H10702

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-10-16-96

Registry No.: H-10702

LOCALITY

State: Alaska

General Locality: Southwest Alaska Peninsula

Sublocality: Unavikshak Island and Vicinity

19 96

CHIEF OF PARTY
CAPT Dean R. Seidel, NOAA

LIBRARY & ARCHIVES

DATE: OCT 20 1997

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-10702

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-10-16-96

State: Alaska

General locality: Southwest Alaska Peninsula

Locality: Unavikshak Island and Vicinity

Scale: 1:10,000 Date of survey: July 14- July 31, 1996

Instructions dated: May 15, 1996 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 Dean R. Seidel, NOAA

Surveyed by: CAPT D.Seidel,LT S.LaBossiere,LT G.Noll,LT M.Larsen,LT S.Lemke, LT C.George,LT D.Baird,LT S.Meador,ENS E.Christensen,CST J.Fleischmann, SST J.Jacobson

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

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Evaluation by: ~~Protracted by~~ R.A. Shipley Automated plot by: HP Design Jet 650C

Verification by: M. Bigelow, D.Doles, R. Mayor, E. Domingo

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.

AWOIS / SURF mcr 8/29/97

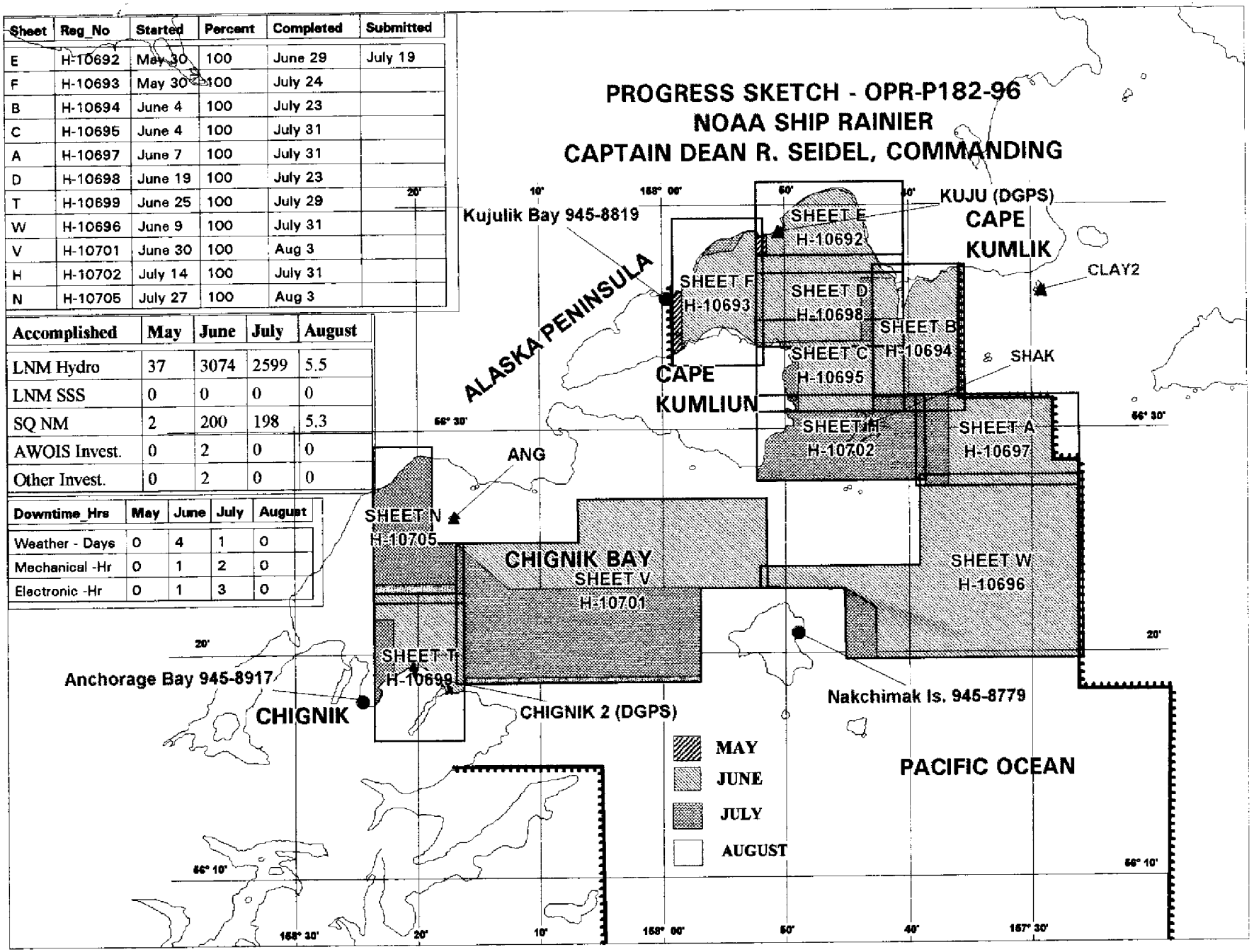
U.S. GOVERNMENT PRINTING OFFICE: 1986 - 652-007/41215

