10467

Diagram No. 8201-4

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. RA-10-6-93

Registery No. H-10467

LOCALITY

State Alaska

General Locality Stephens Passage

Sublocality Head of Port Houghton

1993

CHIEF OF PARTY
CAPT R.C. Arnold

LIBRARY & ARCHIVES

DATE April 18, 1994

☆U.S. GOV. PRINTING OFFICE: 1985—566-054

10467

NOAA FORM 77-28 (11-72) | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-10467

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-10-6-93

State: Alaska

General locality: Head of Port Houghton

Locality: Stephens Passage

Scale: 1:10,000 Date of survey: April 9 - April 13, 1993

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

Vessel: NOAA Ship RAINIER, Launches (2123), (2124), (2125), (2126)

Chief of party: CAPT Russell C. Arnold, NOAA

Surveyed by: LT M. Brown, LT M. Foran, LTJG R. Ramos, ENS N. Weston, ENS D. Pitts

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

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Verification by: ~~Evaluation~~: R. Davies Automated plot by: PMC Xynetics Plotter

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

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

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

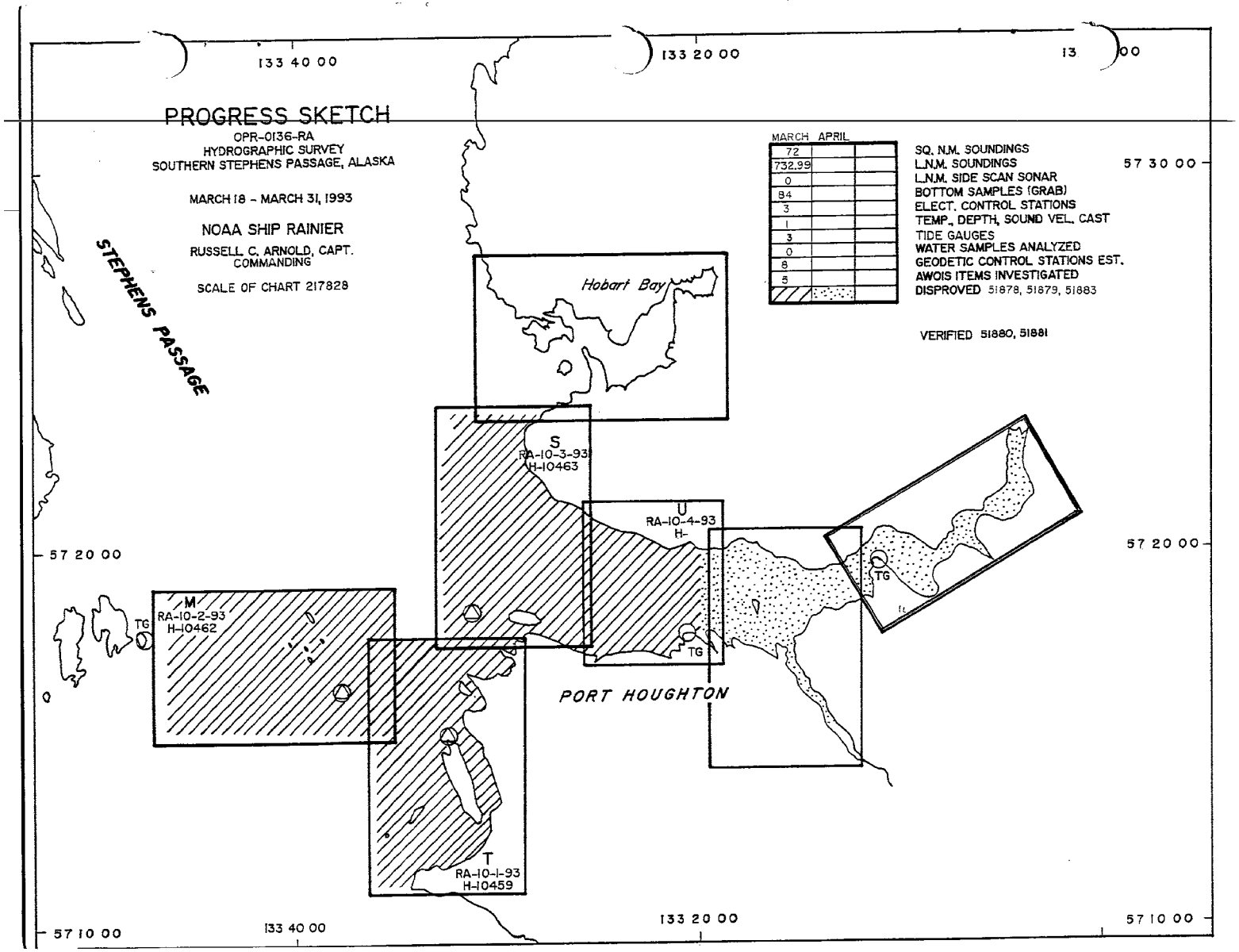
All depths listed in this report are referenced to mean lower low water unless otherwise noted.

