

H10785

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-10-31-97
Registry No.	H-10785
LOCALITY	
State	Alaska
General Locality	Northwest Prince William Sound
Sublocality	Northern Portion of Perry Island and Vicinity
19 97	
CHIEF OF PARTY CAPT Alan D. Anderson, NOAA	
LIBRARY & ARCHIVES	
DATE	OCT 15 1998

## HYDROGRAPHIC TITLE SHEET

H-10785

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-10-31-97

State AlaskaGeneral locality Northwest Prince William SoundLocality Northern Portion of Perry Island and VicinityScale 1:10,000 Date of survey Oct. 1 to Oct 27, 1997Instructions dated 8/27/97, Change #1-9/24/97 Project No. OPR-P125-RAVessel NOAA Ship RAINIER Launches (2122), (2124), (2125), (2126)Chief of party CAPT Alan D. Anderson, NOAASurveyed by CAPT A. Anderson, LT G. Noll, LCDR T. Nichel, LT S. Lemke, LT D. Baird,SST J. Jacobson, SST S. Baum, SST N. Quanbeck, ST J. CheechSoundings taken by echo sounder, ~~DSF-6000N, Knudsen 320M~~ DSF-6000N, Knudsen 320MGraphic record scaled by RAINIER PersonnelGraphic record checked by RAINIER PersonnelEvaluation by: R. Davies Automated plot by HP Design Jet 650C PlotterVerification by R. DaviesSoundings in fathoms ~~FEET~~ at ~~MSL~~ MLLW and tenths

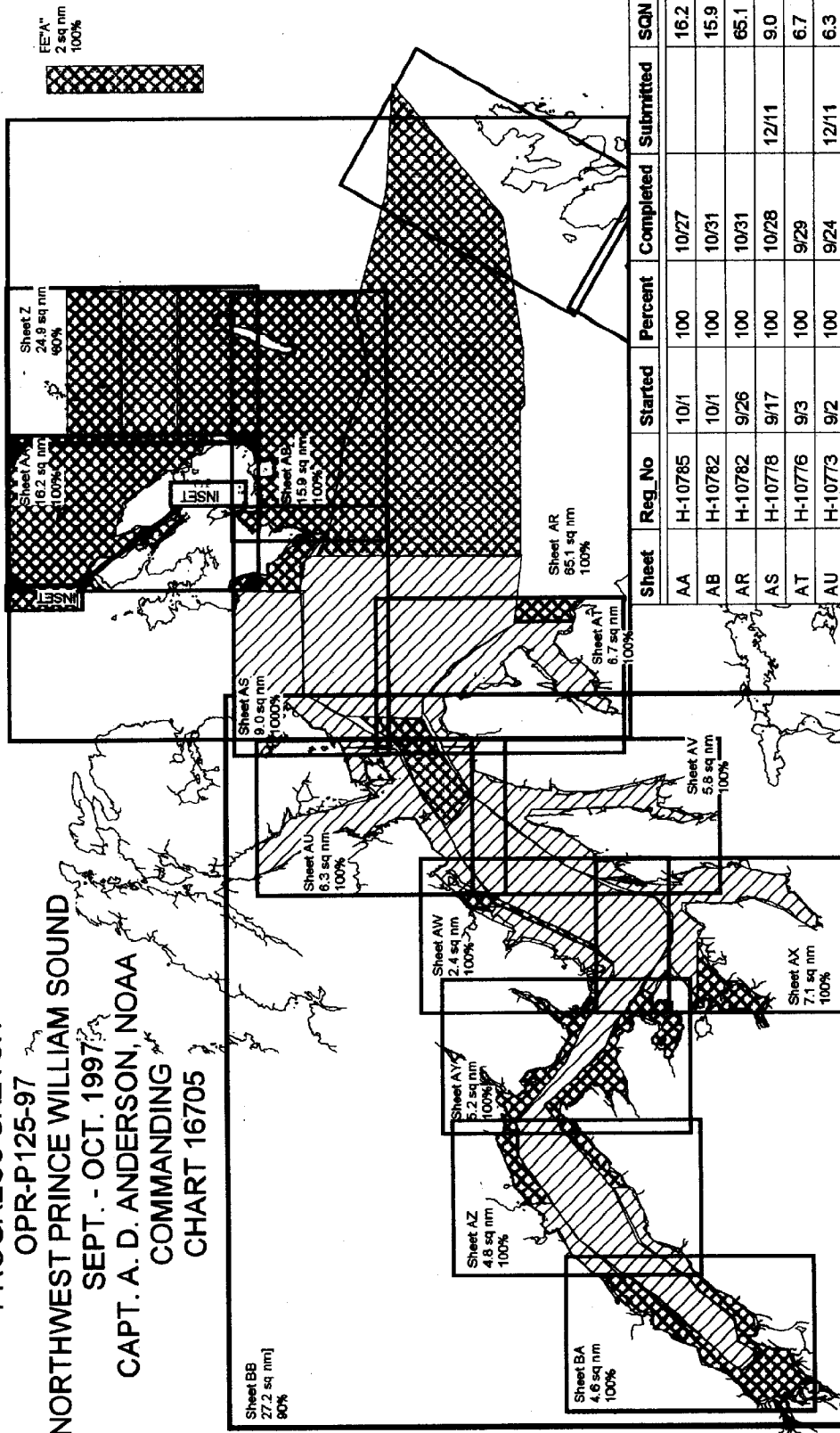
REMARKS: Time in UTC, revisions and marginal notes in black were generated  
during office processing. All separates are filed with the  
hydrographic data, as a result page numbering may be interrupted  
or non-sequential.

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

AWOLS & SURF 9/22/98 mcr

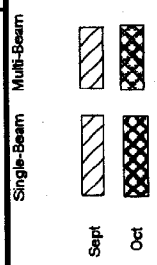


PROGRESS SKETCH  
 OPR-P125-97  
 NORTHWEST PRINCE WILLIAM SOUND  
 SEPT. - OCT. 1997  
 CAPT. A. D. ANDERSON, NOAA  
 COMMANDING  
 CHART 16705



Sheet	Reg_No	Started	Percent	Completed	Submitted	sqn
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	12/11	9.0
AT	H-10776	9/3	100	9/29		6.7
AU	H-10773	9/2	100	9/24	12/11	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
AWO/S 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

# Descriptive Report to Accompany Hydrographic Survey H-10785

Field Number RA-10-3 -97

Scale 1:10,000

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-10785 corresponds to sheet AA and holiday inset as defined in the sheet layout. This survey will provide data to supersede surveys performed in 1912 and 1947. 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 ERAC Report, section B*

The survey area is in <sup>Northwest</sup> Prince William Sound, in the vicinity of <sup>North Perry Island</sup> North Perry Island. The survey's northern limit is latitude 60° 46' 45" N. The survey's southern limit is 60° 41' 45" N, the western limit is 148° 00' 00" W and the eastern limit is 147° 51' 00" W. Data acquisition was conducted from October 1 to October 27, 1997 (DNs 274-300).

## C. SURVEY VESSELS ✓

Data were acquired by RAINIER and her survey launches as noted in the Survey Information Summary printout <sup>attached</sup> 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 reduced to MLLW using 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.

*CONCERN*

## F. SOUNDING EQUIPMENT ✓

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

## G. CORRECTIONS TO ECHO SOUNDINGS

Two sound velocity casts were acquired within the survey limits as shown in the appended Survey

\* Filed with the hydrographic data.

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

A static transducer depth was determined using FPM Fig 2.2 for vessels 2121, 2122, 2123, and 2125 in the spring of 1997. 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-10785 are shown on the <sup>attached</sup> 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, Herring Point (945-4691) on September 2, 1996, and Point Perry on September 30, 1997. The Applegate tide gage was removed October 30, 1997, Herring Point, and Point Perry gages were removed on October 31, 1997. Perry Point should be used for final datum reduction.

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.

*Approved tide note, dated Feb 5, 1998 is attached to this report.*

**H. CONTROL STATIONS** *See EVM 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.

**I. HYDROGRAPHIC POSITION CONTROL** *See EVM Report, section I*

All soundings were positioned using differential GPS. Primary 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. A VHF differential reference station at ROCK and repeated on a second VHF frequency by the ship was used when possible.

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 Euvac 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 file from DM-10189 was 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 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 what 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. *Shoreline verification data has been analyzed during office processing and shown on the smooth sheet & warranted.*

**K. CROSSLINES**

Crosslines agreed within 1 meter with mainscheme hydrography, <sup>CONCUR</sup> except in areas of steep bathymetry. There were a total of 21.99 nautical miles of crosslines, comprising 12.3% of mainscheme hydrography.

**L. JUNCTIONS** See Euvac Report, section L

This survey junctions with the 1993 survey H-10517, 1:20,000 on the north, the 1995 surveys H-10634, 1:10,000, and H-10657, 1:10,000 on the west and the 1997 surveys H-10791, 1:10,000 on the east. Soundings on these surveys agreed within 2 meters. Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after reduction to final vertical datum.

**M. COMPARISON WITH PRIOR SURVEYS** See Euvac Report, section M

Prior survey H-3408, 1:20,000, 1912 covers this survey. The prior soundings agreed well with the present survey, except where shoaler depths were found during this survey with denser sounding coverage. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.

**N. ITEM INVESTIGATIONS** ✓

Three dives were performed on this survey to further determine the least depths in shoal areas. For further information see the dive investigation reports and DP records included with the survey records. \*

**O. COMPARISON WITH THE CHART** See Euvac Report, section O

Charts 16705, 1:80,000, 16<sup>th</sup> edition, 8/96 is the largest scale chart covering the survey area. Comparison of soundings is described in Section M. A bight on the west shore of the eastern Twin Bay is marked foul on the chart based on the prior survey. The hydrographer recommends removing the foul designation from the

\* Filed with the hydrographic data.

chart. A small navigable bay located on the NE side of Perry Island is not depicted on the prior survey or the chart. The hydrographer recommends adding the bay to the chart. 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.

