

10503

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. RA-20-3-93
Registry No. H-10503

LOCALITY

State Alaska
General Locality Prince William Sound
Sublocality Central Unakwik Inlet
..... and Vicinity

19 93

CHIEF OF PARTY
CAPT Russell C. Arnold, NOAA

LIBRARY & ARCHIVES

MAY 16 1995

DATE

HYDROGRAPHIC TITLE SHEET

H-10503

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

FIELD NO.
RA-20-3-93

State Alaska

General locality Prince William Sound

Locality Central Unakwik Inlet and Vicinity

Scale 1:20,000 * Date of survey Sept. 16 - Oct. 11, 1993

Instructions dated 7/19/93; Change #1-8/25/93 Project No. OPR-0125-RA

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

Chief of party CAPT Russell C. Arnold, NOAA

Surveyed by CAPT R. Arnold, LT M. Brown, LTJG S. Lemke, ENS J. Graham, ENS G. Glover, ENS A. Caron, 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 D. Doles, R. Mayor, G. Kay, E. Domingo, L. Deodato, J. Stringham

Soundings in ~~fathoms~~ ~~XXXX feet~~ meters and MLW MLLW decimeters at MLW

REMARKS: All times are UTC . * Change No. 2, Nov. 5, 1993

Revisions and marginal notes in black were generated during office processing. All separates are filed with the hydrographic data, as a result page numbering may be interrupted or non-sequential.

