

# 9956

Diagram No. 8556-3

NOAA FORM 76-35A

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

## DESCRIPTIVE REPORT

Type of Survey ... Hydrographic.....  
Field No. .... FA-10-3-81.....  
Office No..... H-9956.....

### LOCALITY

State ..... Alaska.....  
General Locality Shelikof Strait.....  
Locality ..... Vicinity of Cape Kekurnoi.....

, 1981

CHIEF OF PARTY  
CDR W.F. Forster

### LIBRARY & ARCHIVES

DATE ..... June 21, 1984.....

# 9956

**HYDROGRAPHIC TITLE SHEET**

H-9956

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.

FA-10-3-81

State Alaska

General locality Shelikof Strait

Locality Vicinity of Cape Kekurnoi

Scale 1:10,000 Date of survey July 22 - August 7, 1981

Instructions dated February 6, 1981 Project No. OPR-P146-DA, FA-81

Vessel NOAA Ship FAIRWEATHER and Launches 2023 and 2025

Chief of party CDR W. F. Forster

Surveyed by LTJG A. Trimble, ENS R. Pingry

Soundings taken by echo sounder, ~~XXXXXX~~ Ross Fathometer

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Verification ~~XXXXXX~~ by R. Mihailov Automated plot by PMC Xynetics Plotter

Evaluation ~~XXXXXX~~ by K. M. Scott

Soundings in fathoms ~~feet~~ at ~~MLW~~ MLLW

REMARKS: Revisions and marginal notes in black by evaluator.

STANDARDS CK'D 6-25-84

C. Loy

AWOIS MAM 9/19/84

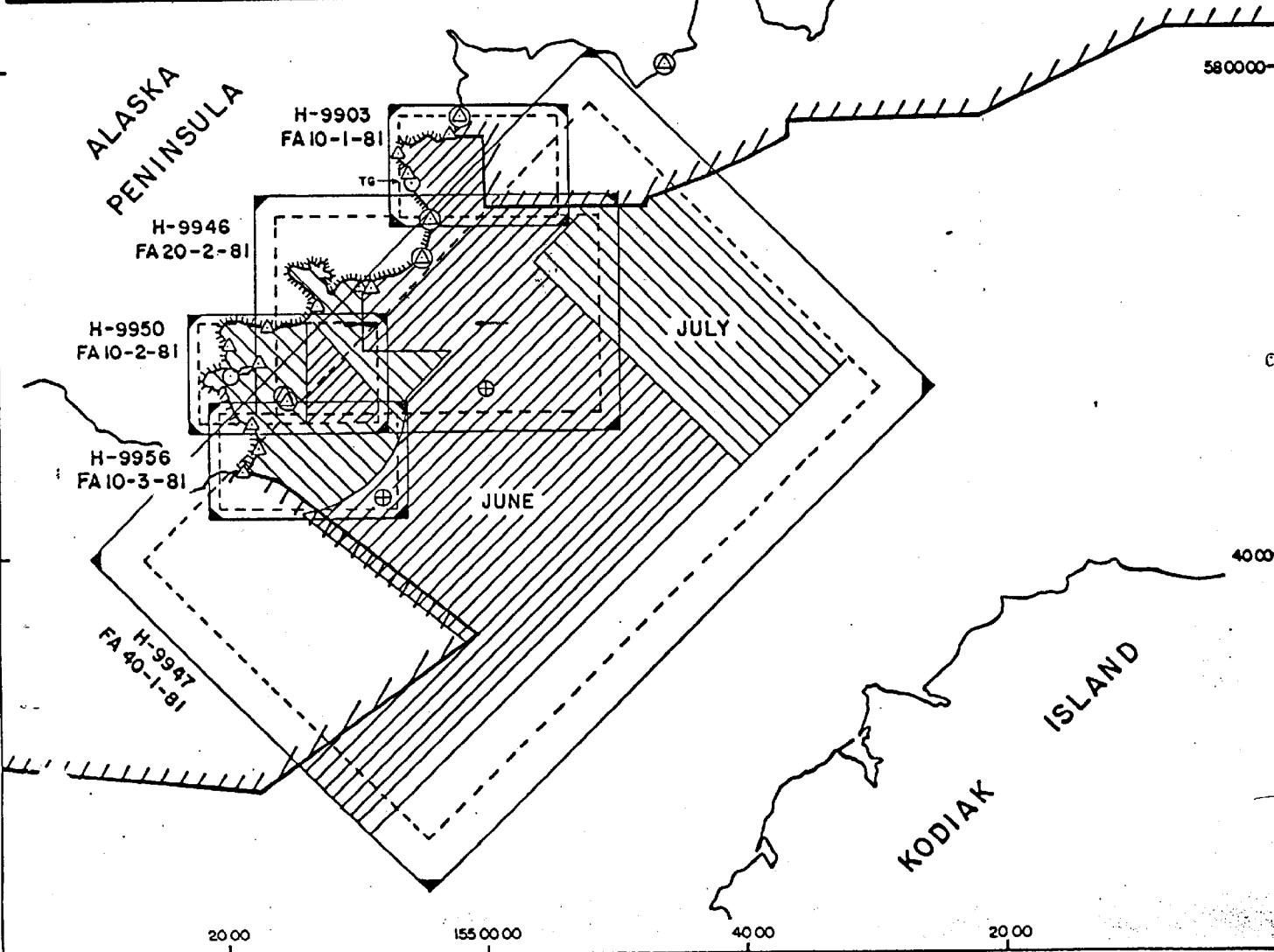
SURF MAM 9/19/84

HYDROGRAPHIC SURVEY - 1981  
 OPR-PI46-FA-DA-81  
 MONTHLY PROGRESS SKETCH  
 SHELIKOF STRAIT, ALASKA  
 NOAA SHIP FAIRWEATHER S-220  
 CDR WALTER F. FORSTER, CMDG  
 SCALE OF NOS CHART 16580

2000

- ⊙ STATIONS RECOVERED
- △ STATIONS ESTABLISHED
- ⊙<sub>TG</sub> TIDE GAGE INSTALLED
- ⊕ NANSEN - MARTEK
- ⋈ FIELD EDIT

	JUNE	JULY
SQ NM SOUNDING LINE	221.5	111.0
LNM SOUNDING LINE	1276.2	1146.8
BOTTOM SAMPLE	212	148
HYDRO CONTROL STATION	11	8
NANSEN - MARTEK GAST	1-0	1-0
WATER SAMPLE ANALYZED (SALINITY)	0	18
TEMPERATURE, DEPTH, CONDUCTIVITY	0	0
TIDE GAGE INSTALLATION	1	0
HYDROGRAPHY		
LNM FIELD EDIT	17	19



DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SURVEY H-9956

(Field No. FA-10-3-81)

Scale - 1:10,000

Year - 1981

Chief of Party - Cdr. W. F. Forster

A. PROJECT

This hydrographic survey was performed in compliance with hydrographic Project Instructions OPR-P146-DA, FA-81, Shelikof Strait, Alaska, dated February 6, 1981; Change No. 1: Amendment to Instructions, dated April 15, 1981; Change No. 2: Amendment to Instructions, dated May 6, 1981; and PMC Data Requirements Letter, dated April 27, 1981. The PMC OORDER and the Hydrographic Manual, 4th Edition, were also applicable.

B. AREA SURVEYED

The area covered by this survey lies near the southwest end of Shelikof Strait in Alaska. The survey area extends from Cape Kekurnoj,  $57^{\circ}43'13''N$ , north to junction with contemporary survey FA-10-2-81 (H-9950) at  $57^{\circ}45'23''N$ . The survey extends to the coastline on the west side and junctions with contemporary survey, FA-40-1-81 (H-9947), on the east at a  $45^{\circ}$  angle from  $155^{\circ}08'20''W$  to  $155^{\circ}12'15''W$ . Hydrography was run from July 22 through August 8, 1981, Julian Days 203-~~217~~<sub>219</sub>.

C. SOUNDING VESSELS

The vessels used to run hydrography on this sheet were survey launches FA-3 (2023) and FA-5 (2025). Survey launch FA-5 (2025) was used for bottom samples in areas less than 30 fms. The FAIRWEATHER (2020) was used for all bottom samples in deeper water, and for Nansen Casts. No unusual sounding configurations were used nor were any unusual problems encountered.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Survey launches were equipped with Ross Finline Model 5000 fathometers. Serial numbers of sounding system components used throughout the survey are listed below:

Table I  
Sounding Equipment

<u>Vessel</u>	<u>JD</u>	<u>Analog</u>	<u>Transceiver</u>	<u>Digitizer</u>	<u>Inverter</u>
2023	203-209	1054	1046	1047	1054
2023	209-210	1054	1046	1047	1097
2025	208-217	1036	1053	1054	1036

The fathogram initial was checked frequently for paper alignment. No significant initial drifts were noted. Phase calibration checks were made at the beginning and end of each day's operations. Phase checks were made during operations for spot checks on the system.

All data was scanned twice to compare analog to digital depths and to insert peaks and deeps into the digital records. Splits were run in areas where there was evidence of rocks, shoals or reefs.

Bar checks were taken twice daily, weather permitting. These served as a systems check each day as well as a means to determine transducer correctors (TRA) for each vessel. All bar check lines were calibrated wet and under tension equal to the weight of the bar under water. The TRA correctors tabulated from bar check data were 0.3 fm for all launches. No leadline soundings were taken in this survey.

