

H110697

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|--|----------------------------------|
| 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-10-13-96 |
| Registry No. | H-10697 |
| LOCALITY | |
| State | Alaska |
| General Locality | Southwest Alaska Peninsula |
| Sublocality | Eight Miles South of Cape Kumlik |
| 19 96 | |
| CHIEF OF PARTY CAPT Dean R. Seidel, NOAA | |
| LIBRARY & ARCHIVES | |
| DATE | OCT. 20. 1997 |

HYDROGRAPHIC TITLE SHEET

H-10697

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-10-13-96

State Alaska

General locality Southwest Alaska Peninsula

Locality Eight Miles South of Cape Kumlik

Scale 1:10,000 Date of survey June 7 - July 31, 1996

Instructions dated May 15, 1996 Project No. OPR-P182-RA

Vessel RAINIER (2120), RA-2 (2122), RA-3 (2123), RA-4 (2124), RA-6 (2126)

Chief of party CAPT Dean R. Seidel, NOAA

Surveyed by NOAA Ship RAINIER Personnel

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

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: I. Almacen Automated plot by HP Design Jet 650C

Verification by J. Stringham, D. Doles, E. Domingo, R. Mayor

Soundings in fathoms feet at MLLW and tenths

REMARKS: All times are 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.

AWCIS/SURF 8/29/97

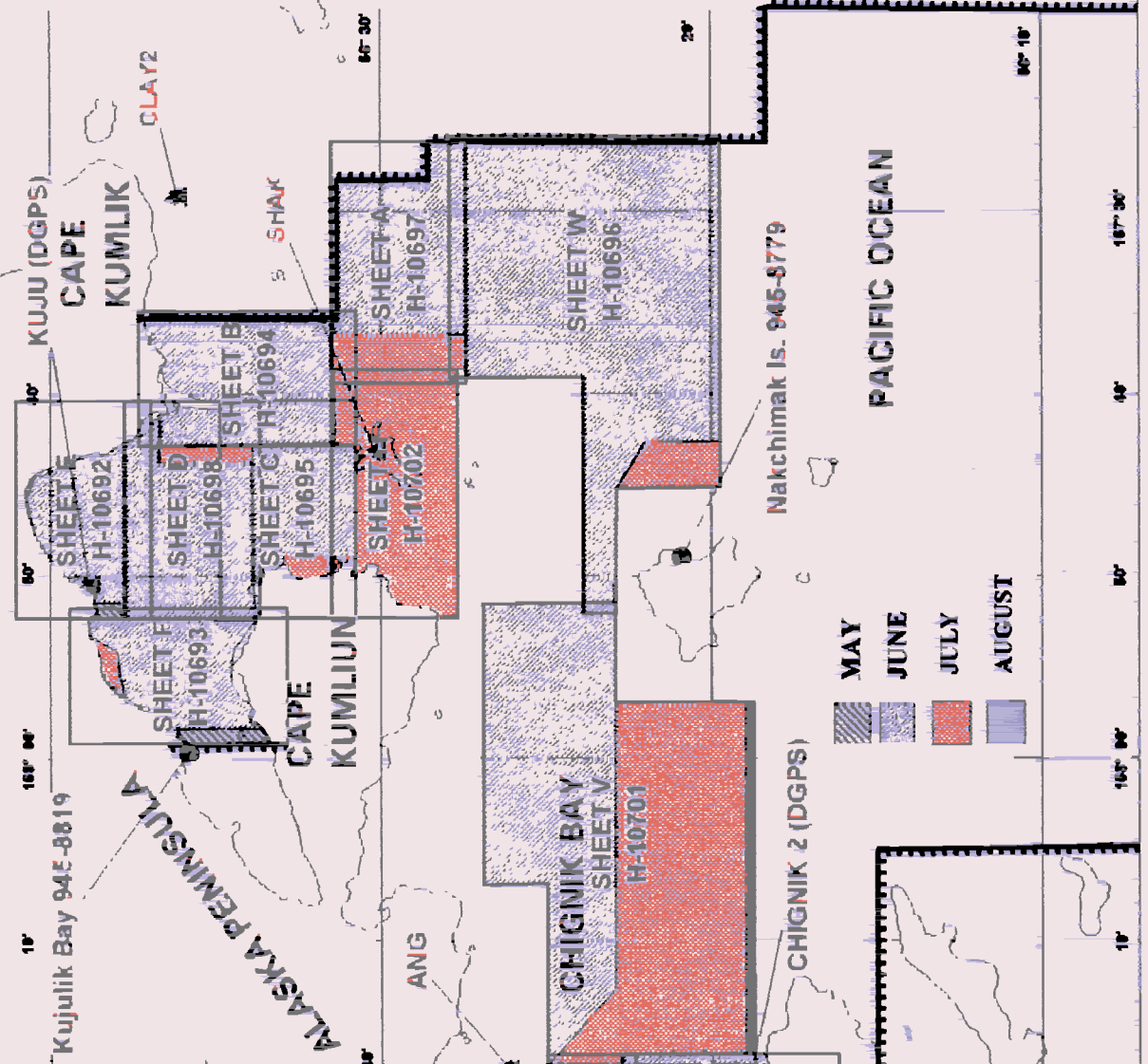
MUR

PROGRESS SKETCH - OPR-P182-96
NOAA SHIP RAINIER
CAPTAIN DEAN R. SEIDEL, COMMANDING

| Sheet | Reg. No. | Started | Percent | Completed | Submitted |
|-------|----------|---------|---------|-----------|-----------|
| E | H-10692 | May 30 | 100 | June 23 | July 19 |
| F | H-10693 | May 30 | 100 | July 24 | |
| B | H-10694 | June 4 | 100 | July 23 | |
| C | H-10695 | June 4 | 100 | July 31 | |
| A | H-10697 | June 7 | 100 | July 31 | |
| D | H-10698 | June 9 | 100 | July 23 | |
| T | H-10699 | June 25 | 100 | July 29 | |
| W | H-10696 | June 9 | 100 | July 31 | |
| V | H-10701 | June 30 | 100 | Aug 3 | |
| H | H-10702 | July 14 | 100 | July 31 | |
| N | H-10705 | July 27 | 100 | Aug 3 | |

| Accomplished | May | June | July | August |
|---------------|-----|------|------|--------|
| LNM Hydro | 37 | 3074 | 2599 | 5.5 |
| LNM SSS | 0 | 0 | 0 | 0 |
| SQ NM | 2 | 200 | 198 | 5.3 |
| AWOIS Invest. | 0 | 2 | 0 | 0 |
| Other Invest. | 0 | 2 | 0 | 0 |

| Downtime Hrs | May | June | July | August |
|-----------------|-----|------|------|--------|
| Weather - Days | 0 | 4 | 1 | 0 |
| Mechanics - Hr | 0 | 1 | 2 | 0 |
| Electronic - Hr | 0 | 1 | 3 | 0 |

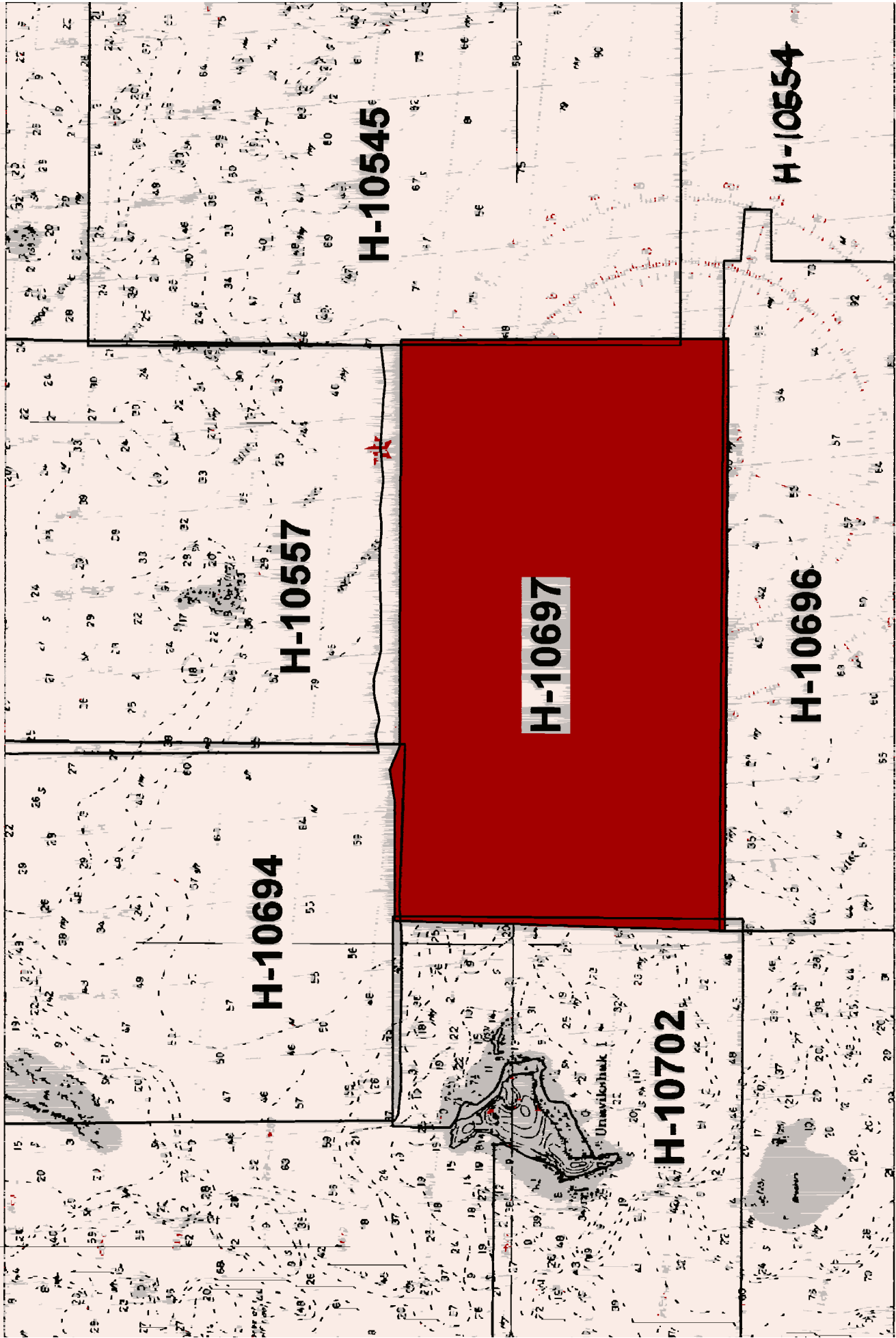


Anchorage Bay 945-8917
CHIGNIK

Nakchimak Is. 945-8779

MAY
JUNE
JULY
AUGUST

PACIFIC OCEAN



H-10694

H-10557

H-10545

H-10697

H-10702

H-10696

H-10654

Unwiltshak I



Descriptive Report to Accompany Hydrographic Survey H-10697

Field Number RA-10-13-96

Scale 1:10,000

June - July 1996

NOAA Ship RAINIER

Chief of Party: Captain Dean R. Seidel, NOAA

A. PROJECT ✓

This basic hydrographic survey was completed eight miles South of Cape Kumlik, Alaska, as specified by Project Instructions OPR-P182-RA dated May 15, 1996. Survey H-10697 corresponds to sheet A as defined in the sheet layout included in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating existing nautical charts of the Southwest Alaska Peninsula, Alaska. Requests for hydrographic surveys and updated charts have been received from a U.S. Congressman, a U.S. Senator, the domestic commercial fishing industry, the United States Coast Guard, and NOAA. The majority of requests are from the commercial fishing industry and reflect concern over charting adequacy for safe navigation in treacherous near shore areas. The project area is also traversed by 300 to 400-ft domestic and cargo vessels calling at western U.S. ports.

B. AREA SURVEYED (See EVAL RPT., Sec. B)

The survey area is located eight miles South of Cape Kumlik, Alaska. The survey's limits are 56° 31' 19" N to the north, 56° 27' 45" N to the south, 157° 39' 42" W to the west, and 157° 28' 28" W to the east. Data acquisition was conducted from June 07, 1996 (DN 159) to July 31, 1996 (DN 213).

C. SURVEY VESSELS ✓

Data were acquired by RAINIER and survey launches as noted below:

| Vessel | EDP # | Operation |
|---------|-------|---|
| RAINIER | 2120 | Hydrography Velocity Casts Bottom Samples |
| RA-2 | 2122 | Hydrography |
| RA-3 | 2123 | Hydrography |

| Vessel | EDP # | Operation |
|--------|-------|-------------|
| RA-4 | 2124 | Hydrography |
| RA-6 | 2126 | Hydrography |

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

Data were acquired and processed using HDAPS Programs. Bottoms samples collected on DN 197 by RAINIER were manually entered into HDAPS. The data was manually entered due to the ship's HYFLEX being used to replace the failed HYFLEX on survey launch RA-2. A complete listing is included in Appendix VI. *

E. SONAR EQUIPMENT ✓

Sonar equipment was not used on H-10697. *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 Table # | DN | Cast Position | Deepest Depth (m) | Applicable DN |
|------------------|-----|---------------------------------|-------------------|----------------------|
| 10 | 200 | 56° 19' 18" N 157° 58' 54" W | 259 | 159-205 |
| 13 | 213 | 56° 29' 24" N 157° 28' 42" W | 200 | 205-213 |
| 22 | 162 | 56° 23' 00" N 157° 46' 54" W | 326 | 159-194 ship only |
| 26 | 213 | 56° 29' 24" N 157° 28' 42" W | 200 | 194-213 ship only |

Casts 10 and 22 plot outside the survey limits.

** Filed with the hydrographic data.*

The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 219), calibrated January 16, 1996. Velocity correctors were computed using the PC programs SEACAT and VELOCITY, version 2.11 (1995), in accordance with Hydrographic Survey Guideline (HSG) No. 69.

A printout of the Sound Velocity Corrector Table 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 RAINIER in the spring of 1995. Transducer depths were determined using FPM Fig 2.2 for vessels 2122-2126 in the spring of 1996. These values were entered into the offset tables* for each survey platform.

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-O136-RA. The data for vessels 2122-2126 were collected in Shilshole Bay, Washington in the Spring of 1996.

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 RAINIER while tables 2-6 correspond to the last digit of the vessel number. The offset tables are contained in the "Separates to be Included with Survey Data".

Heave ✓

The RAINIER is equipped with a heave, roll and pitch sensor, however, the sensor is not configured for HDAPS operations. The launches are not equipped with heave, roll and pitch sensors.

Bar Check and Lead Lines ✓

Bar check lines were calibrated by RAINIER personnel during Spring 1996. Calibration forms are included with project data for OPR-P182-RA. Bar checks were performed periodically as a functional check of the DSF-6000N.

Tide Correctors ✓

Predicted tides for the project were provided on diskette by N/OES334 through N/CS31 for the West End, Sutwik Island, Alaska reference station (945-8665). Tidal correctors as provided in the project instructions for H-10697 are:

| Zone | Time Correction | Height Correction |
|------|-----------------|-------------------|
| 6 | -0 hr 0 min | X1.00 |

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

Sand Point, Alaska (945-9450) is the primary control station for datum determination at all subordinate stations. RAINIER personnel installed Sutron 8200 digital tide gages at Kujulik Bay (945-8819) on May 27, 1996, and Nakchamik Island (945-8779) on June 3, 1996. The tide gages were removed on August 01, 1996 and August 02, 1996 respectively. Each tide staff was connected to five bench marks during the opening and closing level runs. Refer to field tide notes for individual tide gauge performance.

The station descriptions, field tide records, preliminary field tide notes and data (Appendix V)* have been forwarded to N/OES212 in accordance with HSG 50 and FPM 4.3. A request for approved tides was forwarded to N/OES23 in accordance with FPM 4.2.3. *Approved tide note dated November 22, 1996 is attached.*

H. CONTROL STATIONS *(See EVAL RPT, Sec. H)*

The horizontal datum for this project is NAD 83. No new control points were established for this survey. *list of control stations used for this survey is attached to this report.* See the OPR-P182-RA-96 Horizontal Control Report for more information.

I. HYDROGRAPHIC POSITION CONTROL *(See EVAL RPT, Sec. I)*

Method of Position Control ✓

All soundings and features were positioned using differential GPS. Serial numbers for vessel GPS equipment are annotated on the data printouts.*A VHF differential reference station was established at KUJU. No multi-path or other systemic error was indicated by Monitor, version 3.0. The USCG modulated radio reference station (aka "DGPS beacon") at Kodiak was also monitored and occasionally used for positioning on the northeast corner of the survey when VHF correctors could not be received from KUJU.

Calibrations & Systems Check Methods ✓

Launch-to-launch DGPS performance checks were performed in accordance with Section 3.4.4 of the FPM. Some outliers were noted, but none indicated systematic or continuous errors in the Kodiak DGPS beacon. The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-P182-RA.

J. SHORELINE ✓

This survey contains no shoreline. *Concur.*

K. CROSSLINES ✓

Crosslines agreed within 1 meter with mainscheme hydrography. Total mileage was 29.75 nautical miles or 8.2% of total mainscheme hydrography.

L. JUNCTIONS (*See EVAL RPT., Sec. L*)

This survey junctions with contemporary survey H-10696, RA-20-1-96, 1:20,000, at the southern limit, H-10702, RA-10-16-96, 1:10,000, at the western limit, and H-10694, RA-10-11-96, 1:10,000, at the northern limit. Soundings were found to be in good agreement. The survey was also bounded by recent surveys H-10557 at the northern limit and H-10545 and H-10554 at the eastern limit from OPR-P180-89. Copies of these junction surveys were not available for comparison. Final comparison will be made at the Pacific Hydrographic Branch (PHB).

M. COMPARISON WITH PRIOR SURVEYS (*See EVAL RPT., Sec. M*)

One prior survey covers the area surveyed: H-4506, 1:60,000, 1925. The soundings from the present survey were in agreement with the prior survey. Shoaler depths were frequently found during this survey due to modern equipment and larger survey scale. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.

N. ITEM INVESTIGATIONS ✓

This survey did not contain AWOIS items. *Concur.*

O. COMPARISON WITH THE CHART (*See EVAL RPT., Sec. O*)

This survey was compared in the field to NOS chart 16566, 7th Edition, October 28, 1989, 1:77,477 scale, (NAD 83). The charted soundings were found to be in good agreement. Least depths from this survey were shoaler due to modern survey equipment and increased sounding density. Final sounding comparisons will be made at PHB after reduction to final vertical datum.

Dangers to Navigation ✓

No dangers to navigation were found within the limits of H-10697. *CONCUR.*

P. ADEQUACY OF SURVEY ✓

Survey H-10697 is complete and adequate to supersede prior soundings and features in their common areas. *CONCUR*

Q. AIDS TO NAVIGATION ✓

There were no aids to navigation located within the survey area. *CONCUR.*

R. STATISTICS ✓

| | |
|-----------------------------|--------|
| NM Hydrography | 361.3 |
| Velocity Casts | 3 |
| Detached Positions | 0 |
| Selected Soundings | 14,781 |
| Bottom Samples | 53 |
| Tide Stations | 2 |
| NM ² Hydrography | 23.4 |
| Dives | 0 |

S. MISCELLANEOUS ✓

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. No unusual tidal currents or magnetic variations were found during this survey. Secchi disk observations were not performed in this survey area.

T. RECOMMENDATIONS ✓ (*See EVAL RPT., Sec. T*)


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 1996 Horizontal Control Report for OPR-P182-RA. | August, 1996 | N/CS34 |
| Summer 1996 Coast Pilot Report for OPR-P182-RA. | August, 1996 | N/CS26 |
| Project related data for OPR-P182-RA. | Incremental | N/CS34 |
| Secchi Disk Observations for OPR-P182-RA. | August, 1996 | N/CS31 |

Respectfully Submitted,


James M. Crocker
Lieutenant (jg), NOAA

Approved and Forwarded,


Dean R. Seidel
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 1 Dec 1999 ✓

| No | Type | Latitude | Longitude | H | Cart | Freq | Vel Code | MM/DD/YY | Station Name |
|-----|------|---------------|---------------|-----|------|------|----------|------------|------------------------------|
| 001 | G | 056:38:37.566 | 157:50:29.988 | 30 | 250 | 0.0 | 0.0 | 1 05/27/96 | KUJU 1920 |
| 002 | G | 056:19:28.097 | 158:19:45.257 | 122 | 250 | 0.0 | 0.0 | 3 06/24/96 | CHIGNIK 2 UW1351 DGPS FREQ 3 |
| 100 | G | 057:37:07.800 | 152:11:21.000 | 0 | 250 | 0.0 | 0.0 | A 03/01/96 | KODIAK 313 KHZ USCG DGPS |
| 101 | G | 055:05:30.000 | 162:31:54.000 | 0 | 250 | 0.0 | 0.0 | B 06/25/96 | COLD BAY 289 KHZ USCG DGPS |

APPROVAL SHEET

for

H-10697

RA-10-13-96

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and the 1994 version of 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.



Dean R. Seidel
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: November 22, 1996

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-P182-RA

HYDROGRAPHIC SHEET: H-10697

LOCALITY: Eight Miles South of Cape Kumlik, Southwest Alaska
Peninsula, Alaska

TIME PERIOD: June 7 - July 31, 1996

TIDE STATION USED: 945-8779 Nakchamik Island, Ak.
Lat. 56° 21.1'N Lon. 157° 48.7'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.491 meters

TIDE STATION USED: 945-8819 Kujulik Bay, Ak.
Lat. 56° 36.0'N Lon. 157° 59.0'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.640 meters

TIDE STATION USED: 945-8917 Chignik, Anchorage Bay, Ak.
Lat. 56° 17.8'N Lon. 158° 24.0'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.472 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: #SAP11 & #SAP13
Refer to Attachment(s) for zoning information

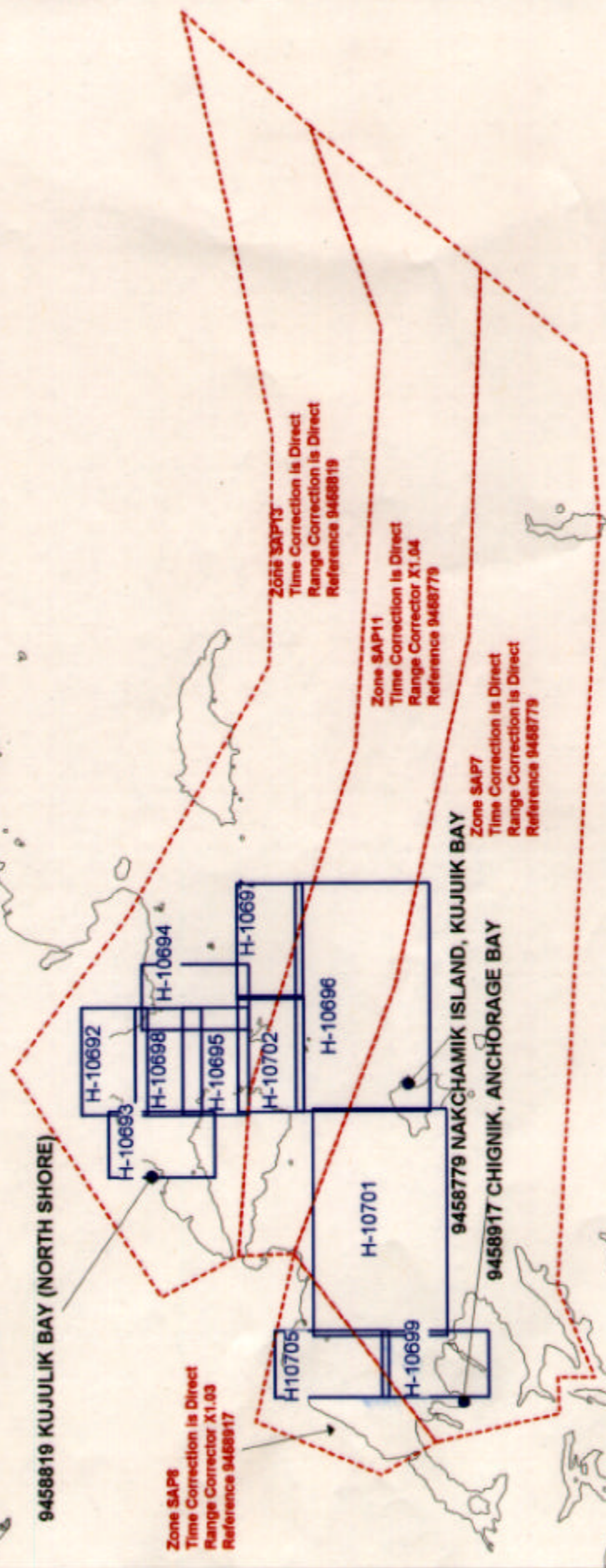
Note: Times are tabulated in Greenwich Mean Time.



CHIEF, TIDAL ANALYSIS BRANCH



Final Zoning for OPR P182-RA-96 Southwest Alaska Peninsula, AK



| Zone | Ref | TC | Range | Ref1 | TC1 | Range1 | Ref2 | TC2 | Range2 | Ref3 | TC3 | Range3 |
|-------|---------|----|-------|---------|-----|--------|---------|-----|--------|---------|-----|--------|
| SAP7 | 9458779 | 0 | 1.00 | 9458917 | 0 | 1.00 | 9458819 | 0 | 0.94 | 9459450 | 0 | 1.30 |
| SAP8 | 9458917 | 0 | 1.03 | 9458779 | 0 | 1.02 | 9458819 | 0 | 0.96 | 9459450 | 0 | 1.33 |
| SAP11 | 9458779 | 0 | 1.04 | 9458917 | 0 | 1.05 | 9458819 | 0 | 0.97 | 9459450 | 0 | 1.35 |
| SAP13 | 9458819 | 0 | 1.00 | 9458779 | 0 | 1.08 | 9458917 | 0 | 1.08 | 9459450 | 0 | 1.39 |

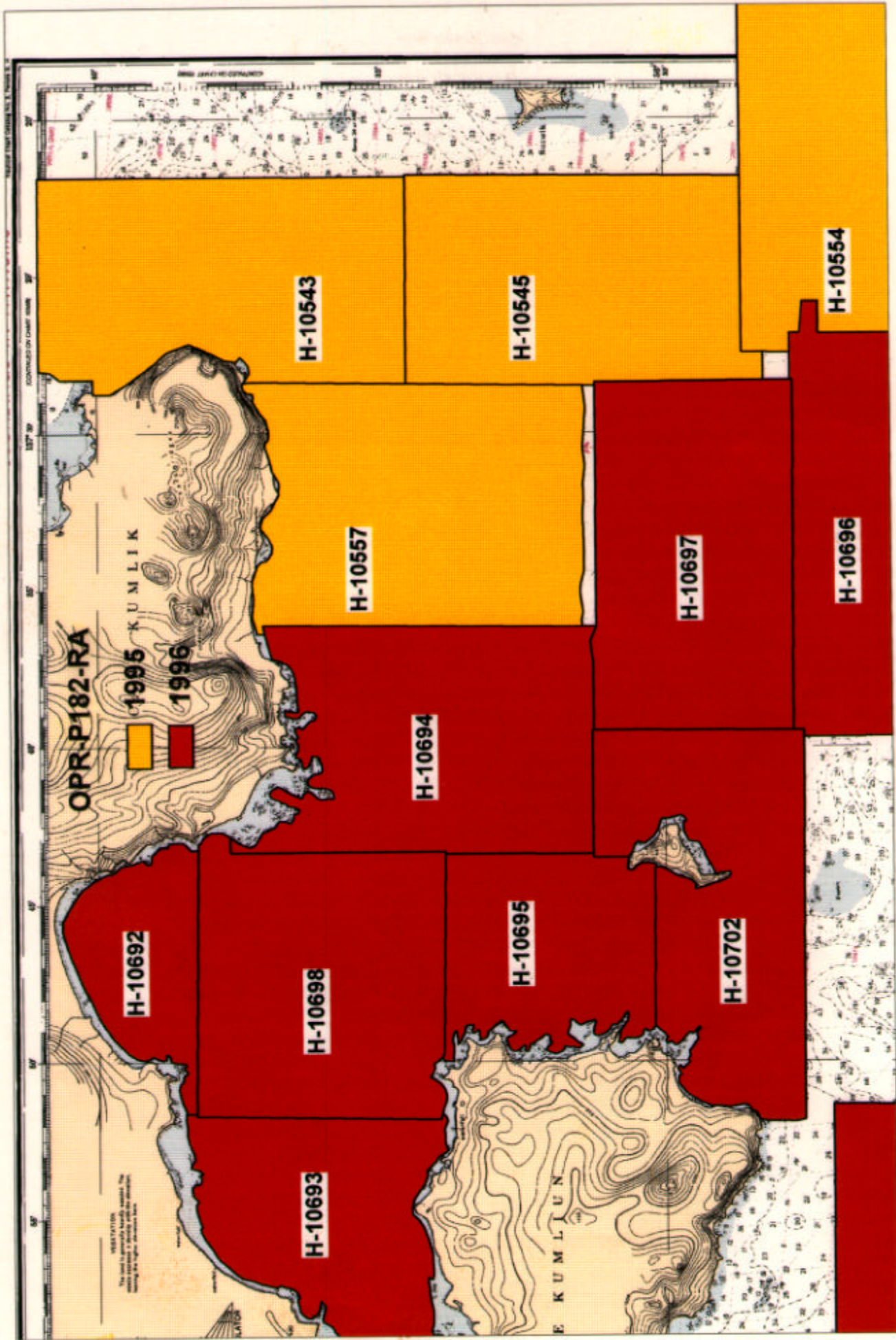
GEOGRAPHIC NAMES

| Name on Survey | A ON CHART NO. 16566 B ON PREVIOUS SURVEY No. 16013 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 | | | | | | | | | | |
|--------------------------|---|---|---|---|--|--|--|--|--|--|----|
| | ALASKA (title) | X | | X | | | | | | | |
| ALASKA PENINSULA (title) | X | | X | | | | | | | | 2 |
| KUMLIK, CAPE (title) | X | | X | | | | | | | | 3 |
| NORTH PACIFIC OCEAN | X | | X | | | | | | | | 4 |
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Approved

Chris C. Boyd
Chief Geographer

SEP 30 1996



HYDROGRAPHIC SURVEY STATISTICS

H-10697

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

| RECORD DESCRIPTION | | AMOUNT | RECORD DESCRIPTION | | | AMOUNT |
|--------------------|-------------------|----------------------|------------------------------------|-----------|----------------------------|--------|
| SMOOTH SHEET | | 1 | SMOOTH OVERLAYS: POS., ARC, EXCESS | | | NA |
| DESCRIPTIVE REPORT | | 1 | FIELD SHEETS AND OTHER OVERLAYS | | | NA |
| DESCRIP-TION | DEPTH/POS RECORDS | HORIZ. CONT. RECORDS | SONAR-GRAMS | PRINTOUTS | ABSTRACTS/SOURCE DOCUMENTS | |
| ACCORDION FILES | 2 | | | | | |
| ENVELOPES | | | | | | |
| VOLUMES | | | | | | |
| CAHIERS | | | | | | |
| BOXES | | | | | | |

| SHORELINE DATA | |
|-----------------------------------|--------------------------------------|
| SHORELINE MAPS (List): | None |
| PHOTOBATHYMETRIC MAPS (List): | NA |
| NOTES TO THE HYDROGRAPHER (List): | NA |
| SPECIAL REPORTS (List): | NA |
| NAUTICAL CHARTS (List): | Chart 16566, 8th Ed., August 3, 1996 |

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 REMOVED (selected) | | | 14,833 | |
| CONTROL STATIONS REVISED | | | | |
| | TIME-HOURS | | | |
| | VERIFICATION | EVALUATION | TOTALS | |
| PRE-PROCESSING EXAMINATION | | | | |
| VERIFICATION OF CONTROL | | | | |
| VERIFICATION OF POSITIONS | | | | |
| VERIFICATION OF SOUNDINGS | | | | |
| VERIFICATION OF JUNCTIONS | | | | |
| APPLICATION OF PHOTOBATHYMETRY | | | | |
| SHORELINE APPLICATION VERIFICATION | | | | |
| COMPILATION OF SMOOTH SHEET | 68.50 | | 68.5 | |
| COMPARISON WITH PRIOR SURVEYS AND CHARTS | | 6.0 | 6.0 | |
| EVALUATION OF SIDE SCAN SONAR RECORDS | | | | |
| EVALUATION OF WIRE DRAGS AND SWEEPS | | | | |
| EVALUATION REPORT | | 19.0 | 19.0 | |
| GEOGRAPHIC NAMES | | | | |
| OTHER* | | | | |
| *USE OTHER SIDE OF FORM FOR REMARKS | TOTALS | 68.50 | 25.0 | 93.5 |

| | | |
|--|---------------------------|------------------------|
| Pre-processing Examination by J. Stringham | Beginning Date 8/16/96 | Ending Date 8/19/96 |
| Verification of Field Data by J. Stringham, D. Doles, E. Domingo, R. Mayor | Time (Hours) 68.50 | Ending Date 1/22/97 |
| Verification Check by B. Olmstead | Time (Hours) 3 | Ending Date 4/9/97 |
| Evaluation and Analysis by I. Almacen | Time (Hours) 25.0 | Ending Date 4/4/97 |
| Inspection by B. Olmstead | Time (Hours) 8 | Ending Date 4/14/97 |

EVALUATION REPORT

H-10697

A. PROJECT

Project information is discussed in the hydrographer's report.

B. AREA SURVEYED

This basic hydrographic survey was conducted off the southeast coast of the Alaska Peninsula covering an area about eight (8) nautical miles south of Cape Kumlik. The bottom is mainly composed of sand, gravel and mud mixed with broken shells. Depths range from 16.8 to 108.0 fathoms.

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.

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 plot is filed both in the AutoCad drawing format, i.e., .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 approved.

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 the Hydrographic Survey Guideline No. 75 and No. 35.

The field sheet parameters have been revised to center the hydrography on the office plot. 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 during this survey.

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 tide, dynamic draft, and sound velocity. These reducers have been reviewed and are consistent with present NOS specifications. Actual tide reduction is derived from Nakchamik Island, Alaska gage (945-8779), Chignik, Anchorage Bay, Alaska gage (945-8917), and Kujulik Bay, Alaska gage (945-8819). Refer to the approved tide note attached to this report concerning recommended tidal zoning.

H. CONTROL STATIONS

A list of Differential Global Positioning System (DGPS) reference stations used during this survey is attached to this report.

The positions of DGPS reference stations used during hydrographic operations are published values based on NAD 83. The geographic positions of all survey data are also based on NAD 83. The AutoCAD generated smooth sheet is annotated with an NAD27 adjustment tick based on values determined with NGS program NADCON.

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

Latitude: -2.735 seconds (-84.600 meters)
Longitude: 7.343 seconds (125.643 meters)

I. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used to control this survey. NAD83 is used as the horizontal datum for plotting and position computations. A horizontal dilution of precision (HDOP) limits of 3.75 was computed for survey operations. The maximum HDOP allowable limit has not been exceeded during this survey and the quality of data obtained is considered good. The reference site confirmation test using the program SHIPDIM and the daily DGPS performance checks conducted in the field were adequate.

J. SHORELINE

Survey H-10697 is an offshore survey and contains no shoreline information.

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10697 junctions with the following surveys.

| <u>Survey</u> | <u>Year</u> | <u>Scale</u> | <u>Area</u> |
|---------------|-------------|--------------|-------------|
| H-10545 | 1994 | 1:10,000 | East |
| H-10554 | 1994 | 1:10,000 | East |
| H-10557 | 1994 | 1:10,000 | North |
| H-10694 | 1996 | 1:10,000 | North |
| H-10696 | 1996 | 1:10,000 | South |
| H-10702 | 1996 | 1:10,000 | West |

The junctions with surveys H-10694, H-10696 and H-10702 are complete. The depth curves and soundings within the junction areas are in satisfactory agreement.

The junctions with surveys H-10545, H-10554 and H-10557 have not been formally completed since these surveys were previously processed and forwarded to headquarters for charting. There is satisfactory agreement in depths with the 1994 surveys. However, holidays were noted along the northern section and the southeast corner of the present survey (see Attachment 1). Additional hydrography should be done to accomplish an adequate junctions with surveys H-10545, H-10554 and H-10557. The depth curves depicted on these 1994 surveys delineate soundings in meters, and therefore, are not in coincidence with the present survey.

M. COMPARISON WITH PRIOR SURVEYS

Survey H-10697 was compared with the following prior survey.

H-4506 (1925), scale 1:60,000

Survey H-4506 covers the area of the present survey. Comparisons with these prior surveys are considered satisfactory. A few isolated shoal areas not found in the 1925 surveys were located during this survey. The present depths were found to be generally shoaler by about 1.0 to 5.0 fathoms in most areas. The differences noted in this survey can be attributed to the increased bottom coverage of the area and the application of more accurate positioning

and sounding methods presently available in the field.

H-10697 is adequate to supersede the prior surveys within the common area.

N. ITEM INVESTIGATIONS

There are no AWOIS item investigations assigned to this survey.

O. COMPARISON WITH CHART

Survey H-10697 was compared with the following editions of chart 16566.

| <u>Chart</u> | <u>Edition</u> | <u>Date</u> | <u>Scale</u> | <u>Datum</u> |
|--------------|----------------|--------------|--------------|--------------|
| 16566 | 8th | Aug. 3, 1996 | 1:17,477 | NAD83 |
| 16566 | 7th | Oct.28, 1989 | 1:77,477 | NAD83 |

a. Hydrography

Charted hydrography originates with the previously mentioned prior hydrographic survey. This prior survey has been adequately addressed in the preceding section of this report and requires no further discussion.

The 8th Edition of Chart 16566 reflects the latest information not portrayed on the previous edition. However, there are no differences noted between chart editions within the area of the present survey.

Survey H-10697 is adequate to supersede charted hydrography within the common area of coverage.

b. Dangers to Navigation

No reports of dangers to navigation were generated during the field or office processing.

P. ADEQUACY OF SURVEY

With the exception of the holidays mentioned in the preceding section of this report, the hydrography on survey H-10697 is adequate to:

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

Hydrography on survey H-10697 was acquired in the field in metric units while the AutoCAD generated smooth sheet for this survey was compiled in fathoms to conform to the sounding unit of the existing NOS nautical charts of the area.

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.

Survey H-10697 adequately complies with the project instructions.

Q. AIDS TO NAVIGATION

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

There are no prominent features of landmark value located around the survey area.

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

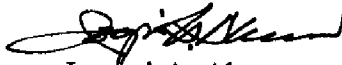
Miscellaneous information concerning this survey is discussed in the hydrographer's report. No additional miscellaneous items were noted during office processing.

T. RECOMMENDATIONS

Survey H-10697 is an adequate hydrographic survey. However, the unsurveyed areas mentioned in this report should be completed, if possible, during the next field season when the ship returns to this area of Alaska.

U. REFERRAL TO REPORTS

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


Isagani A. Almacén
Cartographer

APPROVAL SHEET
H-10697

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 survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Bruce A. Olmstead Date: 4/21/97
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: 4/28/97
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Andrew A. Armstrong III Date: Oct. 30, 1997
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-10697

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 |
|-------|---------|--------------------|--|
| 16566 | 4/20/97 | <i>[Signature]</i> | Full Part Before After Marine Center Approval Signed Via |
| | | | Drawing No. <i>Full application of soundings and curves from smooth sheet.</i> |
| | | | Full Part Before After Marine Center Approval Signed Via |
| | | | Drawing No. |
| | | | Full Part Before After Marine Center Approval Signed Via |
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| | | | Drawing No. |
| | | | <u>Charts</u> |
| | | | 16566 App'd 1/9/98 LBennett |
| | | | 16013 |
| | | | 16011 |
| | | | 16006 |