

H110693

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-10-10-96
Registry No. H-10693

LOCALITY

State Alaska
General Locality Southwest Alaska Peninsula
Sublocality Central Portion of Kujulik Bay

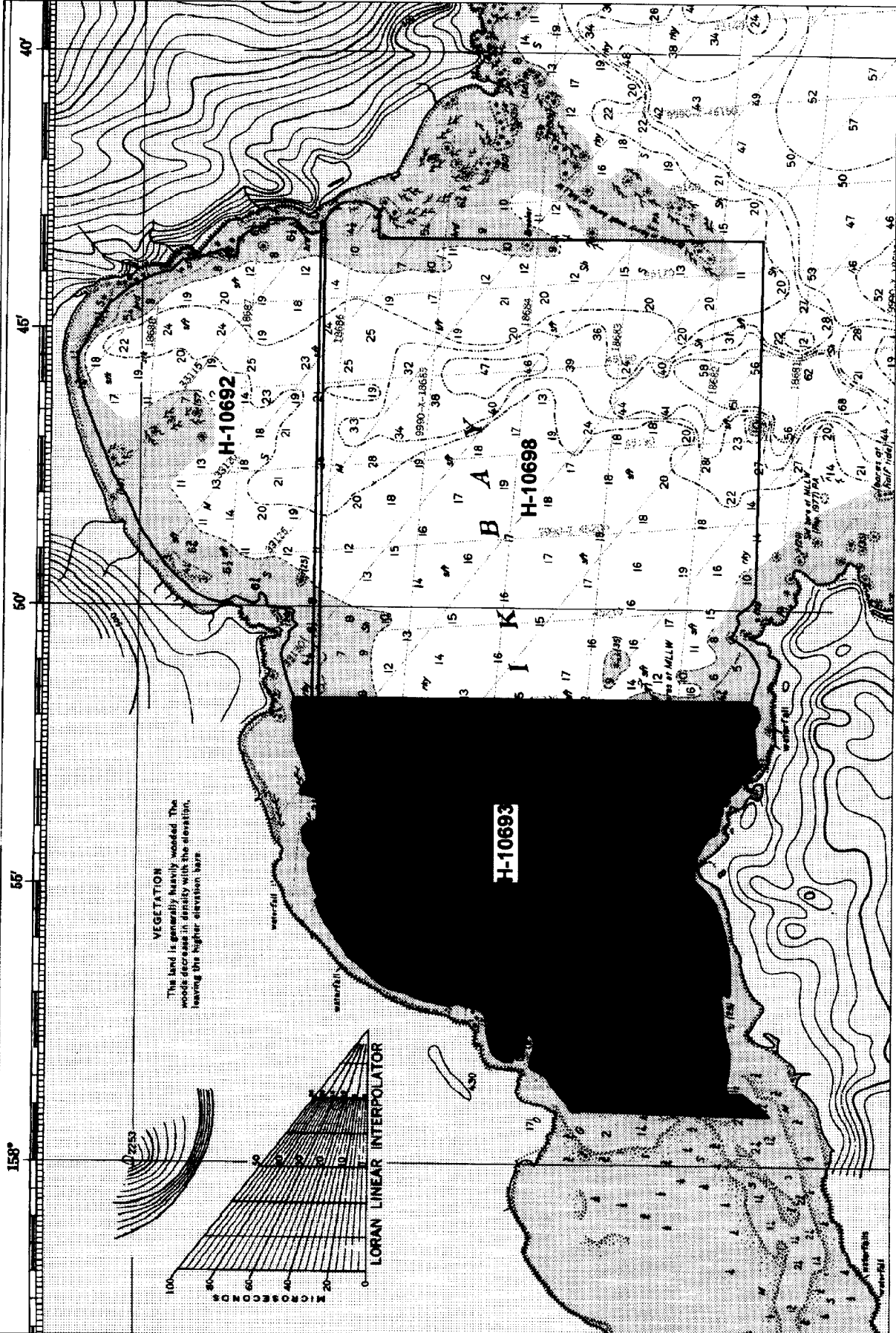
1996

CHIEF OF PARTY
CAPT Dean R. Seidel, NOAA

LIBRARY & ARCHIVES

DATE SEP 9 1997

DIAGRAM 8802-4



H-10693

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-10-10-96

State Alaska

General locality Southwest Alaska Peninsula

Locality Central Portion of Kujulik Bay

Scale 1:10,000 Date of survey May 30 - July 24, 1996

Instructions dated 5/15/96 Project No. OPR-P182-RA

Vessel RA-2(2122), RA-3(2123), RA-4(2124), RA-5(2125), RA-6(2126)

Chief of party CAPT D. 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: R.A. Shipley Automated plot by HP Design Jet 650C

~~Processed by~~ R.A. Shipley

Verification by R.A. Shipley

Soundings in fathoms ~~FEET~~ at ~~MLW~~ 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.

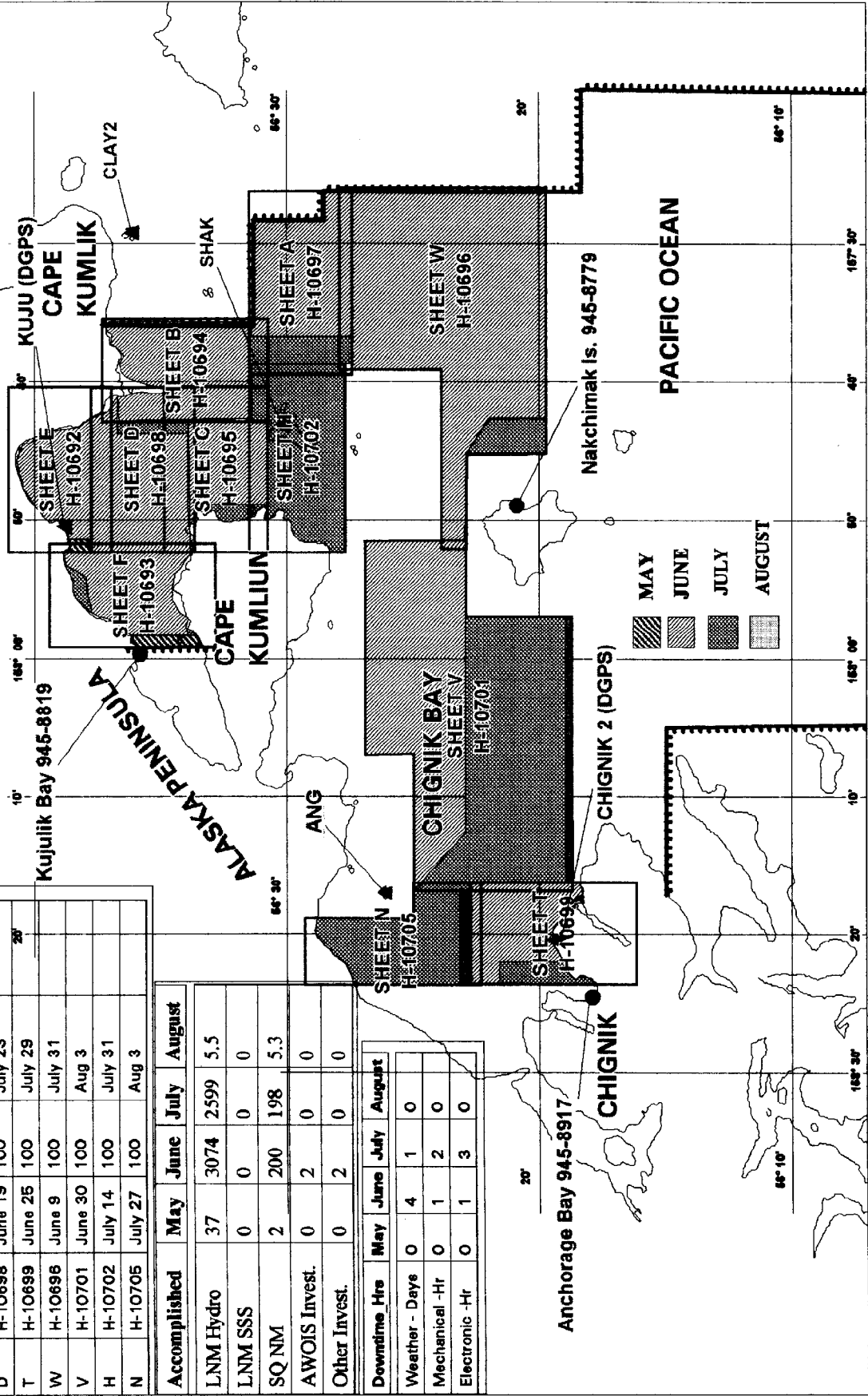
AWOLIS/SURF, 8/22/97 mCR

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

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



Descriptive Report to Accompany Hydrographic Survey H-10693

Field Number RA-10-10-96

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 the western portion of Kujulik Bay, Alaska, as specified by Project Instructions OPR-P182-RA dated May 15, 1996. Survey H-10693 corresponds to sheet F as defined in the sheet layout included in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating National Ocean Service charts of the Southwest Alaska Peninsula. Requests for hydrographic surveys and updated charts have been received from the United States Coast Guard, the domestic commercial fishing industry, and members of the United States Congress.

B. AREA SURVEYED ✓ SEE EVAL REPORT, SECTION B

The survey area is located in the western portion of Kujulik Bay, Alaska. The survey's eastern limit is 157° 51' 41" W and the western limit is 157° 59' 06" W. The northern and southern limits of the survey are the shoreline of Kujulik Bay. Data acquisition was conducted from May 30, 1996 (DN151) to July 24, 1996 (DN 206).

C. SURVEY VESSELS ✓

Data were acquired by RAINIER survey launches as noted below. No unusual vessel configurations or problems exist for this survey.

Vessel	EDP #	Operation
RA-2	2122	Hydrography Shoreline Verification Detached Positions
RA-3	2123	Hydrography Shoreline Verification Detached Positions
RA-4	2124	Hydrography Shoreline Verification Detached Positions

Vessel	EDP #	Operation
RA-5	2125	Hydrography Detached Positions Bottom Samples Sound Velocity Casts
RA-6	2126	Hydrography Shoreline Verification Detached Positions

D. AUTOMATED DATA ACQUISITION AND PROCESSING

All data were acquired and processed with HDAPS. A complete listing of software for HDAPS is included in Appendix VI. *

E. SONAR EQUIPMENT ✓

Sidescan sonar equipment was used on H-10693 for RAINIER anchorage reconnaissance only. No features were found in 100% coverage shown on field boat sheet and data was not retained. *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, however on DN 170 VN 2123 collected data, in ¹⁰⁰ fathoms for fixes 30077-30137 and 30141-30233. This data was rejected and re-acquired. 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 cast listed below:

Velocity Table #	Cast #	DN	Cast Position	Deepest Depth (m)	Applicable DN
1	1	151	56° 36' 35" N 157° 52' 40" W	26.6	151-165
3	3	170	56° 36' 35" N 157° 54' 42" W	106	170-183
7	7	195	56° 36' 29" N 157° 45' 32" W	96.1	184-206

Cast 7 plots outside the survey limits.

The sound velocity cast was 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 Field Procedures Manual (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 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-P180-RA. Bar checks were performed periodically 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-10693 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. On May 29, RAINIER received permission from N/OES334 to run hydro on H-10693 prior to installing the Nakchamik Island tide gage (945-8779). Each tide staff was connected to five bench marks during the opening and closing level runs. The tide gages functioned without problems during data acquisition. Kujulik Bay tide gage (945-8819) was removed on August 01, 1996 and Nakchamik Island tide gage (945-8779) was removed on August 02, 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. **APPROVED TIDE NOTE DATED NOV. 22, 1996 IS ATTACHED.**

H. CONTROL STATIONS ✓ SEE EVALUATION REPORT, SECTION H.

The horizontal datum for this project is NAD 83. Third Order station KUJU was the basis for control for this survey. The control stations are listed in ~~Appendix III~~ ^{THIS REPORT}. See the OPR-P182-RA-96 Horizontal Control Report for station recovery notes, closure results, and other information. ~~NOTE DATED NOV 22, 1996~~

I. HYDROGRAPHIC POSITION CONTROL ✓ SEE EVALUATION 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 raw data printouts. ^{*}A VHF differential reference station was established at KUJU. The differences between the computed locations and the published positions were recorded by the MONITOR 3.0 program with a 1 meter offset between the Ashtech sensor and the reference GPS station. A similar check was also performed for the U. S. Coast Guard Beacon at Kodiak, Alaska. No multi-path or other systematic error was indicated for either reference station. See the OPR-P182-RA-96 Horizontal Control Report for further information.

Calibrations & Systems Check Methods ✓

Launch-to-launch DGPS performance checks were performed in accordance with Section 3.4.4 of the FPM. Two observations of position were made from two DGPS base stations, KUJU and KODIAK while the launches were rafted together with their GPS antennae within 2 meters of each other.

RAINIER began using SHIPDIM, version 2.2R (April 1996) on April 16 (DN 107) after this program was modified for use with the Trimble Centurion P-code receiver. The stations at KUJU and KODIAK provided input for daily comparisons. Some outliers were noted, but none indicated systematic or continuous errors in the KODIAK beacon.

The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-P182-RA. DATA WAS ANALYZED DURING OFFICE PROCESSING AND FOUND TO CONTAIN NO SIGNIFICANT PROBLEMS.
Problems ✓

None.

J. SHORELINE ✓ SEE EVALUATION REPORT, SECTION J.

Shoreline for this survey was taken from registered shoreline maps collected for coastal mapping project CM-8309, Cape Kumlik to Jack Point, Alaska, TP-00903, TP-00907, and TP-00909 (all NAD 83, 1:20,000, 1987). Shoreline was hand traced from the T-Sheet at survey scale to HDAPS produced boat sheets and processing sheets.

Method of Shoreline Verification ✓ SEE EVALUATION REPORT, SECTION B.

Limited shoreline verification was conducted in accordance with the Project Instructions. For this survey the general limit of safe navigation of a survey launch was a safe maneuvering distance offshore of apparent low tide, or approximately 3 to 5 meters of depth at Mean Lower Low Water. This safe navigation limit varied from 30 meters offshore of bedrock features to 500 to 1,000 meters offshore of shallow, gently sloping beaches. This NALL (Navigational Area Limit Line) varied in distance from shore and depth of water based on the apparent usefulness of the nearshore waters for navigation 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.

The manuscript high water line was the seaward extent of flora in most areas of the survey, with a sand, gravel, and rock beach or bedrock fronting this foliage. Detached positions and foul limit lines were acquired on manuscript features offshore of the NALL line to verify positions and determine extent of reefs, kelp, and connecting ledges which were not fully represented on the manuscript. NEW FEATURES AND REVISIONS OFFSHORE OF THE NALL LINE HAVE BEEN SHOWN ON THE SMOOTH SHEET AS WARRANTED. Located in the detached position folders and portrayed on the Detached Position and Bottom Sample final plot submitted with this survey are shoreline notes describing offshore features and the nature of the foreshore.* Field cartographic codes were assigned to detached positions; until their heights can be reduced in final processing, rocks have been assigned code 089 if near vertical datum and code 165 if submerged. 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, AND SHOWN ON THE SMOOTH SHEET AS WARRANTED. HEIGHTS HAVE BEEN SHOWN ON THE SMOOTH SHEET IN FEET AS APPLICABLE, IN GENERAL, HEIGHTS OF ROCKS PLOTTING ALONG THE SHORELINE WERE NOT DETERMINED DURING SURVEY OPERATIONS. THERE WERE NO REVISIONS TO THE MEAN HIGH WATERLINE. Foreshore areas inside the NALL were not specifically defined for most of the survey area. See Section P, Algebras, in the Evaluation Report.
Charted Features ✓
A 1:10,000 scale enlargement of chart 16566, 7th Edition, October 28, 1989, 1:77,477 scale, (NAD 83) was provided for comparison purposes.

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 not positioned hydrographically; refer to the hydrographer's notes on the final Detached Position and Bottom Sample Plot.

K. CROSSLINES ✓

Crosslines agreed within 1 meter with mainscheme hydrography. Crossline mileage was 42.5 nautical miles or 9.0 % of total mainscheme hydrography.

L. JUNCTIONS ✓ SEE EVALUATION REPORT, SECTION L.

This survey junctions along the eastern limit with survey H-10692, RA-10-09-96, 1:10,000, north of 56° 38' 15" N, and survey H-10698, RA-10-14-96, 1:10,000, south of 56° 38' 15" N. 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 EVALUATION REPORT, SECTION M.

Prior survey H-4510 (1:20,000, 1925, unnamed Alaskan datum) is the only survey that covers this survey area. Within the limitations of a comparison to an unspecified datum, prior survey soundings were found to be in good agreement with those from the current survey. Least depths from the current survey were often shoaler due to the use of modern positioning and sounding equipment. The one exception noted is a 9 fathom* (16.5 meters) shoal area located at latitude 56° 35' 36" N, longitude 157° 52' 00"W which was developed by the current survey using 25 meter line spacing and found to be consistently deeper than 15 fathoms (27.4 meters). Areas in which prior survey soundings appear shoaler than those from this survey have been adequately sounded and probably arise from positioning and scaling errors from the older surveys. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey. *Based on the combination of both narrow and wide beams 100m bottom coverage was accomplished over the charted 9-Fm depth. The charted 9-Fm depth is plotted on a 600 meter grid and the 25 meter line spacing used for this survey. It is likely these lead line depths of 9-10 fathoms as shown on the prior survey were taken in error. Chart this area based on present survey data.

N. ITEM INVESTIGATIONS

Summary of AWOIS Items Assigned to this survey:

<u>Number</u>	<u>Short Description</u>	<u>Search Used</u>	<u>Results</u>	<u>Day/Fix Number</u>
52297	Rock	Visual/Echo Sounder	Verified	170/40218

Detailed Investigation Reports:

ITEM NO.: AWOIS 52297 ✓
 Rock

CHART NO.: 16566 (1:77,477)
 EDITION: 7th Edition
 CHART DATE: October 28, 1989

DESCRIPTION AND SOURCE OF ITEM:

A rock, 40 feet by 16 feet covered by 3 feet of water was reported (text on microfilmed graphic partially obscured) in 1930 by a fishing vessel captain. Datum not originally determined, position scaled from chart 16566, 7th edition in NAD 83.

SOURCE POSITION:

latitude 56° 34' 40" N 56° 34' 29.00" N
longitude 157° 55' 50" W (unknown) 157° 56' 01.00" W (NAD83)

SURVEY REQUIREMENTS: Visual search, echo sounder, side scan sonar, or dive; 400 meter search radius.

METHOD OF INVESTIGATION: Visual search and echo sounder development.

RESULTS OF INVESTIGATION: An echo sounder development of twenty-five and ten meter line spacing and visual search at lower mean low water was conducted over a 400 meter search radius centered on the reported AWOIS position. The echo sounder development determined the reported rock to be a submerged reef, approximately 15 meters (north/south) by 25 meters (east/west) whose shoal depth of 1.7 meters was found at latitude 56° 34' 29.513" N, longitude 157° 56' 00.368"W. * 1.2 meters (0.7 fms) Rk based on application of approved tides.

COMPARISON WITH PRIOR SURVEYS: This feature plots inshore of the sounding data on prior survey H-4510. The two nearest soundings are both 2 ¼ fathom.

COMPARISON WITH THE CHART AND CHARTING RECOMMENDATIONS:

The rock is charted as a ½ fathom sounding with "reported" note and depth curves on the chart noted above. Chart ½ Rk as found by the present survey

Delete charted
Retain ½ fathom sounding and depth curves. Delete "reported" note and add note "Rk". CONCUR

O. COMPARISON WITH THE CHART ✓ SEE EVALUATION REPORT, SECTION O,

This survey was compared in the field to chart 16566, 7th Edition, October 28, 1989, 1:77,477 scale, (NAD 83). In addition, an enlargement of this chart was used to compare features and soundings (converted to meters) on the boat sheet.

Comparison of charted soundings with the survey is discussed in Section M. Comparison with Prior Surveys and require no further discussion.

Two 2.8 meter soundings (fix ³⁰⁷²⁹⁺³ ~~40126~~ - latitude 56° 34' 44.648" N, longitude 157° 52' 43.773"W and fix ³⁰⁷⁴⁷⁺³ ~~40127~~ - latitude 56° 34' 48.833" N, longitude 157° 52' 42.395"W were located two hundred meters east of three rocks charted at latitude 56° 34' 48" N, longitude 157° 53' 00"W using twenty-five meter line spacing.

A new kelp covered reef was located at latitude 56° 34' 08" N, longitude 157° 52' 54"W (fixes 21034 and 22007). Portion of reef is submerged. Two high points of feature have been shown as part of a reef as depicted on the smooth sheet.

Two charted rocks at latitude 56° 34' 38" N, longitude 157° 57' 30" W (fixes 20539, 20549, and 20569) are a reef. *CONCUR Chart reef as found by the present survey.*

A new reef was located at latitude 56° 38' 14" N, longitude 157° 53' 38" W (fixes 30139, 30140, and 60456) in the position of a charted 3½ fathom sounding. *Chart reef as found by the present survey. CONCUR*

Two new rocks were located at latitude 56° 38' 14.383" N, longitude 157° 53' 31.521" W (fix 30139) and latitude 56° 38' 26.133" N, longitude 157° 53' 18.315" W (fix 30138). *Fix 30139 CONCUR is a rock which has been incorporated into new reef as found by the present survey (see previous discussion). Fix 30138 is a rock which uncovers 2 ft at MLLW.*

An east-west oriented shoal area with depths less than a meter was located in and to the west of charted kelp, latitude 56° 34' 39" N, longitude 157° 54' 00" W (fixes 22166-22190). *Chart this area based on the present survey information.*

Three charted rocks at latitude 56° 34' 47" N, longitude 157° 52' 00" W are the southern edge of a new reef (fixes 40122, 40123, 40124, and 40125). *Rocks depicted on the smooth sheet are high points of reef which uncovers at MLLW. A large portion of this feature is submerged. Chart the rocks as a reef which uncovers 3 ft at MLLW. The remainder of this area is defined as foul and should be charted to reflect this situation. Additional non-sounding features are discussed in Section J. Final comparisons will be made at PHB after application of real tide correctors.*

Dangers to Navigation ✓

Nine dangers to navigation within the limits of H-10693 were reported to the Seventeenth Coast Guard District, July 30, 1996. *COPIES ATTACHED TO THIS REPORT*

P. ADEQUACY OF SURVEY ✓

Survey H-10693 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 on H-10693. *CONCUR*

R. STATISTICS ✓

NM Hydrography	593.7
Velocity Casts	3
Detached Positions	17
Selected Soundings	23799
Bottom Samples	45
Tide Stations	2
NM ² Hydrography	14.1
Dives	0

S. MISCELLANEOUS ✓

Bottom samples were collected and sent to the Smithsonian Institution 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, and results will be forwarded upon completion of this project. General water visibility was 5.5 to 6.0 meters.

The vegetation note stating that the land is generally heavily wooded should be modified to reflect that most vegetation is non-penetrable brush (five to six feet high) or tundra. Only a few trees exist and are located in protected stream valleys.

T. RECOMMENDATIONS ✓

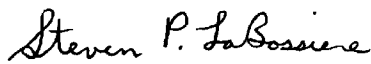
None

U. REFERRAL TO REPORTS ✓

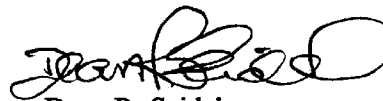
The following supplemental reports contain additional information relevant to this survey:

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Summer 1996 Horizontal Control Report for OPR-P180-RA.	August, 1996	N/CS34
Summer 1996 Coast Pilot Report for OPR-P180-RA.	August, 1996	N/CS26
Project related data for OPR-P180-RA.	Incremental	N/CS34
Secchi Disk Observations for OPR-P180-RA	August, 1996	N/CS31

Respectfully Submitted,


Steven P. LaBossiere
Lieutenant, 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	PHUJ 1570
002	G	056:19:28.097	158:19:45.257	122	250	0.0	0.0	3 06/24/96	CHICHI 2 0W1351 DGPS FREQ 3
100	G	057:37:07.800	157:11:21.000	0	250	0.0	0.0	A 03/01/96	KODJOK 313 ENZ USCG DGPS
101	G	055:05:30.000	162:31:54.000	0	250	0.0	0.0	B 06/25/96	CRLO PAZ 220 KHZ USCG DGPS



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:

<u>Number</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
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**

P 300130Z JUL 96
 FM NOAA S RAINIER
 TO CCGDSEVENTEEN JUNEAU AK
 DMAHTCCNAVWARN WASHINGTON DC//MCNM//
 INFO NOAA MOP 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

ITEM	DANGER	DEPTH	LATITUDE (N)	LONGITUDE (W)	FIX NUMBER
A	ROCK COVERS	1 FM	056:38:02.3	157:52:23.9	20872+2
B	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
D	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 FM	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 FM	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
O	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

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 OF 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

**ADVANCE
INFORMATION**

DANGERS TO NAVIGATION

OPR-P182-RA

SOUTHWEST ALASKA PENINSULA

REGISTRY NUMBER: H-10693

AFFECTED CHARTS: Number Edition Date Scale Datum
 16566 7 TH ED 89/10 1:77,477 NAD 83

<u>ITEM</u>	<u>FIX #</u>	<u>DANGER</u>	<u>CHART DEPTH</u>	<u>DEPTH (M)</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>
A	20872+2	ROCK	COVERS 1 FM	2.2	056:38:02.347	157:52:23.886
B	30832+2	SHOAL	3 1/2 FM	6.7	056:37:35.115	157:55:00.169
C	40743+8	SHOAL	8 1/2 FM	15.8	056:37:11.969	157:52:48.890
D	30800+3	SHOAL	9 1/4 FM	17	056:37:08.669	157:52:20.454
E	40675+0	SHOAL	8 1/2 FM	15.8	056:36:59.421	157:54:05.569
F	30814+2	SHOAL	8 1/4 FM	15.1	056:36:46.414	157:53:25.528
G	20052+6	ROCK	COVERS 3/4 FM	1.5	056:35:02.585	157:51:57.110
H	40293+4	ROCK	COVERS 1 3/4 FM	3.2	056:34:59.072	157:52:29.005
I	60752+5	ROCK	AWASH	0.2	056:34:41.963	157:53:55.271

APPROVAL SHEET

for

H-10693

RA-10-10-96

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-10693

LOCALITY: Central Portion of Kujulik Bay, Southwest Alaska
Peninsula, Alaska

TIME PERIOD: May 30 - July 24, 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.



CHIEF, TIDAL ANALYSIS BRANCH



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

Format: Longitude in decimal degrees (negative value denotes
Longitude West),
Latitude in decimal degrees
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	56.468765	945-8779	Direct	1.00
-158.474563	56.325022	945-8917	Direct	1.00
-158.422005	56.199729	945-8819	Direct	0.94
-158.355785	56.200309	945-9450	Direct	1.30
-158.355785	56.163854			
-158.190127	56.200309			
-156.778131	56.154977			
-156.472875	56.166683			
-156.308008	56.274498			
-156.986771	56.288084			
-157.630799	56.364407			
-158.125289	56.468765			
Zone SAP8				
-158.474563	56.325022	945-8917	Direct	1.03
-158.125289	56.468765	945-8779	Direct	1.02
-158.435831	56.508574	945-8819	Direct	0.96
-158.534417	56.380701	945-9450	Direct	1.33
-158.474563	56.325022			
Zone SAP11				
-158.129385	56.525365	945-8779	Direct	1.04
-158.125289	56.468765	945-8917	Direct	1.05
-157.630799	56.364407	945-8819	Direct	0.97
-156.986771	56.288084	945-9450	Direct	1.35
-156.308008	56.274498			
-156.042372	56.448005			
-156.417583	56.376508			
-157.190657	56.403849			
-157.825679	56.513213			
-158.129385	56.525365			

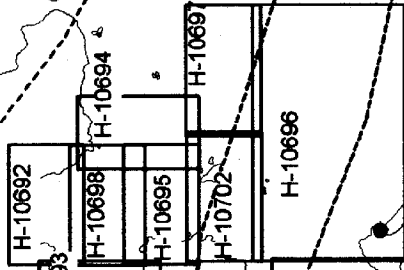
Final tide zone nodal point locations for OPR P182-RA-96 (page 2 of 2).

		Tide Station Order	AVG Time Correction	Range Correction
Zone	SAP13			
-157.784139	56.754504	945-8819	Direct	1.00
-158.205035	56.604023	945-8779	Direct	1.08
-158.129385	56.525365	945-8917	Direct	1.08
-157.825679	56.513213	945-9450	Direct	1.39
-157.190657	56.403849			
-156.417583	56.376508			
-156.042372	56.448005			
-155.831324	56.577637			
-156.175441	56.534308			
-156.618755	56.487373			
-157.040443	56.491613			
-157.500459	56.63578			
-157.784139	56.754504			

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

9458819 KUJULIK BAY (NORTH SHORE)

Zone SAP8
Time Correction Is Direct
Range Corrector X1.03
Reference 9458917



Zone SAP13
Time Correction Is Direct
Range Corrector Is Direct
Reference 9458819

Zone SAP11
Time Correction Is Direct
Range Corrector X1.04
Reference 9458779

Zone SAP7
Time Correction Is Direct
Range Corrector Is Direct
Reference 9458779

9458779 NAKCHAMIK ISLAND, KUJUIK BAY

9458917 CHIGNIK, ANCHORAGE BAY

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	Source of Name											
	A 18556 SHEPHERD NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND McNALLY ATLAS	H U.S. LIGHT LIST	K			
ALASKA (title)	X		X									1
ALASKA PENINSULA (title)	X		X									2
KUJULIK BAY	X		X									3
KUMLIUN, CAPE	X		X									4
												5
												6
												7
												8
												9
												10
												11
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												23
												24
												25

Approved

Chris C. Gray
Chief Geographer

SEP 3 1996

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					
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES					

SHORELINE DATA	
SHORELINE MAPS (List):	TP-00903, TP-00904, TP-00909
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	54		54	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		8	8	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		24	24	
GEOGRAPHIC NAMES				
OTHER*				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	54	32	86

Pre-processing Examination by J. Stringham	Beginning Date 8/14/96	Ending Date 8/16/96
Verification of Field Data by R.A. Shipley	Time (Hours) 54	Ending Date 4/4/97
Verification Check by B. Olmstead	Time (Hours) 7	Ending Date 4/8/97
Evaluation and Analysis by R.A. Shipley	Time (Hours) 32	Ending Date 5/15/97
Inspection by B. Olmstead	Time (Hours) 6	Ending Date 5/15/97

EVALUATION REPORT
H-10693

A. PROJECT

The hydrographer's report contains a complete discussion of the Project information.

B. AREA SURVEYED

This survey was conducted along the Southwest Alaska Peninsula. Specifically, the area is the central portion of Kujulik Bay.

The hydrographer has determined the inshore limits of safe navigation by defining a Navigable Area Limit throughout the survey area. Charted features and soundings inshore of this limit line have not been specifically addressed during survey operations and should be retained as charted. A page-size plot of the charted area depicting the limits of supersession accompanies this report as Attachment 1.

Depths range from 0 to 15.7 fathoms. The bottom consists primarily of mud, sand and shells.

C. SURVEY VESSELS

The hydrographer's report contains information relating to survey vessels.

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), MicroStation and AutoCad, Versions 12 and 13.

At the time of the survey certification the format for the transmission of digital data had not been finally 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, created with the .dbf data and enhanced using the AutoCad system, is filed both in the AutoCad drawing format, i.e., .dwg; and in the more universally recognized graphics transfer format, .dxf. Copies of these data files will be retained at PHB until data transfer protocols are developed and approved.

The drawing files necessarily contain information which are not part of the HPS data set such as geographic name text, line-type, 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 Guidelines 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 on survey H-10693.

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

H. CONTROL STATIONS

Sections H and I of the hydrographer's report contain adequate discussions of horizontal control and hydrographic positioning.

The positions of the horizontal control stations used during hydrography are published values based on NAD 83. The smooth sheet is annotated with a NAD 27 adjustment tick based on values determined with NGS program NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: -2.767 seconds (-85.573 meters)
Longitude: 7.396 seconds (126.201 meters)

The year of establishment of the control station originates with the horizontal control records for this survey.

I. 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. There are a few positions where the maximum allowable horizontal dilution of precision (HDOP) limits of 3.75 have been exceeded during this survey. A review of the data, however, shows that the positioning of

soundings located by these fixes is consistent with the surrounding information and is considered acceptable. None of these survey positions are used to locate dangers to navigation.

J. SHORELINE

Shoreline drawn on the smooth sheet originates from registered shoreline maps TP-00903, TP-00907 and TP-00909 compiled on NAD 83 at 1:20,000 scale. Date of photography is 1987.

The shoreline from the above sources have been digitized during office processing and merged with the survey file during ACAD processing. Changes to alongshore and offshore features shown on the shoreline maps were verified and revised as warranted during survey operations. These changes have been shown on the smooth sheet where applicable. There were no revisions to the high water line.

K. CROSSLINES

Crosslines are adequately discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10693 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10692	1996	10,000	Northeast
H-10698	1996	10,000	East

The junction with H-10698 is complete. Soundings and depth curves are in satisfactory agreement within the common areas. The junction with H-10692 was not formally completed since this survey was previously processed. Soundings and depth curves are in good agreement. However, standard depth curves on H-10693 reflect consideration of all data and should be unused within the common area. There are no contemporary junction surveys on the western limits.

M. COMPARISON WITH PRIOR SURVEYS

H-4510 (1925) 1:20,000

Survey H-4510 covers the entire area of the present survey and is plotted based on an unknown Alaskan datum. Comparison with the present survey reveals differences of 1-2 fathoms between survey depths with the present survey generally reflecting shoaler depths. These differences can be attributed to greater sounding coverage and relative accuracy of the data acquisition techniques. All critical depths originating from the prior survey were adequately

addressed during survey operations.

Survey H-10693 is adequate to supersede the prior survey data within the common area.

T-4141 (1925) 1:20,000

Prior shoreline map T-4141 depicts the mean high water line, alongshore ledges, reefs and rocks within the survey area. Prior rocks, ledges, and reefs were either depicted on the latest shoreline manuscript and/or defined during survey operations. The evaluator recommends that the charted information originating from T-4141 be superseded by the present survey information.

N. ITEM INVESTIGATIONS

There is one AWOIS item within the survey area. AWOIS item 52297 was adequately investigated during this survey. Discussion and disposition of this item is included in the hydrographer's report.

O. COMPARISON WITH CHART

Survey H-10693 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	NAD 83
16566	7th	Oct. 28, 1989	1:77,477	NAD 83

a. Hydrography

Charted hydrography originates with the prior hydrographic and topographic surveys. The prior surveys have been adequately addressed in section M and require 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-10693 is adequate to supersede charted hydrography within the common area. See attachment 1 for the area of supersession.

b. Dangers to Navigation

Nine dangers to navigation were reported to the Seventeenth Coast Guard District, DMA/HTC, PMC and N/CS 262 on July 29, 1996. A copy of the report is attached. No additional dangers to navigation were found during office processing.

P. ADEQUACY OF SURVEY

Hydrography is adequate to:

- a. delineate the bottom configuration, determine least depth, and draw the standard curves; however, the present survey's specification of terminating hydrography at the Navigable Area Limit Line (NALL), has resulted in the non-delineation of the zero and one fathom depth curves and several inshore rocks.
- b. reveal there are no significant discrepancies or anomalies requiring further investigations; 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 except as follows:

Survey H-10693 did not specifically define the foreshore characteristics between the NALL and the mean high water line. In accordance with conducting limited shoreline verification, the hydrographer shall annotate those areas inshore of the NALL with an appropriate designation such as foul with rocks, ledges, kelp, etc...

Q. AIDS TO NAVIGATION

There are no fixed or floating aids to navigation located within the survey area. There are no features of landmark value located within the area of this survey.

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

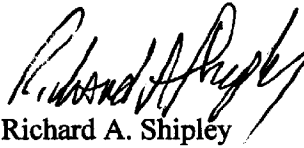
Miscellaneous information is found in the hydrographer's report. There were no additional miscellaneous items noted during office processing.

T. RECOMMENDATIONS

This is an adequate hydrographic survey. No additional work is recommended.

U. REFERRAL TO REPORTS

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


Richard A. Shipley
Cartographer


158°

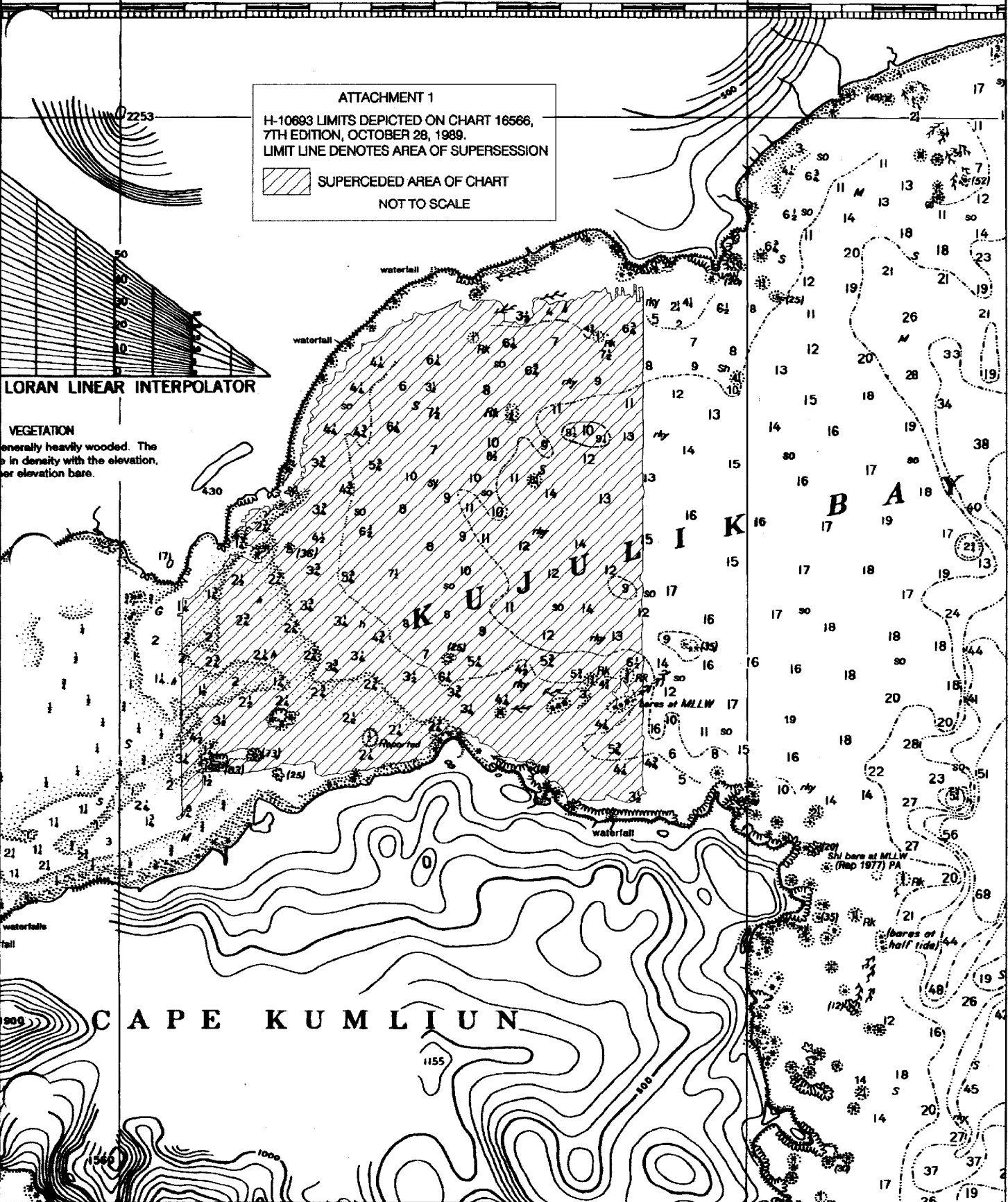
55'

50'

ATTACHMENT 1

H-10693 LIMITS DEPICTED ON CHART 16566,
7TH EDITION, OCTOBER 28, 1989.
LIMIT LINE DENOTES AREA OF SUPERSESION

 SUPERCEDED AREA OF CHART
NOT TO SCALE



LORAN LINEAR INTERPOLATOR

VEGETATION
generally heavily wooded. The
is in density with the elevation,
see elevation bare.

CAPE KUMLIUN

APPROVAL SHEET
H-10693

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: 5/15/97
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: 5/29/97
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Andrew A. Armstrong III Date: Oct-23, 1997
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

