

10420

Diagram No. 8202-3

NOAA FORM 78-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. RA-10-2-92
Registry No. H-10420

LOCALITY

State Alaska
General Locality Cross Sound
Sublocality Entrance to Dundas Bay

19 92

CHIEF OF PARTY

CAPT. T.W. Richards

LIBRARY & ARCHIVES

DATE July 27, 1993

10420

P/L

REF L-84492)

PROB-ITS

17300 ✓

17300 ✓

16760 ✓

CPS

16010-NC

HYDROGRAPHIC TITLE SHEET

H-10420

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-10-2-92

State Alaska

General locality Cross Sound

Locality Entrance to Dundas Bay

Scale 1:10,000 Date of survey 01-22 April, 1992

Instructions dated February 18, 1992 Project No. OPR-0106-RA

Vessel NOAA RAINIER (2120), (2123), (2124), (2125), (2127), (2128)

Chief of party CAPT Thomas W. Richards, NOAA

Surveyed by LT J. Waddell, LT J. Griffin, LTJG S. Lemke, LTJG, E. Nelson,
LTJG H. Johnson, ENS J. Klay, ENS R. Ramos

Soundings taken by echo sounder, hand lead, polex DSF-6000N

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

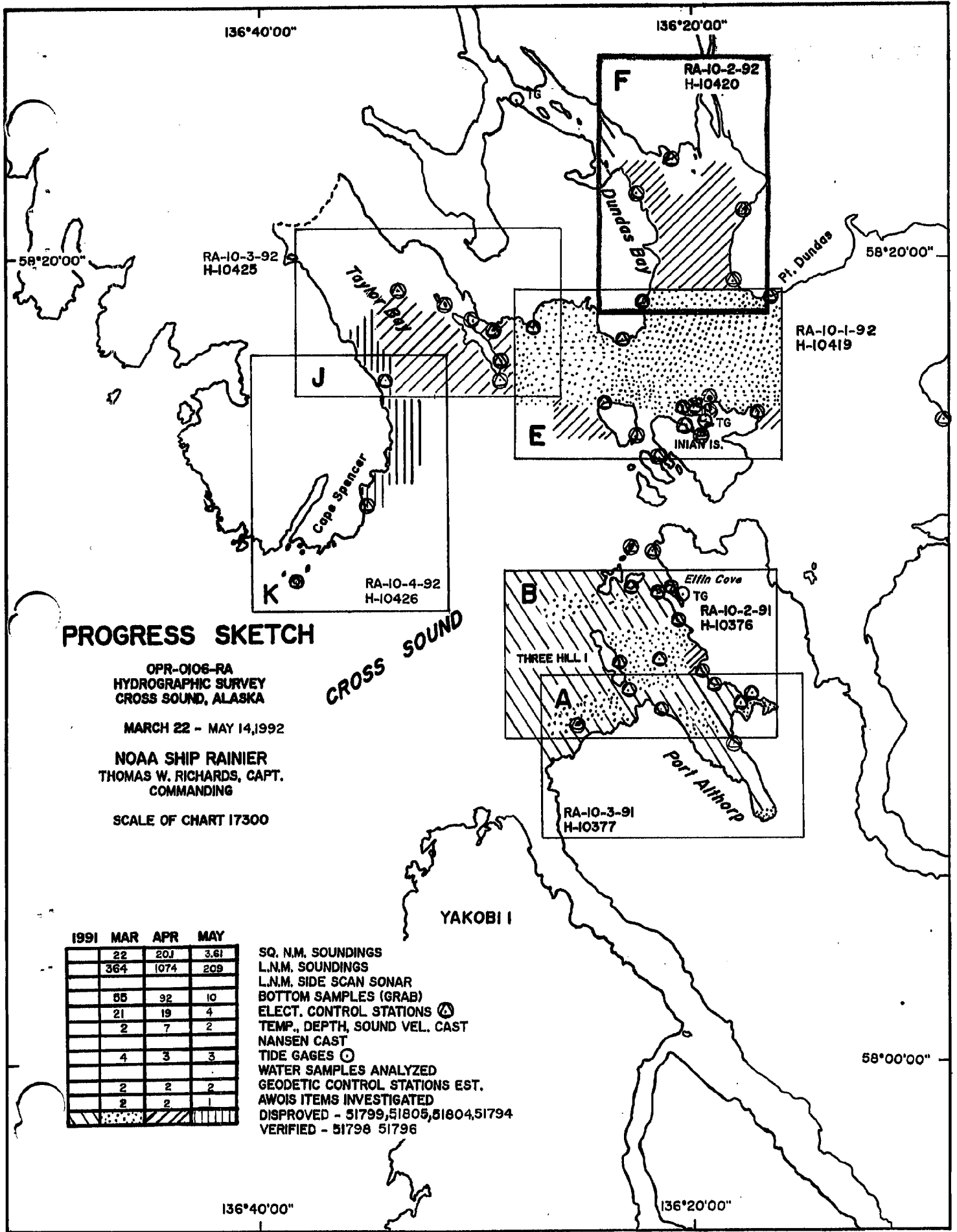
Verification by: E. Domingo, B. Brown Automated plot by PHS Xynetics Plotter

Evaluation by: C.R. Davies

Soundings in ~~fathoms~~ ^{meters} ~~feet~~ at ~~MLW~~ ^{MLLW} and decimeters

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

AWOIS & SURF Check 8/27/93 mcr



PROGRESS SKETCH

OPR-0106-RA
HYDROGRAPHIC SURVEY
CROSS SOUND, ALASKA

MARCH 22 - MAY 14, 1992

NOAA SHIP RAINIER
THOMAS W. RICHARDS, CAPT.
COMMANDING

SCALE OF CHART 17300

1991 MAR APR MAY

22	20J	3.6I
364	1074	209
55	92	10
21	19	4
2	7	2
4	3	3
2	2	2
2	2	1

SQ. N.M. SOUNDINGS
L.N.M. SOUNDINGS
L.N.M. SIDE SCAN SONAR
BOTTOM SAMPLES (GRAB)
ELECT. CONTROL STATIONS (⊙)
TEMP., DEPTH, SOUND VEL. CAST
NANSEN CAST
TIDE GAGES (⊙)
WATER SAMPLES ANALYZED
GEODETIC CONTROL STATIONS EST.
AWOIS ITEMS INVESTIGATED
DISPROVED - 51799, 51805, 51804, 51794
VERIFIED - 51798 51796

Descriptive Report to Accompany Hydrographic Survey H-10420

Field Number RA-10-2-92

Scale 1:10,000

April 1992

NOAA Ship RAINIER

Chief of Party: Captain Thomas W. Richards

A. PROJECT ✓

This basic hydrographic survey was completed in Cross Sound, southeastern Alaska, as specified by Project Instructions OPR-O106-RA dated February 18, 1992. This survey is designated Sheet F on the sheet layout dated June 1, 1990.

This survey is one in a series that will provide contemporary hydrographic data for updating existing charts and for planned larger scale chart coverage of the Cross Sound area. There have been numerous reports of shoals, rocks, and inaccurately charted depths and landmarks from the Southeastern Alaska Pilots' Association and NOAA field personnel. In 1959, the U.S. Coast and Geodetic Survey Ship PATTON reported that survey investigations in several areas revealed depths significantly shoaler than those charted. Troller fisherman have requested a detailed survey to aid in preventing the loss of trolling gear.

B. AREA SURVEYED ✓ *See Encl. Report, section 1*

The survey is located in Dundas Bay, Cross Sound, Alaska, 66 NM west of Juneau, Alaska. The survey's limits are 136°23'30"W to the west, 58°19'00"N to the south and it is bounded by land to the north and east. Data acquisition was conducted from April 1 through April 22, 1992 (DN 92 to 113).

This survey is entirely within Glacier Bay National Park and Preserve. Shoreline in the survey's northern portion is low, heavily wooded lands bordered by grassy marshes and shallow tidal flats. Shorelines to the east and west are steep rocky slopes heavily wooded with dense undergrowth at the shore

C. SURVEY VESSELS ✓

Data was acquired by NOAA Ship RAINIER, three of its automated survey launches, two 17' Boston Whalers and a 12' Zodiac as noted below:

<u>Vessel</u>	<u>EDP No</u>	<u>Operation</u>
RAINIER	2120	Bottom Samples

RA-3	2123	R/R Hydrography Shoreline Verification
RA-4	2124	R/R Hydrography
RA-5	2125	R/R Hydrography R/Az Hydrography Shoreline Verification Velocity Casts Bottom Samples
RA-7	2127	Shoreline Verification
RA-8	2128	Shoreline Verification
RA-Z	Zodiac	Shoreline Verification

In addition to the operations listed above, the vessels were also used to support operations for horizontal control, tide station installation and maintenance, range/azimuth hydrography, and diving.

RA-6 (2126) was not used during this survey.

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

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

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
SURVEY	6.10 / 6.11	9 Mar 92 / 15 Apr 92
POSTSUR	5.20 / 5.21	9 Mar 92 / 15 Apr 92
PLOTALL	2.01 / 2.02	9 Mar 92 / 15 Apr 92
POINT	2.04	9 Mar 92
BACKUP	2.00	20 Mar 91
CONVERT	3.02	9 Mar 92
PRINTOUT	3.00	9 Mar 92
DIAGNOSTIC	3.00	9 Mar 92
INVERSE	1.51	9 Mar 92
INSTALL	3.00	9 Mar 92
BASELINE	1.11 / 1.12	9 Mar 92 / 15 Apr 92
QUICK	1.10	20 Mar 91
LISTAWOIS	2.00 / 2.01	9 Mar 92 / 15 Apr 92
LOADNEW	1.50	9 Mar 92
REJECT	1.05	9 Mar 92
CARTO	2.01 / 2.02	9 Mar 92 / 15 Apr 92
Vers	NA	9 Mar 92 / 15 Apr 92
BACKOLD	1.12	9 Mar 92
NEWCONT	1.17	9 Mar 92
DISC_UTIL	1.00	20 Mar 91
MB	1.00	9 Mar 92
HJ	1.00	9 Mar 92

AUTOST	2.00	9 Mar 92
GLOBAL	1.12	9 Mar 92
MAKEFIX	1.02	9 Mar 92
BIGABST	1.60 / 2.00	9 Mar 92 / 15 Apr 92
REAPPLY	1.33	9 Mar 92
PREDICT	1.11	9 Mar 92
READPROJS	1.08	9 Mar 92
SOFTCHECK	1.12 / 1.13	9 Mar 92 / 15 Apr 92
HPRAZ	1.24	9 Mar 92
FILESYS	2.16	9 Mar 92
DP	1.12 / 2.00	9 Mar 92 / 15 Apr 92
MANU_DATA	1.12	9 Mar 92
RAMSAVER	1.00	20 Mar 91
GRAPHEDIT	NA	20 Mar 91
ZOOMEDIT	1.10	9 Mar 92
EXCESS	3.03 / 3.04	9 Mar 92 / 15 Apr 92
RECOMP	2.00	9 Mar 92
COPRINTOUT	1.00	9 Mar 92
DAS_SURV	6.20 / 6.21	9 Mar 92 / 15 Apr 92
UNIXSYS	2.00	15 Apr 92
SYMBOLS	1.00	15 Apr 92
CARTOTRANS	1.00	15 Apr 92

During spring of 1992, RAINIER personnel made necessary changes to SURVEY, MAKEFIX, and PLOTALL programs. The HDAPS office was notified of all changes, and written copies of the changes were forwarded to the HDAPS office.

On April 20, 1992, RAINIER launch OIC's began to have problems booting the survey program with correct C-O correctors and performing critical systems checks. The raw master printout (RMPO) showed the correct station number with the correct code, but the C-O corrector had not updated to the current code's value. Notification of the problem and sample data sets were sent to the HDAPS Office. On April 21, 1992, a new set of C-O tables were created for all launches and no further problems have been identified. On May 4, HDAPS Office identified the problem as having exceeded the maximum allowable entries in the C-O tables. HDAPS only recognized 60 entries and RAINIER's tables had as many as 72 entries. The creation of new C-O tables alleviated the problem. No data sets in this survey were affected.

Velocity corrections were determined using:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
VELOCITY	1.11	09 Mar 1990

E. SONAR EQUIPMENT ✓

Not Applicable.

F. SOUNDING EQUIPMENT ✓

All 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 meters and tenths of meters. Six-meter 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 Field Procedures Manual for Hydrographic Surveying (FPM).

Raytheon DSF-6000N Echo Sounders

<u>Vessel</u>	<u>Serial No.</u>	<u>DN</u>
2120	A119N	94
2123	A114N B044N	92-106 113
2124	B039N A103N	92-94 106-113
2125	B048N	105-110

The echo sounders were continuously monitored during data acquisition. All sounding data were scanned at least two times, to ensure all significant peaks were inserted, and to verify the digitized depths. While running over steep or 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. *See EVAL Report, section 4.*

G. CORRECTIONS TO ECHO SOUNDINGS ✓

Corrections to echo soundings were determined for static draft, velocity of sound through water, and settlement and squat. Predicted tides were used for all plots. 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 are included in the Spring 1992 Corrections to Echo Sounding Data Package for OPR-O106-RA.

Offset Tables

<u>Vessel</u>	<u>Offset Table No.</u>
2123	2

2124

7

2125

8

Sound Velocity ✓

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

<u>Velocity Table No.</u>	<u>Cast No.</u>	<u>Deepest Depth (m)</u>	<u>Applicable DN</u>	<u>Cast Position</u>	<u>Day</u>
9	3	^{251.0} 181.2	089-101	58°21'10"N 136°19'15"W	095
N/A	8	191.5	N/A	58°20'57"N 136°19'15"W	114
14	9	226.3	104-115	58°19'30"N 136°19'40"W	114

All sound velocity casts were acquired with a SBE SEACAT Profiler, S/N 811, which was calibrated at the Northwest Regional Calibration Center (NRCC) in Bellevue, WA, on March 3, 1992. Sound velocity casts numbers 8 and 9 produced similar sound velocity correctors. Cast number 9 was used in lieu of 8 since it was deeper.

Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) #69. A printout of the Sound Velocity Corrector Tables used in the HDAPS Post Survey program are included in the Spring 1992 Corrections to Echo Sounding Data Package for OPR-O106-RA.

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 lead line 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 launches 2123, 2124, and 2125 on March 21-22, 1992. Transducer housings were replaced on launches 2123 and 2124; no significant change to static draft was noted.

Settlement and Squat

Settlement and squat correctors were determined in Shilshole Bay, WA, for launches 2123 on March 11, 2124 on March 16, and 2125 on March 18, 1992. Tests were conducted over a hard bottom in depths well exceeding 7 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., using FPM Fig. 2.2 and 2.3, and are included in the Spring 1992 Corrections to Echo Sounding Data Package for OPR-O106-RA.

S+S tables were change during office processing because they were submitted in RPM's not meter per second.
Heave ✓

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

Pneumatic Depth Gauge ✓

The 3D Instrument, Inc. Depth Gauge S/N 8504192N was calibrated by Pacific Operations Section on February 25, 1992. The depth gauge was calibrated against a Digiquartz 0-45 PSI Transducer #1107. In addition, field systems checks were performed via comparison with diver depth gages each time the pneumatic depth gage was used. Calibration data and correctors are included in the Spring 1992 Corrections to Echo Sounding Package for OPR-O106-RA.

Bar Check and Lead Lines ✓

Bar check and lead lines were calibrated by RAINIER personnel on February 19, 1992 at PMC. Calibration forms are included in the Spring 1992 Corrections to Echo Sounding Data Package for OPR-O106-RA.

Tide Correctors ✓

Tidal zoning and correctors applicable to predicted tides for the Sitka, Alaska, reference station (945-1600) were provided in the Project Instructions. The time corrector for Sheet F is +0 hr. 10 min., while the range ratio is x1.27.

HDAPS listings of the data used in generating tide corrector tables are included in Appendix V* of this report.

Tide gages were installed and maintained by RAINIER personnel at Dundas Bay, Inside (945-2648) and Inian Cove, Inian Island (945-2629). The control station was Sitka, Alaska (945-1600). Opening levels at Sitka were completed by RAINIER personnel on March 27, 1992. Closing levels will be completed by Pacific Operations Section during summer 1992.

The station descriptions, field tide records, and Field Tide Notes have been forwarded to N/OES212 in accordance with HSG #50 and FPM 4.3. Requests for approved tides have been forwarded to N/OES2. Copies of the Field Tide Notes and the request for approved tides are included in Appendix V.*

H. CONTROL STATIONS ✓ *See Eval Report, section 2*

Geographic positions for all control stations are based on the North American Datum of 1983 (NAD83) and the Geodetic Reference System 1980 Ellipsoid.

A listing of the geodetic stations used to control this survey is included in ^{this report} Appendix III.

* Fitted with the hydrographic data.

Positions for all existing stations are from the NGS data base and the Pacific Photo Party. All existing stations were recovered in accordance with methods stated in Section 5.2.4 of the FPM. New stations were positioned via traverse methods to meet third-order class I standards. Further information can be found in the Spring 1991, Fall 1991, and Spring 1992 Horizontal Control Report for OPR-O106-RA.

I. HYDROGRAPHIC POSITION CONTROL ✓

Method of Sounding Position Control

Soundings, bottom samples, and detached positions were positioned using the Motorola Mini Ranger Falcon 484 microwave system in multi-range and range-azimuth modes. For some shoreline verification, manual range-azimuth was done from a small boat using an electronic distance measuring instrument (EDMI) and retro prism with a Wild T-2 theodolite.

Accuracy Requirements/Problems ✓

Accuracy requirements specified in the Hydrographic Manual and in FPM 3.1.3.1 were generally met. When maximum residuals exceeded the specified limits, OIC's deselected the station(s) with the highest residual value and continued hydrography. Occasionally, ECR's and maximum residuals exceeded the specified limits. When this happened, the data were usually rejected and the area re-run with different control. If maximum residuals exceeded tolerances, they were flagged and reviewed. Data between adjacent good positions were smoothed when maximum residuals showed unusual accelerations off the expected track.

The loss of one or more LOP's frequently occurred when collecting data close inshore. If this loss generated high ECR's and/or maximum residuals, the OIC's annotated the raw master printout (RMPO). If the data plotted on track and sounding intervals appeared correct based upon time and course steered, the data were retained. Some data were acquired with only two LOP's because stations were blocked or deselected. When this occurred, critical system checks using multiple LOP hydrography were acquired, when ECRs and maximum residuals fell within survey specifications. *and the data accepted*

Range-azimuth accuracy requirements were met in accordance with Section 4.4.4 of the Hydrographic Manual. The R/T unit of the sounding vessel was the target for observed azimuths. All angles were read to the nearest minute of arc or better for a positional accuracy of 0.5 mm at this survey scale.

Equipment ✓

A Wild T-2 theodolite and Wild EDM1 were used for manual range-azimuth observations. Serial numbers for R/T units and RPU's are annotated on the RMPO for each day of hydrography. Lists of all electronic equipment serial numbers are included in the Electronic Control Data Packages (Spring 1992).

Calibrations & Systems Check Methods ✓

Baseline calibrations were conducted in accordance with FPM 3.1.2.1 and 3.1.3.2. On February 13-14, 1992 (DN044-DN045), and on February 25-26, 1992 (DN056-DN057) calibrations were conducted at the SANDPOINT BASELINE over a published distance of 1058.1876 m. Calibration data and a description of the baseline is included in the Spring 1992 Electronic Control Data Package.

In accordance with FPM 3.1.3.3, formal system checks were not documented for multiple LOP hydrography. Data collected with two LOP's were always bracketed by multiple LOP data acquired with ECR's and maximum residuals within acceptable limits to serve as critical system checks. Static critical systems checks were performed in accordance with Section 3.1.3.3. of the Field Procedures Manual when multiple LOP system checks were not possible. In addition, 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 before and after hydrography was less than 30 seconds of arc.

Other Factors

Antenna offset and layback correctors were applied via HDAPS offset tables, and are found in the separate^{*} included with the survey data.

J. SHORELINE *See EVAc Report, section 2*

Shoreline detail was transferred to the final sheets from shoreline map TP-01328 (June 1985-photography, 1:20,000, NAD27). Chart 17302 (1:10,000 enlargement, 1989) was used to augment the existing registered shoreline manuscripts. The charted shoreline details were included to verify or disprove all charted features. *Shoreline map, TP-01328, is the only shoreline source on this smooth sheet.*

Shoreline verification was conducted near mean lower low water in accordance with FPM 7.1. Shoreline verification was mostly accomplished by assigning sequential reference numbers and taking detached positions (DPs) as explained later in this section.

Manual range-azimuth was used for Position Nos. 0028 through 0031 to verify the T-sheet's position of the high water line. The positions were taken at points where high tide met the spit in the vicinity of 58°22'10.6"N, 136°21'50"W. Position Nos. 0001, 0003, 0004, and 0032 through 0041 were used to position the most significant rocks which delineate the foul area limits within the northern tidal flats in the vicinity of 58°21'45" N, 136°19'30" W.

Inshore hydrography shows that photogrammetric and hydrographic positioning are in excellent agreement.

Shoreline and T-sheet features verified via visual inspection were assigned sequential reference numbers and were recorded in the field using sounding volumes and corresponding 1:10,000 photocopies of the T-sheet. Reference numbers, descriptions, and heights corrected to MLLW using predicted tides, are recorded in the sounding volumes. Corresponding notes were annotated on the photocopies of

** Fitted with the hydrographic data.*

the T-sheet. The annotated photocopies of the T-sheet are attached to the sounding volumes which are included with the survey data.

DPs taken during shoreline verification were recorded on the master printouts and indicate significant features, features not found on the T-sheet, and locations of disprovals. Where possible, positions of some T-sheet features were verified during inshore mainscheme hydrography and annotated on the master printouts.

T-sheet features which were verified were retained and shown on the final field sheets (FFS). Verified shoreline and new features are shown in black on the ~~FFS~~ *Smooth sheet* and changes to the shoreline are shown in red. *See EUNA Report, section 2 ...*

Detailed 1:10,000-scale paper plots showing all DPs and reference numbers and notes relating to each feature are included with the sheets submitted with this survey. All DPs were plotted using the "+" symbol because the majority of DPs describe features that are offset slightly from the DP. To accurately depict features, the offset and bearing of the feature from the DP were applied and the feature drawn by hand. Position numbers for all DPs are plotted on the two DP overlays along with a brief description of the DP. Heights are recorded in meters and are corrected to predicted MLLW.

Disprovals ✓

The following disprovals were conducted near predicted lower low water. A visual and echosounder search was conducted for each item lasting an average of ten minutes. Positioning was accomplished via Range/Azimuth or by using two or more ranges from Falcon Mini-Rangers with ECRs and maximum residuals within acceptable limits for a 1:10,000 scale survey.

The vicinity of the T-sheet rock at 58°19'25"N, 136°18'07"W was inspected (Pos. No. 2561) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP. *Kelp was seen in the area. Kelp symbol is drawn on the S.S.*

The vicinity of the T-sheet rock at 58°19'04"N, 136°17'24"W was inspected (Pos. No. 6199) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 30 meters from the DP. *Kelp symbol is drawn on the S.S.*

The vicinity of the T-sheet rock at 58°19'10"N, 136°17'53"W was inspected (Pos. No. 6200) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP. *Kelp symbol is drawn on the S.S.*

The vicinity of the T-sheet rock at 58°19'38"N, 136°18'14"W was inspected (Pos. No. 6282) and the rock was not seen. Water visibility was 1.5 meters. The search radius was 30 meters from the DP. The shoreline is exposed bedrock with kelp beds in the area. *Kelp is noted on the smooth sheet.*

The vicinity of the T-sheet rock at 58°21'05"N, 136°22'12"W was inspected (Pos. No. 0023) and the rock was not seen. This position is above mean lower low water and was positioned using manual range azimuth. The hydrographer believes the photography was misinterpreted. The ruins of a salmon cannery, which consists of bricks, several piles, and a rusted boiler tank, exist in the area. *Chart area as shown on the smooth sheet.*

New Features ✓

The following are significant new features found during shoreline verification near mean lower low water. The following features are located in navigable areas and were not depicted on the T-sheet. All new features are as shown on the FFS.

Position No. 6197 describes a submerged rock at 58°18'59.23"N, 136°17'10.22"W which is ~~1.0m~~^{0.9} below MLLW.

Position No. 6283 describes an obstruction (two large anchors) at 58°21'00.55"N, 136°22'01.20"W which ~~bare~~^{uncovers} ~~2.5m~~⁴ MLLW.

Position No. 0007 describes a rock at 58°20'^{05.88}06"N, 136°21'^{6.78}47"W which ~~bare~~^{uncovers} ~~2.5~~¹ m at MLLW.

Position No. 0042 describes a pipe at 58°21'06.89"N, 136°22'09.88"W which ~~bare~~^{uncovers} ~~1.0~~¹ m at MLLW.

Recommendation: The hydrographer recommends that shoreline detail from this survey be used to supersede prior shoreline information. *COMLW*

Unverified Features

Not Applicable.

K. CROSSLINES ✓

A total of 10.76 nautical miles of crosslines were run perpendicular to mainscheme lines, representing 6.15 % of the mainscheme hydrography; this percentage does not reflect additional splits or developments run during additional investigations.

Crossline soundings agree to within 2.0 meters with mainscheme soundings. These differences are believed to be attributable to differences between real and predicted tides. Tides were likely influenced by the nearly enclosed shoreline geometry, and the freshwater influx of the Dundas River at the northeast end of the sheet. It is anticipated that these differences will be eliminated upon the application of smooth tide correctors. Tidal influence is also evident in depth curves of mainscheme hydrography collected on different days. *After approved tides were applied to this survey, no significant differences occurred.*

The vessels acquiring crossline data did not always acquire the corresponding mainscheme data. Agreement between soundings acquired by different echo sounders in a common area is as stated above.

L. JUNCTIONS ✓ *See EVAL Report, section 5*

This survey junctions with H-10407 (1:10,000, 1991) to the west and H-10419 (1:10,000, 1992) to the south. No irregularities were found when comparing soundings and depth curves. Agreement between overlapping soundings agree to within 1.5 meters. The difference in junction values may reflect the variation between real and predicted tides, as well as the extended period between surveys.

No soundings were acquired in the vicinity of $58^{\circ}22'06''\text{N}$ $136^{\circ}23'27''\text{W}$ due to a lack of continuous control. *This area is a holiday and is recommended for additional work.*

M. COMPARISON WITH PRIOR SURVEYS *See Eura Report, section 6*

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

All prior survey soundings originate from H-2618.

Comparison of Sounding Features

Overall agreement between this survey and H-2618 is good, with discrepancies as noted below. The most probable causes for the discrepancies are the less accurate 1:40,000-scale prior survey positioning methods used, the lack of continuously recorded prior survey depths, sedimentation, erosion, and vertical rebound evident throughout this area.

In general, the vast majority of the prior survey soundings were deeper than the present survey soundings. However, in one area, west of Point Dundas (approximately centered around $58^{\circ}19'00''\text{N}$, $136^{\circ}19'00''\text{W}$), the prior survey soundings are shoaler than the present survey. In addition, there are several prior survey soundings located in the northern tidal flat area that are shoaler than the present survey. The hydrographer believes this may be caused by erosion from the Dundas River.

Recommendation: The hydrographer recommends sounding data from the present survey be used to supersede that of H-2618 within their common areas. *Concur*

N. COMPARISON WITH THE CHART *See Eura Report, section 7* *CHART 17302, 16th Ed., dated Feb. 15, 1992; SCALE 1:80,000*

All charted soundings originated from prior survey H-2618 (1:40,000, 1902) and are discussed in Section M. *Miscellaneous sources are also on the chart.*

Comparison of Sounding Features

Not Applicable. *See Eura Report, section 7*

Comparison of Non-Sounding Features

The vicinity of the charted island at $58^{\circ}23'36''\text{N}$, $136^{\circ}25'45''\text{W}$ was inspected (Pos. No. 6285) and the island was not seen. The hydrographer believes that the charted island is T-sheet position R5-46. *The revised coordinates is the position of the charted island which station Delta is located on.*

Recommendation: The hydrographer recommends data from the present survey be used to supersede all soundings on the chart. *Concur*

AWOIS Items

Not Applicable.

Dangers to Navigation ✓

Five dangers to navigation within the limits of this survey were reported by radio message and letter to the Seventeenth Coast Guard District and DMAHTC. Copies of the correspondence are included in ^{attached to} Appendix I of this report. Position numbers associated with each reported danger are included on the copy of the radio message.

Two additional dangers were reported and are attached to this report.

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.

It is anticipated that the anomalous depth curves shown on the survey will be eliminated when smooth tides are applied. *There were.*

P. AIDS TO NAVIGATION ✓

No aids to navigation lie within the limits of the survey. *Concur*

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

Q. STATISTICS

<u>Vessel:</u>	<u>2120</u>	<u>2123</u>	<u>2124</u>	<u>2125</u>	<u>Zodiac</u>	<u>Total</u>
# of Pos	2	564	891	441	42	1940-1816
NM Hydro	0	81.39	126.72	38.94	0	247.05
NM ² Hydrography		4.8		Velocity Casts		3
Detached Positions		54		Tide Stations		2
Reference Numbers		52				
Bottom Samples		20				

R. MISCELLANEOUS ✓

Loran C comparisons were sent to DMAHTC and U.S. Coast Guard in accordance with the project instructions.

All bottom samples were submitted to the Smithsonian Institution.

S. RECOMMENDATIONS ✓

The hydrographer recommends that future charts of the area between the eastern shore of Lemesurier Island and Cape Spencer be no smaller than 1:50,000 due to the complexity of the area.

*CMCUN***T. REFERRAL TO REPORTS ✓**

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

<u>Title</u>	<u>Date Sent to N/CG245</u>
Spring 1992 Horizontal Control Report for OPR-O106-RA	June 1992
Spring 1992 Electronic Control Data Package for OPR-O106-RA	June 1992
Spring 1992 Corrections to Echo Soundings Data Package for OPR-O106-RA	June 1992
Spring 1992 Coast Pilot Report for OPR-O106-RA	June 1992
Spring 1992 User Evaluation Report for OPR-O106-RA	July 1992

Respectfully Submitted,

Ricardo Ramos

Ricardo Ramos
Ensign, NOAA

Approved and Forwarded,

Thomas W. Richards

Thomas W. Richards
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 5 Jun 1992

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name	Quad Nos.
123	X	F	050:21:36.578	136:22:40.132	4	250	0.0	0.0	5 04/22/92	DELTA 1985	581362
112	F	050:11:41.777	136:20:55.903	3	250	0.0	0.0	00/00/00	WHART		
159	F	050:27:45.829	136:24:36.849	4	250	0.0	0.0	00/00/00	CONIC(R/AZ)		
135	F	050:11:51.574	136:38:27.409	16	250	0.0	0.0	1 03/22/92	CAPE 1925		
108	F	050:16:48.210	136:34:30.689	8	250	0.0	0.0	6 04/22/92	MURAIN 1985		
153	F	050:08:18.190	136:25:21.164	27	250	0.0	0.0	4 04/23/92	RAIN 1991		
107	F	050:10:58.916	136:20:46.250	7	250	0.0	0.0	9 04/22/92	ISLE NO 1 1978		
165	F	050:23:11.768	136:24:59.403	5	250	0.0	0.0	00/00/00	LEG(R/AZ)		
166	F	050:23:50.735	136:25:25.253	2	250	0.0	0.0	00/00/00	MIRE(R/AZ)		
167	F	050:22:07.672	136:23:53.456	5	250	0.0	0.0	00/00/00	NEEDLE(R/AZ)		
109	F	050:08:49.315	136:17:34.409	5	250	0.0	0.0	0 04/07/92	HIP 1992		
190	X	F	058:17:51.075	136:27:03.058	9	250	0.0	0.0	0 04/15/92	LUMBER 1991	581362
204	Z	050:08:52.207	136:17:35.478	7	250	0.0	0.0	00/00/00	POCKET(R/AZ)		
217	Z	050:09:16.155	136:19:07.423	5	250	0.0	0.0	00/00/00	BOW(R/AZ)		
173	X	F	058:22:11.340	136:21:07.733	5	250	0.0	0.0	0 04/22/92	MUCK 1991	581362
191	X	F	058:16:20.937	136:24:00.922	18	250	0.0	0.0	8 04/30/92	ACHE 1901	581362
175	F	050:21:48.838	136:23:58.304	2	250	0.0	0.0	00/00/00	HOOK 1991(R/AZ)		
192	F	050:19:03.968	136:15:34.968	6	250	0.0	0.0	2 04/14/92	BALD 1901		
193	X	F	058:17:50.935	136:23:07.344	27	250	0.0	0.0	7 05/08/92	BALD 1901	581362
194	F	050:16:08.427	136:16:52.405	8	250	0.0	0.0	7 04/30/92	INIAN 1990		
195	X	F	058:18:48.354	136:22:09.805	7	250	0.0	0.0	7 03/30/92	JAB 1991	581362
196	X	F	058:16:04.118	136:20:28.242	10	250	0.0	0.0	8 05/08/92	HATTY 1991	581362
100	X	F	058:15:48.046	136:07:57.536	8	250	0.0	0.0	4 04/16/92	YAK 1901	581362
223	X	Z	058:21:36.578	136:22:40.132	4	250	0.0	0.0	00/00/00	DELTA(R/AZ)	581362
197	X	F	058:16:21.417	136:19:13.944	6	250	0.0	0.0	7 04/30/92	BAIL 1991	581362
259	Z	050:22:45.829	136:24:36.849	4	250	0.0	0.0	00/00/00	CONIC(R/AZ)		
115	X	F	058:20:02.107	136:18:17.253	8	250	0.0	0.0	1 05/05/92	BAN 1901	581362
198	F	050:16:12.143	136:20:05.798	5	250	0.0	0.0	4 04/21/92	LOUT 1991		
199	F	050:15:31.561	136:19:34.548	6	250	0.0	0.0	6 04/17/92	SHAKE 1992		
400	F	050:15:47.821	136:19:32.367	2	250	0.0	0.0	00/00/00	INIAN COVE 8 1964		
265	Z	050:23:11.768	136:24:59.403	5	250	0.0	0.0	00/00/00	LEG(R/AZ)		
266	Z	050:23:50.735	136:25:25.253	4	250	0.0	0.0	00/00/00	MIRE(R/AZ)		
267	Z	050:22:07.672	136:23:53.456	5	250	0.0	0.0	00/00/00	NEEDLE(R/AZ)		
122	X	F	058:21:04.673	136:17:37.174	8	250	0.0	0.0	4 04/22/92	DEED 1901-1966	581362
401	F	050:15:45.433	136:20:28.213	6	250	0.0	0.0	0 04/08/92	BAKE 1991		
402	Z	050:15:45.433	136:20:28.213	6	250	0.0	0.0	00/00/00	BAKE(R/AZ)		
403	Z	050:15:31.561	136:19:34.548	6	250	0.0	0.0	00/00/00	SHAKE(R/AZ)		
213	Z	050:22:11.340	136:21:07.733	5	250	0.0	0.0	00/00/00	MUCK(R/AZ)		
404	Z	050:15:47.821	136:19:32.367	4	250	0.0	0.0	00/00/00	INIAN COVE 8 1964(R/AZ)		
275	Z	058:21:48.838	136:23:58.304	4	250	0.0	0.0	00/00/00	HOOK 1991(R/AZ)		
289	Z	050:08:49.315	136:17:34.409	5	250	0.0	0.0	00/00/00	HIP(R/AZ)		
405	Z	050:16:12.143	136:20:05.798	5	250	0.0	0.0	00/00/00	LOUT(R/AZ)		
406	Z	050:16:11.778	136:19:08.839	4	250	0.0	0.0	00/00/00	JUJU(R/AZ)		
407	F	050:16:11.778	136:19:08.839	4	250	0.0	0.0	0 05/01/92	JUJU 1992		
408	X	Z	058:20:02.107	136:18:17.253	8	250	0.0	0.0	04/14/92	BAN 1901	581362
409	Z	050:18:48.354	136:22:09.805	7	250	0.0	0.0	00/00/00	JAB(R/AZ)		
410	Z	058:17:50.935	136:23:07.344	27	250	0.0	0.0	00/00/00	BALD(R/AZ)		
411	Z	058:16:21.417	136:19:13.944	6	250	0.0	0.0	00/00/00	BAIL(R/AZ)		
412	F	050:15:38.643	136:22:27.396	7	250	0.0	0.0	0 05/01/92	HYENA 1991		
413	F	050:16:55.103	136:28:47.710	20	250	0.0	0.0	04/19/92	END 2		
414	F	050:18:41.982	136:31:10.409	13	250	0.0	0.0	2 04/22/92	TAYLOR 1985		
415	F	050:18:31.239	136:30:34.884	5	250	0.0	0.0	0 04/29/92	LOBB 1991		
416	F	058:12:43.819	136:22:51.881	9	250	0.0	0.0	5 04/23/92	ADZE 1901		
417	F	050:17:59.613	136:29:08.752	2	250	0.0	0.0	00/00/00	DEPT		
418	Z	050:18:31.239	136:30:34.884	5	250	0.0	0.0	00/00/00	LOBB(R/AZ)		
419	F	050:15:04.557	136:21:48.256	3	250	0.0	0.0	0 05/01/92	EMBO 1991		
106	F	050:11:41.367	136:21:06.313	7	250	0.0	0.0	7 03/22/92	FINN 1978		
107	F	058:11:29.612	136:20:36.949	4	250	0.0	0.0	00/00/00	CHICK		
108	F	050:11:18.689	136:20:21.268	4	250	0.0	0.0	00/00/00	KUFT NO 1		
419	F	050:15:07.384	136:21:18.585	4	250	0.0	0.0	00/00/00	CANAL		

133	F	050+15+15.230	136+23+02.253	13	250	0.0	0.0	00/00/00	SUR
136	F	050+11+49.673	136+20+50.457	4	250	0.0	0.0	00/00/00	SKY
141	F	050+14+14.254	136+21+47.070	1	250	0.0	0.0	00/00/00	URSA
206	Z	050+11+41.367	136+21+06.313	7	250	0.0	0.0	00/00/00	FINN(R/AZ)
207	Z	050+11+29.612	136+20+36.949	6	250	0.0	0.0	00/00/00	CHIC(R/AZ)
208	Z	050+11+10.689	136+20+21.260	6	250	0.0	0.0	00/00/00	KOFF NO 1(R/AZ)
219	Z	050+15+02.304	136+21+10.505	6	250	0.0	0.0	00/00/00	CANAL(R/AZ)
233	Z	050+15+15.230	136+23+02.253	15	250	0.0	0.0	00/00/00	SUR(R/AZ)
236	Z	050+11+49.673	136+20+50.457	6	250	0.0	0.0	00/00/00	SKY(R/AZ)
241	Z	050+14+14.254	136+21+47.070	3	250	0.0	0.0	00/00/00	URSA(R/AZ)
420	Z	050+15+04.557	136+21+48.256	3	250	0.0	0.0	00/00/00	EMBO(R/AZ)
421	Z	050+15+30.643	136+22+27.396	7	250	0.0	0.0	00/00/00	NYEN(R/AZ)
117	F	050+09+16.155	136+19+07.423	5	250	0.0	0.0	6 04/20/92	BOX 1942
134	F	050+07+20.094	136+10+51.770	3	250	0.0	0.0	00/00/00	TOWN 1942
139	F	050+09+50.282	136+21+33.910	7	250	0.0	0.0	6 04/22/92	DALI 1991
170	F	050+00+31.134	136+20+53.813	5	250	0.0	0.0	8 04/04/92	ZEN 1991
120	F	050+11+43.986	136+22+37.906	9	250	0.0	0.0	8 03/22/92	GRAN 1930
129	F	050+12+08.803	136+21+21.304	5	250	0.0	0.0	00/00/00	HOLE
131	F	050+11+39.817	136+21+29.942	10	250	0.0	0.0	8 04/04/92	NITE 1930
137	F	050+12+36.107	136+21+49.754	19	250	0.0	0.0	6 04/22/92	DUNK NO 2 1930
152	F	050+09+57.989	136+23+25.066	6	250	0.0	0.0	4 04/20/92	RUDE 2 1991
154	F	050+09+12.755	136+23+04.540	20	250	0.0	0.0	4 04/21/92	BREAD 1991
155	F	050+11+30.436	136+23+48.166	0	250	0.0	0.0	00/00/00	WEST
156	F	050+11+51.899	136+23+28.690	0	250	0.0	0.0	00/00/00	DALE
157	F	050+07+39.977	136+17+50.319	3	250	0.0	0.0	1 05/04/92	LLAMA 1991
103	F	050+06+17.744	136+16+23.124	1	250	0.0	0.0	00/00/00	BUZZ
104	F	050+00+52.207	136+17+35.470	7	250	0.0	0.0	8 04/07/92	POCKET 1991
105	F	050+00+52.900	136+16+22.959	4	250	0.0	0.0	00/00/00	CLAM
106	F	050+09+41.099	136+19+39.784	7	250	0.0	0.0	6 04/04/92	INIAN 1970
234	Z	050+07+20.094	136+10+51.770	5	250	0.0	0.0	00/00/00	TOWN(R/AZ)
257	Z	050+07+39.977	136+17+50.319	3	250	0.0	0.0	00/00/00	LLAMA(R/AZ)
283	Z	050+06+17.744	136+16+23.124	3	250	0.0	0.0	00/00/00	BUZZ(R/AZ)
270	Z	050+00+31.134	136+20+53.813	3	250	0.0	0.0	00/00/00	ZEN(R/AZ)
239	Z	050+09+50.282	136+21+33.910	7	250	0.0	0.0	00/00/00	DALI(R/AZ)
422	F	050+13+37.090	136+35+00.197	13	250	0.0	0.0	7 05/02/92	APRIL 1992
423	F	050+17+24.870	136+20+55.119	5	250	0.0	0.0	8 05/02/92	FERN 1992
424	F	050+19+04.579	136+33+30.093	7	250	0.0	0.0	8 05/07/92	SPLIT TP 1992
425	F	050+16+11.116	136+24+10.155	12	250	0.0	0.0	8 05/07/92	EX 1901
523	Z	050+17+24.870	136+20+55.119	5	250	0.0	0.0	00/00/00	FERN(R/AZ)
517	Z	050+17+59.613	136+29+00.752	4	250	0.0	0.0	00/00/00	DEPT(R/AZ)
590	Z	050+17+51.075	136+27+03.850	9	250	0.0	0.0	00/00/00	LUMBER(R/AZ)
316	Z	050+12+43.819	136+22+51.001	9	250	0.0	0.0	00/00/00	ADZE(R/AZ)
294	Z	050+10+41.982	136+31+10.409	13	250	0.0	0.0	00/00/00	TAYLOR 1905(R/AZ)
317	Z	050+17+59.613	136+29+00.752	4	250	0.0	0.0	00/00/00	DEPT(R/AZ)
113	F	050+12+43.819	136+22+51.001	7	250	0.0	0.0	00/00/00	ADZE 1901
116	F	050+12+07.020	136+22+15.121	8	250	0.0	0.0	00/00/00	BEER
142	F	050+00+31.134	136+20+53.813	4	250	0.0	0.0	00/00/00	ZEN 1991



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

NOAA Ship RAINIER

June 9, 1992

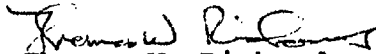
Director
DMAHTC
Attn: MCNM
6500 Brookes Lane
Washington, DC 20315-0030

**ADVANCE
INFORMATION**

Dear Sir:

While conducting hydrographic survey operations in Cross Sound, Alaska, NOAA Ship RAINIER discovered five dangers to navigation. They have been reported to DMAHTCNAVWARN and the Seventeenth Coast Guard District. A copy of the correspondence describing the dangers is enclosed.

Sincerely,


Thomas W. Richards
Captain, NOAA
Commanding Officer

Enclosures





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

NOAA Ship RAINIER

June 9, 1992

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

**ADVANCE
INFORMATION**

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 261705Z MAY 92
FM NOAA S RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCNAVWARN WASHINGTON DC//MCNM//
INFO NOAMOP SEATTLE WA
ACCT CM-VCAA

**ADVANCE
INFORMATION**

BT
UNCLAS

NOAA SHIP RAINIER HAS FOUND 5 DANGERS TO NAVIGATION IN CROSS
SOUND, ALASKA (PROJECT OPR-0106-RA) WITHIN THE LIMITS OF
HYDROGRAPHIC SURVEY H-10420, EXIT FROM DUNDAS BAY.

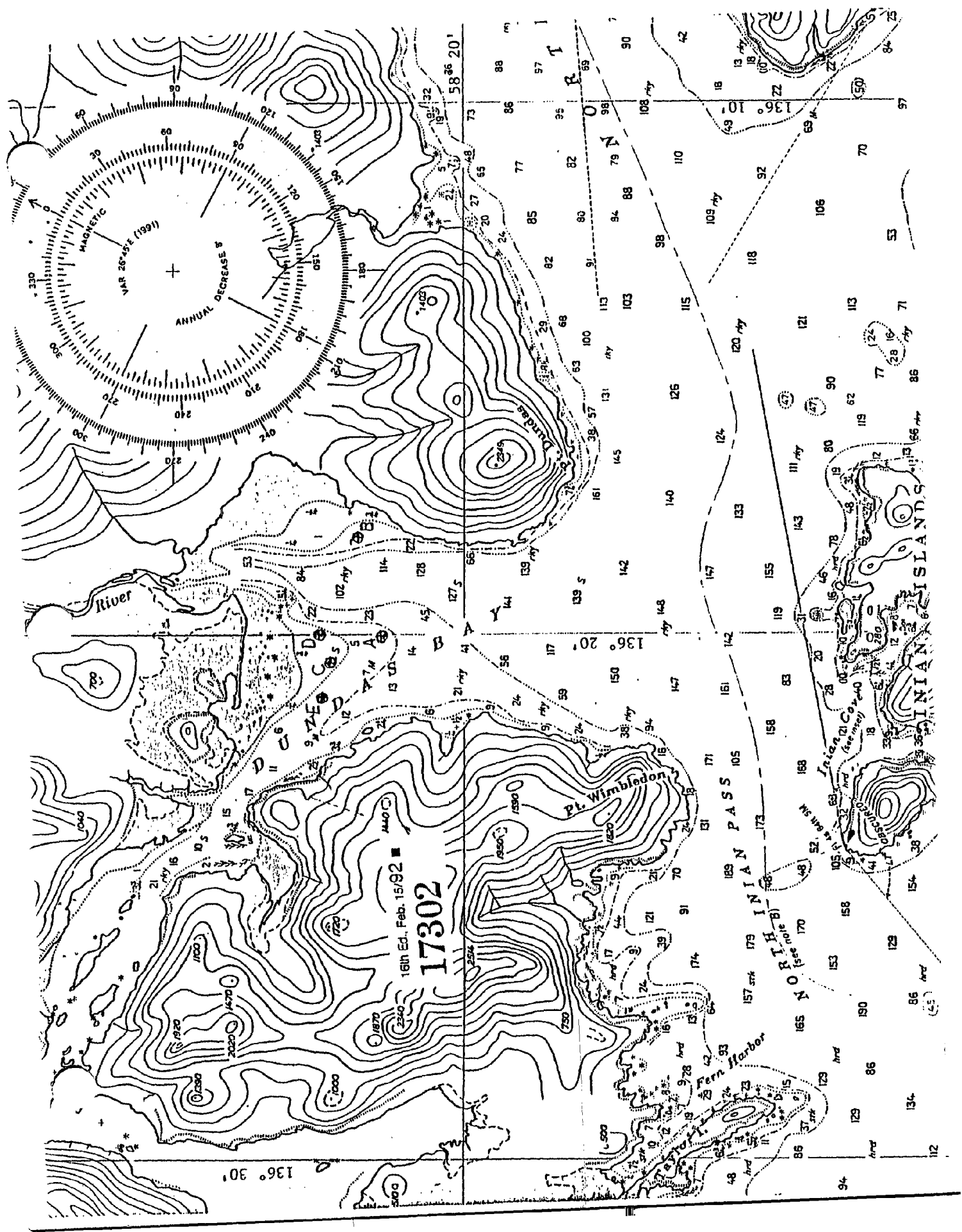
THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL
NOTICE TO MARINERS:

CHARTS AFFECTED: 17302 16TH ED FEB 15/92 1:80,000 NAD83
17300 25TH ED APR 29/89 1:209,978 NAD 83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

<u>ITEM</u>	<u>DANGER</u>	<u>CHART</u>	<u>DEPTH</u>	<u>DATUM</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>
A.	SHOAL	17302 17300	5 1/4 fm	NAD 83	58/20/47.68N	136/20/02.78W ①
B.	SHOAL	17302	5 1/2 fm	NAD 83	58/21/02.11N	136/18/10.55W ②
C.	SHOAL	17302	1 1/2 fm	NAD 83	58/21/17.50N	136/20/32.47W ③
D.	SHOAL	17302	3/4 fm	NAD 83	58/21/23.89N	136/20/01.71W ④
E.	SHOAL	17302	5 1/4 fm	NAD 83	58/21/22.38N	136/21/15.25W ⑤

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





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Coast and Geodetic Survey
Seattle, Washington 98115-0070
July 24, 1992

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

**ADVANCE
INFORMATION**

Dear Sir:

During the office processing of hydrographic surveys H-10376, H-10420 and H-10425 in Cross Sound, Alaska six additional dangers to navigation have been discovered, and one previously reported by the RAINIER with radio traffic on May 26, 1992 is rescinded. These dangers affect the following chart:

<u>Chart</u>	<u>Edition/date</u>	<u>Datum</u>
17302	15th Ed., 15/20/89	NAD 83

It is recommended that the revised 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



Hydrographic Survey Registry Number: H-10420
Survey Title: State:ALASKA
Locality:CROSS SOUND
Sublocality:ENTRANCE TO DUNDAS BAY

**ADVANCE
INFORMATION**

Project Number: OPR-O106-RA

All features reduced to Mean Lower Low Water using predicted tides.

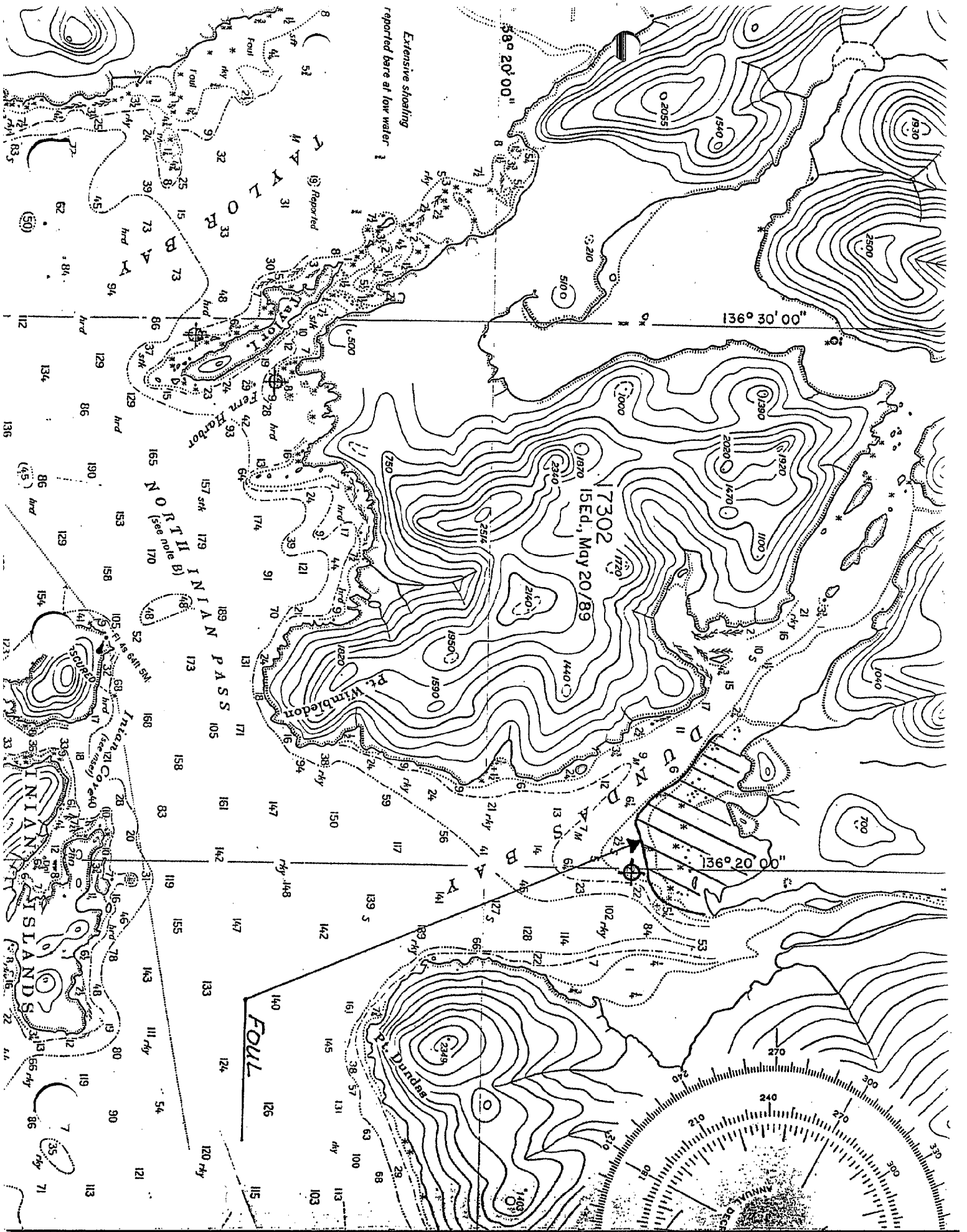
Affected nautical chart:

<u>Chart</u>	<u>Edition/date</u>	<u>Datum</u>
17302	15th Ed., 5/20/89	NAD 83

DANGER TO NAVIGATION	LATITUDE(N)	LONGITUDE(W)
1/4FM RK	58/21/26.0	136/19/57.0
FOUL AREA*	SEE ENCLOSED CHART COPY	

*-A foul area has been observed in north Dundas Bay, and the approximate limit is shown on the enclosed copy of portion of Chart 17302.

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



Extensive shoaling reported bare at low water

1:7302
15 Ed, May 20/89

INDIAN PASS

INDIAN ISLANDS

FOUL

Pt. Winledon

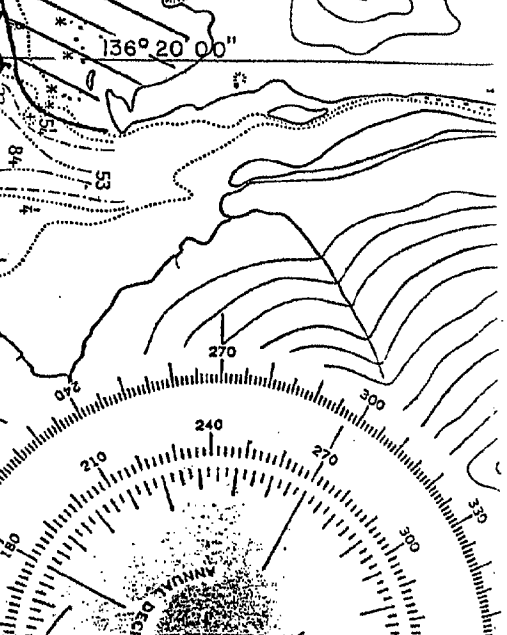
Pt. Dundee

Herm Harbor

1:7302
15 Ed, May 20/89

FOUL

Reported



APPROVAL SHEET

for

H-10420

RA-10-2-92

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.



Thomas W. Richards
Captain, NOAA
Commanding Officer



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Rockville, Maryland 20852

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: September 15, 1992

MARINE CENTER: Pacific

OPR: O106-RA

HYDROGRAPHIC SHEET: H-10420

LOCALITY: Entrance to Dundas Bay, Cross Sound, Alaska

TIME PERIOD: April 1 - April 22, 1992

TIDE STATION USED: 945-2629 (945-2630) Inian Cove, Alaska
Lat. 58° 15.8'N Lon. 136° 19.5'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 10.05 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 10.8 ft.

TIDE STATION USED: 945-2648 Dundas Bay, Alaska
Lat. 58° 23.8'N Lon. 136° 27.8'W

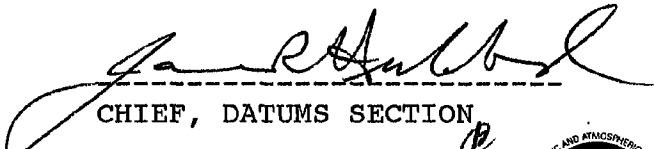
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 10.40 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.3 ft.

REMARKS: RECOMMENDED ZONING

1. North of 58° 22.0'N, zone direct on Dundas Bay (945-2648).
2. South of 58° 22.0'N, zone direct on Inian Cove (945-2629).

Notes: Inian Cove station # is 945-2629, however, the data is in file # 945-2630.

Times are tabulated in Greenwich Mean Time.


CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

H-10420

Name on Survey	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">A ON CHART NO. 17302</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">B ON PREVIOUS SURVEY NO.</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">C ON U.S. QUADRANGLE MAPS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">D FROM LOCAL INFORMATION</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">E ON LOCAL MAPS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">F P.O. GUIDE OR MAP</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">G RANO McNALLY ATLAS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">H U.S. LIGHT LIST</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">K</div> </div>											
	ALASKA (title)	X										
CROSS SOUND (title)	X											2
DUNDAS BAY	X											3
DUNDAS, POINT	X											4
												5
												6
												7
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Approved:

Charles B. Huntington

Chief Geographer - N/C92FS

FEB - 8 1993

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
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	4

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

SHORELINE DATA (Shaded area)

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			1816	
POSITIONS REVISED				
SOUNDINGS REVISED				
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	61		61	
VERIFICATION OF SOUNDINGS	187		187	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	26		26	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		7	7	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		11	11	
GEOGRAPHIC NAMES				
OTHER*				
USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	274	18	292

Pre-processing Examination by	J. Griffin	Beginning Date	6-22-92	Ending Date	7-22-92
Verification of Field Data by	E. Domingo, E. Brown	Time (Hours)	274	Ending Date	3-19-93
Verification Check by	S. Otsubo	Time (Hours)	30	Ending Date	3-19-93
Evaluation and Analysis by	R. Davies	Time (Hours)	18	Ending Date	6-24-93
Inspection by	D. Hill	Time (Hours)	2	Ending Date	7-14-93

EVALUATION

H-10420

1. INTRODUCTION

Survey H-10420 is a basic hydrographic survey accomplished by the NOAA Ship RAINIER under the following Project Instructions.

OPR-O106-RA, dated February 18, 1992

This survey was conducted in Alaska and covers the entrance to Dundas Bay. The surveyed area extends from latitude 58/18/57N to latitude 58/22/30N, longitude 136/17/06W to longitude 136/23/42W. The shoreline in the area is characterized by rocks, rock ledges, and many submerged rocks and islets near shore. The bottom consists of sand, silt and pebbles. Depths range from zero to 258 meters.

Predicted tides for Sitka, Alaska were used for the reduction of soundings during field processing. Approved hourly heights zoned from Inian Cove and Dundas Bay, Alaska, gages 945-2629 and 945-2648, 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. NAD 83 is used as the horizontal datum for plotting and position computation. 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 Guidelines No. 52, 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 1992 Horizontal and Electronic Control Reports for OPR-O106-RA contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are 1991 field and 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 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 corrections.

Latitude: -1.296 seconds (-40.101 meters)
Longitude: 6.621 seconds (107.722 meters)

The year of establishment of control stations shown on the smooth sheet originates with the NGS listing and the previously mentioned horizontal control report.

The quality of several positions exceeds limits in terms of error circle radius and residual. A review of the data, however, indicates that none of these fixes are used to position dangers to navigation. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable.

The following shoreline map applies to this survey.

	<u>Photo Date</u>	<u>Class</u>
TP-01328	June 1985	III

The following shoreline changes are depicted in red with supporting positional information. These revisions are considered adequate to supersede the common photogrammetrically delineated shoreline.

	<u>Latitude(N)</u>	<u>Longitude(W)</u>
Islet	58/19/33	136/18/18
Islet	58/19/56	136/21/35
Islet	58/20/27	136/21/33

3. HYDROGRAPHY

Except as noted below and elsewhere in this report, 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.

A holiday exists at latitude 58/22/06N, longitude 136/23/27W.

Some anomalous soundings were acquired during this survey. They originate from the poor performance of the echo sounder on steep slopes which were surveyed at excessive vessel speed. The hydrographer attempted to correct the problem by editing the raw sounding data, however, the quality of the echo sounder trace is so poor in some areas that the edits are most likely based on judgment rather than quantifiable data. Office review of the problem has determined that, with the exception of obviously erroneous depths, further editing is not reasonable since no corrective action can be taken to improve the quality of the trace. The judgment of the hydrographer has been accepted and generally the data was not altered during office processing.

The affected depths are deep, in excess of 80 meters, and will have little negative effect on the quality of nautical charts if compiled at scales smaller than 1:20,000.

In the vicinity of latitude 58/21/30N, longitude 136/20/30W, depths on alternating sounding lines vary approximately 0.3 meters with a maximum difference of 0.7 meters. This variability is clearly apparent because the depth curves depict an unnaturally occurring bottom topography. Investigation of this problem was inconclusive, however, possible cause may originate with the application of tide reducers. Sounding lines in this area were completed on three different days which would result in the application of reducers which are chronologically separated. Temporary localized phenomena, such as weather, may alter the tidal cycle from day to day. These alterations may not be completely reflected in the final set of tide reducers, thereby resulting in variability within a particular geographic area. Many of the affected depths are inside a foul area, others are shallow. The negative affect on nautical charts is concluded to be minimal.

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, March 1992 Edition, except as follows.

Several charted features were not investigated, or were inadequately investigated during this survey. Refer to section 7 of this report for identification of these features.

Neither the number or edition of the chart to be compared with was listed in section N of the hydrographer's report. The chart and edition to be compared with can be found in the project instructions, section 6.11. This chart should be listed and discussed in section N of the hydrographer's report.

On steep or irregular bottoms, as in Dundas Bay, the echo sounder had a very hard time tracking the bottom while running main scheme hydrography. Numerous soundings were scanned incorrectly and inserted into the digital record where there was no trace or the trace was miss-digitized. Care has to be taken in scanning of the echograms and in reducing the speed of the vessel on steep sloping bottoms.

5. JUNCTIONS

Survey H-10420 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10407	1991	10,000	Northwest
H-10419	1992	10,000	South

The junctions with surveys H-10407 and H-10419 are complete. Some soundings have been transferred to survey H-10420 to better portray the bottom in the common area.

6. COMPARISON WITH PRIOR SURVEYS

H-2618 (1902) 1:40,000

Survey H-2618 covers the entire area of the present survey. The shoreline on the east and west side of Dundas Bay has remained relatively stable throughout the years. The northern shoreline has accreted seaward as much as 300 meters. There is an average difference in depths between the prior survey and present survey of between 2 and 10 meters and a few isolated cases in north Dundas Bay of 20 meters. In most cases, survey H-10420 is shoaler than the prior survey. This area has experienced earthquakes, possible isostatic rebound and natural accretion and erosional processes. These processes, the different horizontal datum, the greater sounding coverage and the improved accuracy of the data acquisition techniques account for the differences between the soundings on the prior survey.

Two submerged rocks at latitude 58/21/41N, longitude 136/20/39W, originating with prior survey H-2618, were investigated by the hydrographer with an echo sounder development. There was no indication of these submerged features. These two rocks are considered disproved and should be removed from the chart.

There are no AWOIS items within the survey area which originate with the prior survey mentioned above.

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

Survey H-10420 is adequate to supersede the prior survey within the common area.

7. COMPARISON WITH CHART

Chart 17302, 16th edition, dated February 15, 1992; scale 1:80,000

a. Hydrography

Charted hydrography originates with prior survey H-2618 and miscellaneous sources and requires no further discussion, except for the following.

A charted island at latitude 58/22/02N, longitude 136/19/48W, was not investigated by the hydrographer and should be retained as charted.

A rock charted at latitude 58/21/46N, longitude 136/19/33W was investigated and disproved. However, an exposed rock at latitude 58/21/48N, longitude 136/19/33W, was found and is believed to be the same charted rock. The charted rock should be removed and the rock found on this survey should be charted.

A rock charted at latitude 58/22/13N, longitude 136/21/28W was investigated and disproved. However, an exposed rock at latitude 58/22/10N, longitude 136/22/21W, was found and is

believed to be the same charted rock. The charted rock should be removed and the rock found on this survey should be charted.

The following charted rocks were not investigated and should be retained as charted.

<u>Feature</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
rock	58/21/52	136/20/01
rock	58/21/50	136/20/27
rock	58/2154	136/20/48
rock	58/21/53	136/21/12

Survey H-10420 is adequate to supersede charted hydrography within the common area.

b. AWOIS

There are no AWOIS items originating from miscellaneous sources.

c. Controlling Depths

There are no controlling depths found within the survey area.

d. Aids to Navigation

There are no aids to navigation within the survey area.

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 five dangers to navigation to the Seventeenth District of the United States Coast Guard, Juneau, Alaska. A copy of the message is attached. Two additional dangers were discovered during office processing and reported to the Coast Guard, DMAHTC and N/CG221, see attached letter.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10420 adequately complies with the Project Instructions, except as noted in this report.

9. ADDITIONAL FIELD WORK

This is an adequate hydrographic survey. Additional field work is recommended on a low priority basis to fill in the holiday which exists as noted in section 3 of this report and to investigate the features not found or disproved during this survey, as noted in section 7. #0.



C. R. Davies
Cartographer

APPROVAL SHEET
H-10420

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.

for Bruce A. Overstad _____ Date: 7-14-93
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.

Dennis Hill _____ Date: 7-15-93
for Commander Douglas G. Hennick, NOAA
Chief, Pacific Hydrographic Section

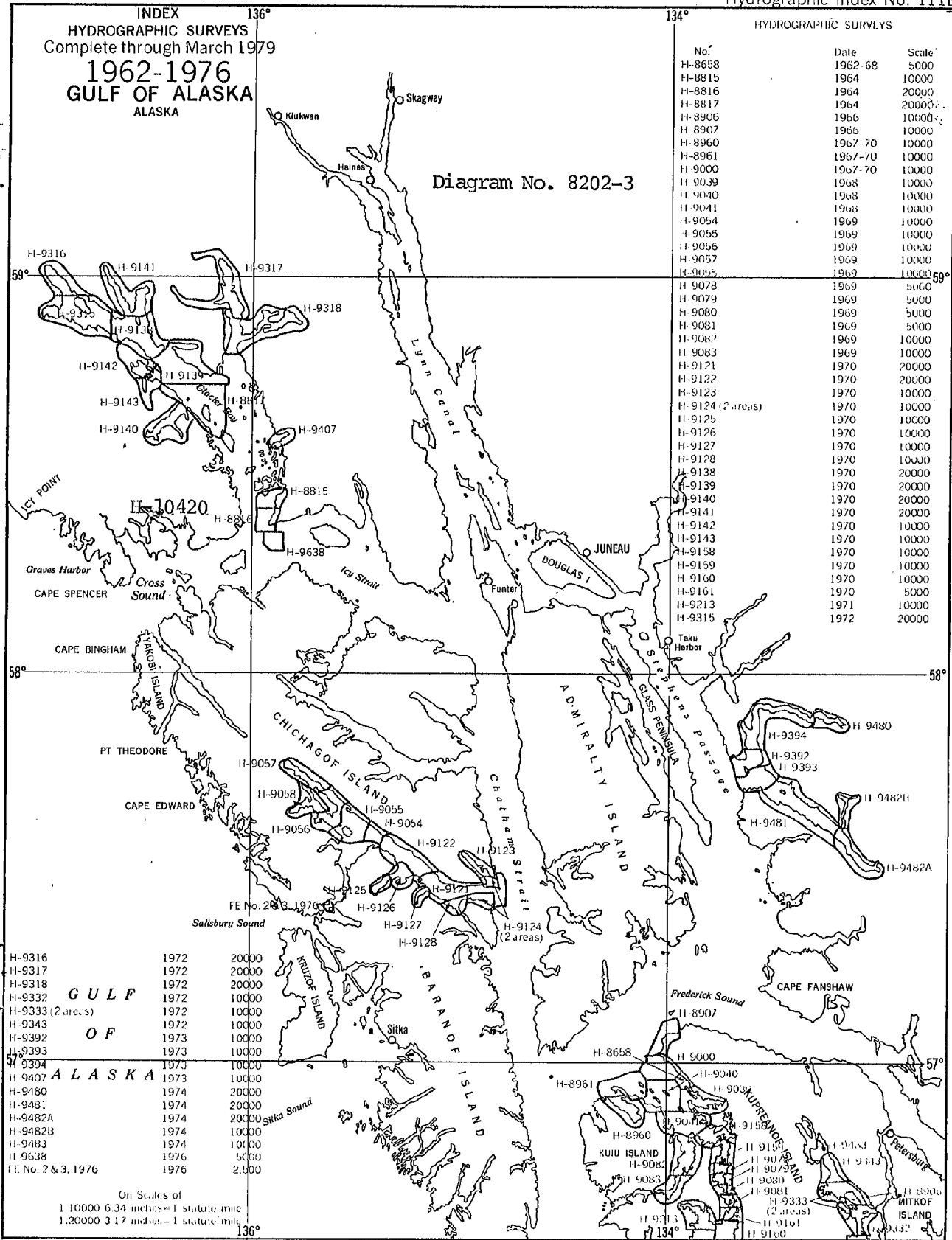
Final Approval

Approved:

J. Austin Yeager _____ Date: 8/10/94
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

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

Hydrographic Index No. 111E



MARINE CHART BRANCH RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10420

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
17302	2/14/96	DON CORDTS	Full Part Before After Marine Center Approval Signed Via
	8-17-96	<i>D. Cordts</i>	Drawing No. 19, 17th Ed., AUG 14/93
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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