10288

Diagram No. 8201-4

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Navigable Area Hydrographic

Field No. RA-20-4-88

Registery No. H-10288

LOCALITY

State Alaska

General Locality Frederick Sound

Sublocality Vicinity of Cape Fanshaw

1988

CHIEF OF PARTY
CAPT J.C. Albright

LIBRARY & ARCHIVES

DATE November 28, 1989

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

10288

GP
CHT
17365
17360

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-10288

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 20-4-88

State Alaska

General locality Frederick Sound

Locality Cape Fanshaw and Vicinity

Scale 1:20,000 Date of survey Oct. 10 to Nov. 12, 1988

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

Vessel NOAA Ship RAINIER (2120), Launches RA-3 (2123), RA-4 (2124), RA-5 (2125) and RA-6 (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~~ L. Deodato Automated plot by PMC Xynetics Plotter

Evaluation by: ~~Verification by~~ A. Luceno

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

REMARKS: All times UTC. Revisions & marginal notes in black generated during office processing. Separates are filed with the hydrographic data.

3-28-97 AWOIS + SURF ✓ 11/89 RWD

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

PROGRESS SKETCH

OPR-0358-RA

HYDROGRAPHIC SURVEY

FREDERICK SOUND, AK.

OCTOBER 4 - NOVEMBER 11 1988

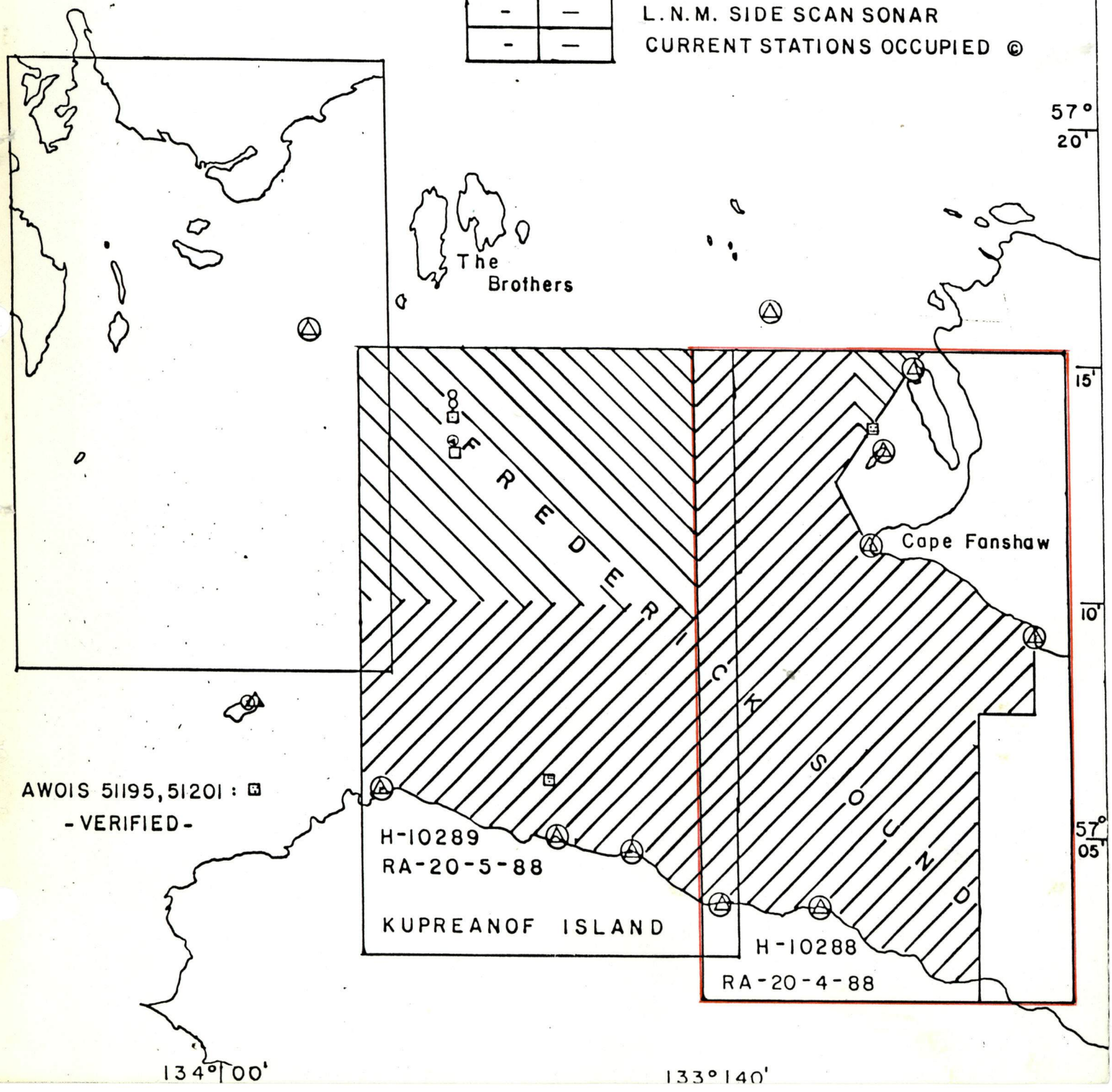
NOAA SHIP RAINIER

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-10288

Field Number RA-20-4-88
Scale 1:20,000
1988

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

A. Project

A basic hydrographic survey using 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 E on the revised sheet layout dated August 1, 1988.

see Eval. Report Sect. I

This survey is one in a series 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, in the vicinity of Cape Fanshaw. The survey is bounded on the north by latitude 57°15.5'N, and on the south by Kupreanof Island (the area east of a line connecting Cape Fanshaw, Bird Rock, and the north end of Whitney Island is excluded). The eastern limit is longitude 133°~~30.0~~27.6'W, and jogs to junction with survey H-10272 and to include Point Highland. The western limit is longitude 133°40.0'W.

Numerous ledges dot the southern shore, and the south and west shores of Cape Fanshaw. Ledges also surround the islands and islets north of Cape Fanshaw. The bottom is primarily composed of green sand and pebbles in the deep area and, broken shell and coral in the shallow area of the survey.

Data acquisition was conducted from October 10 through November 12, 1988 (DN 284 - DN 317).

C. Sounding Vessels

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

Vessel	EDP No.	Operation
RAINIER	2120	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

RAINIER and all automated survey launches were equipped with the Raytheon DSF-6000N echo sounders shown below. The echo sounders were operated in the HIGH + LOW (HIGH DIGITIZED) function, using manual 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. 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, and 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.

While running over extremely steep, irregular bottoms, the echo sounders failed to track properly at times. Running at minimum speeds usually alleviated this problem, and overall data quality was not compromised, but marginal analog traces could sometimes 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	295-297
2123	A117N	284-317
2124	A103N	284-316
2125	A114N	292-306
2126	B046N	284-299

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

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 midships, 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.

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. In certain areas, the extremely irregular bottom topography made it difficult to determine which echogram features were caused by sea action.

Sound Velocity

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

Velocity Cast Locations

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

The Nansen cast was conducted in conjunction with Cast #1 to ensure the Plessey sensor was operating properly. The sound velocities determined by the two methods showed good agreement. Surface water temperatures and samples were obtained during each Plessey cast as additional checks on the Plessey system.

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

Velocity Table No.	Cast No.	Applicable DN
5	1,2	284-301
6	3	306-317

In accordance with Change No. 3 to the 1988 Project Instructions for OPR-0358-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.

Casts# 1 and 2 were similar enough to be averaged into one velocity table as shown above. Velocity correctors were applied to all echo soundings at 0.1-fathom increments via two velocity tapes which have been forwarded with the survey data. Velocity corrector computations, graphs and velocity tape listings are included with ~~this report.~~ the survey data. All supporting data for the Plessey and Nansen casts can be found 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 that vessel in Farragut Bay, Alaska on May 5, 1988. All tests were conducted over a hard bottom in depths well exceeding seven times the vessels' drafts. Both seas and wind were calm. Observations were made through a Zeiss Ni2 leveling instrument (S/N 87102) to a rod held vertically on 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 before the correctors were computed.

Soundings on the final field sheets are not corrected for settlement and squat. Abstracts of corrections to echo soundings and TC/TI tapes 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 zoning and correctors applicable to predicted tides for the Juneau, Alaska tide station (945-2210) were provided on the chart accompanying the Project Instructions, and are shown below.

Tide Correctors

Applicable Area	Time Correction High Water	Time Correction Low Water	Height Ratio
East of line between Cape Fanshaw and 57°03.0'N, 133°40.0'W	- 15 min	-10 min	x0.91
West of line noted above (beyond sheet's limits)	- 17 min	- 14 min	x0.87

see Eval. Report

Although two zones encompass the survey area, only the correctors from the ~~western~~ eastern zone were applied to all soundings to aid in the logistics of acquiring and processing data. A printout of the predicted tide tapes is included with the survey data.

One tide station was established at Turnabout Island (945-1655) and maintained by RAINIER personnel. The field tide records and Field Tide Note for both stations have been forwarded to N/OMA121 in accordance with Hydrographic Survey Guideline #50 and PMC OPORDER. A request for approved tides has been forwarded to N/OMA121 and a copy is included with ~~this report.~~ the survey data.

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-20-4E-88 and RA-20-4W-88. In addition, three development sheets were created. Two 1:5,000-scale sheets were used for the investigation of AWOIS item #51201 and the development of a shoal which extends from the north end of Whitney Island. A 1:2,000-scale sheet was used for a rock disproval on the south shore. The limits of all development sheets are shown on the final field sheets. Parameter tape listings are included in ~~this report.~~ the survey data.

Depth contours are drawn on the final field sheets in accordance with the Hydrographic Manual, except in areas of steep bathymetry where all prescribed 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 be 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.

F. Control Stations

The following geodetic stations were used to control this survey:

Station	Order, Class	Date Established	Signal No.
BAY POINT	1,I	1917	146
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
~~PORTAGE 2*~~	~~3,I~~	~~1988~~	~~147~~
ROUND ROCK *	1,I	1917	157
SLATE 2	3,I	1917	152
STORM *	3,I	1920	158

* Stations located offshore on islands.

Positions for all existing control stations are from the NGS data base and were recovered in accordance with methods stated in Section 3.1.4 of the PMC OPORDER. Stations FRED, PINT and TURN were used for T-2 calibrations only. TURN and FIVE FINGER LIGHTHOUSE were positioned by RAINIER personnel by 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 the 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 and range-azimuth acquisition modes.

Positioning Equipment

Five Mini-Ranger console/R-T pairs and ten shore transponders were used during the survey. The following tables summarize the mobile and shore equipment used.

Mobile Equipment

Day Numbers (DN)	Vessel EDP No.	Vessel Name	Console/R-T Serial No.
295-316	2120	RAINIER	720/B1405
284	2123	RA-3	720/B1405
284-317			711/F3413
284-317	2124	RA-4	30269/B1089
284-317	2125	RA-5	506042/E2716
284-299	2126	RA-6	715/911102

Shore Equipment

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 3.3.1 (see table below). Calibration data and descriptions of the baselines can be found in Fall 1988 Electronic Control Report OPR-0358-RA.

Location	Distance	DN	Description
Seattle, WA	1312 m	265 326	Sandpoint pier to Matthews Beach
Juneau, AK	1260 m	305	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 calibrations for all codes was less than eight meters. It is recommended that these same correctors be applied during final processing.

System Check Procedures

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

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

Fixed-point critical system checks were also acquired at the following stations: BILL POINT (155), FANSHAW (153), HIGHLAND (151), [redacted] and STORM (158).

Noncritical system checks were conducted using the launch-to-launch or baseline crossing methods. In general, noncritical system checks fell within the allowable rejection limits and no systematic discrepancies with opening baseline correctors were observed.

Problems and Unusual Position Configurations

Null zones and erratic ranges were occasionally experienced due to the destructive interference of direct and reflected microwaves. This problem was significantly reduced by placing several of the shore transponders atop twenty- to forty-foot Raydist towers. Time-and-course interpolations were used during data processing to correct the position 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 the computed cutoff values. 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.

The following table summarizes significant events in the electronic control for the survey.

Summary of Significant Events

DN	Event Description
265	Opening calibration for all codes (21 Sept)
284	First day of hydrography on H-10288 (10 Oct)
284	Console/R-T pair 711/F3413 exchanged with 720/B1405 (10 Oct)
305	Opening calibration for code 4 Juneau, AK (31 Oct)
317	Last day of hydrography on H-10288 (12 Nov)
326	Closing calibrations for all codes (21 Nov)

Antenna Offset Distances (ANDIST)

The ANDIST corrector was 0.0 meters for all launches as each launch had its antenna located over the depth transducer.

H. Shoreline

Shoreline maps were not compiled for this project. Therefore, features on the north shore were transferred to the final field sheets from NOS Chart 17365, 10TH edition, 30 October 1982, 1:20,000. Features on the south shore were transferred from a 1:20,000-scale enlargement of USGS Topographic Quadrangle SUMDUM (A-5), 1948, 1:63,360.

Shoreline is shown in brown on the final field sheets for orientation purposes only. There were no negative 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 on all rocks and ledges which extended into the navigable area, as defined in Section 4.1.2 of 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. The heights of rocks and ledges refer to the highest portion 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 9% of the mainscheme mileage. All soundings agree within 2.0 fathoms. 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.

Differences in crossline soundings are within specifications considering the steep slopes where differences in soundings occur.

J. Junctions

This survey junctions with H-10272 (1:20,000; 1988) and H-10289 (1:20,000; 1988) along the eastern and western boundaries, respectively. No irregularities were found when comparing soundings and depth contours. Minor discrepancies exist in some steep nearshore areas, but overall agreement of overlapping soundings between surveys is excellent with all soundings agreeing to within 1 fathom of the junction soundings.

See Eval. Report sect. 5

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

K. Comparison With Prior Surveys

This survey was compared with the prior surveys listed below. In general, survey soundings agree within 12 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-3992 WD (1917; 1:20,000), H-3994 (1917; 1:20,000) and H-4143 (1920; 1:40,000) were examined but provided no useful information.

