

9947

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-40-1-81 .....  
Office No. .... H-9947 .....

#### LOCALITY

State ..... Alaska .....  
General Locality Shelikof Strait .....  
Locality ..... Offshore Cape Kekurnoi .....  
..... to Kashvik Bay .....  
..... 1981 .....  
CHIEF OF PARTY  
CDR W.F. Forster .....

#### LIBRARY & ARCHIVES

DATE ..... May 3, 1982 .....

Exam for NH. No Corr

3/1/82 WWT  
AFSA-6

50  
500  
530  
531  
16013  
16280  
16298

HYDROGRAPHIC TITLE SHEET

H-9947

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-40-1-81

State Alaska

General locality Shelikof Strait

Locality Offshore Cape Kekurnoi to Kashvik Bay

Scale 1:40,000 Date of survey June 17 - August 13, 1981

Instructions dated Feb. 6, 1981; Change 1 dated 4/25/81; Change 2 dated 5/6/81 Project No. OPR-P146-DA/FA-81

Vessel NOAA Ship FAIRWEATHER (2020)

Chief of party CDR Walter F. Forster

Surveyed by LT T. Baxter, LTJG P. Pagnato, LTJG A. Trimble, ENS G. Tuell, ENS R. Pingry, ENS A. Francis, E. Krick

Soundings taken by echo sounder, ~~xxxxxx~~ Ross Fineline 5000

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Verified ~~xxxxxx~~ by James L. Stringham Automated plot by PMC Xynetics Plotter

Evaluation ~~xxxxxx~~ by Karol M. Scott

Soundings in fathoms ~~xxx~~ at ~~MLW~~ MLLW \_\_\_\_\_

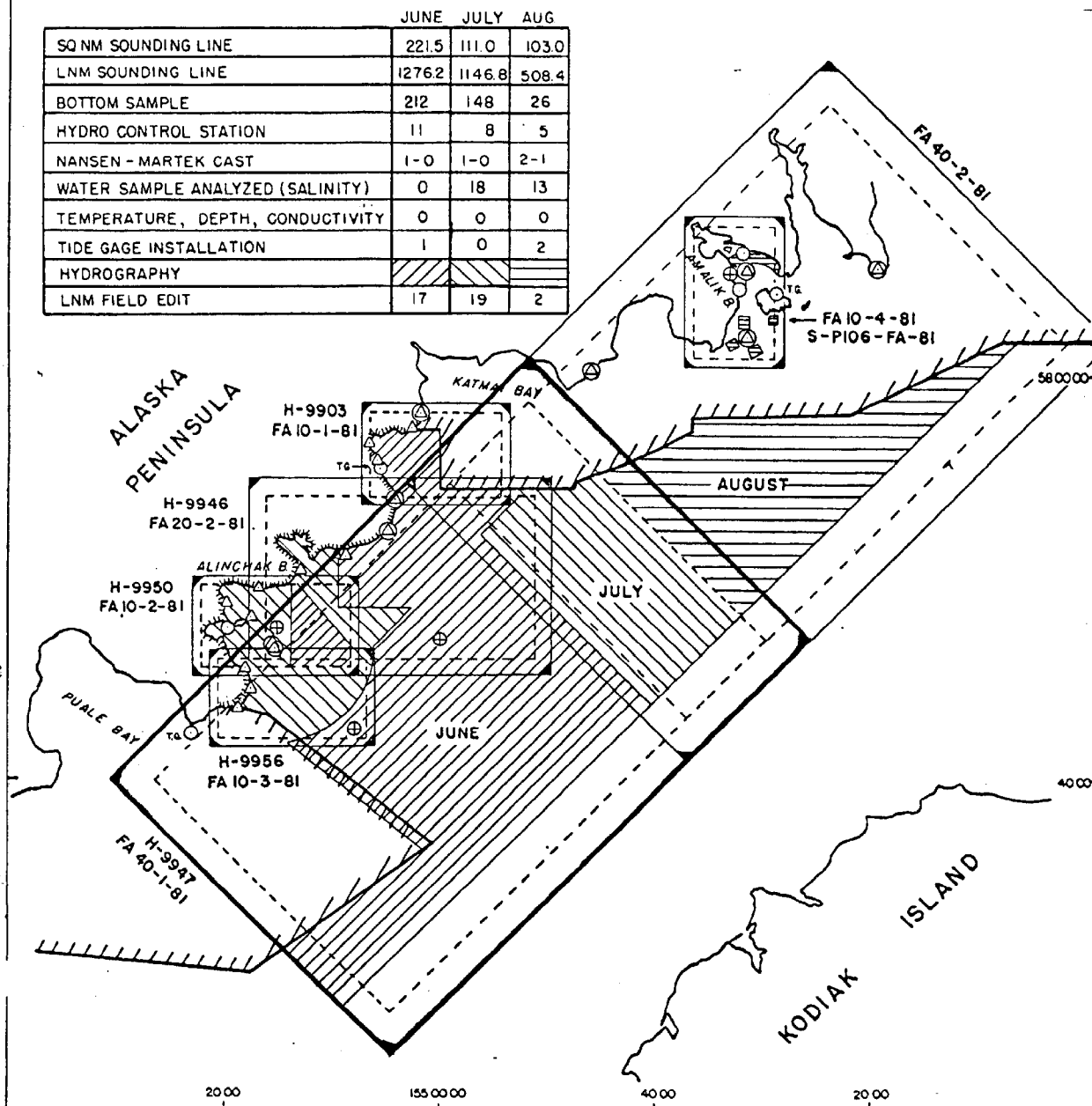
REMARKS: All times are GMT

Misc. data culled from the D.R. are filed with the field records

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

- ⊙ STATIONS RECOVERED
- △ STATIONS ESTABLISHED
- <sub>TG</sub> TIDE GAGE INSTALLED
- ⊕ NANSEN - MARTEK
- ↗ FIELD EDIT
- TEMPORARY CONTROL POINT

	JUNE	JULY	AUG
SQ NM SOUNDING LINE	221.5	111.0	103.0
LNM SOUNDING LINE	1276.2	1146.8	508.4
BOTTOM SAMPLE	212	148	26
HYDRO CONTROL STATION	11	8	5
NANSEN - MARTEK CAST	1-0	1-0	2-1
WATER SAMPLE ANALYZED (SALINITY)	0	18	13
TEMPERATURE, DEPTH, CONDUCTIVITY	0	0	0
TIDE GAGE INSTALLATION	1	0	2
HYDROGRAPHY			
LNM FIELD EDIT	17	19	2



HYDROGRAPHIC REPORT

OPR-P146-DA,FA-81

H-9947, FA-40-1-81

NOAA Ship FAIRWEATHER S220

A. PROJECT

This survey was performed in compliance with Hydrographic Project Instructions, OPR-P146-DA,FA-81, Shelikof Strait, Alaska; dated February 6, 1981 and in compliance with two changes amending the original instructions: Change No. 1, Amendment to Instructions, dated April 15, 1981 and Change No. 2, Amendment to Instructions, dated May 6, 1981.

B. AREA SURVEYED

The area covered by this survey lies offshore of <sup>Cape Kekurnoi</sup> ~~Alinchak Bay~~ on the southwest corner of Shelikof Strait in south-central Alaska. The survey is skewed 45 degrees and covers approximately 260 square miles between the following four points: 57°28'16"N, 155°09'00"W; 57°36'45"N, 155°24'28"W; 57°57'40"N, 154°45'48"W; and 57°49'04"N, 154°29'56"W.

Hydrography was run from June 17 (JD 168) - <sup>August 13</sup> ~~July 10~~, 1981 (JD <sup>225</sup> ~~191~~).

C. SOUNDING VESSELS

The FAIRWEATHER (2020) was used exclusively to collect all the data contained within this survey.

There were no unusual sounding configurations used, nor were there any unusual problems encountered with the sounding system.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Throughout the entire project, a Ross Finline Model 5000 fathometer was used to record the depth. The components used throughout the survey are as listed below:

Table D1  
Sounding Equipment

<u>JD</u>	<u>Vessel</u>	<u>Analog</u>	<u>Digitizer</u>	<u>Inverter</u>	<u>Transceiver</u>
168/169	2020	1054	1046	1103	1048
178	"	"	"	"	"
179	"	"	"	"	"
179/180	"	"	"	1108	"
180-181	"	1048	"	"	1103

There were no problems encountered with any of the sounding equipment. No unusual equipment configurations were used. The depths range from 60 to 170 fathoms. The equipment was constantly monitored and adjusted by the ship's Electronics Department. There are no instrument corrections to be applied. The instrument initial of the analog was set at zero and monitored constantly by the fathometer operator.

Soundings were corrected for the effect of the ship's motion in heavy seas. Depths were changed to the mean of adjacent peaks and deeps in the bottom trace, when the ship was sounding over smooth bottom in foul weather.

Settlement and squat is not required for the vessel. The ship's design transducer correction (TRA) of 2.2 fathoms was applied to all soundings.

Bar checks are not performed for shipboard hydrography. No leadline comparisons were made.

Two velocity correction tables, computed from two Nansen casts, were required for corrections to echo soundings. Positions and dates of the Nansen casts are tabulated in Table D2, Summary of Nansen Casts. The Deep Sea Reversing thermometers for the Nansen bottles were issued 16 April 1981, and calibrated by the Northwest Regional Calibration Center.

The salinometer used for both Nansen casts was a Beckman Induction Salinometer, Model RS7C (S/N 28951), calibrated by the Northwest Regional Calibration Center in April, 1981.

Table D2

Summary of Nansen Casts

<u>Date</u>	<u>Depth</u>	<u>Latitude</u>	<u>Longitude</u>
30 June 1981		57°46'54"N	155°00'00"W
24 July 1981		57°42'36"N	155°08'06"W

All data was scanned to compare analog values to corresponding digital values and to insert peaks and deeps where they occurred between sounding intervals.

E. HYDROGRAPHIC SHEETS

The field sheet for this survey was prepared aboard the NOAA Ship FAIRWEATHER with the PDP8/e computer (S/N 09524) and the Complot plotter (S/N 5557-5). One computer sheet covered the entire area of hydrography. This survey contains no blow-ups, developments, or overlays.

The sheet is 1:40,000 scale with a skew of 45°.

There are no irregularities in the projection or scale of the sheet.

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

F. CONTROL STATIONS

There are no geodetic stations within the limits of this survey. Geodetic stations were recovered and established, outside the limits of the survey, to support systems calibrations and position electronic control.

All control was recovered or established by FAIRWEATHER personnel using conventional Second Order Class II traverse methods and standards. Recovered stations were confirmed by azimuth checks. Monumented control was based on the standard 1927 North American Datum (NAD). Field measurements and shipboard calculations were accomplished in accordance with applicable instructions. All geodetic work meets or exceeds Third Order Class I standards and accuracy requirements.

No unconventional survey methods were used and there were no anomalies in control adjustment, or in closures and ties.

There was no photogrammetry involved with this survey.

For further details, refer to the Horizontal Control Report, OPR-P146-FA-81. The following monumented stations were used in support of the survey:

Table F1

Hydrographic Control Stations				
<u>Station Name</u>	<u>Signal Number</u>	<u>Latitude</u>	<u>Longitude</u>	
Ali 1976 Az <sup>Mark</sup> <del>1981</del>	102	57°46'24.739"N	155°15'24.904"W	See Verificati Report sec. 2
Pedmar 1967 Rm 3 <del>1981</del>	103	58°00'15.37 <sup>2</sup> <del>3</del> "N	154°46'03.35 <sup>5</sup> <del>8</del> "W	
Atmo 19 <sup>76</sup> <del>67</del>	105	57°58'08.548"N	155°01'47.779"W	
<del>Eagle 1980</del>	<del>110</del>	<del>57°53'53.690"N</del>	<del>155°03'36.304"W</del>	
Kubugakli 19 <sup>08</sup> <del>80</del>	115	57°52'27.565"N	155°04'56.160"W	
Ali 197 <sup>7</sup> <del>8</del>	130	57°46'31.24 <sup>52</sup> <del>8</del> "N	155°15'30.38 <sup>90</sup> <del>4</del> "W	
Ridge 1981	200	57°57'24.864"N	155°02'35.089"W	
Schmay 1981	202	57°50'07.627"N	155°12'38.164"W	
Desert 1981	203	57°50'27.66 <sup>970</sup> <del>8</del> "N	155°12'45.39 <sup>527</sup> <del>9</del> "W	

G. HYDROGRAPHIC POSITION CONTROL

Range-Range Raydist control was used for this entire survey except for most bottom samples, which were controlled by radar fixes, and hydrographic positions 775-783 on JD 190, which were controlled by Range-Range Mini-Ranger. The Mini-Ranger system was used on this one occasion when relatively close to the red Raydist station where capture was anticipated with lane readings less than 200 lanes. After observing the strength of the Raydist patterns in this

area and the system's ability to track Ali Red Raydist, control was shifted to the Raydist system without problems. A summary of the shore stations and the usage of the Mini-Ranger System is compiled in Table G2, Mini-Ranger III System Usage.

Eight bottom samples, collected on JD 225, were controlled using the Raydist set-up for survey H-9965. For this work, Pedmar Rm 3 was the left station and Atushagvik Rm 4 was the right station, which had been moved from Ali Azimuth mark.

Equipment used for hydrographic control:

Raydist Shore Stations:

- (left) : Ali 1976 Az 1981  
Red shore station serial #124, frequency 1650.015
- (right): Pedmar 1967 Rm 3 1981  
Green shore station serial #125, frequency 1650.425
- (Frequency for all computations was 3300.40 kHz)

Mini-Ranger Shore Stations:

- (left) : Ali 197~~6~~<sup>7</sup>, Code B
- (right): Schmay 1981, Code A

Table G1

Shipboard Components

<u>Mobile Transmitter</u>	<u>Navigator</u>	<u>Strip Chart Recorder</u>	<u>Navigation Interface</u>	<u>M/R Console</u>	<u>JD</u>
096	119	11311	22	703	168/169
"	119	"	"	701	178-180
37	18	"	"	"	180-181
096	119	"	"	"	190/191
096	119	03171	22	"	225

All three Raydist shore installations utilized four tower sections plus 30 foot whips. All were erected within 200 feet of the sea, on tall grass tundra, well-drained, and well above the level of storm waves and salt spray. All three stations were powered by propane and thermoelectric generators.

The Raydist control worked well with the following exceptions.

During the first day of hydrography, JD 168/169, the position of station Ali 197~~6~~<sup>7</sup> was erroneously used for the location of the red Raydist. When the

positioning error of the tower was rectified, calibrations number 1 and 2 were recalculated with RK 300 for smooth plotting. The latitude and longitude of the sextant and Mini-Ranger fixes were used to generate the values of lanes and partials from the true position of the Raydist tower at the time of calibration. Although these correctors took the error out of the position control, the steering needle had been computed during JD 168/169 using the erroneous position for the Red Raydist. This caused the sounding lines on the smooth plot to be shifted, making a maximum line spacing in the area of 57/44N, 154/56W of 950 meters, and causing the crossline passing through 57/52N, 154/51W to be skewed from the 045°/225° course by one degree in some places. The Raydist electronics worked with no lane losses during JD 168/169.

Raydist control was used again from JD 178-181, during which time several problems occurred. After position 346 (JD 179), the Green Raydist station at Pedmar ran out of propane and went off the air. Calibration data for the green rate from Pedmar, inclusive of positions 242-346, is based on the initial calibration. The station was restarted and hydrography resumed 9-1/2 hours later on JD 179 at 2023Z.

After position 577, at 1500Z, JD 179, a regularly scheduled calibration was started. After two sets of calibration data had been collected, the left Raydist station at Ali Azimuth Mark ran out of propane, causing the left Raydist station to lose 2.5 lanes determined on the third calibration, and to lose 50 lanes determined on the fourth calibration. The right pattern rates from Pedmar Rm 3 remained constant during all four calibrations. Therefore, final correctors for positions 481-577 are based on two sets of calibration data for the left pattern, and four sets of calibration data for the right pattern.