Depths of this survey range from 0 to 161 fathoms. All depths were measured with electronic echo sounding equipment. No instrument malfunctions affected the accuracy of the survey.

In several offshore areas of very steeply sloping bottom, the analog trace was broken and difficult to interpret and the digitizer could not keep up with the rate of change. This caused an apparent crossline discrepancy in one area where the depths dropped from 109 to 154 fathoms in less than 300 meters (See Section I. Crosslines).

Velocity correctors were computed from two Nansen Casts; one was on June 30 at 57°46'54"N, 155°00'00"W and the other was on July 24 at 57°42'36"N, 155°08'06"W. Beckman salinometer, S/N 29851, was used for salinity measurements on Nansen Casts. This instrument was calibrated by NW Regional Instruments Center in April 1981.

Settlement and Squat correctors for each launch were measured in Shilshole Bay, Seattle, Washington in April, 1981. A Zeiss level was sighted to a stadia rod held over the transducers while the launches were run at speed increments of 200 rpm. Changes in the tide were taken into account. The correctors measured were less than 0.07 fathoms for all launches at all speeds, and were not applied to any soundings on this survey. For extra accuracy, launches were not operated at speeds which cause more than 0.05 fm settlement and squat.

For more information, see the Report on Corrections to Echo Soundings, OPR-P146-DA,FA-81.

### E. HYDROGRAPHIC SHEETS

The field sheets for this survey were prepared aboard the NOAA Ship FAIRWEATHER with the PDP8/e computer (S/N 09524) and the Complot plotter (S/N 5557-5). The main sheet is 1:10,000 scale with a skew of 0°. This sheet includes all mainscheme hydrography, crosslines, shoreline and bottom samples. All field edit data on shoreline, offshore reefs, and rocks were transferred onto this sheet.

Pre-Survey Review item no. 1 is plotted on a 1:1,500 scale enlargement with a skew of 0°. It includes positions 2504-2534 on JD 208-209, 2558-2564 on JD 209 and 6394-6440 on JD 216-217.

All field records will be sent to the NOAA Pacific Marine Center in Seattle, Washington for verification and smooth plotting.

### F. CONTROL STATIONS

Hydrographic control was established by conventional second order class II methods by FAIRWEATHER personnel. The North American Datum, 1927, was used. No unconventional survey methods were used nor were there any anomalies in the control adjustment or in closures and ties.

A "calibration pole", S/N 217, was established at 57°46'30.516"N, 155°15'39.578"W using third order techniques for a more efficient means of obtaining daily systems checks. The pole was a shooting banner attached to a 4" steel pipe, welded to a railroad wheel. This banner was placed in an area with a flat bottom. The position was checked after a storm in late July. Launches could maneuver their antenna to within one meter of the pole.

There are three monumented control stations on this sheet, and four other stations outside the limits of the survey which were used for hydrographic control. All control stations are listed below; stations outside the survey limits are marked by an asterisk.

Table II

Hydrographic Control Stations

<u>Name</u>	<u>S/N</u>	<u>Latitude</u>	<u>Longitude</u>
Ali Azimuth Mark	101	57°46'24.739"N	155°15'24.904"W*
Schmay 1981	202	57°51'07.627"N	155°08'38.164"W*
Alin Rm 1 1981	211	57°48'07.114"N	155°17'13.725"W*
Pico 1981	235	57°45'36.995"N	155°17'29.014"W
Praxis 1981	240	57°44'24.147"N	155°17'26.552"W
Praxis Rm 1 1981	241	57°44'23.807"N	155°17'26.272"W
Kekurnoi 1919	140	57°43'34.120"N	155°18'09.002"W
Ali 1976	130	57°46'31.248"N	155°15'30.384"W*

G. HYDROGRAPHIC POSITION CONTROL

Mainscheme hydrography offshore, from the ten fathom curve seaward, was run using Range-Range control. Hydrography within the ten fathom curve was run with Range-Azimuth control. Motorola Mini-Ranger III equipment was used in both areas.

Table III

Mini-Ranger Equipment Locations

<u>Survey Launch</u>	<u>R/T and Console S/N</u>
2023	702
2025	703

Control Stations

<u>Name</u>	<u>S/N</u>	<u>Dates (JD)</u>	<u>Mini-Ranger Code</u>
Kekurnoi	140 ✓	203-209	9
Praxis Rm 1	241 ✓	210	9
Ali	130 ✓	203-209	6
Alin Rm 1	211 ✓	203-204	7
Schmay	202 ✓	203-204	A
Ali Azimuth Mark	101 ✓	208-211	B
Ali Azimuth Mark	101 ✓	216	6
Praxis Rm 1	241 ✓	216	6
Kekurnoi	140 ✓	217	6

Bottom samples taken with FA-5 (2025) were positioned using Range-Range control. All bottom samples taken by the ship were positioned using visual and radar fixes; positions were converted to Range-Range rates for computer plotting.

Baseline calibrations of Mini-Rangers were performed three times during this project. The initial baseline calibrations were performed in Tenakee Inlet on June 1, and in Kodiak on June 5, 1981. Results from these two sets of calibrations were averaged to determine initial correctors. A second baseline calibration was performed in the middle of the project in Kodiak on July 31, 1981. The final baseline calibration was performed in Amalik Bay on August 22, 1981.

System checks were performed twice daily in the field by maneuvering the launch alongside the calibration pole (See Section F. Control Stations for description of pole) and recording Mini-Ranger rates. Observed rates were compared to the

known inverse distances between the Mini-Ranger stations and the pole, with a corrector applied for the launch's direction and distance from the pole. Correction values observed using these methods were within three meters of correctors determined by baseline calibrations. System check forms with observed rates and applied correctors are included with each day's data.

No unusual methods of operating or calibrating electronic positioning equipment were used and no unusual atmospheric conditions affecting data quality were noted during this survey. There were no equipment malfunctions. Andist correctors were not needed because all electronic sounding was done from launches.

Control stations were chosen to give strong geometric configuration. No systematic errors in the position data were discovered.

An abstract of Corrections to Electronic Position Control is attached to this report. For further information on electronic positioning equipment, see the Electronic Control Report, OPR-P146-DA,FA-81.

#### H. SHORELINE

Shoreline details shown on the field sheet were transferred from field edit manuscript TP-000626, blown up to a 1:10,000 scale. The shoreline details were field edited with changes transferred to the field sheet in red. All photo-compiled details which were confirmed by the field editor have been transferred in black. *See Eval Report Sect. 2*

Hydrographic data was used in conjunction with the aerial photographs to confirm reefs that were not clearly visible at the time of field edit. These changes were confirmed by the field editor, applied to the field edit manuscript, and transferred to the hydro field sheet in red.

There are three rock symbols which plot on the field sheet at 57°45'06"N, 155°16'18"W, an area where hydrographic data shows depths of 3-4 fm. These positions were plotted from sextant fixes, with check fixes, taken on the rocks at low water and should be regarded as valid positions for pinnacle rock structures. Numerous columnar rock structures characterize the shoreline in this area. *See Field Edit Report to Accompany TP-000626 for further details. Not in hydro records See Eval Report Section 4*

There are no control stations seaward of the shoreline on this survey.

#### I. CROSSLINES

A total of 134.1 nautical miles of mainscheme hydrography was run in the completion of this survey. Crosslines were run at 45-90° angles to mainscheme hydrography. A total of 12.7 nautical miles of crosslines was run to equal 9.5% of the mainscheme hydrography. The majority of the crosslines were run before mainscheme hydrography, serving as a check for mainscheme soundings.

One apparent discrepancy between crossline and mainscheme soundings occurred in the deeper water, 3 miles offshore at 57°45.0'N, 155°12.1'W. At this position, the mainscheme soundings drop from 134 to 155 fms, 2 and 3 soundings out of position 2077. The crossline soundings range from 116-125 fms, 5 out of position 2091 and on position 2020. This comparison occurs in an area of very steeply

*See Eval Report Sect.:*

dropping bottom (mainscheme soundings range from 109-154 fms in less than 300 meters). Hydrography across this shelf had to be run at reduced speeds to allow the echo sounding system to keep up with the rate of change. Even at reduced speeds, the fathogram trace was weak. The steep bottom in this area accounts for the apparent crossline discrepancies, because small differences in position cause substantial changes in depth. An attempt was made to run splits to develop the area, but these soundings only compounded the problem as they also had to be scaled from a steep fathogram trace.

Eight other apparent discrepancies, based on the criterion for comparisons in Section 1.1.2 of the Hydrographic Manual, were observed in the shallower inshore areas. These are listed below. All of these apparent discrepancies are less than one fathom, and all are in areas with jagged bottom contours. These apparent discrepancies between crossline and mainscheme soundings can be explained by slight positional differences combined with a jagged bottom profile. One fathom discrepancies in soundings greater than ten fathoms can also be due to rounding of fractions. *Survey complies with NOS standards*

Table IV

Crossline-Mainscheme Sounding Discrepancies

<u>Latitude</u> <u>Longitude</u>	<u>Mainscheme</u> <u>Depth (fm)</u>	<u>Position No.</u>	<u>Crossline</u> <u>Depth (fm)</u>	<u>Position No.</u>
57°43'52"N ✓ 155°15'19"W ✓	28 <sup>9</sup> ✓	5 out of 2308	27 ✓	5 out of 6348
57°44'27"N ✓ 155°15'19"W ✓	18 <sup>7</sup> ✓	1 out of 2247	17.2 ✓	6347
57°43'35"N ✓ 155°16'06"W ✓	22 ✓	2558	22 <sup>2</sup> ✓	2007 ✓
57°45'16"N ✓ 155°16'19"W ✓	4.8 <sup>9</sup> ✓	3 out of 6180	5.0 ✓	2 out of 6152
<del>57°45'07"N ✓ 155°16'27"W ✓</del>	<del>4.1 ✓</del>	<del>2 out of 6853</del>	<del>4.4 ✓</del>	<del>1 out of 6153</del> <i>see sec. 3 of Eval. Rpt.</i>
<del>57°44'51"N ✓ 155°16'42"W ✓</del>	<del>3.8 ✓</del>	<del>1 out of 6338</del>	<del>4.7 ✓</del>	<del>1 out of 6155</del>
<del>57°44'17"N ✓ 155°17'07"W ✓</del>	<del>6.0 ✓</del>	<del></del>	<del>7.0 ✓</del>	<del>6159</del>
<del>57°43'29"N ✓ 155°17'19"W ✓</del>	<del>8.8<sup>9.2</sup> ✓</del>	<del>2580</del>	<del>9.9 ✓</del>	<del>1 out of 2338</del>

J. JUNCTIONS

This survey junctions with four contemporary surveys. ✓

Table V

## Junction Surveys to H-9956 (FA-10-3-81)

<u>Junction Survey</u>	<u>Scale</u>	<u>Year</u>	<u>Border Of H-9956</u>
H-9950 ✓	1:10,000 ✓	1981 ✓	North ✓
H-9947 ✓	1:40,000 ✓	1981 ✓	West ✓
H-7196 ✓	1:40,000 ✓	1947 ✓	Southwest ✓
H-7195 ✓	1:20,000 ✓	1947 ✓	Southeast ✓

There were 22 soundings from survey H-9947 which junctioned with this survey sheet. All comparisons meet the criterion specified in Section 1.1.2 of the Hydrographic Manual. *Survey complies with NOS standards*

On the north border, survey H-9950 junctions well with this survey sheet. All soundings between surveys have excellent agreement with one exception. A sounding of 106 fm from survey H-9950 is positioned very near a sounding of 101 fm on survey H-9956 at 57°45'23"N, 155°11'45"W. This position is on the steeply dropping contour which runs north to south down the sheet. The apparent discrepancy is due to a small positional displacement over this steep bottom.

Soundings from survey H-7196, 1947, all agreed with soundings plotted on the current survey, meeting the specified criterion. Survey H-7195, 1947 also had excellent agreement with current survey data. Only one discrepancy was noted in junction soundings. A sounding of 11 fm from survey H-7195, at 57°43'18"N, 155°17'24"W plots between 9.3 and 10.0 fm soundings on survey H-9956. This is in an area with an unusually jagged contour which was split to 45 meter sounding lines. The apparent discrepancy from 1947 is due to minor positional differences over this jagged bottom profile. *See Eval Report Sect. 5*

#### K. COMPARISON WITH PRIOR SURVEYS

One pre-survey review item was investigated and developed on this survey. This investigation was PSR item no. 1 a "submerged, dangerous wreck", PA, charted at 57°43'42"N, 155°16'30"W.

A thorough low water visual investigation was made throughout the entire area of Cape Kekurnoi, including inspection of the shoreline, reefs, and detached rocks. No indication of the wreck was discovered in this search.

A further investigation of the area was performed offshore by splitting mainscheme hydrography to 45 meters. This investigation revealed two areas with soundings rising from 3-6 fathoms off of the bottom. These areas were investigated with sounding lines split to 10 meters and plotted at a scale of 1:2,500. One area which was developed revealed two 15 fm soundings among 18-19 fms at 57°43'41"N, 155°16'14"W and 57°43'41"N, 155°16'11"W. The second area developed with 10 m splits revealed a peak with a least depth of 11 fms in surrounding water 16-17 fms deep at 57°43'37"N, 155°16'42"W. All three peaks plot within 300 meters of the charted PSR position. No dive investigations were made in

the area due to the depth of the surrounding water, so neither area investigated can be positively identified as the sunken fishing boat. Likewise, due to the depth, the peaks should not be considered dangerous. Recommendation is made that no wreck symbol be charted in the area. These peaks are likely to be submerged stone pillars, as numerous similar formations occur along the shoreline near Cape Kekurnoi. *Do not concur* See Eval Report Sect. 7

Prior survey no. 4157, 1:100,000, 1920 is the only prior survey which overlaps with this sheet. Only three soundings plot on the current survey. These soundings were scaled off of H-4157 and are listed below with the closest plotted depth of Survey H-9956. ✓

Table VI  
Prior Survey Comparisons

Survey H-4157 (fm)	Survey H-9956 (fm)	Latitude Longitude	
52 ✓	53 ✓	57°44.5'N ✓ 155°13.5'W ✓	
82 ✓	80 ✓	57°44.0'N ✓ 155°14.2'W ✓	See Eval Report Sect. 6
85 ✓	56 ✓	57°43.5'N ✓ 155°15.5'W ✓	

The only major discrepancy noted in this comparison is the 85 fm sounding from the 1920 survey which plots in an area of 52-55 fms on the current survey. This large discrepancy in depths could be caused by tectonic activity since 1920, or by minor positioning errors. The current survey shows a steep contour with depths of over 80 fm 200 meters from this position, just 2 mm on a 1:100,000 scale survey. Position inaccuracy in the 1920 data is considered to be the most likely cause of this discrepancy. Recommendation is made that the area be charted according to the current data. See Eval Rpt Sect. 7

#### L. COMPARISON WITH THE CHART

The only chart of this area is Chart 16580, 1:350,000 scale. The 7th Edition was used for comparison. The only sounding from this chart which plots in the survey area is a 13 fm depth charted at 57°44.4'N, 155°16.0'W, which agrees with the soundings of this survey. See Eval Report Sect. 7

Shoreline features on the chart have been exaggerated to show detail, and plotted relatively far from shore for legibility. Comparison of specific rocks and reefs to the 1:10,000 scale survey is not practical. The submerged wreck symbol which is charted as a "PA" at 57°43.7'N, 155°16.5'W is discussed in Section K, Prior Surveys. ✓

Recommendation is made that the current survey data be used for any new charts published for this area. ✓

M. ADEQUACY OF SURVEY

This survey is sufficiently complete and adequate to supersede all prior surveys. One substandard area exists on this sheet at 57°44'10"N, 155°17'30"W, where a gap of one sounding was left between the four fathom and the zero fathom curves at the ends of three sounding lines. The sounding line gaps in this area are due to loss of visibility from station Kekurnoi during Range-Azimuth operations.

N. AIDS TO NAVIGATION

There are no aids to navigation in this survey area. There are no submarine cables, pipelines or ferry routes.

O. STATISTICS

<u>Vessel</u>	<u>Positions</u>	<u>Lineal N. Miles Hydro</u>
2023	664	111.1
2025	441	42.0
2020	10	-----
Total	1115	153.1
Total Square Miles	9	
N. Miles Crosslines	12.7	
Bottom Samples	26	
MarTek Casts	0	
Nansen Casts	2	
Tide Stations	1	

P. MISCELLANEOUS

This survey revealed no significant information concerning scientific findings or tidal or current anomalies in this area. No special reports were submitted.

Special mention should be made to the dense sounding line spacing in the area shoreward of the 10 fm curve between latitudes 57°44'16"N and 57°45'25"N, the northern limit of the survey. Ninety meter lines were run by FA-5 on JD 209/210, position numbers 6016-6159. The average intervals between soundings and fixes were greater than 1 and 4 cm, respectively, which did not meet the requirements of the Hydrographic Manual. The area was split to 45 meters on JDs 210 and 211. All of the data was kept despite the inadequate spacing of JD 209/210, because the control was strong.

No hazards to navigation were discovered; no messages were sent to the Coast Guard.

Q. RECOMMENDATIONS

It is recommended that this survey be used to update charts of this area.

R. AUTOMATED DATA PROCESSING

The following hydroplot programs were used for data acquisition and processing:

<u>Number</u>	<u>Version Date</u>	<u>Program Name</u>
RK 112	3/18/81'	R/R Real Time Plot
RK 201	4/18/75'	Grid, Signal and Lattice Plot
RK 211	1/30/76'	R/R Non-Real Time Plot
RK 212	4/1/74'	Visual Station Load and Plot
RK 216	2/11/81'	R/Az Non-Real Time Plot
RK 300	10/21/80'	Utility Package
RK 330	5/4/76'	Data Reformat and Check
RK 360	2/2/76'	Electronic Corrector Abstract
AM 602	5/20/75'	Elinore
AM 500	11/10/72'	Predicted Tides
RK 530	5/10/76'	Velocity Corrections

S. REFERRAL TO REPORTS

The following reports are pertinent to this survey:

Horizontal Control Report, OPR-P146-DA,FA-81

Correction to Echo Soundings Report, OPR-P146-DA,FA-81

Geographic Names Report, OPR-P146-DA,FA-81

Coast Pilot Report, OPR-P146-DA,FA-81

Electronic Control Report, OPR-P146-DA,FA-81

These reports will all be forwarded to PMC with the data package for this survey.

FIELD TIDE NOTE

OPR-0342-FA-81

Shelikof Strait, Alaska

Field tide reduction of soundings was based on predicted tides from Seldovia, Alaska with corrections based on tide table corrections for Katmai Bay as follows:

Time Corrections	Height Correction Ratio
High - Low	
-13 minutes -4 minutes	X 0.72

Correctors were interpolated by the HYDROLOT system using AM 500. All times of both predicted and recorded tides were based on Greenwich Mean Time (GMT). The predicted tides were acceptable for hydrography with no discrepancies attributable to tides errors.

The tide station at Seldovia, Alaska (945-5500) was the primary gage for the project. Levels were run by personnel from the NOAA Ship RAINIER at the beginning and end of the project.

Bristol Bubbler gage, 68A1490, was installed at the Kashvik Bay tide station, #945-8143, at 57°55'16.5"N, 155°05'37.8"W. Three wire levels were run to five benchmarks on June 10, 1981, when the gage was installed, on July 26, 1981 when the staff was repaired, and on September 1, 1981, when the gage was removed. Tide data from this station was used to control six hydrographic surveys from the FAIRWEATHER and one survey from the DAVIDSON. This gage also controlled all of field edit sheets TP-00623, 00624, and TP-00626 north of Cape Kekurnoi.

Table 1

Hydrographic Surveys Controlled by Kashvik Bay  
Tide Gage, #945-8143

<u>Field No.</u>	<u>Registry No.</u>	<u>Dates</u>
FA-10-1-81	9903	June 11 - 25
FA-10-2-81	9950	June 25 - August 6
FA-10-3-81	9956	July 22 - August 5
FA-20-2-81	9946	June 12 - August 6
FA-40-1-81	9947	June 17 - 30
FA-40-2-81	9965	August 10 - 13
DA-40-1-81	Project S-P911-DA-81	August 19 - 24

Bristol bubbler gage, 68A9333, was installed at the Puale Bay tide station, 945-8209, at 57°42.4'N, 155°23.4'W. Three wire levels were run to three benchmarks on August 25, 1981 upon installation and again on September 3, 1981 when the gage was removed. The tidal data from this gage was used to control all field edit data on Sheet TP-00622 and Sheet TP-00626, south of Cape Kekurnoi.

The Puale Bay tide station was set in 1947 to control a hydrographic survey in the area. The benchmarks are set in bedrock around a cleft in the rock which opens southwest to the sea and receives considerable surge. The orifice was set out from this cleft where the effects from the surge were minimized. The staff was exposed to the surge and staff readings were taken by averaging the water heights. The average gage to staff comparison was 10.4 feet, with the other comparisons within 1 foot of the mean.

The Puale Bay gage functioned well with only one problem. On August 27 at 0600Z, the pen ran out of ink and no data was collected between that time and 2315Z when the problem was discovered and remedied. No field edit data was gathered during this period, so the curve does not need to be interpolated.

The Kashvik Bay tide gage was set near a long ledge which extends 200 meters into Kashvik Bay from the south shore. Although this location is the best site along the entire coastline of project area, the site is barely adequate and several problems were encountered with this gage, due to the poor substrate for staff and orifice. The orifice went dry for approximately two hours per day during two periods of predicted tides less than -3.0 feet. The first time was between July 2-5, a period when no hydrography was run. The second period was between July 29 and August 2. Hydrography was run on the 29th and 30th of July and tide heights will have to be interpolated between 1600-1800Z and 1700-1900Z on these days, respectively. Interpolation of tidal data will also be necessary between 1400-2000Z on July 21, a period when the chart drive malfunctioned. This malfunction was due to the stopping of the gage's internal clock and was remedied by winding and restarting the clock.

A storm bringing winds out of the NE in excess of 50 knots hit Shelikof Strait on July 23-24. The tide station was hit particularly hard as it was on the unprotected SW side of Kashvik Bay. The tide staff had to be reinstalled on July 25 and was leveled on July 26. The levels show the change in elevation between the second staff installation and the original installation to be +.06 feet, but the gage to staff comparison decreased by .45 feet after this period (See Table 2). The investigation of the orifice on August 5 revealed that the tubing had broken away from the orifice, but had remained buried under rocks and sand after the storm. The marigram trace during and after the storm remained steady since the tubing remained attached to the bottom. Repositioning of the orifice 70 feet seaward increased the value of the gage to staff comparison by .8 feet.

During the periods of extreme low tides, the pen "bottomed out" on the paper at 1.2 feet, making it appear that the pen setting was too low to trace these minus tides. On July 30, the pen was raised seven feet on the chart paper scale in an attempt to remedy this problem. This caused a seven foot difference in the gage to staff comparison (See Table 2). Despite this correction in the pen initial, the graph still leveled out during tides lower than -3.0 feet. The problem was remedied on August 5 by moving the orifice 70 feet seaward.

Table 2

Gage - Staff Comparisons  
Kashvik Bay Gage

<u>Dates</u>	<u>Gage-Staff Comparison (Avg.)</u>	<u>Remarks</u>
10 June - 21 July	3.4	Initial set-up
26 July - 30 July	3.1	After storm
31 July - 4 August	10.2	Changed Pen Initial +7 feet
5 August - 1 September	10.9	Moved orifice seaward 70 feet.

All tide data has been abstracted for hourly heights. Marigrams and abstracts for the period of June 10 - July 16 were transmitted to the Pacific Marine Center, Seattle, Washington on July 20, 1981.

Submitted By:

*Ann Felice Trimble*

Ann Felice Trimble, Lt.(jg), NOAA  
NOAA Ship FAIRWEATHER S220

Approved By:

*Walter F. Forster*

Walter F. Forster, Cdr., NOAA  
Commanding Officer  
NOAA Ship FAIRWEATHER S220

DATE: 5/8/84

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Pacific

OPR: P146

Hydrographic Sheet: H-9956

Locality: Shelikof Straits, Alaska

Time Period: June 10 - September 1, 1984

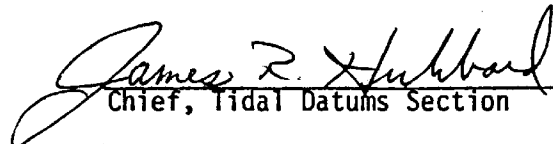
Tide Station Used: 945-8143, Kashvik Bay, Alaska

Plane of Reference (Mean Lower Low Water):  
6/10-0200 hrs - 7/21-1400 hrs = 3.5 Ft.  
7/21-1500 hrs - 7/31-0100 hrs = 3.1 Ft.  
7/31-0200 hrs - 8/5-2100 hrs = 10.4 Ft.  
8/5-2200 hrs - 9/1-2200 hrs = 10.9 Ft.

Height of Mean High Water Above Plane of Reference: 11.8 Ft.

Remarks: Recommended Zoning:

Zone Direct

  
Chief, Tidal Datums Section



69  
68  
67  
66  
65  
64  
63  
62  
61  
60  
59  
58  
57  
56  
55  
54  
53  
52  
51  
50  
49  
48  
47  
46  
45  
44  
43  
42  
41  
40  
39  
38  
37  
36  
35  
34  
33  
32  
31  
30  
29  
28  
27  
26  
25  
24  
23  
22  
21  
20  
19  
18  
17  
16  
15  
14  
13  
12  
11  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1  
0

VELOCITY CORRECTION TABLES

TABLE#: 01      YR: 81    FM

DEPTH      VEL COR

2.50	.00
7.50	.10
13.80	.20
21.00	.30
28.40	.40
37.20	.50
48.40	.60
63.80	.70
81.20	.80
97.90	.90
112.90	1.00
127.10	1.10
140.60	1.20
153.50	1.30
165.90	1.40
177.20	1.50
187.80	1.60
99999.99	1.60

VELOCITY-IHANSOUCEK FILE: V09956

LISTING MADE: 04-19-84

03:45:59

IHANSOUCEK CORRECTION TABLES

VESSEL: 2020 YR: 91 FM

VESSEL: 2023 YR: 91 FM

VESSEL: 2025 YR: 91 FM

DAY	TIME	IHA COR	VEL TABLE	DAY	TIME	IHA COR	VEL TABLE	DAY	TIME	IHA COR	VEL TABLE
219	184000	2.20	1	203	214408	.30	1	203	201300	.30	1
219	235959	2.20	1	210	235959	.30	1	217	235959	.30	1

001

SHELIKOF SIGNAL LISTING

002

~~003 PEDMAR 1987 RM-3 1981 581543 FAIRWEATHER 1981  
004 100 5 58 00 15372 154 46 03355 250 0067 000000~~

005

006 ALI 19<sup>76</sup> AZ MARK 1981 571551 FAIRWEATHER 1981  
007 101 1 57 46 24739 155 15 24904 250 0011 000000

008

~~009 ALI AZ RAYDIST 1981 571551 FAIRWEATHER 1981  
010 102 1 57 46 24739 155 15 24904 250 0011 330040~~

011

012 PEDMAR 1987 RM-3 1981 RAYDIST 581543 FAIRWEATHER 1981  
013 103 7 58 00 15372 154 46 03355 250 0068 330040

014

015 ATRO 1987 571551 FAIRWEATHER 1981  
~~016 105 3 57 58 08548 155 01 47779 250 0043 000000~~

017

018 EAGLE 1980 571551 DAVIDSON 1980  
019 110 1 57 53 53890 155 03 36304 139 0025 000000

020

~~021 KUBUGARLI 1988 571551 1005  
022 115 2 57 52 27565 155 04 56160 250 0043 000000~~

023

024 TP2 1981 (ALINCHAK BAY) 571551 FAIRWEATHER 1981  
~~025 118 2 57 52 18919 155 05 33072 250 0074 000000~~

026

027 KUBUGARLI 2 1987 571551 1006  
028 120 3 57 52 28851 155 04 58048 139 0043 000000

029

030 ALI 1976 571551 MELBY  
031 130 2 57 46 31248 155 15 30384 250 0011 000000

032

033 KENURNOI 1919 571551 1004  
034 140 3 57 43 34120 155 18 09002 250 0032 000000

035

~~036 REIGE 1981 571551 FAIRWEATHER 1981  
037 200 2 57 57 24863 155 02 35089 250 0045 000000~~

038

039 PYLE 1981 571551 FAIRWEATHER 1981  
~~040 201 3 57 56 36011 155 06 56746 250 0021 000000~~

041

042 SCHRAY 1981 571551 FAIRWEATHER 1981  
043 202 1 57 51 07627 155 08 38164 250 0024 000000

044

045 DESERT 1981 571551 FAIRWEATHER 1981  
~~046 203 3 57 50 27976 155 12 18827 250 0035 000000~~

047

~~048 DESERT RM1 1981 571551 FAIRWEATHER 1981~~  
049 204 6 57 50 28014 155 12 44537 250 0005 000000  
050  
051 ALIN 1981 571551 FAIRWEATHER 1981  
~~052 210 6 57 48 07400 155 17 14204 250 0013 000000~~  
053  
054 ALIN RM1 1981 571551 FAIRWEATHER 1981  
055 211 3 57 48 07114 155 17 13725 250 0013 000000  
056  
~~057 IP3 1981 571551 FAIRWEATHER 1981~~  
058 212 3 57 47 29599 155 19 51394 250 0004 000000  
059  
060 BEAR 1981 571551 FAIRWEATHER 1981  
061 215 3 57 48 37540 155 19 30081 250 0016 000000  
062  
063 CAL POLE 1981 571551 FAIRWEATHER 1981  
064 217 2 57 46 30516 155 18 39578 250 0000 000000  
065  
066 SCHMAY RM2 1981 571551 FAIRWEATHER 1981  
067 225 3 57 51 08473 155 08 38513 250 0019 000000  
068  
069 CHAK 1981 571551 FAIRWEATHER 1981  
~~070 230 3 57 49 21179 155 16 41696 250 0002 000000~~  
071  
072 PICO 1981 571551 FAIRWEATHER 1981  
073 235 3 57 45 36995 155 17 29014 250 0004 000000  
074  
~~075 PRAXIS 1981 571551 FAIRWEATHER 1981~~  
~~076 240 3 57 44 24147 155 17 26552 250 0017 000000~~  
077  
078 PRAXIS RM-1 1981 571551 FAIRWEATHER 1981  
079 241 3 57 44 23807 155 17 26272 250 0017 000000  
080  
~~081 BRANGE 1981 571551 FAIRWEATHER 1981~~  
082 315 3 57 57 49218 155 02 05984 253 0012 000000  
083  
084 PORK 1981 571551 FAIRWEATHER 1981  
085 320 3 57 57 29306 155 02 22802 253 0012 000000  
086  
087 GULL 1981 571551 FAIRWEATHER 1981  
088 325 3 57 57 19005 155 02 26081 253 0012 000000  
089  
090 SAIL 1981 571551 FAIRWEATHER 1981  
091 330 0 57 57 08682 155 02 40975 253 0012 000000  
092  
093 BEEF 1981 571551 FAIRWEATHER 1981  
094 335 2 57 57 06141 155 03 28512 253 0012 000000  
095  
096 FINGER 1981 571551 FAIRWEATHER 1981  
~~097 336 3 57 57 05592 155 03 00182 253 0012 000000~~  
098

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2020

SHEET : FA-10-3-71

TIME	DAY	PATTERN 1	PATTERN 2
184000	219	+00000	+00000

## ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023

SHEET : FA-10-3-81

TIME	DAY	PATTERN 1	PATTERN 2
214408	203	+00001	+00002
000015	204	+00001	+00002
033915	207	+00001	+00002
000008	208	+00001	+00002
001924	209	+00001	+00002
203500		+00000	+00000

## ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023

SHEET : FA-10-3-81

TIME	DAY	PATTERN 1	PATTERN 2
232418	208	+00001	+00002
000017	209	+00001	+00002
193800		+00000	+00000

## ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023

SHEET : FA-10-3-81

TIME	DAY	PATTERN 1	PATTERN 2
220800	209	+00001	+20014
012720	210	+00001	+20160
020100		+00000	+00000

## ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2025

SHEET : FA-10-3-81

TIME	DAY	PATTERN 1	PATTERN 2
201300	203	+00000	+00000
210500		+00001	-00001
215500		+00000	+00000
234700		+00001	-00001
000500	204	+00001	-00001
001603		+00000	+00000

## ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2025

SHEET : FA-10-3-81

TIME	DAY	PATTERN 1	PATTERN 2
185537	208	+00000	-27000
003020	209	+00000	-46435
200700	210	+00000	+32138
000340	211	+00000	+46440
181200		+00000	+47120
195301	216	-00002	+34102
200615		-00002	+36050
233430		-00002	-27580
235400		-00002	-47000
004700	217	-00002	-06160
010200		+00000	+00000

## ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2025

SHEET : FA-10-3-81

TIME	DAY	PATTERN 1	PATTERN 2
010020	217	-00002	-20265
013520		+00000	+00000

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

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

VESSEL		PROJ. NO.	YEAR	CHECKED BY		DATE CHECKED					
Fairweather (5220)		OPR-746-1981-81	1981	H-9956		9-9-81					
SERIAL NO.	DATE	SAMPLE POSITION		DEPTH	WEIGHT OF SAMPLER	AP. PROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDI. MENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, start, no. type of bottom, relief, etc.)	OBS. INIT.
		LATITUDE	LONGITUDE	(Fathoms)							
0001	13 August 81	57/43/29	153/12/25	157				gn	M -		
0002	"	57/43/25	153/13/40	158				gn	M -		
0003	"	57/43/28	153/14/59	148				gn	M G -		
0004	"	57/44/08	153/13/45	154				gn	M -		
0005	"	57/44/09	153/12/26	157				gn	str M -		
0006	"	57/43/52	153/11/26	156					No Sample		
0007	"	57/44/54	153/10/06	154				gn	M -		
0008	"	57/44/54	153/12/00	157				gn	M -		
0009	"	57/43/18	153/11/18	147				gn	M -		
0010	"	57/43/24	153/09/24	151				gn	M -		

Use m than one line per sample if necessary.

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

VESSEL	SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (Fathoms)	WEIGHT OF SAM- PLER	AP- PROX. PENE- TRATION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	REMARKS <small>(Unusual conditions, corals/liveness, depth, nature, type of bottom relief, etc., slope, plain, disposition, etc.)</small>	OBS. INIT.
			LATITUDE	LONGITUDE								
FA-5 (2025)			202-206-FR01-81		1981	H-9956	FA 10-3-81					
			PROJ. NO.		YEAR					CHECKED BY	DATE CHECKED	
			202-206-FR01-81		1981	H-9956	FA 10-3-81			AD Trimbelle	9-9-81	
6000	22	July 81	57°45'38.21	155°14'20.28	10.0				gn	ars S brk Sh P -		
6001	"	"	57°45'20.35	155°15'36.11	9.2				gn	ars S brk Sh P -		
6002	"	"	57°45'19.71	155°14'05.72	12.3				gn	ars S brk Sh -		
6003	"	"	57°45'37.28	155°15'44.94	7.9					fine S brk Sh St P -		
6004	"	"	57°44'33.07	155°14'35.30	6.8					ars S brk Sh -		
6005	"	"	57°44'11.86	155°14'42.36	10.0				gn	fine S -		
6006	"	"	57°43'47.45	155°17'15.31	10.1				gn	fine S brk Sh -		
6007	"	"	57°44'10.12	155°16'17.59	15.7				gn	fine S brk Sh P -		
6008	"	"	57°43'30.44	155°14'10.56	22.3					brk Sh -		
6009	"	"	57°44'03.99	155°14'01.32	21.0				gn	fine S brk Sh P -		
6010	"	"	57°44'47.13	155°13'04.25	27.0				gn	fine S brk Sh -		
6011	"	"	57°44'42.44	155°14'20.44	18.9				gn	fine S brk Sh P -		
6012	"	"	57°44'43.24	155°15'34.71	15.1					ars S brk Sh -		
6013	"	"	57°44'34.14	155°14'42.85	6.8				gn	fine S brk Sh -		
6014	"	"	57°45'18.10	155°14'20.12	5.6					ars S St brk Sh -		
6015	"	"	57°45'52.55	155°17'20.45	2.3					R fine S St P brk Sh -		

Use m than one line per sample if necessary.




RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	<input type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	FIELD ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	OFFICE ACTIVITY REPRESENTATIVE <input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' (Consult Photogrammetric Instructions No. 64)	
<b>OFFICE</b> <b>I. OFFICE IDENTIFIED AND LOCATED OBJECTS</b> Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	<b>FIELD (Cont'd)</b> <b>B. Photogrammetric field positionst* require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.</b> EXAMPLE: P-8-V 8-12-75 74L(C)2982
<b>FIELD</b> <b>I. NEW POSITION DETERMINED OR VERIFIED</b> Enter the applicable data by symbols as follows: F - Field                   P - Photogrammetric L - Located                Vis - Visually V - Verified 1 - Triangulation        5 - Field identified 2 - Traverse             6 - Theodolite 3 - Intersection        7 - Planetable 4 - Resection           8 - Sextant  A. Field positionst* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	<b>II. TRIANGULATION STATION RECOVERED</b> When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75  <b>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH</b> Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	
**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.	

APPENDIX J. APPROVAL SHEET

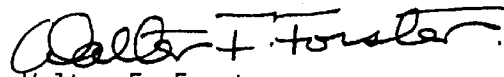
The Commanding Officer supervised the field work and examined the records daily on this survey.

This survey is complete and adequate for charting purposes. The additional reports cited in Section S. provide information that will be of assistance in verification and review of this survey.

Submitted By:

  
Ann Felice Trimble  
Lt.(jg), NOAA

Approved By:

  
Walter F. Forster  
Cdr., NOAA  
Commanding Officer  
NOAA Ship FAIRWEATHER

## HYDROGRAPHIC SURVEY STATISTICS

H-9956

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS & PRELIMINARY OVERLAYS		2	
DESCRIPTIVE REPORT		1	SMOOTH OVERLAYS: POS. ARC, EXCESS		7	
DESCRIP- TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS			1			
VOLUMES						
BOXES			1			

T-SHEET PRINTS (List) TP-00626 (Enlargement)

SPECIAL REPORTS (List)

## OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	PRE- VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			1090
POSITIONS CHECKED		1090	
POSITIONS REVISED		4	
SOUNDINGS REVISED		91	
SOUNDINGS ERRONEOUSLY SPACED			
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED			
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	05	VER EVAL	05
VERIFICATION OF CONTROL		10 01	11
VERIFICATION OF POSITIONS		53 01	54
VERIFICATION OF SOUNDINGS		145 02	147
COMPILATION OF SMOOTH SHEET		33 04	37
APPLICATION OF TOPOGRAPHY		20 02	22
APPLICATION OF PHOTOBATHYMETRY		00 00	00
JUNCTIONS		02 08	10
COMPARISON WITH PRIOR SURVEYS & CHARTS		00 04	04
VERIFIER'S REPORT		04 10	14
OTHER Evaluation Update		20 00	20
Digitization	11		11
<b>TOTALS</b>	<b>16</b>	<b>287 32</b>	<b>335</b>
Pre-Verification by J. S. Green	Beginning Date 10-19-81	Ending Date 10-19-81	
Verification by R. Mihailov	Evaluation by K. M. Scott	Beginning Date 12-28-81/2-14-84	Ending Date 3-2-84/4-13-84
Verification Check by S. Otsubo, J. Green	Time (Hours) 52	Date 4-18-84	
Marine Center Inspection by	Time (Hours)	Date	
Quality Control Inspection by	Time (Hours)	Date	
Requirements Evaluation by	Time (Hours)	Date	

PACIFIC MARINE CENTER  
EVALUATION REPORT

REGISTRY NO: H-9956

FIELD NO: FA-10-3-81

Alaska, Shelikof Strait, Vicinity of Cape Kekurnoi

SURVEYED: July 22 - August 7, 1981

SCALE: 1:10,000

PROJECT NO: OPR-P146-FA-81

SOUNDINGS: Ross Model 5000 Fathometer

CONTROL: Mini-Ranger  
Range/Range  
Range/Azimuth

Chief of Party.....CDR W. F. Forster

Surveyed By.....LTJG A. Trimble  
ENS R. Pingry

Automated Plot By.....PMC Xynetics Plotter

Verified By.....R. Mihailov

Evaluated By.....K. M. Scott

1. INTRODUCTION

H-9956 is a basic hydrographic survey with field work accomplished by NOAA Ship FAIRWEATHER and launches in accordance with Project Instructions OPR-P146-DA, FA-81, Shelikof Strait, Alaska, dated February 6, 1981, Change No. 1 dated April 15, 1981 and Change No. 2 dated May 6, 1981.

This survey is the initial survey of the inshore area north of Cape Kekurnoi.

Predicted tides based on the Seldovia, Alaska, gage with time and range adjustments to Katmai Bay were utilized during shipboard processing. Tide correctors used for the reduction of final soundings reflect approved hourly heights zoned direct from the Kashvik Bay gage (945-8143).

The velocity and TRA correctors were revised during verification to reflect the mean of appropriate Nansen casts and applicable velocity tables. Copies of the velocity and TRA correctors used to plot the smooth sheet are included as appendices of the Descriptive Report.

The projection parameters were revised during verification to meet smooth sheet specifications. Parameters used to plot the smooth sheet are listed in the smooth printouts accompanying the survey.

## 2. CONTROL AND SHORELINE

Geodetic positions for control stations used during hydrography are primarily field positions computed from published geodetic positions adjusted to the North American 1927 datum. Kabugakli 2, 1967 and Kekurnoi, 1919 reflect their published positions.

Mini-Ranger electronic control was employed in range/range and range/azimuth modes during hydrographic operations. Baseline calibration correctors were applied to the positions. Calibration and system checks are discussed in section G of the Descriptive Report.

Unregistered Class III manuscript TP-00626, date of photography June, 1976, has been applied to the smooth sheet per N/MOP memorandum, Completion of Hydrographic Surveys H-9903, H-9950, H-9956, and H-9946, Shelikof Strait, Alaska, April 26, 1983 (copy appended). These manuscripts were field edited by FAIRWEATHER personnel in 1981; however, updated manuscripts with field edit information applied are not available to support survey processing (see appended memorandum N/MOP, Distribution of Photogrammetric Data, March 2, 1983 and N/CG2 reply, Shelikof Strait, Alaska -- Photogrammetric Support and Distribution of Data, April 11, 1983). Furthermore, these manuscripts were compiled from non-tide coordinated photography. This error was not discovered until after hydrographic operations had been completed. N/MOP212 has advised that the reviewed manuscripts will include the following disclaimer.

"Reference station records indicate that the tide level at the time of exposure of the photographs used to delineate the detail outboard of the Mean High Water line was significantly below Mean Lower Low Water. Consequently, physical survey data may supersede the offshore detail on this map."

Ledge limits have been revised to reflect hydrographic information. Rocks on the field sheet in red lying inshore of the ledge limit are not shown on the smooth sheet since there is no supporting information indicating high points on the ledges.

The following rocks shown on the final field sheet in red have been transferred to the smooth sheet without supporting positional information. (Supporting data is assumed to be in the field edit records.)

<u>Latitude</u>	<u>Longitude</u>	<u>Latitude</u>	<u>Longitude</u>
57°45'27.8"N ✓	155°16'48.5"W ✓	57°45'23.7"N ✓	155°16'55.2"W ✓
57°45'22.1"N ✓	155°16'54.8"W ✓	57°45'18.9"N ✓	155°16'14.5"W ✓
57°45'18.6"N ✓	155°16'59.8"W ✓	57°45'17.9"N ✓	155°17'02.0"W ✓
57°45'17.5"N ✓	155°16'12.4"W ✓	57°44'23.5"N ✓	155°17'20.5"W ✓
57°44'22.2"N ✓	155°17'17.8"W ✓	57°44'21.8"N ✓	155°17'14.9"W ✓
57°44'20.7"N ✓	155°17'21.6"W ✓	57°44'19.2"N ✓	155°17'22.0"W ✓
57°43'46.0"N ✓	155°17'54.7"W ✓	57°43'33.5"N ✓	155°17'22.0"W ✓
57°43'19.7"N ✓	155°17'42.8"W ✓	57°43'19.3"N ✓	155°17'37.2"W ✓
57°45'07.5"N ✓	155°16'17.4"W ✓	57°45'05.3"N ✓	155°16'20.3"W ✓
57°45'04.9"N ✓	155°16'16.0"W ✓		

The following rocks were plotted during the original compilation of the shoreline map, and did not conflict with hydrography. They are plotted on the final field sheet and on the smooth sheet with no elevations.

<u>Latitude</u>	<u>Longitude</u>	<u>Latitude</u>	<u>Longitude</u>
57°44'10.7"N✓	155°17'29.6"W✓	57°44'09.5"N✓	155°17'30.0"W✓
57°43'53.2"N✓	155°17'37.3"W✓	57°43'34.5"N✓	155°17'40.3"W✓
57°43'24.6"N✓	155°17'42.0"W✓	57°43'23.8"N✓	155°17'54.0"W✓
57°43'22.8"N✓	155°17'52.6"W✓		

### 3. HYDROGRAPHY

Soundings at line crossings are in good agreement. Discrepancies are attributed to the irregular nature of the bottom.

The bottom configuration, development of shoal soundings, determination of least depths, and delineation of standard depth curves are adequate. Brown depth curves have been added to delineate isolated shoals.

The ledge limit defined by hydrography is shown in lieu of the zero curve.

### 4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change 3, with the following exception:

Raw soundings reduced to minus soundings by predicted tides in the field were overprinted with red rock awash symbols on the final field sheets without supporting marginal notes in the raw printouts, dives or lead line soundings. When actual tides, velocity and TRA correctors were applied, many of these minus soundings reduced to soundings below MLLW datum.

Three rocks in the vicinity of latitude 57°45'06"N, longitude 155°16'18"W, originating from field edit information, were plotted on the final field sheet. Additional development should have been accomplished to provide further delineation of this rocky area.

### 5. JUNCTIONS

H-9956 joins H-9950 (1981) to the north. Soundings have been transferred and junction curves inked in agreement.

Adjoining this survey are surveys H-9947 (1981) to the east, H-7195 (1947) and H-7196 (1947) to the south. Soundings agree within 1-5 fathoms with the greatest difference at the 50 fathom curve. The chart compiler should refer to this larger scale current survey for the accurate portrayal of affected depth curves.

6. COMPARISON WITH PRIOR SURVEYS

H-4157 (1920) 1:100,000

H-9956 is the initial survey of the inshore area between Alinchak Bay and Cape Kekurnoi. Five soundings from H-4157 fall within the limits of this survey.

Prior survey soundings are comparable indicating a very stable bottom. Soundings are offset due to the difference in survey scale.

H-9956 is adequate to supersede the prior survey data within the common area.

7. COMPARISON WITH CHART

16580 (7th Ed., March 11, 1978)

a. Hydrography - Soundings inshore of 52 fathoms are charted from an unknown source but appear to be in agreement with this survey.

Rocks and low water line depicted on the chart are only representing the characteristics of the inshore area and do not reflect the actual location of features.

One presurvey review item, a submerged dangerous wreck, PA charted at latitude 57°43'42"N, longitude 155°16'30"W was within the survey limits. A search was conducted in the area but no indication of a wreck was found. Since no dive investigation or specific disproval was accomplished, chart the wreck from its original source.

use  
PA  
plot

H-9956 is adequate to supersede charted hydrography within the common area.

There have been no dangers to navigation identified or reports submitted by the ship or PMC Nautical Chart Branch for this survey.

b. Controlling Depths - There are no controlling depths within the limits of the survey.

c. Aids to Navigation - There are no aids to navigation within the limits of the survey.

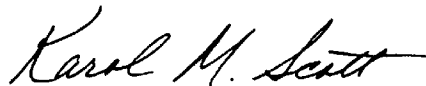
8. COMPLIANCE WITH INSTRUCTIONS

H-9956 adequately complies with the project instructions as amended and noted in section 1 of this report.

9. ADDITIONAL FIELD WORK


This is an adequate survey. No additional field work is recommended at this time.

Respectfully submitted,



Karol M. Scott  
Cartographer  
April 13, 1984

This survey has been verified and evaluated. I have examined the survey and it meets Charting and Geodetic Services survey standards and requirements for use in nautical charting except as noted in the Evaluation Report. The survey is recommended for approval.



James S. Green  
Supervisory Cartographer

National Ocean Service  
Pacific Marine Center  
1801 Fairview Avenue East  
Seattle, Washington 98102

April 26, 1983

TO: N/CG2 - C. William Hayes

FROM: *LS/KW* N/MOP - Charles ~~K~~ Townsend

SUBJECT: Completion of Hydrographic Surveys H-9903, H-9950, H-9956  
and H-9946, Shelikof Strait, Alaska

REF: N/MOP Memorandum dated March 2, 1983  
N/CG2 Memorandum dated April 11, 1983

Class I registered shoreline maps required to complete the processing and verification of hydrographic surveys H-9903, H-9950, H-9956 and H-9946 will not become available until sometime in 1984. Surveys H-9903, H-9950 and H-9956 are scheduled for completion in survey year 1983. H-9946 is scheduled for completion in survey year 1984.

In order to meet previously established hydrographic survey production schedules, we plan to complete processing of these surveys using Class III unregistered shoreline maps and the final field sheets as the source documents for transfer of the mean high water line and offshore features to the smooth sheets. The following procedures will apply unless otherwise advised:

1. The mean high water line and/or attached cultural features will be shown in brown ink on the smooth sheet with a note stating the shoreline is from an unregistered source and is shown for orientation purposes only. This procedure is in accordance with Hydrographic Survey Guideline No. 17.
2. All details seaward of the mean high water line that originate from the Class III unregistered shoreline maps and are shown on the final field sheets in black ink will be shown in black ink on the smooth sheets. Ledge and reef limit lines which conflict with hydrographic sounding data will be adjusted to agree with the zero fathom curve delineated by sounding lines. These details will be digitized.
3. Rocks and other details seaward of the mean high water line that originate from field edit records and are shown in red ink on the final field sheets will be shown in black ink on the smooth sheets. These details will be identified by geographic position in the Evaluation Report and discussed as being brought forward from the final field sheet without supportive information. These details will be digitized.
4. Changes to the mean high water line and/or attached cultural features that originate from the hydrographic records and accepted by the verifier will be shown in red ink on the smooth sheet. These changes will be digitized in accordance with Hydrographic Survey Guideline No. 17.

Attachments:  
Cy of Ref. Letters

9  
MOP211 Wert *W* MOPx1 Jeffers *KWJ*  
MOP21 Austin *MOP* MOP Townsend *1/28*

National Ocean Service  
 Pacific Marine Center  
 1801 Fairview Avenue East  
 Seattle, Washington 98102

March 2, 1983

TO: N/CG2 - C. William Hayes  
 ORIGINAL SIGNED BY  
 FROM: N/MOP - Charles K. Townsend  
 SUBJECT: Distribution of Photogrammetric Data  
 REF: N/CG23 Memorandum dated 2/3/83

A waiver of the requirement for N/CG232 review of the manuscripts prior to release as specified in the referenced memorandum (copy attached) is requested for the following situation.

Compilation of Class I manuscripts TP-00623, TP-00624, and TP-00626 (Project CM-7607, Shelikof Straits, Alaska) is scheduled to be completed in March 1983. Hydrographic surveys H-9903, H-9950, and H-9956 are presently on hold in the PSS stage of processing waiting for these Class I shoreline manuscripts. These hydrographic surveys are scheduled for completion in the 1983 survey year.

In order to meet hydrographic survey production schedules, MOP211 desires access to Class I shoreline manuscripts TP-00623, TP-00624, and TP-00626 by April 1, 1983.

If these manuscripts are not available to MOP211 by April 1, 1983, we plan to complete processing of the hydrographic surveys using other sources unless advised otherwise.

Attachment

71-1607-14  
 1000-14

FILE COPY

CODE	SURNAME	DATE	CODE	SURNAME	DATE
MOP21	Austin NOAA	4/1/83			
MOPX1	Jeffers KVI	3/3/83			
MOP	Townsend				



UNITED STATES DEPARTMENT OF COMMERCE  
 National Oceanic and Atmospheric Administration  
 NATIONAL OCEAN SURVEY  
 XXXXXXXXXXXXXXXXXXXXXXX  
 National Ocean Service  
 CHARTING AND GEODETIC SERVICES  
 Rockville, Md. 20852

RECEIVED

APR 14 1983

PAL ... CENTER

N/CG232:GMB

MOP 21

*Copy to 2XL*

*done NK*

TO: N/MOP - Charles K. Townsend

FROM: N/CG2 - C. William Hayes

SUBJECT: Shelikof Strait, Alaska--Photogrammetric Support and Distribution of Data

APR 15 1983

JCS

A thorough examination and review of all pertinent data and correspondence has been completed. The following actions have been taken.

1. Shoreline support data for OPR-P146-FA-83 will be provided in the form of registered shoreline manuscripts (TP-00627 through TP-00629, TP-00717, and TP-00927) enlarged to 1:10,00 scale. The enlarged copies will be labeled "Enlargement for hydrographic use only." These enlargements are adequate for providing the shoreline for hydrographic field and smooth sheets. Ratio photographs will also be provided. A registered manuscript for TP-00626 will not be available until 1984. An enlarged segment of this unregistered map can be provided by N/MOP212 for reconnaissance purposes. This sheet should also be labeled "Enlargement for hydrographic use only."

2. The 1982 field data (OPR-P146-FA-82) has been processed and the following data set is being shipped to N/MOP21.

- a. Ratio color photographs (field annotated)
- b. Master Field Edit Prints (TP-00629, TP-00717, and TP-00927)
- c. Hydrographic Maintenance Prints (stable base map copies depicting photogrammetrically processed 1982 field data)
- d. Field Edit Report (original)

JIM  
H-9903

3. The shoreline manuscripts (TP-00623, TP-00624, and TP-00626) are scheduled for final review in 1984; consequently, these data cannot be released at this time. The manuscripts in question were assigned by N/CG232 to N/MOP212 for the application of the field edit data. The last monthly report received stated that the task would be difficult; however, the job would be completed in March or April 1983. When the edit application has been completed and the enlargement of TP-00626 has been provided to satisfy the data requirements of OPR-P146-FA-83, the manuscripts and all relevant data should be forwarded to N/CG232 for final review and registration.

MOP 211  
NOTE





UNITED STATES  
ALASKA-SOUTH COAST

# KODIAK ISLAND

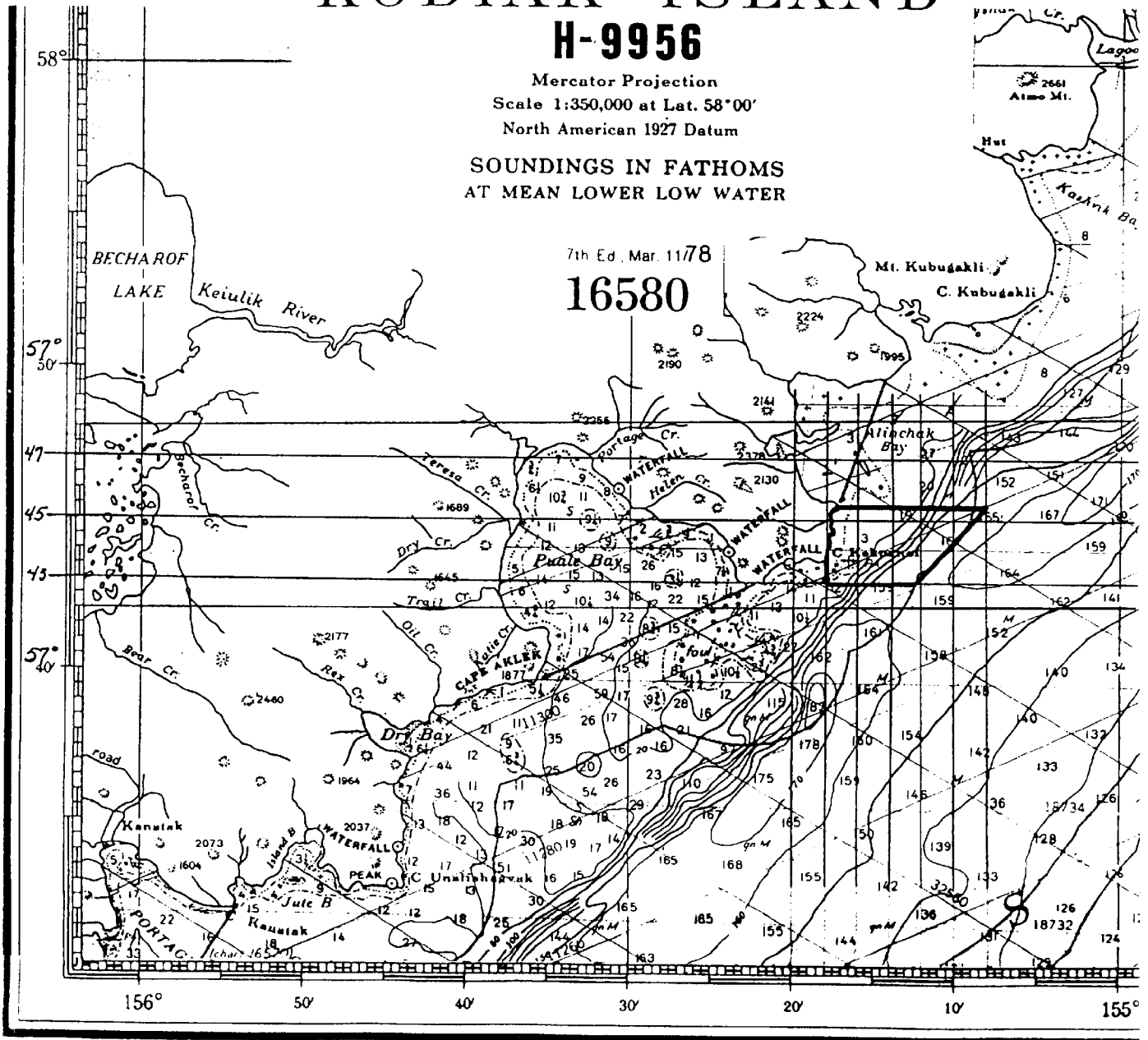
## H-9956

Mercator Projection  
Scale 1:350,000 at Lat. 58°00'  
North American 1927 Datum

SOUNDINGS IN FATHOMS  
AT MEAN LOWER LOW WATER

7th Ed. Mar. 11/78

### 16580



ATTACHMENT TO DESCRIPTIVE REPORT FOR H-9956

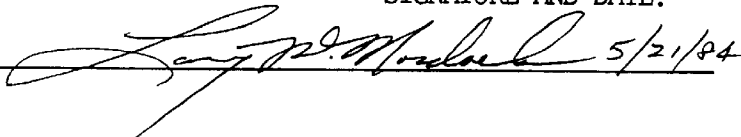
I have reviewed the smooth sheet, accompanying data, and reports of this hydrographic survey. Except as noted in the Evaluation Report, the hydrographic survey meets or exceeds Charting and Geodetic Services (C&GS) standards, complies with instructions, and is accurately and completely represented by the smooth sheet and digital data file for use in nautical charting.

  
Chief, Nautical Chart Branch (Date) 5/15/84

CLEARANCE:

N/MOP2:LWMordock

SIGNATURE AND DATE:

  
5/21/84

After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards with only the exceptions as noted above. The above recommendations are forwarded with my concurrence.

  
Director, Pacific Marine Center (Date) 5/30/84

INDEX  
HYDROGRAPHIC SURVEYS  
Complete through May 1969  
1942-1965  
SHELIKOF STRAIT  
ALASKA  
HYDROGRAPHIC SURVEYS

No.	DATE	SCALE
H-7194	1942	1:20,000
H-7195	1942	1:20,000
H-7196	1942	1:20,000
H-7197	1942	1:20,000
H-7198	1942	1:20,000
H-7199	1942	1:20,000
H-7200	1942	1:20,000
H-7201	1942	1:20,000
H-7202	1942	1:20,000
H-7203	1942	1:20,000
H-7204	1942	1:20,000
H-7205	1942	1:20,000
H-7206	1942	1:20,000
H-7207	1942	1:20,000
H-7208	1942	1:20,000
H-7209	1942	1:20,000
H-7210	1942	1:20,000
H-7211	1942	1:20,000
H-7212	1942	1:20,000
H-7213	1942	1:20,000
H-7214	1942	1:20,000
H-7215	1942	1:20,000
H-7216	1942	1:20,000
H-7217	1942	1:20,000
H-7218	1942	1:20,000
H-7219	1942	1:20,000
H-7220	1942	1:20,000
H-7221	1942	1:20,000
H-7222	1942	1:20,000
H-7223	1942	1:20,000
H-7224	1942	1:20,000
H-7225	1942	1:20,000
H-7226	1942	1:20,000
H-7227	1942	1:20,000
H-7228	1942	1:20,000
H-7229	1942	1:20,000
H-7230	1942	1:20,000
H-7231	1942	1:20,000
H-7232	1942	1:20,000
H-7233	1942	1:20,000
H-7234	1942	1:20,000
H-7235	1942	1:20,000
H-7236	1942	1:20,000
H-7237	1942	1:20,000
H-7238	1942	1:20,000
H-7239	1942	1:20,000
H-7240	1942	1:20,000
H-7241	1942	1:20,000
H-7242	1942	1:20,000
H-7243	1942	1:20,000
H-7244	1942	1:20,000
H-7245	1942	1:20,000
H-7246	1942	1:20,000
H-7247	1942	1:20,000
H-7248	1942	1:20,000
H-7249	1942	1:20,000
H-7250	1942	1:20,000
H-7251	1942	1:20,000
H-7252	1942	1:20,000
H-7253	1942	1:20,000
H-7254	1942	1:20,000
H-7255	1942	1:20,000
H-7256	1942	1:20,000
H-7257	1942	1:20,000
H-7258	1942	1:20,000
H-7259	1942	1:20,000
H-7260	1942	1:20,000
H-7261	1942	1:20,000
H-7262	1942	1:20,000
H-7263	1942	1:20,000
H-7264	1942	1:20,000
H-7265	1942	1:20,000
H-7266	1942	1:20,000
H-7267	1942	1:20,000
H-7268	1942	1:20,000
H-7269	1942	1:20,000
H-7270	1942	1:20,000
H-7271	1942	1:20,000
H-7272	1942	1:20,000
H-7273	1942	1:20,000
H-7274	1942	1:20,000
H-7275	1942	1:20,000
H-7276	1942	1:20,000
H-7277	1942	1:20,000
H-7278	1942	1:20,000
H-7279	1942	1:20,000
H-7280	1942	1:20,000
H-7281	1942	1:20,000
H-7282	1942	1:20,000
H-7283	1942	1:20,000
H-7284	1942	1:20,000
H-7285	1942	1:20,000
H-7286	1942	1:20,000
H-7287	1942	1:20,000
H-7288	1942	1:20,000
H-7289	1942	1:20,000
H-7290	1942	1:20,000
H-7291	1942	1:20,000
H-7292	1942	1:20,000
H-7293	1942	1:20,000
H-7294	1942	1:20,000
H-7295	1942	1:20,000
H-7296	1942	1:20,000
H-7297	1942	1:20,000
H-7298	1942	1:20,000
H-7299	1942	1:20,000
H-7300	1942	1:20,000

On Scale of 1:10000 6 24 inches = 1 statute mile  
1:20000 3 12 inches = 1 statute mile  
A White Circle

Diagram No. 8556-3