See Eval. Report sect. 6

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

Survey depths range up to 11 fathoms shoaler than prior survey soundings. Shoals 50 fathoms and less located in the center of H-10288 were developed with 100-meter spacing. The shoals do exist but are two to five fathoms shoaler than shown on the prior survey. *All soundings on this sheet are selected from H-1806*

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

Survey depths were within 12 fathoms of the soundings on the boat sheet. There were no consistent or distinct shifts in the contours.

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

Survey depths ranged up to 7 fathoms shoaler than prior survey depths. There were no consistent or distinct shifts in the contours. ✓

H-2000 (1889; 1:10,000):

The survey depths and prior survey depths agree to within 2 fathoms. The shoal which extends from the northwest shore of Whitney Island was examined with an echo sounder investigation of 20-meter line spacing (DN 299; Pos. Nos. 5179-5230; Development #2). Depths and contours from the development agreed well with those of the prior survey. ✓

H-3994 WD (1917, 1:20,000):

AWOIS Item #51201 cataloged in the AWOIS listing dated August 17, 1988 lies within the limits of this survey and originates from H-3994 WD. The item is charted as a 7-1/2 fathom depth on NOS Chart 17365, 10th Edition, 30 October 1982, 1:20,000. ✓

Investigation: The feature was developed with 20-meter line spacing in north-south and east-west orientations (DN 292; Pos. Nos. 6370-6452, 6530-6597; Development #1). Depths of 12-14 fathoms were found at the position stated in the AWOIS listing. Two dives were conducted on 2 shoals found 100 meters southwest of the charted position. Least depths of 5.4 fms and 4.8 fms were obtained by divers using a pneumatic depth gage (DN 298; Pos. Nos. 6706, 6707). Dive investigation forms which contain detailed descriptions of each feature are included within the survey data. The least depths were reported as dangers to navigation to the Seventeenth Coast Guard District, Juneau, Alaska and the Defense Mapping Agency Hydrographic/Topographic Center (DMAHTC). A copy of this correspondence is included with this report.

Copies of dive forms attached to this report.

Recommendations: Delete 7-1/2 fathom depth charted at 57°13'39.0"N, 133°33'51.2"W. Chart 5-1/2 fathoms and 4 fathoms at 57°13'35.5"N, 133°33'54.5"W and 57°13'31.6"N, 133°33'59.1"W, respectively. *concur*

T-3690 (1917; 1:20,000):

Reference GP: lat 57°09'30"N, long. 133°28'18"W

Two rocks carried forward to NOS Chart 17360 which lie 0.5 NM northwest of Point Highland were found to be a foul area. This foul area was investigated during survey H-10272 (1988; 1:20,000) and is shown on the final field sheet for that survey. However, the foul area was re-examined and was found to be more extensive (DN 286; Pos. Nos. 3149-3151). The hydrographer recommends the foul area be charted with data from both surveys. *Do not concur. chart foul area from this survey.* ✓

A rock on the T-sheet west of Point Highland (57°09'14"N, 133°27'50"W) was disproved. The rock was not seen with the echo sounder or visually (DN 286; Pos. No. 3153). *Disproven, Do not chart.* ✓

The rock along the south shore at 57°03'10"N, 133°34'49"W is outside of the navigable area and was not investigated. *see Eval. Report sect. 6* ✓

One rock along the south shore which was carried forward to NOS Chart 17360 and which lies at the junction of H-10288 and H-10272 (1988; 1:20,000) was ✓

searched for visually and with an echo sounder investigation consisting of 5-meter line spacing (DN 316; Pos. Nos. 4914-5024; Development #3). No sign of the rock was evident on the echograms nor was it seen visually. Depths at the charted position range from 9.8 to 11 fathoms. There is a shoal, however, which extends from shore as depicted on T-3690. The hydrographer recommends deleting the rock charted at 57°02.4'N, 133°30.0'W and charting the area in accordance with the survey data. concur

The hydrographer recommends that the data from H-10288 supersede the prior surveys which are discussed above in their common areas. concur

L. Comparison With the Chart

This survey was compared to a 1:20,000-scale enlargement of NOS Chart 17360, 26th Edition, 18 August 1984, 1:217,828 and NOS Chart 17365, 10th edition, 30 October 1982, 1:20,000. The survey area which lies within the limits of Chart 17365 was sounded with 200-meter line spacing per Section 6.5.3 of the Project Instructions. All charted depths originate from the prior surveys discussed in Section K and will not be discussed here.

Non-Sounding Features

A rock charted on 17360 2.2 NM northwest of Point Highland (57°10.5'N, 133°30.8'W) was investigated and found (DN 286; Pos. No. 3148). The hydrographer recommends the rock be charted in accordance with the survey data. Other charted rocks and islets alongshore originate from T-3690 and H-2000 and are discussed in Section K. concur

Dangers to Navigation

Three dangers to navigation originating from three dive investigations were reported to the Seventeenth Coast Guard District and DMAHTC by radio message and letter. Two investigations are discussed in Section K of this report. Divers investigated the third item, a shoal area, which was found on a mainscheme line along the south shore of Cape Fanshaw. A description of the feature and search method is on the dive investigation form which is included in the survey data (DN 310; Pos. No. 4781). A copy of the dangers to navigation correspondence is included with this report. The three items are shown on the ~~final field~~ smooth sheet.

M. Adequacy of Survey

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

N. Aids to Navigation

Four fixed aids to navigation lie within or near the limits of this survey. The positions were determined to Third-order, Class I accuracy per section 4.2.1.1 of the Project Instructions. The unadjusted field positions were checked against published and charted positions, and the comparisons are shown below:

Navigational Aid Light List No.	Published Position *	Charted Position	Field Position
Cape Fanshaw Lt.	57°11.1'N	57°~~11.1'N~~ 11'08.0"N	57°11'08.4"N
23260 (Fl 4s)	133°34.3'W	133°~~34.3'W~~ 34'20"W	133°34'19.5"W
Bird Rock Lt. 2	57°12.5'N	57°~~12.5'N~~ 12'30.5"N	57°12'30.0"N
23265 (Fl R 2.5s)	133°35.3'W	133°~~35.4'W~~ 35'17.6"W	133°35'18.2"W
Bill Point Lt.	57°15.1'N	57°~~15.1'N~~ 15'05.0"N	57°15'05.2"N
23275 (Fl 4s)	133°32.5'W	133°~~32.5'W~~ 32'29.5"W	133°32'29.4"W
Five Fingers Lt.	57°16.3'N	57°~~16.2'N~~ 16'15.0"N	57°16'14.7"N
23280 (Fl 10s)	133°37.8'W	133°~~37.8'W~~ 37'48.0"W	133°37'47.2"W

*Source: United States Coast Guard Light List, Volume VI, 1988.

The light characteristics given above were observed in the field and agree with the charted and light list characteristics. The DIPFILE has been updated and forwarded to N/CG243. A copy of the updated listing is included with this report.

There are no floating aids to navigation, bridges, overhead cables, pipelines or ferry routes within the limits of the survey. Three submarine cable areas cross the survey area, but do not merge with the shoreline.

O. Statistics

Vessel:	2120	2123	2124	2125	2126	Total
# of Pos	65	1301	993	237	728	3324
NM Hydro	0	310.6	210.7	45.0	144.0	710.3

NM^2 Hydrography	73.4
NM Side-Scan	0.0
Bottom Samples	76
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 acquired on shoals and as specified in Section 6.7 of Project Instructions.

No current measurements were made during this survey, since no anomalous current conditions 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.

Q. Recommendations

The hydrographer recommends that a basic survey of Fanshaw Bay and Cleveland Passage be conducted when shoreline maps are available. These areas provide natural harbors of refuge from all winds and are frequently used as anchorages by fishing vessels.

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 116	R/Az REAL TIME 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 226	R/Az POSITION 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 (DOCUMENTATION 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 for OPR-0358-RA	December, 1988
Fall 1988 Electronic Control Report for OPR-0358-RA	December, 1988
Fall 1988 Corrections to Echo Soundings Report OPR-O358-RA	December, 1988
Marine Mammal Report, RP-12-88	December, 1988
Fall 1988 Coast Pilot Report, OPR-O358-RA	January, 1989

Respectfully Submitted,

Donald W. Haines
Ensign, NOAA

Approved and Forwarded,

John C. Albright
Captain, NOAA
Commanding Officer

STATION LIST
OPR-0358-RA H-10288
VICINITY OF CAPE FANSHAW
FREDERICK SOUND, ALASKA

146 1 57 06 24700 133 18 45458 250 0012 000000 - BAY POINT 1917

~~147 1 57 01 09427 133 20 43241 250 0008 000000 - PORTAGE 2~~

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 47185 6 250 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

159 1 57 05 02986 133 47 23389 250 0002 000000 - FRED *

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~~

~~202 1 57 11 08398 133 34 19520 139 0010 000000 - CAPE FANSHAW LIGHT~~

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

used for calib. only *

NOAA FORM 76-40
(8-74)

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

Replaces C&GS Form 567.

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

(See reverse for responsible personnel)

- [ ] TO BE CHARTED
- [XX] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
NOAA Ship RAINIER S221	ALASKA	FREDERICK SOUND	12/16/88

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-0358-RA		H-10288	NAD 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
CAPE FANSHAW LIGHT	1988 Light List Number 23260′ (Cape Fanshaw Light)	57 ′ 11 ′	08.398′ 259.79	133 ′ 34 ′	19.528′ 328.00		F-2-6-L 8 Nov. 1988	17360′ 17365′
BIRD ROCK LIGHT 2	1988 Light List Number 23265′ (Bird Rock Light 2)	57 ′ 12 ′	29.978′ 927.37	133 ′ 35 ′	18.173′ 305.10		F-2-6-L 1 Nov. 1988	17360′ 17365′
BILL POINT LIGHT	1988 Light List Number 23275′ (Bill Point Light)	57 ′ 15 ′	05.249′ 162.38	133 ′ 32 ′	29.359′ 492.19		F-2-6-L 2 Nov. 1988	17360′ 17365′
FIVE FINGER LIGHT	1988 Light List Number 23280′ (Five Finger Lighthouse)	57 ′ 16 ′	14.674′ 453.94	133 ′ 37 ′	47.185′ 790.60		F-3-6-L 8 Nov. 1988	17360′

Dups L-103(89)

CRB

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD		☐ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	John C Albright CART. John C. Albright, NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
T - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

NOAA FORM 76-40 (8-74)

SUPERSEDES NOAA FORM 76-40 (2-71) WHICH IS OBSOLETE, AND EXISTING STOCK SHOULD BE DESTROYED UPON RECEIPT OF REVISION.

☆ U. S. GPO:1975-0-665-080/1155

H-10288

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

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

-------- DIVE INVESTIGATION --------

DIVE # 2 SITE # 1 SHEET # RA-20-4W-88

DATE 10/24/88 DAY NO. 298 POS. # 6707

OBJECT INVESTIGATING Rock Ridge AWOIS # 51201

DIVERS Hill / Seitz

BOTTOM TIME 21 MIN. CENTER WEIGHT 30 #

TYPE OF SEARCH:

OBJECT SEEN IMMEDIATELY
VISUAL SEARCH
CIRCLE SEARCH: SWEEP RADIUS 50 FM/(M)
OTHER SEARCH: —

WATER VISIBILITY 25 (FT.)
LEAST DEPTH ON OBJECT 45.3' (FT)/M/FM TIME 1344 / 214400 → UTC
CALIBRATED CORRECTION -0.2 (FT)/M/FM
TIDE CORRECTION -16.2 (FT)/M/FM
CORRECTED DEPTH 28.8' (FT)/M/FM (4.78 fms) → 4 fm 4.7 ft = 4 3/4 fm on CHART

new danger item "A"

DEPTH OBTAINED BY: LEAD LINE, TAPE, (PNEUMATIC GAUGE), OTHER _____ /M2
SERIAL NUMBER _____
PNEUMATIC GAUGE (3 READINGS) 45.0 FT 45.2 FT 45.2 FT

POSITION INFORMATION R/R R/AZ

LEFT STATION Storm STA# 158 CODE E RATE 1703 BLC -2 S/S 17

RIGHT STATION Five Fingers STA# 156 CODE A RATE 3337 BLC +1 S/S 15

CHECK STATION Bill Pt STA# 155 CODE D RATE 3261 BLC +1 S/S _____

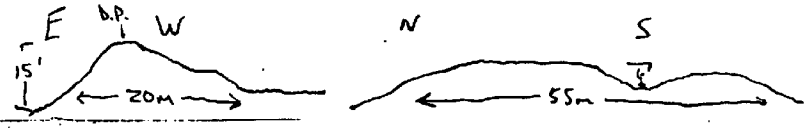
AZIMUTH _____ STA# _____

LAT. 57° / 13' / 31.46" N LONG. 133° / 33' / 58.74" W
~~31.5~~ ~~59.1~~

BOTTOM DESCRIPTION

GENERAL TERRAIN Rocky with 1 foot kelp growth
SPECIFIC FEATURE Rock Ridge (Knob Back)
BOTTOM MATERIAL Rock

DESCRIPTION OF INVESTIGATION AND DIAGRAMS (IF APPLICABLE)



PATTERN 1=

RA-20-4W-88

ELECTRONIC STATIONS(S1,M,S2)= 158.0.156

PATTERN 1= 1701 ✓
PATTERN 2= 3338 ✓

X = 55987.87
Y = 71681.20

frx

LATITUDE = 57/13/31.57
LONGITUDE= 133/33/59.11

• Dive #2 Site #1
mAWOIS item 51201
(DN 298)
Pos # 6707

DIVE INVESTIGATION

DIVE # #1 SITE # 2 SHEET # RA-20-4W-88

DATE 10/24/88 DAY NO. 298 POS. # 6706

OBJECT INVESTIGATING Rock Ridge AWOIS # 51201

DIVERS Hill / Seitz

BOTTOM TIME 19M MIN. CENTER WEIGHT 30 LB #

TYPE OF SEARCH:

(OBJECT SEEN IMMEDIATELY)
VISUAL SEARCH
CIRCLE SEARCH: SWEEP RADIUS 50m FM/M
OTHER SEARCH: –

WATER VISIBILITY 25 (FT)
LEAST DEPTH ON OBJECT 50.4 (FT)/M/FM TIME 1302 / 210200 UTC nav danger item "B"
CALIBRATED CORRECTION -0.2 (FT)/M/FM
TIDE CORRECTION 47.4 (FT)/M/FM
CORRECTED DEPTH 32.8 (FT)/M/FM (5.47 fms) → 5 fm 2.80 ft = 5½ fm or closer

DEPTH OBTAINED BY: LEAD LINE, TAPE, (PNEUMATIC GAUGE), OTHER _____ M²
SERIAL NUMBER _____
PNEUMATIC GAUGE (3 READINGS) 50.4 FT 50.4 FT 50.4 FT

POSITION INFORMATION (R/R) R/AZ

LEFT STATION Storm STA# 158 CODE E RATE 1842 BLC -2 S/S 18

RIGHT STATION Five Fingers STA# 156 CODE A RATE 6285 BLC +1 S/S 15

CHECK STATION Bill Pt. STA# 155 CODE D RATE 3124 BLC +1 S/S 13

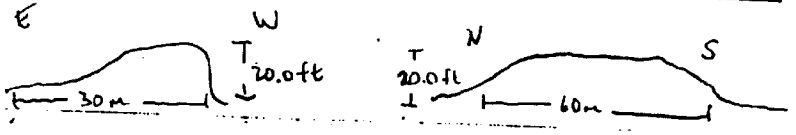
AZIMUTH _____ STA# _____

LAT. 57° / 13' / 35.5" N LONG. 133° / 33' / 54.9" W

BOTTOM DESCRIPTION

GENERAL TERRAIN Rocky w/1 ft kelp
SPECIFIC FEATURE Rock Ridge (Hog back)
BOTTOM MATERIAL Rock
Rock ridge elongated N-S, 20 ft off bottom

DESCRIPTION OF INVESTIGATION AND DIAGRAMS (IF APPLICABLE)



ELECTRONIC STATIONS(S1,M,S2)= 158,0,156

PATTERN 1= 1840
PATTERN 2= 6286

X = 56058.46
Y = 71801.64

LATITUDE = 57/13/35.46
LONGITUDE= 133/33/54.91

fix

RA-20-4W-88
Dive #1 @ Site #2
on AWOIS item 51201
(DN 298; Pos #6706)

-------- DIVE INVESTIGATION --------

DIVE # 1 SITE # 13 SHEET # RA-20-4W-88

DATE 05 NOV 88 DAY NO. 310 POS. # 4781

OBJECT INVESTIGATING 5.3 FM SHOAL AWOIS # N/A

DIVERS ENS MEIS, ENS SMITH, ENS GROENEVELD

BOTTOM TIME _____ MIN. CENTER WEIGHT 30lbs cement #

TYPE OF SEARCH:

(OBJECT SEEN IMMEDIATELY)
(VISUAL SEARCH)
CIRCLE SEARCH: SWEEP RADIUS _____ FM/M
OTHER SEARCH: SWAM PERIMETER OF FEATURE

nav danger ltr "C"

WATER VISIBILITY 35 FT.
LEAST DEPTH ON OBJECT 43.2 (FT) M/FM TIME 192000 UTC
CALIBRATED CORRECTION -0.2 (FT) M/FM
TIDE CORRECTION -13.2 (FT) M/FM
CORRECTED DEPTH 29.8 (FT) M/FM = 4.97 fms = 4 fms 5.8 ft = 5 fms on chart

DEPTH OBTAINED BY: LEAD LINE, TAPE, (PNEUMATIC GAUGE), OTHER _____ 1/M²
SERIAL NUMBER _____
PNEUMATIC GAUGE (3 READINGS) 43.2 FT 43.2 FT 43.2 FT

POSITION INFORMATION R/R R/AZ

								P	S
LEFT STATION	HIGHLAND	STA#	151	CODE	2	RATE 5725	BLC -1	S/S 12	L
RIGHT STATION	~~FLAT~~ SLATE 2	STA#	~~150~~ 152	CODE	C	RATE 15948	BLC 0	S/S 7	R L
CHECK STATION	~~SNOWSHED~~	STA#	~~153~~ R	CODE	~~0~~ R	RATE ~~20158~~	BLC ~~+1~~ (weak rate)	S/S ~~8~~	R

AZIMUTH _____ STA# _____

LAT. 57° / 10' / 44.07 5/8" N LONG. 133° / 32' / 28.79" W

BOTTOM DESCRIPTION

GENERAL TERRAIN Rock Bottom, Smooth, Gently Sloping
SPECIFIC FEATURE High Point of Rock Ridge
BOTTOM MATERIAL Rock

DESCRIPTION OF INVESTIGATION AND DIAGRAMS (IF APPLICABLE)

SMOOTH FEATURELESS RISE - ROCK RIDGE 100m E-W x 50m N-S

ELECTRONIC *STATIONS(S1,M,S2)= 151,0,152

PATTERN 1= 005724
PATTERN 2= 015948

X = 57500.26
Y = 66498.49

LATITUDE = 57/10/44.07
LONGITUDE= 133/32/28.79

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

MVR / 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~~ 4.8 FATHOMS IS AT LATITUDE 57/13/31.~~4~~6N, LONGITUDE 133/33/5~~8~~8.24W. SHOAL IS 1.7~~5~~6 NM BEARING 207.3DEGREES TRUE FROM BILL POINT LIGHT." Pos #6707 Dive Site #1 Dive #2

B. "ROCK RIDGE SUBMERGED 5-1/2 FATHOMS IS AT LATITUDE 57/13/35.~~5~~3N, LONGITUDE 133/33/54.~~9~~8W. SHOAL IS 1.~~7~~9 NM BEARING 207.2DEGREES TRUE FROM BILL POINT LIGHT." Pos #6706 Dive Site #2 Dive #1

C. "ROCK RIDGE SUBMERGED 5 4.9 FATHOMS IS AT LATITUDE 57/10/44.~~1~~5N, LONGITUDE 133/32/28.~~8~~7W." Pos #4781 Dive Site #3 Dive #3

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

E. "ROCK OUTCROP SUBMERGED 3/4 FATHOM IS AT LATITUDE 57/05/12.2N, LONGITUDE 133/46/54.6W."

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

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."

H-10289

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

omitted from this chart.

NOAA VHF-FM WEATHER BROADCASTS

The National Weather Service station listed below provides continuous marine weather broadcasts. The range of reception is variable, but for most stations is usually 20 to 40 miles from the antenna site.

Petersburg, Ak. WXJ-82 162.55 MHz

AIDS TO NAVIGATION

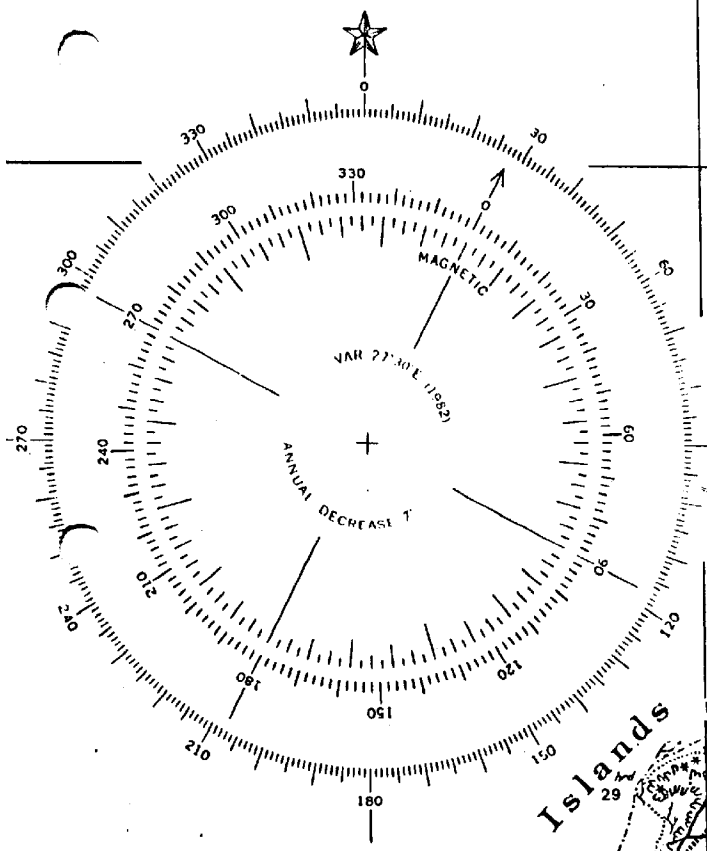
Consult U.S. Coast Guard Light List for supplemental information concerning aids to navigation.

SUPPLEMENTAL INFORMATION

Consult U.S. Coast Pilot 8 for important supplemental information.

NOS CHART 17365
10th Ed., 30 Oct 82
1:20,000

NOAA SHIP RAINIER
OPR-0358-RA
H-10288



B. ROCK RIDGE
SUBMERGED 5-1/2 FMS

A. ROCK RIDGE
SUBMERGED 4-3/4 FMS

Bill Pt.

Bartlett Pt.

Storm Islands

awash at half tide

Cabin

Bird Rock
(22)
Fl R 2.5sec 30ft 3M "2"

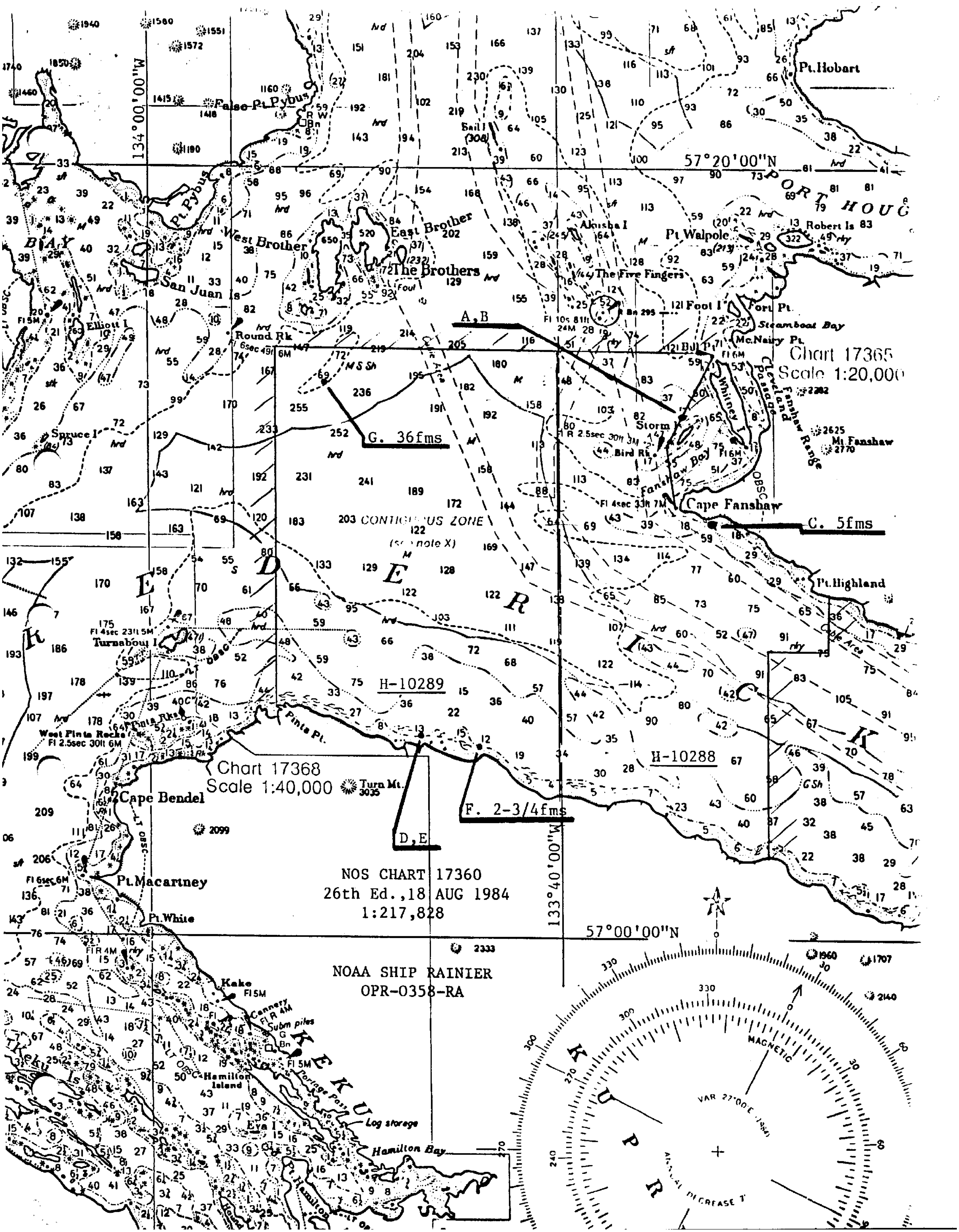
57°14'00"N

57°13'00"N

133°36'00"W

133°32'00"W

B A Y


NOS CHART 17360
26th Ed.,18 AUG 1984
1:217,828
NOAA SHIP RAINIER
OPR-0358-RA
Chart 17365
Scale 1:20,000
Chart 17368
Scale 1:40,000
H-10289
H-10288
A,B
C. 5fms
D,E
F. 2-3/4fms
G. 36fms
57°20'00"N
57°00'00"N
134°00'00"W
133°40'00"W
CONTIGUOUS ZONE
FREDERICK SOUND
PORT HOUGHTON
KEKU STRAIT
False Pt.Pybus
Pt.Pybus
West Brother
East Brother
The Brothers
San Juan Is
Round Rk
Elliott I
Spruce I
Turnabout I
West Pinta Rocks
Pinta Pt.
Cape Bendel
Turn Mt.
Pt.Macartney
Pt.White
Kake
Cannery
Hamilton Island
Keku Is
Eya I
Log storage
Hamilton Bay
Pt.Hamilton
Pt.Hobart
Pt.Walpole
Robert Is
Alaska I
The Five Fingers
Foot I
Fort Pt.
Steamboat Bay
McNairy Pt.
Bull Pt.
Storm I
Bird Rk
Whitney I
Fanshaw Bay
Cape Fanshaw
Cleveland Passage
Fanshaw Range
Mt.Fanshaw
Pt.Highland
Sail I
MAGNETIC

APPROVAL SHEET

Descriptive Report to Accompany
Hydrographic Survey
RA-20-4-88
H-10288

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

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-10288

LOCALITY: Frederick Sound, AK

TIME PERIOD: October 10 - November 11, 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

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10288

Name on Survey
ALASKA, FREDERICK SOUND
CAPE FANSHAW VICINITY

	A ON CHART NO. 17360	B ~~PRELIMINARY SURVEY~~ NO. Chart No. 17365	C ON U.S. QUADRANGLE MAPS Sumdum A-5	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	X	X							1
BARTLETT POINT		X	X							2
BILL POINT	X	X	X							3
BIRD ROCK	X	X	X							4
CANOE POINT		X	X							5
CLEVELAND PASSAGE	X	X	X							6
FANSHAW BAY	X	X	X							7
FANSHAW, CAPE	X	X	X							8
FREDERICK SOUND	X		X							9
HIGHLAND, POINT	X									10
KUPREANOF ISLAND	X									11
STEPHENS PASSAGE	X		X							12
STORM ISLANDS	X	X	X							13
WHITNEY ISLAND	X	X	X							14
										15
										16
										17
				Approved:						18
										19
				Charles E. Harrington						20
				Chief Geographer - N/CG2x5						21
				MAY 10 1989						22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

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

U.S. DEPARTMENT OF COMMERCE

REGISTRY NUMBER H-10288

HYDROGRAPHIC SURVEY STATISTICS

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 (3 Mylar 3 Paper)
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	5 (2 Mylar 3 Paper)

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	2					
ENVELOPES						
VOLUMES	1					
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List): 17360 26th Ed. 8/18/84; 17365 10th Ed. 10/30/82

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			3366
POSITIONS REVISED			12
SOUNDINGS REVISED			60
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	39.0		39.0
VERIFICATION OF SOUNDINGS	85.0		85.0
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	54.5		54.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS		26.0	26.0
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		71.0	71.0
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	178.5	97.0	275.5

Pre-processing Examination by J. Stringham	*Beginning Date*	*Ending Date* 1/17/89
Verification of Field Data by L. Deodato, R. Shipley	*Time (Hours)* 178.5	*Ending Date* 6/23/89
Verification Check by J. Stringham, B. Olmstead	*Time (Hours)* 70.50	*Ending Date* 8/17/89
Evaluation and Analysis by A. Luceno	*Time (Hours)* 97.0	*Ending Date* 9/22/89
Inspection by D. Hill	*Time (Hours)* 4	*Ending Date* 10/19/89

EVALUATION REPORT

H-10288

1. INTRODUCTION

Survey H-10288 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 Alaska, and covers an area in Frederick Sound, in the vicinities of Cape Fanshaw and the northern shore of Kupreanof Island. The surveyed area extends from the shore of Kupreanof Island in the south to latitude 57°15'30"N and between longitudes 133°27'00"W and 133°40'00"W (NAD 27). The bottom is irregular and consists of sand, mud and broken shells. Depths range from 0 to 163 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 945-1655, 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, sound velocity and electronic control correctors are adequate and required no revision. 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, the Horizontal Control Report and the Electronic Control Report for OPR-0358-RA contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are 1917 and 1920 published values 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 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: +1.230 seconds (+38.0 meters)
Longitude: -6.234 seconds (-104.7 meters)

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

There are 76 weak fixes, angles of intersection less than 30 degrees or more than 150 degrees, noted in this survey. Soundings only are involved with these weak fixes. There are no significant plotting differences between the soundings located by these weak fixes and those soundings in adjacent areas. Also, none of these fixes are used to position dangers to navigation. These fixes are considered acceptable.

There are no shoreline maps applicable to this survey. Shoreline depicted on the smooth sheet originates with chart 17365, 10th edition, and USGS quadrangle map Sumdum (A-5), Alaska, 1948 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-10288 junctions with the following surveys.

Survey	Year	Scale	Area
H-10272	1988	1:20,000	East
H-10289	1988	1:20,000	West

The junction with survey H-10289 has been formally completed. Soundings are in good agreement. The junction with survey H-10272 has not been formally completed since that survey was previously processed and forwarded for charting. The junction comparison was made using a copy. Soundings are in good agreement. Some soundings have been transferred to survey H-10288 to better portray the bottom in the common area. There are no known adjoining surveys to the north of the surveyed area. Depths from the present survey are in harmony with charted depths in that area.

6. COMPARISON WITH PRIOR SURVEYS

H-1804 (1887) 1:80,000
H-1806 (1887) 1:80,000
H-1996 (1889) 1:80,000
H-2000 (1889) 1:10,000

All soundings on survey H-1804 are selected depths originating from survey H-1806. Survey H-1806 covers the entire area of the present survey. The 42-fathom charted depth from survey H-1806 located at latitude 57°06'21"N, longitude 133°31'48"W (NAD 27) in general depths of 50 to 66 fathoms was not found during the present survey. A depth of 48 fathoms at a distance of 615 meters east of the 42-fathom depth was obtained at latitude 57°06'21.99"N, longitude 133°31'11.51"W (NAD 27) during the investigation and development of the 42-fathom depth. The investigation is considered adequate to disprove the existence of the charted sounding.

Survey H-1996 covers a very small area at the northwest corner of the present survey.

Survey H-2000 covers a small area in the vicinity of Bill Point, Whitney Island.

Taking into consideration the differences in the scales of the surveys, the elapsed time since the execution of the prior surveys and the equipment and methods of surveying, comparison with the prior surveys is satisfactory.

Survey H-10288 is adequate to supersede these prior surveys within the common areas.

T-3690 (1917) 1:20,000
T-3805 (1920) 1:20,000

An uncharted rock awash is shown on the T-3690 map at latitude 57°03'26"N, longitude 133°35'32"W (NAD 27). This rock, which was carried forward to the smooth sheet, should be considered for charting. A charted rock awash originating from the T-3690 map is shown on the smooth sheet at latitude 57°03'10"N, longitude 133°34'49"W (NAD 27). This rock, which is also

carried forward to the smooth sheet should remain as charted. The two rocks are shown in red violet on the smooth sheet.

The kelp shown on the T-3690 map is more extensive than as depicted on the chart. The extent of the kelp was not verified during this survey because the kelp areas are outside the survey limits. The kelp was not brought forward to the smooth sheet. However, a more extensive portrayal of the kelp should be considered for charting.

The features in the immediate vicinity of Bird Island depicted on the T-3808 map are the only ones common to the present survey. Comparison between the surveys is satisfactory.

Survey H-10288 is adequate to supersede these prior maps as a source for charting information within the common area.

H-3992 WD (1917) 1:20,000
H-3994 WD (1917) 1:20,000
H-4143 WD (1920) 1:40,000

Survey H-3992 covers the area of the present survey between latitudes 57°02'N and 57°10'N and between 133°27'W and 133°35'W (NAD 27). Depths in this area range from 13 to 111 fathoms. This area was cleared by wire drag to depths ranging from 80 to 95 feet There are no conflicts between the wire drag survey and the present survey.

Survey H-3994 covers the area of the present survey north of latitude 57°10'N (NAD 27). AWOIS Item 51201, a 46-foot (7.7-fathom) sounding on a rocky shoal, is adequately discussed in the hydrographer's report.

Depths from the present survey within the wire drag coverage range from 17.5 to 143 fathoms. This area was cleared by wire drag to depths of 3 to 13 feet. There are no conflicts between the present survey and the wire drag survey.

Survey H-4143 covers an area common with the present survey within a radius of 3400 meters from the southern tip of Storm Island. Depths in this area from the present survey range from 20 to 95 fathoms. The area close to the shore is shown to be cleared by wire drag in a single strip at 0 and 1-fathom depths. There were no cleared depths or hangs that were shown in the remaining strips. There are no conflicts between the present survey and the wire drag survey.

7. COMPARISON WITH CHART

Chart 17360, 26th edition, dated August 18, 1984; scale 1:217,828
Chart 17365, 10th edition, dated October 30, 1982; scale 1:20,000

a. Hydrography

All charted hydrography originates with the prior surveys discussed in the previous section and with miscellaneous sources. No further discussion is required.

Survey H-10288 is adequate to supersede charted hydrography within the common area.

b. AWOIS

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

c. Controlling Depths

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

d. Aids to Navigation

All fixed aids were located to third-order, class I accuracy and serve their intended purpose. A NOAA Form 76-40, Nonfloating Aids For Charts, is attached. There are no existing floating aids within the area of the present 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 rock ridges, rock outcrops and a submerged shoal to the USCG. A copy of the message is attached. No additional dangers were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10288 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is a good navigable area survey. No additional field work is recommended.

Arsenio A. Luceno

Arsenio A. Luceno
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
Chief, Hydrographic Unit

APPROVALS

I have reviewed the smooth sheet, accompanying data, and reports associated with hydrographic survey H-10288. This survey meets or exceeds Charting and Geodetic Services' standards for products in support of nautical charting.

10/23/89

Commander Pamela Chelgren-Koterba, NOAA (Date)
Chief, Pacific Hydrographic Section

Approved: Sigmund R. Petersen 10/26/89

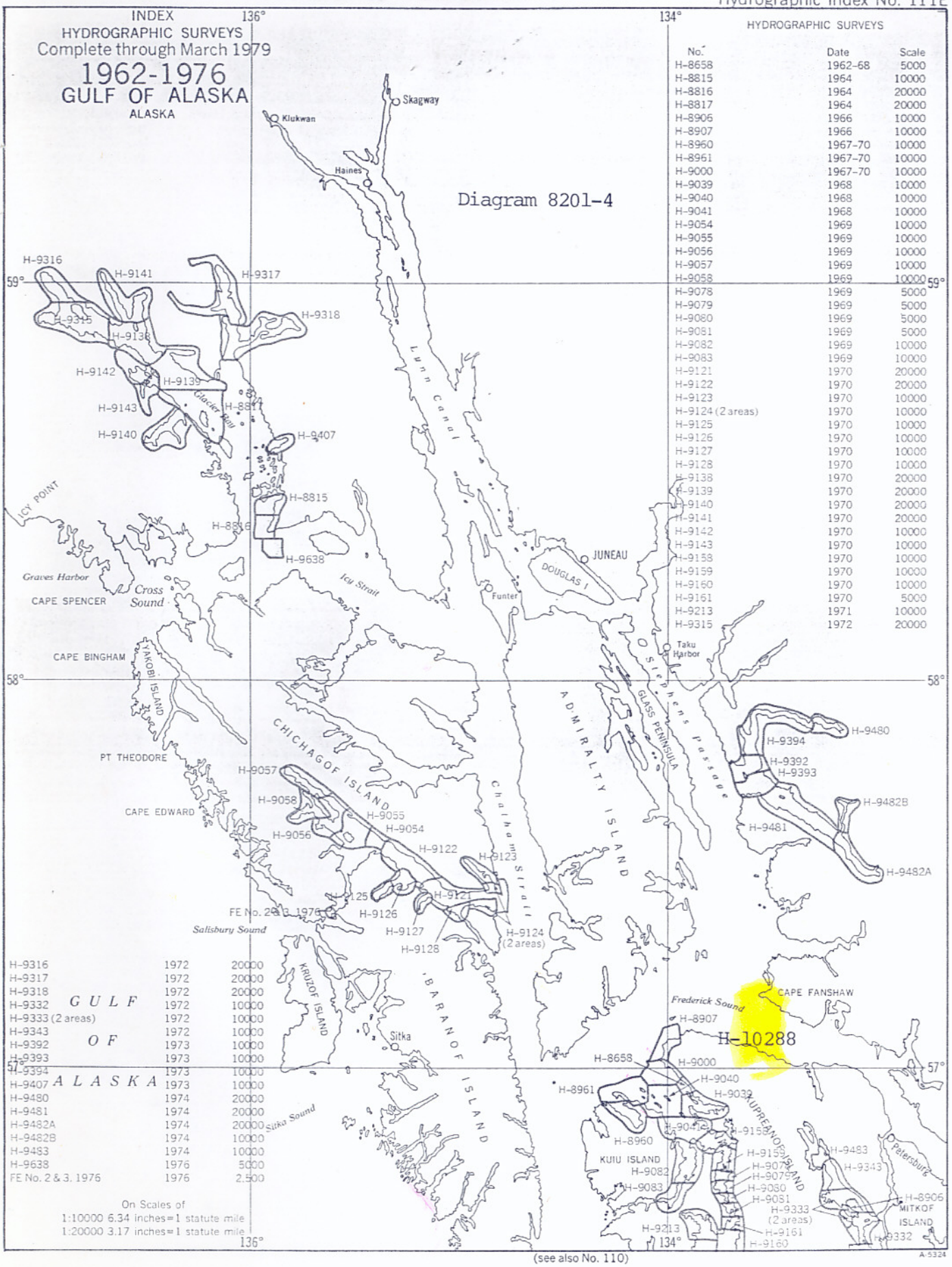
RADM Sigmund R. Petersen, NOAA (Date)
Director, Pacific Marine Center

Approved: _____

RADM Wesley V. Hull, NOAA (Date)
Director, Charting and Geodetic Services

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

GULF OF ALASKA

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10288

EXAMINED FOR NM
GDBU
B.D.Y. 3-9-90 Appl'd

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
17365	6-5-90	John Pierce	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 8
RH			
20 17~~63~~0	6-5-90	John Pierce	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 32
			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
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			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.