H10566

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-10-13-94

Registery No. H-10566

LOCALITY

State Alaska

General Locality Prince William Sound

Sublocality Long Bay and Vicinity

19 94

CHIEF OF PARTY
CAPT Russell C. Arnold, NOAA

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DATE FEB 20 1996

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NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.: H-10566

FIELD NO.: RA-10-13-94

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State: Alaska

General locality: Prince William Sound

Locality: Long Bay and Vicinity

Scale: 1:10,000 Date of survey: Sept. 6 - Oct. 30, 1994

Instructions dated: July 25, 1994 Project No.: OPR-P125-RA

Vessel: NOAA Ship RAINIER (2120), 2122(RA-2), 2125(RA-5), 2129(RA-9)

Chief of party: CAPT Russell C. Arnold, NOAA

Surveyed by: CAPT R. Arnold, LT D.Neander, LT D.Haines, ENS S.Smith, ENS S.Maenner, ENS J. Becker, ST R. Roraback

Soundings taken by echo sounder, hand lead, pole: DSF-6000N, Innerspace 448

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Evaluation by: I. Almacen Automated plot by: HP Design Jet 650C Plotter

~~Protracted by~~

Verification by: D. Doles, R. Mayor, J. Stringham

Soundings in ~~fathoms~~ ~~feet~~ at ~~MHW~~ MLLW: Meters & Decimeters

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.

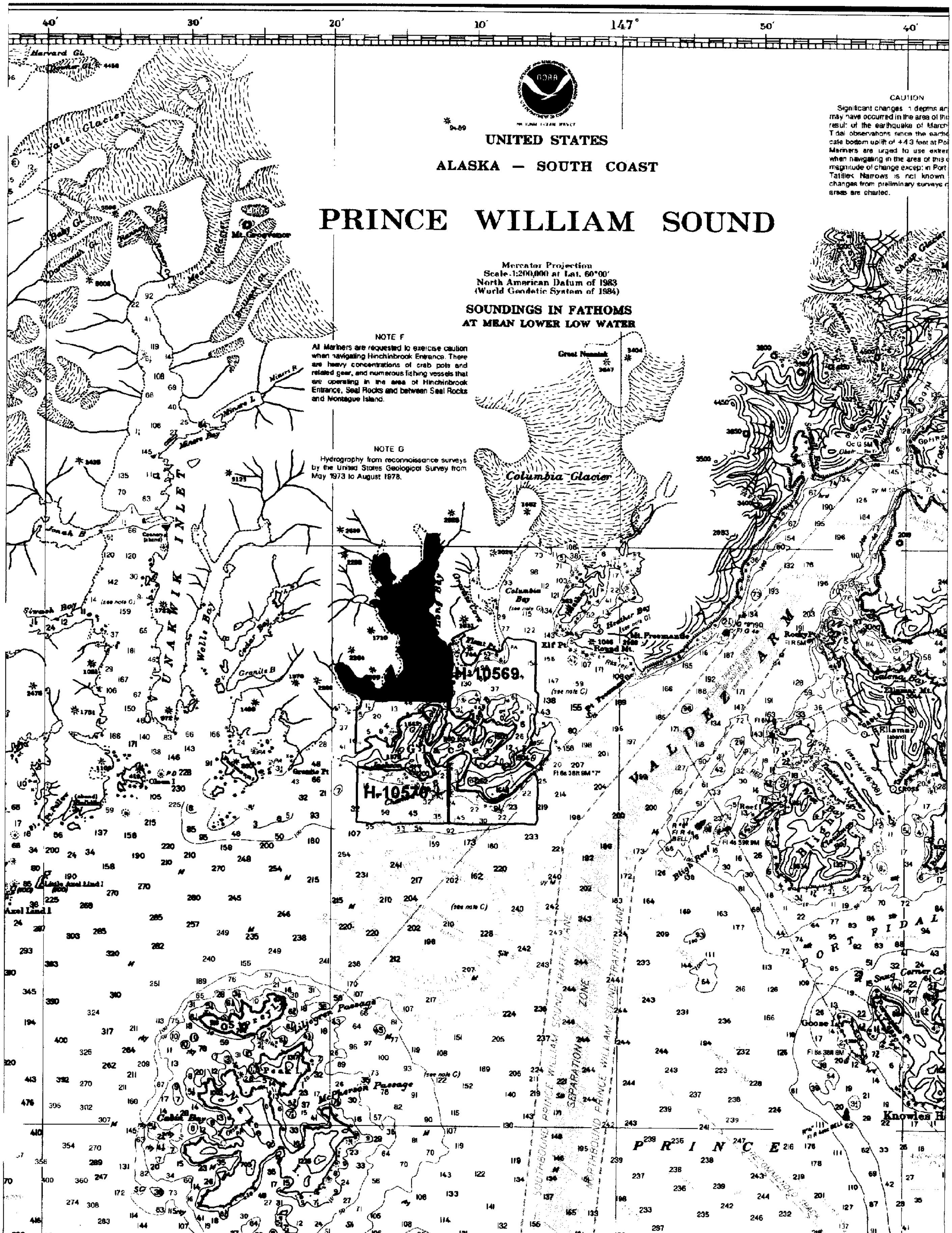
All depths listed in this report are referenced to mean lower low water unless otherwise noted.

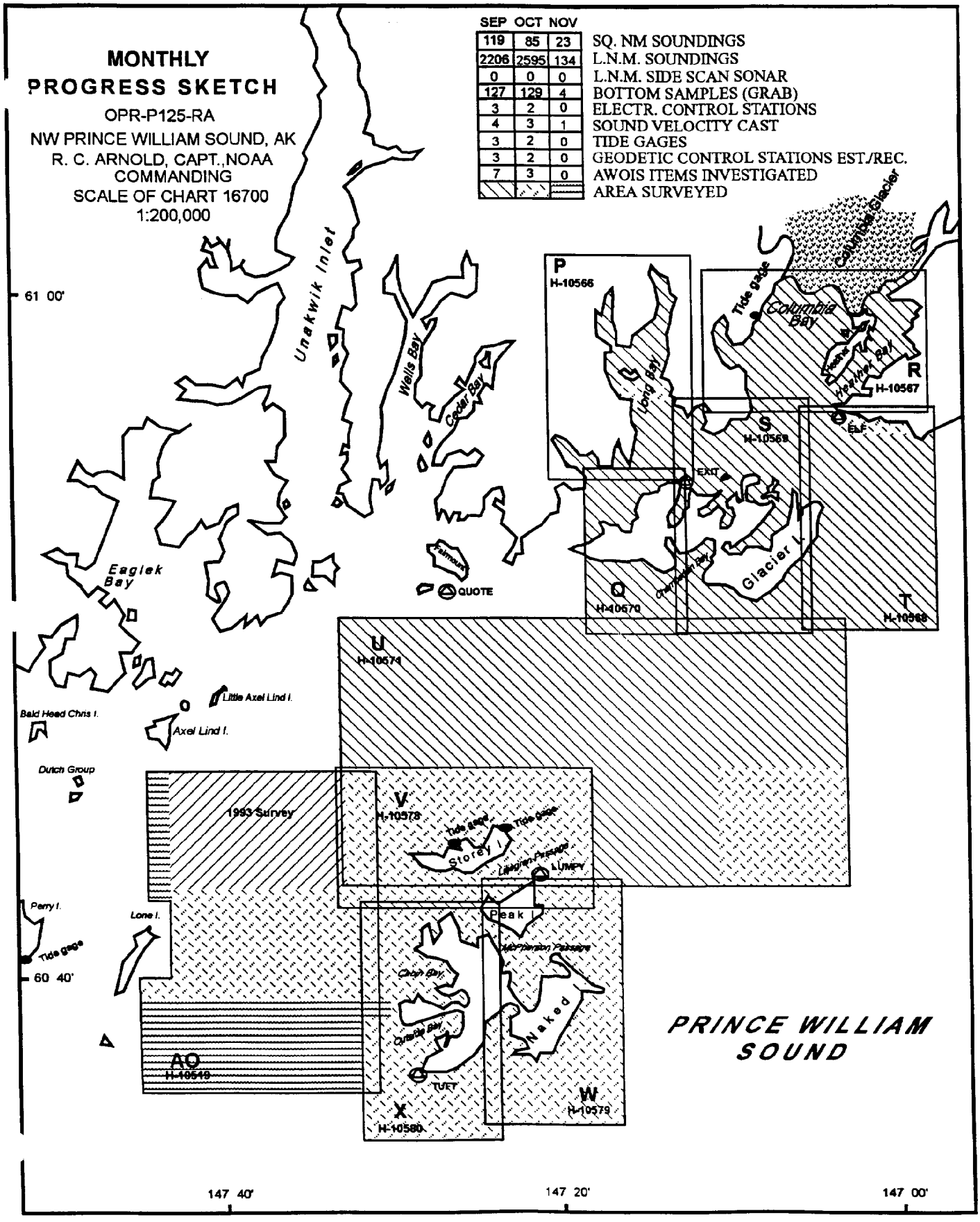
AWOIS/SURF 2/20/96 MCK

FEB 20 1996

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

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


UNITED STATES
ALASKA — SOUTH COAST
PRINCE WILLIAM SOUND
Mercator Projection
Scale 1:200,000 at Lat. 60°00'
North American Datum of 1983
(World Geodetic System of 1984)
SOUNDINGS IN FATHOMS
AT MEAN LOWER LOW WATER
NOTE F
All Mariners are requested to exercise caution when navigating Hinchinbrook Entrance. There are heavy concentrations of crab pots and related gear, and numerous fishing vessels that are operating in the area of Hinchinbrook Entrance, Seal Rocks and between Seal Rocks and Montague Island.
NOTE G
Hydrography from reconnaissance surveys by the United States Geological Survey from May 1973 to August 1978.
CAUTION
147°
Columbia Glacier
Columbia Bay
UNAKWIK INLET
Wells Bay
Granite B
Valdez Glacier
VALDEZ ARM
PORT FIDALGO
Knowles H
Goose Is
Bligh Reef
Bligh Island
Rocky Pt
Galena Bay
Ellamar
Mt. Freemantle
Heather Bay
Elf Pt
Round Mt.
Great Nunatak
Mt. Gilbert
Miners R.
Miners L.
Miners Bay
Cannery
Jonah B.
Siwash Bay
Little Axel Lind I
Axel Lind I
Lillegren Passage
McPherson Passage
Cabin Bay
Granite Pt
H-10569
H-10570
PRINCE WILLIAM SOUND TRAFFIC LANE
SEPARATION ZONE
PRINCE
Harvard Gl.
Yale Glacier
Baby Gl.
Mt. Gilbert
Meares Glacier
Shoup Glacier


MONTHLY
PROGRESS SKETCH
OPR-P125-RA
NW PRINCE WILLIAM SOUND, AK
R. C. ARNOLD, CAPT.,NOAA
COMMANDING
SCALE OF CHART 16700
1:200,000
SEP OCT NOV
119 85 23 SQ. NM SOUNDINGS
2206 2595 134 L.N.M. SOUNDINGS
0 0 0 L.N.M. SIDE SCAN SONAR
127 129 4 BOTTOM SAMPLES (GRAB)
3 2 0 ELECTR. CONTROL STATIONS
4 3 1 SOUND VELOCITY CAST
3 2 0 TIDE GAGES
3 2 0 GEODETIC CONTROL STATIONS EST./REC.
7 3 0 AWOIS ITEMS INVESTIGATED
AREA SURVEYED
61 00'
Unakwik Inlet
Wells Bay
Cedar Bay
Eaglek Bay
Palmaus
QUOTE
P
H-10566
Long Bay
Columbia Glacier
Tide gage
Columbia Bay
Heather Bay
R
H-10567
S
H-10569
ELF
EXIT
Glacier I.
Q
H-10570
T
H-10568
U
H-10574
Bald Head Chris I.
Little Axel Lind I.
Axel Lind I.
Dutch Group
1993 Survey
V
H-10578
Storey I.
Tide gage
Tide gage
Lumpy
Peak I.
Perry I.
Lone I.
Tide gage
60 40'
Chalk Bay
Outside Bay
Naked I.
TUET
AO
H-10549
X
H-10580
W
H-10579
PRINCE WILLIAM SOUND
147 40'
147 20'
147 00'

Descriptive Report to Accompany Hydrographic Survey H-10566

Field Number RA-10-13-94
Scale 1:10,000
September-October 1994

NOAA Ship RAINIER
Chief of Party: Captain Russell C. Arnold, NOAA

A. PROJECT

This basic hydrographic survey was completed in Northwestern Prince William Sound, Alaska, as specified by Project Instructions OPR-P125-RA dated July 25, 1994.

Survey H-10566 corresponds to "sheet P" as defined in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating existing nautical charts, and for constructing two 1:50,000 scale charts covering the fiords and bays within the project area. Requests for hydrographic surveys and updated charts have been received from the Defense Mapping Agency, the Southwest Alaska Pilot's association, cruise ship lines and local fishermen.

B. AREA SURVEYED

See Eval Rpt, Section B

The survey area is located in the northwestern portion of ~~Northwest~~ Prince William Sound, in the vicinity of Long Bay. The survey's eastern limit is bounded by 147°11.9'W, and the western limit is bounded by 147°19.9' W. The northern limit is bounded by latitude 61°00.4' N, and the southern limit is bounded by 60°54.7' N.

Data acquisition was conducted from September 6, 1994, Day Number (DN) 249, through October 30, 1994, DN 303.

C. SURVEY VESSELS

Data were acquired by the NOAA SHIP RAINIER, two survey launches, and one skiff as noted below:

Vessel	EDP #	Operation
RAINIER	2120	Sound Velocity Casts Bottom Samples

RA-2	2122	Hydrography Shoreline Verification
RA-5	2125	Bottom Samples
RA-9	2129	Hydrography Shoreline Verification

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Data acquisition and processing were accomplished with the following HDAPS programs:

Program Name	Version	Date Installed
BACKUP	2.00	3/7/94
BASELINE	1.14	3/7/94
BIGABST	2.07	3/7/94
BIGAUTOST	3.01	3/7/94
BLKEDIT	2.02	3/7/94
CARTO	2.15	8/29/94
CLASSIFY	1.05	3/7/94
CONVERT	3.63	8/29/94
DAS_SURV	6.74	8/29/94
DIAGNOSE	3.05	8/29/94
DISC-UTIL	1.00	3/7/94
DP	2.15	8/29/94
EXCESS	4.31	8/29/94
FILESYS	3.27	8/29/94
GRAFEDIT	1.06	3/7/94
LISTDATA	1.02	3/7/94
LOADNEW	2.10	3/7/94
LSTAWOIS	3.07	5/12/94
MAINMENU	1.20	3/7/94
MAN_DATA	2.01	3/7/94
NEWPOST	6.12	8/29/94
PLOTALL	2.30	8/29/94
POINT	2.10	3/7/94
PREDICT	2.01	3/7/94
PRESURV	7.09	8/29/94
PRINTOUT	4.04	8/29/94
QUICK	2.05	8/29/94
RAMSAVER	1.02	3/7/94
REAPPLY	2.11	8/29/94
SCANNER	1.00	3/7/94

SELPRINT	2.05	8/29/94
SYMBOLS		3/7/94
VERSIONS	1.00	3/7/94
ZOOMEDIT	2.30	8/29/94

HYPACK Program Name	**Version**	**Date Installed**
HYPACK.EXE	4.16	2/24/94
PLOTFILE.EXE	4.16	2/25/94
SETUP.EXE	4.16	2/15/94
VIEW.EXE	4.16	12/12/93
DESIGN.EXE	4.16	2/1/94
VOLUME.EXE	4.16	1/27/94
FORGP.EXE	4.16	11/12/93
NAVITRACK.EXE	4.16	2/1/93
CONTPICK.EXE	4.16	12/8/92
DIGITIZE.EXE	4.16	1/12/94
HYDROLIN.EXE	4.16	8/20/93
UPLOAD.EXE	4.16	8/12/92
TESTFIG.EXE	4.16	11/30/93
INVERSE.EXE	4.16	11/12/94
NAV.EXE	4.16	2/21/94
DATUM.EXE	4.16	11/23/94
GRIDCONV.EXE	4.16	12/21/93
DXF.EXE	4.16	2/11/94
MENUCOLO.EXE	4.16	8/12/92
IOTEST.EXE	4.16	2/22/94, 9/23/94
TRANS.EXE	4.16	1/6/94
OVERLAY.EXE	4.16	5/19/93
UNITCONV.EXE	4.16	11/12/93
POINTFIG.EXE	4.16	11/12/93
TRACKS.EXE	4.16	12/12/93
MANDIG.EXE	4.16	9/30/92
DATADIRS.EXE	4.16	12/17/93
COM1SET.EXE	4.16	9/15/92
NEWSETUP.EXE	4.16	2/22/94
IONEW.EXE	4.16	2/9/94
MANAGER.EXE	4.16	12/13/93
PRINTFIG.EXE	4.16	10/25/93

Bottom sample positions were taken using HDAPS software. All other hydrography was acquired using Coastal Oceanographics' HYPACK software. Launch 2122 was equipped with an Ashtech DGPS and a DSF 6000N echosounder and skiff 2129 was equipped with an Ashtech DGPS and an Innerspace 448 echosounder.

Post processing was conducted using the HDAPS HP system. HYPACK files were translated to a PC-DAS format using a modified PowerBasic program provided by N/CG24. The PowerBasic program, CONV_HYP.BAS (ver 3, 9/27/94), was run through an accompanying batch routine called HYPCON.BAT (2/14/94). OSWEGO HPCOPY was used to copy the data onto a HP formatted disk. Data were then processed in the same manner as PC-DAS on the HP system.

In addition, the following batch routine, GPSINIT.BAT(5/19/94), was used to initialize the Ashtech GPS receiver.

Velocity corrections were determined using:

Program Name	Version	Date Installed
VELOCITY	2.10	15 Mar 1994

E. SONAR EQUIPMENT

Sonar equipment was not used on survey H-10566 ~~sheet P~~.

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. * The Innerspace 448, serial number 300, is a single frequency thermal depth sounder recorder (208 kHz). No problems which affect survey data were encountered. All DSF-6000N soundings were acquired using the High + Low, high frequency digitized setting.

G. CORRECTIONS TO ECHO SOUNDINGS

Correctors for the velocity of sound through water were determined from the casts listed below.

Velocity Table #	Cast#	DN	Cast Position	Deepest Depth	Applicable DN
1,11	1	253	60°55'16" N 147°11'56" W	311	249 - 258
4,14	4	268	60°55'03" N 147°13'36" W	314	263 - 272

* Filed with the survey records.

5,15	5	283	60°51'08" N 147°04'50" W	542	276 - 303

casts 1 & 5 were taken outside of the survey area.

RAINIER used velocity tables 11-15 (bottom samples) while tables 1-5 were used by the launches and skiff.

The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 811), calibrated 12/17/93. Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) No. 69. A printout of the Sound Velocity Corrector Tables used in the HDAPS Post Survey program is included in the "Separates to be Included with Survey Data, IV. Sounding Equipment Calibrations and Corrections". *

Static Draft

A transducer depth was determined using FPM Fig 2.2 for vessels 2125 and 2129 in the spring of 1994 and for 2122 in the summer of 1994. RAINIER's transducer depth was determined during the 1990 winter inport. These values were entered into the offset tables* for each launch.

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.* The data for 2125 and 2129 used was collected in Shilshole Bay, Washington in the Spring of 1994, and for 2122 in Long Bay, Alaska in September 1994.

Offset Tables

Offset tables* contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset table 1 corresponds to the RAINIER. Offset tables 2,5,9 correspond to the number of the vessel. The offset tables were compiled with new measurements in the spring and summer of 1994 and are contained in the "Separates to be Included with Survey Data". *

Heave

The launches are not equipped with heave, pitch and roll sensors. The area covered by this survey is protected and no significant sea action was encountered.

* Filed with the survey records.

Bar Check and Lead Lines

Bar check and lead lines were calibrated by RAINIER personnel during the winter inport 1993-1994. Calibration forms are included with project data for OPR-P125-RA.* Bar checks were performed in accordance with FPM 2.2.2.4 and served as a functional check of the DSF-6000N and Innerspace 448. ✓

Tide Correctors

Predicted tides for the project were provided on diskette by N/OES334 for the Cordova, Alaska reference station (945-4050). ✓

Tidal correctors as provided in the project instructions for this sheet are:

Time Correction	Height Correction Range Ratio
0 hr 0 min.	X 0.96

✓

HDAPS listings of the data used in generating tide corrector tables are included in Appendix V of this report. *

RAINIER personnel installed an 8200 digital gage at Columbia Bay (945-4476) and Storey Island (945-4553) on September 4, 1994. Opening levels to the staff and all bench marks were conducted upon installation. A new staff was installed and leveled at Columbia Bay, when the staff was destroyed by ice on September 9. Columbia Bay tide data were continuous from installation to September 6, when the orifice tubing was removed by ice. The orifice was reinstalled on September 6 and the gage ran continuously through September 18, when it was again destroyed by ice. On September 21, 1994, the orifice was repaired and a secondary gage and orifice was installed at Columbia Bay. Tide data were collected continuously at Storey Island during data acquisition. On September 21, 1994, a new station was installed on the north side of Storey Island (945-4571) to serve as a secondary gage for Storey Island (945-4553). Opening levels were conducted on September 22. Bracketing levels were completed by RAINIER personnel at the end of September at all three gage sites. Closing levels were completed at the Columbia Bay gage on October 9, and the gages were removed on October 12. Due to the staff being destroyed at the first Storey Island gage (945-4553), closing levels were not conducted. Closing levels were completed at the secondary Storey Island gage (945-4571) on November 1. ✓

The control station was Valdez, Alaska (945-4240). Opening levels of the control station were performed by RAINIER personnel on September 16, 1994. Closing levels at Valdez, Alaska will be completed by RAINIER personnel on October 28, 1994. ✓

* Filed with the survey records.

Problems

None

J. SHORELINE (See EVAL RPT, Sec. J)

The shoreline maps (T-sheet) used to transfer shoreline detail to the final sheets were DM-10065 and DM-10061 (enlarged to 1:10,000 from 1:20,000). ✓

Method of Shoreline Verification

Shoreline verification was conducted near predicted lower low water in accordance with FPM 7.1. Shoreline verification was accomplished by assigning sequential reference numbers and taking detached positions (DPs), as explained later in this section. Shoreline and T-sheet features verified via visual inspection were assigned sequential reference numbers, described, and recorded in the field using reference forms and corresponding 1:10,000 photocopies of the T-sheet. Reference numbers, descriptions, and heights corrected to MLLW using predicted tides are recorded on the reference form. Corresponding notes were annotated on the photocopies of the T-sheet when deemed necessary. The annotated photocopies of the T-sheet and the reference forms are included with the survey data. ✓

DPs taken during shoreline verification were recorded on the master printouts* and on the DP forms.* These indicate significant T-sheet features and features not found on the T-sheet. Where possible, positions of some T-sheet features were verified during inshore mainscheme hydrography and annotated on the master printouts. ✓

Detailed 1:10,000 "Bottom Sample and Detached Position Plots" are provided showing all DPs, reference numbers, and notes relating to each feature. The information from these plots was transferred to a final field plot where possible. Where such information would interfere with the legibility of the final plot the appropriate cartographic symbol has been transferred, but height and position number information remains on the plot, which serves as an overlay (FPM 6.1.2.5). Verified T-sheet features were retained and shown in black. Changes to the shoreline were shown in red, and new features are depicted in black. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in meters and are corrected to predicted MLLW. Field values have been changed after the application of actual tides and shown on the ACAD generated smooth sheet. A revision to the HWL was depicted on the smooth sheet in dashed red line. ✓

Changes and New Features

Several changes and new features were found and are depicted on the final field plot. T-sheet rocks were often identified as high points of new ledges or reefs. Refer to the smooth sheet for the graphic portrayal of features and revisions noted during this survey. ✓

* Filed with the survey records.

Recommendations

The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information compiled on DM-10065 and DM-10061. concur.

Charted Features

Charted rocks were either identified as T-sheet rocks, high points or extensions of ledges and reefs or disproved as noted below.

A charted rock in the vicinity of 60°57'27.3"N, 147°13'18.2"W was searched for on DN 263 and not found (position 7109). Visual and echo sounder searches were conducted for 5 minutes, with a search radius of 100 meters. The water visibility was 2 meters and the ~~average~~ depth was ~~40~~ 39 meters. The depths around the area ~~are~~ between 49 to 54 meters. A reef was found approximately 100 meters to the east of this charted rock. ✓

A charted rock in the vicinity of 60°57'57.0"N, 147°16'04.3"W was searched for on DN 264 and not found (position 7522). Visual and echo sounder searches were conducted for 10 minutes, with a search radius of 50 meters. The water visibility was 3 meters and the ~~average~~ depth was ~~20~~ 20.1 meters. The depths found in the area are between 15.6 to 20.1 meters. ✓

A charted rock in the vicinity of 60°57'31.3"N, 147°16'03.4"W was searched for on DN 264 and not found (position 7528). Visual and echo sounder searches were conducted for 10 minutes, with a search radius of 50 meters. The water visibility was 3 meters and the ~~average~~ depth was ~~30~~ 35 meters. Concur ✓

A charted rock in the vicinity of 60°57'18.5"N, 147°~~16'00~~ 15'57.2"W was searched for on DN 264 and not found (position 7529). Visual and echo sounder searches were conducted for 10 minutes, with a search radius of 40 meters. The water visibility was 3 meters and the ~~average~~ depth was ~~21~~ 20.9 meters. The depths found in the area are between 19.6 to 28.0 meters. A rock uncovering 2.2 meters at MLLW was found approximately 100 meters to the east of this charted rock. ✓

A charted rock in the vicinity of 60°57'19.4"N, 147°16'14.1"W was searched for on DN 264 and not found (position 7530). Visual and echo sounder searches were conducted for 10 minutes, with a search radius of 50 meters. The water visibility was 3 meters and the average depth was ~~26~~ 25 meters. Concur ✓

A charted rock in the vicinity of 60°58'13.6"N, 147°16'18.8"W was searched for on DN 264 and not found (position 7531). Visual and echo sounder searches were conducted for 10 minutes, with a search radius of 50 meters. The water visibility was 2.5 meters and the average depth was ~~69~~ 68 meters. Concur ✓

A charted rock in the vicinity of 60°58'18.6"N, 147°16'09.0"W was searched for on DN 264 and not found (position 7532). Visual and echo sounder searches were conducted for 10 minutes, with a search radius of 50 meters. The water visibility was 3 meters and the ~~average~~ depth was ~~11~~ 14.3 meters. The depths found in the area are between 12.2 to 16.8 meters. Concur ✓

A charted rock in the vicinity of 60°58'28.0"N, 147°16'06.8"W was searched for on DN 264 and not found (position 7533). Visual and echo sounder searches were conducted for 10 minutes, with a search radius of 50 meters. The water visibility was 3 meters and the average depth was 4 meters. Concur ✓

Recommendations

The hydrographer recommends removing the disproved rocks noted above from the chart. Concur. Chart these areas based on the present survey information.

K. CROSSLINES ✓

Crosslines are within 1-2 meter agreement with mainscheme hydrography except in areas of complex bathymetry. Crosslines totaled 18.4 nautical miles, representing 8.0% of the total mainscheme hydrography.

L. JUNCTIONS (See EVAL RPT, Sec. L)

This survey junctions with survey H-10569 (1:10,000, 1994) at the southeastern limit and H-10570 (1:10,000,1994) at the southern limit. These soundings were found to be in general agreement with this survey. ✓

Final comparisons will be made at the Pacific Hydrographic ~~Section~~ Branch (PHB).

M. COMPARISON WITH PRIOR SURVEYS ✓

There are no prior surveys covering this area. Concur

N. ITEM INVESTIGATIONS ✓

No AWOIS items were assigned to survey H-10566. Concur

O. COMPARISON WITH THE CHART (See EVAL RPT, Sec. O)

This survey was compared to NOS chart 16708, 20th Edition, May 1, 1993, 1:79,291 (NAD 83). Charted soundings within the present survey area originate from ~~USGS~~ USC&GS BP-43214,(1:200,000,1947), and USGS BP-104500, (1:20,000, 1978). The charted soundings were found to be in general agreement with the present survey. ✓

Non-sounding charted features are discussed in Section J, Shoreline.

Final comparisons will be made at PHS.

Dangers to Navigation

Seven dangers to navigation within the limits of this survey were reported to the Seventeenth Coast Guard District on October 28, 1994. Copies of the correspondence can be found in ~~Appendix I of~~ this report.

P. ADEQUACY OF SURVEY

Prior to final approval, survey H-10566 is complete and adequate to supersede charted depths and features in their common areas. Concur

Q. AIDS TO NAVIGATION

None

R. STATISTICS

Vessel:	2120	2122	2125	2129	Total
Number of Positions	17	17093	14	1618	18742
NM Hydrography	0	433.4	0	58.0	491.4

Velocity Casts	3
Detached Positions	104
Bottom Samples	31
Tide Stations	2
NM^2 Hydrography	9

S. MISCELLANEOUS

Due to the fact that Columbia Glacier is undergoing a period of drastic retreat, prodigious quantities of ice are flowing out of Columbia Bay. The direction and amount of ice flow is ever changing, determined daily by wind and current conditions. Small bays along the north side of Glacier Island and entrance to Long Bay would at times be blocked off by large ice flows. In addition, large ice bergs the size of houses would routinely hang up on shoals along the shoreline.

After the Columbia Bay tide gage (945-4476) was removed on October 12, it was noted that additional work was required for contouring purposes. Several lines of hydrography were run on October 30. Tide data at Storey Island (945-4571) were continuous through data acquisition on October 30.

Bottom samples were collected in accordance to the Project Instructions

No tidal current predictions are available within the sheet limits.

No unusual magnetic variations were noted.

T. RECOMMENDATIONS

None

U. REFERRAL TO REPORTS

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

Title	Date Sent	Office
Fall 1994 Horizontal Control Report for OPR-P125-RA	November 1994	N/CG245
Fall 1994 Coast Pilot Report for OPR-P125-RA	November 1994	N/CG245
Project related data for OPR-P125-RA	Incremental	N/CG245

Respectfully Submitted,

Shepard M. Smith
Ensign, NOAA

Approved and Forwarded,

Russell C. Arnold
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 8 Nov 1994 ✓

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
101	G	060:50:49.581	147:27:05.696	13	250	0.0	0.0		09/04/94	QUOTE 1947(DGPS)
102	G	060:54:23.798	147:12:24.812	5	250	0.0	0.0		09/04/94	EXIT 1947(DGPS)
103	G	060:56:36.616	147:03:24.109	6	250	0.0	0.0		09/05/94	ELF 1947(DGPS)
104	G	060:42:51.179	147:21:43.053	16	250	0.0	0.0		10/04/94	LUMPY 1947(DGPS)
105	G	060:14:18.000	146:38:48.000	0	250	0.0	0.0		10/04/94	CAPE HINCHINBROOK(DGPS BEACON)
106	G	061:03:00.000	146:42:00.000	0	250	0.0	0.0		10/04/94	POTATO PT(DGPS BEACON)
107	G	060:37:06.009	147:29:09.075	8	250	0.0	0.0		10/04/94	TUFT 1905(DGPS)

ADVANCE INFORMATION

Hydrographic Survey Registry Number: H-10566

Survey Title: State: Alaska
Locality: Northwest Prince William Sound
Sublocality: Vicinity of Long Bay

Project Number: OPR-P125-RA

Survey Date: September-October 1994

Features are reduced to mean lower low water using predicted tides.

Affected Nautical Charts:

Chart	Edition/Date	Scale	Datum
16700	24th Ed., 1/11/92	1:200,0000	NAD83
16708	20th Ed., 5/1/93	1:79,291	NAD83

	Danger to Navigation	Latitude (N)	Longitude (W)	Pos #	Depth(m)
A.	Shoal, covers 1 1/2 fm	60° 54' 49.3"	147° 16' 50.0"	25082	2^{9}
B.	Shoal, covers 4 fm	60° 54' 56.6"	147° 16' 16.5"	25143	7^{4}
C.	Shoal, covers 1 1/4 fm	60° 55' 04.1"	147° 16' 21.5"	24245+1	2^{5}
D.	Shoal, covers 3 1/2 fm	60° 55' 07.0"	147° 15' 54.4"	25361+1	6^{5}
E.	Shoal, covers 3 fm	60° 55' 22.6"	147° 16' 06.9"	25508+1	5^{6}
F	Shoal, covers 6 1/4 fm	60° 58' 26.0"	147° 13' 41.0"	9562	11^{9}
G.	Shoal, covers 2 1/4 fm	60° 59' 53.8"	147° 13' 33.8"	26308+1	4^{3}

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

7960-X 7960-Y

The Loran-C lines of position overprinted on this chart have been prepared for use with ground wave signals and are presently compensated only for theoretical propagation delays which have not yet been verified by observed data. Mariners are cautioned not to rely entirely on the lattices in inshore waters. Skywave corrections are not provided.

below provide continuous marine weather broadcasts. The range of reception is variable, but for most stations is usually 20 to 40 miles from the antenna site.

Cordova	WXJ-79	162.55 MHz
Valdez	WXJ-63	162.55 MHz

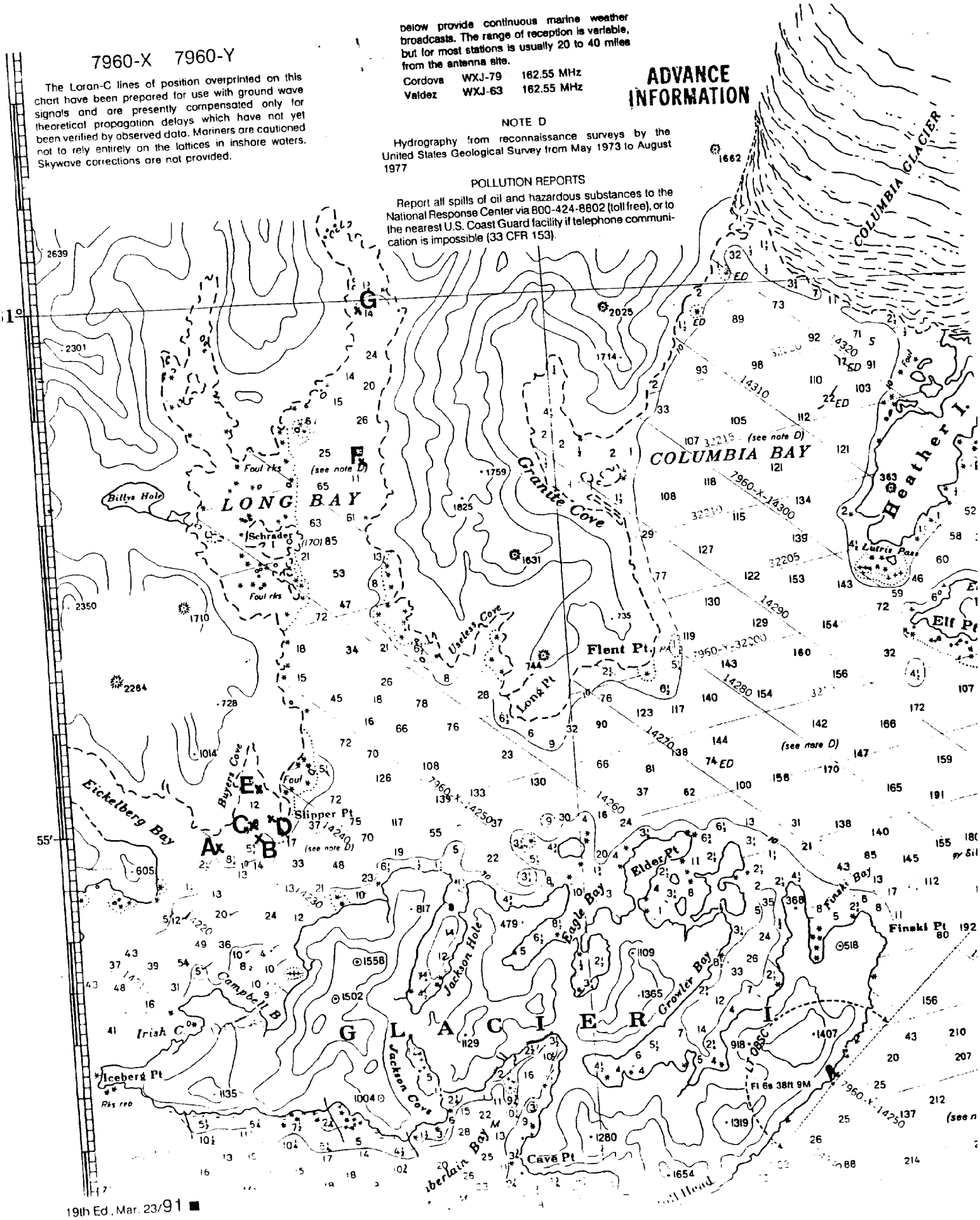
ADVANCE INFORMATION

NOTE D

Hydrography from reconnaissance surveys by the United States Geological Survey from May 1973 to August 1977

POLLUTION REPORTS

Report all spills of oil and hazardous substances to the National Response Center via 800-424-8802 (toll free), or to the nearest U.S. Coast Guard facility if telephone communication is impossible (33 CFR 153).



19th Ed., Mar. 23/91 ■

16708

APPROVAL SHEET

for

H-10566
RA-10-13-94

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and 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.

