

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-20-5-93
Registry No. H-10517

LOCALITY

State Alaska
General Locality Prince William Sound
Sublocality Esther Bay to
Axel Lind Island

19 93

CHIEF OF PARTY
CAPT Russell C. Arnold, NOAA

LIBRARY & ARCHIVES

DATE JUL 25 1995

H10517

11/15

H-10517

HYDROGRAPHIC TITLE SHEET

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

FIELD NO.

RA-20-5-93

State Alaska

General locality Prince William Sound

Locality Esther Bay to Axel Lind Island

Scale 1:20,000 Date of survey Oct. 14 - Nov. 2, 1993

Instructions dated 7/19/93; Change #1-8/25/93 Project No. OPR-P-125-RA

Vessel NOAA Ship RAINIER, 2120, 2123, 2124, 2125, 2126

Chief of party CAPT Russell C. Arnold, NOAA

Surveyed by CAPT R. Arnold, LT M. Brown, LTJG S. Lemke, ENS D. Pitts, ENS J. Graham
ENS A. Caron, ENS G. Johnson, ENS S. Maenner, ENS S. Smith

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

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: G. E. Kay Automated plot by PHS Xynetics Plotter

Produced by: D. Doles, R. Mayor, S. Otsubo, J. Stringham

Verification by D. Doles, R. Mayor, S. Otsubo, J. Stringham

Soundings in ~~fathoms~~ ~~feet~~ ^{meters and decimeters} ~~at MLLW~~ at MLLW

REMARKS: All times in UTC. Change No. 2 November 5, 1993

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 (MLLW) unless otherwise noted.

Surf/Ancor chk
9/14/95 mcr

DSC 12/13/96
7/25/95

148 00

147 40

147 20

PROGRESS SKETCH

OPR-P125-RA
HYDROGRAPHIC SURVEY
NW PRINCE WILLIAM SOUND, ALASKA

61 10 SEPTEMBER 4 - NOVEMBER 3, 1993

NOAA SHIP RAINIER

RUSSELL C. ARNOLD, CAPT.
COMMANDING

SCALE OF CHART 16700
1:200,000

SEPT OCT NOV

76.3	78.9	3.0
------	------	-----

1647	1469	135.8
------	------	-------

0	0	0
---	---	---

158	100	2
-----	-----	---

2	1	0
---	---	---

2	3	1
---	---	---

3	2	0
---	---	---

0/5	0/1	0/0
-----	-----	-----

6	2	0
---	---	---

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

61 00

60 50

RA-10-26-93
H-10516

RA-10-26-93
H-10516

H
RA-10-25-93
H-10515

RA-20-3-93
H-10503

RA-10-22-93
H-10501

N
RA-10-21-93
H-10500

RA-10-23-93
H-10502

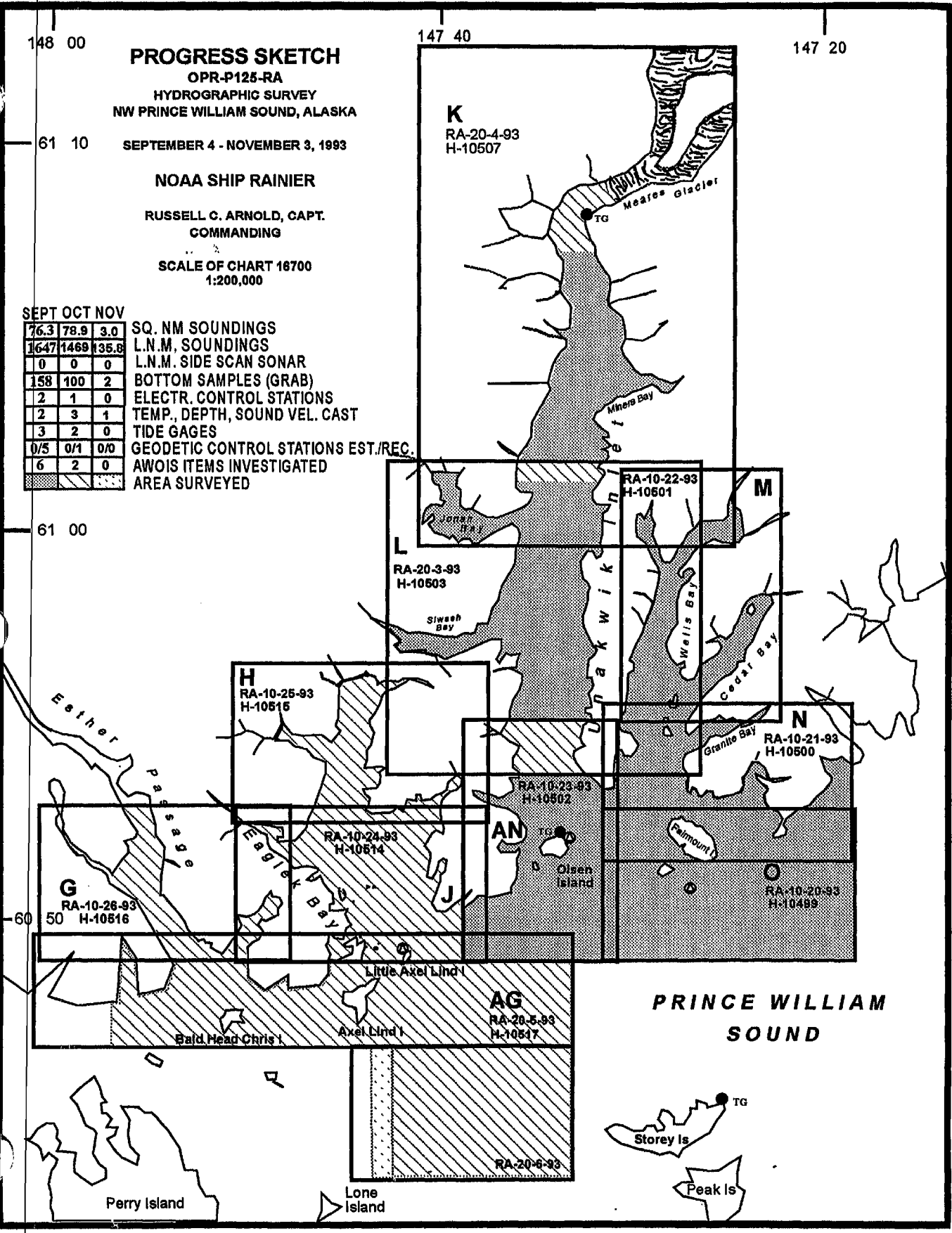
RA-10-24-93
H-10514

RA-10-20-93
H-10489

AG
RA-20-5-93
H-10517

RA-20-6-93

PRINCE WILLIAM SOUND



Descriptive Report to Accompany Hydrographic Survey H-10517

Field Number RA-20-5-93

Scale 1:20,000

October 1993

NOAA Ship RAINIER

Chief of Party: Captain Russell C. Arnold *NOAA*

A. PROJECT

This basic hydrographic survey was completed in northwest Prince William Sound, Alaska, as specified by Project Instructions OPR-P125-RA dated July 19, 1993, change No. 1 dated August 25, 1993, and change No. 2 dated ~~September 2,~~ *NOVEMBER 5,* 1993. ✓

Survey H-10517 corresponds to "Sheet AG" as defined in the Project Instructions. ✓

This survey will provide contemporary hydrographic survey data for updating existing nautical charts, and for constructing two new 1:100,000 scale metric charts covering the fiords and bays of northwest Prince William Sound. Requests for hydrographic surveys and updated charts have been received from the Defense Mapping Agency, Southwest Alaska Pilot's Association, cruise ship lines (in particular Holland America Line and Westours, Inc.), and local fishermen. ✓

B. AREA SURVEYED - *See Eval Rpt, Section 1*

This survey area is located south of Ester Passage, including Ester Bay, Axel Lind Island, Little Axel Lind Island, and Bald Head Chris Island. The survey's northern and southern limits are 60°49'00"N and 60°46'45"N respectively. The survey extends west to 148°00'00"W, and east to 147°32'45"W. ✓

Data acquisition was conducted from October 14, Day Number (DN) 287, through November 2, 1993 (DN 306). ✓

C. SURVEY VESSELS

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

<u>Vessel</u>	<u>EDP No</u>	<u>Operation</u>	
RAINIER	2120	Sound Velocity Cast Bottom Samples	✓
RA-3	2123	Hydrography Shoreline Verification	
RA-4	2124	Hydrography Shoreline Verification	
RA-5	2125	Hydrography Shoreline Verification Bottom Samples	

RA-6

2126

Hydrography
Shoreline Verification

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

<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	9/24/92
ZOOMEDIT	2.12	8/20/93

Velocity corrections were determined using:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
VELOCITY	2.0	24 Mar 1993

E. SONAR EQUIPMENT

Sonar equipment was not used on Sheet AG.

F. SOUNDING EQUIPMENT

DSF-6000N serial numbers are included on the daily Raw Master Printouts.* No problems which affect survey data were encountered. All soundings were acquired using the High + Low, High frequency digitized setting.

* Filed with the survey records.

G. CORRECTIONS TO ECHO SOUNDINGS

Correctors for the velocity of sound through water were determined from the cast listed below:

<u>Velocity Table No.</u>	<u>Cast No.</u>	<u>Deepest Depth (m)</u>	<u>Applicable DN</u>	<u>Cast Position</u>	<u>Day</u>
4	4	676	287-306	60°46'51"N 147°36'08"W	297

The sound velocity cast was acquired with SBE SEACAT Profiler S/N 220.

Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) #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." *filed with the survey data.*

Static Draft

A transducer depth was determined for launches 2123, 2124, 2125 and 2126 on March 19, 1993 and is in 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. 2.2 and 2.3, and are included with project data for OPR-P125-RA. The data used was collected in Shilshole Bay, Washington on March 11, 16, and 18 of 1992. Revised settlement and squat correctors were received from Pacific Marine Center on October 21, 1992. Authorization was obtained from N/CG241 to use the 1992 data. These revised correctors were applied to the data on Sheet AG.

Offset Tables*

<u>Vessel</u>	<u>Offset Table No.</u>
2123	3
2124	4
2125	5
2126	6

Heave

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 on February 19, 1993 at PMC. Calibration forms are included with the project data for OPR-P125-RA.

* Filed with the survey data.

Tide Correctors

The tidal reference station used for this survey was Cordova, Alaska (945-4050). Tidal correctors as provided in the project instructions for Sheet AG are:

<u>Time Correction</u>				<u>Height Correction</u>
<u>High Water</u>		<u>Low Water</u>		<u>Range Ratio</u>
0 hr	0 min	0 hr	0 min	X0.96

HDAPS listings of the data used in generating tide corrector tables are ~~included in Appendix V of this report~~ *filed with the survey records.*

Tide gages were installed and maintained by RAINIER personnel at Storey Island, Alaska (945-4553) and Olsen Island, Alaska (945-4596). The control station was Valdez, Alaska (945-4240). Opening levels for the Valdez station were completed by the Pacific Operations Section. Requirements for closing levels were waived in Change No. 1 of the Project Instructions.

The station descriptions, field tide records, and Field Tide Notes will be forwarded to N/OES212 monthly in accordance with HSG 50 and FPM 4.3, and at the end of the project. Requests for approved tides will be forwarded to N/OES2. *Tide Note dated March 8, 1994 is attached.*

H. CONTROL STATIONS - *See Eval Rpt., section 2.*

A listing of the geodetic stations used to control this survey is ~~included in Appendix III of this report~~ *attached*.

Positions for all existing stations are from the National Geodetic Survey (NGS) data base. Horizontal datum for all control stations is NAD 83. All existing stations were recovered in accordance with methods stated in Section 5.2.4 of the Field Procedures Manual. Further information can be found in the "Fall 1993 Horizontal Control Report for OPR-P125-RA."

I. HYDROGRAPHIC POSITION CONTROL

Method of Position Control

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

Calibrations & Systems Check Methods

Ashtech GPS

VHF differential shore stations were established at stations AXEL and INDIA. After the stations were established, a remote sensor was connected directly to the MXII shore station and its antenna was collocated with the shore station. The computed position was transmitted back to the ship via VHF radio modem link. 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 either station.

* Filed with the survey data.

System checks were performed by launch to launch comparisons of position. Three observations of position were made by each launch using correctors from two independent DGPS base stations. System checks were made every day and 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" *filed with the survey records.* ✓

Problems

The differential GPS stations on AXEL and INDIA ran without problems for Sheet AG *(survey H-10517)* ✓

Offset

The launch GPS antenna offsets are stored in the HDAPS Offset Tables as listed in Section G. Copies of the Offset Tables are included in the "Separates to be Included with Survey Data, III. Horizontal Position Control and Corrections to Position Data." *filed with the survey records* ✓

J. SHORELINE - See Eval Rpt, Section 2

The shoreline maps (T-sheets) used to transfer shoreline detail to the final sheets were DM-10063 and DM-10064 (1:20,000, NAD 83). ✓

Shoreline verification was conducted as near as possible to predicted lower low water in accordance with FPM 7.1, however tides were not ideal for shoreline verification during the survey period. RAINIER conducted shoreline verification at the lowest possible tides during this survey. Shoreline verification was accomplished by assigning sequential reference numbers and taking detached positions (DPs), as explained later in this section. ✓

Inshore hydrography shows that photogrammetric and hydrographic positioning are in general agreement. ✓

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, features not found on the T-sheet, and locations of disprovals. Where possible, positions of some T-sheet features were verified during inshore mainscheme hydrography and annotated on the master printouts. ✓

Detailed 1:10,000 "Rough 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. Verified T-sheet features were retained and shown in black. Changes to the shoreline were shown in red. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in meters and are corrected to predicted MLLW. Heights on features shown on the smooth sheet have been corrected for approved tides. Changes to the shoreline manuscripts involved *Disprovals* small islands which have been shown in red on the smooth sheet where warranted. ✓

None.

* Filed with the survey data.

Changes

T-sheet photographs were apparently taken at a high stage of tide and many minor near shore changes were made. Most of the near shore changes involve changing a T-sheet rock to a ledge. Changes to the T-sheet are noted on the final field plot. ✓

Four T-sheet rocks and two T-sheet islets in the vicinity 60°47'42"N, 147°44'49"W, RN RA4-73, are one islet. *Island shown in red on smooth sheet.* ✓

Five T-sheet rocks and two T-sheet islets in the vicinity 60°47'38"N, 147°44'49"W, RN RA4-71, are one islet. *Island shown in red on smooth sheet.* ✓

Three T-sheet rocks and three T-sheet islets in the vicinity 60°47'42"N, 147°45'07"W, RNs RA4-74, RA4-76, RA4-77, RA4-75, are one islet. *ledge extends approximately 50 meters southward from islet.* ✓

Six T-sheet rocks and T-sheet islet in the vicinity 60°47'00"N, 147°45'24"W, RNs RA4-70, RA4-69 are one islet. *ledge extends approximately 70 meters southward from islet.* ✓

T-sheet rock and two T-sheet islets in the vicinity 60°46'58"N, 147°45'30"W, RN RA4-68 are one islet. *Concur* ✓

Two T-sheet rocks and T-sheet islet in the vicinity 60°48'11"N, 147°47'09"W, RN RA4-73 are one islet. *Concur* ✓

Four T-sheet rocks and two T-sheet islets in the vicinity 60°48'27"N, 147°47'10"W, RN RA4-73 and PN 1205 are one islet. *Island is surrounded by a ledge.* ✓

T-sheet rock and T-sheet islet in the vicinity 60°48'11"N, 147°47'17"W, RN RA4-65 are one islet. *Should be island in red on smooth sheet.* ✓

T-sheet rock in the vicinity 60°48'11"N, 147°47'17"W is a reef. *PN 8738 is a reef. A rock wash has been transferred from the shoreline manuscript to the smooth sheet. Scale considerations prevent a reef depiction.* ✓

Recommendations: The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information compiled on T-sheets DM-10063 and DM-10064 (1:20,000, NAD 83). *Concur* ✓

K. CROSSLINES

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 42.02 nautical miles, representing 7.1% of the total mainscheme hydrography. ✓

L. JUNCTIONS - See Eval Rpt, section 5

This survey junctions with surveys 10502 (1:10,000,1993), H-10514 (1:10,000,1993), and H-10516 (1:10,000,1993) to the north. No irregularities were found when comparing soundings and depth curves. Final comparisons will be made at the Pacific Hydrographic Section (PHS). ✓

M. COMPARISON WITH PRIOR SURVEYS - See Eval Rpt, section 6

There were no prior surveys for ~~Sheet AC~~ *survey H-10517*

N. ITEM INVESTIGATIONS

None.

O. COMPARISON WITH THE CHART - See Eval Rpt, Section 7

This survey was compared to NOS chart 16700, 24th Edition, January 11, 1992, 1:200,000 (NAD 83) and NOS chart 16705, 15th Edition, September 1, 1990, 1 : 80,000 (NAD 83).

The charted soundings were found to be in general agreement with the survey. Several charted rocks were not found in the indicated position. The charted rocks correspond to the T-sheet rocks in the vicinity. Final comparisons will be made at PHS. *Datum transformation, quality of source documents and generalization of charted features require shifting the chart in either a north west or southeast direction to obtain adequate agreement with the Smith sheet.*
 A 6 1/4 fm (11.3 meter) sounding charted in the vicinity of 60°48'37"N, 147°52'33"W was not verified. *(134 fms)*
 The area was developed with a 10 M line spacing and a least depth of 14.8 meters was determined. The charted sounding originates from BP 108564-68, 1979, USGS. The hydrographer recommends replacing the charted depth with the survey least depth. *Concur*

Dangers to Navigation

There were four dangers to navigation noted for this survey. *Two additional danger to navigation letters were generated during office processing and are attached.*

P. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede *the* previous chart *letters* in *the* their common areas. *Concur*

Q. AIDS TO NAVIGATION

None.

R. STATISTICS

<u>Vessel:</u>	<u>2120</u>	<u>2123</u>	<u>2124</u>	<u>2125</u>	<u>2126</u>	<u>Total</u>
# of Pos	11	1035	1043	951	397	3437 3489
NM Hydro		167.14	197.13	150.6	72.99	587.86

NM ² Hydrography	31.2
Velocity Casts	1
Detached Positions	102 125
Tide Stations	2
Reference Numbers	158
Bottom Samples	19

S. MISCELLANEOUS

Bottom samples were sent to the Smithsonian Institution in accordance with the Project Instructions.

The Coast Pilot current and predicted current comparisons were made in accordance with the Project Instructions. The current predictions were adequate and the descriptions accurate.

T. RECOMMENDATIONS


None.

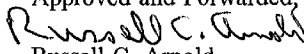
U. REFERRAL TO REPORTS

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

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Fall 1993 Horizontal Control Report for OPR-P125-RA	1993	N/CG2333
Fall 1993 Coast Pilot Report for OPR-P125-RA	1993	N/CG245
Project related data for OPR-P125-RA	Incremental	N/CG245

Respectfully Submitted,


 Gregory B. Johnson
 Ensign, NOAA

Approved and Forwarded,

 Russell C. Arnold
 Captain, NOAA
 Commanding Officer

DM
Please examine these Hydros + FE
for critical comments only.

The hydrogeologists have sent, what they
thought was critical, to CG to be published
in NMS and us a letter.

Laura Joffis has access to the
174L CG D NMS

Don't apply hydro to drawings,

Ang K

PS Inform me if there were any
connections.

CONTROL STATIONS as of 16 Sep 1993

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
100	F	060:50:49.581	147:27:05.696	15	250	0.0	0.0		09/04/93	QUDTE 1947(IGPS)
101	F	060:52:35.967	147:33:15.597	6	250	0.0	0.0		09/04/93	INDIA 1947(IGPS)



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, 1993

**ADVANCE
INFORMATION**

Director
DMAHTC
Attn: MCNM
6500 Brookes Lane
Washington, DC 20315-0030

Dear Sir:

While conducting hydrographic survey operations in Northwest Prince William Sound, Alaska, NOAA Ship RAINIER discovered four dangers to navigation. They have been reported to DMAHTCNAVWARN and the Seventeenth Coast Guard District. A copy of the correspondence describing the dangers is enclosed.

Sincerely,

Russell C. Arnold
Russell C. Arnold
Captain, NOAA
Commanding Officer

Enclosures





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, 1993

**ADVANCE
INFORMATION**

Commander
Seventeenth Coast Guard District
Post Office Box 25517
Juneau, AK 99802-5517

Dear Sir:

Attached is a confirmation copy of the radio message sent to your office regarding the dangers to navigation which I recommend for inclusion 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
Russell C. Arnold
Captain, NOAA
Commanding Officer

Enclosures

cc: DMAHTC
N/CG221
PMC



P 08 Z NOV 93
FM NOAA S RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCCNAVWARN WASHINGTON DC/ /MCNM/ /
INFO NOAA MOP SEATTLE WA
ACCT CM-VCAA

**ADVANCE
INFORMATION**

BT
UNCLAS

NOAA SHIP RAINIER HAS LOCATED 4 DANGERS TO NAVIGATION IN THE VICINITY OF AXEL LIND ISLAND IN PRINCE WILLIAM SOUND ALASKA (PROJECT OPR-P125-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10517. THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN THE LOCAL NOTICE TO MARINERS:

CHARTS AFFECTED: 16700 24TH ED JAN, 11/92 1:200,000 NAD 83
16705 15TH ED SEP 1/90 1:80,000 NAD 83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	DEPTH	LATITUDE	LONGITUDE
A.	SHOAL	5 3/4 fms	60/49/18.0	147/37/45.7
B.	SHOAL	6 1/2 fms	60/48/01.2	147/40/29.7
C.	SHOAL	3 1/4 fms	60/46/54.6	147/44/07.9
D.	SHOAL	4 fms	60/48/41.0	147/44/17.9

THIS IS ADVANCE INFORMATION SUBJECT TO OFFICE REVIEW. QUESTIONS CONCERNING THIS MESSAGE SHOULD BE DIRECTED TO THE CHIEF, PACIFIC HYDROGRAPHIC SECTION AT (206) 526-6835. A LETTER WITH ATTACHED CHARTLET WILL BE MAILED TO CONFIRM THIS MESSAGE.
BT



January 3, 1994

**ADVANCE
 INFORMATION**

Commander
 Seventeenth Coast Guard District
 Post Office Box 3-5000
 Juneau, Alaska 99802

Dear Sir:

During the office processing of hydrographic survey H-10517 in Prince William Sound, Alaska one additional danger to navigation was discovered. This danger affects the following charts:

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

It is recommended that this additional danger to navigation be included in the Local Notice to Mariners.

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

Sincerely,

Douglas G. Hennick
 Commander, NOAA
 Chief, Pacific Hydrographic Section

Enclosure

cc: DMA/TC
 PMC
 RAINIER
 N/CG221

FILE COPY

CODE	SURNAME	DATE	CODE	SURNAME
N/CG245	Heimes	1/3/94		
	<i>[Signature]</i>	1/3/94		
	<i>[Signature]</i>	1/3/94		



**ADVANCE
INFORMATION**

Hydrographic Survey Registry Number: H-10517

Survey Title: State: Alaska
 Locality: Prince William Sound
 Sublocality: Bald Head Chris Island to Axel Lind Island

Project Number: OPR-P125-RA

Survey date: October 1993

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

Affected Nautical Chart:

<u>Chart</u>	<u>Edition/date</u>	<u>Datum</u>
16700	24th Ed., 1/11/92	NAD83
16705	15th ED., 9/1/90	NAD83

<u>Danger to Navigation</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
Shoal, 3 1/2 Fathoms	60/47/52.0	147/46/59.0

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

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

June 17, 1994

Commander
Seventeenth Coast Guard District
P.O. Box 25517
Juneau, AK 99802-5517

**ADVANCE
INFORMATION**

Dear Sir:

During office processing of hydrographic survey H-10517, Vicinity of Axel Lind Island, Prince William Sound, Alaska, it was determined that hydrographic information previously reported by NOAA Ship RAINIER on November 8, 1993 requires revision. This information affects the following nautical charts.

Chart Number	Edition No. Date	Horizontal Datum
16700	24th 1/11/92	NAD83
16705	15th 9/1/90	NAD83

It is recommended that this information be included in the Local Notice to Mariners.

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

Sincerely,

Douglas G. Hennick
Commander, NOAA
Chief, Pacific Hydrographic
Section

Enclosure

cc: DMAH/TC
N/CG221

CODE	SURNAME	DATE	CODE	SURNAME	DATE
G6245	<i>Hennick</i>	6/17/94			
G6245	<i>DMH</i>	6/17/94			

FILE COPY

Report of Danger to Navigation

Hydrographic Survey Registry Number: H-10517

Survey Title:

State: Alaska

General Locality: Prince William Sound

Sublocality: Vicinity of Axel Lind Island

**ADVANCE
INFORMATION**

Project Number: OPR-P125-RA

The following was discovered during hydrographic survey operations:

A shoal previously reported with a depth of 3 1/4 fathoms has been determined to have a depth of 2 1/2 fathoms at MLLW.

A shoal with a depth of 2 1/4 fathoms is located at latitude 60/46/54.6N, longitude 147/44/07.8W.

Affected nautical charts:

Chart Number	Edition No.	Survey Date	Horizontal Depth	Horizontal Datum	Geographic Position Latitude	Geographic Position Longitude
16700	24th	1/11/92	2 1/2fm	NAD83	60/46/54.6N	147/44/07.9W
16705	15th	9/1/90	2 1/2fm	NAD83	60/46/54.6N	147/44/07.9W
16700	24th	1/11/92	2 1/4fm	NAD83	60/47/01.5N	147/44/16.2W
16705	15th	9/1/90	2 1/4fm	NAD83	60/47/01.5N	147/44/16.2W

Depths have been reduced to Mean Lower Low Water.

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



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
Seattle, Washington 98115-0070

July 6, 1995

**ADVANCE
INFORMATION**

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

Dear Sir:

During office review of hydrographic survey H-10517, Alaska, Prince William Sound, Esther Bay to Axel Lind Island four dangers to navigation were discovered. These dangers to navigation affecting the following charts should be revised.

<u>Chart</u>	<u>Edition/date</u>	<u>Datum</u>
16705	15th Ed; 9/1/90	NAD 83
16700	24th Ed., 1/11/92	NAD 83

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) 526-6853.

Sincerely,

Kathy A. Timmons

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

Enclosure

cc: DMA/HTC
NCS/261



REPORT OF DANGERS TO NAVIGATION

**ADVANCE
INFORMATION**

Hydrographic Survey Registry Number: H-10517

Survey Title: State: ALASKA

Locality: PRINCE WILLIAM SOUND

Sublocality: ESTHER BAY TO AXEL LIND ISLAND

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

Objects discovered: Four shoal soundings.

Affected nautical chart:

<u>Chart</u>	<u>Edition/date</u>	<u>Datum</u>
16705	15th Ed; 9/1/90	NAD 83
16700	24th Ed., 1/11/92	NAD 83

<u>DANGER TO NAVIGATION</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>
1 3/4 Fm	60/48/11	147/58/40
4 1/4 Fm	60/48/11	147/58/12
5 Fm	60/46/44	147/48/03
5 Fm	60/47/53	147/44/42

Depths reduced to Mean Lower Low Water using actual tides.

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



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-10517

LOCALITY: Bald Head Chris Island to Axel Lind Island, Prince
William Sound, Alaska

TIME PERIOD: October 14 - November 3, 1993

TIDE STATION USED: 945-4596 Olsen Island, Unakwik Inlet, Ak.
Lat. $60^{\circ} 52.6'N$ Lon. $147^{\circ} 33.1'W$

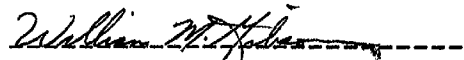
PLANE OF REFERENCE (MEAN LOWER LOW WATER): -4.33 ft.

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.


CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

H-10517

Name on Survey

A ON CHART NO. 16700
 B ON CHART NO. 16705
 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
 7-DM-10063
 DM-10064

Name on Survey	A	B	C	D	E	F	G	H	
ALASKA (title)									1
AXEL LIND ISLAND	X	X	X					X	2
BALD HEAD CHRIS ISLAND	X	X	X					X	3
EAGLEK ISLAND		X	X					X	4
EAST FLANK ISLAND		X	X					X	5
ESTHER BAY		X	X					X	6
ESTHER ISLAND	X	X	X					X	7
ESTHER PASSAGE	X	X	X					X	8
JENNY ISLANDS		X	X					X	9
LITTLE AXEL LIND ISLAND	X	X	X					X	10
PRINCE WILLIAM SOUND	X	X	X					X	11
RAGGED POINT		X	X					X	12
SQUAW BAY		X	X					X	13
WEST FLANK ISLAND		X	X					X	14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25

Approved:

Charles E. Harrington
Chief Geographer - N/C6, 285

JUN - 2 1994

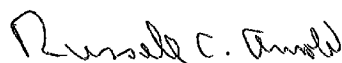
APPROVAL SHEET

for

H-10517
RA-20-5-93

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

HYDROGRAPHIC SURVEY STATISTICS

H-10517

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

RECORD DESCRIPTION		AMOUNT		RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1		SMOOTH OVERLAYS: POS., ARC, EXCESS		1	
DESCRIPTIVE REPORT		1		FIELD SHEETS AND OTHER OVERLAYS			
DESCRIP- TION	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-10063, DM-10064
PHOTOBATHYMETRIC MAPS (List):	NA
NOTES TO THE HYDROGRAPHER (List):	None
SPECIAL REPORTS (List):	NA
NAUTICAL CHARTS (List):	16705 15th Ed., 9/1/90, 1:80,000; 16700 24th Eds., 1/11/92

OFFICE PROCESSING ACTIVITIES

1:20,000

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS			
	VERIFICATION	EVALUATION	TOTALS	
POSITIONS ON SHEET			3265	
POSITIONS REVISED			1	
SOUNDINGS REVISED			4	
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	42.5		42.5	
VERIFICATION OF SOUNDINGS	100.0		100.0	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	80.5		80.5	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		13	13	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		16	16	
GEOGRAPHIC NAMES				
OTHER Digitization				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	223.0	29	252

Pre-processing Examination by D. Haines	Beginning Date 11/10/93	Ending Date 1/7/94
Verification of Field Data by D. Doles, R. Mayor, S. Otsubo, J. Stringham	Time (Hours) 223	Ending Date 9/29/94
Verification Check by G.E. Kay	Time (Hours) 8.0	Ending Date 2/28/95
Evaluation and Analysis by G.E. Kay	Time (Hours) 29.0	Ending Date 3/13/95
Inspection by B. A. Olmstead	Time (Hours) 36.0	Ending Date 6/27/95

**EVALUATION REPORT
SURVEY H-10517**

1. INTRODUCTION

Survey H-10517 is a basic hydrographic survey accomplished by the NOAA Ship *Rainier*, under the following Project Instructions.

OPR-P125 RA, dated July 19, 1993
CHANGE NO. 1, dated August 25, 1993
CHANGE NO. 2, dated November 5, 1993

This survey was conducted in Alaska, and covers an area in the northwestern portion of Prince William Sound. The survey is situated south of Esther Bay to Axel Lind Island. The surveyed area is bounded by latitude 60/49/48N to the north and latitude 60/46/39N to the south. The eastern limit is longitude 147/32/42W. The western limit is longitude 148/00/03W. The shoreline is rocky and steep consisting of numerous isolated rocks, ledges and small islands. Rocky pinnacles that rise up very near the surface were found throughout the survey area. The bottom consists of mud. Depths range from less than a meter along the shoreline to a depth of 558 meters, located in the lower southeastern portion of this survey.

Depth curves depicted on the smooth sheet were selected from those authorized through HSG 69. However, instead of drafting all authorized curves only those curves considered necessary for the reasonable portrayal of the bottom were drafted. The selected curves were the 0, 5 and 20 meter. A note was added to the smooth sheet to identify these values. A few supplemental depth curves have been added to the smooth sheet in brown as warranted. The bottom characteristics are annotated on a separate overlay.

Predicted tides for Cordova, Alaska, were used for the reduction of soundings during field processing. Approved hourly heights zoned from Olsen Island, Unakwik Inlet, Alaska, gage 945-4596, were used during office processing.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. NAD 83 is used as the horizontal datum for plotting and position computation. Offset values and sound velocity correctors are adequate. An accompanying computer printout contains the parameters and the correctors.

A digital file has been generated for this survey that includes categories of information required to comply with Hydrographic Survey Guideline No. 52, Standard Digital Data Exchange Format, April 15, 1986. Certain descriptive information, however, may not be in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for a complete depiction of the survey data.

2. CONTROL AND SHORELINE

Sections H and I of the hydrographer's report and the Fall 1993 Horizontal Control Report for OPR-P125-RA, contains adequate discussions of horizontal control and hydrographic positioning.

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 7.50 was computed for survey operations. The quality of 76 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, indicates that none of these fixes are used to position dangers to navigation. The soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable.

Positions of horizontal control stations used during this survey are published values 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: -2.067 seconds (-63.963 meters)
Longitude: 7.366 seconds (111.383 meters)

The year of establishment of control stations shown on the smooth sheet originates with the previously referenced horizontal control report and the hydrographer's signal list.

The following digital shoreline maps were compiled on NAD 83, enlarged to the scale of 1:10,000 and apply to this survey.

<u>Map Number</u>	<u>Photography date</u>	<u>Scale</u>
DM-10063	June-July 1989	1:20,000
DM-10064	July 1989	1:20,000

Numerous small islands and islets are depicted on the smooth sheet with a solid red line and were transferred from the final field sheet with supporting position information. These revisions are considered adequate to superseded the common photogrammetrically delineated shoreline.

3. HYDROGRAPHY

Except for the following, hydrography 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.

Authorized depth curves were adequately drawn and developed except the zero curve. The inshore limit as defined by the Project Instructions (section 1.8), is the 3-meter depth curve in steeply sloping areas. Numerous rocks have been shown on the smooth sheet without an associated height. These are reference features that are either part of a ledge, located near shore, or of an insignificant nature.

4. CONDITION OF SURVEY

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, March 1993 Edition, except as follows.

The hydrographer mentioned in his report that some of the charted rocks were found and others not verified. The hydrographer's statement indicates that during this survey a number of rocks were not verified. However, with the exception of one islet at latitude 60/46/48N, longitude 147/45/36W, all charted features were accounted for during office processing. It is important that the hydrographer address those features not found and provide a recommendation to either retain, revise, or delete, see section 7.

5. JUNCTIONS

Survey H-10517 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10502	1993	1:10,000	Northeast
H-10514	1993	1:10,000	North
H-10516	1993	1:10,000	Northwest

The junctions with the above surveys are complete. There are no contemporary surveys to the west, south, or east. For a junction comparison to the chart see section 7.

6. COMPARISON WITH PRIOR SURVEYS

There are no prior surveys within the limits of survey H-10517.

7. COMPARISON WITH CHART

Survey H-10517 was compared with the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16705	15th	September 1, 1990	1:80,000	NAD 83
16700	24th	January 11, 1992	1:200,000	NAD 83

a. Hydrography

The charted hydrography on the above charts originate with miscellaneous sources. Present survey soundings do not compare well with the charted soundings. Differences between 30 meters deeper on the present survey, to 30 meters shoaler can be found. These differences are attributed to the data acquisition, positioning techniques and the large scale difference in the charting source to the chart.

With the exception of one item, charted features can be accounted for by similar features found on this survey. The following feature was not disproven and should remain as charted.

<u>Feature</u>	<u>Latitude North</u>	<u>Longitude West</u>
islet	60/46/48	147/45/36

Except for the item above, survey H-10517 is adequate to supersede charted hydrography within the survey area.

b. AWOIS

There are no items for investigation within the limits of this survey.

c. Controlling Depths

There are no charted channels with controlling depths within the limits of this survey.

d. Aids to Navigation

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

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

The hydrographer reported four dangers to navigation to the Seventeenth Coast Guard District, DMA/HTC and NCS/261. Copies of these reports are attached. Three additional reports were generated during office processing. All letters as noted below are included with this survey.


<u>Date</u>	<u>Originator</u>
November 9, 1993	NOAA Ship <i>Rainier</i>
January 3, 1994	Pacific Hydrographic Section
June 17, 1994	Pacific Hydrographic Section
July 6, 1995	Pacific Hydrographic Branch

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10517 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is a good hydrographic survey. Additional field work is required to prove or disprove the charted item listed in section 7.


Gordon E. Kay
Cartographer

APPROVAL SHEET
H-10517

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 processings 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: 7/6/95
Bruce A. Olmstead
Senior Cartographer, Hydrographic Processing Section
Pacific Hydrographic Branch

I have reviewed the smooth sounding plot, 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 A. Timmons Date: 7/11/95
Kathy A. Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Andrew A. Armstrong III Date: 8/2/95
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

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