Raydist Navigator, serial number 119, lost its transmitter and was replaced by Navigator, serial number 18, at 1700Z JD 180, after position 577. Raydist Navigator, serial number 18, had a green filter erroneously installed in the red channel, which did not affect the accuracy of the signal, but did weaken the strength of the red signal. After position 773, the green station captured the red, causing 21 lanes to be gained between position 773 and the calibration. All of the lane jumps were identified and reconciled both by counting back from the final calibration, and counting forward from the initial calibration. Therefore, no data had to be rejected.

The Raydist worked well throughout the rest of the survey. —

The first Raydist calibration was done with visual fixes and program RK 561. The Raydist system was calibrated by using three Mini-Ranger rates and program RK 561 for all subsequent calibrations. Simultaneous sextant fixes were taken during the first range calibration to confirm the proper functioning of the Mini-Ranger calibration system. A summary of the shore stations and the Mini-Ranger equipment that was used follows in the table below.



Table G2

 Mini-Ranger III System Usage  
 Shore Stations and Vessel Equipment ✓

<u>JD</u>	<u>Station S/N</u>	<u>Station Name</u>	<u>XPDR Elev above MSL (meters)</u>	<u>Console R/T</u>	<u>XPDR Code</u>	<u>Vessel</u>	<u>Purpose</u>	<u>Position Number</u>
168/169	115	Kubugakli	44.0	703	8	2020	calibration	-
"	110	Eagle	27.0	"	7	"	"	-
"	105	Atmo	29.0	"	6	"	"	-
178/181	130	Ali	11.1	701	B	"	"	-
"	202	Schmay	17.8	"	A	"	"	-
"	115	Kubugakli	44.0	"	8	"	"	-
190	130	Ali	11.1	"	B	"	R/R Hydro	775/783
"	202	Schmay	17.8	"	A	"	"	"
190/191	130	Ali	11.1	"	B	"	calibration	-
"	202	Schmay	17.8	"	A	"	"	-
"	115	Kubugakli	44.0	"	8	"	"	-

For all calibrations, the angles of intersection of both Mini-Ranger pairs was greater than 45°. The calibration systems were checked during each calibration by observing an inverse distance of less than five meters between the fix and check fix calculated by RK 561. ✓

The beginning and ending correctors for each period of hydrography were averaged and the means were used as the correctors for the entire period. The only exception was when the green signal stopped after position 346 of H-9947 as explained above. ✓

There were no unusual methods of operating the electronic equipment. All malfunctions are described above. There were no unusual atmospheric conditions. There were no poor geometric configurations. The only weak signals were caused by the green filter in the red Raydist channel as explained above. The only systematic errors were caused by using an erroneous position for the left Raydist signal on the boatsheet plot on JD 168/169. These systematic errors were corrected with subsequent field sheet plots. ✓

#### H. SHORELINE

There is no shoreline within the limits of this survey. ✓

## I. CROSSLINES

A total of 790.0 nautical miles of mainscheme hydrography was run throughout the survey. Crosslines were run at 45-90° angles to the mainscheme hydrography. A total of 114.2 nautical miles of crosslines were run. Due to the manner in which the mainscheme was squared off, only 99.0 nautical miles of the crosslines actually intercepted the mainscheme hydrography. The remaining 15.2 miles junction with survey H-7196 dated 1947 (For details see Section J.). A total of 99.0 nautical miles of crosslines is equal to 14.5% of the mainscheme hydrography.

Two discrepancies were noted in reviewing the crosslines and mainscheme (See Table II, Crossline-Mainscheme Sounding Discrepancies). Both were attributed to the steep contour surrounding the soundings and, therefore, no follow-up investigation was necessary. All soundings are recommended to be plotted and used in the final analysis of the data.

Table II

### Crossline-Mainscheme Sounding Discrepancies

<u>Position</u>	<u>M/S Depth &amp; Position #</u>	<u>Crossline Depth &amp; Position #</u>
L 57°47'09"N λ 155°00'18"W	<sup>165</sup> <del>164</del> fm - 3 out of 476	<sup>161</sup> <del>160</del> fm - 2 out of 118
L 57°47'25"N λ 154°59'48"W	<sup>157</sup> <del>156</del> fm - 483	<sup>160</sup> <del>159</del> fm - 5 out of 117

The remaining crossline and mainscheme intersections meet the required criterion for comparisons listed in Section 1.1.2 of the Hydrographic Manual.

## J. JUNCTIONS

This survey junctions with <sup>5</sup> contemporary surveys which are addressed in this section. The survey also junctions with 3 prior surveys which are discussed in Section K, Comparison with Prior Surveys. Due to time constraints, comparisons were made before velocity correctors were applied to the data of this project. See  
Verification  
Report  
Sec. 5

The survey junctions along the entire northeast limit with Survey FA-40-2-81 (H-9965). Eighty-four soundings were compared. The results are compiled in Table J1, Summary of Junctions with Survey FA-40-2-81 (H-9965).

Table J1 ✓

Summary of Junctions With Survey FA-40-2-81 (H-9965)

	<u>Number Compare</u>	<u>Percentage of Total</u>
Soundings that Compare Exactly	60	71.4%
Soundings that Agree Within 1 Fathom	19	22.6%
Soundings that Meet Criterion	79	94.0%
Soundings that Exceed Criterion	5	6.0%

Of the five soundings that exceed the standard criterion, four are within the last 0.78 n miles of the inshore end of a sounding line. The differences range from 3 to 8 fathoms. Over this section of the sounding line, between positions 1081 and 1082 of Survey FA-40-1-81 (H-9947), the depth changes from 77 fathoms to 136 fathoms. Considering the steep slope of this depth change, the four discrepancies are attributed to minor positioning differences and are, therefore, not considered to be indicating an equipment malfunction. ✓

The last sounding disagreement exceeds the criterion by 0.6 fathoms. This difference could be due to the method by which computer rounds to the whole fathom. The difference is minor and no further explanation was sought. A summary of the differences and their positions are compiled in Table J2, Junction Sounding Discrepancies Between Surveys FA-40-1-81 (H-9947) and FA-40-2-81 (H-9965), below: ✓

Table J2

Junction Sounding Discrepancies Between Surveys FA-40-1-81 (H-9947) and FA-40-2-81 (H-9965) ✓

<u>Position</u>	<u>Survey FA-40-1-81 (H-9947)</u>		<u>Survey FA-40-2-81 (H-9965)</u>	
	<u>Depth</u>	<u>Position #</u>	<u>Depth</u>	<u>Position #</u>
L 57°55'48"N λ 154°46'46"W	77	1081	<del>85</del>	<del>22 disregard</del>
L 57°55'43"N (on slope) λ 154°46'34"W	97	1 out of 1081	100	5 out of 81
L 57°55'27"N λ 154°46'06"W	<del>121</del>	<del>4 out of 1081</del>	<del>126</del>	<del>1 out of 81 disregard</del>
L 57°55'22"N (on slope) λ 154°45'54"W	129	5 out of 1081	132	81
L 57°52'30"N λ 154°40'36"W	143	1087	<del>148</del>	<del>4 out of 74 disregard</del>

The north corner of this survey junctions with Survey DA-10-5A-80 (H-9897). Twenty-one soundings were compared. All the soundings compared meet the standard criterion. There were no discrepancies.

The northwest limit of Survey FA-40-1-81 (H-9947) junctions with Survey FA-20-2-81 (H-9946). Ninety soundings were compared. All the sounding comparisons are within the criterion. *(not in Rockville office 5/11/82)*

Centered around the position, latitude 57°45'30"N, longitude 155°08'00"W, nine sounding comparisons junction Survey FA-10-2-81 (H-9950). Each comparison meets the criterion. *(not in Rockville office 5/11/82) (H-9950 may not junction this survey - not noted on SIS, nor by verification 5-11-82)*

The junction to the northwest is with FA-10-3-81 (H-9956). Twenty-two soundings were compared. All the comparisons meet the criterion. *(not in Rockville office 5-11-82)*

The junction to the southwestern limit is with Survey H-7196 dated 1947. There were 164 sounding comparisons made. A summary of the results is as follows: *Because of general differences of 1 to 2 fms a butt junction was effected during Q.C.I. - The present survey supersedes H-7156 (1947) Table J3 in the common area as now noted on H-7156.*

Summary of Junction With Survey (H-7196); Dated 1947

	<u>Number Compared</u>	<u>Percentage of Total</u>
Soundings that Compare Exactly	42	25.6%
Soundings that Agree Within 1 Fathom	81	49.4%
Soundings that Meet Criterion	123	75.0%
Soundings that Exceed Criterion by Less than 1 Fathom	37	22.6%
Soundings that Exceed Criterion by More than 1 Fathom	4	2.4%
Soundings that Exceed Standard Criterion	41	25.0%

The four soundings disagree by 3 fathoms. A summary of the depths, positions, and position number is compiled in Table J4, Junction Sounding Discrepancies Between Surveys FA-40-1-81 (H-9947) and Survey (H-7196) dated 1947. No explanation for the differences is offered in that they are minor discrepancies that exist between 2 surveys conducted over a thirty-five year time frame.

Table J4

Junction Sounding Discrepancies Between Surveys  
FA-40-1-81 (H-9947) and Survey (H-7196) dated 1947

Position	Survey FA-40-1-81 (H-9947)		Survey (H-7196)
	Depth	Position #	Depth
L 57°34'04"N λ 155°05'55"W	132	2 out of 696	129
L 57°36'30"N λ 154°59'06"W	127	1 out of 415	124
L 57°30'03"N λ 155°10'54"W	136	1/2 out of 625	133
L 57°32'06"N λ 155°08'32"W	134	659	131

*Superseded by  
H-9947*

There are no contemporary surveys along the southeast limit of this survey. ✓

In conclusion, the junctions along the limits of Survey FA-40-1-81 (H-9947) are excellent. A total of 353 soundings were compared. Of these 353 soundings, 344 or 97.5% meet the standard criterion leaving only 9 or 2.5% that exceed the criterion listed in Section 1.1.2 of the Hydrographic Manual. The 9 soundings that exceed the criterion do not present any major discrepancies. The soundings are recommended to be plotted as the survey depicts. ✓

*present*

K. COMPARISON WITH PRIOR SURVEYS

Comparisons were made between the current survey and three prior surveys as listed in Table K1, Summary of Prior Surveys. There are no PSR items within the survey. ✓

Table K1

Summary of Prior Surveys

<u>Survey</u>	<u>Date of Survey</u>	<u>Scale</u>
H-7196	1947	1:40,000
H-4157	1920	1:100,000
H-4969	1929	1:100,000

*field*

In reviewing the comparisons with the prior surveys, it should be noted that the comparisons were made with the ~~semi~~-smooth sheet which was plotted without the velocity corrector. This was due to time constraints. The final plot averages between 0.5 and 1 fathom deeper. A second point to be noted is that, although the suggested criterion for comparisons was followed, not all the soundings exceeding the criterion were consistently tabulated. This was due to the large number of comparisons that exceed the suggested criterion on Survey H-4157 and H-4969. ✓

Prior survey H-7196 presents the best comparison of the 3 prior surveys. The quality of sounding agreements is good. A total of 142 soundings were compared. Of the 142 soundings, 128 or 90.0% meet the suggested criterion. There were no sounding discrepancies that exceed 5 fathoms.

In comparing prior survey H-4157, the quality of sounding agreements was poor. This survey overlapped 83 soundings of which 22.9% or 19 soundings meet the suggested criterion. As compiled in Table K2, Comparison Discrepancies With Survey H-4157, 31 of the comparisons or 37.3% exceeded 5 fathoms of difference. The remaining 33 comparison discrepancies range from 1 to 5 fathoms and were not included in Table K2.

Table K2

*See  
Verification  
Report  
Section 6*

Comparison Discrepancies With Survey H-4157

<u>Latitude Longitude</u>	<u>40-1 Survey Depth</u>	<u>40-1 Position #</u>	<u>Prior Survey Depth</u>
57°33'44"N 155°09'12"W	136	5 out of 606	147
57°33'06"N 155°07'20"W	132	3 out of 675	146
57°31'18"N 155°06'06"W	128	4 out of 665	134
57°28'55"N 155°07'54"W	131	5 out of 620	138
57°31'18"N 155°04'48"W	127	4 out of 668	134
57°39'16"N 155°02'06"W	135	4 out of 384	126 superseded by pres. survey depths
57°43'12"N 155°07'22"W	158	2 out of 347	164
57°42'04"N 155°04'12"W	148	5 out of 337	162
57°41'48"N 155°02'14"W	142	764	152
57°41'12"N 155°00'54"W	138	1 out of 310	147
57°43'28"N 155°00'42"W	147	5 out of 247	156
57°44'48"N 155°04'12"W	163	2 out of 272	171

<u>Latitude</u> <u>Longitude</u>	<u>40-1</u> <u>Survey Depth</u>	<u>40-1</u> <u>Position #</u>	<u>Prior</u> <u>Survey Depth</u>
57°44'52"N 155°05'18"W	160	277	167
57°45'66"N 155°06'30"W	153	3 out of 777	168
57°59'40"N 154°53'36"W	124 <i>(off limits of pres. survey)</i>	255	110 <i>disregard</i>
57°35'16"N 154°59'42"W	126	3 out of 734	133
57°38'12"N 154°59'12"W	129	1 out of 369	122 <i>superseded by pres. survey depths</i>
57°37'40"N 154°56'00"W	125	2 out of 345	117 <i>superseded by pres. survey depths</i>
57°37'12"N 154°54'44"W	124	4 out of 452	114 <i>superseded by pres. survey depths</i>
57°42'54"N 154°58'44"W	139	3 out of 223	151
57°42'08"N 154°56'12"W	133	1 out of 217	142
57°42'18"N 154°54'16"W	130	5 out of 179	140
57°41'44"N 154°52'12"W	126	1 out of 154	132
57°41'16"N 154°51'12"W	123	1 out of 153	131
57°44'53"N 154°52'54"W	135	520	143
57°41'12"N 154°51'12"W	123	3 out of 146	132
57°43'36"N 154°48'12"W	126	1 out of 555	132
57°47'54"N 154°55'34"W	161	5 out of 172	172
57°49'16"N 154°50'54"W	150	5 out of 5	158
57°48'28"N 154°49'22"W	142	2 out of 7	151

<u>Latitude</u> <u>Longitude</u>	<u>40-1</u> <u>Survey Depth</u>	<u>40-1</u> <u>Position #</u>	<u>Prior</u> <u>Survey Depth</u>	<i>H-4157(1920) depths are superseded by pres. survey depths within a common area.</i>
57°43'34"N 155°09'06"W	157	802	186	

The last comparison was made with prior survey H-4969. Because a large number of soundings overlapped, the sounding comparisons were made on a random basis. A total of 141 soundings were compared. The quality of the sounding agreement was fair. There were 5 outstanding discrepancies that are tabulated in Table K3, Comparison Discrepancies With Survey H-4969. There were approximately 71 sounding comparisons that meet the suggested criterion. This equals 50.4% of the total comparisons. The remaining 46.1% of the comparisons disagreed from 1 to 3 fathoms. This amounts to 65 comparisons.

Table K3

Comparison Discrepancies With Survey H-4969

<u>Latitude</u> <u>Longitude</u>	<u>40-1</u> <u>Survey Depth</u>	<u>40-1</u> <u>Position #</u>	<u>Prior</u> <u>Survey Depth</u>	
57°41'00"N 154°55'30"W	128	5 out of 252	133	✓
57°48'00"N 154°59'10"W	164	117	169	
57°47'00"N 155°04'15"W	145	1 out of 283	151	
57°44'00"N 154°46'50"W	124	3 out of 89	128	<i>H-4969(1929) is superseded by the pres. surve chart present</i>
57°42'00"N 154°59'45"W	138	1 out of 282	142	<i>survey depths.</i>

L. COMPARISON WITH THE CHART

Due to time limitations, comparison with the chart was done with data which was not corrected for sound velocity. This survey was compared with photo enlargements of Chart 16598, 6th Edition, dated November 5, 1977 and Chart 16580, 7th Edition, dated March 11, 1978. Both photo enlargements are to a scale of 1:40,000. Chart 16598 and Chart 16580 are published at a scale of 1:80,000 and 1:350,000 respectively. Velocity correctors in the final field sheet changed the soundings approximately 1 fathom.

Chart 16598 overlaps approximately 50% of the survey. A total of 178 soundings were compared. Of the total 178 soundings, 36 or 20.2% compared exactly, 127 soundings or 71.3% compared within 5 fathoms and 15 soundings or 8.4% differed by more than 5 fathoms. Of the 127 soundings that compare within 5 fathoms, 55 soundings or 43.3% met the comparison criterion of 1% of the depth which is approximately 1 fathom. Of the 127 soundings that compared within 5 fathoms, only four of the survey soundings were deeper than the charted



soundings. Because of the large number of soundings that do not meet the comparison criterion only those soundings that differed by more than 5 fathoms were recorded. Refer to Table L1, Sounding Comparisons That Exceed 5 Fathoms On Chart 16598, for a record of these comparisons.

Table L1  
Sounding Comparisons That Exceed 5 Fathoms  
On Chart 16598

<u>Position</u>	<u>Survey Depth</u>	<u>Position #</u>	<u>Prior <i>Chart</i> Survey Depth</u>
L 57°37'36"N λ 154°55'48"W	124	3 out of 245	117
L 57°41'36"N λ 155°00'30"W	138	4 out of 298	147
L 57°40'51"N λ 154°57'44"W	131	1 out of 284	137
L 57°41'50"N λ 154°52'18"W	126	2 out of 154	132
L 57°43'37"N λ 155°00'45"W	148	4 out of 247	156
L 57°43'15"N λ 155°58'12"W	140	3 out of 214	151
L 57°42'22"N λ 154°55'36"W	132	194	142
L 57°42'18"N λ 154°54'16"W	130	5 out of 179	140
L 57°43'38"N λ 154°48'21"W	126	1 out of 555	132
L 57°45'56"N λ 154°55'50"W	149	506	132
L 57°45'12"N λ 154°52'38"W	136	2 out of 526	143
L 57°44'28"N λ 154°51'00"W	131	5 out of 533	139
L 57°46'14"N λ 154°47'33"W	130	2 out of 43	136
L 57°48'44"N λ 154°56'24"W	165	4 out of 580	173
L 57°48'10"N λ 154°55'04"W	160	4 out of 581	172

A second comparison was made with Chart 16580. The chart completely overlaps the survey. Because of the enlargement factor, specific soundings on the chart enlargement cover a large area on the field sheet and, therefore, this comparison is highly subjective to the interpretation and opinion of the hydrographer.

On Chart 16580, a total of 75 soundings were compared. In general, the percentages show that the trend of comparisons between Chart 16580 and Chart 16598 agree closely. Of the total 75 soundings, 14 or 18.7% compare exactly; 47 soundings or 62.7%, compare within 5 fathoms, and 14 soundings or 18.7% differed by more than 5 fathoms. Of the 47 soundings that compared within 5 fathoms, 14 soundings or 18.7% met the comparison criterion of 1% of the depth which is approximately 1 fathom. Of the 47 soundings that compared within 5 fathoms, only six of the soundings from the survey were deeper than the charted soundings. Refer to Table L2, Sounding Comparisons That Exceed 5 Fathoms on Chart 16580, for a record of those comparisons. Refer to Table L3, Summary of Sounding Comparisons With Chart 16598 and Chart 16580, for a comparison of the sounding difference between Chart 16598 and Chart 16580 by percentages.

Table L2

Sounding Comparisons That Exceed 5 Fathoms  
on Chart 16580

<u>Position</u>	<u>Survey Depth</u>	<u>Position #</u>	<u>Chart Depth</u>
L 57°30'06"N λ 155°10'06"W	131	6 out of 628	137
L 57°42'16"N λ 155°03'24"W	147	2 out of 330	162
L 57°43'19"N λ 155°06'36"W	158	4 out of 335	164
L 57°44'17"N λ 155°10'28"W	154		161
L 57°42'12"N λ 155°54'09"W	129	180	140
L 57°43'11"N λ 154°58'06"W	139	4 out of 214	151
L 57°44'00"N λ 155°01'42"W	152	5 out of 246	159
L 57°46'15"N λ 155°06'51"W	145	1 out of 775	152
L 57°50'36"N λ 154°54'35"W	153	2 out of 20	159
L 57°48'03"N λ 154°54'57"W	159	5 out of 581	172

<u>Position</u>	<u>Survey Depth</u>	<u>Position #</u>	<u>Chart Depth</u>
L 57°44'28"N λ 154°51'00"W	131	5 out of 533	139
L 57°46'04"N λ 154°48'00"W	130	57	136
L 57°49'33"N λ 154°44'11"W	135	3 out of 938	138
L 57°55'27"N λ 154°46'06"W	120	4 out of 1001	131 <i>chart present survey depths</i>

Table L3

Summary of Sounding Comparisons With This Survey And  
Charts 16598 and 16580

<u>Section 1</u>	<u>Chart 16598</u>	<u>Chart 16580</u>
Total # of soundings compared	178	75
Exact comparisons	20.2%	18.7%
Comparison within 5 fathoms	71.3%	62.7%
Comparison exceeding 5 fathoms	8.4%	18.7%
Total percents	99.9%	100.1%
<u>Section 2</u>	<u>Chart 16598</u>	<u>Chart 16580</u>
Total # of soundings compared within 5 fathoms	127	47
Survey soundings compared deeper	3.1%	12.8%
Survey soundings compared shoaler	96.9%	87.2%
*Survey sounding agree within 1 fathom	43.3%	46.8%
*Note: Of the total soundings that compare within 5 fathoms, this percentage meets the criterion of 1% of depth.		
<u>Section 3</u>	<u>Chart 16598</u>	<u>Chart 16580</u>
Number of soundings that meet the suggested criterion	91	36
Percentage of soundings that meet the suggested criterion	51.1%	76.6%

Two conclusions are drawn from the comparisons. On Chart 16580, 76.6% of the soundings met the criterion and on Chart 16598 only 51.1% met the criterion. These low percentages suggest that there has been a movement of the bottom. Of the total soundings that compare within 5 fathoms, 96.9% and 87.2% of the survey soundings are shallower than the soundings of Chart 16598 and Chart 16580 respectively. This strongly suggests that the bottom has risen since the last survey was completed. It should be noted that the area of the survey covers a tectonically active area. This survey is recommended to update the future charts. The changes in soundings do not present any hazards to navigation. *See Verification Report Sec. 6*

M. ADEQUACY OF SURVEY

This survey is sufficiently complete and adequate to supersede all prior surveys. There is no incomplete or substandard work contained within this survey. All the data has been scanned and checked by FAIRWEATHER personnel. ✓

N. AIDS TO NAVIGATION

There are no aids to navigation within the limits of this survey. ✓

There are no submarine cables, pipelines or ferry routes within the limits of this survey. ✓

O. STATISTICS

<u>Vessel</u>	<u>Positions</u>	<u>Lineal Miles Run</u>	<u>Sq. Miles Covered</u>
2020	773	790.0	260.0
Bottom Samples:	16		
Tide Stations:	1		
Current Stations:	0		
Velocity Cast:			
a) MarTek Casts	0		
b) Nansen Casts	2		
Magnetic Stations	0		

P. MISCELLANEOUS

There is no information of significant scientific or practical value resulting from this survey which is not covered in previous sections. ✓

No messages concerning dangers to navigation were sent to the Coast Guard. ✓

Q. RECOMMENDATIONS

It is recommended that this survey be accepted and used to update the charts. ✓  
*CONCUR*

There are no inadequacies in the survey. ✓ *concur*

No additional field work is required or recommended for this survey. ✓ *concur*

There is no present or planned construction or dredging that will affect the results of this survey. ✓

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 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
RK 561	2/19/75	H/R Geodetic Calibrations

S. REFERRAL TO REPORTS

The following reports are pertinent to this survey: ✓

Horizontal Control Report, OPR-P146-FA-81

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

Geographic Names Report, OPR-P146-FA-81

Coast Pilot Report, OPR-P146-FA-81

Electronic Control Report, OPR-P146-FA-81

These reports will all be forwarded to PMC in September 1981.

SEPARATES FOLLOWING TEXT

- A. Hydrographic Sheet Projection Parameters
- B. Field Tide Note
  - Abstracts of Times of Hydrography
- C. Geographic Names List
- D. Abstracts of Corrections to Echo Soundings
  - Instrument Serial Numbers and Calibration Dates
  - Velocity Corrector Tables
  - TC/TI Tapes
- E. Abstracts of Corrections to Electronic Position Control
- F. Signal Listing
- G. Abstract of Positions
- H. Bottom Samples, Log Sheets - M
- I. Landmarks for Charts, NOAA Form 76-40
- J. Approval Sheet

VELOCITY CORRECTOR PRINTOUT  
TABLE 1

000024	0	0000	0001	001	202000	009947
000092	0	0001				
000173	0	0002				
000273	0	0003				
000414	0	0004				
000575	0	0005				
000772	0	0006				
000935	0	0007				
001085	0	0008				
001229	0	0009				
001373	0	0010				
001503	0	0011				
001630	0	0012				
001750	0	0013				
001861	0	0014				

VELOCITY CORRECTOR PRINTOUT  
TABLE 2

000018	0	0000	0002	001	202000	009947
000060	0	0001				
000119	0	0002				
000169	0	0003				
000222	0	0004				
000275	0	0005				
000334	0	0006				
000412	0	0007				
000507	0	0008				
000680	0	0009				
000863	0	0010				
001035	0	0011				
001180	0	0012				
001321	0	0013				
001445	0	0014				
001565	0	0015				
001681	0	0016				
001788	0	0017				
001890	0	0018				



TABLE# 01 YR: 81 FM

DEPTH VEL COR

4.80	.00
11.40	.10
19.50	.20
30.70	.30
45.40	.40
61.50	.50
80.30	.60
98.30	.70
113.40	.80
127.50	.90
141.00	1.00
154.00	1.10
166.20	1.20
178.00	1.30
189.50	1.40
201.00	1.50
99999.99	1.50

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2020

SHEET : FA-40-1-10

TIME	DAY	PATTERN 1	PATTERN 2
181053	168	+00127 ✓	+00043 ✓
000028	169	+00127 ✓	+00043 ✓
183544	178	+00052 ✓	-00004 ✓
003945	179	+00002 ✓	-00012 ✓
035400		-00002 ✓	-00012 ✓
202255		-00016 ✓	-00015 ✓
000031	180	-00016 ✓	-00015 ✓
063218		+00003 ✓	-00022 ✓
211144		+00041 ✓	-00007 ✓
000029	181	+00041 ✓	-00007 ✓
200602	190	+00001 ✓	-00002 ✓
212549		-00002 ✓	-00033 ✓
000015	191	-00002 ✓	-00033 ✓
032930		-00006 ✓	-00037 ✓
000026	192	-00006 ✓	-00037 ✓
003400		+00000 ✓	+00000 ✓

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2020

SHEET : FA-40-1-11

TIME	DAY	PATTERN 1	PATTERN 2
200000	197	+00000 ✓	+00000 ✓
201800	205	+00000 ✓	+00000 ✓

001 SHELIKOF SIGNAL LISTING

002  
~~003 PEDMAR 1967 RM 3 1981 581543 FAIRWEATHER 1981~~  
~~004 103 5 58 00 15372 154 16 03355 250 0067 000000~~  
 005  
~~006 ALI 1987 AZ MARK 1981 571551 FAIRWEATHER 1981~~  
~~007 101 1 57 46 24739 155 15 24904 250 0011 330040~~  
 008 <sup>1977</sup> <sup>MARK</sup>  
 009 ALIAAZ ~~RAVIST 1981~~ 571551 FAIRWEATHER 1981 ✓  
 010 101 1 57 46 24739 155 15 24904 250 0011 330040  
 011  
~~012 PEDMAR 1967 RM-3 1981 RAYDIST 581543 FAIRWEATHER 1981~~  
 013 103 7 58 00 15372 154 46 03355 250 0068 330040  
 014  
 015 ATMO 19<sup>76</sup> 571551 FAIRWEATHER 1981 ✓  
 016 105 3 57 58 02548 155 01 47779 250 0043 000000  
 017  
~~018 EAGLE 1980 571551 DAVIDSON 1980~~  
~~019 110 1 57 53 53690 155 03 36304 137 0025 000000~~  
 020  
 021 KURUGARLI 1908 571551 1005 ✓  
 022 115 2 57 52 27565 155 04 56160 250 0043 000000  
 023  
~~024 TPE 1981 (ALINDHAK BAY) 571551 FAIRWEATHER 1981~~  
~~025 110 2 57 52 10019 155 05 33072 250 0094 000000~~  
 026  
~~027 KURUGARLI 2 1967 571551 1005~~  
~~028 120 3 57 52 28681 155 04 58048 137 0043 000000~~  
 029  
 030 ALI 197<sup>7</sup> 571551 MELBY  
 031 130 2 57 46 312<sup>53</sup> 153 15 303<sup>20</sup> 250 0011 000000 ✓  
 032  
~~033 KENDRANGI 1719 571551 1004~~  
~~034 140 3 57 43 34120 155 16 07002 250 0032 000000~~  
 035  
~~036 RIDGE 1981 571551 FAIRWEATHER 1981~~ ✓  
~~037 200 2 57 57 24863 155 02 35089 250 0045 000000~~  
 038  
~~039 FYLE 1981 571551 FAIRWEATHER 1981~~  
~~040 201 3 57 56 36011 155 06 56946 250 0021 000000~~  
 041  
 042 SONRAY 1981 571551 FAIRWEATHER 1981 ✓  
 043 202 1 57 51 07627 155 08 32164 250 0024 000000  
 044  
 045 DESERT 1981 571551 FAIRWEATHER 1981 ✓  
 046 203 3 57 50 27970 155 12 45527 250 0005 000000  
 047

~~150 BURT 1981 571551 FAIRWEATHER 1981~~  
~~151 404 3 57 52 04131 155 06 52162 253 0012 000000~~  
152  
~~153 MARY 1981 571551 FAIRWEATHER 1981~~  
~~154 405 2 57 52 01939 155 04 54528 253 0012 000000~~  
155  
~~156 MUST 1981 571551 FAIRWEATHER 1981~~  
~~157 406 3 57 52 04784 155 07 07745 253 0012 000000~~  
158  
~~159 TOWNE 1981 571551 FAIRWEATHER 1981~~  
~~160 410 2 57 52 01454 155 07 10770 253 0012 000000~~  
161  
~~162 FLY 1981 571551 FAIRWEATHER 1981~~  
~~163 415 2 57 51 53720 155 07 37116 253 0012 000000~~  
164  
~~165 BRETT 1981 571551 FAIRWEATHER 1981~~  
~~166 420 2 57 51 42375 155 08 03093 253 0012 000000~~  
167  
~~168 EMAIL 1981 571551 FAIRWEATHER 1981~~  
~~169 425 2 57 51 34391 155 08 31169 253 0012 000000~~  
170  
~~171 CAP 1981 571551 FAIRWEATHER 1981~~  
~~172 430 3 57 51 23111 155 07 00090 253 0012 000000~~  
173  
~~174 ATUSHAGVIK 27 1967 581542 1003~~  
~~175 500 3 58 04 55317 154 16 53056 250 0012 000000~~  
176  
~~177 ATUSHAGVIK, RMA RAYDIET 1981 581542 FAIRWEATHER 1981~~  
~~178 503 3 58 05 00619 154 18 53756 250 0014 330040~~  
179  
~~180 ACTOR 1975 581542 FAIRWEATHER 1975~~  
~~181 510 1 58 03 35510 154 24 54143 250 0023 000000~~  
182  
~~183 ILKTUGITAK 1906 581543 1002~~  
~~184 515 3 58 01 40125 154 31 34768 250 0015 000000~~

NOAA FORM 76-40  
(8-74)

Replaces C&GS Form 567.

- TO BE CHARTED
- TO BE REVISED
- TO BE DELETED

REPORTING UNIT  
(Field Party, Ship or Office)

FAIRWEATHER S-220

STATE

AK

LOCALITY

Shelikof Straits

DATE

8/30/81

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY

- HYDROGRAPHIC PARTY
- GEODETIC PARTY
- PHOTO FIELD PARTY
- COMPILATION ACTIVITY
- FINAL REVIEWER
- QUALITY CONTROL & REVIEW GRP.
- COAST PILOT BRANCH

(See reverse for responsible personnel)

The following objects HAVE  HAVE NOT  been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.

OPR - P146-DA-FAB1

JOB NUMBER

14-9947

DATUM

POSITION

LATITUDE

° / ' "

LONGITUDE

° / ' "

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

OFFICE

FIELD

CHARTS  
AFFECTED

CHARTING  
NAME

DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses)

THERE ARE NO LANDMARKS OR  
FLOATING AIDS WITHIN THE  
LIMITS OF THIS SURVEY.

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	<i>Paul Ernest Pappas</i> LTJG (S) NOAA
POSITIONS DETERMINED AND/OR VERIFIED	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	
<p style="text-align: center;"><b>INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'</b> (Consult Photogrammetric Instructions No. 64.)</p>	
<p><b>OFFICE</b></p> <p><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</p> <p><b>FIELD</b></p> <p><b>I. NEW POSITION DETERMINED OR VERIFIED</b> Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection</p> <p>A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75</p> <p>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</p>	<p><b>FIELD (Cont'd)</b></p> <p>B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982</p> <p><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</p> <p><b>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH</b> Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75</p> <p>**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</p>
<p><input type="checkbox"/> PHOTO FIELD PARTY</p> <p><input checked="" type="checkbox"/> HYDROGRAPHIC PARTY</p> <p><input type="checkbox"/> GEODETIC PARTY</p> <p><input type="checkbox"/> OTHER (Specify)</p>	<p><b>ORIGINATOR</b></p>
FIELD ACTIVITY REPRESENTATIVE	
OFFICE ACTIVITY REPRESENTATIVE	
<p><input type="checkbox"/> REVIEWER</p> <p><input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE</p>	

APPENDIX J

Approval Sheet

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

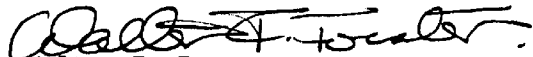
This survey is complete and adequate for charting purposes. The reports cited in Section S, Referral to Reports, provide information that will be of assistance in verification and review of this survey.

Respectfully submitted by:



Paul E. Pegnato  
Lt.(jg), NOAA

Approved and Forwarded by:



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

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 HYDROPLOT 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 PINIER 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 releveled 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.

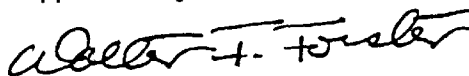
All tide data has been abstracted for hourly heights. Marigrams and abstracts for the period of June 10 - July 16 were transmitted to the Pacific Marine Center, Seattle, Washington on July 20, 1981.

Submitted By:



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

Approved By:



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

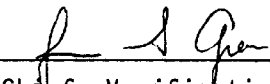
APPROVAL SHEET

FOR

SURVEY H-9947

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position print-out has been made. A new final sounding print-out has been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the verifier's report.

Date: 4/12/02

  
\_\_\_\_\_  
Chief, Verification Branch

U.S. DEPARTMENT OF COMMERCE  
October 19, 1981 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12) 945-8143 Kashvik Bay, AK

Period: June 17 - July 9, 1981

HYDROGRAPHIC SHEET: H-9947

OPR: P-146

Locality: Shelikof Straits, Alaska

Plane of reference (mean lower low water): 3.5 ft.

Height of Mean High Water above Plane of Reference is 11.8 ft.

REMARKS: Recommended zoning:

1. From the northeast limit of the H-sheet, southwest to a line formed by 2 points located at:

a. latitude  $57^{\circ}45.5'$   
longitude  $155^{\circ}21.5'$

b. latitude  $57^{\circ}31.0'$   
longitude  $154^{\circ}55.5'$

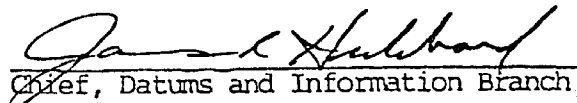
Zone Direct

2. From a line formed by 2 points located at;

a. latitude  $57^{\circ}45.5'$   
longitude  $155^{\circ}21.5'$

b. latitude  $57^{\circ}31.0'$   
longitude  $155^{\circ}55.5'$

Southwest to the southwest limit of the H-sheet, apply a x0.97 range ratio.

  
Chief, Datums and Information Branch

GEOGRAPHIC NAMES

H-9947

Name on Survey	A ON CHART NO. 16580 & 16598 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											
	SHELIKOF STRAIT	X										
CAPE KEKURNOI (TITLE)												2
KASHVIK BAY (TITLE)												3
												4
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Approved:

*Chas. E. Harrington*

Chief Geographer - (375)

13 May 1982



REGISTRY NO. H-9947

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE \_\_\_\_\_ TIME REQUIRED \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

PACIFIC MARINE CENTER  
VERIFICATION/EVALUATION REPORT

REGISTRY NO. H-9947

FIELD NO. FA-40-1-81

Alaska, Shelikof Strait, Offshore Cape Kekurnoi to Kashvik Bay

SURVEYED: June 17 - August 13, 1981

SCALE: 1:40,000

PROJECT NO: OPR-P146-DA/FA-81

SOUNDINGS: Ross Fineline 5000  
Fathometer  
S/N 1046

CONTROL: Raydist - Range/  
Range, Mini-Ranger - Range/  
Range

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

Surveyed by.....LT T. Baxter, LTJG P.  
Pegnato, LTJG A. Timble,  
ENS G. Tuell, ENS R. Pingry,  
ENS A. Francies, E. Krick

Automated plot by.....PMC Xynetics Plotter

Verified by.....James L. Stringham

Evaluated by.....Karol M. Scott

1. INTRODUCTION

NOTE: This survey has been processed utilizing a procedure developed to work in conjunction with the Verification Branch realignment, which established an evaluation process. The survey data was first verified and a smooth sheet compiled by a verifier. Then an evaluator reviewed the work of the verifier, made the necessary comparisons with prior surveys and charts, and wrote the Verification/Evaluation Report.

H-9947 is a basic hydrographic survey conducted by NOAA Ship FAIR-WEATHER in accordance with Project Instructions dated February 6, 1981; Change 1 dated April 25, 1981; and Change 2 dated May 6, 1981. ✓

This survey lies offshore of the Katmai Peninsula bounded by Kashvik Bay to the North and Cape Kekurnoi to the southwest. Data obtained for H-9947 (FA-40-1-81) and H-9965 (FA-40-2-81) was coordinated to provide comparative contemporary data for an operational BS<sup>3</sup> (Bathymetric Swath Survey System) survey accomplished during August 1981 by NOAA Ship DAVIDSON.

✓ ← As of 9/22/82 BS<sup>3</sup> data in this area should be disregared for charting purposes.  
Daw



Predicted tides from Seldovia corrected to Katmai Bay, Shelikof Strait were utilized during shipboard processing procedures. Tides used for reduction of final soundings are from Kashvik Bay, Alaska. ✓

The projection parameters, signal list and electronic corrector abstract were revised during the verification process. All corrected information is listed in the smooth printouts accompanying the smooth sheet. ✓

## 2. CONTROL AND SHORELINE

Horizontal control recovered or established using conventional Second Order Class II methods and standards are discussed in Section F of the Descriptive Report. Changes to table F1 were made for agreement with the signal list. ✓

Raydist and Mini-Ranger employing the range/range mode controlled hydrography within the survey area. Specifics are included in Section G of the ship's report. ✓

No shoreline was required for this offshore survey. ✓

## 3. HYDROGRAPHY

Crosslines incorporated within this survey are in good agreement. Most crossings agree within .2 fathom, with others agreeing to .5 fathoms. *concur*

Standard depth curves have been completed. Supplemental curves reflecting the charted curves have been inked on the smooth sheet. *concur*

The bottom configuration and least depths have been adequately delineated. Bottom samples were taken to portray the bottom composition. *concur*

## 4. CONDITION OF SURVEY

The smooth sheet, accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual, July 4, 1976, with the following exceptions: ✓

a. The velocity data computation did not consider the ship's draft. The correctors generated for application to the sounding depths were based from the surface. The velocity curve was regenerated at PMC based on the draft of the ship. The velocity table used is appended to the Descriptive Report. ✓

b. The PMC data requirements specifically require statistics in junction areas and prior survey and chart comparisons. Those statistics should be used to support trends and conclusions addressed generally. The statistics presented by the ship were not used to support conclusions drawn in reference to the comparisons. *concur*

## 5. JUNCTIONS

H-9947 joins five contemporary surveys to the southwest, west, north and northeast. There are no adjoining surveys on the eastern border. Each junction survey is addressed below:

a. H-7196 (1:40,000) 1947 joins this survey to the southwest. *ON H-7196 sextant angles were observed on mountain peaks & there was no tide zoning.* Soundings are consistently shoaler by 1 to 2 fathoms due to methods of surveying; narrow beam fathometers employed in 1981 and wide beam fathometers used previously. A butt junction was made and soundings transferred to support the depth curves. Overlapping areas of hydrography should be superseded and curves revised to reflect new information. The junction note and depth curves have been inked accordingly. *Butt junction was accomplished during G.C.I.*

b. H-9897 (1:10,000) 1980 lies to the north joining in an area with a characteristically steep sloping bottom. Sounding agreement is within one fathom. Junction curves, soundings, and note are inked in coincidence. *Junctional curves are not coincidental but are adequate*

c. H-9946 (1:20,000) 1981 and H-9956 (1:10,000) 1981 junction to the west and southwest. Both of these surveys are in early stages of verification; therefore, were not junctioned. The depth curves are penciled to facilitate possible adjustment at a later date. The junction notes are also penciled to be inked when the junctions are accomplished. *concur*

d. H-9965 (1:40,000) 1981 forms an adequate junction to the northeast. Soundings and curves are in good agreement; therefore, are inked along with the junction note. *concur*

## 6. COMPARISON WITH PRIOR SURVEYS

H-4157 (1920) 1:100,000  
H-4969 (1929) 1:100,000

H-4157 soundings are generally deeper than the present survey by several fathoms. There are instances of prior survey soundings being shoaler. Due to the surveying methods incorporated in the older survey, the inconsistency may be expected without indicating a change of bottom configuration. This appears to be the case in this instance. *concur*

H-4969 shows no appreciable difference in sounding data and reflects a stable bottom with no trend of either shoaling or deepening. Subtle differences are attributable to the difference in survey methods. *concur*

There are no pre-survey review items within the survey area. ✓

H-9947 is adequate to supersede both prior surveys within the area of common hydrography. *concur*

7. COMPARISON WITH CHARTS

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

16598 (6th Ed., Nov. 5, 1977)

a. Hydrography - The charted information originates from previously discussed prior surveys and H-7196, a junction survey as indicated on chart mark-ups. There are no additional items for discussion. *CONCUR*

This survey is adequate to supersede all charted hydrography within the common area. *CONCUR*

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

c. Aids to Navigation - There are no aids to navigation in the area of this survey. *CONCUR*

8. COMPLIANCE WITH PROJECT INSTRUCTIONS

H-9947 (FA-40-1-81) adequately complies with Project Instructions OPR-P146-DA,FA-81, Shelikof Strait. *CONCUR*

9. ADDITIONAL FIELD WORK

This is a good basic survey. No additional field work is required. *CONCUR*

Respectfully submitted,



Karol M. Scott  
Cartographer  
April 5, 1982

Examined and Approved:



James S. Green  
Chief, Verification Branch



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SURVEY  
Rockville, Md. 20852

C352:FPS

May 12, 1982

TO: Glen R. Schaefer &  
Chief, Hydrographic Surveys Division

THRU: Chief, Quality Control Branch *and*

FROM: F. P. Saulsbury *F.P. Saulsbury*  
Quality Evaluator

SUBJECT: Quality Control Report for H-9947 (1981), Alaska, Shelikof Strait,  
Offshore Cape Kekurnoi to Kashvik Bay

A quality control inspection of H-9947 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, smooth plotting, decisions made and actions taken by the verifier, and the cartographic presentation of data. Revisions and additions to the smooth sheet, plus helpful comments made to the verifier, are identified on a one-half scale copy of the survey to be furnished the verifier. In general, the survey was found to conform to the National Ocean Survey's standards and requirements except as stated in the Verifier's Report and the HIT Report.



cc:  
C351





**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SURVEY  
Pacific Marine Center  
1801 Fairview Avenue East  
Seattle, Washington 98102

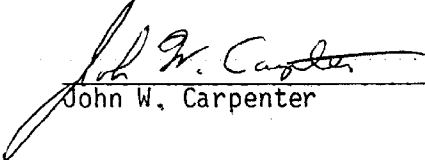
April 16, 1982

TO: CPM - Charles K. Townsend   
FROM: CPM3 - John W. Carpenter   
SUBJECT: PMC Hydrographic Inspection Team Report for Survey H-9947

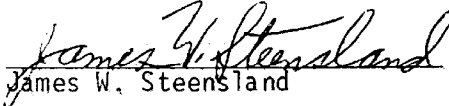
This survey is a basic hydrographic survey of Offshore Cape Kekurnoi to Kashvik Bay, Shelikof Strait, Alaska. This survey was conducted by NOAA Ship FAIRWEATHER in 1981 in accordance with Project Instructions OPR-P146- ✓ DA/FA-81 dated February 6, 1981; Change No. 1 dated April 15, 1981; and Change No. 2 dated May 6, 1981.

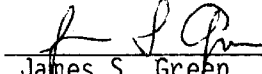
This survey was processed using the evaluation system wherein the verification and evaluation of the survey are divided into two distinct phases. ✓

The inspection team finds H-9947 to be a basic survey adequate to supersede common areas of prior surveys and charted hydrography. Administrative approval is recommended. *concur*

  
John W. Carpenter

  
Alan D. Anderson

  
James W. Steensland

  
James S. Green



**10TH ANNIVERSARY 1970-1980**

**National Oceanic and Atmospheric Administration**

A young agency with a historic  
tradition of service to the Nation

ADMINISTRATIVE APPROVAL

H-9947

Offshore Cape Kekurnoi to Kashvik Bay, Shelikof Strait, Alaska

The smooth sheet and reports of this survey have been examined and the survey is adequate for charting and to supersede common areas of prior surveys. *concur*



Charles K. Townsend  
Director  
Pacific Marine Center

4/21/82  
Date

Supplemental Information  
 Consult U.S. Coast Pilot 9 for important supplemental information.

**RADAR REFLECTORS**  
 Radar reflectors have been placed on many sailing aids to navigation. Individual radar reflector identification on these aids has been listed on this chart.

**POLLUTION REPORTS**  
 Report all spills of oil and hazardous substances to the Response Center via 800-424-8802 (toll free), or nearest U.S. Coast Guard facility if telephone communication is impossible (33 CFR 153).

**NOAA VHF-FM WEATHER BROADCASTS**  
 The National Weather Service station listed below provide continuous marine weather broadcasts. The range of reception is variable, but for most stations is usually 20 to 40 miles from antenna site.  
 Homer, Alaska WXJ-24 162.40 MHz



**(Kodiak Island)**

SOUNDINGS IN FATHOMS - SCALE 1:350,000

**16580**  
 (formerly C&GS 8556)  
**LORAN-C OVERPRINTED**

7th Ed., Mar. 11/78

**16580**  
 (formerly C&GS 8556)  
**LORAN-C OVERPRINTED**

LORAN-C PULSE REF  
 9990  
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 Y...  
 Z...  
 EXAMPLE:

7960-X 79







**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SURVEY  
Rockville, Md. 20852

NOV 2 1982

C351:SJV

TO: CPM - Charles K. Townsend  
FROM: C3 - C. William Hayes *C. William Hayes*  
SUBJECT: H-9947 (1981), Alaska, Shelikof Strait, Offshore Cape Kekurnoi  
to Kashvik Bay, Report of Compliance with Project Instructions

The smooth sheet and Descriptive Report for the subject survey have been examined. This survey, except as noted in the Quality Control Report, dated May 12, 1982 (copy attached), and the Hydrographic Survey Inspection Team Report, dated April 16, 1982, is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-P146-DA,FA-81, dated February 6, 1981.

Attachment

cc:  
C352 w/o att.



