

H-10552

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-10-10-94
Registry No. H-10552

LOCALITY

State Alaska
General Locality Alaska Peninsula
Sublocality Southeast of Sutwik Island

1994

CHIEF OF PARTY

CAPT R.C. Arnold

LIBRARY & ARCHIVES

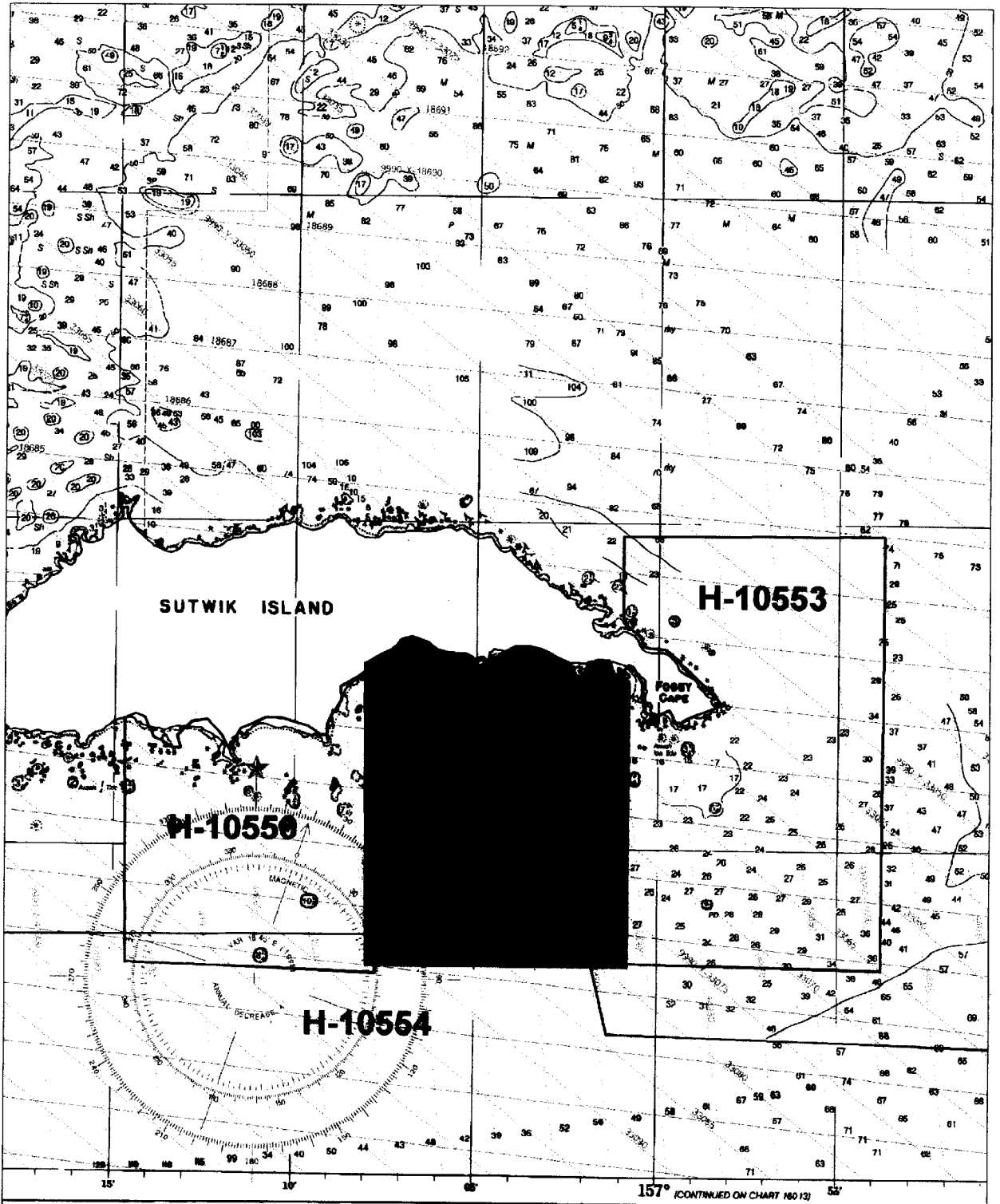
DATE March 22, 1996

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTER NO. H-10552
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-10-10-94
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State Alaska
 General locality Alaska Peninsula
 Locality Southeast of Sutwik Island
 Scale 1:10,000 Date of survey June 27, 1994 - July 25, 1994
 Instructions dated May 5, 1994 Project No. OPR-P180-RA
 Vessel RAINIER (2120), RA-3(2123), RA-4(2124), RA-5(2125), RA-6(2126), RA-9(2129)
 Chief of party CAPT Russell C. Arnold, NOAA
 Surveyed by CAPT R. Arnold, LT D. Neander, LT D. Haines, LTJG D. Lemke, ENS A. Caron, ENS G. Glover, ENS S. Smith, ENS S. Maenner, SST J. Fleischmann, ST M. Frost
 Soundings taken by echo sounder, hand lead, pole DSF-6000N, Innerspace 448
 Graphic record scaled by RAINIER Personnel
 Graphic record checked by RAINIER Personnel
 Evaluation by: B. Mihailov Automated plot by HP Design Jet 550L
~~Processed by~~
 Verification by E. Domingo
 Soundings in ~~feet~~ Meters & Decimeters at ~~MLW~~ MLLW

REMARKS: All times 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.
SURF/AWOLIS 3/26/96 MCR



SUTWIK ISLAND

H-10553

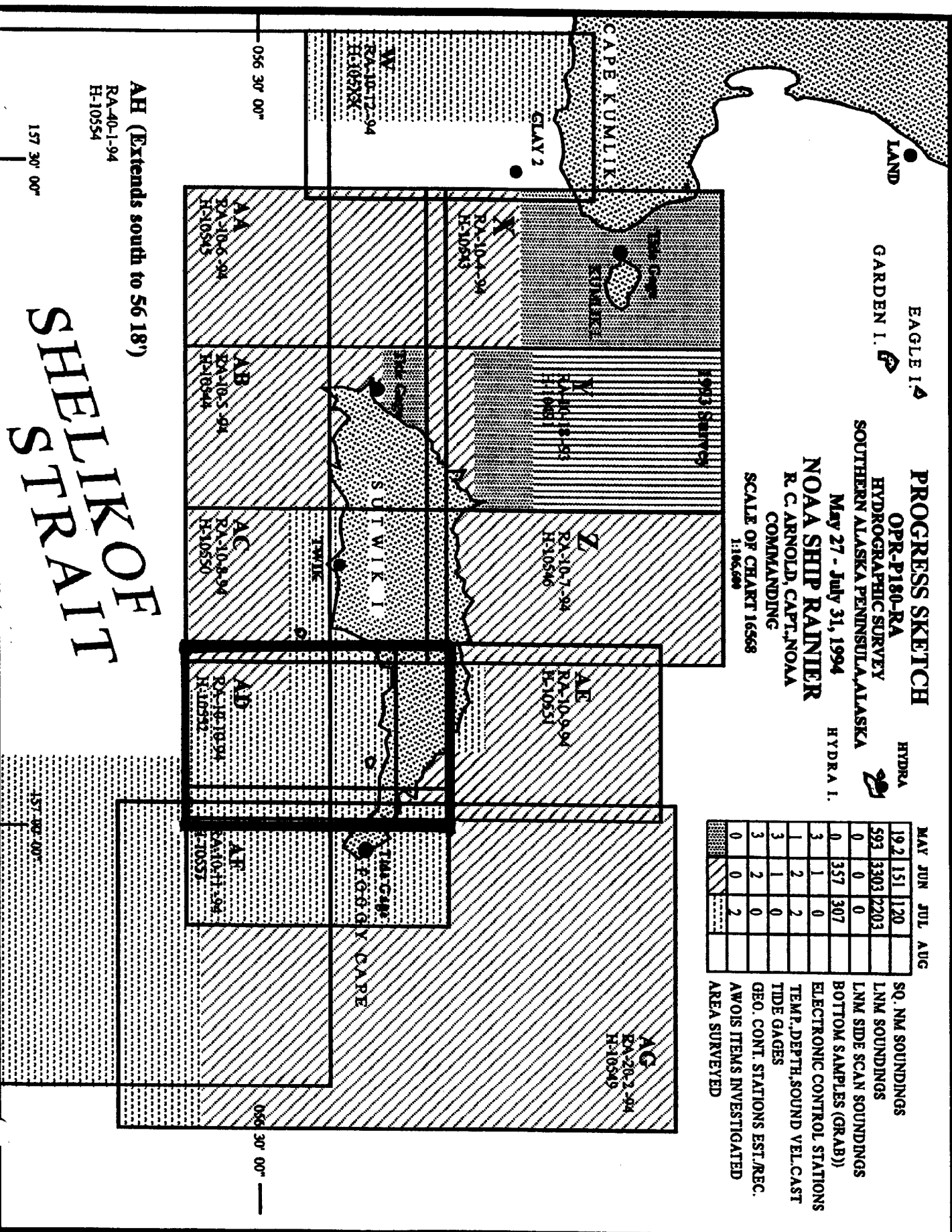
H-10550

H-10554

157° (CONTINUED ON CHART 16012)

SOUNDINGS IN FATHOMS

Published at:
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL CENTER FOR ENVIRONMENTAL OCEANOGRAPHY
COAST AND GEODETIC SURVEY



PROGRESS SKETCH
OPR-P180-RA
 HYDROGRAPHIC SURVEY
 SOUTHERN ALASKA PENINSULA, ALASKA
 May 27 - July 31, 1994
NOAA SHIP RAINIER
 R. C. ARNOLD, CAPT., NOAA
 COMMANDING
 HYDRA I.

SCALE OF CHART 16568
 1:165,600

	MAY	JUN	JUL	AUG
19.2	151	120		
593	3303	2203		
0	0	0		
0	357	307		
3	1	0		
1	2	2		
3	1	0		
3	2	0		
0	0	2		

SO. NM SOUNDINGS
 LNM SOUNDINGS
 LNM SIDE SCAN SOUNDINGS
 BOTTOM SAMPLES (GRAB)
 ELECTRONIC CONTROL STATIONS
 TEMP. DEPTH, SOUND VEL. CAST
 TIDE GAGES
 GEO. CONT. STATIONS EST./REC.
 AWOIS ITEMS INVESTIGATED
 AREA SURVEYED

AH (Extends south to 56 18')
 RA-40-1-94
 H-10554

SHELLIKOFF STRAIT

157 30' 00"

157 00' 00"

056 30' 00"

056 30' 00"

RA-10-17-94
 H-10553

RA-10-4-94
 H-10553

GLAY 2

RA-10-6-94
 H-10553

RA-10-5-94
 H-10554

RA-10-8-94
 H-10550

RA-10-9-94
 H-10551

RA-10-11-94
 H-10551

RA-20-2-94
 H-10549

Descriptive Report to Accompany Hydrographic Survey H-10552

Field Number RA-10-10-94

Scale 1:10,000

June-July 1994

NOAA Ship RAINIER

Chief of Party: Captain Russell C. Arnold

A. PROJECT ✓

This basic hydrographic survey was completed along the Southern Alaska Peninsula, Alaska, as specified by Project Instructions OPR-P180-RA dated May 5, 1994.

Survey H-10552 corresponds to "sheet AD" 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 Eval Rpt, Section B

The survey area is located along the Southern Alaska Peninsula, southwest of Kodiak Island. The survey's northern limit is bounded by the south shore of Sutwik Island, and the southern limit is latitude 56° 28.3' N. The eastern and western limits are bounded by longitudes 157° 01.0' W and 157° 08.0' W. The shoreline is rocky with numerous rocks, ledges and reefs.

Data acquisition was conducted from June 27, 1994, Day Number (DN 178), through July 25, 1994, DN 206.

C. SURVEY VESSELS ✓

Data were acquired by the NOAA SHIP RAINIER, four survey launches and a Munson Hammerhead skiff as noted below:

<u>Vessel</u>	<u>EDP #</u>	<u>Operation</u>
RAINIER	2120	Sound Velocity Casts Bottom Samples
RA-3	2123	Hydrography Shoreline Verification
RA-4	2124	Hydrography Shoreline Verification
RA-5	2125	Hydrography Bottom Samples

RA-6	2126	Hydrography Shoreline Verification
RA-9	2129	Hydrography

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

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

<u>HDAPS 1994</u> <u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
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	2.13	5/12/94
CLASSIFY	1.05	3/7/94
CONVERT	3.62	3/7/94
DAS_SURV	6.70	5/12/94
DIAGNOSE	3.04	5/12/94
DISC-UTIL	1.00	3/7/94
DP	2.14	3/7/94
EXCESS	4.21	3/7/94
FILESYS	3.24	5/12/94
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	6.01	3/7/94
PLOTALL	2.27	5/12/94
POINT	2.10	3/7/94
PREDICT	2.01	3/7/94
PRESURV	7.08	5/12/94
PRINTOUT	4.03	5/3/94
QUICK	2.05	5/12/94
RAMSAVER	1.02	3/7/94
REAPPLY	2.10	3/7/94
SCANNER	1.00	3/7/94
SELPRINT	2.04	3/7/94
SYMBOLS		3/7/94
VERSIONS	1.00	3/7/94
ZOOMEDIT	2.24	5/12/94

<u>HYPACK Program Name</u>	<u>Version</u>	<u>Date Installed</u>
HYPACK.EXE	4.16	2/24/94
PLOTFILE.EXE	4.16	2/25/94
SETUP.EXE	4.16	2/15/94
VIEW.EXE	4.16	12/12/93
DESIGN.EXE	4.16	2/1/94
VOLUME.EXE	4.16	1/27/94
FORGP.EXE	4.16	11/12/93
NAVITRACK.EXE	4.16	2/1/93
CONTPICK.EXE	4.16	12/8/92
DIGITIZE.EXE	4.16	1/12/94
HYDROLIN.EXE	4.16	8/20/93
UPLOAD.EXE	4.16	8/12/92
TESTFIG.EXE	4.16	11/30/93
INVERSE.EXE	4.16	11/12/94
NAV.EXE	4.16	2/21/94
DATUM.EXE	4.16	11/23/94
GRIDCONV.EXE	4.16	12/21/93
DXF.EXE	4.16	2/11/94
MENUCOLO.EXE	4.16	8/12/92
IOTEST.EXE	4.16	2/22/94
TRANS.EXE	4.16	1/6/94
OVERLAY.EXE	4.16	5/19/93
UNITCONV.EXE	4.16	11/12/93
POINTFIG.EXE	4.16	11/12/93
TRACKS.EXE	4.16	12/12/93
MANDIG.EXE	4.16	9/30/92
DATADIRS.EXE	4.16	12/17/93
COM1SET.EXE	4.16	9/15/92
NEWSETUP.EXE	4.16	2/22/94
IONEW.EXE	4.16	2/9/94
MANAGER.EXE	4.16	12/13/93
PRINTFIG.EXE	4.16	10/25/93

Some data were collected using a Munson Hammerhead Skiff equipped with a laptop computer, Coastal Oceanographics HYPACK data acquisition software, standard Ashtech DGPS, and an Innerspace 448 fathometer.

Post processing was conducted using the HDAPS HP system. HYPACK files were translated to a PC-DAS format using a modified PowerBasic program provided by N/CG24. The PowerBasic program, CONV_HYP.BAS, was run through an accompanying batch routine called HYPCON.BAT (2/14/94). OSWEGO HPCOPY was used to copy the data onto a HP formatted disk. Data were then processed in the same manner as PC-DAS on the HP system.

In addition, the following batch routine, GPSINIT.BAT(5/19/94), was used to initialize the Ashtech GPS receiver.

Velocity corrections were determined using:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
VELOCITY	2.10	15 Mar 1994

E. SONAR EQUIPMENT ✓

Sonar equipment was not used on sheet AD.

F. 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. The InnerSpace 448, serial number 300, is a single frequency thermal depth sounder recorder (208 kHz). No problems which affect survey data were encountered. All DSF-6000N soundings were acquired using the High + Low, high frequency digitized setting.

G. CORRECTIONS TO ECHO SOUNDINGS ✓

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

<u>Velocity Table #</u>	<u>Cast#</u>	<u>DN</u>	<u>Cast Position</u>	<u>Deepest Depth</u>	<u>Applicable DN</u>	
3	3	172	56°36'08" N 157°10'08" W	240	171 - 176	180 off sheet limits
4 14	4	188 188	56°36'18"N 157°05'06"W	257	187 - 196	187 - 196 off sheet limits
5 15	5	207 207	56°28'49"N 157°25'55"W	225 225	200 - 206	200 - 206 off sheet limits

The sound velocity casts were 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".

Static Draft

A transducer depth was determined using FPM Fig 2.2 for launches 2123, 2124, 2125, 2126 and 2129 in the spring of 1994 and was entered into 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. 2.3, and are included with project data for OPR-P180-RA. The data used was collected in Shilshole Bay, Washington in March of 1994.

* Filed with the hydrographic records

Offset Tables ✓

Offset tables contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset tables 3-6 and 9 correspond to the number of the launch. The offset tables were compiled with new measurements in the spring of 1994 and are contained in the "Separates to be Included with Survey Data". *

Heave

The launches are not equipped with heave, pitch and roll sensors. Data acquired during periods of significant sea action were scanned to account for inaccuracies caused by heave. *Data was analyzed during office processing and found to contain no significant discrepancies.*

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-P180-RA. Bar checks were performed weekly and served as a functional check of the DSF-6000N and the InnerSpace 448.

Tide Correctors

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

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

<u>Time Correction</u>	<u>Height Correction</u> <u>Range Ratio</u>
0 hr 0 min.	X0.95

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

RAINIER personnel installed an 8200 digital gage at Foggy Cape (945-8582) on June 4, 1994, DN 155. Opening levels were conducted upon installation. Only two of the three hours of opening observations were able to be completed due to inclement weather. Closing levels will be completed by RAINIER personnel at the conclusion of the project.

RAINIER personnel installed an 8200 digital gage at West End Sutwik Island (945-8665) on May 28, 1994, DN 148. Opening levels were conducted upon installation. Closing levels will be completed by RAINIER personnel at the conclusion of the project.

The control station was Sand Point, Alaska (945-9450). Opening levels of the control station were performed by RAINIER personnel on May 21 and 22, 1994. Closing levels at Sand Point, Alaska will be completed by the Pacific Operation Section N/OES214 during their annual visit in late July as per phone conversation with Mr. Mike Gibson (OES212).

* Filed with the hydrographic records.

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 June. The final tide package will be forwarded to N/OES212 at the conclusion of the project. A request for approved tides was forwarded to N/OES2 in accordance with FPM 4.2.3. Approved Tide Note dated October 28, 1994 is attached.

H. CONTROL STATIONS ✓ See Eval Rpt, Section H

A listing of the geodetic stations used to control this survey is included in ~~Appendix III~~ of this report. The horizontal datum for this project is NAD83.

DGPS stations were setup on existing stations CLAY 2 and HYDRA. Station CLAY 2 is located on an islet south of Cape Kumlik, and station HYDRA is located on Hydra Island. These stations were recovered in accordance with methods stated in Section 5.2.4 of the FPM. Additional information is contained in the "Summer 1994 Horizontal Control Report", which will be submitted at the end of the project.

An additional DGPS station, TWIK, was established by RAINIER personnel on a small peninsula on the south shore of Sutwik Island. This station was positioned to Third-Order Class I accuracy using static GPS methods. Existing stations LAND and CLAY2 were used as control stations. For further information see the "Summer 1994 Horizontal Control Report", which will be submitted at the end of the project.

I. HYDROGRAPHIC POSITION CONTROL ✓ See Eval Rpt, Section I

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.*

Ashtech GPS ✓

VHF differential shore stations were established at stations TWIK, CLAY 2 and HYDRA. 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-P180-RA". The scatterplot results for station HYDRA was obtained last year. The area around station HYDRA remains undeveloped, and the geography unchanged.

Problems ✓

None

Calibrations & Systems Check Methods ✓

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 performed on a weekly basis. The results were transferred to forms which are included in the project data for OPR-P180. 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 hydrographic records.

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". *

J. SHORELINE See Eval Rpt, section J

The shoreline map (T-sheet) used to transfer shoreline detail to the final sheets was TP-01158 (enlarged to 1:10,000 from 1:20,000, NAD 27).

Shoreline verification was conducted near predicted lower low water in accordance with FPM 7.1. Shoreline verification was accomplished by assigning sequential reference numbers and taking detached positions (DPs), as explained later in this section. ✓

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 and features not found on the T-sheet. 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 where possible. Where such information would interfere with the legibility of the final plot the appropriate cartographic symbol has been transferred, but height and position number information remains on the rough plot, which serves as an overlay (FPM 6.1.2.5). Verified T-sheet features were retained and shown in black. Changes to the shoreline were shown in red and new features are depicted in black. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in meters and are corrected to predicted MLLW. No changes to the MLLW shoreline are shown on smooth sheet. ✓

Changes and New Features

Many new features and changes to the T-sheet shoreline were found and are depicted on the final field plot. Ledges were found to extend further than their depicted positions on the T-sheet, and the T-sheet rocks were often identified as high points of ledges or reefs. The new features and revisions offshore of the mean high water line have been shown on the smooth sheet as warranted. ✓

Numerous rocks and shoals exist along the southern shore of Sutwik Island inside the 20-meter curve. A predominant swell from the southeast coupled with sparse T-sheet information made this a dangerous area to work. ✓

The hydrographer believes that sufficient information has been portrayed on the final field sheet to characterize the general area as one where you can pick your way through the rocks in a small boat on a calm day. This generally foul area warrants no further risks or effort on the part of the hydrographer. ✓

* Filed with the hydrographic records.

Recommendations ✓

The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information compiled on T-sheet TP- 01158. *Concur*

Charted Features

Charted rocks were either identified as T-sheet rocks, high points or extensions of T-sheet ledges and reefs except as noted below.

The two rocks discussed below depicted on NOS chart 16568 (1:106,600) originated from USGS Quad Sutwik Island (1:63,360, 1963).

One rock in the vicinity of latitude 56°31'57" N, longitude 157°07'15"W was not found. Hydrography (25-m line spacing) revealed no indication of this rock. Depths in the vicinity were 7 - 15 meters.

The second rock, in the vicinity of latitude 56°32'30" N, longitude 157°04'00" W, lies inshore within 200-meters of two T-sheet rocks.

Recommendations ✓

The hydrographer recommends that shoreline detail from this survey be used to supersede charted shoreline information. ~~Concur~~

K. CROSSLINES ✓

Crosslines are within 1-2 meter agreement with mainscheme hydrography. Crosslines totaled 22.0 nautical miles, representing 6.6% of the total mainscheme hydrography.

L. JUNCTIONS ✓ *See Eval Rpt, section L*

This survey junctions with survey H-10550 (1:10,000, 1994) to the west, H-10549 (1:20,000, 1994) to the southeast, H-10553 (1:10,000, 1994) to the east, and H-10554 (1:40,000, 1994) to the south. These soundings were found to be in general agreement with this survey.

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

M. COMPARISON WITH PRIOR SURVEYS ✓ *See Eval Rpt, section M*

Two prior surveys were compared: H-6925 (1:20,000, 1943) and FE-104 (1:20,000, 1952). Sparse soundings from these prior surveys were in general agreement with the present survey. However, the present survey, due to much greater sounding density, revealed numerous shoal soundings not found during the prior surveys. There were no instances where prior survey soundings were shoaler in a corresponding area.

Final comparisons will be conducted by PHS.

N. ITEM INVESTIGATIONS ✓

There were no item investigations on sheet AD. *Concur*

O. COMPARISON WITH THE CHART ✓

This survey was compared to NOS chart 16568, 9th Edition, March 21, 1992, 1:106,600 (NAD83). The charted soundings were found to be in general agreement with this survey.

Non-sounding charted features are discussed in Section J, Shoreline.

Final comparisons will be made at PHS.

Dangers to Navigation ✓

Seven dangers to navigation within the limits of this survey were reported to the Seventeenth Coast Guard District on July 29, 1994. Copies of the correspondence can be found in Appendix I of this report.

P. ADEQUACY OF SURVEY ✓

Prior to final approval, survey H-10552 is complete and adequate to supersede charted depths and Concur features in their common areas.

Q. AIDS TO NAVIGATION ✓

None

R. STATISTICS ✓

<u>Vessel:</u>	<u>2120</u>	<u>2123</u>	<u>2124</u>	<u>2125</u>	<u>2126</u>	<u>2129</u>	<u>Total</u>
Number of Positions	52	1108	1071	556	863	201	3851
NM Hydrography	0	145.8	189.6	96.1	159.3	5.2	596.0

Velocity Casts	3
Detached Position	45
Bottom Samples	56
Tide Stations	2
NM ² Hydrography	19

S. MISCELLANEOUS ✓

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

No tidal current predictions are available within the sheet limits.

No unusual magnetic variations were noted.

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 1994 Horizontal Control Report for OPR-P180-RA	August 1994	N/CG245
Summer 1994 Coast Pilot Report for OPR-P180-RA	August 1994	N/CG245
Project related data for OPR-P180-RA	Incremental	N/CG245

Respectfully Submitted,


April J. Caron
Ensign, NOAA

Approved and Forwarded,


Russell C. Arnold
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 9 Jul 1994

No	Type	Latitude	Longitude	H	Cart	Freq	Vel Code	MM/DD/YY	Station Name
100	F	056:45:19.732	157:29:28.737	42	250	0.0	0.0	05/24/94	LAND(DGPS), 1945
101	F	056:44:35.925	157:00:57.242	50	250	0.0	0.0	05/24/94	HYDRA(DGPS)
102	F	056:36:08.811	157:29:12.200	44	250	0.0	0.0	05/24/94	CLAY 2(DGPS), 1982
103	F	056:31:22.546	157:11:42.067	35	250	0.0	0.0	06/03/94	TWIK(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

July 29, 1994

**ADVANCE
INFORMATION**

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

Dear Sir:

Attached is a confirmation copy of the radio messages 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,

A handwritten signature in cursive script that reads "Russell C. Arnold".

Russell C. Arnold
Captain, NOAA
Commanding Officer

Enclosures

cc: DMAHTC
N/CG221
PMC



DN6AFAD

P 14 Z JUL 94
FM NOAA S RAINIER
TO CCGDSEVENTEEN JUNEAU AK
MAHTCCNAVWARN WASHINGTON DC//MCNM//
INFO NOAA MOP SEATTLE WA
ACCT CM-VCAA

ADVANCE
INFORMATION

BT
UNCLAS

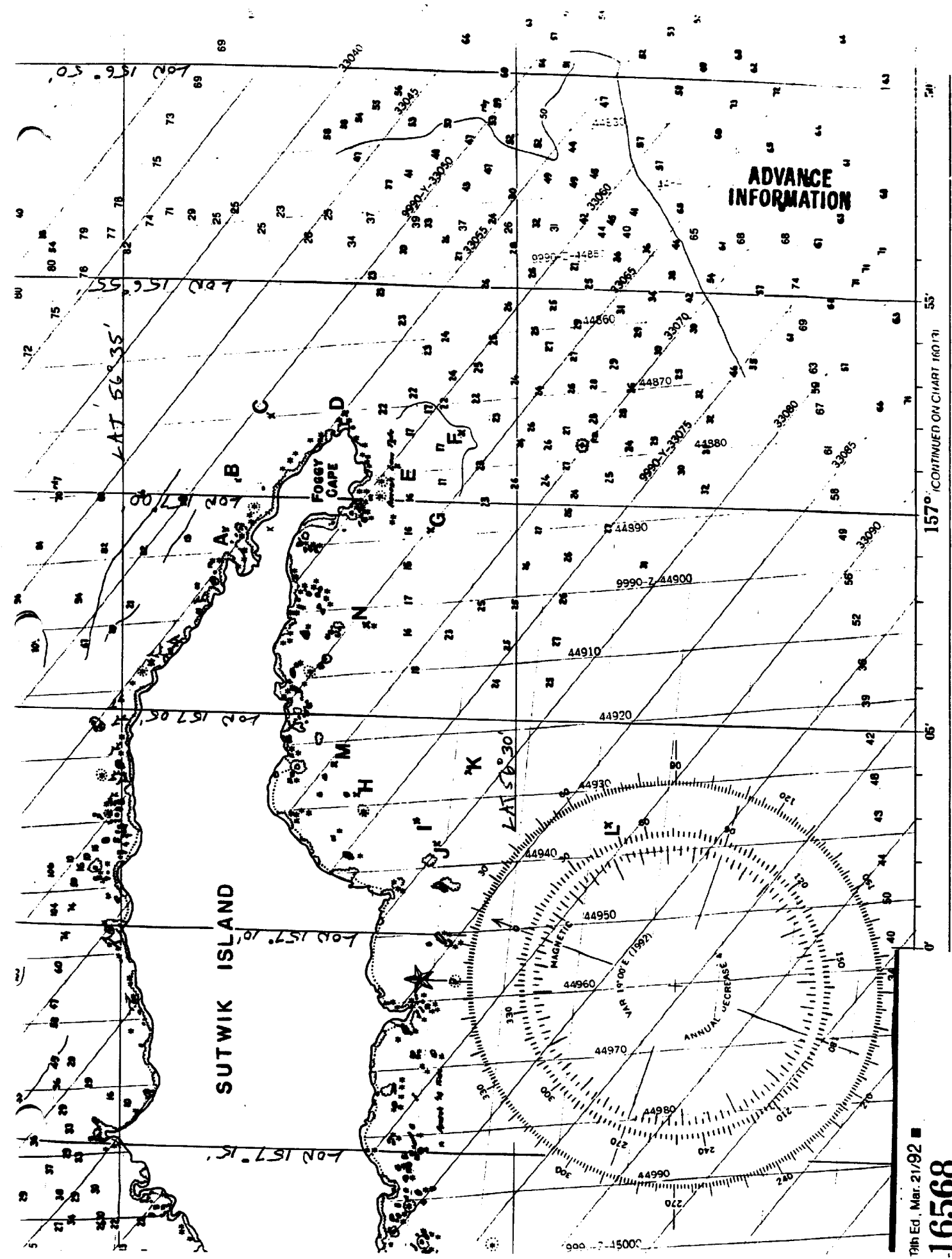
NOAA SHIP RAINIER HAS LOCATED 14 DANGERS TO NAVIGATION IN SOUTHERN ALASKA PENINSULA, ALASKA (PROJECT OPR-P180-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEYS H-10553 AND H-10552. THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

CHART AFFECTED: 16568 9TH ED MAR 21/92 1:106,600 (NAD83)

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	DEPTH	LATITUDE	LONGITUDE	Loss	Depth
SURVEY H-10553						
A.	SHOAL	COVERS 1 1/2 FMS	56/33/39.5N	157/00/45.0W	8367.2	2 ⁹
B.	SHOAL	COVERS 3 FMS	56/33/31.0N	156/59/35.0W	8589.7	5 ⁵
C.	ROCK	UNCOVERS 2 FT	56/33/07.0N	156/58/40.0W	809.0	(0 ⁴)
D.	REEF	AWASH	56/32/12.0N	156/58/03.0W	4014, 4015	(0 ³)
E.	SHOAL	COVERS 3 1/4 FMS	56/31/32.0N	156/59/11.0W	5561.9	6 ¹
F.	SHOAL	COVERS 5 3/4 FMS	56/30/39.5N	156/58/24.0W	8193.6	10 ⁶
G.	SHOAL	COVERS 3/4 FMS	56/31/05.0N	157/00/39.0W	3450.9	1 ⁵
SURVEY H-10552						
.	SHOAL	COVERS 2 3/4 FMS	56/32/04.5N	157/06/48.0W	1597.3	5 ³
I.	ROCK	UNCOVERS 3 FT	56/31/17.5N	157/07/26.0W	3364.0	(0 ⁸)
J.	SHOAL	COVERS 1 1/4 FMS	56/31/00.0N	157/07/57.0W	3329.9	2 ⁶
K.	SHOAL	COVERS 8 1/4 FMS	56/30/36.0N	157/06/08.0W	4104.5	15 ¹
L.	SHOAL	COVERS 7 1/2 FMS	56/28/49.5N	157/07/21.0W	5895.3	14 ⁰
M.	SHOAL	COVERS 1 1/4 FMS	56/32/18.5N	157/06/12.0W	3506.7	2 ⁶
N.	ROCK	UNCOVERS 6 FT	56/31/53.0N	157/02/56.0W	7879.9	(1 ⁹)

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



**ADVANCE
INFORMATION**

157° (CONTINUED ON CHART 16013)

SUTWIK ISLAND

7th Ed., Mar. 21/92

16568

NO. 16568

APPROVAL SHEET

for

H-10552
RA-10-10-94

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 20810

ORIGINAL

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: October 28, 1994

MARINE CENTER: Pacific

OPR: P180

HYDROGRAPHIC SHEET: H-10552

LOCALITY: Three NM Southwest of Foggy Cape, Shelikof Strait,
Alaska

TIME PERIOD: June 27 - July 26, 1994

TIDE STATION USED: 945-8582 Foggy Cape, Sutwik Island,
Alaska
Lat. $56^{\circ} 32.2'N$ Lon. $156^{\circ} 58.5'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 3.36 feet

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 9.0 feet

REMARKS: RECOMMENDED ZONING

Times and heights are direct on Foggy Cape, Sutwik Island, Ak.
(945-8582).

NOTES: Hourly heights are tabulated on Greenwich Mean Time.
The data for Foggy Cape, Sutwik Island, Ak. (945-8582)
is stored in the Next Generation Water Level Measurement
System temporary file #745-8582.

William M. Hobbs
CHIEF, DATUMS SECTION



HYDROGRAPHIC SURVEY STATISTICS

H-10552

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		
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):
- PHOTOBATHYMETRIC MAPS (List):
- NOTES TO THE HYDROGRAPHER (List):
- SPECIAL REPORTS (List):
- NAUTICAL CHARTS (List):

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			3851	
POSITIONS REVISED				
SOUNDINGS REVISED				
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	46		46	
VERIFICATION OF SOUNDINGS	26		26	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	176		176	
COMPARISON WITH PRIOR SURVEYS AND CHARTS				
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		40	40	
GEOGRAPHIC NAMES				
OTHER*				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	248	40	288

Pre-processing Examination by LT M. Larsen	Beginning Date 6/27/94	Ending Date 8/23/94
Verification of Field Data by E. Domingo, J. Stringham, B. Mihailov	Time (Hours) 248	Ending Date 9/25/95
Verification Check by B. Olmstead, J. Stringham	Time (Hours) 3	Ending Date 12/7/95
Evaluation and Analysis by B. Mihailov	Time (Hours) 40	Ending Date 11/24/95
Inspection by B.A. Olmstead	Time (Hours) 7	Ending Date 12/12/95

**EVALUATION REPORT
H-10552**

A. PROJECT

Project information is discussed in the hydrographer's report.

B. AREA SURVEYED

This survey was conducted in Alaska, and is located along the Southern Alaska Peninsula, approximately eighty nautical miles southwest of Kodiak Island. The surveyed area is bounded by Sutwik Island to the north and latitude 56/28/00N to the south. Specifically, the survey area includes the southeastern portion of shoreline along Sutwik Island and extends southward five nautical miles. The area is characterized by alongshore ledges, isolated reefs and rocks. Numerous rock pinnacles rising at or near surface levels were found from the foreshore area to depths of twenty meters. The bottom consists mainly of sand and broken shells. Depths range from 0 meters to 88 meters.

C. SURVEY VESSELS

Survey vessel information is found in the hydrographer's report.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data were processed using the same Hydrographic Data Acquisition/Processing System (HDAPS) software used by the hydrographer, the Hydrographic Processing System (HPS) and AutoCad, Version 12.0.

At the time of the survey certification the format for transmission of digital data had not been formally approved. In the interim, digital data for this survey exists in the standard HPS format which is a database format using the .dbf extension. In addition, the sounding plot was created with .dbf (extension) and enhanced using the AutoCad system, are filed both in the AutoCad drawing format, .dwg (extension); and in the more universally recognized graphics transfer format, .dxf (extension). Copies of these files will be retained at PHB until data transfer protocols are developed and improved.

The drawing files necessarily contain information which is not part of the HPS data set such as geographic names text, line-type data, and minor symbolization. In addition, those soundings deleted from the drawing for clarity purposes, remain unrevised in the HPS digital files to preserve the integrity of the original hydrographic data set. Cartographic codes used to describe the digital data are those authorized by Hydrographic Survey Guideline No. 75.

The field sheet parameters have been revised to center the hydrographer on the office plot. The data is plotted using a Modified Transverse Mercator projection and are depicted on a single sheet.

E. SONAR EQUIPMENT

Side scan sonar was not used on survey H-10552.

F. SOUNDING EQUIPMENT

Sounding equipment is discussed in the hydrographer's report.

G. CORRECTIONS TO SOUNDINGS

The sounding data have been reduced to Mean Lower Low Water (MLLW). The reducers include corrections for actual tides, dynamic draft, and sound velocity. These reducers have been reviewed and are consistent with NOS specifications. Actual tide reduction is derived from the Foggy Cape, Sutwik Island, Alaska gage (945-8582).

H. CONTROL STATIONS

Control stations are discussed in the hydrographer's report and separates. A list of control stations used on survey H-10552 is attached to this report.

The positions of horizontal control stations used during hydrographic operations are published values based on NAD 83. The geographic positions of all survey data are based on NAD 83. The smooth sheet is annotated with an NAD 27 adjustment tick based on values determined with the NGS program NADCON.

Data based on NAD 27 may be referenced to this survey by applying the following corrections:

Latitude: -2.693 seconds (-83.289 meters)
Longitude: 7.281 seconds (124.523 meters)

The year of establishment of the control stations originates with the above mentioned horizontal control report and the hydrographer's signal list.

I. HYDROGRAPHIC POSITION CONTROL

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. No positions exceeded this limit. Additional information concerning calibrations and system checks can be found in the hydrographer's report and in the separates related to Horizontal Position Control and Corrections to Position Data.

J. SHORELINE

The following registered shoreline map compiled on NAD 27 applies to this survey.

<u>Map Number</u>	<u>Photo Date</u>	<u>Scale</u>
TP-01158	July 1982 August 1983	1:20,000

Shoreline drawn on the smooth sheet originates from a 1:10,000 scale photographic enlargement of the shoreline map.

Shoreline from TP-01158 was digitized at PHB and merged with the survey file during office ACAD processing. There were no changes to the photogrammetric mean high water line. Changes to alongshore and offshore features shown on the shoreline manuscript were verified and revised as warranted during survey operations. These changes have been shown on the smooth sheet.

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10552 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10549	1994	1:20,000	South
H-10550	1994	1:10,000	West
H-10553	1994	1:10,000	East
H-10554	1994	1:40,000	South

The junctions with surveys H-10549, H-10550, H-10553 and H-10554 are complete. There is good agreement between depth curves and soundings within the common areas.

M. COMPARISON WITH PRIOR SURVEYS

H-6925 & Ad. Wk. (1943-44) 1:20,000
FE-104 (1952) 1:20,000

Survey H-6925 (1943) and FE-104 (1952) cover the entire area of the present survey. Soundings from these prior surveys are sparse. Comparison with these prior surveys reveals differences of 1-5 meters (0.5-2.5 fathoms). There is no apparent pattern as to shoaling or an increase in depths. Differences can be attributed to increased bottom coverage and less accurate positioning and sounding methods available in 1943 and 1952.

Survey H-10552 is adequate to supersede the prior surveys within the common area.

N. ITEM INVESTIGATIONS

There were no item investigations assigned to survey H-10552.

O. COMPARISON WITH CHART

Survey H-10552 was compared with the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16568	10th	February 18, 1995	1:106,600	NAD83

a. Hydrography

Charted miscellaneous source data originates from Sutwik Island (C-4), 1963, USGS Quad, T-4153 (1925), USC&GS and TP-01158 (1982-83) NOS. These documents largely comprise the charted nearshore rocks, reefs and ledge information. These features have been satisfactorily addressed during survey operations.

Survey H-10552 is adequate to supersede the charted data within the common area.

b. Dangers to Navigation

The hydrographer reported five shoals and two rocks as dangers to navigation. These dangers were reported to the local United States Coast Guard District, DMAHTC and N/CG 221 and are shown on the current edition of chart 16568. A copy of this report is attached. No additional dangers to navigation were discovered during office processing.

P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10552 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.

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, April 1994 Edition.

Q. 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.

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

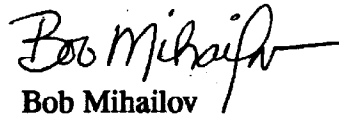
No additional miscellaneous items were noted during office processing.

T. RECOMMENDATIONS

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

U. REFERRAL TO REPORTS

Referral to reports is discussed in the hydrographer's report.


Bob Mihailov
Cartographer

APPROVAL SHEET
H-10552

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. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report. Final control, position and sounding printouts have been included with the survey records.

Bruce A. Olmstead Date: 12/12/95
Bruce A. Olmstead
Senior Cartographer, Cartographic Section
Pacific Hydrographic Branch

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: 12/13/95
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Andrew A. Armstrong III Date: 3-22-96
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

