10358

Diagram No. 8202-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. RA-10-6-90

Registery No. H-10358

LOCALITY

State Alaska

General Locality Icy Strait

Sublocality Idaho Inlet

19 90

CHIEF OF PARTY
CAPT J.C. Albright

LIBRARY & ARCHIVES

DATE December 20, 1991

10358

17303 NC
17302
17300
16016 NC

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

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.
H-10358

FIELD NO.
RA-10-6-90

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

State: Alaska

General locality: Icy Strait

Locality: Idaho Inlet

Scale: 1:10,000 Date of survey: October 11-26,1990

Instructions dated: February 22, 1990 Project No.: OPR-0186-RA

Vessel: NOAA Ship RAINIER, Launches RA-4(2124), RA-5(2125), RA-6(2126)

Chief of party: CAPT J.C. Albright

Surveyed by: LT D. Cole, LT G. Glang, LTJG D. Simmons, LTJG H. Muench, LTJG P. Webber, ENS C. Ward

Soundings taken by echo sounder, ~~hand lead, pole~~: DSF-6000N

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Evaluation by: R.N. Mihailov Automated plot by: PHS Xynetics Plotter

Verification by: J. Stringham, E. Domingo

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

REMARKS: All times UTC. North American Datum of 1983. 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.

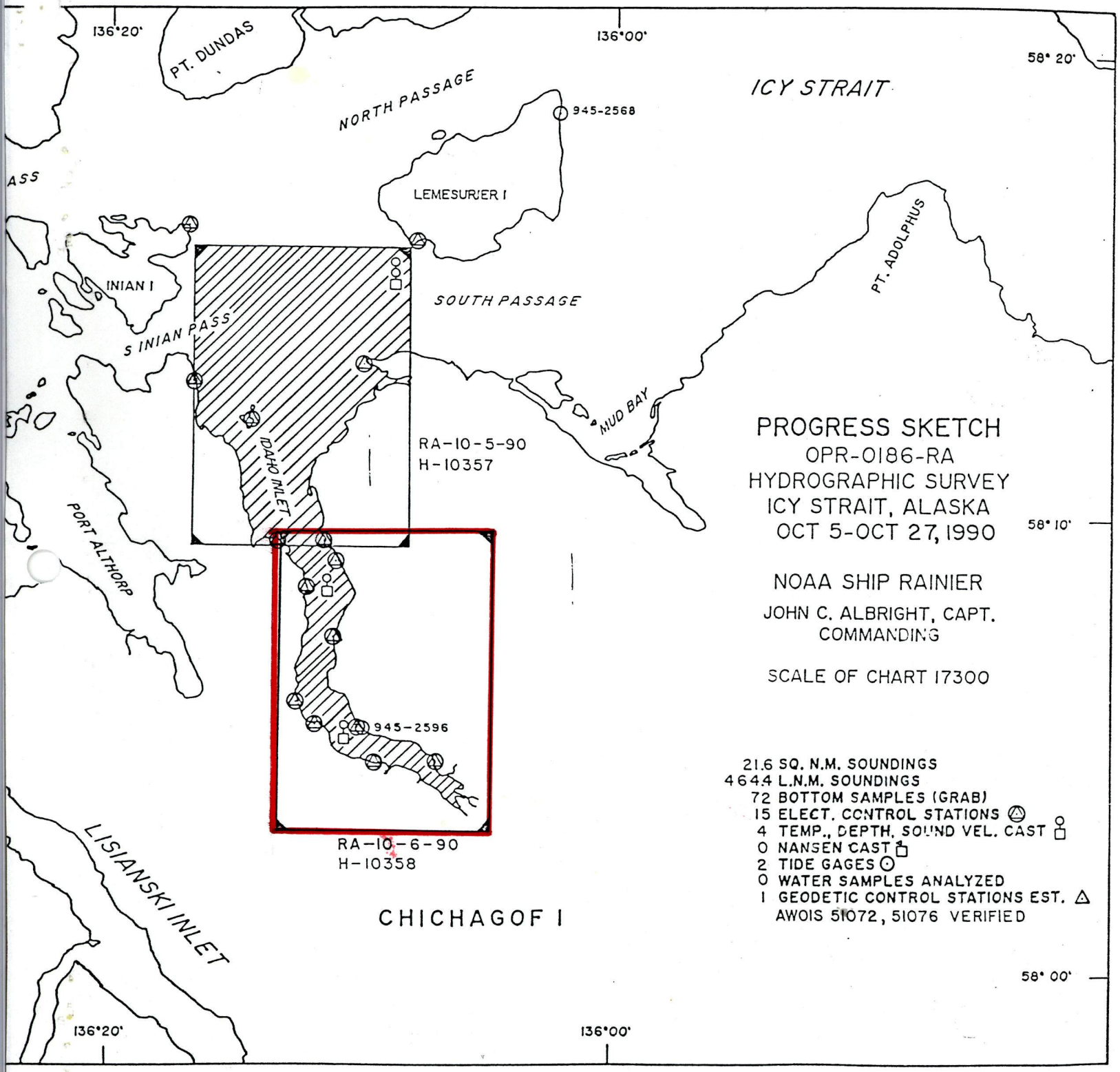
AWOIS & SURF CHK 2/18/92 MCR

SC 1-28-97

KWW 2/20/92

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

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


136°20'
PT. DUNDAS
136°00'
58° 20'
ICY STRAIT
NORTH PASSAGE
945-2568
ASS
LEMESURIER I
INIAN I
S INIAN PASS
SOUTH PASSAGE
PT. ADOLPHUS
MUD BAY
IDAHO INLET
RA-10-5-90
H-10357
PORT ALTHORP
58° 10'
PROGRESS SKETCH
OPR-0186-RA
HYDROGRAPHIC SURVEY
ICY STRAIT, ALASKA
OCT 5-OCT 27, 1990
NOAA SHIP RAINIER
JOHN C. ALBRIGHT, CAPT.
COMMANDING
SCALE OF CHART 17300
945-2596
RA-10-6-90
H-10358
21.6 SQ. N.M. SOUNDINGS
4644 L.N.M. SOUNDINGS
72 BOTTOM SAMPLES (GRAB)
15 ELECT. CONTROL STATIONS
4 TEMP., DEPTH, SOUND VEL. CAST
0 NANSEN CAST
2 TIDE GAGES
0 WATER SAMPLES ANALYZED
1 GEODETIC CONTROL STATIONS EST.
AWOIS 51072, 51076 VERIFIED
LISIANSKI INLET
CHICHAGOF I
58° 00'
136°20'
136°00'

Descriptive Report to Accompany Hydrographic Survey H-10358

Field Number RA-10-6-90
Scale 1:10,000
October 1990

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

A. PROJECT

This basic hydrographic survey was completed in Icy Strait, Alaska, as specified by Project Instructions OPR-0186-RA dated February 22, 1990. This survey is designated Sheet A on the revised sheet layout dated February 16, 1988.

The survey is one in a series that will provide contemporary hydrographic data for updating existing nautical charts and planned larger scale chart coverage of the Icy Strait area. It responds to concerns of federal, state, and local governments in regard to navigational safety due to an increase in fishing and tour vessels operating in the vicinity. Requests for updated surveys have also come from the Southeastern Alaska Pilots Association and NOAA vessels which have cited inaccurately charted data and numerous rocks and shoals.

B. AREA SURVEYED

This survey is located in southeast Alaska, 59 nautical miles west of Juneau, on the southern shore of Icy Strait, and encompasses the area within Idaho Inlet south of latitude 58°09'15"N. Data acquisition was conducted October 11, 1990 through 26, 1990 (DN 284 to 299).

C. SURVEY VESSELS

All data were acquired by three of NOAA Ship RAINIER's automated survey launches shown below:

Vessel	EDP No.	Operations
RA-4	2124	Hydrography Shoreline Verification
RA-5	2125	Hydrography Bottom Samples
RA-6	2126	Hydrography Seacat Cast Shoreline Verification

No changes to the standard sounding configurations were necessary.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Data acquisition and processing were accomplished with Hewlett-Packard (HP) 340M workstations and the following HDAPS programs:

Program Name	Version	Date Installed
SURVEY, w/RAINIER mods	4.51	10-07-90
w/o RAINIER mods	4.55	10-28-90
POSTSUR, w/RAINIER mods	4.15	08-17-90
FILESYS	1.68	08-17-90
ABST, w/ RAINIER mods	3.05	06-01-90
PLOTALL, w/ RAINIER mods	1.74	08-17-90
w/o RAINIER mods	1.77	11-15-90
POINT	1.20	08-17-90
BACKUP	1.02	03-09-90
DIAGNOSTIC	2.15	03-09-90
INVERSE	1.21	08-17-90
INSTALL	1.20	03-09-90
CONPUTE	2.02	03-09-90
CONSTAT, w/ RAINIER mods	2.05	07-03-90
CONPLOT, w/ RAINIER mods	1.02	07-03-90
CONVERT	2.36	06-01-90
PRINTOUT	2.23	06-01-90
AUTOST (BIGAUTOST)	2.00	03-09-90
BASELINE	1.02	08-17-90
LOADNEW	1.00	08-17-90
QUICK	1.04	10-07-90
CARTO	1.00	10-28-90

Velocity corrections were determined using:

Program Name	Version	Version Date
VELOCITY	1.11	03-09-90

The HDAPS Survey, Postsur, and Plotall (vers. 1.74) programs are modified to allow for seven settlement and squat cases, and are corrected for a program error in the Pretidepre module.

The HDAPS Constat and Conplot programs are modified to allow up to 25-character descriptions to be entered in the "Remarks" field of a Contact Table. This is necessary for plotting legible bottom sample descriptions.

E. SONAR EQUIPMENT - NO SIDE SCAN SONAR USED ON THIS SURVEY.

Not Applicable

F. SOUNDING EQUIPMENT

RAINIER and all survey launches were equipped with the Raytheon DSF-6000N echo sounders shown below. The echo sounders were operated on 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 meters and

tenths of meters. Six-meter bar checks were conducted and recorded daily, using 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 Field Procedures Manual for Hydrographic Surveying (FPM).

Raytheon DSF-6000N Echo Sounders

Vessel	Serial No.	DN
2124	B046N	289-299
2125	B048N	285-297
2126	A114N	289-296

The echo sounders were continuously monitored during data acquisition. All sounding data was scanned at least two times to ensure all significant peaks were inserted, and also to verify the digitized depths. In addition, while running over extremely steep, irregular areas, the echo sounders sometimes failed to track properly. Running at minimum speeds usually alleviated this problem, but marginal analog traces could not always be avoided. Fathograms checked during office processing.

Diver obtained least depths were determined with a 3D Instruments pneumatic depth gage (S/N 8504192N).

G. CORRECTIONS TO SOUNDINGS

Corrections to echo soundings were determined for velocity of sound through water, static draft, settlement and squat, heave, and predicted tides. Sounding correctors apply to both narrow and wide beams of the DSF-6000N echo sounder. Supporting data and computations for all corrections to echo soundings, except heave, are included in the Fall 1990 Corrections to Echo Soundings Data Package for OPR-O186-RA.

Sound Velocity

Correctors for the velocity of sound through water were determined from the casts listed below:

Cast No.	Measurement Instrument	Deepest Depth (m)	DN	Geographic Position
1	SEACAT	155.1	282	58°15'02" N 136°08'26" W
2	AML	204.4	282	58°15'02" N 136°08'25" W
3	SEACAT	29.9	296	58°05'16" N 136°10'31" W
4	SEACAT	49.9	296	58°08'22" N 136°11'26" W

Sound velocity correctors were acquired with an AML SVP Profiler, S/N 3042, which was calibrated at the Northwest Regional Calibration Center (NRCC) in Bellevue, WA, on March 27, 1990, and a SBE Seacat Profiler S/N 281 which was also calibrated at NRCC on August 22, 1990.

Cast #2 (AML) was taken on the same day as Cast #1 (SEACAT) to ensure that the SEACAT sensors were operating properly. The sound velocities determined by the two methods showed excellent agreement.

On DN 296, Cast #3 (SEACAT) and Cast #4 (SEACAT) were taken at different geographic positions. The results of these two casts showed excellent agreement and confirm that the water column within the limits of this survey is uniform. Therefore, data acquired from Cast #4 (SEACAT) were used for the duration of this survey.

Velocity correctors were computed using the the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) #69. Printouts of velocity tables used in the HDAPS Post Survey program are included in the separates supplementing this report. *

Static Draft

For all launches, the distance from the transducer face to the gunwale was measured with a large metal square. Static draft measurements were then determined by dropping a leadline from the gunwale to the water and subtracting this distance from the distance measured with the square. The measurements from the gunwale to the waterline were conducted with the fuel tanks averaging 3/4 full and three people aboard. A transducer depth of 0.6 meter was determined for all launches on March 20, 1990. This transducer depth agrees with the launches' historical records.

Settlement and Squat

Settlement and squat correctors were determined for two of the automated survey launches in Shilshole Bay, WA, on February 23 (Vesno 2124 and 2126). Vesno 2125 was tested on May 20, 1990, in Bartlett Cove, AK.

All tests were conducted over a hard bottom in depths well exceeding seven times the vessels' drafts. Both sea and wind were calm. Observations were made through a Zeiss Ni2 leveling instrument (S/N 103453) to a rod held vertically on deck, directly over the transducer. Correctors were computed in accordance with Hydrographic Manual 4.9.4.2.

The following is a summary of all Offset Tables used on this survey and their applicable period:

VESNO	Offset Table No.	Period Used On Line (DN)
2124	4	284-299
2125	5	285-297
2126	6	289-296

Copies of all offset tables are included with the separates accompanying the survey data. *

* Filed with hydrographic data

Heave

Corrections for heave were applied while scanning echograms. The scanning technique used in comparing the analog trace with the digital record eliminated significant fluctuations resulting from sea action.

Pneumatic Depth Gage

The pneumatic depth gage was calibrated February 7, 1990, by Pacific Operations Group (N/OMA1214). In addition, field system checks were performed via comparison with diver depth gages each day the pneumatic gage was used. Calibration data and correctors applied to the pneumatic depth gage are included in the Fall 1990 Corrections to Echo Soundings Data Package for OPR-O186-RA.

Bar Check Lines

Bar check lines were calibrated by RAINIER personnel during January 1990, at PMC. Calibration forms are included in the Fall 1990 Corrections to Echo Soundings Data Package for OPR-O186-RA.

Tide Correctors

Tidal zoning and correctors applicable to predicted tides for Sitka, Alaska, reference station (945-1600) were provided on the Tidal Zoning Chart accompanying the Project Instructions and are shown below.

Zone	Time Corrections	Ratio
Entire Survey	High water: +10m Low water: +10m	x1.34

Printouts of the HDAPS Predicted Tide Tables used to generate tide correctors are appended to this report. *

A tide gage was installed and maintained by RAINIER personnel at the southern end of Idaho Inlet (945-2596). The field tide records and the Field Tide Notes for these stations have been forwarded to N/OMA1212 in accordance with HSG 50 and FPM 4.3. Requests for approved tides have been forwarded to N/OMA12. Copies of the Field Tide Notes and the requests for approved tides are included in Appendix V. *

H. CONTROL STATIONS

Positions for existing stations are from the 1990 spring horizontal control survey, the NGS data base, or prior surveys conducted in 1970. MUD TP was established solely for hydrographic purposes by Third Order, Class I standards. The height for MUD TP was determined by observing reciprocal vertical distances and is based on Local Mean Sea Level (LMSL) out of Sitka, since no LMSL data is available for the Icy Strait area. As tidal information becomes available, MUD TP should be corrected to LMSL for the Icy Strait area.

* Filed with hydrographic data

MUD TP was positioned by a horizontal angle and an EDMI distance from MUD, with a check distance to CRAG. Comparing the EDMI distance with the inverse distance the two positions differed by 0.1168m which results in a closure of 1:36,300. This closure meets Third Order, Class I specifications.

All computations were performed using the MTEN-3 geodetic software package, Version 18 (11/87), as configured for the IBM PC. Computations are based on the North American Datum of 1983 (NAD83) and the Geodetic Reference System (GRS) 1980 Ellipsoid.

Further information can be found in the Spring 1990 Horizontal Control Report for OPR-0186-RA. All horizontal position computations, and field abstracts, are appended to this report in lieu of submitting a separate Horizontal Control Report. *

I. HYDROGRAPHIC POSITION CONTROL

Soundings, bottom samples, and detached positions were located using the Motorola Mini-Ranger Falcon 484 microwave positioning system in multiple-range and manual range-azimuth modes.

Accuracy requirements stated in FPM 3.1.3.1 were generally met. On occasion, when no winds prevailed and sea conditions were exceptionally calm, null zones were experienced. OIC's adjusted the R/T mast height until sufficient control was available. When maximum residuals exceeded the specified limits, OIC's deselected the station(s) with the highest residual and continued hydrography. On occasion, ECR's and maximum residuals persistently exceeded the specified limits. This data was generally rejected and re-run with different control.

Hydrography collected close inshore often occurred with one or more LOP's blocked, resulting in high ECR's and/or maximum residuals. In these cases, OIC's generally annotated the raw master printout (RMPO). If the data plotted on track and sounding intervals appeared correct, the data was retained. Some hydrography, such as high-water lines and shoreline DP's, was acquired with only two LOP's because stations were blocked or deselected. In these cases, if the systems check at day's start included additional LOP's and acceptable maximum residuals, and ECR's were acceptable throughout the data collection period, no further systems checks were performed at day's end.

A Wild T-2 theodolite was used for the manual range/azimuth observations, in addition to the Motorola Mini-Ranger Falcon 484 positioning system. Serial numbers for all equipment are annotated on the RMPO for each day of hydrography. A complete list of all electronic equipment serial numbers is included in the Fall 1990 Electronic Control Data Package.

All baseline calibrations were conducted in accordance with FPM 3.1.2.1 and 3.1.3.2. From September 28 to September 30 (DN271-DN273), calibrations were conducted over a measured range of 970.7m and 972.7m from VESNO 2125 (in davits) at PMC, across Lake Union, to station MR CAL 1 at the Seattle Naval Reserve Center. Calibration data and a description of the baseline is included in the Fall 1990 Electronic Control Data Package.

System checks for multiple LOP hydrography were conducted prior to data collection, any time control was changed, and any time ECR and maximum

* Filed with hydrographic data

residual values exceeded allowable limits. System checks were conducted in accordance with FPM 3.1. Azimuth checks for range-azimuth hydrography were performed by sighting on another third-order control station. The check was considered satisfactory if the azimuth difference was less than 30 seconds of arc. ✓

Final field sheets were plotted with correctors determined from the baseline calibrations.

J. SHORELINE

One shoreline map (T-Sheet) was used to transfer shoreline detail to the final field sheets. Idaho Inlet shoreline originates from a 1:10,000-scale enlargement of TP-01319 (1:20,000 NAD 83). ✓

Shoreline verification was conducted near lower low water in accordance with FPM 7.1; however, it was not conducted during negative tides. In order to insure that no hidden features were missed, shoreline verification was conducted twice over the same area, during the lowest tides available. ✓

Detached positions (DPs) taken at lower low water indicate the T-Sheet photography was flown during a stage of tide higher than Mean Lower Low Water (MLLW). As a result, several new rocks and ledges were located in the area near shore, and some isolated rocks shown on the T-sheet were found to be partially exposed ledges, clusters of rocks, or boulders. These previously uncharted shoreline features all lie within 100 meters of shore, and appear to pose no danger to navigation. ✓

DPs recorded on the raw master printouts were annotated in the field. A detailed paper plot showing all DPs, reference numbers, and notes relating to each feature is included with the sheets submitted with this survey. Position numbers for all DPs are plotted on the DP overlay. Heights are recorded in meters and are corrected for predicted tides. ✓

Numerous uncharted rocks were located within 50m of the shoreline. These rocks lie south of latitude 58°09"15" N, and are located along both shorelines of the inlet. In addition, shoaling at the head of the inlet has revised the shoreline and those areas which bear at MLLW there. This revised shoreline area is bounded by latitude 58°04'~~40~~36"N, latitude 58°~~05'00~~04'45"N, longitude 136°~~08'15~~09'30"W, and longitude 136°~~07~~08'45"W, and is shown on the final field sheets. THIS area is shown in dashed red on the smooth sheet. ✓

K. CROSSLINES

A total of 18.40 nautical miles of crosslines were run perpendicular to mainscheme lines, representing 25% of the mainscheme hydrography. Crossline soundings agree to within one meter with mainscheme soundings. The vessel which acquired crossline data did not always collect the corresponding mainscheme data. The agreement between soundings acquired by different echo sounders in a common area is as stated above. ✓

L. JUNCTIONS

This survey junctions with H-10357 (1:10,000; 1990). No irregularities were found when comparing soundings and depth contours. Overall agreement between overlapping soundings is very good, with all junction soundings agreeing to within one meter.

M. COMPARISON WITH PRIOR SURVEYS

There are no AWOIS items within the survey limits that originate from prior surveys or any other sources.

The following prior survey lies within the limits of this survey.

H-2618 (1:40,000; 1902):

A 1:10,000 scale enlargement of a 1:40,000 scale copy of H-2618 was compared to this survey. Although the majority of the soundings were illegible, the general agreement of those depths which were legible is within 2 meters. No particular trends in the soundings were noted mainly due to the small number of soundings that were legible. All inshore soundings, and soundings at the head of the inlet were illegible. Refer to section 6 of the Evaluators Report for a further discussion.

N. COMPARISON WITH THE CHART

This survey was compared to a 1:10,000 scale enlargement of NOS chart: 17302, 15th Edition, May 20,1989, 1:80,000 (NAD83).

Comparison of Sounding Features

All charted soundings originate from the prior survey H-2618 discussed in Section M. It is noted that charted soundings tend to agree within 2 meters.

Mainscheme lines were oriented east-west for the area north of latitude 59°05'30"N and northeast-southwest south of latitude 59°05'30"N. Mainscheme lines were spaced at 200 meters. In waters shoaler than 55 meters, line spacing was reduced to 100 meters. In areas where additional development was required, line spacing was further reduced to 50 meters.

Dive investigations resulted in least depth determinations of three features. Each echo sounder depth considered for a dive operation was assigned a dive site number: these numbers, along with the least depths originally investigated, appear on the dive investigation forms. The forms contain detailed descriptions and sketches of each feature and are included within the accordion files submitted with this survey. * POSITION # 6334(DTON) Lat. 58°05'26.11N/LONG. 136°11'07.24W
6336 Lat. 58°06'39.71N/LONG. 136°11'10.79W
6338(DTON) Lat. 58°06'41.52N/LONG. 136°11'12.00W

Comparison of Non-Sounding Features

Shoreline features discussed in Section J should be portrayed on the chart.

Dangers to Navigation

Five dangers to navigation lie within the limits of this survey and were reported by radio message and hard copy to the Seventeenth Coast Guard District and the

* FILED WITH HYDROGRAPHIC DATA

Defense Mapping Agency Hydrographic/Topographic Center (DMAHTC). Copies of this correspondence and position numbers associated with each reported danger are included in ~~Appendix I.~~ in this report.

Recommendation: The hydrographer recommends that the soundings and least depths acquired on this survey be used to supersede charted soundings within their common areas. concur

O. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede the areas common to the prior surveys listed in Section 6.10 of the Project Instructions, and for chart compilation. CONCUR ~~in areas not previously surveyed.~~

P. AIDS TO NAVIGATION

There are no floating or fixed aids to navigation, bridges, overhead cables, submerged pipelines, or ferry routes within the limits of this survey.

Q. STATISTICS

Vessel:	2124	2125	2126	TOTAL
# of Pos.	631	349	216	1196
NM of Hydro	44.1	36.0	23.5	103.6

N.M.^{2} Hydrography	3.60	Velocity Cast	2
Detached Positions	53	Tide Stations	1
Bottom Samples	13	Current/Magnetic Stations	0

R. MISCELLANEOUS

From DN 284 through DN 291, data were acquired on a northern plotter sheet (#3), and a southern plotter sheet (#4), divided at latitude 58°05'38"N. On DN 291, a new plotter sheet (#6) was developed covering the entire survey area. All previously acquired data has been transferred to this sheet, and all plotter sheets have been retained in the active files.

All bottom samples were forwarded to the Smithsonian Institution.

No current measurements were made in 1990 as no anomalous currents were observed within this survey's limits.

S. RECOMMENDATIONS

None

T. REFERRAL TO REPORTS

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

Title	Date sent to N/CG245
Spring 1990 Horizontal Control Report for OPR-O186-RA	July 1990
Fall 1990 Electronic Control Data Package for OPR-O186-RA	November 1990
Fall 1990 Corrections to Echo Soundings Data Package for OPR-O186-RA	November 1990
Fall 1990 Coast Pilot Report for OPR-O186-RA	December 1990

Respectfully Submitted,

David K. Simmons
Lieutenant (j.g.), NOAA

Approved and Forwarded,

for John C. Albright
Captain, NOAA
Commanding Officer

CONTROL STATIONS

No Y	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/Y
134 0	F	058:20:30.117	136:07:23.370	7	250	0.0	0.0		00/00/0
135 0	F	058:16:08.426	136:16:52.403	13	250	0.0	0.0	A	10/06/9
136 0	F	058:19:03.968	136:15:34.968	6	250	0.0	0.0		00/00/0
137 0	F	058:13:12.460	136:09:58.937	8	250	0.0	0.0	2	10/06/9
140 0	F	058:15:38.126	136:07:13.227	3	250	0.0	0.0		00/00/0
141 0	F	058:11:59.173	136:14:14.330	8	250	0.0	0.0	4	10/07/9
142 0	F	058:09:31.117	136:11:35.135	5	250	0.0	0.0	E	10/10/9
143 0	F	058:08:20.318	136:11:55.436	6	250	0.0	0.0	C	10/10/9
144 0	F	058:08:55.680	136:10:50.658	3	250	0.0	0.0	B	10/11/9
145 0	F	058:07:21.399	136:11:12.236	7	250	0.0	0.0	A	10/16/9
146 0	F	058:05:54.452	136:12:13.799	6	250	0.0	0.0	1	10/16/9
147 0	F	058:05:28.251	136:11:28.521	4	250	0.0	0.0	2	10/17/9
148 0	F	058:05:23.823	136:10:02.361	4	250	0.0	0.0	3	10/17/9
149 0	F	058:04:47.366	136:09:13.600	5	250	0.0	0.0	5	10/17/9
150 0	F	058:09:28.836	136:13:15.301	9	250	0.0	0.0	5	10/07/9
151 0	F	058:12:56.558	136:16:30.744	9	250	0.0	0.0	3	10/06/9
152 0	F	058:15:48.046	136:07:57.536	8	250	0.0	0.0	1	10/06/9
153 0	F	058:04:48.138	136:07:21.466	4	250	0.0	0.0	5	10/24/9

141 SHAW, 1990
142 IDA, 1990
143 HO, 1990
144 SLIDE, 1990
145 BEACH TP, 1990
146 SPUD, 1990
147 CRAG, 1990
148 INN, 1990
149 MUD, 1990
150 IDAHO, 1990 1970
153 MUD TP, 1990

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Rockville, MD 20852-3019

OFFICE OF NOAA CORPS OPERATIONS
Office of NOAA Corps Operations
NOAA Ship RAINIER S221
1801 Fairview Avenue East
Seattle, Washington 98102-3767

November 17, 1990

Director
DMAHTC
Attn: MCNA
6500 Brooks Lane
Washington, D.C. 20315-0030

Dear Sir:

While conducting hydrographic survey operations in Icy Strait, Alaska, NOAA Ship RAINIER discovered 20 dangers to navigation. They have been reported to DMAHTC (NAVWARN) and the Seventeenth Coast Guard District. A copy of the correspondence describing the dangers is enclosed.

Sincerely,

Thomas W. Richards
Captain, NOAA
Commanding Officer

Enclosure

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Rockville, MD 20852-3015

OFFICE OF NOAA CORPS OPERATIONS
Office of NOAA Corps Operations
NOAA Ship RAINIER S221
1801 Fairview Avenue East
Seattle, Washington 98102-3767

November 17, 1990

Commander
Seventeenth Coast Guard District
Post Office Box 3-5000
Juneau, Alaska 99802

Dear Sir:

Attached is a confirmation copy of the radio message sent to your office regarding the dangers to navigation which I recommend for inclusion in the Local Notice to Mariners for the Seventeenth Coast Guard District. A copy of the chart showing the areas in which the dangers exist is also attached.

Sincerely,

Thomas W. Richards
Captain, NOAA
Commanding Officer

Enclosures

cc: DMAHTC
N/CG221
PMC

P 191630Z NOV 90
FM NOAAS RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTC (NAVWARN) WASHINGTON DC//MCNM//
INFO NOAAMOP SEATTLE WA
ACCT CM-VCAA
BT
UNCLAS
NOAA SHIP RAINIER HAS FOUND 20 DANGERS TO NAVIGATION IN ICY STRAIT, ALASKA (PROJECT OPR-0186-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEYS H-10357 (NORTH PORTION OF IDAHO INLET; ITEMS BA-BO), AND H-10358 (SOUTH PORTION OF IDAHO INLET; ITEMS AA-AE). THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

CHARTS AFFECTED: 17302 15TH ED MAY 20/89 1:80,000 NAD83
17300 25TH ED APR 29/89 1:209,978 NAD83
16760 7TH ED MAR 16/85 1:300,000 NAD27

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	CHART	DEPTH	DATUM	LATITUDE	LONGITUDE	
BA.	ROCK	17302	1FT	NAD83	58-12-59.69N	136-09-41.45W	6377
	UNCOV	17300	1FT	NAD83			
BB.	ROCK	17302	1/4FM	NAD83	58-12-34.56N	136-10-00.17W	8374
	COV	17300	1/4FM	NAD83			
BC.	SHOAL	17302	11FM	NAD83	58-13-01.97N	136-11-01.98W	4836+6
	COV	17300	11FM	NAD83			
BD.	ROCK	17302	9FT	NAD83	58-12-08.30N	136-14-13.77W	2089
	UNCOV	17300	9FT	NAD83			
BE.	SHOAL	17302	3 1/2FM	NAD83	58-13-36.45N	136-15-29.62W	8382
	COV	17300	3 1/2FM	NAD83			
		16760	3 1/2FM	NAD27	58-13-37.75N	136-15-23.03W	
BF.	SHOAL	17302	1 1/2FM	NAD83	58-13-20.27N	136-15-16.33W	8219
	COV	17300	1 1/2FM	NAD83			
		16760	1 1/2FM	NAD27	58-13-21.57N	136-15-09.75W	
BG.	ROCK	17302	1/2FM	NAD83	58-10-23.93N	136-12-10.74W	4525
	COV	17300	1/2FM	NAD83			
BH.	SHOAL	17302	14FM	NAD83	58-14-00.06N	136-15-44.31W	4191+5
	COV	17300	14FM	NAD83			
		16760	14FM	NAD27	58-14-01.37N	136 15-37.72W	
BI.	SHOAL	17302	6 1/4FM	NAD83	58-12-41.71N	136-14-19.47W	4934+3
	COV	17300	6 1/4FM	NAD83			
BJ.	ROCK	17302	4 3/4FM	NAD83	58-12-37.08N	136-14-42.86W	8381
	COV	17300	4 3/4FM	NAD83			
BK.	ROCK	17302	6 3/4FM	NAD83	58-12-31.49N	136-14-48.51W	8377
	COV	17300	6 3/4FM	NAD83			
BL.	SHOAL	17302	8 1/2FM	NAD83	58-12-36.01N	136-13-44.45W	4970+3
	COV	17300	8 1/2FM	NAD83			
BM.	SHOAL	17302	9 1/2FM	NAD83	58-12-27.41N	136-14-37.62W	4994+4
	COV	17300	9 1/2FM	NAD83			
BN.	SHOAL	17302	7 1/2FM	NAD83	58-11-20.22N	136-11-57.83W	2412+2
	COV	17300	7 1/2FM	NAD83			
BO.	ROCK	17302	5FT	NAD83	58-13-20.69N	136-09-29.47W	4400
	UNCOV	17300	5FT	NAD83			

H-10358

AA.	SHOAL	17302	5 1/2FM	NAD83	58-06-41.52N	136-11-11.99W	6338
	COV	17300	5 1/2FM	NAD83			
AB.	SHOAL	17302	7 3/4FM	NAD83	58-05-26.11N	136-11-07.24W	6334
	COV	17300	7 3/4FM	NAD83			
AC.	SHOAL	17302	0FM	NAD83	58-04-50.79N	136-08-13.00W	8040
	UNCOV	17300	0FM	NAD83			

AD. SOUNDINGS AT THE HEAD OF IDAHO INLET EAST OF LONGITIUDE 136-10-00.00W ARE 2 1/2 FATHOMS SHOALER THAN CHARTED.

AE. NUMEROUS UNCHARTED ROCKS EXIST ALONG THE SHORES OF IDAHO INLET WITHIN 100 METERS OF THE LOW WATER LINE. MARINERS SHOULD EXERCISE CAUTION WHEN NAVIGATING CLOSE INSHORE IN THIS AREA.

coordinates and depths unrevised, retained as submitted.

THIS IS ADVANCE INFORMATION SUBJECT TO OFFICE REVIEW. QUESTIONS CONCERNING THIS MESSAGE SHOULD BE DIRECTED TO THE CHIEF, PACIFIC HYDROGRAPHIC SECTION AT (206) 526-6835. A LETTER WITH ATTACHED CHARTLET IS BEING MAILED TO CONFIRM THIS MESSAGE.
BT

KJJ | HAND Delivered
MC | 191645Z NOV 90

Chart 17302
15th Edition
May 20/89
NAD83
1:80,000

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

October 2, 1991

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

Dear Sir:

During office review of hydrographic survey H-10358, Alaska, Icy Strait, Idaho Inlet, one previously submitted danger to navigation affecting the following charts should be revised.

Chart	Edition/ date	Datum
17302	15th ed., 5/20/1989	NAD 83
17300	25th ed., 4/29/1989	NAD 83

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

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.

Sincerely,

Douglas G. Hennick
Commander, NOAA
Chief, Pacific Hydrographic Section

Enlcosure

cc: DMA/TC
N/CG221

FILE COPY

CODE	SURNAME	DATE	CODE	SURNAME	DATE
NCG245	RNH	10.2.91			
NCG24C	JJQ	10-2-91			
CG2451	DH	10-2-91			

NOAA FORM 61-2

REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10358
Survey Title: State: Alaska
Locality: Icy Strait
Sublocality: Idaho Inlet
Project Number: OPR-R186-RA, NOAA Ship RAINIER

Application of actual tides results in a revision to a danger previously submitted by NOAA Ship RAINIER on November 19, 1990.

Object discovered: One shoal corrected to actual tides.

Affected nautical charts

CHART NUMBER	EDITION NO.	EDITION DATE	REPORTED DEPTH	CHARTED HORIZ DATUM	GEOGRAPHIC POSITION LATITUDE(N)	GEOGRAPHIC POSITION LONGITUDE(W)
17302	15th	5/20/89	4 1/2FM	NAD 83	58/06/41.52	136/11/12.00
17300	25th	4/29/89	4 1/2FM	NAD 83	58/06/41.52	136/11/12.00

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

December 10, 1991

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

Dear Sir:

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Chart	Edition	Date	Datum
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17300	25th ed.	4/29/1989	NAD 83

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

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.

Sincerely,

Douglas G. Hennick
Commander, NOAA
Chief, Pacific Hydrographic Section

Enclosure

cc: DMA/TC
N/CG221

FILE COPY

CODE	SURNAME	DATE	CODE	SURNAME	DATE
N/CG2451	R.N.M.	12/10/91			
N/CG241	FSJ	12/10/91			
CG2457	[illegible]	12/10/91			

NOAA FORM 61-2

REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10358
Survey Title: State: Alaska
Locality: Icy Strait
Sublocality: Idaho Inlet
Project Number: OPR-R186-RA, NOAA Ship RAINIER

Application of actual tides results in a revision to a danger previously submitted by NOAA Ship RAINIER on November 19, 1990.

Object discovered: One shoal corrected to actual tides.

Affected nautical charts

CHART	EDITION		CHARTED REPORTED DEPTH	HORIZ DATUM	GEOGRAPHIC POSITION LATITUDE(N)	LONGITUDE(W)
NUMBER	NO.	DATE				
17302	15th	5/20/89	6 3/4FM	NAD 83	58/05/26.11	136/11/07.24
17300	25th	4/29/89	6 3/4FM	NAD 83	58/05/26.11	136/11/07.24

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.

APPROVAL SHEET

for

H-10358

RA-10-6-90

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and the Field Procedures Manual 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.

for John C. Albright
Captain, NOAA
Commanding Officer

ORIGINAL

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: April 15, 1991

MARINE CENTER: Pacific

OPR: O-186-RA

HYDROGRAPHIC SHEET: H-10358 **(REVISED)**

LOCALITY: South Portion of Idaho Inlet, Icy Strait, Alaska

TIME PERIOD: October 11 to October 26, 1990

TIDE STATIONS USED: 945-2596 Idaho Inlet (South End), Icy Strait, Alaska
Lat. 58° 5.4'N Lon. 136° 10.0'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 11.58 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.5 ft.

REMARKS: RECOMMENDED ZONING

1. In Idaho Inlet, south of 58° 10.0'N and north of 58° 9.0'N, apply a -0 hr. 6 min. time correction and a x0.98 range ratio to Idaho Inlet (945-2596).

2. In Idaho Inlet, south of 58° 9.0'N, times and heights are direct on Idaho Inlet (945-2596).

Note: Times are tabulated in Greenwich Mean Time.

James E. Hubbard

CHIEF, TIDAL DATUM QUALITY ASSURANCE SECTION

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10358

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 17302	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	KTP-01319	
ALASKA (TITLE)										1
CHICHAGOF ISLAND	X								X	2
ICY STRAIT (TITLE)										3
IDAHO INLET	X								X	4
INIAN PENINSULA	X								X	5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
					Approved:					16
										17
					Charles Cottingham					18
					Chief Geographer - N/CG2x5					19
					MAY 21 1991					20
										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-10358

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	6
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	2

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	1					
ENVELOPES						
VOLUMES						
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			1046
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	159.50		159.50
VERIFICATION OF SOUNDINGS	200.00		200.00
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	52.0		52.0
COMPARISON WITH PRIOR SURVEYS AND CHARTS		2.0	2.0
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS		36	36
EVALUATION REPORT			
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	411.50	38	449.50

Pre-processing Examination by M. Brown	*Beginning Date* 12/11/90	*Ending Date* 12/26/90
Verification of Field Data by J. Stringham, E. Domingo	*Time (Hours)* 200.00	*Ending Date* 6/26/91
Verification Check by J. Stringham, S. Otsubo	*Time (Hours)* 25.5	*Ending Date* 6/26/91
Evaluation and Analysis by R.N. Mihailov	*Time (Hours)* 38.0	*Ending Date* 10/1/91
Inspection by D. Hill	*Time (Hours)* 2	*Ending Date* 12-9-91

EVALUATION REPORT
H-10358

1. INTRODUCTION

Survey H-10358 is a basic hydrographic survey accomplished by the NOAA Ship RAINIER under the following Project Instructions.

OPR-O186-RA, dated February 22, 1990

This survey occurred in Alaska and is located on the southern shore of Icy Strait, about 59 nautical miles west of the city of Juneau. The survey area comprises the southern portion of Idaho Inlet. Sheet limits extend from latitude 58/09/15N to latitude 58/04/30N and longitude 136/07/30W to longitude 136/12/45W. The shoreline consists of boulders, gravel and mud. The bottom consists mainly of mud and broken shells. Depths range from 0 meters to 65 meters.

Predicted tides for Sitka, Alaska, were used for the reduction of soundings during field processing. Approved hourly heights zoned from Idaho Inlet (South End), Icy Strait, Alaska, gage 945-2596, 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. An accompanying computer printout contains the parameters and the correctors.

A digital file has been generated for this survey that includes categories of information required to comply with Hydrographic Survey Guideline No. 53, Standard Digital Data Exchange Format, April 15, 1986. Certain descriptive information, however, may not be in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete information.

2. CONTROL AND SHORELINE

Sections H and I of the hydrographer's report and the Spring 1990 Electronic Control Reports for OPR-O186-RA contain adequate discussions of horizontal control and hydrographic positioning.

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

Latitude:	-1.332 seconds	(-40.889 meters)
Longitude:	6.552 seconds	(107.273 meters)

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

The quality of 417 positions exceeds limits in terms of the error circle radius and residual. A review of the data indicates that none of these fixes are used to position the three dangers to navigation contained within the limits of this survey. The soundings located by these fixes are consistent with the surrounding data. Refer to Section I of the hydrographer's report for a further discussion of this data.

The following shoreline map applies to this survey.

Map Number	Photo Date	Class
TP-01319	March 1988	III

Shoreline drawn on the smooth sheet originates from a 1:10,000 scale photographic enlargement of the shoreline map. This map is compiled on NAD 1983.

3. HYDROGRAPHY

Except as noted below, 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.

Several of the standard curves could not always be drawn because of steep slopes or the foul nature of the area.

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, April 1990 Edition.

5. JUNCTIONS

Survey H-10358 junctions with the following survey.

Survey	Year	Scale	Area
H-10357	1979	1:20,000	North

The junction with survey H-10357 is complete and the soundings are in good agreement.

6. COMPARISON WITH PRIOR SURVEYS

H-2618 (1902) 1:40,000

Prior survey H-2618 covers the entire area of the present survey. The soundings generally agree within 3 meters, with the present survey usually shoaler. Sporadic

differences of up to 10 meters can be found in a few areas. These differences are attributed to the small scale and the less accurate positioning methods available at the time that the prior survey was accomplished (1902).

Refer to section M of the hydrographer's report for additional discussion on the comparison between these two surveys.

In accordance with Hydrographic Survey Guideline No. 39, the effects of the 1964 Prince William Sound earthquake were considered in the comparison of these surveys. No reasonable adjustment value for prior soundings could be determined.

Survey H-10358 is adequate to supersede survey H-2618 for the area of common coverage.

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

7. COMPARISON WITH CHART

Chart 17302, 15th edition, dated May 20, 1989; scale 1:80,000 (NAD 83)

a. Hydrography

Charted hydrography originates with surveys H-2618 and miscellaneous sources.

Survey H-10358 is adequate to supersede charted hydrography within the common area.

b. AWOIS

There are no AWOIS items originating from miscellaneous sources within the area of this 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 to navigation located within the limits of survey H-10358.

e. Geographic Names

Geographic 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 five dangers to navigation to the DMAHTC and the Seventeenth Coast Guard District on November 17, 1990. Two dangers were revised during office processing and reported to the USCG and DMAHTC. Copies of these reports are attached.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10358 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

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

R.N. Mihailov

Robert N. Mihailov
Cartographer

APPROVAL SHEET
H-10358

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproval of charted data. The digital data have been completed and all revisions and processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts have been made and are included with the survey records. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Dennis Hill Date: 12-9-91
Dennis J. Hill
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

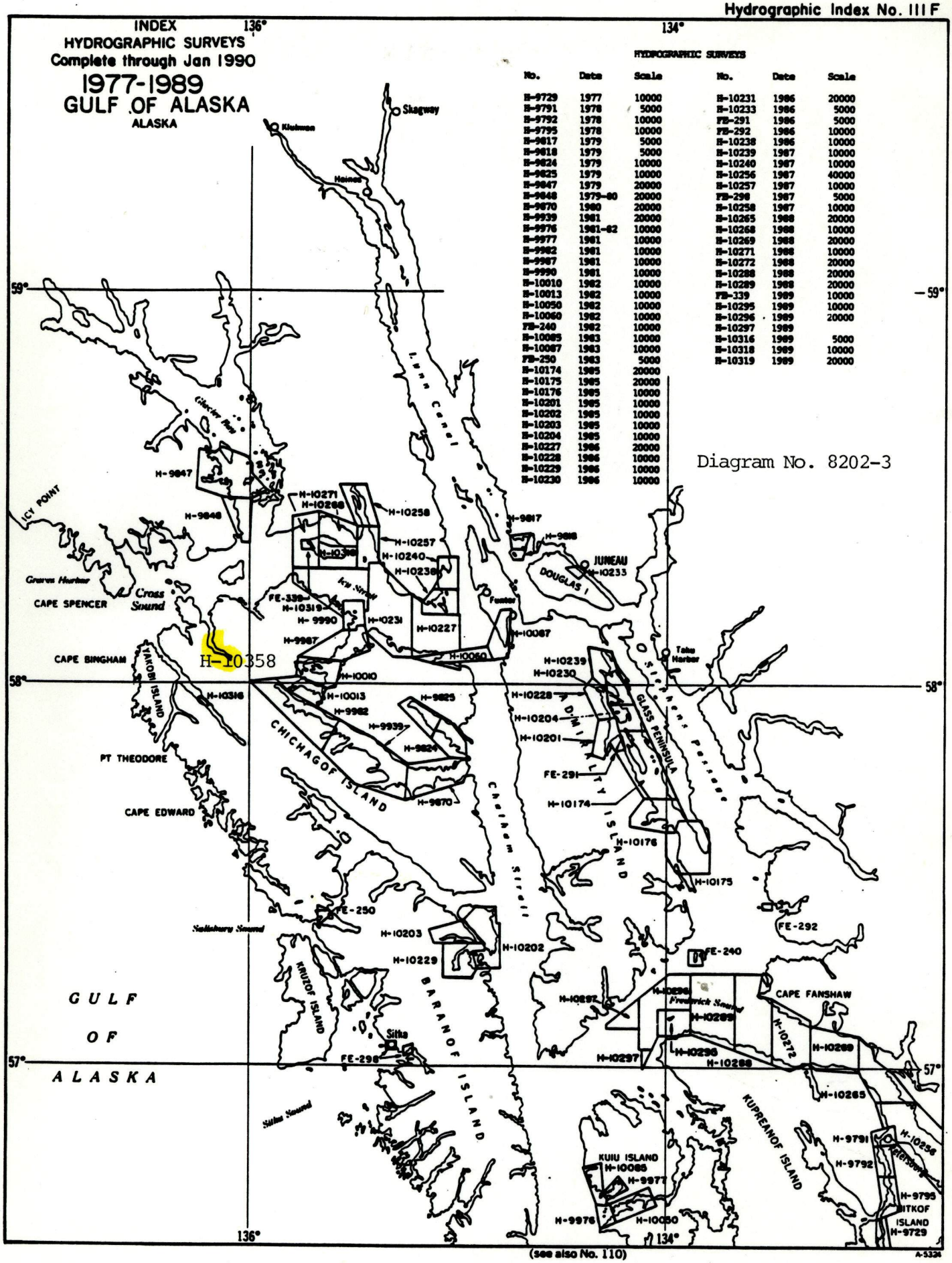
Douglas G. Hennick Date: 10 Dec 1991
Commander Douglas G. Hennick, NOAA
Chief, Pacific Hydrographic Section

****

Final Approval

Approved:

J. Austin Yeager Date: 1/23/92
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey



HYDROGRAPHIC SURVEYS

No.	Date	Scale	No.	Date	Scale
H-9729	1977	10000	H-10231	1986	20000
H-9791	1978	5000	H-10233	1986	5000
H-9792	1978	10000	FE-291	1986	5000
H-9795	1978	10000	FE-292	1986	10000
H-9817	1979	5000	H-10238	1986	10000
H-9818	1979	5000	H-10239	1987	10000
H-9824	1979	10000	H-10240	1987	10000
H-9825	1979	10000	H-10256	1987	40000
H-9847	1979	20000	H-10257	1987	10000
H-9848	1979-80	20000	FE-298	1987	5000
H-9870	1980	20000	H-10258	1987	10000
H-9939	1981	20000	H-10265	1988	20000
H-9976	1981-82	10000	H-10268	1988	10000
H-9977	1981	10000	H-10269	1988	20000
H-9982	1981	10000	H-10271	1988	10000
H-9987	1981	10000	H-10272	1988	20000
H-9990	1981	10000	H-10288	1988	20000
H-10010	1982	10000	H-10289	1988	20000
H-10013	1982	10000	FE-339	1989	10000
H-10050	1982	10000	H-10295	1989	10000
H-10060	1982	10000	H-10296	1989	20000
FE-240	1982	10000	H-10297	1989	
H-10085	1983	10000	H-10316	1989	5000
H-10087	1983	10000	H-10318	1989	10000
FE-250	1983	5000	H-10319	1989	20000
H-10174	1985	20000			
H-10175	1985	20000			
H-10176	1985	10000			
H-10201	1985	10000			
H-10202	1985	10000			
H-10203	1985	10000			
H-10204	1985	10000			
H-10227	1986	20000			
H-10228	1986	10000			
H-10229	1986	10000			
H-10230	1986	10000			

Diagram No. 8202-3

(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-10358

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
17300	10-16-91	R. N. Mihailov	Full ~~Part Before~~ After Marine Center Approval Signed Via Full application
			Drawing No. of sndgs. from SS.
17302	11-8-91	R. N. Mihailov	Full ~~Part Before~~ After Marine Center Approval Signed Via Full application of
			Drawing No. sndgs from smooth sheet.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.

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-10358

INSTRUCTIONS

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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
17300	10-16-91	R. N. McShaefer	Full ~~Part Before~~ After Marine Center Approval Signed Via Full application
			Drawing No. of sndgs. from SS.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

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-10358

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
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
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			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.