

10459

10459

Diagram No. 8201-4

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. RA-10-1-93
Office No..... H-10459

LOCALITY

State Alaska
General Locality Southern Stephens Passage
Sublocality Cleveland Passage

19 93

CHIEF OF PARTY
CAPT R.C. Arnold

LIBRARY & ARCHIVES

DATE April 1, 1994

HYDROGRAPHIC TITLE SHEET

H-10459

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-10-1-93

State Alaska

General locality Cleveland Passage

Locality Stephens Passage

Scale 1:10,000 Date of survey March 20-March 31, 1993

Instructions dated February 5, 1993 Project No. OPR-0136-RA

Vessel NOAAS RAINIER (2120), (2123), (2124), (2125), (2126)

Chief of party CAPT Russell C. Arnold, NOAA

Surveyed by LT M. Brown, LTJG S. Lemke, LTJG R. Ramos, ENS J. Klay, ENS D. Pitts, ENS G. Glover, ENS J. Graham

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

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Verification by: Russ Davies Automated plot by PHS Xynetics Plotter

Evaluation by: Russ Davies

Soundings in meters and decimeters at ~~MLLW~~ MLLW

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

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

R.W.H. 5/12/94
AWOIS and SURF ✓ RWD 4/94

433 40.00

133 20 00

PROGRESS SKETCH

OPR-0136-RA
HYDROGRAPHIC SURVEY
SOUTHERN STEPHENS PASSAGE, ALASKA

MARCH 18 - MARCH 31, 1993

NOAA SHIP RAINIER

RUSSELL C. ARNOLD, CAPT.
COMMANDING

SCALE OF CHART 217828

STEPHENS PASSAGE.

MARCH

72	
732.99	
0	
84	
3	
1	
0	
0	
8	
5	

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 51879, 51879, 51883

VERIFIED 51880, 51881

57 30 00

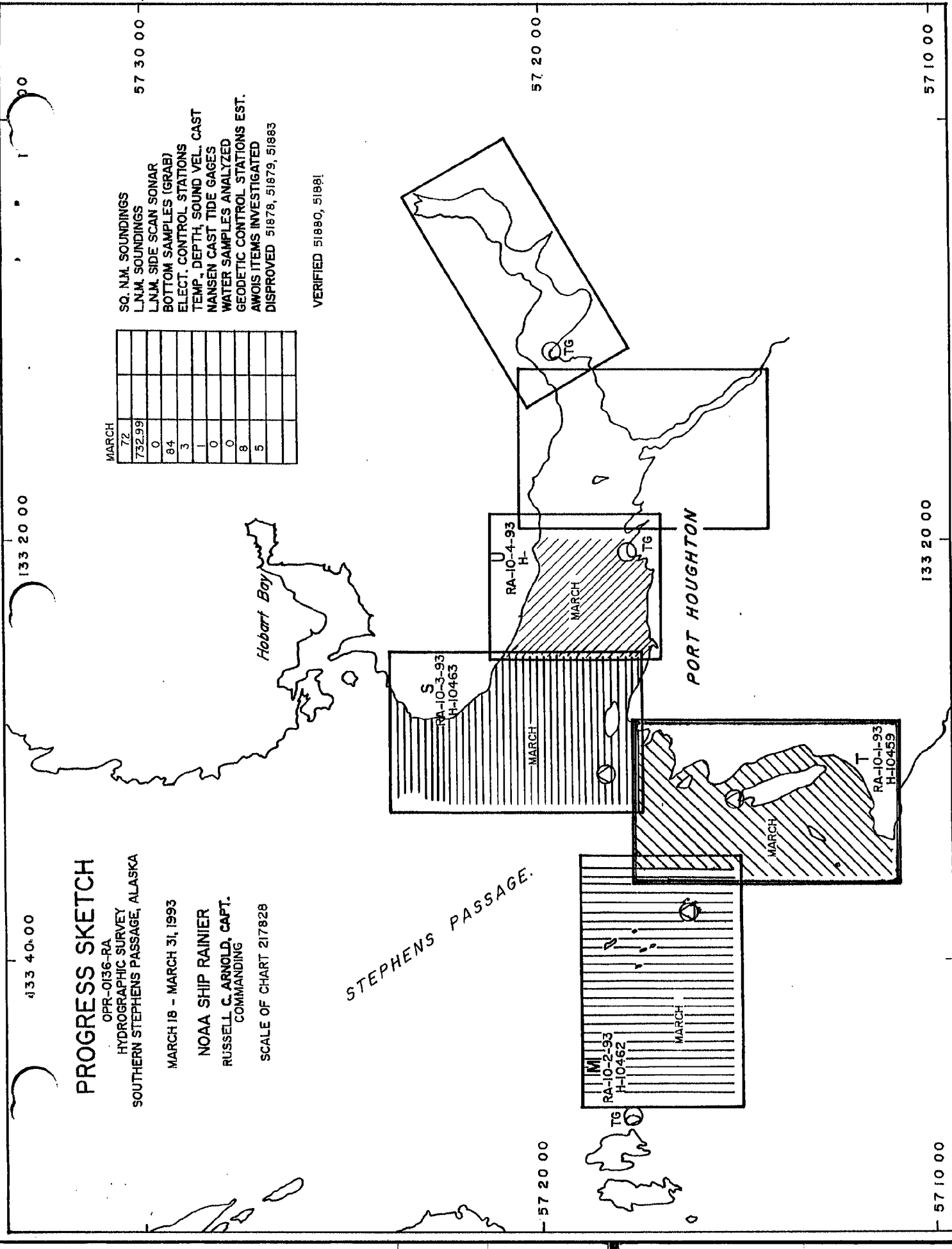
57 20 00

57 20 00

57 10 00

133 20 00

57 10 00



Descriptive Report to Accompany Hydrographic Survey H-10459

Field Number RA-10-1-93

Scale 1:10,000

March 1993

NOAA Ship RAINIER

Chief of Party: Captain Russell C. Arnold

A. PROJECT ✓

This basic hydrographic survey was completed in Southern Stephens Passage, Alaska, as specified by Project Instructions OPR-O136-RA dated February 5, 1993.

Survey H-10459 corresponds to "Sheet T" as defined in the Project Instructions.

This survey will provide contemporary hydrographic survey data for updating existing nautical charts, and for a new series of metric charts as part of a continuing program to improve chart coverage of the Inside Passage in Southeast Alaska. Requests for hydrographic surveys and updated charts have been received from the Southeastern Alaska Pilot's Association, the Alaska Department of Transportation, and other private interests such as the cruise line and fishing industries.

B. AREA SURVEYED ✓

The survey is located in the southern end of Stephens Passage and its adjoining bays of Alaska. The survey area extends from Cape Fanshaw at the south to the entrance of Port Houghton at the north. The survey encompasses Cleveland Passage and Storm Island. The shoreline in the region is steep and rocky with intermittent gravel beaches.

Data acquisition was conducted from March 20, Day Number (DN) 79, through March 31, DN 90.

C. SURVEY VESSELS ✓

Data were acquired by the NOAA SHIP RAINIER and ^{three}~~four~~ survey launches as noted below:

<u>Vessel</u>	<u>EDP No</u>	<u>Operation</u>
RAINIER	2120	Velocity Cast Bottom Samples
RA-3	2123	Hydrography
RA-5	2125	Hydrography Shoreline Verification Bottom Samples
RA-6	2126	Dive Operations

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

Data acquisition and processing were accomplished with the following HDAPS programs:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
AUTOST	3.00	9/24/92
BACKUP	2.00	9/24/92
BASELINE	1.13	9/24/92
BIGABST	2.03	9/24/92
BLKEDIT	2.00	9/24/92
CARTO	2.04	3/1/93
CONTACT	2.01	9/24/92
CONVERT	3.51	9/24/92
DAS SURV	6.31	2/26/93
DIAGNOSE	3.01	9/24/92
DISC UTIL	1.00	9/24/92
DP	2.13	3/1/93
EXCESS	4.10	9/24/92
FILESYS	3.01	4/14/92
GRAFEDIT	1.01	2/26/93
HIPSTICK	1.01	9/24/92
HPRAZ	1.26	9/24/92
INVERSE	2.00	9/24/92
INSTALL	4.00	9/24/92
LSTAWOIS	3.01	9/24/92
LISTDATA	1.00	9/24/92
LOADNEW	2.01	9/24/92
MAINMENU	1.00	9/24/92
MAN DATA	2.00	9/24/92
NEWPOST	6.00	9/24/92
PLOTALL	2.08	2/26/93
POINT	2.10	9/24/92
PREDICT	2.00	9/24/92
PRESURV	7.01	2/26/93
PRINTOUT	4.01	9/24/92
QUICK	2.03	2/26/93
RAMSAVER	1.01	9/24/92
RECOMP	2.02	9/24/92
REAPPLY	2.01	9/24/92
SCANNER	1.00	9/24/92
SELPRINT	2.02	9/24/92
SYMBOLS	2.00	9/24/92
ZOOMEDIT	2.10	9/24/92

Velocity corrections were determined using:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
VELOCITY	2.0	24 Mar 1993

E. CORRECTIONS TO ECHO SOUNDINGS ✓

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

<u>Velocity Table No.</u>	<u>Cast No.</u>	<u>Deepest Depth (m)</u>	<u>Applicable DN</u>	<u>Cast Position</u>	<u>Day</u>
1	1	425.2	079-090	57°15'45"N 133°45'05"W	82

(OFF Sheet limits)

The sound velocity casts were acquired with a SBE SEACAT Profiler, S/N 220.

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 1993 Corrections to Echo Sounding Data Package for OPR-O136-RA."

Static Draft ✓

A transducer depth was determined for launches 2123, 2125 and 2126 on March 19, 1993 and is in the offset tables for each launch. * Filed with the hydrographic data.

Settlement and Squat ✓

Correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2., using FPM Fig. 2.2 and 2.3, and are included in the "Spring 1993 Corrections to Echo Sounding Data Package for OPR-O136-RA." The data used was collected in Shilshole Bay, Washington on March 11, 16, and 18 of 1992. Revised settlement and squat correctors were received from Pacific Marine Center on October 21, 1992. Prior authorization was obtained from N/CG241 before using the 1992 data. These revised correctors were applied to the data on sheet T.(H-10459) * Filed with the hydrographic data.

Offset Tables

<u>Vessel</u>	<u>Offset Table No.</u>
2123	3
2125	5
2126	6

Heave ✓

Data acquired during periods of significant sea action were check scanned to remove any errors introduced into the digital data by vessel heave.

Bar Check and Lead Lines ✓

Bar check and lead lines were calibrated by RAINIER personnel on February 19, 1993 at PMC. Calibration forms are included in the "Spring 1993 Corrections to Echo Sounding Package for OPR-O136-RA."

Tide Correctors ✓

Tide correctors for the project were found in the Tide Table 2 of the published predicted tides for the Juneau, Alaska, reference station (945-2210). Correctors for Cleveland Passage were used for this survey. Tidal correctors are:

	<u>TIME</u> (mins)	<u>HEIGHT</u> (ft)
Low Water	+3	-0.1
High Water	-1	-1.2

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 The Brothers, Frederick Sound (945-1785) and Port Houghton, Stephens Passage (945-1771). The control station was Juneau, Alaska (945-2210). Opening levels were completed by RAINIER personnel on April 2, 1993. Closing levels will be completed by RAINIER personnel on April 16, 1993.

The station descriptions, field tide records, and Field Tide Notes will be forwarded to N/OES212, in accordance with HSG 50 and FPM 4.3, at the end of the project. Requests for approved tides will be forwarded to N/OES2.

F. CONTROL STATIONS ✓

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 National Geodetic Survey (NGS) data base. All existing stations were recovered in accordance with methods stated in Section 5.2.4 of the Field Procedures Manual. New stations were positioned via GPS methods to meet third-order class I standards. Further information can be found in the "Spring 1993 Horizontal Control Report for OPR-O136-RA."

G. HYDROGRAPHIC POSITION CONTROL ✓**Method of Position Control**

All soundings and features were positioned using differential GPS. Falcon was used solely for GPS system checks. Serial numbers for Falcon R/T units, RPU's and Ashtech equipment are annotated on the data printouts. Lists of all positioning equipment serial numbers are included in the "Spring 1993 Electronic Control Data Package for OPR-O136-RA."

Calibrations & Systems Check Methods ✓**Falcon 484**

Baseline calibrations were conducted in accordance with FPM 3.1.2.1 and 3.1.3.2. Calibrations were performed at the MATTHEWS PARK BEACH BASELINE on March 8-9, 1993 (DN 42-49). Calibration data and a description of the baseline is included in the "Spring 1993 Electronic Control Data Package for OPR-O136-RA."

* Filed with the hydrographic data.

Ashtech GPS ✓

A VHF Differential shore station was established at station INDX. After the station was established, a remote sensor was directly connected to the MXII shore station and its antenna was collocated with the shore station. The computed position was transmitted back to the ship via VHF radio modem link. The difference between the computed location and the station's published position were recorded by the MONITOR program on a PC. Data from a 24-hour period were recorded and examined for signs of multi-path signal reflection, which was not evident at the station.

Launch system checks were made by a direct comparison of the Falcon position with the GPS position. HDAPS Survey Screen Two was used for this comparison, and was dumped to the system printer to record the results. Three such dumps were made for each system check. System checks were normally made each day, and days with no system checks were always bracketed by days with good checks. Formal system checks were recorded on a form included with data for the beginning and ending of each leg.

Problems ✓

The differential GPS station on INDX ran without problems for sheet T. (H-10469)

Offset ✓

The launch GPS antenna is mounted on the mast of the Falcon R/T unit. Antenna offsets are stored in the HDAPS Offset Tables as listed in Section G. Copies of the Offset Tables are included in the "Separates to be Included with Survey Data", III. Horizontal Position Control and Corrections to Position Data."

H. SHORELINE *Sec Evac Report, section 2*

The Shoreline map (T-sheet) used to transfer shoreline detail to the final sheets was T_H^P-01389 (1:20,000, NA 83).

Shoreline verification was conducted near predicted lower low water in accordance with FPM 7.1. Shoreline verification was 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, described, and 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 volume. Corresponding notes were annotated on the photocopies of the T-sheet when deemed necessary. The annotated photocopies of the T-sheet are attached to the sounding volumes which are included with the survey data.

DPs taken during shoreline verification were recorded on the master printouts and indicate significant T-sheet 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.

Detailed 1:10,000 "Rough Bottom Sample and Detached Position Plots" are provided showing all DPs

* Filed with the hydrographic data.

and reference numbers and notes relating to each feature. The information from these plots was transferred to a field shoreline plot. Verified T-sheet features were retained and shown in black. Disproved features were removed from the shoreline plot and changes to the shoreline were shown in red. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in meters and are corrected to predicted MLLW. *All heights shown on the smooth sheet are corrected to MLLW.*

Disprovals ✓

Two T-Sheet rocks in the vicinity 057°13'26"N, 133°29'55"W, Position Number(PN) 5800, were not present. The tide corrector was -0.4m. The rocks were visually searched for within a 20m section of a gravelly beach. The search took approximately 10 minutes. The water visibility was 2m and clear to the bottom. The bottom was uniform and flat. The average depth was 1.6m.

The T-Sheet rock in the vicinity 57°13'48"N, 133°30'06"W, PN5976, is the seaward extension of a ledge. The DP was taken with the bow touching the shoreline. The water visibility was 5m and clear to the bottom. The average depth was 2.9m. The tide corrector was -0.2m. The area was investigated for 8 minutes.

Changes ✓

Thirteen changes to the T-Sheet shoreline were found and depicted on the field sheet.

Three T-Sheet rocks in the vicinity 057°13'⁴16"¹N, 133°30'¹20"¹W are a reef. PN5591, PN5592 and PN5593 mark the extent of the reef.

Three T-Sheet rocks in the vicinity 057°12'⁶25"³N, 133°35'³36"³W, PN5804, are a ledge. The highest point is exposed 3.2m.
uncovers

The T-Sheet ledge in the vicinity 057°12'³⁹41"⁷N, 133°34'⁷26"⁷W, PN7842, is in three sections. PN7842 marks the position of a new rock that separates the ledge from the off shore reef. The rock is ^{uncovered} exposed 0.4m.
uncovered

Two T-Sheet rocks in the vicinity 057°12'50"N, 133°33'57"W, PN5808, are one large ^{reef} rock. The ^{reefs high point} rock is exposed 0.9m.
uncovers 1.1

The T-Sheet ledge in the vicinity 057°11'22"N, 133°34'⁴15"⁴W, PN7830, is a reef. The reef is ^{uncovered} exposed 0.7m.
uncovered

The T-Sheet area in the vicinity, 057°13'36"N, 133°32'⁵06"⁵W consists of ^{three separate} ~~one continuous~~ ledges that stretches across a small bay. The Position Numbers that define the area are: PN5955, PN5957, PN5958, PN5959, PN5960, and PN5961.

PN5955 marks the southern extent of a ledge that extends south into the small bay. The ledge is ^{uncovered} exposed 2.0m.
uncovered

PN5957 and PN5958 mark the extent of one of the two reefs that are at the mouth of the small bay. The highest point of the reef is in the vicinity of PN5958 and is ^{uncovered} exposed 5.0m.
uncovers 0.8m

PN5959 and PN5960 mark the extent of the second reef that is at the mouth of the small bay. The highest point of the reef is PN5960 and is ^{uncovered} exposed 5.9m.
uncovers 1.8

PN 5961 marks the northern extent of a ledge that extends north into the small bay. The highest

point is in the vicinity of PN5961 and ^{uncovered 5} is exposed 3.4m.

PN5955-5961 also mark the boundary of a foul area.

The T-sheet rock in the vicinity 057°12'50"N, 133°33'57"W, PN7829 is a ledge ^{uncovered 9} exposed 2.7m.

The T-sheet ledge in the vicinity 057°11'14"N, 133°34'19"W, PN7831 is a ^{ledge uncovered 4} reef exposed 0.2m.

The four T-Sheet rocks in the vicinity 057°17'22"N, 133°30'04"W are ^{not} connected to shore by a reef that covers 0.1m to 0.5m at mean lower low water (MLLW). PN8147, PN8149 and PN8150 define the reefs and PN8148 and PN8151 are the high points of the reef, ^{uncovered} exposed 0.5m. See smooth sheet for correct portrayal of features.

The T-sheet reef in the vicinity 057°16'50"N, 133°29'44"W, PN8152 is a ledge connected to the shore. The DP marks the seaward extent. The ^{high point of the} ledge is ^{uncovered 2.0} exposed 1.9m.

The T-sheet ledge in the vicinity 057°16'48"N, 133°30'46"W, PN8153 is connected to shore by a sand bar that ^{uncovered} covers 2.0m at MLLW.

The T-sheet rock in the vicinity 057°16'32"N, 133°31'59"W, PN8012, is the high point ^{uncovered 6} (exposed 1.4m) of a reef that covers 3.1m ₃ at MLLW. The reef is defined by PN8014 and PN8015.

The T-sheet rock in the vicinity 057°16'11"N, 133°32'01"W, PN8011 is connected to shore by a ^{submerged} reef ^{uncovered 2.0} exposed 1.8m.

The three T-Sheet rocks and islet in the vicinity 057°15'58"N, 133°30'55"W, PN8006 are a ledge that is connected to the southern point of Foot Island by a sand bar. The ledge is ^{uncovered 3.7 mllw} exposed 7.7m.

The T-Sheet ledge in the vicinity 057°15'51"N, 133°31'36"W is a reef that is defined by PN8004 and PN8005. The reef covers 1.0m at MLLW.

Recommendations: The hydrographer recommends that the shoreline changes from this survey be used to supersede the prior shoreline information compiled on the T-sheet (T-01389). correct

New Features

Twenty new features were found and depicted on the field sheet.

Item	Approximate Position	Position Number	Height (m)	Remarks
Rock	57°13'33" ¹⁶ N 133°30'52" ⁸⁴ W	5941	1.2	uncovered Exposed
Rock	57°14'50" ⁷⁹ N 133°31'52" ⁰⁶ W	5944	1.5 ⁴	uncovered Exposed
Rock	57°12'33" ¹⁶ N 133°34'39" ^{49.33} W	7836	0.2 ⁵	uncovered Exposed
Rock Ledge	57°12'38" ⁷¹ N 133°34'52" ¹⁷ W	7837	0.4 ⁷	uncovered Exposed

Ledge Rock	⁰⁵ 57°13'15"N 133°33'52"W ₆₂	7843	^{1.1} 0.7	Uncovers Exposed
Rock	⁵⁵ 57°13'15"N 133°33'51"W ₈₂	7844	^{0.6} 0.3	Uncovers Exposed
Rock	⁷⁸ 57°13'19"N 133°33'16"W ₈₅	5810	^{0.6} 0.4	Uncovers Exposed (Excessed)
Ledge Rock	⁵⁹ 57°11'14"N 133°34'17"W ₄₅	7832	⁹ 0.7	Uncovers Exposed
Rock	³⁸ 57°11'38"N 133°33'12"W ₁₈	7828	^{0.2} 0.3	Covered Submerged
Sounding Rock	⁸⁰ 57°11'38"N 133°32'47"W ₉₇	7827	^{0.2} 0.3	Submerged
Rock	⁵¹ 57°11'44"N 133°32'05"W ₃₅	7825	⁸ 0.7	Uncovers Exposed
Rock	⁰⁶ 57°12'06"N 133°30'57"W ₁₄	5802	0.8	Uncovers Exposed
Rock	⁵² 57°13'08"N 133°30'40"W ₂₁	5598	^{0.2} 0.3	Covered Submerged
Rock	²⁵ 57°13'32"N 133°29'57"W ₅₁	5799	1.0	Uncovers Exposed
Rock	⁹⁵ 57°13'04"N 133°33'37"W ₃₆	6241 6242	^{0.2} 0.1	Uncovers Exposed
Pilings	²⁰ 57°13'15"N 133°30'48"W ₂₀	5595	⁸ 2.7	Uncovers Exposed
Ledge Rock	⁷² 57°16'34"N 133°31'52"W ₃₄	8016	^{0.7} 0.5	Uncovers Exposed
Ledge Rock	²¹ 57°16'19"N 133°31'18"W ₇₆	8017	0.1	Uncovers Exposed
Rock	57°16'07"N 133°30'56"W	8018	^{1.3} 0.6	Uncovers Exposed
Rock	⁹² 57°15'39"N 133°32'03"W ₇₉	8000	2.2	Submerged (Excessed)
Rock	⁸⁰ 57°16'02"N 133°30'56"W ₄₄	8008	^{0.4} 0.8	Uncovers Exposed

Recommendations: The hydrographer recommends that the shoreline detail from this survey be used to supersede prior shoreline information. *Concur*

I. CROSSLINES ✓

Crosslines were used for comparisons with mainscheme hydrography. These totaled 15.24 nautical miles, representing 8.5% of the total mainscheme hydrography.

Crossline soundings are in good agreement with mainscheme soundings.

J. JUNCTIONS ✓ *See Eum Report, section 5*

This survey junctions with survey H-10462 (1:10,000, 1993) to the northwest at 133°35'30"W and H-10463 (1:10,000, 1993) to the north at 57°17'00"N. Survey H-10288 (1:20,000, 1988) junctions to the west and south along the surf zone. No irregularities were found when comparing soundings and depth curves. Agreement between overlapping soundings appears acceptable. Detailed comparisons will be made in the office at the Pacific Hydrographic Section (PHS).

K. COMPARISON WITH PRIOR SURVEYS *See Eum Report, section 6*

H-1996 (1:80,000, 1889-92)

The soundings from this survey generally agree with survey H-1996 in their common area. Detailed comparisons and recommendations will be made at PHS.

H-2000 (1:10,000, 1889)

The soundings from this survey generally agree with survey H-1996 in their common area. Detailed comparisons and recommendations will be made at PHS.

H-10289 (1:20,000, 1988) *(Not used as a prior survey)*

The soundings from this survey generally agree with survey H10²⁸29 in their common area. Detailed comparisons and recommendations will be made at PHS.

H-1768 (1:10,000, 1885)

The soundings from this survey generally agree with survey H-1996 in their common area. Detailed comparisons and recommendations will be made at PHS.

L. COMPARISON WITH THE CHART *See Eum Report, section 7*

This survey was compared to NOS chart 17360, ²⁸23rd Edition, February 8, 1992, 1:100,000 (NAD83) and NOS chart 17365, 11th Edition, March 23, 1991, 1:20,000 (NAD83). Charted discrepancies are noted below. Detailed comparisons will be made at PHS.

The charted reef shown in the vicinity 057°13'10"N, 133°30'20"W is defined by PN5591, PN5592, and PN5593. The charted reef and the three T-Sheet rocks are the same feature. *Concur*

Recommendation: Retain the charted reef in the position of the T-Sheet rock as reflected on the ^{Smooth} ~~field~~ sheet. *Concur*

The charted rock in the vicinity $057^{\circ}13'12''^{\text{N}}$, $133^{\circ}30'41''^{\text{W}}$ is the T-Sheet rock defined by PN5597.

Recommendation: Move the charted rock to the position of the T-Sheet rock as reflected on the ^{smooth} field sheet. _{concur}

The charted rock in the vicinity $057^{\circ}13'32''^{\text{N}}$, $133^{\circ}32'06''^{\text{W}}$ is part of a reef defined by PN5960.

Recommendation: Delete the charted rock symbol and replace it with the reef defined in PN5960. _{concur}
See smooth sheet

The charted ledge in the vicinity $057^{\circ}12'38''^{\text{N}}$, $133^{\circ}34'52''^{\text{W}}$ is not present. The ledge was investigated using 25m line spacing. The average depth was 38m. The ledge was visually searched for at low water and was not seen. The water visibility was 4m.

Recommendation: Delete the charted ledge. _{concur}

The charted rock in the vicinity $057^{\circ}16'45''^{\text{N}}$, $133^{\circ}31'19''^{\text{W}}$, PN8021, is not there. The area was visually searched within a 50m radius. The water visibility was 7m and the average depth was 9m. The rock was not seen. Five minutes were spent on the investigation.

Recommendation: Delete the charted rock. _{concur}

A disproved charted rock in the vicinity $57^{\circ}13'32''^{\text{N}}$, $133^{\circ}32'06''^{\text{W}}$, 7835, was an erroneously plotted rock symbol that was on one of the boat sheets.

Five AWOIS items were investigated. The findings are discussed on the "Item Investigation Report" forms that are attached to this report.

Dangers to Navigation

Two dangers to navigation within the limits of this survey were reported to the Seventeenth Coast Guard District and DMAHTC. Copies of the radio message and correspondence are included in Appendix I of this report. *no additional dangers were reported during off processing.*

M. ADEQUACY OF SURVEY ✓

This survey is complete and adequate to supersede the T-Sheets, chart letters, and prior survey H-1996 in the common areas. *Do not concur, see Base Report, sections 6 and 7.*

N. AIDS TO NAVIGATION ✓

The light characteristics of the aids are as described in the Pacific Coast & Pacific Island Light List, Volume VI, 1993. The aids function as described and serve their purpose. _{concur}

Duck Point Light (23270)

Published Position from Light List	$57^{\circ}12.7'N$, $133^{\circ}31.0'W$
Scaled Position from Chart 17365	$57^{\circ}12.6'N$, $133^{\circ}31.3'W$
Unadjusted Field Survey Position	$57^{\circ}12.7'N$, $133^{\circ}31.0'W$
	<i>41.67. 0.59.00</i>

Bill Point Light (23275)

Published Position from Light List	57°15.1'N, 133°32.6'W
Scaled Position from Chart 17365	57°15.0'N, 133°32.6'W
Unadjusted Field Survey Position	57°15.1'N, 133°32.6'W
	4.02 35.00

Cape Fanshaw Light (23260)

Published Position from Light List	57°11.1'N, 133°34.4'W
Scaled Position from Chart 17365	57°11.1'N, 133°34.6'W
Unadjusted Field Survey Position	57°11.1'N, 133°34.4'W
	7.17 25.00

Bird Rock Light 2 (23265)

Published Position from Light List	57°12.5'N, 133°35.4'W
Scaled Position from Chart 17365	57°12.5'N, 133°35.4'W
Unadjusted Field Survey Position	57°12.5' N, 133°35.4'W
	28.75 24.00

O. STATISTICS ✓

<u>Vessel:</u>	<u>2120</u>	<u>2123</u>	<u>2125</u>	<u>2126</u>	<u>Total</u>
# of Pos	8	176	1017	558	1759
NM Hydro		11.21	77.68	86.12	175.01

NM ² Hydrography	12.4
Velocity Casts	1
Detached Position	108
Tide Stations	2
Reference Numbers	44
Bottom Samples	44

P. MISCELLANEOUS ✓

Bottom samples were sent to the Smithsonian Institution in accordance with the Project Instructions.

The Coast Pilot currents and predicted current comparisons were made in accordance with the Project Instructions. The current predictions were adequate and the descriptions accurate.

Q. RECOMMENDATIONS ✓

None.

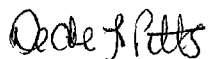
R. REFERRAL TO REPORTS ✓

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

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Spring 1993 Horizontal Control Report for OPR-0136-RA	May 1993	N/CG2333

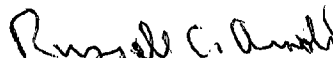
Spring 1993 Electronic Control Data Package for OPR-O136-RA	March 1993	N/CG245
Spring 1993 Corrections to Echo Soundings Data Package for OPR-O136-RA	May 1993	N/CG245
Spring 1993 Coast Pilot Report for OPR-O136-RA	May 1993	N/CG245
Spring 1993 User Evaluation Report for OPR-O136-RA	May 1993	N/CG245

Respectfully Submitted,

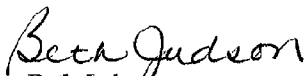


Dede L. Pitts
ENS, NOAA

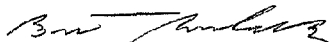
Approved and Forwarded,



Russell C. Arnold
Captain, NOAA
Commanding Officer



Beth Judson
Survey Technician



Brent Rorabach
Assistant Survey Technician

**NOAA SHIP RAINIER
Item Investigation Report**

AWOIS / Investigation #: 5 81878

Item Description: Charted Cannery Pier Ruins

Source: Scaled from Chart 17365 11th Ed. 3/91

Investigation Date: 25 March **DN:** 84 **Time:** 18:01:58 UTC

Position Number(s): 5606

Vessel(s): 2125

Corrections Applied: Velocity Draft Predicted Tides Pneumo Cal.

Depth / **Height:** 2.7 meters

Position	Latitude	Longitude
Reported	<u>057°12'39"N</u>	<u>133°30'20"W</u>
Observed		

Positioning Method: DGPS Falcon R/Az

Method of Investigation: The item was visually investigated at low water along a 100m section of beach. The beach was steeply sloping sand, clear of rocks. The tide corrector was -0.1m. The water visibility was 5m. The average depth was 4m. No pilings or ruins were seen. The area was investigated for 13 minutes.

Findings: AWOIS 5 81878 is not present - Disproved

Charting Recommendation: Remove charted ruins from chart. CONCUR

Compilation Use Only	
CHART	APPLIED
<u>17365</u>	<u>Remove ruins</u>
<u>17360</u>	<u>NC</u>

NOAA SHIP RAINIER
Item Investigation Report

AWOIS / Investigation #: ⁵81879

Item Description: Charted Cannery Pier Ruins

Source: Scaled from Chart 17365 11th Ed. 3/91

Investigation Date: 25 March DN: 84 Time: 18:16:21 UTC

Position Number(s): 5607

Vessel(s): 2125

Corrections Applied: Velocity Draft Predicted Tides Pneumo Cal.

Depth / Height: 5.7 meters

Position	Latitude	Longitude
Reported	057°12'40"N	133°30'26W
Observed		

Positioning Method: DGPS Falcon R/Az

Method of Investigation: See investigation report for AWOIS ⁵81878

Findings: AWOIS ⁵81879 is not present- Disproved

Charting Recommendation: Remove charted ruins from chart. *Conrad*

Compilation Use Only	
CHART	APPLIED
<u>17365</u>	<u>Remove ruins</u>
<u>17360</u>	<u>NC</u>

Wed, Mar 17, 1993

**NOAA SHIP RAINIER
Item Investigation Report**

AWOIS / Investigation #: 51880

Item Description: Charted Cannery Pier Ruins

Source: Scaled from Chart 17365 11th Ed. 3/1991

Investigation Date: 25 March DN: 84 Time: 17:59:58 UTC

Position Number(s): 5604

Vessel(s): 2125

Corrections Applied: Velocity Draft Predicted Tides Pneumo Cal.

Depth / Height: ^{2.1}~~3.0~~ meters

Position	Latitude	Longitude
Reported	<u>057°12'51"N</u>	<u>133°30'30"W</u>
Observed	<u>057°12'51"N</u>	<u>133°30'30"W</u>
	<u>51.96</u>	<u>27.41</u>

Positioning Method: DGPS Falcon R/Az

Method of Investigation: The item was visually investigated at low water.
The tide corrector was 0.0m.

Findings: The pilings are located on a sand beach above the apparent high water line.
They are not approachable at any stage of tide with a survey launch.

Charting Recommendation: Retain the charted ruins in the charted position.

Do not correct
Remove charted ruins and chart row of piles at the above position.

Compilation Use Only	
CHART	APPLIED
<u>17365</u>	<u>Row of piles</u>
<u>17360</u>	<u>NC</u>

Wed, Mar 17, 1993

NOAA SHIP RAINIER
Item Investigation Report

AWOIS / Investigation #: 51881

Item Description: Charted Cannery Pier Ruins

Source: Scaled from Chart 17365 11th Ed. 3/1991

Investigation Date: 25 March DN: 84 Time: 18:01:58 UTC

Position Number(s): 5605

Vessel(s): 2125

Corrections Applied: Velocity Draft Predicted Tides Pneumo Cal.

Depth / Height: 2.2
3.0 meters

Position	Latitude	Longitude
Reported	057°12'55"N; 133°30'29"W	
Observed	057°12'55"N; 133°30'29"W	
	.9%	25.7+

Positioning Method: DGPS Falcon R/Az

Method of Investigation: See Investigation Form for AWOIS 51880

Findings: Pilings are located on a sand beach above the apparent high water line.
They are not approachable at any stage of tide with a survey launch.

Charting Recommendation: Remove charted ruins, chart raised piles at the above position.

Compilation Use Only	
CHART	APPLIED
<u>17365</u>	<u>row of piles</u>
<u>17360</u>	<u>NC</u>

Wed, Mar 17, 1993

**NOAA SHIP RAINIER
Item Investigation Report**

AWOIS / Investigation #: 51882

Item Description: 1 1/4 Fathom Sounding Reported - Flat Rock

Source: Scaled from Chart 17365 11th Ed. 3/1991

Investigation Date: 27 March 86 20:35:42 UTC
28 March 87 17:37:42 UTC

Position Number(s): 5977-5986
8232 Dive DP

Vessel(s): 2125
2126

Corrections Applied: Velocity Draft Predicted Tides Pneumo Cal.

Depth/ Height: 7.0 meters

Position	Latitude	Longitude
Reported	057°13'35"N; 133°30'48"W	
Observed		

Positioning Method: DGPS Falcon R/Az

Method of Investigation: The region was split to 25m line spacing.

Divers investigated the region visually using a 15m search radius.

The AWOIS item is not present.

Findings: The 25m splits produced an ^{range of} average depths of 7.0m. between 2.3 meters and 3.6 meters (1.2-1.9 Fm)
The divers reported a uniform flat bottom with no rocks in sight.

Charting Recommendation: Replace the 1 1/4 Fathom sounding with soundings from
RA-10-1-93 within their common area.

the present survey

CONCUR

Compilation Use Only	
CHART	APPLIED
17365	2 fathom sounding
17360	NC

Wed, Mar 17, 1993

NOAA SHIP RAINIER
Item Investigation Report

AWOIS #: 51883

Item Description: Reef (150 x 300 M)

Source: USGS Quad - Sumdum (B-5) 1951

Investigation Date: March 30, 1993 DN: 89 Time: N/A

Position Numbers: 934 - 965 (25 & 50 meter splits)

Vessel: RA-3 (2123)

Corrections Applied: Velocity Draft Predicted Tides Pneu-me-Gal

Depth: 30 - 43 meters

Position	Latitude	Longitude
Reported	57/16/00.76 N	133/31/31.21 W
Observed	N/A	

Positioning Method: DGPS

Method of Investigation: 25 meter line spacing was run over entire charted area of feature, covering entire middle portion of the entrance to Steamboat Bay. The area was also visited near MLLW and no feature was seen.

Findings: As noted above, depths ranging from 30 meters to 43 meters were found in the area where the feature is charted. No indications of shoaling were found.

Charting Recommendations: Remove reef from the chart. *concur*

Compilation Use Only

Chart

Applied

17365

Remove reef

17360

NC

CONTROL STATIONS as of 5 Apr 1993

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
100	F	057:16:13.397	133:37:53.480	25	250	0.0	0.0		03/22/93	INDX(DGPS)
101	F	057:15:03.885	133:32:35.533	7	250	0.0	0.0	0	03/23/93	BILL POINT
102	F	057:18:17.893	133:31:16.092	7	250	0.0	0.0	5	03/23/93	WAL
200	0	057:17:57.880	133:27:52.297	0	254	0.0	0.0	0	03/23/93	ROBERT IS TP (FIXED CAL.)
201	0	057:17:45.962	133:20:56.141	0	254	0.0	0.0	0	03/23/93	PORT HOUGHTON TP (FIXED CAL.)
202	0	057:19:54.133	133:11:00.520	0	254	0.0	0.0	0	03/23/93	AUNT BEA BM A (FIXED CAL.)

PR 3/24



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

April 1, 1993

**ADVANCE
INFORMATION**

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

Dear Sir:

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

Sincerely,

Russell C. Arnold
Russell C. Arnold
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

April 1, 1993

**ADVANCE
INFORMATION**

Commander
Seventeenth Coast Guard District
Post Office Box 25517
Juneau, AK 99802-5517

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,

Russell C. Arnold
Russell C. Arnold
Captain, NOAA
Commanding Officer

Enclosures

cc: DMAHTC
N/CG221
PMC



1252
100

22:44, Tuesday, 30 March 1993
tPostOUT : Hellickson

**ADVANCE
INFORMATION**

:
:
P 302237Z MAR 93
FM NOAA S RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCNAVWARN WASHINGTON DC//MCNM//
INFO NOAA MOP SEATTLE WA
ACCT CM-VCAA

BT

UNCLAS

NOAA SHIP RAINIER HAS LOCATED 2 DANGERS TO NAVIGATION IN CLEVELAND PASSAGE, ALASKA (PROJECT DPR-0136-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10549 (CLEVELAND PASSAGE). THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

CHARTS AFFECTED: 17365 11TH ED MAR 23/91 1:20,000 NAD 83
17360 28TH ED FEB 8/92 1:217,828 NAD 83

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	CHART	DEPTH	LATITUDE	LONGITUDE	Pos.
	SHOAL	17365	4 3/4 FM	57/12/37.25N	133/30/51.21W	8233
		17360				
B.	SHOAL	17365	6 1/2 FM	57/12/42.10N	133/30/39.65W	8234

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

BT

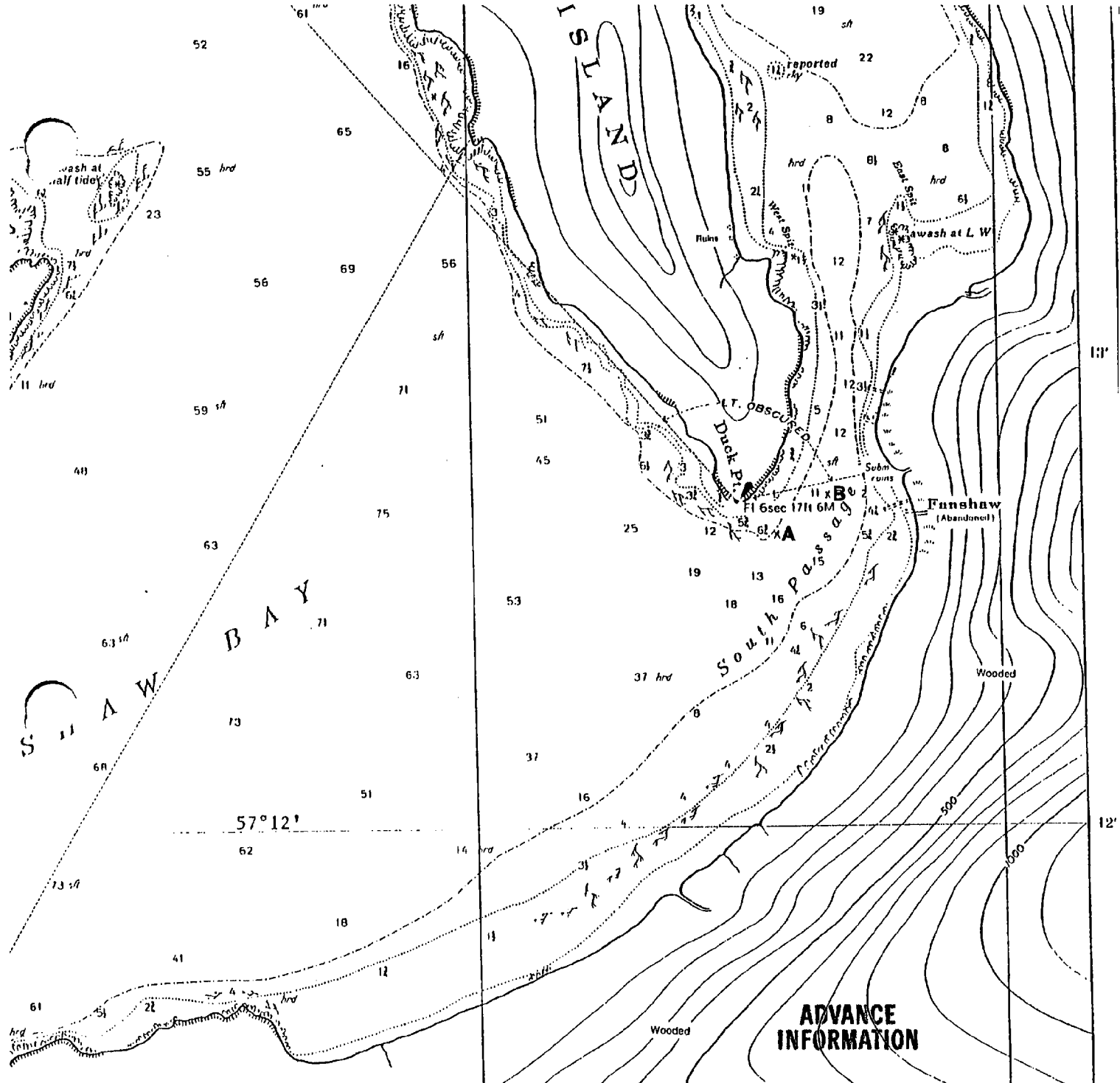
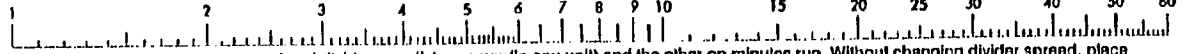


Chart 17365
11th Ed., Mar. 23/93

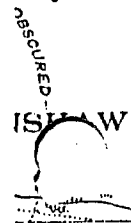
FATHOMS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
FEET	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102
METERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

ADVANCE INFORMATION

LOGARITHMIC SPEED SCALE



To find SPEED, place one point of dividers on distance run (in any unit) and the other on minutes run. Without changing divider spread, place right point on 60 and left point will then indicate speed in units per hour. Example: with 4.0 nautical miles run in 15 minutes, the speed is 16.0 knots



331° 50' 40' 30' 20' 10' 32' 50' 31' 133° 30'

APPROVAL SHEET

for

H-10459

RA-10-1-93

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.



Russell C. Arnold
Captain, NOAA
Commanding Officer



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

ORIGINAL

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: August 18, 1993

MARINE CENTER: Pacific

OPR: 0136

HYDROGRAPHIC SHEET: H-10459

LOCALITY: Cleveland Passage, Stephens Passage, Alaska

TIME PERIOD: March 20, 1993 - March 31, 1993

TIDE STATION USED: 945-1785 The Brothers, Alaska
Lat. $57^{\circ} 17.7'N$ Lon. $133^{\circ} 47.8'W$
PLANE OF REFERENCE (MEAN LOWER LOW WATER): = -0.88 feet
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 13.8 feet

TIDE STATION USED: 945-2210 Juneau, Alaska
Lat. $58^{\circ} 17.9'N$ Lon. $134^{\circ} 24.7'W$
PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 4.34 feet
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 15.3 feet

REMARKS: RECOMMENDED ZONING

1. In Stephens Passage (except Cleveland Passage) times and heights are direct on The Brothers, Ak. (945-1785). Data from the back-up gauge at The Brothers (945-1786) is used. When data for The Brothers are not available, apply a -6 minute time correction and a x0.90 range ratio to Juneau, Ak. (945-2210).
2. In Cleveland Passage times are direct and apply a x0.98 range ratio to The Brothers, Ak. (945-1785). Data from the back-up gauge at The Brothers (945-1786) is used. When data for The Brothers are not available, times are direct and apply a x0.91 range ratio to Juneau, Ak. (945-2210).

NOTE: Hourly heights for The Brothers are tabulated on Greenwich Mean Time, whereas, hourly heights for Juneau are tabulated in Alaska Standard Time.

William M. Gibson
ACTING CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

Name on Survey	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">A ON CHART NO.</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">B ON PREVIOUS SURVEY NO.</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">C ON U.S. QUADRANGLE MAPS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">D FROM LOCAL INFORMATION</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">E ON LOCAL MAPS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">F P.O. GUIDE OR MAP</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">G GRAND MCNALLY ATLAS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">H U.S. LIGHT LIST</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">K</div> </div>											
	ALASKA (title)	X										
BARTLETT POINT	X											2
BILL POINT	X											3
BIRD ROCK	X											4
CANOE POINT	X											5
CLEVELAND PASSAGE (Title)	X											6
DUCK POINT	X											7
EAST SPIT	X											8
FANSHAW BAY	X											9
FANSHAW, CAPE	X											10
FOOT ISLAND	X											11
FORT POINT	X											12
MCNAIRY POINT	X											13
SOUTH PASSAGE	X											14
STEAMBOAT BAY	X											15
STEPHENS PASSAGE	X											16
STORM ISLANDS	X											17
WEST SPIT	X											18
WHITNEY ISLAND	X											19
												20
												21
												22
												23
												24
												25

Approved:

Charles B. Hamilton
Chief Geographer - N/C&GS 15

NOV - 2 1993

HYDROGRAPHIC SURVEY STATISTICS

H-10459

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			9
DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS	
ACCORDION FILES	3					
ENVELOPES						
VOLUMES	3					
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	VERIFICATION	EVALUATION	TOTALS	
POSITIONS ON SHEET			1759	
POSITIONS REVISED				
SOUNDINGS REVISED				
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	60		60	
VERIFICATION OF SOUNDINGS	54		54	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	27		27	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		8	8	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		19	19	
GEOGRAPHIC NAMES				
OTHER*				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	141	27	168

Pre-processing Examination by D. Haines, D. Neander	Beginning Date 4/8/93	Ending Date 4/22/93
Verification of Field Data by E. Domingo, R. Davies	Time (Hours) 141	Ending Date 12/14/93
Verification Check by J. Green, J. Stringham	Time (Hours) 8	Ending Date 12/1/93
Evaluation and Analysis by R. Davies	Time (Hours) 27	Ending Date 1/3/94
Inspection by D. Hill	Time (Hours) 3	Ending Date 3/18/94

EVALUATION REPORT
H-10459

1. INTRODUCTION

Survey H-10459 is basic hydrographic survey accomplished by the NOAA Ship *Rainier* under the following Project Instructions.

OPR-O136-RA, dated February 5, 1993

This survey was conducted in Alaska and covers a portion of southern Stephens Passage between Cape Fanshaw and Fort Point. This survey includes Fanshaw Bay, Cleveland Passage, South Passage and Steamboat Bay and islands offshore, including Storm, Whitney and Foot. The surveyed area extends from latitude 57/10/55N to latitude 57/17/30N, and from longitude 133/29/15W to longitude 133/35/30W. The shoreline in the area is characterized by rocky and gravel beaches, rock ledges and isolated reefs offshore. The bottom consists of pebbles, mud and shells. Depths range from zero along the shoreline to 273 meters offshore.

Predicted tides for Juneau, Alaska were used for the reduction of soundings during field processing. Approved hourly heights zoned from The Brothers, Alaska, gage 945-1785 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. 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 1993 Horizontal Control Report for OPR-O136-RA, contain adequate discussions of horizontal control and hydrographic positioning.

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. The quality of 83 positions exceeded the limit in terms of horizontal dilution of precision (HDOP). A review of the data, however, indicates that none of these fixes are used to position dangers to navigation. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable.

The position of the horizontal control station used during hydrography is a 1993 field value based on NAD 83. This value was 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: -1.234 seconds (-38.188 meters)

Longitude: 6.217 seconds (104.282 meters)

The year of establishment of control stations shown on the smooth sheet originates with the horizontal control records for this survey.

The following shoreline map was compiled on NAD 83 and applies to this survey.

	<u>Photo Date</u>	<u>Class</u>	<u>Scale</u>
TP-01389	June, August 1988	III	20,000

3. HYDROGRAPHY

Hydrography is adequate to;

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

4. CONDITION OF SURVEY

With the exception of the following, 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 1993 edition.

In section M, the hydrographer claims this survey is adequate to supersede prior survey H-1996. However in section K she acknowledges that a comparison with this prior survey will be conducted during office processing. Unless an adequate comparison is completed by the hydrographer there is insufficient basis to claim the present survey supersede a prior survey.

5. JUNCTIONS

Survey H-10459 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10462	1993	10,000	Northwest
H-10463	1993	10,000	North
H-10288	1988	20,000	Southwest

The junctions with surveys H-10462 and H-10463 are complete. The junction with survey H-10288 was not completed because the survey was previously submitted for charting and because this survey H-10288 was acquired in fathoms not meters. The junction comparison was made using a copy. There is fair agreement between soundings, however, the depth curves shown on survey H-10288 delineate different depths and, therefore, do not agree. Soundings have been transferred to survey H-10459 from survey H-10288 to better portray the bottom in the common areas

6. COMPARISON WITH PRIOR SURVEYS

H-1768(1885) 1:10,000
H-1996(1889-92) 1:80,000
H-2000(1889) 1:10,000

Surveys H-1768, H-1996 and H-2000 cover the entire area common to survey H-10459. There is an average difference in depths of between two and ten meters with extreme cases of 10 to 20 meters. These extremes occur on steeply sloping bottoms and in areas deeper than 200 meters. In most cases, the prior soundings are shoaler. This area has experienced earthquakes, possible isostatic rebound and natural accretion and erosional processes. These processes, the different horizontal datums, the greater sounding coverage and relative accuracy of the data acquisition techniques account for the depth differences between the surveys.

Numerous kelp symbols were transferred from prior survey H-2000 throughout the area common to the present survey.

There are no AWOIS items which originate with the above mentioned prior surveys.

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.

Except for the above mentioned kelp symbols, survey H-10459 is adequate to supersede the prior surveys within the common area.

7. COMPARISON WITH CHART

Chart 17360 23rd Edition, February 8, 1992; scale 1:217,828

Chart 17365 11th Edition, March 23, 1991; scale 1:20,000

a. Hydrography

Charted hydrography originates with the prior surveys mentioned in section 6 and miscellaneous sources and requires no further discussion except for the following.

The hydrographer did not mention any indication of kelp in the survey area. Several kelp symbols have been transferred from prior survey H-2000, the remaining charted kelp symbols should be retained as charted.

Except for the above mentioned kelp symbols, survey H-10459 is adequate to supersede charted hydrography within the common area.

b. AWOIS

All AWOIS items mentioned in the hydrographer's report originate with miscellaneous sources. 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 four fixed aids within the survey area. These aids were located as charted and serve their intended purpose.

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 two dangers to the U. S. Coast Guard. A copy of the report is attached. No additional danger to navigation reports were generated during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10459 adequately complies with the project instructions except where noted in this report.

9. ADDITIONAL FIELD WORK

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

C.R. Davies
C.R. Davies
Cartographer

APPROVAL SHEET
H-10459

Initial Approvals:

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

Dennis Hill

Date: 3/18/94

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: 3/21/94

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

Final Approval

Approved:

J. Austin Yeager

Date: 5/11/94

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

