

H-10484

NOAA FORM 76-36A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. RA-10-13-93
Registry No. H-10484

LOCALITY

State Alaska
General Locality ... Alaska Peninsula
Sublocality Southeast Approach to
Amber Bay
1993

CHIEF OF PARTY
CAPT R.C. Arnold

LIBRARY & ARCHIVES

DATE MAR 6 1995

HYDROGRAPHIC TITLE SHEET

H-10484

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-10-13-93

State Alaska

General locality Alaska Peninsula

Locality Southeast Approach to Amber Bay

Scale 1:10,000 Date of survey June 29 to July 16, 1993

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

Vessel NOAA Ship RAINIER (2120), RA-3(2123), RA-4(2124), RA-5(2125), RA-6(2126), RA-7(2127)

Chief of party CAPT R.C. Arnold, NOAA

Surveyed by CAPT R.C. Arnold, LT M. Brown, LT D. Neander, ENS G. Glover, ENS A. Caron,
ENS G. Johnson

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

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

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

Verification by R.A. Shipley, R. Mayor, R. Mihailov, J. Stringham

Soundings in ~~meters~~ ~~feet~~ Meters and decimeters at MLW MLLW

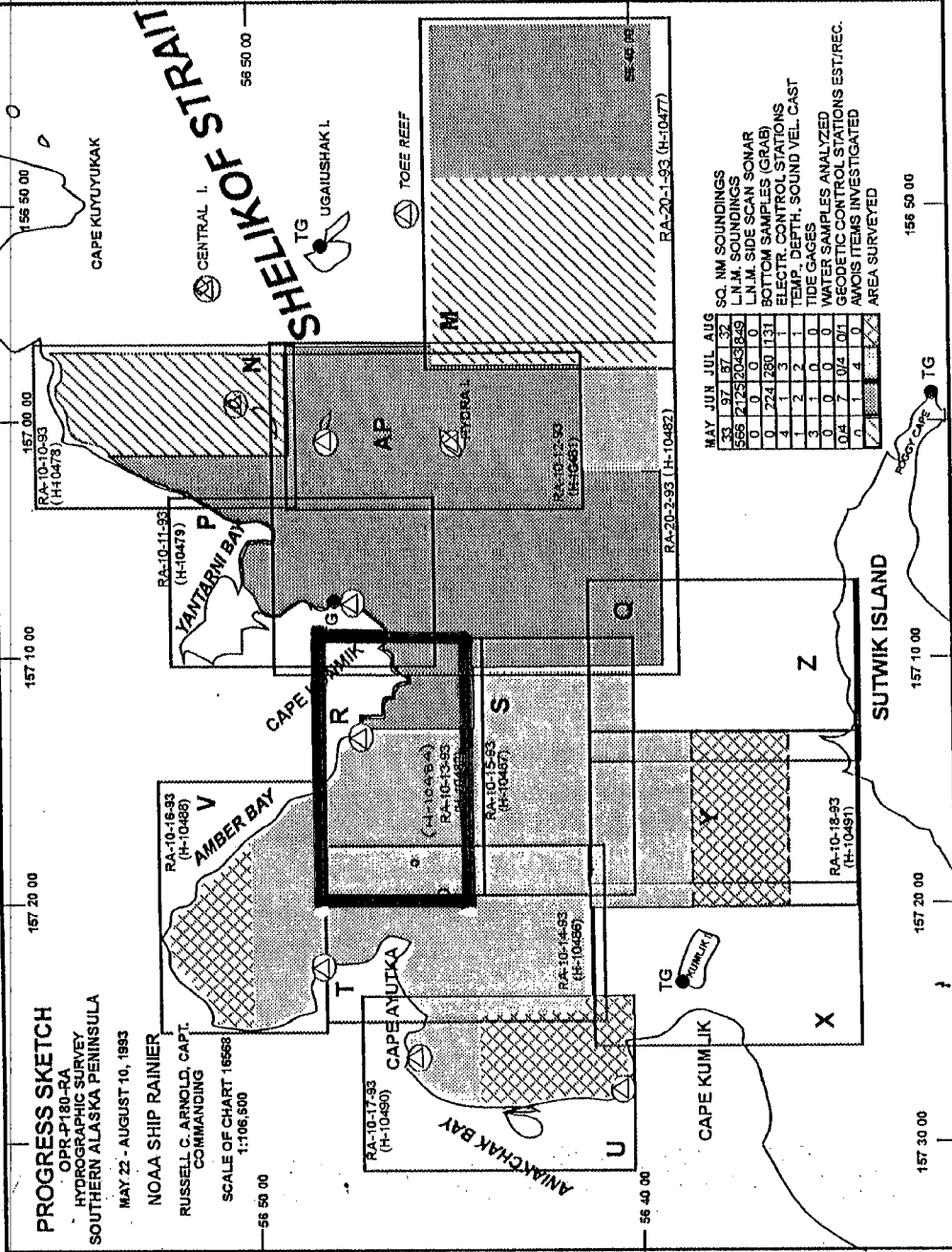
REMARKS: Time in UTC, revisions and marginal note in black were generated
during office processing. All separates are filed with the
hydrographic data, as a result page numbering may be interrupted
or non-sequential.
All depths listed in this report are referenced to mean lower low
water unless otherwise noted.

AWOIS & SURF 4/6/95
mCR

5012797

PROGRESS SKETCH
 OPREP-180-BA
 HYDROGRAPHIC SURVEY
 SOUTHERN ALASKA PENINSULA

MAY 22 - AUGUST 10, 1983
 NOAA SHIP RAINIER
 RUSSELL C. ARNOLD, CAPT.
 COMMANDING
 SCALE OF CHART 1:100,000



| | MAY | JUN | JUL | AUG | |
|-------------------------------------|-----|------|------|-----|--|
| SO. NM SOUNDINGS | 33 | 57 | 87 | 37 | |
| LN. M. SOUNDINGS | 565 | 2725 | 2043 | 849 | |
| LN. M. SIDE SCAN SONAR | 0 | 0 | 0 | 0 | |
| BOTTOM SAMPLES (GRAB) | 0 | 723 | 280 | 131 | |
| ELECTR. CONTROL STATIONS | 4 | 1 | 3 | 1 | |
| TEMP. DEPTH. SOUND VEL. CAST | 1 | 2 | 2 | 0 | |
| TIDE GAGES | 0 | 0 | 0 | 0 | |
| WATER SAMPLES ANALYZED | 0 | 0 | 0 | 0 | |
| GEODETIC CONTROL STATIONS EST./REC. | 0 | 7 | 0 | 0 | |
| AMVIS ITEMS INVESTIGATED | 0 | 1 | 4 | 0 | |
| AREA SURVEYED | 1 | 1 | 1 | 1 | |

156 50 00

157 10 00

157 20 00

157 30 00

56 50 00

56 40 00

Descriptive Report to Accompany Hydrographic Survey H-10484

Field Number RA-10-13-93

Scale 1:10,000

June - 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 13, 1993, change No. 1 dated April 23, 1993 and change No. 2 dated June 21, 1993.

Survey H-10484 corresponds to "Sheet R" as defined in the Project Instructions.

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

B. AREA SURVEYED ✓ See Evaluation Report, section 1

This survey is located in Shelikof Strait along the Alaska Peninsula, southwest of Kodiak Island. The northern limit is defined by the Alaska Peninsula shoreline between Cape Kunmik and Amber Bay and latitude 56°48'00"N. The area surveyed extends south to latitude 56°44'00"N, from longitude 156°11'00"W to the east to 157°20'00"W to the west. The northern shoreline is for the most part comprised of steep bluffs with rocky ledges extending offshore.

Data acquisition was conducted from June 29, Day Number (DN) 180, through July 16 (DN) 197.

C. SURVEY VESSELS ✓

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

| <u>Vessel</u> | <u>EDP No</u> | <u>Operation</u> |
|---------------|---------------|--|
| RAINIER | 2120 | Bottom Samples Sound Velocity Cast |
| RA-3 | 2123 | Hydrography Shoreline Verification |
| RA-4 | 2124 | Hydrography |
| RA-5 | 2125 | Hydrography Bottom Samples Sound Velocity Cast |
| 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 |
| 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 |
| 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 |
| PRESURV | 7.01 | 2/26/93 |
| 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 R.

F. SOUNDING EQUIPMENT ✓

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

* Filed with the hydrographic data.

G. CORRECTIONS TO ECHO SOUNDINGS ✓

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

| <u>Velocity Table No.</u> | <u>Cast No.</u> | <u>Deepest Depth (m)</u> | <u>Applicable DN</u> | <u>Cast Position</u> | <u>Day</u> |
|---------------------------|-----------------|--------------------------|----------------------|---------------------------|------------|
| 3 | 3 | 231.1 | 180-183 | 56°46'17"N 156°57'11"W | 179 |
| 4 | 4 | 220.4 | 187-197 | 56°40'38"N 157°10'41"W | 194 |

} off sheet limits

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

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

Static Draft

A transducer depth was determined for launches 2123, 2124, 2125 and 2126 on March 19, 1993 and is in the offset tables for each launch.