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

Surf/Awards chk 8/14/95
MCR

Sc 12-13-96
5-16-95

148 00

147 40

147 20

147 00

61 10

61 10

61 10

61 10

PROGRESS SKETCH

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

SEPTEMBER 4 - OCTOBER 31, 1993

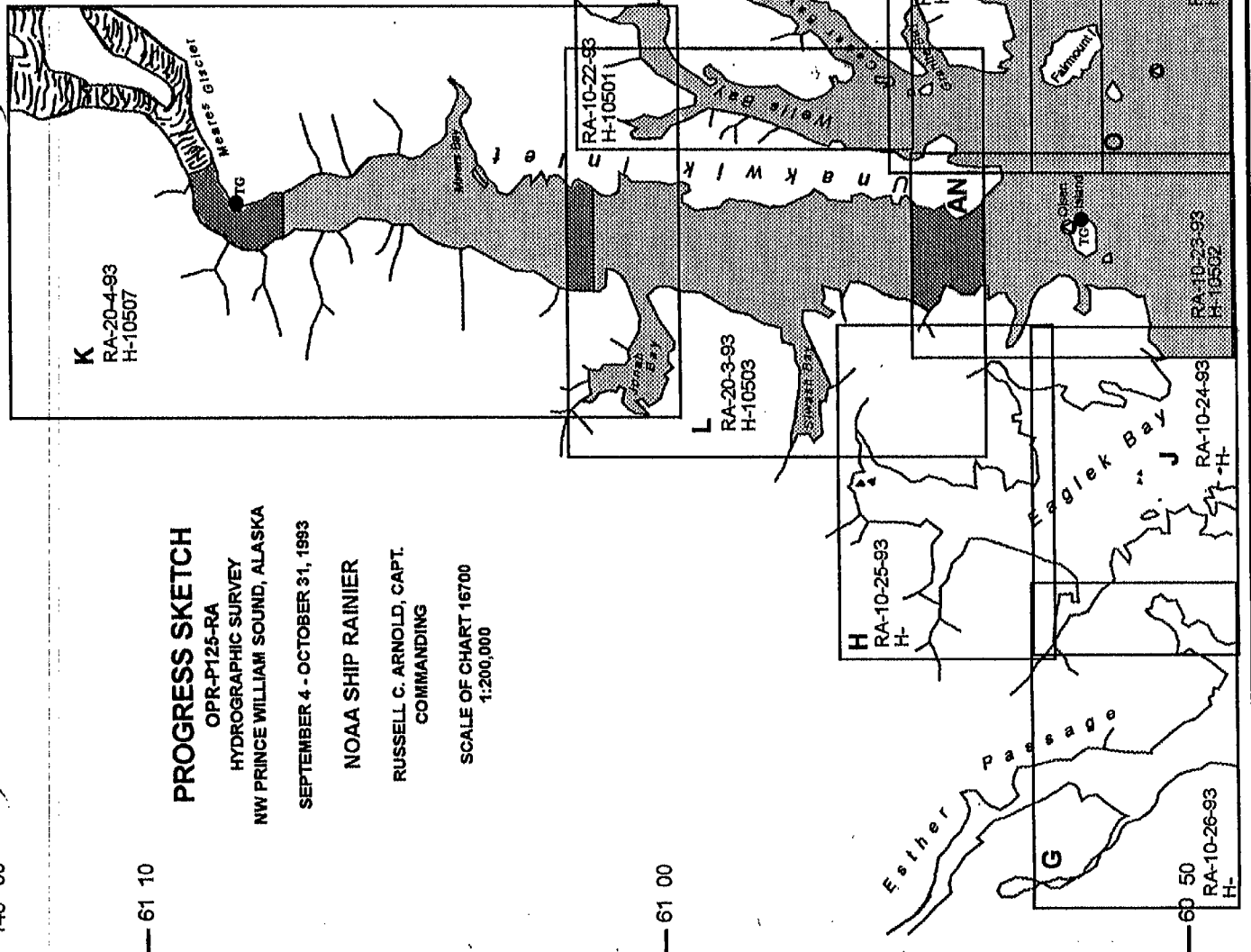
NOAA SHIP RAINIER

RUSSELL C. ARNOLD, CAPT.
COMMANDING

SCALE OF CHART 16700
1:200,000

SEPT	OCT	NOV
763		
1647		
0		
158		
2		
2		
3		
0/5		
6		

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



60 50

60 50

60 50

60 50

Descriptive Report to Accompany Hydrographic Survey H-10503

Field Number RA-20-3-93

Scale 1:20,000

Sept-Oct 1993

NOAA Ship RAINIER

Chief of Party: Captain Russell C. Arnold

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, 1993~~ ^{NOVEMBER 5,} 1993. ✓

Survey H-10503 corresponds to "Sheet L" 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 Eval Rpt, Section I*

This survey area covers ^{the} southern ^{and central} portions of Unakwik Inlet including Siwash Bay and Jonah Bay. The survey limits are ^{61°01'30" N} to the north and ^{60°55'0" S} to the south. The east and west limits are the shoreline of Unakwik Inlet. Siwash Bay and Jonah Bay, including the moraine across the middle of Unakwik Inlet, were surveyed at a 1:10000 scale for increased detail. ✓

Data acquisition was conducted from September ^{16,} Day Number (DN) 259, through October 11, DN 284. ✓

C. SURVEY VESSELS

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

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

 ✓

RA-5	2125	Hydrography Shoreline Verification Bottom Samples	✓
RA-6	2126	Hydrography Shoreline Verification	

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>	
AUTOST	3.00	9/24/92	
BACKUP	2.00	8/20/93	
BASELINE	1.14	8/20/93	
BIGABST	2.05	8/20/93	
BLKEDIT	2.02	8/20/93	
CARTO	2.09	8/20/93	
CONVERT	3.54	8/20/93	
DAS_SURV	6.42	8/20/93	
DP	2.14	8/20/93	✓
EXCESS	4.11	8/20/93	
FILESYS	3.10	8/20/93	
GRAFEDIT	1.04	8/20/93	
LSTAWOIS	3.04	8/20/93	
LISTDATA	1.02	8/20/93	
MAINMENU	1.10	8/20/93	
MAN_DATA	2.01	8/20/93	
NEWPOST	6.01	8/20/93	
PLOTALL	2.12	8/20/93	
PRESURV	7.04	8/20/93	
PRINTOUT	4.03	8/20/93	
QUICK	2.04	8/20/93	
RAMSAVER	1.02	8/20/93	
REAPPLY	2.03	8/20/93	
SYMBOLS	2.00	9/24/92	
ZOOMEDIT	2.12	8/20/93	

Velocity corrections were determined using:

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

E. SONAR EQUIPMENT

Sonar equipment was not used on sheet L. *Concur*

F. SOUNDING EQUIPMENT

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

* Included with the survey records.

G. CORRECTIONS TO ECHO SOUNDINGS

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

<u>Velocity Table No.</u>	<u>Cast No.</u>	<u>Deepest Depth (m)</u>	<u>Applicable DN</u>	<u>Cast Position</u>	<u>Day</u>
1	1	545	259 - 260	060°53'46"N 147°28'58"W	253
2	2	531	264 - 284	060°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 1~~ *survey H-10503*

Offset Tables

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

Heave

Data acquired during periods of significant sea action were scanned to account for inaccuracies caused by heave.

Bar Check and Lead Lines

Bar check and lead lines were calibrated by RAINIER personnel on February 19, 1993 at PMC. Calibration forms are included with the project data for OPR-P125-RA. *filed with the survey 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 L are:

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

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

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

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

H. CONTROL STATIONS - See Eval Rpt, Section 2

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

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.*

Calibrations & Systems Check Methods

Ashtech GPS

VHF differential shore stations were established at ^{Existing} stations QUOTE and INDIA. After the stations were established, a remote sensor was directly connected to each 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 of the stations.

System checks were performed by launch to launch position comparisons. Three position comparisons were done with each launch using correctors from a different and independent DGPS base station. System checks were

* Filed with the survey records.

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 L.

Offset

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

filed with the survey records.

J. SHORELINE - See Eval Rpt, Section 2

The shoreline maps (T-sheets) used to transfer shoreline detail to the final sheets were DM-10059, and DM-10060 (1:20,000, NAD 83).

64 NDM-10065

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. 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 1:20,000 photocopies of the T-sheet. Reference numbers, descriptions, and heights corrected to MLLW using predicted tides were 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.

Detailed 1:20,000 "Rough Bottom Sample and Detached Position Plots" are provided showing all DPs, reference numbers, and notes relating to each feature. The information from these plots was transferred to a final field plot. Verified T-sheet features were retained and shown in black. Changes to the shoreline were shown in red. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in meters and are corrected to predicted MLLW. Heights on features on the smooth sheet have been corrected for approved tides. Changes to the shoreline manuscripts involve several small islets changes which have been shown in red on the smooth sheet where warranted.

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 to near shore T-sheet features, it is impractical to list all of these changes in the descriptive report.

K. CROSSLINES

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 17.64 nautical miles, representing 7.4% of the total mainscheme hydrography. ✓

L. JUNCTIONS

This survey junctions with surveys H-10502 (1:10,000,1993) to the south, and H-10507 (1:20,000,1993) to the north. No irregularities were found when comparing soundings and depth curves. Final comparisons will be made at the Pacific Hydrographic Section (PHS). *SEE Evaluation Report section 5* ✓

M. COMPARISON WITH PRIOR SURVEYS

There were no prior surveys for ~~sheet L~~ *survey H-10503*

N. ITEM INVESTIGATIONS *see Evaluation Report section 7*

There were no item investigations for ~~sheet L~~ *survey H-10503 do NOT CONCUR*

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). ✓

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. Final comparisons will be made at PHS. ✓

Dangers to Navigation

No dangers to navigation were found. *Concur* ✓

P. ADEQUACY OF SURVEY

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

Q. AIDS TO NAVIGATION

None. ✓

R. STATISTICS

<u>Vessel:</u>	<u>2123</u>	<u>2124</u>	<u>2125</u>	<u>2126</u>	<u>2120</u>	<u>Total</u>
# of Pos	523	727	624	321	8	2203
NM Hydro	63.57	101.84	59.12	53.39	0	277.92

NM ² Hydrography	15.16
Velocity Casts	2
Detached Position	40
Tide Stations	2
Reference Numbers	168
Bottom Samples	11

S. MISCELLANEOUS

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

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

T. RECOMMENDATIONS

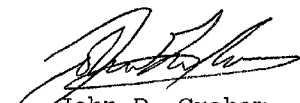
None. ✓

U. REFERRAL TO REPORTS

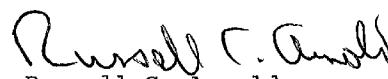
The following supplemental reports contain additional information relevant to this survey: ✓

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

Respectfully Submitted,


John D. Graham
Ensign, NOAA

Approved and Forwarded,


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)

APPROVAL SHEET

for

H-10503
RA-20-3-93

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and the Field Procedures Manual in producing this survey. The data were examined daily during data acquisition and processing.

The field sheet and accompanying records have been examined by me, are considered complete and adequate for charting purposes, and are approved.



Russell C. Arnold
Captain, NOAA
Commanding Officer



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 8, 1994

ORIGINAL

MARINE CENTER: Pacific

HYDROGRAPHIC PROJECT: OPR-P125-RA

HYDROGRAPHIC SHEET: H-10503

LOCALITY: Southern Portion of Unakwik Inlet, Prince William Sound,
Alaska

TIME PERIOD: September 16 - October 8, 1993

TIDE STATION USED: 945-4596 Olsen Island, Unakwik Inlet, Ak.

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

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

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

TIDE STATION USED: 945-4602 North Unakwik Inlet, Unakwik Inlet,
Ak.

Lat. $61^{\circ} 08.2'N$ Lon. $147^{\circ} 32.5'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -4.83 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 10.9 ft.

REMARKS: RECOMMENDED ZONING

1. North of $61^{\circ} 01.0'N$, times and heights are direct on North Unakwik Inlet, Ak. (945-4602).
2. South of $61^{\circ} 01.0'N$, 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 and for North Unakwik Inlet, Ak. (945-4602) in file #556-4602.

William M. Johnson
CHIEF, DATUMS SECTION



H-10503

GEOGRAPHIC NAMES

Name on Survey

A ON CHART NO. 16700 24th Ed 11/92
TP DM-10059
TP DM-10060
TP DM-10065
E ON LOCAL MAPS
F P.O. GUIDE OR MAP
G RAND McNALLY
ATLAS
H U.S. LIGHT LIST
K

Name on Survey	A	B	C	D	E	F	G	H	K
ALASKA (TITLE)									1
JONAH BAY	X	X							2
PRINCE WILLIAM SOUND (TITLE)	X								3
SIWASH BAY	X	X							4
SIWASH ISLAND		X							5
UNAKWIK INLET	X	X	X	X					6
									7
									8
									9
									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25

Approved:

Charles P. Harrington
Chief Geographer - N/Cg 2x5

AUG - 3 1994

HYDROGRAPHIC SURVEY STATISTICS

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		1
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDION FILES	2				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES					

SHORELINE DATA	
SHORELINE MAPS (List):	DM-10060, DM-10064, and DM-10065
PHOTOBATHYMETRIC MAPS (List):	NA
NOTES TO THE HYDROGRAPHER (List):	None
SPECIAL REPORTS (List):	None
NAUTICAL CHARTS (List):	16700 24th Ed., January 11, 1992

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			2134
POSITIONS REVISED			4
SOUNDINGS REVISED			4
CONTROL STATIONS REVISED			

PROCESSING ACTIVITY	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	42.50		42.50	
VERIFICATION OF SOUNDINGS	136.50		136.50	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	86.0		86.0	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		7	7.0	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		17	17.0	
GEOGRAPHIC NAMES				
OTHER: Digitization				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	265.0	24	289.0

Pre-processing Examination by D. Haines	Beginning Date 10/19/93	Ending Date 11/05/93
Verification of Field Data by D. Doles, R. Mayor, G. Kay, E. Domingo, L. Deodato	Time (Hours) 265.0	Ending Date 2/15/95
Verification Check by J. Stringham, G. Kay	Time (Hours) 30.0	Ending Date 3/14/95
Evaluation and Analysis by G.E. Kay	Time (Hours) 24.0	Ending Date 3/17/95
Inspection by B. A. Olmstead	Time (Hours) 17.0	Ending Date 4/26/95

**EVALUATION REPORT
SURVEY H-10503**

1. INTRODUCTION

Survey H-10503 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 the southern and central portion of Unakwik Inlet in the northwestern portion of Prince William Sound. The survey is situated in Unakwik Inlet and includes Jonah and Siwash Bays. The surveyed area is bounded by latitude 61/01/42N to the north and latitude 60/55/00N to the south. The eastern and western limits are enclosed by the shoreline of the inlets and bays. The shoreline is rocky and steep consisting of numerous isolated rocks, ledges and small islands. Rocky pinnacles that rise up very near the surface were found throughout the inlet. A terminal moraine exists along latitude 61/01/00N and consists of depths less than three meters. With the exception of the terminal moraine, the bottom consists of mud. Depths range from less than a meter along the shoreline to a depth of 321 meters, located in the lower south central portion of this survey.

Depth curves depicted on the smooth sheet were selected from those authorized through HSG 69. However, instead of drafting all authorized curves only those curves considered necessary for the reasonable portrayal of the bottom were drafted. The selected curves were the 0, 5, 20 and 180 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 Unakwik Inlet, Unakwik Inlet, Alaska, gage 945-4602, were used during office processing.

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

2. CONTROL AND SHORELINE

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

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 7.5 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, and apply to this survey.

<u>Map Number</u>	<u>Photography date</u>	<u>Scale</u>
DM-10060	July 1989	1:20,000
DM-10064	July 1989	1:20,000
DM-10065	July 1989	1:20,000

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

<u>Feature</u>	<u>Latitude North</u>	<u>Longitude West</u>
HWL	61/00/32	147/36/11
islet	60/56/25	147/35/33
islet	60/56/18	147/35/40
islet	60/56/22	147/35/48
islet	60/57/22	147/36/28
islet	60/57/07	147/40/17

<u>Feature</u>	<u>Latitude North</u>	<u>Longitude West</u>
islet	60/57/54	147/37/24
islet	60/58/06	147/37/21
islet	60/58/54	147/36/39
islet	61/00/56	147/35/21
islet	60/59/38	147/32/30
islet	60/59/07	147/32/30
islet	60/58/57	147/32/20
islet	60/58/39	147/32/50
islet	60/58/30	147/32/21
islet	60/58/25	147/32/24
islet	60/58/13	147/32/52
islet	60/55/09	147/32/40

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

3. HYDROGRAPHY

Except for the following, hydrography is adequate to:

- a. delineate the bottom configuration, determine least depths, and draw the standard depth curves;
- b. reveal there are no significant discrepancies or anomalies requiring further investigation; and
- c. show the survey was properly controlled and soundings are correctly plotted.

Authorized depth curves were adequately drawn and developed except the zero curve. The inshore limit as defined by the Project Instructions (section 1.8), is the 3-meter depth curve in steeply sloping areas.

4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual, March 1993 Edition, except as follows.

- a. The hydrographer investigated AWOIS item 52007, a charted mooring buoy (previous reported as a fish trap) however, he failed to discuss or graphically portray the survey findings. Refer to section 7b of this report.
- b. During the course of his survey the hydrographer failed to investigate and dispose of several 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.

5. JUNCTIONS

Survey H-10503 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10502	1993	1:10,000	South
H-10507	1993	1:20,000	North

The junction with surveys H-10502 and H-10507 are complete.

6. COMPARISON WITH PRIOR SURVEYS

There are no prior surveys within the limits of survey H-10503.

7. COMPARISON WITH CHART

Survey H-10503 was compared with the following chart.

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

a. Hydrography

The charted hydrography on the above 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.

Several charted rocks were not specifically investigated. Most of these rocks are accounted for by rocks found on this survey or from the verification of the shoreline map features. However, the following rocks were not disproven and should be retained as charted.

<u>Feature</u>	<u>Latitude North</u>	<u>Longitude West</u>
* rock (Awash)	60/58/53	147/33/18
+ submerged rock	60/59/54	147/31/37

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

* Source is a 1979 USGS Recon survey, H-10503 shows a 2m submerged feature 200m north of charted rock

4

+ Source is CL 263/26, Pacific Marine Fisheries.

recommendations were made. It is likely the hydrographer was referring to the features as found on this survey in conjunction with the shoreline maps data that could not be portrayed at chart scale.

Except for the above features, survey H-10503 is adequate to supersede charted hydrography within the survey area. Refer to the smooth sheet for the final depiction of this 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 52007 is the only AWOIS feature assigned within the limits of this survey. This item is a reported fish trap located at latitude 61/00/40.13N, longitude 147/31/40.46W. This item was initially reported as a buoy and consequently charted as a buoy. During shoreline verification this feature was visually identified by the hydrographer as a fish trap existing between two small islets. However, the hydrographer failed to discuss the results of their findings in the descriptive report and graphically portray it on the field sheet. Delete the charted buoys and chart the fish traps 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 did not report any dangers to navigation. No dangers to navigation were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10503 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.

Gordon E. Kay
Gordon E. Kay
Cartographer

APPROVAL SHEET
H-10503

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: 5/1/95
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: 5/2/95
Kathy A. Timmons
Commander, NOAA
Chief, Pacific Hydrographic Section

Final Approval

Approved:

Andrew A. Armstrong III Date: 5/17/95
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Branch

