

10374

10374

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-20-1-91
Registry No. H-10374

LOCALITY

State Alaska
General Locality ... Cross Sound
Sublocality Central Portion of
..... Cross Sound

19 91

CHIEF OF PARTY
CAPT T.W. Richards

LIBRARY & ARCHIVES

DATE May 27, 1992

HYDROGRAPHIC TITLE SHEET

H-10374

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

FIELD NO.

RA 20-1-91

State Alaska

General locality Cross Sound

Locality Central Portion of Cross Sound

Scale 1:20,000 Date of survey April 8 - May 3, 1991

Instructions dated February 21, 1991 Project No. OPR-0106-RA

Vessel NOAA Ship RAINIER (2120), Launches RA-3 (2123), RA-4 (2124), and RA-6 (2126)

Chief of party CAPT T.W. Richards

Surveyed by LT Cole, LT Glang, LTJG Nelson, LTJG Simmons, LTJG Lemke, LTJG Weber,
LTJG Ward, ENS Johnson, ENS Klay, and ENS Ramos

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

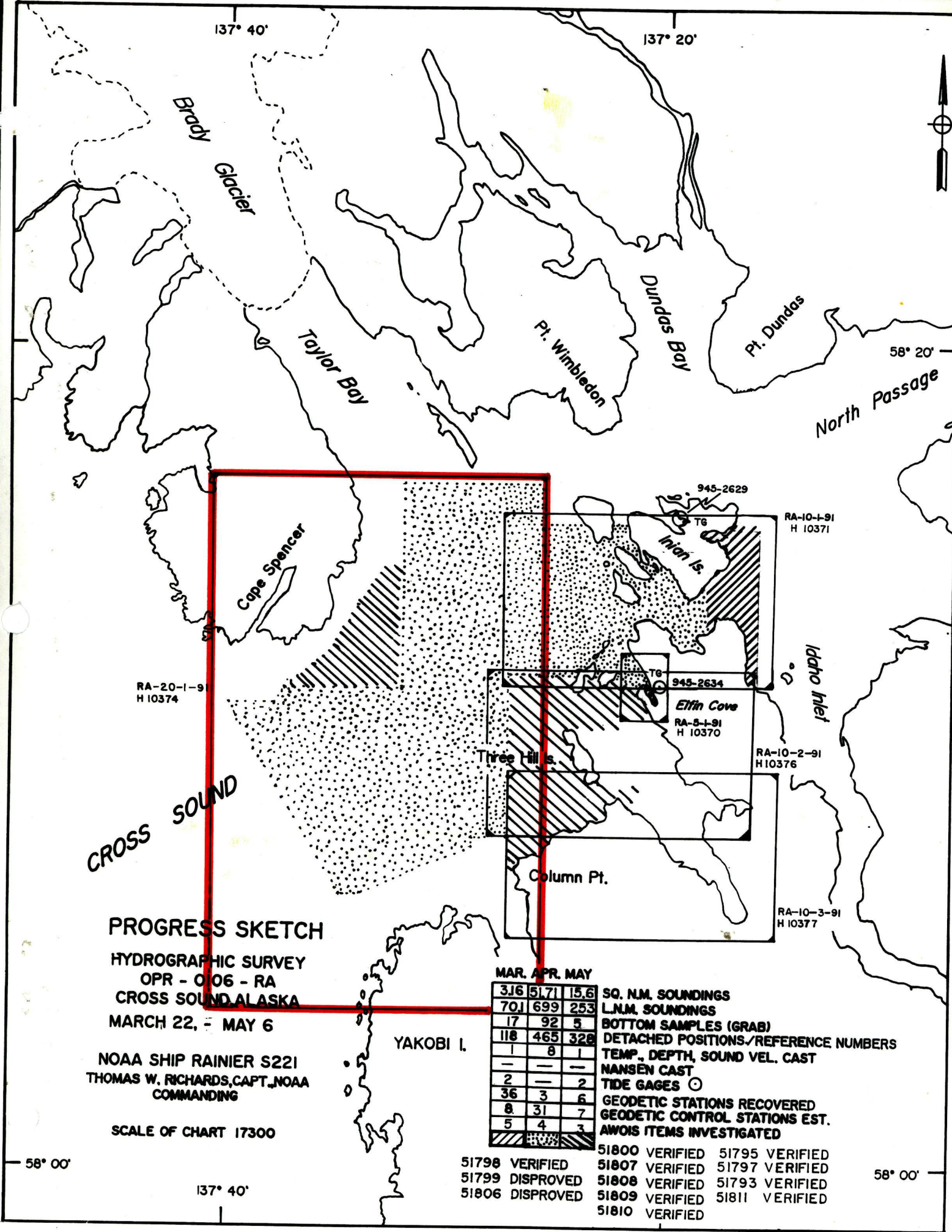
Verification by J.S. Stringham, E. Domingo, L. Deodato, S. Otsubo, E. Brown, T. Jones

Soundings in ~~fathoms~~ meters ~~at MLLW~~ feet at ~~MLLW~~ MLLW

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
5/28/92 MCR

R.W.L. 9/30/93



PROGRESS SKETCH

HYDROGRAPHIC SURVEY
 OPR - 0106 - RA
 CROSS SOUND ALASKA
 MARCH 22, - MAY 6

NOAA SHIP RAINIER S221
 THOMAS W. RICHARDS, CAPT., NOAA
 COMMANDING

SCALE OF CHART 17300

MAR. APR. MAY

316	5171	156
701	699	253
17	92	5
118	465	328
-	8	1
-	-	-
2	-	2
36	3	6
8	31	7
5	4	3
[Cross-hatched pattern]		

SQ. N.M. SOUNDINGS
 L.N.M. SOUNDINGS
 BOTTOM SAMPLES (GRAB)
 DETACHED POSITIONS-/REFERENCE NUMBERS
 TEMP., DEPTH, SOUND VEL. CAST
 NANSEN CAST
 TIDE GAGES ☉
 GEODETIC STATIONS RECOVERED
 GEODETIC CONTROL STATIONS EST.
 AWOIS ITEMS INVESTIGATED

51798 VERIFIED	51800 VERIFIED	51795 VERIFIED
51799 DISPROVED	51807 VERIFIED	51797 VERIFIED
51806 DISPROVED	51808 VERIFIED	51793 VERIFIED
	51809 VERIFIED	51811 VERIFIED
	51810 VERIFIED	

RA-20-1-91
 H 10374

RA-10-1-91
 H 10371

945-2634
 RA-5-1-91
 H 10370

RA-10-2-91
 H 10376

RA-10-3-91
 H 10377

YAKOBI I.

58° 00'

137° 40'

58° 00'

Descriptive Report to Accompany Hydrographic Survey H-10374

Field Number RA-20-1-91

Scale 1:20,000

April-May 1991

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 21, 1991. This survey is designated Sheet L on the sheet layout dated June 1, 1990.

This 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 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. Troller fisherman have requested a detailed survey to aid in preventing the loss of trolling gear. 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.

B. AREA SURVEYED ✓

This survey, located in southeastern Alaska, covers an area in Cross Sound from Taylor Bay south to Yakobi Island, and from Cape Spencer east to Three Hill Island. The northernmost limit is $058^{\circ}16'30''$ N and southernmost limit is $058^{\circ}06'46''$ N. The survey extends from longitude $136^{\circ}40'00''$ W east to longitude $136^{\circ}25'30''$ W, and is bounded by the 40 m depth contour to the northwest. Data acquisition was conducted from April 08, 1991, through May 03, 1991 (DN 098 to 123).

C. SURVEY VESSELS ✓

All data were acquired by NOAA Ship RAINIER and the three automated survey launches shown below:

<u>Vessel</u>	<u>EDP No.</u>	<u>Operation</u>
RAINIER	2120	Sound Velocity Casts, Bottom Samples
RA-3	2123	Sounding Operations
RA-4	2124	Sounding Operations
RA-6	2126	Sounding Operations

In addition to the survey vessels listed above, two 17' Boston Whalers, a 19' MonArk, and a 12' Zodiac were used to support operations for horizontal control, and tide station installation/maintenance.

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

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

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
SURVEY	5.00 (5.11)	20 Mar 1991 (19 Apr 1991)
POSTSUR	5.00 (5.10)	20 Mar 1991 (19 Apr 1991)
PLOTALL	1.80 (1.91)	20 Mar 1991 (19 Apr 1991)
POINT	1.30	20 Mar 1991
BACKUP	2.00	20 Mar 1991
CONVERT	2.40	20 Mar 1991
PRINTOUT	2.30	20 Mar 1991
DIAGNOSTIC	2.70	20 Mar 1991
INVERSE	1.30	20 Mar 1991
INSTALL	2.00	20 Mar 1991
BASELINE	1.10	20 Mar 1991
QUICK	1.10	20 Mar 1991
LISTAWOIS	1.20	20 Mar 1991
LOADNEW	1.30	20 Mar 1991
REJECT	1.00	20 Mar 1991
CARTO	1.20	20 Mar 1991
Vers	NA	20 Mar 1991
BACKOLD	1.10	20 Mar 1991
NEWCONT	1.10	20 Mar 1991
DISC_UTIL	1.00	20 Mar 1991
MB	0.00	20 Mar 1991
HJ	0.00	20 Mar 1991
AUTOST	1.00 (1.10)	20 Mar 1991 (19 Apr 1991)
GLOBAL	1.10	20 Mar 1991
MAKEFIX	1.00	20 Mar 1991
BIGABST	1.01 (1.11)	20 Mar 1991 (19 Apr 1991)
REAPPLY	1.01 (1.30)	20 Mar 1991 (19 Apr 1991)
PREDICT	1.10	20 Mar 1991
READPROJS	1.04 (1.06)	20 Mar 1991 (19 Apr 1991)
SOFTCHECK	1.00 (1.10)	20 Mar 1991 (19 Apr 1991)
HPRAZ	1.10 (1.21)	20 Mar 1991 (19 Apr 1991)
FILESYS	2.10 (2.11)	20 Mar 1991 (19 Apr 1991)
DP	1.10	20 Mar 1991
MANU_DATA	1.10	20 Mar 1991
RAMSAVER	1.00	20 Mar 1991
GRAPHEDIT	NA	20 Mar 1991
EXCESS	NA	20 Mar 1991

The HDAPS REAPPLY program (ver 1.30) was modified by RAINIER in consultation with the HDAPS office on May 20, 1991. After running REAPPLY, most soundings on this survey did not have sound velocity correctors applied. Part of the problem may have been that a few soundings were greater than the last depth corrector in Velocity Table 2. In addition to modifying the program, the table was extended to 350 m. Although the problem now appears to be solved, the original version of REAPPLY should be examined thoroughly by the HDAPS office.