The following 10 items were reported to the Seventeenth Coast Guard District on November 21, 1997 as dangers to navigation. Copies of the correspondence can be found in Appendix I of this report.

<u>Item Reported</u>	<u>Fathom(s)</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Fix #</u>	<u>Meter(s)</u>
Shoal	6.84 *	60:44:17.0	147:56:55.0 ✓	20132+6	11.9
Rock	2.84 *	60:44:29.0	147:56:10.7 ✓	20285+3	4.5
Shoal (rky)	4.251 *	60:43:13.1	147:55:48.2 ✓	20325+5	7.7
Rock	0.739 *	60:45:53.9	147:55:18.2 ✓	41053+0	1.7
Rock	2.87 *	60:45:18.4	147:54:42.9 ✓	41130+3	5
Rock, Dive	0.78 *	60:42:33.2	147:52:07.9 ✓	41231+0	1.5
Rock, Dive	5.86 *	60:43:43.8	147:56:17.1 ✓	41232+0	10.3
Rock	3.96 *	60:43:48.5	147:56:23.9 ✓	60262+3	6.6
Shoal	5.86 *	60:43:29.7	147:55:56.3 ✓	60350+3	10.1
Rock	0.250 *	60:42:56.0	147:55:48.4 ✓	60485+0	0.8

✓  
Just offshore of ledge  
rky (not least depth)  
rky (not least depth)

\* After approved tides applied.

**P. ADEQUACY OF SURVEY** ✓

Survey H-10785 is complete and adequate to supersede prior soundings and features in their common areas. CMCW

**Q. AIDS TO NAVIGATION** ✓

No navigational aids or landmarks exist within the survey area.

**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. No Secchi disk observations were performed on this survey.

**T. RECOMMENDATIONS** ✓

None.

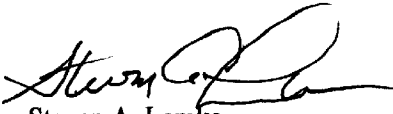
**U. REFERRAL TO REPORTS** ✓

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	November, 1997	N/CS26
Project related data for OPR-P125-RA	Incremental	N/CS34

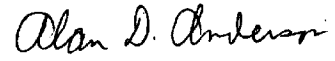


Respectfully Submitted,



Steven A. Lemke  
Lieutenant, NOAA

Approved and Forwarded,



Alan D. Anderson  
Captain, NOAA  
Commanding Officer

CONTROL STATIONS as of 18 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	DDN DGPS
3		060:03:23.000	146:41:48.000	0	0	0.0	0.0	03/01/96	POTATO POINT USCG BEACON
4		060:39:13.513	147:58:26.500	18	0	0.0	0.0	00/00/00	ROCK



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

NOAA Ship RAINIER  
 November 21, 1997

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

**ADVANCE  
 INFORMATION**

Dear CDR Hamblett:

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

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



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](mailto:FOO.RAINIER@NOAA.GOV).

Sincerely,

*Alan D. Anderson*  
 Alan D. Anderson  
 Captain, NOAA  
 Commanding Officer

Attachment

cc: NIMA  
 PMC  
 N/CS261  
 N/CS34

**ADVANCE  
 INFORMATION**

**Notice to Mariners Information**

**Chart 16705**

**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**

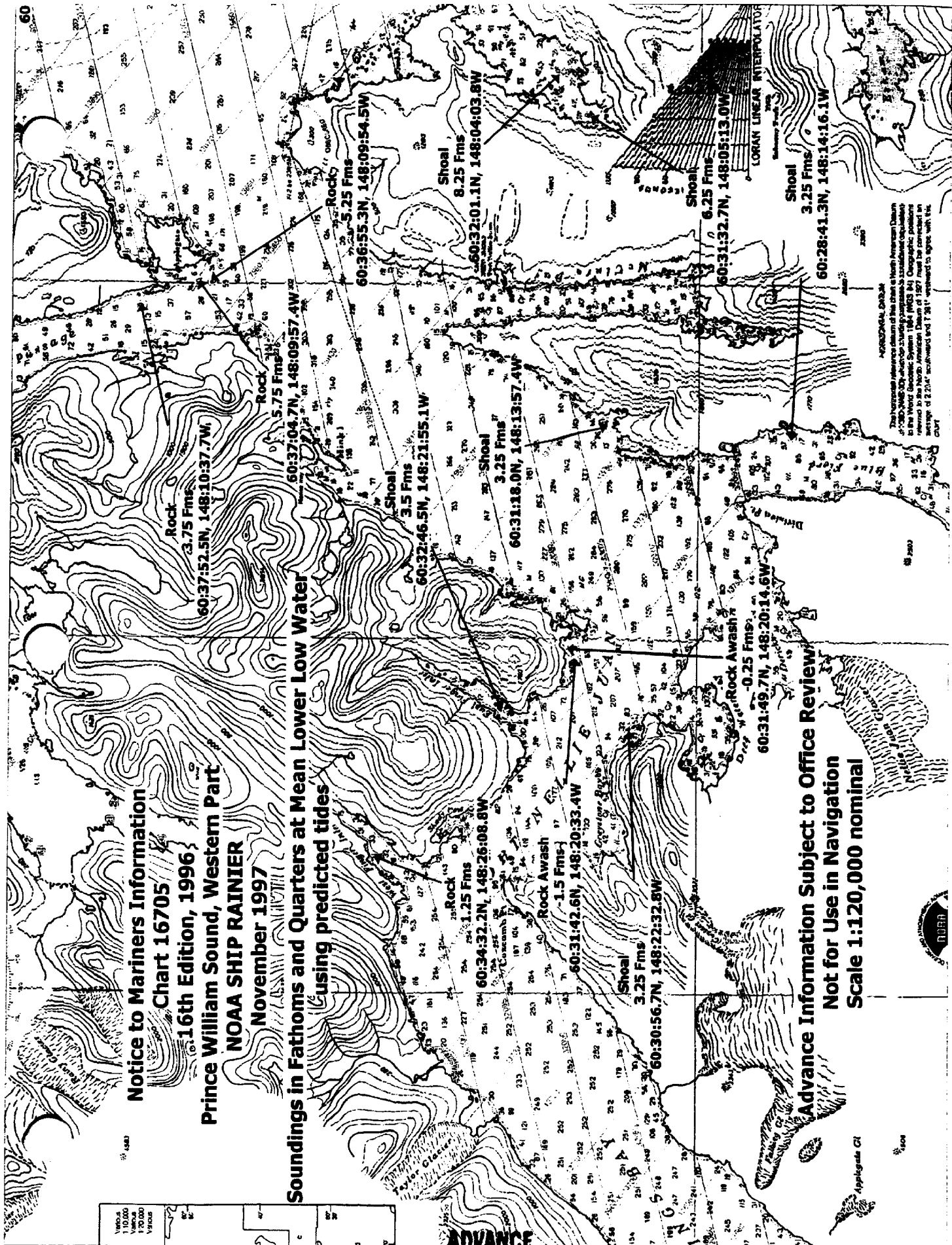
**Advance Information Subject to Office Review  
Not for Use in Navigation  
Scale 1:120,000 nominal**

VERTICAL  
SCALE  
VARIES  
1:200,000  
VARIES

Applicable CI

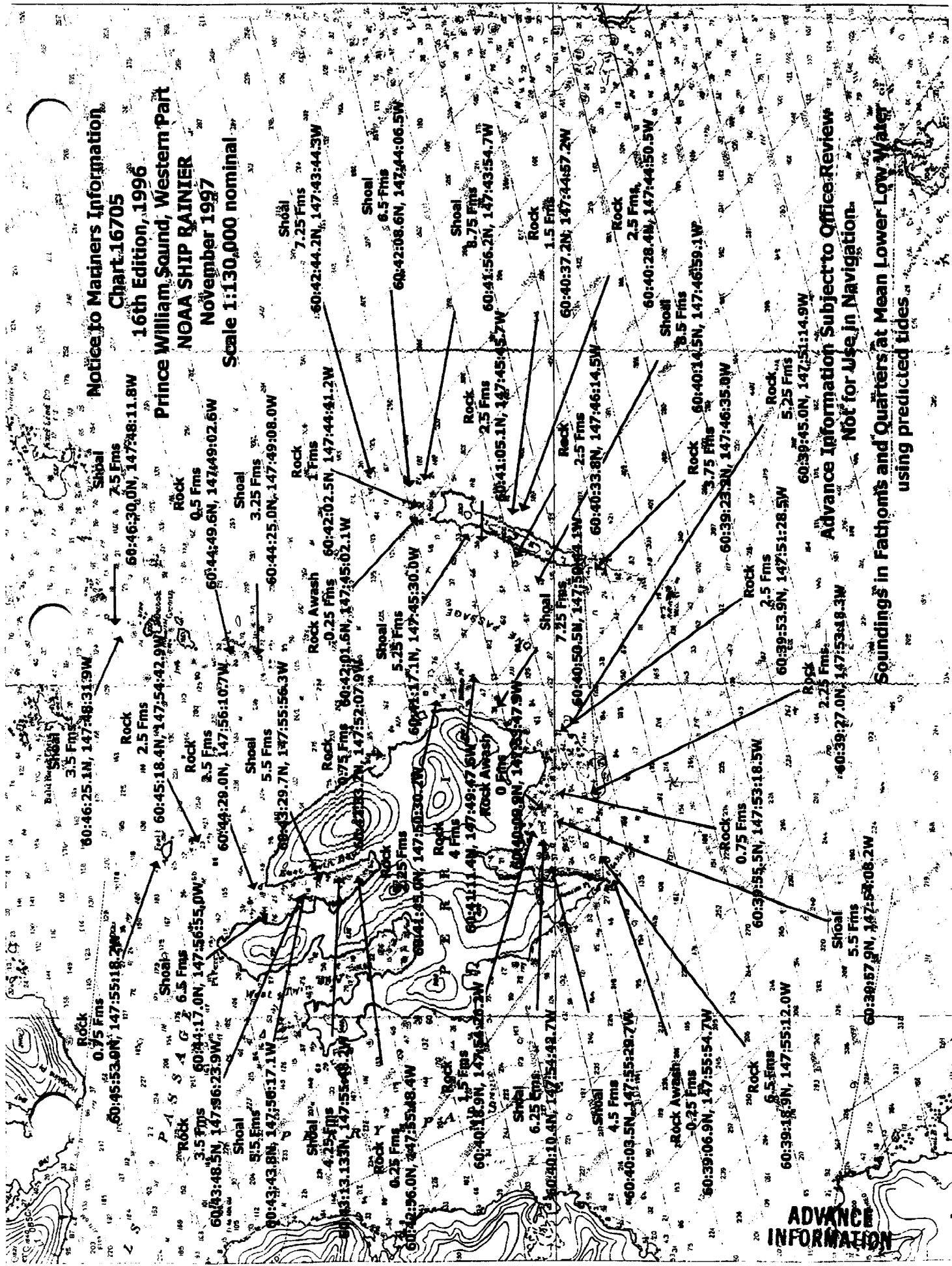


The vertical reference datum of this chart is Mean American Datum  
at the Survey Station 1984 1603 841. Chartographic projection  
referenced to the North American Datum of 1983 used for construction  
average of 2.204" northward and 1.381" westward to agree with WGS  
84 datum.



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



**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 6, 1998

Commander (OAN)  
Seventeenth Coast Guard District  
P.O. Box 25517  
Juneau, AK 99802

Dear Sir:

During office review of hydrographic survey H-10785, Alaska, Northwest Prince William Sound, Vicinity of North Perry Island, seven additional shoal soundings 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) 526-6836.

Sincerely,

Kathy A. Timmons  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

Enclosure

cc: NIMA  
NCS/261



REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10785

Survey Title:           State:           ALASKA  
                          Locality:       NORTHWEST PRINCE WILLIAM SOUND  
                          Sublocality:   VICINITY OF NORTH PERRY ISLAND

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

Survey Date:           OCTOBER 1 -OCTOBER 27, 1997

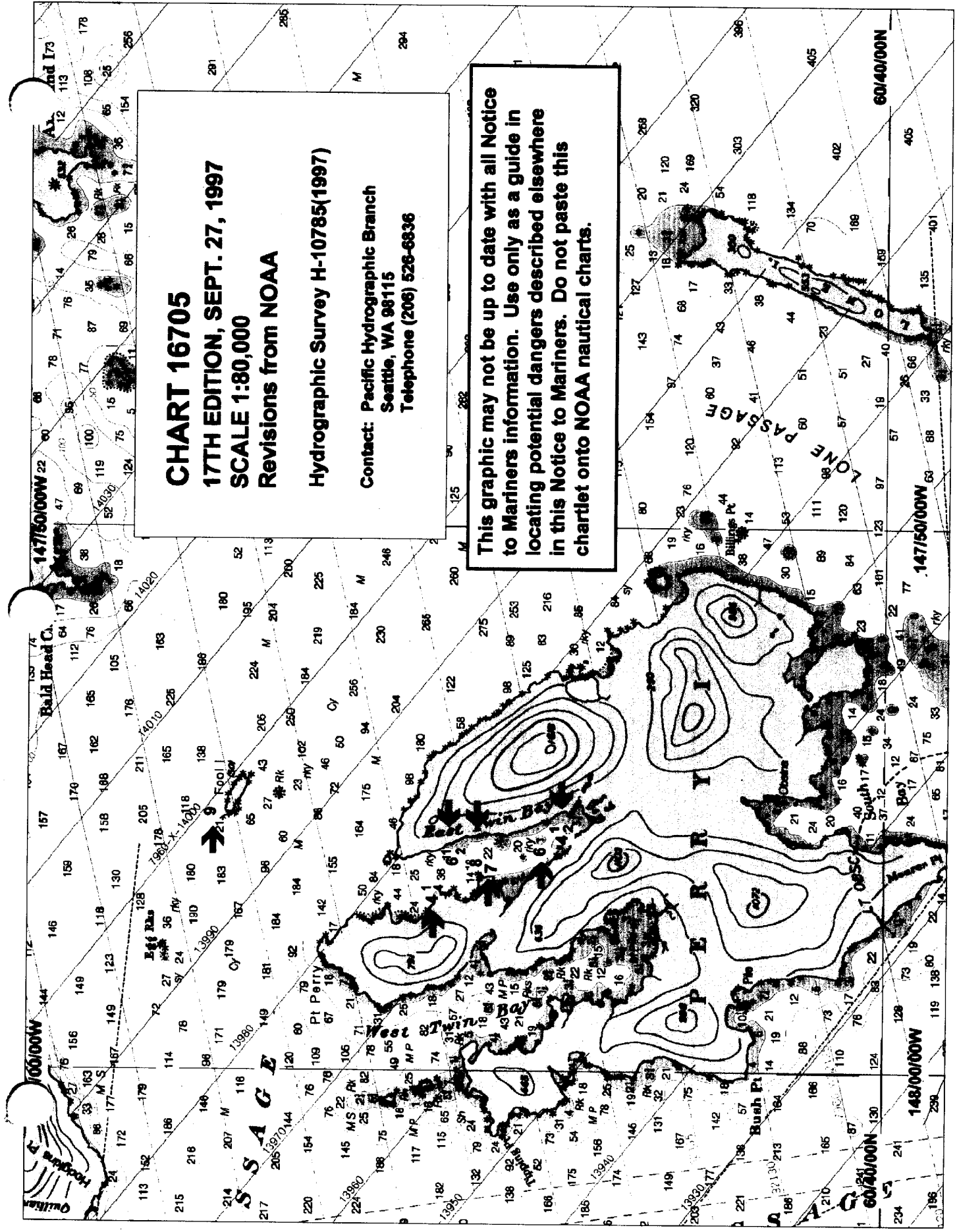
Soundings are reduced to Mean Lower Low Water using approved tides and are positioned on NAD 83.