Settlement and Squat

Correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2., using FPM Fig. 2.2 and 2.3, and are included with project data for OPR-P180-RA. The data used was collected in Shilshole Bay, Washington on March 11, 16, and 18 of 1992. Revised settlement and squat correctors were received from Pacific Marine Center on October 21, 1992. Authorization was obtained from N/CG241 to use the 1992 data. These revised correctors were applied to the data on sheet R.

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. *Concur*

Tide Correctors ✓

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

| <u>TIME(min.)</u> | | <u>RANGE RATIO</u> |
|-------------------|------------------|--------------------|
| <u>High Water</u> | <u>Low Water</u> | |
| 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 Kumlik (945-8704), and Cape Kunmik (945-8631). 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. *Tide Note dated January 5, 1994 is appended to this report.*

H. CONTROL STATIONS ✓ *See Evaluation Report, Section 2.*

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

Positions for all existing stations are from the National Geodetic Survey (NGS) data base. All existing stations were recovered in accordance with methods stated in Section 5.2.4 of the Field Procedures Manual. Further information can be found in the "Summer 1993 Horizontal Control Report for OPR-P180-RA."

I. HYDROGRAPHIC POSITION CONTROL ✓

Method of Position Control

All soundings and features were positioned using differential GPS. Falcon was used solely for GPS system checks. Serial numbers for Falcon RT units, RPU's and Ashtech GPS equipment are annotated on the data printouts*.

Calibrations & Systems Check Methods

Falcon 484

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

* Filed with the hydrographic data.

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 every day and 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." *

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

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 ✓ See Evaluation Report, section 2.

Shoreline maps (T-sheets) used to transfer shoreline detail to the final sheets ^{was} TP-01155 and TP-01154 (enlarged to 1:10,000 from 1:20,000, NAD27). TP-01154 ^{was} ~~was~~ not used on this survey

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. Features shown on the smooth sheet were corrected to MLLW using smooth tides.

* Filed with the hydrographic data.

DPs taken during shoreline verification were recorded on the master printouts and DP forms, and indicate significant T-sheet features, features not found on the T-sheet, and locations of disprovals. 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. Disproved features were removed from the final plot, 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. *Changes to the shoreline (rocks and ledges) are shown in black on the smooth sheet. No changes to the MLLW were noted by the hydrographer.*

Disprovals

Two charted rocks were not found.

1. Charted rock in the vicinity of 056°46'20"N, 157°13'36"W was searched for during shoreline verification and hydrography and was not found. Charted rock corresponds to the high point of a T-sheet ledge in the vicinity. *Concur*

2. Charted rock in the vicinity of 056°46'48"N, 157°14'13"W was searched for during shoreline verification and hydrography and was not found. *(Concur)* Charted rock corresponds to the high point of a T-sheet ledge in the vicinity. *Least depth found in area of charted rock was a (Do not concur) 1.3 meter sounding. Charted rock originates from a 1963*

Recommendations: The hydrographer recommends that the information from this survey be used to *USGS quadrangle* update the chart. — *CONCUR*

Changes

Twenty changes to the T-sheet shoreline were found and depicted on the final field plot.

1. T-sheet ledge in the vicinity of 157°11'00"W 056°46'05"N is extended 80 meters south, width 20 meters and defined by position numbers 833 and 834.
2. Rocks and islets in the vicinity of 157°11'05"W 056°46'05"N are actually high points to an extension of T-sheet ledge defined by position numbers 831 and 832.
3. T-sheet ledge in the vicinity of 157°11'18"W 056°46'05"N is extended 60 meters south, width 20 meters and defined by position number 836.
4. Rocks in the vicinity of 157°11'26"W 056°46'05"N are actually high points to an extension of T-sheet ledge defined by position number 837.
5. Rock in the vicinity of 157°11'37"W 056°46'05"N is actually part of a T-sheet ledge defined by position numbers 838, 841, and 842.
6. T-sheet ledge in the vicinity of 157°11'48"W 056°46'00"N is extended 30 meters east and defined by position numbers 843, 844, and 851.
7. T-sheet ledge in the vicinity of 157°12'00"W 056°45'45"N is extended 50 meters north and defined by position number 852 and east/west limits defined by hydrography.

* Filed with the hydrographic data.

8. T-sheet reef in the vicinity of $157^{\circ}11'36''\text{W } 056^{\circ}45'55''\text{N}$ is extended 50 meters southwest and defined by position numbers 846 and 847.
9. T-sheet ledge in the vicinity of $157^{\circ}12'15''\text{W } 056^{\circ}46'00''\text{N}$ is extended 50 meters west and defined by position numbers 853 and 854.
10. T-sheet ledge in the vicinity of $157^{\circ}12'24''\text{W } 056^{\circ}46'08''\text{N}$ is extended 50 meters west and defined by position number 855.
11. T-sheet ledge in the vicinity of $157^{\circ}12'54''\text{W } 056^{\circ}46'07''\text{N}$ is extended 40 meters west and defined by position numbers 988, 989 and 990.
12. T-sheet ledge in the vicinity of $157^{\circ}12'50''\text{W } 056^{\circ}46'15''\text{N}$ is extended 50 meters west and defined by position numbers 993 and 994 and hydrography. T-sheet rock in same vicinity is the high point of the T-sheet ledge.
13. T-sheet ledge in the vicinity of $157^{\circ}13'10''\text{W } 056^{\circ}46'23''\text{N}$ is extended 100 meters south and defined by position numbers 995 and hydrography.
14. T-sheet ledge in the vicinity of $157^{\circ}13'30''\text{W } 056^{\circ}46'15''\text{N}$ is extended 50 meters south and defined by position number 706.
15. T-sheet ledge in the vicinity of $157^{\circ}13'54''\text{W } 056^{\circ}46'30''\text{N}$ is extended 50 meters southwest and defined by position number 1360 and hydrography.
16. T-sheet reef in the vicinity of $157^{\circ}14'35''\text{W } 056^{\circ}46'45''\text{N}$ is extended 50 meters ~~north~~^{southwest} and defined by position numbers 1358 and 704.
17. T-sheet reef in the vicinity of $157^{\circ}15'40''\text{W } 056^{\circ}47'30''\text{N}$ is extended 50 meters north and defined by position numbers 700 and 701.
18. T-sheet ledge in the vicinity of $157^{\circ}16'45''\text{W } 056^{\circ}47'30''\text{N}$ is extended 50 meters west and 100 meters south defined by position number 1000 and hydrography.
19. T-sheet reef in the vicinity of $157^{\circ}16'45''\text{W } 056^{\circ}47'36''\text{N}$ is extended 50 meters south and defined by position number 1177 and hydrography.
20. T-sheet reef in the vicinity of $157^{\circ}17'07''\text{W } 056^{\circ}47'36''\text{N}$ is extended 50 meters south and defined by position number 1184 and hydrography.

Recommendations: The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information compiled on T-sheets (TP-001155 and TP-001154). — concur, chart area as shown on the smooth sheet.

New Features

Fifteen new features were found and depicted on the field sheet. Refer to the smooth sheet for graphic portrayal of these features.

| Item | Approximate Position | Position Number | Depth/Height (m) | Remarks |
|---------|--|-----------------|------------------------------------|--|
| 1. Rock | ^{9.82} 056°46'10"N 157°12'27"W | 985 | -0.5 -0.8 | UNCOVERS Exposed with smooth tides applied. |
| 2. Rock | ^{09.35} 056°46'10"N 157°12'31"W | 986 | -0.2 -0.5 | UNCOVERS Exposed " " |
| 3. Rock | ^{7.74} 056°46'08"N 157°12'38"W | 991 | 1.4 1.3 | Submerged " " |
| 4. Rock | ^{25.4} 056°47'26"N 157°16'02"W | 997 | -0.7 1.0 | UNCOVERS Exposed " " |
| 5. Rock | ^{24.69} 056°47'26"N 157°16'05"W | 996 | -0.5 -0.7 | UNCOVERS Exposed " " |
| 6. Rock | ^{26.9} 056°47'27"N 157°16'17"W | 998 | 0.5 0.2 | COVERS " " |
| 7. Rock | ^{14.06} 056°46'40"N 157°14'05"W | 1359 | -0.8 1.1 | UNCOVERS Exposed " " |

8. T-sheet islets in the vicinity of 157°15'15"W 056°47'35"N are rocks (reference no. R9-4).

9. T-sheet rock in vicinity of 157°11'05"W and 056°46'00"N is high point of a new reef defined by position numbers 829 and 830. Rock has been incorporated into ledge.

10. In the vicinity of 157°15'00"W 056°47'30"N position numbers 702 and 703 defines a new reef.

11. T-sheet rock and islet in the vicinity of 157°11'24"W 056°45'55"N are actually high points to a new reef defined by position numbers 848, 849 and 850.

12. Two new rocks listed above and hydrography in the vicinity of 157°12'30"W 056°46'10"N delimit an area foul with rocks (position no. 985 986).

13. The new reef listed above and hydrography in the vicinity of 157°15'00"W 056°47'30"N delimit an area foul with rocks (position no. 703, 702).

14. Two new rocks listed above and hydrography in the vicinity of 157°16'30"W 056°47'30"N delimit an area foul with rocks (position no. 997, 996).

15. Two T-sheet reefs and hydrography in the vicinity of 157°16'45"W 056°47'45"N delimit an area foul with rocks (position no. 1177, 1184).

Recommendation: The hydrographer recommends that the shoreline detail from this survey be used to supersede prior shoreline information. — CONCUR, chart area as shown on the smooth sheet.

K. CROSSLINES ✓

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 30.29 nautical miles, representing 8.3% of the total mainscheme hydrography.

L. JUNCTIONS ✓ See Evaluation Report, section 5.

This survey junctions with survey H-10479 (1:10,000, 1993) to the east. No irregularities were found when comparing soundings and depth curves. Survey H-10484 also junctions with H-10482 (1:20,1993), H-10487 (1:10,1993), H-10486 (1:10,1993), H-10488 (1:10,1993). Final comparisons will be made at the Pacific Hydrographic Section (PHS).

M. COMPARISON WITH PRIOR SURVEYS ✓ See Evaluation report, section 6.

There were no prior surveys done on sheet R.

N. ITEM INVESTIGATIONS ✓

None.

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

No AWOIS items were included in this survey. Concur

Dangers to Navigation ✓

None.

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 | 42 | 903 | 957 | 383 | 64 | 14 | 2363 |
| NM Hydro | 0 | 124.7 | 183.19 | 48.54 | 8.34 | 0 | 364.77 |

| | |
|-----------------------------|------|
| NM ² Hydrography | 16.1 |
| Velocity Casts | 2 |
| Detached Positions | 41 |
| Tide Stations | 0 |
| Reference Numbers | 14 |
| Bottom Samples | 48 |

S. MISCELLANEOUS ✓

LORAN C comparisons were 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 ✓

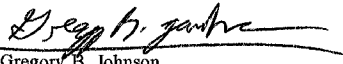
None.

U. REFERRAL TO REPORTS ✓

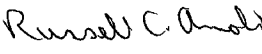
The following supplemental reports contain additional information relevant to this survey:

| <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,


Gregory B. Johnson
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 | HYDRA 1944(M/R & DGPS STATION) |
| 101 | F | 056+45+36.294 | 156+51+13.289 | 17 | 250 | 0.0 | 0.0 | 0.0 | 5-05/27/93 | IBEE |
| 102 | F | 056+50+12.455 | 156+59+01.802 | 33 | 250 | 0.0 | 0.0 | 0.0 | 3-05/23/93 | WOLFF |
| 103 | F | 056+51+01.580 | 156+53+58.164 | 112 | 250 | 0.0 | 0.0 | 0.0 | 2-05/23/93 | CENTRAL 1944 |
| 104 | F | 056+40+00.515 | 157+01+01.282 | 4 | 250 | 0.0 | 0.0 | 0.0 | 6-06/15/93 | LONG 1944 |
| 105 | F | 056+46+55.025 | 157+00+77.740 | 20 | 250 | 0.0 | 0.0 | 0.0 | 5-06/27/93 | EXTRA 1944 |
| 106 | F | 056+47+34.560 | 157+16+31.880 | 0 | 250 | 0.0 | 0.0 | 0.0 | 3-07/08/93 | GATE 1945 |
| 107 | F | 056+48+03.170 | 157+25+36.371 | 17 | 250 | 0.0 | 0.0 | 0.0 | 6-07/09/93 | COON 1945 |
| 108 | F | 056+45+19.732 | 157+29+20.737 | 27 | 250 | 0.0 | 0.0 | 0.0 | 3-07/14/93 | LAND 1945 |

-P80 7/14

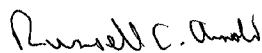
APPROVAL SHEET

for

H-10484
RA-10-13-93

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

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



Russell C. Arnold
Captain, NOAA
Commanding Officer



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: January 5, 1994

MARINE CENTER: Pacific

OPR: P180

HYDROGRAPHIC SHEET: H-10484

LOCALITY: Southeast Approach to Amber Bay,
Shelikof Strait, Alaska

TIME PERIOD: June 29, 1993 - July 17, 1993

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

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

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

REMARKS: RECOMMENDED ZONING

Times are direct and apply a x0.96 range ratio to heights at
Cape Kunmik, Ak. (945-8631).

NOTE: Hourly heights are tabulated on Greenwich Mean Time.

William M. Fisher
CHIEF, DATUMS SECTION
J.F.A.



GEOGRAPHIC NAMES

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 McNALLY ATLAS
H U.S. LIGHT LIST
K

| Name on Survey | A | B | C | D | E | F | G | H | K |
|--------------------------|---|---|---|---|---|---|---|---|----|
| ALASKA (TITLE) | X | | | | | | | | 1 |
| ALASKA PENINSULA (TITLE) | X | | | | | | | | 2 |
| AMBER BAY | X | | | | | | | | 3 |
| CAPE KUNMIK | X | | | | | | | | 4 |
| | | | | | | | | | 5 |
| | | | | | | | | | 6 |
| | | | | | | | | | 7 |
| | | | | | | | | | 8 |
| | | | | | | | | | 9 |
| | | | | | | | | | 10 |
| | | | | | | | | | 11 |
| | | | | | | | | | 12 |
| | | | | | | | | | 13 |
| | | | | | | | | | 14 |
| | | | | | | | | | 15 |
| | | | | | | | | | 16 |
| | | | | | | | | | 17 |
| | | | | | | | | | 18 |
| | | | | | | | | | 19 |
| | | | | | | | | | 20 |
| | | | | | | | | | 21 |
| | | | | | | | | | 22 |
| | | | | | | | | | 23 |
| | | | | | | | | | 24 |
| | | | | | | | | | 25 |

Approved

Charles E. Harrington
Chief Geographer - NCG 2x5

MAR 15 1994

HYDROGRAPHIC SURVEY STATISTICS

H-10484

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 | 2 | | | | |
| 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 | | | 2243 | |
| POSITIONS REVISED | | | | |
| SOUNDINGS REVISED | | | | |
| CONTROL STATIONS REVISED | | | | |
| | TIME-HOURS | | | |
| | VERIFICATION | EVALUATION | TOTALS | |
| PRE-PROCESSING EXAMINATION | | | | |
| VERIFICATION OF CONTROL | | | | |
| VERIFICATION OF POSITIONS | 65.0 | | 65.0 | |
| VERIFICATION OF SOUNDINGS | 80.5 | | 80.5 | |
| VERIFICATION OF JUNCTIONS | | | | |
| APPLICATION OF PHOTOBATHYMETRY | | | | |
| SHORELINE APPLICATION/VERIFICATION | | | | |
| COMPILATION OF SMOOTH SHEET | 29.5 | | 29.5 | |
| COMPARISON WITH PRIOR SURVEYS AND CHARTS | | 6.0 | 6.0 | |
| EVALUATION OF SIDE SCAN SONAR RECORDS | | | | |
| EVALUATION OF WIRE DRAGS AND SWEEPS | | | | |
| EVALUATION REPORT | | 30.0 | 30.0 | |
| GEOGRAPHIC NAMES | | | | |
| OTHER | | | | |
| *USE OTHER SIDE OF FORM FOR REMARKS | | | | |
| | TOTALS | 175 | 36.0 | 211.0 |

| | | |
|--|---------------------------|-------------------------|
| Pre-processing Examination by D. Haines | Beginning Date 6/29/93 | Ending Date 8/31/93 |
| Inclusion of Field Data by R. Shipley, R. Mayor, R. Mihailov, J. Stringham | Time (Hours) 160.5 | Ending Date 9/14/94 |
| Verification Check by S. Otsubo, B. Mihailov | Time (Hours) 11.0 | Ending Date 9/15/94 |
| Evaluation and Analysis by P. Mihailov | Time (Hours) 36.0 | Ending Date 10/19/94 |
| Inspection by H. Olmstead | Time (Hours) 20.0 | Ending Date 1/29/95 |

EVALUATION REPORT

H-10484

1. INTRODUCTION

Survey H-10484 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 21, 1993

This survey was conducted in Alaska along the Alaska peninsula, southwest of Kodiak Island and eleven nautical miles north of Sutwik Island. The area surveyed extends from Cape Kunmik along the shoreline into Amber Bay. Specifically, the survey limits extend from latitude 56/44/00N, to latitude 56/48/00N and from longitude 157/11/00W to longitude 157/20/00W. The shoreline is the northern limit of the survey and is comprised of step bluffs with rocky ledges extending seaward. The bottom consists mainly of shells, sand, and pebbles. The depths ranges from 0 meters to 69 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, 10, 20, 40 and 50 meter. A note was added to the smooth sheet to identify these values. A few supplemental depth curves have been added to the smooth sheet in brown as warranted.

Predicted tides for Ugaiushak, Alaska were used for the reduction of soundings during field processing. Approved hourly heights zoned from Cape Kunmik, Alaska, gage 945-8631 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. 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, 1993.

Differential GPS (DGPS) was used to control this survey. Daily system checks by comparison with MiniRanger positions confirmed the DGPS was operating properly. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. The quality of 97 positions exceeds HDOP limits. These positions are isolated and occur randomly throughout the survey area. A review of the data, however, suggests that none of these fixes are used to position dangers to navigation. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable.

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

Latitude: -2.696 seconds (-83.389 meters)
Longitude: 7.377 seconds (125.318 meters)

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

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-01155 | 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.

3. HYDROGRAPHY

Hydrography is adequate to:

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

The mean lower low water line is largely defined by the ledge information fringing the shoreline. Certain portions of the zero curve could not be completely delineated due to the foul nature of the area.

4. CONDITION OF SURVEY

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

5. JUNCTIONS

Survey H-10484 junctions with the following surveys.

| <u>Survey</u> | <u>Year</u> | <u>Scale</u> | <u>Area</u> |
|---------------|-------------|--------------|-------------|
| H-10479 | 1993 | 1:10,000 | Northeast |
| H-10482 | 1993 | 1:20,000 | Southeast |
| H-10486 | 1993 | 1:10,000 | West |
| H-10487 | 1993 | 1:10,000 | South |
| H-10488 | 1993 | 1:10,000 | Northwest |

The junctions with surveys H-10479, H-10482, H-10486, H-10487 and H-10488 are complete and the soundings are in good agreement.

6. COMPARISON WITH PRIOR SURVEYS

T-8119 (1941-45) 1:20,000
T-8620 (1941-45) 1:20,000

There were no prior surveys specified in the project instructions which cover the common area with the prior survey. However, there were several rocks along the inshore areas which originate from the above prior T-sheets. Although these prior surveys were not available for comparison, rocks from these prior sources were investigated by the hydrographer and disposed of during hydrographic operations.

Survey H-10484 is adequate to supersede the prior T-sheet information within the common area.

7. COMPARISON WITH CHART

Survey H-10484 was compared to the following chart.

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

a. Hydrography

Charted hydrography originates with USC&GS reconnaissance surveys BP40351 (1945), BP39180 (1944) and shoreline maps T-8619(1941-44), T-8620(1941-45) and miscellaneous sources.

Comparison with the chart indicates a 2-18 meters difference with the present survey depths generally shoaler. Differences can be attributed to increased bottom coverage and the less accurate positioning and sounding methods available at the time the reconnaissance surveys were accomplished. The charted shoreline appears to originate from the contemporary shoreline manuscript.

A charted islet at latitude 57/46/00N, longitude 157/11/35W and a ledge charted at latitude 56/47/24N, longitude 157/15/25W were specifically not addressed by the hydrographer. Hydrography conducted in these areas indicates that the features no longer exist and can be considered disproved.

Survey H-10484 is adequate to supersede charted hydrography within the common area.

b. AWOIS

There are no AWOIS items located within the survey area.

c. Controlling Depths

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

d. Aids to Navigation

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

There are no landmarks currently charted within the survey area. The hydrographer recommended no features of landmark value.

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

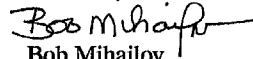
There were no dangers to navigation identified during survey operations and no items warranting danger to navigation correspondence discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10484 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

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


Bob Mihailov
Cartographer

APPROVAL SHEET
H-10484

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.

Bruce Alan Obmsted
for Dennis J. Hill Date: 2/7/95
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 Kathy Timmons, NOAA Date: 2/7/95
Chief, Pacific Hydrographic Section

Final Approval

Approved:

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

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

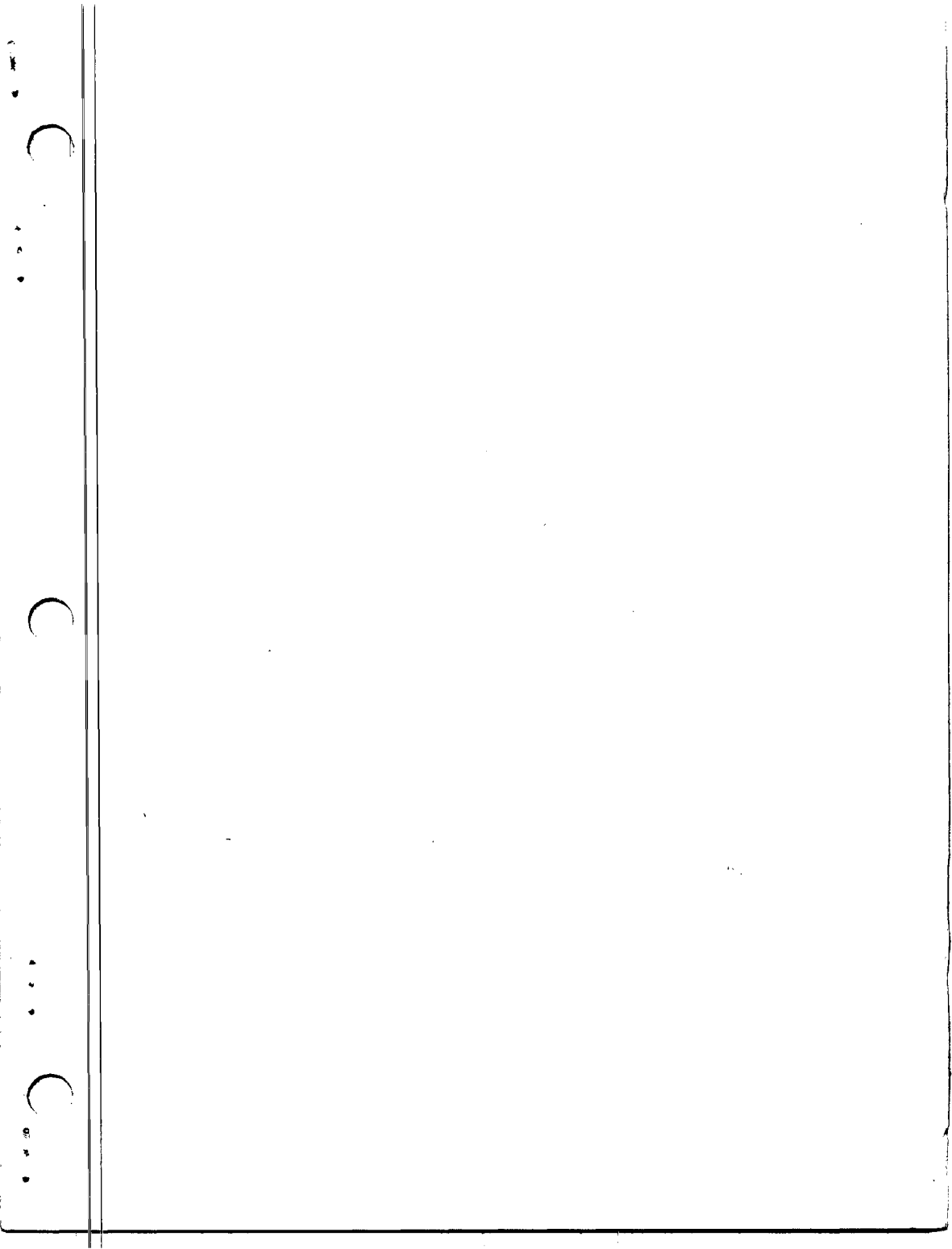
FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10484

INSTRUCTIONS

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

1. Enter 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 | 3/7/94 | <i>Amason</i> | Full Part Before After Marine Center Approval Signed Via <i>Partial application</i> Drawing No. <i>of snags from preliminary sounding plot.</i> |
| 16013 | 6-20-96 | <i>J. Harpene</i> | Full Part Before After Marine Center Approval Signed Via <i>Applied Hydro thra</i> Drawing No. 30 <i>16568</i> |
| 16011 | 6-29-96 | <i>William J. Orr</i> | Full Part Before After Marine Center Approval Signed Via <i>Revised hydro thra</i> Drawing No. 32 <i>16013</i> |
| 16006 | 8-15-96 | <i>William J. Orr</i> | Full Part Before After Marine Center Approval Signed Via <i>Revised hydro thra</i> Drawing No. 28 <i>16011</i> |
| 531 | 8-21-96 | <i>William J. Orr</i> | Full Part Before After Marine Center Approval Signed Via <i>Revised hydro thra</i> Drawing No. 22 |
| | | | 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. |
| | | | Full Part Before After Marine Center Approval Signed Via |
| | | | Drawing No. |



C

...

C

...

C

...