

10040

Diagram No. 8502-2

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-20-1-82
Office No. H-10040

LOCALITY

State Alaska
General Locality Shelikof Strait
Locality Wide Bay to Imuya Bay

19 82-83

CHIEF OF PARTY
CDR W.F. Forster - CAPT. C. Andreasen

LIBRARY & ARCHIVES

DATE October 3, 1985

☆U.S. GOV. PRINTING OFFICE: 1980-788-230

10040

Area 6
CMT

- 16568
- 16570
- 16580
- 16006
- 16013
- 531
- 500
- 530
- SD-M

TO SIGN OFF SEE
"RECORD OF APPLICATION"

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTER NO. H-10040
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HYDROGRAPHIC TITLE SHEET

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.	FIELD NO. FA 20-1-82
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State Alaska

General locality Shelikof Strait

Locality Wide Bay to Imuya Bay

Scale 1:20,000 Date of survey Aug. 7 to Aug. 20, 1982
February 23, 1982 June 11 to Aug. 4, 1983

Instructions dated March 11, 1983 Project No. OPR-P146-FA-82
OPR-P146-FA-83

Vessel NOAA Ship FAIRWEATHER and launches 2020, 2023, and 2024

Chief of party CDR W. Forster and CAPT C. Andreasen

Surveyed by Lt. Andreen, Lt. Baxter, Lt. Ramsey, Ens. Francis, Ens. Tuell,
Ens. Pingry, LT(jg) Bailey, Ens. Steele, Ens. Migaiolo, Lt. Rulon,

Soundings taken by echo sounder, ~~and 1000, 2000~~ Ross Finline 5000 Ens. Koch

Graphic record scaled by FAIRWEATHER Personnel

Graphic record checked by FAIRWEATHER Personnel

Verification PM
~~REVISION~~ by A. Almacen Automated plot by Xynetics Plotter

Evaluation PM
~~REVISION~~ on by Gordon Kay

Soundings in fathoms ~~XXX~~ at ~~XXX~~ MLLW _____

REMARKS: This survey is incomplete, additional work was performed during 1984 and the report follows the 1982-1983 report.

Notes and check marks in black were added during office processing.

Separates are filed with the raw data.

10-8-85

STANDARDS CK'D

C. Kay

Arrival & Survey M PM 3/86

156 15 00

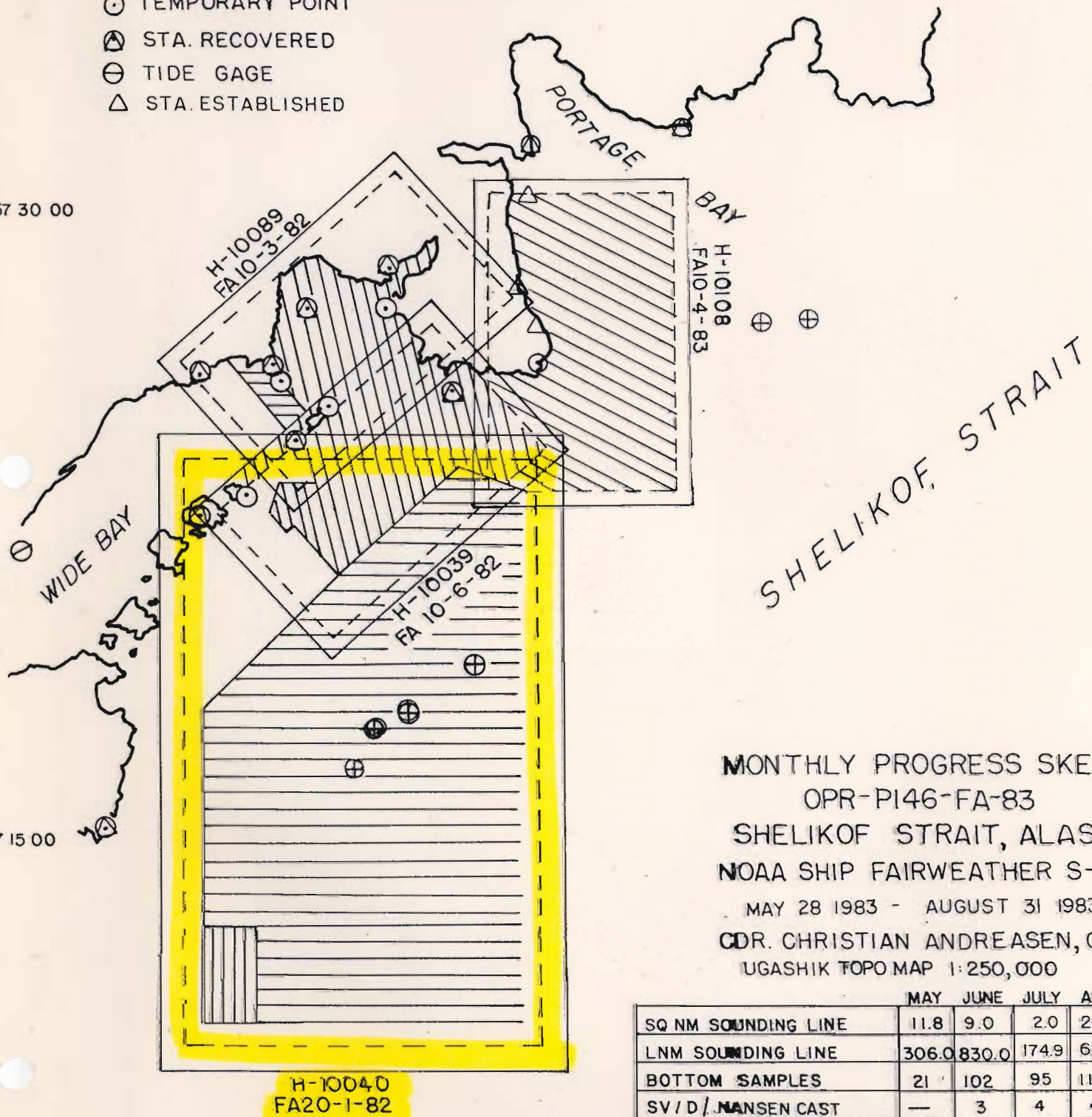
156 00 00

155 45 00

- ⊕ SV/D CAST / NANSEN CAST
- ⊙ TEMPORARY POINT
- ⊗ STA. RECOVERED
- ⊖ TIDE GAGE
- △ STA. ESTABLISHED

57 30 00

7 15 00



MONTHLY PROGRESS SKETCH
 OPR-PI46-FA-83
 SHELIKOF STRAIT, ALASKA
 NOAA SHIP FAIRWEATHER S-220
 MAY 28 1983 - AUGUST 31 1983
 CDR. CHRISTIAN ANDREASEN, CMDG
 UGASHIK TOPO MAP 1:250,000

	MAY	JUNE	JULY	AUG
SQ NM SOUNDING LINE	11.8	9.0	2.0	26
LNM SOUNDING LINE	306.0	830.0	174.9	682
BOTTOM SAMPLES	21	102	95	116
SV/D / NANSEN CAST	—	3	4	4
HYDRO CONTROL STATIONS	9	8	—	6
WATER SAMPLES ANALYZED	—	5	7	—
HYDROGRAPHY	///	///	///	///
LNM SIDE SCAN SONAR	—	—	4.4	—

Descriptive Report
to Accompany
Hydrographic Survey H-10040 (FA-20-1-82)

Scale: 1:20,000

Cdr. Walter F. Forster
Capt. Christian Andreasen

NOAA Ship FAIRWEATHER

Commanding Officer (1982)
Commanding Officer (1983)

A. Project

This survey began in August 1982 and continued through August 1983. Two sets of Project Instructions are applicable: OPR-P146-FA-82 dated 23 February 1982 with Change No. 1, dated 3 June 1982, and OPR-P146-FA-83, dated 11 March 1983 with Change No. 1 dated 15 April 1983. The PMC OORDER, Hydrographic Manual (4th Edition), and the Data Requirements Letter dated 14 April 1983 are also applicable. ✓

See following report for Applicable Project Instructions

B. Area Surveyed

This survey is located offshore in Shelikof Strait, from Wide Bay to Imuya Bay.

The corner boundaries of this survey are:

Northwest	Latitude 57°24'00"N	Longitude 156°17'00"W
Northeast	Latitude 57°24'00"N	Longitude 156°02'00"W
Southwest	Latitude 57°11'00"N	Longitude 156°17'00"W
Southeast	Latitude 57°11'00"N	Longitude 157°02'00"W

Hydrography began on 7 August (JD 219) and finished on 20 August 1982 (JD 232), for the 1982 field operations. During the 1983 field season hydrography began on 11 June (JD 162) and ended on 4 August 1983 (JD 216). ✓

C. Sounding Vessel

Hydrographic data acquisition and bottom samples were conducted with the Ship FAIRWEATHER (2020) and Jensen survey launches FA-3 (2023) and FA-4 (2024). FAIRWEATHER conducted all Nansen and SV/D casts on this survey.

Ross skag (1,2) and midship transducers were used on FAIRWEATHER for all hydrography run by the ship. See Figure 1, FAIRWEATHER Transducer Location Diagram, for details. No unusual sounding vessel configurations were used on this survey. ✓

D. Sounding Equipment and Corrections to Echo Soundings

Both survey launches and the FAIRWEATHER were equipped with Ross Finline 5000 narrow beam echo sounders as listed in Table I, Sounding Equipment. Depths on this survey ranged between 0.8 and 163 fathoms.

All echo sounding equipment was monitored closely and the initial adjusted to zero whenever necessary. Fathometers were phase calibrated and the belt tension was checked daily and whenever paper was changed. The fathometer initial was continuously monitored and adjusted as necessary. All data was scanned at least twice, to compare analog values to corresponding digital depths and to insert peaks and deeps between soundings. The effects of excessive wave and swell action were adjusted at this time in accordance with Section 4.9.8.2 of the Hydrographic Manual. ✓

Problems with sounding equipment encountered during this survey are as follows:

On JD 231, 1982 the fathometer (1054) was removed from launch FA-4 because of an unstable initial and replaced by analog (1036) which was used throughout the remaining portion of the 1982 field season. ✓

On JD 162, 1983 the fathometer (1097) on FA-4 began producing a wavering initial and could not be calibrated. The fathometer was replaced by recorder (1036) originally used in FA-5. The problem was traced to a defective belt and stylus. No data was lost in this situation. ✓

The fathometer (1047) in FA-3 could not be calibrated along with producing wavering event marks on JD 166, 1983. The fathometer was replaced by recorder (1046) previously in FA-6 and recorder (1047) was returned to PMC for repairs. No data was collected by fathometer (1047) on this day. ✓

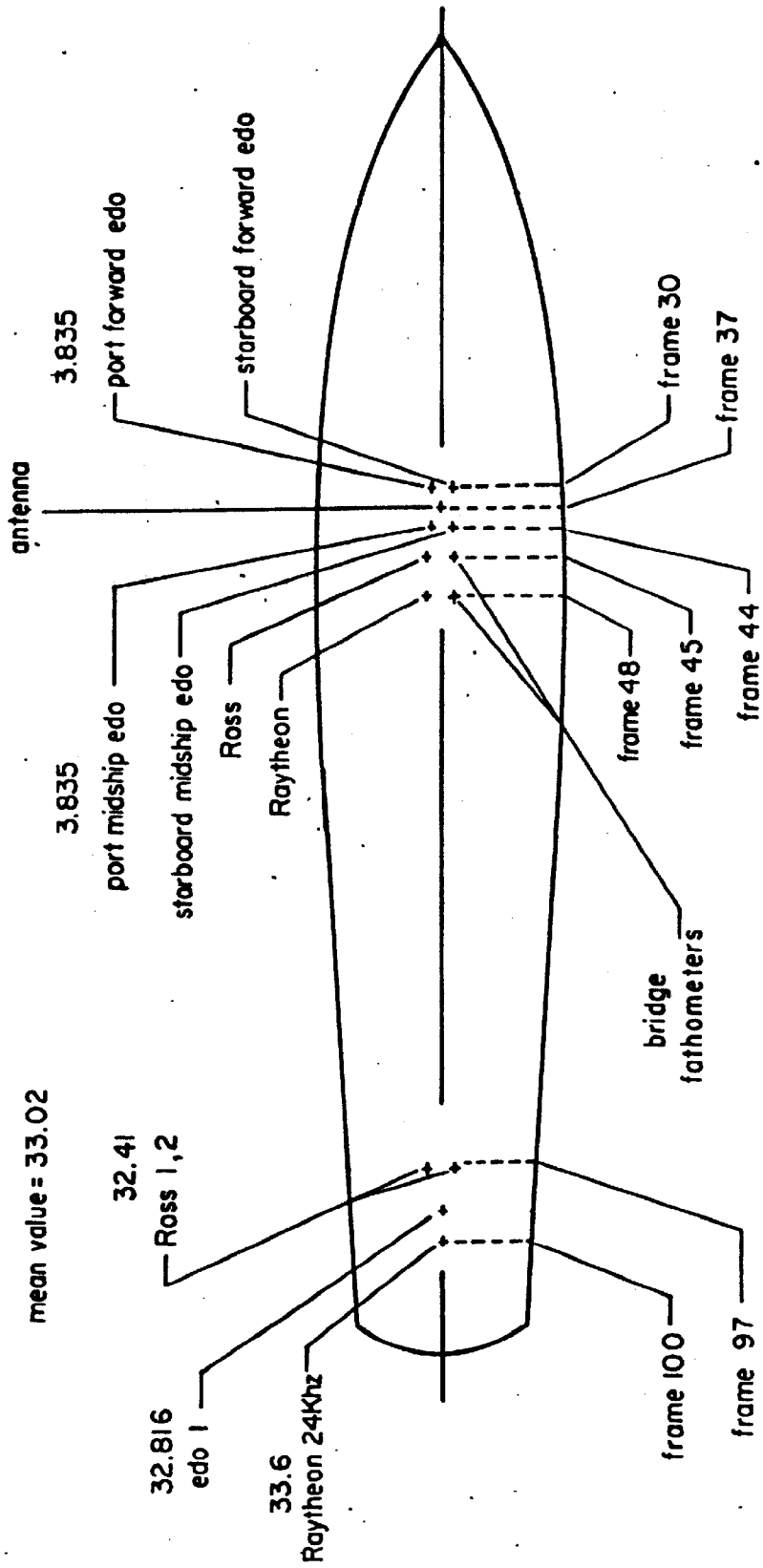
On JD 191, 1983 the initial and analog trace of the recorder (1046) in FA-3 was found to be out of adjustment and was replaced by fathometer (1054) from FA-6. Upon completion of repairs onboard the FAIRWEATHER, fathometer (1046) was installed in FA-6. No data was lost due to this problem. ✓

On JD 234, 1983 the paper drive in recorder (1054) installed in FA-3 was found to be intermittent with excessive bearing noise present. The fathometer was removed for bearing replacement and the recorder (1046) from FA-6 was installed in its place. ✓

Table I
Sounding Equipment

<u>Date</u>	<u>Instrument</u>	<u>1982</u>					<u>Transceiver</u>
		<u>Model</u>	<u>Recorder</u>	<u>Digitizer</u>	<u>Inverter</u>		
FAIRWEATHER (2020) JD 219-232	Ross	5000	1047	1054	1103	1048	
FA-3 (2023) JD 230-232	Ross	5000	1097	1047	1046	1047	
FA-4 (2024) JD 222-231	Ross	5000	1054	1046	1054	1046	✓
JD 231-232	Ross	5000	1036	1046	1054	1046	
<u>1983</u>							
FAIRWEATHER (2020) JD 165-180	Ross	Fineline 5000	1036	1036	1103	1054	
JD 215	Ross	Fineline 5000	1036	1036	1103	1054	
FA-3 (2023) JD 148-165	Ross	Fineline 5000	1047	1047	1046	1046	✓
JD 166-190	Ross	Fineline 5000	1046	1047	1046	1046	
JD 191-233	Ross	Fineline 5000	1054	1047	1046	1046	
JD 234-237	Ross	Fineline 5000	1046	1047	1046	1046	

FAIRWEATHER TRANSDUCER LOCATION DIAGRAM, APRIL 1982



numerical values are distance in meters forward or aft of antenna

Figure 1

<u>Date</u>	<u>Instrument</u>	<u>Model</u>	<u>Recorder</u>	<u>Digitizer</u>	<u>Inverter</u>	<u>Transceiver</u>
FA-4 (2024)						
JD 148-161	Ross	Fineline 5000	1097	1046	1054	1048
JD 162	Ross	Fineline 5000	1036	1046	1054	1048 ✓
JD 163-327	Ross	Fineline 5000	1097	1046	1054	1048

Settlement and squat was determined for all launches on 30 July, 1982 in Woman's Bay, Kodiak, Alaska and on 7 April, 1983 in Shilshole Bay, Seattle, Washington. Settlement and squat measurements were conducted in accordance with Section 4.9.4.2 of the Hydrographic Manual. All launches were tested at speeds from idle to 2700 RPM, in 200 RPM increments. A Zeiss Ni 2 level was used to read a stadia rod held over the transducer when launch speed was attained. A tide staff was read simultaneously with the stadia level to correct for tidal influences. The test results were used to plot settlement and squat curves for each launch. ✓

As explained in Section 4.9.2 of the Hydrographic Manual, restrictive speeds for all launches were determined using 0.1 fathom as a corrector. See Table II, Restricted Settlement and Squat Speeds, for data collected in fathoms. Launches were operated at speeds less than the restricted RPM's listed in Table II, eliminating the need to apply settlement and squat correctors. ✓

Table II
Restricted Settlement and Squat Speeds

<u>1982</u>	
<u>Launch</u>	<u>Restricted RPM</u>
FA-3	Above 2600
FA-4	Above 2400
<u>1983</u>	
FA-3	None
FA-4	Above 2650

Bar checks were performed twice daily, when possible. There were several days when only one check was made due to various reasons, i.e. weather and sea conditions, equipment failures, etc. ✓

Bar check data when combined with the velocity correctors determined launch TRA correctors. Bar check data confirms the 0.3 fathom TRA correctors for launches FA-3 and FA-4 during the 1982 field season. Data from 1983 confirmed the 0.3 corrector for FA-3 whereas FA-4 was found to have a 0.4 fathom TRA. All soundings obtained by the launches were plotted with a 0.3 fathom TRA on the final field sheet. FAIRWEATHER's TRA, based on 14 foot draft, is 2.3 fathoms. ✓

Leadlines were used to measure least depths over shoal areas. All leadlines and bar check lines were calibrated prior to and at the completion of the project each year. No correctors were applicable to soundings collected for this survey. ✓

Velocity correctors were determined by using data from Nansen and SV/D casts in accordance with the Hydrographic Manual, Section 4.9.5.2. ✓

Velocity correctors for all 1982 data were determined by three Nansen casts. Reversing thermometers and Beckman Salinometers (59435 and 4919) were calibrated by Northwest Regional Calibration Center (NRCC) in March 1982. ✓

Five SV/D casts were conducted in 1983 to determine velocity correctors. These casts were taken using a Plessy Model 9040 Environmental Profiling System, calibrated by NRCC in Seattle, Washington, in April 1983. Three Nansen casts which served as checks for the SV/D data, were also taken. These used reversing thermometers calibrated by NRCC in March 1983. Salinity of the water was determined by the use of a Beckman Salinometer, (59435) also calibrated at NRCC in April 1983. Table III, Nansen and SV/D Casts, lists the date and geographic position of each cast taken during 1982 and 1983. ✓

Table III
Nansen and SV/D Casts

1982

<u>Cast</u>	<u>Date</u>	<u>Latitude</u>	<u>Longitude</u>
I	15 July	57°19'24"N	154°45'36"W
II	11 August	57°12'18"N	156°08'54"W
III	19 August	57°16'18"N	156°11'12"W

1983

I (SV/D)	1 June	57°19'12"N	156°00'24"W
II(SV/D)	22 June	57°18'00"N	156°07'30"W
III	22 June	57°18'00"N	156°07'30"W
IV	6 July	57°17'36"N	156°07'42"W
V (SV/D)	6 July	57°17'36"N	156°07'42"W
VI (SV/D)	27 July	57°16'30"N	156°09'18"W
VIII (SV/D)	10 August	57°17'30"N	156°07'54"W
IX	10 August	57°17'30"N	156°07'54"W

For more information, refer to the Corrections to Echo Soundings Reports, OPR-P146-FA-82 and OPR-P146-FA-83. ✓

E. Hydrographic Sheets

All field sheets were plotted aboard FAIRWEATHER using the following PDP8/e computers: 09557-5 and 5848-17 during 1982; 09524 and 1020 during 1983. ✓

All hydrographic data from this survey will be sent to the Pacific Marine Center, N/MOP21, Seattle, Washington, for verification and smooth plotting. ✓

The three final field sheets are plotted on mylar at a scale of 1:20,000. Skew is 0° on all smooth sheets. Dimensions are:

North sheet	18.5x36 inches	✓
Central sheet	20x36 inches	
South sheet	30x36 inches	

Three development sheets are plotted on paper, all at a scale of 1:5,000. Dimensions and skew are:

Development A	000°	20x31 inches	
Development B	000°	22x44 inches	✓
Development C	315°	20x44 inches	

F. Control Stations

All horizontal control stations used during this survey were recovered or established by FAIRWEATHER personnel. All positions meet or exceed Third Order, Class I accuracies and are adequate for hydrographic purposes. ✓

All geographic positions are based on the North American Datum (NAD) of 1927. Conventional traverse and triangulation methods were used throughout the project. No unconventional survey methods were used and no anomalies in closure occurred. No control stations were established during the 1983 field season, relating to this survey. ✓

The following stations were used in support of this survey: ✓

<u>Station Name</u>	<u>Signal Number</u>
*EAST CHANNEL 1923 r.m.	276
*EAST CHANNEL RM 1 1923 r.m.	277
KAYAK 1944 r.m.	302
*TERRACE 1923 r.m.	310
SHANE 1982 d.m.	351
SHANE AZIMUTH 1982 d.m.	352
*TP-11 1982 d.n.m.	353
SOUTH 1982 d.m.	354
*SKIFF 1982 d.m.	402
Cal Pole 1983 d.n.m.	410

*Offshore Control Station, i.e. on islands
r=recovered m=monumented or marked d=described n=not ✓

For additional information, refer to Horizontal Control Reports, OPR-P146-FA-82 and OPR-P146-FA-83.

G. Hydrographic Position Control

The primary electronic positioning system for both ship and launch hydrography was Teledyne Hastings Raydist system used in the range-range mode. ✓
Motorola Mini-Ranger III equipment was used in the range-range mode for hydrography on the extreme western portion of the survey and to calibrate the Raydist equipment. All bottom samples taken by launches were positioned by Mini-Ranger and those by ship were positioned using Raydist.

Careful observation of the strip chart recorder insured prompt detection of lane jumps or problems with the Raydist system. A portion of 1982 hydrography was rejected due to lane jumps and the area was resurveyed during the 1983 field season. (Refer to the Abstracts of Positions in the appendices following the text.) Table V, Raydist Lane Jumps, is a listing of all lane jumps encountered on the survey. ✓

Two problems were experienced with the Raydist equipment. On 9 August 1982 the crystal oven unit (TA-96 ZC16) was replaced by a spare ZC16 because the frequency of the original oven unit was varying with voltage. No problems were encountered with the replacement unit. The second problem, causing the lane jumps, was found to be a defective ship Raydist antenna. This was replaced during the Winter inport period. See Electronic Control Report, OPR-P146-FA-82 for further details. No problems were encountered with the Raydist units nor did lane jumps occur during 1983 operations. ✓

Table V
Raydist Lane Jumps

1982

<u>JD</u>	<u>Vessel</u>	<u>Position Numbers</u>	<u>Remarks</u>	
222	2020	753-1045	5 lanes were lost on Pattern 1. This data was rejected and re-run in 1983.	✓
223	2020	1366-1367	Immediately after position 1366, a lane jump occurred. Hydro stopped for calibration and restarted afterwards with position 1367. No data was lost.	✓
223	2020	1373-1374	One lane was gained on each pattern after position 1373. Hydro stopped for calibration and restarted with position 1374. No hydro was lost.	✓
223	2020	1409	After completion of hydro for this day and enroute to calibration, 10 lanes were gained on pattern 2. No data was lost as a result.	✓

Calibration of the Raydist was accomplished using three Motorola Mini-Ranger III transponders and RK 561 with a check fix computation. Calibrations were performed at the beginning of hydrography and periodically throughout the survey to ensure accounting of full and partial lanes. Calibrations were routinely performed at dawn and dusk, and whenever a lane jump was suspected or indicated by RK 112 NAVERR 01 message. ✓

Mini-Ranger baseline calibrations (BLC's) were conducted in accordance with Appendices M and S of the PMC OORDER. They were performed on a baseline measured to Third Order accuracy by a Hewlett-Packard 3808A EDM. ✓

Two BLC's were conducted in Kodiak, Alaska on 30 July and 12 August 1982 for the 1982 field work. The controlling BLC's for the 1983 field work were conducted: On JD 139 (console 703) in Washington Bay, Alaska; JD 140 (consoles B0323 and 701) and JD 143 (console 506042) in Juneau, Alaska; JD 196 (consoles B0323 and 703) and JD 199 (consoles 701 and 506042) in Kodiak, Alaska; with the last set taking place on JD 251/252 for all consoles in Seattle, WA. ✓

The final correctors for the Mini-Ranger Electronic positioning instruments were calculated by taking the mean value from the initial and final BLC's. ✓

No unusual weather conditions adversely affected positional accuracy of the survey. No hydrography was conducted with weak control geometry or less than minimum signal strength values as determined by BLC data. ✓

Launch Mini-Ranger antennas are located over the transducers, eliminating ANDIST corrections to the launch data. The ship used the skeg transducer with an ANDIST of 32.8 meters during 1982. In 1983, the midship transducer under the Raydist antenna, i.e., no ANDIST, was used. ✓

No problems were encountered with the Mini-Ranger equipment during either the 1982 or 1983 field season. ✓

For more information refer to the Electronic Control Reports, OPR-P146-FA-82 and OPR-P146-FA-83. The Abstracts of Correction to Electronic Position Control are included in the appendices following the text. ✓

H. Shoreline

Shoreline within the limits of this survey was taken from the photomanuscripts TP 00629 and TP 00927, scale of 1:20,000. ✓

Field edit was completed on TP 00629, with TP 00927 only partially completed. This work was accomplished during the 1982 field season while performing hydrography on surveys H-10025, H-10026 and H-10039. Field edit information from 1982 surveys was transferred to this survey. During the 1983 field season, registered Class III manuscripts were provided, thus eliminating the need for field edit. Refer to the H-10039 Descriptive Report for further information. ✓

The manuscripts for this survey as revised by field edit or hydrography are adequate for charting. ✓

Refer to Descriptive Reports H-10025, H-10026 and H-10039 along with Field Edit Report, OPR-P146-FA-82 for further information. ✓

I. Crosslines

A total of 96.8 nm of crosslines were run comprising nine per cent of the main-scheme hydrography. Agreement between main-scheme and crossline soundings is excellent, and meets the specifications of Section 1.1.2 part B of the Hydrographic Manual. ✓

J. Junctions

This survey junctions with three 1:10,000 scale contemporary surveys: H-10026, H-10039 and H-10108. Survey H-10026 was completed in 1982, H-10039 and H-10108 were run concurrently with this survey and were completed in 1983. All junctions with this survey are excellent and meet the specifications of Section 1.1.2, part B of the Hydrographic Manual. ✓

K. Comparison with Prior Surveys

Only one AWOIS item, located near the western limit of this survey, was investigated, item number 50276, a five fathom shoal indicated on a ^(BA-39177) reconnaissance survey from 1944 (Latitude 57°11'36.0"N, Longitude 156°17'03.0"W). A hydrographic development in this area was run with 50 meter line spacing (Pos. No. 3592-3608). The least depth obtained in the vicinity was ~~10.9~~ ^{11.1} fathoms at Latitude 57°11'36"N, Longitude 156°17'19.8"W (Pos. No. 3602). ✓

Located between one quarter and a half mile to the north of the ~~10.9~~ ^{11.1} fathom sounding are three dangerous shoals discovered during field operations. The shoalest depth obtained was a 0.8 fathom least depth acquired by divers (Pos. No. 4418) at Latitude 57°12'01.2"N, Longitude 156°17'00.3"W. The other two shoals are a ~~1.8~~ ^{11.1} fathom shoal (Pos. No. 4420) at Latitude 57°11'58.6"N, Longitude 156°17'07.4"W and a ~~3.8~~ ^{11.1} fathom shoal (Pos. No. 2646 + 2) at Latitude 57°11'54"N, Longitude 156°17'25"W. (Refer to Development Sheet "A", scale 1:5,000). ✓

It is recommended that the soundings from H-10040 supercede those of 1944 recon survey in this area. However, due to the irregular bottom topography and lack of contemporary junction surveys in this area, FAIRWEATHER suggests retention of the five fathom shoal as an AWOIS item until modern junction surveys are completed in the adjoining survey area west of this survey. *See Evaluation Report Section 7.* ✓

Comparisons were made between this survey and two prior surveys, H-6925 "Foggy Cape to Kodiak Island" dated 27 September 1943, scale 1:120,000, and H-4398 "Portage and Wide Bays-Offshore" dated 26 August 1924, scale 1:80,000. ✓

Basically, both H-6925 and H-4398 agreed well with H-10040 considering the extremely irregular bottom. Due to the scale of the prior surveys, methods used in obtaining the soundings and the bottom topography, discrepancies were found as noted in Table VI, Discrepancies with Prior Surveys. ✓

It is recommended that survey H-10040 supercede the prior surveys in their common areas except for a few shoaler soundings that have not been properly investigated. (See indexed comparisons in Table VI.) *See Evaluation Report Section 7* ✓

This survey had been submitted as complete at the end of the 1982 field season, but was returned to FAIRWEATHER from Nautical Chart Branch, MOP-21, which had concluded that line spacing needed to be reduced due to the irregular nature of the bottom. During 1983, FAIRWEATHER reran some questionable 1982 work, halved much of the line spacing, and conducted investigations of shoal indications. Unfortunately, the 1983 field review by FAIRWEATHER erred in that it was presumed that 1982 operations had included comparison with the chart and appropriate investigation of individual shoal soundings since the sheet was submitted as completed. This presumption was incorrect. While this deficiency was not pointed out to FAIRWEATHER when the survey was returned, this should have been found during field review. A contributing factor to it's not being found is that the onboard prior surveys were at scales other than the scale of the survey. Thus, only individual soundings were being compared. Upon return to Seattle, in an effort to speed-up post processing, all prior surveys were blown up to the scale of the survey. It then became readily evident that some shoal sounding investigations were never conducted. Most occur on the central sheet (FA 20-1C-82) which involved only limited investigation in 1983. ✓

On the positive side, fortunately there are not many soundings in need of further investigation all of which are in deep water, i.e., 10 fms to 147 fms. The cited shoaler prior soundings cannot be superceded until further investigation is conducted. This should be no problem for FAIRWEATHER 1984 operations. *These investigations were made during 1984*

It will, however, be rather disconcerting if such investigations reveal that shoal prior survey soundings exist between the existing line spacing. If so, it is certainly an indication that, in this rather unique irregular bottom area, some consideration should be given to again reducing the line spacing of the deeper waters or conducting a BS³ investigation of the area.

Table VI
Discrepancies with Prior Surveys *See Evaluation Report Section 7.*

H-4398

<u>Latitude (North)</u>	<u>Longitude (West)</u>	<u>Prior Survey Depth</u>	<u>H-10040 Depth</u>	<u>Position Number</u>
57/20/41	156/05/32	35	61	4555+1
57/20/51	156/04/45	20	15-18	4668+3,4
57/21/09	156/05/48	20	14-18	1530+4,5
57/21/36	156/07/07	18	14	1518+3
57/21/48	156/06/24	14	10	1414+3
57/22/22	156/05/41	24	34	2906+1
57/21/52	156/03/06	26	34-55	1417+4; 1600
57/21/56	156/03/17	21	35	1600+1
57/22/34	156/03/25	26	41	1637
57/23/51	156/02/39	37	20	2790+4
+*57/19/09	156/02/05	33	71	4914+1
57/20/23	156/04/33	27	21	4746+1
+*57/19/30	156/10/34	48	95	1235
57/18/48	156/10/59	51	32-44	4817+1; 644
*57/18/10	156/10/45	69	87	8092+5
57/18/15	156/11/18	75	60-67	669+4-5; 8093+2-5
57/18/42	156/14/09	60	17	4825+4
57/17/54	156/13/54	35	57	674+5
*57/17/46	156/13/49	37	46-50	2572+1-2
*57/17/44	156/13/36	49	61	2573
57/16/48	156/07/58	124	110	144
*57/16/30	156/05/20	87	94-100	8182+4; 733+1
*57/16/17	156/04/55	85	91-93	8265+3,4; 8182+2
*57/15/52	156/03/37	85	92-95	8192; 8235+5
*57/15/39	156/02/44	78	100-101	8234+4,5; 8229+1,2

H-6925 *See Evaluation Report Section 7*

57/11/26	156/12/03	24.5	18-20	51+2,3
+*57/17/33	156/05/16	19	96	694+5
57/17/43	156/06/26	104	96	8108+2,3
*57/18/18	156/06/44	96	100-107	8087+2; 664+2
+*57/18/30	156/06/54	102	114	8071+3
57/19/30	156/07/40	72	20-36	1238+1; 3109+3

Table VI (Cont'd)

<u>Latitude (North)</u>	<u>Longitude (West)</u>	<u>Prior Survey Depth</u>	<u>H-10040 Depth</u>	<u>Position Number</u>
57/21/20	156/08/27	44	32-35	1405+1
57/21/57	156/08/37	32	14	1523+2,3

+Should be further investigated during 1984 field season

*Shoaler sounding from prior survey that should continue to be charted until verified or disproved

L. Comparison with the Chart

Comparisons were made with Chart 16570 "Portage and Wide Bay:", 8th Edition, 18 February 1978, scale 1:50,000, and Preliminary Chart 16568 "Wide Bay to Cape Kumlik:", 5th Edition, 9 December 1978, scale 1:106,600.

As with the prior surveys, general comparisons between H-10040 and the charts are good. Table VII, Discrepancies with the Charts lists differences between the charted soundings and H-10040. The majority of these discrepancies are due to an irregular bottom which was not adequately developed during prior surveys. Soundings from this survey, H-10040, should supercede the charted soundings within their common areas except as noted on Table VII.

Table VII
Discrepancies with the Chart

Chart 16570

<u>Latitude (North)</u>	<u>Longitude (West)</u>	<u>Depth (fathoms)</u>		<u>Position Number</u>
		<u>Chart</u>	<u>H-10040</u>	
57/23/59	156/03/18	43	28	1825
57/21/15	156/03/39	53	23	1576+2
57/21/16	156/09/35	34	38	4529+3
57/21/54	156/09/02	26	17	4582
57/20/48	156/06/08	23	18	1559+2
57/20/06	156/11/09	119	112	601+2
*57/20/03	156/09/18	95	104	598+4
57/20/03	156/04/38	19	24	592+3
57/19/55	156/08/21	99	84	3055+3
57/19/14	156/13/19	46	17	635+6
*57/19/00	156/07/19	147	160	8046+5
+*57/18/28	156/15/19	10	18	3456+2
*57/18/16	156/08/00	83	94	140+3
*57/18/06	156/06/43	90	100	8087+1
*57/18/06	156/10/48	69	87	8072+5
*57/17/43	156/13/38	49	61	2573
57/16/48	156/10/39	113	108	8156+2
57/17/36	156/16/57	16	12	3200+3
57/16/40	156/16/30	15	9.2	3442+1,3

Table VII (Cont'd)

<u>Latitude (North)</u>	<u>Longitude (West)</u>	<u>Depth (fathoms) Chart</u>	<u>H-10040</u>	<u>Position Number</u>	
+*57/18/39	156/02/48	20	75	4449+2	
+*57/17/46	156/03/42	19	88	8103+5	✓
+*57/17/35	156/05/21	50	98	8106	
+*57/16/46	156/04/57	36	94	8148+4	

+should be further investigated during 1984 field season
 *shoaler sounding from chart that should continue to be charted until verified or disproved. ✓

After noting the extremely irregular bottom and performing comparisons with the chart and prior surveys, nine areas have been identified as needing additional work where shoaler soundings fall between sounding lines on H-10040. (The nine areas are indicated on Tables VI and VII.) If these shoaler soundings prove to be correct, it is recommended that additional work be completed such that the line spacing be reduced or BS³ survey be conducted as recommended in the discussion of prior surveys in this report. ✓

Divers investigated several uncharted shoal areas for least depths. These depths were determined with a circle search locating the shoalest point and then measuring the least depth with a lead line. All diver least depths are identified in Table VIII, Newly Found Dangers to Navigation.

See Induction Report Section 7.