AWOIS and SURF ✓ RWD 4/94

R.W.W.

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

U.S. GOVERNMENT PRINTING OFFICE: 1986 - 652-007/41215


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
MARCH APRIL
72
732.99
0
84
3
1
3
0
8
8
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
TIDE GAUGES
WATER SAMPLES ANALYZED
GEODETIC CONTROL STATIONS EST.
AWOIS ITEMS INVESTIGATED
DISPROVED 51878, 51879, 51883
VERIFIED 51880, 51881
133 40 00
133 20 00
13 00
57 30 00
57 20 00
57 10 00
STEPHENS PASSAGE
Hobart Bay
S
RA-10-3-93
H-10463
U
RA-10-4-93
H-
M
RA-10-2-93
H-10462
T
RA-10-1-93
H-10459
TG
PORT HOUGHTON

Descriptive Report to Accompany Hydrographic Survey H-10467

Field Number RA-10-6-93
Scale 1:10,000
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-10467 corresponds to "Sheet W" 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 area is located in the southern end of Stephens Passage, Alaska, and its adjoining bays. The survey area extends from The North Arm of Port Houghton, 133°11'20"W, through a narrow high water channel to the northeastern extent of a salt chuck, 133°03'30"W. The shoreline is very steep and rocky in some areas with less than a meter between the apparent high water line and the treeline. In other areas it is punctuated by ledges with intermittent gravel beaches. In the region of the narrow high water channel, the shoreline is predominately gravel bars.

Data acquisition was conducted from April 9, Day Number (DN) 99, through April 13, DN 103.

C. SURVEY VESSELS

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

Vessel	EDP No	Operation
RA-3	2123	Hydrography Shoreline Verification
RA-4	2124	Hydrography
RA-5	2125	Hydrography Shoreline Verification Bottom Samples Velocity Cast

RA-6 2126 Hydrography
Shoreline Verification

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

Program Name	Version	Date Installed
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:

Program Name	Version	Date Installed
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:

Velocity Table No.	Cast No.	Deepest Depth (m)	Applicable DN	Cast Position	Day	Zone
1	1	425.2	099-103	57°15'45"N 133°45'05"W	82	North Arm (Outside survey area)
2	3	111.6	099-103	57°21'02"N 133°04'48"W	100	Salt Chuck

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 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 W.

Offset Tables

Vessel	Offset Table No.
2123	3
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."

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, Robert Islands were used for this survey. Tidal correctors are:

	TIME (mins)	HEIGHT (ft)
Low Water	-0.17	-0.1
High Water	-0.21	-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), Port Houghton (Inside), Stephens Passage (945-1798), and a temporary station inside the salt chuck (945-1817). 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 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 used for the smooth sheet for the reduction of sndgs.

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

* Filed with the hydrographic data

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."

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 comparing the GPS position with a known, fixed position. HDAPS Survey Screen Two 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. Eastings and Northings, HDOP, and number of satellites received were manually recorded three times from Screen One. The absolute value of the inverse distance was then compared to the taped distance to determine if the position error criteria were met. System checks were normally made whenever possible, 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 W.

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 ✓

The Shoreline maps (T-sheet) used to transfer shoreline detail to the final sheet were maps one and two of TP-01388 (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. Heights were corrected to MLLW using predicted tides. 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 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 on the smooth sheet.

Disprovals ✓

None.

Changes

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

Three T-Sheet islets in the vicinity 057°21'51"N, 133°03'48"W, Reference Number (RN) R5-9, are one feature 40 meters in diameter. The highest point of the islet is towards the center and exposed 6.3 meters Shown in red on the smooth sheet. Shoreline discrepancies due to aerial photos obtained at an apparent mid-tide stage.

A T-Sheet islet in the vicinity 057°21'45"N, 133°03'48"W, RN R5-11, is a rock 8 meters in diameter. The highest point is ~~exposed~~ uncovers 3.3m.

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-01388). Concur

New Features

Four new features were found and depicted on the field shoreline plot.

Item	Approximate Position	Position Number	Height (m)	Remarks
Rock	57°19'10.31"N, 133° 10' 13.51"W	0804	~~-1.1~~ 0.8	Submerged
57°19'9.51"	133°10'~~14~~13.51"W	0805	0.8	
Rock	57° 20'~~15~~12.78"N	0808	~~4.6~~ -4.8	~~Exposed~~ uncovers
	133°09'~~51~~0.42"W			

Rock	57°20'44.42"N 133°05'54.72"W	5685	~~-1.9~~ -1.0	~~Exposed~~ uncovers
Piling	57°21'18.40"N 133°03'25.12"W	5567	~~-1.7~~ -4	~~Exposed~~ uncovers

Recommendations: The hydrographer recommends that the shoreline detail from this survey be used to supersede prior shoreline information compiled on the T-Sheet (T-01388). Concur ✓

I. CROSSLINES ✓

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 8.74 nautical miles, representing 12.1% of the total mainscheme hydrography.

J. JUNCTIONS See Evaluation Report, section 5

This survey junctions with survey H-10466 (1:10,000, 1993) to the west at 133°11'15'W. No irregularities were found when comparing soundings and depth curves. Final comparisons will be made in the office at the Pacific Hydrographic Section (PHS).

K. COMPARISON WITH PRIOR SURVEYS See Evaluation 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 will be made at PHS.

L. COMPARISON WITH THE CHART See Evaluation Report, section 7

This survey was compared to NOS chart 17360, 28th Edition, February 8, 1992, 1:217,828 (NAD83). There were no discrepancies with the chart. Final comparisons will be made at PHS.

One AWOIS item was investigated. The findings are discussed on the "Item Investigation Report" form that is attached.

Dangers to Navigation ✓

None.

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.

N. AIDS TO NAVIGATION ✓

None.

O. STATISTICS

Vessel:	2123	2124	2125	2126	Total
# of Pos	175	64	298	334	871
NM Hydro	16.08	4.90	30.22	35.45	86.65

NM^2 Hydrography	9.2
Velocity Casts	2
Detached Position	16
Tide Stations	4
Reference Numbers	24
Bottom Samples	12

P. MISCELLANEOUS

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 with the exception of the region near the salt chuck at North Arm. The high water channel has maximum currents up to 10 knots during tidal ebbs and floods. Tidal rips predominate the entire channel during these times.

The observed tides in the Salt Chuck appear to be significantly smaller in range and at least two hours behind the predicted tides from Tide Table 2 for Juneau, AK with the correctors for Port Houghton, Robert Islands applied. Slack water roughly corresponds to the predicted high water for Port Houghton, Robert Islands.

Q. RECOMMENDATIONS

None.

R. 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

Respectfully Submitted,

Dede L. Pitts
ENS, NOAA

Approved and Forwarded,

Russell C. Arnold
Captain, NOAA
Commanding Officer

NOAA SHIP RAINIER
Item Investigation Report

AWOIS Investigation #: 51885

Item Description: 3 Visible Rocks, 2 Inshore Rocks Are Part Of Ledge, 28 Meters Wide

Source: Chart 17630, NOS Response To M/V BLUE STAR Report.

Investigation Date: 9 April 1993 **DN:** 99 **Time:** 16:55:44 UTC

Position Number(s): 0800 - 0803

Vessel(s): RA-3 (2123)

Corrections Applied: Velocity Draft (Predicted Tides) Pneumo Cal.

Depth / (Height): 3.9 meters

Position	Latitude	Longitude
Reported	57°19'41"N,	133°11'13"W
Observed	57°19'41"N,	133°11'13"W

.5

Positioning Method: DGPS Falcon R/Az

Method of Investigation: The item was investigated visually at low water (Tide Corrector1.1). Detached Positions were taken along the feature.

Findings: The AWOIS item exists. Detached Positions 0800-0803 mark the extent of two rocks that are connected to a point along the shoreline. Three rocks were reported. The reported inshore rock is the shoreline, which is connected to the two offshore rocks by a ledge. The entire feature is 90 meters long. The highest point is ~~exposed~~ uncovers 3.9 meters.

Shown on this survey as two islets and shoaling, TP-01388 was used as the source.

Charting Recommendation: Retain the charted feature. concur

Compilation Use Only

CHART	APPLIED

Wed, Mar 17, 1993

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), 1993
~~101~~	~~F~~	~~057:15:03.085~~	~~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~~	~~WAL~~
~~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~~	~~057:17:45.967~~	~~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	North Arm BM A, 1993 ~~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)~~

FJB 4/13

APPROVAL SHEET

for

H-10467

RA-10-6-93

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: August 31, 1993

MARINE CENTER: Pacific

OPR: 0136

HYDROGRAPHIC SHEET: H-10467

LOCALITY: North Arm, Port Houghton, Stephens Passage, Alaska

TIME PERIOD: April 9, 1993 - April 13, 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

TIDE STATION USED: 945-1798 Port Houghton Inside, Alaska
Lat. 57° 19.7'N Lon. 133° 10.9'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = -3.12 feet
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 14.3 feet

TIDE STATION USED: 945-1817 Port Houghton East End, Alaska
Lat. 57° 21.5'N Lon. 133° 4.2'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 0.06 feet
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 6.1 feet

HYDROGRAPHIC SHEET: H-10467 (continued)

REMARKS: RECOMMENDED ZONING

1. West of Longitude 133° 11.5'W, times and heights are direct on Port Houghton, Ak. (945-1771).

2. East of Longitude 133° 11.5'W and west of longitude 133° 6.5'W, times and heights are direct on Port Houghton Inside, Ak. (945-1798).

