

H10692

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-10-9-96
Registry No.	H-10692
LOCALITY	
State	Alaska
General Locality	Southwest Alaska Peninsula
Sublocality	Northern Portion of
	Kujulik Bay
	1996
CHIEF OF PARTY CAPT Dean R. Seidel, NOAA	
LIBRARY & ARCHIVES	
DATE	SEP 9 1997

HYDROGRAPHIC TITLE SHEET

H-10692

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-10-9-96

State Alaska

General locality Southwest Alaska Peninsula

Locality Northern Portion of Kujulik Bay

Scale 1:10,000 Date of survey May 30-June 29, 1996

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

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

Chief of party CAPT Dean R. Seidel, NOAA

Surveyed by NOAA Ship RAINIER Personnel

Soundings taken by echo sounder, hand held, and DSF-6000N

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: L. Deodato Automated plot by HP Design Jet 650C

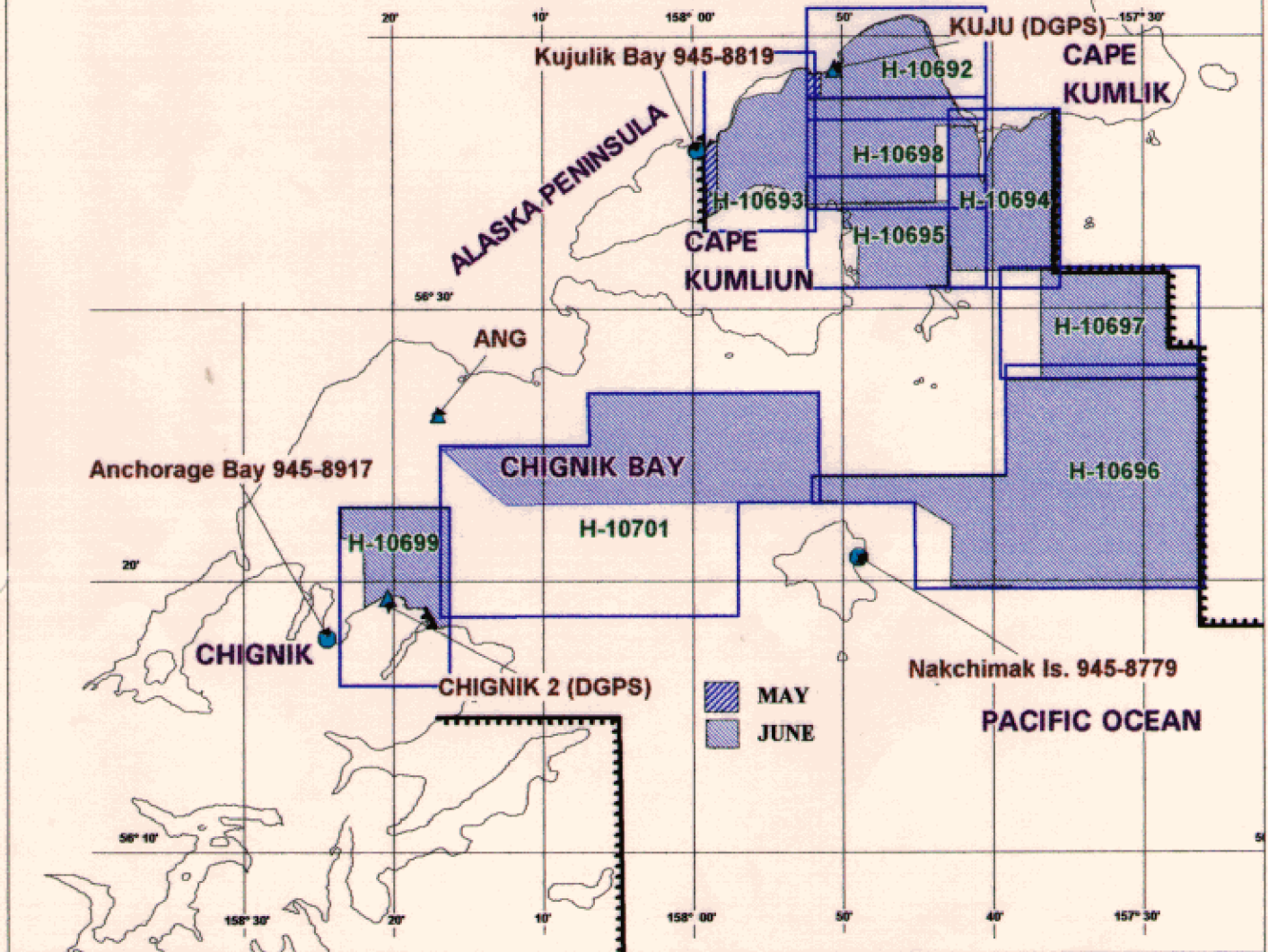
Verification by J.Stringham, D.Doles, R.Mayor, L.Deodato

Soundings in fathoms feet at MHW 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.

A wais & Surf 8/21/97 mcr

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



Sheet Letter	Reg No	Started	Percent Done
E	H-10692	May 30	99
F	H-10693	May 30	80
B	H-10694	June 4	90
C	H-10695	June 4	90
A	H-10697	June 7	70
D	H-10698	June 19	80
T	H-10699	June 25	95
W	H-10696	June 9	90
V	H-10701	June 30	30

Accomplished	May	June
LNM Hydro	37	3074
LNM SSS	0	0
Sq NM Surveyed	2	200
AWOIS Invest.	0	2
Other Invest.	0	2

Downtime Hrs	May	June
Weather - Days	0	4
Mechanical -Hr	0	1
Electronic -Hr	0	1

5'

50'

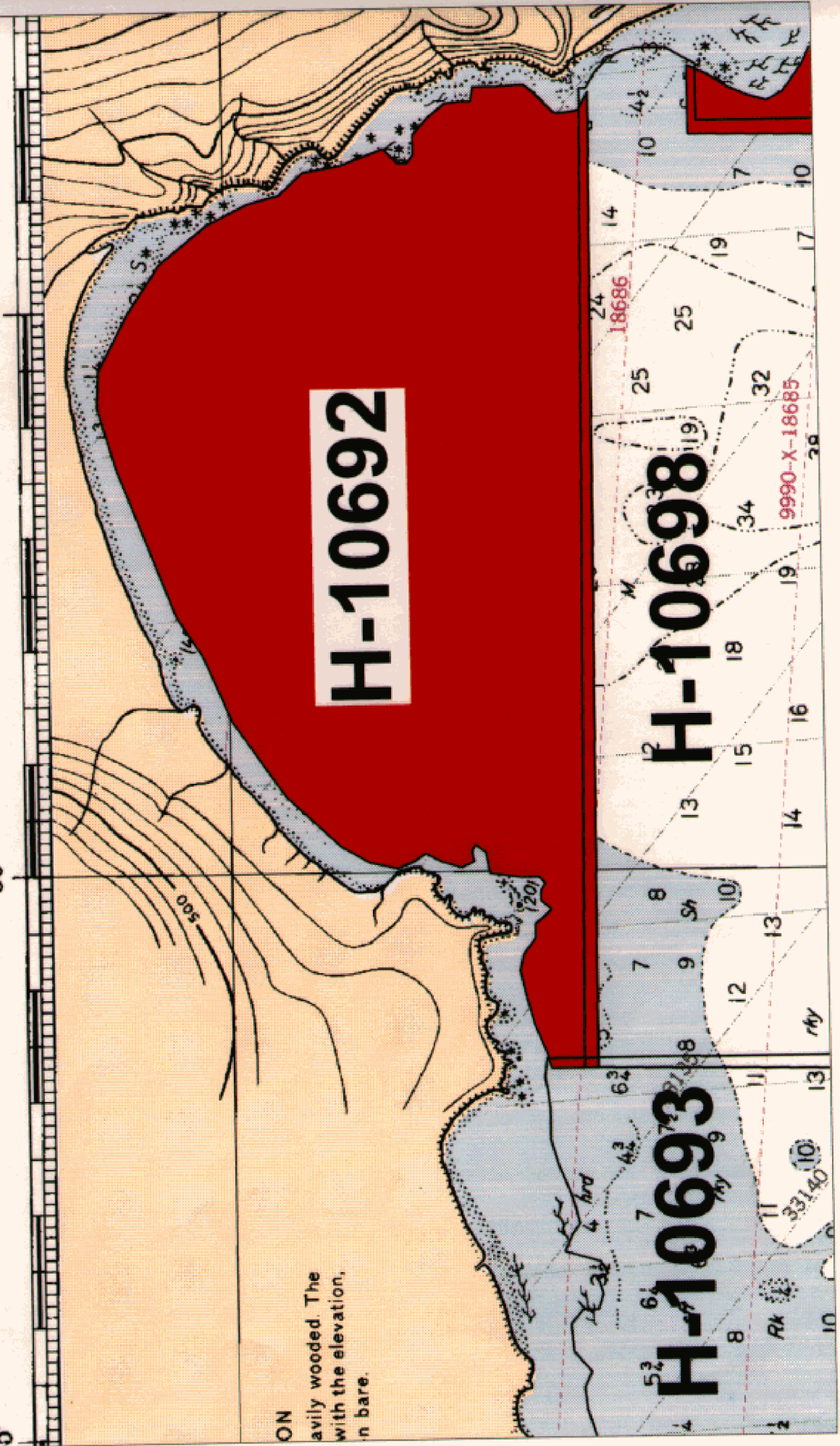
45'

ON
avily wooded. The
with the elevation,
n bare.

H-10692

H-10693

H-10698



Descriptive Report to Accompany Hydrographic Survey H-10692

Field Number RA-10-9-96

Scale 1:10,000

June 1996

NOAA Ship RAINIER

Chief of Party: Captain Dean R. Seidel, NOAA

A. PROJECT ✓

This basic hydrographic survey was completed in the Northern Portion of Kujulik Bay, Alaska, as specified by Project Instructions OPR-P182-RA dated May 20, 1996. Survey H-10692 corresponds to sheet E as defined in the sheet layout included in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating existing nautical charts of the Southwest Alaska Peninsula, Alaska. Requests for hydrographic surveys and updated charts have been received from a U.S. Congressman, a U.S. Senator, the domestic commercial fishing industry, the United States Coast Guard, and NOAA. The majority of requests are from the commercial fishing industry and reflect concern over charting adequacy for safe navigation in treacherous near shore areas.

B. AREA SURVEYED ✓

The survey area is located at the northern portion of Kujulik Bay, Alaska. The survey's limits are 56° 38' 15" N to the south, 157° 51' 40" W to the west, and the shore of Kujulik Bay to the north and the east. Data acquisition was conducted from May 30, 1996 (DN 151) to June 29, 1996 (DN 181).

C. SURVEY VESSELS ✓

Data were acquired by RAINIER survey launches noted below:

Vessel	EDP #	Operation
RA-2	2122	Hydrography Shoreline DPs
RA-3	2123	Hydrography Shoreline
RA-5	2125	Hydrography Shoreline Bottom Samples Sound Velocity Cast
RA-6	2126	Hydrography

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

Data were acquired and processed using HDAPS Software. A complete listing is included in Appendix VI. ✕

E. SONAR EQUIPMENT ✓

Sonar equipment was not used on H-10692. 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
1	1	151	56° 38' 15" N 157° 37' 24" W	26.6	151-169
3	3	170	56° 36' 36" N 157° 47' 15" W	106	170-181

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. *Casts 1 and 3 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 ✓

Transducer depths were determined using FPM Fig 2.2 for vessels 2122-2126 in the spring of 1996. These values were entered into the offset tables ✕ for each survey platform.

Settlement and Squat ✓

Correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2., using FPM Fig. 2.3, and are included with project data for OPR-O136-RA. The data for vessels 2122-2126 were collected in Shilshole Bay, Washington in the Spring of 1996.

Offset Tables ✓

Offset tables* contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset 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-O136-RA. Bar checks were performed bi-monthly 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-10692 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. The tide gages are presently running without problems.

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

Filed with the hydrographic data.

H. CONTROL STATIONS ✓ *See Eval Rpt, 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.**See the OPR-P182-RA-96 Horizontal Control Report for station recovery notes, closure results, and other information. Control Station List is appended to this report.*

I. HYDROGRAPHIC POSITION CONTROL ✓ *See Eval Rpt, 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.

Problems ✓

None.

J. SHORELINE ✓ *See Eval Rpt, 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, TPO0904, (NAD 83, 1:20,000, 1987). Shoreline was hand traced from the T-sheet at survey scale on to boat sheets and processing sheets from HDAPS.

Method of Shoreline Verification ✓

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 30 meters offshore of apparent

* Filed with the hydrographic data.

low tide, or approximately 3 to 5 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 apparent usefulness of the nearshore waters for navigation in the judgement of the hydrographer. Predicted tides appeared to match actual conditions, leading the hydrographer to assume that photography was flown at a mid-stage of tide. The high water line is defined by a long sand beach at the north end of survey, with grass covered dunes framing the beach. Smaller sand beaches separated by rocky points make up the sides of the bay. Detached positions were acquired on T-sheet features offshore of the NALL line to verify positions and determine extent of reefs and connecting ledges for items which were not fully represented on the T-sheet. There were no revisions to the mean high water line.

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. Field cartographic codes were assigned to detached positions; in general, rocks were assigned code 089 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. Heights of rocks plotting offshore of the NALL line are shown on the smooth sheet in feet and have been corrected for approved tides. Heights of rocks plotting along the shoreline were not determined during survey operations. Charted Features

Chart 16566, 7th Edition, October 28, 1989, 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 T-sheet rocks or positioned as new rocks. T-sheet 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. Rocks inshore of the NALL line that were visually verified during survey operations as depicted on the T-sheet have been shown on the smooth sheet.

A charted rock near the southwestern shore of this survey located at charted position latitude $56^{\circ} 38' 51.8''$ N longitude $157^{\circ} 43' 30.0''$ W was not found during this survey. The location of the rock was surveyed using 25 meter line spacing with no indication of shoaling. The average depth of the water was 11 to 13 meters in the search area. A visual search of the area at low water with 3 to 5 meter water visibility proved unsuccessful. Kelp, observed by the hydrographer growing on all rocks and reefs within the survey area, was not observed in the location of the charted rock.

The hydrographer recommends that this rock be removed from the chart. Concur

A 0.5 depth (Fky) was located approximately 200 meters directly south of the charted rock at latitude $56^{\circ} 39' 00.0''$ N longitude $157^{\circ} 43' 36.0''$ W and is likely the same feature.

A rock charted at position latitude $56^{\circ} 39' 24.0''$ N longitude $157^{\circ} 47' 00.0''$ W was not found during this survey. The location of the rock was surveyed using 25 meter line spacing with no indication of shoaling. The average water depth in the search area was 7 to 9 meters. A visual search of the area at low water with 3 to 5 meter water visibility proved unsuccessful. A T-sheet rock, located at latitude $56^{\circ} 39' 18.0''$ N longitude $157^{\circ} 46' 58.8''$ W, approximately 200 meters due south of the charted rock position bearing 1.2 meters at MLLW, was found and indicates that the charted rock was mischarted. The hydrographer recommends that this rock be removed, and the T-sheet rock be charted. Concur

The rock located by the present survey is actually part of a reef feature as depicted on the smooth sheet. A 1.5 fathom depth was found approximately 100 meters northeast of the charted rock at Lat. $56^{\circ} 39' 16.0''$ N, Long. $157^{\circ} 46' 51.0''$ W and is part of a submerged reef. The North Fork River, which flows into the northeast portion of this survey, is not navigable due to shallow depths and extensive sand bars at the river mouth.

During this survey some disagreements between the charted shoreline and the T-sheet, TP-00904 were observed by the hydrographer. The hydrographer recommends the shoreline from TP-00904 and this survey supersede the charted shoreline. *concur*

K. CROSSLINES ✓

Crosslines agreed within one meter with mainscheme hydrography. Total mileage, including portions of the NALL along the sandy beach, was 16.0 nautical miles or 6% of total mainscheme hydrography.

L. JUNCTIONS ✓ *See Eval Rpt, Section L.*

This survey junctions with survey H-10693, RA-10-10-96, 1:10,000, at the western limit and H-10698, RA-10-14-96, 1:10,000, at the southern limit. 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.*

One prior survey covers this survey: H-4510, 1:20,000, 1925. The soundings from this prior survey, when converted from fathoms, were in agreement with the present survey to within two meters. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.

N. ITEM INVESTIGATIONS ✓

There were no AWOIS items located within the limits of this survey. *Concur*

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

This survey was compared in the field to NOS chart 16566, 7th Ed., October 28, 1989, 1:77,477 scale, (NAD 83). In addition, positions of soundings were digitized from a raster image of the chart using pc software to place soundings, converted to meters, onto the boat sheet. The charted soundings were found to be in good agreement.

Dangers to Navigation ✓

Nine dangers to navigation within the limits of H-10692 were reported to the Seventeenth Coast Guard District, July 11, 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-10692 is complete and adequate to supersede prior soundings and features in their common areas. *Do not concur.*

000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92
000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92
000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92
000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92

Q. AIDS TO NAVIGATION ✓

No aids to navigation are located within the survey area. *Concur*

R. STATISTICS ✓

NM Hydrography	291.7
Velocity Casts	2
Detached Positions	18
Selected Soundings	11,904
Bottom Samples	23
Tide Stations	2
NM ² Hydrography	12.5
Dives	0

S. MISCELLANEOUS ✓

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. Secchi disk observations were performed during hydrographic data operations in this area at time of bottom sampling. Water visibility was 3-5 meters.

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

Respectfully Submitted,


Steven A. Lemke
Lieutenant, NOAA

Approved and Forwarded,


Dean R. Seidel
Captain, NOAA
Commanding Officer



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 11, 1996

**ADVANCE
INFORMATION**

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

Dear Sir:

During the processing of hydrographic survey H-10692 in Kujulik Bay, nine 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**

DANGERS TO NAVIGATION

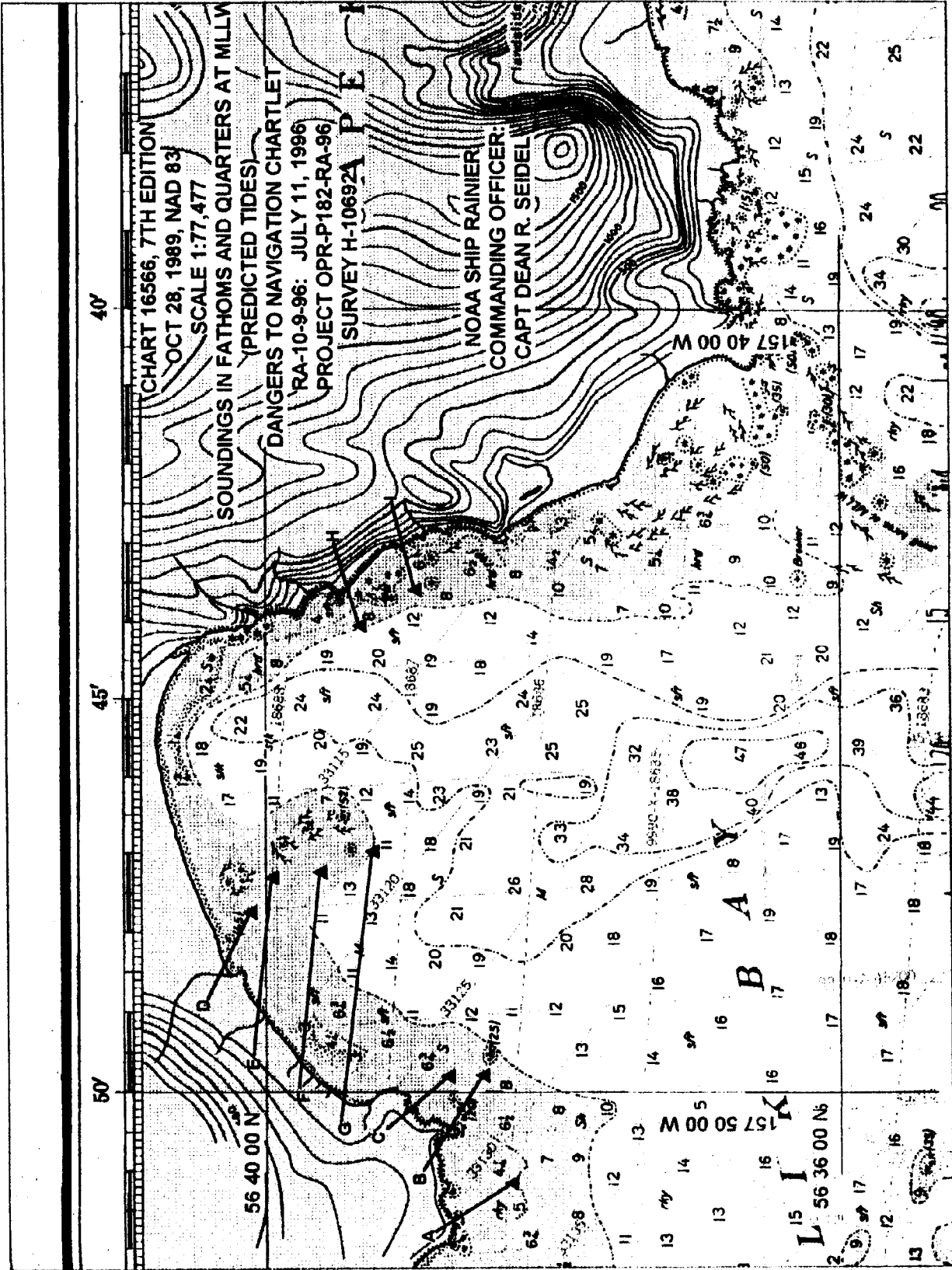
OPR-P182-RA

SOUTHWEST ALASKA PENINSULA

REGISTRY NUMBER H-10692

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

<u>ITEM</u>	<u>DANGER</u>	<u>DEPTH</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>
A	SHOAL	2 1/4 FM	056:38:19.423	157:51:09.046
B	SHOAL	1 3/4 FM	056:38:31.503	157:49:47.104
C	ROCK	AWASH	056:38:46.234	157:49:47.812
D	ROCK	COVERS 1/4 FM	056:40:09.761	157:47:44.502
E	SHOAL	2 1/2 FM	056:40:00.623	157:47:18.217
F	ROCK	UNCOVERS 1/2 FT	056:39:40.099	157:47:14.017
G	ROCK	UNCOVERS 3 FT	056:39:17.955	157:46:58.781
H	SHOAL	4 1/4 FM	056:39:23.291	157:44:02.653
I	ROCK	AWASH	056:38:59.786	157:43:35.563



**ADVANCE
INFORMATION**

RA-PMC-187-179

P 111920Z JUL 96
FM NOAA S RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCCNAVWARN WASHINGTON DC//MCNM//
INFO NOAAMOP SEATTLE WA
BT
UNCLAS
RA-5-96 DTON MSG

NOAA SHIP RAINIER HAS LOCATED 9 DANGERS TO NAVIGATION IN
SOUTHWEST ALASKA PENINSULA (PROJECT: OPR-P182-RA)
WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10692.

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.

ITEM	DANGER	DEPTH	LATITUDE (N)	LONGITUDE (W)	FIX NUMBER
A	SHOAL	2 1/4 FM	056:38:19.423	157:51:09.046	50732+5
B	SHOAL	1 3/4 FM	056:38:31.503	157:49:47.104	60257+2
C	ROCK	AWASH	056:38:46.234	157:49:47.812	50985+0
D	ROCK	COVERS 1/4 FM	056:40:09.761	157:47:44.502	51018+4
E	SHOAL	2 1/2 FM	056:40:00.623	157:47:18.217	50936+4
F	ROCK UNCOVERS	1/2 FT	056:39:40.099	157:47:14.017	50931+0
G	ROCK UNCOVERS	3 FT	056:39:17.955	157:46:58.781	60259+0
H	SHOAL	4 1/4 FM	056:39:23.291	157:44:02.653	60165+5
I	ROCK	AWASH	056:38:59.786	157:43:35.563	50243+5

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

APPROVAL SHEET

for

H-10692

RA-10-9-96

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and the 1994 version of the Field Procedures Manual in producing this survey. The data were examined daily during data acquisition and processing.

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



**Dean R. Seidel
Captain, NOAA
Commanding Officer**



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: November 22, 1996

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-P182-RA

HYDROGRAPHIC SHEET: H-10692

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

TIME PERIOD: May 30 - June 29, 1996

TIDE STATION USED: 945-8779 Nakchamik Island, Ak. (Not used)
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. (Not used)
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.



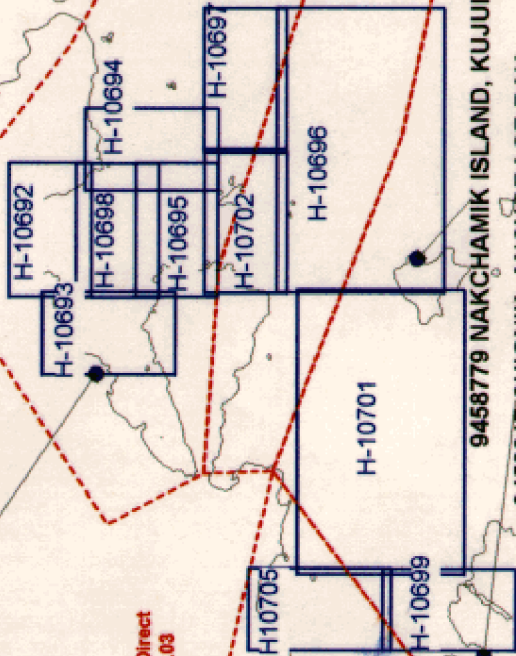
CHIEF, TIDAL ANALYSIS BRANCH



Final 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

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

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			

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 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			

H-10692

GEOGRAPHIC NAMES

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
	ON CHART NO. 16500	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP ATLAS	GRAND ANGLY ATLAS	U.S. LIGHT LIST			
ALASKA (title)	X		X								1
ALASKA PENINSULA (title)	X		X								2
KUJULIK BAY	X		X								3
KUMLIK, CAPE	X		X								4
NORTH FORK (stream)	X		X								5
											6
											7
											8
											9
											10
											11
											12
											13
											14
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											18
											19
											20
											21
											22
											23
											24
											25

Approved

Charles E. ...
Chief Geographer

AUG 14 1996

HYDROGRAPHIC SURVEY STATISTICS

H-10692

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
DESCRIPTION	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	182		182
COMPARISON WITH PRIOR SURVEYS AND CHARTS		11	11
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		15	
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	182	26
Pre-processing Examination by J. Stringham	Beginning Date 7/23/96	Ending Date 7/29/96	
Verification of Field Data by J. Stringham, D. Doles, R. Mayor, L. Deodato	Time (Hours) 182	Ending Date 11/23/97	
Verification Check by B. Olmstead	Time (Hours) 2	Ending Date 1/29/97	
Evaluation and Analysis by L. Deodato	Time (Hours) 26	Ending Date 1/27/97	
Inspection by T. Olmstead	Time (Hours) 6	Ending Date 1/30/97	

EVALUATION REPORT

H-10692

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 0.5 to 25 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-10692.

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-10692 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: -2.754 seconds (-85.194 meters)
Longitude: 7.407 seconds (126.180 meters)

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. 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 and TP-00904 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-10692 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10693	1996	1:10,000	West
H-10698	1996	1:10,000	South

A formal junction could not be made with surveys H-10693 and H-10698 as these surveys are in the preliminary stage of processing. Discussion of these junctional surveys will be made in the Evaluation Report for H-10693 and H-10698. An "ADJOINS" note has been added to the present survey.

M. COMPARISON WITH PRIOR SURVEYS

H-4510 (1925) 1:20,000

Survey H-4510 (1925) cover the entire area of the present survey. Sounding agreement is good, with the present survey depths shoaler between 1 and 2 fathoms. Differences can be largely attributed to increased bottom coverage and less accurate positioning and sounding methods available in 1925.

H-10692 is adequate to supersede the prior survey within the common area.

T-8622 (1941)	1:20,000
T-4155 (1925)	1:20,000
T-4141 (1925)	1:20,000

Prior shoreline maps T-8622, T-4155, and T-4141 depict the mean high water line, ledges, reefs, and isolated rocks which fall within the common area of the present survey. Most of the prior rocks, ledges, and reefs were either depicted on the latest shoreline manuscript and/or defined during survey operations. However, the following eight rocks originating from T-8622 fall inside the NALL line and should be retained on the chart.

<u>Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
Rock	56/40/23	157/44/27
Group of 7 rocks (centered)	56/39/10	157/43/36

With the exception of those items listed above, survey H-10692 is adequate to supersede the prior topographic surveys in the common area

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. See Attachment 1 for the area of supersession.

N. ITEM INVESTIGATIONS

There were no AWOIS items assigned to this survey.

O. COMPARISON WITH CHART

Survey H-10692 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 and topographic surveys and miscellaneous information. The prior surveys have been adequately addressed in section M and requires no further discussion.

Two charted features originating from an unknown source(s) fall inside the NALL line and were not addressed during survey operations. The items are listed below and shall be retained on the chart.

<u>Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
Reef and notation	56/38/24	157/43/12
Rock	56/38/50	157/43/11

With the exception of those items listed above, survey H-10692 is adequate to supersede the charted data within the common area. See Attachment 1 for the area of supersession.

b. Dangers to navigation

Nine dangers to navigation were reported to the USCG, DMAHTC, and N/CS 261 on July 11, 1996. A copy of the report is attached. No additional dangers to navigation were found during office processing.

P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10692 is adequate to:

- delineate the bottom configuration, determine least depths, and draw the required depth curves;
- reveal there are no significant discrepancies or anomalies requiring further investigation; and
- 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.

Leonardo T. Deodato
Leonardo T. Deodato
Cartographer

50'

50'

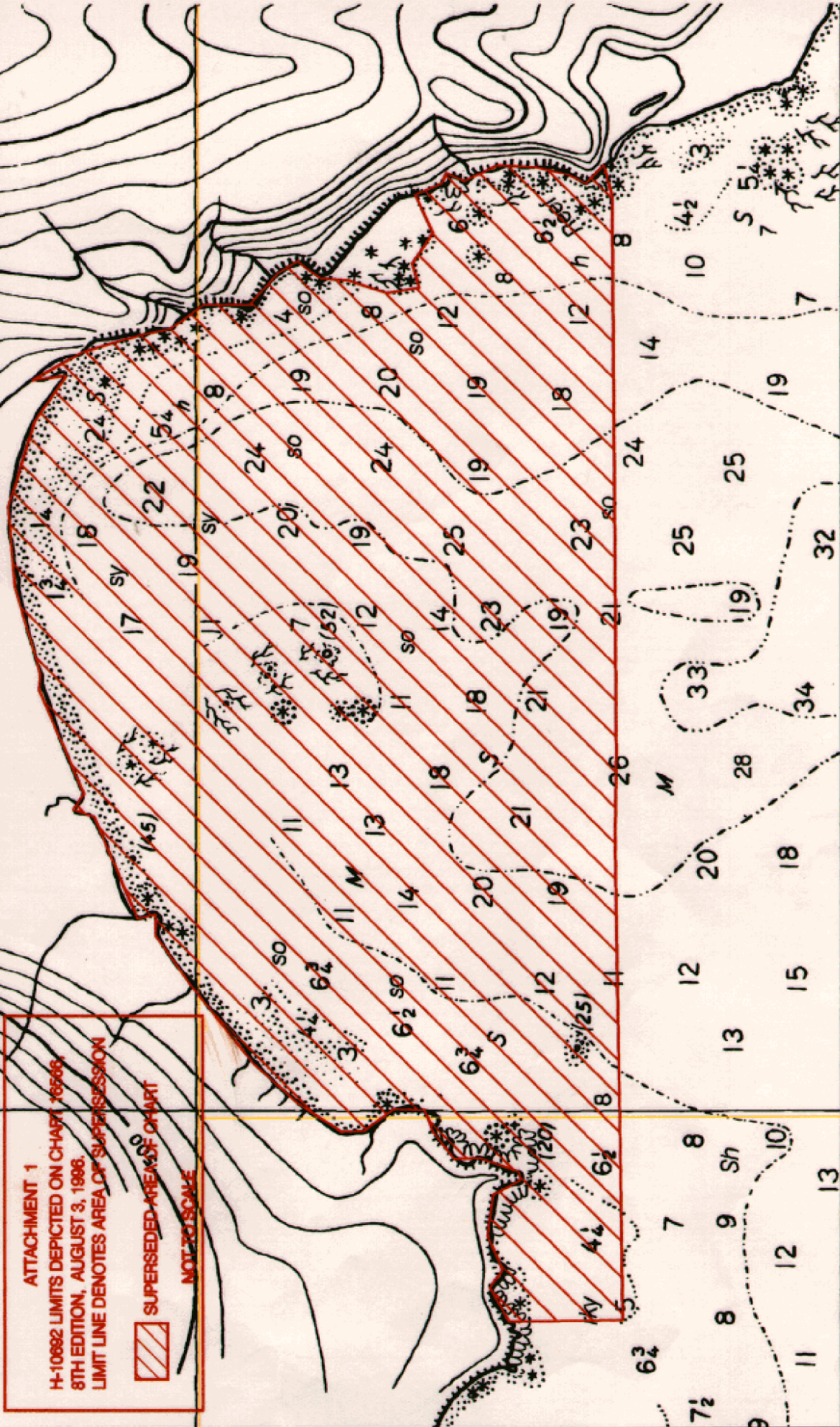
ATTACHMENT 1

H-10882 LIMITS DEPICTED ON CHART 16566, 8TH EDITION, AUGUST 3, 1986.
LIMIT LINE DENOTES AREA OF SUPERSESSION



SUPERSEDED AREAS OF CHART

NOT TO SCALE



APPROVAL SHEET
H-10692

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: Jan. 30, 1997
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: 1/31/97
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Andrew A. Armstrong III Date: 10/23/97
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

