

10465

10465

Diagram No. 8201-4

NOAA FORM 76-36A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. RA-10-4-93

Registry No. H-10465

LOCALITY

State Alaska

General Locality Stephens Passage

Sublocality Port Houghton

1993

CHIEF OF PARTY
CAPT R.C. Arnold

LIBRARY & ARCHIVES

DATE April 15, 1994

HYDROGRAPHIC TITLE SHEET

H-10465

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

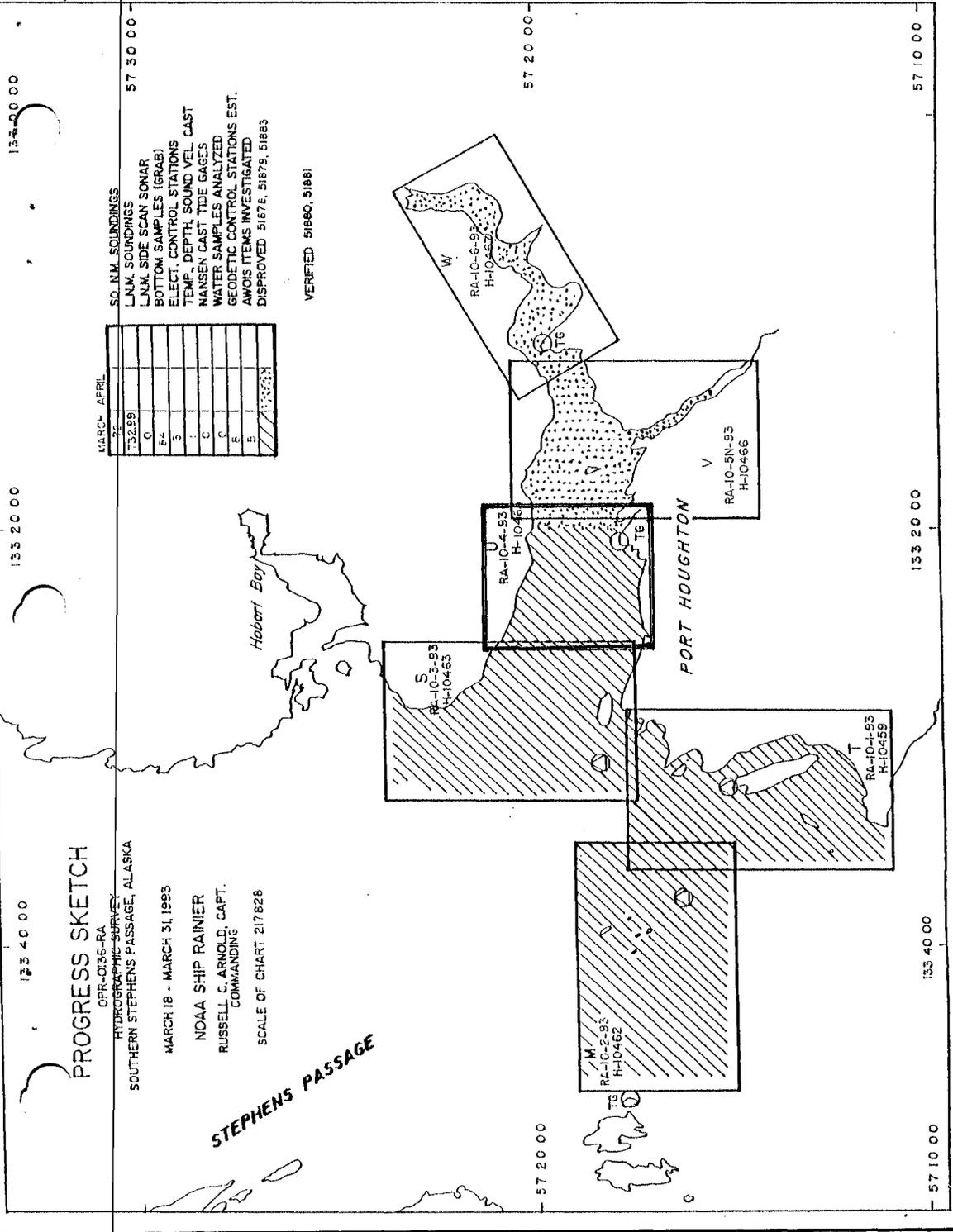
FIELD NO.

RA-10-4-93

State Alaska
 General locality Port Houghton
 Locality Stephens Passage
 Scale 1:10,000 Date of survey 3/31/93 - 4/10/93
 Instructions dated February 5, 1993 Project No. OPR-0136-RA
 Vessel NOAA Ship RAINIER, Launches 2124, 2125, 2126
 Chief of party CAPT Russell C. Arnold, NOAA
 Surveyed by LT Brown, LTJG Ramos, ENS Clover, ENS Graham
 Soundings taken by echo sounder, ~~and lead line~~ DSF 6000N
 Graphic record scaled by RAINIER Personnel
 Graphic record checked by RAINIER Personnel
 Verification by: R. Davies Automated plot by PHS Xynetics Plotter
~~Processed by~~
 Evaluation by: R. Davies
~~Verified by~~
 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.

AWOIS and SURF ✓ RWD



133 40 00

PROGRESS SKETCH

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

MARCH 18 - MARCH 31, 1983
NOAA SHIP RAINIER
RUSSELL C. ARNOLD, CAPT.
COMMANDING
SCALE OF CHART 217826

STEPHENS PASSAGE

Hobart Bay

PORT HOUGHTON

MARCH - APRIL

73289	
52	
5	
C	
C	
E	
E	
51883	

- SO. N.M. SOUNDINGS
- L.N.M. SOUNDINGS
- L.N.M. SIDE SCAN SONAR
- BOTTOM SAMPLES (GRAB)
- ELECT. CONTROL STATIONS
- TEMP. DEPTH SOUND VEL. CAST
- MANSEN CAST TIDE GAGES
- WATER SAMPLES ANALYZED
- GEODETIC CONTROL STATIONS EST.
- AWOIS ITEMS INVESTIGATED
- DISPROVED 51675, 51678, 51683

VERIFIED 51680, 51681

133 00 00

57 30 00

57 20 00

57 20 00

133 20 00

133 40 00

57 10 00

57 10 00

W
RA-10-6-93
H-10467A

V
RA-10-5N-93
H-10466

U
RA-10-4-93
H-10465

S
RA-10-3-93
H-10463

T
RA-10-1-93
H-10459

M
RA-10-2-93
H-10462

Descriptive Report to Accompany Hydrographic Survey H-10465

Field Number RA-10-4-93

Scale 1:10,000

March - April 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-10465 corresponds to "Sheet U" 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 ✓

This survey area is located in the southern end of Stephens Passage and covers the mid-section of Port Houghton from east of Robert Island, to west of Walter Island. The survey area is bound by $133^{\circ}26'45''$ W longitude at the western limit to $133^{\circ}18'45''$ W at the eastern limit, and by the northern shoreline of Port Houghton at the northern limit to the southern shoreline at the southern limit. The northern shoreline is steep and rocky with intermittent gravel beaches. The southern shoreline consists of a number of ledges and offshore reefs and islets. The southern mainland is generally a rocky coast interspersed with gravel and sand areas near the outflows of small riverlets that empty into the bay. The entire area is heavily wooded with the exception of the northwest hillside of Port Houghton, where logging operations are in progress.

Data acquisition was conducted from March 31, DN (Day Number) 90, through April 10, DN 100.

C. SURVEY VESSELS ✓

Data were acquired by three different survey launches from the NOAA SHIP RAINIER as noted below:

Vessel	EDP No	Operation
RA-4	2124	Hydrography Shoreline Verification
RA-5	2125	Hydrography Bottom Samples Shoreline Verification
RA-6	2126	Hydrography

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 cast listed below:

Velocity Table No.	Cast No.	Deepest Depth (m)	Applicable DN	Cast Position	Day
1	1	425.2	090-100	57°15'45"N 133°45'05"W (off sheet limits)	82

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 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 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 S.

Offset Tables

Vessel	Offset Table No.
2124	4
2125	5
2126	6

Heave ✓

Data were 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."

* Filed with the hydrographic data

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 U. (H-10/65)
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), Port Houghton, Stephens Passage (945-1771), and Port Houghton (Inside), Stephens Passage (945-1798). 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 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. *Approved tides were applied to the smooth sheet.*

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 GPS 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 1-2, 1993 (DN 60-61). 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 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 using one of two methods, either by a direct comparison of the Falcon position with the GPS position, or by a comparison of the GPS position with a known, fixed point. HDAPS Survey Screen No. 2 was used for the Falcon comparison method, and was dumped to the system printer to record the results. Three such dumps were made for each system check. For the fixed point method, 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 U(11-10465)

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." *

H. SHORELINE *See Evac Report, Section 2*

Shoreline maps (T-sheets) used to transfer shoreline detail to the final sheets were TP-01387, and TP-01390, (1:20,000, NAD83).

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*

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.

* Filed with the hydrographic data.

DP's 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 disproofs. 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.

Changes

Ten changes to the T-Sheet shoreline were found and depicted on the field shoreline plot.

The three T-Sheet rocks in the vicinity of 057°17'15"N, 133°25'20"W are part of a ledge. Position No. 3344 is the offshore limit of the ledge. *Shown as a ledge on the smooth sheet.*

The T-Sheet rock in the vicinity of 057°17'20"N, 133°25'00"W is the high point of a ledge, ^{uncovers}exposed 1.0 m. Position No. 3551 is the offshore limit of the ledge. *Shown as a ledge on the smooth sheet.*

The T-Sheet rock in the vicinity of 057°17'15"N, 133°24'25"W, Ref. No. R4-2 is the high point of an onshore ledge, ^{uncovers}exposed 0.8 m.

The T-Sheet rock in the vicinity of 057°17'20"N, 133°24'00"W, Ref. No. R4-3 is the high point of a ledge extending from shore, ^{uncovers}exposed 0.7 m. *Shown as a ledge on the smooth sheet.*

The T-Sheet rock in the vicinity of 057°17'20"N, 133°24'00"W, Ref. No. R4-4 is the high point of a ledge extending from shore, ^{uncovers 0.9}exposed 1.0 m. *Shown as a ledge on the smooth sheet.*

The T-Sheet rock in the vicinity of 057°17'20"N, 133°24'00"W, Ref. No. R4-5 is the high point of a ledge extending from shore, ^{uncovers}exposed 0.5 m.

The two T-Sheet rocks in the vicinity of 057°17'30"N, 133°21'50"W are part of a reef. Pos. No. 3791 is one T-sheet rock and the high point of the reef, ^{uncovers (pos)}exposed 1.7 m. Pos. No. 3792 is the eastern limit of the reef, and Ref. No. R4-10 is the second T-sheet rock at the southern limit of the reef, ^{uncovers}exposed 0.9 m. *Shown as a reef with a high point of 2.0m at MLLW*

The two T-Sheet rocks in the vicinity of 057°17'15"N, 133°21'40"W are part of a ledge extending from shore. Pos. No. 3793 is the offshore limit of the ledge. *Shown as a ledge on the smooth sheet*

Pos. No. 3797 in the vicinity of 057°17'45"N, 133°20'40"W is the offshore limit of the T-sheet ledge. *Shown as a ledge on the smooth sheet.*

Pos. No. 3976 in the vicinity of 057°17'47"N, 133°19'35"W is the offshore limit of the T-sheet ledge. *Shown as a ledge on the smooth sheet.*

Recommendations: The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information compiled on T-sheets (T-01387 and T-01390). *Concur*

New Features

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

Item	Approximate Position	Position Number	Height (m)	Remarks
Rock	⁸⁸ 57°17'20"N 133°25'20"W _{3.06}	3549	¹ +0.2	Submerged (cov 0.1)
Rock	⁸³⁸ 57°17'15"N 133°25'15"W _{4.10}	3550	⁶ +0.7	Submerged (cov 0.6)
Rock	⁶⁶ 57°17'20"N 133°24'20"W _{1.44}	3552	+0.7	Submerged (cov 0.7)
Rock	⁴⁸² 57°20'45"N 133°25'30"W _{27.52}	5567	- 0.4	uncovered Exposed
Rock	¹¹² 57°20'36"N 133°24'25"W _{0.6}	5566	⁴ +0.7	Submerged (cov 0.4)
Rock	²⁸⁶ 57°17'20"N 133°21'45"W _{2.164}	3794	^{0.9} +1.2	Submerged Rk
Rock	⁴⁴⁰ 57°17'47"N 133°20'40"W _{27.50}	3973	- 0.1	uncovered Exposed

Pos. No. 3341 in the vicinity of ⁹057°17'15"N, ³133°26'00"W is the western limit of a new ledge, ^{uncovered} exposed 0.9 m, Pos. No. 3342 is the midpoint, ^{uncovered} exposed 0.6 m, and Pos. No. 3343 is the eastern limit of the ledge, ^{uncovered} exposed 0.6 m.

Pos. No. 3345 in the vicinity of ³057°17'10"N, ³133°25'20"W is the offshore limit of a new ledge, ^{uncovered} exposed 0.7 m.

Pos. No. 3975 in the vicinity of ⁶057°17'40"N, ⁶133°19'45"W is the offshore limit of a new ledge, ^{uncovered} exposed 0.4 m, and extending from the north of the T-sheet islet.

Pos. No. 3977 in the vicinity of ⁶057°17'45"N, ⁶133°19'15"W is the offshore limit of a new ledge, extending from the northeast of the T-sheet islet.

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

Disprovals

The T-sheet rock in the vicinity of 057°20'00"N, 133°19'30"W, Pos. No. 5563, is a section of exposed bedrock onshore with no distinct high point. The area offshore of the T-sheet position was searched visually and by fathometer for 10 min. in a 50 m radius around the T-sheet location, and no rock was found. The visibility of the water was 5.0 m and the depth was ^{1.5} 2.0 to 10 m.

I. CROSSLINES ✓

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 15.34 nautical miles, representing 11.8 % of the total mainscheme hydrography.

J. JUNCTIONS ✓

This survey junctions with survey H-10466 (1:10,000, 1993) to the east and H-10463 (1:10,000, 1993) to the west. 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). *See Eum. Report, section 5*

K. COMPARISON WITH PRIOR SURVEYS**H-1996 (1:80,000, 1889-92)**

All prior survey soundings originate from survey H-1996. The soundings from this survey generally agree with survey H-1996 in their common area. Final comparisons and recommendations will be made at PHS. *See Eum. Report, section 6*

L. COMPARISON WITH THE CHART

This survey was compared to NOS chart 17360, 28th Edition, February 8, 1992, 1:217,828 (NAD83).

Chart soundings were found to be in general agreement with this survey. Detailed comparisons and recommendations will be made at PHS. *See Eum. Report, section 7*

Disprovals

The rock scaled from chart 17360, shown in the vicinity of 057°17'35"N, 133°21'45"W, corresponds to the T-sheet rock 270 m to the SW. *concur*

The islet scaled from chart 17360, shown in the vicinity of 057°17'20"N, 133°21'15"W, corresponds to the T-sheet islet 190 m to the WSW. *concur*

The islet scaled from chart 17360, shown in the vicinity of 057°17'35"N, 133°21'20"W, corresponds to the T-sheet islet 240 m to the SW. *concur*

The islet scaled from chart 17360, shown in the vicinity of 057°17'45"N, 133°21'15"W, corresponds to the T-sheet islet 100 m to the NNE. *concur*

The islet scaled from chart 17360, shown in the vicinity of 057°18'00"N, 133°20'30"W, corresponds to the T-sheet islet 160 m to the SSE. *concur*

The islet scaled from chart 17360, shown in the vicinity of 057°17'50"N, 133°20'15"W, corresponds to the T-sheet islet 70 m to the SW. *concur*

The islet scaled from chart 17360, shown in the vicinity of 057°18'00"N, 133°19'50"W, corresponds to the T-sheet islet 90 m to the S. *concur*

Recommendation: The charted rock and islets are adequately portrayed at this chart scale. *Do not concur
chart area as shown
on the smooth sheet.*

M. ADEQUACY OF SURVEY ✓

This survey is complete and adequate to supersede all prior survey in the common areas. *correct*

N. AIDS TO NAVIGATION ✓

None.

O. STATISTICS ✓

Vessel:	2124	2125	2126	Total
# of Pos	920	206	231	1357
NM Hydro	119.10	19.59	37.93	176.62

NM ² Hydrography	11.99
Velocity Casts	1
Detached Position	29
Tide Stations	3
Reference Numbers	25
Bottom Samples	38

P. 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.

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-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,



Gregory G. Glover
Ensign, NOAA

Approved and Forwarded,



Russell C. Arnold
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 17 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	03/23/93		BILL POINT
102	F	057:18:17.893	133:31:16.092	7	250	0.0	0.0	5/05/23/93		WAL
200	0	057:17:57.880	133:27:52.297	0	254	0.0	0.0	03/23/93		ROBERT IS (FIXED CAL.)
201	0	057:17:45.962	133:20:36.141	0	254	0.0	0.0	03/23/93		PORT HOUGHTON (FIXED CAL.)
202	0	057:19:34.133	133:11:00.320	0	254	0.0	0.0	03/23/93		AUNT BEA BM 0 (FIXED CAL.)
203	0	057:24:45.171	133:26:25.046	0	254	0.0	0.0	04/13/93		ENTRANCE ISLAND PILING (FIXED CAL.)

pg 4/13

APPROVAL SHEET

for

H-10465
RA-10-4-93

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

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: August 18, 1993

MARINE CENTER: Pacific

OPR: 0136

HYDROGRAPHIC SHEET: H-10465

LOCALITY: Port Houghton, Stephens Passage, Alaska

TIME PERIOD: March 31, 1993 - April 10, 1993

TIDE STATION USED: 945-1771 Port Houghton, Alaska
Lat. 57° 17.8'N Lon. 133° 21.2'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = -1.03 feet

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 14.3 feet

REMARKS: RECOMMENDED ZONING

1. Times and heights are direct on Port Houghton, Ak. (945-1771).

NOTE: Hourly heights for Port Houghton are tabulated on Greenwich Mean Time.

William W. Fisher
ACTING CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

Name on Survey	Source of Name											
	A	B	C	D	E	F	G	H	K			
	ON CHART NO. 17360											
	ON PREVIOUS SURVEY											
	CON U.S. QUADRANGLE MAPS											
	FROM LOCAL INFORMATION											
	ON LOCAL MAPS											
	P.O. GUIDE OR MAP											
	RANDOMLY ATLAS											
	U.S. LIGHT LIST											
ALASKA (title)	X											1
HAYSTACK, THE			X									2
LITTLE LAGOON			X									3
NEGRO CREEK			X									4
												5
												6
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Approved:

Charles P. Huntington
Chief Geographer - N/CG-75

DEC - 8 1993

NOAA FORM 77-27(H) (9-83)		U.S. DEPARTMENT OF COMMERCE		REGISTRY NUMBER	
HYDROGRAPHIC SURVEY STATISTICS				H-10465	
RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.					
RECORD DESCRIPTION		AMOUNT		RECORD DESCRIPTION	
SMOOTH SHEET		1		SMOOTH OVERLAYS: POS., ARC, EXCESS	
DESCRIPTIVE REPORT		1		FIELD SHEETS AND OTHER OVERLAYS	
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	2				
CAHIERS					
BOXES					
SHORELINE DATA					
SHORELINE MAPS (List):					
PHOTOBATHYMETRIC MAPS (List):					
NOTES TO THE HYDROGRAPHER (List):					
SPECIAL REPORTS (List):					
NAUTICAL CHARTS (List):					
OFFICE PROCESSING ACTIVITIES					
<i>The following statistics will be submitted with the cartographer's report on the survey</i>					
PROCESSING ACTIVITY			AMOUNTS		
			VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET					1357
POSITIONS REVISED					
SOUNDINGS REVISED					
CONTROL STATIONS REVISED					
			TIME-HOURS		
			VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION					
VERIFICATION OF CONTROL					
VERIFICATION OF POSITIONS			15		15
VERIFICATION OF SOUNDINGS			22		22
VERIFICATION OF JUNCTIONS					
APPLICATION OF PHOTOBATHYMETRY					
SHORELINE APPLICATION/VERIFICATION					
COMPILATION OF SMOOTH SHEET			19		19
COMPARISON WITH PRIOR SURVEYS AND CHARTS				4	4
EVALUATION OF SIDE SCAN SONAR RECORDS					
EVALUATION OF WIRE DRAGS AND SWEEPS					
EVALUATION REPORT				8	8
GEOGRAPHIC NAMES					
OTHER:					
*USE OTHER SIDE OF FORM FOR REMARKS			TOTALS	56	12
					68
Pre-processing Examination by			Beginning Date	Ending Date	
D. Haines			4-20-93	5-18-93	
Verification of Field Data by			Time (Hours)	Ending Date	
E. Domingo, R. Davies			56	12-16-93	
Verification Check by			Time (Hours)	Ending Date	
J. Stringham, J. Green			5	12-7-93	
Evaluation and Analysis by			Time (Hours)	Ending Date	
R. Davies			12	1-12-93	
Inspection by			Time (Hours)	Ending Date	
D. Hill			2	4-1-94	

**EVALUATION REPORT
H-10465**

1. INTRODUCTION

Survey H-10465 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. The surveyed area is located in Port Houghton and extends from latitude 57/17/05N to latitude 57/21/10N, and from longitude 133/18/40W to longitude 133/26/30W. The shoreline in the area is characterized by rock and gravel beaches, rock ledges and isolated reefs offshore. The bottom consists of mud, sand and pebbles. Depths range from zero along the shoreline to 241 meters offshore.

Predicted tides for Juneau, Alaska was used for the reduction of soundings during field processing. Approved hourly heights zoned from Port Houghton, Alaska, gage 945-1771 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 93 positions exceeded the limit in terms of 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.

Positions of the horizontal control stations used during hydrography are 1993 field values based on NAD 83. These values were used during office processing for the computation of positions. The smooth sheet and accompanying overlays are annotated with NAD 27 adjustment ticks based on values determined with NGS program NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: -1.244 seconds (-38.477 meters)
Longitude: 6.203 seconds (103.819 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 maps were compiled on NAD 83 and apply to this survey.

	<u>Photo Date</u>	<u>Scale</u>
TP-01387	June, August 1988	1:20,000
TP-01390	June, August 1988	1:20,000

3. HYDROGRAPHY

With the exception noted below and elsewhere in this report, 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.

Holidays exist in the following areas. These holidays do not degrade the usefulness of this survey for charting purposes.

<u>Latitude(N)</u>	<u>Longitude(W)</u>
57/18/10	133/19/32
57/17/32	133/25/24
57/19/24	133/22/15
57/19/37	133/22/10

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-10465 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10463	1993	1:10,000	East
H-10466	1993	1:10,000	West

The junction with surveys H-10463 and H-10466 are complete. Soundings have been transferred to survey H-10465 from the above surveys to better portray the bottom in the common areas.

6. COMPARISON WITH PRIOR SURVEYS

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

Survey H-1996 covers the entire area common with present survey. There is an average difference in depths of 5 meters between the present survey and the prior survey. The prior survey is shoaler. There are a few instances where the difference is extreme, between 10 and 20 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-10465 is adequate to supersede the prior surveys within the common area.

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

7. COMPARISON WITH CHART

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

a. Hydrography

Charted hydrography originates with prior survey H-1996 and requires no further discussion.

Survey H-10465 is adequate to supersede charted hydrography within the common area.

b. AWOIS

There are no AWOIS Items located within the survey limits.

c. Controlling Depths

There are no controlling depths found within the survey area.

d. Aids to Navigation

There are no fixed or floating aids within the survey area.

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

There were no dangers to navigation found within the limits of this survey.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10465 adequately complies with the project instructions, except where noted in this report.

9. ADDITIONAL FIELD WORK

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



C. R. Davies
Cartographer

APPROVAL SHEET
H-10465

Initial Approvals:

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

Dennis J. Hill Date: 4/4/94
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: 4/4/94
Commander Douglas G. Hennick, NOAA
Chief, Pacific Hydrographic Section

Final Approval

Approved:

J. Austin Yeager Date: 8/10/94
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