3. East of Longitude 133° 6.5'W , times and heights are direct on Port Houghton East End, Ak. (945-1817). The tidal characteristics in the area at the east end of Port Houghton are extremely different from those at Port Houghton Inside. If data for Port Houghton East End (945-1817) are not available to cover the times of hydrography in that area, then no tide data are available.

NOTE: Hourly heights for Port Houghton, Port Houghton Inside and Port Houghton East End are tabulated on Greenwich Mean Time.

William M. Hobson

ACTING CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10467

Name on Survey	A ON CHART NO. 17360	B ON PREVIOUS SURVEY NO.	C T-01388	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H	K U.S. LIGHT LIST	
ALASKA (title)	X									1
HOUGHTON, PORT	X		X							2
NORTH ARM			X							3
SALT CHUCK			X							4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
				Approved:						16
				Charles L. Harrington, Jr.						17
				Chief Geographer - NOS/CGS						18
										19
				DEC - 8 1993						20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27(H) (9-83) | U.S. DEPARTMENT OF COMMERCE | REGISTRY NUMBER H-10467

HYDROGRAPHIC SURVEY STATISTICS

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	0
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	0

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES						
ENVELOPES						
VOLUMES	1					
CAHIERS	1					
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	AMOUNTS EVALUATION	AMOUNTS TOTALS
POSITIONS ON SHEET			
SITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS VERIFICATION	TIME-HOURS EVALUATION	TIME-HOURS TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
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Pre-processing Examination by D. Haines	*Beginning Date* 4/9/93	*Ending Date* 4/13/93
Verification of Field Data by E. Domingo, R. Davies	*Time (Hours)* 60	*Ending Date* 2/10/94
Verification Check by J. Stringham, J. Green	*Time (Hours)* 7	*Ending Date* 1/18/94
Evaluation and Analysis by R. Davies	*Time (Hours)* 13	*Ending Date* 2/28/94
Inspection by D. HILL	*Time (Hours)* 2	*Ending Date* 4/5/94

EVALUATION REPORT
H-10467

1. INTRODUCTION

Survey H-10467 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 in the vicinity of Port Houghton. This survey includes the upper reaches of Port Houghton and includes North Arm and Salt Chuck. The surveyed area extends from latitude 57/18/30N to latitude 57/22/18N, and from longitude 133/03/23W to longitude 133/11/23W. The shoreline in the area is characterized by a steep and rocky coastline with intermittent gravel beaches and a few isolated reefs and islands offshore. The bottom consists of mud, pebbles and sand. Depths range from zero along the shoreline to 165 meters offshore.

Predicted tides for Juneau, Alaska were used for the reduction of soundings during field processing. Approved hourly heights zoned from Port Houghton Inside and Port Houghton East End, Alaska, gages 945-1798 and 945-1817, 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 186 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 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: -1.225 seconds (-37.885 meters)
Longitude: 6.154 seconds (102.929 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.

	Photo Date	Scale
TP-01388	June, August 1988	1:20,000

The following shoreline change is depicted on the smooth sheet with a dashed red line, and was transferred from the field sheet without supporting position information. This revision is approximate but is adequate to supersede the common photogrammetrically delineated shoreline.

	Latitude(N)	Longitude(W)
HWL	57/21/51	133/03/48

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

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-10467 junctions with the following survey.

Survey	Year	Scale	Area
H-10466	1993	1:10,000	West

The junction with survey H-10466 has not been formally completed because the depth curves drawn on survey H-10466 adhere to specifications promulgated by N/CG24 through the memorandum, Changes for Smooth Sheet Appearance and Record Submission to Headquarters, dated February 10, 1994. There is good agreement between soundings, however, the depth curves shown on survey H-10466 delineate different depths, and therefore, do not agree. Soundings have been transferred to survey H-10467 from survey H-10466 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 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-10467 is adequate to supersede the prior surveys within the common area.

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

7. COMPARISON WITH CHART

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-10467 is adequate to supersede charted hydrography within the common area.

b. AWOIS

AWOIS item 51885 originates with miscellaneous sources. Refer to the hydrographer's report for discussion and disposition of this feature.

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

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

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10467 adequately complies with the project instructions.

9. ADDITIONAL FIELD WORK

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

C.R. Davies
Cartographer

APPROVAL SHEET
H-10467

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: 4-5-94

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: 4/5/94

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

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Final Approval

Approved:

J. Austin Yeager Date: 8/10/94

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

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10467

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
17360	4-12-94	Russ Davies	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via Application of Sndgs
			Drawing No. from smooth sheet
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED