H10743

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-40-1-97

Registry No. H-10743

LOCALITY

State Alaska

General Locality Stephens Passage

Sublocality Twin Point to Grand Island

19 97

CHIEF OF PARTY
CAPT Alan D. Anderson, NOAA

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-10743

HYDROGRAPHIC TITLE SHEET

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-40-1-97

State: Alaska

General locality: Stephens Passage

Locality: Twin Point to Grand Island

Scale: 1:40,000 Date of survey: April 24 to June 18, 1997

Instructions dated: 1/30/97 Change #1 4/3/97 Project No.: OPR-0324-RA

Vessel: NOAA Ship RAINIER (2120),RA-1(2121),RA-2(2122),RA-4(2124),RA-5(2125) RA-6(2126)

Chief of party: CAPT Alan D. Anderson, NOAA

Surveyed by: NOAA Ship RAINIER Personnel

Soundings taken by echo sounder, ~~hand lead, pole~~: DSF-6000N,Knudsen 320M, IDSSS Multibeam

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Evaluation by: B. Mihailov Automated plot by: HP Design Jet 650C

~~Protracted by~~

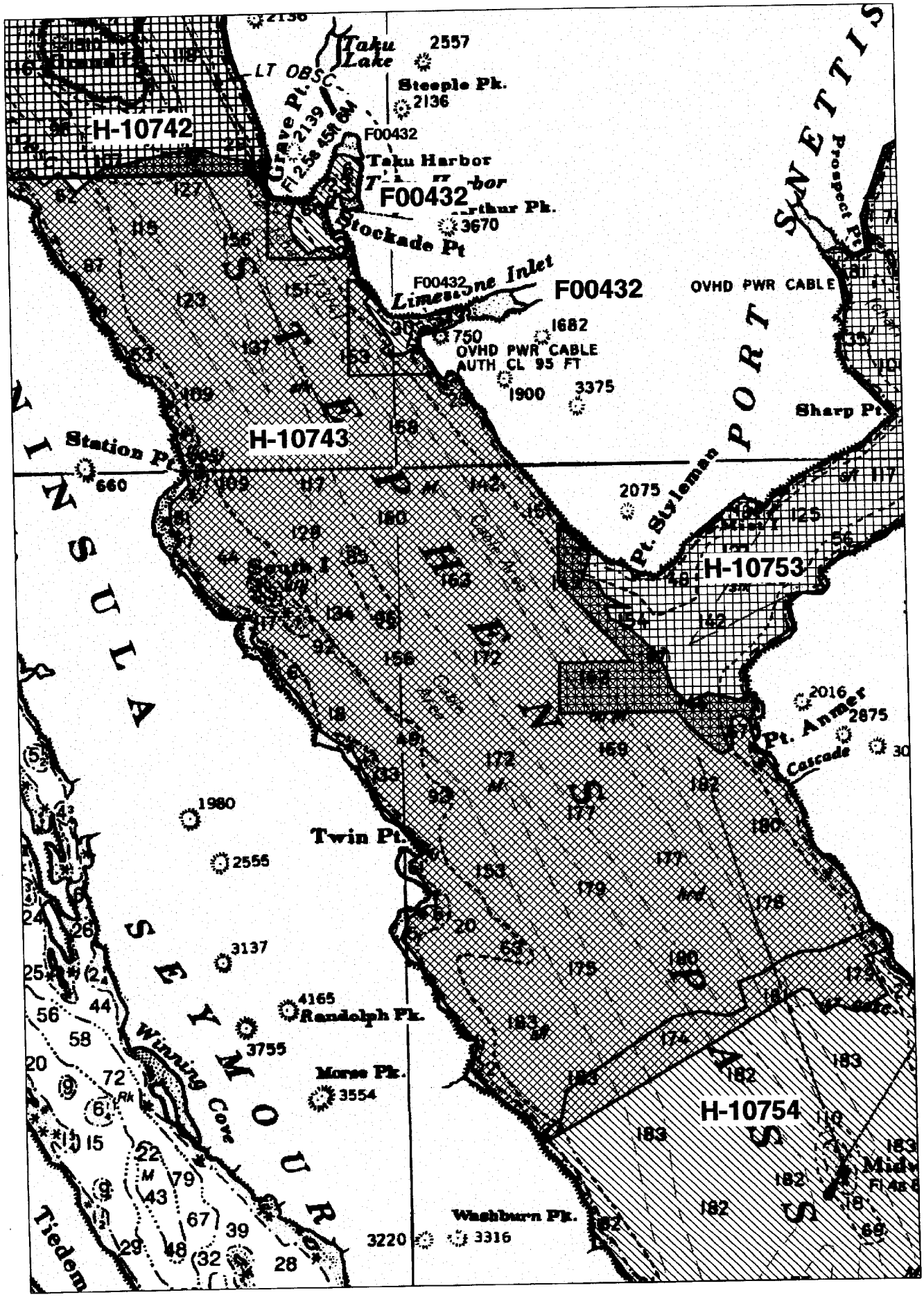
Verification by: E. Domingo, M. Bigelow, R. Mayor, G. Nelson

Soundings in fathoms ~~feet~~ at ~~MLW~~ MLLW and tenths

REMARKS: All times are 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 4/98