The new HDAPS EXCESS and HPRAZ programs were used in processing and range/azimuth hydrography respectively. The range/azimuth program, HPRAZ, worked well and was used for all range/azimuth hydrography. The PC-DAS system was not used this project. EXCESS worked well and saved considerable time in processing the surveys. There will be a written evaluation of EXCESS in June, 1991.

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 ✓

Side scan sonar was not used during this survey.

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>
2123	A117N	100-114
2124	B046N A103N	098-100 107-115
2126	A114N	098-123

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.

G. CORRECTIONS TO ECHO SOUNDINGS ✓

Corrections to echo soundings were determined for static draft, heave, velocity of sound through water, settlement and squat, and predicted tides. 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 Spring 1991 Corrections to Echo Sounding Data Package for OPR-O106-RA.

Sound Velocity

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

<u>Cast No.</u>	<u>Deepest Depth (m)</u>	<u>DN</u>	<u>Geographic Position</u>
2	250.9	097	58°14'00"N, 136°24'00"W
3	78.3	107	58°11'44"N, 136°21'53"W
4A	296.9	109	58°07'06"N, 136°34'12"W
4B	52.5	109	58°07'06"N, 136°34'12"W
5A	102.4	116	58°10'39"N, 136°21'31"W
5B	111.3	116	58°10'39"N, 136°21'31"W
6	205.3	124	58°09'14"N, 136°26'20"W

Sound velocity casts numbered 2, 3, 4A, 5A, and 6 were acquired with an SBE SEACAT Profiler, S/N 281, which was calibrated at the Northwest Regional Calibration Center (NRCC) in Bellevue, WA, on January 21, 1991. Sound velocity casts numbered 4B and 5B were acquired with an AML SVP, S/N 3042, which was calibrated at NRCC on March 11, 1991. As a system check, Cast No. 4A (SEACAT) and No. 4B (AML) were performed on the same day, as were No. 5A (SEACAT) and 5B (AML). The casts showed excellent agreement both times; therefore, Cast Nos. 4B and 5B were not applied to echosoundings. Cast Nos. 2 and 4A were used to generate Sound Velocity Corrector Tables 2 and 3 respectively. Cast Nos. 3, 5A, and 6 showed no significant change in water column characteristics and weren't used to generate correctors.

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 No. 2 and 3 used in the HDAPS Post Survey program are included in the Spring 1991 Correctors to Echo Sounding Data Package for OPR-O106-RA.

Static Draft

For all launches, the distance from the transducer face to the gunwhale was measured with a large metal square. Static draft measurements were then determined by dropping a leadline from the gunwhale to the water and subtracting this distance from the distance measured with the square. The measurements from the gunwhale 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 23-25, 1991. This transducer depth agrees with the launches' historical records.

Settlement and Squat

Settlement and squat correctors were determined for Vessel Numbers 2123, 2124, and 2126 in Shilshole Bay, WA, on February 25, 26, and March 12, 1991. All 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 1991 Corrections to Echo Sounding Data Package for OPR-O106-RA.

Heave

Corrections for heave were manually 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

A pneumatic depth gage was not used in this survey.

Bar Check Lines

Bar check lines were calibrated by RAINIER personnel during January 1991 at PMC. Calibration forms are included in the Spring 1991 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 on the Tidal Zoning Chart accompanying the Project Instructions and are shown below:

<u>Zone</u>	<u>Time Correctors</u>	<u>Range Ratio</u>
1. West from a line defined by the points, 58°18'13"N, 136°22'25"W, 58°12'55"N, 136°21'40"W to a line defined by the points, 58°14'40"N, 136°34'15"W 58°07'18"N, 136°26'45"W	Direct	x1.13
2. West from a line defined by the points, 58°14'40"N, 136°34'15"W 58°07'18"N, 136°26'45"W to 136°40'00"W	Direct	x1.07

Survey sheet RA-20-1E-91 used the tidal zone 1 corrector, while RA-20-1W-91 used the zone 2 corrector. 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 stations in Inian Cove (945-2629) and in Elfin Cove (945-2634). The tide station descriptions, field tide records, and Field Tide Notes 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 request for approved tides are included in Appendix V. *

Approved tides have been applied. See attached Tide note for this Hydrographic Survey.

H. CONTROL STATIONS ✓

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.

Positions for all existing stations are from the NGS data base. All existing stations were recovered in accordance with Section 5.2.4 of the Field Procedures Manual. New stations were positioned via traverse methods and Global Positioning System (GPS) to meet third-order class I standards. Further information can be found in the Spring 1991 Horizontal Control Report for OPR-O106-RA.

** Filed with the hydrographic data.*

I. HYDROGRAPHIC POSITION CONTROL

Method of Sounding Position Control

Soundings were located using the Motorola Mini Ranger Falcon 484 microwave positioning system in multiple-range mode.

Accuracy Requirements/Problems

Accuracy requirements specified in the Hydrographic Manual and in FPM 3.1.3.1 were generally met. Under some wind and sea conditions null zones were experienced. When this problem was suspected, the R/T mast height or shore transponder height was adjusted to improve control. When maximum residuals exceeded the specified limits, OIC's deselected the station(s) with the highest residual value and were able to continue hydrography. On occasion, ECR's and maximum residuals persistently exceeded the specified limits. When this happened, the data was generally rejected and re-run with different control.

Hydrography was sometimes conducted 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 data 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 system checks were performed at day's end.

Equipment

Serial numbers for all Motorola Mini Ranger (M/R) positioning equipment are annotated on the RMPO for each day of hydrography. A complete list of all electronic equipment serial numbers is included in the Spring 1991 Electronic Control Data Package.

Calibrations & Systems Check Methods

Baseline calibrations were conducted in accordance with FPM 3.1.2.1 and 3.1.3.2. On February 5-6 (DN 035-DN 036), and on March 6 (DN 065) calibrations were conducted at the SANDPOINT BASELINE over a known distance of 1058.1876 m. Two shore transponders (codes A&E) were returned to PMC for repairs during this project. Replacement transponders were calibrated on April 14 (DN 104) and again on April 26 (DN 116) over a measured range of approximately 1265 m from VESNO 2123 (in davits) at the U.S. Coast Guard Pier in Juneau to the Union Oil dock across the harbor. The range was measured by EDM and was checked frequently during the calibrations. The calibrations on April 26 were conducted in order to improve the quality of the data for the replacement codes because of unusually high minimum acceptable signal strengths (MASS) found during the April 14 calibrations. The high MASS problem was later resolved by increasing the allocated space on floppy disk media to allow more ranges to be processed by the HDAPS baseline program. Calibration data and a description of the baseline is included in the Spring 1991 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 was always bracketed by multiple LOP data acquired with ECR's and maximum residuals within acceptable limits, which served as critical system checks. See Evaluation report Section 2

Other Factors

Antenna offset and layback correctors were applied via HDAPS tables. Final field sheets were plotted with correctors determined from baseline calibrations.

J. SHORELINE ✓

TP-01329

The following investigations of submerged rock symbols (depth unknown) from the shoreline map were conducted near predicted lower low water. The rocks were not within the survey limits, but were of interest since they were a considerable distance from shore in relatively deep water. DP's were taken at each submerged rock position per request of N/CG241. A visual and echosounder search was conducted for each item lasting an average of 10 minutes. Positioning was accomplished using two or more ranges from Falcon Mini-Rangers with ECR's and maximum residuals within acceptable limits for a 1:20,000 scale survey.

The vicinity of a group of nine submerged T-sheet rocks centered at 058°14'39"N, 136°33'30"W (NAD27) was searched visually and by echosounder. No rocks were observed. DP's were acquired over each suspected rock with soundings ranging from 18.3 17.8 to 31.0 m (9.75 to 17 fms.), (Pos Nos. 8452-8453, 8464-8470). Two shoals were reported as dangers to navigation (DTONs), see Appendix I in this report. (attached)

The vicinity of a group of four submerged T-sheet rocks centered at 058°14'9"N, 136°32'36"W (NAD27) was searched visually and by echosounder. DP's were acquired over each suspected rock (Pos Nos. 8278-8281); all observed soundings were deeper than 137 m (75 fms.). No rocks were seen or shoals indicated on the echosounder trace. Photogrammetry Division reports that these four objects appear only in one photograph and are believed to have been in motion. See radio message P021745Z MAY 91 in Appendix VI. (attached) These rocks are not shown on the smooth sheet.

