

10276

Diagram No. 8802-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey .. Hydrographic

Field No. FA-20-1-88

Registry No. H-10276

LOCALITY

State Alaska

General Locality .. Bristol Bay

Sublocality High Island and Vicinity

19 88

CHIEF OF PARTY
CAPT G.R. Schaefer

LIBRARY & ARCHIVES

DATE June 2, 1989

☆U.S. GOV. PRINTING OFFICE: 1985-566-054

10276

GP
CHT
16315
16011
16006

CARTOG;
SIGN OFF
ON FR. IN BACK

HYDROGRAPHIC TITLE SHEET

H-10276

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 20-1-88

State Alaska

General locality Bristol Bay

Locality High Island and Vicinity

Scale 1:20,000 Date of survey June 2, 1988 to Aug. 14, 1988

Instructions dated March 6, 1987 Project No. OPR-R184-RA

Vessel FAIRWEATHER S220 and Launches 2020, 2023, 2024, 2025, 2026

Chief of party CAPT Glen R. Schaefer, NOAA

Surveyed by C.D. Mason, P.J. Ruiz, B.J. Nodine, B.M. Bernard, M.R. Lemon,
S.L. Birk-Risheim, D.O. Neander, T.A. Michel, E.R. Krick

Soundings taken by echo sounder, ~~hand lead~~ Raytheon DSF 6000N and leadline

Graphic record scaled by FAIRWEATHER Personnel

Graphic record checked by FAIRWEATHER Personnel

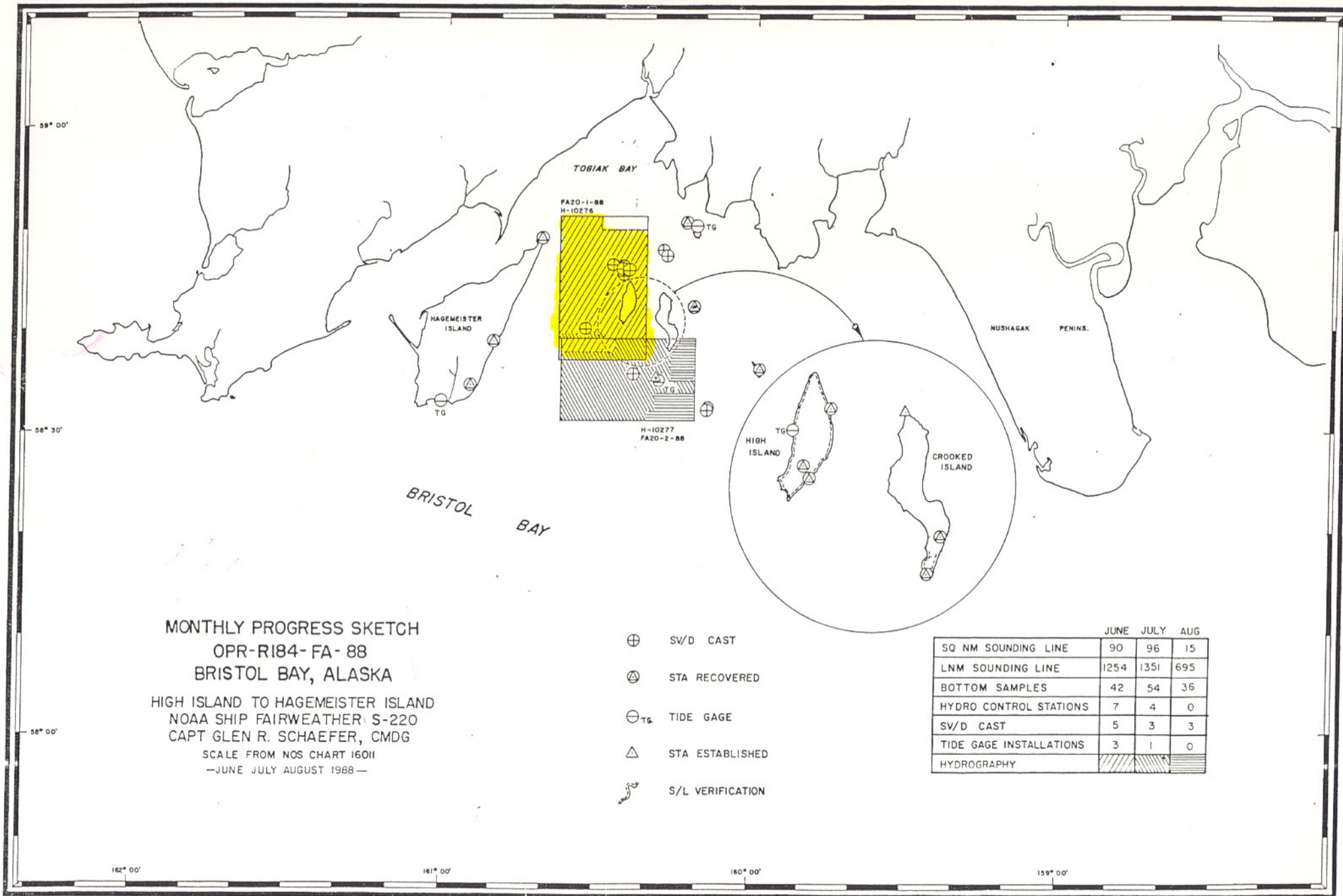
Evaluation by: Gordon E. Kay Automated plot by PMC Kynetics Plotter

Verification by Leonardo Deodato

Soundings in fathoms ~~feet~~ /and tenths at M/LW M/LW

REMARKS: All times are UTC. Revisions and marginal notes in black
were generated during office processing. All separates are filed
with the hydrographic data, as a result page numbering may be
interrupted or non-sequential.

503-27-97 ✓ AWOIS + SCRF 6/89 RWD



MONTHLY PROGRESS SKETCH
 OPR-R184-FA-88
 BRISTOL BAY, ALASKA

HIGH ISLAND TO HAGEMEISTER ISLAND
 NOAA SHIP FAIRWEATHER S-220
 CAPT GLEN R. SCHAEFER, CMDG
 SCALE FROM NOS CHART 16011
 —JUNE JULY AUGUST 1988—

- ⊕ SV/D CAST
- ⊗ STA RECOVERED
- ⊖ TG TIDE GAGE
- △ STA ESTABLISHED
- ⚓ S/L VERIFICATION

	JUNE	JULY	AUG
SQ NM SOUNDING LINE	90	96	15
LNМ SOUNDING LINE	1254	1351	695
BOTTOM SAMPLES	42	54	36
HYDRO CONTROL STATIONS	7	4	0
SV/D CAST	5	3	3
TIDE GAGE INSTALLATIONS	3	1	0
HYDROGRAPHY			

Descriptive Report
to Accompany Hydrographic Survey H-10276
Field No. FA-20-1-88, Scale 1:20,000
NOAA Ship FAIRWEATHER S-220
Captain Glen R. Schaefer, Commanding

A. PROJECT

Survey H-10276 is a basic hydrographic survey conducted in accordance with Project Instructions OPR-R184-FA-88, dated March 20, 1987; Change Number 1, dated March 20, 1987; Change Number 2, dated June 02, 1987; Change Number 3, dated August 10, 1987; Change Number 4, dated May 02, 1988; Change Number 5, dated July 19, 1988; the Hydrographic Manual (fourth edition) through Change Number 3; the PMC Oorder, and the Hydrographic Survey Guidelines. ✓

This is a basic survey for the purpose of providing contemporary hydrographic data for the existing charts, and for the planned larger scale charts to be published in the future. ✓

This survey is designated as sheet "L" in the project instructions. ✓

B. AREA SURVEYED

This survey covers an area of northern Bristol Bay, Alaska, in the vicinity of High Island. The area is approximately bounded on the north by latitude 58°51'00"N, on the south by latitude 58°39'36"N, on the east by longitude 160°21'00"W, and on the west by longitude 160°36'36"W. ✓

The field work for this survey commenced on June 2, 1988, (DN 154) and concluded on August 14, 1988, (DN 227). ✓

C. SOUNDING VESSELS

Hydrographic data and shoreline verification for this survey were acquired using Jensen survey launches FA-3, FA-4, FA-5, and FA-6 which are designated vessel numbers 2023, 2024, 2025, and 2026, respectively. Soundings for shoreline verification were accomplished using lead lines or sounding poles. NOAA Ship FAIRWEATHER (vessel number 2020) was used for all sound velocity casts. ✓

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

FAIRWEATHER's survey launches, equipped with dual-beam Raytheon DSF-6000N echo sounders, were used to obtain the soundings for this survey. See Table I for a list of equipment by vessel by day. ✓

Table I
Sounding Equipment
RAYTHEON DSF-6000N SERIAL NUMBERS BY VESSEL

<u>DATE</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>
155-168	B048N	A113N	A104N	A121N
169-171	A104N	A113N	B049N	A121N
172-192	B048N	A113N	B049N	A121N
193-216	A104N	A113N	B049N	A121N

Echo-sounding equipment was monitored continuously while on line. All hydrographic data were scanned to insert peaks and deeps between soundings and to ensure proper depth digitization. ✓

No mechanical problems that degraded quality were encountered with the DSF-6000N echo sounders during this investigation. Bar checks at the 3-fathom depth were done daily to ensure the Raytheon DSF-6000N echo sounders were operating properly. There were two exceptions to the daily bar checks. On DN 191, launch 2023 experienced echo-sounder (B048N) power supply failure which prevented a bar check. The failure was due to a power malfunction and there is no evidence on the recorded trace to indicate that the data acquired prior to the failure is inferior. On DN 194, launch 2025 was unable to complete a bar check due to rough seas and shallow waters. Both of these incidents are noted on the raw record header. On DN 192, launch 2023, echo sounder B048N (after having had its echo sounder power supply replaced) developed an intermittent trace at the end of the day. The morning bar check indicated that the echo sounder was operating properly. Operations were suspended when the intermittent trace was encountered. Data acquired prior to the intermittent trace was checked thoroughly and was found to be good. Echo sounder B048N was replaced on DN 193 with echo sounder A104N. ✓

Sounding corrections determined for this survey apply to both the high- and low-frequency sounding data. ✓

The high-frequency beam data were digitized except in a limited number of cases. The low-frequency was used when the high-frequency trace was lost due to steepness of the bottom or suspended particles in the water column. This is noted on the raw computer printout with the annotation "Low Frequency Trace" or "LFT."

Diver's least depths^(*) were obtained by using a tape measure or a pneumatic depth gauge manufactured by 3-D Instrument, Inc. (s/n 8302079N). System calibration data can be found in the separate report Corrections to Echo Soundings. # Positions # 9050-9059, 9000-9024

All of FAIRWEATHER's launches were tested for settlement and squat on April 20, 1988, (DN 111) in Excursion Inlet, Alaska. The test results were used to plot settlement and squat curves for each launch. Measurements were conducted in accordance with Section 4.9.4.2 of the Hydrographic Manual. There were no applicable settlement and squat corrections for any launch at speeds run during this survey. Refer to the report Corrections to Echo Soundings for details concerning settlement and squat determinations.

An accurate determination of launch transducer depths was obtained through physical measurement. An oversized carpenter's square was constructed of angle iron, with foot and tenth markings noted on the rise. Divers held the foot of the carpenter's square flush against the transducer while the rise was plumbed by personnel on the pier using a bubble level. The static transducer draft measurement was made on April 20, 1988, (DN 111) in Excursion Inlet, Alaska. A correction of 0.3 fathoms was determined for all launches. All launch soundings on the final field sheet were plotted using this TRA value.

Velocity correctors were determined from ten SV/D casts in accordance with section 4.9.5.2 of the Hydrographic Manual. Table II shows dates and locations of the casts. Program VELTAB was used to generate velocity tape data from cast data (Table III). Velocity corrections using the final velocity tapes (~~Appendix IV~~) were applied to all echo-sounder depths plotted on the final field sheet.

Table II
Velocity Casts

<u>Cast No.</u>	<u>Day</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
8	157	58°47.2'	160°17.2'
9	167	58°47.8'	160°18.7'
10	175	58°45.9'	160°25.4'
11	182	58°45.3'	160°24.3'
12	182	58°32.1'	160°09.6'
13	193	58°46.5'	160°27.4'
14	197	58°45.6'	160°27.4'
15	197	58°40.0'	160°33.2'
16	216	58°45.8'	160°24.9'
17	217	58°32.2'	160°09.2'

Table III
Velocity Tapes

<u>Tape No.</u>	<u>Based on Casts</u>	<u>Dates</u>
1	8	DN 155-159
2	9,10,11,12	DN 168-181
3	13,14,15,16,17	DN 190-227

SV/D cast numbers 8 through 17 were performed using a Plessey Model 9040 Environmental Profiling System (EPS) having s/n 5653. The calibration for this instrument was revised at the Northwest Regional Calibration Center (NRCC) on April 4, 1988.

TC/TI tapes were made in accordance with PMC OORDER, Section 3.5.1. Printouts of TC/TI are included in Appendix IV.

Tide correctors applied to the final field sheet are based on predicted tides for Hagemeister Island, Alaska, as supplied by N/OMA123, corrected for zoning in accordance with Change 4 to Project Instructions OPR-R184-FA-88. For hydrography north of latitude 58°45.0'N the corrector is -0 hr 20 min for high water, -0 hr 40 min for low water and with a ratio of 1.07 applicable to both high and low water. For hydrography between 58°45.0'N and 58°40.0'N the corrector is 0 hr 0 min for high water, and -0 hr 20 min for low water with a ratio of 1.03 applicable to both high and low water.

E. HYDROGRAPHIC SHEETS

The final field sheets were plotted aboard FAIRWEATHER using the Digital Equipment Corporation PDP-8/E computer and a Houston Instrument DP-3 plotter. This survey consists of two final field sheets (one each, east and west) and a number of developments whose critical soundings have been transferred to the final field sheets. Given the complexity of the shoreline in the survey area, the final field sheet was divided into two sheets. One sheet has sounding lines, bottom samples, least depths from developments, dive investigations, depth curves, shoreline from shoreline maps, and point features (e.g., rocks) with heights only. The second sheet (overlay plot) will provide shoreline from shoreline maps, position numbers for the least depths, and point features which are plotted on the final field sheet.

Dashed depth curves are used to indicate the approximate bottom topography (refer to Appendix XI, Correspondence). The curves are faired and biased to soundings acquired during main-scheme hydro acquisition. In most cases, the split and development soundings, due to inaccuracies in tidal predictions, significantly alter the contour trend. *Additionally a nonstandard depth curve, drawn in brown ink, (8 fathoms) is used to further clarify bottom topography in extensive featureless areas.

* This CURVE WAS NOT Added To The Smooth SHEET.

The dimensions, scale, and skew of all sheets are as follows:

<u>SHEET</u>	<u>SCALE</u>	<u>SKEW</u>	<u>DIMENSIONS</u>
FA-20-1E	1:20,000	90,21,54	21 X 54 inches
FA-20-1W	1:20,000	90,21,54	21 X 54 inches

<u>DEVELOPMENTS</u>	<u>SHEET</u>	<u>SCALE</u>
"A" through "T"	FA-20-1E	1:2,000 No SHEET L = 12 SHEETS
"AA" through "XX"	FA-20-1W	1:2,000 No SHEET JJ, VV, WW = 6 SHEETS

@ WERE NOT RECEIVED at PMC

When a point feature position differs between the final field sheet and the overlay, the overlay position should be taken as the correct position.

All hydrographic data for this survey will be forwarded to the Pacific Marine Center in Seattle, Washington, for ~~verification~~ and smooth plotting.
Processing

F. CONTROL STATIONS

All existing horizontal control stations (Table IV) used in this survey were recovered by FAIRWEATHER personnel. A permanently marked, recoverable point (QUICK) was established by traverse methods. All geodetic positions are based on the North American Datum of 1927.

Hydrographic signals used in support of this survey are listed in Appendix V, List of Stations.

G. HYDROGRAPHIC POSITION CONTROL

Hydrographic positioning was accomplished using the Motorola Mini-Ranger III system. The control configuration consisted of range/range for all positioning. Table V contains a list of console and R/T units for each sounding vessel. The Ship FAIRWEATHER was not used for hydrographic positioning on survey H-10276. Mini-Ranger base-line calibrations (BLCs) were conducted in accordance with PMC OPORDER, Section 3.3.1.1.

Table V

Mini-Ranger Equipment by Vessel

<u>Vessel Number</u>	<u>Console/RT Number</u>
2023	703/B1108
2024	506042/E2716
2025	716/C1875
2026	B0323/B1398

Beginning BLCs were performed (except for Code 8) for data acquired during this survey on DNs 138 through 140 and DN 144 along a measured distance of 1259.9 meters from the Coast Guard pier Juneau, Alaska, to the Union 76 tank farm. Beginning BLC for Code 8 was performed on DN 183, along a measured distance of 1387.0 meters, between two nonrecoverable points in Dutch Harbor, Alaska. Closing BLCs were performed on DNs 237 through 239, along a measured distance of 973.5 meters, between two nonrecoverable points in Womens Bay, Kodiak, Alaska. Because the difference between beginning and ending BLCs were less than 8 meters, the beginning and ending calibrations were not averaged. The beginning BLC correctors were used for the final field

Table IV
 OPR-R184-FA-88 TOGIAK BAY, ALASKA
 LIST OF GEOGRAPHIC POSITIONS

SPN	STATION NAME	GPN CODE K	LATITUDE DEG MN SEC	LONGITUDE DEG MN SEC	G-NBR
5	B00 B00	3	58 39 35.26926	160 15 14.56172	
22	B00 B00 RM1				
23	B00 B00 RM2				
24	CALM POINT RM1				
25	CALM POINT RM2				
14	CALM POINT 1948	9	58 34 44.05723	160 55 1.72860	15848
4	CROOKED 1948	9	58 42 10.70373	160 17 18.64189	15848
3	CROOKED 1948 AZ MK	5	58 38 21.88543	160 16 8.40471	
26	CROOKED 1948 RM1				
27	CROOKED 1948 RM2				
1	DRO	5	58 43 49.02136	160 23 .39818	
28	DRO RM1				
29	DRO RM2				
16	F00	5	58 42 29.89770	160 11 28.67088	
17	F00 RM2				
7	GEM	9	58 39 36.48300	160 49 29.18600	
20	HIGH 1948	9	58 43 35.34634	160 23 56.00201	15848
15	HIGH 1948 AZ MK	5	58 42 16.05548	160 23 57.55644	
20	HIGH 1948 RM1				
31	HIGH 1948 RM2				
2	LOW	5	58 41 27.93569	160 24 10.18255	
32	LOW RM1				
33	LOW RM2				
84	OWENS RM1				
85	OWENS RM2				
10	OWENS 1948	9	58 55 55.38383	160 14 24.30703	15848
6	QUICK	5	58 43 43.30095	160 18 3.79305	
9	QUIG	9	58 55 35.01010	160 42 13.67200	
21	ROUND 1948	9	58 26 19.28506	159 58 23.25742	15848
26	ROUND 1948 RM1				
37	ROUND 1948 RM2				
8	STRAIT 1948	9	58 49 4.24167	160 40 55.84692	15848
38	STRAIT 1948 RM1				
18	SUMMIT 1948 AZ MK	9	58 50 49.89732	160 13 15.72029	15848
12	TP-1	5	58 38 52.07750	160 15 6.72876	
13	TP-2	5	58 39 1.61474	160 14 59.22851	
14	TWINS	5	58 35 55.75899	160 18 26.24620	
19	TWINS RM1				

sheet plotting. * Recommend the final BLC correctors be used for smooth plotting as they seem to better reflect the conditions during this survey. Final BLC correctors and minimum signal strengths can be found in the ¹⁹⁸⁸ Electronic Control Data report submitted for Project OPR-R184-FA-88. ✓

* *Smooth SHEET WAS Plotted with ENDING baseline VALUES.*

Hydrographic positioning equipment was critically system checked at least once per week until DN 220. From DN 220 through DN 227, critical system checks were not possible due to adverse weather conditions and poor visibility. Noncritical system checks were conducted once per day throughout this period and did not indicate equipment malfunction or substandard operations. All hydrographic positioning equipment was found to be accurate within the limits set forth by PMC OORDER, Section 3.1.1.2. ✓ Critical system checks were accomplished using the theodolite cut method or by EDM. Theodolites on board the FAIRWEATHER are as follows: Wild T-1 theodolites with serial numbers 13008, 12932; Wild T-2 theodolites with serial numbers 26336, 85652, 257219, 276503; and Lietz TM1A theodolite with serial number 2151. The EDM used was a Hewlett-Packard HP 3808A with serial number 1723A00172.

In all cases, the launch R/T units were located directly over the transducers, eliminating the need for ANDIST correctors. ✓

Because of the distances involved and atmospheric conditions, there were several instances where signal strengths were below beginning BLC console minimums. Sounding positions with signal strengths below minimum were kept when the plot was good and the rates were steady. These instances, noted on the raw computer printout, were few in number and do not constitute an error or problem with sounding positions. When compared with ending BLCs, most of these signal strengths fall within the acceptable range, since the ending BLCs minimums are slightly lower than the beginning BLCs minimums. ✓

Detached positions numbered 1106 through 1109 were obtained using two control stations that resulted in a weak angle fix (less than 30 degrees) without a check. This configuration was used because the island topography made other control unusable. The electronic position compares favorably with the geographic (scaled) position. The electronic rates from the available controls were steady and well above minimum. Recommend these positions be retained for shoreline verification, *These Positions Retained, (SEE EVALUATION REPORT SECTION 2).* ✓

H. SHORELINE

Shoreline details for this survey are from a 1:20,000-scale mylar copy of shoreline map TP-01190 (a Class III, ✓

registered shoreline map). Additional shoreline details from T-9248, a 1948 USC & GS topographic map, were verified during the course of survey operations in accordance with Change No. 5 to the project instructions. *All verified features from the shoreline map and new features are in black ink on the final field sheet. See the final field sheet and Section L, Comparison with the Chart, for the above additions.

** Features have been transferred from the Prior to the Smooth Sheet in Violet Ink.*

The shoreline of High Island has numerous boulder-strewn beaches that were found to be dangerous and, at the lower tides, unapproachable from sea. These areas are delineated as foul with supporting detached positions where required. The late arrival of shoreline map T-9248 along with adverse weather considerations, made full verification impossible. However, shoreline map rocks, along the southwest side of the island that were not verified fall within foul limits which were defined by detached positions prior to the arrival of shoreline map T-9248. Recommend these unverified shoreline map rocks be retained to better show the foul nature of the area or until additional field work can be accomplished. *PRESENT DEPICTION OF ROCKS ADEQUATE. ADDITIONAL FIELD WORK IS NOT RECOMMENDED.*

Hydrography was run inside the foul limits in some areas. These lines were run at the higher tides when the foul nature of the area was not visible. Foul limits should be kept as shown on the final field sheet. *CONCUR CHART AREA AS SHOWN ON SMOOTH SHEET*

Final heights and depths are subject to change due to the discrepancies between predicted and actual tides.

The shoreline map shows a rock awash at latitude $58^{\circ}45'00''N$, longitude $160^{\circ}24'20''W$ which is the high point of a rocky ledge extending approximately 100 meters offshore. Recommend charting as a rock and a ledge. *CONCUR CHART AREA AS SHOWN ON SMOOTH SHEET*

The following charted disprovals were noted during shoreline verification.

A charted rock at latitude $58^{\circ}44'42''N$, longitude $160^{\circ}24'45''W$ was not found after a 10-minute, 30-meter radius, lead-line probe and echo-sounder search (position 7418) [ⓐ]. Kelp was not present and the bottom was not visible (water visibility was 2 to 3 feet). *A lead-line depth of 3 fms was determined. A bottom sample at this position indicates a hard and sandy bottom composition. There was no evidence of breaking water near the position. This search was conducted near low tide. Recommend the rock symbol be deleted, *CONCUR AND THE BELOW LOCATED ROCK CHARTED. CHART AREA AS SHOWN ON SMOOTH SHEET.*

** Leadline depth was exceeded for a 1-Fathom Sounding.*

ⓐ A Rock was Located Position # 7416 Lat. $58^{\circ}44'44.73''N$, Long. $160^{\circ}24'39.59''W$ and is 121.3 METERS NE OF THE CHARTED POSITION. ✓

@ A Rock was Located at Position #1001. Lat. $58^{\circ}43'19.69''N$, Long. $160^{\circ}25'24.46''W$, AND IS 10
69.9 METERS EAST OF THE CHARTED POSITION. ✓

A charted rock at latitude $58^{\circ}43'21''N$, longitude $160^{\circ}25'28''W$ was not found after a 33-meter radius, circle search dive (dive number 9059). * A least depth of 19.3 feet was determined by tape measure. Water visibility was 6 feet. The bottom was hard/sandy and there were no eddies or kelp evident in the area. Recommend the rock symbol be deleted, AND CHART THE ABOVE LOCATED ROCK. ✓

* WAS EXCEEDED BY A 2-FATHOM SOUNDING.

A charted rock at latitude $58^{\circ}43'41''N$, longitude $160^{\circ}22'53''W$ was not found after a 10-minute, 30-meter radius lead-line probe and echo-sounder search (position 5501). Kelp was not present and the water visibility was 10 feet. A lead-line depth of 18 feet was noted. A bottom sample at this position indicates a hard/sandy bottom. There was no evidence of breaking water in the area nor indications of kelp. The search was conducted near low tide. Recommend that the rock symbol be deleted, AND CHART THE BELOW LOCATED ROCK. ✓

⊙ A ROCK FROM F 9248 (1947) WAS TRANSFERRED TO THE SMOOTH SHEET. AT: Lat. $58^{\circ}45'41.75''N$
Long. $160^{\circ}22'55.00''W$, AND IS
39.7 METERS WEST OF THE CHARTED POSITION. ✓

I. CROSSLINES

Crosslines were run at 90 degrees to main-scheme lines and account for 10.9% of main-scheme coverage. In most areas of this survey, soundings generally agree within 0.5 fathoms. Several places on the northern extremes of this survey crosslines disagree by as much as 0.7 fathoms. This exceeds the guidelines set forth in section 4.6.1 of the Hydrographic Manual. The discrepancies in cross-line versus main-scheme sounding agreement is attributed to the deficient predicted tides and tidal zoning used when plotting the final field sheets. Refer to section M, Adequacy, for details on specific tidal problems. ✓

Application of tidal correctors based on actual tides will probably eliminate discrepancies. There are no systematic problems evident that would account for these differences, with the APPLICATION OF ACTUAL TIDES THIS PROBLEM HAS BEEN RESOLVED.

In some cases, the vessel used for a main-scheme line did not run the corresponding crossline. Common soundings at these crossings generally agree within 0.5 fathoms. These discrepancies are probably caused by tides, as there are no systematic problems evident that would account for these differences. ✓

J. JUNCTIONS SEE EVALUATION REPORT SECTION 5.

Survey H-10276 junctions to the east with contemporary survey H-10222 (1986), to the north with surveys H-10248 (1987) and H-10251 (1987), and to the west with survey H-10253 (1987); all surveys at 1:20,000. In almost all cases the soundings agree within 0.5 fathoms. There are several instances on the northern extremes of this survey ✓

where disagreement is up to 0.7 fathoms which is attributed to predicted tides, (SEE EVALUATION REPORT SECTION 1).

K. COMPARISON WITH PRIOR SURVEYS

Comparisons with the present survey were made by transferring soundings from survey H-7718 (1948), 1:100,000 scale, to survey H-10276. Agreement was generally within 0.5 fathoms (except as noted below).

A 10- to 12-fathom depression located near latitude 58°45'40"N, longitude 160°24'30"W on survey H-7718 has shifted eastward approximately 500 meters. This movement is possibly due to transport of sediments by strong currents noted in the area. Currents as strong as 1.6 knots were experienced by divers off the northwest point of High Island and while at anchor northeast of Crooked Island. Recommend the present survey depths, when corrected for tides, supersede those from survey H-7718.

CONCUR ✓

Two AWOIS items, number 51032 at latitude 58°45'00"N, longitude 160 26'00"W and number 50913 at latitude 58°43'20"N, longitude 160°29'25"W were found to be part of a larger shoal area that extends approximately 73nm in a NE-SW direction off the NW side of High Island. This shoal was defined by using 90-meter main-scheme line spacing. Bottom samples taken along this shoal indicate a bottom composition of fine green and gray sands.

SEE EVALUATION REPORT SECTION 6 ✓

Prominent features noted on the main-scheme lines were developed and labeled "A" through "T" on the east sheet, and "AA" through "XX" on the west sheet. Critical soundings have been transferred to the final field sheet. Ten-meter spacing was used for all of these developments except for development "A." Development "A," NW of High Island, was developed using 8-meter spacing to obtain least depths on a shoal area and to define the end of a natural channel. All of the least depths for these developments will have to be adjusted once final tide reducers are established.

✓

L. COMPARISON WITH THE CHART *SEE EVALUATION REPORT SECTION 7.*

Comparisons were made between survey H-10276 and Preliminary Chart 16315 (January 2, 1988, 4th Edition, 1:100,000). Comparison with charted soundings and non-sounding features that were derived from prior surveys discussed in Appendix K, Comparison with Prior Surveys, will not be repeated here. ✓

Dangers to navigation were not sent to the Coast Guard for survey H-10276. Since this area has never been surveyed, notice to mariner information on only a few rocks *do NOT CONCUR* may imply that those were the only dangers and that the rest *SEE EVALUATION REPORT SECTION 4.* of the area was safe for navigation.

While conducting hydrographic survey operations, the following possible dangers to navigation have been discovered. ✓

DEPTH	LATITUDE	LONGITUDE	POSITION
Rock covered 1.76 fm	58°44' ^{4.59.45"} 00"N	160°25' ^{0.94"} 02"W	5178/2 9020 ✓
Rock covered 2.89 fm	58°45' ^{1.23"} 02"N	160°24' ^{36.67"} 40"W	9019 ✓

A shoal on the northeast side of High Island centered at latitude 58°44'^{4.59.45"}00"N, longitude 160°22'^{0.94"}30"W has approximately a 1000-meter radius and least depth of 2.70 fathoms, *a.T. Lat. 58°44'40.20"N Long. 160°22'39.82"W* ✓

A shoal west of High Island centered at latitude 58°43'00"N, longitude 160°28'00"W runs in a northeast-southwest direction approximately 3.5 nm and is approximately 1 nm wide with a least depth of 1.2 fathoms, *Position # 245715 at: Lat. 58°44'41.33"N Long. 160°25'33.42"W* ✓

A shoal west of High Island centered at latitude 58°43'45"N, longitude 160°29'00"W has approximately a 300-meter radius and a least depth of 1.3 fathoms, *Position # 607 at: Lat. 58°43'49.68"N Long. 160°28'58.55"W* ✓

Uncharted depths shoaler than those listed above exist throughout the area. However, the shoaler areas conform to the general bottom contours where as the dangers reported above are isolated features which rise significantly above surrounding deeper depths. All depths and heights are reduced to MLLW. ~~using the available predicted tides and~~ ^A all positions are based on NAD 27.

M. ADEQUACY *SEE EVALUATION REPORT SECTION 1.*

Inaccuracies in the predicted tides and tidal zoning, based on Hagemeister Island, Alaska, has resulted in significant errors in the tide reducers applicable to survey H-10276. As a result, discrepancies of up to 0.7 fathoms occur in crossline comparisons, day-to-day comparisons, junctions with contemporary surveys, and elevations and depths associated with DP's and reference numbers during shoreline verification. The ~~real~~^{ACTUAL} tides at Hagemeister Island occur up to 3 hours later for high water, occur up to 1 hour later for low water, and differ in tidal range by a factor of approximately 1.23 from predicted tides. ✓

Additionally, the tides observed at the gage site on High Island differ significantly from the Hagemeister tide corrected to the area between 58°40'N and 58°45'N as specified in section 5.9.3 change 4 to the project instructions. The mean difference, based on a 46-day period from 3 June to 20 July, is 0 minutes for low water and minus 50 minutes for high water. The mean range difference is approximately 1.52 greater than the predicted range. The values stated do not correctly reflect the true time or range differences which differ in time by up to minus 1 hour 24 minutes for low water and up to minus 2 hours 35 minutes for high water. The range of tide can be up to 3 times the predicted range especially during periods of small tidal fluctuation. ✓

The extremely complex nature of the tides in the Walrus Islands area of Bristol Bay needs to be further investigated, possibly using numerous bottom moored pressure recorders over an extended time period. As an example, a test plot of main-scheme, crossline, and split hydro on survey H-10276, for an area 2 to 5 nm west of the High Island gage was made using a MLLW value based on the time period of 3 June through 20 July. The mean of the lower low waters was subtracted from the scaled highs and lows and a 0.1 fathom tide reducer tape produced; adequate crossings and comparisons were still not possible. Perhaps the significant time differences between the rapid rise from low to high water and the subsequent slow fall back to low water, during the periods of diurnal tides, is the reason that a correct MLLW value could not be established. ✓

THERE ARE NO SIGNIFICANT PLOTTING DIFFERENCE ON THE SMOOTH SHEET BETWEEN THE MAIN SCHEME OR CROSSLINE HYDROGRAPHY

N. AIDS TO NAVIGATION

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

O. STATISTICS

<u>Vessel</u>	<u>2020</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>Total</u>
Positions	-	1748 1296	1540 1514	2146 964	1354 1055	6788 4829
Nautical Miles	-	393.8 409.8	514.8 478.8	297.1 304.8	321.1 233.6	1527
Square Nautical Miles	-	-	-	-	-	83.3
Bottom Samples	-	-	-	99	-	99
Velocity Casts	10	-	-	-	-	10
Tide Stations	2	-	-	-	-	2
Days of Production (Hydrography only)	-	-	-	-	-	37

Crosslines accounted for 10.9% of the total number of miles run. ✓

No current or magnetic stations were established during this survey. ✓

P. MISCELLANEOUS

Bottom samples were collected and forwarded to the Smithsonian Institution, Washington, DC. ✓

LORAN-C rates were obtained with most bottom samples and these data will be forwarded in accordance with Hydrographic Survey Guideline 41. ✓

Strong currents of 1 to 2 knots were encountered by divers off the north point of High Island (dive 9019). Southerly currents of less than 1 knot were also noted along the east and west sides of High Island by divers (dives 9007 and 9059). Off the south point of High Island divers encountered westerly currents up to 2 knots (dive 9053). Additional current information is in Appendix X. ✓

This information has been forwarded to OMA 151.

Bottom samples were taken over most of the developments, these samples were not kept nor plotted when the bottom did not differ significantly from surrounding samples (refer to sounding volumes). ✓

As per radio message dated 6 August 88, ~~depth curves~~ ^{depth curves} ~~contour lines~~ will be dashed until final tides are established ~~(Appendix XI)~~. *THE SMOOTH SHEET CONTAINS SOLID DEPTH CURVES.*

Refer to the ~~final~~ ^{smooth} ~~field~~ sheets for areas of extensive sand waves noted during hydrographic operations north of latitude 58°42'00"N and west of longitude 160°26'00"W. *NOTES HAVE BEEN ADDED TO THE SMOOTH SHEET.*

Q. RECOMMENDATIONS

Recommend survey H-10276 not be used for preliminary charting purposes until proper tide reducers are applied. Once proper tide reducers are applied, hydrography over this area will be adequate to: ✓

- 1. Delineate the bottom configuration, determine least depths, and draw the standard and supplemental depth curves. ✓
- 2. Reveal that there are no significant discrepancies or anomalies requiring further investigation. ✓
- 3. Show that the survey was properly controlled and that soundings are correctly plotted. ✓
- 4. Supersede all prior surveys over this area. ✓

R. AUTOMATED DATA PROCESSING

The following programs were used for data acquisition or processing:

<u>Number</u>	<u>Program Name</u>	<u>Version</u>	<u>Date</u>
RK 112	Range-Range Real Time Plot	04/23/84	
RK 201	Grid, Signal, and Lattice Plot	04/18/75	
RK 221	Range-Range Off-line Plot	07/25/86	✓
RK 300	Utility Computations	10/21/80	
RA 362	330 / 602 Combined	08/20/84	
AM 500	Predicted Tide Generator	11/10/72	
AM 602	ELINORE	12/08/82	
VELTAB		02/01/85	

S. REFERRAL TO REPORTS

The following reports will be submitted separately:

Electronic Control Data	September 1988	✓
Corrections to Echo Soundings	September 1988	
Coast Pilot Report	September 1988	
Horizontal Control Report	November 1988	

Field Tide Note
High Island, Alaska
Station Number 946-5173
June to August, 1988

Field tide reduction of sounding data for surveys H-10276 and H-10277 was based on predicted tides from Hagemeister Island, Alaska (946-5089), and corrected to the survey area. Tide correctors were interpolated by PDF/8e computer using AM 500.

The calculated correctors shown below were based on preliminary zone correctors specified by project instructions.

<u>Survey</u>	<u>Time Correction</u>		<u>Height Correction</u> <u>Range Ratio</u>
	<u>High Water</u>	<u>Low Water</u>	
North of 58°45'00"N			
H-10276	-0h 20m	-0h 40m	x 1.07
Between 58°40'00"N and 58°45'00"N			
H-10276	0h 00m	-0h 20m	x 1.03
South of 58°40'00"N			
H-10276	-0h 40m	-0h 30m	x 1.03
H-10277	-0h 40m	-0h 30m	x 1.03

All times of predicted and reported tides are expressed in Coordinated Universal Time. Predicted tides were inadequate for hydrography due to discrepancies in the raw data attributed to tidal errors.

Two Bristol Gas-Purged Pressure Recording Tide Gages, Model 15 (gage A s/n 63A2920, gage B s/n 68A14940), range 0 to 30 feet, were installed in support of surveys H-10276 and H-10277. Location and dates of operation are as follows:

<u>Site</u>	<u>Location</u>	<u>Dates of Operation</u>
High Island, Alaska	58°43'15"N 160°25'27"W	June 02 to August 17

High Island

The tide gages, staff, and orifices were installed at High Island, Alaska, on June 1 (due to steep terrain, the station was located farther north than specified in the project instructions). A three-hour observation on June 2 confirmed consistent gage-to-staff differences. Data collection began on June 2 at 1930 and continued until August 17 at 2230, when the gages and

staff were removed. The orifices were left due to time and weather constraints.

The following minor problems occurred during tidal data collection:

The chart drive on gage A was replaced twice, on June 16 and June 17, with only short gaps in the tidal record. Gage B was set to the incorrect time from July 27 at 2305 (recorded as 1505) to July 31 at 1830; corrected times are noted on the marigram. A gap in the tidal record occurred on gage B from June 29 at 1530 to 2341 when the paper ran out.

The staff was misread on July 11, resulting in a one-foot discrepancy in the gage-to-staff comparison for both gages. A three-hour comparison and dive investigation confirmed that the orifice had not moved; gage records are corrected to show the accurate staff reading.

Both traces show the effects of a storm surge on August 10 from approximately 0350 to 0600.

The zero mark on the tide staff corresponds to 13.9 feet on gage A, 13.2 feet on gage B.

Levels

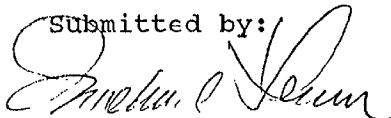
The comparison between opening and closing level runs indicates no significant staff movement.

Zoning Recommendations

Tidal zoning was inaccurate for the survey area and should be revised. Due to the complexity of the tides in this area, however, an accurate analysis is beyond the scope of this report and no recommendations are offered.

Approval

Submitted by:



Michael Lemon
Ensign, NOAA

Reviewed by:



Paul J. Ruiz
Lieutenant, NOAA
Field Operations Officer (Acting)

Date:

6 SEP 88

Field Tide Note
 Northeast Side, Summit Island, Alaska
 Station Number 946-5283
 May to August, 1988

Field tide reduction of sounding data for survey H-10276 was based on predicted tides from Hagemeister Island, Alaska (946-5089), and corrected to the survey area. Tide correctors were interpolated by PDP/8e computer using AM 500.

The calculated correctors shown below were based on preliminary zone correctors specified by project instructions.

<u>Survey</u>	<u>Time Correction</u>		<u>Height Correction</u> <u>Range Ratio</u>
	<u>High Water</u>	<u>Low Water</u>	
North of 58°45'00"N			
H-10276	-0h 20m	-0h 40m	x 1.07
South of 58°45'00"N			
H-10276	0h 00m	-0h 20m	x 1.03

All times of predicted and reported tides are expressed in Coordinated Universal Time. Predicted tides were inadequate for hydrography due to discrepancies in the raw data attributed to tidal errors.

Two Bristol Gas-Purged Pressure Recording Tide Gages, Model 15 (gage A s/n 73A233; gage B s/n 64A11033), range 0 to 30 feet, were installed in support of survey H-10276. Location and dates of operation are as follows:

<u>Site</u>	<u>Location</u>	<u>Dates of Operation</u>
Northeast Side, Summit Island, Alaska	58°50'48"N 160°12'36"W	May 31 to August 14

Northeast Summit Island

The tide gages, staff and orifices were installed on the northeast side of Summit Island, Alaska, on May 30. A three-hour observation on June 02 confirmed consistent gage-to-staff differences. Data collection began on June 02 at 1745 and continued until August 14 at 2240, when the gages and staff were removed; the orifices were left due to time and weather constraints.

Gaps in the tidal record of more than three days occurred on gage A during the following periods:

July 05 at 0630 to July 08 at 1706 (out of ink);
July 21 at 0230 to July 27 at 2120 (paper jammed);
July 28 at 0700 to August 02 at 1718 (paper jammed);
August 04 at 0220 to August 07 at 1850 (paper jammed)

Gage B zeroed on June 08 due to a leak in the orifice tubing. The tubing was replaced on June 08, which resulted in a gap in the tidal record from June 7 at 1729 to June 8 at 0320; a three-hour observation on June 16 confirmed consistent gage-to-staff differences.

A 0.4 ft discrepancy in the gage-to-staff comparisons for both gages occurred on June 08 due to an error in reading the staff.

Both traces show the effects of a storm surge (during low water) on August 10 from 0415 to 0715.

The zero mark on the tide staff corresponds to 8.9 feet on gage A, 5.8 feet on gage B.

Levels

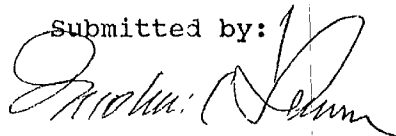
The comparison between opening and closing level runs indicates no significant staff movement.

Zoning Recommendations

Tidal zoning was inaccurate for the survey area and should be revised. Due to the complexity of the tides in this area, however, an accurate analysis is beyond the scope of this report and no recommendations are offered.

Approval

Submitted by:



Michael Lemon
Ensign, NOAA

Reviewed by:



Paul J. Ruiz
Lieutenant, NOAA
Field Operations Officer (Acting)

Date:

9-6-88

SIGNAL LISTING
 OPR-R184-FA-88
 FA-20-1-88
 H-10276

STRAIT 1948	1004	58160413
100 0 58 49 04242 160 40 55847	250 0012	000000
DRO	RAINIER	58160134
115 0 58 43 49021 160 23 00398	139 0008	000000
LOW	RAINIER	58160134
120 0 58 41 27936 160 24 101873	139 0008	000000
QUICK	FAIRWEATHER	58160131
121 0 58 43 43301 160 18 03793	250 0031	000000
CROOKED 1948 AZ MK	1003	58160131
135 0 58 38 21885 160 16 08405	250 0071	000000
SUMMIT 1948 AZ MK	1011	58160113
160 0 58 50 49897 160 13 15720	250 0151	000000
CALM POINT 1948	1002	58160433
175 0 58 34 44057 160 55 01729	250 0253	000000
GEM 1985	PHOTO PARTY	58160431
180 0 58 39 36483 160 49 29186	250 0244	000000

WTEB WTEB

ZNR UUUUU

052258Z AUG 88

NOAAMOP SEATTLE WA

RUWMBBA/NOAAS FAIRWEATHER

MOCT CG-W2GLRC

BT

UNCLAS

FA131-125-118//MOP2X1

TOGIAK TIDES AND T-SHEETS

A. YR 031841Z AUG 88

B. MY 252056Z JUL 88

1. IMPROVED PREDICTED TIDES WILL NOT BE AVAILABLE IN TIME TO PROCESS YOUR TOGIAK BAY SURVEYS. N/CG241 REQUESTS YOU USE THE CORRECTORS YOU HAVE.

→ 2. YOUR CONTOUR LINES WILL NEED TO BE DASHED. SZCMIMNS I, J, K, L, M WILL REQUIRE SOME STATEMENT ABOUT THE BAD CORRECTORS. REQUEST SECTION:M DETAIL THE PROBLEM INCLUDING A LIST OF THE RANGE OF DIFFERENCES OF TIMES AND HEIGHTS OF HIGHS AND LOWS; I.E., 0.5 - 1.0 FM AND 0-1 HOUR, ETC.

3. N/CG241 ALSO ASKED WHETHER THE OLD TOGIAK T-SHEETS ARRIVED, AND IF SO, WERE YOU SUCCESSFUL IN RESOLVING ALL THE ROCKS ON THOSE T-SHEETS?

BT

NNNN

Q

CO

LCDR Mason
LT Ruiz

CST

101
NOJ/040235Z AUG88
Kaj/4332K
RATT

XI-2

CO

XO

FOO

TTUZYUW RUHFTEB0152 2170234-UUUU--RUHPSUU.
ZNR UUUUU
R 031841Z AUG 88
FM NOAAAS FAIRWEATHER
TO NOAAAMOP SEATTLE WA
ACCT CM-VCAA

BT
UNCLAS
FA-PMC-121-124-116-117
PASS TO MOP2

SUBJ: STATUS OF H-10276 PROCESSING

- A. YR 252056Z JUL 88
- 1. PLOTTING OF FINAL FIELD SHEET FOR SURVEY H-10276 (SHEET LIMA) ON HOLD.
- 2. PREDICTED TIDE CORRECTORS IN ACCORDANCE WITH PROJECT INSTRUCTIONS OPR-0186-FA ARE INADEQUATE.
- 3. ROUGH FIELD SHEETS NOW PLOTTED SHOW VERY POOR AGREEMENT AMONG SOUNDINGS FROM CROSSLINES, MAIN-SCHEME LINES, MAIN-SCHEME SPLITS, AND JUNCTION SURVEY H-10222.
- 4. ZERO-FATHOM CURVE CAN NOT BE DRAWN.
- 5. VISUAL OBSERVATIONS IN TOGIK AREA HAVE SHOWN ACTUAL TIDE HEIGHTS NOT OF A CONSISTENT DIFFERENCE WITH PREDICTED TIDE HEIGHTS FROM ONE DAY TO THE NEXT. MOST NOTICEABLE IN RATE OF RISE OR FALL. TIDAL CURRENTS IN AREA FREQUENTLY DO NOT FLOW IN APPARENT FLOOD DIRECTION FOR RISING TIDE NOR EBB DIRECTION FOR FALLING TIDE!
- 7. NORTHERN PORTION OF BRISTOL BAY ESTUARY MAY BE SIGNIFICANTLY AFFECTED BY A LOCAL SEICHE.
- 8. UNCLEAR FROM REF A IF PROCESSING SHOULD CONTINUE OR WHEN NEW PREDICTED TIDES WILL BE AVAILABLE.
- 9. ADVISE WHETHER SHEET SHOULD BE PLOTTED WITH EXISTING BAD CORRECTORS OR CONTINUED ON HOLD UNTIL ADEQUATE CORRECTORS ARE PROVIDED.
- 10. CONTINUED HOLDING OF SHEET WILL DELAY SUBMISSION OF SURVEY TO N/MOP21.

BT
#0152

- NNNN

R 152229Z JUN 88
FM NOAA MOP SEATTLE WA
RUWMBBA/NOAAS FAIRWEATHER
T CG-W26LRC

TOR

NOJ 170545Z JUN 88
4.3320 MHz XI-3
RTTY

BT
UNCLAS
FAO69-063-062//MOP2X1
REF FONCON WITH LCDR MASON 10 JUN 88. N/OMA123 NEEDS MORE INFO ON
DISAGREEMENT BETWEEN PREDICTED AND ACTUAL TIDES. WHAT IS THE
MAGNITUDE OF THE DIFFERENCES? HOW MANY DAYS OF DATA WERE COMPARED?
WHAT METHOD WAS USED? RRZANY UNUSUAL METEOROLOGICAL CONDITIONS EXIST
(HIGH WINDS FOR SEVERAL HOURS)?
BT
#5541

SE
CO
XO
FOO

RTTUZYUW RHWISGG1900 2072156-UUUU--RUWMBBA.

ZNR UUUUU

R 252056Z JUL 88

FM NOAA MOP SEATTLE WA

TO RUWMBBA/NOAAS FAIRWEATHER

ACCT CG-W2GLRC

BT

UNCLAS

FA112-109-071-072-073-074//MOP11

MOP2X1 ADVISES DO NOT SEND PARTIAL TIDE PACKAGE, N/OMA1 HAS YOUR JUNE DATA AND IS USING THIS DATA FOR PREDICTIONS. N/OMA1 ADVISES IT IS NOT LIKELY IMPROVED PREDICTED TIDES WILL BE AVAILABLE FOR YOUR USE.

BT

#1900

NNNN

~~EE~~
CO
XO
FOO*

TOP
NOT / 260020 JUL 88
Wa. | 4.3320 MHz RT.

TOD

NOJ 061929Z JUN 88
5.4220 MHz
RITY

XI-5

JUN 88
Map
CO
XO
~~FOO~~
CSA

0 TUZYUW RUHPTEB0074 1581825-0000--RUHPSUU.

ZNR 00000

R 061825Z JUN 88

FM NOAAAS FAIRWEATHER

TO NOAAAMOP SEATTLE WA

ACCT CM-VCAA

BT

UNCLAS

FA-PMC-058-060-025

PASS TO MOP2

SUBJ: TIDE STATION LOCATION

FAIRWEATHER UNABLE TO PLACE TIDE STATION 946-5173

AT REQUIRED LOCATION DUE TO TERRAIN. HAVE INSTALLED

STATION AT LAT 58-43.25, LON 160-25.45. IF THIS NOT

ACCEPTABLE, ALTERNATIVE IS S END CROOKED ISLAND.

PLEASE ADVISE. ACK RECEIPT VIA KVJ VOICE.

BT

#0074

NNN

5.4220

TOR

NOS | 170545Z JUN 88
Yes | 4.3320 MHz
RTU

ZNR UUUUU

081648Z JUN 88 ZFB

NOAAMOP SEATTLE WA

TO RUWMBBA/NOAAS FAIRWEATHER

ACCT CG-W26LRC

BT

UNCLAS

FA064-059-026-036-037-038//MOP2X1

SUBJ: TIDE GAGE LOCATION

REF YR 061825Z JUN 88 YOUR REQUEST FOR RELOCATION OF TIDE STATION

946-5173 PER REF HAS BEEN APPROVED BY N/OMAI231.

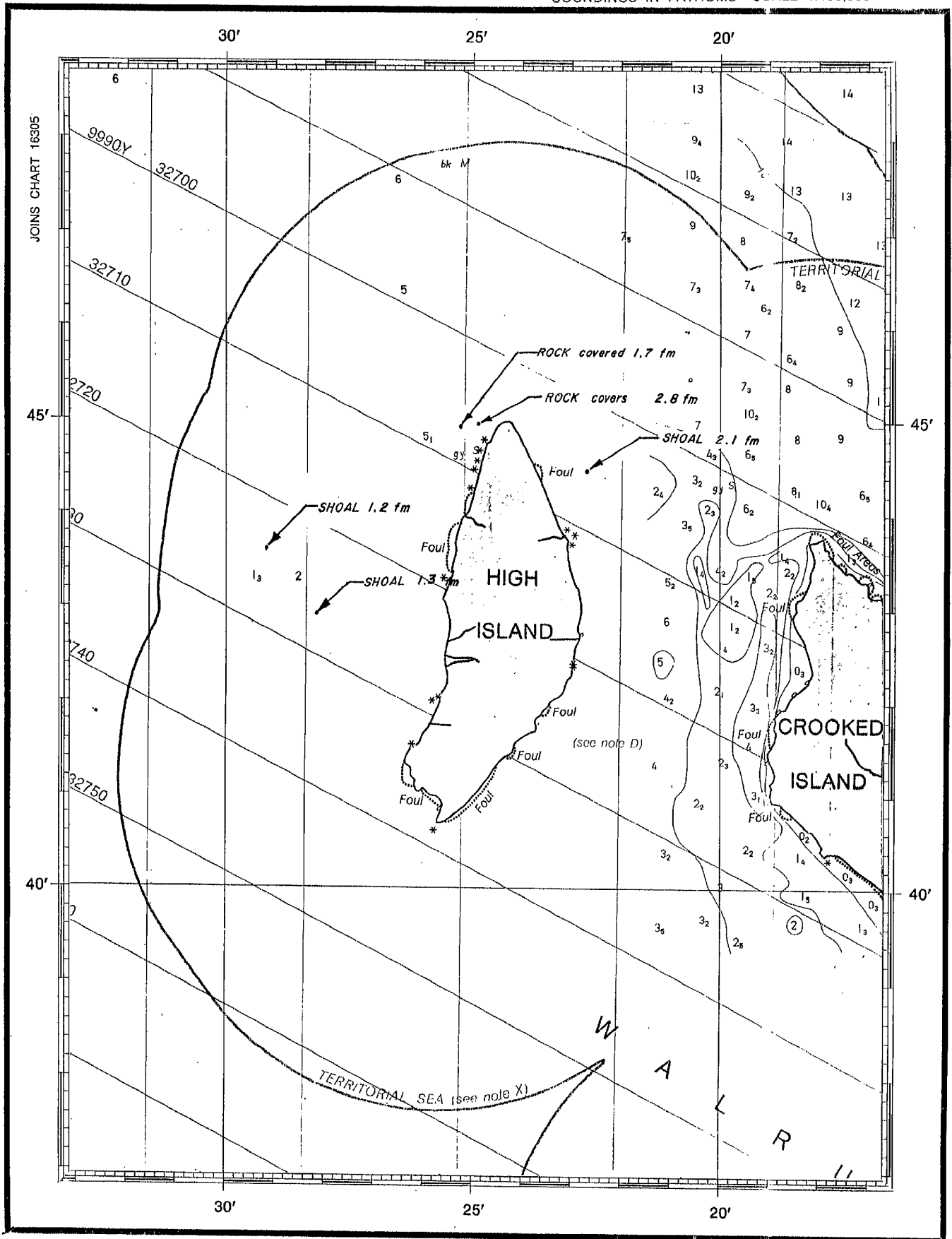
BT

R

CO

XO

FOO



16315

4th Ed., Jan. 2/88

RECEIVED

SEP 23 1988

NOAA SHIP FAIRWEATHER

RECEIVED

SEP 22 1988

PACIFIC MARINE CENTER



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

NOAA Ship FAIRWEATHER S220
1801 Fairview Avenue East
Seattle, WA 98102-3767

September 21, 1988

C.O./FA.

EE
XO of
CY

Copy to
Foo
CO

RLS

TO: N/MOP - Robert L. Sandquist

FROM: Commanding Officer
NOAA Ship FAIRWEATHER S220

SUBJECT: Submission Date for Survey H-10276

Shipboard processing of survey H-10276, Vicinity of High Island, Bristol Bay, Alaska, has been slowed due to transfer of FAIRWEATHER personnel and the critical "lay-up" schedule of FAIRWEATHER.

I request a 1-week extension of the submission date to September 30, 1988, for survey H-10276. I have discussed this request with Commander Richards.

Approved: _____

Robert L. Sandquist 9-21-88

Disapproved: _____





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

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

OCT 19 1988

N/MOP211/DJH

Commander (OAN)
Seventeenth Coast Guard District
P.O.Box 3-5000
Juneau, Alaska 99802-1217

Dear Sir:

During office review of hydrographic surveys H-10276 and H-10277, Alaska, Bristol Bay, vicinity of High Island and vicinity of The Twins, dangers to navigation affecting chart 16315 (4th ed., Jan. 2, 1988; datum: NAD 83) and chart 16011 (31st ed., June 29, 1985; datum: NAD 27) were found.

It is recommended that the enclosed Reports of Dangers to Navigation be included in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Marine Center at (206) 526-6835.

Enclosures

cc: DMAH/TC
N/CG221

Sincerely,

Sigmund R. Petersen
Rear Admiral, NOAA
Director, Pacific Marine Center



REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10276
 Survey Title: State: Alaska
 General Locality: Bristol Bay
 Sublocality: Vicinity of High Island
 Project Number: OPR- R184-FA
 NOAA Ship / Field Party: FAIRWEATHER S220

The following items were discovered during hydrographic survey operations:

Objects Discovered: Shoals and Rocks

Covered/uncovered/bare covered

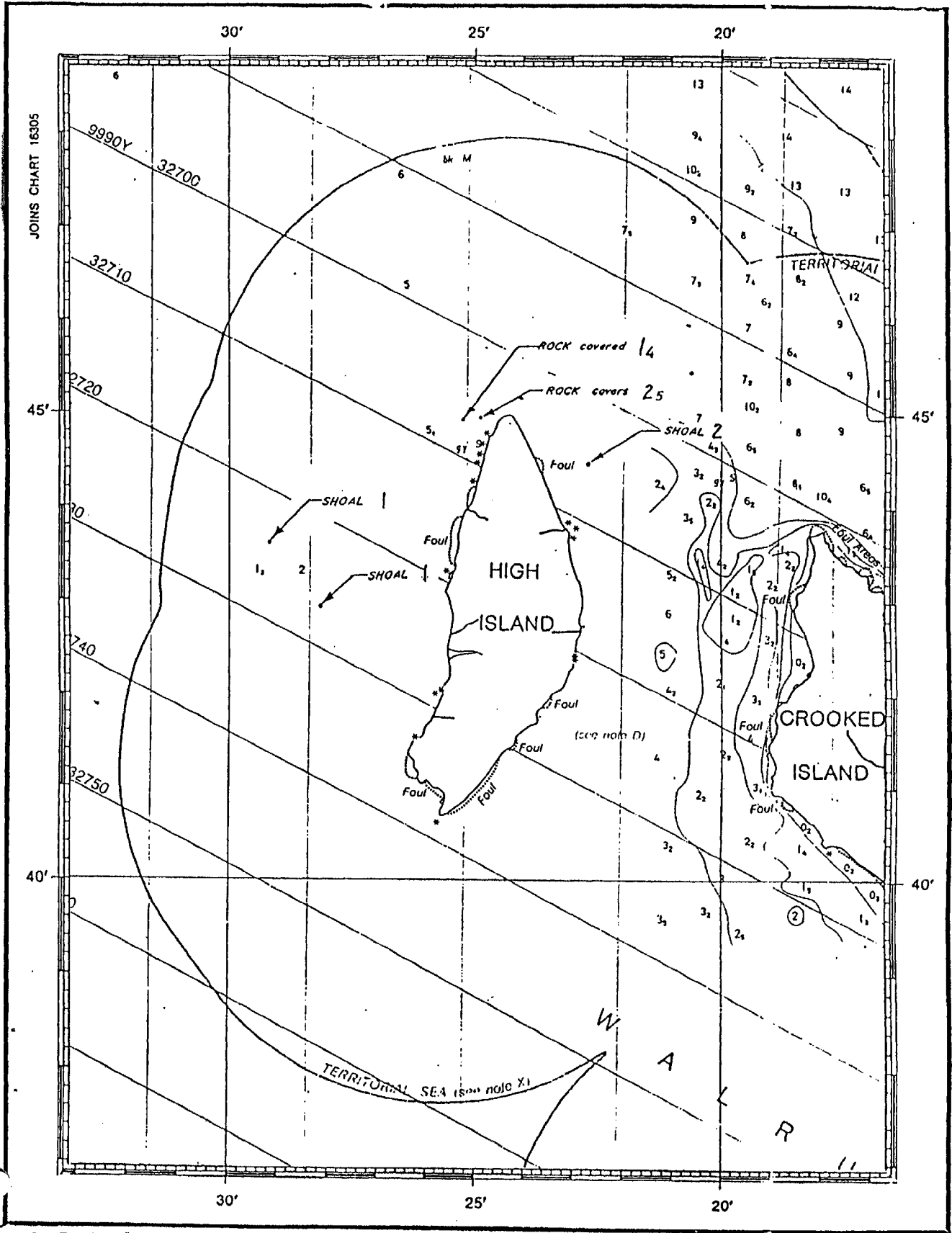
Corrected to MLLW

Tides: Predicted YES Observed _____

CHART NUMBER	EDITION		REPORTED DEPTH	CHART HORIZ. DATUM	GEOGRAPHIC POSITION	
	NO	DATE			LATITUDE	LONGITUDE
16011	31	Jun. 29, 1985	2 fm	NAD 27	58/44/30.0N	160/22/30.0W
16011	31	Jun. 29, 1985	1 fm	NAD 27	58/44/00.0N	160/27/00.0W
16011	31	Jun. 29, 1985	1 fm	NAD 27	58/43/45.0N	160/29/00.0W
16011	31	Jun. 29, 1985	1 1/2 fm	NAD 27	58/45/00.0N	160/25/02.0W
16315	4	Jan. 2, 1988	2 fm	NAD 83	58/44/32.8N	160/22/22.1W
16315	4	Jan. 2, 1988	1 fm	NAD 83	58/44/02.8N	160/26/52.1W
16315	4	Jan. 2, 1988	1 fm	NAD 83	58/43/47.8N	160/28/52.1W
16315	4	Jan. 2, 1988	1 fm and 4 ft Rk	NAD 83	58/45/02.8N	160/24/54.1W
16315	4	Jan 2, 1988	2 fm and 5 ft Rk	NAD 83	58/45/04.8N	160/24/32.1W

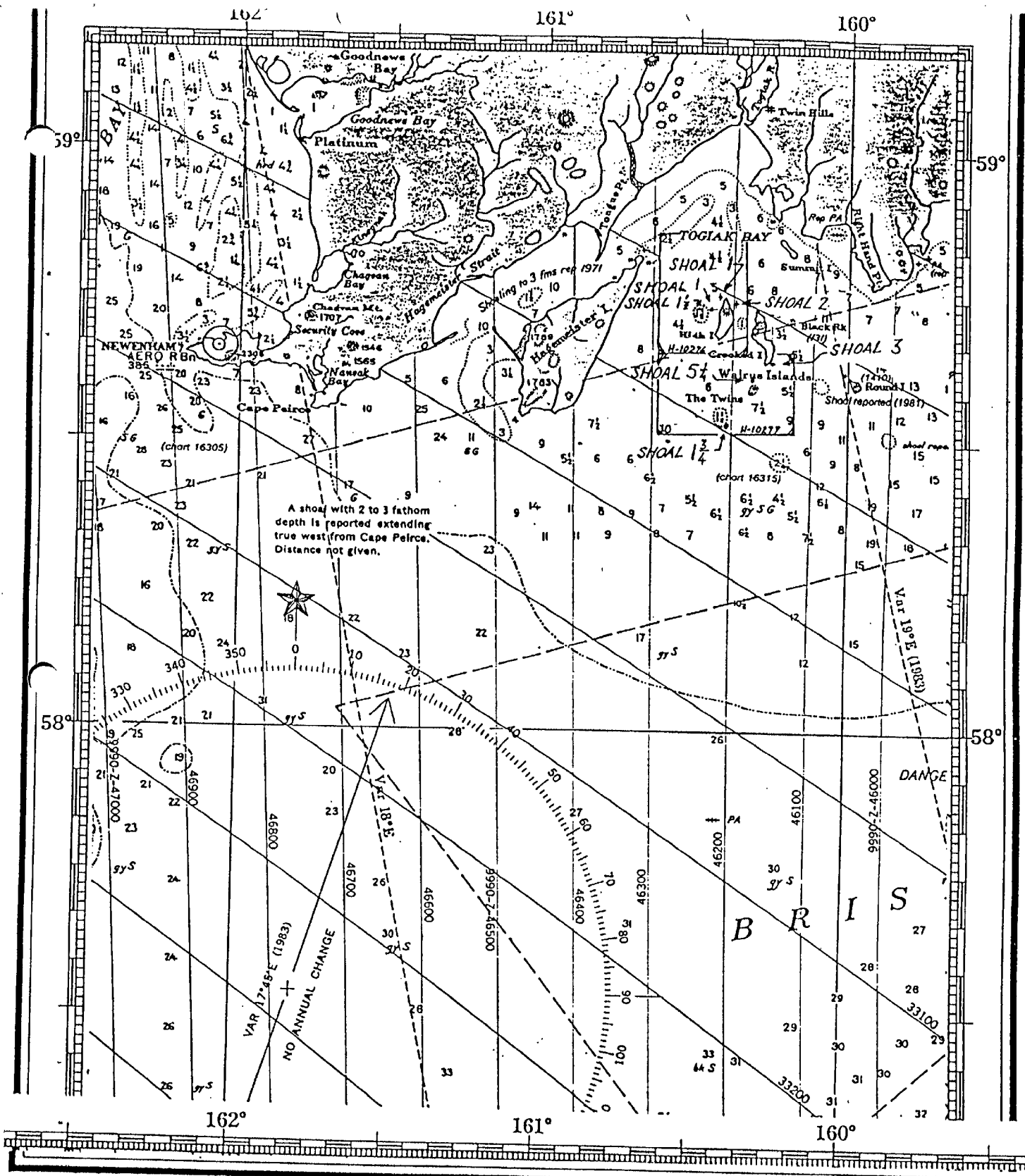
Questions concerning this report should be directed to the Pacific Marine Center at (206) 526-6835.

181



16315

4th Ed., Jan. 2/88



31st Ed., June 29/85

1011

Mercator Projection
 Scale 1:1,023,188 at Lat. 56°00'
 North American 1927 Datum
SOUNDINGS IN FATHOMS
AT MEAN LOWER LOW WATER

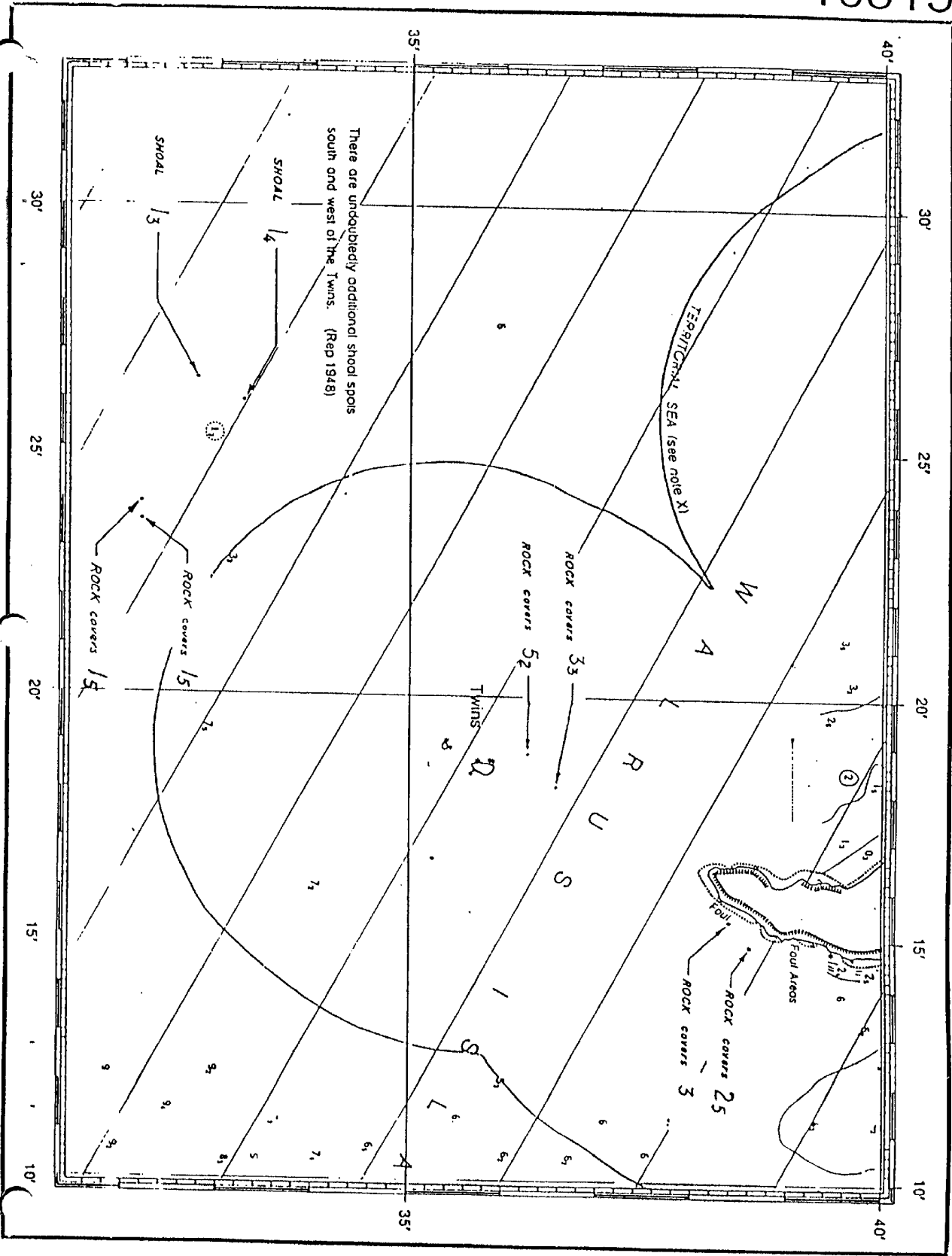
TOGIAK BAY AND WALRUS ISLANDS
 SOUNDINGS IN FATHOMS - SCALE 1:100,000

4th Ed., Jan. 2/88

16315

H-10277

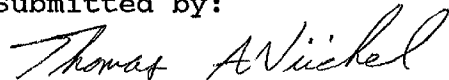
NAD-83



Approval Sheet

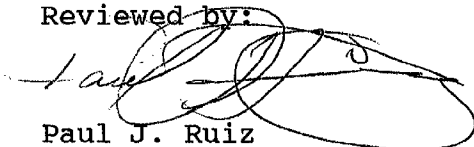
The final field sheets and accompanying records have been reviewed for accuracy, completeness, compliance with project instructions, and adherence to required standards and procedures. This survey is complete and requires no additional work. The data are forwarded for final review and processing.

Submitted by:



Thomas A. Niichel
Ensign, NOAA

Reviewed by:



Paul J. Ruiz
Lieutenant NOAA
Field Operations Officer (Acting)

Approved by:



Glen R. Schaefer
Captain, NOAA
Commanding Officer

30 Sep 88

GEOGRAPHIC NAMES

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
	ON CHART NO.										
	ON PREVIOUS SURVEY NO.										
	ON U.S. QUADRANGLE MAPS										
	FROM LOCAL INFORMATION										
	ON LOCAL MAPS										
	P.O. GUIDE OR MAP										
	RAND McNALLY ATLAS										
	U.S. LIGHT LIST										
ALASKA (TITLE)											1
BRISTOL BAY											2
HIGH ISLAND											3
TOGIAK BAY											4
											5
											6
											7
											8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

Approved:

Charles E. Harrison
Chief Geographer - N/Ch205

DEC - 6 1988

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: November 22, 1988

MARINE CENTER: Pacific

OPR: R184

HYDROGRAPHIC SHEET: H-10276

LOCALITY: Bristol Bay, Alaska

TIME PERIOD: June 3 - August 14, 1988

TIDE STATION(S) USED: 946-5173 High Island, AK

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -4.27 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 8.7 ft.

REMARKS: RECOMMENDED ZONING

1. North of latitude 58 40.5', zone direct.
2. South of latitude 58 40.5', apply a X0.97 range ratio to all heights.



CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

HYDROGRAPHIC SURVEY STATISTICS

H-10276

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		6
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		21
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDION FILES					
ENVELOPES					
VOLUMES	3				
CAHIERS	4				
BOXES					

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	VERIFICATION	EVALUATION	TOTALS	
POSITIONS ON SHEET			4826	
POSITIONS REVISED			33	
SOUNDINGS REVISED			332	
CONTROL STATIONS REVISED			0	
TIME-HOURS				
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	111		111	
VERIFICATION OF SOUNDINGS	80		80	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	68		68	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		15	15	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		27	27	
GEOGRAPHIC NAMES				
OTHER*				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	259	42	301
Pre-processing Examination by J. Miller	Beginning Date	6/2/88	Ending Date	8/14/88
Verification of Field Data by L. Deodato, J. Shofner	Time (Hours)	259	Ending Date	3/16/89
Verification Check by S. Otsubo, B. Olmstead	Time (Hours)	54	Ending Date	3/2/89
Evaluation and Analysis by G. Kay	Time (Hours)	42	Ending Date	5/4/89
Inspection by D. Hill	Time (Hours)	2	Ending Date	5/5/89

PACIFIC MARINE CENTER
EVALUATION REPORT
H-10276

1. INTRODUCTION

Survey H-10276 is a basic hydrographic survey accomplished by the NOAA Ship FAIRWEATHER under the following Project Instructions.

OPR-R184-RA, dated March 6, 1987
CHANGE NO. 1, dated March 20, 1987
CHANGE NO. 2, dated June 2, 1987
CHANGE NO. 3, dated August 10, 1987
CHANGE NO. 4, dated May 2, 1988
CHANGE NO. 5, dated July 19, 1988

This survey occurred in Alaska and covers an area in Togiak Bay around High Island. The surveyed area extends from just south of High Island at 58°39'30"N, to latitude 58°51'00"N, and from the east side of High Island at longitude 160°21'00"W west to 160°36'36"W. The bottom is relatively smooth and flat with soundings that range from zero to 13 fathoms. Sand waves are noted northwest of High Island. The bottom consists of fine sand and pebbles.

Predicted tides for Hagemester Island, Alaska, were used for the reduction of soundings during field processing. Approved hourly heights zoned from High Island, gage 946-5173, were used during office processing.

The field party observed differences between the observed and predicted tides. With the application of actual tides, the conflicts as described by the hydrographer in section H, I, J and M of the hydrographer's report have been resolved. The smooth sheet displays the corrected data.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. TRA, sound velocity and electronic control correctors are adequate. An accompanying computer printout contains the parameters and the correctors.

A digital file, generated for this survey, includes categories of information required to comply with CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983. Certain descriptive information, however, may not be 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

Sections F and G of the hydrographer's report and the 1988 Horizontal and Electronic Control Reports for OPR-R184-FA contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are published and 1985, 1986, and 1988 field values based on NAD 27. These values were used during office processing for the computation of positions. The smooth sheet and accompanying overlays are annotated with NAD 83 adjustment ticks based on values determined by CG121. Geographic positions based on NAD 83 may be plotted on the smooth sheet utilizing the NAD 27 projection by applying the following corrections.

Latitude: 2.784 seconds 86.1 meters
 Longitude: -7.931 seconds -127.2 meters

The year of establishment of control stations shown on the smooth sheet originates with the field records and the published NGS data.

There are seven weak fixes (angles of intersection less than 30 degrees or more than 150 degrees) noted in this survey. Three of these fixes (positions 2090, 2090/1 and 2090/2) were used to position soundings. There are no significant plotting differences between the soundings located by these fixes and those in adjacent areas. Two of these fixes (positions 1108 and 1109), were used to position alongshore rocks. The computed check fixes indicate that the fixes are reasonable. One fix (position 7416), is verified by the position of a rock on T-9248(1947). Another weak position, (position number 9012), a 3.1-fathom Rk located at latitude 58°42'23.12"N, longitude 160°21'33.08"W is situated between High and Crooked Islands. This feature was first noticed during hydrographic operations and then investigated by divers. This position is reasonable and is consistent with the surrounding depths.

These fixes are considered adequate for charting.

The following registered shoreline map applies to this survey.

	<u>Photo Date</u>	<u>Class</u>
TP-01190	July 1983	III

See section 6 of this report for a comparison with prior shoreline map T-9248(1947).

3. HYDROGRAPHY

Hydrography is adequate to:

- a. delineate the bottom configuration, determine least depths, and draw the standard depth curves;
- b. reveal there are no significant discrepancies or anomalies requiring further investigation; and
- c. show the survey was properly controlled and soundings are correctly plotted.

4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3; the Hydrographic Survey Guidelines; and the PMC OORDER, except as follows.

The hydrographer did not transmit to the Seventeenth Coast Guard District the dangers discovered while conducting this hydrographic survey. The dangers were listed in section L of the hydrographer's report. However, the reporting of dangers demand prompt action as required by Hydrographic Survey Guideline No. 66. During the pre-processing examination three additional items along with the two that the hydrographer mentioned in his report were reported to the Seventeenth Coast Guard District. A copy of this dangers report is attached.

5. JUNCTIONS

Survey H-10276 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10222	1986	1:20,000	east
H-10248	1987	1:20,000	north
H-10251	1987	1:20,000	northwest
H-10253	1987	1:20,000	west
H-10277	1988	1:20,000	south

The junction with survey H-10277 is complete.

The junctions with surveys H-10222, H-10248, H-10251 and H-10253 have not been formally completed since these surveys were previously processed and forwarded for charting. The junction comparisons were made using copies. Soundings are in good agreement. However, some soundings have been transferred to survey H-10276 smooth sheet to better portray the bottom in the common area. Portions of the depth curves on surveys H-10222, H-10248 and H-10253 should be adjusted to conform with those of survey H-10276.

There are no contemporary surveys to the southwest of this survey. A comparison with charted depths (chart 16315, 5th edition) was not possible because of the lack of charted information in this junction area.

6. COMPARISON WITH PRIOR SURVEYS

H-7718 (1947) 1:100,000

H-7718 covers the eastern half of the present survey. The present survey is up to 0.4 fathoms deeper than this prior. Other discrepancies between the two surveys were noted and are discussed in section K of the hydrographer's report. Considering the differences in the scales of the surveys and the methods of surveying, comparison with this prior survey is satisfactory. Survey H-10276 is adequate to supersede prior survey H-7718 within the common area.

AWOIS item 50913, a 1-fathom 3-foot sounding charted at latitude 58°43'20"N, longitude 160°29'25"W, originates with prior survey H-7718. This shoal is part of a larger 2-fathom shoal that extends 3-nautical miles in a NE-SW direction off the NW side of High Island. The shoalest depth on this shoal is 0.9-fathoms (position number 2457/5) located at latitude 58°44'41.33"N, longitude 160°25'33.42"W. This shoal is the same shoal described in AWOIS item 51032, a charted note, "Shoaling to 1-fathom reported (1985)," centered at latitude 58°45'00.0"N, longitude 160°26'00.0"W. This shoal should be charted as displayed on the smooth sheet. ✓

T-9248 (1947) 1:20,000

This prior shoreline map was compared to survey H-10276. The prior shoreline map was used in the field as a contemporary shoreline map. Features on this prior shoreline map were verified by visual inspection and positions were not acquired. Numerous prior shoreline rocks have been transferred to the present survey in violet ink. Most of these rocks have been annotated with elevations that were obtained by the hydrographer during shoreline verification. Actual tides have been applied to the rock elevations. With the transfer of these rocks, survey H-10276 is adequate to supersede this prior survey as a source for charted hydrography.

7. COMPARISON WITH CHART

Chart 16315, 4th Edition, dated January 2, 1988; scale 1:100,000
 Chart 16315, 5th Edition, dated February 11, 1989; scale 1:100,000

a. Hydrography

Most charted information on the 4th edition originates with prior surveys discussed in section 6 of this report. Some soundings and charted features originate from miscellaneous sources. Additional information is found in section L of the hydrographer's report.

All charted hydrography on the 5th edition originates with survey H-10276 (1988) preliminary reports and field sheets and requires no further discussion.

Survey H-10276 is adequate to supersede charted hydrography within the common area.

b. AWOIS

AWOIS item 51032, a charted note, "Shoaling to 1-fathom reported (1985)," centered at latitude 58°45'00"N, longitude 160°26'00"W, originates with a report from the NOAA Ship RAINIER, CL589/85. This feature, AWOIS item 51032, is on the same shoal as AWOIS item 50913 and is discussed and disposed of in section 6. ✓

c. Controlling Depths

There are no charted channels with controlling depths within the area of this survey.

d. Aids to Navigation

There are no fixed or floating aids located within the area of this survey.

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

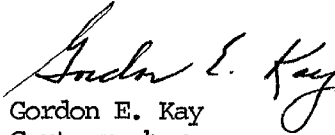
No reports of dangers to navigation were generated during survey operations. During office processing, five dangers were found and were reported to the Seventeenth Coast Guard District and DMA on October 19, 1988. A copy of this dangers report is attached.

8. COMPLIANCE WITH INSTRUCTIONS

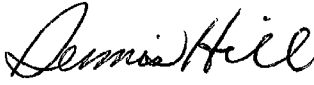
Survey H-10276 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is an adequate hydrographic survey. No additional field work is recommended.


Gordon E. Kay
Cartographer

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


Dennis J. Hill
Chief, Hydrographic Section

APPROVALS

I have reviewed the smooth sheet, accompanying data, and reports associated with hydrographic survey H-10276. This survey meets or exceeds Charting and Geodetic Services' standards for products in support of nautical charting.

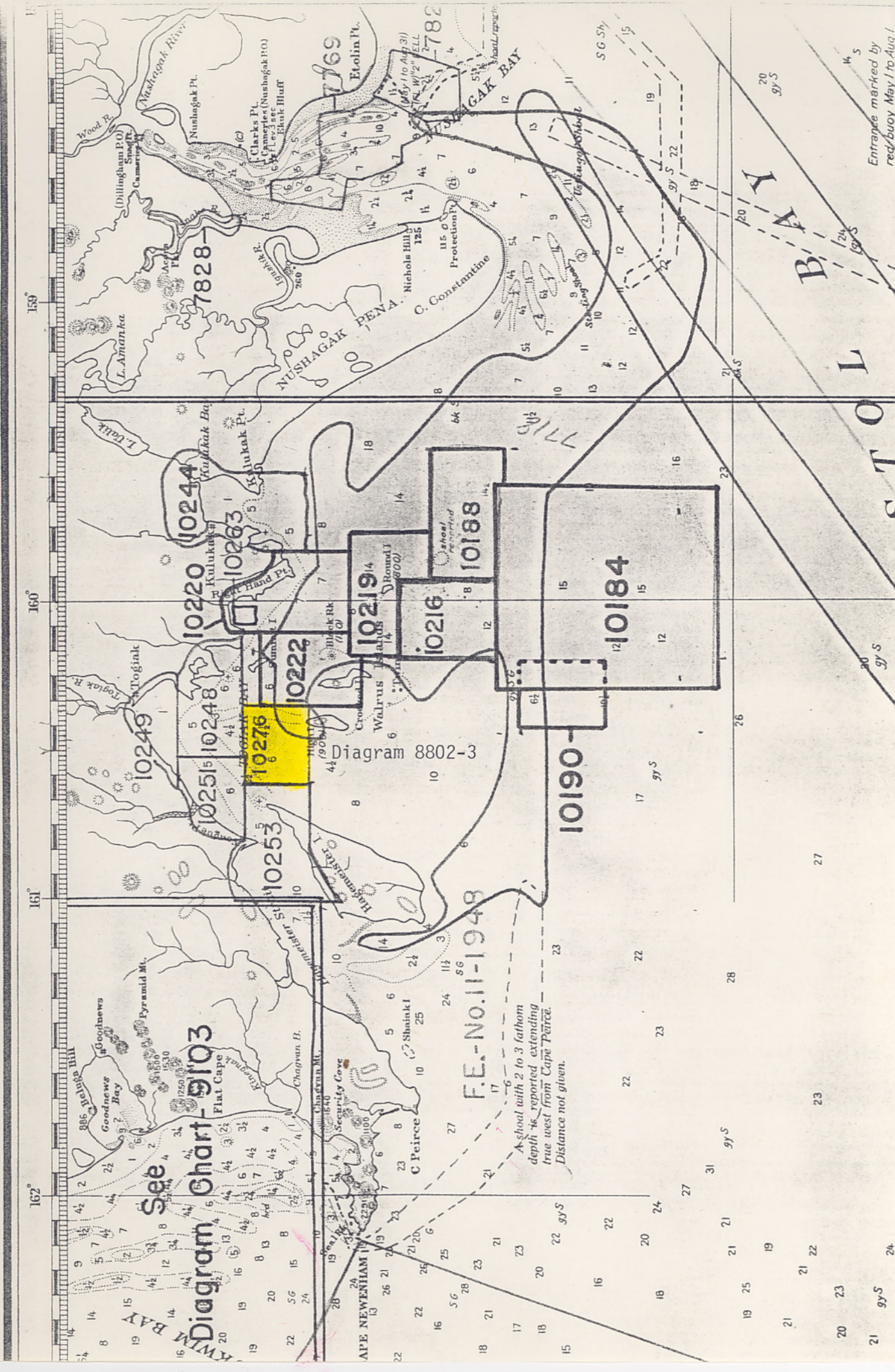
Dennis Hill 5-10-89
For Chief, Nautical Chart Branch (Date)

After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards.

Sigmund R. Petersen 5/16/89
Director, Pacific Marine Center (Date)

10184
7719
83101

(510043)



Entrance marked by red buoy May 1 to Aug 1

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10276

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.

EXAMINED FOR NM

GBU

9-13-89 RE *Apply*

CHART	DATE	CARTOGRAPHER	REMARKS
16315	10/23/89	<i>Ed Martin</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>5</i>
16006	3-21-90	<i>John Pierce</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>26</i>
16011	7/12/93 8-10-93	<i>Kenny O'Neil</i> <i>Joseph L. Murphy</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>31. Applied THRU C-16315 #8.</i>
530	10-4-93	<i>R. Elliott</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>36</i> 8 <i>APPL'D THRU 16006 #27</i>
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED