10135

Diagram No. 8556-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. FA-10-1-84

Office No. H-10135

LOCALITY

State Alaska

General Locality Shelikof Strait

Locality Portage Bay Kanatak Lagoon

19 84

CHIEF OF PARTY
CAPT. C. Andreasen

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DATE January 3, 1986

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10135

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NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-10135

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

FA 10-1-84

State: Alaska

General locality: Shelikof Strait

Locality: Portage Bay and Kanatak Lagoon

Scale: 1:10,000 Date of survey: (JD 157) 5 June 1984 - 30 July 1984 (JD 212)

Instructions dated: 2 March 1984 Project No.: OPR-P146-FA-84

Vessel: 2023, 2024, 2025, 2028, 2029

Chief of party: Captain Christian Andreason

Surveyed by: Lt. Cdr. Andreen, Lt. T. Otsubo, Ens. J. Koch, Ens. T. Tisch, Ens. J. Salmore, Ens. W. Mitchell, Ens. D. Timmons, CST E. 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 ~~XXXXXXX~~ed by: L.T. Deodato Automated plot by: PMC Xynetics Plotter

Evaluation ~~XXXXXXX~~on by: C. R. Davies

Soundings in fathoms ~~XXXX~~ at ~~XXX~~ MLLW and tenths of fathoms

REMARKS: For additional information, refer to the Corrections to Echo Soundings, Horizontal Control, Electronic Control, Tide Station, and Coast Pilot Reports for this project (OPR-P146-FA-84). All times are in UTC. All separates are filed with the hydrographic data. Marginal notes in black by evaluator.

Awois / Surf checks 4/4/86 MSM

SC 4-16-97

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

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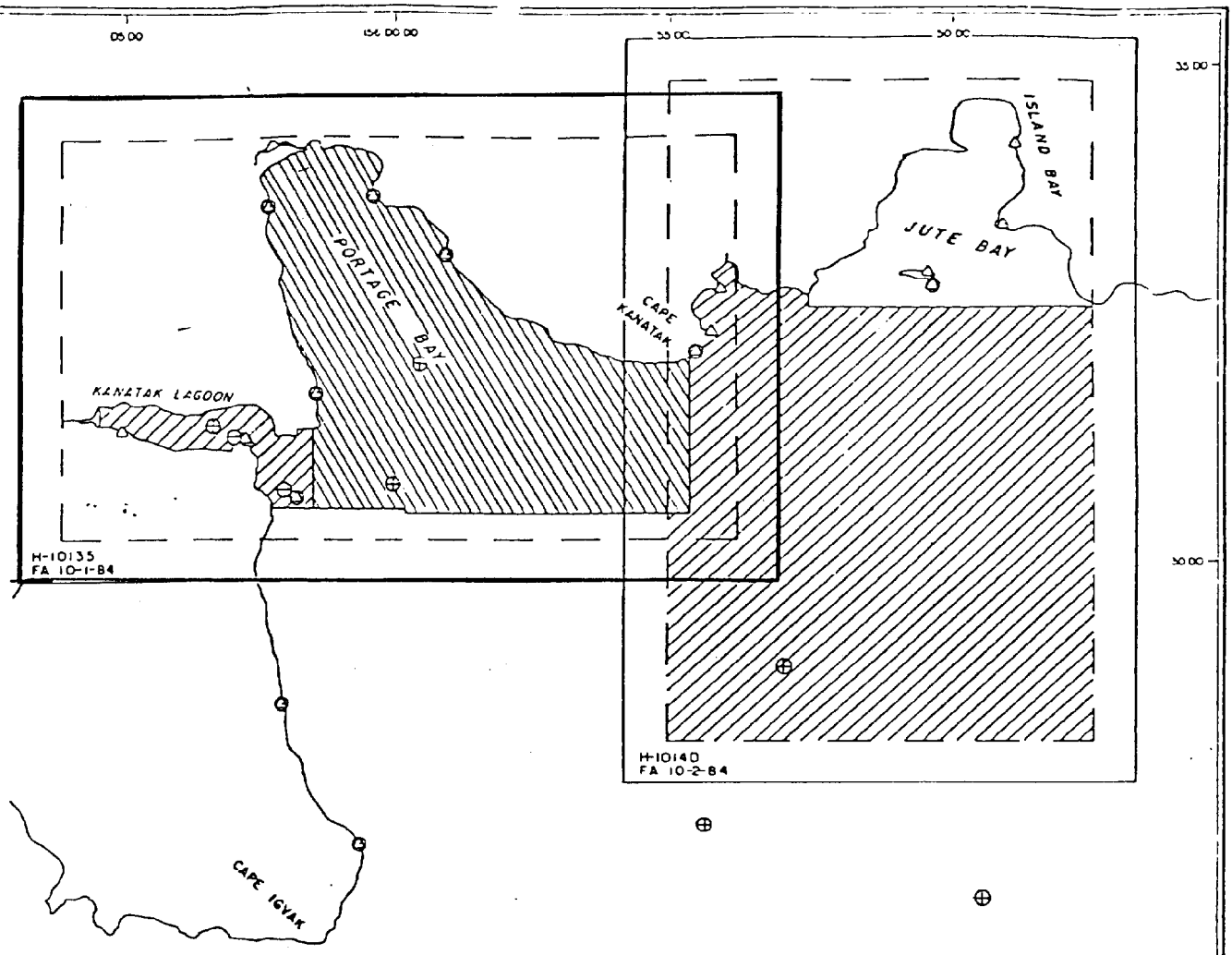


Development Hydrography accomplished in Mop on sheet FA 20-1-82 (H-10040) is not shown — see Progress Sketch OPR-P146-FA-82

	MAY	JUNE	JULY	AUG.
SQ NM SOUNDING LINE	4.5	10.8	17 6	2.5
LNM SOUNDING LINE	230	265	683 6	68.5
BOTTOM SAMPLE	0	22	123	9
HYDRO CONTROL STATIONS	6	8	5	2
SV/D – NANSEN CAST	3	1	2	2
WATER SAMPLES ANALYZED	3	0	0	2
TIDE GAGE INSTALLATIONS	1	2	1	0
LNM S/L VERIFICATION				
HYDROGRAPHY				

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

MONTHLY PROGRESS SKETCH
OPR-P146-FA-84
SHELIKOF STRAIT, ALASKA
PORTAGE BAY TO PUALE BAY

CAPT. CHRISTIAN ANDREASEN, CNDG
NOAA SHIP FAIRWEATHER S-220

SCALE FROM UGASHIK B-1, C-1 & KARLUK C-6 TOPOS

Descriptive Report
Hydrographic Survey H - 10135 (FA-10-1-84)

A. Project

This hydrographic survey was conducted in accordance with Project Instructions, OPR-P146-FA-84, Shelikof Strait, Alaska, dated 2 March 1984 with Change No. 1, dated 9 May 1984. The PMC OPORDER, the Hydrographic Manual (Fourth Edition) and the Data Requirements Letter updated 13 April 1984 (Appendices Q and R) are also applicable.

B. Area Surveyed

The area covered by this survey lies on the western side of Shelikof Strait, Alaska, from the northern tip of Portage Bay south to latitude 57/30/30 N and from the western shore of Portage Bay east to longitude 155/54/42 W. This survey also includes Kanatak Lagoon located on the western shore of the bay. Survey operations were begun on 5 June 1984 (JD 157) and ended on 30 July (JD 212) 1984.

C. Sounding Vessels

Hydrography on this survey was conducted with Jensen launches FA-3 (2023), FA-4 (2024), FA-5 (2025), Whaler 2 (2028) and Monark 4 (2029). FAIRWEATHER (2020) was used to obtain all sound velocity casts (see Table II, Velocity Casts). Bottom samples were collected by FA-5 (2025). Whaler-2 (2028) and Monark-4 (2029) were used to take detached positions, survey inshore areas, and to perform shoreline verification. No unusual sounding configurations were used during this survey.

with the exception of the velocity cast taken inside Kanatak Lagoon

D. Sounding Equipment and Corrections to Echo Sounding

The Jensen survey launches were equipped with Ross Fineline 5000 narrow beam echo sounders. Whaler-2 (2028) was equipped with a sounding pole along with Monarck 4 (2029) which also used a Raytheon 719B echo sounder. Serial numbers and days of usage are listed in Table I, Sounding Equipment.

Table I
Sounding Equipment

Vessel/Date (JD)	Model	Digitizer	Inverter	Analog	Transceiver
FA 3 (2023)					
157-211	Ross Fineline 5000	1046	1054	1097	1048
FA 4 (2024)					
157-178	Ross Fineline 5000	1042	1001	1047	1040-6
179-193	Ross Fineline 5000	1042	1001	1077	1040-6
206-208	Ross Fineline 5000	1082	1001	1054	1040-6
FA 5 (2025)					
157-213	Ross Fineline 5000	1036	1103	1036	1054

Whaler 2 (2028)					
194	Sounding Pole	----	----	----	----
Mon 4 (2029)					
195-197	Sounding Pole	----	----	----	----
208-213	Raytheon 719B	----	----	1270	----

Belt tension and phase calibration checks were performed on the Ross recorders at the start of each day 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. Depths on this survey ranged from 0 to 33 fathoms.

The transducer for the Raytheon 719B echo sounder in Monarch 4 (2029) was securely mounted on a rigid frame which was reinstalled on the skiff each time it was used, which caused the TRA value to change daily. TRA measurements were made by vertical casts and direct measurements between the waterline and the bottom of the transducer. On JD 208 the TRA was 1.7 feet and on JD 211-213 the TRA was 1.6 feet. All soundings acquired by Monark 4 were read from the analog traces and logged by hand in the sounding volume. Sounding data for Monark 4 (2029) was recorded in feet on the echograms, sounding volumes and all data tapes. Plotting on field sheets was done in fathoms. Vessel 2029 on Day 213 used a TRA corrector of 1.9 Ft.

The only problems encountered with echo sounders during this survey occurred on launch 2024 and consist of the following:

On JD 179, the take up belt on Ross recorder (1047) broke. In order to save time and perform other preventive maintenance this recorder was replaced with unit (1077). On JD 193, the initial wavered on the Ross recorder (1077), thus recorder (1047) replaced the faulty unit. On JD 199 the digitizer (1042) had intermittent interupt problems. This unit was replaced by digitizer (1082). No data was lost in any of these incidents.

All depths obtained by divers were determined by using a pneumatic depth gauge (manufactured by 3D Instruments, Inc., s/n 8302079N). The orifice which was attached to a 100 ft. air hose was held in place by divers, while a surface tender on launch 2025 pressurized the system three times and recorded the averaged reading. 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.). For depths on this survey, the accuracy was found to be 0.14 ft. for a maximum depth of 57.8 ft.

Daily system calibrations were also performed to confirm accuracy standards of the pneumatic gauge. This check consisted of securing the orifice to a weighted tape and lowered from the water surface to a maximum of 60 ft. At five foot increments, the gauge value would be recorded and compared to the tape depth, following a method similar to that of bar checks.

FAIRWEATHER's three survey launches; FA-3 (2023), FA-4 (2024) and FA-5 (2025) were tested for settlement and squat on March 1 and 6, 1984 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 ranging from idle to top speed at 200 RPM increments. A Zeiss Ni2 level was used to read a stadia rod held over the transducer once the proper 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 available means for the Hydroplot system to accept corrector increments of less than 0.1 fathoms. Using this criteria the launches 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 and sea conditions permitting, equipment functioning, etc. Bar check data combined with velocity correctors determined launch TRA values. For this survey 0.3 fathoms was obtained for the TRA values of FA-3 (2023) and FA-4 (2024) with 0.3 fathoms for the TRA of FA-5 (2025). All data on the final sheets was plotted with a TRA of 0.3 fathoms. Barchecks for 2025 revealed a TRA corrector between .35 to .37 fathoms. This was rounded to .3 fathoms

Leadlines, sounding poles and bar check lines were calibrated at the beginning and end of the project by FAIRWEATHER personnel. Corrections were insignificant and not applicable to the sounding data. On JD 208, the left bar check line on FA-4 snapped. It was replaced by a spare bar check line, previously calibrated.

Weather conditions during this survey were variable, with winds ranging from 0 to 40 knots and seas ranging from 0 to 5 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 three SV/D casts, one CTD cast and one Nansen cast in accordance with the Hydrographic Manual, Section 4.9.5.2. The Nansen Cast was performed by divers in Kanatak Lagoon on JD 212 and velocity correctors for the lagoon were determined from this cast. Correctors for the remainder of the survey were determined from the CTD and SV/D casts (See Table II for the dates and locations of the casts). Table III shows which velocity casts were used to compile each velocity table, along with the areas and dates for which each velocity table applies.

Table II
Velocity Casts

Cast Number	Date	Latitude	Longitude	
1 (SV/D)	157	57/30/48 N	156/00/00 W	
2 (SV/D)	191	57/32/00 N	155/59/30 W	
3 (Nansen)	212	57/31/20 N ~~57/30/00~~ N	156/03/15 W ~~156/00/00~~ W	
4 (SV/D)	215	57/28/26 N	155/52/59 W	offsheet limits
5 (CTD)	227	57/26/36 N	155/44/30 W	offsheet limits

Table III
Velocity Tables

Velocity Table	Casts Used	Effective Dates (JD)
Portage Bay and mouth of Kanatak Lagoon		
I	1	157-180
II	2	189-200
III	4 & 5	206-213
Inside Kanatak Lagoon		
IV	3	190-212

The SV/D casts were performed using a Plessy Model 9040 Environmental Profiling System (#5632) calibrated at the Northwest Regional Calibration Center (NRCC) 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 sound velocity profiles.

The CTD cast was performed using a different Plessy Environmental Profiling System, one primarily used for OCSEAP CTD casts. This system consisted of a model 8700 Autoranging Signal Processor (sn 6143), a Texas Instruments 733 ASR terminal (sn 91098) and a Camac Power Crate (sn 1121).

The Nansen cast used reversing thermometers 1001-68, 9477, 9720, 992-68, 16050 and 16056, which were calibrated at NRCC. 16050 and 16056 were calibrated in February 1983 and the others were calibrated in April and May of 1984. The Beckman salinometer, #24670, was calibrated at NRCC in March 1984.

For more information refer to Corrections to Echo Soundings Report, OPR-P146-FA-84.

E. Hydrographic Sheets

All field sheets were plotted aboard FAIRWEATHER using PDP 8/e computers and Complot Plotters. This survey consists of six final field sheets. All are plotted on mylar. The dimension, scale and skew of each sheet are as follows:

Area	Dimensions		Skew	Scale
10 - 1 East	21x23	inches	90	1:10,000
10 - 1 West	20x32	inches	90	1:10,000
Kanatak Lagoon	20x38	inches	0	1: 5,000
Developments A,B&C	21.5x34	inches	0	1: 5,000
Development D	9x5	inches	0	1: 5,000
*Development E	15x10	inches	0	1: 5,000
*Development F	20x22	inches	0	1: 5,000

*Plotted separately on one sheet of mylar

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

F. Control Stations

Horizontal control for this survey was performed by FAIRWEATHER personnel. All new stations were established using conventional traverse and triangulation methods. All control was based on the 1927 North American Datum. All field observations and measurements were accomplished to Third Order, Class I accuracy or better. All geodetic positions for stations recovered were recomputed using the 1984 field positions for LAGOON 1923 and CAPE 1923. Preliminary adjusted field positions were used as control H-10135.

The following stations were used in support of this survey:

Station Name	Signal Number
CAROL r.m. (1983)	104
+BIRD r.m. (1983)	106
LAGOON 1923 r.m.	108
LIZZY r.m. (1983)	110
KELP 2 r.m. (1983)	112
DEBBI r.m. (1983)	114
CAPE 1923 r.m.	116
BEAVER d.m. (1984)	120
BEAVER RM1 d.m. (1984)	122
WALLY d.m. (1984)	124

r= recovered, m= monumented or marked, and d= described
+ Offshore control stations

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

G. Hydrographic Position Control.

Hydrographic positioning control was accomplished using the Motorola Mini-Ranger III system in the standard range-range and range-azimuth configurations. Table IV, Mini-Ranger Vessel Equipment, lists the console and R/T pairs used in each sounding vessel during this survey. There was one R/T unit failure, R/T (sn 1649) on JD 195. This unit was replaced by R/T (sn 1527).

Table IV
Mini-Ranger Vessel Equipment

Vessel	Console-R/T Pair	JDs
FA 3 (2023)	B0323/B1398	157-178, 189-192, 206-208
	716/1538	178-180, 192-200, 211-212
FA 4 (2024)	703/B1419	157-197, 200-208
FA 5 (2025)	506042/1649	157-197
	703/B1419	198
	506042/1527	206-212
Whaler 2 (2028)	716/1538	194
Mon 4 (2029)	B0323/B1398	195-197, 209-212
	716/1538	208-209

Mini-Ranger baseline calibrations (BLC's) were conducted in accordance with Appendices M and S of the PMC OPORDER. Beginning correctors were determined from a BLC performed in Seattle, Washington at Magnuson Park between two recoverable points on JDs 52, 53 and 109. Three additional BLC's were conducted during this survey as a result of equipment failures (R/T or transponder failures) or ending calibration values for other survey work accomplished. These were performed in Kodiak, Alaska between a mark set at the edge of the Marginal Pier on the Coast Guard Base, and the geodetic control station, SHANNON POINT 1978.

Three sets of final correctors for the Mini-Ranger equipment were obtained for this survey covering the time periods JD 157-174, 175-201, and 202-230. Except when instrument failures precluded ending calibrations, these correctors were normally determined by taking the mean value for the BLC values bracketing each time frame. For an indepth discussion of which values were used, see Table III, Mini-Ranger Final Corrector Determinations, in the Electronic Control Report, OPR-P146-FA-84.

See Final Report Section I

On two occasions, atypical graphs and/or corrector values were obtained for transponders "new codes 7 and 8" during the BLC's which critical field system checks could not confirm. Since the field system checks were equivalent in strength of geometry as the BLC's and were

verified by additional system checks or ending BLC's, the atypical BLC's were rejected and not used in final corrector determinations. For more information concerning this problem, refer to the Electronic Control Report, OPR-P146-FA-84. when the BLC exceeded the limits of the survey scale. The appropriate daily corrector was used as the electronic correction for that day

Critical system checks were conducted at least once each week and non-critical checks performed daily. The methods used for system checks included: theodolite intersection, direct baseline measurements, launch to launch comparisons and multi-range comparisons. Critical checks showed a mean variation of -0.1 meters with a maximum value of 4.25 meters from the baseline calibrations. Concur

No unusual weather conditions adversely affected positional accuracy on this survey. No hydrography was conducted with weak or less than minimum required control geometry. All signal strengths were recorded automatically or manually annotated on line to insure that all hydrography run with less than minimum signal strengths was plotted using time and course methods.

In all cases, the Mini-Ranger R/T unit was located over the transducer thus eliminating the need for ANDIST correctors to be applied to the data.

H. Shoreline

Shoreline for this survey is adequate and should be used for charting purposes. Shoreline was taken from 1:10,000 scale enlargements of TP-000627 and TP-000628, both 1:20,000 scale, Class III shoreline manuscripts. Shoreline for the 1:5,000 Kanatak Lagoon inset was taken from a 1:5,000 enlargement of TP-000627. concur, with the appropriate changes from the hydrographic records. Chart according to smooth sheet.

Comparison between the hydrography obtained on H-10135 and the shoreline manuscripts showed excellent agreement with the mean high water line and onshore features. The only exception is the bridge shown on the manuscript TP-000627 at latitude 57/34/16 N, longitude 156/01/33 W no longer exists, and should be removed. concur

On the 1:5,000 Kanatak Lagoon inset, major differences between the manuscript and the hydrography were found in the reef areas, particularly, along the northeast shoreline beginning at latitude 57/31/12 N, longitude 156/01/30 W, and extending west to latitude 57/31/36 N, longitude 156/02/58 W. Another reef section in disagreement is around Bird Island (name given to the island at the mouth of Kanatak Lagoon), located at latitude 57/30/39 N, longitude 156/01/52 W. Finally, a ledge shown on the manuscript extending east from shore to latitude 57/30/54 N, longitude 156/02/25 W was found to be incorrect and is actually an area foul with rocks. chart according to smooth sheet.
This area is shown as three rocks, uncovering at MLLW, the highest is *(3).

The only other major change in the reef system was found on manuscript TP-000628. Hydrography showed that the reef located at latitude 57/32/02 N, longitude 155/55/27 W does not exist. Chart according to smooth sheet.

Most of the rocks depicted on the manuscripts were found and verified, a few have revised positions, a couple were not found and many new rocks were added. Features verified and additions to the manuscript are shown in

black ink on the final field sheets. Those items that are changes to the manuscripts are shown in red ink. All rocks and ledges are shown in black on the smooth sheet.

One rock located on the manuscript at latitude 57/30/47 N, longitude 156/02/28 W was not found. This rock is not shown on the most recent chart of the area nor on the prior surveys given to the ship. Also, when performing hydrography on H-10135, sounding lines passed directly over the indicated location along with 25 meter spacing in the area. During shoreline verification, Monarch 4 (2029) searched the area for approximately 45 minutes and nothing was found. As a result of these efforts, it is recommended that this rock be deleted from the chart. concur chart according to smooth sheet.

The only other rocks not found are at the following locations on the manuscript. It is recommended that these be carried forward from the manuscript to the survey. See EVAL Rpt Section 4

Latitude	Longitude
57/33/29 N	156/00/43 W
57/31/06 N	156/02/06 W
57/31/25 N	156/05/09 W
57/31/32 N	156/04/50 W
57/32/00 N	155/55/05 W
57/31/59 N	155/54/39 W
57/33/27 N	156/01/02 W

Table V lists rocks which were found to have slightly different hydrographic positions from that on the manuscripts. In all cases the hydrographic position was taken as the correct location. It should be noted that some distortion existed on the 1:5,000 and 1:10,000 scale manuscripts due to the enlargement process of the original 1:20,000 scale manuscripts.

Table V
Revised Positions of Rocks

Manuscript Latitude (North)	Manuscript Longitude (West)	Position Numbers	H - 10135 Latitude (North)	H - 10135 Longitude (West)	
57/33/21	156/00/52	8049	57/33/20.90	156/00/51.62	covered 15ft at mllw
57/33/27	156/01/02	8050	57/33/26.212	156/01/02.654	* (2)
57/33/36	156/02/12	8059	57/33/35.855	156/02/10.860	x (3)
57/33/28	156/02/12	8067	57/33/27.878	156/02/10.750	cov 24ft mllw
57/31/30	156/01/28	8376	57/31/29.95	156/01/29.41	*(1)
57/31/25	156/05/05	8208	57/31/24.845	156/05/04.873	*(4)
57/31/18	156/02/30	0913 **	57/31/18.0	156/02/31.0	} TRANSferred from T-sheet
57/31/34	156/02/50	6737+5 **	57/31/34.0	156/02/51.0	
57/31/59	155/54/39	8104	57/31/59.9 00.13	155/54/40.052	*(4)

** Check position was not obtained

Position numbers 8500-8513 were given to rocks which were on the manuscript and visually verified with time and height data but not located hydrographically, as per Appendix P of the PMC OPORDER.

I. Crosslines ✓

A total of 24.7 nautical miles of crosslines were run on this survey comprising 9.7% of the main-scheme hydrography. Crosslines were oriented approximatly perpendicular to the main-scheme hydrography. All crosslines are in excellent agreement meeting or exceeding the limits set fourth in the Hydrographic Manual, Section 1.1.2 Part B. *concur*

J. Junction ✓

This survey junctions with two contemporay surveys, H-10108 (FA-10-4-83) and H-10140 (FA-10-2-84), both of which are at a scale of 1:10,000. The junctions with H-10108 are in excellent agreement from 155/57/00 west to the shore. The junction soundings from 155/57/00 east differ by up to 1 fathom. It is believed that this discrepency is caused by tides since the surveys were performed in two different years and the bottom in this area is relativly flat. All junction soundings with H-10140 are in excellent agreement, meeting or exceeding the requirements in Section 1.1.2, Part B, of the Hydrographic Manual. *Adequate junctions have been effected.* *concur*

K. Comparison With Prior Surveys ✓

There is only one AWOIS item listed in the survey area. Item #50194, a visible wreck located at 57/31/00 N, 156/02/06 W, was investigated and found to have shifted into deeper water. The wreck, a 115 ft. landing craft type motor vessel, was located at latitude 57/31/01.~~18~~ 26 N, longitude 156/01/~~41.97~~ 42.10 W (position number 6929) with a least depth of ~~41.0 feet~~ 21 fathoms at MLLW ~~predicted tides~~. (A drawing of the wreck can be found with the ~~raw data~~ report.) It is recommended that this wreck be charted at the new position and depth. *See EVAC Report Section 7* *AWOIS msm 4/3/86*

In addition, debris from the wreck consisting of tractors and various machinery was located between 57/30/59.14 N, 156/01/54.87 W and 57/30/58.8~~9~~7 N, 156/01/53.~~23~~ 38 W (position numbers 6926 and 6927) with a least depth of ~~42.8 feet~~ 7.6 Fathoms at MLLW ~~predicted tides~~. It is recommended that this debris be charted as obstructions at the obtained positions. For a drawing of the debris, refer to the raw data. *AWOIS msm 4/3/86* *See EVAC Report Section 7* *concur*

For the area covered by this survey, comparisons were performed between H-10135 and the following prior surveys (prior surveys were enlarged to a 1:10,000 scale for ease of comparison and are included with the field data):

Survey	Year	Original Scale
H-4296	1923	1:20,000
H-4398	1924	1:80,000
H-7197	1947	1:40,000

H-4296

In order to perform a comparison between the prior survey H-4296 and the survey H-10135, the North American Datum of 1927 adjustment was transferred from the another prior survey since it was not indicated on the

ship's copy of H-4296. The datum mark was taken from survey H-4295, a junction survey to H-4296 performed during the same year.

Comparison between the 1:5,000 enlargement of H-4296 and the Kanatak Lagoon inset was accomplished by matching the shoreline as close as possible instead of the grid. When using the latitude and longitude grid, the entire prior survey had up to 150 meter discrepancies in this area. concur

95% agreement was obtained between soundings from H-4296 and the contemporary survey H-10135 to within two fathoms. The 5% on H-4296 not meeting this criteria were found to be both shoaler and deeper than H-10135. Those which were deeper were mainly scattered randomly throughout the survey except in the area of the landslide on the northeast side of the bay just south of Kelp Point. (See section L, Comparison with the Chart, for more information on the landslide.) concur

One half of the shoaler soundings were also randomly scattered throughout the area and the other half were found along the shoreline between longitude 155/55/15 W and 155/56/40 W in depth less than 12 fathoms. All shoaler soundings were investigated by launches performing developments of 25 or less meter sounding lines over the prior's location. Concur, except the 5 fathom sounding at latitude 57°32'57"N, longitude 156°00'30"W was brought forward to the present survey.

The prior survey soundings discussed above are noted on the 1:10,000 enlargement of H-4296 where shoaler depths are in red and the deeper soundings in blue. In all cases, it is recommended that depths from survey H-10135 supersede those obtained on H-4296.

The comparison of the shoreline and rocks displayed on H-4296 to H-10135 showed only a similarity. The shoreline of H-4296 differed by distances up to 100 meters mainly in the southern and western directions, from the current shoreline manuscript. The shoreline on the contemporary survey has been verified by hydrography whereas on H-4296 the inshore area was not developed, thus it is recommended that the shoreline on H-10135 supersede that portrayed on H-4296. concur

Less than half the rock positions on H-4296 agreed to those found while performing the H-10135 survey. Those in disagreement were found along with western shoreline of Portage Bay and just off Kelp Point. The rocks are indicated in orange on the 1:10,000 scale enlargement of survey H-4296. All these rocks were searched for and not found during shoreline verification with approximately 1.5 hours of skiff time spent looking for each rock along with 15 to 45 meter spacing for sounding lines in some areas. It is recommended that they be deleted from the chart. concur

H-4398 and H-7197

All of the soundings in the common areas between these prior surveys and H-10135 agree to within 1 fathom meeting the limits set forth by the Hydrographic Manual, Section 1.1.2 Part B. concur

L. Comparison With Chart.

Comparisons were made between H-10135 and Chart 16570, 8th edition, 18 February 1978. It is obvious that chart 16570 was based on the prior

survey H-4296 since all of the discrepancies found between H-10135 and chart 16570 are identical to those found between H-4296 and H-10135. For this reason the discrepancies with the chart will not be repeated here. See the comparison with H-4296 for the discrepancies. A copy of chart 16570 at a scale of 1:10,000 has been included with the data using the same color scheme as the prior surveys, red areas are shoaler than H-10135, blue areas are deeper and orange rocks were searched for and not found on H-10135.