Recommendation: Hydrographer recommends charting reported DTONs until superseded by hydrography on Sheet K. -concur, provided photogrammetry agrees that these features are mis plotted otherwise chart rocks as shown on TP-01329, pending further investigation on sheet K. See attached radio message

K. CROSSLINES

A total of 43 nautical miles of crosslines were run perpendicular to mainscheme lines, representing 10% of the mainscheme hydrography. Inspection of all crosslines showed soundings agree to within 2 meters with mainscheme soundings, except in areas of very steep bottom topography. The vessel acquiring crossline data did not always collect the corresponding mainscheme data. Agreement between soundings acquired by different echo sounders in a common area is as stated above. P021745Z MAY 91

L. JUNCTIONS ✓ See Evaluation report, section 5

This survey junctions to the east with H-10371 (1:10,000; 1991), and will junction with H-10376 (incomplete, 1:10,000; 1991), and H-10377 (incomplete, 1:10,000; 1991) also to the east. There are no contemporary surveys junctioning this survey to the north, south, or west. Surveys H-10376 and H-10377 are incomplete and are scheduled to be completed this fall. Agreement between overlapping soundings on all 3 junction surveys is excellent. All junction soundings agree to within 2 meters.

M. COMPARISON WITH PRIOR SURVEYS ✓

This survey was compared to the following prior surveys:

H-2558 (1:40,000; 1901):

The hydrographer compared approximately 10 percent of the soundings from a 1:20,000 scale enlargement of H-2558 to this survey. Overall agreement is only fair. Consistently shoaler depths were found on the present survey than on the prior survey especially in shallower areas. The most likely reasons for this are wide line spacing used on H-2558 and isostatic rebound which is prevalent in the area. Most of the soundings from this survey appear on Chart 17302 and are discussed in Section N. -CONCUR

H-4318WD (1:40,000; 1923):

Only 6 soundings from this survey fall within the limits of this survey. The present survey reveals depths approximately 2 m (1 fm) shoaler than found on H-4318WD. These soundings are all reflected on Chart 17302 and are discussed in section N.

Recommendation: The hydrographer recommends the soundings and least depths acquired from this survey be used to supersede those of H-2558 and H-4318 WD within their common areas. -CONCUR

N. COMPARISON WITH THE CHART ✓

This survey was compared to the 1:80,000-scale NOS chart 17302, 15th Edition, May 20/89 (NAD83).

Comparison of Sounding Features

Overall agreement between this survey and the chart is only fair. Many significantly shoaler depths were found on the present survey. The most probable causes for these discrepancies are wide line spacing on the prior survey and isostatic rebound. Additional causes may also be less accurate techniques used for positioning and sounding during the prior survey, and the irregularity of the bottom. Significant discrepancies include:

A surveyed depth of 19.5 m (10.7 fm) at 058°11'08"N, 136°38'^{.37}16"W (Pos. No. 8485 +4) near a charted 27.4 m (15 fm). The depth from this survey was developed using 10 m line spacing. ^{15.87}

A surveyed depth of 17.7^3 m (9.4 fm) at $058^{\circ}10'42''$ N, $136^{\circ}31'43''$ W (Pos. No. 4650^{+7}) near a charted 18.3 m (10 fm). The depth from this survey was developed using 50 m line spacing.

This survey confirmed a large charted area of shoaling within the general limits of latitudes $058^{\circ}09'30''$ N to $058^{\circ}08'43''$ N and longitudes $136^{\circ}32'02''$ W to $136^{\circ}30'41''$ W. Shoal points within this area include a least depth of 10.3^5 m (5.6 fm) at $058^{\circ}08'50''$ N, $136^{\circ}31'08''$ W (Pos. No. 8241^{+8}) near a charted 23.8 m (13 fm). Other least depths include: $.51$

A surveyed depth of 11.8^6 m (6.3 fm) near a charted 12.3 m (6.8 fm), (Pos. No. 2033^{+9})
 7 7 latitude $58^{\circ}09'23.59$ /longitude $136^{\circ}31'28.33$

A surveyed depth of 13.8^7 m (7.4 fm) near a charted 18.3 m (10 fm), (Pos. No. 2087^{+1})
 8 7.0 latitude $58^{\circ}09'05.99$ /longitude $136^{\circ}30'49.63$

A surveyed depth of 12.8^8 m (6.9 fm) near a charted 23.8 m (13 fm), (Pos. No. 8160^{+3})
 9 7.0 latitude $58^{\circ}08'43.12$ /longitude $136^{\circ}31'50.89$

A surveyed depth of 12.7^9 m (6.9 fm) near a charted 14.6 m (8 fm), (Pos. No. 2083^{+5})
 latitude $58^{\circ}09'12.50$ /longitude $136^{\circ}31'06.66$

Least depths on this feature were determined with 5 m & 10 m line spacing, and the whole area was surveyed with 50 m line spacing. The above items were all reported as DTONS.

Recommendation: The hydrographer recommends sounding data from this survey be used to update the chart. - *concur*

AWOIS Items

One AWOIS Item lies within the survey limits and is discussed below.

AWOIS #51795 is a 45 fm reported depth at $058^{\circ}15'30.00''$ N, $136^{\circ}27'00.00''$ W (NAD27) in an area previously charted to be 80-86 fms. Mainscheme hydrography confirmed a least depth of 82 m (45 fm) in the vicinity, at $058^{\circ}15'34.12''$, $136^{\circ}27'14.63''$ (Pos. No. 4575^{+9}). In addition, a shallower sounding of 54 m (30^4 fm) was found at $058^{\circ}14'55.22''$, $136^{\circ}26'51.23''$ (Pos. No. 4593^{+8}) approximately 1260 m SE of the AWOIS item in an area presently charted to be 80-110 fms.

Recommendation: The hydrographer recommends soundings and least depths from this survey be used to update the chart. - *concur, chart 29 fathom (54 meter) sounding found on the smooth sheet at latitude $58^{\circ}14'55.22$ longitude $136^{\circ}26'51.24$*

Dangers to Navigation

Nine dangers to navigation and four additional items within the limits of this survey were reported by radio message and hard copy to the Seventeenth Coast Guard District and DMAHTC. Copies of the correspondence are appended to this report. Position numbers associated with each reported danger are marked on the copy of the radio message.

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. *concur*

P. AIDS TO NAVIGATION ✓

One fixed aid to navigation, Cape Spencer Light, lies near the limits of the survey. RAINIER's field position was reported to the U.S. Coast Guard in accordance with Project Instructions, Section 4.2.1.2. (See Appendix VI)

<u>Navigation Aid Light List No.</u>	<u>Published Position*</u>	<u>Charted Position**</u>	<u>Field Position</u>
Cape Spencer Light # 24240	058°11.9'N 136°38.4'W	058°11.9'N 136°38.4'W	058°11.9'N 136°38.4'W 25.44

*Source: United States Coast Guard Light List (NAD83), Volume VI, 1991. (page 236)

**Scaled Position

The light characteristics given above were observed in the field and agree with the charted and Light List characteristics. The lights adequately serve the apparent purpose for which they were established. There are no floating aids to navigation, bridges, overhead cables, submerged pipelines, or ferry routes within the limits of the survey.

Q. STATISTICS ✓

<u>Vessel:</u>	<u>2120</u>	<u>2123</u>	<u>2124</u>	<u>2126</u>	<u>Total</u>
# of Pos	27.0	137.0	904.0	504.0	1572.0 1509
NM Hydro	0.0	33.4	299.8	159.7	492.9
NM ² Hydrography	41.42		Velocity Casts		7
Detached Positions	12		Tide Stations		2
Bottom Samples	27		Current/Magnetic Stations		0

R. MISCELLANEOUS ✓

The hydrographer confirmed the magnetic disturbances as noted on the chart. Survey launch coxswains reported magnetic variations as much as 10° greater than normal throughout the survey area.

The hydrographer observed rough and confused seas, especially in the shallow area south of Cape Spencer, building very quickly when moderate easterly winds opposed a flood tide or westerly winds opposed an ebb tide.

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 ✓

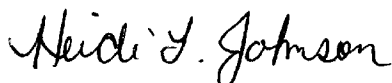
None.

T. REFERRAL TO REPORTS ✓

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

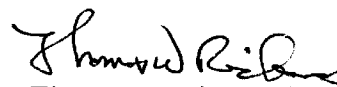
<u>Title</u>	<u>Date Sent to N/CG245</u>
Spring 1991 Horizontal Control Report for OPR-O106-RA	June 1991
Spring 1991 Electronic Control Data Package for OPR-O106-RA	May 1991
Spring 1991 Corrections to Echo Soundings Data Package for OPR-O106-RA	May 1991
Spring 1991 Coast Pilot Report for OPR-O106-RA	June 1991

Respectfully Submitted,



Heidi L. Johnson
Ensign, NOAA

Approved and Forwarded,



Thomas W. Richards
Captain, NOAA
Commanding Officer

CONTROL STATIONS										STATION NAME	SIGNAL NOS.	QUAD NOS.
No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY			
100	F	058:15:48.046	136:07:57.536	10	250	0.0	0.0	3	03/21/91	YAK	100	
101	F	058:13:12.460	136:09:58.937	8	250	0.0	0.0	4	04/30/91	GULL TP	101	
102	F	058:14:40.410	136:17:15.657	2	250	0.0	0.0		03/21/91	INIANA	102	
103	F	058:13:46.951	136:18:52.808	7	250	0.0	0.0	A	04/30/91	FAKE	103	
104	F	058:19:03.968	136:15:34.968	14	250	0.0	0.0	2	03/21/91	AID	104	
105	F	058:12:57.823	136:18:41.194	6	250	0.0	0.0	1	04/24/91	HAM 2	105	
106	F	058:11:41.367	136:21:06.313	7	250	0.0	0.0	A	03/24/91	FINN	106	
107	F	058:11:29.612	136:20:36.949	6	250	0.0	0.0	A	04/22/91	CHICH	107	
108	F	058:11:18.689	136:20:21.268	6	250	0.0	0.0	A	03/24/91	KOFF NO 1	108	
109	F	058:13:22.558	136:21:22.945	19	250	0.0	0.0	5	03/25/91	HAIR	109	
110	F	058:13:47.701	136:21:19.437	17	250	0.0	0.0	C	04/04/91	EYE	110	
111	F	058:15:14.570	136:17:41.249	5	250	0.0	0.0	B	04/06/91	OCTA	111	
112	F	058:11:41.776	136:20:55.983	3	250	0.0	0.0	A	03/27/91	WHARF	112	
113	F	058:12:43.819	136:22:51.081	10	250	0.0	0.0	5	04/06/91	ADZE	113	581362
114	F	058:09:58.431	136:21:33.556	6	250	0.0	0.0		00/00/00	ALTHORP ROCK LT	114	
115	F	058:20:02.107	136:18:17.253	10	250	0.0	0.0		00/00/00	BAN	115	
116	F	058:12:07.020	136:22:15.121	10	250	0.0	0.0	E	04/16/91	BEER	116	
117	F	058:09:16.155	136:19:07.423	4	250	0.0	0.0	A	05/06/91	BOW	117	
118	F	058:20:28.510	136:21:34.266	8	250	0.0	0.0		00/00/00	CAB	118	
119	F	058:15:02.304	136:21:18.505	6	250	0.0	0.0	E	04/22/91	CANAL	119	
120	F	058:11:56.358	136:38:25.437	32	250	0.0	0.0		00/00/00	CAPE SPENCER LT	120	
121	F	058:11:34.714	136:20:47.949	7	250	0.0	0.0	A	03/28/91	COVE	121	
122	F	058:21:04.689	136:17:37.122	2	250	0.0	0.0		00/00/00	DEED	122	
123	F	058:21:37.838	136:22:33.519	0	250	0.0	0.0		00/00/00	DELTA	123	
124	F	058:11:41.037	136:21:06.205	7	250	0.0	0.0		00/00/00	ELFIN COVE LT	124	
125	F	058:16:11.116	136:24:18.155	12	250	0.0	0.0	3	04/05/91	EX	125	581362
126	F	058:12:42.391	136:22:52.644	18	250	0.0	0.0		00/00/00	GEORGE ISLAND LT	126	
127	F	058:16:10.954	136:20:03.361	0	250	0.0	0.0		00/00/00	GLORIA	127	
128	F	058:11:43.986	136:22:37.906	9	250	0.0	0.0	1	04/09/91	GRAN	128	
129	F	058:12:08.803	136:21:21.384	5	250	0.0	0.0	A	04/22/91	HOLE	129	
130	F	058:14:18.493	136:20:16.427	6	250	0.0	0.0	E	04/24/91	LAV	130	
131	F	058:11:39.817	136:21:29.942	17	250	0.0	0.0	B	04/10/91	NITE	131	
132	F	058:13:23.996	136:21:15.011	23	250	0.0	0.0		00/00/00	PT LAVINIA LT	132	
133	F	058:15:15.230	136:23:02.253	15	250	0.0	0.0	C	04/05/91	SUR	133	581362
134	F	058:07:28.079	136:18:51.745	1	250	0.0	0.0		00/00/00	TOWN	134	
206	Z	058:11:41.367	136:21:06.313	7	250	0.0	0.0		03/26/91	FINN (R/AZ)	206	
207	Z	058:11:29.612	136:20:36.949	6	250	0.0	0.0		03/26/91	CHICH (R/AZ)	207	
208	Z	058:11:18.689	136:20:21.268	6	250	0.0	0.0		03/27/91	KOFF NO1 (R/AZ)	208	
212	Z	058:11:41.776	136:20:55.983	5	250	0.0	0.0		03/26/91	WHARF (R/AZ)	212	
221	Z	058:11:34.714	136:20:47.949	7	250	0.0	0.0		03/28/91	COVE (R/AZ)	221	
135	F	058:11:51.574	136:30:27.410	18	250	0.0	0.0	2	04/05/91	CAPE	135	581363
136	F	058:11:49.673	136:20:50.459	6	250	0.0	0.0	B	04/09/91	SKY	136	
236	Z	058:11:49.673	136:20:50.459	6	250	0.0	0.0		04/05/91	SKY R/AZ	236	
230	Z	058:14:18.493	136:20:16.427	6	250	0.0	0.0		04/05/91	LAV R/AZ	230	
137	F	058:12:36.119	136:21:49.902	15	250	0.0	0.0	2	05/05/91	DUNK NO 2	137	
211	Z	058:15:14.570	136:17:41.249	5	250	0.0	0.0		04/06/91	OCTA R/AZ	211	
205	Z	058:12:57.823	136:18:41.194	6	250	0.0	0.0		04/05/91	HAM 2 R/AZ	205	
209	Z	058:13:22.558	136:21:22.945	19	250	0.0	0.0		04/05/91	HAIR R/AZ	209	
138	F	058:13:08.135	136:20:01.278	6	250	0.0	0.0	B	04/07/91	MINK	138	
200	Z	058:15:48.046	136:07:57.536	8	250	0.0	0.0		04/06/91	YAK R/AZ	200	
201	Z	058:13:12.460	136:09:58.937	8	250	0.0	0.0		04/06/91	GULL TP R/AZ	201	
213	Z	058:12:43.819	136:22:51.081	10	250	0.0	0.0		04/09/91	ADZE R/AZ	213	
219	Z	058:15:02.304	136:21:18.505	6	250	0.0	0.0		04/09/91	CANAL R/AZ	219	
233	Z	058:15:15.230	136:23:02.253	15	250	0.0	0.0		04/09/91	SUR R/AZ	233	
139	F	058:09:58.282	136:21:33.918	9	250	0.0	0.0	4	05/01/91	DALI	139	
143	F	058:14:46.129	136:20:46.891	5	250	0.0	0.0		04/21/91	ODIN	143	
141	F	058:14:14.253	136:21:47.079	6	250	0.0	0.0	2	05/05/91	URSA	141	
270	Z	058:15:04.561	136:21:48.250	5	250	0.0	0.0		04/21/91	EMBO R/AZ	270	
251	Z	058:13:00.397	136:21:31.694	6	250	0.0	0.0		04/21/91	AREA R/AZ	251	
142	F	058:08:31.134	136:20:53.813	6	250	0.0	0.0	C	05/04/91	EMBO	142	
170	F	058:15:04.561	136:21:48.250	5	250	0.0	0.0	E	04/22/91	ZEN	170	
140	F	058:12:42.391	136:22:52.644	18	250	0.0	0.0		04/22/91	GEORGE IS LT	140	
240	Z	058:12:42.391	136:22:52.644	18	250	0.0	0.0		04/22/91	HOBBIT HOLE TP	240	
144	F	058:14:51.870	136:20:37.104	5	250	0.0	0.0	E	04/22/91	GEORGE IS LT R/AZ	240	
151	F	058:13:00.397	136:21:31.694	6	250	0.0	0.0	E	05/02/91	AREA	151	
145	F	058:14:26.204	136:20:47.645	4	250	0.0	0.0	2	05/06/91	WHOA	145	
245	Z	058:14:26.204	136:20:47.645	4	250	0.0	0.0		04/22/91	WHOA R/AZ	245	
243	Z	058:14:46.129	136:20:46.891	5	259	0.0	0.0		04/22/91	ODIN R/AZ	243	
241	Z	058:14:14.253	136:21:47.079	6	250	0.0	0.0		04/23/91	HOLE R/AZ	229	
229	Z	058:12:08.803	136:21:21.384	5	250	0.0	0.0		04/22/91	GRAN R/AZ	228	
228	Z	058:11:43.986	136:22:37.906	9	250	0.0	0.0		04/23/91	RUDE 2	152	
152	F	058:09:57.989	136:23:25.066	6	250	0.0	0.0	A	05/01/91	RAIN	153	581362
153	F	058:08:18.190	136:25:21.164	27	250	0.0	0.0	1	05/02/91	CAPE SPENCER LT R/AZ	220	
220	Z	058:11:56.358	136:38:25.437	37	250	0.0	0.0		05/02/91	DREAD	154	
154	F	058:09:12.753	136:23:04.546	23	250	0.0	0.0	E	05/03/91	WEST	155	
155	F	058:11:38.436	136:23:48.166	0	250	0.0	0.0		00/00/00	DALE	156	
156	F	058:11:51.099	136:23:28.690	0	250	0.0	0.0		00/00/00	LLAMA	157	
157	F	058:07:39.976	136:17:50.319	6	250	0.0	0.0	A	05/04/91	DUNK NO 2 R/AZ	237	
237	Z	058:12:36.119	136:21:49.902	15	250	0.0	0.0		05/05/91	FAKE R/AZ	203	
203	Z	058:13:46.951	136:18:52.808	7	250	0.0	0.0		00/00/00	MINK R/AZ	238	
204	Z	058:19:03.968	136:15:34.968	10	250	0.0	0.0		00/00/00	HOBBIT HOLE TP R/AZ	244	
238	Z	058:13:08.135	136:20:01.278	6	250	0.0	0.0		00/00/00			
244	Z	058:14:51.870	136:20:37.104	5	250	0.0	0.0		00/00/00			



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

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

May 7, 1991


**ADVANCE
INFORMATION**

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

Dear Sir:

While conducting hydrographic survey operations in Cross Sound, Alaska, NOAA Ship RAINIER discovered 2 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



ADVANCE
INFORMATION

RA-PMC-116-073

P 061607Z MAY 91
FM NOAA S RAINIER
TO CGGDSEVENTEEN JUNEAU AK
DMAHTCNAVWARN WASHINGTON DC//MCNM//
INFO NOAA MOP SEATTLE WA
ACCT CM-VCAA

BT
UNCLAS
NOAA SHIP RAINIER HAS FOUND 2 DANGERS TO NAVIGATION IN CROSS
SOUND, ALASKA (PROJECT DPR-0106-RA) WITHIN THE LIMITS OF
HYDROGRAPHIC SURVEY H-10374 (CENTRAL PORTION OF CROSS SOUND).
THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL
NOTICE TO MARINIERS:

CHARTS AFFECTED: 17302 15TH ED MAY 20/89 1:80,000 NAD83
17300 25TH ED APR 29/89 1:209,978 NAD83
16760 8TH ED JUL 28/90 1:300,000 NAD83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

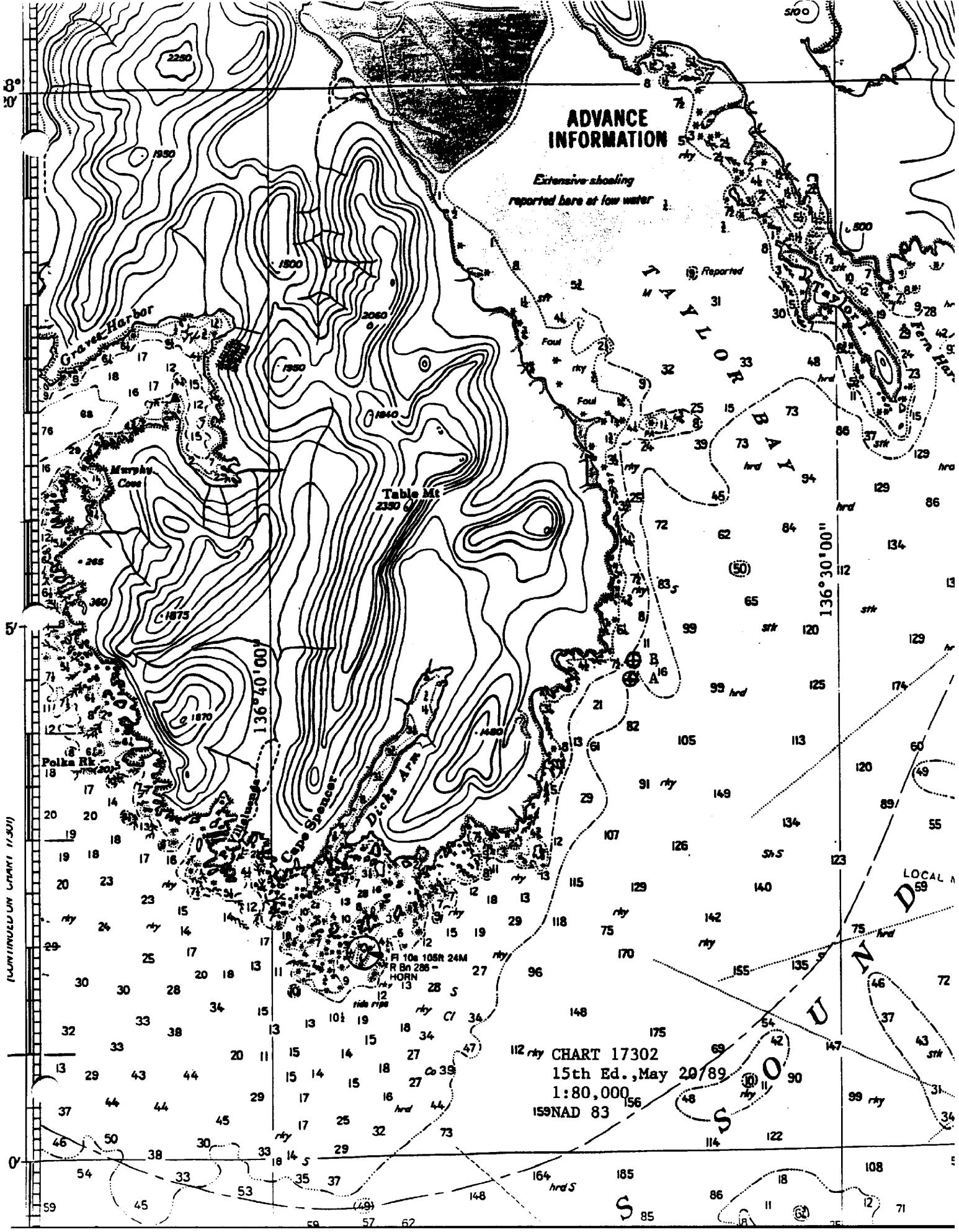
ITEM	DANGER	CHART	DEPTH	DATUM	LATITUDE	LONGITUDE	
A.	SHOAL	17302	9 3/4FM	NAD83	58-14-26.74N	136-33-39.65W	<i>coordinates and depths unrevised, retained as reported</i>
	COV	17300	9 3/4FM	NAD83			
		16760	9 3/4FM	NAD83			
B.	SHOAL	17302	12FM	NAD83	58-14-35.42N	136-33-36.88W	
	COV	17300	12FM	NAD83			
		16760	12FM	NAD83			

C. ADDITIONAL SHOALS LIKELY EXIST IN THE VICINITY. MARINERS
SHOULD EXERCISE CAUTION WHEN NAVIGATING IN THIS AREA.

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

*****TOD 061620Z MAY 91 KVV TPOST*****



ADVANCE INFORMATION

Extensive shoaling reported here at low water

(CONTINUED ON CHART 17301)

CHART 17302
 15th Ed., May 20/89
 1:80,000
 159NAD 83

LOCAL A
 59



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

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

June 3, 1991

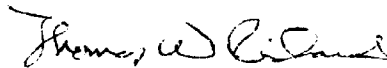
**ADVANCE
INFORMATION**

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

Dear Sir:

While conducting hydrographic survey operations in Cross Sound, Alaska, NOAA Ship RAINIER discovered 7 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



**ADVANCE
INFORMATION**

P 022010Z JUN 91
FM NOAA RAINIER
TO CGG0SEVENTEEN JUNEAU AK
DMAHTCNAVWARM WASHINGTON DC//MCNM//
INFO NOAA MOP SEATTLE WA
ACCT CM-VCAA

BT
UNCLAS

NOAA SHIP RAINIER HAS FOUND 7 ADDITIONAL DANGERS TO NAVIGATION IN
CROSS SOUND, ALASKA (PROJECT OPR-0106-RA) WITHIN THE LIMITS OF
HYDROGRAPHIC SURVEY H-10374 (CENTRAL PORTION OF CROSS SOUND).
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 8TH ED JUL 28/90 1:300,000 NAD83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	CHART	DEPTH	DATUM	LATITUDE	LONGITUDE
A.	SHOAL	17302	9 1/4FM	NAD83	58-10-41.61N	136-31-43.06W
	COV	17300	9 1/4FM	NAD83		
		16760	9 1/4FM	NAD83		
B.	SHOAL	17302	6 1/4FM	NAD83	58-09-23.58N	136-31-28.32W
	COV					
C.	SHOAL	17302	6 3/4FM	NAD83	58-08-43.16N	136-31-51.78W
	COV					
D.	SHOAL	17302	5 1/2FM	NAD83	58-08-49.72N	136-31-08.50W
	COV	17300	5 1/2FM	NAD83		
		16760	5 1/2FM	NAD83		
E.	SHOAL	17302	10 1/2FM	NAD83	58-11-08.37N	136-38-15.87W
	COV	17300	10 1/2FM	NAD83		
		16760	10 1/2FM	NAD83		
F.	SHOAL	17302	7 1/4FM	NAD83	58-09-05.99N	136-30-40.63W
	COV					
G.	SHOAL	17302	6 3/4FM	NAD83	58-09-12.50N	136-31-00.66W
	COV					

Fix # Meters

4650+7 17.3

2033+9 11.6

8160+⁴~~3~~ 12.8

8241+3 10.5

8485+4 19.5

2087+1 13.7

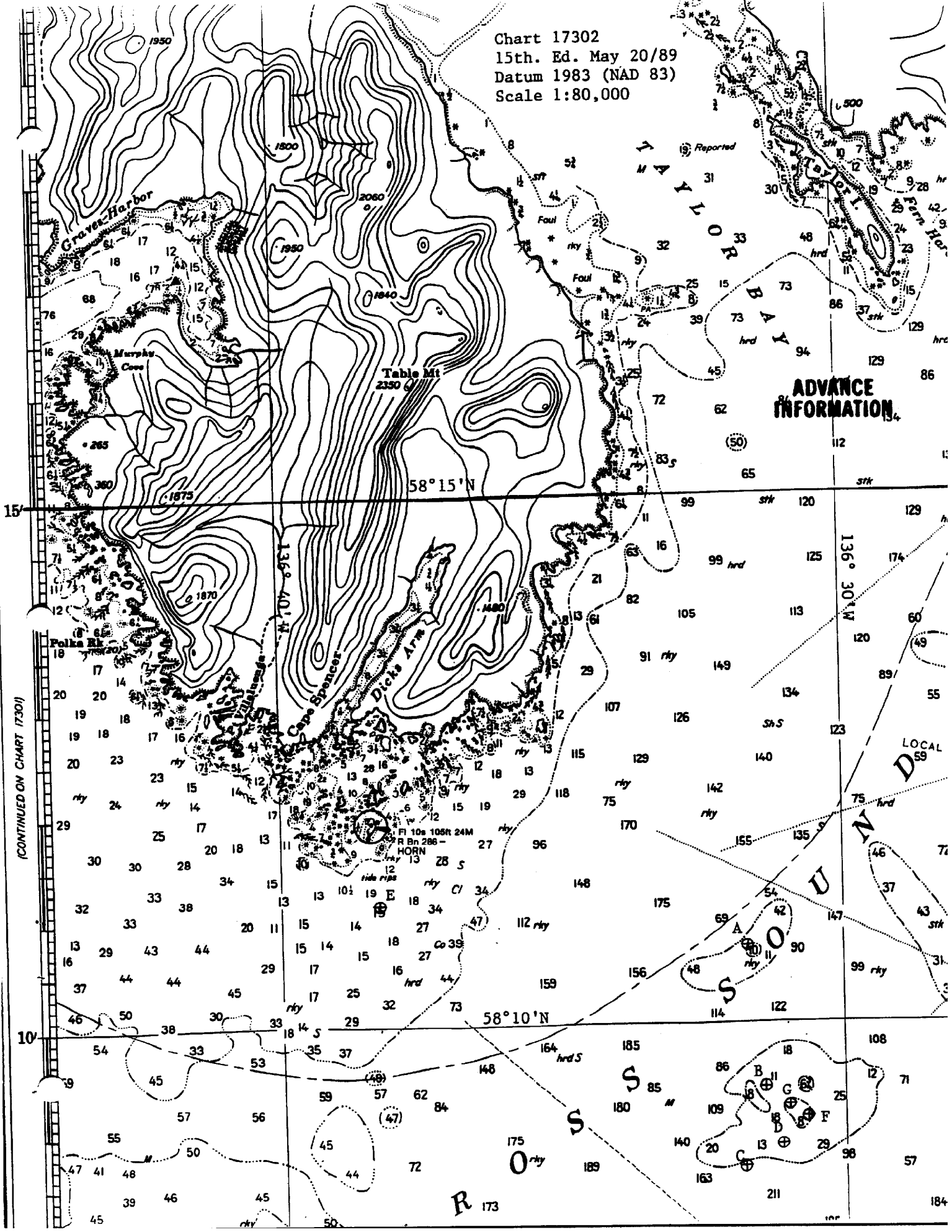
2083+5 12.9

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

*coordinates and
depths unraised,
retained as
reported*

TOP 030317Z JUN 91

Chart 17302
 15th. Ed. May 20/89
 Datum 1983 (NAD 83)
 Scale 1:80,000



ADVANCE INFORMATION

(CONTINUED ON CHART 17301)

LOCAL 59

15°
10°

58° 15' N

58° 10' N

136° 30' W

R 173



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

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

June 8, 1991

**ADVANCE
INFORMATION**

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

Dear Sir:

NOAA Ship RAINIER has found 4 soundings of interest to troller fishermen in Cross Sound, Alaska (Project OPR-0106-RA) within the limits of hydrographic survey H-10374 (Central Portion of Cross Sound). I recommend these 4 soundings be published in the GENERAL section of the Local Notice to Mariners as chart corrections for NOS chart 17302 (15th ED, MAY 20/89, 1:80,000 scale, NAD83). Although these soundings are not dangers to surface navigation, they are considerably shoaler than charted depths and are potential hazards to fishing gear.

Depths are reduced to MLLW and based on predicted tides.

ITEM	CHART	DEPTH	DATUM	LATITUDE	LONGITUDE	
A.	17302	29FM	NAD83	58-14-55.2N	136-26-51.2W	coordinates and depths unrevised, retained as reported.
B.	17302	24FM	NAD83	58-13-50.7N	136-26-08.3W	
C.	17302	24FM	NAD83	58-13-21.4N	136-25-53.4W	
D.	17302	25FM	NAD83	58-08-59.4N	136-28-53.7W	

This is advance information subject to office review. Questions concerning these soundings should be directed to the Chief, Pacific Hydrographic Section at (206) 526-6835. A copy of the chart showing the areas in which the soundings exist is also attached.

Sincerely,

Thomas W. Richards
Thomas W. Richards
Captain, NOAA
Commanding Officer

Enclosures

cc: N/CG245
N/CG221
PMC



35'

136°30'

25'

15th Ed., May 20/89
17302

Table Mt
2350

ADVANCE INFORMATION

(CONTINUED ON CHART 17301)

58° 10'

ON CHART 17300

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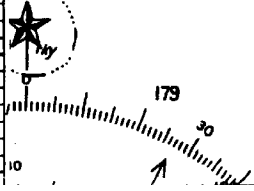
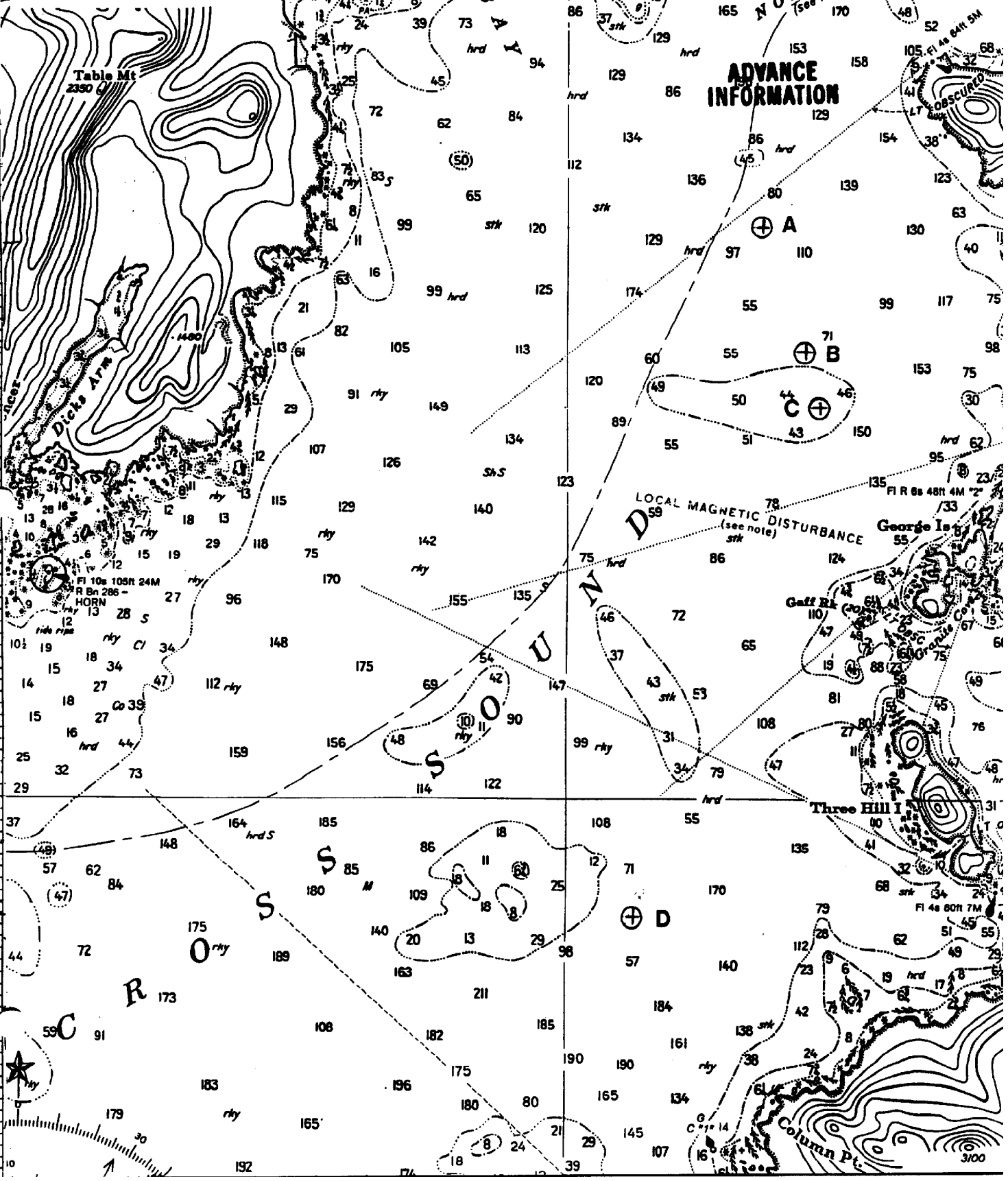
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LOCAL MAGNETIC DISTURBANCE
(see note)
stk

Three Hill I

Column Pt.



011903
101
P Z MAY 91
FM NOAA S RAINIER
TO NOAA MOP SEATTLE WA
BT
UNCLAS

File: TP-01329.DOS

**ADVANCE
INFORMATION**

INFO PMC1X2/JOHN WILDER

SUBJ: SHORELINE MANUSCRIPT TP-01329

1. SUSPECT SERIOUS ERROR IN SHORELINE MANUSCRIPT TP-01329 (DTD 1/89) IN THE PORTRAYAL OF A GROUP OF NINE SUBMERGED ROCKS CENTERED AT LAT 58-14.65N, LON 136-33.50W (NAD27), AND A GROUP OF FOUR SUBMERGED ROCKS CENTERED AT LAT 58-14.15N, LON 136-32.60W (NAD27). THIS IS ADJACENT TO A MAJOR SHIPPING ROUTE. THESE ROCKS ARE NOT PRESENTLY CHARTED ON CHART 17302 (15TH ED., MAY 20/89). RAINIER HAS NO RECORD OF A NOTICE TO MARINER HAVING BEEN ISSUED ON THEM. MANUSCRIPT POSITIONS ARE AS MUCH AS ONE NAUTICAL MILE OFFSHORE WHERE CHART DEPTHS RANGE FROM 10 FATHOMS TO WELL OVER 50 FATHOMS.

2. ROCKS ARE NOT ASSIGNED AS AWOIS ITEMS.

3. IF PHOTOGRAMMETRY TRULY BELIEVES THESE SUBMERGED ROCKS EXIST, SHOULD A NOTICE TO MARINERS BE PUBLISHED IMMEDIATELY?

4. DOES PHOTOGRAMMETRY SYSTEMATICALLY COMPARE THE SHORELINE MANUSCRIPT WITH THE EXISTING CHART TO IDENTIFY AND REPORT POTENTIAL DANGERS TO NAVIGATION?

5. WILL AWAIT RESPONSE FROM PHOTOGRAMMETRY VIA PMC ON THE DISPOSITION OF THESE ROCKS BEFORE EXPENDING MAJOR EFFORT TO DISPROVE THESE QUESTIONABLE FEATURES.

BT

ADVANCE
INFORMATION

TWR
NO CD
NAVO DC
ENS JOHNSON JH
POO HAS COPY
PLS RETURN TO E.O.

P 021745Z MAY 91 ✓
FM NOAA MOP SEATTLE WA
TO NOAA S RAINIER

BT
UNCLAS
PMC-RA-070-103/PMC1X2/PMC1
SUBJ: SHORELINE MANUSCRIPT TP-01329
A. UR P 011903Z MAY 91

NOREP
1. N/CG241 INDICATES THAT REVIEW OF PHOTOGRAPHY USED FOR
SUBJ MANUSCRIPT REVEALED THE FOLLOWING:

A. FEATURES DESIGNATED AS FOUR SUBMERGED ROCKS CENTERED
AT 58-14.15N, 136-32.60W SHOWED UP ON ONLY ONE PHOTO. THEY
ARE CONSIDERED TO BE A MOVING OBJECT AND DO NOT REQUIRE
FURTHER INVESTIGATION. ✓

B. FEATURES DESIGNATED AS NINE SUBMERGED ROCKS CENTERED
AT 58-14.65N, 136-33.50W SHOWED UP ON TWO PHOTOS. THERE IS
A POSSIBILITY THAT THEY ARE KELP. N/CG241 DESIRES THAT YOU
ACQUIRE DP'S OVER POSITIONS OF ALL NINE ROCKS. ✓

2. N/CG22 IS CONDUCTING FURTHER STUDY ON FEATURES OF PARA B
ABOVE. DANGER TO NAVIGATION IS NOT TO BE ISSUED UNLESS
N/CG22 DETERMINES IT IS REQUIRED OR YOU VERIFY FEATURES
DURING DP ACQUISITION. ✓

3. IRT PARA 4 OF REF A, PHOTOGRAMMETRY DOES COMPARE
MANUSCRIPT FEATURES TO THE EXISTING CHART FOR DANGERS.
HOWEVER, IN THIS CASE COMPILATION FOR SUBJ MANUSCRIPT HAS
RECENTLY BEEN COMPLETED AND COMPARISON NOT YET MADE.

4. A MEMO WILL BE FORWARDED FROM N/CG22 OUTLINING OFFICIAL
CHANGES TO THE MANUSCRIPT.
BT

*****TOR 021816Z MAY 91 KVJ TPOST*****

**ADVANCE
INFORMATION**

THK
NO CL
FOO
NAVS
ENS
PLS RTN to FOO
JOHNSON
THK HQ
CO.

P 052124Z MAY 91
FM NOAA S RAINIER
TO NOAA MOP SEATTLE WA

BT
UNCLAS
RA-PMC-115-073
PASS TO PMC1X2

SUBJ: SHORELINE MANUSCRIPT TP-01329

A. UR P021745Z MAY 91
OBTAINED 13 DPS AT T-SHEET POSITIONS PER N/CG241 REQUEST. NO SHOAL INDICATED
AT 4 POSITIONS CENTERED AT 58-14.15N, 136-32.60W. DEPTHS OF 9 3/4 FATHOMS TO
17 FATHOMS FOUND AT 9 POSITIONS CENTERED AT 58-14.65N, 136-33.50W. TWO
DANGERS TO NAVIGATION WILL BE REPORTED TO USCG BY RAINIER: 9 3/4 FATHOMS AT
58-14-26.74N, 136-33-39.65W, AND 12 FATHOMS AT 58-14-35.42N, 136-33-36.88W.
BT

*****TOD 052320Z MAY 91 KVJ TPOST*****

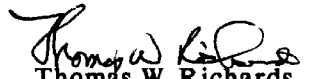
APPROVAL SHEET

for

H-10374

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

ORIGINAL

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: August 28, 1991

MARINE CENTER: Pacific

OPR: 0106-RA

HYDROGRAPHIC SHEET: H-10374

LOCALITY: Central Portion of Cross Sound, Cross Sound, Alaska

TIME PERIOD: April 8, 1991 - May 3, 1991

TIDE STATIONS USED: 945-2634 (945-2635) Elfin Cove, Alaska
Lat. 58° 11.6'N Lon. 136° 20.8'W

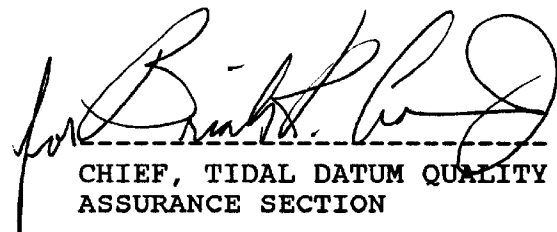
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 10.53 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 10.0 ft.

REMARKS: RECOMMENDED ZONING

1. East of 136° 41.0' and west of 136° 34.0', times are direct and apply a x0.96 range ratio to Elfin Cove.
2. East of 136° 34.0' and west of 136° 24.5', times are direct and apply a x0.99 range ratio to Elfin Cove.

Notes: Elfin Cove station # is 945-2634, however, the data is in file # 945-2635.
Times are tabulated in Greenwich Mean Time.


CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

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 K										
	ALASKA (TITLE)	X									
CROSS SOUND	X										2
TAYLOR BAY	X										3
NORTH INIAN PASS	X										4
											5
											6
											7
											8
											9
											10
											11
											12
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											14
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											23
											24
											25

Approved:

Charles E. Harrington
Chief Geographer - N/CG2x5

NOV 13 1991

NOAA FORM 77-27(H) (9-83)		U.S. DEPARTMENT OF COMMERCE		REGISTRY NUMBER H-10374	
HYDROGRAPHIC SURVEY STATISTICS					
RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.					
RECORD DESCRIPTION		AMOUNT		RECORD DESCRIPTION	
SMOOTH SHEET		1		SMOOTH OVERLAYS: POS., ARC, EXCESS	
DESCRIPTIVE REPORT		1		FIELD SHEETS AND OTHER OVERLAYS	
DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDION FILES	2				
ENVELOPES					
VOLUMES	1				
CAHIERS					
BOXES					
SHORELINE DATA					
SHORELINE MAPS (List):					
PHOTOBATHYMETRIC MAPS (List):					
NOTES TO THE HYDROGRAPHER (List):					
SPECIAL REPORTS (List):					
NAUTICAL CHARTS (List):					
OFFICE PROCESSING ACTIVITIES <i>The following statistics will be submitted with the cartographer's report on the survey</i>					
PROCESSING ACTIVITY			AMOUNTS		
			VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET					1509
POSITIONS REVISED					
SOUNDINGS REVISED					
CONTROL STATIONS REVISED					
			TIME-HOURS		
			VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION					
VERIFICATION OF CONTROL					
VERIFICATION OF POSITIONS			83		83
VERIFICATION OF SOUNDINGS			151		151
VERIFICATION OF JUNCTIONS					
APPLICATION OF PHOTOBATHYMETRY					
SHORELINE APPLICATION/VERIFICATION					
COMPILATION OF SMOOTH SHEET			93		93
COMPARISON WITH PRIOR SURVEYS AND CHARTS				5	5
EVALUATION OF SIDE SCAN SONAR RECORDS					
EVALUATION OF WIRE DRAGS AND SWEEPS					
EVALUATION REPORT				33	33
GEOGRAPHIC NAMES					
OTHER*					
*USE OTHER SIDE OF FORM FOR REMARKS			TOTALS	327	338
Pre-processing Examination by LT M. Brown			Beginning Date 5/30/91	Ending Date 6/13/91	
Verification of Field Data by E. Domingo, T. Jones, J. Stringham, B. Brown			Time (Hours) 327	Ending Date 11/18/91	
Verification Check by S. Otsubo, J. Stringham			Time (Hours) 27.0	Ending Date 1/7/92	
Evaluation and Analysis by R. Mihailov			Time (Hours) 38.0	Ending Date 3/24/92	
Inspection by D. Hill			Time (Hours) 4	Ending Date 5-14-92	

EVALUATION REPORT H-10374

1. INTRODUCTION

Survey H-10374 is a basic hydrographic survey accomplished by the NOAA Ship RAINIER under the following Project Instructions.

OPR-O106-RA, dated February 21, 1991

This survey was conducted in Alaska and covers the area located near the entrance to Cross Sound, between Cape Spencer and Three Hill Island. The survey area is approximately 70 nautical miles east of the city of Juneau. Sheet limits extend from latitude 58/06/48N to latitude 58/16/42N and longitude 136/25/06W to longitude 136/40/12W. There is no shoreline within the area limits of this survey. The bottom consists mainly of sand and shells. Depths range from 10.5 meters to 344 meters.

Predicted tides for Sitka, Alaska, were used for the reduction of soundings during field processing. Approved hourly heights zoned from Elfin Cove, Alaska, gage 945-2634, 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. 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 1991 Electronic Control Report for OPR-O106-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:	-1.354 seconds	(-41.90 meters)
Longitude:	6.683 seconds	(109.165 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 several positions exceeds limits in terms of the error circle radius and residual or have angles of intersection less than 30 degrees or more than 150 degrees. A

review of the data indicates that none of these fixes are used to position the 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.

There is no shoreline on this survey.

3. HYDROGRAPHY

Hydrography is adequate to:

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

4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3; the Hydrographic Survey Guidelines; and the Field Procedures Manual, April 1990 Edition.

5. JUNCTIONS

Survey H-10374 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10371	1991	1:10,000	Northeast
H-10376	1991	1:10,000	East
H-10377	1991	1:10,000	Southeast
H-10425	1992	1:10,000	North

Survey H-10371 was accomplished during the 1991 field season and has been recently received for processing. The survey is in a preliminary stage of processing and the junction will be discussed in the report for this survey.

Surveys H-10376, H-10377 and H-10425 have not been received for office processing.

There are no contemporary junction surveys to the south and west. Charted soundings and depth curves within the common areas reveal adequate agreement.

6. COMPARISON WITH PRIOR SURVEYS

H-2558 (1901) 1:40,000

Prior survey H-2558 covers the entire area of the present survey. The sounding agreement is generally fair, with the present survey usually shoaler. Sporadic differences between 10 and 90 meters are found in a few areas. These differences are attributed to

the small scale, increased line spacing and the less accurate positioning methods available at the time that the prior survey was accomplished.

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

Survey H-10374 is adequate to supersede survey H-2558 within the area of common coverage.

H-4318WD (1923) 1:40,000

Prior wire-drag survey H-4318 covers the entire area of the present survey. The present depths do not conflict with the cleared areas of the prior wire-drag survey.

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.

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-2558, H-4318WD and miscellaneous sources.

Survey H-10374 is adequate to supersede charted hydrography within the common area.

b. AWOIS

Only one AWOIS item (51795) is located within the limits of survey H-10374. It originates from a miscellaneous source. Refer to the hydrographer's report section N for discussion of this item.

c. Controlling Depths

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

d. Aids to Navigation

Cape Spencer Light (Light List No. 24240) is the only fixed aid to navigation located within the limits of survey H-10374. This aid was located to third order accuracy specifications. The position agrees well with the charted position. This fixed aid adequately serves the intended purpose.

There are no floating aids to navigation located within the limits of survey H-10374.

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

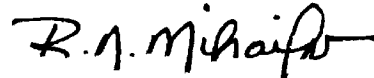
The hydrographer reported nine dangers to navigation and four additional items to the DMAHTC and the Seventeenth Coast Guard District. Copies of these reports are attached. No additional dangers were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10374 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

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



Robert N. Mihailov
Cartographer

APPROVAL SHEET
H-10374

Initial Approvals:

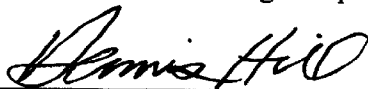
The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproval of charted data. The digital data have been completed and all revisions and 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.



Date: 5-14-92

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.

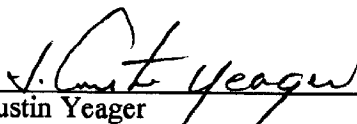


Date: 5-14-92

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

Final Approval

Approved:

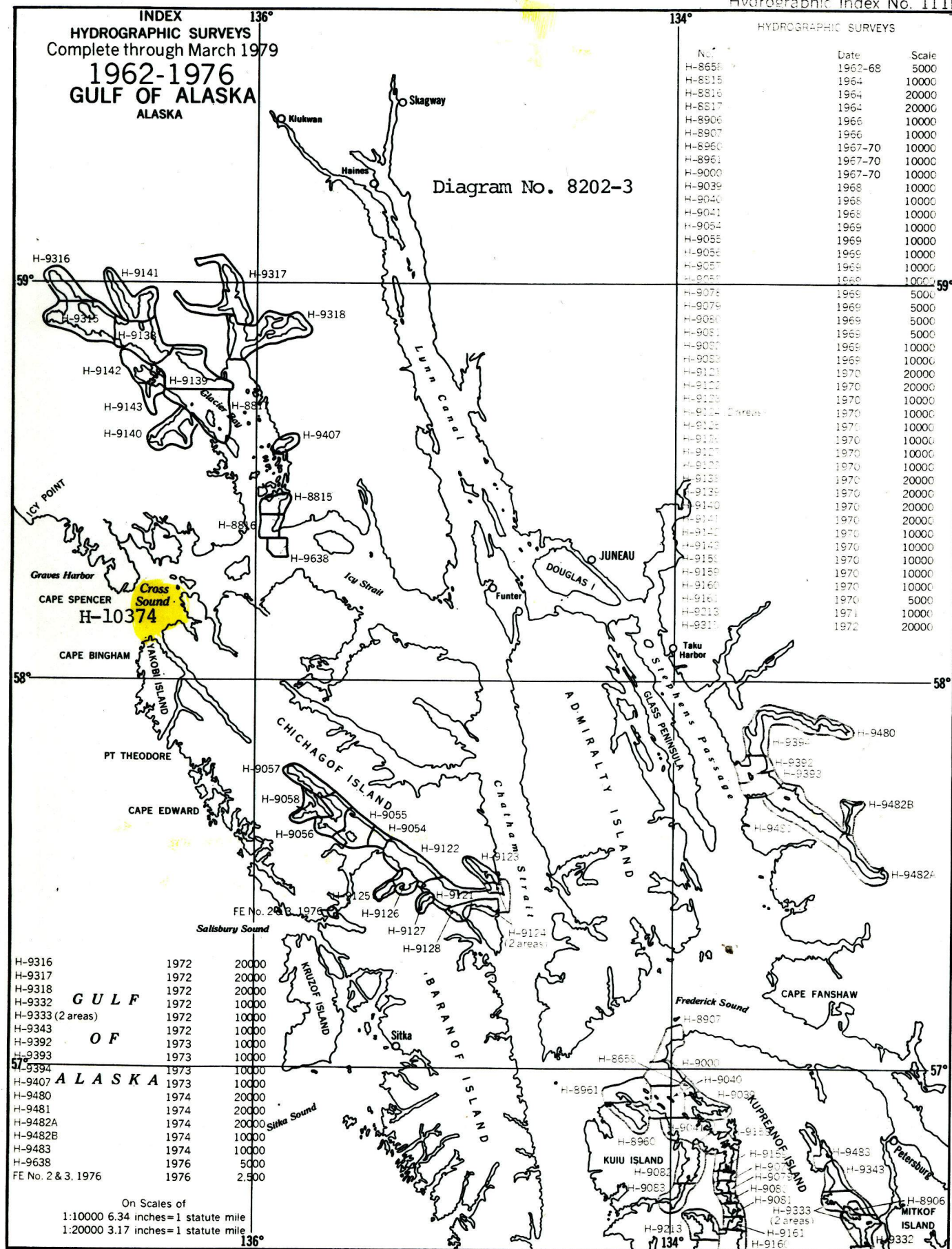


Date: 9/28/93

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-10374

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	10-22-91	R.N. M. <i>RAIF</i>	Full Part Before After Marine Center Approval Signed Via <i>Partial application</i> Drawing No. <i>of sndgs. from final field sheet.</i>
17301	2-24-93	<i>Thomas J. Ferris</i>	Full Part Before After Marine Center Approval Signed Via <i>Full application</i> Drawing No. <i>12 of soundings and depth curves.</i>
17303	2-26-93	<i>Thomas J. Ferris</i>	Full Part Before After Marine Center Approval Signed Via <i>Full application</i> Drawing No. <i>13 of soundings and depth curves</i>
17300	3-8-93	<i>E. J. Johnston</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>29</i>
			Full Part Before After Marine Center Approval Signed Via Drawing No. <i>15</i>
16760	3-20-93	<i>AM Barrington</i>	Full Part Before After Marine Center Approval Signed Via <i>applied thru chart 17300 #29</i> Drawing No.
16016	4/29/93	<i>C. Jones</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>24 APP'D THRU CHART 16760</i>
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.