Table VIII
Newly Found Dangers to Navigation

<u>Latitude (North)</u>	<u>Longitude (West)</u>	<u>Depth (Fathoms)</u>	<u>Position Number</u>	<u>Date Reported to U.S. Coast Guard</u>
57/11/56.3 ✓	156/16/03.6	5.8* 5.9 MLLW	4413	26 AUG 82
57/12/31.1 ✓	156/15/12.7	3.2* 3.3 MLLW	4414	26 AUG 82
57/12/01.2 ✓	156/17/00.3	0.8* 1.0 MLLW	4418	26 AUG 82
57/11/58.2 ✓	156/17/07.4	1.8* 2.0 MLLW	4420	27 AUG 82
57/11/54	156/17/25	3.5 4.0 MLLW	2646+2	Not reported
57/20/36.8	156/06/53.6	3.2* MLLW	5500	17 June 83, 1st rp't 1 AUG 83, revised rp't

*diver least depth

Copies of all reports sent to the U.S. Coast Guard regarding these dangers are included with the appendices following the text. ✓

M. Adequacy of Survey

With the exception of the ~~nine~~ ^{ELEVEN} shoal soundings that must either be further investigated or retained as identified in Section L, Comparison with the Chart, this survey is complete and adequate to supercede all prior surveys in their common areas. ✓

N. Aids to Navigation

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

O. Statistics

	<u>1982</u>				<u>Total</u>	
	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2020</u>		
Positions	271	482	---	1856	2609	✓
Nautical Miles	45.9	88.4	---	536.7	671.0	
Bottom Samples	---	1	---	60	61	
Velocity Casts	---	---	---	3	3	

	<u>1983</u>					
	Positions	904	401	1		853
Nautical Miles	207.3	100.3	---	255.3	562.9	
Velocity Casts	---	---	---	7	7	

Combined Totals 1982-1983, 1984

Positions	1175 1679	883 1713	X 2	2709 2448	4767 5842	
Nautical Miles	253.2	188.7	---	792.0	1233.9	
Bottom Samples	---	1	---	60	61	
Square Miles	---	---	---	---	76	
Velocity Casts	---	---	---	10	10	

No current or magnetic stations were performed within the limits of hydrography on this survey. However, six magnetic stations were observed along the shoreline adjacent to this survey. See Magnetics Report, OPR-P146-FA-83 for further details. ✓

Tide control for this survey was from tide station 945-8461. For further details see Field Tide Notes, OPR-P146-FA-82 and OPR-P146-FA-83. ✓

P. Miscellaneous

As required in Section 8.4 of Project Instructions, LORAN-C rates were obtained concurrently with hydrographic position data during ship operations. ✓

The area is used by the commercial fishing industry both as fishing grounds and while transiting to and from harbors of refuge. Major ship traffic transits Shelikof Strait to and from the Anchorage area, but generally does so in the deep waters offshore of this survey area. ✓

Q. Recommendations

FAIRWEATHER should complete developments of the shoal soundings as mentioned in Sections K, Comparison with Prior Surveys and L, Comparisons with the Chart, during the 1984 field season. Data resulting from these developments should be processed as field examinations. *See Descriptive Report, 1984* ✓

Send prior surveys to field units at the scale of the survey for ease of comparison. It is ludicrous that project instructions ask if we want this.

R. Automated Data Processing

The following is a list of the Hydroplot programs used for data acquisition and processing during this survey. ✓

<u>Number</u>	<u>Program Name</u>	<u>Version Date</u>
RK 112	R/R Real Time Plot	03/19/81
RK 112	R/R Real Time Plot	08/04/81
RK 201	Grid, Signal and Lattice Plot	04/18/75
RK 211	R/R Non-real Time Plot	02/02/81
RK 212	Visual Station Load and Plot	04/01/74
RK 300	Utility Package	10/21/81
RK 330	Data Reformat and Check	05/04/76
PM 360	Electronic Corrector Abstract	02/02/76
AM 500	Predicted Tide Generator	11/10/72
RK 530	Layer Corrections for Velocity	05/10/76
RK 561	H/R Geodetic Calibration	02/19/75
RK 561	H/R Geodetic Calibration	12/01/82
AM 602	Elinore	05/21/75
AM 602	Elinore	12/08/82

During the 1982 field season, an old copy of program RK 112, R/R Real Time Plot (version 03/19/81) was used to obtain the hydrography. This version did not record compass headings with sounding data as does the later version. As a result, each data line of hydrography obtained in 1982 by the ship (2020) was edited with the correct value to adequately plot the sounding position since an ANDIST of 32.8 meters was used. The problem was eliminated in 1983 when the 08/04/81 version of RK 112 was used. ✓

S. Referral to Reports

The following separate reports contain additional information about OPR-P146-FA, Shelikof Strait, for the 1982 and 1983 field seasons. ✓

<u>1982</u>	<u>OPR-P146-FA-82</u>	<u>Date submitted to PMC</u>
	Horizontal Control Report	AUG 82
	Electronic Control Report	SEP 82
	Field Edit Report	SEP 82
	Corrections to Echo Soundings Report	SEP 82
	Geographic Names Report	SEP 82
	Field Tide Note	SEP 82
<u>1983</u>	<u>OPR-P146-FA-83</u>	
	Horizontal Control Report	NOV 83
	Electronic Control Report	DEC 83
	Corrections to Echo Soundings Report	NOV 83
	Field Tide Note	NOV 83
	Magnetics Report	DEC 83

1982
FIELD TIDE NOTE

OPR-P146-FA-82

Wide Bay, Alaska

Tide Gage (945-5500) Seldovia, Alaska served as reference station for predicted tides for the entire Wide Bay project as stated in Project Instructions OPR-P146-FA-82. Because leveling was required at the beginning and end of project OPR-P114-RA-82, which was run concurrently with OPR-P146-FA-82, leveling of station (945-5500) Seldovia, Alaska was not conducted by FAIRWEATHER personnel. See Field Tide Note for P114-RA-82 for level data applicable to OPR-P146-FA-82. ✓

Predicted tide correctors were interpolated by the hydroplot system using program AM 500. All times of both predicted and recorded tides were based on Universal Coordinated Time. All predicted tides were acceptable for hydrography with no discrepancies in data attributable to tides errors. ✓

Tide station (945-8461) Wide Bay, Alaska (Mouth of Short Creek) located at latitude 57° 21' 54"N, longitude 156° 24' 07"W was the primary gage during this project. Opening levels were run to four existing Temporary Bench Marks (TBM's) on 04 June 1982 (J.D. 155). Two additional Bench Marks stamped 8461E and 8461F were established and included in leveling observations. A closure of 7.14mm was obtained for the entire run of 0.6km. Closing levels were run on 20 August 1982 (J.D. 232) to the above-mentioned marks resulting in a 27.10mm closure. This closure is 6.1mm above the acceptable limits set forth by the Hydrographic Manual, Fourth Edition, Section A.8.4. A comparison of opening to closing levels shows no sign of any vertical movement in the marks or tide staff. This error is presumed to be located at set-up number one between the staff stop and TBM #1. This area is a sand bar which covers at high water and is very soft sand, making stable set-ups difficult. ✓

OPERATIONAL PROBLEMS

ADR Gage 6402A4596M2 operated well until 4 July 1982 (J.D. 185) when it was discovered that the gage was skip and double punching. On 15 July 1982 (J.D. 196) the gage was removed and replaced with ADR Gage 7404A0407M3 at 165400 (GMT +9). A new staff to gage comparison was taken and the new gage functioned well until projects end on 20 August 1982 (J.D. 232). Gage 6402A4596M2 was found to have bad punch block pins, which were replaced in the field. The gage was tested for three days without malfunction, and then stored aboard. Table I, Gage Malfunctions, is a listing of skip and double punches found on tidal records for the period of time. ADR Gage 6402A4596M2 was operating. ✓

1982

No hydrographic data was lost as a result of skipping or double punching by the ADR gage. Interpolation may be used to provide a tidal data record for the periods of gage malfunction. ✓

MISCELLANEOUS

Overall, gage site (945-8461) proved to be a very convenient, useful location for a tide station. The ADR float well, and the tide staff, were both left at the station site to expedite gage installation for future work in the Wide Bay area. ✓

TABLE I
Gage Malfunctions

<u>Date</u>	<u>Time</u>	<u>Comments</u>
29 June	183000	Restarted
30 June	183450	Guide roller was causing right edge of tape to fray. Adjusted and restarted at 184800.
01 July	230600-233600	Skipped punches.
02 July	004200-004800	Skipped punches.
03 July	003000	Double or more punches.
	003600-013000	Skipped punches.
	013600	Double or more punches.
	014200-023000	Skipped punches.
	045400-053000	Skipped punches.
	121800	Jammed and tore punch holes.
	150600-171200	Appears good.
	171900	Double punches.
04 July	191200	Skipped.
	2012-2030	Skipped.
	0024-0030	Skipped.
	0324-0348	Skipped.
	0400	Skipped.
	0454	Double punched and tore tape.
	0554	Good.
	0806	Double punched and tore tape.
	0830-0854	Good.
	0900	Skipped.
	1006	Double punched, then skipped.
	1100-1624	Good.
1630-1654	Skipped.	
1730	Skipped.	
1754-1836	Skipped.	
1948	Double punched and skipped.	

1982

Table I, Gage Malfunctions, Cont.

<u>Date</u>	<u>Time</u>	<u>Comments</u>
05 July	0106	Good.
	0112	Double punched, skipped.
	0130-0342	Good.
	0348	Double punched, skipped.
	0436-0512	Good.
06 July	0518	Double punched, skipped.
	2142	Good.
	2148	Double punched, skipped.
	2224	Good.
07 July	0624	Good
	0630	Double punched, jammed. ✓
08 July	031800	Restarted.
09 July	1700	Double punched, skipped.
	1718-2142	Good.
	2148	Skipped.
	2154	Good.
	2312-18	Skipped.
10 July	2324	Good
	0442-54	Skipped.
	0500	Good.
	2342	Skipped.
11 July	2354	Skipped.
	0518-30	Skipped.
	0542-54	Skipped.
	1000	Skipped.
	1706-12	Skipped.
	1824-36	Skipped.
	2242	Skipped.

Submitted by:

Arthur E. Francis

Arthur E. Francis
Ensign, NOAA

Approved by:

Walter F. Forster

Walter F. Forster
Commander, NOAA
Commanding Officer

1983

The primary tide gauge (945-7283) Kodiak, Alaska served as reference station for the predicted tides for the entire Wide Bay project as stated in the Project Instructions, OPR-P146-FA-83. Leveling and periodic maintenance of this station are performed by the Pacific Tide Party. ✓

Predicted tide correctors were interpolated aboard the FAIRWEATHER using the program AM 500 dated 10 Nov 72. ✓

All times of both predicted and recorded tides are expressed in Universal Coordinated Time. All predicted tides were acceptable for hydrography with no discrepancies in data attributable to tide errors. ✓

Tide station (945-8461) Wide Bay, Alaska located at Latitude 57°21'54"N, Longitude 156°24'07"W was the field tide gauge in support of this project. Opening levels were run on 28 May 83 between the tide staff mounted on the pier ruins, and five bench marks established by FAIRWEATHER personnel (one of which was established on 27 May 83). A closure of four millimeters was obtained for the entire run of approximately 0.6 nautical miles. ✓

A second tide staff was mounted on the pipe casing with the tide gauge on 27 May 83 (JD 147). The purpose of the additional staff was to allow gauge to staff comparisons during times when the pier staff was dry or in the surf zone. Gauge to pipe staff comparisons from 27 May 83 to 24 Aug 83 established a gauge reading of 11.02 feet for the zero elevation of this staff. A series of simultaneous staff comparisons made on 9 July 83 (JD 190) found a difference of 8.16 feet to exist between the staff mounted on the standpipe and the shallower staff mounted on the pier ruins. These comparisons established a gauge reading of 19.18 feet for the zero mark on the pier staff. Tide gauge records from 27 May 83 to 24 Aug 83 indicate that the gauge reading for the pier staff zero should be 19.34 feet. The reason for this is probably due to errors introduced by reading a staff in a surf zone as well as time delays associated with transiting from the gauge to the pier staff. ✓

Closing levels were run on 24 Aug 83 (JD 236) to the same five bench marks with a closure of four millimeters. A comparison of opening to closing levels showed no sign of any vertical movement in the marks or tide staff. ✓

Operational Problems

Fisher Porter ADR gauge 73C4A1380M17 operated without a problem from the date of installation until 4 Aug 83 (JD 216) when the punch block jammed while removing data. High winds and seas prevented the repairing of the gauge until 6 Aug 83 (JD 218). During this period of approximately 45 hours when tidal data was not collected, some hydrography was conducted. Interpolation can be used to provide a tidal record for the period of the gauge malfunction. No hydrographic data was lost due to this malfunction. ✓

Approval Sheet

During field operations, the Commanding Officer inspected all field sheets and data on a daily basis. All survey sheets, reports and records are accurate. This survey is being submitted as complete, however, additional field work is required. Refer to Sections K, Comparison with Prior Surveys, and L, Comparison with the Chart. ✓

Submitted by:

Kathy Anderson
for Craig Bailey
LTJG NOAA

Approved by:

Christian Andreasen
Christian Andreasen
CAPT NOAA
Commanding Officer



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA Ship FAIRWEATHER S220
Fleet Post Office
Seattle, Washington 98799

26 August 1982

Commander
17th Coast Guard District
P.O. Box 3-5000
Juneau, Alaska 99802

Dear Sir:

The NOAA Ship FAIRWEATHER has recently completed hydrographic surveys of NW Wide Bay to West Channel Island and offshore surveys between Imuya Bay to Cape Igvak on the south Alaska peninsula.

The following hazards to navigation were found at the entrance to Imuya Bay to be uncharted:

1. A 0.7 fathom shoal in a charted area of 14 fathoms at Lat. 57°12'01"N,
Long. 156°17'00.3"W.
2. A 1.9 fathom shoal in 14 fathoms of charted water at Lat. 57°11'58.9"N,
Long. 156°17'07.5"W.
3. A 3.0 fathom shoal in 10 fathoms of charted water at Lat. 57°12'31.0"N,
Long. 156°15'12.9"W.
4. A 5.7 fathom shoal in 16 fathoms of charted water at Lat. 57°11'56"N,
Long. 156°16'03"W.

Mariners are to exercise caution when entering Imuya Bay. Imuya Bay may have additional rocks or shoals that are not charted. Surveys in Imuya Bay will continue in 1983. Charts affected are 16568 and 16013.

The following hazards to navigation were discovered between Cape Kayakliut to East Channel Island and are uncharted:

5. Two rocks at 57°19'57"N, 156°20'09"W and 57°19'58"N, 156°20'09.5"W,
located on the edge of the shallow draft passage between Titcliff
and Slaughter Islands. The passage between Slaughter and Titcliff
Island at the northern portion has a controlling depth of 2.3 fathoms
and is restricted to a channel width of 40 yards.
6. A 1.7 fathom shoal located at the western edge of a reef at 57°19'57.5"N,
156°20'00"W.
7. A 4.5 fathom shoal in 8 fathoms of charted water at 57°21'05.0"N,
156°17'35.5"W.
8. A 5.0 fathom shoal in 6 fathoms of charted water at 57°21'04.6"N,
156°17'30.1"W.



Mariners are to note items 7 and 8 constitute the controlling least depths for the shallow draft passage between Slaughter and Hartman Island.

9. An 8.6 fathom isolated sounding in 20 fathoms charted depth at 57°23'37.6"N, 156°13'21.2"W between West Channel Island and Channel Rock leading to Wide Bay. ✓
- ✓ 10. A 7.3 fathom sounding in 9 fathoms of charted water at 57°22'57"N, 156°13'24.5"W. ✓
11. A 2.2 fathom sounding on a charted 5 fathom curve at 57°23'14.5"N, 156°15'28.0"W between Terrace and West Channel Island. ✓
12. A 0.9 fathom sounding on a 5.5 fathom charted sounding at 57°19'51.5"N, 156°17'52.5"W. ✓
13. A 9.7 fathom sounding on a 20 fathom charted depth at 57°22'15"N, 156°12'47"W. ✓
14. A 2.4 fathom sounding near a charted 6.5 fathom depth at 57°18'41.4"N, 156°17'56.5"W. ✓
15. A 4.6 fathom sounding on a charted 8 fathom depth at 57°19'08.5"N, 156°18'09.5"W. ✓

Charts affected are 16568, 16570, and 16013.

The following hazards to navigation were found on a reconnaissance survey line running to Aniakchak Bay or reported to the FAIRWEATHER by fishing vessels.

16. A 7.5 fathom shoal at position approximate 56°41.9'N, 157°20.25'W at the entrance to Aniakchak Bay. ✓
17. The fishing vessel, WESTERN DAWN, reported a rock awash 3.3 miles south by east of Cape Kunmik at position approximate Lat. 56°43.18'N, Long. 157°08.70'W. ✓
18. The fishing vessel, EAGLE, reported a shoal 4.8 miles SSE of Cape Kunmik at position approximate Lat. 56°41.78'N, Long. 157°07.17'W. ✓

Charts affected are 16568 and 16013.

Sincerely,



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

Attachments

cc: Director; Pacific Marine Center
C351, Chief, Requirements Branch

8th Ed., Feb. 18/78

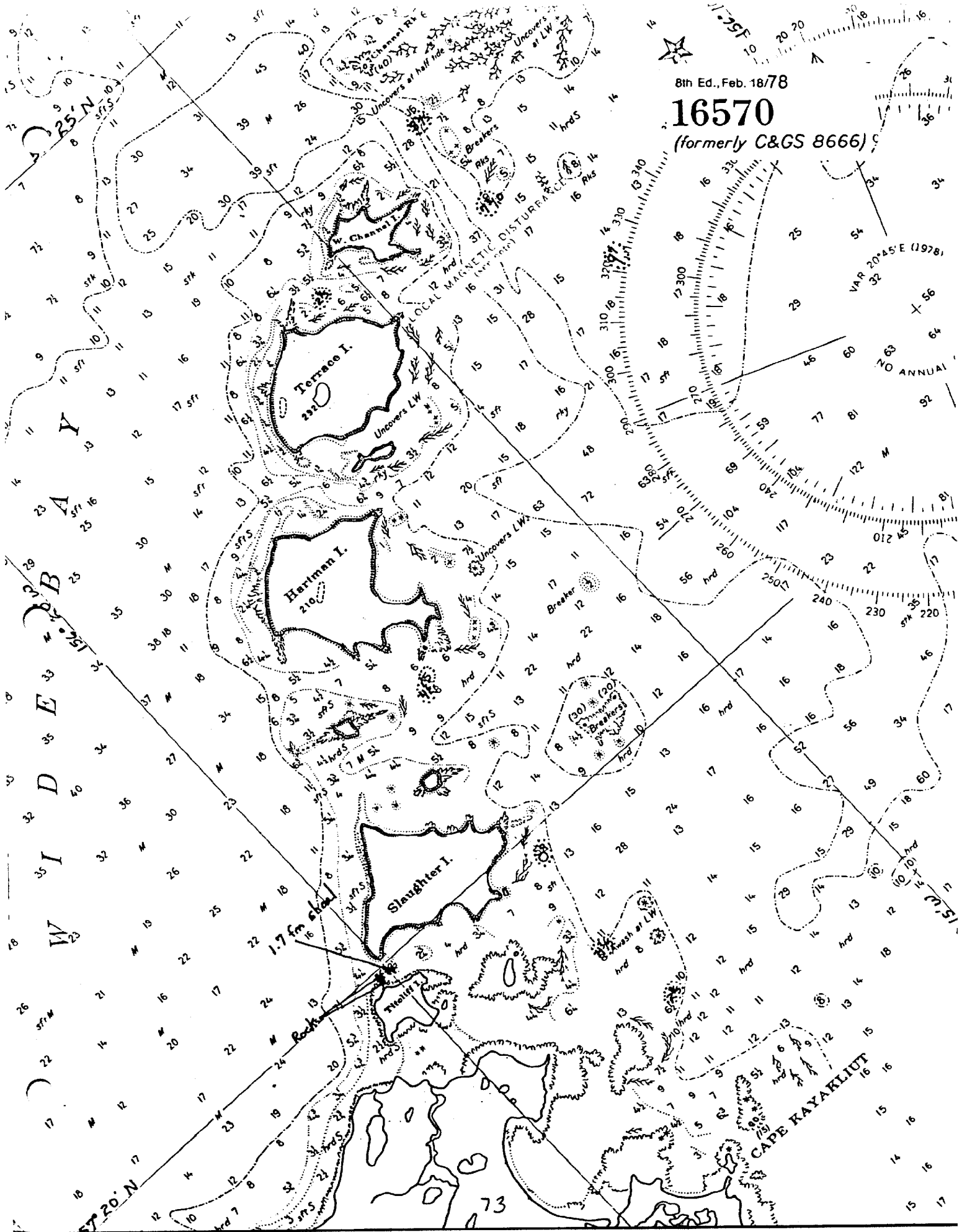
16570

(formerly C&GS 8666)



VAR 20°45'E (1978)

NO ANNUAL



W I D E B A Y

CAPE KAYAKLIUT

73

CAPE KAYAKLIUT

2569

IMUYA BAY

Waterfall

High flat topped island with vertical sides

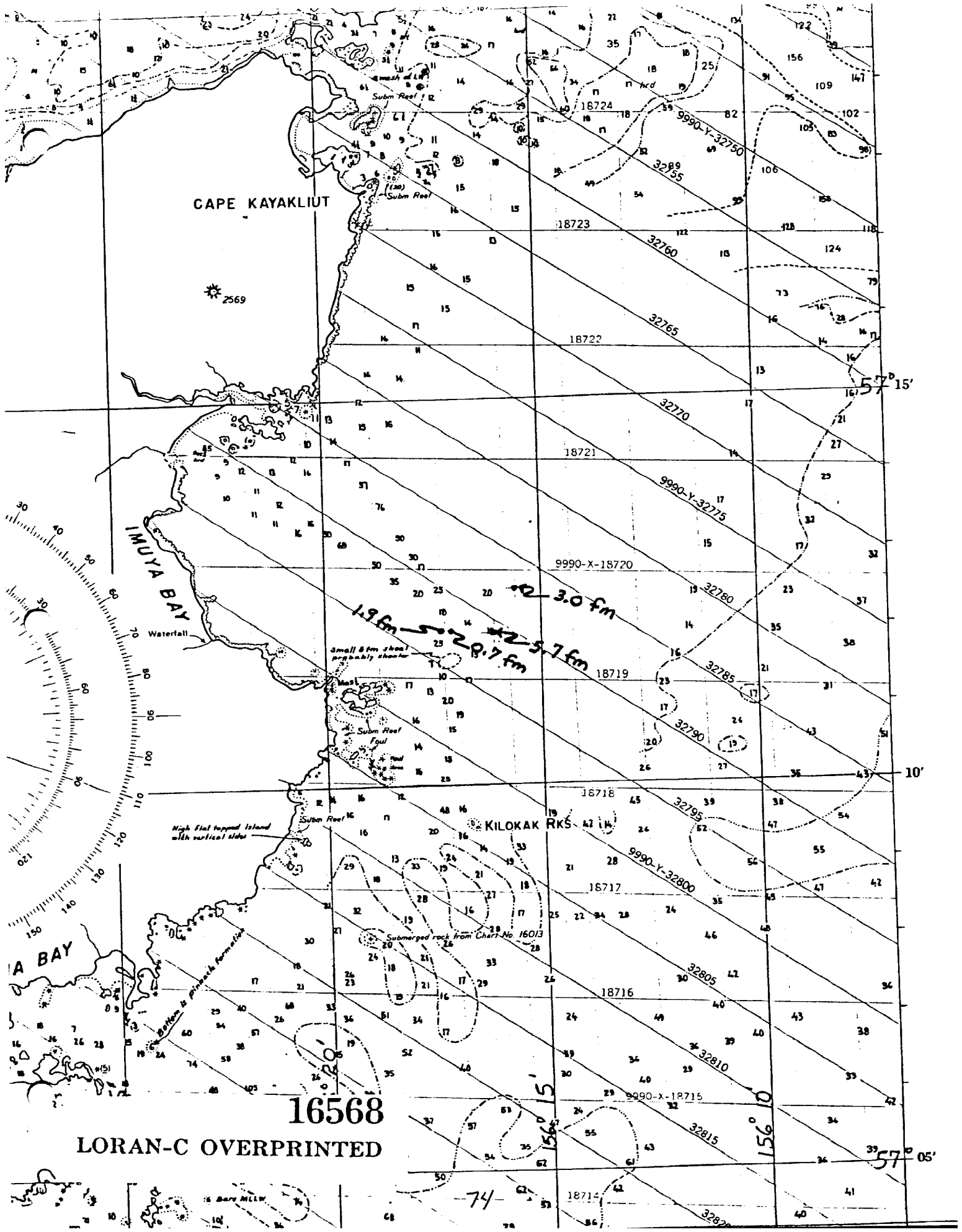
Bottom is pinkish formation

Small 6 fm shoal probably shoals

KILOKAK RKS

16568

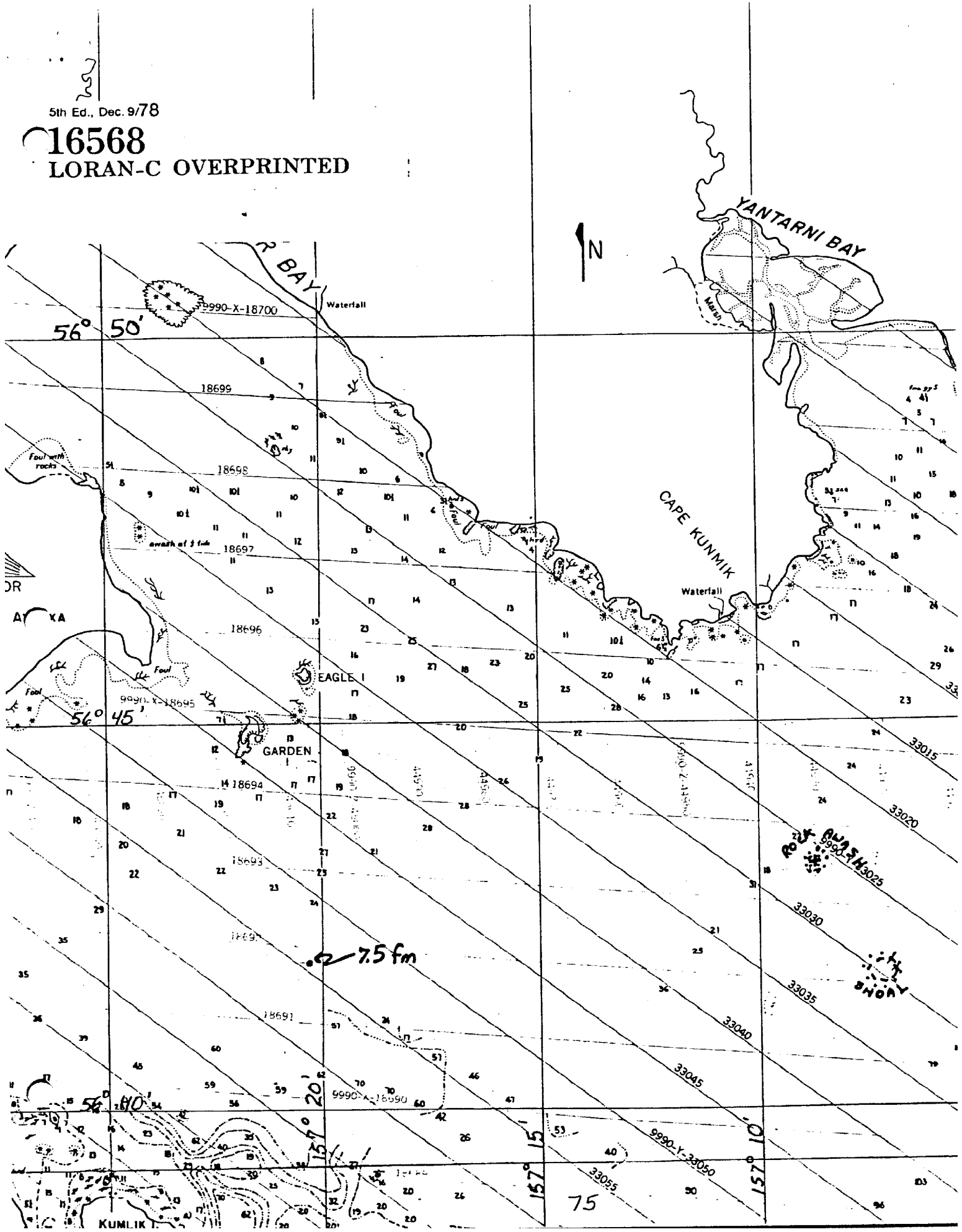
LORAN-C OVERPRINTED



5th Ed., Dec. 9/78

16568

LORAN-C OVERPRINTED



RTTU010W 000000Z AUG 82
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FM NOAA S FAIRWEATHER
TO CCGDSEVENTEEN JUNEAU AK
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NOAACOMD WASHINGTON DC
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UNCLAS
NOAACOMD WASHINGTON DC PASS TO C351
NOTICE TO MARINERS

THE NOAA SHIP FAIRWEATHER HAS RECENTLY COMPLETED HYDROGRAPHIC SURVEYS OF NW WIDE BAY TO WEST CHANNEL ISLAND AND OFFSHORE SURVEYS BETWEEN IMUYA BAY TO CAPE IGVAK ON THE SOUTH ALASKA PENINSULA.

THE FOLLOWING HAZARDS TO NAVIGATION WERE FOUND AT THE ENTRANCE TO IMUYA BAY TO BE UNCHARTED:

1. A 0.7 FATHOM SHOAL IN A CHARTED AREA OF 14 FATHOMS AT LAT 57-12-01 N LONG 156-17-20.3 W
2. A 1.0 FATHOM SHOAL IN 14 FATHOMS OF CHARTED WATER AT LAT 57-11-58.9 N LONG 156-17-27.5 W
3. A 3.0 FATHOM SHOAL IN 12 FATHOMS OF CHARTED WATER AT LAT 57-12-31.2 N LONG 156-15-12.0 W
4. A 5.7 FATHOM SHOAL IN 16 FATHOMS OF CHARTED WATER AT LAT 57-11-56 N LONG 156-16-23 W

MARINERS ARE TO EXERCISE CAUTION WHEN ENTERING IMUYA BAY. IMUYA BAY MAY HAVE ADDITIONAL ROCKS OR SHOALS THAT ARE NOT CHARTED. SURVEYS IN IMUYA BAY WILL CONTINUE IN 1983. CHARTS AFFECTED 16568, 16013.

THE FOLLOWING HAZARDS TO NAVIGATION WERE DISCOVERED BETWEEN CAPE KAYAKLIUT TO EAST CHANNEL ISLAND AND ARE UNCHARTED:

5. TWO ROCKS AT 57-19-57 N, 156-22-20 W AND 57-19-58 N 156-20-00.5 W, LOCATED ON THE EDGE OF THE SHALLOW DRAFT PASSAGE BETWEEN TITCLIFF AND SLAUGHTER ISLANDS. THE PASSAGE BETWEEN SLAUGHTER AND TITCLIFF ISLAND AT THE NORTHERN PORTION HAS A CONTROLLING DEPTH OF 2.3 FATHOMS AND IS RESTRICTED TO A CHANNEL WIDTH OF 40 YARDS.
6. A 1.7 FATHOM SHOAL LOCATED AT THE WESTERN EDGE OF A REEF AT 57-19-57.5 N, 156-22-20 W.
7. A 4.5 FATHOM SHOAL IN 8 FATHOMS OF CHARTED WATER AT 57-21-25.2 N, 156-17-35.5 W.
8. A 5.0 FATHOM SHOAL IN 6 FATHOMS OF CHARTED WATER AT 57-21-34.6 N, 156-17-32.1 W.

MARINERS ARE TO NOTE ITEMS 7 AND 8 CONSTITUTE THE CONTROLLING LEAST DEPTHS FOR THE SHALLOW DRAFT PASSAGE BETWEEN SLAUGHTER AND HARTMAN ISLAND.

9. AN 8.6 FATHOM ISOLATED SOUNDING IN 20 FATHOMS CHARTED DEPTH AT 57-23-37.6 N, 156-13-21.2 W BETWEEN WEST CHANNEL ISLAND AND CHANNEL ROCK LEADING TO WIDE BAY.
10. A 7.3 FATHOM SOUNDING IN 9 FATHOMS OF CHARTED WATER AT 57-22-57 N, 156-13-24.5 W.
11. A 2.2 FATHOM SOUNDING ON A CHARTED 5 FATHOM CURVE AT 57-23-14.5 N, 156-15-28.0 W BETWEEN TERRACE AND WEST CHANNEL ISLAND.
12. A 2.9 FATHOM SOUNDING ON A 5.5 FATHOM CHARTED SOUNDING AT 57-19-51.5 N, 156-17-52.5 W.
13. A 0.7 FATHOM SOUNDING ON A 20 FATHOM CHARTED DEPTH AT 57-22-15 N, 156-12-47 W.
14. A 2.4 FATHOM SOUNDING NEAR A CHARTED 6.5 FATHOM DEPTH AT 57-18-41.4 N, 156-17-56.5 W.
15. A 4.6 FATHOM SOUNDING ON A CHARTED 8 FATHOM DEPTH AT 57-19-28.5 N, 156-18-20.5 W.

CHARTS AFFECTED 16568, 16572, 16013.

THE FOLLOWING HAZARDS TO NAVIGATION WERE FOUND ON A RECONNAISSANCE

RECEIVED

JUN 20 1983

PACIFIC MARINE CENTER



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA Ship FAIRWEATHER S220
1801 Fairview Ave. East
Seattle, WA 98102

June 17, 1983

~~NOA 21~~ NOA 6/21
X4

Commander
17th Coast Guard District
P.O. Box 3-5000
Juneau, Alaska 99802

Dear Sir:

This letter confirms my radio teletype message, R 161820Z JUN 83. The following danger to navigation was discovered by the NOAA Ship FAIRWEATHER during hydrographic survey operations in Shelikof Strait, near Wide Bay. This danger applies to Chart 16570 and the eastern edge of Chart 16568. The danger is a shoal covered by 4.0 fathoms at mean lower low water, in surrounding depths of 15 fathoms or more. The shoal appears to be rocky in nature, and is located at *57°20'35.5"N, *156°06'55.2"W, 7.05 nautical miles bearing 066 degrees True from Cape Kayakliut.

~~NOA 21X2~~
DOW: BEHIND THIS IS H-10040
WHICH WE RETURNED TO SHIP
FOR ADDITIONAL WORK CONFIRM
WHEN H-10040 IS RESUBMITTED LSA

See the attached copy of Chart 16570 for the location of this shoal.

Sincerely,

CDR Walter F. Forster, NOAA
Commanding Officer

These are the following approval lat's

Attachment

cc: Director, Pacific Marine Center
Chart Information Section, N/CG222

LATITUDE Longitude
* 57°20'35.5" North 156°06'55.71" West





U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA Ship FAIRWEATHER
1801 Fairview Ave. E.
Seattle, WA 98102

1 August 1983

Commander
17th Coast Guard District
P.O. Box 3-5000
Juneau, Alaska 99802

Dear Sir:

The following is a revision to the Danger to Navigation letter submitted by the FAIRWEATHER dated 17 June 1983 concerning a newly discovered shoal located at $57^{\circ} 20' 35.5''\text{N}$, $156^{\circ} 06' 55.2''\text{W}$, in the vicinity of Wide Bay, Shelikof Strait.

After further investigation by divers, a least depth of 3.2 fathoms at mean lower low water as per predicted tides was determined. The location of this high point is $*57^{\circ} 20' 36.8''\text{N}$, $156^{\circ} 06' 53.6''\text{W}$.

Sincerely,

Christian Andreasen

Christian Andreasen, CDR., NOAA
Commanding Officer

cc: N/MOP - Director, Pacific Marine Center
N/CG22 - Chart Information Section

* The final approved N.P.
Latitude $57^{\circ} 20' 36.6''\text{N}$
Longitude $156^{\circ} 06' 53.70''\text{W}$



NOJ DE WTEB

CO
✓
FOO

T

RTTUZYUW RUHPTEB0065 1671820-UUUU--RUHPSUU.

ZNR UUUUU

R 161820Z JUN 83

FM NOAAS FAIRWEATHER

TO CCGDSEVENTEEN JUNEAU AK

INFO NOAMOP SEATTLE WA

ACCT CM-VCAA

BT

UNCLAS

NOAMOP SEATTLE WA PASS TO CHART INFORMATION SECTION N/CG222.

THE FOLLOWING DANGER TO NAVIGATION DISCOVERED BY THE
NOAA SHIP FAIRWEATHER DURING HYDROGRAPHIC SURVEY OPERATIONS
IN SHELKOF STRAITS PERTAINS TO CHARTS 16568 AND 16570.
A SHOAL COVERED 4.0 FATHOMS AT MLLW WAS DISCOVERED
AT 57 DEGREES 20 MIN 35 SECONDS N, 156 DEGREES
6 MIN 55 SECONDS W, 7.0 NAUTICAL MILES BEARING
66 DEGREES TRUE FROM CAPE KAYAKLIUT.