Russell C. Arnold
Captain, NOAA
Commanding Officer

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

ORIGINAL

See 1/30/95 Tide note JLS

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: January 17, 1995

HYDROGRAPHIC SECTION: Pacific

HYDROGRAPHIC PROJECT: OPR-P125-RA

HYDROGRAPHIC SHEET: H-10566

LOCALITY: Vicinity of Long Bay, Prince William Sound, Alaska

TIME PERIOD: September 6 - October 31, 1994

TIDE STATION USED: 945-4476 Columbia Bay, Prince William Sound, Ak.
Lat. 60° 59.8'N Lon. 147° 7.1'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -4.29 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.0 ft.

TIDE STATION USED: 945-4571 North Side of Storey Island, Prince William Sound, Ak.
Lat. 60° 43.9'N Lon. 147° 26.2'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -6.33 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.2 ft.

REMARKS: RECOMMENDED ZONING

Times and heights are direct on Columbia Bay, Ak. (945-4476). Where data for Columbia Bay, Ak. is not available, times are direct, and apply a X0.98 range ratio to heights using North Side of Storey Island, Ak. (945-4571).

Notes: 1. Times are tabulated in Greenwich Mean Time.

2. Data for Columbia Bay, Ak. (945-4476) and North Side of Storey Island, Ak. (945-4571) are temporarily stored in files #745-4476 and #745-4571 respectively.

CHIEF, DATUMS SECTION

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

ORIGINAL

TIDE NOTE FOR HYDROGRAPHIC SURVEY

Ammended (tide note for H-10566 dated 1/17/95 is superseded)

DATE: January 31, 1995

HYDROGRAPHIC SECTION: Pacific

HYDROGRAPHIC PROJECT: OPR-P125-RA

HYDROGRAPHIC SHEET: H-10566

LOCALITY: Vicinity of Long Bay, Prince William Sound, Alaska

TIME PERIOD: September 6 - October 31, 1994

TIDE STATION USED: 945-4240 Valdez, Prince William Sound, Ak.
Lat. 61° 7.5'N Lon. 146° 21.7'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 6.65 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.1 ft.

TIDE STATION USED: 945-4476 Columbia Bay, Prince William Sound, Ak.
Lat. 60° 59.8'N Lon. 147° 7.1'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -4.29 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.0 ft.

TIDE STATION USED: 945-4571 North Side of Storey Island, Prince William Sound, Ak.
Lat. 60° 43.9'N Lon. 147° 26.2'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -6.33 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.2 ft.

REMARKS: RECOMMENDED ZONING

Times and heights are direct on Columbia Bay, Ak. (945-4476). Where data for Columbia Bay, Ak. is not available, times are direct, and apply a X0.98 range ratio to heights using North Side of Storey Island, Ak. (945-4571). Where data for both Columbia Bay, Ak., (945-4476), and North side of Storey Island, Ak. (945-4571) are not available, times are direct, and apply a X0.98 range ratio to heights using Valdez, Ak. (945-4240).

Notes: 1. Times are tabulated in Greenwich Mean Time.

2. Data for Valdez, Ak. (945-4240), Columbia Bay, Ak. (945-4476) and North Side of Storey Island, Ak. (945-4571) are temporarily stored in files #745-4240, #745-4476 and #745-4571 respectively.

for CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

U.S. DEPARTMENT OF CO RCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

SURVEY NUMBER

H-10566

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 16708	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		X							1
BUYERS COVE	X		X							2
EICKELBERG BAY	X		X							3
LONG BAY	X		X							4
PRINCE WILLIAM SOUND	X		X							5
SCHRADER ISLAND	X		X							6
SLIPPER POINT	X		X							7
										8
										9
										10
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										16
										17
										18
					Approved:					19
										20
					Curtis C. Coy					21
					Chief Geographer					22
					DEC 8 199[illegible]					23
										24
										25

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-10566

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	-
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	-

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	2					
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List):	DM-10061, DM-10065
PHOTOBATHYMETRIC MAPS (List):	N/A
NOTES TO THE HYDROGRAPHER (List):	None
SPECIAL REPORTS (List):	None
NAUTICAL CHARTS (List):	16708, 20th Edition, May 1, 1993

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			18,742
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	40.0		40.0
VERIFICATION OF SOUNDINGS	44.0		44.0
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION VERIFICATION			
COMPILATION OF SMOOTH SHEET	129.0		129.0
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		29.0	29.0
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	213.0	29.0	242.0

Pre-processing Examination by LT M. Larsen	*Beginning Date* 11/14/94	*Ending Date* 12/13/94
Verification of Field Data by D.Doles, R. Mayor, J. Stringham	*Time (Hours)* 213.0	*Ending Date* 1/3/96
Verification Check by J. Stringham	*Time (Hours)* 1.5	*Ending Date* 10/13/95
Evaluation and Analysis by I. Almacen	*Time (Hours)* 29.0	*Ending Date* 1/3/96
Inspection by B.A. Olmstead	*Time (Hours)* 8.0	*Ending Date* 1/18/96

EVALUATION REPORT

H-10566

A. PROJECT

Project information is discussed in the hydrographer's report.

B. AREA SURVEYED

This survey was conducted in Alaska, in the northwestern portion of Prince William Sound. It covers the entire area of Long Bay including Eickelberg Bay and Buyers Cove. The coastline is comprised mostly of ledges, reefs, isolated rocks and islets particularly around Schrader Island and the vicinity of Slipper Point. The bottom is generally made up of mud. Depths range from 0.0 to 245.0 meters.

C. SURVEY VESSELS

Survey vessel information is found in the hydrographer's report.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data were processed using the same Hydrographic Data Acquisition/Processing System (HDAPS) software used by the hydrographer, the Hydrographic Processing System (HPS) and AutoCad, Version 12.

At the time of the survey certification the format for transmission of digital data had not been formally approved. In the interim, digital data for this survey exists in the standard HPS format which is a database format using the .dbf extension. In addition, the sounding plot, created with .dbf (extension) and enhanced using the AutoCad system, is filed both in the AutoCad drawing format, i.e., .dwg (extension); and in the more universally recognized graphics transfer format, .dxf (extension). Copies of these files will be retained at PHS until data transfer protocols are developed and improved.

The drawing files necessarily contain information which 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 the Hydrographic Survey Guideline No. 75.

The field sheet parameters have been revised to center the hydrography on the office plot. Data is plotted using a Modified Transverse Mercator projection and are depicted on a single sheet.

E. SONAR EQUIPMENT

Side scan sonar was not used on survey H-10566.

F. SOUNDING EQUIPMENT

Sounding equipment is discussed 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 actual tide, dynamic draft, and sound velocity. These reducers have been reviewed and are consistent with present NOS specifications. Actual tide reduction is derived from North Side of Storey Island, Alaska gage (945-4571), Columbia Bay, Prince William Sound, Alaska gage (945-4476) and Valdez, Prince William Sound, Alaska gage (945-4240). Recommended tidal zoning can be found in the attached approved tide note dated January 31, 1995. The approved tide note dated January 17, 1995 is attached and has been superseded.

H. CONTROL STATIONS

Sections H and I of the hydrographer's descriptive report contain adequate discussions of horizontal control and the hydrographic positioning. The position of horizontal control station used during hydrographic operations are published values based on NAD 83. The geographic positions of all survey data are also based on NAD 83. The AutoCAD generated smooth sheet is annotated with an NAD 27 adjustment tick based on values determined with NGS program NADCON.

Data based on NAD 27 may be referenced to this survey by applying the following corrections:

Latitude: -1.942 seconds (-60.125 meters)
Longitude: 7.426 seconds (111.766 meters)

The year of establishment of the control station originates with the horizontal control records and the hydrographer's signal list.

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. There are a few positions where the maximum allowable horizontal dilution of precision (HDOP) has been exceeded during this survey. A review of the data, however, shows that the positioning of soundings located by these fixes is consistent with the surrounding information and is considered

acceptable. These positions are isolated and occur randomly throughout the survey. None of these positions are used to locate critical soundings and dangers to navigation. Daily DGPS performance checks were conducted in the field and found adequate.

J. SHORELINE

The following digitally compiled shoreline map on NAD 83 datum applies to this survey.

Map Number	Date of Photography	Scale
DM-10061	June 1992	1:20,000
DM-10065	June 1992	1:20,000

Shoreline changes and new features in the area were noted on this survey. Most of the rocks depicted on the maps were identified in the field as part of the reefs, high point or extensions of the newly located ledges. A few more rocks not depicted on the digitized shoreline maps were located by the hydrographer during this survey. These features have been adequately depicted on the AutoCad generated smooth sheet based on the latest survey information. Additional information concerning shoreline changes noted during this survey is contained in section J of the hydrographer's report.

The following HWL changes noted during this survey are shown in dashed red on the smooth sheet. These revisions is considered adequate to supersede the photogrammetrically compiled shoreline in the area.

Feature	Latitude (N)	Longitude (W)
Shoreline	60/57/15	147/13/02
Shoreline	60/58/00	147/16/48
Shoreline	60/59/06	147/17/24
Islet	60/56/45	147/12/50
Islet	60/59/03	147/14/33

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10566 junctions with the following surveys.

Survey	Year	Scale	Area
H-10569	1994	1:10,000	East
H-10570	1994	1:10,000	South

The junctions with surveys H-10569 and H-10570 are complete. The depth curves and soundings within the junction areas are in satisfactory agreement.

M. COMPARISON WITH PRIOR SURVEYS

There are no prior surveys within the limits of this survey.

N. ITEM INVESTIGATIONS

There were no AWOIS items assigned for investigation from prior surveys and other miscellaneous sources.

O. COMPARISON WITH CHART

Survey H-10566 was compared with the following charts.

Chart	Edition	Date	Scale	Datum
16708	20th	May 1, 1993	1:79,291	NAD83
16700	24th	Jan. 11, 1992	1:200,000	NAD83

a. Hydrography

Charted hydrography originates with the reconnaissance surveys conducted by USC&GS and USGS in 1947 and 1978.

Comparisons with the few presently charted depths reveals a deepening trend around this area of Prince William Sound. The present survey appears to be generally deeper with the exception of the area of Buyers Cove where the present depths appear to be shoaler by about 1 to 5 meters (0.5-2.5 fathoms). The areas along the middle portion of Long Bay are found generally deeper by about 15 to 50 meters. Survey H-10566 has been adequately developed through the use of modern surveying methods and as a result has revealed more significant features than previously found in the area. The differences in depths are attributed to the accuracy and coverage of the present survey, the effects of the 1964 Alaska earthquake, and the continuous glacial activity within the area of the bay.

The charted shoreline throughout the area of this survey is only approximate and depicted as a dashed line. Comparison between the recent digital shoreline maps and the chart is satisfactory considering that the charted shoreline is only the approximate portrayal of the HWL.

There are no charted depths compiled in the area of Eickelberg Bay and the western portion of Long Bay. Survey H-10566 has adequately covered these uncharted areas of the bay.

The presently charted rocks around the area of the survey were either not found or identified

in the field as reefs or extensions of newly located ledges. The present shoreline configuration of some of the charted islets have changed and are depicted on the smooth sheet based on the latest shoreline information.

The charted islet at latitude 60/56/34N, longitude 147/12/48W, originating from a miscellaneous source was not specifically addressed in the hydrographer's report. This feature is likely a part of the group of rocks which exists about 100 meters further inshore and east of the charted feature. This islet was not depicted on the latest shoreline map of the area. It is recommended that this islet be deleted and the newly compiled shoreline features be depicted in the area.

b. Dangers to Navigation

Seven (7) dangers to navigation were reported to the USCG, DMAHTC, and N/CG221 on October 28, 1994 and a copy of the report is attached. No additional dangers were found during office processing.

P. ADEQUACY OF SURVEY

The hydrography on survey H-10566 is adequate to:

a. delineate the bottom configuration, determine least depths, and draw the standard 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.

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 Procedure Manual, April 1994 Edition.

Survey H-10566 adequately complies with the project instructions.

Q. AIDS TO NAVIGATION

There are no fixed or floating aids to navigation and /or charted landmarks located within the limits of this survey.

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

Miscellaneous information concerning this survey is discussed in the hydrographer's report.

T. RECOMMENDATIONS

Survey H-10566 is a good hydrographic survey and no additional field work is recommended.

U. REFERRAL TO REPORTS

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

Isagani A. Almacen
Cartographer

APPROVAL SHEET
H-10566

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 digital data have been completed and all revisions and processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts have been made and are included with the survey records. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Bruce A. Olmstead Date: 1/18/96
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: 1/18/96
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

****

Final Approval

Approved:

Andrew A. Armstrong III Date: 2/16/96
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-10566

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
16708	1/30/96	ALMACEN	Full ~~Part Before~~ After Marine Center Approval ~~Signed Via~~ Full application of
			Drawing No. sndgs. & features from SS.
			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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			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.