H10516

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-10-26-93

Registry No. H-10516

LOCALITY

State Alaska

General Locality Prince William Sound

Sublocality Southern Portion of Esther Passage

1993

CHIEF OF PARTY
Captain Russell C. Arnold, NOAA

DATE

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

9/16

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-10516

HYDROGRAPHIC TITLE SHEET

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

FIELD NO.

RA-10-26-93

State: Alaska

General locality: Prince William Sound

Locality: Southern Portion of Esther Passage

Scale: 1:10,000 Date of survey: October 14-November 2, 1993

Instructions dated: 7/19/93:Change #1-8/25/93* Project No.: OPR-P125-RA

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

Chief of party: Captain Russell C. Arnold, NOAA

Surveyed by: LT M.Brown, LTJG S.Lemke, ENS J.Graham, ENS A.Caron, ENS G.Johnson

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

Verification by: D.Doles, R.Mayor

Soundings in ~~fathoms~~ ~~feet~~ meters and decimeters at ~~MkW~~ 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.

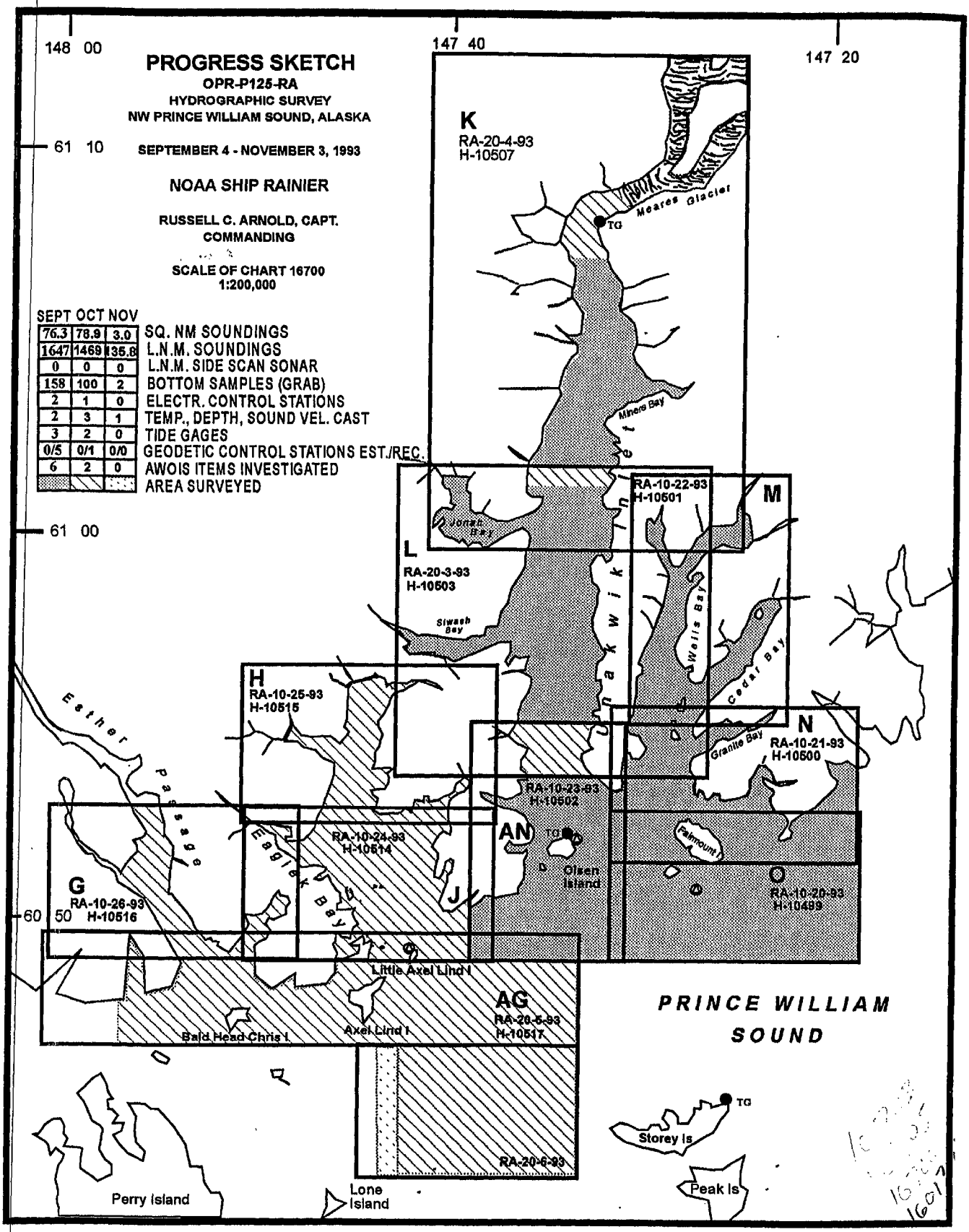
All depths listed in this report are referenced to mean lower low water unless otherwise noted.

* Change #2 -11/5/93 SurA/Awois check 6/22/93 MCR

LC 4-4-95

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

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


148 00
147 40
147 20
61 10
61 00
60 50
PROGRESS SKETCH
OPR-P125-RA
HYDROGRAPHIC SURVEY
NW PRINCE WILLIAM SOUND, ALASKA
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 SQ. NM SOUNDINGS
1647 1469 135.8 L.N.M. SOUNDINGS
0 0 0 L.N.M. SIDE SCAN SONAR
158 100 2 BOTTOM SAMPLES (GRAB)
2 1 0 ELECTR. CONTROL STATIONS
2 3 1 TEMP., DEPTH, SOUND VEL. CAST
3 2 0 TIDE GAGES
0/5 0/1 0/0 GEODETIC CONTROL STATIONS EST./REC.
6 2 0 AWOIS ITEMS INVESTIGATED
AREA SURVEYED
K
RA-20-4-93
H-10507
Meares Glacier
TG
Miners Bay
RA-10-22-93
H-10501
M
Jonah Bay
L
RA-20-3-93
H-10503
Siwash Bay
Unakwik Inlet
Wells Bay
Cedar Bay
Granite Bay
N
RA-10-21-93
H-10500
H
RA-10-25-93
H-10515
Esther Passage
RA-10-23-93
H-10502
AN
RA-10-24-93
H-10514
Eaglek Bay
Olsen Island
Palmount
O
RA-10-20-93
H-10499
G
RA-10-26-93
H-10516
J
Little Axel Lind I
AG
RA-20-5-93
H-10517
Bald Head Chris I
Axel Lind I
PRINCE WILLIAM SOUND
RA-20-6-93
Storey Is
Peak Is
Perry Island
Lone Island

Descriptive Report to Accompany Hydrographic Survey H-10516

Field Number RA-10-26-93
Scale 1:10,000
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 25th 1993 and change No. 2 dated ~~September 2nd~~ November 5, 1993.

Survey H-10516 corresponds to "Sheet G" as defined in the Project Instructions.

This survey is one in a series that will be used update existing nautical charts. It will also be used to generate a new 1:100,000 scale chart covering the fjords and bays of northwest Prince William Sound. Requests for updated charts have been received from the Defense Mapping Agency, the Southwest Pilot's Association, cruise ship lines, (in particular Holland America Line and Westours, Inc.), and local fishermen.

B. AREA SURVEYED

The area survey is defined by latitude 60°52'45N and latitude 60°49'00"N as the northern and southern limits and longitude 147°59'15"W and longitude 147°47'59"W as the western and eastern limits. The survey area includes Southern Esther Passage, Shoestring Cove, Squaw Bay and East Flank Island. The area is densely wooded and has numerous rocks and islets offshore.

Data acquisition was conducted from October 14, Day Number (DN 287), through October 28, Day Number (DN 301).

C. SURVEY VESSELS

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

Vessel	EDP No	Operation
RAINIER	2120	Velocity Cast Bottom Samples
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:

Program Name	Version	Date Installed
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:

Program Name	Version	Date Installed
VELOCITY	2.0	24 Mar 1993

E. SONAR EQUIPMENT

Side scan sonar equipment was not used on Sheet G.

F. SOUNDING EQUIPMENT

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

G. CORRECTIONS TO SOUNDINGS

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

Velocity Table No.	Cast No.	Deepest Depth (m)	Applicable DN	Cast Position	Day
3	3	472	287- 301	60°49'24"N 147°39'14"W	293

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 records.

Static Draft

A transducer depth was determined for launches 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 the project data for OPR-P125-RA. The data used were 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 G. (H-10514)

Offset Tables

Vessel	Offset Table No.
2124	4
2125	5
2126	6

Heave

Data acquired during periods of significant sea action were check scanned to remove any errors introduced into the digital data by vessel 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 project data for OPR-P125-RA.

Tide Correctors

Predicted tides for the project were provided on diskette by N/OES334 for the Cordova, Alaska reference station (945-4050). The following correctors were provided in the project instructions for sheet G:

	TIME(min)	
HIGH WATER	LOW WATER	RANGE RATIO
0	0	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 Valdez 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, in accordance with HSG 50 and FPM 4.3, at the end of each month, and upon completion of the project. Requests for approved tides will be forwarded to N/OES2.

H. CONTROL STATIONS

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

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 equipment are annotated on the data printouts.

Calibrations & Systems Check Methods

Ashtech GPS

VHF differential shore stations were established at stations AXEL and INDIA. A remote sensor was directly connected 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.

Systems checks were accomplished using launch to launch comparisons. Three observations were made by each launch using correctors from two independent DGPS base stations. System checks were made each day and results were transferred to forms which are included in the project data for OPR-P125-RA. An abstract of the calibration results 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

None

Offset

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 Evaluation Report section 2

The Shoreline map (T-sheet) used to transfer shoreline detail to the final sheet was a 1:10,000 enlargement of DM-10063, (1:20,000, NAD 83).

Due to the tidal cycles during the project the water levels during shoreline verification were higher than mean lower low water. Shoreline verification was performed at the lowest tide possible. 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 and 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 rough 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. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in

meters and are corrected to predicted MLLW.

Disprovals

None

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 involved changing a T-sheet rock to a ledge. Minor changes to the T-sheet are noted on the final field plot and are not addressed here.

T-sheet rock in the vicinity of latitude 60°49'15"N and longitude 147°50'14", position number 5647 is a reef.

T-sheet rock is the vicinity of latitude 60°51'28"N and longitude 147°58'00"W, position number ~~7716~~ 7857/3 is a shoal. Which was excessed by Rs. No. 7927/2, a 0.2 at 147 60/51/28.70N, 147/57/11.54

T-sheet rocks in the vicinity of latitude 60°52'05 N and 147°54'35"W, position number 7802 ~~are~~ is a reef.

Recommendations: The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline compiled on DM-10063. CONCUR

K. CROSSLINES

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled ~~10.33~~ 7.86 nautical miles, representing 12.53 % of total mainscheme hydrography.

L. JUNCTIONS SEE Evaluation Report, section 5

This survey junctions with survey H-10445 (1:10,000, 1992) to the north, and H-10517 (1:20,000, 1993) to the south. No irregularities were found when comparing soundings and depth curves. Final comparisons will be done at the Pacific Hydrographic Section (PHS).

M. COMPARISON WITH PRIOR SURVEY

CONCUR

None

N. ITEM INVESTIGATION REPORTS

1 AWOIS item was investigated.

AWOIS ITEM 51968

Area of investigation

State:	Alaska
Locality:	Esther Passage
Reported latitude(PA):	60°51'07"N
Reported longitude(PA):	147°57'~~10~~"W 09.50
Datum:	NAD 83
Depth:	N/A

Feature: Mooring Buoy

2. Description of Source Item

Forest Service mooring buoy

3. Survey Requirements

Determine the exact position of the mooring buoy

4. Method of Investigation

A mooring buoy was located visually and a detached position taken.

5. Results of Investigation

The Mooring buoy was found and it's position was determined to be latitude 60°50'58.310"N and longitude 147°57'08.77"W. Position Number #8585

6. Comparisons with Prior Surveys

None

7. Comparison with Chart and Charting Recommendations

The largest scale chart depicting the area is NOS chart 16705, 15th Ed, January 1990 1:80,000 (NAD 83). This item should remain on the chart. do NOT concur. Delete charted buoy. Chart a buoy at the above position

O. COMPARISON WITH THE CHART SEE Evaluation Report, section 7

This survey was compared to NOS chart 16705, 15th ED January 1990 1:80,000 (NAD 83). The chart and this survey are in general agreement.

Dangers to Navigation

None

P. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede the T-Sheets and charts~~letters~~ in the common areas.

CONCUR

Q. AIDS TO NAVIGATION

None.

R. STATISTICS

Vessel:	2120	2124	2125	2126	Total
# of Pos	10	246	562	670	1488
NM Hydro	0.00	33.31	36.36	62.74	132.41

NM^2 Hydrography	5.79 nm^2
Velocity Casts	1
Detached Positions	84
Tide Stations	2
Reference Numbers	73
Bottom Samples	18

S. MISCELLANEOUS

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

The Coast Pilot currents 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:

Title	Date Sent	Office
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,

April J. Caron
Ensign, NOAA

Approved and Forwarded,

Russell C. Arnold
Captain, NOAA

CONTROL STATIONS as of 6 Nov 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	QUOTE 1947(DGPS)
101	F	060:52:35.967	147:33:15.597	6	250	0.0	0.0		09/04/93	INDIA 1947(DGPS)
102	F	060:48:21.781	147:41:49.698	7	250	0.0	0.0		09/28/93	AXEL 1947(DGPS)

APPROVAL SHEET

for

H-10516
RA-10-26-93

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 was 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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: March 8, 1994

MARINE CENTER: Pacific

HYDROGRAPHIC PROJECT: OPR-P125-RA

HYDROGRAPHIC SHEET: H-10516

LOCALITY: Southern Portion of Esther Passage, Prince William Sound, Alaska

TIME PERIOD: October 14 - November 2, 1993

TIDE STATION USED: 945-4596 Olsen Island, Unakwik Inlet, Ak.
Lat. 60° 52.6'N Lon. 147° 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 are direct, and apply a X1.02 range ratio to all heights 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

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10516

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 16705	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
ALASKA (title)										1
ESTHER ISLAND	X		X							2
ESTHER PASSAGE	X		X							3
PAPOOSE COVE	X		X							4
PRINCE WILLIAM SOUND	X		X							5
SHOESTRING COVE	X		X							6
SQUAW BAY	X		X							7
										8
										9
										10
										11
										12
										13
										14
										15
				Approved:						16
										17
				Charles E. Harrington						18
				Chief Geographer						19
				JUN 23 1994						20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27(H) (9-83) | U.S. DEPARTMENT OF COMMERCE | REGISTRY NUMBER

HYDROGRAPHIC SURVEY STATISTICS

H-10516

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: ~~POS.~~, ~~ARC~~, ~~EXCESS~~ *B.S.*	1
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	

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

SHORELINE DATA

SHORELINE MAPS (List):	DM-10063
PHOTOBATHYMETRIC MAPS (List):	NA
NOTES TO THE HYDROGRAPHER (List):	None
SPECIAL REPORTS (List):	None
NAUTICAL CHARTS (List):	16705 15th Ed., 9/1/90; 1:80,000 NAD83

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS VERIFICATION	AMOUNTS EVALUATION	AMOUNTS TOTALS
POSITIONS ON SHEET			1680
POSITIONS REVISED			
SOUNDINGS REVISED			1
CONTROL STATIONS REVISED			
	TIME-HOURS VERIFICATION	TIME-HOURS EVALUATION	TIME-HOURS TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	16.5		16.5
VERIFICATION OF SOUNDINGS	33.0		33.0
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	28.0		28.0
COMPARISON WITH PRIOR SURVEYS AND CHARTS		4.0	4.0
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		8.0	8.0
GEOGRAPHIC NAMES			
OTHER* Digization			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	77.5	12.0	89.5

Pre-processing Examination by LT D. Haines	*Beginning Date* 10/14/93	*Ending Date* 1/7/94
Verification of Field Data by D.Doles, R.Mayor, S.Otsubo, J.Stringham	*Time (Hours)* 77.5	*Ending Date* 7/29/94
Verification Check by G.E.Kay	*Time (Hours)* 8	*Ending Date* 2/3/95
Evaluation and Analysis by G.E. Kay	*Time (Hours)* 12	*Ending Date* 2/7/95
Inspection by R. DAVIES	*Time (Hours)* 5	*Ending Date* 3/7 /95

EVALUATION REPORT
SURVEY H-10516

1. INTRODUCTION

Survey H-10516 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 surveyed area includes Shoestring Cove, Papoose Cove, Squaw Bay and Esther Passage. The survey western and eastern limits are contained inside the shoreline of the before mentioned coves and bay. The surveys southern limit is latitude 60/49/00N, its northern limit is 60/52/45N. The bottom consists of mud. Depths range from less than a meter along the shoreline, to a depth of 259 meters, located in Esther Passage.

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 are 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 3.75 was computed for survey operations. The quality of 167 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 field 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:	-1.980 seconds	(-61.292 meters)
Longitude:	7.430 seconds	(112.197 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, apply to this survey.

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

The following shoreline changes depicted on the smooth sheet as a solid red line. These changes have supporting positional information. These revisions are considered adequate to supersede the common photogrammetrically delineated shoreline.

Feature	Latitude North	Longitude West
HWL	60/52/17	147/54/43
HWL	60/50/58	147/48/22
HWL	60/50/08	147/48/52

The following shoreline change is depicted on the smooth sheet as a dashed red line. This change was transferred from the final field sheet to the smooth sheet without supporting positional information. This revision is approximate but adequate to supersede the common photogrammetrically delineated shoreline.

Feature	Latitude North	Longitude West
HWL	60/53/43	147/48/59

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.

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.

5. JUNCTIONS

Survey H-10516 junctions with the following surveys.

Survey	Year	Scale	Area
H-10445	1992	1:10,000	North
H-10517	1993	1:10,000	South

The junction with survey H-10517 is complete. The junction with survey H-10445 has not been formally completed since that survey was previously processed and forward for charting. The junction comparison was made using a copy. Soundings are in good agreement.

6. COMPARISON WITH PRIOR SURVEYS

There are no prior surveys within the limits of survey H-10516.

7. COMPARISON WITH CHART

Survey H-10516 was compared with the following charts.

Chart	Edition	Date	Scale	Datum
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 are deeper than the charted soundings. Differences can be noticed between 1-8 fathoms deeper, in 16 to 92 fathoms. These differences are attributed to the data acquisition techniques. Survey H-10516 is adequate to supersede charted hydrography within the survey area.

A study of prior survey data, in accordance with Hydrographic Survey Guideline No. 39, the effect of the 1964 Prince William Sound earthquake was not performed, because of the lack of prior survey data.

b. AWOIS

AWOIS item number 51968 is the only AWOIS feature within the limits of this survey. This feature was adequately developed by the hydrographer, see Descriptive Report, section N.

c. Controlling Depths

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

d. Aids to Navigation

There are no 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 did not report any dangers to navigation. No dangers to navigation were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10516 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is a good hydrographic survey. Additional field work is not required.

Gordon E. Kay
Cartographer

APPROVAL SHEET
H-10516

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.

Russell Davies for Date: 3/7/95
Dennis J. Hill
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

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: 3/18/95
Kathy A. Timmons
Commander, NOAA
Chief Pacific Hydrographic Section

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Final Approval

Approved:

Andrew A. Armstrong III for Date: 4/4/95
Thomas W. Richards
Captain, NOAA
Chief Nautical Chart 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-10516

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
16705	10/10/95	D Cordts	Full ~~Part Before~~ After Marine Center Approval Signed Via
	12-23-95	William J. Ohno	Drawing No. 17, 15th Ed.
16700		D Cordts	Full ~~Part Before~~ After Marine Center Approval Signed Via
	10/10/95		Drawing No. 27, 24th Ed.
	12-26-95	William J. Ohno	
16711	8/23/96	Angela Wills	Full ~~Part Before~~ After Marine Center Approval ~~Signed~~ Via
			Drawing No. 1, 1st Ed., Fully Applied 9/20/96 KRD
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.