BT

#0065

NNNN

	70T
NOJ	161843Z
RC	64230

SHELKOF SIGNAL LISTING
 OPR-P146-FA-82
 FA-20-1-82 (H-10040)

EAST CHANNEL 1923 ⁹									571562 1006
276 0	57 24	3410 ⁰	156 11	557 ¹³	11				250 0026 000000
EAST CHANNEL RM-1 ^{1923 Rm 1}									571562 FAIRWEATHER
277 2	57 24	338 ²⁶	156 11	563 ⁴⁵	54				250 ⁴ 0026 330040
KAYAK 1944									571564 1011
302 3	57 17	46575	156 18	43595					250 0024 000000
TERRACE 1923									571562 1022
310 3	57 22	48321	156 16	12267					250 0095 000000
SHANE 1982									571562 FAIRWEATHER
351 0	57 15	0680 ⁴	156 20	160 ⁴	67				250 0033 000000
SHANE AZIMUTH 1982									571562 FAIRWEATHER
352 0	57 15	1122 ⁶	156 20	129 ²⁰	38				250 0033 330040
TP-11 1982									571563 FAIRWEATHER
353 0	57 11	147 ¹⁶	156 19	313 ³⁴	91				250 0023 000000
SOUTH 1982									571562 FAIRWEATHER
354 0	57 12	5208 ⁸	156 23	132 ⁸⁹	84				250 0021 000000
SKIFF 1982									571562 FAIRWEATHER
402 0	57 25	454 ²⁶	156 04	419 ²⁰	88				250 0016 000000
CAL POLE 1983									571562 FAIRWEATHER
410 0	57 26	07317	156 13	0001 ²	0				254 0000 000000
									243

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey	Supplemental Work Basic Hydrography
Field No.	FA 20-1-82
Office No.....	H-10040

LOCALITY	
State	Alaska
General Locality	Shelikof Strait
Locality	Wide Bay to Imuya Bay

19 82/83	
CHIEF OF PARTY	
CAPT. C. Andreasen	

LIBRARY & ARCHIVES	
DATE	

HYDROGRAPHIC TITLE SHEET

H-10040

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 20-1-82

State Alaska

General locality Shelikof Strait

Locality Wide Bay to Imuya Bay

Scale 1:20,000

Date of survey May 23 to June 4, 1984

Instructions dated March 2, 1984

Project No. OPR-P146-FA-84

Vessel NOAA Ship FAIRWEATHER and launches 2020, 2023, 2024 and 2025

Chief of party CAPT C. Andreasen

Surveyed by Lt. Andreen, Lt. Otsubo, Ens. Koch, Ens. Salmore, Ens. Mitchell
Ens. Timmons, CST Krick

Soundings taken by echo sounder, ~~hand lead, pole~~ ROSS Fineline 5000

Graphic record scaled by FAIRWEATHER Personnel

Graphic record checked by FAIRWEATHER Personnel

Verification

~~checked~~ by A. Almacen

Automated plot by PMC
Xynetics Plotter

Evaluation

~~checked~~ by Gordon Kay

Soundings in fathoms ~~XPSK~~ at ~~MLLW~~ MLLW

REMARKS: This additional survey work consists of investigations for least depths and unresolved items discovered while processing 1982 and 1983 field work. For more information refer to Descriptive Report, H-10040, FA 20-1-82 and the Preprocessing Examination, H-10040, dated 21 November 1983.

Separates are filed with the raw data.

Notes and check marks in black were performed during office processing.

156 15 00

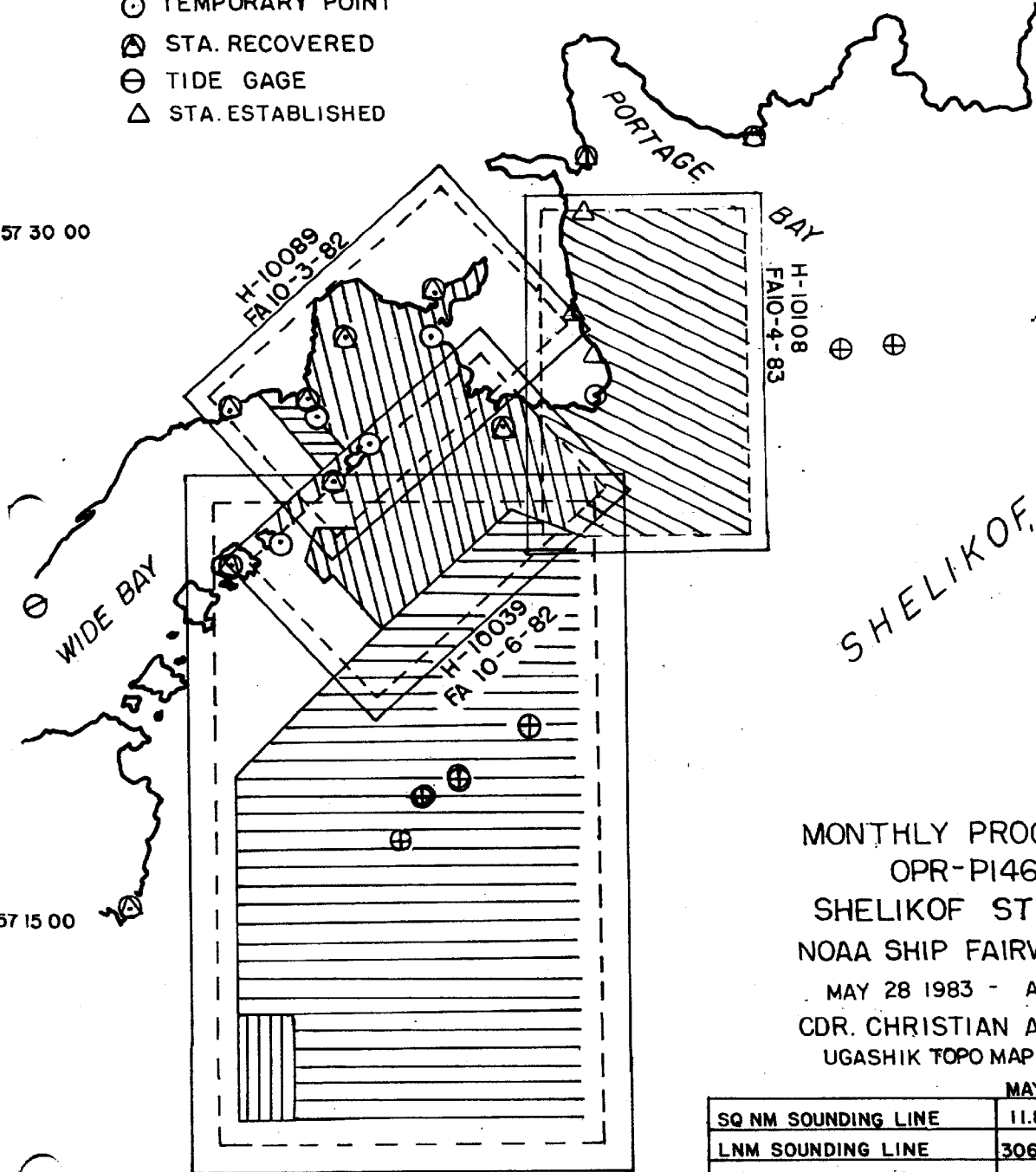
156 00 00

155 45 00

- ⊕ SV/D CAST / NANSEN CAST
- ⊙ TEMPORARY POINT
- ⊗ STA. RECOVERED
- ⊖ TIDE GAGE
- △ STA. ESTABLISHED

57 30 00

57 15 00



SHELIKOF STRAIT

MONTHLY PROGRESS SKETCH
 OPR-PI46-FA-83
 SHELIKOF STRAIT, ALASKA
 NOAA SHIP FAIRWEATHER S-220
 MAY 28 1983 - AUGUST 31 1983
 CDR. CHRISTIAN ANDREASEN, CMDG
 UGASHIK TOPO MAP 1:250,000

	MAY	JUNE	JULY	AUG
SQ NM SOUNDING LINE	11.8	9.0	2.0	26
LN M SOUNDING LINE	306.0	830.0	174.9	682
BOTTOM SAMPLES	21	102	95	116
SV/D/.NANSEN CAST	—	3	4	4
HYDRO CONTROL STATIONS	9	8	—	6
WATER SAMPLES ANALYZED	—	5	7	—
HYDROGRAPHY	///	///	///	///
LN M SIDE SCAN SONAR	—	—	4.4	—

Descriptive Report to Accompany
Supplementary Work on
Hydrographic Survey H-10040
(Field Number FA-20-1-82)

Scale 1:20,000

Year 1984

NOAA Ship FAIRWEATHER S220

Capt. Christian Andreasen, Commanding Officer

A. Project

This hydrographic survey was conducted in accordance with Project Instructions, OPR-P146-FA-84, Shelikof Strait, Alaska dated 2 March 1984; Change No. 1 dated 9 May 1984; the Hydrographic Manual; "Data Requirements Letter" dated 13 April 1984 and the PMC OORDER. ✓

All references to the Hydrographic Manual refer to the 4th Edition updated through Change #3, 1 June 1981. ✓

B. Area Surveyed

The survey area is located in Shelikof Strait, Alaska, offshore from Wide Bay to Imuya Bay. ✓

The corner boundaries of this survey are:

Northwest Latitude 57/24/00 N, Longitude 156/17/00 W
Northeast Latitude 57/24/00 N, Longitude 156/02/00 W ✓
Southwest Latitude 57/11/00 N, Longitude 156/17/00 W
Southeast Latitude 57/11/00 N, Longitude 156/02/00 W

Hydrography completed in 1984 consists of 43 investigations of items from survey operations conducted in 1982 and 1983 that needed additional development. ✓

Field operations for the additional work commenced on 23 May 1984 (J.D. 144) and were completed on 4 June 1984 (J.D. 156). ✓

C. Sounding Vessels

Hydrographic data acquisition was conducted using FAIRWEATHER's Jensen survey launches FA-3 (2023), FA-4 (2024) and FA-5 (2025). FAIRWEATHER (2020) was used for velocity casts. ✓

D. Sounding Equipment and Corrections to Echo Soundings

Launches FA-3 (2023) and FA-4 (2024) were equipped with Ross Finline 5000 narrow beam echo sounders. Serial numbers and days of usage are as follows: ✓

Ross Equipment

<u>Dates</u>	<u>Launch</u>	<u>Analog</u>	<u>Transceiver</u>	<u>Digitizer</u>	<u>Inverter</u>
144-156	2023	1097	1048	1046	1054
144-156	2024	1047	1040-6	1042	1001

 ✓

Survey Launch FA-5 (2025) was used for positioning a diver's measured least depth only (one detached position) and did not utilize any echo sounding equipment.

The Ross recorders were phase calibrated and the belt tension was checked daily and whenever the paper was changed. The echo sounder initial was continuously monitored and adjusted as necessary. Initial and phase errors were insignificant and not applicable to soundings collected on this work. All data was scanned at least twice to compare analog traces to corresponding digital depths and to insert peaks and deeps between soundings. ✓

Only one problem was encountered with the sounding equipment during this time period. On JD 146, the echo sounder power supply on FA-4 (2024), failed and was replaced. No data was lost. ✓

The survey launches FA-3 and FA-4 were tested for settlement and squat on March 6, 1984 in Shilshole Bay, Seattle, Washington. Measurements were conducted in accordance with Section 4.9.4.2 of the Hydrographic Manual. Both launches were tested at speeds ranging from idle to top speed at 200 RPM increments. A Zeiss Ni 2 level was used to read a stadia rod held over the transducer once launch speed was obtained. A tide staff was read simultaneously with the stadia rod to correct for tidal influences. The results were used to plot settlement and squat curves for each launch. ✓

According to Section 4.9.4.2 of the Hydrographic Manual, settlement and squat correctors shall be determined to the nearest 0.2 feet. However, for surveys in fathoms, Table 4.4 and Section 4.9.2 state that corrections need not be applied for correctors less than 0.1 fathom. In addition, there are no means available for the Hydroplot system to accept corrector increments of less than 0.1 fathoms. Using this criteria, launches FA-3 and FA-4 do not need settlement and squat correctors applied at any speed, when performing surveys in fathoms. ✓

Bar checks were performed twice daily when possible, i.e., weather/sea conditions permitting, equipment functioning, etc. Bar check data when combined with the velocity correctors determined launch TRA values. For this survey 0.4 fathoms was obtained for launch FA-3 (2023)'s TRA, whereas 0.3 fathoms was calculated for launch FA-4 (2024). All data was plotted with a TRA of 0.3 fathoms. ✓

The leadline used on FA-5 (2025) (a weighted, reinforced fiberglassed tape) was calibrated prior to the dive by FAIRWEATHER personnel. No leadline correctors are applicable. ✓

Weather conditions during this survey were variable, winds ranged from calm to 15 knots and seas from 0 to 3 feet. Corrections for heave were applied during the scanning of the echograms when required, as per Section 4.9.8.2 of the Hydrographic Manual and Hydrographic Survey Guideline #31. ✓

Velocity correctors were determined from an SV/D cast and a coinciding Nansen cast in accordance with the Hydrographic Manual, section 4.9.5.2. These casts were taken at latitude 57/17/06 N, longitude 156/06/12 W. ✓

The SV/D cast was performed using a Plessy Model 9040 Environmental Profiling System #5632 calibrated at the Northwest Regional Calibration Center (NRCC) in Seattle, Washington in February, 1984. An onboard PDP8/E FOCAL computer program was used to convert the frequency readings of the SV/D system into engineering units for determination of the sound velocity ✓

profiles. The Nansen cast used reversing thermometers #1001-68, Y99603 and Y9477 which were calibrated at NRCC in April and May, 1984 along with the Beckman salinometer #24670, calibrated at NRCC in March, 1984. ✓

The descending values of the SV/D cast at the 0.81 fathom and 7.5 fathom marks appeared questionable. The frequencies obtained were not consistent with the rest of the data from the same cast. As a result, these values were replaced by data from the Nansen cast. ✓

For more information, refer to Corrections to Echo Soundings Data in the separates following the text. ✓

E. Hydrographic Sheets

All field sheets were plotted aboard FAIRWEATHER using PDP8/E computers and Complot Plotters. All field records will be sent to Pacific Marine Center, Seattle, Washington for verification. ✓

The 43 developments were plotted as 13 groups on 11 sheets of paper as follows: ✓

<u>Developments</u>	<u>Skew</u>	<u>Size (In)</u>	<u>Sheet #</u>
A-1, 2, 3	0	18x18	1
A-4, 5, 6, 7	90	20x40	2
B-1	0	9x12	3
B-2	0	4x 4	3
C-1, 2, 3	90	18x36	4
C-4, 5, 6	45	19x36	5
D-1, 2, 3, 4, 8	90	16x26	6
D-5, 6, 7, 8, 9, 10, 11, 12, 13	90	21.7x27	7
D-14	0	5x 6	8
D-15, 16, 17, 18	45	18x28	8
E-1, 6, 7, 8, 9, 10	60	15.5x32	9
E-2, 5	0	16x 8	10
E-3, 4	0	12x10	11

All developments are at a scale of 1:5,000. ✓

F. Control Stations

Horizontal control operations for this survey were conducted by FAIRWEATHER personnel. All geodetic control stations meet or exceed Third Order, Class I specifications. All geographic positions are based on the North American Datum of 1927. ✓

Eight stations were recovered using conventional methods. No new stations were established in 1984. ✓

The following stations were used in support of this survey:

<u>Station Name</u>	<u>Signal Number</u>
*+EAST CHANNEL 1923 r.m.	276
+EAST CHANNEL RM1 1923 r.m.	277
KAYAK 1944 r.m.	302
*+TERRACE 1923 r.m.	310
*SHANE 1982 r.m.	351
SHANE Az 1982 r.m. (Raydist)	352
SHANE Az 1982 r.m. (Mini-Ranger)	399
SOUTH 1982 r.m.	354
*+SKIFF 1982 r.m.	402

r= recovered, m= monumented or marked

*Recovered in 1984, all other stations recovered 1983

+Offshore control stations.

None of the stations are plotted on the development sheets.

No unconventional methods were used, no anomalies in control adjustment or in closures were encountered. For additional information refer to the Horizontal Control Reports, OPR-P146-FA-82, OPR-P146-FA-83 and OPR-P146-FA-84.

G. Hydrographic Position Control

The hydrographic positioning systems for the 1984 shoal developments on H-10040 were the Teledyne Hastings-Raydist System, and Mini-Ranger III, both in the range-range mode.

The Red Raydist shore unit was set on station SHANE AZ 1982 (Station No. 352) and the Green Raydist shore unit was set on station EAST CHANNEL RM 1 1982 (Station No. 277) Both stations are located so that the signal path over the water is unobstructed by physical features. SHANE AZ is atop of a knoll, approximately ten meters from the edge of a sheer cliff which drops to the sea. EAST CHANNEL RM 1 is the highest point on East Channel Island. No problems were encountered with the Raydist shore stations, thus both units performed within the manufacturer's specifications.

Table I, Raydist Vessel Equipment, lists the Raydist positioning equipment used in each survey vessel and the dates on which they were used. On all launches, the Raydist antenna is located in the center of the stern requiring an ANDIST correction of 4.3 meters. The launch ANDIST was not used for shipboard processing as per RK211 computer program documentation which states that unless the launch has a heading digitizer which automatically records the launch heading, ANDIST should be 0.0.

TABLE I
Raydist Vessel Equipment

<u>Vessel</u>	<u>Transmitter</u>	<u>Navigator</u>	<u>Navigation Interphase</u>	<u>Dates (JD)</u>
FA-3 (2023)	096 083	119 021	22 22	144-145 146-156
FA-4 (2024)	028	018	10	144-156
FA-5 (2025)	090	016	16	144

Calibration of the Raydist system was done using three Mini-Ranger transponder distances and RK 561 with a check fix computation. Calibrations were done at least twice daily, at the beginning and end of hydrography. In addition, Mini-Ranger rates were periodically recorded on line to check for lane loss during operations. Calibrations were also conducted whenever lane loss seemed apparent while on line. Correctors were determined by averaging the beginning and ending calibrations for each day of hydrography.

Motorola Mini-Ranger III electronic position control system was used in the range-range mode on launch 2024 during this project after problems developed with the Raydist antenna. Mini-Ranger calibrations were conducted using theodolite intersection and the three range methods.

Table II
Mini-Ranger Vessel Equipment

<u>Vessel</u>	<u>Console-RT Pair</u>		<u>Dates (JD)</u>
FA-3 (2023)	B0323	B1398	144-156
FA-4 (2024)	703	B1419	144-156
FA-5 (2025)	506042	1649	144-156

During this project, all Mini-Ranger equipment performed according to manufacturer's specifications and there were no malfunctions. Occasional errors caused by multipath measurement and/or blocked signals were corrected during processing assuming constant course and speed.

Launch Mini-Ranger RT antennas are located directly over the transducers which eliminates the need for ANDIST corrections to the launch data.

Mini-Ranger Baseline Calibrations (BLC's) were conducted in accordance with appendices M and S of the PMC OORDER. Mini-Ranger correctors for this project were obtained from baseline calibrations performed at the beginning and end of the project. Table III, Mini-Ranger Baseline Calibrations, lists these calibrations.

Table III

Mini-Ranger Baseline Calibrations

<u>JD</u>	<u>Console-RT Pair</u>	<u>Action</u>	
052-053	B0323/B1398 703/1419	All eight Mini-Ranger transponders (5,6,7,8,9,A,B,C) were calibrated.	✓
109	506042/1649	All transponders calibrated.	
174	B0323/B1398 703/1419 506042/1649	Transponders 9,A,B,C were calibrated.	

On February 22 and 23, 1984, correctors were determined for all transponders with each console-RT pair listed above. On April 18, calibrations were performed for console 506042. Together, these calibrations constitute the beginning calibration. The calibration was done along a distance of 908.2 meters between two recoverable points on the calibration baseline at Magnuson Park, Seattle, Washington. ✓

Final calibrations were conducted only for the console/RT unit combinations, and mini-ranger transponders actually used during hydrography on H-10040. This calibration was performed in Kodiak, Alaska between a new mark set at the edge of the Marginal Pier at the Coast Guard Base, and Station SHANNON POINT, 1978. The distance was measured by tellurometers, (MRA-3, SN 1862 and 1424), on June 8, 1984 and determined to be 855.4 meters. ✓

Mini-Ranger Baseline Calibration Data included with the separates following the text, summarizes the corrector values determined from baseline calibration data for all Mini-Ranger console-RT pairs. All appropriate BLC abstracts and graphs are also included in this section. ✓

No unusual weather conditions adversely affected positional accuracy of this survey, and no hydrography was conducted with weak control geometry. However, a few problems were encountered with the Raydist equipment. ✓

On JD 144, launch FA-5 (2025) completely lost the green station signal while performing the dive investigation on the southern limit of the survey area. The loss of signal and approximately 75 lanes were attributed to the transceiver being poorly tuned. (Positioning for the dive investigation was accomplished by using a Mini-Ranger distance, the red Raydist value and a visual angle from nearby signals.) No other data were affected by this problem. ✓

Launch FA-4 (2024) also experienced poor Raydist signal reception. When operating relatively near the stations, the signals appeared acceptable, however, when working at a distance as evidenced by the green station record, the signals would deteriorate. On JD 144, the reception was tolerable and no lanes were lost. On JD 145, launch FA-4 (2024) lost 15 lanes on the green station, the most distant station. All data for this launch on JD 145 were rejected and rerun. ✓

The Raydist equipment on launch FA-4 (2024) performed well for two more days then began experiencing difficulties again. On JD 152, 17 lanes were lost on the red station and 5 lanes were lost on the green station. (Data were again rejected and rerun using Mini-Ranger positioning.) On JD 153, all Raydist equipment except the antenna base was replaced in launch 2024 and still 9 lanes were lost on the red station during a test. In an effort to avoid any further delay, Mini-Ranger positioning was used for the remainder of launch 2024's work. After the completion of hydrography for this survey, a crack was found in the Raydist antenna base on the launch which had been the cause of these problems. ✓

The Raydist antenna on launch FA-3 (2023) was removed prior to switching the transceiver into standby on JD 145, in addition, the unit was left on overnight. The next morning the system would not function, apparently damaged by the internal voltage feedback, so all the Raydist equipment was replaced. Later it was determined that the original system was not damaged. The emergency voltage cutoff in the transceiver had been activated thus shutting down the system and giving the appearance that it was damaged. No data were lost or rejected due to this problem. ✓

H. Shoreline

There is no shoreline within the area surveyed in 1984. ✓

I. Crosslines

Twenty two miles of crosslines were run for a total of 10.5% of the 208 miles of principal sounding lines. The main scheme and crossline soundings are in excellent agreement and meet the criteria specified in section 1.1.2 Part B of the Hydrographic Manual. ✓

J. Junctions

The areas surveyed in 1984 lie completely within the limits of H-10040 and do not junction with any other surveys. The 1984 data has excellent agreement with the 1982 and 1983 hydrography. ✓

K. Comparison with Prior Surveys

Comparison was made between the 1982-83 work on H-10040 and two prior surveys (refer to the 1983 Descriptive Report, H-10040). The 1984 additional survey work were developments from discrepancies noted from these comparisons and that of the current chart. For this reason, only the particular soundings in question have been discussed in Section L, Comparison with the Chart. No further comparisons with prior information were conducted with the 1984 data. ✓

L. Comparison With The Chart

Since the purpose of the 1984 field work on H-10040 was to investigate items left unresolved during the 1982-83 field work, comparisons were made between the 1984 additional work and previous field work on H-10040 as well as with the charts #16570, Portage and Wide Bay, 8th Ed., 18 Feb. 1978, scale 1:50,000; #16568, Preliminary Chart - Wide Bay to Cape Kumlik, 5th ✓

Ed., 9 Dec. 1978, scale 1:106,600; and #16013 - Cape St. Elias to Shumagin Islands, 23rd Ed., 18 Sept. 1982, scale 1:969,761.

The items that were investigated fall into three categories: 1) Items recommended by the Preprocessing Examination dated 19 January 1984, 2) Recommendations from the 1983 Descriptive Report, H-10040, and 3) Additional investigations determined by FAIRWEATHER in 1984. These items are identified on the field sheets and in the raw records by a letter-number combination (e.g. A-1, D-10). ✓

Discussion of investigation results and sounding comparisons will be in three parts: 1) Disproval of significant charted depths, 2) Diver's investigation, and 3) Shoal developments and methods used. ✓

1. Disproval of Significant Depths *See Evaluation Report, Sections 6 and 7*

The following shoal depths shown on Chart 16570 were investigated by reducing line spacing to 25 meters over an area of at least 300 meters square centered at the charted shoal sounding. The 1984 sounding lines were oriented north-south, perpendicular to the 1982-83 east-west mainscheme sounding lines which had a normal line spacing of 100 meter or less.

<u>Charted Depth</u>	<u>Latitude (North)</u>	<u>Longitude (West)</u>	<u>H-10040 Depth</u>	<u>Investigation No. and Position No.</u>	<u>Source</u>
10 fm	57/18/28	156/15/18	16 fm	B-1 6583-6859	DR 83
33 fm	57/19/09	156/02/05	73 fm	C-2 7494-7831	DR 83
20 fm	57/18/39	156/02/48	74 fm	C-2 7494-7831	DR 83
19 fm	57/17/46	156/03/42	90 fm	C-3 7441-7493	DR 83
36 fm	57/16/46	156/04/57	98 fm	C-5 7382-7440	PPE
19 fm	57/17/33	156/05/15	97 fm	C-4 7441-7493	DR 83
50 fm	57/17/35	156/05/21	99 fm	C-4 7441-7493	DR 83

DR 83 = H-10040, Descriptive Report, 1983

PPE = Preprocessing Examination, 19 January 1984

None of the charted depths were found, thus it is recommended that the 1984 hydrography supercede all the above charted depths and that they be deleted from the chart. *Concur, Chart area as shown on Smooth Sheet*

2. Diver's Investigation

A divers' ^{Rock} investigation was conducted to determine the least depth over the 3.5 fathom^a shoal located at latitude 57/11/54 N, longitude 156/17/25^W, as required by the H-10040 Preprocessing Examination. (Refer to Development Sheet "A", scale: 1:5000 submitted in 1983 with the H-10040 survey data.) ✓

On JD 144, a visual search was made by divers at the 3.5⁺ fathom shoal position determined by the 1982-83 hydrography. A pinnacle rock of 40 meters in diameter was found at latitude 57/11/54.9 N. longitude 156/17/23.4 W (position #4975). ✓

The divers' search was conducted with a bottom time of 25 minutes in water visibility of 25 ft. The least depth of 3.5 fathoms was determined by using a pneumatic depth gauge (manufactured by 3D Instruments, Inc., s/n 8302079N) with a check by leadline. The pneumatic gauge was calibrated on 5 April 1984 and found to have an accuracy of 1/4 per cent of full scale (230 ft. of sea water). For the depth of this shoal, the accuracy was found to be 0.14 ft. A difference of 0.3 ft was obtained between the pneumatic gauge and the leadline depth with the leadline being shoaler. For conservation measures, it is recommended that the leadline depth supercede the pneumatic gauge depth. ✓

Due to difficulties with the electronic positioning equipment, locating the divers' detached position was accomplished by using a hybrid range-range fix (Raydist and Mini-Ranger) with a sextant angle for a check. While performing the investigation, the green Raydist signal from E. CHANNEL RM 1 was lost resulting in many lane jumps. However, the red Raydist station worked well thus a position was obtained using the red Raydist value and the Mini-Ranger distance from station E. CHANNEL 1923 (Signal #276). A check position was obtained by using the sextant angle between stations SOUTH 1982 (Signal #354) and SHANE 1982 (Signal #351). ✓

It is recommended that the 3.5^H fathom depth be charted as least depth *Concur* for this shoal.

3. Shoal Investigations

See Evaluation Report, Section 7

Due to the highly irregular nature of the bottom in this area, where rock pinnacles can rise 40 fathoms off the bottom, the following additional investigations were performed over several 1982-83 shoal soundings. These developments were conducted with 25 meter line spacing in the north-south direction over areas ranging from 200 to 1000 meters square, centered at the previous hydrographic shoal positions, in addition to the east-west mainscheme completed in 1982-83. For some of these items, a series of radiating sounding lines were run over the shoalest point found in order to obtain the least depth. ✓

All "Shoal Depths" were taken from the 1982-83 final field sheets. The original records were not available to check for possible misdepths or incorrect positioning while performing the 1984 field work. This did leave some depths from the previous years in question and will need to be resolved by the PMC Processing Division. ✓

Investigation No. and Source	(1982-83)	Latitude (North)	Longitude (West)	Chart # & Depth (Fathoms)
	Shoal Depth (Fathoms)			

FA-20-IN-82 H-10040

A-1 (FA 84)	10.7	57/21/38	156/07/48	16570 15
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During 1984, a least depth of only 10.8 fathoms (57/21³⁸/~~25~~ N, 156/07/47 W; pos. #5061+2) was found 40 meters southeast of the 10.7 fathom location. It is recommended that the 10.7 fathom sounding be retained as the least depth for this area on survey H-10040 and should be charted. *Concur*

A-2 (PPE) ~~10.8~~ ^{11.2 MLLW} 57/21/28 156/06/46 16570 16

A 10.3 fathom sounding was located 40 meters southeast of the 10.8 fathom position. It is recommended that the 10.3 fathom shoal be charted at 57/21/28 N, 156/04/44 W (Pos. #5210). ✓

A-3 (FA 84) ~~10.7~~ ^{10.7 MLLW} 57/22/07 156/06/21 16570 14

10.7 fathoms (57/22/07 N, 156/06/20 W; pos. #5202+2) located 100 meters north-northwest of the 10.4 fm sounding was the least depth obtained during the 1984 additional field work. It is recommended that the 10.4 fathom sounding be retained on H-10040 as the least depth for this shoal and should be charted. ✓

A-4 (FA 84) ~~10.8~~ ^{11.7 MLLW} 57/21/28 156/04/42 16570 15

1984 hydrography indicated a least depth of 12.1 fathoms (57/21/34 N, 156/04/40 W, pos. #5274) 170 meters north-northwest of the 10.8 fathom position. It is recommended that the 10.8 fathom sounding from 1982-83 be charted. ✓

A-5 (FA 84) ~~19.1~~ ^{19.1 MLLW} 57/20/33 156/03/25 16570 24

An 18.6 fathom least depth was obtained in this area and should be charted at 57/20/32 N, 156/03/29 W (pos. #6304+2). ✓

* A-6 (FA 84) ~~20~~ ^{3 MLLW} 57/22/39 156/03/30 16570 24

* Note: The "2" in 20 was manually plotted on the field sheet as a "2" instead of a "3". The 1984 investigation of this area revealed no indication of this 20 fathom sounding, depths obtained were between 28 and 30 fathoms. A 19.8 fathom depth was found 300 meters west-northwest (57/27/43² N, 156/03/41 W, pos #6360+2) of the reported 20 fathom position, however, this follows the regular trend of the bottom. After performing the 1984 development, it is believed that the 20 fathom depth may have been ~~located~~ ^{plotted} incorrectly from the ~~echogram~~ ^{hand sheet}. Since this data was not available to the hydrographer during the 1984 field season, the depth could not be checked. It is recommended that the 20 fathom depth be reviewed by verification and, if correct, be charted. Otherwise, it should be deleted. *Chart the 19.8-Fathom MLLW*

A-7 (PPE) ~~10.9~~ ^{11.3 MLLW} 57/22/10 156/04/30 16570 20

1984 data revealed only an 11.3³ fathom least depth for this area (57/22/06 N, 156/04/27⁶ W, pos. #6499+2). It is recommended that the ~~10.9~~ ^{11.3} fathom sounding be charted as the least depth. ✓

FA-20-1C-82

B-1 Investigated four shoal soundings in the vicinity of 57/18/22 N, 156/15/15 W:

(PPE) 10.6 MLLW 57/18/13 156/15/37 16570 12

An 8.4⁶ fathom least depth was found 20 meters east of the 10.6 fathom sounding and it should be charted at 57/18/12 N, 156/15/36 W (pos. #6805+1). *The following shoals were located:*

	Lat. N.	Long. W.
8.3-Fathom MLLW	57°18'12.4"	156°15'27.05"
8.4-Fathom MLLW	57°18'12.4"	156°15'19.06"

Chart area as shown on sheet

(PPE) 10.2 *MLLW* 57/18/16 156/15/39 16570 12

1984 hydro yielded a 9.2 fathom least depth (pos. #6808) located 35 meters southeast of the 10.2 fathom sounding. It is recommended that the 9.2 fathom shoal be charted at 57/18/15 N, 156/15/38 W. ✓

(PPE) 10.1 *MLLW* 57/18/26 156/15/06 16570 10

A 10.1 fathom sounding was found 75 meters west of the 10.1 fathom depth. The 10.1 fathom least depth should be charted at 57/18/26 N, 156/15/10 W. ✓

(PPE) 8.8 57/18/21¹⁹ 156/15/00 16570 10

See Evaluation Report, Section 7
The 1984 development did not find a depth shoaler than the 8.8 fathom sounding from 1982-83 data. (A 9.0 fathom depth was obtained at 57/18/26 N, 156/14/12 W, pos. #6653). It is recommended that the 8.8 fathom shoal be retained on this survey and charted as the least depth. *A 7.7 fathom shoal was located at latitude 57°18'20" N, longitude 156°14'18" W - Chart area as shown on north sheet*

B-2 (FA 84) 14.5 *MLLW* 57/18/46 156/11/24 16570 51 *on north sheet*

A least depth of 13.5 fathoms (pos. #6552+3) was located at 57/18/45 N, 156/11/22 W. This depth should supercede all other previous data. ✓

C-1 (FA 84) 17.1 *MLLW* 57/19/57 156/03/33 16570 28

The 1984 investigation found only an 18.2 fathom least depth in this vicinity (57/19/57 N, 156/03/32 W, pos. #6897). It is recommended that the 17.1 fathom sounding from 1982-83 field work be charted as least depth. ✓

C-2 (PPE) 18.1 *MLLW* 57/18/46 156/02/55 16570 64

See Evaluation Report, Section 7
Two soundings with the same least depth of 18.1 fathoms were obtained for this investigation (pos. #7552+3, and #7568+3) at the same location as the 18.1 fathoms position. It is recommended that the 1982-83 sounding of 18.1 fathoms be charted. *Chart the 18.9 fathom depth at the above location.*

(PPE) 28.1 *MLLW* 57/18/58 156/02/42 16570 62

A least depth of 20.0 fathoms was found 100 meters northeast (57/19/01 N, 156/02/39 W, pos. #7816+5) of the original 20 fathoms. It is recommended that both of these soundings be charted. ✓

C-4 Investigated ten items

(PPE) 17.6 *MLLW* 57/17/09 156/04/28 16570 48

16.6 fathom least depth was located at 57/17/08 N, 156/04/26 W (pos. #7229) and should supercede the 17 fathom sounding previously obtained. ✓

(PPE) 18.5 *MLLW* 57/17/03 156/04/57 16570 20

The development in this area yielded a 18.4 fathom least depth (pos. #7105+1) which should be charted at 57/17/07 N, 156/04/56 W. ✓

(PPE) 16.4 MLLW 57/17/08⁸ 156/05/18⁷ 16570 26

The least depth found in 1984 was 16.7 fathoms at 57/17/0⁷ N, 156/05/1⁶ W (pos. #7002+5). If the 16 fathom depth is verified in 82-83 data, it should be charted as the least depth, otherwise both soundings should be retained for charting. *Chart the 16.4 fathom depth at the above location. Chart area as shown on Smooth Sheet*

(PPE) 17.6 MLLW 57/17/12 156/05/14 16570 26

17.6 fathom sounding was obtained in this area (57/17/11 N, 156/05/12 W, pos. #7028+2). It is recommended that 17.6 fathoms from 1982-83 be charted if it is verified as being shallower than the 17.6 fathom depth. *Chart the 17.6 fathom depth at the above location*

(FA 84) 16.7 MLLW 57/17/12 156/05/19 16570 26

The 16.7 fathom sounding was confirmed with the 1984 investigation. Least depth obtained was 16.4 fathoms (pos. #7312) at the same latitude and longitude. The 16.4 fathom depth should be charted. ✓

(PPE) 18 57/17/20 156/05/17 16570 31

1984 data located a least depth of 16.6 fathoms for this shoal (pos. #6983+5). This least depth is recommended to be charted at 57/17/20 N, 156/05/21 W. ✓

(PPE) 18 57/17/24 156/04/49 16570 None

Least depth of 16.6 fathoms was found at 57/17/26 N, 156/04/50 W (pos. #7138+2). It is recommended that the 16.6 fathom sounding be charted. ✓

(PPE) 18 57/17/24 156/04/42 16570 None

In this area, a 16.7 fathom least depth was located and should be charted at 57/17/23 N, 156/04/47 W (pos. #7148+4). ✓

(PPE) 19 57/17/20 156/04/41 16570 None

1984 data revealed a least depth of 17.8 fathoms at 57/17/20 N, 156/04/4¹⁹ W (pos. #7167+4) and should be charted as such. ✓

(PPE) 18 57/17/20 156/04/06 16570 20

A 18.6 fathom depth was found to be the least depth in this vicinity (pos. #7286+4 and 7287) at the same position of the 1982-83 18 fathom sounding. It is recommended that the 18 fathom depth be charted. ✓

C-6 (FA 84) 14.1 MLLW 57/16/01 156/06/28 16013 None

13.7 fathoms (pos. #7347+5) was the least depth obtained for this development and should be charted at 15/16/01 N, 156/06/2⁹ W. ✓

FA-20-1S-82

D-1 (FA 84) 14.2 *MLLW* 57/13/55 156/14/30 16568 None

The 1984 investigation of this area revealed a least depth of 13.1 fathoms (pos. #5822+4). This sounding should supercede previous data and be charted at 57/13/55 N, 156/14/29 W. ✓

D-2 (FA 84) 18.7 *MLLW* 57/13/45 156/13/58 16568 None

A 16.4 fathom least depth (pos. #5868+3) was found in this vicinity. The 16.4 fathom sounding should supercede all previous data and be charted at 57/13/47 N, 156/13/56 W. ✓

D-3 (FA 84) 12.6 *MLLW* 57/13/55 156/13/29 16568 None

1984 data did not locate a depth equal to or shallower than the 12 fathom 1982-83 sounding. The least depth found this year was 13.7 fathoms at 57/13/50 N, 156/13/23 W (pos. #5911+4). It is recommended that the 12 fathom depth be retained and charted. ✓

D-4 (FA 84) 12.2 *MLLW* 57/13/42 156/13/06 16568 None

The 1982-83 12 ~~2~~ fathom depth at this location was not located on the 1984 development. The least depth determined in 1984 was 12.9 fathoms (pos. #5934+4, 57/13/43 N, 156/13/06 W). It is recommended that the 1982-83 shoal of 12 fathoms be retained and charted. ✓ *Andrew L. Reed*

D-5 (FA 84) 12 *MLLW* 57/13/55 156/12/05 16568 None

The least depth found in this area during 1984 was 14.8 fathoms (57/13/57 N, 156/12/03 W, pos. #8677+3). The data from 1982-83 should be rechecked and if correct, the 12 fathom sounding should be charted. ✓

D-6 (FA 84) 12 *MLLW* 57/13/55 156/11/38 16568 None

The development for this area yielded a least depth of 15.7 fathoms (pos. #8714+1, 57/13/54 N, 156/11/46 W) approximately 140 meters west of the 1982-83 12 fathom position. A 17 fathom depth was obtained at the 12 fathom location. Recommend that the echogram submitted in 1983 be rechecked for a possible mis-scaled depth. If the 12 fathom depth is correct, it should be charted. *This was checked the 12 fathom depth is shallow* ✓

D-7 (FA 84) 14.3 *MLLW* 57/13/49 156/10/33 16568 17

The 14.3 fathom sounding was verified as least depth during the 1984 investigation. It is recommended that 14.3 fathoms be charted at 57/13/48 N, 156/10/32 W (pos. #8743+5). ✓

D-8 (PPE) 10.7 *MLLW* 57/14/59 156/13/46 16568 None

The 10.7 fathom depth was verified as least depth for this area and should be charted at 57/14/59 N, 156/13/44 W (pos. #8513+4). ✓

D-9 (FA 84) 12.1 MLLW 57/14/41 156/12/40 16568 None

The 1984 development in this area revealed a least depth of 6.7 fathoms at 57/14/38 N, 156/12/46 W (pos. 9120+13). It is recommended that the 6.7 fathom shoal supercede all previous data and be charted as least depth. ✓

D-10 (FA 84) 12.6 MLLW 57/14/47 156/12/07 16568 None

A 12.8⁹ fathom least depth was found at 57/14/48 N, 156/12/05 W (pos. ~~was excluded~~ #8638+4). The 1982-83 data needs to be checked and the shoalest of the two soundings charted. *was charted as 2.6 fathom depth as shown on the Smith chart* ✓

D-11 (FA 84) 11.6 MLLW 57/15/08 156/12/16 16568 None

11.4 fathoms was the least depth located in this investigation at the same spot as the 1982-83 11 fathom sounding. It is recommended that the 11.6 fathom depth be charted. ✓

(DR 83) 19.4 MLLW 57/14/57 156/12/22 16568 None

The 1984 development yielded a ~~17.7~~^{18.1 MLLW} fathom least depth (pos. #8576+5) which should supercede all previous data and be charted at 57/14/58 N, 156/12/23 W. ✓

D-12 (PPE) ~~9.9~~^{10.2} MLLW 57/15/07 156/11/14 16568 None

10.8⁶ fathoms was the least depth found during the 1984 development (~~and was excluded~~) (57/15/06 N, 156/11/14 W, pos. #8800+4). It is recommended that the 1982-83 sounding of ~~9.9~~^{10.2} fathoms be charted as the least depth in this area. ✓

D-13 (PPE) ~~7.7~~^{8.0} MLLW 57/15/04 156/10/48 16568 None

9.3 fathoms was the least depth obtained during the 1984 investigation (pos. #8758+2, 57/15/03 N, 156/10/47 W). It is recommended that the ~~7.7~~^{8.0} fathom sounding from 1982-83 be charted. ✓

(PPE) ~~8.2~~^{7.3} MLLW 57/15/08 156/10/52.88 16568 None

The least depth in this area was found to be ~~6.9~~^{7.0} fathoms at 57/15/07 N, 156/10/52 W (pos. #8771). It is recommended that the ~~6.9~~^{7.0} fathom depth be charted. *Pos #9000/6 at Lat. 57/15/07 N; Long. 156/10/52 W* ✓

D-14 (PPE) ~~9.9~~^{10.2} MLLW 57/15/22 156/09/18 16568 13

After performing the development in this area, only a 10.2⁵ least depth was located during 1984 (57/15/22 N, 156/09/16 W, pos. #9073+4). It is recommended that the ~~9.9~~ fathom sounding from 1982-83 be charted as the shoalest depth for this vicinity. ✓

D-15 (FA 84) ~~18.9~~^{18.9} MLLW 57/14/21 156/08/00 16568 21

18.8⁹ fathoms was the least depth obtained during the 1984 development (57/14/19 N, 156/08/01 W, pos. #8883+1). It is recommended that the 1982-83 16 fathom depth be charted as the shoalest sounding for this area. ✓

There is no 16 fathom depth in 1982-83 chart according to this survey the 18.9 fathom MLLW adequately marks the area.

D-16 (FA 84) 13.7 ⁹MLLW 57/14/44 156/06/52 16013 None

This investigation found a 16.7 fathom sounding as the least depth (57/14/48 N, 156/06/49 W, pos. #8922+1) during 1984. It is recommended that the 13.7 fathom depth be retained and charted as the least depth. ✓

D-17 (FA 84) 13.1 ^{18.1}MLLW 57/15/08 156/06/30 16013 None

A least depth of 12.9 fathoms (pos. #8945+3) was found for this development and should be charted at 57/15/10 N, 156/06/32 W. ✓

D-18 (FA 84) ~~15.1~~ 16.1 ⁰¹⁻⁸⁸MLLW 57/15/03 156/05/57 16013 None

During 1984, only a 16.3 fathom sounding (pos. #8994+2, 57/15/02 N, 156/05/54 W) was located as the shoalest depth for this area. It is recommended that the 1982-83 15 fathom least depth be retained and charted. ✓

E-1 (FA 84) 17.9 ^{16.1}MLLW 57/12/38 ^{57.99} 156/10/30 ^{28.84} 16568 None

15.5 fathoms was found as the least depth for this investigation and is recommended to be charted at 57/12/38 N, 156/10/29 W (pos. #6016+2). ✓

E-2 (FA 84) 19.1 ^{18.8}MLLW 57/12/22 156/12/39 16568 None

The 1982-83 field sheet sounding of 19.1 fathoms was verified with a least depth of 18.8 fathoms (pos #5441+1). This least depth should be charted at 57/12/23 N, 156/12/39 W. ✓

E-3 (FA 84) 10.12 ⁶MLLW 57/12/08 156/16/29 16568 14

A least depth of 10.2 fathoms was obtained for the 1984 investigation (pos. #9012+5, 57/12/08 N, 156/16/28 W). It is recommended that the 10.12 fathom sounding from 1982-83 field work be charted as least depth for this area. ✓

E-4 (FA 84) 10.24 ^{exceeded}MLLW 57/11/43 156/16/02 16568 None

10.0 fathoms was obtained as the shoalest depth for this development (pos. #5379+5) and should be charted at 57/11/42 N, 156/16/02 W. ✓

E-5 (FA 84) 15.1 ⁹MLLW 57/11/39 156/12/34 16568 None

The 15 fathom depth was verified by the 1984 development with pos. #5518+4 of 15.0 fathoms at 57/11/39 N, 156/12/33 W. This sounding should be charted as the least depth for this vicinity. ✓

E-6 (FA 84) 13.2 ^{49.48}MLLW 57/11/44 ^{46.15} 156/10/47 16568 None

A least depth of 11.1 fathoms was obtained at 57/11/43 N, 156/10/44 (pos. #5548 and 9058+4). It is recommended that this depth supercede all previous data and be charted. ✓

E-7 Three items were investigated.

(D.R. 83) 15.3 ^{7.59}MLLW 57/11/37.16 156/10/03 16568 None

14.7 fathoms was the least depth found in this area (pos. #5646+6) and should be charted at 57/11/37 N, 156/10/03 W. ✓

(D.R. 83) 19.1 ^{19.1}MLLW 57/11/50 156/09/57 16568 None

The least depth obtained at this investigation was ^{18.9}18.9 fathoms (pos. #5692+1). It is recommended that this sounding be charted at 57/11/50 N, 156/09/57 W. ✓

(D.R. 83) ^{18.9}18.9 ⁴⁹MLLW 57/11/49 156/10/12 16568 None

The 1984 data revealed a least depth of ^{18.9}17.8 fathoms at 57/11/50 N, 156/10/12 W (pos. #5619+6). It is recommended that the ^{18.9}17.8 fathom sounding supercede all previous data and be charted. ✓

E-8 (FA 84) 19.9 ^{19.1}MLLW 57/12/18.42 156/10/04 16568 None

The 1982-83 field sheet sounding of 19 fathoms was verified by the 1984 data (^{18.9}18.9 fathom, pos. #5713). It is recommended that the ^{19.1}18.8 fathoms be charted at 57/12/18 N, 156/10/04 W. ✓

(FA 84) 18.7 ^{18.78}MLLW 57/12/22.29 156/10/20 16568 None

⁷18.8 fathoms was the shoalest depth obtained in 1984 (pos. #5743, 57/12/22 N, 156/10/18 W). The 1982-83 data should be evaluated and the actual least depth be charted. While performing this investigation a least depth of 18.4 fathoms (pos. #5758+4, 57/12/26 N, 156/10/26 W) was found over a peak 245 meters northwest of the ^{18.7}18.67 fathom depth which should also be charted. ✓

E-9 (PPE) 16.8 ^{50.79}MLLW 57/12/51 156/08/53 ^{53.29} 16568 17

The 16 fathom sounding from the 1982-83 field sheet was verified by the 1984 data (16.8 fathoms, pos. #5792+3). It is recommended that the 16.8 fathoms be charted at 57/12/50 N, 156/08/53 W. ✓

E-10 (FA 84)

This development consisted of two sounding lines needed to further delineate the bottom profile at this location. ✓

M. Adequacy

This survey is sufficiently complete and adequate to supercede prior survey data as recommended herein. ✓

N. Aids to Navigation

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

O. Statistics

Totals for 1982, 1983, 1984

<u>Vessel</u>	<u>2020</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Positions	2448	1679 1832	1583 1713	X2	3416 5482 5842
Nautical Miles		104	126	--	230
Square Miles		2.2	2.3	--	4.5
Tide Stations		1			
Velocity Casts		2			

P. Miscellaneous

The area offshore of Wide Bay consists of very irregular submarine features, mainly ledges and pinnacle rocks.

Q. Recommendations

As charting continues along the Southern Alaska Peninsula, FAIRWEATHER recommends that consideration be given to conducting a BS³ investigation of those areas where prior surveys indicate an irregular bottom such as that found offshore of Wide Bay.

R. Automated Data Processing

The following programs were used for data acquisition and processing during 1984 survey operations.

<u>Number</u>	<u>Name</u>	<u>Version Date</u>
RK 112	R/R Real Time Plot	10/12/83
RK 201	Grid, Signal and Lattice Plot	04/18/75
RK 211	R/R Non-Real Time Plot	02/13/84
RK 212	Visual Station Table Load	04/01/74
RK 300	Utility Computations	10/21/80
RK 330	Reformat and Data Check	05/04/76
PM 360	Electronic Corrector Abstract	02/02/76
AM 500	Predicted Tide Generator	11/10/72
RK 530	Layer Corrections for Velocity	05/10/76
RK 561	H/R Geodetic Calibrations	12/01/82
AM 602	Elinore	12/08/82
MI 555	Thermometric Depth FA-SV/D Program	03/20/84

S. Referral to Reports

The following reports contain additional information for H-10040, FA-20-1-82 (83 and 84):

<u>OPR-P146-FA-82</u>	<u>Date Submitted</u>
Horizontal Control	August 1982
Electronic Control	September 1982
Field Edit	September 1982
Corrections to Echo Soundings	September 1982

Geographic Names	September 1982	
Field Tide Note	September 1982	✓

OPR-P146-FA-83Date Submitted

Descriptive Report	December 1983	
Horizontal Control	November 1983	
Electronic Control	December 1983	
Corrections to Echo Soundings	November 1983	
Field Tide Note	November 1983	✓
Magnetics	December 1983	

OPR-P146-FA-84Date Submitted

Horizontal Control Report	September 1984	
Magnetics	September 1984	✓



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL OCEAN SURVEY
 NOAA Ship FAIRWEATHER

February 10, 1983

TO: N/MOP - Charles K. Townsend *CKT*
 FROM: *Robert J. Foster*
 S220 - Commanding Officer
 NOAA Ship FAIRWEATHER

#1021
NO. 2142
Don. FAX to
Bill about this
copy of this memo
to be given to
D.R. now

SUBJECT: Addendum to Descriptive Report for H-10040, Wide Bay to Imuya Bay, Shelikof Strait, Alaska

REF: H-10040 Preprocessing Examination
 Memorandum of January 28, 1982

In response to a concern expressed in Sections B, C and D of the preprocessing examination for H-10040, the original field records and processing documents supplied by N/MOP21 have been re-evaluated. ✓

Examination of the raw data printout for program RK 112 and the RAYDIST lane count record reveal a series of five (5) subtle lane losses and one lane gain during hydrographic operations on JD 222. These lane losses and gains may have been caused by atmospheric interference or intermittent short in the foremast RAYDIST antenna. These lane transpositions were not detected by RK 112 or routine review of the lane count during hydrography and final field processing. ✓

Corrected versions of Table IV, RAYDIST Lane Jumps, from Section G, Hydrographic Position Control, and separate following the text E, Abstracts of Corrections to Electronic Position Control are appended to this addendum. Verbal agreement was made with MOP21 that a final field replot of the corrected hydrography was not necessary. The correctors provided will be applied to the data already scheduled for plotting at PMC. ✓

All data returned to FAIRWEATHER will be transmitted to MOP21 not later than March 15, in compliance with the referenced memorandum. ✓

Encl: 2



Table IV

RAYDIST Lane Jumps

<u>J.D.</u>	<u>Vessel</u>	<u>Position No.</u>	<u>Discussion</u>
220	2020	up to 0128	A calibration was performed immediately after the lane jump was detected. No hydrography was lost.
222	2020	753-754	1 lane was lost on pattern 1 after 3rd out of 753 1 lane was lost on pattern 1 after 4th out of 753 1 lane was lost on pattern 1 after 5th out of 753 2 lanes were lost on pattern 1 between 754 & 1st out <i>Pat 754 was rejected</i>
222	2020	1006-1007	1 lane was gained on pattern 1; this was verified on the strip chart and on the following calibration. No hydrography was lost.
223	2020	1366-1367	A calibration was performed immediately after the lane jump was detected. No hydrography was lost.
223	2020	1373-1374	1 lane was gained on each pattern. This was verified on the strip chart and on the following calibration. No hydrography was lost.
223	2020	---	Hydrography was finished for the day. Enroute to calibration 10 lanes were gained on pattern 2 due to loss of signal or loss of phase lock. The lane gains were verified on the strip chart and on the following calibration.

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2020

SHEET : FA20-1-82

TIME	DAY	PATTERN 1	PATTERN 2
191445	219	+00005	-00014
000137	220	+00005	-00014
165224		+00002 ¹	+00002 ²
000005	221	+00002 ²	+00001 ²
185136		+00004 ²	+00000 ⁴
000002	222	+00004 ²	+00000 ⁴
001238		+00140	+00000
001305		+00240	+00000
001332		+00340	+00000
001359		+00540	+00000
143855		+00440	+00020
183704		+00000	-00004
000027	223	+00000	-00004
043906		-00004	-00004
181600		+00008	-00008
183600		-00106	-00122
231415	229	-00002	+00020
000000	230	-00002	+00020
222533		-00004	+00016
000628	231	-00004	+00016
231300		+00000	+00000

Field Tide Note
FA-20-1-82 (H-10040)
1984 Additional Work
Wide Bay, Alaska

The primary tide gauge (945-7283) Kodiak, Alaska served as a reference station for the predicted tides for the additional development hydrography done in 1984 on H-10040 as stated in the Project Instructions, OPR-P146-FA-84. Leveling and maintenance of the station are performed by the Pacific Tide Party. ✓

Predicted tide correctors were interpolated aboard FAIRWEATHER, using data from the 1984 West Coast Tide Tables and program AM 500 dated 10 Nov. 1972. ✓

All times of predicted and reported tides are expressed in Universal Coordinated Time (UTC). Predicted tides were acceptable for hydrography with no discrepancies in the data attributable to tide errors. ✓

Tide station (945-8461) Wide Bay, Alaska, located at latitude 57°21'54" N, longitude 156°24'07" W, was the field tide gauge in support of this survey. Since the tide gauge site was a long distance from the main working area of this project and FAIRWEATHER personnel were unable to check the station for an extended period due to an OCSEAP project, two Fisher and Porter ADR gauges were installed, to insure continuous tidal data. Tide gauge "B", serial number 6402A4596M2, is the primary gauge and gauge "A", #7210A0926M1, is the backup. Both gauges are mounted on a relic drill casing with stainless steel banding. The gauges were installed on 19 May 1984. The zero line of gauge "A" is equivalent to about 0.01 feet on gauge "B". Both gauges will be removed at the completion of project OPR-P146-FA-84, in August 84. ✓

Two tide staffs were mounted in support of this tide station. Tide staff "1" is mounted on the seaward-most piling of an abandoned pier. Levels were run to this tide staff. A second tide staff, staff "2", is mounted on the drill casing where the tide gauges are installed. This staff was installed to allow personnel to make tide observations when the pier staff is dry or in the surf zone. A series of simultaneous staff observations were made 23 May 1984 between the two tide staffs. The zero line on staff "1" is equivalent to 8.32 feet on staff "2". The zero line on staff "1" was also found to be equivalent to 17.4 feet on gauge "B". ✓

Opening levels were run on 19 May 1984 between staff "1" on the pier and six benchmarks. A closure of three millimeters was obtained over the entire run of ✓

approximately 0.6 miles. Closing levels will be run at the end of the project, OPR-P146-FA-84. Six benchmarks were recovered and none were established in 1984. ✓

Operational Problems

Tide gauge "B" worked well throughout the period of hydrography. The backup, gauge "A", was dropping punches and failing to advance properly. Because the primary gauge, gauge "B", operated throughout the survey, no tidal data was missed and no hydrography was lost. ✓



ATTACHMENT E

196
U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NOAA Ship FAIRWEATHER S-220
1801 Fairview Avenue East
Seattle, Washington 98102

June 8, 1984

TO: N/OMS12 - Chief, Tides and Water Levels Branch
FROM: *Christian Andreasen, Capt*
Commanding Officer, NOAA Ship FAIRWEATHER S-220
SUBJECT: Request for Approved Tide Data

Please provide the Nautical Chart Branch (N/MOP21), Pacific Marine Center, the following tide data:

1. Approved Tide Note (Form 712)
2. Approved Hourly Heights for Days of Hydrography
3. Hourly Heights on Magnetic Tape

These data are required for the processing of hydrographic survey:

Registry No.: H-10040 (1984 Field Examination) ✓
Project Instructions: OPR-P146-FA-84
Location: Shelikof Strait (Wide Bay to Imuya Bay)

The final Progress Sketch and Abstract of Times of Hydrography/Shoreline Verification (check one):

- are included with this request.
- have been forwarded with the final tide record package for this survey mailed on
- are included with this request. The final tide record package for this survey will be forwarded at the end of this month.

Tide data are required within 90 days of receipt of this request. If this schedule cannot be met, please advise the Chief of the Hydrographic Section, N/MOP211, telephone FTS 392-6853.



DATE: August 29, 1983

U.S. DEPARTMENT OF COMMERCE
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): 945-8461 Wide Bay, Alaska

Period: August 7-19, 1882 *1982* *sun or year, has been changed as approved.*

HYDROGRAPHIC SHEET: H-10040

OPR: P-146

Locality: Wide Bay, Shelikof Straits, Alaska

Plane of reference (mean lower low water): 0.54 ft.

Height of Mean High Water above Plane of Reference is 11.0 ft.

REMARKS: Recommended Zoning:

1. Zone Direct
2. For J-Day²
 - 219 (1200-1300 hrs.)
 - 220 (0100-0200 hrs., 1200-1400 hrs.)
 - 221 (0100-0200 hrs., 1300-1400 hrs.)
 - 222 (0200-0300 hrs.)
 - 223 (1400-1500 hrs.)
 - 229 (1400-1500 hrs.)
 - 230 (0900-1100 hrs., 2300 hrs.)
 - 231 (1000-1200 hrs., 2200-2300 hrs.)
 - 232 (0000 hrs., 1000-2300 hrs.)

No smooth tides are available.


Chief, Tidal Datums Section, Tides & Water
Levels Branch

DATE: March 8, 1984 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-10040

Locality: Wide Bay, Alaska

Time Period: August 7-19, 1982

Tide Station Used: 945-8461 Wide Bay, Alaska

Plane of Reference (Mean Lower Low Water): 0.54 feet

Height of Mean High Water Above Plane of Reference: 11.0 feet

Remarks: Recommended Zoning:

Zone Direct


Chief, Tidal Datums Section

March 23, 1984

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 - 10040

Locality: Wide Bay, Alaska

Time Period: June 11 - August 3, 1983

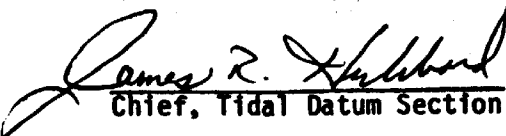
Tide Station Used: 9458461 Wide Bay, Alaska

Plane Of Reference (Mean Lower Low Water): 0.48 Ft.

Height Of Mean High Water Above Plane Of Reference: 11.0 Ft.

Remarks: Recommended Zoning:

Zone Direct


Chief, Tidal Datum Section

DATE: 10/16/84

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-10040

Locality: Wide Bay, Alaska

Time Period: May 23 - June 4, 1984

Tide Station Used: 945 - 8461 Wide Bay, Alaska

Plane of Reference (Mean Lower Low Water): 0.06 ft.

Height of Mean High Water Above Plane of Reference: 11.3 ft.

Remarks: Recommended Zoning: Zone Direct


Chief, Tidal Datums Section

Approval Sheet

During field operations, the Commanding Officer inspected all field sheets and data on a daily basis. All survey sheets that are included with this report are complete and adequate for charting purposes.

Submitted by:

Kathy Andrus
for Jeffrey F. Salmore
Ensign NOAA

Approved by:

Christian Andreasen
Christian Andreasen
Captain NOAA
Commanding Officer

SHELYKOF SIGNAL LISTING
 OPR-P146-FA-84
 FA-20-1-82 (H-10040)

EAST CHANNEL 1923	571562 1006
278 0 57 24 34100 156 11 55721	250 0026 000000
EAST CHANNEL RM-1 1982	571562 FAIRWEATHER
277 2 57 24 33877 156 11 56354	250 0026 330040
KAYAK 1944	571564 1011
302 3 57 17 46075 156 18 43595	250 0024 000000
TERRACE 1923	571562 1022
310 3 57 22 48321 156 16 12267	250 0095 000000
SHANE 1982	571562 FAIRWEATHER
351 0 57 15 06808 156 20 16067	250 0033 000000
SHANE AZIMUTH 1982 (RAYDIST)	571562 FAIRWEATHER
352 0 57 15 11226 156 20 12939	250 0033 330040
SHANE AZIMUTH 1982 (MINI-RANGER)	571562 FAIRWEATHER
399 0 57 15 11226 156 20 12939	250 0033 000000
SOUTH 1982	571562 FAIRWEATHER
354 0 57 12 52088 156 23 13934	250 0021 000000
SKIFF 1982	571562 FAIRWEATHER
402 0 57 25 43467 156 04 41983	250 0016 000000

GEOGRAPHIC NAMES

H-10040

Name on Survey	A ON CHART NO. 16570		B ON PREVIOUS SURVEY		C ON U.S. QUADRANGLE MAPS		D FROM LOCAL INFORMATION		E ON LOCAL MAPS		F P.O. GUIDE OR MAP		G RAND McNALLY ATLAS		H U.S. LIGHT LIST		K	
ALASKA	X																	1
IMUJA BAY	X																	2
SHELIKOF STRAIT	X																	3
WIDE BAY	X																	4
																		5
																		6
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NOAA FORM 77-27(H) (9-83)		U.S. DEPARTMENT OF COMMERCE		REGISTRY NUMBER	
HYDROGRAPHIC SURVEY STATISTICS				H-10040	
RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.					
RECORD DESCRIPTION		AMOUNT		RECORD DESCRIPTION	
SMOOTH SHEET		1		SMOOTH OVERLAYS: POS., ARC, EXCESS	
DESCRIPTIVE REPORT		1		FIELD SHEETS AND OTHER OVERLAYS	
DESCRIP- TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR- GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS
ACCORDION FILES					
ENVELOPES					
VOLUMES	1				
CAHIERS			3		
BOXES					
SHORELINE DATA					
SHORELINE MAPS (List):					
PHOTOBATHYMETRIC MAPS (List):					
NOTES TO THE HYDROGRAPHER (List):					
SPECIAL REPORTS (List):					
NAUTICAL CHARTS (List): <u>Enlargements of Charts 16570, 16568</u>					
OFFICE PROCESSING ACTIVITIES <i>The following statistics will be submitted with the cartographer's report on the survey</i>					
PROCESSING ACTIVITY			AMOUNTS		
			VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET					7536
POSITIONS REVISED					
SOUNDINGS REVISED					2502
CONTROL STATIONS REVISED					
			TIME-HOURS		
			VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION					
VERIFICATION OF CONTROL					
VERIFICATION OF POSITIONS			137.5		137.5
VERIFICATION OF SOUNDINGS			405.5		405.5
VERIFICATION OF JUNCTIONS			7.0		7.0
APPLICATION OF PHOTOBATHYMETRY					
SHORELINE APPLICATION/VERIFICATION					
COMPILATION OF SMOOTH SHEET			63.0		63.0
COMPARISON WITH PRIOR SURVEYS AND CHARTS				36	
EVALUATION OF SIDE SCAN SONAR RECORDS					
EVALUATION OF WIRE DRAGS AND SWEEPS					
EVALUATION REPORT			4.0	17.0	21.0
GEOGRAPHIC NAMES					
OTHER: <u>Digitization</u>					
*USE OTHER SIDE OF FORM FOR REMARKS			TOTALS	617	53.0
Pre-processing Examination by			Beginning Date	Ending Date	
Verification of Field Data by <u>I.A. Almancen, G.E. Kay</u>			Time (Hours) 617	Ending Date 7/23/85	
Verification Check by <u>S. Otsubo, B.A. Olmstead, J.S. Green</u>			Time (Hours) 50.5	Ending Date 9/11/85	
Evaluation and Analysis by <u>G.E. Kay</u>			Time (Hours) 53.0	Ending Date 9/11/85	
Inspection by <u>D.J. Hill</u>			Time (Hours) 2	Ending Date 9/11/85	

PACIFIC MARINE CENTER
EVALUATION REPORT
H-10040

1. INTRODUCTION

H-10040 was accomplished by NOAA Ship FAIRWEATHER in accordance with the following project instructions:

OPR-P146-FA-82, Shelikof Strait, Alaska, dated February 23, 1985
Change No. 1, dated June 3, 1982
OPR-P146-FA-83, Shelikof Strait, Alaska, dated March 11, 1983
Change No. 1, dated April 15, 1983
OPR-P146-FA-84, Shelikof Strait, Alaska, dated March 2, 1984
Change No. 1, dated May 9, 1984

This is a three year basic survey offshore of Wide Bay to Imuya Bay located in Shelikof Strait, Alaska.

Predicted tides based on the Seldovia, Alaska (945-5500) for 1982, and Kodiak, Alaska (945-7283) for the 1983, 1984 work, were used during field processing. Tide correctors used for the reduction of final soundings reflect hourly heights zoned from Wide Bay, Alaska (945-8461).

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic.

The velocity tables have been revised during office processing to allow for separate velocity correctors for launch 2020 based upon a draft of 2.3 fathoms.

The revised data is listed in the smooth position/sounding printout.

2. CONTROL AND SHORELINE

Hydrographic control and positioning are adequately discussed in the Descriptive Report (sections F and G), Horizontal and Electronic Control Reports for OPR-P146-FA-82,83,84.

Horizontal control stations used during hydrography are from published and preliminary adjusted field positions on the North American 1927 datum.

H-10040 is an offshore survey, and there is no shoreline within its limits.

3. HYDROGRAPHY

Soundings at line crossings are in good agreement.

Delineation of the bottom configuration, development of shoal soundings, determination of least depths, and delineation of standard depth curves are adequate.

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, except as noted in the Preprocessing Examination Reports, dated November 17, 1982, January 19, 1984, and Cursory Examination of Supplemental Work, dated August 31, 1984.

5. JUNCTIONS

H-10040 junctions with the following surveys:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Note</u>	<u>Color</u>	<u>Junctions</u>
H-10026	1982	1:10,000	Joins	Red	Northwest
H-10039	1982-83	1:10,000	Joins	Violet	North
H-10108	1983	1:10,000	Joins	Orange	Northeast
H-10189	1985	1:10,000	Adjoins	Brown	Southwest

The junctions with H-10026, H-10039, and H-10108 were effected. Soundings were transferred from H-10039 and H-10108 to support depth curves.

A junction with H-10189 to the southwest has not been made, because the field work has yet to be received. Charted depths in this area are not in harmony with present depths. Additionally, AWOIS item #50276 (a 5-fathom shoal) will be investigated in H-10189.

6. COMPARISON WITH PRIOR SURVEYS

H-4398 (1924) 1:80,000

The depth curves on H-4398 identify the major underwater features, but a detailed examination reveals significant discrepancies between H-4398 and H-10040. An example is a large peak located at latitude 57°17'57"N, longitude 156°08'42"W, where H-10040 reveals a 16.3-fathom feature rising from a depth of 114 fathoms. The prior survey obtained a depth of 106 fathoms in the same area. Additional examples can be found where presently shoaler depths are located between sounding lines on the prior survey. Because of the lack of sufficient prior survey data to adequately develop the bottom, together with better data quality related to improved technology, H-10040 should supersede H-4398 within areas of common coverage. LAM

H-6925 (1943-44) 1:80,000

Present survey data compares well with this prior survey, however, H-10040 contains more information of better quality due to improvements in survey technology. H-10040 is adequate to supersede H-6925 over the area of common coverage.

7. COMPARISON WITH CHART

Chart 16568, 5th Edition, dated Dec. 9, 1978; scale 1: 106,600
 Chart 16570, 8th Edition, dated Feb. 18, 1978; scale 1; 50,000
 Chart 16013, 23rd Edition, dated Sept. 18, 1982, scale 1:969,761

a. Hydrography - Most charted information originates with the prior surveys discussed in section 6 of this report. Other soundings and charted features originate with miscellaneous sources not readily ascertainable.

The hydrographer references Tables VI and VII in the 1982-83 Descriptive Report as containing prior survey and charted depths that should not be superseded. During evaluation of this survey, the soundings listed in Table VI and VII were fully compared to present survey data and determined to be inferior to present survey information. In all cases the features listed in Tables VI and VII have been superseded by H-10040 data. ✓

The shoal investigations discussed in Section L (pages 9-16) of the 1984 Descriptive Report are all of shoal indications from the 1982-83 hydrography for which least depths were not adequately determined. As the minimum depths found are all shown on the smooth sheet, the chart compiler need not review this list in detail as each feature should be charted according to this survey.

H-10040 contains one pre-survey review item #22 (AWOIS 50276), a 5-fathom shoal charted at Latitude 57°11'36"N, longitude 156°17'03W. The investigation of this item was inconclusive. Item #50276 lies in the junction area with H-10189 and will be further investigated during the 1985 field season.

Geographic names appearing on the smooth sheet originate with Chart 18670, February 18, 1978 Edition.

H-10040 is adequate to supersede charted hydrography within the common area. ✓

Dangers to Navigation Reports (copies appended) were submitted to the 17th USCG District during the field work and office processing.

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

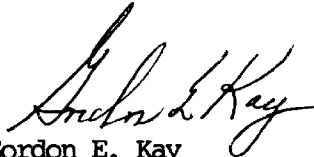
c. Aids to Navigation - There are no fixed or floating aids within the limits of this survey.

8. COMPLIANCE WITH INSTRUCTIONS


H-10040 adequately complies with the project instructions as amended and noted in Section 1 of this report.

9. ADDITIONAL FIELD WORK

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


Gordon E. Kay
Cartographer

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. The survey is recommended for approval.


Dennis Hill
Chief, Hydrographic Section

National Ocean Service
 Pacific Marine Center
 1801 Fairview Avenue East
 Seattle, Washington 98102-3767

AUG 27 1984

N/MOP21x2/MK

Commander (OAN)
 Seventeenth Coast Guard District
 P.O. Box 3-5000
 Juneau, Alaska 99802

Dear Sir:

During preliminary office review of hydrographic survey H-10040, Wide Bay to Imuya Bay, Shelikof Strait, Alaska, three shoals were noted and are considered dangers to navigation. Questions concerning the survey may be directed to Lt. Cdr. David W. Yeager, Chief, Nautical Chart Branch, telephone (206) 526-6835.

The following statements are recommended for inclusion in the Local Notice to Mariners:

"An uncharted shoal covered by 6.7 fathoms (MLLW based on predicted tides) is at latitude 57°14'38"N, longitude 156°12'46"W (Chart 16568)."

✓ ELM

"An uncharted shoal covered by 6.9 fathoms (MLLW based on predicted tides) is at latitude 57°15'07"N, longitude 156°10'52"W (Chart 16568)."

✓ ELM

"A shoal, previously located at latitude 57°18'20"N, longitude 156°14'56"W, with a least depth of 7.5 fathoms, has been determined to extend WSW to latitude 57°18'12"N, longitude 156°15'36"W, with a depth of 8.4 fathoms at that position (Charts 16568 and 16570)."

✓ ELM
 ✓ EM

Sincerely,

Robert L. Sandquist
 Rear Admiral, NOAA
 Director, Pacific Marine Center

bcc: N/CG222 with attachments

FILE COPY

CODE	SURNAME	DATE	CODE	SURNAME	DATE
MOP21x2	Kenny <i>MLK</i>	8/22	MOPx1	Austin <i>LOP</i>	8/27
MOP21	Yeager <i>ay</i>	8/27	MOP	Sandquist <i>RL</i>	8/27
MOR2	Mordock <i>ML</i>	8/27			

1604-06-1



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

National Ocean Service
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

January 6, 1984

Commander (OAN)
Seventeenth Coast Guard District
P. O. Box 3-5000
Juneau, Alaska 99802

Dear Sir:

During preliminary office review of hydrographic survey H-10040, Wide Bay to Imuya Bay, Shelikof Strait, Alaska, eight shoals were noted and are considered dangers to navigation. Questions concerning the survey may be directed to Capt. Ned C. Austin, Chief, Nautical Chart Branch, telephone (206) 527-6835.

The following statements are recommended for inclusion in the Local Notice to Mariners:

"An uncharted shoal covered by ⁴9.2 fathoms (MLLW based on predicted tides) is at latitude 57°16'40"N, longitude 156°16'28"W (Charts 16570 and 16568). ELM

"An uncharted shoal covered by ⁴8.1 fathoms (MLLW based on predicted tides) is at latitude 57°17'03"N, longitude 156°15'45"W (Charts 16570 and 16568). ELM

"The least depth on the 10 fathom shoal charted at latitude 57°18'21"N, longitude 156°15'00"W is revised to a least depth of ⁷7.5 fathoms (MLLW based on predicted tides) (Charts 16570 and 16568). ELM

"An uncharted shoal covered by ^{10.0}9.7 fathoms (MLLW based on predicted tides) is at latitude 57°18'39"N, longitude 156°14'25"W (Charts 16570 and 16568). ELM

"An uncharted shoal covered by ⁵9.1 fathoms (MLLW based on predicted tides) is at latitude 57°15'30"N, longitude 156°10'33"W (Chart 16570). ELM

An uncharted shoal covered by ⁸⁰7.7 fathoms (MLLW based on predicted tides) is at latitude 57°15'03"N, longitude 156°10'48"W (Chart 16570). ELM

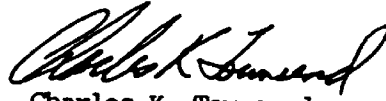
"An uncharted shoal covered by ^{10.2}9.9 fathoms (MLLW based on predicted tides) is at latitude 57°15'06"N, longitude 156°11'15"W (Chart 16570). ELM



"An uncharted shoal covered by ^{10.2}9.9 fathoms (MTJW based on predicted tides) is at latitude 57°15'22"N, longitude 156°09'18"W (Chart 16570)."

JEM

Sincerely,



Charles K. Townsend
Rear Admiral, NOAA
Director, Pacific Marine Center

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10040


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.


For Chief, Nautical Chart Branch (Date) 9-27-85

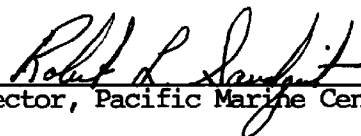
CLEARANCE:

N/MOP2:LWMordock

SIGNATURE AND DATE:



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) 9/27/85

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

No.	Date	Scale
H-6758Δ	1942	10,000
H-6829Δ	1942	800
H-6830	1944	20,000
F.E. No. 6	1944	10,000
F.E. No. 3	1946-47	20,000
H-7108	1947	20,000
H-7195	1947	20,000
H-7196	1947	40,000
H-7197	1947	40,000
H-7812	1949	40,000
H-7822	1949	20,000
H-8274	1950	5,000
F.E. No. 7	1954	10,000
M-8118	1954	10,000
H-8284	1956	500
H-8430	1956	40,000
H-8515 (3 areas)	1965	40,000
H-8619Δ	1965	40,000

On Scale of 1:10,000 1 inch = 1 statute mile
 1:20,000 1 inch = 2 statute miles
 1:40,000 1 inch = 4 statute miles
 1:50,000 1 inch = 5 statute miles
 1:800 1 inch = 800 feet

Δ Water Depth

Diagram No. 8502-2

