

H-10557

NOAA FORM 78-35A

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

DESCRIPTIVE REPORT

Type of Survey ... Hydrographic
Field No. RA-10-12-94
Registry No. H-10557

LOCALITY

State Alaska
General Locality .. Alaska Peninsula
Sublocality Four NM SW of Cape Kumlik

19 94

CHIEF OF PARTY
CAPT R.C. Arnold

LIBRARY & ARCHIVES

DATE March 26, 1996

HYDROGRAPHIC TITLE SHEET

H-10557

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-10-12-94

State Alaska

General locality Alaska Peninsula

Locality Four Nautical Miles Southwest of Cape Kumlik

Scale 1:10,000 Date of survey July 26 - August 8, 1994

Instructions dated May 5, 1994 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 R. Arnold, LT D. Neander, LT D. Haines, LTJG D. Lenke, ENS A. Caron,

ENS G. Glover, ENS S. Maenner, ENS S. Smith, CST F. Paranada, SST J. Fleischmann
undings taken by ST J. Jacobson, hand lead, pole DSF-6000

Graphic record scaled by RAINIER PERSONNEL

Graphic record checked by RAINIER PERSONNEL

Evaluation by: R. Mihailov Automated plot by HP Design Jet 650C

Verification by R. Shipley

Soundings in ~~fathoms~~ Meters ~~feet~~ at MEW 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/AUG 3/26/96 MCL

PROGRESS SKETCH

EAGLE I.

GARDEN I.

HYDRA

OPR-P180-RA
HYDROGRAPHIC SURVEY
SOUTHERN ALASKA PENINSULA, ALASKA

HYDRA I.

