

10470

10470

NOAA FORM 78-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. RA-10-9-93

Registry No. H-10470

LOCALITY

State Alaska

General Locality Stephens Passage

Sublocality Approach to Windham Bay

.....

..... 19 93

CHIEF OF PARTY
CAPT. R. C. Arnold

LIBRARY & ARCHIVES

DATE September 16, 1994

HYDROGRAPHIC TITLE SHEET

H-10470

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-10-9-93

State Alaska

General locality Stephens Passage

Locality Approach to Windham Bay

Scale 1:10,000 Date of survey April 15 - April 27, 1993

Instructions dated 2/5/93, Change #1-10/26/93 Project No. OPR-0136-RA

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

Chief of party CAPT Russell C. Arnold, NOAA

Surveyed by CAPT R. Arnold, LCDR B. Hillard, LT M. Brown, LTJG S. Lemke,
LTJG R. Ramos, ENS J. Graham

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

Graphic record scaled by RAINIER PERSONNEL

Graphic record checked by RAINIER PERSONNEL

Verification by: E. Domingo Automated plot by PHS Xynetics Plotter

~~Prepared by~~ E. Domingo

Evaluation by: C.R. Davies

~~Reviewed by~~

Soundings in meters and decimeters at ~~MHW~~ 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.

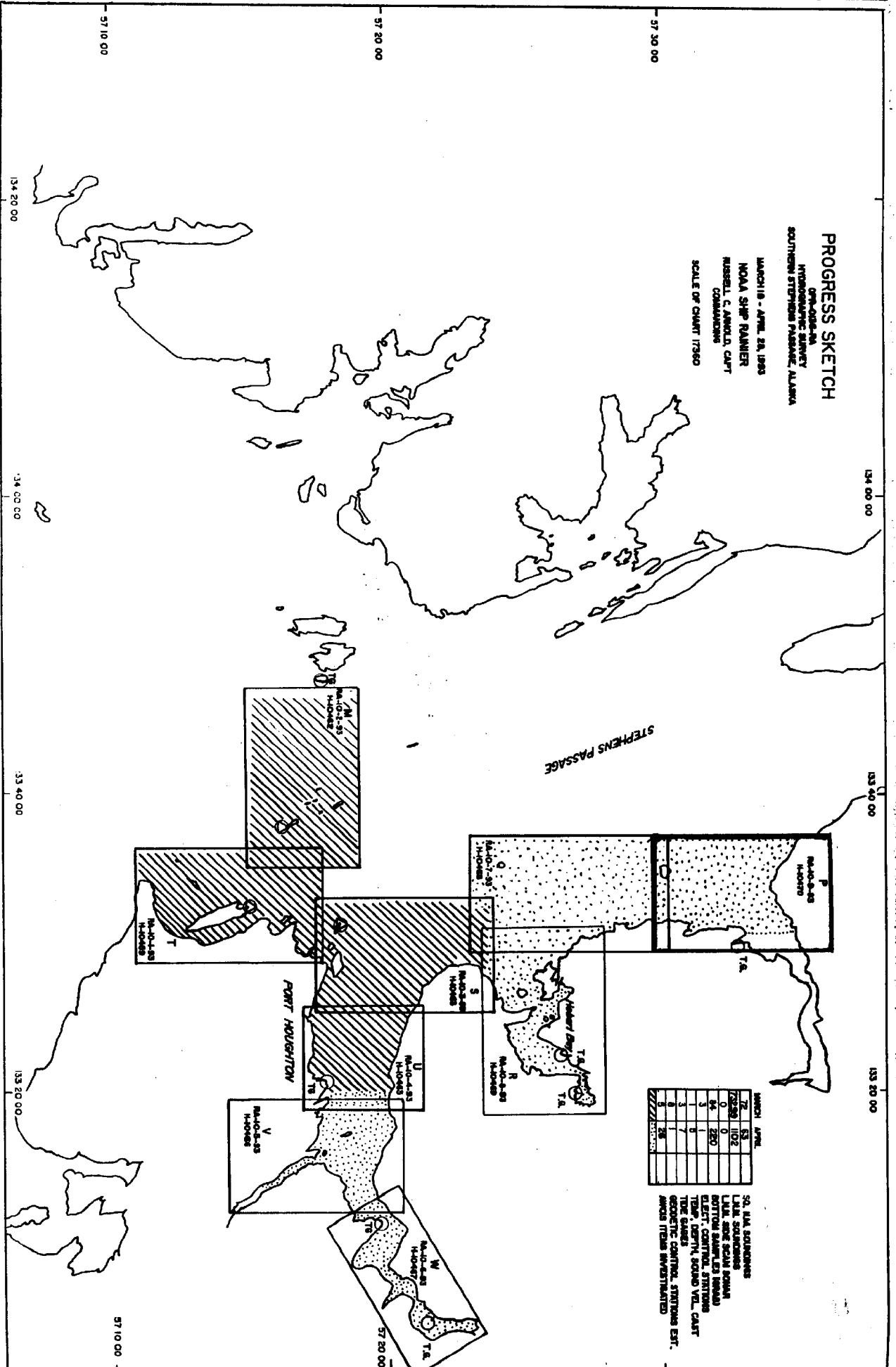
All depths listed in this report are referenced to mean lower low water unless otherwise noted.

AWOIS + SURF ✓ 9/94 RUD

PROGRESS SKETCH

09-08-64
HYDROGRAPHIC SURVEY
SOUTHERN STEPHENS PASSAGE, ALABAMA

MARCH 18 - APRIL 28, 1963
NOAA SHIP RAINIER
RUSSELL C. AMOLD, CAPT
COMMANDER
SCALE OF CHART 17360



MARCH APRIL	
72	53
7289	1102
0	0
84	250
3	1
3	7
8	8
8	26
8	26

50. N.M. SOUNDINGS
LAT. AND LONG. SOUNDINGS
BOTTOM SAMPLES TAKEN
ELECT. SOUNDING LOGS
ELECT. SOUNDING LOGS
TIME CLASSED
GEODETIC CONTROL, STATIONS EST.
ANCS ITEMS INVESTIGATED

Descriptive Report to Accompany Hydrographic Survey H-10470

Field Number RA-10-9-93

Scale 1:10,000

April 1993

NOAA Ship RAINIER

Chief of Party: Captain Russell C. Arnold

A. PROJECT ✓

This basic hydrographic survey was begun in Southern Stephens Passage, Alaska, as specified by Project Instructions OPR-O136-RA dated February 5, 1993, and change No. 1 dated November 3, 1993. **DUE TO TIME CONSTRAINTS, THIS SURVEY WAS NOT COMPLETED; FURTHER DEVELOPMENTS ARE NEEDED (SEE SECTION T - RECOMMENDATIONS).**

Survey H-10470 corresponds to "Sheet P" 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 *See EVAL Rpt, section 1*

This survey area is located in the southern end of Stephens Passage, on the eastern shoreline. It covers the entrance of Windham Bay and extends south to include Sunset Island. The survey area is bounded by longitude 133°37'46"W at the western limit to longitude 133°30'28"W at the eastern limit in Windham Bay, and by the northern shoreline of Windham Bay south to latitude 57°29'25"N at the southern limit.

Data acquisition was conducted from April 15, DN (Day Number) 105, through April 27, DN 117.

C. SURVEY VESSELS ✓

Data were acquired by the NOAA SHIP RAINIER and four survey launches as noted below:

<u>Vessel</u>	<u>EDP No</u>	<u>Operation</u>
RAINIER	2120	Bottom Samples
RA-3	2123	Hydrography Shoreline Verification
RA-4	2124	Hydrography

RA-5	2125	Hydrography Bottom Samples Shoreline Verification
RA-6	2126	Hydrography Shoreline Verification

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
CONVERT	3.51	9/24/92
DAS_SURV	6.31	2/26/93
DP	2.13	3/1/93
EXCESS	4.10	9/24/92
FILESYS	3.01	4/14/92
GRAFEDIT	1.01	2/26/93
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
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
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. SONAR EQUIPMENT ✓

Sonar equipment was not used on sheet P.

F. SOUNDING EQUIPMENT ✓

DSF-6000N serial numbers are included on the headers of the daily Raw Master Printouts. No problems which affect survey data were encountered. All soundings were acquired using the High + Low, High frequency digitized setting.

G. CORRECTIONS TO ECHO SOUNDINGS ✓

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
4	6	3 62.7	105-117	57°29'55"N 133°33'18"W	117

The sound velocity cast was 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 is 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, 2124, 2125 and 2126 on March 19, 1993 and is in the offset tables for each launch.

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. Authorization was obtained from N/CG241 to use the 1992 data. These revised correctors were applied to the data on sheet P.

Offset Tables

<u>Vessel</u>	<u>Offset Table No.</u>
2123	3
2124	4
2125	5
2126	6

Heave ✓

Data were ^{As} not acquired during periods of significant sea action so heave was not a factor.

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 Port Houghton were used for sheet P. Tidal correctors are:

	<u>TIME</u> (min)	<u>HEIGHT</u> (ft)
Low Water	-17	-0.1
High Water	-21	-0.8

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 Windham Bay, Stephens Passage (945-1962). The control station was Juneau, Alaska (945-2210). Opening levels for the control station were completed by RAINIER personnel on April 2, 1993. Closing levels were completed by RAINIER personnel on April 16, 1993.

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

H. 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."

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

All soundings and features were positioned using differential GPS. Lists of all positioning equipment serial numbers are included in the "Spring 1993 Electronic Control Data Package for OPR-O136-RA."

* Filed with the hydrographic data

Calibrations & Systems Check Methods ✓

Ashtech GPS

A VHF Differential shore station was established at station INDX (1993). 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 was 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 comparison of the GPS position with a known, fixed point. A taped distance was measured between the antenna and a known position, and Eastings and Northings, HDOP, and number of GPS satellites received were recorded on the system printer three times from Screen No. 1. The absolute value of the inverse distance was then compared to the taped distance to determine if position error criteria were met. System checks were made periodically, and days with no system checks were always bracketed by days with good checks. Formal system checks are 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 P.

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 E. 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."

J. SHORELINE *See Evac Report, section 2*

Shoreline maps (T-sheets) used to transfer shoreline detail to the final sheets were ~~TP-01387~~ and TP-01371 (1:10,000, NAD83).

The southern portion of Sunset Island was not compiled on TP-01387. As per change No. 1 to the Project Instructions, shoreline for this area was transferred from an enlargement of NOS chart 17363, 11th Edition, April 27, 1991, 1:40,000 (NAD83). This portion of shoreline is depicted in brown on the final field plot, and is for orientation purposes only. In the vicinity of latitude $57^{\circ}29'41''$ N, longitude $133^{\circ}55'00''$ W, an uncharted ledge, ^{exposed 5.5 m} ~~exposed 5.5 m~~ found extending from the southern portion of Sunset Island is depicted in black as a new feature (Pos. No. 7700 - 7702).

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. *CONCUR*

* Filed with the hydrographic data.

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.

DP's taken during shoreline verification were recorded on the master printouts or DP forms 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" showing all DP's, reference numbers, and notes relating to each feature, are submitted with this survey. The information from these plots was transferred to a field shoreline plot. Verified T-sheet features were retained and shown in black, while changes to the shoreline were shown in red. Disproved features were removed from the shoreline plot. Field cartographic codes were assigned using the HDAPS DP editor. These cartographic codes were not plotted because the majority of DP's describe features that are offset slightly from the DP. Heights are recorded in meters and are corrected to predicted MLLW. *All heights for the above mentioned D.P's are corrected to approved tides to MLLW on the smooth sheet.*

Charted rocks were either identified as T-sheet rocks, high points or extensions of T-sheet ledges, or disproved as noted below.

Disprovals ✓

The rock scaled from chart 17360, shown in the vicinity of 57°33'33"N, 133°31'02"W, was not found. The area in a 50 m radius around Pos. No. 5521 was searched visually and by echo sounder for 10 min. The visibility of the water was 1.0 m, and the average depth was 10 to 30 m.

The rock scaled from chart 17360, shown in the vicinity of 57°34'21"N, 133°31'29"W, was not found. The area around Pos. No. 8167 to a 30 m radius was searched visually and by echo sounder for 10 min. The visibility of the water was 1.5 to 2.0 m, and the average depth was 30 m.

Recommendation: The hydrographer recommends that these features be removed from the chart. *COMLUX*

Changes ✓

Four changes to the T-Sheet shoreline were found and depicted in red on the field shoreline plot. Heights are referenced to MLLW. *All the following changes are shown in black on the smooth sheet.*

The T-Sheet rock in the vicinity of 57°29'46"N, 133°31'30"W, is a reef ^{5.75} ^{.45} ^{uncover 2.0} exposed 1.5 m. Position No. 5402 is the offshore limit of the reef.

The T-Sheet rock in the vicinity of 57°31'48"N, 133°30'57"W, is part of a ledge ^{7.11} ^{.51} ^{uncover 5} exposed 0.3 m. Position No. 5512 is the offshore limit of the ledge.

The T-Sheet rock in the vicinity of 57°34'25"N, 133°31'23"W, is part of a ledge ^{4.55} ^{2.77} ^{uncover 5} exposed 0.4 m. Position No. 8168 is the offshore limit of the ledge.

Filed with the hydrographic data.

The T-Sheet rock in the vicinity of ^{5.53} 57°34'26"N, ^{.14} 133°30'57"W, is part of a ledge ^{UNCOVERS} exposed 0.7 m. Position No. 8172 is the offshore limit of the ledge.

Recommendations: The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information compiled on the T-sheets. *comment*

New Features

Three new features were found and depicted on the ^{smooth sheet} field sheet. Heights are referenced to MLLW.

Item	Approximate Position	Position Number	Height (m)	Remarks
Rock	^{.38} 57°33'44"N ^{.87} 133°32'47"W	801	⁷ -0.4	UNCOVERS Exposed
Rock	^{2.85} 57°29'53"N ^{.11} 133°31'44"W	5404	⁷ -0.4	UNCOVERS Exposed
Rock	^{.18} 57°34'09"N ^{.17} 133°31'49"W	8166	⁵ -0.2	UNCOVERS Exposed

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

K. CROSSLINES ✓

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 19.39 nautical miles, representing 11.6 % of the total mainscheme hydrography.

L. JUNCTIONS *See EVAC Report, section 5*

This survey junctions with survey H-10468 (1:10,000, 1993) to the south. No other survey junctions sheet P to the west, or to the east. No discontinuities were found when comparing soundings and depth curves between surveys. Final comparisons will be made in the office at the Pacific Hydrographic Section (PHS).

M. COMPARISON WITH PRIOR SURVEYS *See EVAC 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. Final comparisons and recommendations will be made at PHS.

H-4143A (1:40,000, 1921)

The soundings from this survey generally agree with survey H-4143A in their common area. Final comparisons and recommendations will be made at PHS.

H-2002 (1:20,000, 1889)

The soundings from this survey generally agree with survey H-2002 in their common area. Final comparisons and recommendations will be made at PHS.

N. ITEM INVESTIGATIONS ✓

Survey H-10470 is adequate to supersede all of the above prior surveys within the common area.

Three items were investigated.

AWOIS ITEM 51868**1. Area of investigation**

State:	Alaska
Locality:	Stephen's Passage
Reported latitude(PA):	57° 30' 01.75"N
Reported longitude(PA):	133° 34' 07.19"W
Datum:	NAD83
Depth:	Awash
Feature:	Rock

2. Description of Source Item

USGS quad Sumdum (C-5) 1951

3. Survey Requirements

Determine the position and least depth of the rock awash.

4. Method of Investigation

The area around the reported rock was searched visually and by echo sounder for 15 minutes. The average depth was 90 m in the vicinity of Pos. No. 7704, and the visibility of the water was 1.5 m.

5. Results of Investigation

No rock was found in the vicinity of the reported location of AWOIS Item No. 51868.

6. Comparison with Prior Surveys

This rock is not shown on prior surveys.

7. Comparison with chart and charting recommendations

The reported rock was shown awash on USGS quad Sumdum (C-5) 1951, however, AWOIS Item No. 51868 has been disproved.

Concur. Delete rock.

AWOIS ITEM 51869**1. Area of Investigation**

State:	Alaska
Locality:	Stephen's Passage
Reported latitude(PA):	57° 30' 11.74"N
Reported longitude(PA):	133° 31' 33.17"W
Datum:	NAD83
Depth:	Awash
Feature:	Rock

2. Description of Source Item

USGS quad Sundum (C-5) 1951

3. Survey Requirements

Determine the position and least depth of the rock awash.

4. Method of Investigation

The area around the reported rock was searched visually.

5. Results of Investigation

In the vicinity of the reported location of AWOIS Item No. 51869, a ledge was found extending from the shoreline. The high point of the ledge is ^{uncovered} exposed 1.7 m at Pos. No. 5405, lat. 57°~~30'~~12.15'N, long. 133°31'37.27'W

6. Comparison with Prior Surveys

This rock is not shown on prior surveys.

7. Comparison with chart and charting recommendations

AWOIS Item No. 51869 is resolved, and should be charted as a ledge extending offshore to Pos. No. 5405.

The charted rock should be removed.
Chart ledge as shown on the smooth sheet.

AWOIS ITEM 51871**1. Area of investigation**

State:	Alaska
Locality:	Stephen's Passage
Reported latitude(PA):	57° 33' 29.75"N
Reported longitude(PA):	133° 30' 59.17"W
Datum:	NAD83
Depth:	Awash
Feature:	Rock

2. Description of Source Item

USGS quad Sumdum (C-5) 1951

3. Survey Requirements

Determine the position and least depth of the rock awash.

4. Method of Investigation

The area around the reported rock was searched visually and by echo sounder for 10 minutes. The average depth was 50 to 70 m and the visibility of the water was 1.5 m.

5. Results of Investigation

In the vicinity of the reported location of AWOIS Item No. 51871, a rock awash was found. The high point is ^{uncovered} exposed 0.5 m at Pos. No. 5514, lat. 57/33/29.75"N, long. 133/30/59.01"W

6. Comparison with Prior Surveys

This rock is not shown on prior surveys..

7. Comparison with chart and charting recommendations

AWOIS Item No. 51871 is resolved, and should be charted as a rock awash at Pos. No. 5514.

CONV

O. COMPARISON WITH THE CHART *See EVAL Report, section 7*

This survey was compared to NOS chart 17360, 28th Edition, February 8, 1992, 1:217,828 (NAD83), and NOS chart 17363, 11th Edition, April 27, 1991, 1:40,000(NAD83).

Charted soundings were found to be in general agreement with this survey. Detailed comparisons and recommendations will be made at PHS.

Non-sounding charted features are discussed in Section J, Shoreline.

Dangers to Navigation ✓

None.

P. ADEQUACY OF SURVEY ✓

Further developments are needed to complete this survey (see Section T - Recommendations). All mainscheme, crosslines, and shoreline verification work are completed. *This survey is adequate for charting purposes. Additional field work will be performed on a time available basis, see section T of this report.*

Q. AIDS TO NAVIGATION ✓

Windham Bay Entrance Light (Light List # 23610)

Light List Position	57° 33.7' N	133° 32.6' W
Unadjusted Field Position	57° 33' 42.06842" N	133° 32' 35.86663" W
Charted Position	57° 33.7' N	133° 32.6' W

The characteristics listed in the Light List, Volume VI, 1993 Edition are accurate.

R. STATISTICS ✓

<u>Vessel:</u>	<u>2123</u>	<u>2124</u>	<u>2125</u>	<u>2126</u>	<u>Total</u>
# of Pos	249	113	298	762	1476
NM Hydro	30.7	11.2	39.6	108.2	189.7

NM ² Hydrography	64.5
Velocity Casts	1
Detached Position	31
Tide Stations	2
Reference Numbers	28
Bottom Samples	54

S. MISCELLANEOUS ✓

Loran C comparisons were not required according to the Project Instructions.

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

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

T. RECOMMENDATIONS ✓

RAINIER recommends that a field examination survey be conducted on survey H-10470. Five areas require further development. A minimum of 50 m splits is needed in these areas to locate the shoalest depths and to better define the depth contours. All shoreline verification is complete.

Two areas require additional hydrography run into the eastern shoreline south of Windham Bay in the vicinity of latitude 57°31'00"N, longitude 133°31'30"W at northing lines 57550 - 57750, and latitude 57°30'15"N, longitude 133°31'45"W at northing lines 55750 - 56550. Two other areas lie at the entrance to Windham Bay around an unnamed island in the vicinity of latitude 57°33'30"N, longitude 133°31'30"W at easting lines 63050 - 64350, and near Windham Bay Entrance Light in the vicinity of latitude 57°33'40"N, longitude 133°32'30"W at easting lines 61850 - 62650. The last development area lies to the south of Sunset Island in the vicinity of latitude 57°29'45"N, longitude 133°34'30"W at easting lines 60250 - 60850.

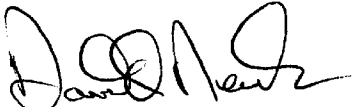
The areas noted above that require further development will be annotated on copies of the excessed final field plot and final track plot. Copies will be sent to N/CG24 and N/CG245 for review. In addition, an annotated copy will be retained by RAINIER.

U. REFERRAL TO REPORTS ✓


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

Title	Date Sent	Office
Spring 1993 Horizontal Control Report for OPR-O136-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,


 s/ Gregory G. Glover
 Ensign, NOAA

Approved and Forwarded,


 Russell C. Arnold
 Captain, NOAA
 Commanding Officer

CONTROL STATIONS as of 13 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	057:10:17.893	133:31:16.092	7	250	0.0	0.0	5	03/23/93	VAL
200	0	057:17:57.880	133:27:52.297	0	254	0.0	0.0		03/23/93	ROBERT IS TP(FIXED CAL.)
201	0	057:12:45.962	133:20:36.141	0	254	0.0	0.0		03/23/93	PORT HOUGHTON TP(FIXED CAL.)
202	0	057:19:34.133	133:11:00.320	0	254	0.0	0.0		03/23/93	AUNT BEA BM A (FIXED CAL.)
203	0	057:24:45.171	133:26:25.846	0	254	0.0	0.0		04/13/93	ENTRANCE ISLAND PILING(FIXCAL)

- P88 4/13

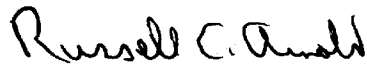
APPROVAL SHEET

for

H-10470
RA-10-9-93

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. They are considered complete and adequate for charting purposes, with the exception of the field examination recommendation in Section T of the descriptive report, 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 20810

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: August 18, 1993

MARINE CENTER: Pacific

OPR: 0136

HYDROGRAPHIC SHEET: H-10470

LOCALITY: Approach to Windham Bay, Stephens Passage, Alaska

TIME PERIOD: April 22, 1993 - April 28, 1993

TIDE STATION USED: 945-1962 Windham Bay, Stephens Passage, Alaska
Lat. $57^{\circ} 32.6'N$ Lon. $133^{\circ} 29.9'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = -5.97 feet

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 14.4 feet

REMARKS: RECOMMENDED ZONING

Times and heights are direct on Windham Bay, Ak. (945-1962).

NOTE: Hourly heights for Windham Bay are tabulated on
Greenwich Mean Time.

William M. Gibson

ACTING CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

H-10470

Name on Survey	ON CHART NO. 17360		Chart No. 17363		D TP-01371	E ON LOCAL MAPS TP-01387	F P.O. GUIDE OR MAP	G GRAND McNALLY ATLAS	H U.S. LIGHT LIST	K
	A	B	C	D						
ALASKA (TITLE)										1
STEPHENS PASSAGE	X	X	X	X						2
SUNSET ISLAND	X	X	X							3
WINDHAM BAY	X	X	X							4
WINDHAM, POINT	X	X	X							5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Approved:

Charles E. Harting
Chief Geographer - NCG2x5

MAY - 5 1994

HYDROGRAPHIC SURVEY STATISTICS

H-10470

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		1
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		
DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDION FILES	2				
ENVELOPES					
VOLUMES	3				
CAHIERS					
BOXES				1	

SHORELINE DATA

- SHORELINE MAPS (List):
- PHOTOBATHYMETRIC MAPS (List):
- NOTES TO THE HYDROGRAPHER (List):
- SPECIAL REPORTS (List):
- NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			1476
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	48		48
VERIFICATION OF SOUNDINGS	70		70
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	37		37
COMPARISON WITH PRIOR SURVEYS AND CHARTS		8	
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		8	
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	155	16
			171

Pre-processing Examination by D. Haines	Beginning Date 2/17/94	Ending Date 3/9/94
Verification of Field Data by R. Davies, E. Domingo, R. Mayor	Time (Hours) 155	Ending Date 6/15/94
Verification Check by J. Stringham	Time (Hours) 26	Ending Date 6/15/94
Evaluation and Analysis by R. Davies	Time (Hours) 16	Ending Date 6/29/94
Inspection by D. Hill	Time (Hours) 4	Ending Date 8/12/94

**EVALUATION REPORT
H-10470**

1. INTRODUCTION

Survey H-10470 is a 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 Sunset Island and Point Windham. The entrance to Windham Bay is also included within the survey area. The surveyed area extends from latitude 57/29/27N to latitude 57/35/34N, and from longitude 133/30/28W to longitude 133/37/40W. The shoreline in the area is characterized by a steep and rocky coastline with intermittent gravel beaches and a few isolated reefs, rocks and islands offshore. The bottom consists of mud, pebbles and sand. Depths range from zero along the shoreline to 365 meters offshore.

Depth curves depicted on the smooth sheet were selected from those authorized through HSG 69. However, instead of drafting all authorized curves only those curves considered necessary for the reasonable portrayal of the bottom were drafted. The selected curves are the 0, 5, 20, 90 and 200 meter. A note was added to the smooth sheet to identify these values.

Predicted tides for Juneau, Alaska were used for the reduction of soundings during field processing. Approved hourly heights zoned from Windham Bay, Alaska, gage 945-1962, 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 173 positions exceeded the limit in terms of HDOP. These positions are isolated and occur randomly throughout the survey area. 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.

Positions of horizontal control stations used during hydrography is a 1993 field value based on NAD 83.

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: -1.237 seconds (-38.276 meters)
Longitude: 6.193 seconds (103.014 meters)

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

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

	<u>Photo Date</u>	<u>Scale</u>
TP-01371	May, June 1988	1:20,000

Shoreline south of latitude 57/30/00N on Sunset Island was drawn in brown from Chart 17363, 11th Edition for orientation purposes only.

3. HYDROGRAPHY

Except as noted below, hydrography is adequate to;

- a. delineate the bottom configuration, determine least depths, and draw the standard depth curves;
- b. reveal there are no significant discrepancies or anomalies requiring further investigation;

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

The hydrographer listed several areas in section T for additional hydrography. These areas do not degrade the usefulness of this survey for charting purposes.

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 1993 edition.

5. JUNCTIONS

Survey H-10470 junctions with the following survey.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10468	1993	1:10,000	South

The junction with survey H-10468 has not been formally completed because the depth curves drawn on survey H-10468 adhere to specifications promulgated by N/CG24 through the memorandum, Changes for Smooth Sheet Appearance and Record Submission to Headquarters, dated February 10, 1994 and it was also previously processed and forwarded to charting. There is good agreement between soundings, however, the depth curves shown on survey H-10468 delineate different depths, and therefore, are not in coincidence within the junction area. Soundings have been transferred to survey H-10470 from survey H-10468 to better portray the bottom in the common areas.

6. COMPARISON WITH PRIOR SURVEYS

H-1996(1889-92) 1:80,000 scale
H-2002(1889) 1:20,000 scale

Surveys H-1996 and H-2002 cover the entire area common with the present survey. There is an average difference in depths of 3 meters between the present survey and the prior survey. The present survey is shoaler. There are a few instances where the difference is extreme, between 20 and 24 meters. These cases are near steep sloping bottoms. This area has experienced possible isostatic rebound, natural accretion and erosional processes. These processes, the different horizontal datums, the greater sounding coverage and the relative accuracy of the data acquisition techniques account for the differences between the soundings on the prior surveys.

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

Survey H-10470 is adequate to supersede the above prior surveys within the common area.

H-4143A(1921) 1:40,000 scale

Survey H-4143A covers the entire area of the present survey. There are no wire drag (hang) depths that originate with survey H-4143A. Sounding data from survey H-4143A differs between 5 to 10 meters with extreme cases of 20 to 30 meters on steep sloping bottoms. These soundings should be superseded by the present survey.

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

7. COMPARISON WITH CHART

Chart 17363 11th Edition, April 27, 1991; scale 1:40,000

Chart 17360, 28th Edition, February 8, 1992; scale 1:217,828

a. Hydrography

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

Survey H-10470 is adequate to supersede charted hydrography within the common area.

b. AWOIS

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

c. Controlling Depths

There are no channels with controlling depths found within the survey area.

d. Aids to Navigation

There is one fixed and no floating aids within the survey area. The fixed aid was located and serves its intended purpose.

There were no landmarks identified for charting within the common area of this survey.

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


No reports of dangers to navigation were generated during the survey.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10470 adequately complies with the project instructions.

9. ADDITIONAL FIELD WORK

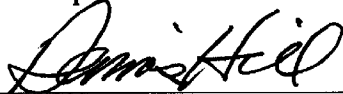
This is an adequate hydrographic survey. Additional field work is recommended in the areas listed in section T of the hydrographer's report.


C.R. Davies
Cartographer

APPROVAL SHEET
H-10470

Initial Approvals:

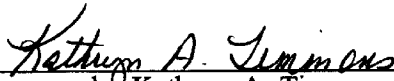
The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disapproval of charted data. The digital data have been completed and all revisions and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



Date: 8/12/94

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.

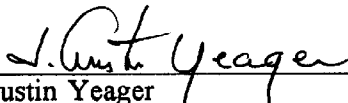


Date: 8/18/94

Commander Kathryn A. Timmons, NOAA
Chief, Pacific Hydrographic Section

Final Approval

Approved:



Date: 10/27/94

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