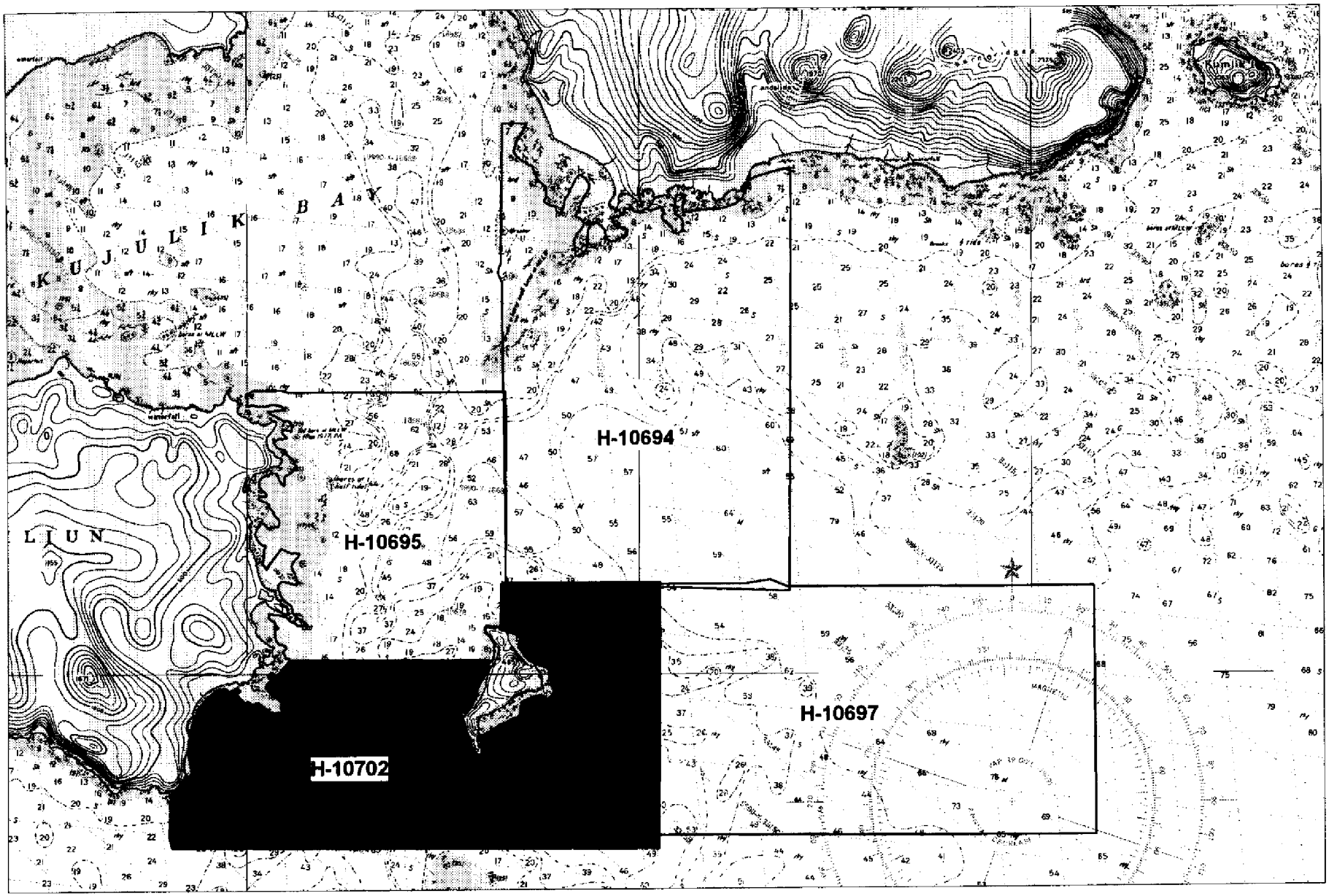
PROGRESS SKETCH - OPR-P182-96
NOAA SHIP RAINIER
CAPTAIN DEAN R. SEIDEL, COMMANDING

Sheet	Reg_No	Started	Percent	Completed	Submitted
E	H-10692	May 30	100	June 29	July 19
F	H-10693	May 30	100	July 24	
B	H-10694	June 4	100	July 23	
C	H-10695	June 4	100	July 31	
A	H-10697	June 7	100	July 31	
D	H-10698	June 19	100	July 23	
T	H-10699	June 25	100	July 29	
W	H-10696	June 9	100	July 31	
V	H-10701	June 30	100	Aug 3	
H	H-10702	July 14	100	July 31	
N	H-10705	July 27	100	Aug 3	

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

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




B A Y
K U J U L I K
L I U N
H-10694
H-10695
H-10697
H-10702

Descriptive Report to Accompany Hydrographic Survey H-10702

Field Number RA-10-16-96
Scale 1:10,000
August 1996
NOAA Ship RAINIER
Chief of Party: Captain Dean R. Seidel, NOAA

A. PROJECT ✓

This basic hydrographic survey was completed in the southwest region of the Alaska Peninsula as specified by Project Instructions OPR-P182-RA dated May 15, 1996. Survey H-10702 corresponds to sheet H as defined in the sheet layout included in the Project Instructions.

This survey provides contemporary hydrographic survey data for the southwest region of the Alaska Peninsula to update existing nautical charts derived from 1925 leadline surveys. Requests for hydrographic surveys and updated charts have been received from members of the United States Congress, the U.S. Coast Guard, NOAA, and the domestic commercial fishing industry.

B. AREA SURVEYED ✓ SEE EVAL REPORT, SECTION B

The survey area is the southern approach to Kujulik Bay, from the waters surrounding Unavikshak Island west to Cape Kumliun. The survey's northern limit is 56° 31' ~~12~~ 13" N joining surveys H-10694 and H-10695, and its southern limit is 56° 27' ~~22~~ 34" N. Its western limit is 157° 51' 55" W, and its eastern limit is 157° ~~38' 55~~ 39' 30" W joining survey H-10697. Data acquisition was conducted from July 14, 1996 (DN 196) to July 31, 1996 (DN 213).

C. SURVEY VESSELS ✓

Data were acquired by RAINIER survey launches as noted below:

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

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 ✓

Sonar equipment was not used on H-10702. 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
8	8	199	56° 27' 41" N 157° 46' 27"W	123	196 ~~199~~-204
13	15	213	56° 29' 24" N 157° 28' 42"W	200	205-213

The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 219), calibrated January 16, 1996. Velocity correctors were computed using the PC programs SEACAT and VELOCITY, version 2.11 (1995), in accordance with Hydrographic Survey Guideline (HSG) No. 69. Cast 15 plots outside the survey area.

A printout of the Sound Velocity Corrector Table used in the HDAPS Post Survey program is included in the "Separates to be Included with Survey Data, IV. Sounding Equipment Calibrations and Corrections". *

Static Draft ✓

A transducer depth was determined using FPM Fig 2.2 for vessels 2122-2126 in the spring of 1996. These values were entered into the offset tables* for each survey platform.

* FILED WITH THE SURVEY RECORDS

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, 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 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-10702 are:

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

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

Sand Point, Alaska (945-9450) was 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 at Nakchamik Island (945-8779) on June 3, 1996. Each tide staff was connected to five bench marks during the opening and closing level runs. 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 SURVEY RECORDS

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

The horizontal datum for this project is NAD 83. No new control points were established for this survey. The control stations used for this survey are listed in ~~Appendix III~~ this report. See the OPR-P182-RA-96 Horizontal Control Report for more information. CONTROL STATION LIST IS APPENDED TO THIS REPORT.

I. HYDROGRAPHIC POSITION CONTROL ✓ SEE EVAL. REPORT, SECTION I.

Method of Position Control ✓

All soundings and features were positioned using differential GPS. Serial numbers for vessel GPS equipment are annotated on the raw data printouts.* VHF differential reference stations were established at Third Order, Class I station KUJU, and at First Order station CHIGNIK2, located near the entrance to Anchorage Bay. No multi-path or other systemic error was indicated by Monitor, version 3.0. The United States Coast Guard modulated radio reference station (i.e., DGPS beacon) at Kodiak was monitored and occasionally used for positioning south of Unavikshak Island when VHF correctors could not be received from KUJU or CHIGNIK2.

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 VHF stations at KUJU or CHIGNIK2, or the KODIAK DGPS beacon. The performance check and monitor results are included in the project data for OPR-P182-RA.

J. SHORELINE ✓ SEE EVAL. REPORT, SECTION J.

Photogrammetric survey CM-8309 was provided through the Pacific Hydrographic Branch (N/CS34). A stable-base enlargement of TP-00909, flown in 1987 and compiled at 1:20,000 in 1990 on NAD83, was used for the shoreline manuscript. Shoreline was manually transferred at survey scale onto boat sheets and processing sheets. Charted point features were digitized with PC software from the raster chart image supplied by N/CS341, and chart enlargement panels were also provided for shoreline comparison.

Method of Shoreline Verification ✓

Limited shoreline verification was conducted in accordance with the Project Instructions. For this survey, the general limit of safe navigation for a survey launch was 10 - 30 meters offshore of apparent low tide, or approximately 5 - 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 apparent usefulness of the nearshore waters for navigation in the judgement of the hydrographer.

Detached positions and foul limit lines were acquired on manuscript features offshore of the NALL to verify positions and determine extent of reefs, kelp, and connecting ledges which were not fully represented on the manuscript. Shoreline notes describing offshore features and the nature of the foreshore can be found in the detached position folder* and on the Detached Position

* FILED WITH SURVEY RECORDS

and Bottom Sample final plot submitted with this survey. Features shown inshore of the NALL are the hydrographer's representation of the low water shoreline without hydrographic positioning. The hydrographer's descriptions of areas inside the NALL line have been added as supplementary information on the smooth sheet.

Field cartographic codes were assigned to detached positions based on predicted tides; 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 should supersede charted shoreline. Concur

* The height 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 located along the shoreline were not determined during survey operations. There are no revisions to the mean high water line.

Charted Features

Survey data was compared to a 1:10,000 enlargement of Chart 16566, 7th Edition, October 28, 1989, 1:77,477 (NAD 83). All charted features originated with hydrographic and topographic surveys of 1925. The charted shoreline was generally found to be in good agreement with this survey. In some cases, however, charted shoreline features were not conservative enough, as with the ledge extending offshore at approximately latitude 56° 29' 42"N, longitude 157° 49' 29"W longitude. In this case, the ledge appears to extend about 0.4 nm further seaward than indicated on the chart and is considered a danger to navigation. A large reef on the western shore of Unavikshak Island was also discovered during shoreline verification. concur Both features discussed above are currently charted. However, the size and extent were found to be significantly larger.

Charted rocks offshore of the NALL were either positioned hydrographically, identified as shoreline manuscript rocks, or disproved. In some cases, rocks charted in shallow, foul waters were either incorrectly positioned or not present. Positional differences were attributed to the eight-fold enlargement of the chart, differences in projections, and modern positioning equipment used in this survey. Concur For charted rocks that were not found by this survey, large amounts of kelp are present in these nearshore areas which may have led previous surveyors to believe that rocks existed in these positions. Charted features inshore of the NALL were not investigated and should therefore remain as charted. Many of the charted rocks inshore of the NALL line fall within the ledge and reef limits that originates from shoreline manuscript TP-00109. These areas should be portrayed on the next chart edition according to the latest photogrammetric information.

The following table summarizes the offshore feature investigations:

Latitude (N)	Longitude (W)	Depth(m)	Disposition	Fix Number
56° 29' 05"N	157° 43' 52"W	14.4 (8 fm)	Disproval of charted rock	30893-914
56° 29' 21"N	157° 50' 54"W	1.9 (1 fm and 2 ft fm)	Disproval of 2 charted rocks	30960 - 97
56° 28' 45"N	157° 51' 13"W	9.6 (5 fm)	Disproval of charted rock	31029 - 46
56° 28' 41"N	157° 51' 02"W	21.6 (11.8 fm)	Disproval of charted rock	31047 - 60
56° 28' 34"N	157° 50' 53"W	19.6 (10.7 fm)	Disproval of charted rock	31061 - 72

Concur

The area of the rock charted at the southeastern tip of Unavikshak Island, position 56° 29' 05"N latitude and 157° 43' 52"W longitude, was investigated visually at low tide (5 meter visibility) as well as developed with 10 meter line spacing (fixes 30893 - 30914). The charted rock was disproved and appears to have been incorrectly positioned on the chart. The manuscript rock positioned at approximately 56° 29' 02"N latitude, 157° 44' 02"W longitude was within the NALL and appears to be the correct position for this rock. Concur

The area containing two charted rocks at approximately 56° 29' 21"N latitude, 157° 50' 54"W longitude was investigated visually at low tide (5 meter visibility) as well as with 10 meter line spacing (fixes 30960 - 30997). Although a shoal with least depth 1.9 meters was found in this area, no rocks awash were found. These two charted rocks were incorrectly positioned on the chart and are the features found by this survey just to the south, one of which corresponds to a manuscript rock. The two rocks were identified with a foul limit line around the larger, more easterly rock and detached position 40251 for the smaller, more westerly rock. Chart this area based on the present survey information.

Three charted rocks were searched for visually at low tide (5 meter visibility) and developed with 10 meter line spacing (fixes 31029 through 31072). These rocks were disproved and do not appear to be associated with any manuscript features. Reference previous page concerning positions of charted rocks.

K. CROSSLINES ✓

Crosslines agreed within 1 meter with mainscheme hydrography. Due to the large amount of mainscheme split mileage run, the total crossline mileage of 32.1 nautical miles amounted to 6.3% of total mainscheme hydrography.

L. JUNCTIONS ✓ SEE EVAL. REPORT, SECTION L.

This survey junctions with surveys H-10694, RA-10-11-96, 1:10,000, and H-10695, RA-10-12-96, at the northern limit, and H-10697, RA-10-13-96, at the eastern limit. Soundings were found to be in good agreement. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.

M. COMPARISON WITH PRIOR SURVEYS ✓ SEE EVAL. REPORT, SECTION M.

Three prior surveys cover this project area: H-4506 (1:60,000, 1925); H-4508 (1:20,000, 1925); and T-4140 (1:20,000, 1925). Though the scale of the prior surveys made comparisons somewhat inexact, the soundings from the prior surveys were generally in good agreement with the present survey. In many instances, shoaler depths were found by this survey due to modern surveying equipment and larger survey scale. As mentioned previously in Section J, the presence and position of shoreline features from previous surveys (i.e., rocks in foul waters) was less consistent. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.

N. ITEM INVESTIGATIONS ✓

No AWOIS items were assigned to this survey. Items originating with this survey are covered in Section J. CONCUR, NO AWOIS ITEMS.

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

This survey was compared in the field to NOS chart 16566, 7th Edition, dated October 28, 1989, 1:77,477 (NAD 83). In general, charted soundings were found to be in good agreement with those from the current survey. Least depths from this survey were sometimes shoaler than charted soundings due to the use of modern positioning equipment and increased sounding densities. This was particularly true in nearshore areas. In areas where charted soundings appeared shoaler than those from this survey, they generally differed by less than two meters. Differences probably arise from positioning and scaling errors from the prior surveys. Areas in which charted soundings were significantly shoaler than those from this survey were as follows:

Latitude (N)	Longitude (W)	Charted Sounding	Current Sounding	Line Spacing
56° 30' 04" N	157° 44' 42" W	12 fm	~~16 fm~~ 15.7	25 m
56° 30' 00" N	157° 47' 36" W	16 fm	22 fm	25 m
56° 29' 31" N	157° 48' 08" W	16 fm	18 fm	25 m

Each of these charted soundings was obtained from a 1:60,000 scale prior survey (H-4506, 1925), so survey positioning and chart scaling errors were a possible source of error in chart compilation. These areas have been adequately developed by the current survey, and the soundings on the current chart should be superseded by soundings from this survey. CONCUR

There is a submarine extension of the reef at approximately 56° 27' 26" N latitude, 157° 44' 55" W longitude that is not fully depicted on the chart. The hydrographer recommends charting the 15 fathom contour in this area. (Do not concur) Additionally, a reef associated with the rock (covers at 1/4 tide) charted at 56° 28' 50" N latitude, 157° 49' 18" W longitude should be more fully represented by charting the 10 fathom contour in the immediate vicinity of this rock, if practical. (Concur)

Non-sounding features are discussed in Section J. Final comparisons will be made at PHB after application of real tide correctors.

Dangers to Navigation ✓

Twelve dangers to navigation within the limits of H-10702 were reported to the Seventeenth Coast Guard District, August 3, 1996. Copies of the correspondence can be found in ~~Appendix I~~ Appendix I. (COPIES ATTACHED TO THIS REPORT.)

P. ADEQUACY OF SURVEY ✓ SEE EVAL. REPORT, SECTION P.

Survey H-10702 is complete and adequate to supersede prior soundings and features in their common areas. CONCUR

Q. AIDS TO NAVIGATION

No aids to navigation exist within the survey area.

CONCUR

R. STATISTICS

NM Hydrography	716.5
Velocity Casts	2
Detached Positions	14
Selected Soundings	29482
Bottom Samples	79
Tide Stations	2
NM^2 Hydrography	18.9
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.

T. RECOMMENDATIONS

None

U. REFERRAL TO REPORTS

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

Title	Date Sent	Office
1996 Horizontal Control Report for OPR-P182-RA.	August, 1996	N/CS34
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,

Stephen Meador
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/Yr	Station Name
001	G	056:38:37.566	157:50:29.988	30	250	0.0	0.0	1	05/27/96	[illegible]
002	G	056:19:28.092	158:19:45.257	122	250	0.0	0.0	3	06/24/96	CHIGNIK 2 [illegible] DGPS FREQ ?
100	G	057:37:07.800	152:11:21.000	0	250	0.0	0.0	A	03/01/96	KODIAK 313 KHZ USCG DGPS
101	G	055:05:30.000	162:31:54.000	0	250	0.0	0.0	B	06/25/96	COLD BAY 299 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

August 3, 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-10695 and H-10702 in Kujulik Bay, nineteen 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

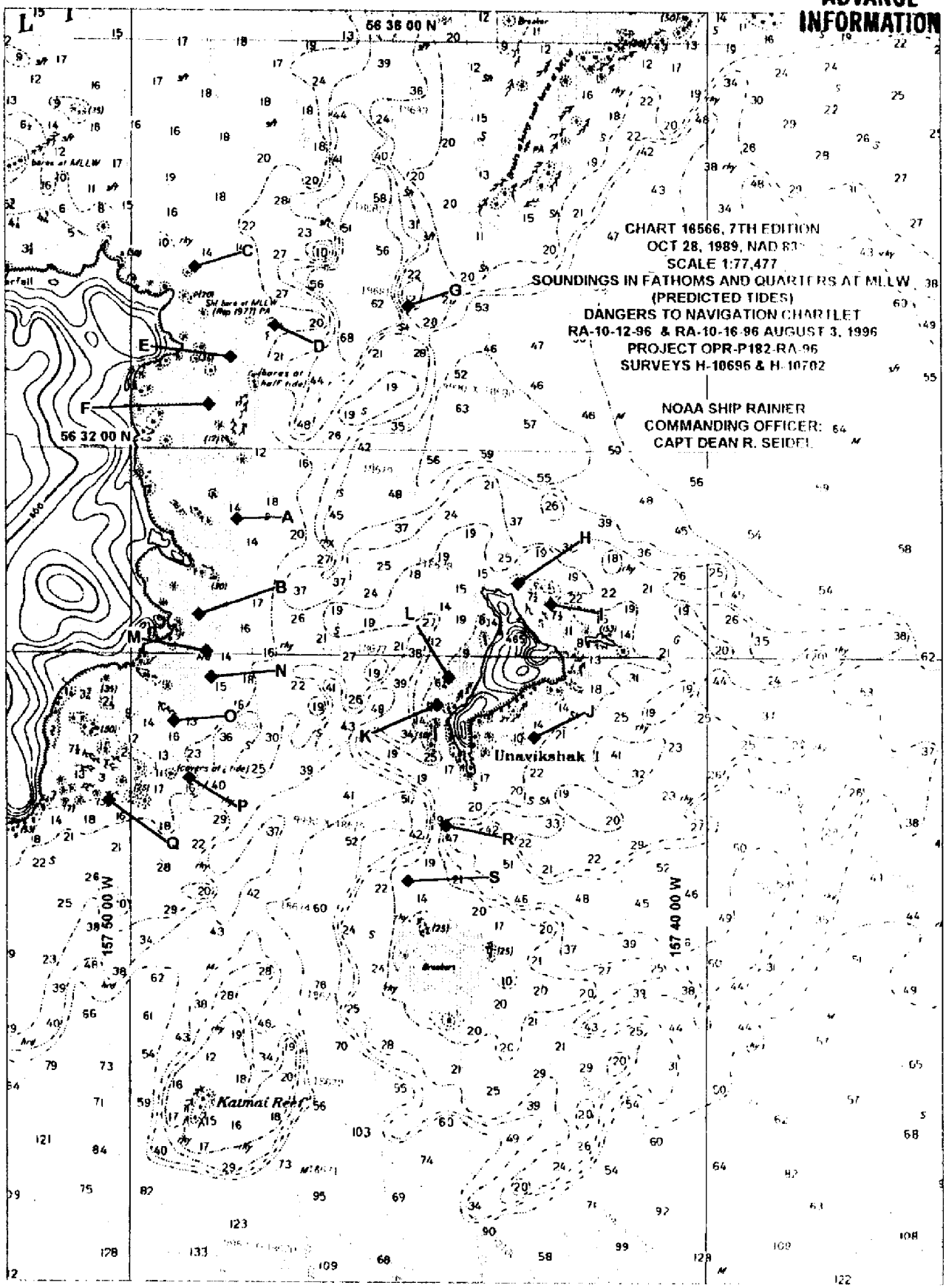
OPR-P182-RA **SOUTHWEST ALASKA PENINSULA**

REGISTRY NUMBER: H-10702

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)
H	50485+5	SHOAL	2 FM	4	056:30:42.223	157:43:17.138
I	50511+2	SHOAL	9 1/2 FM	17.7	056:30:30.023	157:42:42.707
J	50631+4	SHOAL	7 FM	13.1	056:29:13.250	157:42:59.704
K	30133+2	ROCK	COVERS 3/4 FM	1.4	056:29:30.999	157:44:40.365
L	40538+0	ROCK	COVERS 1/2 FM	1.2	056:29:46.994	157:44:28.538
M	30459+5	ROCK	COVERS 1 FM	2.2	056:30:01.186	157:48:40.629
N	20688+2	SHOAL	2 1/4 FM	4.2	056:29:46.196	157:48:35.589
O	20546+6	SHOAL	5 1/4 FM	9.8	056:29:21.077	157:49:14.396
P	61223+1	SHOAL	9 FM	16.6	056:28:47.983	157:48:58.531
Q	30581+4	SHOAL	5 FM	9.5	056:28:34.238	157:50:22.075
R	61068+4	SHOAL	9 1/4 FM	17	056:28:20.996	157:44:31.361
S	61123+4	SHOAL	9 FM	16.7	056:27:48.282	157:45:10.542

ADVANCE INFORMATION



ADVANCE INFORMATION

P 031743Z AUG 96
FM NOAAS RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCCNAVWARN WASHINGTON DC//MCNM//
INFO NOAAMOP SEATTLE WA
RA-8-96 DTON MSG
BT
UNCLAS

NOAA SHIP RAINIER HAS LOCATED 19 DANGERS TO NAVIGATION IN SOUTHWEST ALASKA PENINSULA (PROJECT: OPR-P182-RA)WITHIN THE LIMITS OF HYDROGRAPHIC SURVEYS H-10695 AND H-10702.

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-10695

ITEM	DANGER	DEPTH	LATITUDE (N)	LONGITUDE (W)	FIX NUMBER
A	SHOAL	2 1/4 FM	056:31:18.73	157:48:08.92	41485+3
B	ROCK COVERS	1 FM	056:30:22.44	157:48:48.80	60386+0
C	SHOAL	2 1/2 FM	056:33:47.40	157:48:52.71	60469+2
D	ROCK COVERS	3/4 FM	056:33:12.86	157:47:29.79	60440+0
E	ROCK COVERS	1 1/4 FM	056:32:53.99	157:48:15.89	20337+3
F	ROCK AWASH		056:32:26.14	157:48:38.49	60097+0
G	SHOAL	8 1/4 FM	056:33:24.83	157:45:10.80	60503+0

FOR SURVEY H-10702

ITEM	DANGER	DEPTH	LATITUDE (N)	LONGITUDE (W)	FIX NUMBER
H	SHOAL	2 FM	056:30:42.22	157:43:17.14	50485+5
I	SHOAL	9 1/2 FM	056:30:30.02	157:42:42.71	50511+2
J	SHOAL	7 FM	056:29:13.25	157:42:59.70	50631+4
K	ROCK COVERS	3/4 FM	056:29:31.00	157:44:40.37	30133+5
L	ROCK COVERS	1/2 FM	056:29:46.99	157:44:28.54	40538+0
M	ROCK COVERS	1 FM	056:30:01.19	157:48:40.63	30459+5
N	SHOAL	2 1/4 FM	056:29:46.20	157:48:35.59	20688+2
O	SHOAL	5 1/4 FM	056:29:21.08	157:49:14.40	20546+6
P	SHOAL	9 FM	056:28:47.98	157:48:58.53	61223+1
Q	SHOAL	9 1/4 FM	056:28:21.00	157:44:31.36	61068+4
R	SHOAL	5 FM	056:28:34.24	157:50:22.08	30581+4

ADVANCE INFORMATION

S SHOAL 9 FM 056:27:48.28 157:45:10.54 61123+4

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.
BT

NNNN

APPROVAL SHEET

for

H-10702

RA-10-16-96

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-10702

LOCALITY: Kujulik Bay Between Cape Kumlik and Cape Kumliun,
Southwest Alaska Peninsula, Alaska

TIME PERIOD: July 14 - 31, 1996

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

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

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

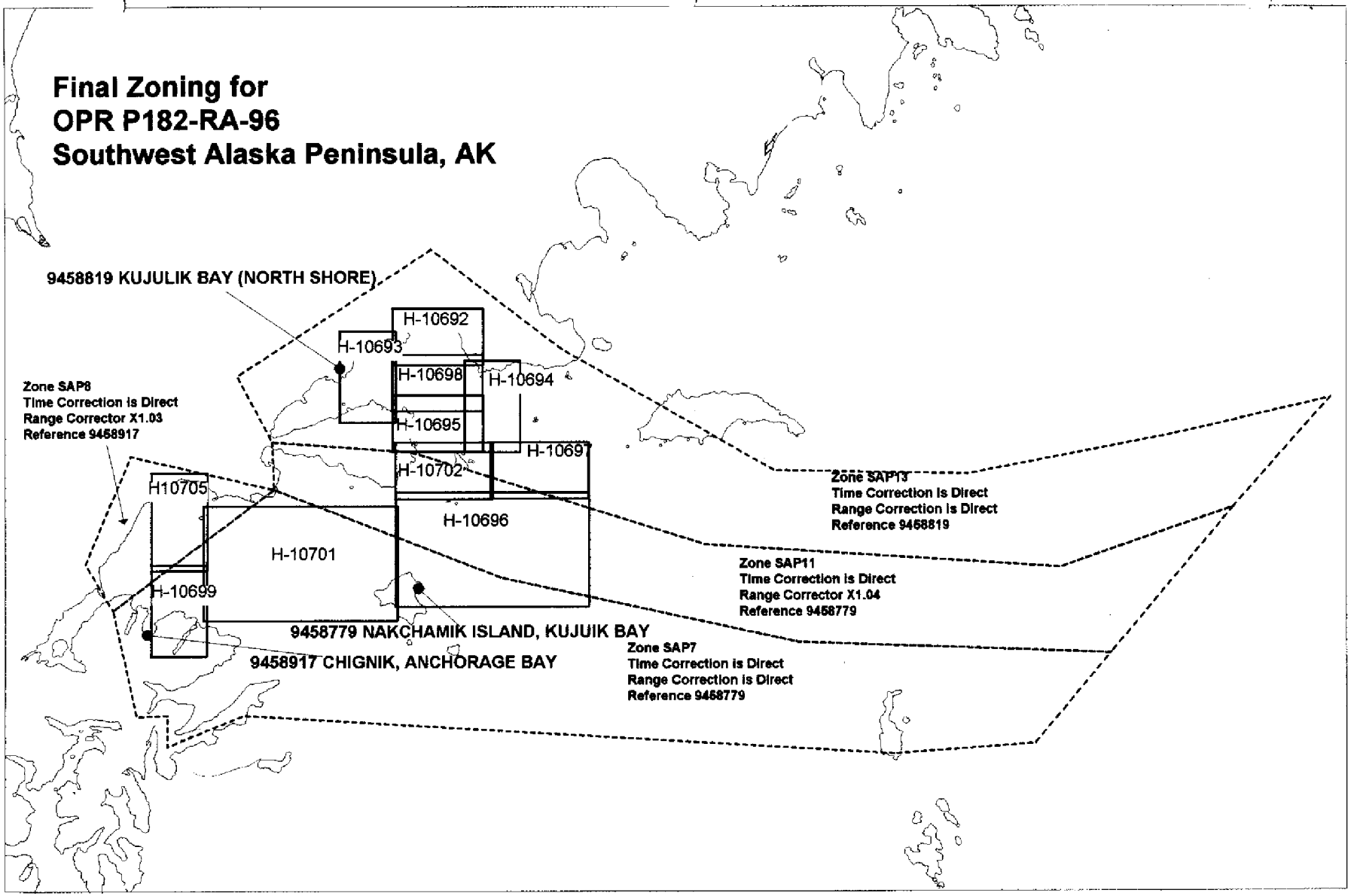
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.472 meters

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

Note: Times are tabulated in Greenwich Mean Time.

CHIEF, TIDAL ANALYSIS BRANCH

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



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

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			

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10702

Name on Survey	A ON CHART NO. 16566, 16011, 16013	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
KUMLIUN, CAPE	X		X							3
NORTH PACIFIC OCEAN	X		X							4
UNAVIKSHAK ISLAND	X		X							5
										6
										7
										8
										9
										10
										11
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										13
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										16
										17
										18
										19
					Approved					20
										21
										22
					Chief Geographer					23
					OCT 7 1996					24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27(H) (9-83) | U.S. DEPARTMENT OF COMMERCE | REGISTRY NUMBER

HYDROGRAPHIC SURVEY STATISTICS

H-10702

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	2					
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List):	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	80		80
COMPARISON WITH PRIOR SURVEYS AND CHARTS		10	10
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		38	38
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	80	48.0	128

Pre-processing Examination by Pacific Hydrographic Branch	*Beginning Date* 9/16/96	*Ending Date* 9/23/96
Verification of Field Data by E. Domingo, R. Shipley	*Time (Hours)* 80	*Ending Date* 6/27/96
Verification Check by B. Olmstead	*Time (Hours)* 5.0	*Ending Date* 7/2/97
Evaluation and Analysis by R. Shipley	*Time (Hours)* 4.80	*Ending Date* 6/30/97
Inspection by B. Olmstead	*Time (Hours)* 8.0	*Ending Date* 7/28/97

EVALUATION REPORT
H-10702

A. PROJECT

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

B. AREA SURVEYED

This survey was conducted in Southwest Alaska Peninsula, Alaska. Specifically, the area is the southern approach to Kujulik Bay, from the waters surrounding all but the northwest portion Unavikshak Island west to the southeast portion of Cape Kumlin. The limits of hydrography have been adequately described in section B of the hydrographer's report except as follows: the northern limit is latitude 56/31/15 N, the southern limit is latitude 56/27/32N, and the eastern limit is longitude 157/39/30 W. Depths range from 0.8 to 60 fathoms. The bottom consists primarily of sand, shells, and mud.

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.

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) 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 is 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. 35 and No 75.

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-10702.

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 Chignik, Anchorage Bay, Alaska, gage 945-8917 and Nakchamik Island, Alaska, gage 945-8779.

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: -2.754 seconds (-85.189 meters)
Longitude: 7.365 seconds (126.027 meters)

The year of establishment of the control station originates with the hydrographer's signal list and 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 has been adequately discussed in the hydrographer's report and supplemented as follows:

The shoreline from the above source has 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. There are no revisions to the mean high water line.

K. CROSSLINES

Crosslines are adequately discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10702 junctions with the following surveys.

Survey	Year	Scale	Area
H-10694	1996	10,000	Northeast
H-10695	1996	10,000	North
H-10697	1996	10,000	East

The junctions with H-10694, H-10695 and H-10697 are complete. Soundings and depth curves are in satisfactory agreement within the common areas.

M. COMPARISON WITH PRIOR SURVEYS

H-4506 (1925) 1:60,000
H-4508 (1925) 1:20,000

Prior surveys H-4506 and H-4508 cover the entire area of the present survey and are plotted based on an unknown Alaskan datum. All depths originating from the prior surveys were adequately addressed during survey operations. A more thorough bottom ensonification by the present survey has shown this area to contain many newly discovered shoal areas not found in 1925. The present survey depths were found to be generally shoaler by about 1-3 fathoms in most areas. However, a few prior soundings were considerably shoaler (3-6 fms) than depths

found by the present survey. These shoaler depths are likely the result of anomalous lead line depth determination. The differences noted in this survey can be attributed to the increased bottom coverage of the area and the application of more accurate positioning and sounding methods avalilable in the field at the present time.

Survey H-10702 is adequte to supersede the prior survey data within the common area.

T-4140 (1925) 1:20,000

Prior shoreline map T-4140 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-4140 be superseded by the present survey information.

H-10702 is adequate to supersede the prior topographic survey within the common area.

N. ITEM INVESTIGATIONS

There are no AWOIS items within the survey area.

O. COMPARISON WITH CHART

Survey H-10702 was compared with the following chart.

Chart	Edition	Date	Scale	Datum
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 mentioned in section M. The prior surveys are adequately addressed 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-10702 is adequate to supersede charted hydrography within the common area.

b. Dangers to Navigation

Twelve (12) dangers to navigation were reported to the Seventeenth Coast Guard District, NIMA, PMC and N/CS 262 on Aug 3, 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:

a. to delineate the bottom configuration, determine least depths, and draw the standard curves;

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.

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.

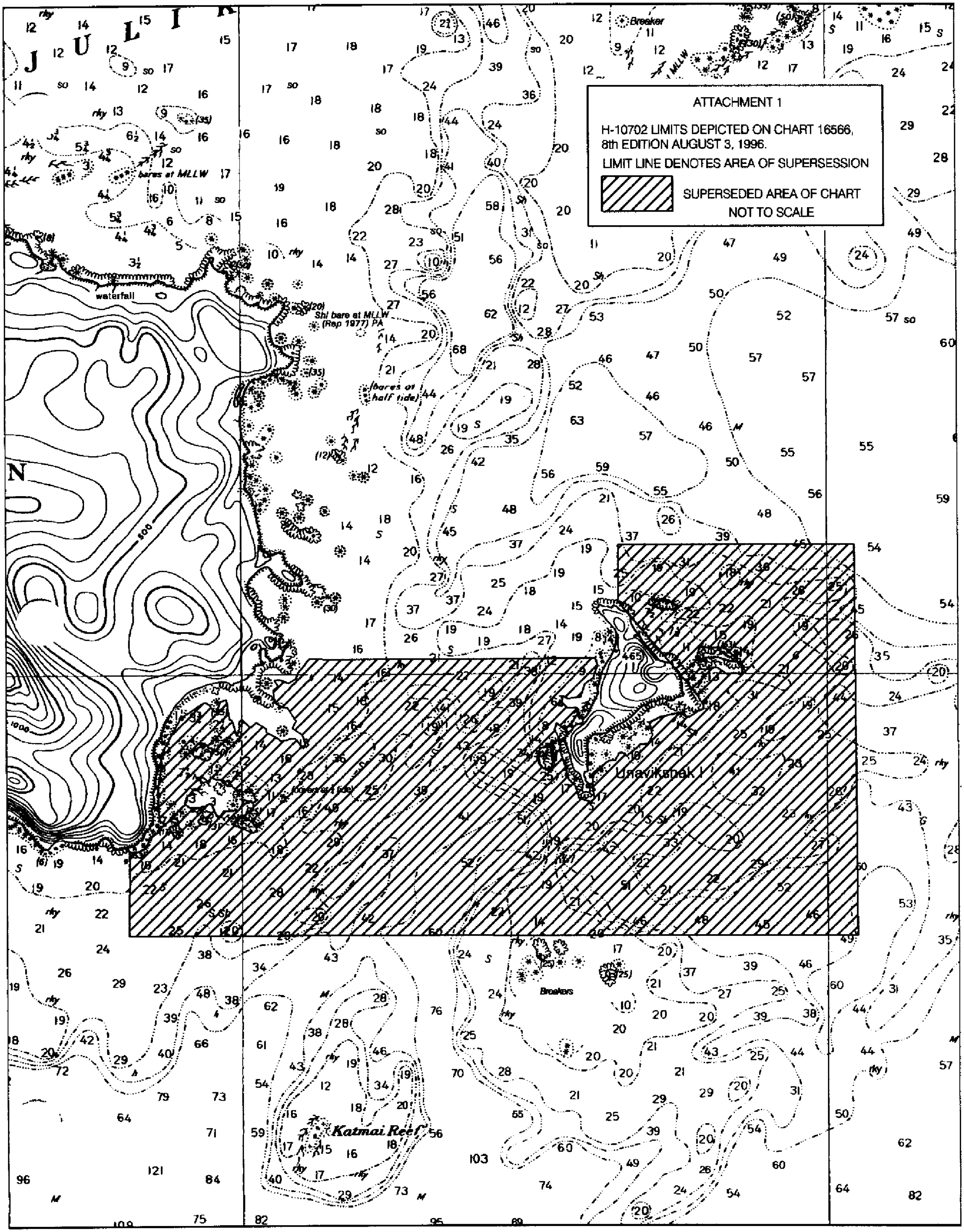
T. RECOMMENDATIONS

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

U. REFERRAL TO REPORTS

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

Bruce A. Olmstead
for Richard A. Shipley
Cartographer


ATTACHMENT 1
H-10702 LIMITS DEPICTED ON CHART 16566, 8th EDITION AUGUST 3, 1996.
LIMIT LINE DENOTES AREA OF SUPERSESSION
SUPERSEDED AREA OF CHART
NOT TO SCALE
Unavikshak I
Katmai Reef
Breakers
Breaker
waterfall
Shl bare at MLLW (Rep 1977) PA
bares at half tide
bares at MLLW

APPROVAL SHEET
H-10702

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: 7/28/97
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: 8/1/97
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

****

Final Approval

Approved:

Andrew A. Armstrong III Date: Oct 30, 1997
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10702

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	7/1/97	[illegible]	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. Full application of soundings and curves from smooth sheet.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.