

H-10495

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-10-19-93

State Alaska

General locality Alaska Peninsula

Locality Two Nautical Miles South of Hydra Island

Scale 1:10,000 Date of survey June 16 - June 28, 1993

Instructions dated 4/13/93 Change #1-4/23/93
Change #2-6/21/93 Project No. OPR-P180-RA

Vessel NOAA Ship RAINIER(2120), RA-3(2123), RA-4(2124), RA-5(2125),RA-6(2126)

Chief of party CAPT Russell C. Arnold, NOAA

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

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

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: R.N. Mihailov Automated plot by PHS Xynetics Plotter
~~Processed by~~

Verification by: D. Doles, R. Mayor, R. Mihailov, J. Stringham, R. Shipley
~~Verified by~~

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

REMARKS: All times are UTC. North American Datum of 1983. Revision 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.

*Surf/AWOS check 12/9/94
MCR*

SC 11/29/94

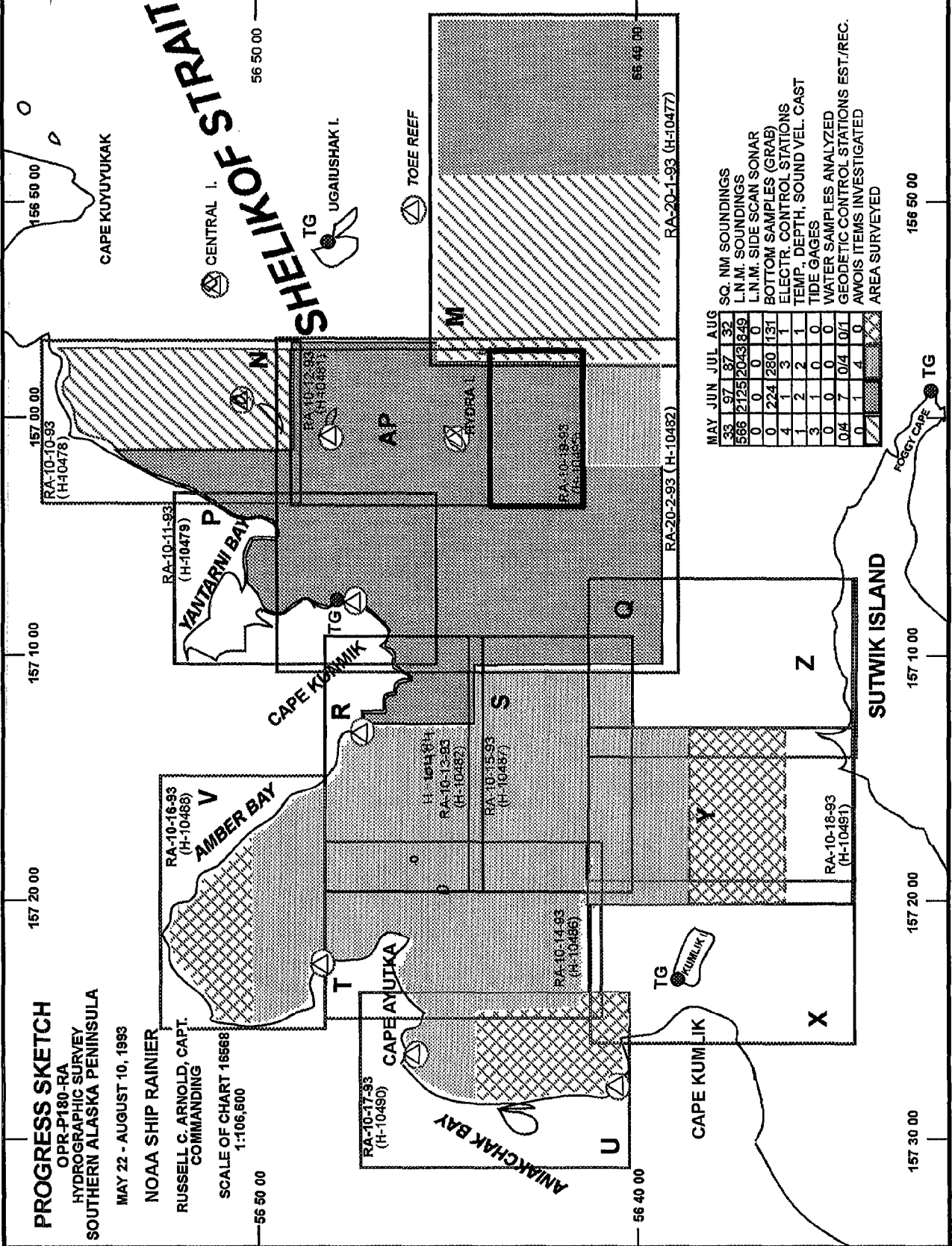
PROGRESS SKETCH
 OPR-P180-RA
 HYDROGRAPHIC SURVEY
 SOUTHERN ALASKA PENINSULA

MAY 22 - AUGUST 10, 1993

NOAA SHIP RAINIER

RUSSELL C. ARNOLD, CAPT.
 COMMANDING

SCALE OF CHART 18568
 1:106,600



	MAY	JUN	JUL	AUG
SQ. NM SOUNDINGS	33	97	87	32
LN.M. SOUNDINGS	566	2125	2043	849
LN.M. SIDE SCAN SONAR	0	0	0	0
BOTTOM SAMPLES (GRAB)	0	224	280	151
ELECTR. CONTROL STATIONS	4	1	3	1
TEMP. DEPTH, SOUND VEL. CAST	1	2	2	1
TIDE GAGES	3	1	0	0
WATER SAMPLES ANALYZED	0	0	0	0
GEODETIC CONTROL STATIONS EST./REC.	0/4	7	0/4	0/1
AMVOIS ITEMS INVESTIGATED	0	1	4	0
AREA SURVEYED				

Descriptive Report to Accompany Hydrographic Survey H-10495

Field Number RA-10-19-93

Scale 1:10,000

June 1993

NOAA Ship RAINIER

Chief of Party: Captain Russell C. Arnold

A. PROJECT ✓

This basic hydrographic survey was completed in Shelikof Strait, Alaska, as specified by Project Instructions OPR-P180-RA dated April 13, 1993, and change No. 1 dated April 23, 1993, and change No. 2 dated June 16, 1993.

Survey H-10495 corresponds to "Sheet AQ" as defined in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating existing nautical charts, and for constructing two 1:100,000 scale metric charts. The new charts will cover inshore and offshore areas between Sutwik Island and Mitrofanina Island along the Southern Alaska Peninsula. Requests for hydrographic surveys and updated charts have been received from the U.S. Coast Guard, Alaska congressional delegates, NOAA, Defense Mapping Agency, and local fishermen.

B. AREA SURVEYED ✓ See Evaluation Report, Section 1.

The area is located in Shelikof Strait along the Alaska Peninsula, southwest of Kodiak Island. The survey area is defined by latitude 57°43'45"N to the north, 56°41'15"N to the south, longitude 156°57'00"W to the east and 157°03'45"W to the west.

Data acquisition was conducted from June 16, 1993 Day Number (DN) 167 through June 28, 1993 DN 180.

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 Cast
RA-3	2123	Hydrography
RA-4	2124	Hydrography
RA-5	2125	Hydrography
RA-6	2126	Hydrography

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	9/24/92
BASELINE	1.13	9/24/92
BIGABST	2.03	9/24/92
BLKEDIT	2.00	9/24/92
CARTO	2.04	3/1/93
CONTACT	2.01	9/24/92
CONVERT	3.51	9/24/92
DAS_SURV	6.33	5/17/93
DIAGNOSE	3.01	9/24/92
DISC_UTIL	1.00	9/24/92
DP	2.13	3/1/93
EXCESS	4.10	9/24/92
FILESYS	3.02	5/17/93
GRAFEDIT	1.01	2/26/93
HIPSTICK	1.01	9/24/92
HPRAZ	1.26	9/24/92
INVERSE	2.00	9/24/92
INSTALL	4.00	9/24/92
LSTAWOIS	3.01	9/24/92
LISTDATA	1.00	9/24/92
LOADNEW	2.01	9/24/92
MAINMENU	1.00	9/24/92
MAN_DATA	2.00	9/24/92
NEWPOST	6.00	9/24/92
PLOTALL	2.08	2/26/93
POINT	2.10	9/24/92
PREDICT	2.00	9/24/92
PRESURV	7.01	2/26/93
PRINTOUT	4.01	9/24/92
QUICK	2.03	2/26/93
RAMSAVER	1.01	9/24/92
RECOMP	2.02	9/24/92
REAPPLY	2.01	9/24/92
SCANNER	1.00	9/24/92
SELPRINT	2.02	9/24/92
SYMBOLS	2.00	9/24/92
ZOOMEDIT	2.10	9/24/92

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 ✓

Side scan sonar equipment was not used on sheet AQ.

F. SOUNDING EQUIPMENT ✓

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

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>
2	2	220.4	167-169	56°45'54"N 156°56'07"W	163
3	3	231.1	172-180	56°46'17"N 156°57'11"W	179

* Both casts plot off the sheet limits

The sound velocity casts were acquired with SBE SEACAT Profiler S/N 220.

Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) #69. A printout of the Sound Velocity Corrector Tables used in the HDAPS Post Survey program is included in the "Separates to be Included with Survey Data, IV, Sounding Equipment Calibrations and Corrections".**

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-P180-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 AQ.

Offset Tables

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

** Filed with the hydrographic records.

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 project data for OPR-P180-RA.

Tide Correctors

Predicted tides for the project were provided on diskette by N/OES334 for the Ugaiushak, Alaska reference station (945-8553). Tidal correctors are:

	<u>TIME(min.)</u>		<u>RANGE RATIO</u>
	<u>High Water</u>	<u>Low Water</u>	
South Zone	0	0	X 1.00

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

Tide gages were installed and maintained by RAINIER personnel at Ugaiushak Island (945-8553), Foggy Cape, Sutwik Island (945-8582), and Cape Kunmik (945-8631). The control station was Sand Point, Alaska (945-9450). Bracketing levels will be completed by RAINIER personnel at the end of June, and the control station will be levelled at the conclusion of the project.

The station descriptions, field tide records, and Field Tide Notes will be forwarded to N/OES212, in accordance with HSG 50 and FPM 4.3, monthly and at the end of the project. Requests for approved tides will be forwarded to N/OES2. *Approved Tide Note dated February 18, 1994 is 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 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 "Summer 1993 Horizontal Control Report for OPR-P180-RA".

I. HYDROGRAPHIC POSITION CONTROL ✓

Method of Position Control

All soundings and features were positioned using differential GPS. Falcon was used solely for GPS system checks. Serial numbers for Falcon R/T units, RPU's and Ashtech GPS equipment are annotated on the data printouts.*

Calibrations & Systems Check Methods

Falcon 484

Baseline calibrations were conducted in accordance with FPM 3.1.2.1 and 3.1.3.2. Calibrations were performed at the MATTHEWS PARK BEACH BASELINE on May 4-7, 1993. Calibration data and a description of the baseline is included with project data for OPR-P180-RA.

* Filed with the hydrographic records.

Ashtech GPS

Station HYDRA was used as the VHF differential shore station. 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 the station.

Launch system checks were made by a direct comparison of the Falcon position with the GPS position. HDAPS Survey Screen Two was used for the Falcon comparison, and was dumped to the system printer to record the results. Three such dumps were made for each system check. System checks were made each day and results were transferred to forms which are included in the Project Data for OPR-P180. An abstract of the calibration results is included in the "Separates". *

Problems

None

Offset

The launch GPS antenna is mounted on the mast of the Falcon R/T unit. 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." *

J. SHORELINE ✓

There is no shoreline for this survey. Hydra Island is shown on the smooth sheet for orientation purposes only. It was transferred from the chart.

K. CROSSLINES ✓

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 14.8 nautical miles, representing 4.1% of the total mainscheme hydrography.

L. JUNCTIONS See Evaluation Report section 5.

This survey junctions with survey H-10477, sheet M (1:20,000, 1993) to the east, survey H-10482, sheet Q (1:20,000, 1993) to the west and H-10481, sheet AP, (1:10,000, 1993) to the north. No irregularities were found when comparing soundings and depth curves. H-10482 also junctions to the south.

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

M. COMPARISON WITH PRIOR SURVEYS See Evaluation Report, section 6

There were no prior surveys on sheet AQ.

N. ITEM INVESTIGATIONS ✓

None.

* Filed with the hydrographic records.

O. COMPARISON WITH THE CHART *See Evaluation Report, section 7.*

This survey was compared to NOS chart 16568, 9th Edition, March 25, 1992, 1:106,600 (NAD83).

The charted soundings were found to be in general agreement with this survey. Final comparisons will be made at PHS.

No AWOIS items were included in this survey.

Dangers to Navigation

One danger to navigation was identified within the limits of survey H-10495 and was reported to the Seventeenth Coast Guard District and DMAHTC. Copies of the radio message and correspondence are included in ~~in Appendix I~~ of this report.

P. ADEQUACY OF SURVEY ✓

This survey is complete and adequate to supersede the T-Sheets* and chart letters in the common areas. *Concur*
** There are no T-sheets common to the present survey.*

Q. AIDS TO NAVIGATION ✓

None.

R. STATISTICS ✓

<u>Vessel:</u>	<u>2120</u>	<u>2123</u>	<u>2124</u>	<u>2125</u>	<u>212</u>	<u>Total</u>
# of Pos	40	743	522	161	398	1864
NM Hydro	0	158.8	117.6	35.9	59.6	371.9
NM ² Hydrography	9.4					
Velocity Casts	2					
Detached Positions	0					
Tide Stations	4					
Reference Numbers	0					
Bottom Samples	37					

S. MISCELLANEOUS ✓

LORAN C comparisons were observed as required by the Project Instructions.

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>
Summer 1993 Horizontal Control Report for OPR-P180-RA	1993	N/CG2333
Summer 1993 Coast Pilot Report for OPR-P180-RA	1993	N/CG245
Project related data for OPR-P180-RA	Incremental	N/CG245

Respectfully Submitted,

April J. Caron

April J. Caron
Ensign, NOAA

Approved and Forwarded,

Russell C. Arnold

Russell C. Arnold
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 22 Jun 1993

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
100	F	056:44:35.925	157:00:57.249	36	250	0.0	0.0	0	05/26/93	HYDRA 1944(M/R & DCPS STATION)
101	F	056:45:36.294	156:51:13.289	17	250	0.0	0.0	5	05/27/93	TOEE
102	F	056:50:12.455	156:59:01.802	33	250	0.0	0.0	3	05/23/93	WOLFF
103	F	056:51:01.588	156:53:58.164	112	250	0.0	0.0	2	05/23/93	CENTRAL 1944
104	F	056:48:00.515	157:01:01.282	4	250	0.0	0.0	6	06/15/93	LONG 1944
105	F	056:46:55.025	157:08:22.740	20	250	0.0	0.0	5	06/22/93	EXTRA 1944

- F80 6/22

RLA
Foo

**ADVANCE
INFORMATION**

21:19, Wednesday, 30 June 1993
tPostOUT : McDaniel

P 302100Z JUN 93
FM NOAA S RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCCNAVWARN WASHINGTON DC//MCNM//
INFO NOAA MOP SEATTLE WA
ACCT CM-VCAA
BT
UNCLAS

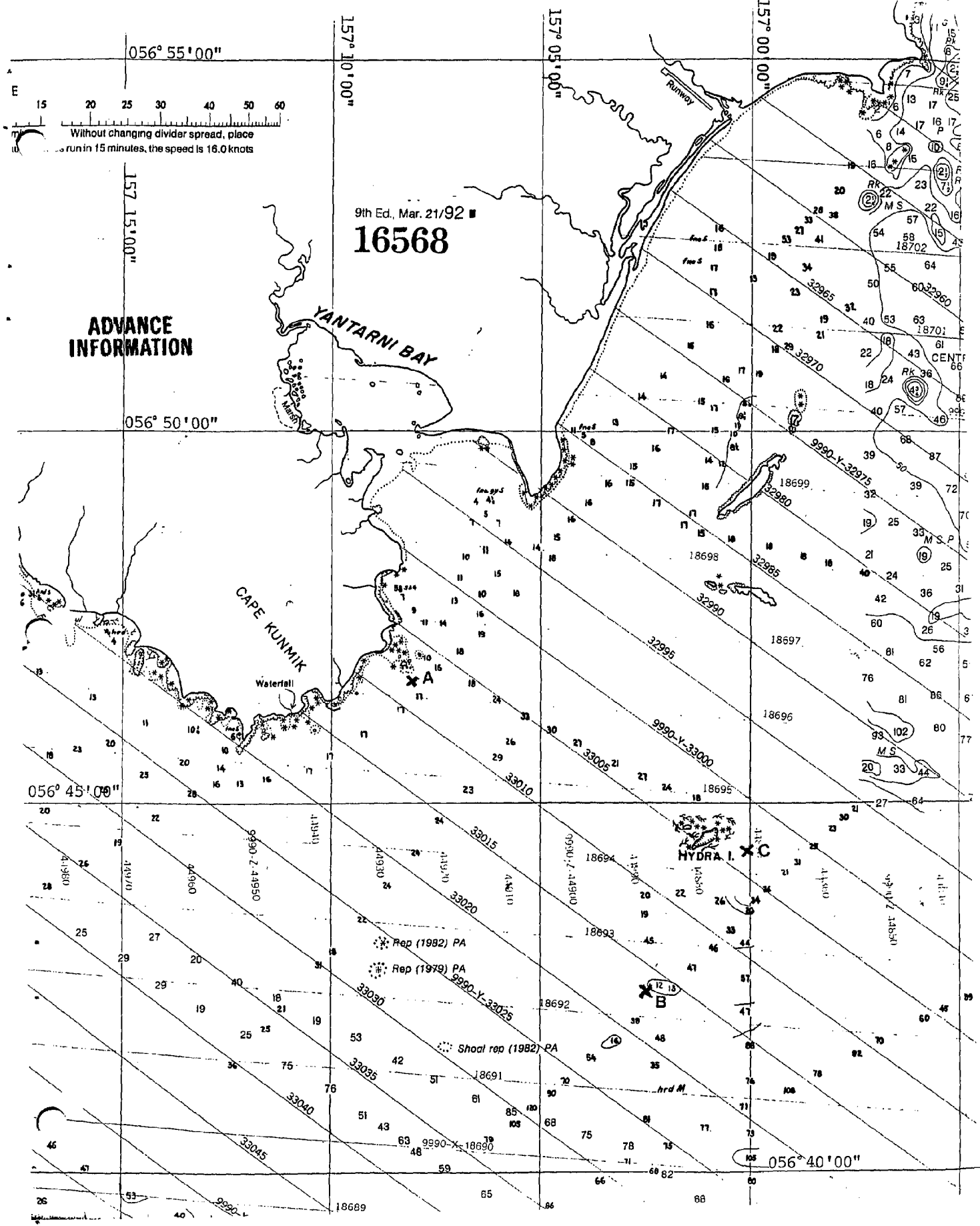
NOAA SHIP RAINIER HAS LOCATED 3 DANGERS TO NAVIGATION IN THE VICINITY OF YANTARNI BAY AND HYDRA ISLAND SOUTHERN ALASKA PENINSULA (PROJECT OPR-PI80-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEYS H-10479 AND H-10481. THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN THE LOCAL NOTICE TO MARINERS:

CHARTS AFFECTED: 16568 9TH ED MAR 21/92 1:106,600 NAD 83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	CHART	DEPTH	DEPTH	LATITUDE	LONGITUDE	FIX #
A.	SHOAL	16568	4 fms	CM 7	56/46/42.6N	157/07/56.6W	5920.3
B.	SHOAL	16568	5 1/4 fms	97	56/42/36.6N	157/02/26.5W	8262.40
C.	SHOAL	16568	5 1/2 fms	10°	56/44/28.5N	157/00/5.6W	6071.10

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



ADVANCE INFORMATION

056° 55' 00"

157° 15' 00"

9th Ed., Mar. 21/92

16568

056° 50' 00"

056° 45' 00"

056° 40' 00"

Without changing divider spread, place
run in 15 minutes, the speed is 16.0 knots

YANTARNI BAY

CAPE KUNMIK
Waterfall

HYDRA I.

Rep (1982) PA

Rep (1979) PA

Shoal rep (1982) PA

33030

33035

33040

33045

32995

32990

33000

33005

33010

33015

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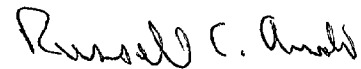
APPROVAL SHEET

for

H-10495
RA-10-19-93

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

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



Russell C. Arnold
Captain, NOAA
Commanding Officer



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: February 15, 1994

MARINE CENTER: Pacific

OPR: P180

HYDROGRAPHIC SHEET: H-10495

LOCALITY: Vicinity of Hydra Island, Shelikof Strait, Alaska

TIME PERIOD: June 16, 1993 - June 29, 1993

TIDE STATION USED: 945-8631 Cape Kunmik, Alaska
Lat. $56^{\circ} 47.5'N$ Lon. $157^{\circ} 07.5'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 1.01 feet

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 9.2 feet

REMARKS: RECOMMENDED ZONING

Times and heights are direct on Cape Kunmik, Ak. (945-8631).

NOTE: Hourly heights are tabulated on Greenwich Mean Time.

William M. Wilson
CHIEF, DATUMS SECTION



NOAA FORM 77-27(H) (9-83)		U.S. DEPARTMENT OF COMMERCE		REGISTRY NUMBER H-10495	
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, BS		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	1				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES				1	
SHORELINE DATA					
SHORELINE MAPS (List):					
PHOTOBATHYMETRIC MAPS (List):					
NOTES TO THE HYDROGRAPHER (List):					
SPECIAL REPORTS (List):					
NAUTICAL CHARTS (List):					
OFFICE PROCESSING ACTIVITIES <i>The following statistics will be submitted with the cartographer's report on the survey</i>					
PROCESSING ACTIVITY			AMOUNTS		
			VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET					1860
POSITIONS REVISED					
SOUNDINGS REVISED					
CONTROL STATIONS REVISED					
			TIME-HOURS		
			VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION					
VERIFICATION OF CONTROL					
VERIFICATION OF POSITIONS			43		43
VERIFICATION OF SOUNDINGS			15		15
VERIFICATION OF JUNCTIONS					
APPLICATION OF PHOTOBATHYMETRY					
SHORELINE APPLICATION/VERIFICATION					
COMPILATION OF SMOOTH SHEET			19		19
COMPARISON WITH PRIOR SURVEYS AND CHARTS				2	2
EVALUATION OF SIDE SCAN SONAR RECORDS					
EVALUATION OF WIRE DRAGS AND SWEEPS					
EVALUATION REPORT				28	28
GEOGRAPHIC NAMES					
OTHER*					
*USE OTHER SIDE OF FORM FOR REMARKS			TOTALS	77	30
					107
Pre-processing Examination by D. Haines			Beginning Date 6/13/93	Ending Date 9/16/93	
Verification of Field Data by R. Mihailov, R. Shipley, J. Stringham, D. Doles			Time (Hours) 77	Ending Date 7/28/94	
Verification Check by S. Otsubo			Time (Hours) 5	Ending Date 8/5/94	
Evaluation and Analysis by R. Mihailov			Time (Hours) 30	Ending Date 8/11/94	
Inspection by Bruce A. Olmstead			Time (Hours) 20	Ending Date 9/21/94	

EVALUATION REPORT

H-10495

1. INTRODUCTION

Survey H-10495 is a basic hydrographic survey accomplished by the NOAA Ship *Rainier*, under the following Project Instructions.

OPR-P180-RA, dated April 13, 1993
CHANGE NO. 1, dated April 23, 1993
CHANGE NO. 2, dated June 16, 1993

This survey was conducted in Alaska, and is located along the Southern Alaska Peninsula, approximately 80 NM southwest of Kodiak Island. The surveyed area is defined by latitude 56/43/45N to the north and latitude 56/41/15N to the south. The eastern limit is longitude 156/57/00W and the western limit is longitude 157/03/45W. There is no shoreline within the survey area. Hydra Island, which falls within the survey sheet limits, is shown for orientation purposes only. The bottom consists mainly of mud and broken shells. Depths range from 9.9 meters to 168 meters.

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 10, 40, and 90 meter. A note was added to the smooth sheet to identify these values. The 40 meter curve was revised to brown as the 10 meter and 90 meter curve were also blue.

Predicted tides for Ugaiushak, Alaska were used for the reduction of soundings during field processing. Approved hourly heights zoned from Cape Kunmik, Alaska, gage 945-8631 was 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 computations. The offset values and 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 complete information.

2. CONTROL AND SHORELINE

Sections H and I of the hydrographer's report contain adequate discussions of horizontal control and hydrographic positioning.

Additional detailed information on horizontal control is found in the Summer 1993 Horizontal Control Report for OPR-P180-RA.

Differential GPS (DGPS) was used to control this survey. Daily system checks by comparison with Miniranger positions confirmed the DGPS was operating properly. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. The quality of 67 positions exceeded the limit 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, suggests that none of these fixes are used to position dangers to navigation. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable.

The position of the horizontal control station used during hydrography is a published value based on NAD 83. The smooth sheet and accompanying overlays are annotated with NAD 27 adjustment ticks based on values determined with NGS program NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: -2.672 seconds (-82.647 meters)
Longitude: 7.353 seconds (125.068 meters)

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

There is no shoreline within the limits of the hydrography for survey H-10495. Hydra Island, which falls within the sheet limits, is shown in brown ink for orientation purposes only and was transferred from the chart.

3. HYDROGRAPHY

Hydrography is adequate to:

- a. delineate the bottom configuration, determine least depths, and draw the required 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.

4. CONDITION OF SURVEY

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

5. JUNCTIONS

Survey H-10495 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10477	1993	1:20,000	East
H-10481	1993	1:10,000	North
H-10482	1993	1:20,000	South and West

The junctions with surveys H-10477, H-10481, and H-10482 are complete and the soundings are in good agreement.

6. COMPARISON WITH PRIOR SURVEYS

Prior survey H-4506(1925) covers the entire area of the present survey. There are 14 charted soundings originating with the prior survey. The sounding agreement is generally good, with present survey depths shoaler between 2 and 31 meters. Differences can be attributed to increased line spacing and the less accurate positioning and sounding methods available at the time the prior survey was accomplished.

Survey H-10495 is adequate to supersede the prior survey within the common area.

7. COMPARISON WITH CHART

Survey H-10495 was compared to the following chart.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16568	9th	March 21, 1992	1:106,600	NAD83

a. Hydrography

Charted hydrography originates with a 1944 USC&GS reconnaissance survey (BP39180), a 1945 USC&GS reconnaissance survey (BP40351) and a 1925 USC&GS survey (H-4506).

Comparison with the chart and survey BP39180 indicates good agreement, with the present survey shoaler. Agreement with survey BP40351 is poor, as the two charted soundings common to the area differ between 103 and 108 meters with the present survey shoaler. Differences can be attributed to the small scale of survey BP40351 (1:80,000) and less accurate positioning and sounding methods available at the time the USC&GS reconnaissance survey was performed.

Survey H-10495 is adequate to supersede charted hydrography within the common area.

b. AWOIS

There are no AWOIS items located within the survey area.

c. Controlling Depths

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

d. Aids to Navigation

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

There are no features of landmark value located within the area 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

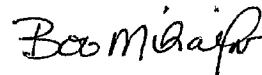
The hydrographer reported one shoal as a danger to navigation to the 17th U.S. Coast Guard District, DMAHTC and N/CG221 during the survey. A copy of this report is attached. No additional dangers to navigation were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10495 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is a good hydrographic survey. No additional work is recommended.



Bob Mihailov
Cartographer

APPROVAL SHEET
H-10495

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproval of charted data. The digital data have been completed and all revisions and processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts have been made and are included with the survey records. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

for Bruce A. Olmstead
_____ Date: 9/23/94
Dennis J. Hill
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Kathy Timmons
_____ Date: 9/27/94
Commander Kathy Timmons, NOAA
Chief, Pacific Hydrographic Section

Final Approval

Approved:

J. Austin Yeager
_____ Date: 12-9-94
for J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

