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-10-23-93

Registery No. ... H-10502 and Additional Work

LOCALITY

State ... Alaska

General Locality ... Prince William Sound

Sublocality ... Approach to Unakwik Inlet

1993- 1994

CHIEF OF PARTY
CAPTAIN Russell C. Arnold, NOAA

LIBRARY & ARCHIVES

DATE ... JUN 21 1995

H10502

☆U.S. GOV. PRINTING OFFICE: 1985—566-054

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-10502

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-10-23-93

State: Alaska

General locality: Prince William Sound

Locality: Approach to Unakwik Inlet

Scale: 1:10,000 Date of survey: Sept. 6 - Oct 11, 1993

Instructions dated: 7/19/93; Change #1-8/25/93 Change #2-11/5/93 Project No.: OPR-P125-RA

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

Chief of party: CAPTAIN Russell C. Arnold, NOAA

Surveyed by: CAPT R.Arnold, LT M.Brown, ENS J.Graham, ENS G.Glover, ENS A.Caron, ENS G. Johnson, CST F.Paranada, SST J. Fleischmann

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: L. Deodato, D. Doles, E. Domingo, R. Mayor, J. Stringham

Soundings in ~~fathoms~~ ~~feet~~ Meters & Decimeters 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.

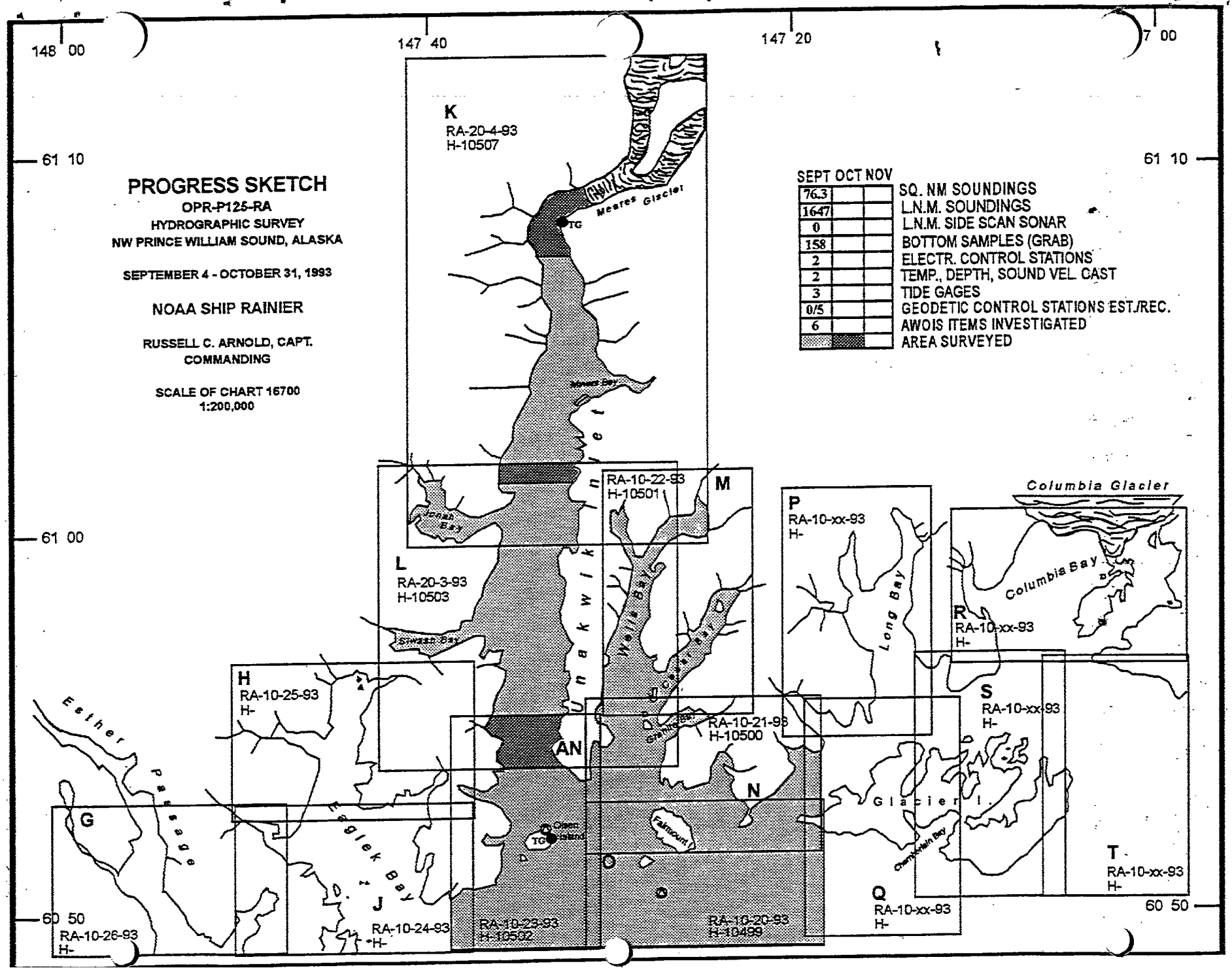
All depths listed in this report are referenced to mean lower low water unless otherwise noted.

SUNF/ AWOIS chk 8/14/95 MCR

12/13/96
6/21/95

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

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


148 00
147 40
147 20
7 00
61 10
61 00
60 50
PROGRESS SKETCH
OPR-P125-RA
HYDROGRAPHIC SURVEY
NW PRINCE WILLIAM SOUND, ALASKA
SEPTEMBER 4 - OCTOBER 31, 1993
NOAA SHIP RAINIER
RUSSELL C. ARNOLD, CAPT.
COMMANDING
SCALE OF CHART 16700
1:200,000
SEPT OCT NOV
76.3 SQ. NM SOUNDINGS
1647 L.N.M. SOUNDINGS
0 L.N.M. SIDE SCAN SONAR
158 BOTTOM SAMPLES (GRAB)
2 ELECTR. CONTROL STATIONS
2 TEMP., DEPTH, SOUND VEL. CAST
3 TIDE GAGES
0/5 GEODETIC CONTROL STATIONS EST./REC.
6 AWOIS ITEMS INVESTIGATED
AREA SURVEYED
K
RA-20-4-93
H-10507
Meares Glacier
TG
Meares Bay
Unakwik Inlet
RA-10-22-93
H-10501
M
Jonah Bay
L
RA-20-3-93
H-10503
Siwash Bay
Wells Bay
Coghill Bay
P
RA-10-xx-93
H-
Long Bay
Columbia Glacier
Columbia Bay
R
RA-10-xx-93
H-
S
RA-10-xx-93
H-
H
RA-10-25-93
H-
Esther Passage
RA-10-21-93
H-10500
AN
N
Glacier I.
Eaglek Bay
G
J
RA-10-24-93
H-
Olsen Island
TG
Fairmount
Chenaina Bay
T
RA-10-xx-93
H-
O
Q
RA-10-xx-93
H-
RA-10-26-93
H-
RA-10-23-93
H-10502
RA-10-20-93
H-10499

Descriptive Report to Accompany Hydrographic Survey H-10502

Field Number RA-10-23-93
Scale 1:10,000
September 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,~~ Nov. 5 1993.

Survey H-10502 corresponds to "Sheet AN" 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 (particularly Holland America Line and Westours, Inc.), and local fishermen.

B. AREA SURVEYED SEE Evaluation Report, section 1

This survey area includes the entrance of Unakwik Inlet, Olsen Island, and extends west to Kiniklik Island. The survey limits are 147°31'15"W to the east, 147°38'45"W to the west, 60°55'00"N to the north, and 60°49'45"N to the south.

Data acquisition was conducted from September 6, Day Number (DN) 249, through October 14, DN 287.

C. SURVEY VESSELS

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

Vessel	EDP No	Operation
RAINIER	2120	Bottom Samples Sound Velocity Cast
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:

Program Name	Version	Date Installed
AUTOST	3.00	9/24/92
BACKUP	2.00	9/24/92
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	3.51	9/24/92
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

Sonar equipment was not used on survey H-10502 ~~sheet A/N.~~

F. SOUNDING EQUIPMENT

DSF-6000N serial numbers are included on the headers of the daily Raw Master Printouts.*

* Filed with the survey records. The Raytheon DSF-6000N is a dual frequency paper trace echo sounder.

G. CORRECTIONS TO ECHO SOUNDINGS

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

Velocity Table No.	Cast No.	Deepest Depth (m)	Applicable DN	Cast Position	Day
1	1	545	249 - 260	60°53'46"N 147°28'58"W	253
2	2	531	264 - 283	60°52'58"N 147°30'10"W	267

The sound velocity casts were acquired with SBE SEACAT Profiler S/N 220. Casts 1 and 2 plot outside the survey limits.
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 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 AN.~~ survey H-10502

Offset Tables filed with the survey records

Vessel	Offset Table No.
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 records.

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 AN are:

Time Correction				Height Correction
High Water		Low Water		Range Ratio
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~~ were ~~be~~ forwarded to N/OES2. Approved Tide Note dated March 8, 1994 and Feb. 17, 1995 are attached.

H. CONTROL STATIONS SEE Evaluation Report, Section 2

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

Positions for all existing stations are from the National Geodetic Survey (NGS) data base. 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." filed with the survey records.

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. filed with the survey records.

Calibrations & Systems Check Methods

Ashtech GPS

VHF differential shore stations were established at ~~station~~ EXISTING QUOTE and INDIA. After each station was ~~established~~ recovered, 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 stations.

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 QUOTE and INDIA ran without problems for ~~sheet AN~~ survey H-10502.

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 Evaluation Report, section 2

The shoreline map (T-sheet) used to transfer shoreline detail to the final sheets was DM-10065 and DM-10064 (1:10,000, 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. These values have been changed due to natural Tides and shown on the Smooth sheet.

Disprovals

The T-sheet rock in the vicinity of 60°52'47"N, 147°35'20"W, Position No. 5823, was not found. A visual and echo sounder search was conducted in a 50 meter radius around the charted position. The average depth in the area was 14 meters and the visibility was 4 meters.

The T-sheet rock in the vicinity of 60°53'37"N, 147°38'56"W, Ref. No. RA3-22, is a nondescript part of the intertidal zone.

Changes

T-sheet photographs were apparently taken at a high stage of tide, and many of the ledges were depicted as near shore T-sheet rocks. Because of the numerous changes from near shore T-sheet rocks to ledges, it is impractical to list all of these changes in the descriptive report. Refer to the Smooth Sheet for graphic portrayal of features and revisions as found by this survey.

* filed with the survey records.

** Changes to the shoreline manuscript involve small islets which have been shown on the Smooth Sheet in red where warranted.

* The two T-sheet rocks in the vicinity of 60°50'21"N, 147°37'35"W, Position No. 1813, are one rock.

* The two T-sheet rocks in the vicinity of 60°50'1[6]"N, 147°37'40"W, Reference No. RA3-9, are one rock.

* The T-sheet rocks in the vicinity of 60°52'02"N, 147°28'26"W, Position No. 3414, 3415, and 3416, are high points of a reef. This area is shown as a reef with a high point uncovering 3.1 meters at MLLW. Recommend Shoreline Changes from this survey be used to supersede information from DM-10064 and DM-10065.

K. CROSSLINES

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 13.75 nautical miles, representing 7.4% of the total mainscheme hydrography.

L. JUNCTIONS SEE Evaluation Report section 5

This survey junctions with surveys H-10499 (1:10,000,1993) and H-10500 (1:10,000,1993) to the east, H-10503 (1:20,000,1993) to the north, and RA-10-24-93 (1:10,000,1993) to the west. No irregularities were found when comparing soundings and depth curves. RA-10-24-93 will be surveyed later this field season. Final comparisons will be made at the Pacific Hydrographic Section (PHS). RA-10-24-93 (H-10514)

M. COMPARISON WITH PRIOR SURVEYS

There were no prior surveys for sheet AN. survey H-10502

N. ITEM INVESTIGATIONS

One AWOIS item was investigated.

AWOIS ITEM 51998

1. Area of Investigation

State:	Alaska
Locality:	East of Olsen Island
Reported Latitude (PA):	60°52'10.00" N
Reported Longitude (PA):	147°31'48.00" W
Datum:	Unknown
Depth:	0 meters
Feature:	Rock Awash

2. Description of Source of Item

CL263/26--Letter from Pacific Marine Fisheries; positioned by sextant angels; sounding datum was approximately MLLW.

3. Survey Requirements

Determine the nature, extent, and least depth of the rock.

4. Method of Investigation

The area around was searched using main scheme hydrography.

* Chart areas as shown on smooth sheet

5. Results of Investigation

A rock was found in the vicinity of the reported location of AWOIS item No. 51998. A detached position (HDAPS Pos. No. 5810) was taken at the rock awash on September 29 1993, DN 272, at 17:03:02 (UTC) in the vicinity of 60°52'16.432"N latitude, 147°32'04.782"W longitude. Loran C rates taken at the location of the rock were 7960-Y-32189.7 and 7960-X-14149.1. Rock positioned by this survey plots approximately 300 meters northwest of charted location.

Raw Depth	-0.3 meters
Tide Corrector	-1.0 meters
Corrected Depth	-1.3 meters

6. Comparison with Prior Surveys

No prior survey. ~~however the reported feature is in general agreement with this survey~~.

7. Comparison with chart and charting recommendations

The rock is charted on NOS 16700 and NOS 16705 as awash and in general agrees with the survey findings. Delete the Charted rock. Chart Rock as found on this survey, at the above Location.

O. COMPARISON WITH THE CHART SEE Evaluation Report section 7

This survey was compared to NOS chart 16700, 24th Edition, January 11, 1992, 1:200,000 (NAD83), and NOS chart 16705, 15th Edition, September 1, 1990, 1:80,000 (NAD83). ✓

The charted soundings were found to be in general agreement with the survey. There are, however, numerous features in this area which are not depicted on the chart. Several features were not found during this survey and are disproven. These items are detailed below. Final comparisons will be made at PHS. ✓

Disprovals

The charted rock in the vicinity of 60°52'10"N, 147°35'51"W, Position No. 1681, was not found. A visual and echo sounder search was conducted in a 50 meter radius around the charted position. The average depth was 5 meters and the visibility was 2 meters. Concur ✓

The charted rock in the vicinity of 60°52'07.06"N, 147°36'02.75"W, Position No. 1680, was not found. A visual and echo sounder search was conducted in a 50 meter radius around the charted position. The average depth was 10 meters and the visibility was 2 meters. The bottom is very irregular as found by this investigation. A 2.8 meter depth was 08.85 found in the vicinity of the charted rock. 14.90 ✓

The charted rock in the vicinity of 60°52'09"N, 147°36'15"W, Position No. 1679, was not found. A visual and echo sounder search was conducted in a 50 meter radius around the charted position. The average depth was 15-20 meters and the visibility was 2 meters. Two submerged rocks were found in the vicinity of the charted rock. ✓

The charted rock in the vicinity of 60°52'18"N, 147°36'45"W, Position No. 1678, was not found. A visual and echo sounder search was conducted in a 50 meter radius around the charted position. The average depth was 2 meters and the visibility was 2 meters. Concur 17.46 44.33 ✓

The charted rocks in the vicinity of 60°51'25"N, 147°34'00"W, Position Nos. 3569 and 3570, were not found. A visual and echo sounder search was conducted in a 50 meter radius around each charted position. The average depth was 10-20 meters and the visibility was 3 meters. These rocks are charted approximately 300 meters southeast of the large foul area south of Olsen Island and are most likely part of that area. The difference in position can be attributed to scaling and the low accuracy of the chart source material. Concur Chart this area as portrayed on the smooth sheet. ✓

Dangers to Navigation

Three dangers to navigation within the limits of this survey were reported to the Seventeenth Coast Guard District and DMAHTC. Copies of the radio message and correspondence are ~~included in Appendix I of~~ attached to this report.

P. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede the chart within the common area. ~~and adequate to supersede previous chart letters in their common areas~~.

Q. AIDS TO NAVIGATION

None.

R. STATISTICS

Vessel:	2123	2124	2125	2126	2120	Total
# of Pos	1098	475	471	305	19	~~2368~~ 2212
NM Hydro	123.72	52.67	51.35	28.99	0	256.73

NM^2 Hydrography	12.5	Tide Stations	1
Velocity Casts	2	Bottom Samples	33
Detached Position	119	Reference Numbers	68

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:

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,

for

Gregory B. Johnson
Ensign, NOAA

Approved and Forwarded,

Russell C. Arnold

Russell C. Arnold
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 27 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	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)

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

ADVANCE INFORMATION

October 10, 1993

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 three 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
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

October 10, 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

RCA
F00

0:42, Saturday, 9 October 1993
tPostOUT : McDaniel

P 082355Z OCT 93
FM NOAAS RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCNAVWARN WASHINGTON DC/ /MCNM/ /
INFO NOAAMOP SEATTLE WA
ACCT CM-VCAA

ADVANCE INFORMATION

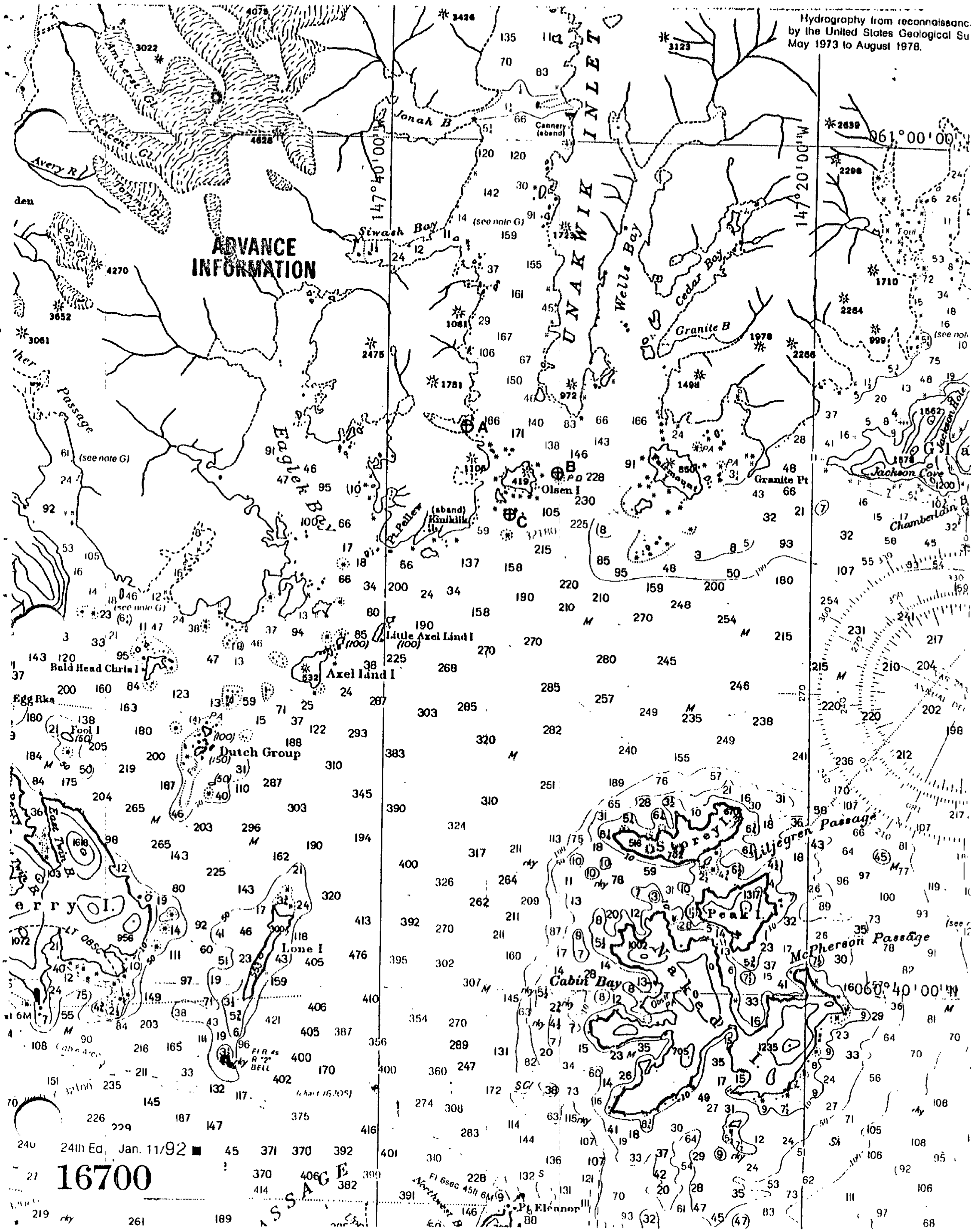
BT
UNCLAS
NOAA SHIP RAINIER HAS LOCATED 3 DANGERS TO NAVIGATION IN THE VICINITY OF OLSEN ISLAND, PRINCE WILLIAM SOUND, ALASKA (PROJECT OPR-P125-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10502. THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN THE LOCAL NOTICE TO MARINERS:

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

DEPTHS ARE REDUCED TO MEAN LOWER LOW WATER BASED ON PREDICTED TIDES.

ITEM	CHART	DANGER	DEPTH	LATITUDE	LONGITUDE	Pos#
A.	16700	SHOAL	3 1/2 FM	60/53/19.139N	147/36/27.238W	3467
B.	BOTH	ROCK	UNCOVERS 1/2 FM	60/52/16.432N	147/32/04.782W	5810
C.	BOTH	SHOAL	3/4 FM	60/51/15.512N	147/34/22.195W	3319

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


Hydrography from reconnaissance by the United States Geological Su
May 1973 to August 1978.
ADVANCE INFORMATION
UNAKWIK INLET
Jonah B
Cannery (aband)
Siwash Bay
Wells Bay
Cedar Bay
Granite B
Granite Pt
Eaglek Bay
Pt Pellew
(aband) Kiniklik
Olsen I
Jackson Cove
Chamberlain B
Little Axel Lind I
Axel Lind I
Bald Head Chris I
Egg Rks
Fool I
Dutch Group
Lone I
East Twin B
Perry I.
Osprey I.
Liljegren Passage
Peak I.
McPherson Passage
Cabin Bay
Pt Eleanor
Northwest B
Amherst Gl
Crescent Gl
Avery R
Tommy Gl
Passage
147°40'00"W
147°20'00"W
61°00'00"N
60°40'00"N
FI R 4s R "2" BELL
FI 6sec 45ft 6M "9"
24th Ed. Jan. 11/92
16700

APPROVAL SHEET

for

H-10502
RA-10-23-93

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

NOAA FORM 77-28 (11-72) | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HYDROGRAPHIC TITLE SHEET

REGISTER NO.: H-10502

FIELD NO.: RA-10-23-94

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

State: Alaska

General locality: Prince William Sound

Locality: Approach to Unakwik Inlet

Scale: 1:10,000 Date of survey: October 9, 1994

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

Vessel: 2124

Chief of party: CAPTAIN Russell C. Arnold, NOAA

Surveyed by: LT D. Neander, LTJG G. Glover

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: L. Deodato, D. Doles, E. Domingo, R. Mayor, J. Stringham

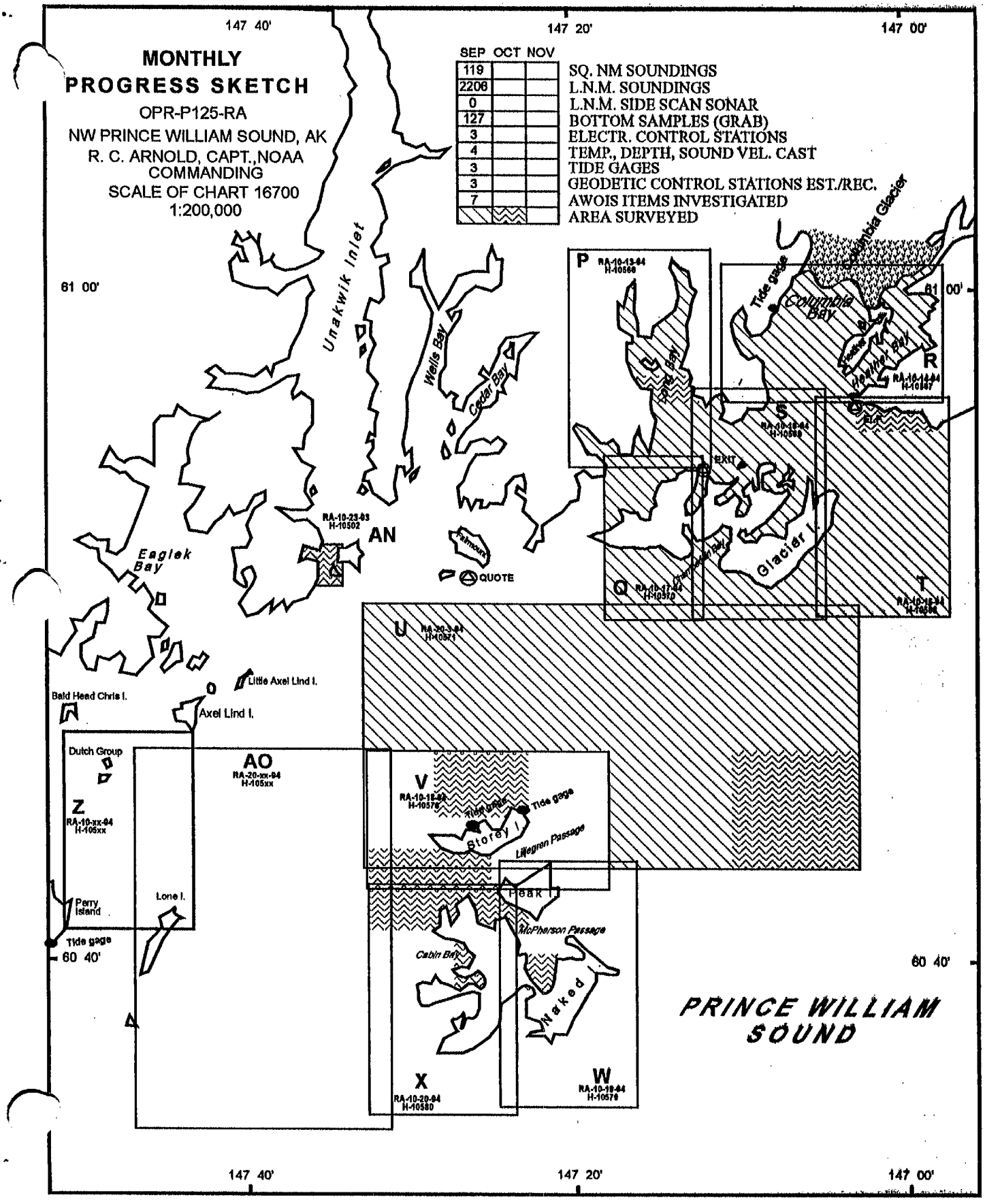
Soundings in ~~fathoms~~ ~~feet~~ Meters & Decimeters at ~~MLW~~ MLLW

REMARKS: Additional work for RA-10-23-93 (H-10502)

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.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978-665-010-1174


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 SQ. NM SOUNDINGS
2206 L.N.M. SOUNDINGS
0 L.N.M. SIDE SCAN SONAR
127 BOTTOM SAMPLES (GRAB)
3 ELECTR. CONTROL STATIONS
4 TEMP., DEPTH, SOUND VEL. CAST
3 TIDE GAGES
3 GEODETIC CONTROL STATIONS EST./REC.
7 AWOIS ITEMS INVESTIGATED
AREA SURVEYED
147 40'
147 20'
147 00'
61 00'
60 40'
Unakwik Inlet
Wells Bay
Cedar Bay
Eaglek Bay
RA-10-23-93
H-10502
AN
QUOTE
Palmount
P
RA-10-13-94
H-10566
Tide gage
Columbia Bay
Columbia Glacier
Long Bay
Heather Bay
Harriet Bay
R
RA-10-14-94
H-10567
S
RA-10-15-94
H-10568
EXIT
Thumb Cove
Glacier I.
Q
RA-10-17-94
H-10570
T
RA-10-18-94
H-10571
U
RA-20-3-94
H-10571
Little Axel Lind I.
Bald Head Chris I.
Axel Lind I.
Dutch Group
AO
RA-20-xx-94
H-105xx
Z
RA-10-xx-94
H-105xx
Perry Island
Lone I.
Tide gage
V
RA-10-16-94
H-10576
Tide gage
Storey I.
Wegren Passage
Bear I.
McPherson Passage
Cabin Bay
Naked I.
X
RA-10-20-94
H-10580
W
RA-10-19-94
H-10579
PRINCE WILLIAM SOUND

Supplemental Survey to H-10502

Prince William Sound, Alaska
October 9, 1994

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

A. PROJECT

NOAA Ship RAINIER conducted a survey in the vicinity of Olsen Island following the preprocessing examination of survey H-10502. The memorandum, dated November 4, 1993, commented on the lack of appropriate disproval of three charted rocks in Olsen Cove, and the failure of the hydrographer to develop further a rocky shoal area south of Olsen Island. This survey addresses these problem areas and completes work on survey H-10502.

B. AREA SURVEYED - See Eval Rpt, Section 1

The survey area is located in Prince William Sound, Alaska in the vicinity of Olsen Island.

Data acquisition was conducted on October 9, Day Number (DN) 282.

C. SURVEY VESSELS

Data were acquired with NOAA Ship RAINIER's Jensen survey launch RA-4 as noted below:

Vessel	EDP No	Operation
RA-4	2124	Hydrography/Detached Positions

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

Program Name	Version	Date Installed
BACKUP	2.00	3/7/94
BASELINE	1.14	3/7/94
BIGABST	2.07	3/7/94
BIGAUTOST	3.01	3/7/94
BLKEDIT	2.02	3/7/94
CARTO	2.15	8/29/94
CLASSIFY	1.05	3/7/94
CONVERT	3.63	8/29/94
DAS_SURV	6.74	8/29/94
DIAGNOSE	3.05	8/29/94
DISC-UTIL	1.00	3/7/94
DP	2.15	8/29/94
EXCESS	4.31	8/29/94
FILESYS	3.27	8/29/94
GRAFEDIT	1.06	3/7/94
LISTDATA	1.02	3/7/94
LOADNEW	2.10	3/7/94
LSTAWOIS	3.07	5/12/94
MAINMENU	1.20	3/7/94
MAN_DATA	2.01	3/7/94

NEWPOST	6.12	8/29/94
PLOTALL	2.30	8/29/94
POINT	2.10	3/7/94
PREDICT	2.01	3/7/94
PRESURV	7.09	8/29/94
PRINTOUT	4.04	8/29/94
QUICK	2.05	8/29/94
RAMSAVER	1.02	3/7/94
REAPPLY	2.11	8/29/94
SCANNER	1.00	3/7/94
SELPRINT	2.05	8/29/94
SYMBOLS		3/7/94
VERSIONS	1.00	3/7/94
ZOOMEDIT	2.30	8/29/94

Velocity corrections were determined using:

Program Name	Version	Date Installed
VELOCITY	2.10	15 Mar 1994

E. 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 the High + Low, high frequency digitized setting.

F. CORRECTIONS TO ECHO SOUNDINGS

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

Velocity Table #	Cast# *	DN	Cast Position	Deepest Depth	Applicable DN
3	3	268	60°49'25" N 147°19'05" W	565	263 - 272

* Cast 3 plots outside the survey limits.

The sound velocity cast 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". filed with the survey records.

Static Draft

A transducer depth was determined using FPM Fig 2.2 for launch 2124 in the spring of 1994. This depth was entered into the offset table 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 was collected in Shilshole Bay, Washington in March of 1994.

Offset Table

The offset table contains offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset table 4 corresponds to vessel 2124. The offset table was compiled with new measurements in the spring of 1994 and are contained in the "Separates to be Included with Survey Data". filed with the survey records.

Heave

RA-4 is not equipped with heave, pitch and roll sensors.

Bar Check and Lead Lines

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

Tide Correctors

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

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

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

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

RAINIER personnel installed an 8200 digital gage at Storey Island (945-4553) on September 4, 1994. Opening levels to the staff and bench marks were conducted upon installation. Tides data were collected continuously at the Storey Island gage during data acquisition. A new station was installed on September 21, on the north side of Storey Island (945-4571) to serve as a secondary gage for the Storey Island gage (945-4553). Open levels were conducted on September 22. Bracketing levels were conducted at the end of September, and closing levels will be performed at the end of the project.

The control station was Valdez, Alaska (945-4240). Opening levels of the control station were performed by RAINIER personnel on September 16, 1994. Closing levels at Valdez, Alaska will be completed by RAINIER personnel during the final inport October 28-31, 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 will be 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. Tide Note dated January 15, 1995 is attached.

G. CONTROL STATIONS - See Eval Rpt, Section 2 are attached to

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

Positions for all existing stations are from the National Geodetic Survey (NGS) data base. All existing stations were recovered in accordance with methods stated in Section 5.2.4 of the Field Procedures Manual.

H. 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 printout for RA-4.

Ashtech GPS

VHF differential shore stations were established at stations QUOTE, EXIT, and ELF. 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 ere obtained last year. The area around station QUOTE remains undeveloped, and the geography unchanged.

Calibrations & Systems Check Methods

System checks were performed in accordance with Section 3.4.4 of the FPM. Two observations of position were made using correctors from two independent DGPS base stations. The results were transferred to forms which are included in the project data for OPR-P125-RA. 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

None

Offset

The launch GPS antenna offsets are store 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". filed with the survey records

I. ITEM INVESTIGATIONS

Methods of Investigation

Three charted submerged rocks in Olsen Cove were investigated and found using hydrography with 10m line spacing. The two westernmost rocks of the three were seen visually, and the high points of these features were measured and positioned with detached positions.

The rocky shoal south of Olsen Island was developed by hydrography with 50m line spacing. No further development was necessary.

Five other areas in the vicinity of Olsen Island were found by the hydrographer to be inadequately surveyed. These areas were further developed as a part of this survey as follows. The channel from the southwest of Olsen Island to Olsen Cove was developed with 50m line spacing, and the channel directly to the south of Olsen Island and to the north of the small island, was developed with 50m line spacing. An area of shoaling to the southeast of the small island south of Olsen Island was developed with 50m line spacing. Two shoal soundings found on the original survey were also investigated. The 15.2m shoal in the vicinity of latitude 60°51'10"N, longitude 147°34'36"W was developed with 25m line spacing, and the 19.3 m shoal in the vicinity of latitude 60°51'~~10~~"N, longitude 147°~~34'36~~"W, was developed using 10m line spacing.

19.11" 35'05.90"

Post 7/11/02

Results

Three submerged rocks were found in Olsen Cove, with high points at depths of 1.4m, 3.0m, and 3.8m. An uncharted least depth of 3.8m was found in the vicinity of latitude 60°51'10"N, longitude 147°34'36"W, and has been reported as a danger to navigation. No other navigational hazards were found with the remaining developments.

@ ⓑ was rejected by field
* 60/51/19.1 N 147/35/05.9W
Fix # 741/02
Chart both areas as shown on Smooth Sheet.

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

This survey was compared to NOS chart 16705, 15th Edition, September 1, 1990, 1:80,000 (NAD83), and NOS chart 16700, 24th Edition, January 11, 1992, 1:200,000 (NAD83). The charted soundings were found to be in general agreement with the present survey except for the 3.8 m sounding noted in Section I.

Non-sounding features are discussed in Section I, Item Investigations.

Final comparisons will be made at PHS.

Dangers to Navigation

One danger to navigation within the limits of survey H-10502 was reported to the Seventeenth Coast Guard District on October 14, 1994. Letter is attached to this report.

K. RECOMMENDATIONS

The hydrographer recommends that the three charted submerged rocks in Olsen Cove be charted as submerged rocks of known depth, at the position of the least depth found by DP or 10m hydrography. It is also recommended that the applicable charts be updated to include the shoal southwest of Olsen Island in the vicinity of latitude 60°51'10"N, longitude 147°34'36"W. 147/35/05.9W

CONCUR

Chart area as shown on Smooth Sheet.

L. REFERRAL TO REPORTS

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

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

@ 1.4 meters pos# 528, Latitude 60/52/10.0N Longitude 147/36/09.44W
ⓑ 3.0 " pos# 542, " 60/52/11.98N " 147/36/12.53W

Respectfully Submitted,

Gregory G. Glover
Lieutenant junior grade, NOAA

Approved and Forwarded,

Russell C. Arnold
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 13 Oct 1994

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
101	G	060:50:49.581	147:27:05.696	13	250	0.0	0.0		09/04/94	QUOTE 1947(DGPS)
102	G	060:54:23.798	147:12:24.817	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	10	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)

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

October 14, 1994

ADVANCE INFORMATION

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

Dear Sir:

NOAA Ship RAINIER has located one danger to navigation in Northwest Prince William Sound (Project OPR-P125-RA) within the limits of hydrographic survey H-10502. 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

Hydrographic Survey Registry Number: H-10502

Survey Title: State: Alaska
Locality: Northwest Prince William Sound
Sublocality: Vicinity of Olsen Island

Project Number: OPR-P125-RA

Survey Date: October 1994

ADVANCE INFORMATION

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

Affected Nautical Charts:

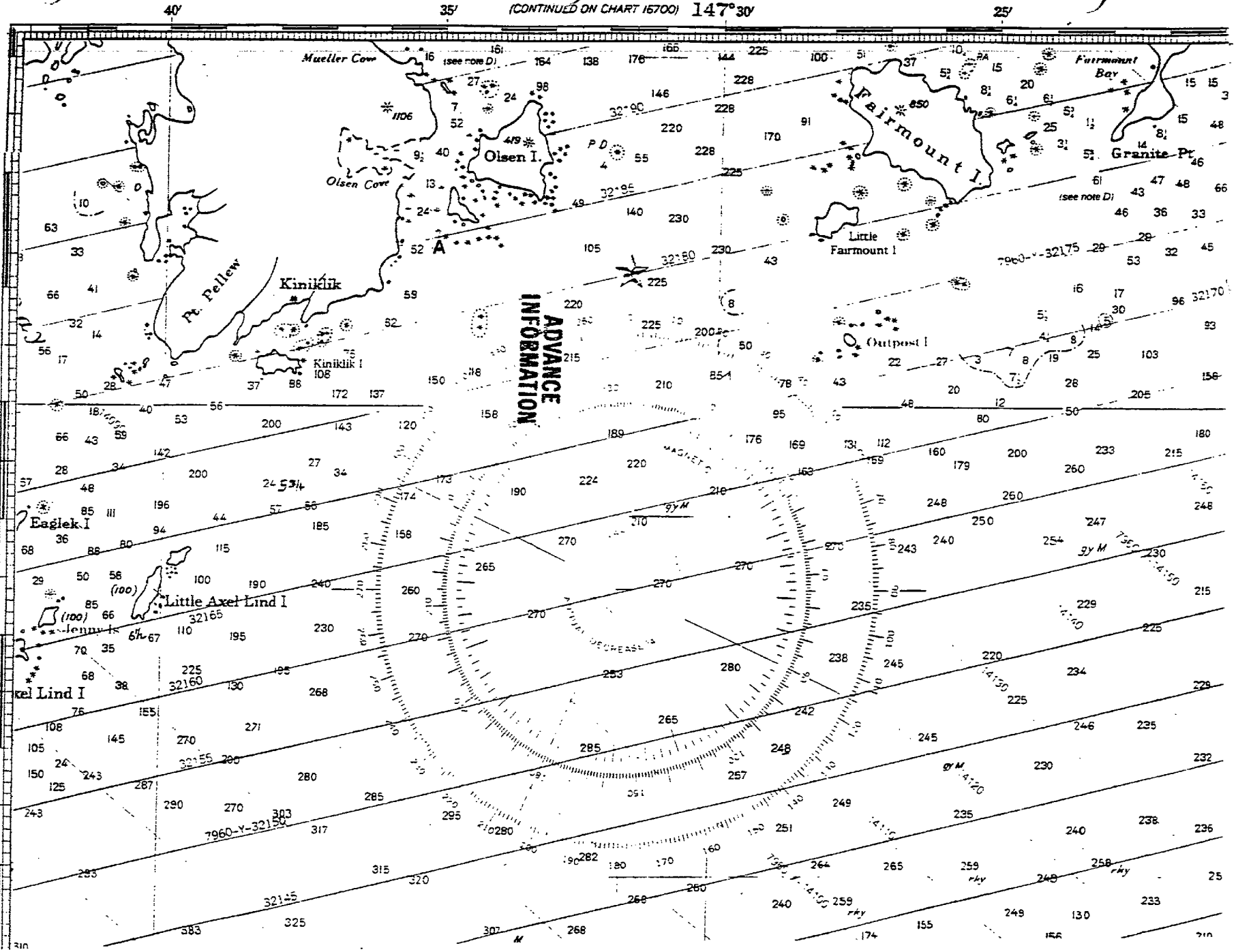
Chart	Edition/Date	Scale	Datum
16700	24th Ed., 1/11/92	1:200,0000	NAD83
16705	15th Ed., 9/1/90	1:80,000	NAD83

	Danger to Navigation	Latitude (N)	Longitude (W)	Pos.	Depth(m)
A.	Shoal, covers 1 3/4 FM	60° 51' 19.1"	147° 35' 05.9"	741^{+2}	3^{5}

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

16705

LORAN-C OVERPRINTED



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-10502

LOCALITY: Vicinity of Olsen Island, Prince William Sound, Alaska

TIME PERIOD: September 6 - October 11, 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 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. Hubbard

CHIEF, DATUMS SECTION

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

ORIGINAL

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: January 17, 1995

HYDROGRAPHIC SECTION: Pacific

HYDROGRAPHIC PROJECT: OPR-P125-RA

HYDROGRAPHIC SHEET: H-10502

LOCALITY: Vicinity of Olsen Island, Prince William Sound, Alaska

TIME PERIOD: October 9 - 10, 1994

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

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

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

REMARKS: RECOMMENDED ZONING

Times and heights are direct on 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

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10502

GEOGRAPHIC NAMES

Name on Survey	A T-Sheet DM-10064	B T-Sheet DM-10065	C Chart 16700	D Chart 16705	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H	K U.S. LIGHT LIST	
ALASKA (TITLE)										1
KINIKLIK (abandoned)	X		X	X						2
KINIKLIK ISLAND	X			X						3
MUELLER COVE	X			X						4
OLSEN COVE	X			X						5
OLSEN ISLAND	X	X	X	X						6
PRINCE WILLIAM SOUND	X	X	X							7
UNAKWIK INLET	X	X	X							8
UNAKWIK POINT		X								9
										10
										11
										12
										13
										14
										15
					Approved:					16
										17
					Charles E. Harrington					18
					Chief Geographer - N/CG2x5					19
					JUL - 6 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-10502

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	

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES						
ENVELOPES						
VOLUMES						
CAHIERS	3					
BOXES						

SHORELINE DATA

SHORELINE MAPS (List):	DM-10065
PHOTOBATHYMETRIC MAPS (List):	None
NOTES TO THE HYDROGRAPHER (List):	NA
SPECIAL REPORTS (List):	None
NAUTICAL CHARTS (List):	16705 15th Ed. 9/1/90, and 16700 24th Ed., 1/11/92

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			2691
POSITIONS REVISED			8
SOUNDINGS REVISED			11
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	60.5		60.5
VERIFICATION OF SOUNDINGS	123.0		123.0
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	46.0		46.0
COMPARISON WITH PRIOR SURVEYS AND CHARTS		17	17.0
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		15	15.0
GEOGRAPHIC NAMES			
OTHER* Digitization	12.25		12.25
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	241.75	32	273.75

Pre-processing Examination by: LT D. Haines, LT M. Larsen, LT D. Neander	*Beginning Date*: 10/19/93	*Ending Date*: 11/5/93
Verification of Field Data by: L.Deodato,D.Doles,R.Mayor,E.Domingo,J.Stringham	*Time (Hours)*: 241.75	*Ending Date*: 2/16/95
Verification Check by: J. Stringham	*Time (Hours)*: 11.5	*Ending Date*: 2/28/95
Evaluation and Analysis by: G.E. Kay	*Time (Hours)*: 32.0	*Ending Date*: 4/7/95
Inspection by: B.A. Olmstead	*Time (Hours)*: 28	*Ending Date*: 5/9/95

EVALUATION REPORT
SURVEY H-10502

1. INTRODUCTION

Survey H-10502 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
OPR-P125 RA, dated July 25, 1994

This survey was conducted in Alaska, in the northwestern portion of Prince William Sound, and includes Kiniklik Island north to the entrance of Unakwik Inlet. The eastern and western limits are defined by the shoreline of the inlets and bays. Specifically, the area is bound by latitude 60/49/45N, to latitude 60/55/00N and from longitude 147/31/15W to longitude 147/38/46W. Major geographical features within the survey area are Mueller Cove, Olsen Cove, Olsen Island, Kiniklik Island and Unakwik Point. The shoreline is rocky and characterized by alongshore ledges and extensive foul areas. 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 426 meters, located in the lower southeastern portion of this survey.

This is a two year survey. Additional work was performed during the 1994 field season to further intensify line spacing around Olsen Cove and the south and west side of Olsen Island.

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, 20 and 90-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, and North Side Storey Island, Alaska, gage 945-4571, 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 in the following, contains adequate discussions of horizontal control and hydrographic positioning. Additional information may be found in the following:

Fall 1993 Horizontal Control Report for OPR-P125-RA and
Fall 1994 Horizontal Control Report for OPR-P125-RA.

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 144 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:	-1.909 seconds	(-59.089 meters)
Longitude:	7.442 seconds	(112.311 meters)

The year of establishment of control stations shown on the smooth sheet originates with published NGS data.

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

Map Number	Photography date	Scale
DM-10064	July 1989	1:20,000
DM-10065	July 1989	1:20,000

The following shoreline revisions are depicted on the smooth sheet as a solid red line with supporting positional information.

Feature	Latitude North	Longitude West
islet	60/53/51	147/36/14
islet	60/52/42.5	147/34/59.5
islet	60/52/42	147/34/14
islet	60/50/33	147/38/33.5

A shoreline change was transferred to the smooth sheet from the field sheet without supporting positional information. This change (dashed red) occurs at latitude 60/54/51N, longitude 147/32/40W.

These revisions are considered adequate to superseded the common photogrammetrically delineated shoreline.

3. HYDROGRAPHY

The required line spacing as specified in Project Instructions, section 6.5.1, Hydrographic Manual, sections 4.3.4, 4.3.5, 4.3.6, and Hydrographic Survey Guideline, No. 69 was not fully met. Numerous areas of inadequate development exists throughout the entire survey area. Additional field work was accomplished in 1994 to split inshore main scheme lines and further investigate shoal depths found during the 1993 field season. Although this work was accomplished satisfactory, several other areas remain inadequately surveyed and are listed below.

	Feature	Latitude North	Longitude West
1.	Holiday	60/54/19	147/32/49
2.	Holiday	60/54/07	147/33/09
3.	Holiday	60/53/51	147/36/15
4.	Holiday	60/53/20	147/36/32
5.	Holiday	60/51/46	147/35/03
6.	Holiday	60/51/48	147/34/42
7.	Holiday	60/52/03	147/35/27

Except for the above, 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, editions dated March 1993 and April 1994, except as follows.

a. During the 1994 additional work the hydrographer failed to adequately comply with Hydrographic Manual, section 1.4.2. which states, "The regular system of sounding lines shall be supplemented by a series of crosslines (4.3.6.) for verifying and evaluating the accuracy and reliability of surveys depths and plotting locations." Crosslines were not performed, and the ability to fully qualify the accuracy of this portion of the survey has been lost.

b. During the course of his survey the hydrographer failed to investigate all the charted rocks. An investigation is required in accordance with the Field Procedures Manual, Figure 6.3, section O, paragraph 4a, page 6-35, which states, "Those charted features not found during the present survey shall be listed, the investigation described, and recommendation for charting given." Refer to section 7a and 9 of this report for disposition.

c. The require line spacing as specified in Project Instructions, section 6.5.1., Hydrographic Manual, sections 4.3.4, 4.3.5, and Hydrographic Survey Guideline, No. 69, was not fully met during the 1993 field season. Significantly shoaler depths were discovered while conducting additional work during he 1994 field season, to intensify lines of hydrography not conducted during 1993. One of these shoaler depths was a 3.3 meter sounding found in general depths of 25 meters. This sounding was submitted as a danger to navigation in 1994 (attached).

The references listed in the previous paragraph provide the hydrographer with maximum differences between lines of hydrography. However, the hydrographer must be alert to any significant shoal indicators and develop the area as necessary. It is imperative to the overall charting effort that within reasonable limits data quality be stressed in lieu of data quantity.

5. JUNCTIONS

Survey H-10502 junctions with the following surveys.

Survey	Year	Scale	Area
H-10499	1993	1:10,000	East, Southeast
H-10500	1993	1:10,000	East
H-10503	1993	1:20,000	North
H-10514	1993	1:10,000	West, Southwest

The junctions with the above listed surveys are complete. Depth curves and soundings within the common area are in good agreement.

6. COMPARISON WITH PRIOR SURVEYS

There are no prior surveys within the limits of survey H-10502.

7. COMPARISON WITH CHART

Survey H-10502 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 chart originate with miscellaneous sources dating from 1916 to 1985. Present survey soundings do not compare well with the charted soundings. Differences between surveys compare poorly. Some areas exceed 20-meter depth differences, while other areas are less than a meter shoaler. These differences are largely attributed to the data acquisition techniques, increased bottom coverage and the dynamic natural process of glacial activity.

Most charted rocks have been accounted for by rocks found on this survey. However, the following charted rocks (chart 16705) were not specifically investigated. The compiler should reevaluate the original source of these rocks and retain as warranted.

	Feature	Latitude North	Longitude West
1.	rock	60/52/44	147/34/53
2.	rock	60/52/33	147/33/02
3.	rock	60/52/28	147/33/00
4.	rock	60/52/12	147/33/16
5.	submerged rock	60/51/12	147/35/39
6.	rock	60/50/39	147/37/58

Note: The hydrographer mentions in paragraph O of the Descriptive Report. "There are, however, numerous features in this area which are not depicted on the chart." (sic) No recommendations were made. We can only assume that he was referring to the features as found on this survey.

Except for the above features, survey H-10502 is adequate to supersede the 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 51998 is the only AWOIS feature within the limits of this survey. This feature, a grouping of rocks, was investigated and was identified 322 meters northwest of the reported location. A rock uncovers 1.4-meters was positioned at latitude 60/52/16.42N, longitude 147/32/04.79W. In addition, a 1.4-meter sounding was found 50 meters south of the rock. The hydrographer's findings generally support the original AWOIS description.

Charting recommendation: Delete the rock PD from the chart. Chart a rock uncovers at the above position. Chart the area as shown on the smooth sheet.

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 reported four dangers to navigation while conducting survey operations in 1993-94. A copy of these danger to navigation has been forwarded to the Seventeenth Coast Guard District, DMA/HTC and N/CG221. Copies of these reports are attached.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10502 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is a fair hydrographic survey. Additional field work is required to investigate the charted rocks tabulated in section 7a. and the holiday areas tabulated in section 3.

Gordon E. Kay
Cartographer

APPROVAL SHEET
H-10502

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: 5/22/95
Bruce A. Olmstead
Senior Cartographer, Pacific Hydrographic 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: 5/30/95
Kathy A. Timmons
Commander, NOAA
Chief, Pacific Hydrographic Section

****

Final Approval

Approved:

Andrew A. Armstrong III Date: 6/14/95
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Branch

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-10502

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	8/23/95	ALMACEN	Full ~~Part Before~~ After Marine Center Approval ~~Signed~~ Via Full application of
			Drawing No. 5 ndgs. & features from 55.
16700	9/14/95	ALMACEN	Full ~~Part Before~~ After Marine Center Approval ~~Signed~~ Via Full application
			Drawing No. of 5 ndgs & features from 55 thru cht 16705.
16013			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
500			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
531			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
50			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
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.