

H10696

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. RA-20-1-96
Registry No. H-10696

LOCALITY

State Alaska
General Locality Southwest Alaska Peninsula
Sublocality Ten Miles Southeast of
Cape Kumlik

1996

CHIEF OF PARTY
CAPT Dean R. Seidel, NOAA

LIBRARY & ARCHIVES

DATE OCT 27 1997

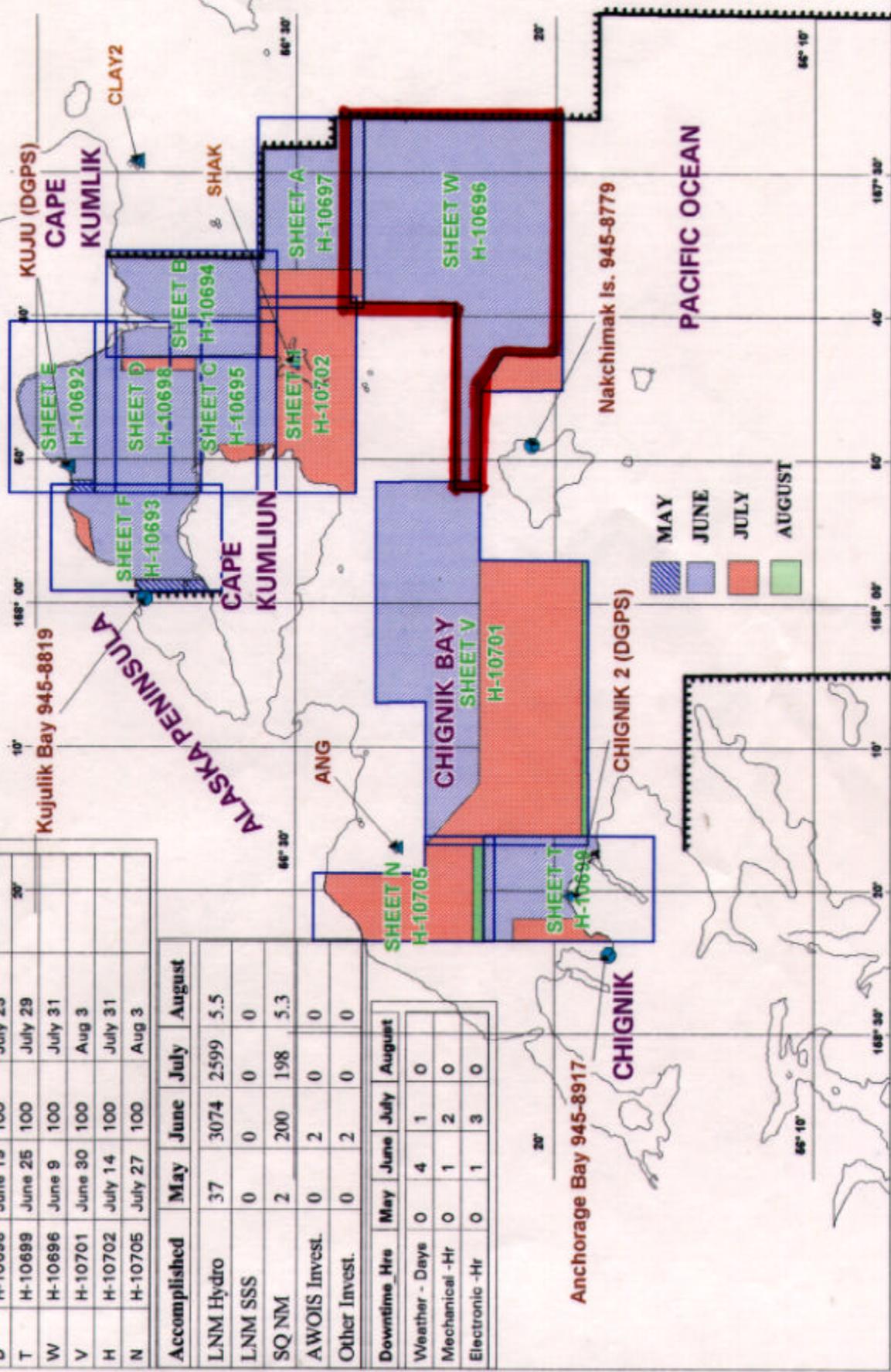
NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTER NO. H-10696
HYDROGRAPHIC TITLE SHEET		
INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.		FIELD NO. RA-20-1-96
State <u>Alaska</u>		
General locality <u>Southwest Alaska Peninsula</u>		
Locality <u>Ten Miles Southeast of Cape Kumlik</u>		
Scale <u>1:20,000</u> Date of survey <u>June 9 - July 31, 1996</u>		
Instructions dated <u>May 15, 1996</u> Project No. <u>OPR-P182-RA</u>		
Vessel <u>NOAA Ship RAINIER(2120), RA-4(2124)</u>		
Chief of party <u>CAPT Dean R. Seidel, NOAA</u>		
Surveyed by <u>NOAA Ship RAINIER Personnel</u>		
Soundings taken by <u>echo sounder, and lead, etc</u> <u>DSF-6000N</u>		
Graphic record scaled by <u>RAINIER Personnel</u>		
Graphic record checked by <u>RAINIER Personnel</u>		
Evaluation by: <u>B. Mihailov</u> Automated plot by <u>HP Design Jet 650C</u>		
Verification by <u>B. Mihailov</u>		
Soundings in <u>Fathoms</u> fathoms feet at MLLW <u>MLLW</u> and tenths		
REMARKS: <u>All times UTC, revisions and marginal notes in black were</u> <u>generated during office processing. All separates are filed with</u> <u>the hydrographic data, as a result page numbers may be interrupted</u> <u>or non-sequential. All depths listed in this report are</u> <u>referenced to mean lower low water unless otherwise noted.</u> <u>AWOIS/SUNIF 10/20/97 mlr</u>		

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 29	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 19	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
Mechanical -Hr	0	1	2	0
Electronic -Hr	0	1	3	0



Anchorage Bay 945-8917
CHIGNIK

CHIGNIK BAY
SHEET V
H-10701

Nakchimak Is. 945-8779

MAY
JUNE
JULY
AUGUST

PACIFIC OCEAN

Descriptive Report to Accompany Hydrographic Survey H-10696

Field Number RA-20-1-96

Scale 1:20,000

June-July 1996

NOAA Ship RAINIER

Chief of Party: Captain Dean R. Seidel, NOAA

A. PROJECT ✓

This basic hydrographic survey was completed ten miles south of Cape Kumlik, as specified by Project Instructions OPR-P182-RA dated May 15, 1996. Survey H-10696 corresponds to sheet W as defined in the sheet layout included in the Project Instructions. This survey will provide data to supersede circa 1925 leadline surveys of this area. Requests for hydrographic surveys and updated charts have been received from congressional leaders, commercial fishing interests, the United States Coast Guard, and NOAA. Near-shore navigation and anchorages are a major concern, especially for fishermen, in this region of the Alaska Peninsula due to the harsh weather and treacherous waters.

B. AREA SURVEYED ✓

The survey area is located along the southern coast of the Alaska Peninsula, southeast of Unavikshak Island, northeast of Nakchamik Island, and southwest of Sutwik Island. The survey's northern limit is bounded by latitude 56° 27' 48" N. The survey's southern limit is 56° 19' 48" N, and the eastern limit is 157° 26' 42" W. The western limits are bounded by 157° 45' 42" W, south of 56° 22' 48" N; by 157° 51' 54" W between 56° 22' 48" N and 56° 23' 42" N; and by 157° 39' 48" W north of 56° 23' 42" N. Data acquisition was conducted from June 9, 1996 (DN 161) to July 31, 1996 (DN 213).

C. SURVEY VESSELS ✓

Data were acquired by RAINIER survey launches as noted below:

Vessel	EDP #	Operation
RAINIER	2120	Hydrography Sound Velocity Casts Bottom Samples
RA-4	2124	Hydrography

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

All data were acquired and processed using the Hydrographic Data Acquisition and Processing System (HDAPS.) A complete listing of software for HDAPS is included in Appendix VI. *

* Filed with the hydrographic data.

E. SONAR EQUIPMENT ✓

Sonar equipment was not used on H-10696. *Censor*

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 #	Cast #	DN	Cast Position	Deepest Depth (m)	Applicable DN
22	4	162	56° 23' 00" N 157° 46' 54" W	326	161-189
10	12	200	56° 19' 18" N 157° 58' 54" W	259	190-204
24	12	200	56° 19' 18" N 157° 58' 54" W	259	190-204
11	13	210	56° 23' 52" N 157° 58' 53" W	285	205-213
25	13	210	56° 23' 52" N 157° 58' 53" W	285	205-213

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.**Cast 10, 24, 11 and 25 were taken outside the survey area.*

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 and for vessel 2124 in the spring of 1996. These values were entered into the*offset tables for each survey platform.

* Filed with the hydrographic data.

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-P182-RA. The data for vessel 2124 were collected in Shilshole Bay, Washington in the Spring of 1996. Data for RAINIER were acquired in Alaska during the Summer of 1994.

Offset Tables ✓

Offset tables^{*} contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset table 1 pertains to RAINIER; offset table 4 pertains to vessel 2124. The offset tables are contained in the "Separates to be Included with Survey Data". *

Heave ✓

The launches are not equipped with heave, roll and pitch sensors. The Hippy heave sensor aboard RAINIER is not connected to HDAPS.

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 occasionally and served 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-10696 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) was used as the primary control station for datum determination at all subordinate stations.

RAINIER personnel installed Sutron 8200 digital tide gages at Nakchamik Island (945-8779) on June 3, 1996 and at Chignik (945-8917) on June 24, 1996. Each tide staff was connected to five bench marks during the opening and closing level runs. *Approved Tide Note dated November 22, 1996 is attached.*

** Filed with the hydrographic data.*

OLLD granted a waiver on June 7, 1996 to commence work on H-10696 prior to the installation of the West Chignik (945-8941) tide gage, as prescribed in Project Instructions OPR-P182-RA dated May 15, 1996. RAINIER requested this waiver due to adverse weather in the Project area that prevented timely installation. In addition, OLLD permitted RAINIER to install a gage on the pier in Chignik, Anchorage Bay (945-8917) instead of West Chignik (945-8941). The Anchorage Bay location provided better weather protection and accessibility as well as easier installation.

The Nakchamik tide gage did not collect applicable data after July 26 (DN 208), 1996, after heavy surf snapped the orifice tubing. The problem was reported to OLLD, and a waiver was granted to continue hydrographic data collection on DN 213.

The Chignik tide gage ran out of nitrogen gas between July 18-24, 1996. The gage continued to operate during this period using remaining gas left in the orifice tubing. The empty nitrogen tank was replaced on July 24, 1996.

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. Survey depths generally range from 30 to over 100 fathoms. Data was analyzed during office processing and found to be consistent with surrounding depth information. *See Eval Report, Section H.*

The horizontal datum for this project is NAD 83. The control stations are listed in Appendix III. See the OPR-P182-RA-96 Horizontal Control Report for more information. Control Station List is appended to this report. *See Eval Report, Section I.*

I. HYDROGRAPHIC POSITION CONTROL ✓ *See Eval Report, Section I.*

Method of Position Control ✓

All soundings and features were positioned using differential GPS. Serial numbers for vessel GPS equipment are annotated on the data printouts. Differential GPS correctors from the Kodiak Coast Guard beacon were used for positioning. In addition, VHF differential reference stations were established at KUJU and CHIG2. No multi-path or other systemic error was indicated.

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. Performance checks were performed daily while the beacon was in use. The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-P182-RA.

Problems ✓

None.

J. SHORELINE ✓

The survey area is offshore and therefore does not encompass shoreline features.

K. CROSSLINES ✓

Crosslines agreed within one meter with mainscheme hydrography. Total mileage, was 35.2 nautical miles or 6.3 % of total mainscheme hydrography.

L. JUNCTIONS ✓ See Eval Report, Section L.

H-10696 junctions with the following surveys: to the east, H-10554 (1994, 1:20,000); to the north, H-10697 (1996, 1:10,000); and H-10701 (1996, 1:20,000) to the west. No contemporary survey exits on the southern border. Soundings were found to be in good agreement. Final comparison will be made at the Pacific Hydrographic Branch (PHB).

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

Three prior surveys cover different parts of this survey: H-4495, 1:20,000, 1925⁴⁴⁴⁹; H-4506, 1:20,000, 1925⁴⁵⁰⁶; and H-4510, 1:20,000, 1925⁴⁵¹⁰. Prior surveys were not available on board for comparison. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.

N. ITEM INVESTIGATIONS

No AWIOS items were assigned to H-10696. Concur

O. COMPARISON WITH THE CHART See Eval Rpt., Section O.

This survey was compared in the field to NOS chart 16566, 7th Edition, October 28, 1989, 1:77,477 scale, (NAD 83). In addition, an enlargement of this chart was used to place soundings converted to meters onto the boat sheet. Least depths from this survey were often shoaler due to modern survey equipment, with the following exceptions: *It is also likely that the positioning of the charted depths is suspect.*

A charted 63 fathoms (115 m) depth at 56° 24' 42" N, 157°38' 05" W. RAINIER ran 400 meter mainscheme over the area resulting in shoalest depths around 95 fathoms (175 m). - CONCUR, *ok*
Survey sounding within charted 63 fm range from 94 fms to 97 fms.

A charted 69 fathoms (126 m) depth at 56° 25' 54" N, 157°32' 18" W. RAINIER ran 400 meter mainscheme over the area resulting in shoalest depths around 75 fathoms (138 m). - CONCUR - *ok*
Survey soundings within 69 fm range from 50 fms to 91 fms. 800 meters north of the charted depth.

A charted 76 fathoms (139 m) depth at 56° 24' 54" N, 157°30' 42" W. RAINIER ran 400 meter mainscheme over the area resulting in shoalest depths around 107 fathoms (195 m). - CONCUR, *ok*
depths in the area range from 105 fms to 109 fms.

A charted 71 fathoms (130 m) depth at 56° 25' 00" N, 157°28' 28" W. RAINIER ran 400 meter mainscheme over the area resulting in shoalest depths around 105 fathoms (192 m). - CONCUR *ok*

These depths do not represent a hazard to navigation and the hydrographer recommends superseding charted soundings with the results of this survey. - CONCUR

Dangers to Navigation ✓

None.

P. ADEQUACY OF SURVEY ✓

Survey H-10696 is complete and adequate to supersede prior soundings and features in their common areas. *Concur*

Q. AIDS TO NAVIGATION ✓

No Aids to Navigation exist within the survey area. *Concur*

R. STATISTICS

NM Hydrography	644
Velocity Casts	3
Detached Positions	0
Selected Soundings	11738 11749
Bottom Samples	41
Tide Stations	2
NM ² Hydrography	70.7
Dives	0

S. MISCELLANEOUS ✓

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. No unusual tidal currents were found during the time of this survey.

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>
Spring 1996 Horizontal Control Report for OPR-P182-RA.	August, 1996	N/CS34
Spring 1996 Coast Pilot Report for OPR-P182-RA.	August, 1996	N/CS26
Project related data for OPR-P182-RA.	Incremental	N/CS34

Respectfully Submitted,



Eric J. Christensen
Ensign, NOAA

Approved and Forwarded,



Dean R. Seidel
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 28 Jul 1997 ✓

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	CHIGNIK 2
002	G	056:19:28.097	158:19:45.257	122	250	0.0	0.0	3 06/24/96	CHIGNIK 2 UWL351 DGPS FREQ
100	G	057:37:07.800	152:11:21.000	0	250	0.0	0.0	A 03/01/96	KOOTAK 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 789 KHZ USCG DGPS

APPROVAL SHEET

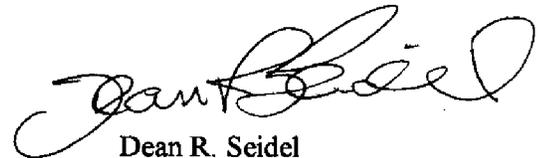
for

H-10696

RA-20-1-96

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic 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

NOAA FORM 76-155 (11-72)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION						SURVEY NUMBER H-10696		
GEOGRAPHIC NAMES										
Name on Survey	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> A ON CHART NO. 16206 </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> B ON PREVIOUS SURVEY NO. 16013 </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> C ON U.S. QUADRANGLE MAPS </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> D FROM LOCAL INFORMATION </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> E ON LOCAL MAPS </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> F P.O. GUIDE OR MAP </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> G RANDOMLY ATLAS </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> H U.S. LIGHT LIST </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> K </div> </div>									
	ALASKA (title)	X		X						
ALASKA PENINSULA (title)	X		X							2
KUMLIK, CAPE (title)	X		X							3
NORTH PACIFIC OCEAN	X		X							4
										5
										6
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Approved

Charles C. Long

Chief Geographer

SEP 1976



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-10696

LOCALITY: Ten Miles Southeast of Cape Kumlik, Southwest Alaska
Peninsula, Alaska

TIME PERIOD: June 9 - 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: #SAP7, #SAP11 & #SAP13
Refer to Attachment(s) for zoning information

Note: Times are tabulated in Greenwich Mean Time.


CHIEF, TIDAL ANALYSIS BRANCH



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	1				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES					

SHORELINE DATA	
SHORELINE MAPS (List):	NA
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 REVISED			
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	90		90
COMPARISON WITH PRIOR SURVEYS AND CHARTS		11	11
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		20	20
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS	90	31	121

Pre-processing Examination by J. Stringham	Beginning Date 8/20/96	Ending Date 8/22/96
Verification of Field Data by B. Mihailov	Time (Hours) 90	Ending Date 3/5/97
Verification Check by B. Olmstead	Time (Hours) 2.5	Ending Date 3/31/97
Evaluation and Analysis by B. Mihailov	Time (Hours) 31	Ending Date 3/13/97
Inspection by B. Olmstead	Time (Hours) 5	Ending Date 4/1/97

EVALUATION REPORT

H-10696

A. PROJECT

Project information is discussed in the hydrographer's report.

B. AREA SURVEYED

A description of the survey limits is adequately discussed in the hydrographer's report. The bottom consists mainly of sand, mud, broken shell, and pebble. Depths range from 19 to 160 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), AutoCad (Version 12.0), and MicroStation 95.

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

The drawing files necessarily contain information which is not part of the HPS data set such as geographic names text, line-type data, and minor symbolization. In addition, those soundings deleted from the drawing for clarity purposes, remain unrevised in the HPS digital files to preserve the integrity of the original hydrographic data set. Cartographic codes used to describe the digital data are those authorized by Hydrographic Survey Guideline No. 35 and No. 75.

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

E. SONAR EQUIPMENT

Side scan sonar was not used on survey H-10696.

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 an actual tide, dynamic draft, and sound velocity. These reducers have been reviewed and are consistent with NOS specifications. Actual tide reduction are derived from Kujulik Bay, Alaska, gage 945-8819, Nakchamik Island, Alaska gage 945-8779 and Chignik, Anchorage Bay, Alaska gage 945-8917.

H. CONTROL STATIONS

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

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

Latitude: -2.743 seconds (-84.848 meters)
Longitude: 7.317 seconds (125.499 meters)

I. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 7.5 was computed for survey operations. The quality of several 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 located by these fixes are consistent with the surrounding information. These fixes are considered acceptable. Daily DGPS performance checks were conducted in the field and found adequate.

Additional information concerning calibrations and system checks can be found in the hydrographer's report and in the separates related to horizontal position control and corrections to position data.

J. SHORELINE

There is no shoreline within the limits of survey H-10696.

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10696 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10554	1994	1:40,000	East
H-10697	1996	1:10,000	North
H-10701	1996	1:10,000	West

The junction with survey H-10554 has not been formally completed. This survey has been previously processed and forwarded for charting. There is good agreement between soundings, however the depth curves shown on survey H-10554 delineate different depths and therefore are not in coincidence within the junction area. An "Adjoins" note has been shown on the present survey.

The junctions with H-10697 and H-10701 are complete. Soundings and depth curves are in good agreement within the common area. A "Joins" note has been shown on the present survey.

M. COMPARISON WITH PRIOR SURVEYS

H-4449 (1925) 1:60,000
H-4506 (1925) 1:60,000
H-4509 (1925) 1:60,000

Prior surveys H-4449, H4506 and H-4509 cover the entire area of the present survey. Sounding agreement is good, with the present survey depths consistently shoaler between one and two fathoms. All depths originating from the prior surveys were adequately addressed during survey operations. A more thorough bottom ensonification by the present survey has shown this area to contain many newly discovered shoal areas not found in 1924-25. However, a few prior soundings originating from H-4506 were considerably shoaler (20-30 Fms) than depths found by the present surveys. The shoaler depths plot in areas where the bottom slopes off very rapidly and has likely resulted in anomalous lead line depths. Some of these shoaler depths were specifically addressed during survey operations and not substantiated. Differences between the present and prior surveys can largely be attributed to positioning and sounding methods available in 1925.

Survey H-10696 is adequate to supersede the prior surveys within the common area.

N. ITEM INVESTIGATIONS

There were no AWOIS items assigned to this survey.

O. COMPARISON WITH CHART

Survey H-10696 was compared with the following charts.

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

a. Hydrography

Charted hydrography originates with the prior hydrographic surveys. The prior surveys have been adequately addressed in section M and requires no further discussion.

b. Dangers to Navigation

No dangers to navigation were discovered during survey operations. No additional dangers to navigation were found during office processing. However, one item of note requires discussion. A 19.4 fathom depth at latitude 56/23/35N, longitude 157/37/18W was found by the present survey in charted depths of 88-110 fathoms. This depth is not critical to surface navigation but could be of beneficial information to local fisherman and/or other interests.

P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10696 is adequate to:

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

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual, April 1994 Edition.

Q. AIDS TO NAVIGATION

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

There were no features of landmark value located within the area of this survey.

S. MISCELLANEOUS

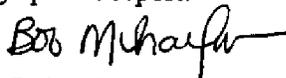
Miscellaneous information is discussed in the hydrographer's report. No additional miscellaneous items were noted during office processing.

T. RECOMMENDATIONS

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

U. REFERRAL TO REPORTS

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



Bob Mihailov
Cartographer

APPROVAL SHEET
H-10696

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

Bruce A. Olmstead Date: 4/1/97
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: 4/15/97
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Andrew A. Armstrong III Date: Oct 24, 1997
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

