10426

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-10-4-92

Registry No. H-10426

LOCALITY

State Alaska

General Locality Cross Sound

Sublocality Approach to Taylor Bay

1992

CHIEF OF PARTY
CAPT T.W. Richards

LIBRARY & ARCHIVES

DATE June 18, 1993

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

10426

RA-8
17302
17300
16760

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-10426

HYDROGRAPHIC TITLE SHEET

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-10-4-92

State: Alaska

General locality: Cross Sound

Locality: Approach to Taylor Bay

Scale: 1:10,000 Date of survey: May 5-9, 1992

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

Vessel: NOAA Ship RAINIER, Launches 2123, 2125, 2126

Chief of party: CAPT Thomas W. Richards, NOAA

Surveyed by: LT J. Waddell, LTJG S. Lemke, LTJG H. Johnson, ENS J. Klay

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~~ Matthew Sanders, Elias Domingo Automated plot by: PHS Xynetics Plotter

Evaluation by: ~~Verification by~~ Gordon E. Kay

Soundings in meters & decimeters ~~fathoms feet~~ at ~~MLW~~ MLLW

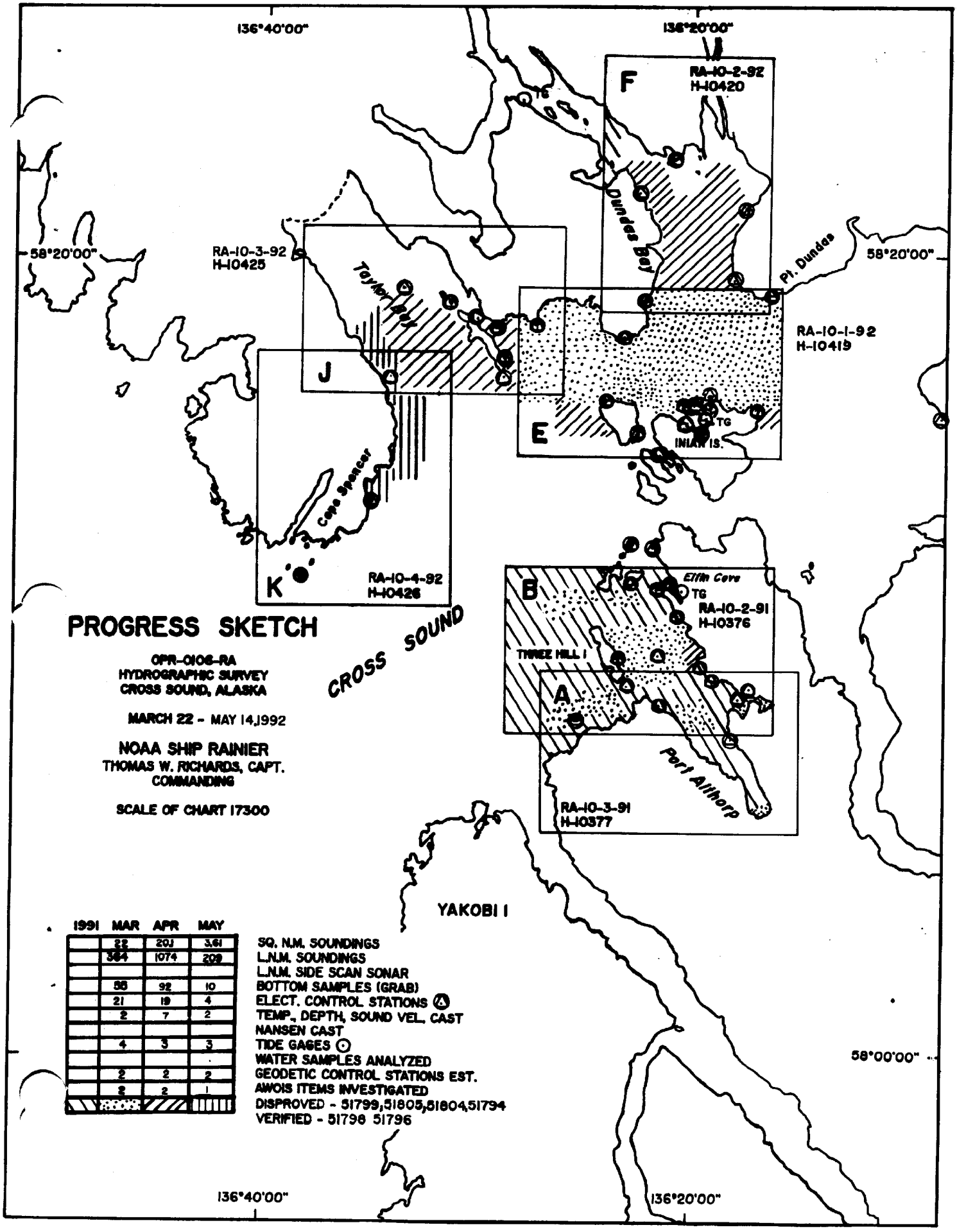
REMARKS: Time in UTC. Revisions and marginal notes in black were generated during office processing. All separates are filed with the hydrographic data, as a result page numbering may be interrupted or non-sequential.

AWOIS + SURF CHK
6/22/93 mcR

KWW 9/30/93

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

U.S. GOVERNMENT PRINTING OFFICE: 1986 - 452-007/41215



1991	MAR	APR	MAY
SQ. N.M. SOUNDINGS	22	203	361
L.N.M. SOUNDINGS	364	1074	209
L.N.M. SIDE SCAN SONAR			
BOTTOM SAMPLES (GRAB)	56	92	10
ELECT. CONTROL STATIONS (A)	21	19	4
TEMP., DEPTH, SOUND VEL. CAST	2	7	2
NANSEN CAST			
TIDE GAGES ⊙	4	3	3
WATER SAMPLES ANALYZED			
GEODETIC CONTROL STATIONS EST.	2	2	2
AWOIS ITEMS INVESTIGATED	2	2	1

DISPROVED - 51799,51805,51804,51794
VERIFIED - 51798 51796

Descriptive Report to Accompany Hydrographic Survey H-10426

Field Number RA-10-4-92
Scale 1:10,000
~~April~~ 1992
May
NOAA Ship RAINIER
Chief of Party: Captain Thomas W. Richards

A. PROJECT

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

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

B. AREA SURVEYED - *See Evaluation Report, section 1*

The survey is located south of Taylor Bay in Cross Sound, Alaska, 70 NM west of Juneau, Alaska. Sheet K was not completed this field season; the portion of the survey's limits completed in 1992 are 136°32'00"W to the east, 58°13'42½"N to the south. The 1992 hydrography is bounded by land to the west and junctions sheet J to the north. Data acquisition in 1992 was conducted from May 5 through May 9, (DN 126 to 130).

This survey is entirely within Glacier Bay National Park and Preserve. The shoreline has steep, rocky slopes heavily wooded with dense undergrowth. Many off-shore rocks and islets exist within the survey limits.

C. SURVEY VESSELS

Data was acquired by three of NOAA Ship RAINIER's automated survey launches as noted below:

Vessel	EDP No	Operation
RA-3	2123	R/R Hydrography Shoreline Verification

RA-5	2125	R/R Hydrography Shoreline Verification Velocity Casts Bottom Samples
RA-6	2126	R/R 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, tide station installation and maintenance, and mini-ranger setup. RA-4 (2124) was not used for this survey.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

Program Name	Version	Date Installed
SURVEY	6.10 / 6.11	9 Mar 92 / 15 Apr 92
POSTSUR	5.20 / 5.21	9 Mar 92 / 15 Apr 92
PLOTALL	2.01 / 2.02	9 Mar 92 / 15 Apr 92
POINT	2.04	9 Mar 92
BACKUP	2.00	20 Mar 91
CONVERT	3.02	9 Mar 92
PRINTOUT	3.00	9 Mar 92
DIAGNOSTIC	3.00	9 Mar 92
INVERSE	1.51	9 Mar 92
INSTALL	3.00	9 Mar 92
BASELINE	1.11 / 1.12	9 Mar 92 / 15 Apr 92
QUICK	1.10	20 Mar 91
LISTAWOIS	2.00 / 2.01	9 Mar 92 / 15 Apr 92
LOADNEW	1.50	9 Mar 92
REJECT	1.05	9 Mar 92
CARTO	2.01 / 2.02	9 Mar 92 / 15 Apr 92
Vers	NA	9 Mar 92 / 15 Apr 92
BACKOLD	1.12	9 Mar 92
NEWCONT	1.17	9 Mar 92
DISC_UTIL	1.00	20 Mar 91
MB	1.00	9 Mar 92
HJ	1.00	9 Mar 92
AUTOST	2.00	9 Mar 92
GLOBAL	1.12	9 Mar 92
MAKEFIX	1.02	9 Mar 92
BIGABST	1.60 / 2.00	9 Mar 92 / 15 Apr 92
REAPPLY	1.33	9 Mar 92
PREDICT	1.11	9 Mar 92
READPROJS	1.08	9 Mar 92
SOFTCHECK	1.12 / 1.13	9 Mar 92 / 15 Apr 92
HPRAZ	1.24	9 Mar 92

FILESYS	2.16	9 Mar 92
DP	1.12 / 2.00	9 Mar 92 / 15 Apr 92
MANU_DATA	1.12	9 Mar 92
RAMSAVER	1.00	20 Mar 91
GRAPHEDIT	NA	20 Mar 91
ZOOMEDIT	1.10	9 Mar 92
EXCESS	3.03 / 3.04	9 Mar 92 / 15 Apr 92
RECOMP	2.00	9 Mar 92
COPRINTOUT	1.00	9 Mar 92
DAS_SURV	6.20 / 6.21	9 Mar 92 / 15 Apr 92
UNIXSYS	2.00	15 Apr 92
SYMBOLS	1.00	15 Apr 92
CARTOTRANS	1.00	15 Apr 92

During the 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.

Velocity corrections were determined using:

Program Name	Version	Date Installed
VELOCITY	1.11	09 Mar 1990

E. SONAR EQUIPMENT

Not Applicable.

F. SOUNDING EQUIPMENT

All survey launches were equipped with the Raytheon DSF-6000N echo sounders shown below. The echo sounders were operated in the HIGH + LOW (HIGH DIGITIZED) function, using manual gain controls on both high and low frequencies to obtain the best analog trace. Soundings were recorded in meters and tenths of meters. Six-meter bar checks were conducted and recorded daily, using both the LOW and the HIGH + LOW (HIGH DIGITIZED) functions. The echo sounders were operated in accordance with the Provisional Instructions "Raytheon DSF-6000N Echo-Sounder Operating and Processing Instructions", dated July 5, 1983, and the Field Procedures Manual for Hydrographic Surveying (FPM).

Raytheon DSF-6000N Echo Sounders

Vessel	Serial No.	DN
2123	B044N	127-128
2125	B048N	129-130
2126	A117N	126-128

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. This 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, velocity of sound through water, settlement and squat. Predicted tides were used for all plots. Sounding correctors apply to both narrow and wide beams of the DSF-6000N echo sounder. Supporting data and computations for all corrections to echo soundings are included in the Spring 1992 Corrections to Echo Sounding Data Package for OPR-O106-RA.

Offset Tables

Vessel	Offset Table No.
2123	2
2125	8
2126	9

Sound Velocity

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

Velocity Table No.	Cast No.	Deepest Depth (m)	Applicable DN	Cast Position	Day
17	13	194.5	117-132	58°16'29"N 136°30'18"W	130

Plots off of sheet limits.

This sound velocity cast was acquired with a SBE SEACAT Profiler, S/N 811, which was calibrated at the Northwest Regional Calibration Center (NRCC) in Bellevue, WA, on March 3, 1992.

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

Static Draft

For all launches, the distance from the transducer face to the gunwale was measured with a large metal square. Static draft measurements were then determined by dropping a lead line from the gunwale to the water and subtracting this distance

from the distance measured with the square. The measurements from the gunwale to the waterline were conducted with the fuel tanks averaging 3/4 full and three people aboard. A transducer depth of 0.6 meter was determined for launches 2123, 2125, and 2126 on March 21-22, 1992.

Settlement and Squat

Settlement and squat correctors were determined in Shilshole Bay, WA, for launches 2123 on March 11, and 2125 and 2126 on March 18, 1992. Tests were conducted over a hard bottom in depths well exceeding 7 times the vessels' drafts. Both sea and wind were calm. Observations were made through a Zeiss Ni2 leveling instrument, S/N 103453, to a rod held vertically on deck, directly over the transducer. Correctors were computed in accordance with Hydrographic Manual 4.9.4.2., using FPM Fig. 2.2 and 2.3, and are included in the Spring 1992 Corrections to Echo Sounding Data Package for OPR-O106-RA.

Heave

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

Pneumatic Depth Gage

Not applicable.

Bar Check and Lead Lines

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

Tide Correctors

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

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

Tide gages were installed and maintained by RAINIER personnel at Inian Cove, Inian Island (945-2629) and Elfin Cove, Port Althorp, Cross Sound (945-2634). The control station was Sitka, Alaska (945-1600). Opening levels were completed by RAINIER personnel on March 27, 1992. Closing levels will be completed by Pacific Operations Section during the summer of 1992.

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

* Filed with the survey records

H. CONTROL STATIONS *SEE Evaluation 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.~~ *attached to 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 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 and Spring 1992 Horizontal Control Report for OPR-O106-RA.

I. HYDROGRAPHIC POSITION CONTROL

Method of Sounding Position Control

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

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 three LOP's were available.

Equipment

Serial numbers for R/T units and RPU's are annotated on the RMPO for each day of hydrography. Lists of all electronic equipment serial numbers are included in the Electronic Control Data Packages (Spring 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 13-14, 1992 (DN044-DN045), and on February 25-26, 1992 (DN056-DN057) calibrations were conducted at the SANDPOINT BASELINE over a published

distance of 1058.1876 m. Calibration data and a description of the baseline is included in the Spring 1992 Electronic Control Data Package. ✓

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

Other Factors

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

J. SHORELINE *See Evaluation Report, section 2*

Shoreline detail was transferred to the final sheets from shoreline map TP-01329 (June 1985-photography, 1:20,000, NAD27). Chart 17302 (1:10,000 enlargement, 1989) was used to augment the existing registered shoreline manuscripts. The charted shoreline details were included to verify or disprove all charted features. ✓

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

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

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

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

T-sheet features which were verified were retained and shown on the final field sheets (FFS). Verified shoreline and new features are shown in black on the FFS and changes to the shoreline are shown in red. *CONCUR* ✓

Detailed 1:10,000-scale paper plots showing all DPs and reference numbers and notes relating to each feature are included with the sheets submitted with this survey. All DPs were plotted using the "+" symbol because the majority of DPs describe features that are offset slightly from the DP. To accurately depict features, the offset and ✓

bearing of the feature from the DP were applied and the feature drawn by hand. Position numbers for all DPs are plotted on the two DP overlays along with a brief description of the DP. Heights are recorded in meters and are corrected to predicted MLLW. Concur

Disprovals

The following disprovals were conducted near predicted lower low water. A visual and echosounder search was conducted for each item lasting an average of ten minutes. Positioning was accomplished 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°14'25.0"N, 136°34'36.9"W was inspected (Pos. No. 2163) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the T-sheet rock at 58°14'10.8"N, 136°34'55.1"W was inspected (Pos. No. 2165) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the T-sheet rock at 58°14'13.6"N, 136°35'10.4"W was inspected (Pos. No. 6010) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP. Do not concur. Hydro position 6010 defines a rock uncovering 0.2 meters at MLLW at the position listed above.

The vicinity of the T-sheet rock at 58°14'26.8"N, 136°33'47.7"W was inspected (Pos. No. 6011) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the T-sheet rock at 58°14'27.3"N, 136°33'39.8"W was inspected (Pos. No. 6012) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the T-sheet rock at 58°14'36.0"N, 136°33'36.7"W was inspected (Pos. No. 6013) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the T-sheet rock at 58°14'39.8"N, 136°33'30.3"W was inspected (Pos. No. 6014) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the T-sheet rock at 58°14'42.5"N, 136°33'29.0"W was inspected (Pos. No. 6015) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the T-sheet rock at 58°14'43.4"N, 136°33'35.3"W was inspected (Pos. No. 6016) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the T-sheet rock at 58°14'46.0"N, 136°33'28.2"W was inspected (Pos. No. 6017) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the T-sheet rock at 58°14'44.7"N, 136°33'28.7"W was inspected (Pos. No. 6018) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the T-sheet rock at 58°14'51.3"N, 136°33'26.0"W was inspected (Pos. No. 6019) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the charted rock at 58°16'18.7"N, 136°33'56.8"W was inspected (Pos. No. 8002) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the charted rock at 58°15'36.3"N, 136°33'52.3"W was inspected (Pos. No. 8003) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the charted rock at 58°15'31.0"N, 136°33'50.7"W was inspected (Pos. No. 8004) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

The vicinity of the charted islet at 58°15'27.8"N, 136°33'47.9"W was inspected (Pos. No. 8005) and the rock was not seen. Water visibility was 2.0 meters. The search radius was 25 meters from the DP.

Recommendation: The hydrographer recommends that details seaward of the HWL from this survey be used to supersede TP-01329 and charted features in the common areas.

New Features

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

Position No. 2008 describes a submerged rock at 58°14'59.0" N, 136°33'56.4" W which is covered 3.7m at MLLW. WAS EXCESSED. CHART AREA AS SHOWN ON SMOOTH SHEET.

Position No. 2009 describes a submerged rock at 58°14'58.1" N, 136°33'55.2" W which is covered 5.0m at MLLW. WAS EXCESSED. CHART AREA AS SHOWN ON SMOOTH SHEET

Position No. 2011 describes a submerged rock at 58°14'48.4" N, 136°34'01.0" W which is covered 0.1m at MLLW. POSITION #2010 IS (0') AT MLLW AND FURTHER OFFSHORE CHART AREA AS SHOWN ON SMOOTH SHEET.

Position No. 2168 describes a submerged rock at 58°14'03.9" N, 136°35'14.6" W which is covered 0.7m at MLLW. Concur

Recommendation: The hydrographer recommends that these submerged rocks be charted. Do not Concur. Reference charting recommendations as noted above.

Unverified Features

Not Applicable.

K. CROSSLINES

A total of 4.38 nautical miles of crosslines were run perpendicular to mainscheme lines, representing 6.0 % of the mainscheme hydrography; this percentage does not reflect additional splits or developments run during additional investigations. ✓

Crossline soundings agree to within 1.5 meters with mainscheme soundings. These differences are believed to be attributable to differences between real and predicted tides, And steep slopes. ✓

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

L. JUNCTIONS SEE Evaluation Report, section 5

This survey junctions with H-10374 (1:20,000, 1991) to the east and H-10425 (1:10,000, 1992) to the north. No irregularities were found when comparing soundings and depth curves. Agreement between overlapping soundings agree to within 1.5 meters. The difference in junction values may reflect the variation between real and predicted tides and steep slopes. CONCUR ✓

M. COMPARISON WITH PRIOR SURVEYS

This survey was compared to two prior surveys. In general, the present survey compares well with the prior surveys. Shallower soundings from the present survey disproved a majority of prior survey least depths. In cases where depths from the prior survey were shallower, the present survey had similar or shoaler depths in close proximity. The most likely reason for general shoaling throughout the area is isostatic rebound and inaccuracies in the sounding or positioning techniques used on the prior surveys. CONCUR ✓

The following prior surveys were compared to the present survey: ✓

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

Overall agreement between this survey and H-2558 is good, with agreement to within 4.5 m. Discrepancies between the present survey and H-2558 are likely due to wide line spacing used on H-2558 and isostatic rebound. ✓

Recommendation: The hydrographer recommends sounding data from the present survey be used to supersede that of H-2558 within their common areas. CONCUR

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

One sounding from H-4318WD was within the limits of this survey. The present survey revealed shallower soundings in the same area. ✓

* Project instructions states the year as 1922, however the graphic list 1923 as the year.

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

N. COMPARISON WITH THE CHART

All charted soundings from NOS chart 17302, 15th Edition, May 20/89, 1:80,000 (NAD83) originated from the prior surveys discussed in Section M. ✓

Comparison of Sounding Features

Not Applicable. ✓

Comparison of Non-Sounding Features

All disproved charted non-sounding features are discussed in Section J. Charted features which were verified are shown on the FFS in black. ✓

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

AWOIS Items

Not Applicable. NONE ✓

Dangers to Navigation

One danger to navigation within the limits of this survey were reported by radio message and letter to the Seventeenth Coast Guard District and DMAHTC. Copies of the correspondence are ~~included in Appendix I of~~ attached to this report. Position numbers associated with the reported danger are included on the copy of the radio message, filed with the survey records. ✓

O. ADEQUACY OF SURVEY

The area of survey covered in 1992 is complete and adequate to supersede the areas common to the prior surveys listed in Section 6.10 of the Project Instructions. Additional hydrography will be required to complete the remainder of sheet K. SEE Evaluation from Report Section I. ✓

P. AIDS TO NAVIGATION

No aids to navigation lie within the 1992 area of the survey. ✓

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

Q. STATISTICS

Vessel:	2123	2125	2126	Total
# of Pos	225	47	444	~~716~~ 693
NM Hydro	27.44	0.14	55.03	82.61

NM^2 Hydrography	2.5	Velocity Casts	1
Detached Positions	45	Tide Stations	2
Reference Numbers	44		
Bottom Samples	10		

R. MISCELLANEOUS

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

All bottom samples were submitted to the Smithsonian Institution.

S. RECOMMENDATIONS

The hydrographer recommends that this portion of sheet K be processed now as a completed survey and the remaining, unfinished portion be reassigned to complete at a later date. The hydrographer also recommends that future charts of the area between the eastern shore of Lemesurier Island and Cape Spencer be no smaller than 1:50,000 due to the complexity of the area. Contour

T. REFERRAL TO REPORTS

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

Title	Date Sent to N/CG245
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,

Steven A. Lemke
Lieutenant (jg), NOAA

Approved and Forwarded,

Thomas W. Richards
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 21 Jun 1992

✓KRL

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name	Quad No's
~~123~~	~~F~~	~~058:21:36.570~~	~~136:22:40.132~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~	~~5~~	~~04/22/92~~	~~DELTA 1985~~	
~~112~~	~~F~~	~~058:11:41.777~~	~~136:20:55.903~~	~~7~~	~~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~~	~~CONIC(ADJ)~~	
~~135~~	~~F~~	~~058:11:51.574~~	~~136:30:27.489~~	~~16~~	~~250~~	~~0.0~~	~~0.0~~	~~1~~	~~03/22/92~~	~~CAPE 1925~~	
188	F	058:16:48.210	136:34:30.689	8	250	0.0	0.0	6	04/22/92	MORAIN 1985	581363✓
153	F	058:08:18.190	136:25:21.164	27	250	0.0	0.0	4	04/23/92	RAIN 1991	581362✓
~~107~~	~~F~~	~~058:10:50.816~~	~~136:20:46.250~~	~~7~~	~~250~~	~~0.0~~	~~0.0~~	~~9~~	~~04/22/92~~	~~ISLE NO 1 1938~~	
~~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)~~	
~~109~~	~~F~~	~~058:08:49.315~~	~~136:17:34.409~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~	~~A~~	~~04/07/92~~	~~HIP 1992~~	
190	F	058:17:51.075	136:27:03.058	9	250	0.0	0.0	0	04/15/92	LUMBER 1991	581362✓
~~204~~	~~F~~	~~058:08:52.207~~	~~136:17:35.478~~	~~7~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~POCKET(R/AZ)~~	
~~217~~	~~F~~	~~058:09:16.155~~	~~136:19:07.423~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~BOW(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	18	250	0.0	0.0	B	04/30/92	ACHE 1901	581362✓
~~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~~	~~7~~	~~04/14/92~~	~~AID 1901~~	
~~193~~	~~F~~	~~058:17:50.935~~	~~136:23:07.344~~	~~27~~	~~250~~	~~0.0~~	~~0.0~~	~~7~~	~~05/08/92~~	~~BALD 1901~~	
~~194~~	~~F~~	~~058:16:08.427~~	~~136:16:52.405~~	~~8~~	~~250~~	~~0.0~~	~~0.0~~	~~7~~	~~04/30/92~~	~~INIAN 1990~~	
~~195~~	~~F~~	~~058:10:40.354~~	~~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~~	~~8~~	~~05/08/92~~	~~MATTY 1991~~	
100	F	058:15:40.046	136:07:57.956	8	250	0.0	0.0	4	04/16/92	YAK 1901	
~~223~~	~~F~~	~~058:21:36.570~~	~~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~~	~~F~~	~~058:22:45.029~~	~~136:24:36.049~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~CONIC(R/AZ)~~	
~~115~~	~~F~~	~~058:20:02.107~~	~~136:18:17.253~~	~~8~~	~~250~~	~~0.0~~	~~0.0~~	~~1~~	~~05/05/92~~	~~DAN 1901~~	
~~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~~	~~SNAKE 1993~~	
~~400~~	~~F~~	~~058:15:47.021~~	~~136:19:32.367~~	~~2~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~INIAN COVE 0 1964~~	
~~265~~	~~F~~	~~058:23:11.968~~	~~136:24:59.403~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~LEG(R/AZ)~~	
~~266~~	~~F~~	~~058:23:50.735~~	~~136:25:25.253~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~MIRE(R/AZ)~~	
~~267~~	~~F~~	~~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 1901 1966~~	
~~401~~	~~F~~	~~058:15:45.433~~	~~136:20:28.213~~	~~6~~	~~250~~	~~0.0~~	~~0.0~~	~~A~~	~~04/08/92~~	~~BAKE 1991~~	
~~402~~	~~F~~	~~058:15:45.433~~	~~136:20:28.213~~	~~6~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~BAKE(R/AZ)~~	
~~403~~	~~F~~	~~058:15:31.561~~	~~136:19:34.548~~	~~6~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~SNAKE(R/AZ)~~	
~~273~~	~~F~~	~~058:22:11.340~~	~~136:21:07.733~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~MUCK(R/AZ)~~	
~~404~~	~~F~~	~~058:15:47.021~~	~~136:19:32.367~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~INIAN COVE 0 1964(R/AZ)~~	
~~275~~	~~F~~	~~058:21:48.838~~	~~136:23:58.304~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~HOOK 1991(R/AZ)~~	
~~289~~	~~F~~	~~058:08:49.315~~	~~136:17:34.409~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~HIP(R/AZ)~~	
~~405~~	~~F~~	~~058:16:12.143~~	~~136:20:05.798~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~LOUT(R/AZ)~~	
~~406~~	~~F~~	~~058:16:11.778~~	~~136:19:00.839~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~JUJU(R/AZ)~~	
~~407~~	~~F~~	~~058:16:11.778~~	~~136:19:00.839~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~	~~A~~	~~05/01/92~~	~~JUJU 1992~~	
~~408~~	~~F~~	~~058:20:02.107~~	~~136:18:17.253~~	~~8~~	~~250~~	~~0.0~~	~~0.0~~		~~04/14/92~~	~~DAN 1901~~	
~~409~~	~~F~~	~~058:10:40.354~~	~~136:22:09.805~~	~~7~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~JAB(R/AZ)~~	
~~410~~	~~F~~	~~058:17:50.935~~	~~136:23:07.344~~	~~27~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~BALD(R/AZ)~~	
~~411~~	~~F~~	~~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~~	~~058:16:55.183~~	~~136:20:47.710~~	~~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	581363✓
~~415~~	~~F~~	~~058:10:31.239~~	~~136:30:34.884~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~	~~A~~	~~04/27/92~~	~~LOBO 1991~~	
416	F	058:12:43.819	136:22:51.081	9	250	0.0	0.0	5	04/23/92	ADZE 1901	581362✓
~~417~~	~~F~~	~~058:17:59.613~~	~~136:29:08.752~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~	~~A~~	~~05/06/92~~	~~DEPT 1991~~	
~~418~~	~~F~~	~~058:10:31.239~~	~~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~~	~~KOFF NO 1~~	
~~110~~	~~F~~	~~058:15:02.306~~	~~136:21:10.505~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~		~~00/00/00~~	~~FONG1~~	

~~133~~	~~F~~	~~058:15:15.230~~	~~136:23:02.253~~	~~13~~	~~250~~	~~0.0~~	~~0.0~~	~~00/00/00~~	~~SUR~~	
~~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~~	~~136:21:06.317~~	~~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~~	~~058:11:18.607~~	~~136:20:21.260~~	~~6~~	~~250~~	~~0.0~~	~~0.0~~	~~00/00/00~~	~~KOFF NO 1(R/AZ)~~	
~~219~~	~~Z~~	~~058:15:02.304~~	~~136:21:10.505~~	~~6~~	~~250~~	~~0.0~~	~~0.0~~	~~00/00/00~~	~~CANAL(R/AZ)~~	
~~233~~	~~Z~~	~~058:15:15.230~~	~~136:23:02.253~~	~~13~~	~~250~~	~~0.0~~	~~0.0~~	~~00/00/00~~	~~SUR(R/AZ)~~	
~~236~~	~~Z~~	~~058:11:49.673~~	~~136:20:50.459~~	~~6~~	~~250~~	~~0.0~~	~~0.0~~	~~00/00/00~~	~~SKY(R/AZ)~~	
~~241~~	~~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~~	~~7~~	~~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~~	
~~174~~	~~F~~	~~058:07:28.094~~	~~136:18:51.778~~	~~3~~	~~250~~	~~0.0~~	~~0.0~~	~~00/00/00~~	~~TOWN 1942~~	
~~179~~	~~F~~	~~058:09:58.282~~	~~136:21:33.918~~	~~7~~	~~250~~	~~0.0~~	~~0.0~~	~~6 04/22/92~~	~~DALI 1991~~	
~~170~~	~~F~~	~~058:08:31.134~~	~~136:20:53.813~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~	~~B 04/04/92~~	~~ZEN 1991~~	
~~178~~	~~F~~	~~058:11:47.986~~	~~136:22:37.906~~	~~9~~	~~250~~	~~0.0~~	~~0.0~~	~~A 03/22/92~~	~~GRAN 1930~~	
~~129~~	~~F~~	~~058:12:08.803~~	~~136:21:21.384~~	~~5~~	~~250~~	~~0.0~~	~~0.0~~	~~00/00/00~~	~~HOLE~~	
~~131~~	~~F~~	~~058:11:39.817~~	~~136:21:29.742~~	~~10~~	~~250~~	~~0.0~~	~~0.0~~	~~A 04/04/92~~	~~NITE 1930~~	
~~137~~	~~F~~	~~058:12:36.107~~	~~136:21:49.754~~	~~19~~	~~250~~	~~0.0~~	~~0.0~~	~~6 04/22/92~~	~~DUNK NO 2 1930~~	
~~152~~	~~F~~	~~058:09:57.907~~	~~136:23:25.066~~	~~6~~	~~250~~	~~0.0~~	~~0.0~~	~~4 04/20/92~~	~~RUDE 2 1991~~	
~~154~~	~~F~~	~~058:09:12.755~~	~~136:23:04.548~~	~~20~~	~~250~~	~~0.0~~	~~0.0~~	~~4 04/21/92~~	~~DRERD 1991~~	
~~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~~	~~7~~	~~250~~	~~0.0~~	~~0.0~~	~~1 05/04/92~~	~~LLAMA 1991~~	
~~183~~	~~F~~	~~058:06:17.744~~	~~136:16:23.124~~	~~1~~	~~250~~	~~0.0~~	~~0.0~~	~~00/00/00~~	~~BUZZ~~	
~~184~~	~~F~~	~~058:08:52.207~~	~~136:17:35.478~~	~~7~~	~~250~~	~~0.0~~	~~0.0~~	~~A 04/07/92~~	~~POCKET 1991~~	
~~185~~	~~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~~	
~~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)~~	
~~243~~	~~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	581363✓
~~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 TP 1992	581363✓
~~125~~	~~F~~	~~058:16:11.116~~	~~136:24:18.155~~	~~12~~	~~250~~	~~0.0~~	~~0.0~~	~~B 05/07/92~~	~~EK 1991~~	
~~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~~	~~136:27:03.050~~	~~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 1985(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~~	
~~116~~	~~F~~	~~058:12:07.020~~	~~136:22:15.121~~	~~8~~	~~250~~	~~0.0~~	~~0.0~~	~~00/00/00~~	~~BEER~~	
~~142~~	~~F~~	~~058:08:31.134~~	~~136:20:53.813~~	~~4~~	~~250~~	~~0.0~~	~~0.0~~	~~00/00/00~~	~~ZEN 1991~~	

✓KRL

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

NOAA Ship RAINIER

June 9, 1992

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

ADVANCE INFORMATION

Dear Sir:

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

Sincerely,

Thomas W. Richards
Captain, NOAA
Commanding Officer

Enclosures

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

NOAA Ship RAINIER

June 9, 1992

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

ADVANCE INFORMATION

Dear Sir:

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

Sincerely,

Thomas W. Richards
Captain, NOAA
Commanding Officer

Enclosures

cc: DMAHTC
N/CG221
PMC

P 261708Z 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 1 DANGER TO NAVIGATION IN CROSS SOUND, ALASKA (PROJECT OPR-0106-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10426, TAYLOR BAY TO CAPE SPENCER.

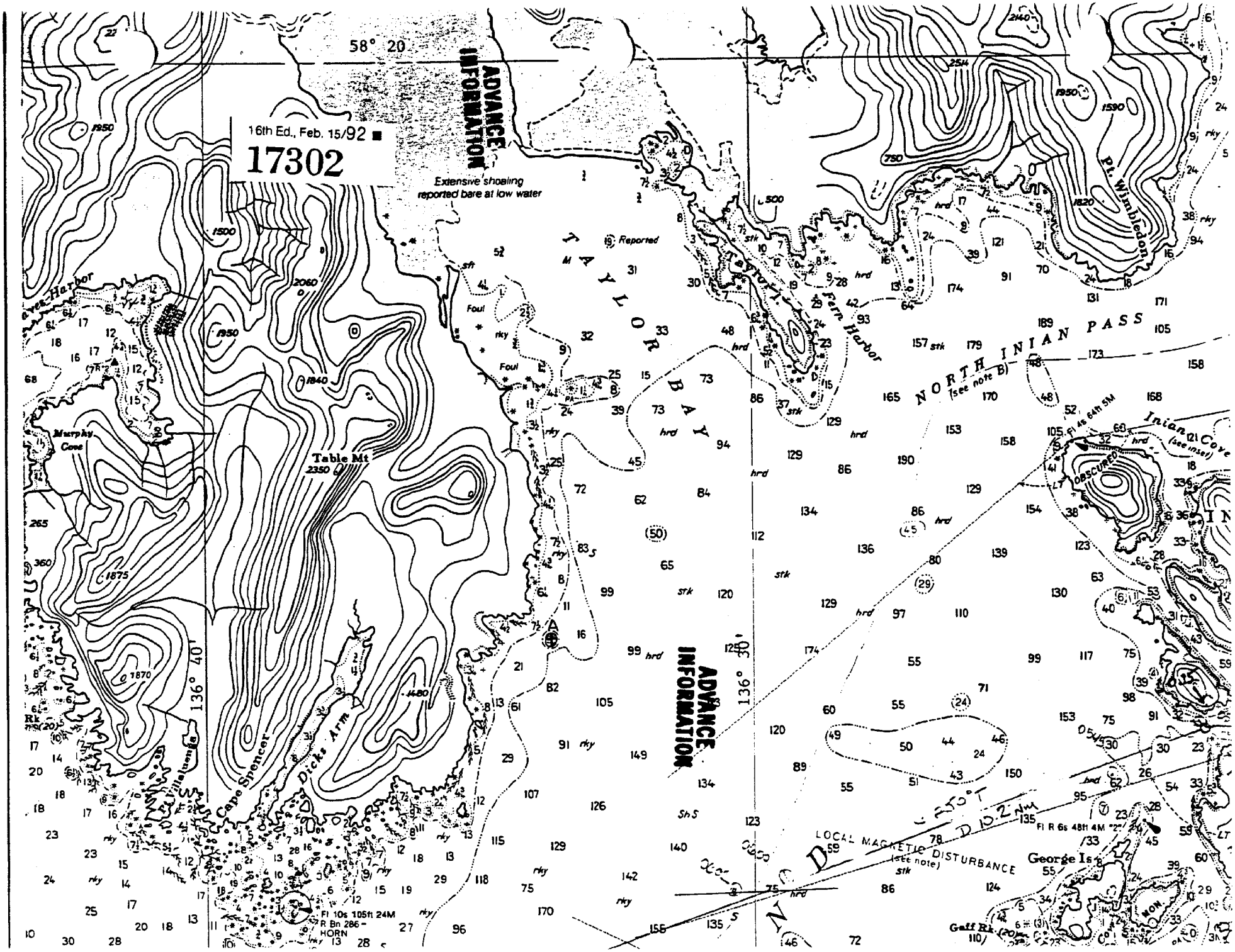
THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

CHARTS AFFECTED: 17302 16TH ED FEB 15/92 1:80,000 NAD83
17300 25TH ED APR 29/89 1:209,978 NAD 83
16760 8TH ED JULY 28/90 1:300,000 NAD 83

DEPTH IS REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	CHART	DEPTH	DATUM	LATITUDE	LONGITUDE
A.	SHOAL	17302 17300 16760	8 fm	NAD 83	58/14/28.11N	136/33/40.79W

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
ADVANCE INFORMATION
Extensive shoaling reported bare at low water
58° 20
TAYLOR BAY
NORTH INIAN PASS
(see note B)
Pt. Wimbledon
Fern Harbor
Murphy Cove
Table Mt
2350
Cape Spencer
Dicks Arm
136° 40'
136° 30'
ADVANCE INFORMATION
LOCAL MAGNETIC DISTURBANCE
(see note)
George Is
Gaff Rk
Fl 10s 105ft 24M
R Bn 286°
HORN
Fl R 6s 48ft 4M
OBSCURED
Inian Cove
(see inset)
Foul
Reported
stk
hrd
rky
ShS

01 1903
101

TWR

File: TP-01329.DOS

P Z MAY 91
FM NOAAS RAINIER
TO NOAAMOP SEATTLE WA
BT
UNCLAS

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 CFFSHORE 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

ORIGINAL

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

DATE: January 4, 1993

MARINE CENTER: Pacific

OPR: 0106-RA

HYDROGRAPHIC SHEET: H-10426 (Amended)

LOCALITY: Cape Spencer to Taylor Bay, Cross Sound, Alaska

TIME PERIOD: May 5 - May 9, 1992

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

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 10.05 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 10.8 ft.

REMARKS: RECOMMENDED ZONING

1. East of 136° 34.3'W, apply a -6 minute time correction and a x0.91 range ratio to Inian Cove (945-2629).

2. West of 136° 34.3'W, apply a -10 minute time correction and a x0.88 range ratio to Inian Cove (945-2629).

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

Times are tabulated in Greenwich Mean Time.

for _____
CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10426

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 17302	B ON PREVIOUS SURVEY NO.	C TP-01329	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		X							1
CROSS SOUND	X		X							2
TAYLOR BAY	X		X							3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
					Approved:					14
										15
					Charles E. Harrington					16
					Chief Geographer - N/CG2x5					17
					NOV - 2 1992					18
										19
										20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

APPROVAL SHEET

for

H-10426

RA-10-4-92

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and the Field Procedures Manual in producing this survey. The data were examined daily during data acquisition and processing.

The field sheet and accompanying records have been examined by me, are considered complete and adequate for charting purposes, and are approved.

Thomas W. Richards
Captain, NOAA
Commanding Officer

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

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER: H-10426

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

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

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

SHORELINE DATA

SHORELINE MAPS (List): TP-01329

PHOTOBATHYMETRIC MAPS (List): None

NOTES TO THE HYDROGRAPHER (List): None

SPECIAL REPORTS (List): NA

NAUTICAL CHARTS (List): 17301 7th Ed., 9/21/91; 17302 16th Ed. 2/15/92

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS VERIFICATION	AMOUNTS EVALUATION	AMOUNTS TOTALS
POSITIONS ON SHEET			693
POSITIONS REVISED			
SOUNDINGS REVISED			17
CONTROL STATIONS REVISED			
	TIME-HOURS VERIFICATION	TIME-HOURS EVALUATION	TIME-HOURS TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	9		9
VERIFICATION OF SOUNDINGS	70.5		70.5
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	42		42
COMPARISON WITH PRIOR SURVEYS AND CHARTS		2	2
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		23	23
GEOGRAPHIC NAMES			
OTHER* Digitization			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	121.5	25	

Pre-processing Examination by: LT John Griffin	Beginning Date: 7/6/92	Ending Date: 8/5/92
Verification of Field Data by: Leonardo Deodato, Elias Domingo	Time (Hours): 121.5	Ending Date: 3/10/93
Verification Check by: James Stringham	Time (Hours): 22	Ending Date: 3/17/93
Evaluation and Analysis by: Gordon E. Kay	Time (Hours): 25	Ending Date: 3/25/93
Inspection by: Bruce A. Olmstead	Time (Hours): 29	Ending Date: 5/20/93

EVALUATION REPORT
H-10426

1. INTRODUCTION

Survey H-10426 is a basic hydrographic survey accomplished by the NOAA Ship *Rainier*, under the following Project Instructions.

OPR-O106-RA, dated February 18, 1992

This survey occurred in Alaska and covers an area in Cross Sound and Taylor Bay. The surveyed area extends from latitude 58/13/41N, north to latitude 58/16/32N, and from longitude 136/31/52W westward to the coastline. The shoreline is characterized by numerous off lying rocks, small islets and rock ledges. Heavy concentrations of kelp exists along the near shore areas. The bottom consists of gray slit and clay. Depths range from less than a meter along the shoreline to 189 meters at the eastern survey limits.

This survey was only partially completed in the field and was not intended to be submitted as a completed survey, see hydrographer's report, section B. However, the hydrographer recommended that the finished work be processed as a completed survey. PHS received approval from the Charting and Mapping Branch to process survey as complete. The remainder of the survey area will be reassigned at a later date.

Predicted tides for Sitka, Alaska, were used for the reduction of soundings during field data acquisition. Approved hourly heights zoned from Inian Cove, Alaska, gage 945-2629 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 1983 is used as the horizontal datum for plotting and positioning computations. The TRA correctors were redone for all the Rainier spring projects because of a scaling error found in the speed of the launch. This problem has been corrected. The 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 feature 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 depiction of survey data.

2. CONTROL AND SHORELINE

Sections H and I of the hydrographer's report contains adequate discussions of horizontal control and hydrographic positioning. More detailed information on horizontal control can be found in the following.

Spring 1991 and 1992 Horizontal Control Reports for OPR-O106-RA

Positions of horizontal control stations used during hydrography are published and 1991-1992 field values based on NAD 83. The smooth sheet and accompanying overlays are annotated with NAD 27 adjustment ticks based on values determined by 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 corrections.

Latitude:	-1.342 seconds	(-41.5 meters)
Longitude:	6.709 seconds	(109.4 meters)

The year of establishment of control stations shown on the smooth sheet originates with the hydrographer's signal list.

The quality of eleven positions exceed the positional limits, in terms of error circle radius or residual, or these positions have angles of intersection less than thirty degrees or more than 150 degrees. A review of the data indicates that none of these fixes are used to position dangers to navigation contained within the limits of this survey. The soundings located by these fixes are consistent with the surrounding depth information. These fixes are considered acceptable.

The following reviewed Class III shoreline map applies to this survey.

Number	Photography Date	Scale	Datum
TP-01329	June 1985	1:20,000	NAD 1927

Shoreline drawn on the smooth sheet originates with the 1:10,000 scale photographic enlargement of the above shoreline map. NAD 83 adjustment ticks are portrayed on the above shoreline map and are consistent with the values listed in section 2 of this report.

There is a shoreline change centered at latitude 58/15/12N, longitude 136/33/51W. This revision is supported with positional information and is depicted on the smooth sheet with a solid red line. This revision is considered adequate to supersede the common photogrammetrically delineated shoreline.

Shoreline map TP-01329 portrays numerous sunken rocks (+) far off the shoreline in water depths of over twenty meters. The hydrographer mentions this in his Descriptive Report, section J, that he investigates some of these rocks but does not locate any of them. It is believed that the photogrammetrist has mistaken kelp for rock features. These rocks were searched for and were not found and should not be shown on the chart.

A rock uncovering 0^9 meters at MLLW is on the final field sheet at latitude 58/16/26N, longitude 136/34/09W and originates from a miscellaneous charted source. This rock was visually verified during shoreline verification and has been added to the smooth sheet without any supporting positional information.

3. HYDROGRAPHY

Except as noted below, hydrography is adequate to:

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

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.

The hydrographer was unable to define the mean low water line and much of the 1-meter depth curve due to the steep bottom profile and rocky foreshore areas encountered along the shoreline.

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-10426 junctions with the following surveys.

Survey	Year	Scale	Area
H-10374	1991	1:20,000	East
H-10425	1992	1:10,000	North

The junction with survey H-10425 is complete. Two soundings have been transferred to survey H-10426 to better portray the common area.

Survey H-10374 has already been forward to charting. The junction was compared to an enlarged copy of the smooth sheet for survey H-10374. Soundings are in good agreement. Numerous soundings have been transferred to survey H-10426 to better portray the common area. Portions of the depth curves on surveys H-10374 should be adjusted to conform with those on survey H-10426.

There is no junction survey to the south but a comparison was made to chart 17302, 16th edition. Present soundings are in adequate agreement with the charted depths. Depth differences are likely due to a combination of antiquated survey methods, datum conversions and the associated compilation portrayal. Evidence also indicated that there may have been some uplift in this area because of tectonic occurrences, such as the Prince William Sound earthquake of 1964.

6. COMPARISON WITH PRIOR SURVEYS

Survey H-10426 was compared to the following prior surveys.

H-2558 (1901) 1:40,000

Prior survey H-2558 covers the entire area of the present survey. Most alongshore rocks and islets have been located on the present survey. There is no consistent difference between the soundings found on these surveys. However, the present survey found several shoaler soundings that were not discovered in 1901. Considering the differences in the scales of the survey and the methods of surveying, comparison with this prior survey is satisfactory. Additional information can be found in the hydrographer's report, section M.

Survey H-10426 is adequate to supersede prior survey H-2558 within the area of common coverage.

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

Prior wire-drag survey H-4318WD covers the offshore area of the present survey. Alongshore rocks depicted on this prior survey have been located on the present survey. The present depths

do not conflict with the cleared areas of the prior wire-drag survey. There is one charted sounding which originates from prior survey H-4318WD. The 8-fathom (14.6 meter) sounding charted at latitude 58/15/02N, longitude 136/33/31W, was investigated and general depths of 12.9 to 14.8 meters were found on the present survey. Present survey indicates shoaler depths than what is found on this prior survey.

In accordance with Hydrographic Survey Guideline 39, the effects of the 1964 Prince William Sound earthquake were considered in the comparison with these prior surveys. No reasonable adjustments for uplift or subsidence could be determined. However, there were no features or soundings which warranted transfer to the present survey.

There are no AWOIS items originating from prior surveys H-2558 and H-4318WD that apply to the present survey.

7. COMPARISON WITH CHART

Survey H-10426 was compared to the following charts.

Chart	Edition	Date	Scale	Datum
17301	7th	September 21, 1991	1:40,000	NAD 83
17302	15th	May 20, 1989	1:80,000	NAD 83
17302	16th	February 15, 1992	1:80,000	NAD 83

a. Hydrography

Charted hydrography on chart 17301 originates with miscellaneous sources. The area of common coverage between the chart and this survey, is in a small cove centered at latitude 58/14/00N, longitude 136/35/16W. There are no soundings only numerous rocks and islets. Present survey accounts for all these rocks and islets.

Charted hydrography on chart 17302 originates with surveys H-2558, H-4318WD and miscellaneous sources. The 15th and 16th edition of chart 17302 are mostly identical, however, differences in shoreline, alongshore rocks and islets can be found. These shoreline changes have been made from the updated shoreline manuscripts. A $9^{3}4$ fathom depth (18.3 meters) charted at latitude 58/14/28N, longitude 136/33/40W, originates from junction survey H-10374. A shoaler depth of 14.8 meters (8 fathoms) was found on the present survey at latitude 58/14/28N, longitude 136/33/41W and should supersede the charted $9^{3}4$ fathom depth.

Additional information can be found in the hydrographer's report, section N.

Survey H-10426 is adequate to supersede charted hydrography within the common area.

b. AWOIS

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

c. Controlling Depths

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

d. Aids to Navigation

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

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

One danger to navigation was generated during the survey and reported to the Seventeenth Coast Guard District, DMAHTC and N/CG221. A copy of this report is attached.

No additional dangers were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10426 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

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

Gordon E. Kay
Cartographer

APPROVAL SHEET
H-10426

Initial Approvals:

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

for Bruce A. Olmstead
Dennis J. Hill
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

Date: May 25, 1993

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

Date: 5/25/93

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Final Approval

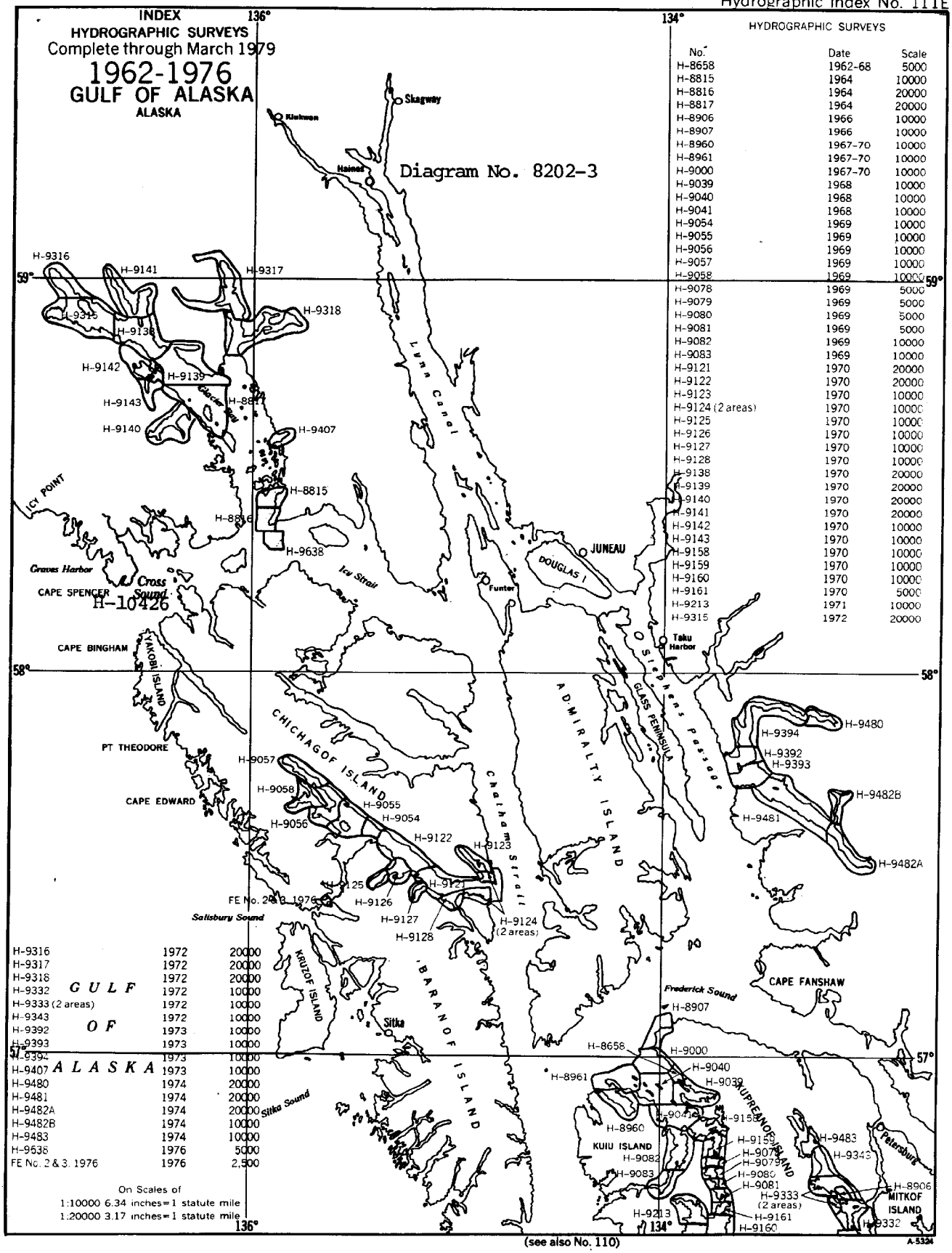
Approved:

J. Austin Yeager
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

Date: Sept 28, 1993

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

Hydrographic Index No. 111E



HYDROGRAPHIC SURVEYS

No.	Date	Scale
H-8658	1962-68	5000
H-8815	1964	10000
H-8816	1964	20000
H-8817	1964	20000
H-8906	1966	10000
H-8907	1966	10000
H-8960	1967-70	10000
H-8961	1967-70	10000
H-9000	1967-70	10000
H-9039	1968	10000
H-9040	1968	10000
H-9041	1968	10000
H-9054	1969	10000
H-9055	1969	10000
H-9056	1969	10000
H-9057	1969	10000
H-9058	1969	10000
H-9078	1969	5000
H-9079	1969	5000
H-9080	1969	5000
H-9081	1969	5000
H-9082	1969	10000
H-9083	1969	10000
H-9121	1970	20000
H-9122	1970	20000
H-9123	1970	10000
H-9124 (2 areas)	1970	10000
H-9125	1970	10000
H-9126	1970	10000
H-9127	1970	10000
H-9128	1970	10000
H-9138	1970	20000
H-9139	1970	20000
H-9140	1970	20000
H-9141	1970	20000
H-9142	1970	10000
H-9143	1970	10000
H-9158	1970	10000
H-9159	1970	10000
H-9160	1970	10000
H-9161	1970	5000
H-9213	1971	10000
H-9315	1972	20000
H-9316	1972	20000
H-9317	1972	20000
H-9318	1972	20000
H-9332	1972	10000
H-9333 (2 areas)	1972	10000
H-9343	1972	10000
H-9392	1973	10000
H-9393	1973	10000
H-9394	1973	10000
H-9407	1973	10000
H-9480	1974	20000
H-9481	1974	20000
H-9482A	1974	20000
H-9482B	1974	10000
H-9483	1974	10000
H-9638	1976	5000
FE No. 2 & 3, 1976	1976	2,500

GULF OF ALASKA

On Scales of
1:10000 6.34 inches=1 statute mile
1:20000 3.17 inches=1 statute mile

(see also No. 110)

A-5324

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10426

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
17302	9-96	DMcALINDEN	Full ~~Part Before~~ After Marine Center Approval Signed Via
	1-6-97	[signature]	Drawing No. 19 REVISED 3FA, 10 FA, 50 FA, SDNGS, ROCKS ETC
			17ED AUG93
17366	9-96	DMcALINDEN	Full ~~Part Before~~ After Marine Center Approval Signed Via
	1-6-97	[signature]	Drawing No. 30 APPLIED THRU CHART 17302
			27ED AUG 93
16760	9-96	DMcALINDEN	Full Part Before After Marine Center Approval Signed Via
	1-7-97	[signature]	Drawing No. 15 APPLIED THRU CHART 17366
			8TH ED JULY 90
			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