A major landslide occured on the northeast side of the bay since the last charting of the area. The slide is located at latitude 57/32/24 N, longitude 156/58/00 W and has extended the land 0.18 nautical miles seaward and 0.28 nautical miles both east and west of this point. This landslide is adequately defined on the current shoreline manuscript. concur

Table VI is a listing for all diver investigations on shoals located within the limits of this survey. Divers located least depths by performing either visual investigations where the objects were immediately found or by circle searches with all depth values obtained by using the 3D Instruments pneumatic depth gauge. Refer to section D, Sounding Equipment and Corrections to Echo Soundings, in this report for additional information on the pneumatic depth gauge.

A circle search consists of the following procedure: A weight of approximately 50 pounds with a line and float attached is dropped at the investigation site. Two divers descend to the weight and attached the end of a fiberglass measuring tape to the weight. They then swim away from the weight with the tape reel in hand until they can no longer see the weight. They then swim back along the tape until the weight becomes visible and note the distance. In this manner, visibility is determined. Once visibility is known, the divers position themselves at intervals of visibility from the weight, i.e. if visibility is 25 feet, the divers will be at 25 foot intervals from the weight. One diver will be at the first interval of visibility and the second will be twice that distance. After marking the bottom, the divers swim a 360 degree circle holding tightly to the tape, keeping the tape taught, looking to both sides and staying close to the bottom. After the first circle, the divers move out to three and four times the visibility distance respectiviely (if 25 ft visibility, the divers at first at the 25 and 50 foot marks then move to the 75 and 100 ft marks.) This procedure is continued until the maximum radius of the circle search is reached.

Table VI
Diver Investigations

Latitude (North)	Longitude (West)	Survey Depth at MLLW ~~(Feet)~~ fm	Position Numbers
57/32/48.77	156/00/14.06	~~54.8~~ 9.2 RK	6904
57/33/12.76	156/00/29.11	~~9.4~~ 1.6 (excessive kelp)	6905
57/33/11.05	156/00/30.04	~~4.5~~ 0.8 RK	6906
57/33/12.98	156/00/28.55	~~7.3~~ 1.3 (excessive kelp)	6907
57/32/53.05	156/01/22.85	~~35.2~~ 6.0 RK	6908
57/33/19/20.96	156/01/24/3.50	~~6.6~~ 1.2 RK	6909

57/33/19.00	156/01/0059.80	~~3.7~~ 0.7 RK	6910
57/33/02.29	156/00/39.16	~~32.2~~ 5.4 RK	6911
57/33/01~~0~~.41	156/00/09~~8~~.82	~~27.9~~ 4.8 RK	6912
57/33/28.29	156/01/21.11	~~33.4~~ 5.6	6913
57/33/31.26	156/01/38.62	~~20.8~~ 3.5 RK	6914
57/33/28~~5~~.73	156/01/06.56	~~8.9~~ 1.5	6915
57/33/28~~5~~.70	156/01/1~~0~~.62	~~10.3~~ 1.8	6916
57/33/26.10	156/01/11.17	~~8.1~~ 1.4 RK	6917
57/33/13~~2~~.72	156/00/38.06	~~18.4~~ 3.3	6918
57/33/28~~7~~.93	156/01/17~~6~~.76	~~19.7~~ 3.5 RK	6919
57/33/15.09	156/00/43.40	~~6.8~~ 1.3 RK	6920
57/33/19.16	156/01/06.09	~~20.0~~ 3.5	6921
57/33/0~~1~~0.70	155/59/23.20	~~3.3~~ 0.6 RK	6922
57/32/08~~7~~.56	155/56/33.11	~~22.3~~ 3.7	6923
57/31/58~~8~~.81	155/56/16.49	~~23.6~~ 4.0	6924
57/32/37.46	155/58/3~~1~~0.84	~~19.4~~ 3.4	6925
57/31/04.30	156/01/57.37	~~21.3~~ 3.7 RK	6930
57/31/04.05	156/01/56.26	~~22.7~~ 4.0	6931
57/31/07~~6~~.86	156/01/5~~8~~2.83	~~12.4~~ 2.1 RK	6932
57/30/58.21	156/02/03.40	~~7.8~~ 1.3 submerged rock	6933
57/30/59.43	156/02/05.15	~~14.8~~ 2.4	6934
57/30/40~~3~~9.94	156/01/36~~5~~.84	~~17.0~~ 3.2	6936
57/30/40~~3~~9.68	156/01/35.47	~~16.5~~ 3.0 RK	6937
57/31/56.09	155/54/47.08	~~18.3~~ 3.1	6938
57/31/59.20	155/54/56~~5~~8.85	~~15.0~~ 2.6	6939
57/31/58.04	155/55/2~~2~~1.85	~~3.4~~ 0.6	6940
57/31/57.10	155/55/00.19	~~28.2~~ 4.7	6941
57/32/2~~0~~.91	155/57/46.49	~~13.1~~ 2.2	6942
57/32/2~~0~~ 19.85	155/57/56.13	~~9.8~~ 1.7	6943

Copies of all reports of chart corrections or dangers to navigation to the U.S. Coast Guard are included in the separates following the text.

M. Adequacy

This survey is complete and fully adequate to supercede all prior surveys within their common areas. No additional field work is necessary. concur

N. Aids to Navigation

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

O. Statistics

Vessel	2020	2023	2024	2025	2028	2029	Total
Positions	--	~~1709~~ 1510	~~2056~~ 1607	~~944~~ 850	16	~~460~~ 441	~~5185~~ 4432
Nautical Miles	--	136.0	240.3	29.0	--	3.5	408.8
Square Miles	--	3.4	7.2	2.8	--	0.2	13.6
Bottom Samples	--	--	--	69	--	--	~~69~~ 68
Velocity Casts	4	--	--	--	--	--	4
Tide Stations	3	--	--	--	--	--	3
Detached Positions	--	--	1	40	16	324	381

Two magnetic stations were established at the horizontal control stations WALLY and KELP 2 during survey operations. For additional information see the Magnetics Report, OPR-P146-FA-84.

P. Miscellaneous

Portage Bay is an area used quite extensively by fishermen along with Kanatak Lagoon which is also used as a harbor of refuge during eastern storms although access is limited to high tide due to the shallow entrance.

Currents in the main survey area were observed to be less than one knot whereas strong currents were encountered at the mouth to Kanatak Lagoon. It was noted that the maximum ebb current (estimated to be 2 knots) from the lagoon was greater than the maximum flooding current. A 1.4 knot current was measured in the entrance on JD 211 by Monarch 4 (2029). However, this measurement was taken later than maximum flow since it was difficult to ascertain times of max currents. A notation was placed on the smooth sheet: Strong currents exist at the mouth of Kanatak Lagoon

Q. Recommendations

It has been recommended that the island at the mouth of Kanatak Lagoon be named Bird Island. A report requesting this addition to the chart will be submitted thru N/MOP21 for transmittal to the Chief Geographer. Bird Island was not forwarded to the Chief Geographer per discussion with hmi, 10-1-85.

R. Automated Data Processing

All range-range and range-azimuth hydrography was processed in accordance with the Hydrographic Data Requirements Letter (Appendix Q) dated 13 April 1984. All peaks and deeps and sounding corrections for range-range hydrography were placed on the corrector tape. For the range-azimuth data all peaks and deeps that were inserted onto the arcs were edited directly onto the master tape with an interpolated range assigned to them. All other range-azimuth edits were either edited onto the master tape as a short word or placed on a corrector tape, in both cases positioning was by time and course.

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

Number	Program	Version Date
RK 112	Range-Range Real Time Plot	10/12/83
RK 201	Grid, Signal and Lattice Plot	04/18/75
RK 211	Range-Range Non-Real Time Plot	02/13/84
RK 212	Visual Station Table Load	04/01/74
RK 216	Range-Azimuth Non-Real Time Plot	02/24/84
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 562	Azimuth Electronic Calibration	09/10/74
AM 602	Elinore	12/08/82

S. Referral to Reports

The following is a list of the reports for OPR-P146-FA-84 that are to be submitted seperatly from the descriptive report and the hydrographic records:

Report	Date Submitted
Horozontal Control Report	August 1984
Electronic Control Report	October 1984
Coast Pilot Report	September 1984
Corrections to Echo Soundings Report	October 1984
Magnetics Report	October 1984

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 complete and shall require no additional work.

Submitted by:

Duane Timmons
ENS NOAA

Approved by:

Christian Andreasen
CAPT NOAA
Commanding Officer

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
NOAA Ship FAIRWEATHER S220
1801 Fairview Ave. E.
Seattle, WA 98102

6 August 1984

Commander
Seventeenth Coast Guard District
P.O. Box 3-5000
Juneau, AK 99802

Dear Sir:

The following dangers to navigation have been discovered by the NOAA Ship FAIRWEATHER during hydrographic survey operations in the Portage Bay vicinity of Shelikof Strait, surveys #H-10135 and #H-10140. Questions or comments concerning the survey may be directed to: Chief, Nautical Chart Branch, NOAA, National Ocean Service, 1801 Fairview Ave. E., Seattle, WA 98102-3767, (206) 527-6835.

Survey: Portage Bay, AK #H-10135

1. Submerged rock, covered by 0.~~8~~ 6 fathoms at Mean Lower Low Water (MLLW); Chart No. 16570; latitude 57/33/01 N, longitude 155/59/23 W; distance 0.8 nautical miles (nm), bearing 144 degrees True from Kelp Point

2. Submerged rock, covered by 4.~~7~~ 8 fathoms at MLLW; Chart No. 16570; latitude 57/33/00 N, longitude 156/00/09 W; distance 0.63 nm, bearing 171 degrees True from Kelp Point.

3. Submerged rock, covered by 9.~~1~~ 2 fathoms at MLLW; Chart No. 16570; latitude 57/32/41 N, longitude 156/00/14 W; distance 0.95 nm, bearing 176 degrees True from Kelp Point.

4. Submerged rock, covered by 5.~~3~~ 4 fathoms at MLLW; Chart No. 16570; latitude 57/33/02 N, longitude 156/00/39 W; distance 0.6 nm, bearing 192 degrees True from Kelp Point.

5. Submerged rock, covered by ~~5.9~~ 6.0 fathoms at MLLW; Chart No. 16570; latitude 57/32/53 N, longitude 156/01/22 W; distance 0.93 nm, bearing 213 degrees True from Kelp Point.

6. Submerged rock, covered by ~~0.8~~ 1.2 fathoms at MLLW; Chart No. 16570; latitude 57/33/21 N, longitude 156/01/24 W; distance 0.64 nm, bearing 236 degrees True from Kelp Point.

7. Submerged rock, covered by 3.5 fathoms at MLLW; Chart No. 16570; latitude 57/33/31 N, longitude 156/01/38 W; distance 0.7 nm, bearing 253 degrees True from Kelp Point.

8. Submerged rock, covered by 3.~~3~~ 2 fathoms at MLLW; Chart No. 16570; latitude 57/33/28 N, longitude 156/01/17 W; distance 0.54 nm, bearing 243 degrees True from Kelp Point.

9. Shoal, covered by 1.2 fathoms at MLLW; Chart No. 16570; latitude 57/33/42 N, longitude 156/01/15 W; distance 0.44 nm, bearing 267 degrees True from Kelp Point.

10. Shoal, covered by 1.7 fathoms at MLLW; Chart No. 16570; latitude 57/33/36 N, longitude 156/01/22 W; distance 0.53 nm, bearing 256 degrees True from Kelp Point.

11. Shoal, covered by 1.7 fathoms at MLLW; Chart No. 16570; latitude 57/33/31 N, longitude 156/01/08 W; distance 0.45 nm, bearing 243 degrees True from Kelp Point.

12. Submerged rock, covered by 1.3 fathoms at MLLW; Chart No. 16570; latitude 57/33/26 N, longitude 156/01/11 W; distance 0.48 nm, bearing 235 degrees True from Kelp Point.

13. Submerged rock, covered by 0.6 fathoms at MLLW; Chart No. 16570; latitude 57/33/19 N, longitude 156/01/00 W; distance 0.47 nm, bearing 219 degrees True from Kelp Point.

14. Submerged rock, covered by 1.1 fathoms at MLLW; Chart No. 16570; latitude 57/33/15 N, longitude 156/00/43 W; distance 0.44 nm, bearing 202 degrees True from Kelp Point.

15. Submerged rock, covered by 0.7 fathoms at MLLW; Chart No. 16570; latitude 57/33/11 N, longitude 156/00/30 W; distance 0.46 nm, bearing 188 degrees True from Kelp Point.

16. Shoal, covered by 3.1 fathoms at MLLW; Chart No. 16570; latitude 57/33/06 N, longitude 155/59/57 W; distance 0.56 nm, bearing 160 degrees True from Kelp Point.

17. Shoal, covered by 8.0 fathoms at MLLW; Chart No. 16570; latitude 57/32/54 N, longitude 156/01/11 W; distance 0.87 nm, bearing 208 degrees True from Kelp Point.

18. Shoal, covered by 8.5 fathoms at MLLW; Chart No. 16570; latitude 57/32/57 N, longitude 156/01/04 W; distance 0.8 nm, bearing 206 degrees True from Kelp Point.

19. Shoal, covered by 8.5 fathoms at MLLW; Chart No. 16570; latitude 57/33/00 N, longitude 156/01/07 W; distance 0.77 nm, bearing 209 degrees True from Kelp Point.

20. Shoal, covered by 8.8 fathoms at MLLW; Chart No. 16570; latitude 57/32/58 N, longitude 156/01/08 W; distance 0.78 nm, bearing 209 degrees True from Kelp Point.

21. Shoal, covered by 8.8 fathoms at MLLW; Chart No. 16570; latitude 57/33/02 N, longitude 156/01/01 W; distance 0.72 nm, bearing 207 degrees True from Kelp Point.

22. Shoal, covered by 9.6 fathoms at MLLW; Chart No. 16570; latitude 57/33/03 N, longitude 156/01/10 W; distance 0.74 nm, bearing 213 degrees True from Kelp Point.

23. Shoal, covered by 9.6 fathoms at MLLW; Chart No. 16570; latitude 57/32/56 N, longitude 156/01/06 W; distance 0.83 nm, bearing 206 degrees True from Kelp Point.

24. Shoal, covered by 1.1 fathoms at MLLW; Chart No. 16570; latitude 57/33/26 N, longitude 156/02/08 W; distance 0.98 nm, bearing 252 degrees True from Kelp Point.

25. Shoal, covered by ~~2.8~~ 3.2 fathoms at MLLW; Chart No. 16570; latitude 57/32/38 N, longitude 155/58/32 W; distance 1.4 nm, bearing 138 degrees True from Kelp Point.

26. Submerged rock, covered by ~~1.6~~ 1.7 fathoms at MLLW; Chart No. 16570; latitude 57/32/~~20~~ 14.85 N, longitude 155/57/56.13 W; distance 1.83 nm, bearing 137 degrees True from Kelp Point.

27. Shoal, covered by ~~1.3~~ 1.4 fathoms at MLLW; Chart No. 16570; latitude 57/31/59 N, longitude 155/56/08 W; distance 1.0 nm, bearing 263 degrees True from Cape Kanatak.

28. Submerged rock, covered by ~~1.9~~ 2.1 fathoms at MLLW; Chart No. 16570; latitude 57/31/06.36 N, longitude 156/01/52.84 W; distance 2.67 nm, bearing 197 degrees True from Kelp Point.

29. Shoal, covered by ~~3.3~~ 3.2 fathoms at MLLW; Chart No. 16570; latitude 57/31/06 N, longitude 156/01/48 W; distance 2.67 nm, bearing 196 degrees True from Kelp Point.

30. Submerged rock, covered by ~~3.3~~ 3.7 fathoms at MLLW; Chart No. 16570; latitude 57/31/04.36 N, longitude 156/01/56.51 W; distance 2.72 nm, bearing 197 degrees True from Kelp Point.

31. Submerged reef, covered by 1.3 fathoms at MLLW; Chart No. 16570; latitude 57/30/58.21 N, longitude 156/02/03.49 W; distance 2.83 nm, bearing 198 degrees True from Kelp Point.

32. Submerged rock, covered by ~~2.7~~ 3.0 fathoms at MLLW; Chart No. 16570; latitude 57/30/~~40~~ 39.42 N, longitude 156/01/35.47 W; distance 3.05 nm, bearing 192 degrees True from Kelp Point.

33. Tree stump, securely implanted in the bottom, bares 0.1 fathom above MLLW; Chart No. 16570; latitude 57/31/21 N, longitude 156/04/21 W; distance 0.77 nm, bearing 275 degrees true from the southern point at the entrance to Kanatak Lagoon.

34. Submerged wreck, ~~previously charted at~~ a visible wreck at latitude 57/31/00 N, longitude 156/02/06W, is now covered by ~~6.8~~ 7.1 fathoms at MLLW; Chart No. 16570; now located at latitude 57/31/01.21 N, longitude 156/01/42.19 W; distance 2.72 nm, bearing 195 degrees True from Kelp Point. Awois #50144

35. Shoreline change: A major landslide occured at latitude 57/32/24 N, longitude 155/58/00 W which has extended the land 0.18 nm seaward and 0.28 nm both east and west of this point; Chart No. 16570; distance 2.0 nm, bearing 277 degrees True from Cape Kanatak. See shoreline manuscript.

36. Line of 13 rocks 0.18 nm long, ranging from awash to 1.0 fathom submerged at MLLW; Chart No. 16570; extending from latitude 57/33/11 N, longitude 155/59/57 W to latitude 57/33/10 N, 156/00/11 W; distance 0.48 nm, bearing 158 to 174 degrees True from Kelp Point.

Survey: Jute Bay, AK #H-10140

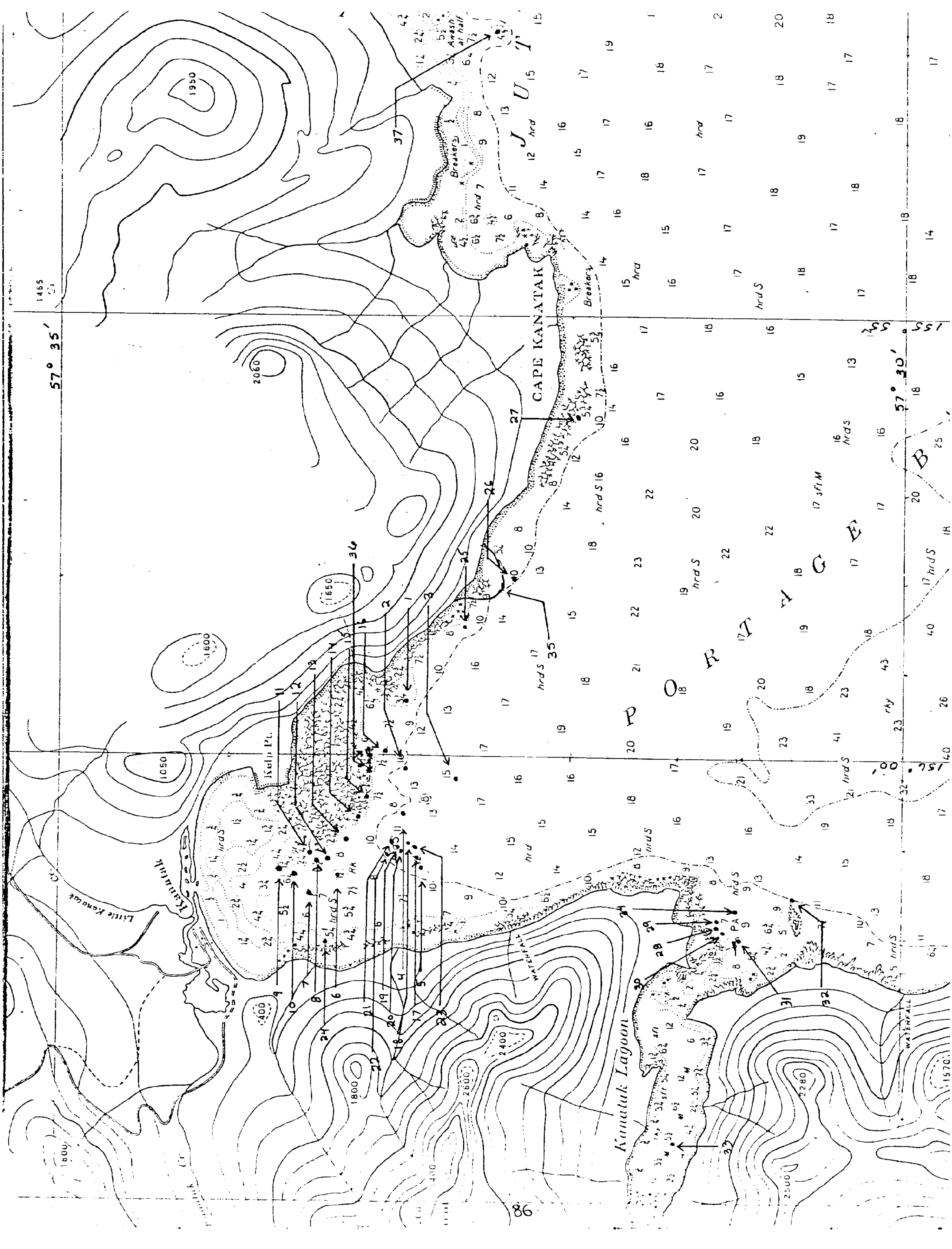
37. Shoal, covered by 2.8 fathoms at MLLW; Chart #16570; latitude 57/32/28 N, longitude 155/51/48 W; distance 1.38 nm, bearing 076 degrees True from Cape Kanatak. On H-10140

Sincerely,

Christian Andreasen

Christian Andreasen
Captain, NOAA
Commanding Officer

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


CAPE KANATAK
Kanatak Lagoon
Kanatak
Little Kanatak
Kulu Pt.
PORTAGE B
57° 35'
57° 30'
Breakers
WATERFALL
Awash at half

MOP211 - Survey File Copy

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

May 31, 1985 N/MOP21x2/SRI

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

Dear Sir:

During office review of hydrographic survey H-10135, Portage Bay, Shelikof Strait, Alaska, the following changes affecting chart 16570 were noted. 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:

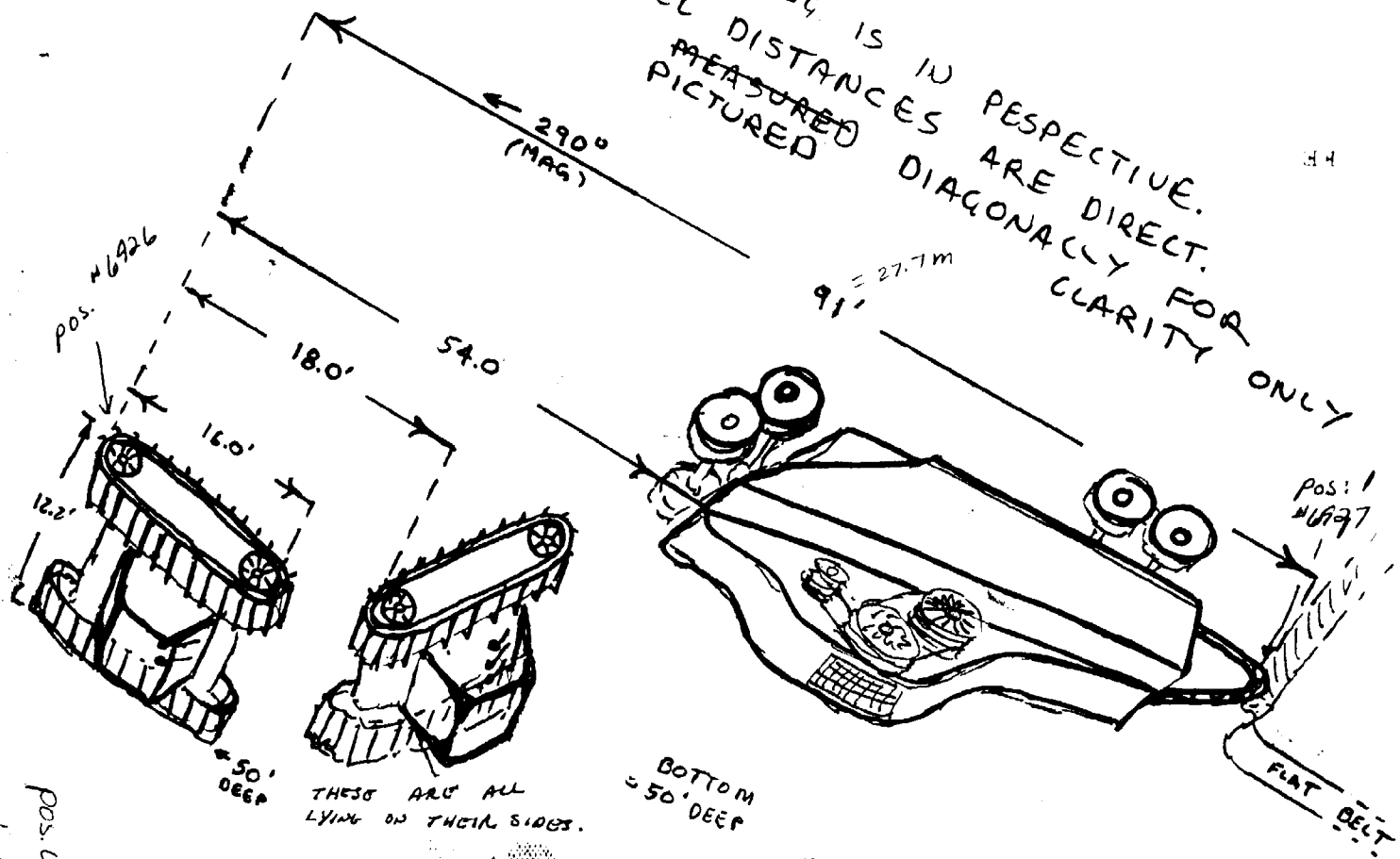
1. A 1.3 fathom depth at MLLW has been determined for the shoal at latitude 57°33'36"N, longitude 156°01'22"W; 0.53 nm, bearing 256 degrees true from Kelp Point; previously reported as covered 1.7 fathoms at MLLW.

2. A 1.8 fathom depth at MLLW has been determined for the shoal at latitude 57°33'31"N, longitude 156°01'08"W; 0.45 nm bearing 243 degrees true from Kelp Point, previously reported as covered 1.7 fathoms at MLLW.

Sincerely,

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

Pos # 6929
7.1 WK



pos. 6926 + 6927

obstr

SIGNAL LISTING
FA-10-1 84
OPR-P146-FA

CAROL ~~1983~~
104 3 57 28 34005 156 02 05427 250 0011 000000

BIRD ~~1983~~
106 1 57 30 38414 156 01 53821 250 0015 000000

LAGOON 1923
108 3 57 31 44622 156 01 35272 250 0041 000000

LIZZY ~~1983~~
110 3 57 33 36231 156 02 22508 250 0000 000000

KELP 2 ~~1983~~
112 4 57 33 44042 156 00 22220 250 0033 000000

DEBBIE ~~1983~~
114 2 57 33 05530 155 59 01586 250 0011 000000

CAPE 1923
116 1 57 32 06716 155 54 29305 250 0016 000000

BEAVER ~~1984~~
120 0 57 31 12906 156 02 49773 250 0044 000000

BEAVER RM1 ~~1984~~
122 2 57 31 12257 156 02 49788 250 0046 000000

WALLY ~~1984~~
124 5 57 31 21055 156 05 00905 250 0007 000000

Field Tide Note
OPR-P146-FA-84
Portage and Jute Bays, Alaska

The tide gauge at Kodiak, Alaska (945-7283) served as a reference station for the predicted tides used for correctors on surveys H-10135 and H-10140, as stated in the Project Instructions, OPR-P146-FA-84. The controlling tide gauge was Seldovia, Alaska (945-5500). Leveling and maintenance of these stations 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 November 1972. Tide correctors for the 1:5000 inset at Kanatak Lagoon on survey H-10135 used the zone correctors for Kanatak Lagoon. All other correctors were calculated using the zone correctors from Wide Bay.

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.

Three field tide stations were established in support of this project. Wide Bay Tide Station (945-8461) and Bird Island Tide Station (945-8361) operated throughout the duration of surveys H-10135 and H-10140. Kanatak Lagoon Tide Station (945-8365) was maintained during performance of hydrography in Kanatak Lagoon, which is a 1:5000 insert on survey H-10135.

Wide Bay Tide Station

Tide station (945-8461) Wide Bay, Alaska, located at latitude 57/21/54 N, longitude 156/24/07 W, was the primary field tide gauge for project OPR-P146-FA-84. The station was installed on 19 May 1984 (JD 140) and removed on 29 July 1984 (JD 211). 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, was the primary gauge and gauge "A", serial number 7210A0926M1, was the backup. Both gauges are mounted on a relic drill casing with stainless steel banding. The zero line of gauge "A" was equivalent to 0.01 feet on gauge "B".

Two tide staffs were installed in support of this 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 were installed. This staff was installed to allow personnel to make tide observations when the pier staff was dry or in the surf zone. A series of simultaneous staff observations was made on 23 May 1984 between the two tide staffs. The zero line of staff "1" is equivalent to 8.32 feet on staff "2". The zero line of staff "1" was also found to be equivalent to 17.4 feet on gauge "B". Both staffs remained in place at the end of the project but the pipe staff has delaminated between the 5 and 7 foot marks and should be replaced if the station is to be reoccupied.

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 were run on 28 and 29 July 1984. Closure of two millimeters was obtained over the entire run and good agreement between opening and closing levels was observed. Six benchmarks were recovered and none were established at this station in 1984. For additional information see Wide Bay Tide Station Report.

Tide gauge "B" in Wide Bay and the Kanatak Lagoon tide gauge operated without problems during the project. Gauge "A" in Wide Bay, the backup gauge, experienced punch and advance problems between 29 May and 5 June. The gauge was replaced with gauge #7304A1380M7. Because the primary gauge, "B", experienced no problems, no tidal data was missed and no hydrography was lost.

Bird Island Tide Station

Bird Island Tide Station (945-8361), located at latitude 57/30/42 N, longitude 156/01/54, operated throughout the period of surveying on sheets H-10135 and H-10140. This station was installed on 3 June 1984 (JD 155) and removed on 14 August (JD 227). A Bristol Bubbler analog tide gauge was installed on the southern half of Bird Island. The gauge, serial number 73A231, had a range of 0 to 30 feet. It was wired to eyebolts set in bedrock. The orifice was bolted to a rock which was set in place by a diver. A freestanding staff was installed. The bottom of the staff was bolted to a boulder and guy wired to other rocks. The zero line of the tide staff was observed to be equivalent to 8.53 feet on the tide gauge. For additional information refer to Tide Station Report #945-8361, Bird Island, AK.

Opening levels were performed on 6 June 1984 from the tide staff to five benchmarks. Closure of three millimeters was obtained over the entire run of approximately 0.1 mile. Closing levels were performed on 1 August 1984 over the same run. Closure of two millimeters was obtained. Hydrographic operations ended on 2 August (JD 215). Five benchmarks were established in 1984. Two benchmarks are considered temporary and consist of eyebolts set in rock outcrops. Levels were run to the top of the eyebolts. Three benchmarks are previously established horizontal control marks. They are standard NOS brass disks, marked BIRD 1983, BIRD RM1 and BIRD RM2.

The gauge at Bird Island malfunctioned on two occasions. On 29 July and again on 1 August the chart drive had to be replaced. On the first occasion, the mainspring broke and the chart drive was replaced. Less than an hour of data was lost. The gears were loose on the replacement chart drive and it broke between 0000 and 0100 UTC on 31 July and 25 hours of data were lost before it was discovered and replaced.

Kanatak Lagoon Tide Station

Kanatak Lagoon Tide Station (945-8365), located at latitude 57/31/18 N, longitude 156/02/54 W, reoccupied a historical site operated in 1923. Kanatak Lagoon is a relatively deep body of water, totally enclosed except for a narrow, shallow outlet to Portage Bay. This lagoon was surveyed as a

1:5000 inset on H-10135 and Kanatak Lagoon tide gauge was maintained throughout the survey operations on the inset. This station was installed on 27 June 1984 (JD 179) and removed 2 August (JD 215). A Bristol Bubbler analog tide gauge, serial number 67A10287, with a range of 0 to 20 feet was wired to eyebolts set in bedrock. The orifice was bolted to a rock and placed at the appropriate depth by divers. The tide staff was wired and banded to an abandoned piece of mining equipment. The zero line of the staff was equivalent to 3.93 feet on the tide gauge. For more information see Tide Station Report #945-8365, Kanatak Lagoon Tide Station.

Opening levels were run on 27 June 1984 from the tide gauge to three benchmarks established in 1923. Closure of 0 millimeters was obtained over the entire run of approximately 0.5 miles. Closing levels were run on 30 July and 2 August 1984. Closure to 0 millimeters was observed over the entire run. Three benchmarks were recovered and none were established in 1984.

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-10135

Locality: Portage Bay and Kanatak Lagoon, Alaska

Time Period: June 5 - July 30, 1984

Tide Station Used: 945 - 8361 = Bird Island, AK

945 - 8365 = Kanatak Lagoon, AK

Plane of Reference (Mean Lower Low Water): 945-8361 = 3.22 ft.

945-8365 = 2.83 ft.

Height of Mean High Water Above Plane of Reference: 945-8361 = 10.9 ft.

945-8365 = 11.0 ft.

Remarks: Recommended Zoning:

1) In Kanatak Lagoon Zone Direct on 945-8365

2) In Portage Bay Zone Direct on 945-8361

James R. Hubbard
Chief, Tidal Datums Section

NOAA FORM 76-35A
USCOMM-DC

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

SURVEY NUMBER

GEOGRAPHIC NAMES

H - 10135

Name on Survey Portage Bay and Kanatak Lagoon	A ON CHART NO. 16570	B ON PREVIOUS SURVEY NO. H-4296	C ON U.S. QUADRANGLE MAPS	Previous Survey H-4398						
Portage Bay	X	X	X	X						1
Kanatak Lagoon	X	X	X	X						2
Kanatak	X	X	X	X						3
Kelp Point	X	X	X	X						4
Cape Kanatak	X	X	X	X						5
										6
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NOAA FORM 77-27(H) (9-83)

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER: H-10135

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	7
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	8

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	3					
ENVELOPES						
VOLUMES	3					
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List): TP-00627 (2) TP-00628

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List): Horizontal Control, Echo Sounder, Electronic Control Report

NAUTICAL CHARTS (List): Chart 16570

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS VERIFICATION	AMOUNTS EVALUATION	AMOUNTS TOTALS
POSITIONS ON SHEET			4432
POSITIONS REVISED	985		985
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			

	TIME-HOURS VERIFICATION	TIME-HOURS EVALUATION	TIME-HOURS TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	119.3		119.3
VERIFICATION OF SOUNDINGS	157.5		157.5
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	118.5		118.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS		20.5	20.5
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		42.5	40.5
GEOGRAPHIC NAMES			
OTHER* Digitization			17.0
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	395.3	63.0	473.3

Pre-processing Examination by M. Kenny	*Beginning Date*	*Ending Date* 1/16/85
Verification of Field Data by L. Deodato, M. Sanders, R. Luceno, R. Mihailov, A. Almacen	*Time (Hours)* 395.3	*Ending Date* 9/24/85
Verification Check by B. Olmstead, J. Green	*Time (Hours)* 53	*Ending Date* 11/15/85
Evaluation and Analysis by C.R. Davies	*Time (Hours)* 63.0	*Ending Date* 11/15/85
Inspected by D. Hill	*Time (Hours)* 2	*Ending Date* 11/18/85

☆ U.S. GOVT. PRINTING OFFICE 1983: 764-006/6061

PACIFIC MARINE CENTER
EVALUATION REPORT
H-10135

1. INTRODUCTION

H-10135 was accomplished by the NOAA Ship FAIRWEATHER in accordance with the project instructions for OPR-P146-FA-84, dated March 2, 1984 and Change 1, dated May 9, 1984.

This is a basic hydrographic survey located on the southern shore of the Alaskan Peninsula. The surveyed area extends from the head of Portage Bay southeast to Cape Kanatak in the east, then south to latitude 57°30'30"N. Included in the western portion of the survey is Kanatak Lagoon and the remaining shoreline of Portage Bay. The shoreline is typically rocky with many fringing ledges. Numerous beaches are rough, being boulder strewn. Within Portage Bay and Kanatak Lagoon there are several small islands and numerous rocky shoals which are marked by rocks uncovering at MLLW or which rise to minimum depths of approximately 9 fathoms. Deepest depths are approximately 34 fathoms in the southern portion of the surveyed area. Bottom characteristics are generally sand, shells, and mud. Extensive areas of kelp exist along the shoreline, especially surrounding Kelp Point where the kelp extends approximately one nautical mile offshore.

Predicted tides based on the Kodiak, Alaska gage with time and range adjustments were utilized during shipboard processing. Tide correctors used for the reduction of final soundings are computed from approved hourly heights from two temporary tide gages, Bird Island and Kanatak Lagoon.

Projection parameters were changed to center the hydrography on the smooth sheet and to change the projection to polyconic. The TC/TI correctors were changed on vessel 2025 to reflect the proper TRA corrector of 0.3 fathoms. The electronic correctors were also changed to reflect daily correctors when the baseline calibration correctors exceeded the acceptable limits for this scale of the survey. The revised data is listed in the smooth position/sounding printout.

The digital file for this survey has been generated and includes categories of information required to comply with N/CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983. Certain descriptive information, however, may not be included in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete information.

2. CONTROL AND SHORELINE

All horizontal control stations used for controlling hydrography were established in accordance with Third Order Class I or better geodetic standards. The smooth sheet was plotted using preliminary adjusted field positions based on the North American 1927 datum.

Hydrographic positioning was conducted using Motorola Mini-Ranger III, configured in both range-range and range-azimuth modes. Baseline calibrations were performed before, during, and after completing the hydrography. Daily system checks to confirm the baseline values were conducted using direct baseline measurements, launch to launch comparisons, theodolite intersection, and multi-range comparisons.

All remaining information affecting the positioning and station control of this survey is contained in paragraph F and G of the Descriptive Report, the Horizontal Control and Electronic Control Report for OPR-P146-FA-84.

The applicable shoreline manuscripts are TP-00627 and TP-00628. These maps are registered Class III and originate from photography dated June 1976.

The mean high waterline was not shown on the smooth sheet except for small islands and islets. All other foreshore/offshore features, which are awash or uncovered at the sounding datum but are covered at mean high water, were transferred to the survey.

3. HYDROGRAPHY

Crossline soundings are in good agreement. Generally, all standard depth curves are complete and satisfactory, except in areas which are foul with rocks or ledges. The bottom configuration and least depths were adequately determined with the exception of one area where one prior survey sounding has been brought forward to the smooth sheet (See section 6 of this report).

4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual except as noted in the Preprocessing Examination Report, dated January 8, 1985, and the following:

Seven rocks which originate from the Class III manuscript (See Section H of the Descriptive Report) were not verified or disproven during hydrographic operations. All features seaward of the shoreline that are shown on the photogrammetric manuscript should be examined and verified or disproven (Hydrographic Manual 1.6.2).

5. JUNCTIONS

H-10135 joins H-10140 to the east and the soundings and depth curves are inked in agreement.

H-10135 adjoins H-10108 to the south. This survey was processed earlier and is not at the Pacific Marine Center. The soundings and depth curves were compared to a copy of the survey and are in agreement.

6. COMPARISON WITH PRIOR SURVEYS

H-4296 (1923) 1:20,000
H-4398 (1924) 1:80,000
H-7197 (1947) 1:40,000

The present survey soundings compare within ±1 to 3 fathoms of the prior survey soundings. These differences are attributed to the relative accuracy of the data acquisition techniques and datum adjustments.

One prior sounding, 8.5-fathoms at latitude 57°32'51.5"N, longitude 156°00'30W", a submerged rock at latitude 57°32'38"N, longitude 156°01'55"W, and numerous kelp symbols were transferred from H-4296 (1923). With the transfer of the prior sounding, rock, and kelp symbols to H-10135, this survey is adequate to supersede the prior information within the limits of hydrography.

7. COMPARISON WITH CHART

Chart 16570 8th Edition, dated February 18, 1978

a. Hydrography - Charted information originates with miscellaneous sources and the prior surveys discussed in Section 6 of this report.

AWOIS Item 50194, the wreck of the M/V PACIFIC charted at 57°31'00"N, longitude 156°02'06"W, was located within the survey area. The wreck has a least depth of 7.1 fathoms at MLLW and is located in depths of 8.5 fathoms. The wreck is 115 feet in length and is in one piece, orientated 350° magnetic. The wreck is located at latitude 57°31'01.29"N, longitude 156°01'42.10"W, 400 meters approximately due east of its charted position. It is recommended that the visible wreck be changed to a submerged wreck and its location be changed to correspond to the position shown on the smooth sheet.

In addition, debris from the M/V PACIFIC was located during survey operations 200 meters southwest of the submerged wreck between latitude 57°30'56.74"N, longitude 156°01'57.24"W and latitude 57°30'58.87"N, longitude 156°01'53.38"W. The submerged obstructions, consisting of two tractors lying on their sides and one large piece of machinery also on its side, have a least depth of 7.6 fathoms at MLLW in approximately 8.5 fathoms. It is recommended that these features be charted as submerged obstructions at the location shown on the smooth sheet.

H-10135 is adequate to supersede charted hydrography within the common area.

The area covered by H-10135 was examined for dangers to navigation. Thirty-six dangers to navigation were found by the hydrographer and were reported to the Seventeenth Coast Guard District. Two additional dangers were found during office processing at the Pacific Marine Center and were reported to the Seventeenth Coast Guard District (see letter attached) and the DMAHTC via the Automated Notice to Mariners System.

b. Controlling Depths - There are no controlling depths within the limits of H-10135.

c. Aids to Navigation - There are no aids to navigation within the limits of H-10135.

The geographic names shown on the smooth sheet originated from the chart.

8. COMPLIANCE WITH INSTRUCTIONS

H-10135 adequately complies with the project instructions.

9. ADDITIONAL FIELD WORK

This is a good hydrographic survey and no additional field work is recommended.

Respectfully submitted,

Chas. R. Davies

C.R. Davies
Cartographer

This survey has been examined and it meets Charting and Geodetic Services survey standards and requirements for use in nautical charting. The survey is recommended for approval.

Dennis Hill

Dennis Hill
Chief, Hydrographic Section

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10135

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.

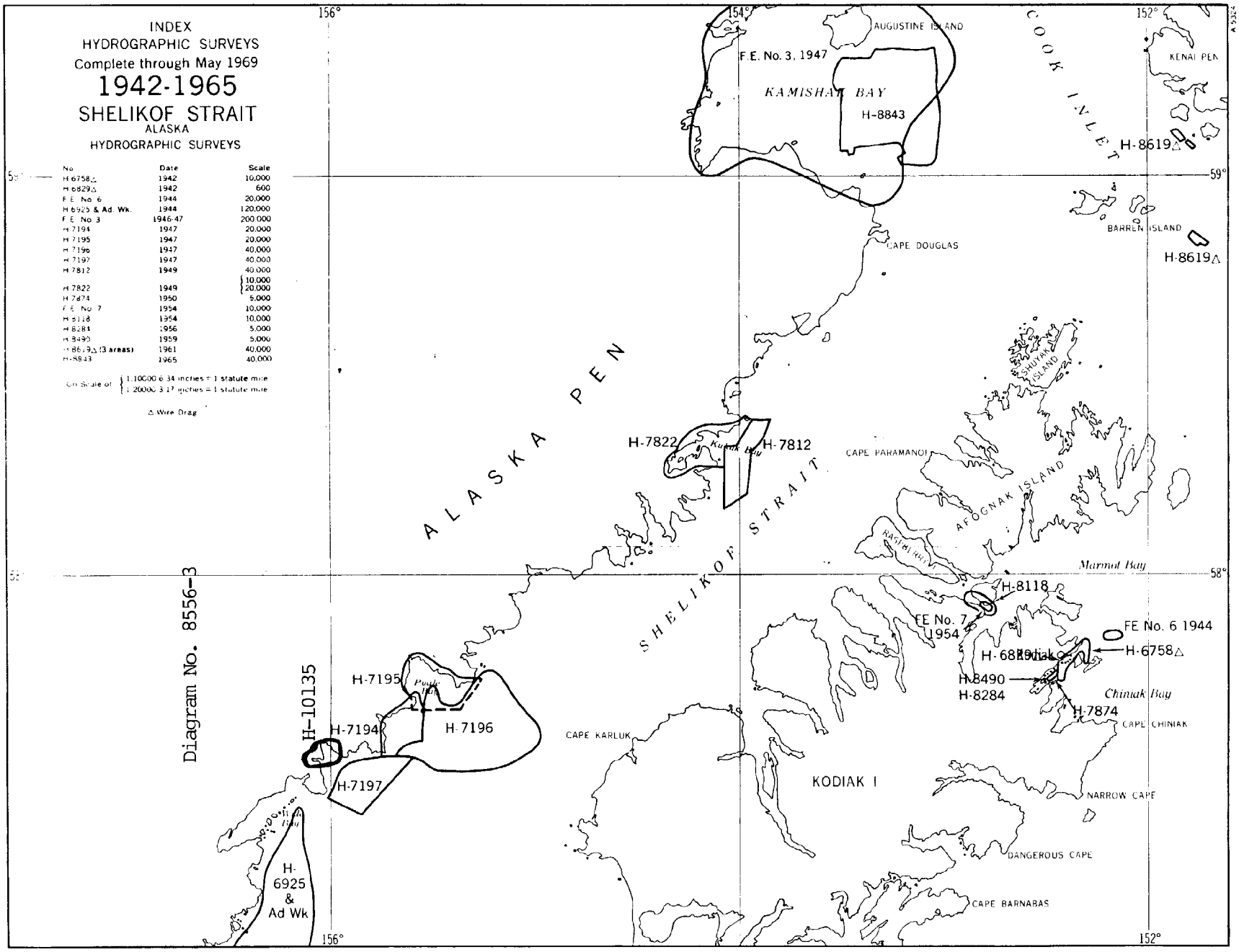
David W. Yeager 12/6/85
Chief, Nautical Chart Branch (Date)

CLEARANCE: SIGNATURE AND DATE:

N/MOP2:LWMordock Larry W. Mordock 12-6-85

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.

Robert L. Sandgut 12-6-85
Director, Pacific Marine Center (Date)



DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10135

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
16570	3-5-87	Ralph B. Rose	Full Part Before (After) Marine Center Approval Signed Via
		reviewed 2/26/88 DMP	Drawing No. 10 Appl'd in full
16580	3-1-88	DM PERKINS	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 20
16013	2-17-89	ED MARTIN	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 28 Exam NOC @ scale
500	7-25-89	John Pierce	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 6 Examined, no corrections applied
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
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			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.

Appl to STDS 1-3-96 pm