

H10519

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-20-6-93
Registry No.	H-10519
LOCALITY	
State	Alaska
General Locality	Prince William Sound
Sublocality	Vicinity of Lone Island
1993-94	
CHIEF OF PARTY CAPT Russell C. Arnold, NOAA	
LIBRARY & ARCHIVES	
DATE	FEB 20 1996

HYDROGRAPHIC TITLE SHEET

H-10519

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-20-6-93

State Alaska

General locality Prince William Sound

Locality Vicinity of Lone Island

Scale 1:20,000 Date of survey Oct. 28-Nov. 2, 1993;

Instructions dated July 19, 1993, July 25, 1994 Project No. OPR-P125-RA
Change #1 - 8/25/93, Change #2 - 11/8/93

Vessel NOAA Ship RAINIER, 2123, 2124, 2125, 2126

Chief of party CAPT Russell C. Arnold, NOAA

Surveyed by CAPT R. Arnold, LT M. Brown, LT D. Neander, LT D. Haines, ENS G. Johnson,
ENS J. Graham, ENS S. Smith, ENS S. Maenner

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

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

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

Verification by D. Doles, L. Deodato, G. Kay, J. Stringham, R. Mayor

Meters & Decimeters

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

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.

AWARD/SURE chs 2/20/94 MCR

FEB 20 1995 *ESC*

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
2206	2595	134
0	0	0
127	129	4
3	2	0
4	3	1
3	2	0
3	2	0
7	3	0

- SQ. NM SOUNDINGS
- L.N.M. SOUNDINGS
- L.N.M. SIDE SCAN SONAR
- BOTTOM SAMPLES (GRAB)
- ELECTR. CONTROL STATIONS
- SOUND VELOCITY CAST
- TIDE GAGES
- GEODETIC CONTROL STATIONS EST./REC.
- AWOIS ITEMS INVESTIGATED
- AREA SURVEYED

61 00'

Bald Head Chris I.

Dutch Group

Perry I.

Tide gage

60 40'

Unakwik Inlet

Wells Bay

Cedar Bay

Eaglek Bay

Little Axel Lind I.

Axel Lind I.

1953 Survey

H-10519

AO
H-10619

QUOTE

P
H-10566

R
H-10567

S
H-10568

Q
H-10570

T
H-10569

U
H-10574

V
H-10578

Peak

W
H-10579

X
H-10586

PRINCE WILLIAM SOUND

147 40'

147 20'

147 00'

Descriptive Report to Accompany Hydrographic Survey H-10519

Field Number RA-20-6-93

Scale 1:20,000

October - November 1993

October - November 1994

NOAA Ship RAINIER

Chief of Party: Captain Russell C. Arnold

A. PROJECT

This basic hydrographic survey was completed in Northwestern Prince William Sound, Alaska, as specified by Project Instructions OPR-P125-RA dated July 19, 1993, change No. 1 dated August 25, 1993, change No. 2 dated ~~September 2, 1993~~ ^{November 6,} 1993 and Project Instructions OPR-P180-RA dated July 25, 1994. ✓

Survey H-10519 corresponds to "sheet AO" as defined in Project Instructions OPR-P125-RA dated July 25, 1994. In 1993, this survey was originally part of sheet AG (sheet layout dated 4/16/92). The northern portion of sheet AG (north of 60°46'45"N) was submitted as a complete survey (H-10517, RA-20-5-93) in 1993. The remaining incomplete portion was designated RA-20-6-93 (H-10519) and the sheet layout was redrawn to include H-10519 (sheet AO) as a stand alone 1:20,000 scale survey (sheet layout dated 3/21/94). Due to time and weather constraints, the southern portion of sheet AO was squared off at 60°37.0'N. Correspondence addressing the items discussed above ~~can be found in~~ ^{is included in this report.} Appendix VI. ✓

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., Sec. B)

The survey area is located in Northwest Prince William Sound, west and north of Naked Island. The survey's northern limit is bounded by 60°46.8'N, the eastern limit is bounded by 147°32.7'W between latitudes 60°46.8'N and 60°42.4'N, and then to the south by 147°33'00"W. The western limit is bounded by 146°47.0'W between latitudes 60°46.8'N and 60°42.4'N, and 147°43.0'W between latitudes 60°42.4'N and 60°40.9'N, and then south of 60°40.9'N by 147°44.4'W. The southern limit is bounded by 60°37.0'N. ✓

Data acquisition was conducted from October 28, 1993, Day Number (DN) 301, through November 2, 1993, DN 306 and October 31, 1994 DN 303⁴ through November 4, 1994 DN 308. ✓

C. SURVEY VESSELS

Data were acquired by the NOAA SHIP RAINIER and four survey launches as noted below:

<u>Vessel</u>	<u>EDP #</u>	<u>Operation</u>
RAINIER	2120	Hydrography Sound Velocity Casts Bottom Samples
RA-3	2123	Hydrography
RA-4	2124	Hydrography
RA-5	2125	Hydrography Shoreline Verification Bottom Samples
RA-6	2126	Hydrography

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

<u>HDAPS 1993</u> <u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
AUTOST	3.00	9/24/92
BACKUP	2.00	8/20/93
BASELINE	1.14	8/20/93
BIGABST	2.05	8/20/93
BLKEDIT	2.02	8/20/93
CARTO	2.09	8/20/93
CONVERT	3.54	8/20/93
DAS_SURV	6.42	8/20/93
DP	2.14	8/20/93
EXCESS	4.11	8/20/93
FILESYS	3.10	8/20/93
GRAFEDIT	1.04	8/20/93
LSTAWOIS	3.04	8/20/93
LISTDATA	1.02	8/20/93
MAINMENU	1.10	8/20/93
MAN_DATA	2.01	8/20/93
NEWPOST	6.01	8/20/93

PLOTALL	2.12	8/20/93
PRESURV	7.04	8/20/93
PRINTOUT	4.03	8/20/93
QUICK	2.04	8/20/93
RAMSAVER	1.02	8/20/93
REAPPLY	2.03	8/20/93
SYMBOLS	2.00	9/24/93
ZOOMEDIT	2.12	8/20/93

HDAPS 1994

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
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	

Velocity corrections were determined using:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>	
1993 VELOCITY	2.0	24 Mar 1993	
1994 VELOCITY	2.10	15 Mar 1994	✓

E. SONAR EQUIPMENT

Sonar equipment was not used on ~~sheet A0~~ ^{survey H-10519}.

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 problems which affect survey data were encountered. All DSF-6000N soundings were acquired using either the High + Low, high frequency digitized setting or the low frequency digitized setting, depending on water depth. ✓

G. CORRECTIONS TO ECHO SOUNDINGS

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

<u>Velocity Table #</u>	<u>Cast#</u>	<u>DN</u>	<u>Cast Position</u>	<u>Deepest Depth</u>	<u>Applicable DN, Year</u>
1993	5	286	42' 32"	864	
4	4	297	60°46'51"N 147°36'08"W	676	301-307
1994	8,18	308	60°37'30"N 147°38'54"W	945	303-308

RAINIER used velocity table 18 while tables 4 and 8 were used by the launches.

Casts #5 & #8 plot inside the survey area.

Sound velocity cast number 4 (1993) was acquired with SBE SEACAT Profiler (S/N 220). Sound velocity cast number 8 (1994) was 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

Transducer depths were determined using FPM Fig 2.2 for launches 2123, 2124, and 2125 on March 19, 1993 and were applied to all data collected in 1993. In the spring of 1994, the transducer depths were again determined and were applied to all data collected in 1994. RAINIER's transducer depth was determined during the 1990 winter inport. These values were entered into the offset tables* for each vessel.

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 used for the launches was collected in Shilshole Bay, Washington in March of 1992 and March of 1994. RAINIER's settlement and squat data was collected in Shelikof Strait, Alaska on July 14, 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 3-5 correspond to the number of the launch. The offset tables were compiled with measurements in the spring of 1993 and 1994, and are contained in the "Separates to be Included with Survey Data". *

Heave

RAINIER and the launches are not equipped with heave, pitch and roll sensors. Data acquired during periods of significant sea action were scanned to account for inaccuracies caused by heave.

Bar Check and Lead Lines

Bar check and lead lines were calibrated by RAINIER personnel during the winter inport 1992 - 1993 and 1993 - 1994. Calibration forms are included with project data for OPR-P125-RA.*Bar checks were performed weekly and served as a functional check of the DSF-6000N.

** Filed with the survey records .*

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:

<u>Time Correction</u>	<u>Height Correction</u> <u>Range Ratio</u>
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. *

In 1993 tide gages were installed and maintained by RAINIER personnel at Storey Island, Alaska (945-4553) and Olsen Island, Alaska (945-4596).

In 1994, RAINIER personnel installed an 8200 digital gage at Storey Island (945-4553) on September 4, 1994. Opening levels to the staff and all bench marks were conducted upon installation. 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 both gage sites. Due to the staff being destroyed at the first Storey Island gage (945-4553), closing levels were not conducted, and the gage was removed on October 26. Closing levels were completed at the secondary Storey Island gage (945-4571) on November 1 and the gage was removed on November 3. ✓

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

The station description, field tide records, and Preliminary Field Tide Note (Appendix V) were forwarded to N/OES212 in accordance with HSG 50 and FPM 4.3 at the end of September. The final tide package was forwarded to N/OES212 at the end of the project. A request for approved tides was forwarded to N/OES2 in accordance with FPM 4.2.3. *Approved tide notes dated March 8, 1994 and January 17, 1995 are attached.* ✓

H. CONTROL STATIONS (See EVAL RPT., Sec. H)

A listing of the geodetic stations used to control this survey is included in Appendix III of this report. The horizontal datum for this project is NAD83.

In 1993, DGPS stations were installed on existing stations QUOTE, AXEL and INDIA. Further information can be found in the "Fall 1993 Horizontal Control Report for OPR-P125-RA". *

** Filed with the survey records.*

EXIT

In 1994, DGPS stations were installed on existing stations QUOTE and TUFT. Station QUOTE is located on a small islet east of Outpost Island and TUFT is located on the southwest tip of Naked Island. These stations were recovered in accordance with methods stated in Section 5.2.4 of the FPM. In addition, Coast Guard differential GPS beacon stations at Cape Hinchinbrook and Potato Point were used according to specifications listed in Section 6.2 of the Project Instructions. ✓

For further information see the "Fall 1994 Horizontal Control Report" that will be submitted at the end of the project. *

I. HYDROGRAPHIC POSITION CONTROL

All soundings and features were positioned using differential GPS. Serial numbers for Ashtech GPS equipment are annotated on the data printouts. *

Ashtech GPS

Method of Position Control

EXIT

VHF differential shore stations were established at stations QUOTE, AXEL, INDIA and TUFT. The difference between the computed location and the station's published position was recorded by the MONITOR program on a PC. Data from a 24-hour period were recorded and examined for signs of multi-path signal reflection, which was not evident at any of the stations. Scatterplot results are included in the "Project related data for OPR-P125-RA".*The scatterplot results for station QUOTE, AXEL and INDIA were obtained in 1993. ✓

Calibrations & Systems Check Methods

System checks were performed in accordance with Section 3.4.4 of the FPM. Two observations of position were made from two independent DGPS base stations. The results were transferred to forms which are included in the project data for OPR-P125. An abstract of the system checks is included in the "Separates to be Included with Survey Data, III. Horizontal Position Control and Corrections to Position Data". *

Problems

None

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

The shoreline map (T-sheet) used to transfer shoreline detail to the final sheets was DM-10190 (reduced from 1:10,000 to 1:20,000). ✓

** Filed with the survey records.*

Method of Shoreline Verification

Shoreline verification was conducted near predicted lower low water in accordance with FPM 7.1. Shoreline verification was accomplished by taking detached positions (DPs), as explained later in this section. ✓

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*. ✓

A detailed 1:20,000 "Bottom Sample and Detached Position Plot" is provided showing all DPs 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 upon application of actual tides and shown on the smooth sheet. There are no changes to the mean high water line.* ✓

Recommendations

The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information compiled on DM-10190. *CONCUR.*

Charted Features

Charted rocks were identified as either T-sheet rocks or ledges. ✓

K. CROSSLINES

Crosslines are within 1-2 meter agreement with mainscheme hydrography except in areas of complex bathymetry. Crosslines totaled 42 nautical miles, representing 12.4% of the total mainscheme hydrography. ✓

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

This survey junctions with survey H-10517 (1:20,000, 1993) at the northern limit and H-10578 (1:10,000, 1994) and H-10580 (1:10,000, 1994) at the eastern limit. These soundings were found to be in general agreement with this survey. ✓

Final comparisons will be made at the Pacific Hydrographic Section (PHS).

M. COMPARISON WITH PRIOR SURVEYS (See Eval Rpt, Sec. M)

Six prior surveys were compared: H-2807 (1:100,000, 1905), H-3315 (1:20,000, 1911), H-3383 (1:40,000, 1912), H-3408 (1:20,000, 1912), H-7764 (1:20,000, 1949) and H-7766 (1:40,000, 1949). Soundings from the prior surveys were in general agreement with the present survey. However, the present survey, due to much greater sounding density, revealed numerous shoal soundings not found during the prior survey. There were no instances where prior survey soundings were shoaler in a corresponding area. ✓

Final comparisons will be made at PHS.

N. ITEM INVESTIGATIONS

No AWOIS items were listed within the limits of this survey. *Concur* ✓

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

This survey was compared to NOS chart 16705, 15th Edition, Sep 1, 1990, 1:80,000 (NAD83). The charted soundings were found to be in general agreement with the present survey. Non-sounding charted features are discussed in Section J, Shoreline. ✓

In addition, several soundings originating from USCGS BP-43214 (1:200,000, 1947), USCGS BP-65971 (1:80,000, 1964) were compared and found to be in general agreement with the present survey. ✓

Final comparisons will be made at PHS.

Dangers to Navigation

Two dangers to navigation within the limits of survey H-10519 were reported to the Seventeenth Coast Guard District on November 9, 1994. Copies of the correspondence ^{is attached to} can be found in Appendix I of this report.

P. ADEQUACY OF SURVEY (See EVAL RPT., Sec. P)

Prior to final approval, survey H-10519 is complete and adequate to supersede charted depths and features in their common areas. *CONCUR.*

Q. AIDS TO NAVIGATION ✓

None.

R. STATISTICS ✓

1993

<u>Vessel:</u>	<u>2120</u>	<u>2123</u>	<u>2124</u>	<u>2125</u>	<u>2126</u>	<u>Total</u>
Number of Positions	2	127	291	157	183	760
NM Hydrography	0	23.2	82.8	79.3	57.4	242.7
Velocity Casts	1					
Detached Positions	8					
Bottom Samples	2					
Tide Stations	2					
NM ² Hydrography	28					

1994

<u>Vessel:</u>	<u>2120</u>	<u>2125</u>	<u>Total</u>
Number of Positions	426	59	485
NM Hydrography	166.5	6.4	172.9
Velocity Casts	1		
Detached Positions	0		
Bottom Samples	4		
Tide Stations	2		
NM ² Hydrography	32		

S. MISCELLANEOUS

Bottom samples were collected in accordance with Project Instructions.

No tidal current predictions are available within the sheet limits. ✓

No unusual magnetic variations were noted.

T. RECOMMENDATIONS

In the vicinity of 60°42'43"N, 147°43'42"W, 50-meter line spacing revealed an 18.²/₄ m (10 FM) shoal. Due to time and weather constraints, further development was not conducted. Recommend that at least 25-meter line spacing be conducted over this shoal area next field season. This item was submitted as a danger to navigation. ✓

CONCUR.

U. REFERRAL TO REPORTS ✓

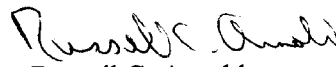
The following supplemental reports contain additional information relevant to this survey:

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Fall 1993 Horizontal Control Report for OPR-P125-RA-93	November 1993	N/CG233
Fall 1994 Horizontal Control Report for OPR-P125-RA-94	November 1994	N/CG245
Fall 1993 Coast Pilot Report for OPR-P125-RA-93	November 1993	N/CG245 ✓
Fall 1994 Coast Pilot Report for OPR-P125-RA-94	November 1994	N/CG245
Project related data for OPR-P125-RA-93	Fall 1993	N/CG245
Project related data for OPR-P125-RA-94	Incremental	N/CG245

Respectfully Submitted,


Stacy M. Maenner
Ensign, NOAA

Approved and Forwarded,


Russell C. Arnold
Captain, NOAA
Commanding Officer



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 9, 1994

**ADVANCE
INFORMATION**

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

Dear Sir:

NOAA Ship RAINIER has located two dangers to navigation in Northwest Prince William Sound (Project OPR-P125-RA) within the limits of hydrographic survey H-10519. The attached information is provided for publication in the Local Notice to Mariners for the Seventeenth Coast Guard District. A copy of the chart showing the areas in which the dangers exist is also attached.

Sincerely,

Russell C. Arnold
Captain, NOAA
Commanding Officer

Attachments

cc. DMAHTC
N/CG221
PMC



**ADVANCE
INFORMATION**

Hydrographic Survey Registry Number: H-10519

Survey Title: State: Alaska
Locality: Northwest Prince William Sound
Sublocality: Vicinity of Dutch Group

Project Number: OPR-P125-RA

Survey Date: October - November 1993
October - November 1994

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

Affected Nautical Charts:

<u>Chart</u>	<u>Edition/Date</u>	<u>Scale</u>	<u>Datum</u>
16700	24th Ed., 1/11/92	1:200,000	NAD83
16705	15th Ed., 9/1/90	1:80,000	NAD83

	<u>Danger to Navigation</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Pos #</u>	<u>Depth(m)</u>
A.	Shoal, covers 10 FM	60° 42' 44.0"	147° 43' 44.1"	8110 ¹⁵	18 ²
B.	Shoal, covers 8 FM	60° 46' 46.7"	147° 43' 34.7"	4425 ¹⁰	14 ³

