#### NOAA FORM 76-35A

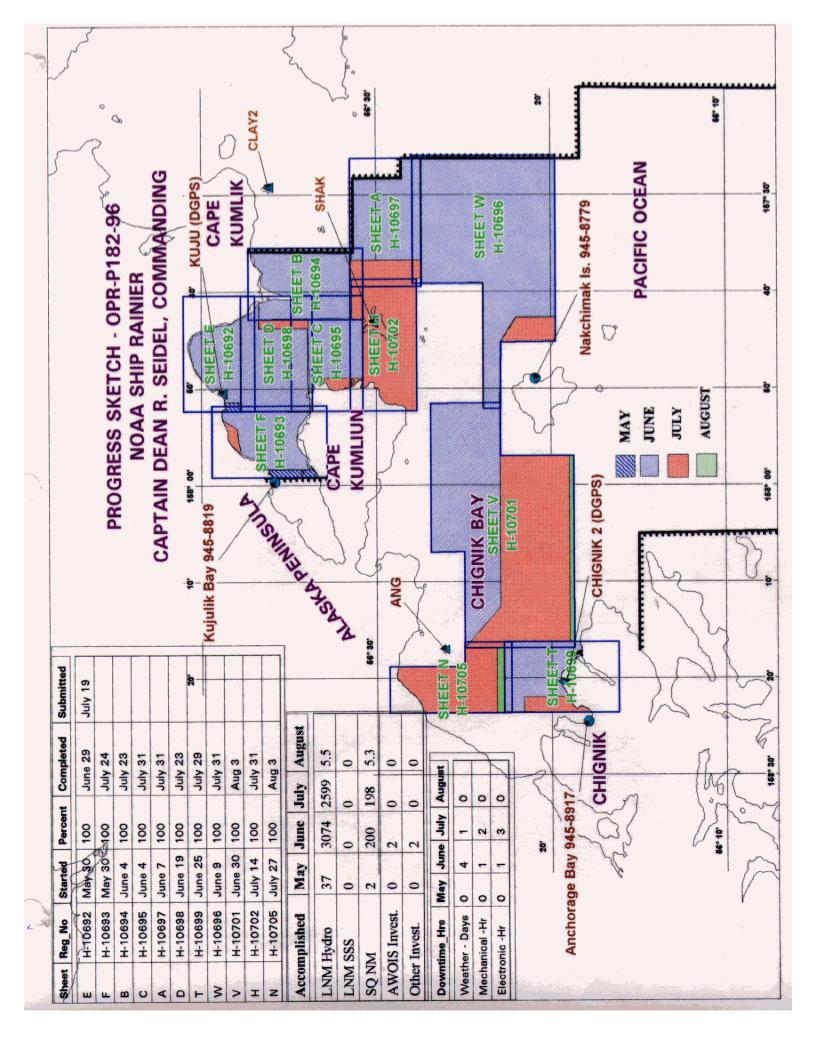
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

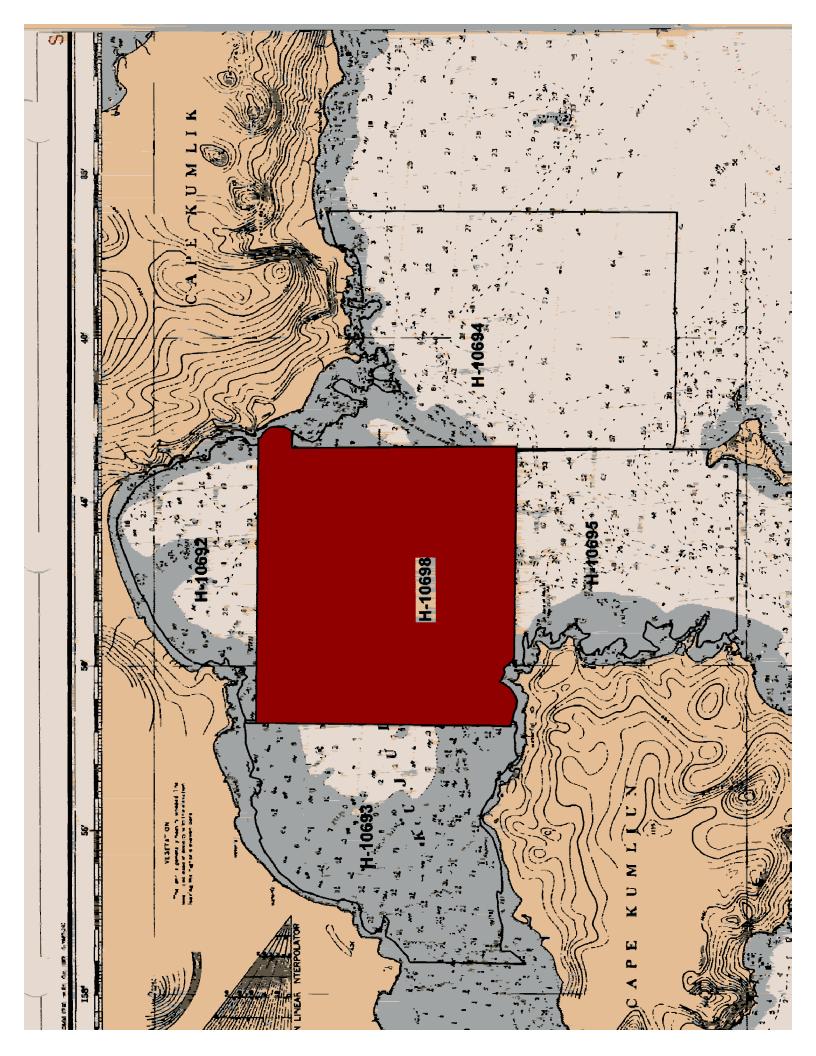
# DESCRIPTIVE REPORT

Type of Survey .... Hydrographic RA-10-14-96 Field No. .... H-10698 Registery No. ... LOCALITY Southwest Alaska Peninsula General Locality . Kujulik Bay Sublocality ..... 1996 CHIEF OF PARTY CAPT Dean R. Seidel, NOAA LIBRARY & ARCHIVES SEP \$ 1997

ஓழ்.s. GOV. PRINTING OFFICE: 1985--566-054

. <del>-</del> 72) N	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTER NO.
	DROGRAPHIC TITLE SHEET	н-10698
INSTRUCTIONS - The H	ydrographic Sheet should be accompanied by this form, is possible, when the sheet is forwarded to the Office.	FIELD NO.  RA-10-14-96
State	Alaska	
General locality	Southwest Alaska Peninsula	
Locality		
•	1:10,000 Date of sur	June 19 - July 23, 1996
Instructions dated		
VesselRA	-2(2122),RA-3(2123),RA-4(2124),RA-5(2	125),RA-6(2126)
	APT Dean R. Seidel, NOAA	
	NOAA Ship RAINIER Personnel	
	echo sounder, Kand News, Pole DSF-6000N	
Graphic record scale	d byRAINIER Personnel	
Graphic record scales Graphic record check Evaluation by:	RAINIER Personnel RAINIER Personnel L. Deodato Autom	HP Design Jet 650C
Graphic record scales Graphic record check Evaluation by:	RAINIER Personnel RAINIER Personnel L. Deodato Autom	HP Design Jet 650C
Graphic record scales Graphic record check Evaluation by: Recorded by Verification by	RAINIER Personnel RAINIER Personnel	HP Design Jet 650C , R. Mayor, L. Deodato
Graphic record scales Graphic record check Evaluation by: RECORDERS OF THE PROPERTY OF THE PRO	RAINIER Personnel  RAINIER Personnel  L. Deodato  Autom  J. Stringham, D. Doles, E. Domingo	HP Design Jet 650C , R. Mayor, L. Deodato
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Graphic record scales Graphic record check Evaluation by: Recenced by Verification by Soundings in fath	RAINIER Personnel  RAINIER Personnel  L. Deodato  J. Stringham, D. Doles, E. Domingo  noms feet at NEWX MLLW and ter  All times in UTC, revisions and ma  generated during office processing with the hydrographic data, as a re-	HP Design Jet 650C  , R. Mayor, L. Deodato  ths  arginal notes in black were  . All separates are filed  result page numbering may be
Graphic record scales Graphic record check Evaluation by: Recenses by Verification by Soundings in fath	RAINIER Personnel  RAINIER Personnel  L. Deodato  J. Stringham, D. Doles, E. Domingo  noms feet at NEWX MLLW and ter  All times in UTC, revisions and ma  generated during office processing with the hydrographic data, as a reinterrupted or non-sequential.	HP Design Jet 650C  , R. Mayor, L. Deodato  ths  arginal notes in black were  . All separates are filed  result page numbering may be





# Descriptive Report to Accompany Hydrographic Survey H-10698

Field Number RA-10-14-96 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 in Kujulik Bay, between Cape Kumlik and Cape Kumliun, as specified by Project Instructions OPR-P182-RA dated May 15, 1996. Survey H-10698 corresponds to sheet D as defined in the sheet layout included in the Project Instructions. This survey will provide data to supersede circa 1925 leadline surveys in eastern Kujulik Bay. 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 the fishermen, in this region of the Alaska Peninsula due to the harsh weather and treacherous waters.

#### B. AREA SURVEYED

The survey area is located in the northeastern end of the approaches to Kujulik Bay. The survey's northern limit is bounded by latitude 56°38' 15" N. The survey's southern limit is 56°33' 56" N, the western limit is 157° 51' 45" W. The eastern limit is bounded by 157° 43' 21" W; north of 56°38' 15" N, the eastern limit is bounded by the shoreline of eastern Kujulik Bay. Data acquisition was conducted from June 19, 1996 (DN 171) to July 23, 1996 (DN 205).

# C. SURVEY VESSELS

Data were acquired by RAINIER survey launches as noted below:

Vessel	EDP#	Operation
RA-2	2122	Hydrography
RA-3	2123	Hydrography Shoreline Verification
RA-4	2124	Hydrography Shoreline Verification
RA-5	2125	Hydrography Sound Velocity Casts Bottom Samples
RA-6	2126	Hydrography Dive Investigations

#### 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.

# E. SONAR EQUIPMENT 🗸

Sonar equipment was not used on H-10698. 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 #	Cast #	DN	Cast Position	Deepest Depth (m)	Applicable DN
3	3	170	56° 36' 36" N 157° 54' 42"W	106	171-183 (South)
4	4	173	56° 33' 08" N 157° 45' 40"W	148	170-184 (North)
6	6	193	56° 34' 20" N 157° 46' 15"W	131	184-205 (South)
7	7	195	56° 36' 29" N 157° 45' 32"W	96	184-205 (North)

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. Cost 3 and 4 plot outside the Survey limits

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 vessels 2122-2126 in the spring of 1996. These values were entered into the offset tables for each survey platform.

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H-10698/RA-10-14-96

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\* 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 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 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 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 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-10698 are:

Zone	Time Correction	Height Correction	
8	0 hr 0 min	X1.03	

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 Kujulik Bay (945-8819) on May 27, 1996, and Nakchamik Island (945-8779) on June 3, 1996. Each tide staff was connected to five bench marks during the opening level runs. Both tide gages ran without problems throughout the period of this survey.

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 dafed Nevember 22; 1996 is affaired,

H-10698/RA-10-14-96

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\* Filed with the hydrographic data.

## See Eval Rpt, Section H H. CONTROL STATIONS

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.

#### I. HYDROGRAPHIC POSITION CONTROL

# 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 V See Eval Rpt, Section J.

Stable-base enlargements of manually compiled photogrammetry from Coastal Mapping project CM-8309 were supplied by N/CS341. Shoreline was manually transferred at survey scale onto boat sheets and processing sheets. Charted features were digitized in MapInfo from the raster chart image supplied by N/CS341, and chart enlargement panels were also provided for shoreline comparison.

#### Method of Shoreline Verification $\checkmark$

Limited shoreline verification was conducted in accordance with the Project Instructions. For this survey the general limit of safe navigation of a survey launch is 10-30 meters offshore of apparent low tide, or approximately 5 to 10 meters of depth at Mean Lower Low Water. This NALL (Navigational Area Limit Line) varied in distance from shore and depth of water based on the navigational safety of the nearshore waters in the judgement of the hydrographer. See the Shoreline Flow Chart and Limited Shoreline Verification "New Rules" memoranda in Appendix XII for more information regarding the NALL.

Detached positions were acquired on manuscript features offshore of the NALL line to verify positions and to determine the full extent of reefs and connecting ledges for items which were not fully represented on the manuscript; these changes to the manuscript are shown in red on the final plots.

OPR-P182-RA \* Filed with the hydrographic data. Page 4

Shoreline notes describing offshore features found and the nature of the foreshore are in the detached position folders and portrayed on the Detached Position and Bottom Sample final plot submitted with this survey. Features shown in pencil inshore of the NALL are the hydrographer's representation of the low water shoreline without hydrographic positioning. Field cartographic codes were assigned to detached positions; in general, rocks were assigned code 089 if near vertical datum and code 165 if submerged until their heights can be reduced in final processing. Heights are recorded in meters and decimeters and are corrected to predicted MLLW. All shoreline positions offshore of the NALL are plotted on the final field sheet. Hearth of rocks plotting along the Shoreline were not determined during survey operations. There were to revision to Charted Features.

Chart 16566, 14th Edition, April 27, 1991, 1:77,477 scale, (NAD 83) was enlarged to 1:10,000 for comparison purposes. Some positional differences are attributed to the enlargement process. Charted rocks offshore of the navigational area limit line were either identified as shoreline manuscript rocks or positioned as new rocks. Manuscript rocks inshore of the NALL were often matched to charted rocks, but were not positioned hydrographically, refer to the hydrographer's notes on the final Detached Position and Bottom Sample Plot.

# Disprovals 🗸

There were three charted rock positions described below that were investigated and disproved during this survey.

A charted rock at 56° 36′ 13″ N, 157° 43′ 26″ W was investigated by visual search (position #30802, DN 181, VN 2123). The depth at the charted position was approximately 17 m, search time was 5 min, search radius was 100 m, and water visibility was 3 m. No evidence of the rock was found, nor were breakers noted. The charted position is 130 m northeast of a rock found and positioned by RAINIER personnel (position #40675, DN 194, VN 2124). The hydrographer recommends that the charted rock symbol be retained but repositioned to reflect survey results.

Two charted rock positions at 56°34′32″ N, 157°44′29″W and 56°34′25″ N, 157°44′20″ W were investigated by visual search (position #40803 and #40804, respectively, DN 198, VN 2124). The depths at the charted positions were approximately 10 m, search times were 10 min, search radii were 20 m, and water visibility was 2 m. The items were also investigated via echosounder using ten meter line spacing. No evidence of the rocks were found. RAINIER personnel positioned a rock 120 m northwest of position #40804 (position #30805, DN 181, VN 2123). The hydrographer recommends the rock at position #30805 be charted with a rock symbol and the rock symbols for the two disprovals be deleted. Concern the rock symbols are the symbol and the rock symbols for the two disprovals be deleted. Concern the rock symbols for the two disprovals on the final Detached Position and Bottom Sample

### K. CROSSLINES

Crosslines agreed within 1 meter with mainscheme hydrography. Total mileage, was 43.3 nautical miles or 7.8% of total mainscheme hydrography.

Plot. Final comparisons will be made at the Pacific Hydrographic Branch (PHB).

# L. JUNCTIONS & See Evol Rpt, Section L.

H-10698 junctions with the following surveys (all 1996, 1:10,000 scale): H-10692 to the north, H-10693 to the west, H-10694 to the east, and H-10695 to the south. 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, 1925; H-4506, 1:20,000, 1925; and H-4510, 1:20,000, 1925. The soundings from the prior surveys were in agreement with the present survey, except on the numerous shoals where 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 $\,\,\smile\,\,$

No AWIOS items were assigned to H-10698. concur

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

This survey was compared in the field to NOS chart 16566, 11th Edition, April 27, 1991, 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. The charted soundings were found to be in good agreement, with the following exceptions:

A charted seven fathom shoal at 56°37' 29" N, 157°44' 12" W originating from a 7 3/4 fathom sounding on prior survey H-4510 (1:20,000, 1925). The area was developed with twenty-five meter line spacing, resulting in a shoalest depth of 16.3 m (nine fathoms) at fix # 40638+7. The hydrographer recommends superseding the seven fathom sounding with the results of this survey. Conca A 6.6 February Sounding was found approximately 450 inches due South of Charles 16m 24 Ishtue separations (U) long these 157/42/57 5 (U) Charles 157/42/57 5 (U) Charles 157/42/57 5 (U) A 6.6 75thom Sounding was trung sprogramment as ingreduced to 15/142/57.5 (w) Chart C 1/147 Study and 15/142/57.5 (w) Chart C 1/147/57.5 (w) C 1 (1:20,000, 1925). The area was developed with twenty-five meter line spacing, resulting in a shoalest depth of 23.3 m (12 3/4 fathoms) at fix #60467+8. RAINIER believes the original sounding is actually part of an adjacent group of islets, and was cartographically displaced. The hydrographer recommends superseding the nine fathom sounding with the results of this survey concur The 9 Fm sunding access to plat in the chart say her freshing a Supernon prior survey H-4510. This depth is likely an energy with the freshirm and sould be supersed by the present survey. A charted fourteen fathom shoul at 36 33 57 N, 157 48 03 Worksingting on prior survey H-4510 (1:20,000, 1925). The area was developed with twenty-five meter line spacing, resulting in a shoalest depth of 41.5 m (23 3/4 fathoms) at fix # 40040+4. The hydrographer recommends superseding the fourteen fathom sounding with the results of this survey. concur the MFM depth is likely an errorous liveline measurement and should be superseded by the present aurely. Additionally, RAINIER discovered a complex area of shoaling along the eastern junction with H-10694. The area was correctly charted in blue tint with several rock symbols.

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However, this survey shows additional shoals (less than ten fathoms) located outside the charted blue tint area. Refer to section on Dangers to Navigation below. Non-sounding features are discussed in Section J. Final comparisons will be made at PHB after application of real tide correctors.

# Dangers to Navigation - See Evel Rot. Section O.

One danger to navigation within the limits of H-10698 was reported to the Seventeenth Coast Guard District, June 24, 1996. Nine dangers to navigation were reported on July 30, 1996. Copies of the correspondence can be found in Appendix I of this report. Copies attached to this report.

## P. ADEQUACY OF SURVEY 🗸

Survey H-10698 is complete and adequate to supersede prior soundings and features in their common areas.

## Q. AIDS TO NAVIGATION 🗸

No Aids to Navigation exist within the survey area. concur

# R. STATISTICS V

u

NM Hydrography	588.2
Velocity Casts	4
Detached Positions	10
Selected Soundings	25,460
Bottom Samples	71
Tide Stations	2
NM <sup>2</sup> Hydrography	21
Dives	3

#### 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. Secchi disk observations were performed during hydrographic data operations in this area. General water visibility was 3-5 meters, which is common in this area after the spring plankton blooms, which usually occurs in late May.

## T. RECOMMENDATIONS $\checkmark$

None.

# U. REFERRAL TO REPORTS

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

<u>Title</u>	Date Sent	<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
Secchi Disk Observations for OPR-P182-RA	August, 1996	N/CS31

Respectfully Submitted,

Eric J. Christensen Ensign, NOAA Approved and Forwarded,

Dean R. Seidel Captain, NOAA Commanding Officer



i s.

# U.S. DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration

NOAA Ship RAINIER June 24, 1996

Commander (mon)
Seventeenth Coast Guard District
Post Office Box 25517
Juneau, Alaska 99802-5517

Dear Sir:

While conducting hydrographic survey operations on the southern Alaska Peninsula, NOAA Ship RAINIER discovered a danger to navigation in Kujulik Bay. A radio message was sent to DMAHTCNAVWARN and USCG District 17. This danger message has been numbered RA-4-\* 96 to aid message tracking per your request through CDR Timmons of the Pacific Hydrographic Branch in Seattle. The attached message hard copy and chartlet describe the danger to navigation.

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

Sincerely,

Captain Dean R. Seidel, NOAA

Commanding Officer

Attachments

cc: DMA/HTC

PMC N/CS221

IN COZZI

Southwest Alaska Pilots Association



P 242324Z JUN 96
FM NOAAS RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCCNAVWARN WASHINGTON DC//MCNM//
INFO NOAAMOP SEATTLE WA
BT
UNCLAS
RA-4-96 DTON MSG!
NOAA SHIP RAINIER HAS LOCATED A DANGER TO NAVIGATION IN
KUJULIK BAY, ALASKA (PROJECT: OPR-P182-RA)
WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10698.

THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

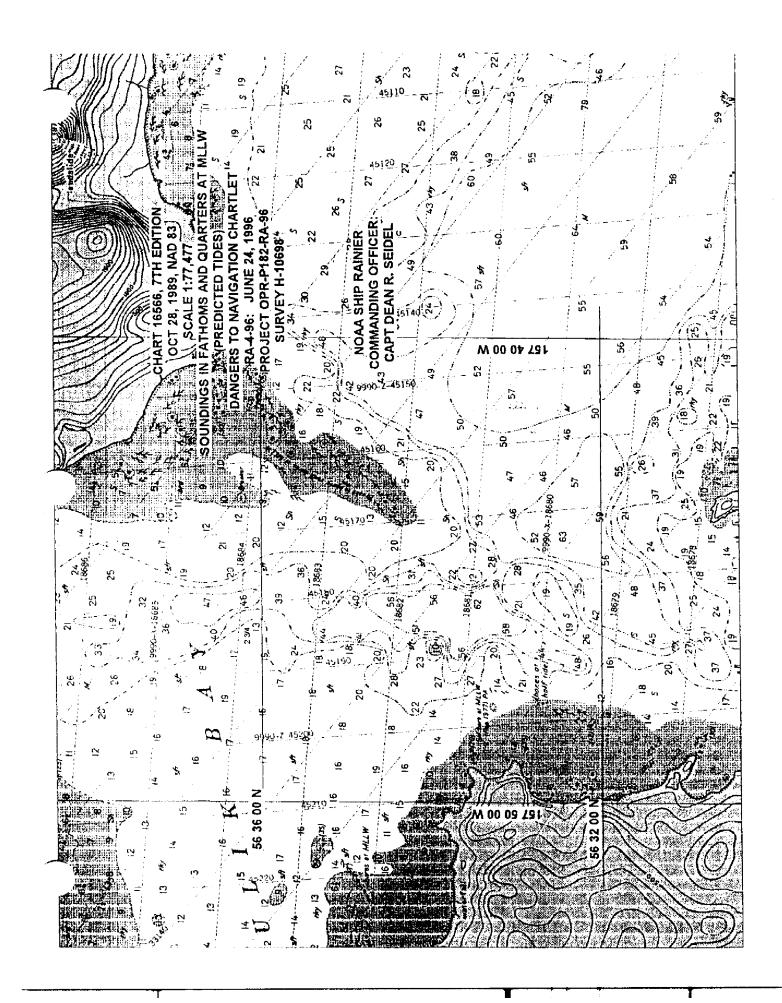
DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

#### AFFECTED CHART:

NUMBER	EDITION	DATE	SCALE	DATUM
16566	7 <b>T</b> H	89/10	1:77,477	NAD83

DANGER DEPTH LATITUDE (N) LONGITUDE (W) SURVEY POSITION SHOAL 2 3/4 FM 56:36:11.28 157:46:24.67 "40384+8"

THIS IS ADVANCE INFORMATION SUBJECT TO OFFICE REVIEW. QUESTIONS CONCERNING THIS MESSAGE SHOULD BE DIRECTED TO THE CHIEF, PACIFIC HYDROGRAPHIC BRANCH AT (206) 526-6835. A LETTER WITH ATTACHED CHARTLET WILL BE MAILED TO CONFIRM THIS MESSAGE. BT





UNITED STATES DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration Office of NOAA Corps Operations Pacific Marine Center 1801 Fairview Avenue East Seattle, Washington 98102-3767

NOAA Ship RAINIER

July 29, 1996

ADVANCE INFORMATION

Commander Seventeenth Coast Guard District Post Office Box 3-5000 Juneau, Alaska 99802

Dear Sir:

During the processing of hydrographic surveys H-10693 and H-10698 in Kujulik Bay, eighteen dangers to navigation have been discovered. These dangers affect the following chart:

 Number
 Edition
 Date
 Scale
 Datum

 16566
 7TH ED.
 89/10
 1:77,477
 NAD 83

It is recommended that these dangers to navigation be included in the Local Notice to Mariners.

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

Sincerely,

Dean R. Seidel Captain, NOAA Commanding Officer

NOAA Ship RAINIER

Enclosure

cc:

DMA/HTC

**PMC** 

N/CS262



# ADVANCE INFORMATION

# DANGERS TO NAVIGATION

OPR-P182-RA

SOUTHWEST ALASKA PENINSULA

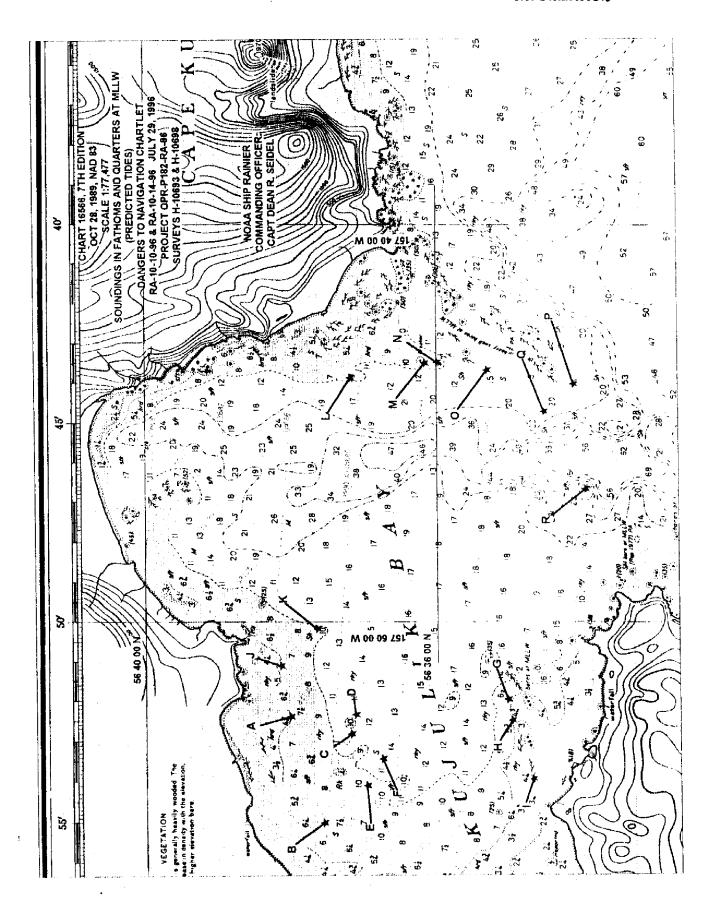
REGISTRY NUMBER: H-10698

AFFECTED CHARTS: Number Edition Date Scale Datum

16566 7 TH ED 89/10 1:77,477 NAD 83

ITEM	FIX#	DANGER	CHART DEPTH	DEPTH (M)	LATITUDE (N)	LONGITUDE (W)
J	21079+2	SHOAL	2 FM	3.7	056:38:10.070	157:51:06.390
Κ	50570+4	SHOAL	4 1/4 FM	8.2	056;37;40.110	157:50:10.017
L	60716+0	SHOAL	6 1/2 FM	12.3	056:37:11.534	157:43:51.476
М	31020+4	ROCK	COVERS 3/4 FM	1.4	<b>056:36</b> :09.786	157:43:29.318
N	30556+8	SHOAL	1 1/2 FM	3	056:35:59.774	157: <b>4</b> 3:28.154
0	30659+5	ROCK	AWASH	-0.4	<b>056:35</b> :18.656	157:43:39.908
P	30897+1	SHOAL	4 3/4 FM	9.1	056:34:07.311	157:44:00.221
Q	60733+4	SHOAL	6 FM	11	056:34:31.753	157:44:41.824
R	30937+8	SHOAL	5 3/4 FM	10.8	056:33:57.841	157:46:39.809

# ADVANCE INFORMATION



# ADVANCE INFORMATION

P 300130Z JUL 96
FM NOAAS RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCCNAVWARN WASHINGTON DC//MCNM//
INFO NOAAMOP SEATTLE WA
ACCT CM-VCAA
BT
UNCLAS
RA-6-96 DTON MSG

NOAA SHIP RAINIER HAS LOCATED 18 DANGERS TO NAVIGATION IN SOUTHWEST ALASKA PENINSULA (PROJECT: OPR-P182-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEYS H-10693 AND H-10698.

THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES. AFFECTED CHARTS:

NUMBER	EDITION	DATE	SCALE	
16566	7 TH ED.	89/10	1:77,477	

ALL CHART DATUM ARE NAD83.

#### FOR SURVEY H-10693

ITE	M DANGER		DEPT	H	LATITUDE (N)	LONGITUDE (W)	FIX NUMBER
A	ROCK COVERS		1	FM	056:38:02.3	157:52:23.9	20872+2
В	SHOAL	3	1/2	FM	056:37:35.1	157:55:00.2	30832+2
C	SHOAL	8	1/2	FM	056:37:12.0	157:52:48.9	40743+8
Ď	SHOAL	9	1/4	FM	056:37:08.7	157:52:20.5	30800+3
E	SHOAL	8	1/2	FM	056:36:59.4	157:54:05.6	40675+0
F	SHOAL	8	1/4	FM	056:36:46.4	157:53:25.5	30814+2
G	ROCK COVERS		3/4	FΜ	056:35:02.6	157:51:57.1	20052+6
H	ROCK COVERS	1	3/4	FM	056:34:59.1	157:52:29.0	40293+4
I	ROCK AWASH				056:34:42.0	157:53:55.3	60752+5
FOR	SURVEY H-10698						
J	SHOAL		2	FM	056:38:10.1	157:51:06.4	21079+2
K	SHOAL	4	1/4	PM	056:37:40.1	157:50:10.2	50570+4
L	SHOAL	6	1/2	FM	056:37:11.5	157:43:51.5	60716+0
M	ROCK COVERS		3/4	FM	056:36:09.8	157:43:29.3	31020+4
N	SHOAL	1	1/2	FM	056:35:59.8	157:43:28,2	30556+8
0	ROCK AWASH				056:35:18.7	157:43:39.9	30659+5
P	SHOAL	4	3/4	FM	056:34:07.3	157:44:00.2	30897+1

## DTON\_F\_D.TXT

Q SHOAL 6 FM 056:34:31.8 157:44:41.8 60733+4 R SHOAL 5 3/4 FM 056:33:57.8 157:46:39.8 30937+8

THIS IS ADVANCE INFORMATION SUBJECT OT OFFICE REVIEW.

QUESTIONS CONCERNING THIS MESSAGE SHOULD BE DIRECTED TO THE CHIEF, PACIFIC HYDROGRAPHIC BRANCH AT (206) 526-6835. A LETTER WITH ATTACHED CHARTLET WILL BE MAILED TO CONFIRM THIS MESSAGE.

 $\mathbf{BT}$ 



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# UNITED STATES DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration

NATIONAL OCEAN SERVICE OFFICE OF COAST SURVEY Pacific Hydrographic Branch Seattle, Washington 98115-0070

March 28, 1997

Commander (OAN) Seventeenth Coast Guard District P.O. Box 25517 Juneau, AK 99802

Dear Sir:

During office review of hydrographic survey H-10698, Alaska, Southwest Alaska Peninsula, Kujulik Bay, seven additional dangers to navigation have been identified and are considered potential dangers to navigation affecting the following chart:

Chart

Edition/Date

Scale

Datum

16566

8th/Aug 3, 1996

1:77,477

NAD83

The attached information is provided for publication in the Local Notice to Mariners.

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

Sincerely,

Kathryn Timmons

Commander, NOAA

Chief, Pacific Hydrographic Branch

**Enclosures** 

cć:

NIMA

N/CS261



## REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10698

Survey Title:

State:

ALASKA

Locality:

SOUTHWEST ALASKA PENINSULA

Sublocality: KUJULIK BAY

Project Number: OPR-P182-RA, NOAA Ship Rainier

Survey Date:

June 19-July 23, 1996

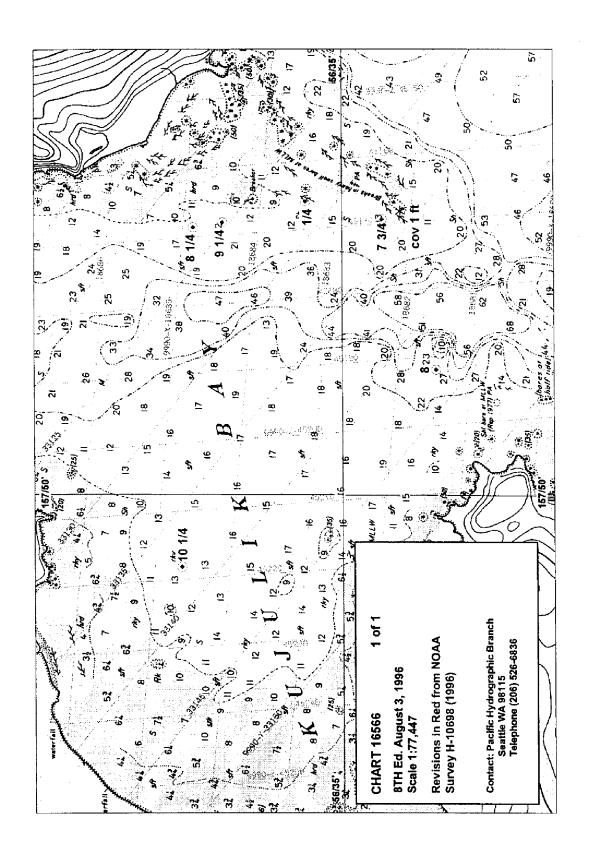
Features are reduced to Mean Lower Low Water using approved tides and are positioned on NAD 83.

Chart affected:

16566 8th Edition/Aug. 3, 1996, scale 1:77,477, NAD 83

DANGER TO NAVIGATION	<u>LATITUDE(N)</u>	LONGITUDE(W)
Rock, covers 1 foot	56/34/27.7	157/43/46.5
Shoal, covers 7 3/4 fathoms	56/34/40.3	157/43/52.8
Shoal, covers 1/4 fathom	56/35/35.5	157/43/28.9
Shoal, covers 9 1/4 fathoms	56/36/36.0	157/43/57.6
Shoal, covers 8 1/4 fathoms	56/36/57.0	157/44/03.9
Shoal, covers 8 fathoms	56/34/00.4	157/47/12.7
Shoal, covers, 10 1/4 fathoms	56/37/04.9	157/51/35.3

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



# CONTROL STATIONS as of 28 Jul 1997

No	Type	Latitude	Longitude	H Cart	Freq	Vel Code M1/DD/YY	Station Name	
001 002 100 101		056:38:37,566 056:19:28,097 057:37:07,800 055:05:30,000	157:50:29.988 158:19:45.257 152:11:21.000 162:31:54.000	30 250 122 250 0 250 0 250	0.0 0.0 0.0 0.0	0.0 1 05/27/96 0.0 3 06/24/96 0.0 A 03/01/96 0.0 R 06/25/96	CHICNIK 2 WW1351 DG KODIOK 313 KHZ USCG	DGPS

## APPROVAL SHEET

for

H-10698

RA-10-14-96

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



#### 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-10698

LOCALITY: Kujulik Bay Between Cape Kumlik and Cape Kumliun,

Southwest Alaska Peninsula, Alaska

TIME PERIOD: June 19 - July 23, 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

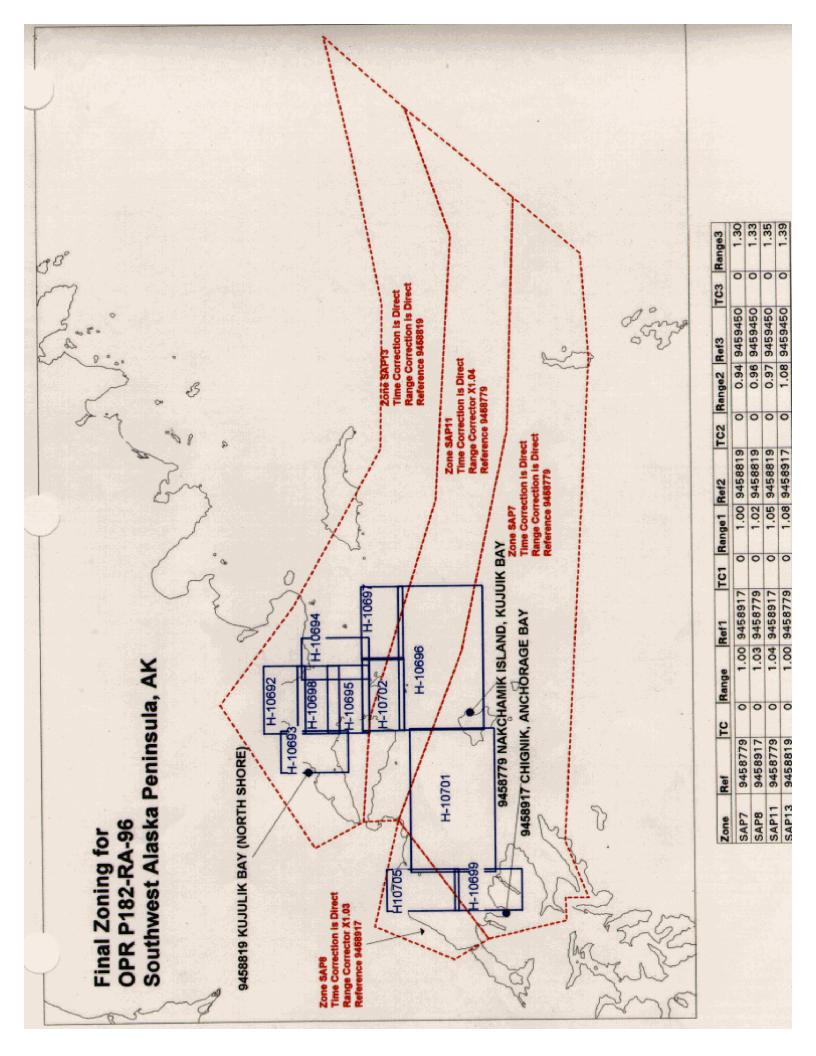
Use zone(s) identified as: #SAP13

Refer to Attachment(s) for zoning information

Note: Times are tabulated in Greenwich Mean Time.

HIEF, TIDAL ANALYSIS BRANCH





Final tide zone nodal point locations for OPR P182-RA-96.

Longitude in decimal degrees (negative value denotes Longitude West),
Latitude in decimal degrees Format:

Tide Station (in recommended order of use)
Average Time Correction (in minutes)

Range Correction

		Tide Station Order	AVG Time Correction	Range Correction
Zone SAP7 -158.125289 -158.474563 -158.422005 -158.355785 -158.355785 -158.190127 -156.778131 -156.472875 -156.308008 -156.986771 -157.630799 -158.125289	56.325022 56.199729 56.200309 56.163854 56.200309 56.154977 56.166683 56.274498 56.288084 56.364407	945-8779 945-8917 945-8819 945-9450	Direct Direct Direct Direct	1.00 1.00 0.94 1.30
Zone SAP8 -158.474563 -158.125289 -158.435831 -158.534417 -158.474563	56.468765 56.508574 56.380701	945-8917 945-8779 945-8819 945-9450	Direct Direct Direct Direct	1.03 1.02 0.96 1.33
Zone SAP11 -158.129385 -158.125289 -157.630799 -156.986771 -156.308008 -156.042372 -156.417583 -157.190657 -157.825679 -158.129385	56.468765 56.364407 56.288084 56.274498 56.448005 56.376508 56.403849 56.513213	945-8779 945-8917 945-8819 945-9450	Direct Direct Direct Direct	1.04 1.05 0.97 1.35

Tide zone nodal point locations for OPR P182-RA-96 (page 1 of 2).

Final tide zone nodal point locations for OPR P182-RA-96 (page 2 of 2).

	Tide St			
	Order	Corre	ction Corr	ection
Zone SAP13				
-157.784139 56.754	1504 945-881	9 Direc	t 1.00	
-158.205035 56.604	1023 945-877	9 Direc	t 1.08	
-158.129385 56.525	3365 945-891	7 Direc	t 1.08	
-157.825679 56.513	3213 945-945	0 Direc	t 1.39	
-157.190657 56.403	3849			
-156.417583 56.376	5508			
-156.042372 56.448	3005			
-155.831324 56.577	7637			
-156.175441 56.534	1308			
-156.618755 56.487	7373			
-157.040443 56.491	L613			
-157.500459 56.635	578			
-157.784139 56.754	1504			

NOAA FORM 76-155 (11-72) SURVEY NUMBER U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION H-10698 **GEOGRAPHIC NAMES** CON U.S. MAPS ANGLE BH baranons sinare, P.O. GUIDE OR MAP OH CHART HO 16566 G RAPATLES H U.S. LIGHT LIST E ON LOCAL MAPS Ar PROMITORMATION Name on Survey 1 χ ALASKA (title) Χ 2 χ ALASKA PENINSULA (title) χ 3 Χ KUJULIK BAY χ χ χ KUMLIK, CAPE 5 χ KUMLIUN, CAPE χ 6 7 8 9 10 11 12 13 14 15 16 17 18 19 **Approved:** 20 21 22 Chief Geographes 23 SEP 30 1996 24 25

NOAA FORM 76-156 SUPERSEDES CAGS 197

NOAA FORM 77-27(H) U.S. DEPARTMENT OF COMMERCE					REGISTRY NUMBER	
(9-83)	HYDROGRA	PHIC SURVEY	STATISTICS		н-1069	98
RECORDS AC	COMPANYING SURVE	Y: To be completed who	en survey is processed.			
RECOF	RD DESCRIPTION	AMOUNT		RECORD DESCRIP	TION	AMOUNT
SMOOTH SHE	ET	1	SMOOTH OV	ERLAYS: POS., ARG	C, EXCESS	NA
DESCRIPTIVE	REPORT	1	FIELD SHEE	TS AND OTHER OV	ERLAYS	NA
DESCRIP- TION	DEPTH/POS I RECORDS	HORIZ. CONT. RECORDS	SONAR- GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	2					
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES						
SHORELINE I	DATA ///////////////////////////////////					
SHORELINE MA		TP-00903,	TP-00904, T	P-00909		
	METRIC MAPS (List):	NA NA			1.0	
SPECIAL REF	HYDROGRAPHER (List): PORTS (List):	NA NA				
NAUTICAL CI		Chart 165	66 8th Ed.,	August 3, 199	6	
-	<del></del>		FICE PROCESSING AC			
	Th	e following statistics will	be submitted with the ca	artographer's report on the		·
	PROCESSIN	G ACTIVITY	!		AMOUNTS	
<del></del>				VERIFICATION	EVALUATION	TOTALS
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OSITIONS REVI						
SOUNDINGS REV						
CONTROL STATI	ONS REVISED ////////////////////////////////////	תווחוחוחוווו			TIME HOUR	
				WEDIS OF TION	TIME-HOURS	
	<u>/////////////////////////////////////</u>			VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSIN						
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VERIFICATION O		<del></del>				
VERIFICATION O						
	PHOTOBATHYMETRY					
				130.5		130.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS			130.3	15	150.5	
	SIDE SCAN SONAR RECORD				15	
		,,				
	WIRE DRAGS AND SWEEPS				15	15
EVALUATION RE					13	15
GEOGRAPHIC N	VIAIT 2				†	
OTHER*	DE DE EORIE EOR REMARKO		TOTALS	130.5	30.0	160.5
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J. Stri	ingham			8/16/96 8/22/96		8/22/96
Mandanas of Fin	old Data by gham,D.Doles,E.D			Time (Hours) 130.5	Endin	g Date 3/10/97

Time (Hours)

Time (Hours)

Time (Hours)

Jerilication Check by B. Olmstead

Evaluation and Analysis by L. Deodato

B. Olmstead

Ending Date 3/21/97

Ending Date 3/20/97 Ending Date 3/25/97

#### **EVALUATION REPORT**

#### H-10698

#### 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 0.2 to 61 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-10698.

#### 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 is derived from the Kujulik Bay, Alaska, gage 945-8819. Nakchamik Island, Alaska gage 945-8779 and Chignik, Anchorage Bay, Alaska gage 945-8917 were listed on the tide approval note for H-10698 but were not used for reduction of final sounding data.

#### 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: -2.756 seconds (-85.253 meters) Longitude: 7.396 seconds (126.189 meters)

#### 1. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. 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

Shoreline for this survey were digitized using AutoCad from mylar 1:10,000 scale enlargements of 1:20,000 scale Class III registered shoreline manuscripts TP-00903, TP-00904, and TP-00909 on NAD83. The digitized shoreline file and the survey file were merged during MicroStation processing.

#### K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

#### L. JUNCTIONS

Survey H-10698 junctions with the following surveys.

Survey	<u>Year</u>	<u>Scale</u>	Area
H-10692	1996	1:10,000	North
H-10693	1996	1:10,000	West
H-10694	1996	1:10,000	East
H-10695	1996	1:10,000	South

The junction with H-10692 is "Adjoins" as this survey was processed at an earlier date and forwarded to headquarters. Soundings within the common area are in good agreement although common depth curves are not in coincidence. Depth curves on H-10698 should be used within the junction area.

The junctions with surveys H-10693, H-10694, and H-10695 are complete. Soundings and depth curves are in good agreement within the common area. A few soundings has been transferred to H-10698 within the common area to better delineate the bottom and portray shoaler depths.

#### M. COMPARISON WITH PRIOR SURVEYS

H-4506 (1925) 1:60,000 H-4510 (1925) 1:20,000

Surveys H-4506 (1925) and H-4510 (1925) 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 critical depths /features originating from the prior surveys were adequately addressed during survey operations. A more thorough bottom ensonification by the present survey, has shown Kujulik Bay to contain many newly discovered shoal areas not found in 1925. However a few prior soundings originating from H-4510 were considerably shoaler then depths found by the present survey. Some of these shoaler depths were specifically addressed during survey operation and not substantiated. Differences between the present and prior surveys can largely be attributed to positioning and sounding methods available in 1925.

H-10698 is adequate to supersede the prior surveys within the common area.

T-4155 (1925)

This prior topographic survey is the charting source for a ledge and isolated rocks in the vicinity of Cape Kumlik. The present survey found similar features as depicted in 1925. H-10698 is adequate to supersede the prior T-Sheet within the common area.

#### N. ITEM INVESTIGATIONS

There were no AWOIS items assigned to this survey.

#### O. COMPARISON WITH CHART

Survey H-10698 was compared with the following charts.

Chart	<b>Edition</b>	<u>Date</u>	Scale	<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 and topographic surveys. The prior surveys have been adequately addressed in section M and requires no further discussion. The 8th Edition of Chart 16566 reflects the latest shoreline information and dangers to navigation not portrayed on the previous edition.

Survey H-10698 is adequate to supersede the charted data within the common area.

#### b. Dangers to navigation

Ten dangers to navigation were reported to the USCG, DMAHTC, and N/CS 261 on June 24 and July 29, 1996. Seven additional dangers to navigation were found during office processing. Copies of all reports are attached.

### P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10698 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.

Syracho T. Diorato Leonardo T. Deodato

Cartographer

## APPROVAL SHEET H-10698

# **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 Bruce A. Olmstead Senior Cartographer, Cartographic Section Pacific Hydrographic Branch	Date: 3/26/97
I have reviewed the smooth sheet, accompanying and accompanying digital data meet or exceed NOS reproducts in support of nautical charting except where	equirements and standards for
Kathy Jumines  Kathy Timmons  Commander, NOAA  Chief, Pacific Hydrographic Branch	Date: 4/10/97
**************	**********
Final Approval	

Date: Oct. 23, 1997

Approved:

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-10698

#### 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	4/15/97	Jes T. Dertor	Full Part Before After Marine Center Approval Signed Via
	17		Drawing No. Full application of soundings and curves from smooth shee
			Full Part Before After Marine Center Approval Signed Via
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