Chart affected:       16705 17<sup>TH</sup> Edition Sept. 27, 1997, scale 1:80,000, NAD 83

<u>DANGER TO NAVIGATION</u>	<u>LATITUDE(N)</u>	<u>LONGITUDE(W)</u>
4 1/4 fathoms	60/44/00.2	147/56/42.5
9 fathoms	60/46/00.1	147/55/15.2
6 1/2 fathoms	60/43/50.2	147/56/01.8
8 fathoms	60/43/34.9	147/56/10.4
7 fathoms	60/43/30.1	147/56/16.0
6 3/4 fathoms	60/43/02.6	147/55/57.9
4 1/2 fathoms	60/42/52.0	147/55/40.8

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch at (206)526-6836.





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

**Hydrographic Survey H-10785(1997)**

**Contact: Pacific Hydrographic Branch**  
**Seattle, WA 98115**  
**Telephone (206) 526-6836**

**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.**

# 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:** AA      **Registry Number:** H-10785

**Sheet Number:** RA-10-31-97

**Survey Title:** VICINITY OF NORTH PERRY ISLAND

**Data Acquisition Dates:**      **From:** 01-Oct-97      274      **To:** 27-Oct-97      300

### Vessel Usage Summary

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

### Sound Velocity Cast Information

Launch Table #	Ship Table #	Cast DN	Max Depth	Position	Applicable DN
4		277	979	60/35/09	
				147/44/27	
3		273	564	60/40/27	
				148/04/02	

### Tide Zone Information

Zone #	Time Corr.	Height Corr.
PWS53		X0.96

### Tide Gage Information

Tide Gage #	Gage Name	Installed	Removed
945-4729	POINT PERRY	9/30/97	10/31/97
945-4691	HERRING POINT	9/2/97	10/31/97
945-4794	APPLEGATE ISLAND	9/1/97	10/30/97

### Statistics Summary

Type	Total:
BS	26
DEV	70.57
DIVE	3
DP	23
MS	178.75
S/L	12.08
SPLIT	44.41
XL	21.99

**Percent XL:** 12.3%

**SQNM:** 16.2

APPROVAL SHEET

for

H-10785

RA-10-31-97

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

The field sheet and accompanying records have been examined by me, are considered complete and adequate for charting purposes, and are approved.

*Alan D. Anderson*

Alan D. Anderson

Captain, NOAA

Commanding Officer



**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-10785

LOCALITY: Northwest Prince William Sound, AK

TIME PERIOD: Oct 1 - Oct 27, 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

**REMARKS: RECOMMENDED ZONING**

Use zone(s) identified as: PWS42, PWS52 & PWS53  
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.

-----  
*[Signature]*  
CHIEF, OPERATIONAL ANALYSIS BRANCH



GEOGRAPHIC NAMES

H-10785

Name on Survey	A ON CHART NO. 16700-1605 B ON PREVIOUS SURVEY 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										
	A	B	C	D	E	F	G	H	K		
ALASKA (title)	X									1	
PRINCE WILLIAM SOUND (title)	X									2	
BILLINGS POINT	X		X							3	
EAST TWIN BAY	X		X							4	
EGG ROCKS	X		X							5	
FOOL ISLAND	X		X							6	
PERRY ISLAND	X		X							7	
POINT PERRY	X		X							8	
WELLS PASSAGE	X		X							9	
										10	
										11	
										12	
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										25	

*Dorothy R. ...*  
 Chief Geographer  
 MAR 20 1998

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

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

<b>SHORELINE DATA</b>	
SHORELINE MAPS (List):	DM-10189
PHOTOBATHYMETRIC MAPS (List):	NA
NOTES TO THE HYDROGRAPHER (List):	NA
SPECIAL REPORTS (List):	NA
NAUTICAL CHARTS (List):	Chart 16705 17th Edition September 27, 1997

**OFFICE PROCESSING ACTIVITIES**  
The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS			
VERIFICATION OF SOUNDINGS			
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	92		92
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		20	20
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS	92	20	112

Pre-processing Examination by <b>M. Bigelow</b>	Beginning Date 4/14/98	Ending Date 4/14/98
Verification of Field Data by <b>M. Bigelow, R. Mayor, R. Davies</b>	Time (Hours) 92	Ending Date 7/31/98
Verification Check by <b>B. Olmstead</b>	Time (Hours) 6	Ending Date 8/23/98
Evaluation and Analysis by <b>R. Davies</b>	Time (Hours) 20	Ending Date 8/18/98
Inspection by <b>B. Olmstead</b>	Time (Hours) 3	Ending Date 9/3/98

## **EVALUATION REPORT**

**H-10785**

### **A. PROJECT**

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

### **B. AREA SURVEYED**

The survey area is adequately discussed in the hydrographer's report with the following supplemental information. The survey area is characterized by off lying islets, reefs, rocks and ledges fringing the shoreline.

The 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 and pebbles. Depths range from zero to 272 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, the Hydrographic Processing System (HPS), and MicroStation 95.

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

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

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

### **E. SONAR EQUIPMENT**

Neither side scan sonar or multibeam echo sounder was used on survey H-10785.

### **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 Pt. Perry, Perry Island, tide gage 945-4729, was used for all zones. Herring Point, Knight Island Passage and Applegate Island tide gages as listed on the approved tide note were not used for sounding reduction on the smooth sheet.

## **H. CONTROL STATIONS**

Sections 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:	-2.010 seconds	(-62.219 meters)
Longitude:	7.425 seconds	(112.500 meters)

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

## **I. HYDROGRAPHIC POSITION CONTROL**

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

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

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

## **J. SHORELINE**

Shoreline map DM-10189, scale 1:20,000, was compiled on NAD83 and applies to this survey. Shoreline drawn on the smooth sheet originates from the above map as provided in digital format by the Coastal Mapping Program. The digitized file and the survey file 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-10785 junctions with the following surveys:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10517	1993	1:20,000	North
H-10634	1995	1:10,000	Northwest
H-10657	1995	1:10,000	Southwest
H-10782	1997	1:40,000	East
H-10791	1997	1:10,000	East

The junction with surveys H-10791 and H-10782 is complete. A "Joins" note has been added to the smooth sheet where applicable.

The junctions with surveys H-10517, H-10634 and H-10657 were not formally completed since these surveys were processed previously. However, depths are in good agreement within the common area. A few soundings from survey H-10634 and H-10657 have been transferred within the common area of H-10785 to better delineate the bottom configuration. Adjoins notes has been added to the smooth sheet where applicable.

## M. COMPARISON WITH PRIOR SURVEYS

<u>Survey</u>	<u>Scale</u>
H-3408 (1912)	1:20,000

Prior survey H-3408 covers the area from Egg Rocks and Fool Island, south to East Twin Bay and Billing Point. Comparison with the prior soundings reveals the present survey data to be consistently shoaler from 2 - 20 fathoms. This is readily evident in the comparison of standard depth curves, which show a significant change in configuration, and definition of the bottom since the 1912 survey work. These differences are attributed to greater sounding coverage, improved positioning and sounding methods and relative accuracy of the data acquisition techniques.

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.

Survey H-10785 is adequate to supersede the prior survey within the common area.

## N. ITEM INVESTIGATIONS

There were no AWOIS items assigned to this survey.

## O. COMPARISON WITH CHART

Survey H-10785 was compared with the following chart:

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

a. Hydrography

Charted hydrography originates with the previously discussed prior survey and miscellaneous source data. The prior survey has been adequately addressed in section M and requires no further discussion.

The area north of Egg Rocks and Fool Island is covered by BP-43214(1947). Depth comparison with this source document reveals similar differences as discussed in the prior survey comparison.

The application of this survey to charts of a scale greater 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 less than 1:40,000 may be accomplished without generalization of features.

Survey H-10785 is adequate to supersede charted hydrography within the charted area.

b. Dangers To Navigation

Ten dangers to navigation were discovered during survey operations and reported to the USCG on November 21, 1997. Seven additional dangers to navigation were found during office processing. These were reported to the USCG, NIMA and N/CS261 on August 6, 1998. Copies of both reports are attached.

**P. ADEQUACY OF SURVEY**

Except for the following, hydrography contained on survey H-10785 is adequate to:

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

Hydrography on survey H-10785 was acquired in the field in metric units while the smooth sheet for this survey was compiled in fathoms to conform to the sounding unit of the existing NOS nautical charts in the area.

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

In the event that the field units submission of survey data will exceed four weeks from the completion of field work, the Chief of Party will submit a written explanation for the delay indicating the anticipated transmittal date to the Chief of the appropriate processing section. Marine Center ships will forward their explanation through the Marine Center Director. Fieldwork for survey H-10785 was completed on October 27, 1997 but not transmitted for office processing until December 29, 1997.

**Q. AIDS TO NAVIGATION**

There are no fixed or 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.

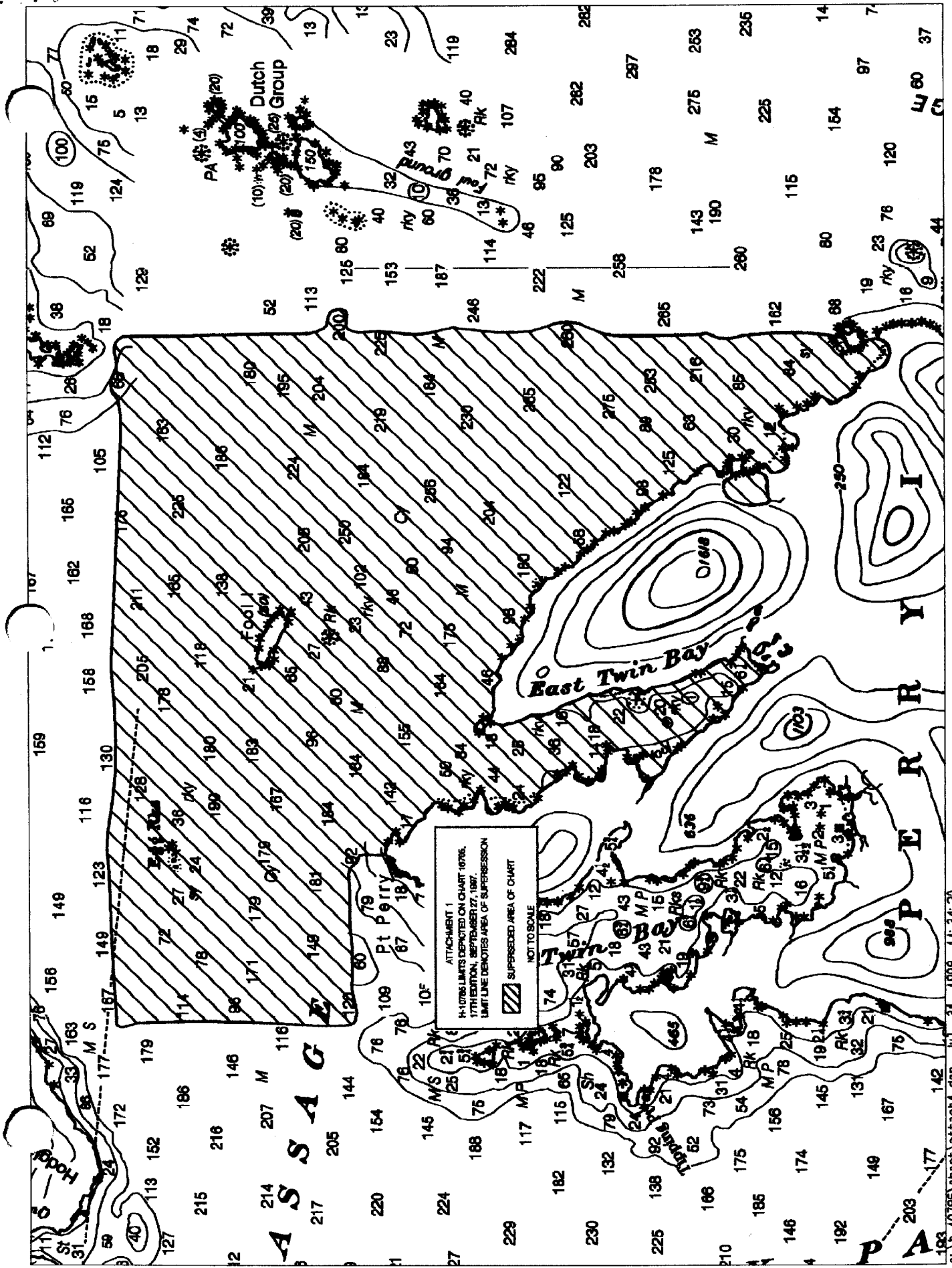
**T. RECOMMENDATIONS**

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.

  
Charles R. Davies  
Cartographer



APPROVAL SHEET  
H-10785

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: 9/4/98  
Bruce A. Olmstead  
Senior Cartographer, Cartographic Section  
Pacific Hydrographic Branch

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

Kathy Timmons Date: 9/8/98  
Kathy Timmons  
Commander, NOAA  
Chief, Pacific Hydrographic Branch

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Final Approval

Approved:

Andrew A. Armstrong III Date: Oct 14, 1998  
Andrew A. Armstrong III  
Captain, NOAA  
Chief Hydrographic Surveys Division