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

CONTROL STATIONS as of 18 Nov 1993

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
100	F	060:50:49.561	147:27:05.696	15	250	0.0	0.0		09/04/93	CHOTE 1947(DGPS)
101	F	060:52:35.967	147:33:15.597	6	250	0.0	0.0		09/04/93	INDTA 1947(DGPS)
102	F	060:48:21.781	147:41:49.698	7	250	0.0	0.0		09/28/93	AXEL 1947(DGPS)

CONTROL STATIONS as of 8 Nov 1994

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
101 201	G	060:50:49.581	147:27:05.696	13	250	0.0	0.0		09/04/94	QUOTE 1947(DGPS)
102 202	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)

APPROVAL SHEET

for

H-10519
RA-20-6-93

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
Office of NOAA Corps Operations
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

November 7, 1994

MEMORANDUM FOR: Commander Evelyn J. Fields, NOAA
Chief, Hydrographic Surveys Branch

FROM: *Russell C. Arnold*
Captain Russell C. Arnold, NOAA
Commanding Officer, NOAA Ship RAINIER

SUBJECT: Sheet Layout Revision
OPR-P125-RA
Northwest Prince William Sound, Alaska

Due to time and weather constraints during this falls project, RAINIER "squared off" sheet AO at latitude 60° 37' 00"N (see sheet layout for chart 16700 dated 3/21/94). RAINIER recommends that the remaining portion of sheet AO be assigned as an extension of sheet AR to be completed next year. A copy of RAINIER's progress sketch is attached.

Attachment

cc: N/CG245



MONTHLY PROGRESS SKETCH

OPR-P125-RA

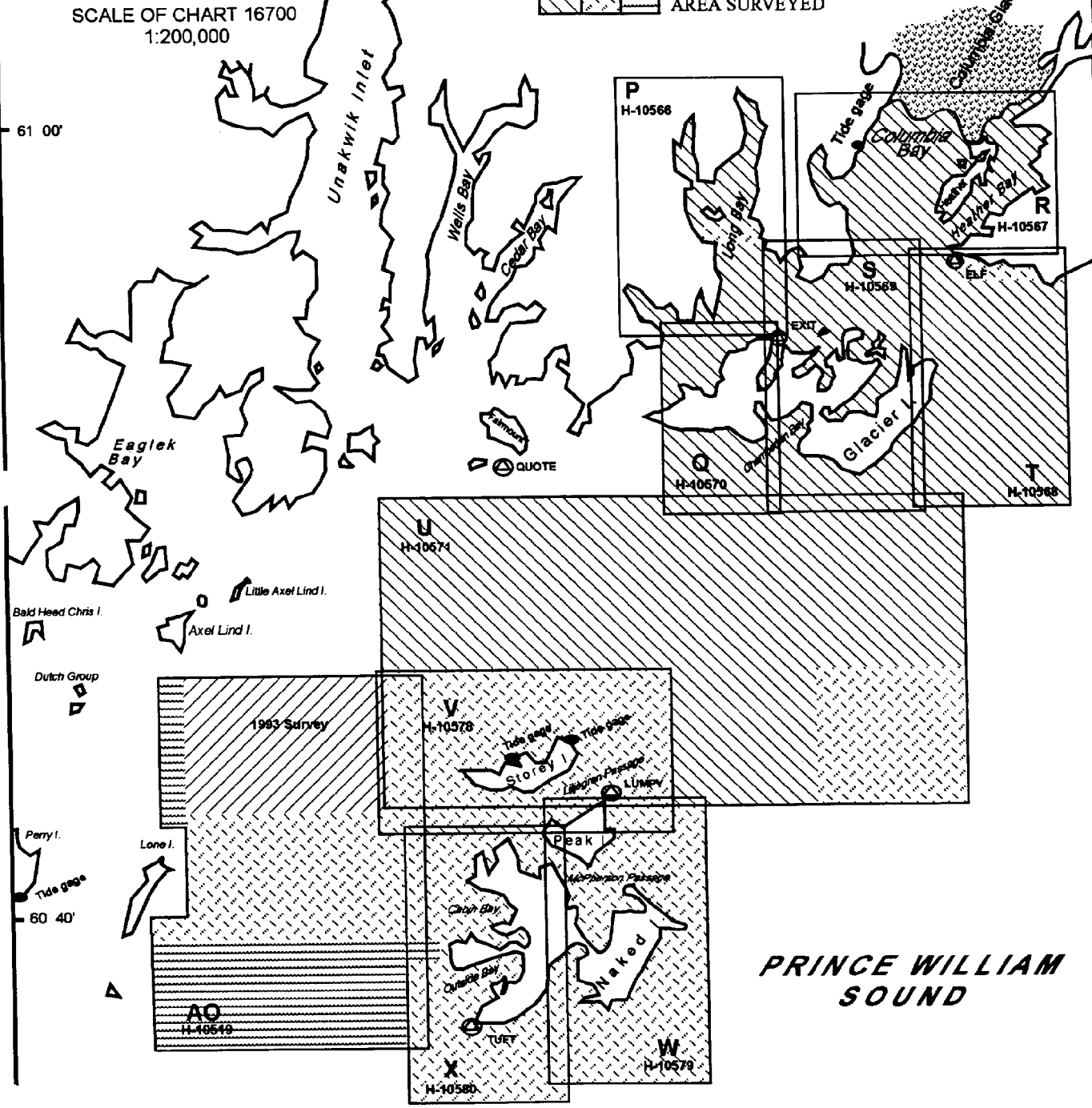
NW PRINCE WILLIAM SOUND, AK
R. C. ARNOLD, CAPT., NOAA
COMMANDING

SCALE OF CHART 16700
1:200,000

	SEP	OCT	NOV
119	85	23	
2206	2595	134	
0	0	0	
127	129	4	
3	2	0	
4	3	1	
3	2	0	
3	2	0	
7	3	0	

- SQ. NM SOUNDINGS
- L.N.M. SOUNDINGS
- L.N.M. SIDE SCAN SONAR
- BOTTOM SAMPLES (GRAB)
- ELECTR. CONTROL STATIONS
- SOUND VELOCITY CAST
- TIDE GAGES
- GEODETIC CONTROL STATIONS EST./REC.
- AWOIS ITEMS INVESTIGATED
- AREA SURVEYED

61 00'



PRINCE WILLIAM SOUND

147 40'

147 20'

147 00'



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

November 6, 1993

MEMORANDUM FOR THE RECORD

FROM: Lieutenant Michael B. Brown, NOAA
Field Operations Officer, NOAA Ship RAINIER

SUBJECT: Incomplete Surveys

During the 1993 field season, RAINIER left one sheet incomplete at the end of each project, resulting in a total of three surveys left at various stages of completion. This memorandum summarizes the status of each survey.

Project OPR-0136-RA, Southern Stephens Passage, Alaska: Sheet P, H-10470 (RA-10-9-93). This survey was virtually complete at the conclusion of field operations. All mainscheme, crosslines and shoreline verification work are completed. The only missing pieces are a small area near the north end of the sheet in the vicinity of the entrance to Windham Bay that needs further development and a shoreline split along the eastern shore that dropped out due to an HDAPS error. A request for smooth tides was filed. Data are stored at the Pacific Hydrographic Section, PHS.

Project OPR-P180-RA, Southern Alaska Peninsula, Alaska: Sheet Y, H-10491 (RA-10-18-93). This survey is approximately 80% complete with all mainscheme finished. The bulk of the area development work is complete. Most of the shoreline is verified. Remaining work is primarily point feature development and splits around offshore rocks that were not run due to sea conditions. A request for smooth tides was filed. Data are stored at PHS.

Project OPR-P125-RA, Northwest Prince William Sound, Alaska: Sheet AG Southern portion, no registry number yet (RA-20-6-93). This survey represents the southeast quarter of sheet AG as defined by Longitude 147/33/00W to Longitude 147/47/00W and Latitude 60/42/30N to Latitude 60/46/45N. The northern half of sheet AG (north of 60/46/45N) was run as H-10517 (RA-20-5-93) and submitted as a complete survey. The remaining hydro was designated RA-20-6-93 and held as incomplete. RAINIER has requested that N/CG241 re-scheme the entire remaining project area to eliminate 1:20,000 scale sheets that have shoreline within their limits. The area covered by RA-20-6-93 should be included in that layout as a stand alone 1:20,000 scale survey. The sheet is 90% complete with some mainscheme and some point feature development remaining. Smooth tides have not been requested at this time. Data will be stored at PHS.

cc: CO RAINIER
LT Neander
N/CG245 (Hennick)





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

November 6, 1993

MEMORANDUM FOR: Lieutenant Commander John D. Wilder, NOAA
Chief, Operations Section, Hydro Surveys Branch

FROM: *Russell C. Arnold*
Captain Russell C. Arnold, NOAA
Commanding Officer, NOAA Ship RAINIER

SUBJECT: Incomplete Survey and Re-scheming of OPR-P125-RA

As previously communicated, RAINIER recommends re-scheming the remaining 1:20,000 scale sheets in the Northwest Prince William Sound, Alaska, project that have shoreline within their limits. As discussed in the attached Memorandum for the Record, RAINIER has left part of 1:20,000 survey sheet AG incomplete. The northern portion of sheet AG was submitted as a complete survey. RAINIER recommends that the remaining data be designated as a stand-alone survey, designated sheet AO, to be completed next field season. Please consider this information when re-scheming the area and determining survey priority for the next field season, as it would be undesirable to let this incomplete sheet hang for more than one field season.

Attachment

cc: N/CG245 (Hennick)





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

DATE: January 17, 1995

HYDROGRAPHIC SECTION: Pacific

HYDROGRAPHIC PROJECT: OPR-P125-RA

HYDROGRAPHIC SHEET: H-10519

LOCALITY: Vicinity of the Dutch Group, Prince William Sound,
Alaska

TIME PERIOD: October 31 - November 4, 1994

TIDE STATION USED: 945-4571 North Side of Storey Island, Prince
William Sound, Ak.
Lat. $60^{\circ} 43.9'N$ Lon. $147^{\circ} 26.2'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -6.33 ft.

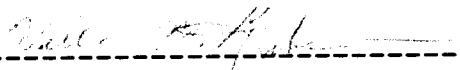
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.2 ft.

REMARKS: RECOMMENDED ZONING

Times and heights are direct on North Side of Storey Island, Ak.
(945-4571).

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

2. Data for North Side of Storey Island, Ak. (945-4571) are
temporarily stored in file #745-4571.



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: March 8, 1994

MARINE CENTER: Pacific

HYDROGRAPHIC PROJECT: OPR-P125-RA

HYDROGRAPHIC SHEET: H-10519

LOCALITY: Vicinity of the Dutch Group, Prince William Sound,
Alaska

TIME PERIOD: October 28 - November 3, 1993

TIDE STATION USED: 945-4596 Olsen Island, Prince William Sound,
Ak.

Lat. $60^{\circ} 52.6'N$ Lon. $147^{\circ} 33.1'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -4.33 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.0 ft.

REMARKS: RECOMMENDED ZONING

Times and heights are direct on Olsen Island, Ak. (945-4596).

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

2. Data for Olsen Island, Ak. (945-4596) is temporarily
stored in file #556-4596.

William M. Huber
CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

Name on Survey	ON CHART NO. 16705 16700		ON PREVIOUS SURVEY		ON U.S. QUADRANGLE MAPS		FROM LOCAL INFORMATION		ON LOCAL MAPS		P.O. GUIDE OR MAP ATLAS		U.S. LIGHT LIST	
	A	B	C	D	E	F	G	H	K					
ALASKA (title)	X		X											1
DUTCH GROUP (islands) *	X		X											2
LONE ISLAND (title)	X		X											3
PRINCE WILLIAM SOUND	X		X											4
														5
														6
														7
														8
														9
														10
														11
														12
														13
														14
*Plots outside the survey limits.														15
														16
														17
														18
														19
														20
														21
														22
														23
														24
														25

Approved:

Charles C. Coy
Chief Geographer

DEC 8 1993

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
ACCORDION FILES	2		
ENVELOPES			
VOLUMES			
CAHIERS			
BOXES			

SHORELINE DATA	
SHORELINE MAPS (List)	DM-10190
PHOTOBATHYMETRIC MAPS (List)	N/A
NOTES TO THE HYDROGRAPHER (List)	None
SPECIAL REPORTS (List)	None
NAUTICAL CHARTS (List)	16705, 15th Edition, Sept. 1, 1990

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			1245
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	28.0		28.0
VERIFICATION OF SOUNDINGS			
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION VERIFICATION			
COMPILATION OF SMOOTH SHEET	110.5		110.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		19.0	19.0
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	138.5	19.0
			157.5

Pre-processing Examination by LT M. Larsen	Beginning Date 11/14/94	Ending Date 12/13/94
Verification of Field Data by D.Doles, L.Deodato, G.Kay, J.Stringham, R.Mayor	Time (Hours) 108.5	Ending Date 11/22/95
Verification Check by J.Stringham	Time (Hours) 30.0	Ending Date 11/17/95
Evaluation and Analysis by I.Almacen	Time (Hours) 19.0	Ending Date 12/7/95
Inspection by Bruce A. Olmstead	Time (Hours) 5.0	Ending Date 12/13/95

EVALUATION REPORT

H-10519

A. PROJECT

Project information is discussed in the hydrographer's report.

B. AREA SURVEYED

This survey was conducted in Alaska, in the northwestern part of Prince William Sound during the 1993 and 1994 field seasons. It covers primarily the deep section of the sound around the offshore area between Naked Island and the vicinity of Lone Island. The bottom is generally made up of gray mud. Depths range from 0.6 to 744.0 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-10519.

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, Prince William Sound, Alaska gage (945-4571) and Olsen Island, Prince William Sound, Alaska gage (945-4596). Refer to the approved tide notes attached to this report concerning recommended tidal zoning.

H. CONTROL STATIONS

Sections H and I of the hydrographer's descriptive report contain adequate discussions of horizontal control and the 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 also based on NAD 83. The AutoCAD generated smooth sheet is annotated with an NAD27 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: -2.019 seconds (-62.476 meters)
Longitude: 7.344 seconds (111.440 meters)

The year of establishment of the control stations 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. There are a few positions where the maximum allowable horizontal dilution of precision (HDOP) limits of 7.50 have 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 survey 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

There is no shoreline within the limits of this survey other than in the area around the isolated group of small islets, rocks and reefs in the vicinity of latitude 60/45/55N, longitude 147/46/20W. The digital shoreline map DM-10190 compiled from June 1994 photography was used to transfer the features to the smooth sheet.

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10519 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-10578	1994	1:10,000	East
H-10580	1994	1:10,000	East

The junctions with surveys H-10578 and H-10580 are complete. The depth curves and soundings within the junction areas are in satisfactory agreement.

The junction with survey H-10517 was made using a copy as this survey was previously processed and forwarded to headquarters. The soundings and depth curves are in satisfactory agreement.

There are no contemporary surveys to the west, however, comparison was made with chart 16705, 15th edition. Survey H-10519 is in satisfactory agreement with the presently charted data.

M. COMPARISON WITH PRIOR SURVEYS

Survey H-10519 was compared with the following prior surveys.

H-2807 (1905), scale 1:100,000
H-3315 (1911), scale 1:20,000
H-3383 (1912), scale 1:40,000
H-3408 (1912), scale 1:20,000
H-7764 (1949), scale 1:20,000
H-7766 (1949), scale 1:40,000

Comparisons with the above listed prior surveys are considered satisfactory except around the deep area of the survey. The present survey appears to be generally shoaler from 1- 20 meters (0.5-36.0 fathoms) around the inshore portion of the survey. However, significant differences were noted within the deeper section of the area where depths are approximately between 650 to 700 meters. These differences between the priors and the present survey are primarily attributed to the accuracy of the surveying methods used, increase in bottom coverage and the effects of the 1964 Alaska earthquake. Comparisons with the prior surveys seems to indicate an uplifting trend found common around the area of Prince William Sound.

The following three (3) prior survey soundings are significantly shoaler than the present survey and were not specifically addressed by the hydrographer. No indications of shoaler depths were noted around their respective locations. Based on the depth and less accurate positioning and sounding methods used in the past, these depths should be superseded. It is recommended that these areas be charted based on the latest survey information.

<u>Charted Depth</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Prior Survey</u>
98 FM (179 meters)	60/41/11	147/33/24	H-3315 (1911)
170 FM (311 meters)	60/38/00	147/42/30	H-7764 (1949)
194 FM (355 meters)	60/43/32	147/41/14	H-3308 (1912)

H-10519 is adequate to supersede the prior surveys within the common area.

N. ITEM INVESTIGATIONS

There were no AWOIS items assigned for investigation.

O. COMPARISON WITH CHART

Survey H-10519 was compared with the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16705	15th	Sept. 1, 1990	1:80,000	NAD83
16700	24th	Jan. 11, 1992	1:200,000	NAD83

a. Hydrography

Charted hydrography originates with the previously mentioned prior surveys and miscellaneous sources. The prior surveys are discussed in the preceding section of this report and requires no further discussion.

Comparisons with depths originating from miscellaneous sources reveal differences that generally portray a consistent pattern of shoaling within the survey area and reveal similar

differences as described in section M.

Survey H-10519 is adequate to supersede charted hydrography within the common area of coverage.

b. Dangers to Navigation

Two (2) dangers to navigation were reported to the USCG, DMAHTC, and N/CG221, on November 9, 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-10519 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-10519 adequately complies with the project instructions.

Q. AIDS TO NAVIGATION

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

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

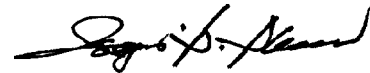
Miscellaneous information concerning this survey is discussed in the hydrographer's report.

T. RECOMMENDATIONS

Survey H-10519 is a good hydrographic survey. Concur with the hydrographer's recommendation that further investigation on a low priority basis be conducted around the 18.2 meters (9 3/4 fathoms) depth found during this survey to adequately determined the extent and least depth of the shoal.

U. REFERRAL TO REPORTS

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



Isagani A. Almacén
Cartographer

APPROVAL SHEET
H-10519

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: 12/19/95
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: 12/21/95
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

