10289

Diagram No. 8201-4

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

10289

Type of Survey Navigable Area Hydrographic

Field No. RA-20-5-88

Registery No. H-10289

LOCALITY

State Alaska

General Locality Frederick Sound

Sublocality North and East of Pinta Point

1988

CHIEF OF PARTY
CAPT J.C. Albright

LIBRARY & ARCHIVES

DATE September 11, 1989

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

"GP"
CHT
17360 } CHARTOG SIGN OFF ON FM IN back

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-10289

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.

RA 20-5-88

State Alaska

General locality Frederick Sound

Locality North and East of Pinta Point

Scale 1:20,000 Date of survey October 11 to November 10, 1988

Instructions dated September 13, 1988 Project No. OPR-0358-RA

Vessel NOAA Ship RAINIER (2120), Launches (2123), (2124), (2125), (2126)

Chief of party CAPT J.C. Albright

Surveyed by LTJG Lovell, ENS Hill, ENS Meis, ENS Larsen, ENS Smith, ENS Groeneveld, ENS Noll, ENS Haines

Soundings taken by echo sounder, ~~hand lead, pole~~ DSF-6000N; pneumatic depth gage

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Verification by: ~~Protracted by~~ E. Domingo, J. Stringham Automated plot by PMC Xynetics Plotter

Evaluation by: ~~Verification by~~ C.R. Davies

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

REMARKS: (all times 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.

3-28-98 AWOIS + SURF ~ RWD 9/89

U.S. GOVERNMENT PRINTING OFFICE: 1986 - 652-007/41215

PROGRESS SKETCH

OPR-0358-RA

HYDROGRAPHIC SURVEY

FREDERICK SOUND, AK.

OCTOBER 4 - NOVEMBER 11 1988

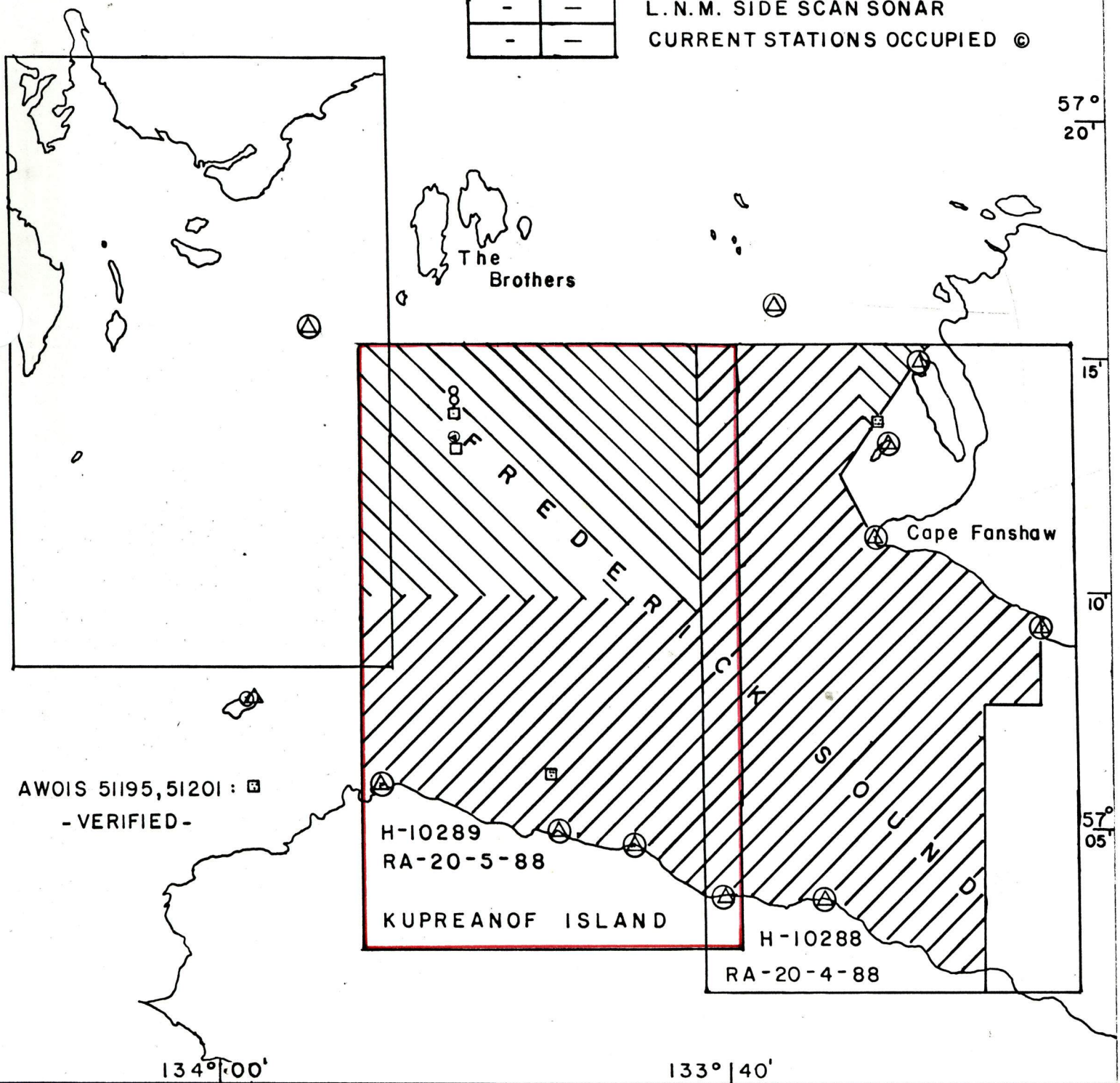
NOAA SHIP RAINIER

JOHN C. ALBRIGHT, CAPT.

COMMANDING

SCALE OF CHART 17360

OCT	NOV	
98.6	43.1	SQ. N. M. SOUNDING
977.6	601.1	L. N. M. SOUNDING
733	695	L. N. M. MISC. DISTANCE
80	78	BOTTOM SAMPLES (GRAB)
11	1	ELECTRONIC CONTROL STATIONS △
2	1	TEMP. DEPTH SOUND VELOCITY
1	—	NANSEN CAST
1	—	TIDE STATIONS ⊙
1	—	GEOD. CONTROL STATIONS ESTABLISHED △
11	—	WATER SAMPLES ANALYZED
-	—	SQ. N. M. SIDE SCAN SONAR
-	—	L. N. M. SIDE SCAN SONAR
-	—	CURRENT STATIONS OCCUPIED ©



Descriptive Report to Accompany Hydrographic Survey H-10289

Field Number RA-20-5-88
Scale 1:20,000
1988

NOAA Ship RAINIER
Chief of Party: Captain John C. Albright

A. Project ✓

A basic hydrographic survey under the navigable area concept was completed in Frederick Sound, Alaska as specified by Project Instructions OPR-O358-RA dated September 13, 1988. The survey is designated sheet F on the revised sheet layout for the project dated August 1, 1988.

This survey is one in a series of surveys which will provide contemporary hydrographic data for existing nautical charts and for a new series of 1:80,000-scale charts. It is part of a continuing program to improve chart coverage of the Inside Passage of southeast Alaska in response to requests from the Southeastern Alaska Pilots' Association, the Department of Transportation of Alaska, and other private interests such as the cruise liner and fishing industries.

B. Area Surveyed ✓

The survey is located in southeast Alaska in central Frederick Sound between Kupreanof Island and Stephens Passage. The survey area is bounded on the south by Kupreanof Island, on the north by latitude 57°15'30", on the east by longitude 133°40'00", and on the west by longitude 133°54'30"W.

The southern shoreline is generally gently sloping, low and rocky. There is no other shoreline that borders this survey.

Data acquisition was conducted from October 11 through November 10, 1988 (DN 285 - DN 315).

C. Sounding Vessels ✓

All data were acquired from RAINIER and four automated survey launches, as shown below:

Vessel	EDP No.	Operation
RAINIER	2120	Hydrography Bottom Samples Nansen/Plessey Casts
RA-3	2123	Hydrography
RA-4	2124	Hydrography
RA-5	2125	Hydrography Bottom Samples
RA-6	2126	Hydrography

No changes to the standard sounding configurations were necessary.

D. Sounding Equipment and Corrections to Echo Soundings

All sounding vessels were equipped with Raytheon DSF-6000N echo sounders as shown below. The echo sounders were operated in the HIGH + LOW (HIGH DIGITIZED) function, using manual and automatic gain controls on both high and low frequencies to obtain the best analog trace. Soundings were recorded in fathoms and tenths of fathoms. Two-fathom bar checks were conducted and recorded daily, using both the LOW and the HIGH + LOW (HIGH DIGITIZED) functions, to ensure the echo sounders were functioning properly. The echo sounders were operated in accordance with the Provisional Instructions "RAYTHEON DSF-6000N ECHO-SOUNDER OPERATING AND PROCESSING INSTRUCTIONS," dated July 5, 1983, and the N/CG2 memorandum "DSF-6000N Depth Errors as a Function of Receiver Gain," dated May 23, 1986.

The echo sounders functioned properly, with occasional minor problems, but no equipment changes were necessary. The echo sounders were continuously monitored during data acquisition. All sounding data were scanned at least two times, not only to ensure all significant peaks and deeps were inserted, but also to verify the digitized depths.

The echo sounders failed to track properly at times while running over extremely steep, irregular bottom. RAINIER acquired sounding data over the charted shoal located in the northwest corner of the survey area as the survey launches had difficulty in holding the high-frequency beam due to steep bathymetry and prevailing poor sea conditions. Running at minimum speeds usually alleviated this problem, and overall data quality was not compromised, but marginal analog traces sometimes could not be avoided. For further information on echo sounder performance, see the Fall 1988 Corrections to Echo Soundings Report for OPR-0358-RA.

Raytheon DSF-6000N Echo Sounders

Vessel	Serial Number	Day Numbers
2120	A119N	285-315
2123	A117N	„
2124	A103N	„
2125	B046N	„
2126	A114N	285-299

Diver-obtained least depths were determined with a 3D Instruments pneumatic depth gage (S/N 8504192N). The gage was operated in accordance with Hydrographic Survey Guideline #55, and was last calibrated March 15, 1988 by the Pacific Operations Group (N/OMA 1214). In addition, field system checks were performed each day the pneumatic depth gage was used. System calibration data are included in the Fall 1988 Corrections to Echo Soundings Report for OPR-0358-RA.

Corrections to Echo Soundings ✓

Corrections to echo soundings were determined for heave, static draft, velocity of sound through water, settlement and squat, and predicted tides. All correctors except settlement and squat are applied to soundings on the final field sheets. Settlement and squat correctors will be applied at the Pacific Marine Center during verification. Variations in the instrument initial, stylus arm length, and belt tension are not present with the DSF-6000N.

Heave ✓

Corrections for heave were applied while scanning the echograms. The scanning technique used in comparing the analog trace with the digital record was chosen to eliminate fluctuations greater than 0.2 fathom resulting from sea action.

Static Draft ✓

Transducer depths of 0.3 fathom were measured for all launches on March 23, 1988 by divers using a large metal T-square. The draft measurements were made at PMC with the fuel tanks averaging 3/4 full. For each launch, measurements with no people and with four people aboard were made, and the average computed. The transducer depths of 0.3 fathom agree with RAINIER historical records. Transducers are mounted starboard, amidships, in a location such that all sounding corrections apply to both the low and high-frequency echo-sounder signals. Static draft measurements and computations are included in Fall 1988 Corrections to Echo Soundings Report for OPR-0358-RA.

RAINIER's starboard amidships transducer was used for ship hydrography. The static draft of this transducer was measured with the pneumatic depth gage (S/N 8504192N) on July 6, 1986 while the ship was in Dutch Harbor, Alaska. The measured depth of 2.2 fathoms agrees with RAINIER's historical records. No

significant equipment or weight changes have occurred on RAINIER since the draft measurement was made.

Velocity Correctors ✓

Corrections for the velocity of sound through water were determined from three Plessey SVD casts described below.

Cast No.	Cast Depth(m)	DN	Geographic Position
1	400	283	57°13.2'N, 133°50.5'W
N	400	283	57°13.2'N, 133°50.5'W
2	400	295	57°13.6'N, 133°50.7'W
3	400	312	57°12.8'N, 133°50.3'W

N: Nansen cast

The Nansen cast was performed to ensure that the Plessey sensor was operating properly. The sound velocities determined from the Nansen cast agreed well with those from Cast #1. Surface water temperatures and samples were obtained during each Plessey cast as additional checks on the Plessey system.

The Plessey Sound Velocity Sensor, S/N 5653, was connected to a Hewlett/Packard 5326B Universal Frequency Counter, S/N 1312A02159. The sensor was calibrated at the Northwest Regional Calibration Center (NRCC) in Bellevue, Washington on September 23, 1988.

The surface water temperature and the corresponding sound velocity, decreased throughout the survey. The casts used for each velocity table and the days to which each velocity table applies are as follows:

Velocity Table No.	Cast No.	Applicable DN
5	1,2	285-301
6	3	306-315
7	3	314-315

In accordance with Change No. 3 to the 1988 Project Instructions for OPR-P180-RA, RAINIER personnel tested and evaluated a new sound velocity computation program developed by N/CG21. Results of the test agreed well with the traditional computation method outlined in Section 4.9.5.2 of the Hydrographic Manual. A report documenting the test results was forwarded to N/CG24 on July 18, 1988. The new velocity corrector program, VELOCITY, was used to compute velocity correctors as there was no significant difference in the results between the two methods.

Velocity correctors were applied to all echo soundings at 0.1-fathom increments. Velocity corrector computations, graphs and velocity tape listings are included with this report. All supporting data for the Plessey and Nansen casts are included in the Fall 1988 Corrections to Echo Soundings Report for OPR-0358-RA.

Settlement and Squat ✓

Settlement and squat correctors were determined for the automated survey launches at Shilshole Bay, Washington, on March 30, 1988. Misreadings of the level for vessel 2123 necessitated a rerun of settlement and squat observations for that vessel in Farragut Bay, Alaska on May 5, 1988. All tests were conducted over a hard bottom in depths exceeding seven times the vessels' drafts. Both seas and wind were calm. Observations were made using a Zeiss Ni2 leveling instrument (S/N 87102) to a rod held vertically on the deck of each launch, almost directly over the transducer.

Ten level readings were made at each speed tested, and the average taken, to compute the correctors. Tide staff readings were taken concurrently with each set of level readings, and all tidal height differences were normalized to the tidal height of the dead-in-the-water level readings.

The correctors computed from the settlement and squat test performed on RAINIER on August 8, 1986 east of Black Rock in Togiak Bay, Alaska in a depth of 16 fathoms of water were used as there has been no significant change in equipment or weight distribution.

Soundings on the final field sheets are not corrected for settlement and squat. Abstracts of corrections to echo soundings and TC/TI tape listings for each sounding vessel have been submitted with this survey. Records of settlement and squat data are included in the Fall 1988 Corrections to Echo Soundings Report for OPR-0358-RA.

Tide Correctors ✓

Tidal zones and correctors for this project were provided in the chart accompanying the Project Instructions. Only one zone applies to this survey. The correctors used for field data are based on the predicted tides for Juneau, Alaska tide station (945-2210), and are a height correction ratio of "x 0.87" and time corrections of minus 17 minutes for high water and minus 14 minutes for low water. A printout of the predicted tide tapes is included in the survey data.

A tide station was established at Turnabout Island (945-1655) and maintained by RAINIER personnel. The field tide records have been forwarded to N/OMA121, in accordance with Hydrographic Survey Guideline #50 and the PMC OPORDER. A request for approved tides has been forwarded to N/OMA 121 ~~(Appendix IX)~~.

E. Hydrographic Sheets ✓

All field sheets were prepared aboard RAINIER, on a Houston Instrument Complot DP-3 roll plotter, using the PDP8/e HYDROPLOT system and program RK201, "Grid, Signal, Lattice Plot". Program RK201 draws a Modified Transverse Mercator projection. The two 1:20,000-scale final field sheets are designated RA-20-5E-88 and RA-20-5W-88. In addition, two 1:5000-scale sheets were plotted for the investigation of AWOIS item #51195 and the disproval of a 5-fathom charted depth. The limits of all development sheets are shown on the final field sheets. Parameter tape listings are included with ~~this report.~~ the hydrographic data.

Depth contours are drawn on the final field sheets in accordance with the Hydrographic Manual except in areas of steep bathymetry where all required contours could not be drawn without degrading the legibility of the sheets.

In plotting the final field sheets, overprints were removed by various techniques. The pen was manually lifted and special corrector tapes were made to edit out individual soundings. These tapes have not been submitted. Some soundings, including least depths, have been transferred by hand to the final field sheets from NSP data.

All field sheets, accompanying field records, and this Descriptive Report are being forwarded to the Pacific Marine Center (N/MOP 21) for ~~verification.~~ office processing.

F. Control Stations

The following geodetic stations were used to control this survey:

Station	Order, Class	Date Established	Signal No.
BILL POINT *	1,I	1917	155
FANSHAW	1,I	1917	153
FIVE FINGER LIGHTHOUSE *	3,I	1988	156
FLAT	1,I	1917	150
HIGHLAND	1,I	1917	151
PINT	3,I	1965	154
ROUND ROCK *	1,I	1917	157
SHUT	3,I	1965	160
SLATE 2	3,I	1917	152
STORM *	3,I	1920	158
TURN *	3,I	1988	161

* Stations located offshore on islands.

Positions for all existing control stations are from the NGS data base and were recovered using methods stated in Section 3.1.4 of the PMC OPORDER. TURN and FIVE FINGER LIGHTHOUSE were positioned by RAINIER personnel via closed traverse and intersection, respectively. The field positions for these stations are unadjusted. All stations meet or exceed Third-order, Class I standards for positioning. Geographic positions are based on the North American Datum of 1927 and Clark Ellipsoid of 1866. Further information can be found in the Fall 1988 Horizontal Control Report for OPR-O358-RA.

G. Hydrographic Position Control ✓

All soundings were located using Motorola Mini-Ranger III microwave positioning equipment in the HYDROPLOT range-range acquisition mode.

Positioning Equipment ✓

Five Mini-Ranger console/R-T pairs and ten shore transponders were used during the survey. The following table summarizes the vessel and console/R-T pair configurations:

Day Numbers (DN)	Vessel EDP No.	Vessel Name	Console/R-T Serial No.
295-315	2120	RAINIER	720/B1405
285-315	2123	RA-3	711/F3413
285-315	2124	RA-4	30269/B1089
285-315	2125	RA-5	506042/E2716
285-299	2126	RA-6	715/911102

The table below lists the shore transponder equipment used during the survey:

Transponder Serial Number	Code
911697	A
G3500	C
911711	D
F3256	E
G3501	F
B1412	0
D2384	1
B1106	2
911635	3
F3248	4

Baseline Calibrations ✓

Three baseline calibrations over water were conducted in accordance with PMC OPORDER 3.3 (see table below). Calibration data and descriptions of the baselines can be found in the Fall 1988 Electronic Control Report for OPR-0358-RA.

Location	DN	Distance	Description
Seattle, WA	265 326	1312 m	Sandpoint Pier to Matthews Beach
Juneau, AK	305	1260 m	NOAA Fisheries pier to Union Oil pier

Opening and closing baseline calibrations were conducted in Seattle. The Juneau calibration using console/R-T pairs 711/F3413, 30269/B1089 and 506042/E2716 produced opening calibration data for transponder code 4.

The final field sheets were plotted with the opening baseline calibration correctors as the difference between opening and closing baseline correctors for all codes was

less than eight meters. It is recommended that these same correctors be applied during final processing. concur ✓

System Check Procedures ✓

In accordance with PMC OPORDER 3.3, critical system checks were made at least weekly and noncritical checks were made daily when critical checks were not acquired.

Theodolite intersection critical system checks were used for checking the Mini-Ranger III system on the launches. The following Wild T-2 serial numbers were used: 73226, 75599E and 68648.

Fixed-point critical system checks were also acquired for the survey launches at the following stations: BILL POINT (155), FANSHAW (153), HIGHLAND (151), PINT (154), PORTAGE 2 (147), SLATE 2 (152) and STORM (158).

Three-point sextant fixes with check angles were used as critical system checks for RAINIER.

Noncritical system checks were conducted using the launch-to-launch or baseline crossing methods. Baseline crossings were used for non-critical checks for RAINIER. ~~In general,~~ Noncritical system checks fell within the allowable rejection limits and no systematic discrepancies with opening baseline correctors were observed. Daily noncritical system checks verified as being within specs.

Problems and Unusual Position Configurations ✓

Null zones and erratic ranges were occasionally experienced due to the destructive interference of direct and reflected rf waves. This problem was significantly reduced by mounting several of the shore transponders atop twenty- to forty-foot Raydist towers. Time-and-course interpolations were used during data processing to correct the positions of soundings taken when launches approached null zones (as indicated by the launches' erratic steering needles and automated plotters).

A small amount of positioning data was acquired with signal strengths one unit below cutoff. The use of these signal strengths may result in discrepancies with baseline correctors of less than 10 meters, less than 0.5 millimeter at the scale of the survey, and does not cause significant degradation of positional quality.

Antenna Offset Distances (ANDIST) ✓

Each launch had its antenna located over its depth transducer, making the ANDIST corrector 0.0 meters. For RAINIER, the distance between the navigation antenna and the echo sounder transducer is +6.6 meters. ANDIST correctors were applied.

H. Shoreline See Evac Report, section 2

Shoreline maps were not compiled for this project; therefore, shoreline features were transferred to the final field sheets from 1:20,000-scale enlargements of USGS Topographic Quadrangles SUMDUM (A-5, A-6), 1948, 1:63,360.

Shoreline is shown in brown on the final field sheets for orientation purposes only. There were no negative predicted tides during daylight hours while the survey was in progress. However, observations made at the lowest water during daylight hours indicated that ledges and kelp areas do exist as charted. Detached positions were obtained for all features extending into the navigable area, as defined in the Project Instructions, and are shown on the final field sheets in black with their four-digit position numbers. All heights are in feet and are corrected to MLLW based on predicted tides. Heights computed for rocks and ledges refer to the highest point of each feature. Cartographic codes are noted in the field records.

I. Crosslines ✓

Crosslines were oriented perpendicular to the mainscheme sounding lines, and amounted to 11.4% of the mainscheme mileage. All soundings agree to within 1.0 fathom. In several instances the vessel acquiring the crossline data did not acquire the corresponding mainscheme data. The agreement between soundings obtained by different echo sounders in a common area is as stated above.

J. Junctions See Evaluation Report, section 5

This survey junctions to the east with RAINIER survey H-10288 (1:20,000; 1988). All depths agree to within 1.0 fathom except in areas of steep relief near shore. Depth contours are in excellent agreement.

There are no contemporary surveys to the north or west of this survey.

K. Comparison With Prior Surveys See Evaluation Report section 6

This survey was compared with the prior surveys listed below. In general, survey soundings agree within 10 fathoms with those from prior surveys. The techniques used for positioning and sounding during the prior surveys are the probable causes for these discrepancies. Wire drag surveys H-3993 (1917; 1:20,000) and H-3994 (1917; 1:20,000) were examined but provided no useful information.

H-1804 (1887; 1:80,000):

In general, survey depths were within 10 fathoms of the prior survey soundings.

The 122-fathom depth carried forward to NOS Chart 17360 was disproved. Line spacing of 100 meters was run over the charted depth. Survey depths in the area ranged from 195 to 196 fathoms. The hydrographer recommends deleting the 122-fathom depth charted at 57°10.5'N, 133°47.0'W and depicting this area as found in the survey data. Concur

H-1806 (1887; 1:80,000; boat sheet):

In general, survey depths ranged from 4 to 8 fathoms shoaler than the prior survey soundings. In the vicinity of 57°10.0'N, 133°44.0'W, prior survey soundings are 5-10 fathoms shoaler than soundings on H-10289.

The 5-fathom depth carried forward to NOS Chart 17360 was disproved. Line spacing of 20 meters was run over the charted depth (DN 313; Pos. Nos. 7468-7486, 7488-7772; Development #2). Survey depths in the area ranged from 15 to 18 fathoms. The hydrographer recommends deleting the 5-fathom depth charted at 57°05.3'N, 133°44.9'W and depicting this area as found in the survey data. concur
A 5.5 fathom depth was found at lat. 57°05'06.50"N, long. 133°45'32.18"W
chart according to smooth sheet.

H-1996 (1889-92; 1:80,000):

In general, survey depths were within 10 fathoms of prior survey soundings.

The 69-fathom depth within the shoal area carried forward to NOS Chart 17360 was disproved. Line spacing of 100 meters was run over the charted shoal. The shoal is a ridge with depths ranging from 36 to 74 fathoms. The 36-fathom depth was reported as an information item in the dangers to navigation message transmitted to the Seventeenth Coast Guard District, Juneau, Alaska and Defense Mapping Agency Hydrographic/Topographic Center (DMAHTC). A copy of this correspondence is included with this report. The hydrographer recommends deleting the 69-fathom depth charted at 57°14.4'N 133°51.5'W and depicting this shoal area to reflect the least depth found in the survey data. concur
Least depth in area is a 36 fathom depth at lat. 57°14'23.40"N, long 133°51'15.73"W, pos #5988/5

The 72-fathom depth carried forward to NOS Chart 17360 was disproved. This depth lies within the same shoal described above. Line spacing of 100 meters was run over the charted shoal and depths ranged from 71 to 89 fathoms. The hydrographer recommends deleting the 72-fathom depth charted at 57°15.0'N, 133°50.6'W and depicting the shoal area as reflected in the survey data. concur

H-3993 WD (1917; 1:20,000):

AWOIS item #51195 catalogued in the AWOIS listing dated August 8, 1988 lies within the limits of this survey and originates from this wire drag survey. The item is a charted 96-ft wire drag grounding at 57°06'24.00"N, 133°44'38.00"W.
AWOIS item #51195 originates with H-1804, see Evnt Report section 6

Investigation: An echo sounder investigation extending 250 meters out from the reported position was conducted with 20-meter line spacing in north-south and east-west orientations to ensure 100% bottom coverage with the low frequency beam (DN 292, 294; Pos. Nos. 4000-4079, 4144-4276; Development #1). The echo sounder search revealed the bottom to be gently sloping and consistent with the surrounding topography. Survey depths ranged from 14 to 33 fathoms.

Recommendation: Chart the area at latitude 57°06'24.0"N, longitude 133°44'48.0"W in accordance with survey data. concur
Least depth of 14.3 fathoms was found at lat. 57°06'26.51"N, long. 133°44'49.41"W, pos# 4056/3

T-1964 (1889; 1:80,000):

Islets and rocks shown alongshore (centered at 57°04.7'N, 133°45.6'W on NOS Chart 17360) were found to be outside the navigable area. See Evnt Report section 6

L. Comparison With the Chart ✓

This survey was compared to a 1:20,000-scale enlargement of NOS Chart 17360, 26th Edition dated August 18, 1984, 1:217,828. All but three charted depths originate from the prior surveys discussed in Section K and will not be discussed here. Charted depths not noted as originating from prior surveys on the chart markup show good agreement (within 2 fathoms).

The two charted 43-fathom shoals which fall within the western half of the survey area were investigated with 100-meter line spacing. Survey depths are 4 to 8 fathoms shoaler than charted. The hydrographer recommends charting the area in accordance with survey data. Least depths include a 34 fathom depth at lat. 57°07'49.99"N, long. 133°50'06.69"W and a 39 fathom depth at lat. 57°08'45.46"N, long. 133°51'24.51"W.

Non-Sounding Features ✓

Charted rocks and islets along the south shore are outside the navigable area.

Dangers to Navigation ✓

Divers investigated three shoal soundings which were found on mainscheme lines along the south shore. Descriptions of the features and search methods are on the dive investigation forms included in the survey data. The three items are shown on the final field sheets and have been reported as dangers to navigation to the Seventeenth Coast Guard District and DMAHTC. A copy of the correspondence forwarded to these agencies is included with this report.

M. Adequacy of Survey See Evan Report section 6

This survey is complete and adequate to be used for charting purposes, and to supersede prior surveys within the navigable area as defined in the Project Instructions.

N. Aids to Navigation ✓

There are no fixed or floating aids to navigation within the limits of this survey. concur

There are no bridges, overhead cables, pipelines or ferry routes within the limits of the survey. Two submarine cable areas lie within the survey area, but do not merge with the shoreline. concur

O. Statistics ✓

Vessel:	2120	2123	2124	2125	2126	Total
# of Pos	165	704	1788	942	43	3642
NM Hydro	30.4	170.9	348.8	215.0	9.3	774.4

NM^2 Hydrography	78.3
NM Side-Scan	0.0
Bottom Samples	~~79~~80
Tide Stations	1
Velocity Casts	4
Magnetic Stations	0
Current Stations	0

P. Miscellaneous ✓

All bottom samples have been submitted to the Smithsonian Institution. Bottom samples were obtained on shoals and at intervals specified in Section 6.7 of the Project Instructions.

No current measurements were made during this survey as no anomalous currents were observed.

The format recommended in Hydrographic Survey Guideline #66 for reporting dangers to navigation was modified for submission by radio message. All the information required in the guideline was included in the radio message forwarded from RAINIER. Attached to this rept

Q. Recommendations ✓

None.

R. Automated Data Processing ✓

Data acquisition and processing were accomplished with a PDP 8/e HYDROPLOT computer system, using the following programs:

NUMBER	DESCRIPTION	VERSION
RK 112	HYPERBOLIC,R/R HYDROPLOT	3/01/86
RK 201	GRID, SIGNAL, AND LATTICE PLOT	4/18/75
RK 221	COMB R/R & HYPER PLOT NON-RT	7/25/86
RK 300	UTILITY COMPUTATIONS	10/21/80
RA 362	RK 330 AND AM 602 COMBINED	8/20/84
RK 407	GEODETIC INVERSE/DIRECT COMP	9/25/78
RK 409	GEODETIC UTILITY PACKAGE	9/20/78
AM 500	PREDICTED TIDE GENERATOR	11/10/72
RK 561	H/R GEODETIC CALIBRATION	12/01/82

AM 602	ELINORE - LINE ORIENTED EDITOR	12/08/82
RK 606	TAPE DUPLICATOR	8/22/74
AM 607	SELF-STARTING BINARY LOADER	8/10/80
RK 610	BINARY TAPE DUPLICATOR	1/31/85
RK 900	PLOT TEST TAPE GENERATOR FOR AM902	5/07/76
PM 901	CORE CHECK	3/01/72
AM 902	REAL TIME CHECKOUT	11/10/72
DA 903	DIAGNOSTIC-INSTRUCTION TIMER	2/27/76
RK 905	HYDROPLOT CONTROLLER CHECKOUT	3/18/81
RK 935	HYDROPLOT HARDWARE TESTS	3/15/82
RK 950	HARDWARE TESTS (DOC. ONLY)	6/02/75
--	VELOCITY (New N/CG21 Program)	3/11/88

S. Referral to Reports ✓

The following supplemental reports contain additional information relevant to this survey:

Title	Date Sent To Marine Center
Fall 1988 Horizontal Control Report, OPR-O358-RA	December, 1988
Fall 1988 Electronic Control Report, OPR-O358-RA	December, 1988
Fall 1988 Corrections to Echo Soundings Report, OPR-0358-RA	December, 1988
Marine Mammal Report, RP-12-88	December, 1988
Fall 1988 Coast Pilot Report, OPR-O358-RA	January, 1989

Respectfully Submitted,

John W. Lovell
Lieutenant (jg), NOAA

Approved and Forwarded,

John C. Albright
Captain, NOAA
Commanding Officer

STATION LIST
OPR-0358-RA H-10289
NORTHEAST OF PINTA POINT
FREDERICK SOUND, ALASKA

150 1 57 03 30013 133 35 49259 250 0010 000000 - FLAT 1917

151 1 57 09 02129 133 27 44542 250 0011 000000 - HIGHLAND 1917

152 1 57 04 45420 133 43 49811 250 0009 000000 - SLATE 2 1917

153 1 57 11 08514 133 34 20213 250 0010 000000 - FANSHAW 1917

154 1 57 06 00468 133 53 21953 250 0011 000000 - PINT 1965

155 1 57 15 05114 133 32 29315 250 0011 000000 - BILL POINT 1917

156 1 57 16 14674 133 37 471886 250 0025 000000 - FIVE FINGER LIGHTHOUSE 1988

157 1 57 15 36403 133 56 06738 250 0020 000000 - ROUND ROCK 1917

158 1 57 12 41620 133 34 41565 250 0009 000000 - STORM

160 1 57 03 40916 133 39 37821 250 0001 000000 - SHUT

161 1 57 07 52754 133 58 08461 250 0008 000000 - TURN

201 1 57 12 29977 133 35 18172 139 0010 000000 - BIRD ROCK LIGHT 2, 1988

~~202 1 57 11 08398 133 34 19528 139 0010 000000 - CAPE FANSHAW LIGHT~~

~~203 1 57 12 42892 133 30 52968 139 0000 000000 - DUCK POINT LIGHT~~

~~204 1 57 15 36414 133 56 06997 139 0000 000000 - ROUND ROCK LIGHT~~

1988 FIELD TIDE NOTE

OPR-O358-RA, Frederick Sound, Alaska

OPR-O358-RA, Frederick Sound, Alaska, includes two hydrographic surveys which were completed from October through November, 1988. The surveys are H-10288 (Sheet E) and H-10289 (Sheet F). Field-tide reduction of soundings was based on predicted tides computed with HYDROPLOT program AM 500, Predicted Tide Generator, using the predicted tides for the Juneau, Alaska, reference station (945-2210). A chartlet provided with the Project Instructions showed the two tidal zones and the correctors which affect the surveys (see figure 1). The table below shows the corrector sets:

Hydrographic Area	Time Correction		Height Ratio
	High Water	Low Water	
East of line between Cape Fanshaw and 57°03.0'N, 133°40.0'W	-0hr 15min	-0hr 10min	x0.91
West of line noted above	-0hr 17min	-0hr 14min	x0.87

To aid in shipboard data acquisition and processing, only the correctors for the western zone were applied to all survey data.

Near the beginning of the project, leveling was conducted at the Juneau reference station (945-2210) to connect three bench marks with the staff. Opening levels were conducted by RAINIER personnel on October 14, 1988. Closing levels were attempted on November 11 and 12, but high winds made leveling impossible. The requirement for obtaining closing levels at this gage was waived by N/OMA123 on November 28, 1988 (Attachment I). The Juneau tide station serves as the control station for datum determination for all subordinate stations.

The following tide station was installed in the project area:

TURNABOUT ISLAND, FREDERICK SOUND, ALASKA (945-1655)

Geographic Locale - 57°07'42"N, 133°58'40"W

Installation Date - October 9, 1988

Removal Date - November 11, 1988

Gage Type - Bristol bubbler (S/N 67A-16205) with a backup Bristol bubbler (S/N 67A-10292). The gages were placed on rocks and 2x4s ten feet inside the treeline approximately 20 feet above the high water mark. The gages were secured with parachute cord to nearby trees and sheltered with an umbrella. The orifice tubing was secured with rocks and eye bolts. The orifices were secured to a steel plate which was subsequently anchored to the bottom with rocks.

Staff - The staff (angled aluminum, 12-ft long with a vitrified scale) was secured to a rock outcrop at the 1.0-ft and 2.0-ft mark by means of lag bolts and anchor sleeves. The staff was also secured at the 7.0-ft and 7.5-ft mark to the outcrop by means of 2x4s, steel plates, and lag bolts. One small piece of 2x4 shimmed the bottom of the staff and was anchored with lag bolts. The staff stop was a stainless steel hex-head bolt secured to the side of the staff at the 16.633-ft mark.

Staff Zero/Gage Zero

Gage # 67A-16205: 2.26 ft

Gage # 67A-10292 : 2.74 ft

Gage Time - Universal Coordinated Time

Bench Marks - Five bench marks were established at this station: 1655 A 1988, 1655 B 1988, 1655 C 1988, 1655 D 1988, and 1655 E 1988. The five bench marks were connected in the initial and final levels.

Levels - Installation levels were completed on October 9, 1988, connecting the five bench marks mentioned above. Final leveling was completed on November 11, 1988. The final levels agreed with the installation levels to within 0.001 meters.

Marigram Records -

GAGE # 67A-16205: Marigram records are continuous:

FROM	TO
10/09/88 @ 2048	10/18/88 @ 1800
10/18/88 @ 1806	11/01/88 @ 2015
11/01/88 @ 2015	11/12/88 @ 0624*

* Gage removed

GAGE # 67A-10292: Marigram records are continuous:

FROM	TO
10/09/88 @ 2048	11/12/88 @ 0224*

* Gage removed

Station Problems

No station problems were encountered during data acquisition.

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 1, 1989

MARINE CENTER: Pacific

OPR: 0358

HYDROGRAPHIC SHEET: H-10289

LOCALITY: Frederick Sound, AK

TIME PERIOD: October 10 - November 8, 1988

TIDE STATION(S) USED: 945-1656 Turnabout Island, AK

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 7.18 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 13.5 ft.

REMARKS: RECOMMENDED ZONING

1. Zone Direct

James R. Hubbard

CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
NOAA Ship RAINIER S221
1801 Fairview Avenue East
Seattle, Washington 98102-3767

November 16, 1988

Director
DMAHTC
6500 Brooks Lane
Washington, D.C. 20315

Dear Sir:

While conducting hydrographic survey operations in Frederick Sound, southeast Alaska, NOAA Ship RAINIER discovered six dangers to navigation and one information item. They have been reported to DMAHTC (NAVWARN) and the Seventeenth Coast Guard District. A copy of the correspondence describing them is enclosed.

Sincerely,

John C. Albright
Captain, NOAA
Commanding Officer

Enclosure

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
NOAA Ship RAINIER S221
1801 Fairview Avenue East
Seattle, Washington 98102-3767

November 16, 1988

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

Dear Sir:

Attached is a confirmation copy of the radio message sent to your office regarding six dangers to navigation and one information item which I recommend for inclusion in the Local Notice to Mariners for the Seventeenth Coast Guard District. Copies of chartlets showing the area in which the dangers exist are also attached.

Sincerely,

John C. Albright
Captain, NOAA
Commanding Officer

Enclosure

cc: DMAHTC
N/CG221
N/MOP

PTTUZYUW RUHPTEF0294 3210015-UUUU--RUHPSUU.
ZNR UUUUU
P 160015Z NOV 88
FM NOAAS RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCNAVWARN WASHINGTON DC//MCNM//
INFO NOAAMOP SEATTLE WA
ACCT CM-VCAA
BT
UNCLAS

MVB / NOT
8455K / 0152Z
16-NOV

NOAA SHIP RAINIER HAS FOUND SIX DANGERS TO NAVIGATION AND ONE INFORMATION ITEM IN FREDERICK SOUND, ALASKA (PROJECT OPR-0358-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEYS H-10288 (VICINITY OF CAPE FANSHAW; ITEMS A-C) AND H-10289 (NE OF PINTA POINT; ITEMS D-G). REQUEST THE FOLLOWING BE PUBLISHED IN LOCAL NOTICE TO MARINERS FOR THE SEVENTEENTH COAST GUARD DISTRICT:

A. "ROCK RIDGE SUBMERGED 4-3/4 FATHOMS IS AT LATITUDE 57/13/31.6N, LONGITUDE 133/33/59.1W. SHOAL IS 1.75 NM BEARING 207 DEGREES TRUE FROM BILL POINT LIGHT."

B. "ROCK RIDGE SUBMERGED 5-1/2 FATHOMS IS AT LATITUDE 57/13/35.5N, LONGITUDE 133/33/54.9W. SHOAL IS 1.70 NM BEARING 207 DEGREES TRUE FROM BILL POINT LIGHT."

H-10288

C. "ROCK RIDGE SUBMERGED 5 FATHOMS IS AT LATITUDE 57/10/44.1N, LONGITUDE 133/32/28.8W."

D. "ROCK OUTCROP SUBMERGED 1-1/2 FATHOMS IS AT LATITUDE 57/05/16.5N, LONGITUDE 133/46/55.4W." Pos#7273 Dive Site#1 Dive#1

E. "ROCK OUTCROP SUBMERGED 3/4 FATHOM IS AT LATITUDE 57/05/12.2N, LONGITUDE 133/46/54.6W." Pos#7274 Dive Site#2 Dive#2

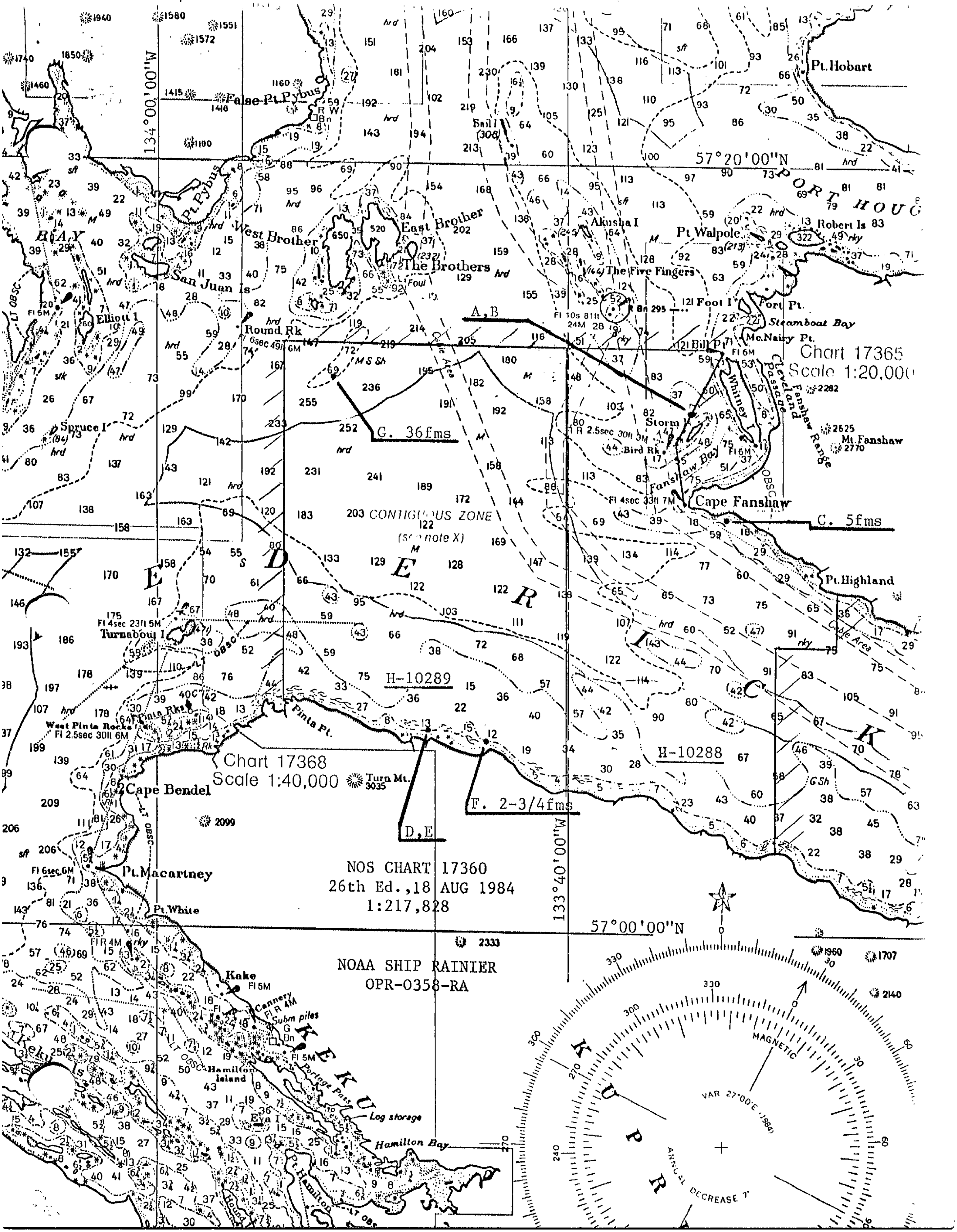
F. "ROCK RIDGE SUBMERGED 2-3/4 FATHOMS IS AT LATITUDE 57/04/58.8N, LONGITUDE 133/44/04.1W." Pos#7487 Dive Site#3 Dive#3

G. "SHOAL SUBMERGED 36 FATHOMS IS AT LATITUDE 57/14/24.0N, LONGITUDE 133/51/18.0W. SHOAL IS 2.8NM BEARING 114 DEGREES TRUE FROM ROUND ROCK LIGHT." Pos#5889+4 - 5889+5

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.
POSITIONS ARE BASED ON NAD 27 DATUM.
THE FOLLOWING NOS CHARTS ARE AFFECTED:

17365	10TH ED	OCT 30/82	1:20,000	NAD 27 DATUM
17360	26TH ED	AUG 18/84	1:217,828	NAD 27 DATUM

THIS IS ADVANCE INFORMATION SUBJECT TO OFFICE REVIEW.
QUESTIONS CONCERNING THIS MESSAGE SHOULD BE DIRECTED TO THE PACIFIC MARINE CENTER AT (206) 526-6835. A LETTER WITH ATTACHED CHARTLETS IS BEING MAILED TO YOU TO CONFIRM THIS MESSAGE.
BT
#0294


NOS CHART 17360
26th Ed.,18 AUG 1984
1:217,828
NOAA SHIP RAINIER
OPR-O358-RA
Chart 17365
Scale 1:20,000
Chart 17368
Scale 1:40,000
H-10289
H-10288
A,B
G. 36fms
C. 5fms
D,E
F. 2-3/4fms
57°20'00"N
57°00'00"N
134°00'00"W
133°40'00"W
CONTIGUOUS ZONE
(see note X)
False Pt.Pybus
Pt.Pybus
West Brother
East Brother
The Brothers
San Juan Is
Elliott I
Round Rk
Spruce I
Turnabout I
West Pinta Rocks
Pinta Pt.
Cape Bendel
Turn Mt.
Pt.Macartney
Pt.White
Kake
Cannery
Hamilton Island
Portage Pass
Log storage
Hamilton Bay
Pt.Hamilton
Eya I
Akusha I
The Five Fingers
Foot I
Pt Walpole
Robert Is
Pt.Hobart
Port Pt.
Steamboat Bay
Mc.Nairy Pt.
Bill Pt
Storm I
Bird Rk
Whitney I
Cleveland Passage
Fanshaw Bay
Cape Fanshaw
Fanshaw Range
Mt.Fanshaw
Pt.Highland
Cable Area
PORT HOUG
BAY
E D E R I C K
K E K U
K U P R
MAGNETIC
VAR 27°00'E (1984)
ANNUAL DECREASE 7'

APPROVAL SHEET

Descriptive Report to Accompany

Hydrographic Survey

RA-20-5-88

H-10289

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and the PMC OPORDER in producing this survey. The data were examined daily during data acquisition and processing.

The field sheet and accompanying records have been examined by me, are considered complete and adequate for charting purposes, and are approved.

John C. Albright
Captain, NOAA
Commanding Officer

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10289

Name on Survey ALASKA, FREDERICK SOUND NORTHEAST OF PINTA POINT	A ON CHART NO. 17360	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS SUMDUM (A6)	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H	K U.S. LIGHT LIST	
ALASKA (TITLE)	X									1
FREDERICK SOUND	X		X							2
KUPEREANOF ISLAND	X		X							3
PINTA POINT	X		X							4
SCHOONER ISLAND			X							5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
				Approved:						17
										18
				Charles E. Harrington						19
				Chief Geographer			NCG 2x5			20
				JUN 12 1989						21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27(H)
(9-83)

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER
H-10289

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	9
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	4

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	2					
ENVELOPES						
VOLUMES	2					
CAHIERS						
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			3642
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	18		18
VERIFICATION OF SOUNDINGS	93		93
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	65		65
COMPARISON WITH PRIOR SURVEYS AND CHARTS		5	5
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		23	23
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	176	28	204

Pre-processing Examination by	J. Stringham	*Beginning Date* 12/21/88	*Ending Date* 1/23/89
Verification of Field Data by	E. Domingo, J. Stringham	*Time (Hours)* 176	*Ending Date* 7/28/89
Verification Check by	J. Stringham, B. Olmstead	*Time (Hours)* 92	*Ending Date* 7/26/89
Evaluation and Analysis by	C.R. Davies	*Time (Hours)* 28	*Ending Date* 8/15/89
Inspection by	D. Hill	*Time (Hours)* 2	*Ending Date* 8/16/89

EVALUATION REPORT
H-10289

1. INTRODUCTION

Survey H-10289 is a navigable area hydrographic survey accomplished by the NOAA Ship RAINIER under the following Project Instructions.

OPR-0358-RA, dated September 13, 1988

This survey occurred in Frederick Sound, Alaska and covers the area between The Brothers and the north shore of Kupreanof Island. The surveyed area extends from latitude 57°03'45"N to latitude 57°15'20"N, and longitude 133°39'30"W to longitude 133°54'00"W. The southern shore is a mix of rocks, islets and reefs. The bottom slopes steeply offshore with several off-lying shoals scattered throughout the survey area. The bottom consists of sand, shells, mud, stones and pebbles. Depths range from zero to 262 fathoms.

Predicted tides for Juneau, Alaska were used for the reduction of soundings during field processing. Approved hourly heights zoned from Turnabout Island, Alaska, gage 945-1656, were used during office processing.

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

A digital file has been generated for this survey as required by N/CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983. The file, however, is incomplete. Certain feature descriptive information, all line type data and miscellaneous isolated features are not in the digital record due to the present lack of digitizing resources. The user should refer to the smooth sheet for complete depiction of survey data.

2. CONTROL AND SHORELINE

Sections F and G of the hydrographer's report and the Horizontal and Electronic Control Reports for OPR-0358-RA contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are 1988 field and published 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 N/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: 1.219 seconds (37.7 meters)
Longitude: -6.233 seconds (-104.8 meters).

The year of establishment of control stations shown on the smooth sheet originates with hydrographer's list and is subject to change pending certification of the data by NGS.

There are 10 weak fixes (angles of intersection less than 30 degrees or more than 150 degrees) noted in this survey. Three of these are rocks awash. These rocks are located on the zero fathom curve and are not considered dangers to navigation. There are no significant plotting differences between the soundings located by these fixes and those in adjacent areas. Also, none of these fixes are used to position dangers to navigation. These fixes have also been accepted.

There are no shoreline maps applicable to this survey. Shoreline depicted on the smooth sheet originates with USGS Topographic Quadrangle SUMDUM (A-6), 1948, scale 1:63,360 and is to be used for orientation only.

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 Field Procedures Manual.

5. JUNCTIONS

Survey H-10289 junctions with the following surveys.

Survey	Year	Scale	Area
H-10288	1988	20,000	east
H-10295	1989	10,000	southwest
H-10296	1989	20,000	northwest

The junction with H-10288 has been accomplished. Some soundings have been transferred from survey H-10288 to survey H-10289 to better portray the bottom in the common area. The junction with surveys H-10295 and H-10296 have not been formally completed since the surveys are currently in a preliminary stage of office processing. The junction comparisons were made using the field sheets. Soundings are in good agreement.

There are no contemporary surveys to the north. A comparison with charted depths reveals good agreement.

6. COMPARISON WITH PRIOR SURVEYS

H-1804(1887) 1:80,000
H-1806(1887) 1:80,000
H-1996(1889-92) 1:80,000

Surveys H-1804, H-1806 and H-1996 cover the entire area of the present survey. Taking into consideration the differences in the scales of the surveys and the methods of surveying, comparison with these prior surveys is satisfactory. Some discrepancies between the surveys were noted, however, and are discussed in section K of the hydrographer's report.

AWOIS Items 51195 originates with prior survey H-1804. The hydrographer investigated the charted 15 fathom depth at latitude 57°06'24.0"N, longitude 133°44'38.0"W. A 14.3 fathom depth was found at latitude 57°06'26.51"N, longitude 133°44'49.41"W. Chart the 14.3 fathom depth and surrounding depths according to this survey.

T-1964(1889) 1:80,000

Survey T-1964 covers the northern shoreline of Kupreanof Island between longitude 133°43'30"W and 133°54'00"W. The hydrographer states the area of common coverage is outside the survey area although hydrography covered inside the 3-fathom depth curve. Six charted features which originate with survey T-1964 fall within the survey area, two islets and four rocks. The two islets were located and should be retained as charted. One of the charted rocks at latitude 57°05'04.64"N, longitude 133°46'17.69"W should be changed to a islet that uncovers 4 feet at MHW. The other three rocks have been carried forward from survey T-1964 at the following positions.

Survey	Feature	Latitude N	Longitude W
T-1964	rock	57°04'54"	133°45'42"
T-1964	rock	57°05'03"	133°45'51"
T-1964	rock	57°05'05"	133°48'04"

With the three features carried forward from the prior survey, survey H-10289 is adequate to supersede the prior surveys within the common area.

H-3993(1917)WD 1:20,000

Prior survey H-3993WD covers the entire area of the present survey. One sounding, a 96-ft wire drag grounding at latitude 57°06'24.00"N, longitude 133°44'38.00"W was investigated by the hydrographer adequately for disapproval. See section K (AWOIS Item 51195) of the hydrographer's report.

7. COMPARISON WITH CHART

Chart 17360, 26th Edition, dated August 18, 1984;
scale 1:217,828.

a. Hydrography

All charted information originates with prior surveys mentioned in section 6 and requires no further discussion.

Survey H-10289 is adequate to supersede charted hydrography within the common area except for the kelp on the northern shoreline of Kupreanof Island. The kelp symbology between latitude 57°03'36"N, longitude 133°39'24"W and latitude 57°05'48"N, longitude 133°54'00"W should be retained as charted.

b. AWOIS

There are no AWOIS items originating from miscellaneous sources applicable to the survey.

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

The hydrographer reported three rocks and one shoal sounding to the USCG, N/CG221 and DMAHTC. Copies of the messages/reports are attached.

No additional dangers were found during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10289 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

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

Charles R. Davies

C. R. Davies
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 Hill

Dennis Hill
Chief, Hydrographic Unit

APPROVALS

I have reviewed the smooth sheet, accompanying data, and reports associated with hydrographic survey H-10289. This survey meets or exceeds Charting and Geodetic Services' standards for products in support of nautical charting.

8/17/89

Chief, Pacific Hydrographic Section (Date)

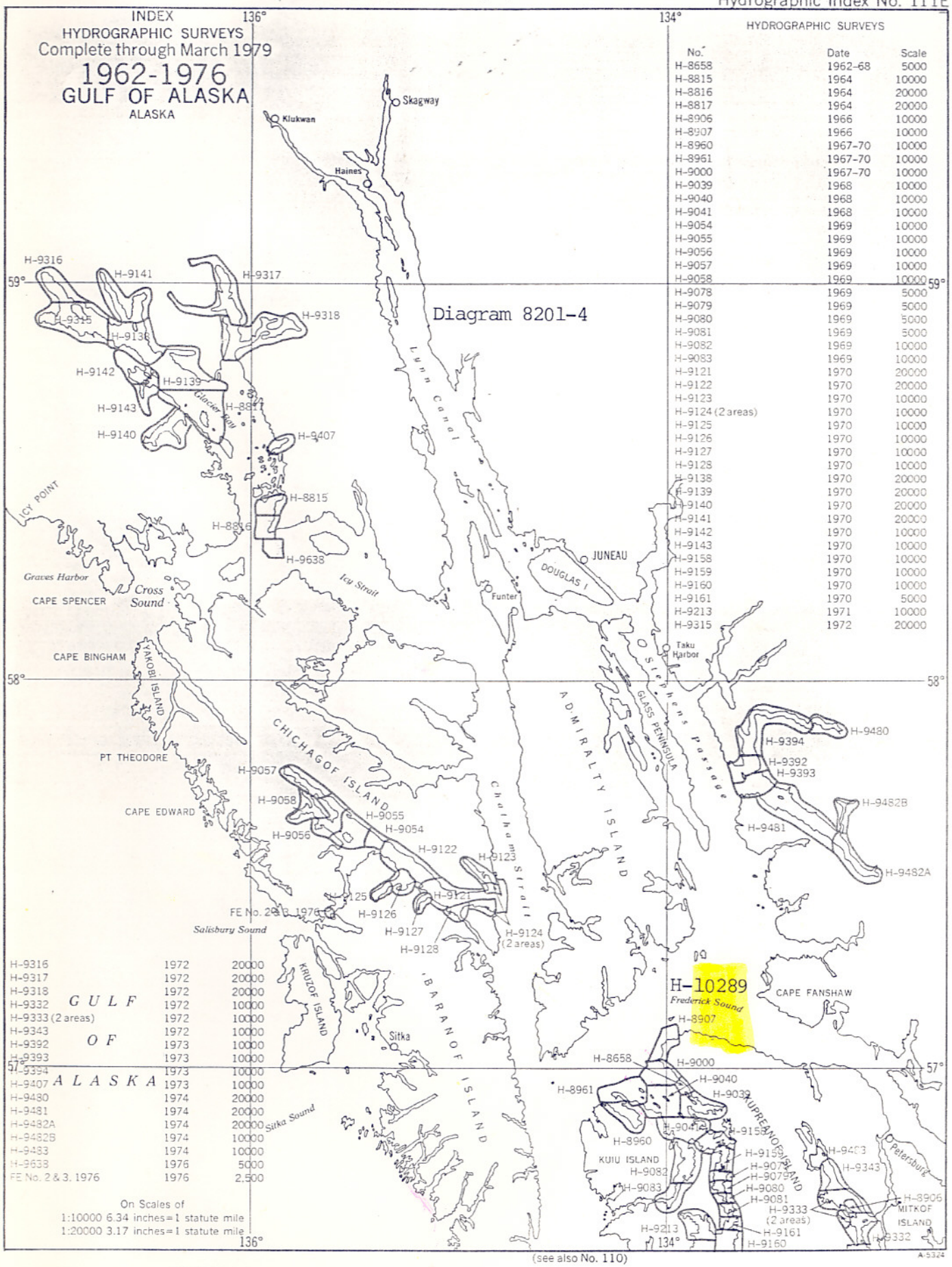
After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards.

Sigmund R. Petersen 8-24-89

Director, Pacific Marine Center (Date)

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Washington, D.C.

Hydrographic Index No. 111E



HYDROGRAPHIC SURVEYS

No.	Date	Scale
H-8658	1962-68	5000
H-8815	1964	10000
H-8816	1964	20000
H-8817	1964	20000
H-8906	1966	10000
H-8907	1966	10000
H-8960	1967-70	10000
H-8961	1967-70	10000
H-9000	1967-70	10000
H-9039	1968	10000
H-9040	1968	10000
H-9041	1968	10000
H-9054	1969	10000
H-9055	1969	10000
H-9056	1969	10000
H-9057	1969	10000
H-9058	1969	10000
H-9078	1969	5000
H-9079	1969	5000
H-9080	1969	5000
H-9081	1969	5000
H-9082	1969	10000
H-9083	1969	10000
H-9121	1970	20000
H-9122	1970	20000
H-9123	1970	10000
H-9124 (2 areas)	1970	10000
H-9125	1970	10000
H-9126	1970	10000
H-9127	1970	10000
H-9128	1970	10000
H-9138	1970	20000
H-9139	1970	20000
H-9140	1970	20000
H-9141	1970	20000
H-9142	1970	10000
H-9143	1970	10000
H-9158	1970	10000
H-9159	1970	10000
H-9160	1970	10000
H-9161	1970	5000
H-9213	1971	10000
H-9315	1972	20000
H-9316	1972	20000
H-9317	1972	20000
H-9318	1972	20000
H-9332	1972	10000
H-9333 (2 areas)	1972	10000
H-9343	1972	10000
H-9392	1973	10000
H-9393	1973	10000
H-9394	1973	10000
H-9407	1973	10000
H-9480	1974	20000
H-9481	1974	20000
H-9482A	1974	20000
H-9482B	1974	10000
H-9483	1974	10000
H-9638	1976	5000
FE No. 2 & 3, 1976	1976	2,500

On Scales of
1:10000 6.34 inches = 1 statute mile
1:20000 3.17 inches = 1 statute mile

(see also No. 110)

A-5324

NOAA FORM 75-96
(10-83)

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

EXAMINED FOR NM
GDBU
Ams 1-4-90

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10289

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
17366	12/18/89	E.B. DOMINGO	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. FULL APPICATIONS OF SDGS FROM S.S.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED