H10740

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey	Hydrographic
	RA-10-9-97
	н–10740
	LOCALITY
State	Alaska
General Locality .	Northern Stephens Passage
Sublocality	Jaw Point to Davidson Point
	1997
CAPT Alan	CHIEF OF PARTY D. Anderson, NOAA
LIE	BRARY & ARCHIVES
	FFD 1 7 1000

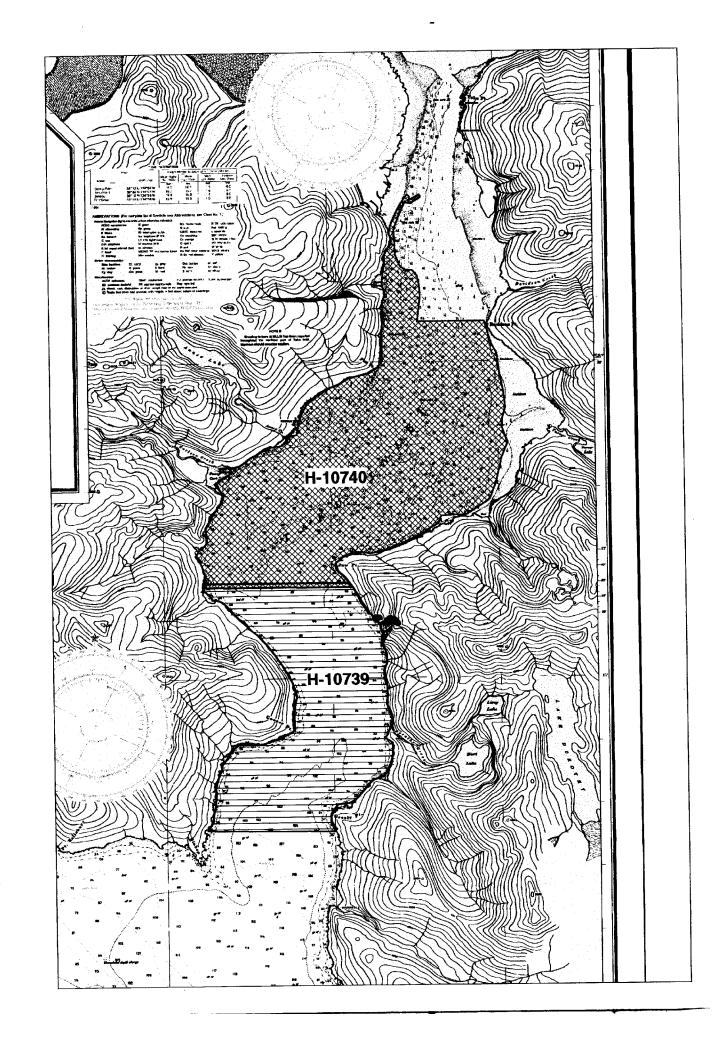
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U.S. DEPARTMENT OF COMMERCE REGISTER NO. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HYDROGRAPHIC TITLE SHEET

H-10740

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.	RA-10-9-97
StateAlaska	
Jaw Point to Davidson Point Locality	
Scale Date of sur	April 10 - 30, 1997
Instructions dated 12/20/96 Change #1 4/3/97 Project No	
VesselNOAA Ship RAINIER Launches (2121),(21	122),(2123),(2124),(2125),(2126)
CAPT Alan D. Anderson, NOAA	
Surveyed by CAPT A.Anderson, LT G.Noll, LT S.LaBossiere SST J.Jacobson, ST K.Callahon, ST Brown Soundings taken by echo sounder, AMAGAMAN APPLIES.	DSF-6000N, Knudsen 320 M
Graphic record scaled byRAINIER Personnel	
Graphic record checked by RAINIER Personnel Evaluation by: R. Davies Auton Verification by E. Domingo	nated plot by HP 650C Design Jet
Soundings in fathoms for at MEWX MLLW and te	nths
REMARKS: Time in UTC, revisions and marginal n	ites are filed with the
hydrographic data, as a result page r	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 Suzz - 2/98 P	mD



Descriptive Report to Accompany Hydrographic Survey H-10740

Field Number RA-10-09-97 Scale 1:10,000 April 1997

NOAA Ship RAINIER

Chief of Party: Captain Alan D. Anderson, NOAA

A. PROJECT √

This hydrographic survey was completed as specified by Project Instructions OPR-O328-RA dated December 20, 1996 and Change No. 1 to Project Instructions OPR-O328-RA dated April 3, 1997. Survey H-10734 corresponds to sheet M as defined in the sheet layout. This survey will provide contemporary hydrographic survey data as part of a continuing program to improve chart coverage of the Inside Passage in southeast Alaska. Requests for hydrographic surveys and updated charts in this area have been received from the United States Coast Guard (USCG), Southeastern Alaska Pilot's Association (SEAPA), the Alaska Department of Transportation, and the Alaska Department of Environment and Conservation in support of cruise line, commercial fishing, mining, and logging industries.

B. AREA SURVEYED See Evel Report, Section 8

The survey area is in Northern Stephens Passage in Taku Inlet and consists of a standard sheet between Jaw Point to Davidson Point and a 1:10,000 scale inset extension of the Taku River Channel. The standard sheet western limit is the shoreline of Taku Inlet. The eastern limit is the shoreline of Taku Inlet in the south, and the low water line north of latitude 58° 20' 27" N. The southern limit is 58° 16' 28" N and the northern limit is latitude 58° 20' 38" N. The Taku River Channel Inset southern limit is latitude 58° 20' 38" N and the northern limit is latitude 58° 22' 88" N. The western limit is the west shore of Taku Inlet and the eastern limit is longitude 134° 02' 10" W. Data acquisition was conducted from April 10 to April 23, 1997 (DN 100-113).

C. SURVEY VESSELS

Data were acquired by RAINIER and her survey launches as noted in the Survey Information Summary ** included with this report.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

All data were acquired and processed using the Hydrographic Data Acquisition and Processing System (HDAPS.) The final field sheet was generated using MapInfo (Version 4.1) and MapBasic software developed by N/CS32 and modified by Rainier personnel. A complete listing of software for HDAPS and MapBasic is included in Appendix VI.*

E. SONAR EQUIPMENT

Neither Side Scan Sonar nor multi-beam echo sounder equipment were used on this survey.

F. SOUNDING EQUIPMENT

All launches, except RA-1 as listed below, are equipped with a Raytheon DSF-6000N echo sounder. The Raytheon DSF-6000N is a dual frequency (100 kHz, 24 kHz), paper trace echo sounder. Serial numbers are included on the headers of the daily Raw Master Printouts. All DSF-6000N soundings were acquired in meters using the High + Low, high frequency digitized setting.

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* Filed with the hydrographic data

RA-1 surveyed using a KNUDSEN 320M depth sounder, serial number k96388. The KNUDSEN 320M is a dual-frequency thermal depth sounder.

G. CORRECTIONS TO ECHO SOUNDINGS

Two sound velocity casts were used for this survey. Information on the casts is included in the Survey Information Summary report. The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 219), calibrated January 16, 1996. Velocity correctors were computed using the PC programs SEACAT and VELOCITY, version 2.11 (1995), in accordance with Hydrographic Survey Guideline (HSG) No. 69. A printout of the Sound Velocity Corrector Table used in the HDAPS Post Survey program is included in the "Separates to be Included with Survey Data, IV. Sounding Equipment Calibrations and Corrections".

A static transducer depth was determined using FPM Fig 2.2 for vessels 2121-2126 in the spring of 1997. Settlement and squat correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2., using FPM Fig. 2.3, and are included with project data for OPR-O328-RA. The data for vessels 2121, 2122, and 2123, were collected in Shilshole Bay, Washington during the Spring of 1997; no changes to the configuration of vessels 2124 and 2126 have occurred since they were measured at the same location in the Spring of 1996. The data for vessel 2125 were collected near Scull Island, Alaska in March 1997. All offset tables contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset tables 1-6 correspond to the last digit of the vessel number. Offset table 7 is for RAINIER. The offset tables are included with project data for OPR-O328-RA. The launches are not equipped with heave, roll and pitch sensors.

The Coastal and Estuarine Oceanography Branch (N/OES334), through N/CS31, provided predicted tides for the project on diskette for the Juneau, Alaska reference station (945-2210). HDAPS listings of the data used in generating tide corrector tables are included in Appendix V of this report. Tidal correctors as provided in the project instructions for H-10734 are provided in the Survey Information Summary included with this report.

Juneau, Alaska (945-2210) and Ketchikan, Alaska (945-0460) are the primary control stations for datum determination at all subordinate stations. RAINIER personnel installed a Sutron 8200 tide gage at Annex Creek (945-2141) and Taku Inlet (middle) Taku River Entrance (945-2131). Refer to the Field Tide Notes and supporting data in Appendix V for installation and removal dates, individual gage performance, and level closure information. This information has been forwarded to N/OES212 in accordance with HSG 50 and FPM 4.3. Data from DN 100 at Annex Creek was lost during a visit to the tide station the following day. Survey lines acquired on DN 100 were subsequently split in the event the data is rejected. It is the hydrographer's opinion that in the likely event tide reducers are based on the primary station at Juneau, the data from DN100 should be retained. A request for approved tides was forwarded to N/OES23 at the completion of the project. Approved tides was forwarded to N/OES23 at the

H. CONTROL STATIONS See Evel Rpt., Section 4.

The horizontal datum for this project is NAD 83. The control stations used for this survey are listed in Appendix III. See the OPR-O328-RA-96 Horizontal Control Report for more information.

I. HYDROGRAPHIC POSITION CONTROL See Evel Rpt., Section I

All soundings were positioned using differential GPS. Primary control was the US Coast Guard Beacon at GUSTAVUS. The VHF differential reference station at SCULL 2 via a repeater established on the RAINIER was used as backup. Launch-to-launch DGPS performance checks were performed in accordance

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* Filed with the hydrographic data

with Section 3.4.4 of the FPM. Two observations of position were made from two different DGPS base stations, SCULL 2 and GUSTAVUS, while the launches were rafted together with their GPS antennae within 2-3 meters of each other. RAINIER also used SHIPDIM, version 2.2R (April 1996) with a Trimble Centurion P-code receiver and an Ashtech sensor (both differentially-corrected) to monitor the performance of the USCG Beacon.

SCULL 2 was independently compared to GUSTAVUS during 8-hour daily comparisons. Some outliers were noted, but none indicated systematic or continuous errors in the GUSTAVUS beacon or the VHF station at SCULL 2. The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-O328-RA.

J. SHORELINE / See Evel Rpt., Section J

The shoreline manuscript from Coastal Mapping survey CM-8904 was supplied by N/CS341 in Standard Digital Data Exchange Format (SDDEF). The digital files from DM-10046 through DM-10051 were projected to the survey grid with OPR-O328-RA-97 geodetic parameters using program Shore version 2.0, provided by N/CS32, and plotted on the survey using HDAPS.

Limited shoreline verification was conducted in accordance with the Project Instructions. Verification was hampered due to a shoreline manuscript evidently compiled from source not flown at a low stage of tide. For the western and southern portions of this survey the general limit of safe navigation of a survey launch is 5-50 meters offshore of apparent low tide. Extensive mud flats extend from the glacier and Taku River outlet to the northern and eastern portions of the survey. A series of 100 meter spaced reconnaissance lines were run to develop the zero curve over the area of mud flats between Annex Creek on the west and Turner Creek on the east in the northern portion of the survey. Features shown inshore of the NALL are the hydrographer's representation of the shoreline while slowly transiting along the shore, and are intended to aid chart compilation. Shoreline features not verified because they bordered mud flats that were accessible only during high stages of tide are noted.

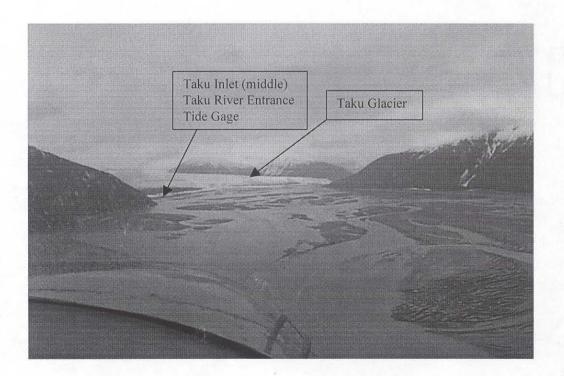


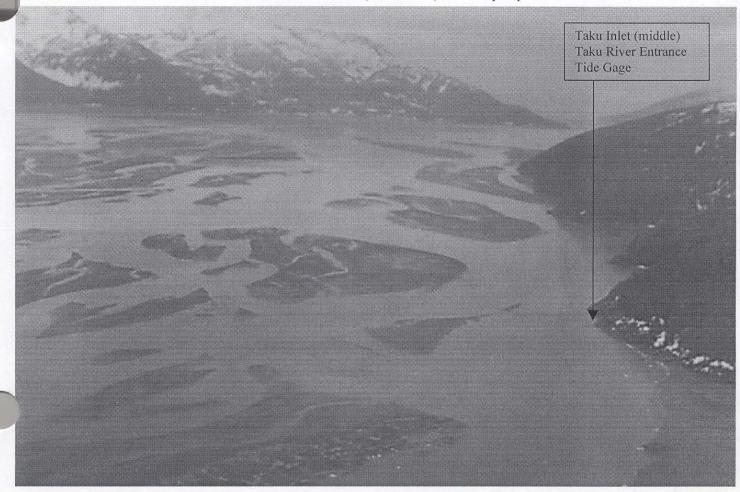
Photo 1. Taku Inlet mud flats (-3 foot tide) – north perspective

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Photo 2. Taku Inlet mudflats (-3 foot tide) – South perspective.



Shoreline manuscript and field features were compared to an enlargement of chart 17315, plotted by RAINIER personnel. Charted features matched the shoreline as observed during the current survey except for the following.

Charted Feature	Geographic Position	Observed Feature
New DP 50278	58° 18′ 21″ N 134° 08′ 21″ W	Foul with pilings (ruins)
Rock	58° 18′ 12″ N 134° 08′ 17″ W	Mud and gravel bar with small boulders
New przuze	58° 19′ 01″ N 134° 06′ 02″ W	3 pilings
Building	58° 19′ 13.6″ N 134° 05′ 55.4″ W	Building on pier

Chart
Ruins

New pier too Smell to Chart

Shoreline manuscript features matched the shoreline as observed during the current survey except for the following.

Shoreline Manuscript Feature	Geographic Position	Observed Feature
3 rocks	58° 16′ 36″ N 134° 08′ 47″ W	ledge
rock	58° 18′ 21″ N 134° 07′ 45″ W	ledge
rock	58° 18′ 26″ N 134° 07′ 28.5″ W	ledge
rock	58° 16′ 54″ N 134° 04′ 42″ W	ledge
islet	58° 18′ 49″ N 134° 06′ 15″ W	ledge

chartas a ledge chart as a ledge chart as a ledge chart as a ledge Retain islet

Discrepancies between charted and field shoreline should be resolved using the manuscript shoreline and field work notes as recorded in the MapInfo digital file named "Shoreline_Remarks". * Data has been analyzed during office processing and graphically portrayed on the smooth Sheet 25 Wartanted.

K. CROSSLINES

Crosslines agreed within 1.0 meters with mainscheme hydrography with the exception of the areas of mud flats where the difference was as great as 1.5 meters. In the hydrographer's opinion the difference was attributable to the accuracy of the supplied predicted tides and resulted in the additional tide gage installation at Taku Inlet (middle) Taku River Entrance. There were a total of 31.6 nautical miles of crosslines, comprising 10.0% of mainscheme hydrography. The crosslines within the mud Flet areas are generally within 12 technology approved tides.

L. JUNCTIONS

The following contemporary survey junctions with survey H-10734.

Junction	Survey	Field Number	Scale
Southern Limit	H-10739	RA-10-8-97	1:10,000

Soundings on this survey were found to be in good agreement. Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after reduction to final vertical datum.

M. COMPARISON WITH PRIOR SURVEYS See Func Report, soction m

Prior surveys covering this survey area are as follows:

Prior Survey	Scale	Date
H-2055	1:40,000	1890
#-6267	1:10,000	1937
Н-6275	1:10,000	1937
H-8032	1:10,000	1952
H-8033	1:10,000	1952
H-8545	1:10,000	1960

Superschell No Charted data within the Syrvey area.

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* Filed with the hydrographic data.

Prior Survey	Scale	Date
H-8546	1:10,000	1960

Prior survey soundings were found to be in poor agreement with those from the current survey. Most notable differences occurred along the leading edge of the mud flats in the central portion of the survey. Depths from the current survey are 3-18 meters more shoal for surveys H-8032, H-8033, H-8545, and H-8546. Surveys H-2055, H-6267, and H-6275 compared 7-28 meters deeper than the present survey. Differences between the current survey and priors can most probably be attributed to river and glacial silting, the push of sediment from an advancing glacier, and to improved modern positioning and sounding equipment. A dive determined depth from the current survey of 6.5 meters at latitude 58° 18' 21.9" N, longitude 134° 02' 12.3" W compared with a 24 fathom (44 meter) depth from H-6275, a 30.4 fathom (56 meter) depth from H-8033, and a 22 fathom (40 meter) depth from H-8545. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.

N. ITEM INVESTIGATIONS

There were no AWOIS or pre-survey review items for survey H-10734. Concur

O. COMPARISON WITH THE CHART See Eval Rot, Section O.

This survey was compared in the field to features portrayed on the following charts:

Chart	Scale	Edition Number	Date	Datum
17315	1:40,000	21st	August 3, 1991	NAD 83
17300	1:209,978	27th	August 14, 1993	NAD 83

The navigable channel to Taku Point has been completely filled and a large mud flat with an abrupt leading edge has developed across the inlet above Jaw Point. Comparison of charted soundings with the survey is described in Section M, Comparison with Prior Surveys, and requires no further discussion. Non-sounding features are discussed in Section J. Final sounding comparisons will be made at PHB after reduction to final vertical datum.

Dangers to Navigation

No dangers to navigation were reported to the Seventeenth Coast Guard District for this survey. Note B on Chart 17315, and Note E on Chart 17300, adequately describe the shoaling of Taku Inlet for the prudent mariner.

P. ADEQUACY OF SURVEY / See Euzl Rpt., Section Mary P

Survey H-10734 is complete and adequate to supersede prior soundings and features in their common areas. Group

Q. AIDS TO NAVIGATION ✓

There were no aids to navigation for this survey. The Annex Creek power station cupola at approximate position 58° 19' 04" N latitude, 134° 06' 04" W longitude, adequately serves as a landmark at its charted position. Retain landmark as charted.

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R. STATISTICS

NM Hydrography	357.7
NM ² Hydrography	11.9
Selected Soundings	14,696
Velocity Casts	2
Tide Stations	2

Bottom Samples	23
Detached Positions	3
AWOIS Items	0
Dives	1

S. MISCELLANEOUS

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. Temperature gradients generated by the glacier create strong wind conditions at the mouth of the Taku Inlet, however conditions in the northern section of the inlet are generally protected and calm. Extreme turbidity from the glacier silt produces near zero water visibility and no Secchi disk observations were performed. Additional photos of the survey area are included in Appendix VI.*

T. RECOMMENDATIONS

The hydrographer recommends adding a note to the chart stating: "The mud flat in front of Taku Glacier is expanding rapidly to the southwest. This chart shows the leading edge to the mud flat in 1997. There is a narrow channel through the mud flat to Taku Point. Passage through this area should not be attempted without local knowledge. The channel is likely to shift position frequently." The evaluator recommends that Manine chart Division evaluate this note for application to the next chart edition.

U. REFERRAL TO REPORTS

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

<u>Title</u>	Date Sent	<u>Office</u>
OPR-O328-RA Horizontal Control Report	1997	N/CS34
OPR-O328-RA 1997 Coast Pilot Report	1997	N/CS26
Project related data for OPR-O328-RA	Incremental	N/CS34
Secchi Disk Observations for OPR-O328-RA	1997	N/CS31

Respectfully Submitted,

Stone P. La Barriere

Steven P. LaBossiere Lieutenant, NOAA

Approved and Forwarded,

Alan D. Anderson Captain, NOAA

Commanding Officer

* Filed with the hydrographic Date OPR-0328-RA

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APPROVAL SHEET

for

H-10740

RA-10-09-97

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Guidelines; and the 1994 version of 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.

Alan D. Anderson Captain, NOAA

Commanding Officer

CONTROL STATIONS as of 24 Apr 1997

No	Туре	Latitude	Long i tude	H	Cart	Freq	Vel Cod	e MM/DD/YY	Station Name
1 2 3 4 5 6 7 8		058:31:42.000 058:31:42.860 058:30:16.042 058:17:04.466 058:18:55.499 058:25:06.000 058:12:16.867 058:09:29.640 058:07:12.193	134:56:00.000 134:56:03.680 134:52:09.349 134:44:25.552 134:42:02.285 135:41:48.000 134:38:44.450 134:10:36.025 134:04:56.697	0 0 2 0 0 0 0 6 0	0 0 250 0 0 250 250 250	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	03/01/92 03/01/92 03/20/96 04/05/97 04/05/97 03/01/97 03/01/97 03/01/97	POUNDSTONE LIGHTLIST POUNDSTONE HDAPS GULL COLT ISLAND LT LL#23792 GEORGE RK LT LL#23795 GUSTAVUS DGPR ID#892 SKULL DGPS PT. ARDEN LT LL#23655 CIRCLE DGPS



U.S. DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration NATIONAL OCEAN SERVICE

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: October 23, 1997

This tide note is a revision and supersedes that of September 11, 1997.

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-0328-RA

HYDROGRAPHIC SHEET: H-10740

LOCALITY: Northern Stephens Passage, AK.

(Sheet M and Inset Sheet N)

TIME PERIOD: April 10 - April 30, 1997

TIDE STATION USED: 945-2131 Taku Inlet (Middle),

Taku River Entrance, AK.

Lat. 58° 22.0'N Lon. 134° 03.1'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.904 meters

TIDE STATION USED: 945-2141 Annex Creek Entrance, AK.

Lat. 58° 18.7′N Lon. 134° 06.8′W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.589 meters

TIDE STATION USED: 945-2249 Young Bay, AK.

Lat. 58° 11.0'N Lon. 134° 35.2'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.690 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: SEA6 & SEA7 Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units (Meters), relative to MLLW and on Greenwich Mean Time.



Note 2:

Juneau, AK was used as control for datum determination for all subordinate tide stations for this survey. Relative sea level trends show that the areas of Juneau Alaska are undergoing continual uplift. The relative sea level trend observed at Juneau for the time period 1950 through 1993 is -0.0114 m/yr. with a standard error of 0.0005 m/yr. As a result of high rate of sea level change, the 1960 to 1978 Tidal Epoch value of Mean Lower Low Water (MLLW) used as chart datum and reference datum for NOS tidal predictions does not reflect present conditions. The data are under review to determine an updated value of MLLW. An interim value was computed for Juneau, based on the series of data from 1989 to 1991 and controlled by the 1960-1978 Epoch datums at Ketchikan which is more stable. The provided values adjust the chart datum to a more realistic level and in a direction that is more conservative for navigation purposes.

Note 3:

The shoal areas of Taku Inlet beginning at the zone identified as "SEA 6" exhibit different tidal characteristics than areas south of that zone. The effects of drastically changing bathymetry followed by extremely shoal areas, result in extreme phase lags during the falling tide combined with a reduced tide range. In fact, some areas north of and within "SEA 6" may be "dry" at low tide. The characteristics are assumed to be uniform within the entire zone, although this cannot be proven without additional tide stations. South of Taku Inlet Middle, a station at Annex Creek Entrance exhibited a mean tide range (Mn) of 4.114 meters, consistent with other Northern Stephens Passage stations. Inlet Middle exhibited a sudden drop in range at 3.661 meters. Historical records indicate a station north of Taku Inlet Middle at Taku Point exhibited a significantly higher range of tide at 4.298 meters, however, these data are from a 1937 short series with considerable uncertainties. This, combined with expected changes to the bathymetry due to glacial retreating and land uplift occurring since these measurements were taken, the historical range at Taku Pt. is considered to be no longer valid. Only water level data from Taku Inlet Middle (945-2131) should be used to reduce soundings in zone "SEA 6" to MLLW.

However, since hydrography was conducted in zone SEA6 from April 10 to April 12 and from April 22 to April 27 when no data were available for Taku Inlet Middle, a special allowance is made to use data from Young Bay (945-2249) with zoning correctors. This was only possible because of the time periods for which hydrography were conducted were near the periods of neap tides (4/10 - 4/18). The period from 4/22 to 4/27 was not during neap tides, however, the times of hydrography were not at low tide when there is maximum distortion due to the shallow

TIDE NOTE FOR HYDROGRAPHIC SHEET H-10740 - page 3 of 3

water effects. The potential for reduced accuracy exists on April 23, when hydrography was conducted near low tide. For hydrography during April 10 - 12 and 22 - 27, 1997, when data are not available for Taku Inlet (Middle), apply a +6 minute time correction and a X0.97 range ratio to the data from Young Bay (945-2249).

CHIEF, TIDAL ANALYSIS BRANCH

NOAA FORM 76-155 (11-72) SURVEY NUMBER U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION H-10740 **GEOGRAPHIC NAMES** OHE THOUSE SURVEY P.O. SUIDE OR MAP E ON LOCAL MAPS G RAMONENALLY FROM TORMATION Name on Survey 1 ALASKA (title) χ χ 2 ANNEX CREEK χ χ 3 CARLSON CREEK χ X 4 DAVIDSON POINT χ 5 FLAT POINT χ χ 6 JAW POINT χ χ 7 SCOW COVE χ Χ 8 STEPHENS PASSAGE (title) Х Χ 9 SUNNY COVE Χ χ 10 TAKU INLET Χ Χ 11 TURNER CREEK χ Χ 12 13 14 15 16 17 18 1 Approved 19 20 21 Chief Geographe 22 17 1997 JUL 23 24 25

NOAA FORM 76-155 SUPERSEDES CAGS 197

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NOAA FORM 77-27(H) U.S. DEPARTMI					NT OF COMMERCE REGISTRY NUMBER			R	
HYDROGRAPHIC SURVEY STATISTICS				н-10740					
RECORDS AC	COMPANYING SUF	VEY:	To be completed w	hen survey is processed		-			
RECOR	RD DESCRIPTION		AMOUNT		RECORD DESCRIP	PTION		AMOUNT	
SMOOTH SHE	EFT		1		VERLAYS: POS., AR		ss	N/A	
DESCRIPTIVE			emeetii e		TS AND OTHER OV		-	N/A N/A	
					T T AND OTHER OV			N/A	
DESCRIP- TION	DEPTH/POS RECORDS		RIZ. CONT. ECORDS	SONAR- GRAMS	PRINTOUTS	sou	RACTS/ JRCE MENTS		
ACCORDION FILES	2								
ENVELOPES									
VOLUMES								···	
CAHIERS									
BOXES					1				
SHORELINE D	DATA /////// ATAC								
SHORELINE MA	PS (List):	DM-1	0051				7777777		
PHOTOBATHYM	IETRIC MAPS (List):	NA							
NOTES TO THE	HYDROGRAPHER (List):	NA							
SPECIAL REP		NA							
NAUTICAL CH	HARTS (List):	Chai	t 17315 2	lst ED., Aug	3, 1991			e seu. e	
		The foll		FFICE PROCESSING AC be submitted with the c	CTIVITIES artographer's report on the s	survey			
	PROCESS	ING A	CTIVITY		AMOUNTS				
					VERIFICATION	EVALU	JATION	TOTALS	
POSITIONS ON SI	HEET		-						
OSITIONS REVIS	SED							:	
3OUNDINGS REV	ISED							:	
CONTROL STATIC	ONS REVISED							,	
						TIME-H	IOURS		
					VERIFICATION	EVALU	JATION	TOTALS	
PRE-PROCESSING	G EXAMINATION								
VERIFICATION OF	CONTROL								
VERIFICATION OF	POSITIONS								
VERIFICATION OF	SOUNDINGS								
VERIFICATION OF	JUNCTIONS							3	
	PHOTOBATHYMETRY							····	
	CATION/VERIFICATION				209			209	
COMPILATION OF	TH PRIOR SURVEYS AND	CHART	S		209			209	
	SIDE SCAN SONAR RECO					-			
EVALUATION OF 1	WIRE DRAGS AND SWEEF	's							
EVALUATION REPORT					27	7			
GEOGRAPHIC NA	MES								
OTHER*									
'USE OTHER SIDE OF FORM FOR REMARKS TOTALS			TOTALS	209	27		236		
Pre-processing Exa M. Bige	amination by 2 1ow				Beginning Date Ending Date 6/10/97 6/1		/97		
	Data by Low, R. Mayor, l	E. D	omingo, R.	Davies			Ending Date 12/1		
Verification Check B. 01m	stead						Ending Date 12/		
Evaluation and Ana	es				Time (Hours) Ending		Ending Date 12/1		
B. 01ms	tead						Ending Date	/98	

EVALUATION REPORT

H-10740

A. PROJECT

The hydrographer's report contains a complete discussion of the Project information.

B. AREA SURVEYED

An adequate discussion of the survey area is found in the hydrographer's report.

The hydrographer has determined the inshore limits of safe navigation by defining a Navigable Area Limit Line throughout the survey area. Charted features and soundings inshore of this limit line have not been specifically addressed during survey operations and should be retained as charted. A page-size plot of the charted area depicting the limits of supersession accompanies this report as Attachment 1.

The bottom consists mainly of mud and sand. Depths range from 0 to 73 fathoms.

C. SURVEY VESSELS

The hydrographer's report contains information relating to survey vessels.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data were processed using the same Hydrographic Data Acquisition/Processing System (HDAPS) software used by the hydrographer, the Hydrographic Processing System (HPS), and MicroStation 95.

At the time of the survey certification the format for transmission of digital data had not been formally approved. In the interim, digital data for this survey exists in the standard HPS format, which is a database, format using the .dbf extension. In addition, the sounding plot was created with .dbf (extension) and enhanced using the MicroStation system, are filed both in the MicroStation drawing format, .dgn (extension); and in the more universally recognized graphics transfer format, .dxf (extension). Copies of these files will be retained at PHB until data transfer protocols are developed and approved.

The drawing files necessarily contain information that is not part of the HPS data set such as geographic name text, line-type data, and minor symbolization. In addition, those soundings deleted from the drawing for clarity purposes remain unrevised in the HPS digital files to preserve the integrity of the original hydrographic data set. Cartographic codes used to describe the digital data are those authorized by Hydrographic Survey Guideline No. 35 and No. 75.

The field sheet parameters have been revised to center the hydrography on the office plot. The data is plotted using a Modified Transverse Mercator projection and are depicted on a single sheet.

E. SONAR EQUIPMENT

Side Scan Sonar and Multibeam Echo Sounder equipment was not used on survey H-10740.

F. SOUNDING EQUIPMENT

The hydrographer's report contains an adequate discussion on sounding equipment.

G. CORRECTIONS TO SOUNDINGS

The sounding data have been reduced to Mean Lower Low Water (MLLW). The reducers include corrections for an actual tide, dynamic draft, and sound velocity. These reducers have been reviewed and are consistent with NOS specifications.

Predicted tides were used for reduction of soundings during field processing. During office processing, tide reductions were derived from approved hourly heights zoned direct from the following tide gages: Taku Inlet (middle), Taku River Entrance, Alaska, gage 945-2131, Annex Creek Entrance, Taku Inlet, Alaska, gage 945-2141 and Young Bay, Alaska, gage 945-2249.

Survey H-10740 has two tide zones, SEA6 and SEA7. Some data was collected in the northern tide zone, SEA6, before the tide gage Taku (945-2131) was operating and after the Annex Creek Entrance gage (945-2141) was removed. This data used Young Bay gage (945-2249) for zoning correctors. A discrepancy of up to 0.6 fathoms was notice with the surrounding data that was zoned with either Taku or Annex gages. This discrepancy is attributed to the distance from the tide gage and the bottom topography of the area. The following positions were rejected.

Positions

20177 - 20182

20192 - 20196

20336 - 20338

20361 - 20363

H. CONTROL STATIONS

Section H and I of the hydrographer's report contain adequate discussions of horizontal control and hydrographic positioning.

The positions of horizontal control stations used during hydrographic operations are published values based on NAD 83. The geographic positions of all survey data are based on NAD 83. The smooth sheet is annotated with an NAD 27 adjustment tick based on values determined with the NGS program NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections:

Latitude:

-1.161 seconds

(-35.930 meters)

Longitude:

6.307 seconds

(102.675 meters)

The year of establishment of control stations originate with the horizontal control records for this survey.

I. HYDROGRAPHIC POSITION CONTROL

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 several positions exceeds limits in terms of horizontal dilution of precision (HDOP). These positions are isolated and occur randomly throughout the survey area. A review of the data, however, suggests 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.

NAD 83 is used as the horizontal datum for plotting and position computations.

Additional information concerning calibrations and system checks can be found in the hydrographer's report and in the separates related to horizontal position control and corrections to position data.

J. SHORELINE

Shoreline map DM-10051, scale 1:20,000 was compiled on NAD 83 and applies to this survey. Shoreline drawn on the smooth sheet originates from a 1:20,000 scale digital file provided by the Coastal Mapping Program. The digitized file and the survey file were merged during MicroStation processing.

There were no MHW revisions on this survey. However, one new pier was found at latitude 58/19/03.59N and longitude 134/05/55.36W and is shown on the smooth sheet

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10740 junctions with the following survey:

Survey	Year	Scale	Area
H-10739	1997	1:10,000	South

The junction with H-10739 is complete, soundings and depth curves are in good agreement within the common area. A "Joins" note has been shown on the survey.

M. COMPARISON WITH PRIOR SURVEYS

H-6275(1937)	1:10,000
H-8033(1952)	1:10,000
H-8545(1960)	1:10,000
H-8546(1960)	1:10,000

Prior surveys H-6275, H-8033, H-8545 and H-8546 cover the entire area of the present survey. Sounding agreement is poor with the present survey depths generally shoaler between 5 and 19 fathoms. Differences of 3 to 8 fathoms are readily evident inshore of the ten-fathom curve and within the extensive mud flat areas. A comparison with the standard depth curves reveals a general southwest shift of 300-1300 meters throughout the survey area since 1937. These differences are largely attributed to the heavy glacial silting in Taku Inlet.

The following rocks have been brought forward from prior survey H-8545 because of inadequate investigation:

Feature	Latitude(N)	Longitude(W)
14 rocks (centered at) rock	58/19/45 58/19/04	134/03/44 134/05/50

With the features brought forward from the prior survey, survey H-10740 is adequate to supersede the prior surveys within the common area.

T-6578(1937) 1:10,000

This prior shoreline map covers the northern portion of the present survey between Flat Point and Davidson Point. The shoreline has remained relatively stable and the present survey compares very well with the prior shoreline map.

Survey H-10740 is adequate to supersede the prior topographic survey within the common area.

N. ITEM INVESTIGATIONS

There were no AWOIS items assigned to this survey.

O. COMPARISON WITH CHART

Survey H-10740 was compared with the following chart:

Chart	Edition	<u>Date</u>	Scale	<u>Datum</u>
17315	21st	Aug. 3, 1991	1:40,000	NAD83

a. Hydrography

Charted hydrography originates with the previously discussed prior surveys. The prior surveys have been adequately addressed in section M and require no further discussion.

The evaluator recommends that Note B on chart 17315, be revised to read: The mud flat in front of Taku Glacier is expanding to the southwest. 1997 survey data reveals that extensive shoaling has occurred from Jaw Point to Davidson Point and is expected to continue. Passage through this area should not be attempted without local knowledge.

Survey H-10740 is adequate to supersede charted hydrography within the common area.

b. Dangers To Navigation

No dangers to navigation were discovered during survey operations. Chart 17315, Note B, adequately describes the shoaling conditions throughout the northern portion of Taku Inlet. No additional dangers to navigation were found during office processing.

P. ADEQUACY OF SURVEY

Except for the features mention in section M of this report, hydrography contained on survey H-10740 is adequate to:

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

The 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, April 1994 Edition.

Q. AIDS TO NAVIGATION

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

Annex Creek Power Station cupola adequately serves as a landmark in this survey area and should be retained as charted.

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

Miscellaneous information is discussed in the hydrographer's report. No additional miscellaneous items were noted during office processing.

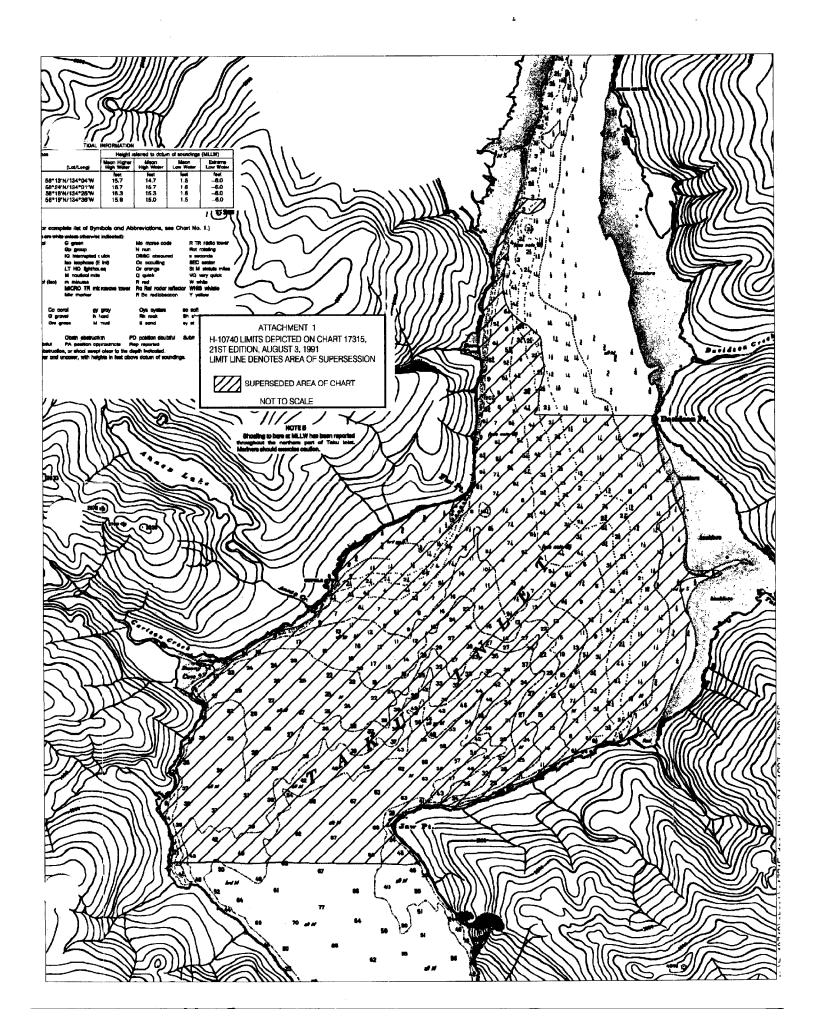
T. RECOMMENDATIONS

This is a good hydrographic survey. Additional work is recommended on a low priority basis to verify or disprove the rocks that were mention in section M of this report.

U. REFERRAL TO REPORTS

Referral to reports is discussed in the hydrographer's report.

Charles R. Davies Cartographer



APPROVAL SHEET H-10740

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 survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Rouce A. Olmatia	Date: 1/1/98
Bruce A. Olmstead	— — []
Senior Cartographer, Cartographic Section	•
Pacific Hydrographic Branch	
I have reviewed the smooth sheet, accompanying and accompanying digital data meet or exceed NOS requ products in support of nautical charting except where not	irements and standards for
121 1 ·	
Kothy Limnon	Date: 1/12/98
Kathy Tithmons Commander, NOAA	·
Chief, Pacific Hydrographic Branch	
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Final Approval	
Approved:	
andrew Hammotron X	Date: Feb 17, 1998
Andrew A. Armstrong III	
Captain, NOAA	
Chief Hydrographic Surveys Division	

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

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
17315	10/23/97	Rush marcis	Full Part Before After Marine Center Approval Signed Via
	1 1		Drawing No. Full application of soundings and Features From smooth sheet
17300	8-26-98	Dand Pletorgarons	Full Part Before After Marine Center Approval Signed Via
			Drawing No. Applied hydrography thru chart 17315
			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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			Chait
			17315
			17300