10376

Diagram No. 8202-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. RA-10-2-91

Registry No. H-10376

LOCALITY

State Alaska

General Locality Cross Sound

Sublocality North Portion of Port Althorp & Approaches

1992

CHIEF OF PARTY
CAPT T.W. Richards

LIBRARY & ARCHIVES

DATE November 29, 1993

☆U.S. GOV. PRINTING OFFICE: 1987—756-980

10376

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-10376

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-10-2-91

State Alaska

General locality Cross Sound

Locality North Portion of Port Althrop and Approaches

Scale 1:10,000 Date of survey 20 April - 06 May, 1991
23 March - 23 April, 1992

Instructions dated Feb. 21, 1991, Feb. 18, 1992 Project No. OPR-0106-RA

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

Chief of party CAPT Thomas W. Richards, NOAA

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

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

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

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

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

Soundings in meters ~~fathoms 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. All depths listed in this report are referenced to mean lower low water unless otherwise noted.

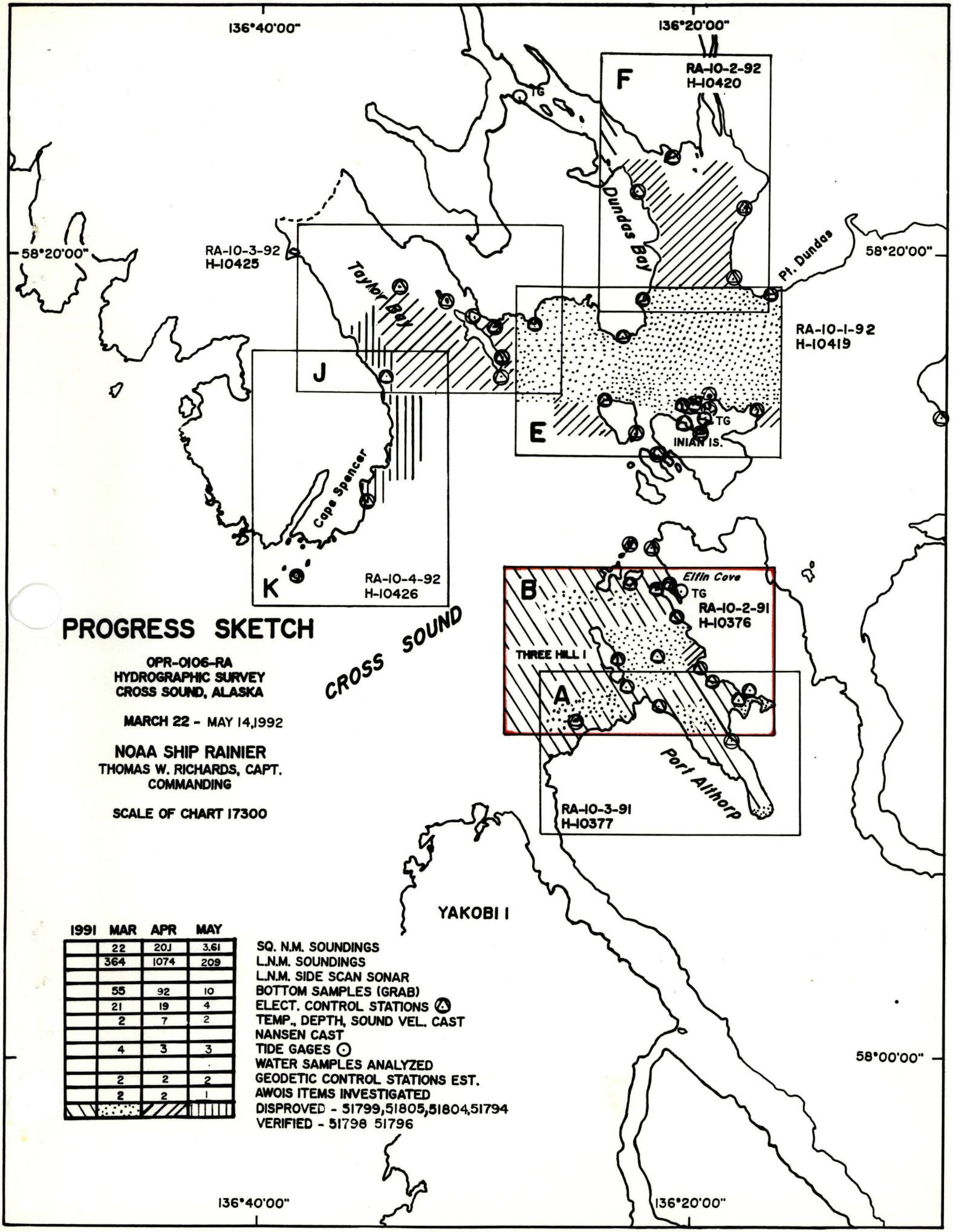
SURF AND AWOLS Check
12/13/93 MCR

JAN 29 1997

K.W.W. 1/27/94

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

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978-665-010-1174



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	201	361
	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-10376

Field Number RA-10-2-91
Scale 1:10,000
May 1992

NOAA Ship RAINIER
Chief of Party: Captain Thomas W. Richards, NOAA

A. PROJECT ✓

This basic hydrographic survey was conducted in Cross Sound, Alaska, as specified by OPR-O106-RA Project Instructions dated February 21, 1991, February 18, 1992, and Change No. 1 dated September 5, 1991. This survey is designated Sheet B 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 and Icy Strait, Alaska 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 shallower than those charted. Troller fisherman have requested a detailed survey to aid in preventing the loss of trolling gear.

B. AREA SURVEYED ✓

The survey, located in Cross Sound, Alaska, 62 NM west of Juneau, encompasses the near shore area around Three Hill Island and the northern approaches to Port Althorp. The survey limits are the western shoreline of Chichagof Island to the east; 58° 09' 15"N to the south; 136° 27' 30"W to the west; and the shoreline of the George Islands south of 58° 12' 00"N. Data acquisition was conducted from April 20 to May 06, 1991 (DN 110 to 126) and from March 23 to April 23, 1992 (DN 083 to 114).

The shoreline ranges from a gently elevated beach with small boulders to a steep rocky slope and is heavily wooded with dense undergrowth at the tree line.

C. SURVEY VESSELS ✓

Data were acquired by NOAA Ship RAINIER and the four automated survey launches shown below:

Vessel	EDP No.	Operations
RAINIER	2120	Velocity Cast
RA-3	2123	Hydrography Shoreline Verification
RA-4	2124	Hydrography Shoreline Verification
RA-5	2125	Bottom Sampling Shoreline Verification Velocity Cast
RA-6	2126	Hydrography Shoreline Verification

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 support.

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

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

Program Name	Version 1	Version 2	Update 1
SURVEY	5.11	6.10	6.11
POSTSUR	5.10	5.20	5.21
PLOTALL	1.91	2.01	2.02
POINT	1.30	2.04	----
BACKUP	2.00	----	----
CONVERT	2.40	3.02	----
PRINTOUT	2.30	3.00	----
DIAGNOSTIC	2.70	3.00	----
INVERSE	1.30	1.51	----
INSTALL	2.00	3.00	----
BASELINE	1.10	1.11	1.12
QUICK	1.10	----	----
LISTAWOIS	1.20	2.00	2.01
LOADNEW	1.30	1.50	----
REJECT	1.00	1.05	----
CARTO	1.20	2.01	2.02
Vers	0.00	0.00	0.00
BACKOLD	1.10	1.12	----
NEWCONT	1.10	1.17	----
DISC_UTIL	1.00	----	----
MB	0.00	1.00	----
HJ	0.00	1.00	----
AUTOST	1.10	2.00	----

GLOBAL	1.10	1.12	----
MAKEFIX	1.00	1.02	----
BIGABST	1.11	1.60	2.00
REAPPLY	1.30	1.33	----
PREDICT	1.10	1.11	----
READPROJS	1.06	1.08	----
SOFTCHECK	1.10	1.12	1.13
HPRAZ	1.21	1.24	----
FILESYS	2.11	2.16	----
DP	1.10	1.12	2.00
MANU_DATA	1.10	1.12	----
RAMSAVER	1.00	----	----
GRAPHEDIT	0.00	Renamed to ZOOMEDIT	
ZOOMEDIT	See GRAPHEDIT	1.10	----
EXCESS	0.00	3.03	3.04
RECOMP	NA	2.00	----
COPRINTOUT	NA	1.00	----
DAS_SURV	NA	6.20	6.21
UNIXSYS	NA	NA	2.00
SYMBOLS	NA	NA	1.00
CARTOTRANS	NA	NA	1.00

** "----" signifies that no new version was issued, and "NA" signifies that the program did not exist at that time.

Version 1 software was in effect from Apr 19, 1991 to May 30, 1991.

Version 2 software was in effect from Mar 09, 1992 to Apr 15, 1992.

Update 1 is an update to Version 2 software and was installed on Apr 15, 1992. Version 2 software along with the programs listed in Update 1 was in effect from Apr 15, 1992 to present time.

Software versions for the time period of May 31, 1991 to Mar 08, 1992 were not included since no data acquisition or processing occurred during this time period.

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. The data sets affected are addressed in Section I. See Section I of this report.

Velocity corrections were determined using:

Program Name	Version	Date Installed
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

Vessel	Serial No.	DN
2123	A117N	121-123 (1991)
	A114N	083-095 (1992)
	B044N	096-098 (1992)
2124	A103N	112-121 (1991)
	B039N	096 (1992)
	A103N	100-112 (1992)
2125	B048N	110-126 (1991)
	B048N	083-100 (1992)
2126	A114N	111-126 (1991)
	A117N	084-114 (1992)

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 sounding 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 in steeply sloping areas could not always be avoided. All data was analyzed during office processing and found to be consistent with the surrounding depth information.

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 or Spring 1992 Corrections to Echo Sounding Data Packages for OPR-O106-RA.

Sound Velocity

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

Velocity Table No.	Cast No.	Deepest Depth (m)	Applicable DN	Cast Position	Day
3	4A	296.9	105-127 (1991)	58°07'06"N 136°34'12"W	109 (1991)
N/A	4B	52.5	N/A	58°07'06"N 136°34'12"W	109 (1991)
8	1	69.5	N/A	58°09'41"N 136°27'00"W	083 (1992)
11	4	293.9	81-101 (1992)	58°09'24"N 136°27'25"W	098 (1992)
13	6	188.5	104-128 (1992)	58°09'35"N 136°26'28"W	113 (1992)

Sound velocity cast 4A was 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 cast 4B was 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. The casts showed excellent agreement; therefore, Cast No. 4B was not applied to echosoundings. Sound velocity casts 1, 4, and 6 were acquired with an SBE SEACAT Profiler, S/N 811 which was calibrated at the NRCC on March 3, 1992. Cast number 1 was not used because it was not deep enough for this survey.

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 Corrections to Echo Sounding Data Packages (Spring 1991 and Spring 1992) 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 leadline from the gunwale to the water and subtracting this distance from the distance measured with the square. The measurements from the gunwale to the waterline were conducted with the fuel tanks averaging 3/4 full and three people aboard. During the winter of 1991-92, new transducers were installed on 2123, 2124, and 2126; however, static draft measurements did not change. A transducer depth of 0.6 meter was determined for all launches on March 23-25, 1991 and on March 20-22, 1992.

Settlement and Squat ✓

Settlement and squat correctors were determined for Vessels 2123, 2124, 2125, and 2126 in Shilshole Bay, WA, on February 25, 26, and March 12 in 1991. These correctors were determined again on March 11, 16, and 18 in 1992. All tests were conducted over a hard bottom in depths well exceeding seven times the vessels' drafts. Both sea and wind were calm. Observations were made through a Zeiss Ni2 leveling instrument (S/N 103453 both years) 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 or Spring 1992 Corrections to Echo Sounding Data Packages for OPR-O106-RA.

Heave ✓

Hydrography was suspended until conditions improved when sea and swell conditions exceeded limits noted in HSG #31. Corrections for heave were applied while scanning echograms. The scanning technique used in comparing the analog trace with the digital record eliminated significant fluctuations resulting from sea action.

Pneumatic Depth Gage ✓

The 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 comparisons with divers depth gages each time the pneumatic gage was used. Calibration data and correctors applied to the pneumatic depth gage are included in the Spring 1992 Corrections to Echo Sounding Data Package.

Bar Check Lines ✓

Bar check lines were calibrated by RAINIER personnel on October 9, 1991 and February 19, 1992 at PMC. Calibration forms are included in the Corrections to Echo Sounding Data Package (Spring 1991 and Spring 1992).

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. The time corrector for Sheet B is direct, and the range ratio is x1.13.

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 in Inian Cove, Inian Island (945-2629) and Elfin Cove, Port Althorp, Cross Sound (945-2634). Tide 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.* The approved tide note has been attached to this report.

H. CONTROL STATIONS See Evac 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 ~~Appendix III of~~ this report.

Positions for all existing stations are from the NGS data base. All existing stations were recovered in accordance with methods stated in FPM Section 5.2.4. 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 Reports for OPR-O106-RA.

I. HYDROGRAPHIC POSITION CONTROL ✓

Method of Sounding Position Control ✓

Soundings, bottom samples, and detached positions were located using the Motorola Mini Ranger Falcon 484 microwave positioning system in multi-range mode.

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. There were 245 positions which exceed the specified limits at the scale of the survey. All were reviewed and found acceptable.

* Filed with the hydrographic data

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 were acquired nearby where ECR's and maximum residuals fell within survey specifications.

Equipment ✓

Serial numbers for all positioning equipment are annotated on the RMPO for each day of hydrography. Lists of all electronic equipment serial numbers are included in the Electronic Control Data Package (Spring 1991 and 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 5-6, 1991 (DN035-DN036), and on March 6, 1991 (DN065) calibrations were conducted at the SANDPOINT BASELINE over a published distance of 1058.1876 m. During the Spring 1991 season, two shore transponders (codes A & E) were returned to PMC for repairs. Replacement transponders were calibrated on April 14, 1991 (DN104) and again on April 26, 1991 (DN116) over a measured range of approximately 1265m from Vesno 2123 (in davits) at the NOAA/U.S. Coast Guard Joint Use Pier in Juneau to the Union Oil dock across the harbor. The range was measured by EDMI and was checked frequently during the calibrations. The calibrations on April 26, 1991 (DN116) 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, 1991 (DN104) 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.

On February 13-14, 1992 (DN044-045) and on February 25-26, 1992 (DN056-057) calibrations for Spring 1992 operations were conducted at the SANDPOINT BASELINE in accordance with FPM 3.1.2.1 and 3.1.3.2. Calibration data for Spring 1992 work is included in the Spring 1992 Electronic Control Data Package.

Formal system checks were not documented for multiple LOP hydrography in accordance with FPM 3.1.3.3. Data collected with two LOP's were always bracketed by multiple LOP data acquired with ECR's and maximum residuals within acceptable limits. This served 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.

Other Factors

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

* Filed with the hydrographic data

Incorrect C-O values were called up in the HDAPS survey program on 2 days. No critical features were positioned with these incorrect C-O values. On DN097, hydrography (Pos. 3040-3044) was conducted with a C-O value of 9.00 instead of -9.00 on shore station A. On DN112, hydrography (Pos. 4099-4133) was conducted with a C-O of 0.00 instead of -3.63 on shore station 5, and 0.00 instead of 2.73 on shore station 6. These positions have not been corrected. *All of DN 97 and 112 data was recomputed on the HDAPS system during office processing*

J. SHORELINE *See EvAc Report, section 2*

The shoreline maps (T-sheets) used to transfer shoreline details to the final field sheets were a 1:10,000 scale enlargement of TP-01330 (June 1985-photography, 1:20,000, NAD27) and a 1:10,000 scale reduction of TP-01331 (June 1985-photography, 1:5,000, NAD27).

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

The large number of new features and disprovals found during this survey indicate that T-sheet photography was flown at a stage of tide too high to allow accurate interpretation for charting and hydrography. Numerous items described as kelp on the T-sheet proved to be rocks. There are 13 disprovals of items, some of which may have been kelp mistaken for rocks. However, DPs and inshore hydrography show that photogrammetric and hydrographic positioning are in very good agreement despite the photogrammetric misinterpretation of many features.

Shoreline and T-sheet features verified via visual inspection were assigned sequential reference numbers and recorded in the field using sounding volumes and corresponding 1:10,000 scale photocopies of the T-sheet. Reference numbers, descriptions and heights, corrected to predicted MLLW, are recorded in the sounding volumes. Corresponding notes were annotated on the photocopies of the T-sheet. Changes to shoreline features are described in the sounding volumes where applicable. The annotated photocopies of the T-sheet are attached to the sounding volume which are included with the survey data.

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

Some T-sheet rocks were found to be isolated boulders, reefs, islets, high points within foul areas, or ledges in the intertidal zone. These posed no danger to navigation. 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, changes to the shoreline are shown in red, ~~and unverified shoreline is shown in blue.~~ Kelp symbols are shown on the FFS in areas where surface kelp was visible. *The kelp symbols were transferred to the smooth sheet in areas where kelp was noted in the raw data.*
Detailed 1:10,000-scale paper plots showing all DPs and RNs and notes relating to each feature are included with the sheets submitted with this survey. The HDAPS DP program requires that cartographic codes be assigned to all DPs. These cartographic

codes were not plotted because the majority of the DPs describe features that are offset slightly from the DP. Position numbers for all DPs are plotted on the DP overlay. Heights are recorded in meters and are corrected to ~~predicted~~ MLLW, in the report.

Disprovals

The following disprovals were conducted near predicted lower low water. A visual and echosounder search lasting approximately fifteen minutes was conducted for each item. Positioning was accomplished 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°09'56"N, 136°19'35"W (Pos. No. 4015) was searched for though not found. Water visibility was 3 meters. The area searched was within the interior limits of the cove. N/C

The vicinity of the T-sheet rock at 58°10'22"N, 136°20'02"W (Pos. No. 4016) was searched for though not found. Water visibility was 3 meters. The area searched was within a 50-meter radius of the DP. N/C

The vicinity of the T-sheet rock at 58°10'36"N, 136°20'13"W (Pos. No. 4017) was searched for though not found. Water visibility was 3 meters. The area searched was within a 30-meter radius of the DP.

The vicinity of the T-sheet rock at 58°10'54"N, 136°20'38"W (Pos. No. 4026) was searched for though not found. Water visibility was 4 meters. The area searched was within a 30-meter radius of the DP.

The vicinity of the T-sheet rock at 58°11'55"N, 136°22'18"W (Pos. No. 2000) was searched for though not found. Water visibility was 3 meters. The area searched was within a 50-meter radius of the DP.

The vicinity of the T-sheet rock at 58°11'54"N, 136°23'41"W (Pos. No. 2004) was searched for though not found. Water visibility was 2 meters. The area searched was within a 100-meter radius of the DP. Hydrography (25-meter spacing) was conducted in this area and no rock was detected.

The vicinity of the T-sheet rock at 58°11'52"N, 136°23'37"W (Pos. No. 2005) was searched for though not found. Water visibility was 2 meters. The area searched was within a 100-meter radius of the DP. Hydrography was conducted in this area and no rock was detected.

The vicinity of the T-sheet rock at 58°11'30"N, 136°25'05"W (Pos. No. 2142) was searched for though not found. Water visibility was 3 meters. The area searched was within a 30-meter radius of the DP. The hydrographer believes this rock to be mispositioned. A rock at 58°11'33"N, 136°25'00"W (Pos. No. 2137) was DPed as part of shoreline verification.

The vicinity of the submerged T-sheet rock at position 58°09'36"N, 136°24'07"W (Pos. No. 8080) was searched for though not found. Water visibility was 3 meters. The area searched was within a 100-meter radius of the DP. Hydrography (25-meter spacing) was conducted in this area and no rock was detected.

The vicinity of the submerged T-sheet rock at position 58°09'31"N, 136°23'55"W (Pos. No. 8081) was searched for though not found. Water visibility was 3 meters. The area searched was within a 100-meter radius of the DP. Hydrography (25-meter spacing) was conducted in this area and no rock was detected. ✓

The vicinity of the submerged T-sheet rock at position 58°09'14"N, 136°23'55"W (Pos. No. 8092) was searched for though not found. Water visibility was 3 meters. The area searched was within a 100-meter radius of the DP. Hydrography (50-meter spacing) was conducted in the vicinity and no rock was detected. ✓

The vicinity of the T-sheet rock at 58°09'57"N, 136°21'34"W (Pos. No. 9411) was searched for but not found. Water visibility was 6 meters. The area searched was within a 50-meter radius of the DP position, and hydrography was run at 50-meter line spacing in this area. During the search and later hydrography, a least depth of 4.3m was determined. ✓

The vicinity of the T-sheet rock at 58°09'59"N, 136°21'34W" (Pos. No.2638) was searched for but not found. Water visibility was 4 meters. The area searched was within a 20-meter radius of the DP position, and hydrography (50-meter line spacing) was conducted in proximity to the rock. ✓

Recommendation: The hydrographer recommends that details seaward of the high waterline from this survey be used to supersede TP-01330 and TP-01331 in the common area. ✓ Concur

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 shown on the FFS and smooth sheet.

Two are centered at
~~A~~ foul area ~~exists inside the area bounded by~~ 58°11'45"N, 136°24'35"W, 58°11'38"N, and 136°25'20"W as shown on the FFS. This area surrounds numerous hazardous rocks and reefs around Gaff rock. The area is navigable by a survey launch-sized vessel and only during rare calm conditions. Hydrography was conducted in this area during ideally calm weather to better define bottom conditions. However, navigation of even small vessels in this area, is considered extremely dangerous. Chart area as shown on the smooth sheet.

A foul area exists along the southern shore of George Islands. This foul area corresponds to a similar foul area shown on prior survey H-6765, but it is not shown on the chart as foul. The foul area limits are defined by 136°22'45"W to the east, 58°11'38"N to the south, and 136°23'12"W to the west. The area contains numerous rocks (submerged and exposed), and is navigable only under the most ideal of conditions. Exceptional weather during this survey allowed hydrography to be conducted in this area to more clearly portray the foul area. Chart foul area as shown on smooth sheet

A foul area was found along the eastern shore of Chichagof Island in Port Althorp. The foul area extends north to 58°10'55"N, and south to 58°10'45"N, and extends 50 meters offshore. The area contains numerous rocks (submerged and exposed), and is not

navigable. chart foul area as shown on the smooth sheet.

A large foul area was found ~~in the vicinity of 58°10'15"N,~~ between lat 58°09'13"N and 58°10'55"N and long 136°24'45"W on the western shore of Three Hill Island as shown on the ~~final field~~ smooth sheet. This foul area contains numerous reefs and rocks (submerged and exposed). The area is partially navigable, but only under the most ideal conditions. As mentioned with above foul areas, hydrography was run during ideal conditions in order to clearly portray the area. chart foul area as shown on the smooth sheet.

A number of existing features are also recommended to be modified to more accurately depict the actual feature as seen at MLLW. These changes appear in red on the FFS and smooth sheet.

Recommendation: The hydrographer recommends that shoreline details from this survey be used to supersede prior shoreline information as shown on the ~~FFS.~~ SS In addition, the chart compiler is strongly encouraged to portray the foul areas as such on the chart. concur

Unverified Features

Unverified features are shown on the shoreline sheets in blue. All unverified T-sheet features are located in foul areas that could not be approached safely with a survey launch. There were no shoreline which was not verified.

K. CROSSLINES ✓

A total of 17.6 nautical miles of crosslines were run perpendicular to or at 45° angle to mainscheme lines, representing 5% of the mainscheme hydrography; this percentage does not reflect additional splits or developments run during investigations. Crossline soundings agree to within 3 meters with mainscheme soundings. 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.

L. JUNCTIONS See Evac Report, section 5

This survey junctions with H-10371 (1:10,000; 1991) and H-10370 (1:5,000; 1991) to the north; H-10377 (1:10,000; 1992) to the south; and H-10374 (1:20,000; 1991) to the west. No irregularities were found when comparing soundings and depth contours. Agreement between junction soundings is within approximately 3 meters. concur.

M. COMPARISON WITH PRIOR SURVEYS See Evac Report, section 6

This survey was compared with three prior surveys. In general, the present survey compares well with the prior surveys. Prior least depths were confirmed, and shallower depths were frequently found. In cases where depths from the prior surveys were shallower, the present survey has similar or shallower in proximity. These discrepancies are probably due to either inaccuracies in the sounding or positioning techniques used

on the prior surveys.

H-6765 (1:5,000; 1942):

Overall agreement with the present survey was very good, with agreement to within 2 m.

A comparison of the limits and details of the foul area on the east side of Granite Cove compares well with the same foul area defined on H-6765. This foul area was not carried through to the chart, but should have been.

Recommendation: The hydrographer recommends the soundings and least depths acquired from H-10376 be used to supersede those of H-6765 within their common areas. Concur

H-2559 (1:20,000; 1901):

Overall agreement with the present survey was good, with agreement to within 5m.

Disprovals: A 6 1/4 fms (11.43m) sounding in the vicinity of 58°11'15"N 136°24'30"W was disproved. The area was split with 25-meter spaced lines to cover the sounding position. South-southwest (150-meters) of this position, a ~~20.5m~~ 23 (12.5 fm) least depth was found in a 10m development. Considering that 100% echosounder bottom coverage was obtained in the entire area, it is concluded that inaccuracies in prior survey sounding techniques and/or positioning are the cause of this discrepancy between H-2559 and H-10376

Recommendation: The hydrographer recommends the soundings and least depths acquired from H-10376 be used to supersede those of H-2559 within their common area. Concur

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

The hydrographer compared the soundings from H-2558 to this survey. Overall agreement was good, with agreement to within 5m.

A charted 27fm (49.4m) depth in the vicinity of 58°10'40"N 136°25'30"W conflicts with the data from H-10376. The contemporary soundings in this area are approximately 150-meters. Depths range from 123m to 151m (67 fm to 82 fm)

A charted 11fm (20.1m) depth in the vicinity of 58°10'20"N 136°25'20"W conflicts with contemporary data. This sounding falls at the edge of a foul area and in an area of rapidly changing bottom. The hydrographer believes that this sounding was offset to lend clarity to the area east of the sounding; and therefore, recommends that this sounding be revised to reflect contemporary data. Depths range 23.7m to 57m (12.9 fm to 31 fm) Concur

A charted 47fm (85.9m) depth in the vicinity of 58°10'15"N 136°26'40"W conflicts with the surrounding contemporary data. It appears that the position has shifted north and west from an ~~84m~~ 91 shoal found during the present survey. Depths range from 91m to 100m (49 fm to 54 fm)

Recommendation: The hydrographer recommends the soundings and least depths

acquired from H-10376 be used to supersede those of H-2558 within their common area. concur

N. COMPARISON WITH THE CHART See Eval Report, section 7

The hydrographer compared all features and soundings from a 1:10,000-scale enlargement of NOS chart 17302, 15th Edition, May 20/89, 1:80,000 (NAD83) to this survey. During office processing the 16th edition of chart 17302 was used for comparison.

Comparison of Sounding Features

All charted sounding features originated from H-6765, H-2559, and H-2558 and have been adequately discussed in section M.

The charted depth curves west of Three Hill Island do not accurately reflect bottom topography. The hydrographer recommends revising the charted depth curves to reflect the results of H-10376. concur

Comparison of Non-Sounding Features

All charted non-sounding features originate from TP-01330 and TP-01331 and have been adequately discussed in section J.

AWOIS Items ✓

The following two AWOIS items were assigned to this survey AWOIS No.51798 and AWOIS No. 51799. The areas were thoroughly investigated with closely spaced sounding lines with the following results:

AWOIS No.51798: 20 fathom (36.6m) shoal reported by USCGC PLANETREE. The RAINIER's investigation of this reported shoal confirmed the existence of this shoal in the vicinity of 58°11'03"N 136°22'30"W. The least depth determined during this investigation was 34.3 meters (18.6fms). The item was developed with 25-meter line spacing in order to ensures 100% echo-sounder bottom coverage at these depths.

Recommendation: The hydrographer recommends that the chart be updated to reflect the results of this investigation. Remove charted 20 fm depth and chart 18fm (34m) at lat. 58°11'02.72"N, long. 136°22'29.63"W.

AWOIS No.51799: 40 fathom (73.2m) shoal reported by USCGC PLANETREE. The RAINIER'S investigation of this reported shoal found nothing shallower than 95m (51.9fms) within the assigned search radius. The item was developed with 50-meter line spacing in order to ensure 100% echo-sounder bottom coverage at these depths.

Recommendation: The hydrographer recommends that this sounding be removed from the chart to reflect the results of this investigation. Remove charted 40 fm at lat 58°11'37.0"N, long. 136°22'05.0W and chart area as found on this survey.

Dangers to Navigation ✓

Eight dangers to navigation within the limits of this survey were reported by radio message and hard copy to the Seventeenth Coast Guard District and DMAHTC at the completion of the Spring 1991 operations. Copies of the correspondence are appended to this report. Position numbers associated with each reported danger are included on the copy of the radio message and is attached to this report.

Ten additional dangers to navigation within the limits of this survey were reported by radio message and hard copy to the Seventeenth Coast Guard District and DMAHTC at the completion of the Spring 1992 operation. Copies of the correspondence are appended to this report. Position numbers associated with each reported danger are included on the copy of the radio message and is attached to this report.

Two additional dangers were found during office processing, letters are attached to this report.

O. ADEQUACY OF SURVEY

The small cove in the vicinity of 58°10'00"N, 136°19'30"W, ~~was~~ were and areas listed in section 3 of CVAC Report not surveyed.

Except as noted above, 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 ✓

There are no floating aids to navigation within the limits of this survey. Concur

Two charted non-floating aids lie within the limits of this survey. Althorp Rock Light 3 and Three Hill Island Light were positioned to Third Order, Class I specifications (see Spring 1991 Horizontal Control Report). Field positions were reported to the U.S. Coast Guard in accordance with the Project Instructions, February 21, 1991, Section 4.2.4 (see Appendix VI).* These lights' characteristics were observed in the field and agree with the charted and Light List characteristics. All aids serve their intended purpose, and no additional aids are recommended within this survey area.

Q. STATISTICS ✓

Vessel:	2123	2124	2125	2126	TOTAL
# of Pos.	1395	57	169	1954	3575
NM of Hydro	193	3.89	10.6	221	428.5

NM^2 Hydrography	9.43	Velocity Cast	4
Detached Positions	106	Tide Stations	2
Bottom Samples	35	Current/Magnetic Stations	0
Reference Numbers	173		

* Attached to this report.

R. MISCELLANEOUS

All bottom samples were submitted to the Smithsonian Institution.

No current or magnetic anomalies were observed within this survey's limits.

Loran C comparisons at bottom sample sites were sent to DMAHTC and U.S. Coast Guard in accordance with the Project Instructions

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 navigational complexity of the numerous narrow passages in this area. This recommendation was forwarded to the Chief, Hydrographic Survey Branch.

T. REFERRAL TO REPORTS

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

Title	Date sent to N/CG245
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
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,

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

Approved and Forwarded,

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	F	058:21:36.578	136:22:40.132	4	250	0.0	0.0	5	04/22/92	DELTA 1985	581362
112	F	058:11:41.777	136:20:55.983	3	250	0.0	0.0		00/00/00	WHARF	
159	F	058:22:45.029	136:24:36.049	4	250	0.0	0.0		00/00/00	CONIE(ADJ)	
135X	F	058:11:51.574	136:38:27.489	16	250	0.0	0.0	1	03/22/92	CAPE 1925	581363
188X	F	058:16:48.210	136:34:30.689	8	250	0.0	0.0	6	04/22/92	MORAIN 1985	581363
153X	F	058:08:18.190	136:25:21.164	27	250	0.0	0.0	4	04/23/92	RAIN 1991	581362
187X	F	058:10:58.916	136:20:46.250	7	250	0.0	0.0	9	04/22/92	ISLE NO 1 1938	581362
165	F	058:23:11.968	136:24:59.403	3	250	0.0	0.0		00/00/00	LEG(ADJ)	
166	F	058:23:50.735	136:25:25.253	2	250	0.0	0.0		00/00/00	MIRE(ADJ)	
167	F	058:22:07.672	136:23:53.456	3	250	0.0	0.0		00/00/00	NEEDLE(ADJ)	
189	F	058:08:49.315	136:17:34.409	5	250	0.0	0.0	A	04/07/92	HIP 1992	
190X	F	058:17:51.075	136:27:03.058	9	250	0.0	0.0	0	04/15/92	LUMBER 1991	581362
204	Z	058:08:52.207	136:17:35.478	7	250	0.0	0.0		00/00/00	POCKET(R/AZ)	
217	Z	058:09:16.155	136:19:07.423	5	250	0.0	0.0		00/00/00	BAY(R/AZ)	
173	F	058:22:11.340	136:21:07.733	5	250	0.0	0.0	A	04/22/92	MUCK 1991	
191	F	058:16:20.937	136:24:00.922	10	250	0.0	0.0	B	04/30/92	ACHE 1991	
175	F	058:21:48.838	136:23:58.304	2	250	0.0	0.0		00/00/00	HOOK 1991(ADJ)	
192	F	058:19:03.968	136:15:34.968	6	250	0.0	0.0	2	04/14/92	AID 1991	
193	F	058:17:50.935	136:23:07.344	27	250	0.0	0.0	7	05/08/92	BALD 1991	
194	F	058:16:08.427	136:16:52.405	8	250	0.0	0.0	7	04/30/92	INIAN 1990	
195	F	058:18:48.354	136:22:09.805	7	250	0.0	0.0	7	03/30/92	JAB 1991	
196	F	058:16:04.118	136:20:28.242	10	250	0.0	0.0	B	05/08/92	NATTY 1991	
100	F	058:15:48.046	136:07:57.536	8	250	0.0	0.0	4	04/16/92	YAK 1991	
223	Z	058:21:36.578	136:22:40.132	4	250	0.0	0.0		00/00/00	DELTA(R/AZ)	
197	F	058:16:21.417	136:19:13.944	6	250	0.0	0.0	7	04/30/92	BAIL 1991	
259	Z	058:22:45.029	136:24:36.049	4	250	0.0	0.0		00/00/00	CONIE(R/AZ)	
115	F	058:20:02.107	136:18:17.253	8	250	0.0	0.0	1	05/05/92	BAN 1991	
198	F	058:16:12.143	136:20:05.798	5	250	0.0	0.0	4	04/21/92	LOUT 1991	
199	F	058:15:31.561	136:19:34.548	6	250	0.0	0.0	6	04/17/92	SHAKE 1992	
400	F	058:15:47.021	136:19:32.367	2	250	0.0	0.0		00/00/00	INIAN COVE B 1964	
265	Z	058:23:11.968	136:24:59.403	5	250	0.0	0.0		00/00/00	LEG(R/AZ)	
266	Z	058:23:50.735	136:25:25.253	4	250	0.0	0.0		00/00/00	MIRE(R/AZ)	
267	Z	058:22:07.672	136:23:53.456	5	250	0.0	0.0		00/00/00	NEEDLE(R/AZ)	
122	F	058:21:04.673	136:17:37.174	8	250	0.0	0.0	4	04/22/92	DEED 1991 1966	
401	F	058:15:45.433	136:20:28.213	6	250	0.0	0.0	A	04/08/92	BAKE 1991	
402	Z	058:15:45.433	136:20:28.213	6	250	0.0	0.0		00/00/00	BAKE(R/AZ)	
403	Z	058:15:31.561	136:19:34.548	6	250	0.0	0.0		00/00/00	SHAKE(R/AZ)	
273	Z	058:22:11.340	136:21:07.733	5	250	0.0	0.0		00/00/00	MUCK(R/AZ)	
404	Z	058:15:47.021	136:19:32.367	4	250	0.0	0.0		00/00/00	INIAN COVE B 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)	
209	Z	058:08:49.315	136:17:34.409	5	250	0.0	0.0		00/00/00	HIP(R/AZ)	
405	Z	058:16:12.143	136:20:05.798	5	250	0.0	0.0		00/00/00	LOUT(R/AZ)	
406	Z	058:16:11.778	136:19:08.039	4	250	0.0	0.0		00/00/00	JUJU(R/AZ)	
407	F	058:16:11.778	136:19:08.039	4	250	0.0	0.0	A	05/01/92	JUJU 1992	
408	Z	058:20:02.107	136:18:17.253	8	250	0.0	0.0		04/14/92	BAN 1991	
409	Z	058:18:48.354	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	058:15:38.643	136:22:27.396	7	250	0.0	0.0	A	05/01/92	HYENA 1991	
413	F	058:16:55.107	136:28:47.710	20	250	0.0	0.0		04/19/92	END 2	
414	F	058:18:41.982	136:31:10.409	13	250	0.0	0.0	2	04/22/92	TAYLOR 1985	
415	F	058:18:31.239	136:30:34.884	5	250	0.0	0.0	A	04/29/92	LOBO 1991	
416X	F	058:12:43.819	136:22:51.081	9	250	0.0	0.0	5	04/23/92	ADZE 1901	
417	F	058:17:59.613	136:29:08.752	2	250	0.0	0.0		00/00/00	DEPT	
418	Z	058:18:31.239	136:30:34.884	5	250	0.0	0.0		00/00/00	LOBO(R/AZ)	
419	F	058:15:04.557	136:21:48.256	3	250	0.0	0.0	A	05/01/92	EMBO 1991	
106	F	058:11:41.367	136:21:06.313	7	250	0.0	0.0	9	03/22/92	FINN 1938	
107	F	058:11:29.612	136:20:36.949	4	250	0.0	0.0		00/00/00	CHICH	
108	F	058:11:18.689	136:20:21.268	4	250	0.0	0.0		00/00/00	KUFF NO 1	
119	F	058:15:07.704	136:21:18.585	4	250	0.0	0.0		00/00/00	CANAL	

133	F	058:15:15.230	136:23:02.253	13	250	0.0	0.0	00/00/00	SUR		581362
136	F	058:11:49.673	136:20:50.459	4	250	0.0	0.0	00/00/00	SKY		
141	F	058:14:14.254	136:21:47.070	1	250	0.0	0.0	00/00/00	URSA		
206	Z	058:11:41.367	136:21:06.313	7	250	0.0	0.0	00/00/00	FINN(R/AZ)		
207	Z	058:11:29.612	136:20:36.949	6	250	0.0	0.0	00/00/00	CHICH(R/AZ)		
208	Z	058:11:18.689	136:20:21.260	6	250	0.0	0.0	00/00/00	KOFF NO 1(R/AZ)		
219	Z	058:15:02.304	136:21:18.505	6	250	0.0	0.0	00/00/00	CANAL(R/AZ)		
133	Z	058:15:15.230	136:23:02.253	15	250	0.0	0.0	00/00/00	SUR(R/AZ)		
136	Z	058:11:49.673	136:20:50.459	6	250	0.0	0.0	00/00/00	SKY(R/AZ)		
141	Z	058:14:14.254	136:21:47.070	3	250	0.0	0.0	00/00/00	URSA(R/AZ)		
420	Z	058:15:04.557	136:21:48.256	3	250	0.0	0.0	00/00/00	EMBO(R/AZ)		
421	Z	058:15:30.643	136:22:27.396	7	250	0.0	0.0	00/00/00	HYENA(R/AZ)		
117	F	058:09:16.155	136:19:07.423	5	250	0.0	0.0	6 04/20/92	BOW 1942		581362
134	F	058:07:28.094	136:18:51.778	3	250	0.0	0.0	00/00/00	TOWN 1942		
139	F	058:09:58.282	136:21:33.918	7	250	0.0	0.0	6 04/22/92	DALI 1991		581362
170	F	058:08:31.134	136:20:53.813	5	250	0.0	0.0	B 04/04/92	ZEN 1991		581362
128	F	058:11:43.986	136:22:37.906	9	250	0.0	0.0	A 03/22/92	GRAN 1938		581362
129	F	058:12:08.003	136:21:21.384	5	250	0.0	0.0	00/00/00	HOLE		
131	F	058:11:39.817	136:21:29.942	18	250	0.0	0.0	A 04/04/92	NITE 1938		581362
137	F	058:12:36.107	136:21:49.754	19	250	0.0	0.0	6 04/22/92	DUNK NO 2 1938		581362
152	F	058:09:57.989	136:23:25.066	6	250	0.0	0.0	4 04/20/92	RUDE 2 1991		581362
154	F	058:09:12.755	136:23:04.548	20	250	0.0	0.0	4 04/21/92	DREAD 1991		581362
155	F	058:11:30.436	136:23:48.166	0	250	0.0	0.0	00/00/00	WEST		
156	F	058:11:51.099	136:23:28.690	0	250	0.0	0.0	00/00/00	DALE		
157	F	058:07:39.977	136:17:50.319	3	250	0.0	0.0	1 05/04/92	LLAMA 1991		581362
103	F	058:06:17.744	136:16:23.124	1	250	0.0	0.0	00/00/00	BUZZ		
104	F	058:08:52.207	136:17:35.478	7	250	0.0	0.0	A 04/07/92	POCKET 1991		
105	F	058:08:52.900	136:16:22.959	4	250	0.0	0.0	00/00/00	CLAM		
186	F	058:09:41.099	136:19:39.784	7	250	0.0	0.0	6 04/04/92	INIAN 1970		581362
234	Z	058:07:28.094	136:18:51.778	5	250	0.0	0.0	00/00/00	TOWN(R/AZ)		
257	Z	058:07:39.977	136:17:50.319	3	250	0.0	0.0	00/00/00	LLAMA(R/AZ)		
203	Z	058:06:17.744	136:16:23.124	3	250	0.0	0.0	00/00/00	BUZZ(R/AZ)		
270	Z	058:08:31.134	136:20:53.813	3	250	0.0	0.0	00/00/00	ZEN(R/AZ)		
239	Z	058:09:58.282	136:21:33.918	7	250	0.0	0.0	00/00/00	DALI(R/AZ)		
422	F	058:13:37.890	136:35:00.197	13	250	0.0	0.0	7 05/02/92	APRIL 1992		
423	F	058:17:24.870	136:28:55.119	5	250	0.0	0.0	A 05/02/92	FERN 1992		
424	F	058:19:04.579	136:33:30.893	7	250	0.0	0.0	A 05/07/92	SPIT IP 1992		
125	F	058:16:11.116	136:24:18.155	12	250	0.0	0.0	8 05/07/92	EX 1901		581362
323	Z	058:17:24.870	136:28:55.119	5	250	0.0	0.0	00/00/00	FERN(R/AZ)		
517	Z	058:17:59.613	136:29:08.752	4	250	0.0	0.0	00/00/00	DEPT(R/AZ)		
390	Z	058:17:51.075	136:27:03.058	9	250	0.0	0.0	00/00/00	LUMBER(R/AZ)		
316	Z	058:12:43.819	136:22:51.081	9	250	0.0	0.0	00/00/00	ADZE(R/AZ)		
214	Z	058:18:41.982	136:31:10.409	13	250	0.0	0.0	00/00/00	TAYLOR 1905(R/AZ)		
317	Z	058:17:59.613	136:29:08.752	4	250	0.0	0.0	00/00/00	DEPT(R/AZ)		
113	F	058:12:43.819	136:22:51.081	7	250	0.0	0.0	00/00/00	ADZE 1901		581362
116	F	058:12:07.020	136:22:15.121	8	250	0.0	0.0	00/00/00	BEER		581362
142	F	058:08:31.134	136:20:53.813	4	250	0.0	0.0	00/00/00	ZEN 1991		581362

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

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

10 May 1991

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

ADVANCE INFORMATION

Dear Sir:

In conjunction with survey operations in Cross Sound, Alaska, personnel from NOAA Ship RAINIER have determined the positions of Althorp Rock Light 3, Cape Spencer Light, Elfin Cove Daybeacon 5, Elfin Cove Entrance Light 2, Elfin Cove Outer Light, George Island Light 2, North Inian Pass Light, Point Lavinia Light and Three Hill Island Light. All positions meet Third-order, Class I specifications and are based on the North American Datum of 1983 and the GRS Ellipsoid of 1980. The positions listed below are field positions and are not adjusted:

Navigation Aid	Latitude(N)	Longitude(W)	1990 Light List No.
ALTHORP ROCK LIGHT 3	58°09'58.431"	136°21'33.556"	24275
CAPE SPENCER LIGHT	58°11'56.358"	136°38'25.437"	24240
ELFIN COVE DAY-BEACON 5	58°11'39.554"	136°20'56.542"	24260
ELFIN COVE ENTRANCE LIGHT 2	58°11'41.049"	136°21'06.378"	24245
ELFIN COVE OUTER LIGHT	58°11'48.882"	136°21'04.243"	24250
GEORGE ISLAND LIGHT 2	58°12'42.425"	136°22'52.678"	24230
NORTH INIAN PASS LIGHT	58°16'19.815"	136°24'07.799"	24235
POINT LAVINIA LIGHT	58°13'23.996"	136°21'15.011"	24225
THREE HILL ISLAND LIGHT	58°09'12.879"	136°23'03.432"	24280

Questions concerning these data may be directed to: Commanding Officer, NOAA Ship RAINIER, 1801 Fairview Avenue East, Seattle, Washington 98102-3767, telephone (206) 553-4794.

Sincerely,

Thomas W. Richards
Captain, NOAA
Commanding Officer

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

Dear Sir:

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

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 261700Z MAY 92
FM NOAAS RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCNAVWARN WASHINGTON DC//MCNM//
INFO NOAAMOP SEATTLE WA
ACCT CM-VCAA
BT
UNCLAS

ADVANCE INFORMATION

NOAA SHIP RAINIER HAS FOUND 10 DANGERS TO NAVIGATION IN CROSS SOUND, ALASKA (PROJECT OPR-0106-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10376, NORTH PORTION OF PORT ALTHORP AND APPROACHES.

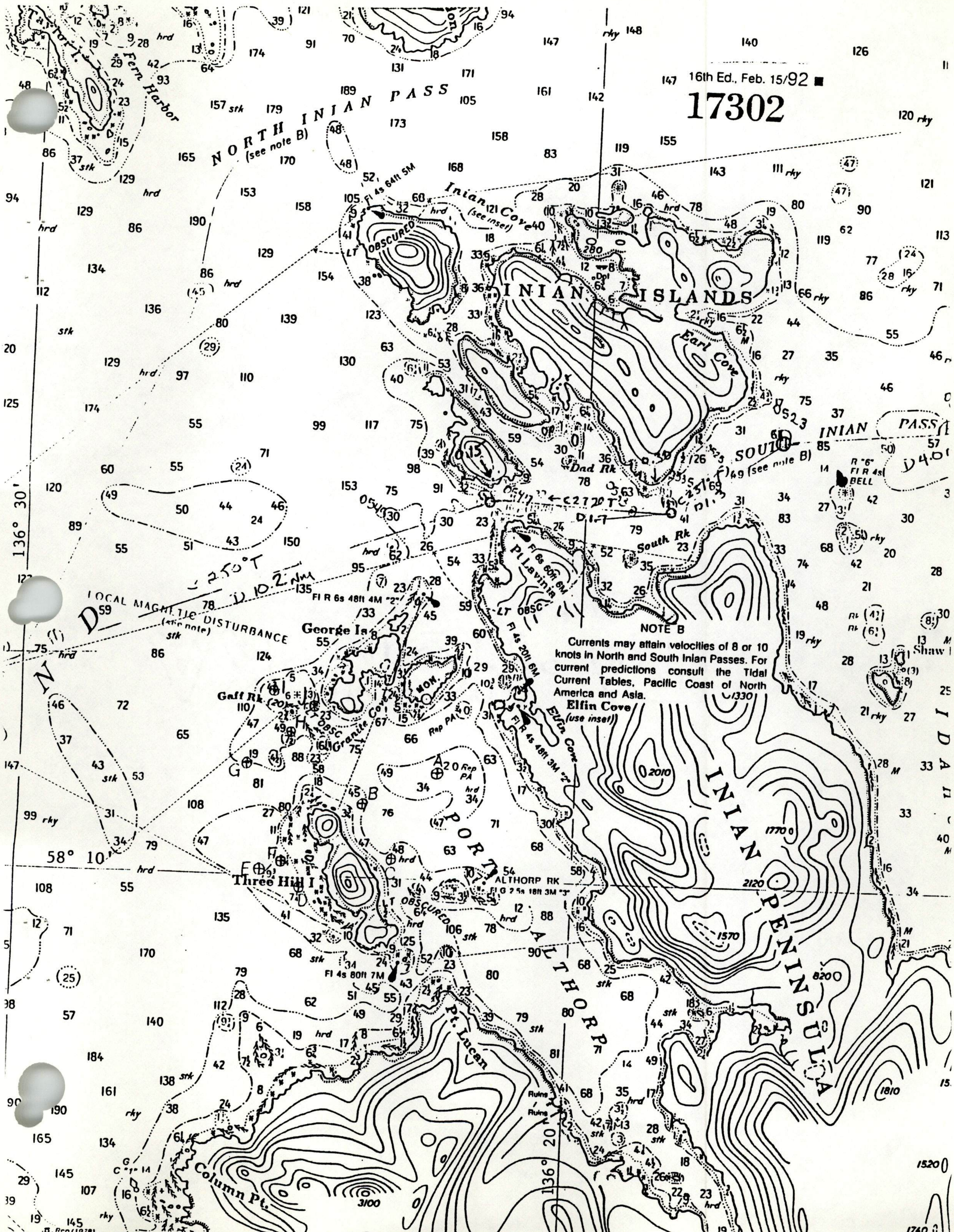
THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

CHART AFFECTED: 17302 16TH ED FEB 15/92 1:80,000 NAD83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	CHART	DEPTH	DATUM	LATITUDE	LONGITUDE
A.	SHOAL	17302	18 fm	NAD 83	58/11/02.72N	136/22/29.62W
B.	SOUNDING	17302	33 fm	NAD 83	58/10/43.50N	136/23/44.71W
C.	SOUNDING	17302	36 fm	NAD 83	58/10/12.44N	136/23/11.23W
D.	SHOAL	17302	2 1/2 fm	NAD 83	58/09/53.87N	136/24/51.63W
E.	SHOAL	17302	8 fm	NAD 83	58/10/03.58N	136/25/34.19W
F.	SHOAL	17302	5 1/4 fm	NAD 83	58/10/08.10N	136/25/10.51W
G.	SHOAL	17302	16 fm	NAD 83	58/11/04.72N	136/25/52.85W
H.	SHOAL	17302	5 3/4 fm	NAD 83	58/11/21.98N	136/25/07.36W
I.	SHOAL	17302	3 3/4 fm	NAD 83	58/11/46.00N	136/25/27.38W
J.	ROCK UNCOVERS	17302	2 ft	NAD 83	58/11/39.41N	136/24/42.35W

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


16th Ed., Feb. 15/92
17302
NORTH INIAN PASS
(see note B)
Inian Cove
(see inset)
INIAN ISLANDS
Earl Cove
SOUTH INIAN PASS
(see note B)
Dad Rk
South Rk
Pt Lavinia
George Is
Gaff Rk
Granite Cove
Elfin Cove
(use inset)
Three Hill I
ALTHORP RK
PORT ALTHORP
INIAN PENINSULA
Pt. Lucan
Column Pt.
Taylor I.
Fern Harbor
LOCAL MAGNETIC DISTURBANCE
(see note)
NOTE B
Currents may attain velocities of 8 or 10 knots in North and South Inian Passes. For current predictions consult the Tidal Current Tables, Pacific Coast of North America and Asia.
Fl 4s 64ft 5M
Fl 6s 60ft 6M
Fl 4s 20ft 6M
Fl R 4s 48ft 3M "2"
Fl R 6s 48ft 4M "2"
Fl G 2.5s 18ft 3M "3"
Fl 4s 80ft 7M
R "6" Fl R 4s BELL
OBSCURED
LT OBSC
Ruins
136° 30'
58° 10'
136° 20'

P Z JUN 91
FM NOAAS RAINIER
TO CGGDSEVENTEEN JUNEAU AK
[redacted]TCNAVWARN WASHINGTON DC//MCNM//
NOAAMOP SEATTLE WA
ACCT CM-VCAA
BT
UNCLAS

ADVANCE INFORMATION

NOAA SHIP RAINIER HAS FOUND 8 DANGERS TO NAVIGATION IN CROSS SOUND, ALASKA (PROJECT OPR-0106-RA) WITHIN THE LIMITS OF THE HYDROGRAPHIC SURVEY H-10376 (NORTH PORTION OF PORT ALTHORP AND APPROACHES). THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

CHART AFFECTED: 17302 15TH ED MAY 20/89 1:80,000 NAD83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

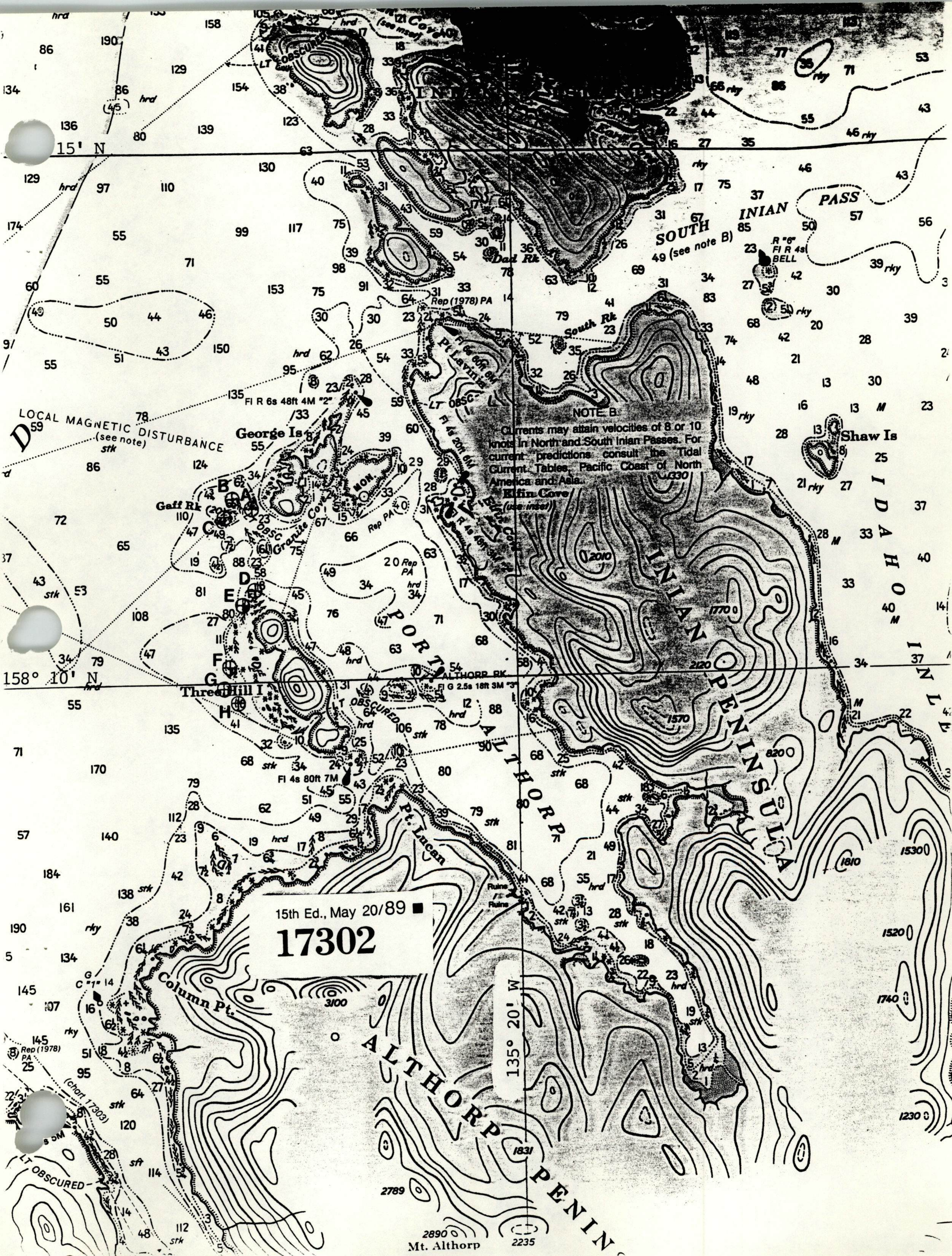
ITEM	DANGER	CHART	DEPTH	DATUM	LATITUDE	LONGITUDE
A.	ROCK UNCOV	17302	3FT	NAD83	58-11-39.41N	136-24-42.34W
B.	ROCK UNCOV	17302	0FT	NAD83	58-11-43.14N	136-25-02.90W
C.	SHOAL	17302	2 3/4FM	NAD83	58-11-31.67N	136-25-18.22W
D.	SHOAL	17302	2 1/4FM	NAD83	58-10-49.83N	136-24-45.74W
E.	ROCK COV	17302	1/2FM	NAD83	58-10-42.88N	136-24-51.75W
F.	SHOAL	17302	6 1/4FM	NAD83	58-10-07.63N	136-25-09.82W
G.	SHOAL	17302	9 3/4FT	NAD83	58-09-57.84N	136-25-16.87W
H.	SHOAL	17302	7 1/4FM	NAD83	58-09-48.16N	136-24-58.54W

THIS IS ADVANCE INFORMATION SUBJECT TO OFFICE REVIEW. THE HYDROGRAPHIC SURVEY IN THIS AREA HAS NOT BEEN COMPLETED AND IT IS LIKELY THAT ADDITIONAL SHOAL DEPTHS EXIST IN THE IMMEDIATE AREA. 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

CO,

For your approval.

[illegible]



15' N
SOUTH INIAN PASS
49 (see note B)
BELL
LOCAL MAGNETIC DISTURBANCE
(see note)
George Is
Gaff Rk
Granite Cove
Three Hill I
Dad Rk
South Rk
Pt Lavinia
Rep (1978) PA
NOTE B
Currents may attain velocities of 8 or 10 knots in North and South Inian Passes. For current predictions consult the Tidal Current Tables, Pacific Coast of North America and Asia.
Elfin Cove
(see inset)
Shaw Is
IDAHO
INLE
INIAN PENINSULA
PORT ALTHORP
ALTHORP RK
OBSCURED
58° 10' N
Pt. Lucan
Ruins
Column Pt.
15th Ed., May 20/89
17302
135° 20' W
ALTHORP PENIN
(chart 17303)
LT OBSCURED
Mt. Althorp

July 24, 1992

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

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:

Chart	Edition/date	Datum
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

FILE COPY

CODE	SURNAME	DATE	CODE	SURNAME	DATE
N/CG245x2	GRIFFIN	7/27			
N/CG24	GREEN	7/24			

NOAA FORM 61-2

Hydrographic Survey Registry Number: H-10376
Survey Title: State:ALASKA
Locality:CROSS SOUND
Sublocality:NORTH PORTION OF PORT ALTHORP AND APROACHES

Project Number: OPR-O106-RA

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

Affected nautical chart:

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

DANGER TO NAVIGATION	LATITUDE(N)	LONGITUDE(W)
3/4FM SHOAL	58/09/53.1	136/21/25.8
1 1/4FM SHOAL	58/09/55.1	136/22/43.5

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

APPROVAL SHEET

for

H-10376

RA-10-2-91

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, and except for the unsurveyed cove noted in section O, 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: August 18, 1992

MARINE CENTER: Pacific

OPR: O106-RA

HYDROGRAPHIC SHEET: H-10376 (additional)

LOCALITY: North Portion of Port Althrop and Approaches,
Cross Sound, Alaska

TIME PERIOD: March 23 - April 23, 1992

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): 10.60 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 9.9 ft.

REMARKS: RECOMMENDED ZONING

1. East of 136° 24.5′, times and heights are direct on Elfin Cove.
2. 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, DATUMS SECTION

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: O106-RA

HYDROGRAPHIC SHEET: H-10376

LOCALITY: North Portion of Port Althrop and Approaches,
Cross Sound, Alaska

TIME PERIOD: April 20, 1991 - May 6, 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° 24.5', times and heights are direct on Elfin Cove.
2. 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.

for Brian K. Cu

CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10376

Name on Survey	A ON CHART NO. 17302	B ON PREVIOUS SURVEY NO.	C TP MANUSCRIPT	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									1
ALTHORP, PORT	X		01330 01331							2
ALTHORP ROCK	X		01331							3
CHICHAGOF ISLAND	X		01331							4
CROSS SOUND	X		01330							5
ELFIN COVE	X		01331							6
ELFIN COVE (locale)	X		01331							7
GAFF ROCK	X		01330							8
GEORGE ISLANDS	X		01330							9
GRANITE COVE	X		01330							10
INIAN PENINSULA	X		01331							11
THREE HILL ISLAND	X		01330							12
										13
										14
										15
										16
				Approved:						17
										18
				Charles E. Harrington						19
				Chief Geographer - N/CG 2x5						20
				NOV 13 1992						21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

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

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER
H-10376

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	3
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	2

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	2					
ENVELOPES						
VOLUMES	4					
CAHIERS						
BOXES				1		

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	*EVALUATION*	*TOTALS*
POSITIONS ON SHEET			3575
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			

	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	94.5		94.5
VERIFICATION OF SOUNDINGS	207		207
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	153.5		153.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS		15	15
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		16	16
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	455	31	486

Pre-processing Examination by J. Griffin	*Beginning Date* 6/22/92	*Ending Date* 7/31/92
Verification of Field Data by E. Domingo	*Time (Hours)* 455	*Ending Date* 10/4/93
Verification Check by S. Otsubo, J. Stringham	*Time (Hours)* 46.5	*Ending Date* 10/27/93
Evaluation and Analysis by R. Davies	*Time (Hours)* 31	*Ending Date* 11/2/93
Inspection by	*Time (Hours)* 4	*Ending Date* 11/5/93

EVALUATION REPORT
H-10376

1. INTRODUCTION

Survey H-10376 is basic hydrographic survey accomplished by the NOAA Ship *Rainier* under the following Project Instructions.

OPR-O136-RA, dated February 21, 1991 and February 18, 1992
CHANGE NO. 1, dated September 5, 1991

This survey was conducted in Alaska and covers a portion of Cross Sound between the southern tip of Three Hill Island to the south and the George Islands to the north. An area on the west side of the Inian Peninsula on Chichagof Island is also included on this survey. The surveyed area extends from latitude 58/09/09N to latitude 58/12/06N, and from longitude 136/19/12W to longitude 136/27/51W. The shoreline in the area is characterized by rock and gravel beaches, rock ledges and isolated reefs offshore. The bottom consists of mud and pebbles. Depths range from zero along the shoreline to 304 meters offshore.

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. NAD 83 is used as the horizontal datum for plotting and position computation. The offset values and sound velocity correctors are adequate. During the course of survey operations, DN 97 and 112, an incorrect C-O value was used. This data was recomputed and reviewed during office processing and accepted. 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 1991 and 1992 Horizontal Control Report for OPR-O136-RA, contain adequate discussions of horizontal control and hydrographic positioning.

The positions of the 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: -1.359 seconds (-42.059 meters)
Longitude: 6.635 seconds (108.451 meters)

The year of establishment of the control stations shown on the smooth sheet originates with the horizontal control records for this survey and from NGS. There are 245 positions that exceed the HDOP value of 3.75. A review of this 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 maps were compiled on NAD 83 and apply to this survey.

	Photo Date	Class	Scale
TP-01330	June, 1985	III	1:20,000
TP-01331	June, 1985	III	1:20,000

The following shoreline changes are depicted on the smooth sheet with a dashed red line, and were transferred from the final field sheet without supporting position information. These revisions are approximate but are adequate to supersede the common photogrammetrically delineated shoreline.

	Latitude(N)	Longitude(W)
HWL	58/09/14	136/22/55
HWL	58/11/50	136/23/54
HWL	58/11/57	136/23/52
HWL	58/10/29	136/20/09
HWL	58/10/14	136/19/43.5
HWL	58/10/01	136/19/21.5
HWL	58/09/55	136/19/38
HWL	58/09/52	136/19/40
HWL	58/09/44	136/19/42
HWL	58/09/36	136/19/35
HWL	58/09/32	136/19/22

HWL	58/09/20	136/19/14
HWL	58/09/57	136/22/10
HWL	58/10/22	136/19/58

3. HYDROGRAPHY

With the exceptions noted below, hydrography is adequate to;

a. delineate the bottom configuration, determine least depths, and draw the standard depth curves;

b. reveal there are no significant discrepancies or anomalies requiring further investigation;

c. show the survey was properly controlled and soundings are correctly plotted.

The first holiday listed below, is a small cove which apparently could be of use to small vessels, and should have been surveyed. All the other holidays listed are small inshore gaps in coverage near rocks and islets. These holidays do not degrade the usefulness of this survey for charting purposes.

Holidays exist in the following areas.

Latitude(N)	Longitude (W)
58/10/00	136/19/30
58/09/43	136/24/20
58/10/03	136/24/35
58/10/30	136/24/50
58/10/24	136/25/00
58/10/37	136/24/53

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.

5. JUNCTIONS

Survey H-10376 junctions with the following surveys.

Survey	Year	Scale	Area
H-10370	1991	5,000	East
H-10371	1991	10,000	North
H-10374	1991	20,000	West
H-10377	1991-92	10,000	South

The junction with survey H-10377 is complete. The junction between surveys H-10370 H-10371 and H-10374 are not formally completed since these surveys were previously processed and forwarded for charting. The junction comparisons were made using a copy. There is good agreement between surveys. Soundings have been transferred to survey H-10376 from surveys H-10370, H-10371 and H-10377 to better portray the bottom in the common areas.

6. COMPARISON WITH PRIOR SURVEYS

H-2558(1901) 1:40,000
H-2559(1901) 1:20,000

Surveys H-2558 and H-2559 cover the entire area of the present survey. The shoreline in the area has remain relatively stable throughout the years. Generally, the soundings agree between 0 to 5 meters, with extreme cases of 10 meters. The prior surveys tend to be shoaler in most instances. The area has experienced earthquakes, possible isostatic rebound and natural accretion and erosional processes. These processes, the different horizontal datums, the greater sounding coverage and the relative accuracy of the data acquisition techniques account for the differences between the soundings on the prior surveys.

H-6765(1942) 1:5,000

Survey H-6765 covers the northern portion of survey H-10376, in the general area of the George Islands and Granite Cove. This survey compares favorably with the present survey, with a meter difference in depth.

There are no AWOIS Items within the survey area that originate with the prior surveys mentioned above.

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

Survey H-10376 is adequate to supersede the prior surveys within the common area.

7. COMPARISON WITH CHART

Chart 17302, 17th Edition August 14, 1993; scale 1:80,000

a. Hydrography

Charted hydrography originates with the prior surveys mentioned in section 6 and miscellaneous sources, including the dangers to navigation submitted by the hydrographer and requires no further discussion.

Survey H-10376 is adequate to supersede charted hydrography within the common area.

b. AWOIS

All AWOIS items originate with miscellaneous sources and were adequately investigated. Refer to the hydrographer's report for discussion and disposition of these features.

c. Controlling Depths

There are no controlling depths found within the survey area.

d. Aids to Navigation

There are two fixed aids within the survey area. These aids were located and serve their intended purpose. There are no floating 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 eighteen dangers to the Seventeenth District of the United States Coast Guard, Juneau, Alaska. Copies of the messages are attached. Two additional dangers to navigation were discovered during office processing and were reported to the Coast Guard, DMAHTC and N/CG221, see attached letter.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10376 adequately complies with the Project Instructions, except where 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 holidays which exist as noted in section 3 of this report.

C. R. Davies
Cartographer

APPROVAL SHEET
H-10376

Initial Approvals:

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

Dennis J. Hill Date: 11-5-93
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.

Douglas G. Hennick Date: 11/8/93
Commander Douglas G. Hennick, NOAA
Chief, Pacific Hydrographic Section

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Final Approval

Approved:

J. Austin Yeager Date: 12/20/93
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. ____________

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
16700	4-9-96	D Harpine	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 27 No Correction Hydro does NOT
			fall withing the Limits of this chart
17302	JUN '96	DON CORDTS	Full ~~Part Before~~ After Marine Center Approval Signed Via
	8-17-96	D Harpine	Drawing No. 19, 17th Ed., AUG 14/93
17300	7-15-98	Daniel Vitaganovo	Full Part Before After Marine Center Approval Signed Via
			Drawing No. Applied Hydrography thru chart 17302
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED