

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

H-10486

Type of Survey Hydrographic
Field No. RA-10-14-93
Registry No. H-10486

LOCALITY

State Alaska
General Locality Alaska Peninsula
Sublocality Entrance to Aniakchak Bay

19 93

CHIEF OF PARTY
CAPT Russell C. Arnold, NOAA

LIBRARY & ARCHIVES

DATE MAR 6 1995

H-10486

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.

R-10-14-93

State Alaska

General locality Entrance to Aniakchak Bay

Locality Alaska Peninsula

Scale 1:10,000 Date of survey July 8 - July 29, 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), RA-9

Chief of party CAPT Russell C. Arnold, NOAA

Surveyed by CAPT R. Arnold, LT M. Brown, LT D. Neander, LTJG S. Lemke, ENS G. Glover, ENS A. Caron, ENS D. Pitts

Soundings taken by echo sounder, ~~hand level, pole~~ DSF-6000N and steel tape

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

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

Verification by R.N. Mihailov, R. Shipley, J. Stringham

Soundings in ~~feet~~ Meters & Decimeters at ~~MSL~~ MLLW

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

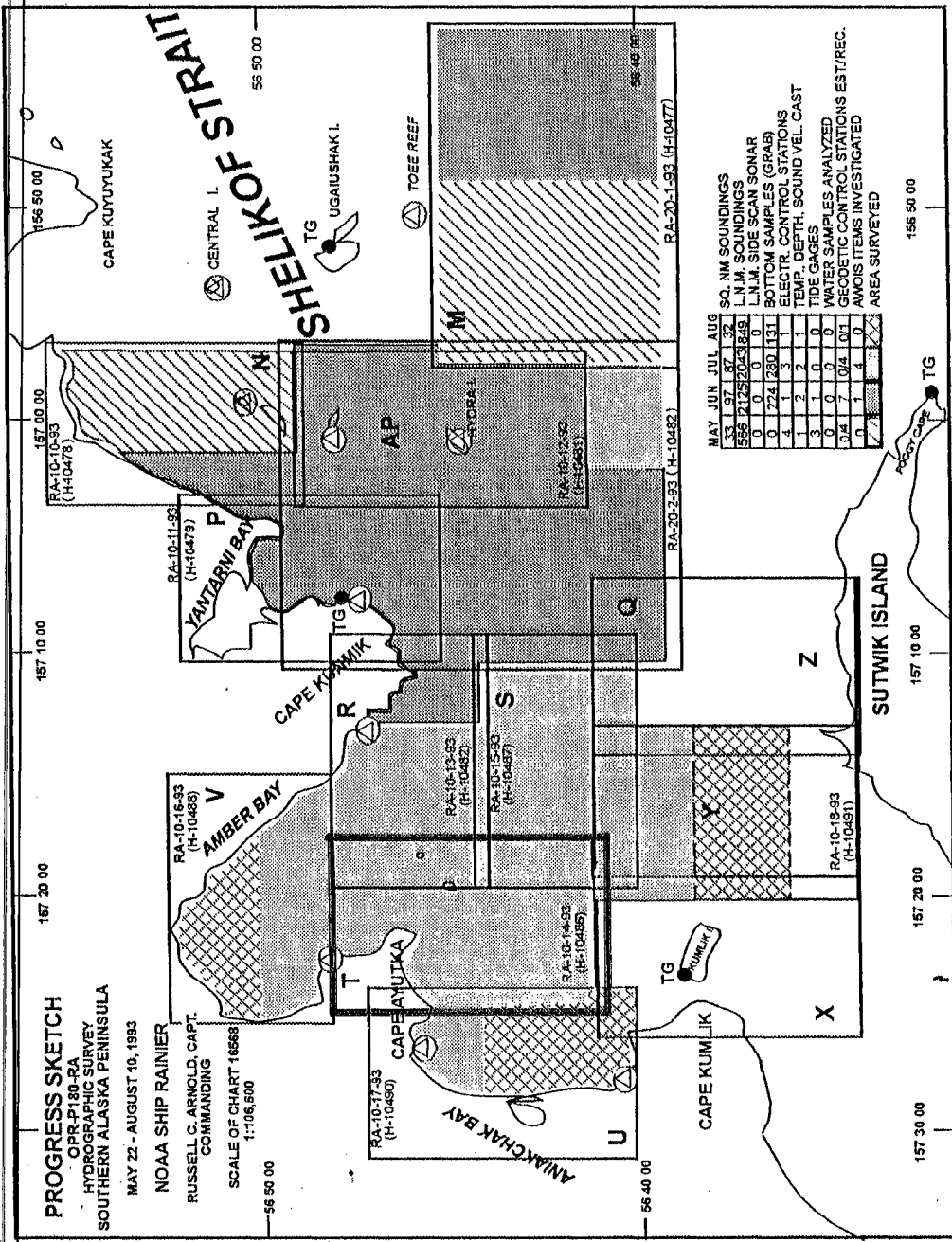
All depths listed in this report are referenced to mean lower low water unless otherwise noted.

AWOLS / SURF 4/6/95 mcb

SC1-2797

PROGRESS SKETCH
 OPR-PT-80-RA
 HYDROGRAPHIC SURVEY
 SOUTHERN ALASKA PENINSULA

MAY 22 - AUGUST 10, 1993
 NOAA SHIP RAINIER
 RUSSELL C. ARNOLD, CAPT.
 COMMANDING
 SCALE OF CHART 16563
 1:106,500



SHELKOF STRAIT
 CENTRAL I.
 UGAISHAK I.

MAY	JUN	JUL	AUG	
53	1	57	57	SQ. NM SOUNDINGS
556	2125	2043	2499	L.N.M. SOUNDING SONAR
0	0	0	0	L.N.M. SIDE SWATH SONAR
0	724	280	1131	BOTTOM SAMPLES (GRAV)
4	1	3	1	ELECTR. SOUNDING STATIONS
3	2	2	1	TEMP. LOGS
3	1	0	0	WATER SAMPLES ANALYZED
04	9	04	07	GEODETIC CONTROL STATIONS EST./REC.
0	1	0	0	ANOM. ITEMS INVESTIGATED
				AREA SURVEYED

Descriptive Report to Accompany Hydrographic Survey H-10486

Field Number RA-10-14-93

Scale 1:10,000

July 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 19, 1993, change No. 1 dated April 23, 1993 and change No. 2 dated June 21, 1993.

Survey H-10486 corresponds to "Sheet T" 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 ✓

The survey area is located in Shelikof Strait along the Alaska Peninsula, southwest of Kodiak Island. The area is defined by latitude 56°48'00"N to the north, latitude 56°41'00"N to the south. Longitude 157°28'00"W to the west and longitude 157°20'00"W to the east. The area encompasses Garden Island, Eagle Island and Cape Ayutka which is rocky with numerous shoal and foul areas.

Data acquisition was conducted from July 8, 1993 Day Number (DN) 189 through July 29 Day (DN) 211.

C. SURVEY VESSELS ✓

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

<u>Vessel</u>	<u>EDP No</u>	<u>Operation</u>
RAINIER	2120	Bottom Samples
RA-3	2123	Hydrography Shoreline Verification
RA-4	2124	Hydrography
RA-5	2125	Hydrography Bottom Samples
RA-6	2126	Hydrography
RA-9	2129	Shoreline verification

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

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

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
AUTOST	3.00	9/24/92
BACKUP	2.00	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
DP	2.13	3/1/93
EXCESS	4.10	9/24/92
FILESYS	3.02	5/17/93
GRAFEDIT	1.01	2/26/93
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
PREDICT	2.00	9/24/92
PRINTOUT	4.01	9/24/92
QUICK	2.03	2/26/93
RAMSAVER	1.01	9/24/92
REAPPLY	2.01	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

Skiff data were acquired using:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
HYPACK	4.0	1 APR 1993

E. SONAR EQUIPMENT ✓

Side scan sonar equipment was not used on sheet T.

F. SOUNDING EQUIPMENT ✓

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

A steel tape was used to record least depths for AWOIS item 51210

G. CORRECTIONS TO ECHO SOUNDINGS ✓

Correctors for the velocity of sound through water were determined from the cast 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>
4	4	204.2	189-204	056°40'38" 157°10'41"	194

The sound velocity cast was 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, ~~FV~~, Sounding Equipment Calibrations and Corrections". *
X

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 T.

Offset Tables

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

Heave

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

* Filed with the hydrographic data.

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:

	TIME(min.)		
	High Water	Low Water	RANGE RATIO
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), Cape Kunmik (945-8631) and Kumlik Island (945-8704). The control station was Sand Point, Alaska (945-9450). Bracketing levels were completed by RAINIER personnel at the end of June, and July and the control station was levelled on July 31-August 1.

The station descriptions, field tide records, and Field Tide Notes were 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 were forwarded to N/OES2. *See Tide note dated March 18, 1994 included in this report.*

H. CONTROL STATIONS

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.

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 to be Included with Survey Data, III, Horizontal Position Control and Corrections to Position Data." ✕

The skiff GPS system was checked by direct comparison with a launch system that had been checked against the Falcon system.

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." ✕

The skiff system GPS Antenna is mounted directly over the transducer and has no offset.

J. SHORELINE

The shoreline map (T-sheet) used to transfer shoreline detail to the final sheet was TP-01154. 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 number forms and corresponding 1:10,000 photocopies of the T-sheet. Heights were corrected to MLLW using predicted tides. Corresponding notes were annotated on the photocopies of the T-sheet when deemed necessary. The annotated photocopies of the T-sheets and reference number forms are included with the survey data. ✕

DPs taken during shoreline verification were recorded on the master printouts and DP forms, and 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 and reference numbers and notes relating to each feature. The information from these plots was transferred to a field final plot. Verified T-sheet features were retained and shown in black and changes to the shoreline were shown in red. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in meters and are corrected to predicted MLLW.

** Filled with the hydrographic data.*

The shoreline in the vicinity of Eagle and Garden Island is characterized by ledges and boulder beaches. There are numerous offshore rocks.

The area around Cape Ayutka is characterized by numerous shoal areas leading up to ledges extending offshore.

RAINIER'S new Skiffdas system was used for shoreline verification on this survey in the areas of Garden and Eagle Island. Positions obtained with Skiffdas positions numbers (700-716) were manually entered into HDAPS.

Disprovals

None

Changes

1. The group of T-sheet rocks in the vicinity of latitude $056^{\circ}45'03''\text{N}$, longitude $157^{\circ}20'37''\text{W}$ is a reef delineated by position numbers 706-709.
2. The T-sheet rocks in the vicinity of, latitude $056^{\circ}20'19''\text{N}$, longitude $157^{\circ}20'19''\text{W}$ are part of a ledge whose offshore limit is shown by position number 700.
3. The ledges on the east and west sides of Garden Island and the west side of Eagle Island are actually boulder beaches, reference numbers RA9-2, RA9-3 and RA9-5 through RA9-8.
4. The area depicted on the T-sheet south of Cape Ayutka in the vicinity of latitude $056^{\circ}45'30''\text{N}$, longitude $157^{\circ}23'22''\text{W}$, is foul with broken ledges and rocks position numbers , 5452-5457, 5459-5462, and 7982-7987.
5. The ledge south of Cape Ayutka, in the vicinity of latitude $056^{\circ}45'28''\text{N}$, longitude $157^{\circ}24'29''\text{W}$, is an extension of the T-sheet ledge, delineated by hydrography, position number 7991 depicts the offshore limit.
6. The rock depicted on the T-sheet in the vicinity of latitude $056^{\circ}45'01''\text{N}$, longitude $157^{\circ}26'50''\text{W}$, is the high point of a ledge whose offshore extension is depicted by position number 1087.
7. The reef in the vicinity of, latitude $056^{\circ}45'00''\text{N}$, longitude $157^{\circ}27'20''\text{W}$ is a seaward broken extension of the T-sheet ledge delineated by position numbers 1089 and 1090.
8. The ledge in the vicinity of latitude $056^{\circ}46'50''\text{N}$, longitude $157^{\circ}24'38''\text{W}$ is an extension of the T-sheet ledge and was delineated by hydrography.
9. The ledge in the vicinity of latitude $056^{\circ}46'25''\text{N}$, longitude $157^{\circ}24'04''\text{W}$ is an extension of the T-sheet ledge and was delineated by hydrography.

Recommendations: The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline compiled on TP-01154. - CONCUR

New Features

14 new features were found and are depicted on the field sheet.

Eagle and Garden Islands:

#	Item	Approximate Position	Position Number	Depth (m) w/ smooth tides applied	Remarks
1	Rock	056°45'24" 157°20'33"	703	0.2 0.5	Submerged
2	Rock	056°45'41" 157°20'19"	705	-0.9 -1.2	Exposed UNCOVERS
3	Rock	056°44'33" 157°22'10"	713	0.2 -0.5	Exposed UNCOVERS
4	Rock	056°44'30" 157°22'01"	714	-1.3 -1.6	Exposed UNCOVERS

Cape Ayutka

#	Item	Approximate Position	Position Number	Depth w/Smooth (m) tides applied.	Remarks
5	Reef	056°45'26" 157°25'47"	8177	0.4	Submerged
6	Rock	056°46'36" 157°23'53"	7759	1.4 -1.6	Submerged Exposed - vicinity of charted rock
7	Rock	056°45'16" 157°24'43"	9132	0.0 -0.3	AWASH Exposed
8	Rock	056°47'25" 157°24'21"	7771	-0.1 -0.6	UNCOVERS Exposed
9	Rock	056°47'31" 157°24'16"	7772	-0.9 -1.3	UNCOVERS Exposed
10	Rock	056°47'32" 157°24'16"	7773	-0.4 -0.8	UNCOVERS Exposed
11	Rock	056°44'30" 157°22'30"	908	-1.6 -1.9	UNCOVERS Exposed
12	Rock	056°44'56" 157°27'08"	1088	-2.2 -1.9	UNCOVERS Exposed

} IN vicinity of charted rocks (2)

13. A foul area in the vicinity of latitude 056°46'45"N, longitude 157°24'00"W is delineated by position numbers 7757, 7760-7762, 7765-7770 and by hydrography.

14. A new reef in the vicinity of latitude 056°45'15"N, longitude 157°25'40" W is delineated by position numbers 8171-8176. In vicinity of charted rock.

Recommendations: The hydrographer recommends that the new shoreline features from this survey be used to supersede prior shoreline information compiled on TP-01154 - CONCUR

K. CROSSLINES ✓

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 30.29 NM, representing 4.5% of total mainscheme hydrography.

- L. **JUNCTIONS** See Evaluation report, section 5.
 None H-10487 (1993) East H-10490 (1993) West
 H-10484 (1993) Northeast H-10491 (1993-94) Southeast
 H-10488 (1993) North H-10543 (1994) Southwest

M. COMPARISON WITH PRIOR SURVEYS ✓

There were no prior surveys on sheet T.

N. ITEM INVESTIGATIONS ✓

1 AWOIS item was investigated.

AWOIS ITEM 51210

1. Area of investigation

State: Alaska
 Locality: Entrance to Aniachak Bay
 Reported Latitude(PA): 056°41.9'
 Reported Longitude(PA): 157°20.25'
 Datum: NAD 83
 Depth: 13.8 m
 Feature: Shoal

2. Description of Source item:

CL933/82-NOS; Shoal reported at 7.5 fms

3. Survey Requirements

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

4. Method of Investigation

The area around the reported shoal was split to 25 meter line spacing using echo sounding. A dive was performed to identify and measure the least depth.

5. Results of investigation

The area was split to 25 meter line spacing and a least depth of 8.0 meters was found in the vicinity of latitude 056°41'52" longitude 157°20'22". The dive located a least depth of ~~7.5m~~ in the vicinity of latitude 056°41'56",

7.6m (4fm)

longitude 157°20'18".

6. Comparison with Prior Survey

There were no prior surveys for sheet T.

7. Comparison with chart and charting recommendations

The largest scale chart depicting this area is NOS chart 16568, 9th edition, March 21, 1992, 1: 106,600 (NAD83). The item constitutes a danger to navigation. Chart the item as depicted on the survey. - CONCUR
 Chart the 4fm (7.6m) at the location found on this survey.

X.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.

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

Dangers to Navigation

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

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>
# of Pos	66	893	236	1266	1144	7	3612
NM Hydro	0	237.47	41.98	142.02	242.7	0	664.17

NM² Hydrography 28
 Velocity Casts 1
 Detached Positions 41
 Tide Stations 0
 Reference Numbers 18
 Bottom Samples 66

S. MISCELLANEOUS ✓

LORAN C comparisons were observed as required by the Project Instructions and will be submitted at the end of the project.

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:

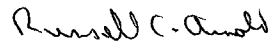
<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Summer 1993 Horizontal Control Report for OPR-P180-RA	1993	N/CG2333
Summer 1993 Coast Pilot Report for OPR-P180-RA	1993	N/CG245
Project related data for OPR-P180-RA	Incremental	N/CG245

Respectfully Submitted,



April J. Caron
Ensign, NOAA

Approved and Forwarded,



Russell C. Arnold
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 14 Jul 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	HYDR0 1944(M/R & DGPS STATION)
101	F	056:45:36.294	156:51:13.209	17	250	0.0	0.0	5	05/27/93	TOFF
102	F	056:50:12.455	156:59:01.882	37	250	0.0	0.0	3	05/23/93	WOLFF
103	F	056:51:01.508	156:57:58.164	112	250	0.0	0.0	2	05/27/93	CENTRAL 1944
104	F	056:48:00.515	157:01:01.202	4	250	0.0	0.0	6	06/15/93	LONG 1944
105	F	056:46:55.025	157:00:22.740	20	250	0.0	0.0	5	06/22/93	EXTRA 1944
106	F	056:47:34.540	157:16:31.000	0	250	0.0	0.0	3	07/08/93	GRLE 1945
107	F	056:48:03.120	157:25:16.771	12	250	0.0	0.0	6	07/07/93	GRNH 1945
108	F	056:45:19.732	157:29:28.737	27	250	0.0	0.0	5	07/14/93	LRND 1945

-P80 7/14



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 1, 1993

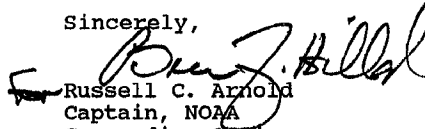
**ADVANCE
INFORMATION**

Commander
Seventeenth Coast Guard District
Post Office Box 25517
Juneau, AK 99802-5517

Dear Sir:

Attached is a confirmation copy of the radio message sent to your office regarding the dangers to navigation which I recommend for inclusion in the Local Notice to Mariners for the Seventeenth Coast Guard District. A copy of the chart showing the areas in which the dangers exist is also attached.

Sincerely,


Russell C. Arnold
Captain, NOAA
Commanding Officer

Enclosures

cc: DMAHTC
N/CG221
PMC





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

**ADVANCE
INFORMATION**

NOAA Ship RAINIER

August 1, 1993

Director
DMAHTC
Attn: MCNM
6500 Brookes Lane
Washington, DC 20315-0030

Dear Sir:

While conducting hydrographic survey operations in Shelikof Strait, Alaska, NOAA Ship RAINIER discovered two dangers to navigation. They have been reported to DMAHTCNAVWARN and the Seventeenth Coast Guard District. A copy of the correspondence describing the dangers is enclosed.

Sincerely,

Russell C. Arnold
For Russell C. Arnold
Captain, NOAA
Commanding Officer

Enclosures



FWIP/101

RCA

P 30 Z JUL 93
FM NOAA S RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCNAVWARN WASHINGTON DC//MCNM//
INFO NOAA MOP SEATTLE WA
ACCT CM-VCAA

**ADVANCE
INFORMATION**

BT
UNCLAS

NOAA SHIP RAINIER HAS LOCATED 2 DANGERS TO NAVIGATION IN SHELIKOF STRAIT, ALASKA (PROJECT OPR-P180-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10486 (ENTRANCE TO ANIAKCHAK BAY). THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

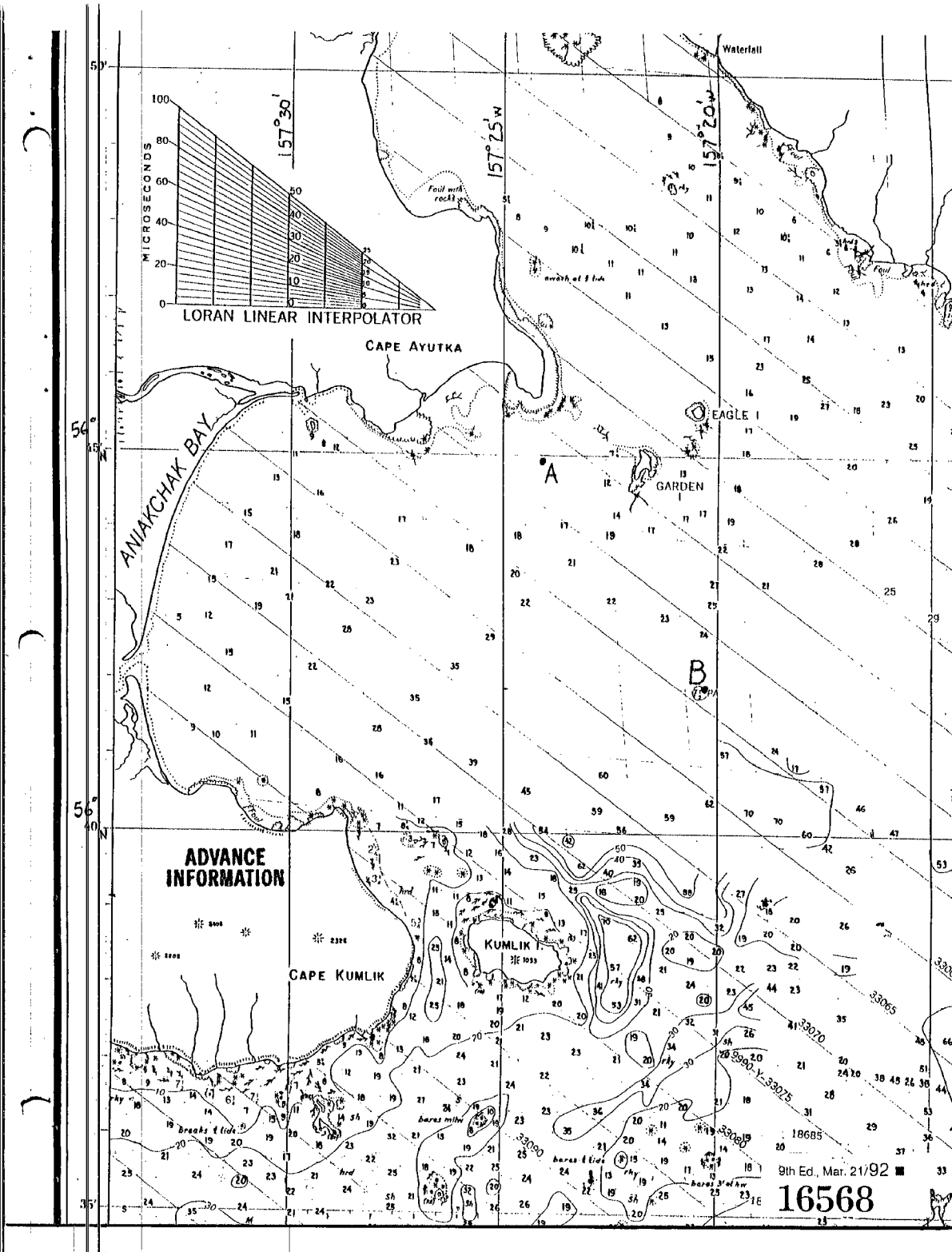
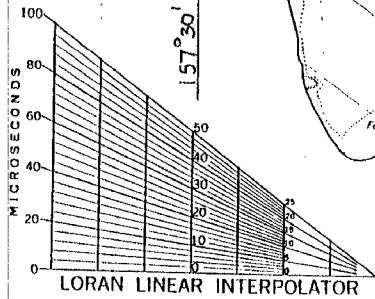
CHARTS AFFECTED: 16568 9TH ED MAR 21/92 1:106,600 NAD 83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	DEPTH	LATITUDE	LONGITUDE	Position #
A.	SHOAL	1 1/2 FM	56/44/54.286N	157/24/01.064W	3331
B.	SHOAL	4 FM	56/41/55.547N	157/20/18.447W	3330

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 IS BEING MAILED TO CONFIRM THIS MESSAGE.

BT



APPROVAL SHEET

for

H-10486
RA-10-14-93

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

Russell C. Arnold
Captain, NOAA
Commanding Officer



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 18, 1994

MARINE CENTER: Pacific

OPR: P180

HYDROGRAPHIC SHEET: H-10486 (amended)

LOCALITY: Entrance to Aniakchak Bay, Shelikof Strait, Alaska

TIME PERIOD: July 8, 1993 - July 29, 1993

TIDE STATION USED: 945-8704 Cape Kumlik (Kumlik Island),
Alaska
Lat. 56° 38.8'N Lon. 157° 25.5'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = -0.88 feet

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 8.7 feet

REMARKS: RECOMMENDED ZONING

1. West of Longitude 157° 22.5'W times are direct and apply a x1.03 range ratio to heights at Cape Kumlik (Kumlik Island), Ak. (945-8704).
2. East of Longitude 157° 22.5'W times are direct and apply a x1.06 range ratio to heights at Cape Kumlik (Kumlik Island), Ak. (945-8704).

NOTES: Hourly heights are tabulated on Greenwich Mean Time.
The data for Cape Kumlik (Kumlik Island), Ak. (945-8704)
is stored in the back-up gauge file # 945-8705.

William M. Hester
CHIEF, DATUMS SECTION

ORIGINAL



GEOGRAPHIC NAMES

H-10486

Name on Survey	A ON CHART NO. 16568 B ON PREVIOUS SURVEY NO. C ON U.S. QUADRANGLE MAPS D FROM LOCAL INFORMATION E ON LOCAL MAPS F P.O. GUIDE OR MAP G RAND. MAGNALLY ATLAS H U.S. LIGHT LIST K											
	ALASKA (title)	X										
ALASKA PENINSULA	X											2
AMBER BAY	X											3
ANIACHAK BAY (title)	X											4
AYUTKA, CAPE	X											5
EAGLE ISLAND	X											6
GARDEN ISLAND	X											7
												8
												9
												10
												11
												12
												13
												14
												15
												16
												17
												18
												19
												20
												21
												22
												23
												24
												25

Approved:

Charles P. Huntington
Chief Geographer - N/CG 2x5

JUN - 3 1994

HYDROGRAPHIC SURVEY STATISTICS

H-10486

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	1
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	

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

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			4024
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	44.5		44.5
VERIFICATION OF SOUNDINGS	68.5		68.5
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	47.0		47.0
COMPARISON WITH PRIOR SURVEYS AND CHARTS		3.0	3.0
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		32.0	32.0
GEOGRAPHIC NAMES			
OTHER			
*USE OTHER SIDE OF FORM FOR REMARKS			
TOTALS	160.0	35.0	195.0
Pre-processing Examination by D. Haines	Beginning Date 6/13/93	Ending Date 9/14/93	
Verification of Field Data by B. Mihailov, R. Shipley, J. Stringham	Time (Hours) 160	Ending Date 10/24/94	
Verification Check by B. MIHAILOV	Time (Hours) 3.0	Ending Date 11/8/94	
Evaluation and Analysis by B. Mihailov	Time (Hours) 35	Ending Date 11/8/94	
Inspection by R. DAVIES	Time (Hours) 7	Ending Date 2/6/95	

EVALUATION REPORT

H-10486

1. INTRODUCTION

Survey H-10486 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, southwest of Kodiak Island. The surveyed area is bounded by latitude 56/48/00N to the north and latitude 56/41/00N to the south. The eastern limit is longitude 157/20/00W and the western limit is longitude 157/28/00W. Rocky ledges with steep bluffs encompass the majority of the shoreline. Two rocky grass covered islands are located within the limits of survey H-10486. The bottom consists mainly of mud, sand and broken shells. Depths range from 0 meters to 110 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 0, 5, 10, 20, 50 and 90 meter. A note was added to the smooth sheet to identify these values.

Predicted tides for Ugaiushak, Alaska were used for the reduction of soundings during field processing. Approved hourly heights zoned from Cape Kumlik (Kumlik Island), Alaska, gage 945-8704 were used during office processing.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. NAD 83 is used as the horizontal datum for plotting and position computations. Daily system checks by comparison with Miniranger positions confirmed the DGPS was operating properly. 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. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. The quality of 81 positions exceeds limits in terms of horizontal dilution of precision (HDOP). These positions are isolated and occur randomly throughout the survey area. A review of the data, however, suggests that none of these fixes are used to position dangers to navigation. The features or soundings locate 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 field 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: -2.680 seconds (-82.918 meters)
Longitude: 7.557 seconds (124.918 meters)

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

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

<u>Map Number</u>	<u>Photo Date</u>	<u>Scale</u>
TP-01154	July 1982 August 1983	1:20,000

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

3. HYDROGRAPHY

Hydrography is adequate to:

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

4. CONDITION OF SURVEY

With the exception of the following 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.

The hydrographer states in Section P, Adequacy of Survey, the present survey is adequate to supersede the "T-sheets" in the common area. The Chart Markup, dated 1993, indicates that shoreline rocks in this area originate with shoreline map

T-8619(1941-44). Since this shoreline map was not provided to the hydrographer for comparison it is not possible to supersede the map. Rather, the hydrographer's conclusion should be that hydrography is adequate to supersede these features as depicted on the chart.

5. JUNCTIONS

Survey H-10486 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10484	1993	1:10,000	Northeast
H-10487	1993	1:10,000	East
H-10488	1993	1:10,000	North
H-10490	1993	1:10,000	West
H-10491	1993-94	1:10,000	Southeast
H-10543	1994	1:10,000	Southwest

The junction with surveys H-10484, H-10487, H-10488, and H-10490 are complete and the soundings are in good agreement.

The junction with surveys H-10491 and H-10543 can not be completed because these surveys are in preliminary office processing. Comparison with the field sheets indicates good agreement. The junction comparisons will be addressed in the Descriptive Reports for these surveys.

6. COMPARISON WITH PRIOR SURVEYS

No prior surveys common to the area of survey H-10486 were identified in the Project Instructions. However, the rocks charted in the vicinity of latitude 56/45/01N, longitude 156/26/50W, latitude 56/45/10N, longitude 157/21/00W and latitude 56/47/25N, longitude 157/24/21W originate with prior shoreline map T-8619(1941-44). This prior survey was not compared with the present survey; however, the rocks as charted are considered to be superseded by the present survey.

7. COMPARISON WITH CHART

Survey H-10486 was compared with 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 (BP40351) and shoreline map T-8619(1941-44)

Charted hydrography generally agrees well, with the present survey depths shoaler between 2 and 11 meters. Differences can be attributed to increased line spacing

and the less accurate positioning methods available at the time the prior survey was accomplished.

Survey H-10486 is adequate to supersede charted hydrography within the common area.

b. AWOIS

All AWOIS items originate with miscellaneous sources. Refer to the hydrographer's report for discussions and disposition of these features.

c. Controlling Depths

There are no channels with controlling depths located within the limits of survey H-10486.

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

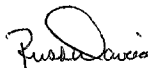
The hydrographer reported two shoals as dangers to navigation to the local United States Coast Guard District, DMAH/TC and N/CG221 during the survey. A copy of this report is attached to this report. No additional dangers to navigation were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10486 adequately complies with the project instructions.

9. ADDITIONAL FIELD WORK


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


for R.N. Mihailov
Cartographer

APPROVAL SHEET
H-10486


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.



Dennis J. Hill Date: 2/6/95
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

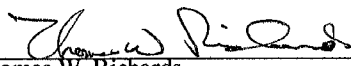
I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.



Kathy Timmons, Commander, NOAA Date: 2/10/95
Chief, Pacific Hydrographic Section

Final Approval

Approved:



Thomas W. Richards Date: 3-1-95
Captain, NOAA
Chief, Nautical Chart Division

