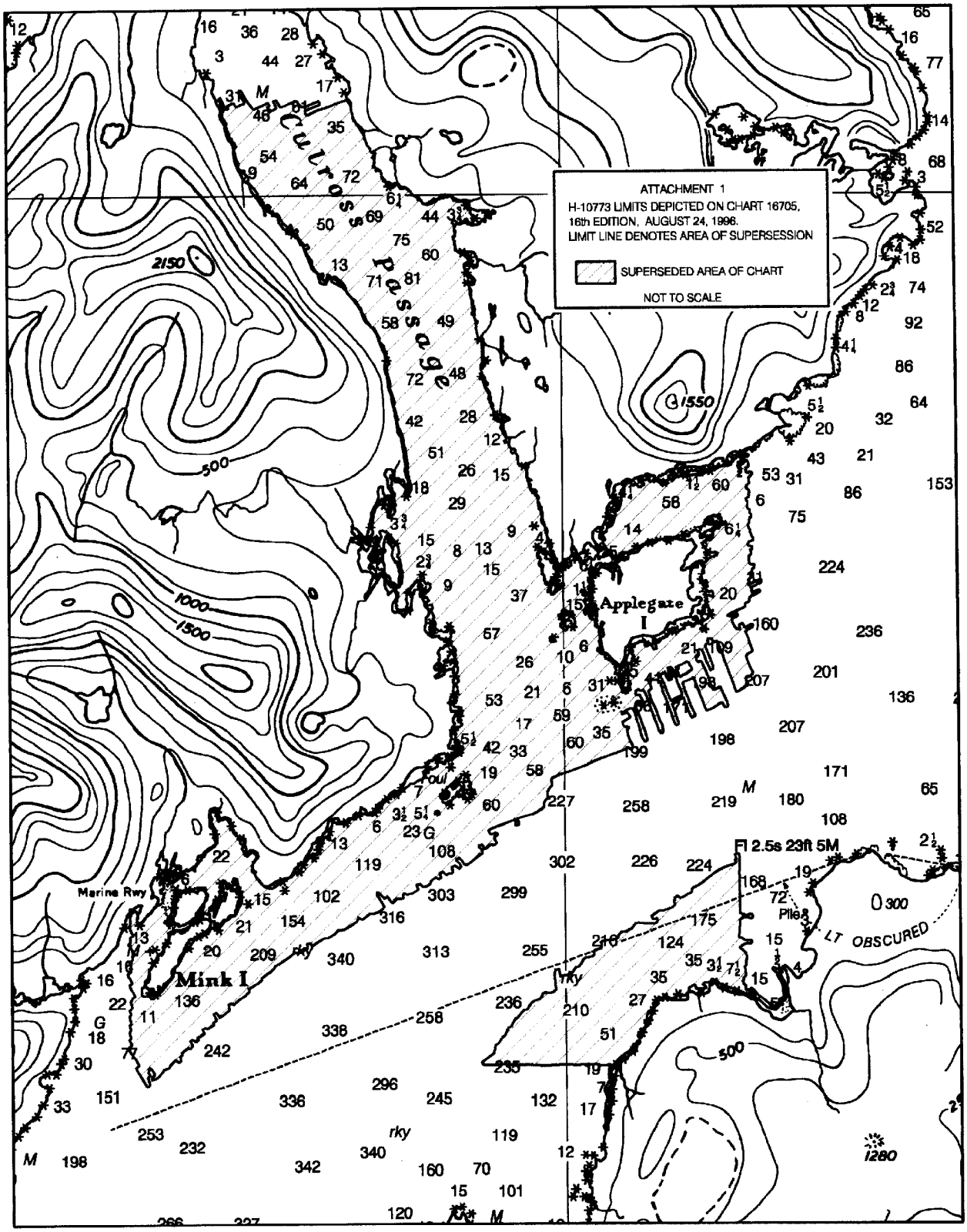
T. RECOMMENDATIONS

This is a good hydrographic survey. No additional work is recommended.

U. REFERRAL TO REPORTS

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

C.J. Barry
Cartographer


ATTACHMENT 1
H-10773 LIMITS DEPICTED ON CHART 16705,
16th EDITION, AUGUST 24, 1996.
LIMIT LINE DENOTES AREA OF SUPERSESSION
SUPERSEDED AREA OF CHART
NOT TO SCALE
Curtis Passage
Applegate I
Mink I
Marine Rwy
Fl 2.5s 23ft 5M
LT OBSCURED
Pile
1550
1280
2150
500
1000
1500

APPROVAL SHEET
H-10773

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: 9/24/98
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: 9/30/98
James C. Gardner
Commander, NOAA
Chief, Pacific Hydrographic Branch

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Final Approval

Approved:

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

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10773

INSTRUCTIONS

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

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

CHART	DATE	CARTOGRAPHER	REMARKS
16705	9/17/98	C.J. Barry	Full ~~Part Before~~ After Marine Center Approval Signed Via Full application of
			Drawing No. soundings, curves and features from smooth sht.
16705	2/16/99	MATT Kroll	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via applied sndgs,
			Drawing No. curves, features to chart thru BP-167122
16700	2/16/99	MATT Kroll	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via applied sndgs,
			Drawing No. curves, features to chart thru 16705
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
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SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.