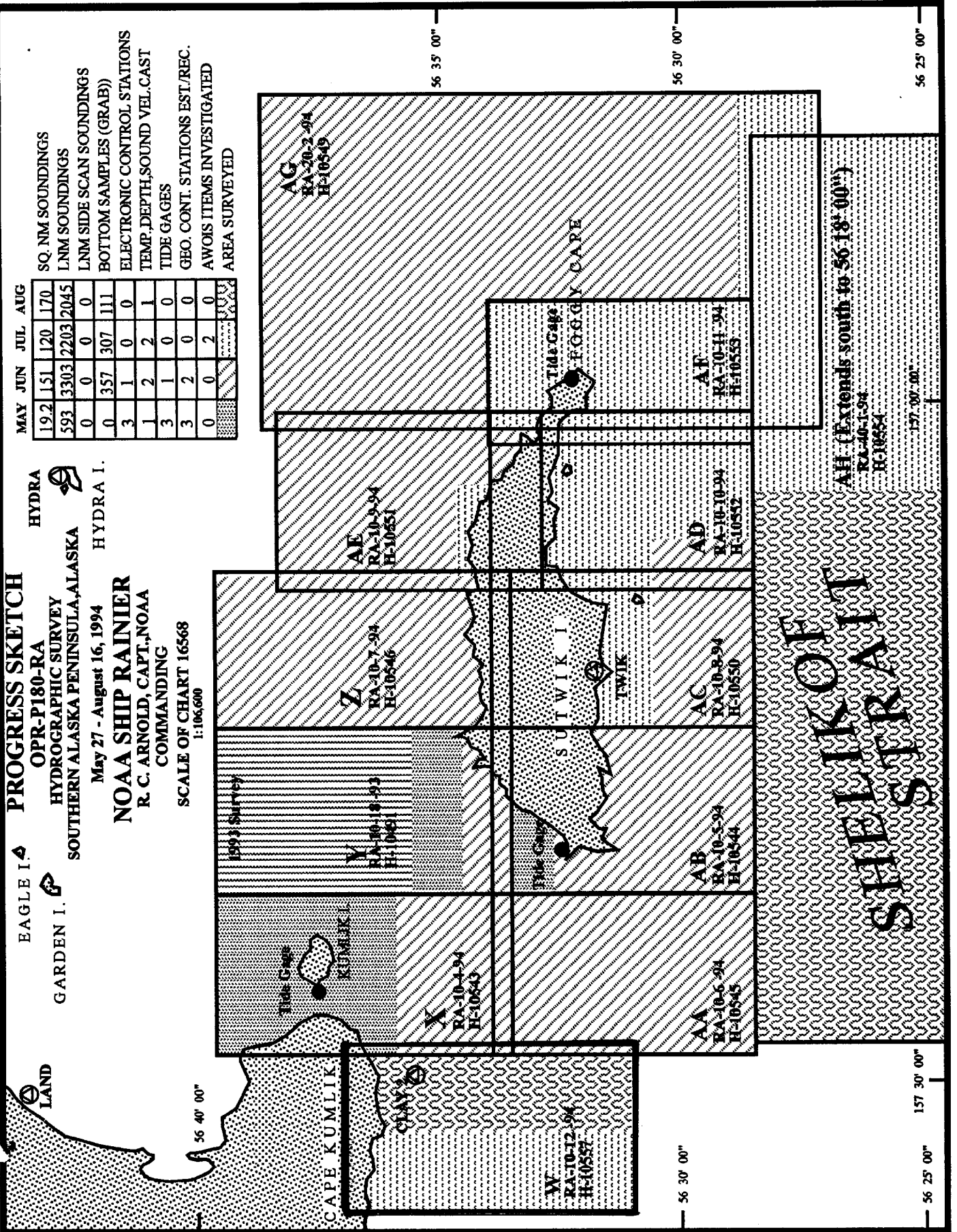
May 27 - August 16, 1994

NOAA SHIP RAINIER
R. C. ARNOLD, CAPT., NOAA
COMMANDING

SCALE OF CHART 16568
1:106,600

	MAY	JUN	JUL	AUG
SQ. NM SOUNDINGS	192	151	120	170
LNM. SOUNDINGS	593	3303	2203	2045
LNM SIDE SCAN SOUNDINGS	0	0	0	0
BOTTOM SAMPLES (GRAB)	0	357	307	111
ELECTRONIC CONTROL STATIONS	3	1	0	0
TEMP. DEPTH. SOUND VEL. CAST	1	2	2	1
TIDE GAGES	3	1	0	0
GEO. CONT. STATIONS EST./REC.	3	2	0	0
AWOIS ITEMS INVESTIGATED	0	0	2	0
AREA SURVEYED	100% SURVEYED			

SQ. 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



SHEET NO. 11
SHEET NO. 11

AH (Extends south to 56-18' 00")
RA-46-1-94
H-18554

Descriptive Report to Accompany Hydrographic Survey H-10557

Field Number RA-10-12-94

Scale 1:10,000

July - August 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-10557 corresponds to "sheet W" 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 8.

The survey area is located along the Southern Alaska Peninsula, south of Cape Kumlik. The survey's eastern limit is bounded by 157°28.5'W, and the western limit is bounded by 157°36.25' W. The southern limit is bounded by latitude 56°31.5' N, and the sheet extends north to the Cape Kumlik shoreline.

Data acquisition was conducted from July 26, 1994, Day Number (DN) 207, through August 8, 1994, DN 220.

C. SURVEY VESSELS ✓

Data were acquired by the NOAA SHIP RAINIER and four survey launches 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 Shoreline Verification
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>
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

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 W. *CONCUR*

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. *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. Velocity tables 15 and 16 were used for data acquired by RAINIER (bottom samples), and tables 5 and 6 were used for data acquired by the launches.

<u>Velocity Table #</u>	<u>Cast#</u>	<u>DN</u>	<u>Cast Position</u>	<u>Deepest Depth</u>	<u>Applicable DN</u>		
5	5	207	56°28'49" N 157°25'55" W	225	207 - 209		outside of survey area
15	5	207	56°28'49" N 157°25'55" W	225	207 - 209	11	11
6	6	221	56°24'36" N 157°15'06" W	293	214 - 220	11	11
16	6	221	56°24'36" N 157°15'06" W	293	214 - 220	11	11

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, and 2126 in the spring of 1994. RAINIER's transducer depth was determined during the 1990 winter inport. These depths were 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.

Offset Tables ✓

Offset tables contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset table 1 corresponds to the RAINIER. Offset tables 3-6 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". *

* Filed with the hydrographic 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 Bar Check and Lead Lines significant problems.*

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.

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.	X 0.95

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 Kumlik Island (945-8704) on 25 May 1994, and another at the west end of Sutwik Island (945-8665) on 27 May 1994. Opening levels of the staff were conducted upon installation. Closing levels were completed by RAINIER personnel at Kumlik Island on 7 August 1994, and West End of Sutwik Island on 6 August 1994. Tides data were collected continuously at the West End of Sutwik Island gage from installation to disassembly, while data from the Kumlik Island tide gage was continuous only from installation to 6 August 1994, when the orifice tubing was cut.

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).

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 was forwarded to N/OES212 on August 16, 1994. A request for approved tides was forwarded to N/OES2 in accordance with FPM 4.2.3. *Tide note dated October 28, 1994 is attached.*

H. CONTROL STATIONS ✓ *See Eval Report, 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.

** Filed with the hydrographic data.*

DGPS stations were installed on existing stations CLAY 2 and HYDRA. Station CLAY 2 is located on a small islet southwest of Kumlik Island, 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.

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. Station LAND is located on a small islet in northern Aniakchak Bay. For further information see the "Summer 1994 Horizontal Control Report" that will be submitted at the end of the project.

I. HYDROGRAPHIC POSITION CONTROL *See Eval Report, 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 CLAY 2, HYDRA and TWIK. 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 were obtained last year. The area around station HYDRA remains undeveloped, and the geography unchanged.

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". *

Problems ✓

None

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". *

* Filed with the hydrographic data.

J. SHORELINE ✓ See Eval Report, Section J

The shoreline map (T-sheet) used to transfer shoreline detail to the final sheets was TP-01157 (enlarged to 1:10,000 from 1:20,000, NAD 27). The unnamed island in the vicinity of latitude 56°33'00" N, longitude 157°33'30" W, was apparently left out of the aerial photography, hence T-sheet shoreline is not available for this island. The shoreline for the unnamed island was defined using detached positions (DP's) and hydrography with 50 meter line spacing, and is depicted in black on the final field plot. The island consists of a number of sheer columns and rocky shoreline connected by a continuous rocky ledge. There are a total of seven small islands not shown on the shoreline map. These features are centered at latitude 56°33'06" N, longitude 157°33'24" W and are shown as dashed red on the smooth sheet.

Method of Shoreline Verification

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. Field values have been revised after application of actual tides and shown on the smooth sheet as warranted.

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 T-sheet rocks were often identified as high points of ledges or reefs. The new features and revisions offshore of the mean highwater line have been Recommendations shown on the smooth sheet as warranted.

The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information compiled on TP-01157. - concur

* Filed with the hydrographic data.

Charted Features ✓

Charted rocks were either identified as T-sheet rocks, high points or extensions of T-sheet ledges and reefs. *Concur*

K. CROSSLINES ✓

Crosslines are within 1-2 meter agreement with mainscheme hydrography except in areas of complex bathymetry. Crosslines totaled 36.8 nautical miles, representing 7.9% of the total mainscheme hydrography.

L. JUNCTIONS ✓ *See Eval Report, Section L.*

This survey junctions with survey H-10543 (1:10,000, 1994) at the northern portion of the eastern limit, and H-10545 (1:10,000, 1994) at the southern portion of the eastern limit. 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 Report, Section M*

Two prior surveys were compared: H-4495 (1:20,000, 1925) and H-4506 (1:60,000, 1925). Sparse soundings from the 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 made at PHS.

N. ITEM INVESTIGATIONS ✓

None

O. COMPARISON WITH THE CHART ✓ *See Eval Report, Section O.*

This survey was compared to NOS chart 16568, 9th Edition, March 21, 1992, 1:106,600 (NAD83), and NOS chart 16566, 7th Edition, October 28, 1989, 1:77,477 (NAD83). The charted soundings were found to be in general agreement with the present survey.

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

Final comparisons will be made at PHS.

Dangers to Navigation ✓

Five dangers to navigation within the limits of this survey were reported to the Seventeenth Coast Guard District on August 15, 1994. Copies of the correspondence can be found in ~~Appendix I~~ of this report.

P. ADEQUACY OF SURVEY ✓

Prior to final approval, survey H-10557 is complete and adequate to supersede charted depths and features in their common areas. *Concur*

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>Total</u>
Number of Positions	71	931	1946	1591	1120	5659
NM Hydrography	0	177.1	293.1	306.9	185.7	962.8

Velocity Casts	2
Detached Positions	57
Bottom Samples	79
Tide Stations	2
NM ² Hydrography	24.2

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 ✓

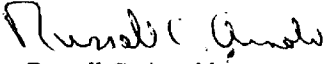
The following supplemental reports contain additional information relevant to this survey:

<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,

Gregory G. Glover
Ensign, NOAA

Approved and Forwarded,


Russell C. Arnold
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 9 Aug 1994 ✓

No	Type	Latitude	Longitude	H	Cart	Freq	Vel Code	MM/DD/YY	Station Name
101	F	056:44:35.925	157:00:57.249	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)
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

August 15, 1994

**ADVANCE
INFORMATION**

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

Dear Sir:

NOAA Ship RAINIER has located five dangers to navigation along the Southern Alaska Peninsula (Project OPR-P180-RA) within the limits of hydrographic survey H-10557. The attached information is provided for publication in the Local Notice to Mariners for the Seventeenth Coast Guard District. A copy of the chart showing the areas in which the dangers exist is also attached.

Sincerely,

A handwritten signature in cursive script, appearing to read "Russell C. Arnold".

Russell C. Arnold
Captain, NOAA
Commanding Officer

Attachments

cc: DMAHTC
N/CG221
PMC



**ADVANCE
INFORMATION**

Hydrographic Survey Registry Number: II-10557

Survey Title: State: Alaska
Locality: Shelikof Strait
Sublocality: Four Nautical Miles Southwest of Cape Kumlik

Project Number: OPR-L111-RA

Survey Date: July - August 1994

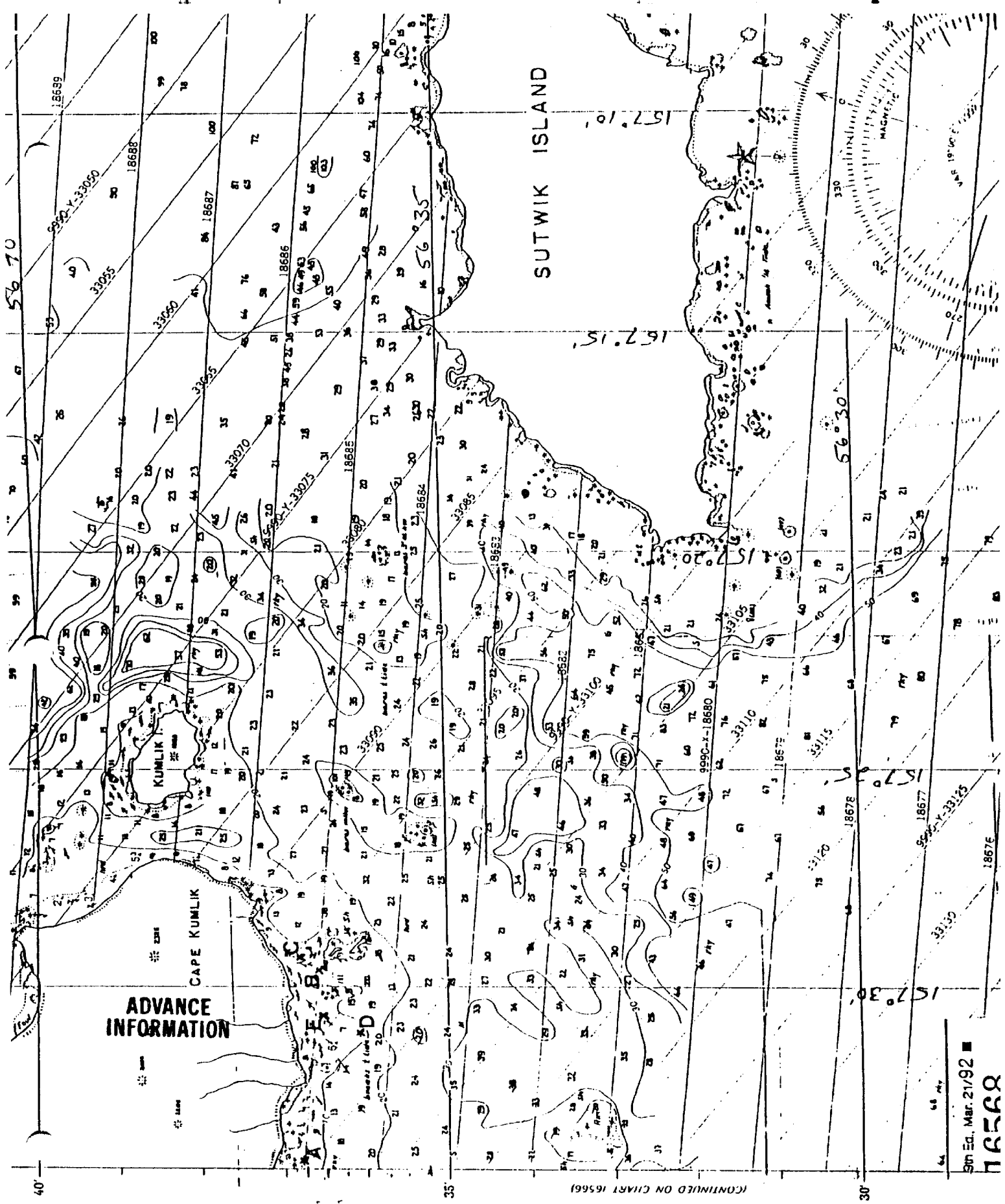
Features are reduced to mean lower low water using predicted tides.

Affected Nautical Charts:

<u>Chart</u>	<u>Edition/Date</u>	<u>Scale</u>	<u>Datum</u>
16566	7th Ed., 10/28/89	1:77,477	NAD83
16568	9th Ed., 3/21/92	1:106,600	NAD83

	<u>Danger to Navigation</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>meters</u>	<u>Pos #</u>
A.	Shoal, covers 1 fm	56° 36' 42.5"	157° 34' 00.0"	2.2	4411 +3
B.	Shoal, covers 1 1/4 fm	56° 36' 34.0"	157° 29' 36.5"	2.5	6913 +1
C.	Shoal, covers 1 1/4 fm	56° 36' 46.0"	157° 29' 19.5"	2.6	6601 +1
D.	Reef, uncovers 3 feet	56° 36' 02.0"	157° 31' 07.5"	0.8 exp.	88Y
E.	Rock, Awash	56° 36' 30.5"	157° 30' 44.0"	0.2 exp.	883

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



**ADVANCE
INFORMATION**

(CONTINUED ON CHART 16561)

30m Ed., Mar. 21/92
16560

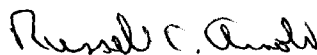
APPROVAL SHEET

for

H-10557
RA-10-12-94

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 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

ORIGINAL

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: October 28, 1994

MARINE CENTER: Pacific

OPR: P180

HYDROGRAPHIC SHEET: H-10557

LOCALITY: Four NM Southwest of Cape Kumlik, Shelikof Strait,
Alaska

TIME PERIOD: July 26 - August 8, 1994

TIDE STATION USED: 945-8665 West Sutwik Island
Alaska
Lat. $56^{\circ} 32.4'N$ Lon. $157^{\circ} 19.6'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 1.40 feet

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 8.6 feet

TIDE STATION USED: 945-8704 Cape Kumlik (Kumlik Island)
Alaska
Lat. $56^{\circ} 38.8'N$ Lon. $157^{\circ} 25.5'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = -1.15 feet

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 8.9 feet



REMARKS: RECOMMENDED ZONING

1. North of $56^{\circ} 34.5'N$ times and heights are direct on Cape Kumlik (Kumlik Island), Ak. (945-8704). Where data for Cape Kumlik is not available, use West Sutwik Island, Ak. (945-8665) with times direct, and apply a X1.03 range ratio to the heights.
2. South of $56^{\circ} 34.5'N$ times and heights are direct on West Sutwik Island, Ak. (945-8665).

NOTES: Hourly heights are tabulated on Greenwich Mean Time. The data for Cape Kumlik (Kumlik Island), Ak. (945-8704), and West Sutwik Island, Ak. (945-8665) are stored in the Next Generation Water Level Measurement System temporary files #745-8704 and #745-8665 respectively.


CHIEF, DATUMS SECTION

H-10557

GEOGRAPHIC NAMES

Name on Survey	ON CHART NO. 16560, 16568		D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND McNALLY ATLAS	H U.S. LIGHT LIST	K
	A ON PREVIOUS SURVEY	B						
ALASKA (title)	X	X						1
ALASKA PENINSULA (title)	X	X						2
KUMLIK, CAPE	X	X						3
NORTH PACIFIC OCEAN	X	X						4
								5
								6
								7
								8
								9
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								25

Approved:

Clute C. Coy

Chief Geographer

JAN 23 1996

HYDROGRAPHIC SURVEY STATISTICS

H-10557

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

SHORELINE DATA					
SHORELINE MAPS (List):		TP-01157			
PHOTOBATHYMETRIC MAPS (List):					
NOTES TO THE HYDROGRAPHER (List):					
SPECIAL REPORTS (List):					
NAUTICAL CHARTS (List): 16568 10th Ed					

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			
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	65.5		65.5
VERIFICATION OF SOUNDINGS			
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	170.5		170.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		33.0	33.0
GEOGRAPHIC NAMES			
OTHER:			
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	236	33.0
			269.0

Pre-processing Examination by LT M. Larsen	Beginning Date 7/26/94	Ending Date 9/6/94
Verification of Field Data by R. Shipley	Time (Hours) 236	Ending Date 3/19/96
Verification Check by B. Olmstead, B. Mihailov	Time (Hours) 2	Ending Date 3/13/96
Evaluation and Analysis by B. Mihailov	Time (Hours) 33	Ending Date 3/19/96
Inspection by B.A. Olmstead	Time (Hours) 10	Ending Date 3/19/96

**EVALUATION REPORT
H-10557**

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 to the north by Cape Kumlik and to the south by latitude 56/31/30N. Specifically, the survey area includes the southwest portions of shoreline along Cape Kumlik and extends southward approximately six nautical miles. The area is characterized by alongshore and offshore ledges, isolated reefs and rocks. The bottom consists mainly of sand and broken shells. Depths range from 0 meters to 163 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-10557.

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 reductions are derived from the West Sutwik Island, Alaska gage (945-8665) and Cape Kumlik (Kumlik Island), Alaska gage (945-8704).

H. CONTROL STATIONS

Control stations are discussed in the hydrographer's report and separates. A list of control stations used on survey H-10557 is attached to this report.

The positions of horizontal control stations used during hydrographic operations are published and field 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: -2.728 seconds (-84.389 meters)
Longitude: 7.355 seconds (125.596 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-01157	July 1982 August 1983	1:20,000

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

Shoreline from TP-01157 was digitized at PHB and merged with the survey file during office ACAD processing. 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.

There were several small islands centered at latitude 56/33/06N, longitude 157/33/24W, not shown on the shoreline manuscript. These revisions have been shown as dashed red on the smooth sheet.

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10557 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10543	1994	1:10,000	Northeast
H-10545	1994	1:10,000	Southeast

The junctions with surveys H-10543 and H-10545 have not been formally completed. These surveys have been previously processed and forwarded for charting. These junctions were made using copies. There is good agreement between depth curves and soundings within the common areas.

M. COMPARISON WITH PRIOR SURVEYS

Survey H-10557 was compared with the following prior surveys.

H-4495 (1925) 1:20,000
H-4506 (1925) 1:60,000

Surveys H-4495 and H-4506 cover the entire area of the present survey. The sounding agreement is good between the present and prior surveys. Comparison with the prior soundings reveals general differences of 1-2 meters. Differences between the prior surveys and the present survey can be attributed to increased bottom coverage and less accurate positioning and sounding methods available in 1925.

T-4155 (1925) 1:20,000
T-8622 (1941) 1:20,000

These documents largely comprise the charted nearshore rocks, reefs and ledge information and have been satisfactorily addressed during survey operations.

H-10557 is adequate to supersede the prior surveys within the common area.

N. ITEM INVESTIGATIONS

There were no item investigations assigned to survey H-10557.

O. COMPARISON WITH CHART

Survey H-10557 was compared with the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16566	7th	October 28, 1989	1:77,477	NAD83
16568	10th	February 18, 1995	1:106,600	NAD83

a. Hydrography

Charted data originates from the previously discussed prior surveys and shoreline source documents and requires no further discussion.

Survey H-10557 is adequate to supersede the charted data within the common area.

b. Dangers to Navigation

The hydrographer reported three shoal depths, a reef, and one rock as dangers to navigation. These dangers were reported to the local United States Coast Guard District, DMAHTC and N/CS34. 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-10557 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-10557

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: 3/19/96
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: 3/20/96
for Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Jack L. Wallace Date: 3/27/96
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10557

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
16568	3/12/96	Bruce A. Omsbeck	Full Part Before After Marine Center Approval Signed Via Full application of Drawing No. soundings and features from smooth sheet.
16566	4/10/96	<i>[Signature]</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. 14 7TH EDITION FULL APPLICATION OF SDNGS, DEPTH CURVES ETC THROUGH 16568 BP 157660
16013	6/17/96	DENNIS H. ALLEN	Full Part Before After Marine Center Approval Signed Via Drawing No. 30 26TH ED AUG 92 REVISED SDNGS THRU CHART 16568 H-DRAWING BP 157660
16011	6/21/96	<i>[Signature]</i>	Full Part Before After Marine Center Approval Signed Via Revised hydro thru Drawing No. 32 16013
16006	8/10/96	Christopher Jones	Full Part Before After Marine Center Approval Signed Via Revised hydro thru Drawing No. 28 16011
531	8-21-96	William J. Oms	Full Part Before After Marine Center Approval Signed Via Revised hydro thru Drawing No. 22 16006
530	2/3/98	Rushfield	Full Part Before After Marine Center Approval Signed Via Drawing No. 38 Edition 257
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.