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


H-10742
H-10743
H-10753
H-10754
F00432
F00432
F00432
Taku Lake
Steeple Pk.
2136
Taku Harbor
Stockade Pt
Limestone Inlet
OVHD PWR CABLE
OVHD PWR CABLE
AUTH CL 95 FT
Sharp Pt.
Station Pt.
Pt. Styleman
Twin Pt.
Randolph Pk.
Morse Pk.
Washburn Pk.
Pt. Annette
Cascade
Winning Cove
Tiedem
PORT SNETTISHAM
KUPREANOF PENINSULA
SEYMOUR CANAL
2557
3670
1682
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3375
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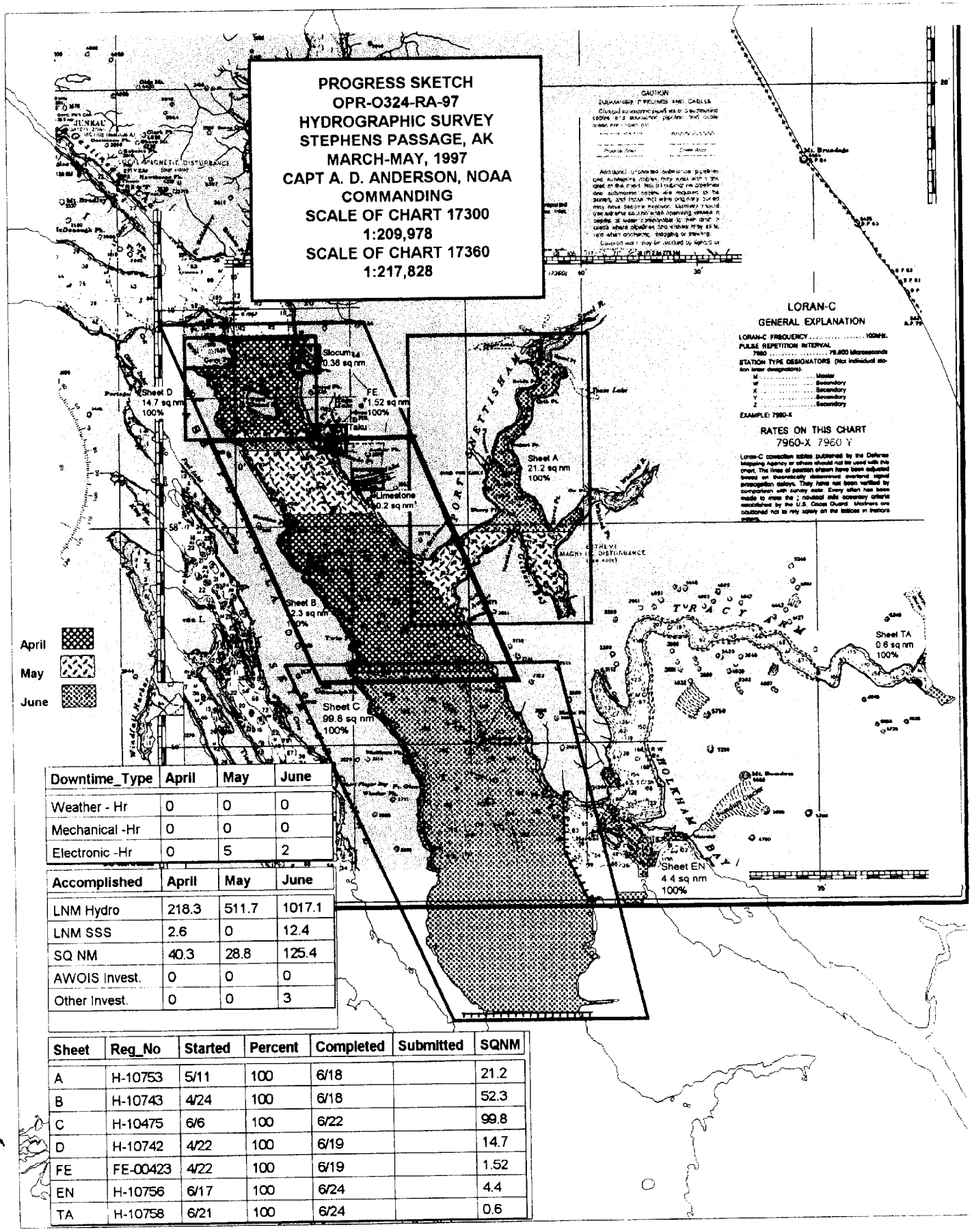
3316



Downtime_Type	April	May	June
Weather - Hr	0	0	0
Mechanical -Hr	0	0	0
Electronic -Hr	0	5	2

Accomplished	April	May	June
LNM Hydro	218.3	511.7	1017.1
LNM SSS	2.6	0	12.4
SQ NM	40.3	28.8	125.4
AWOIS Invest.	0	0	0
Other Invest.	0	0	3

Sheet	Reg_No	Started	Percent	Completed	Submitted	SQNM
A	H-10753	5/11	100	6/18		21.2
B	H-10743	4/24	100	6/18		52.3
C	H-10475	6/6	100	6/22		99.8
D	H-10742	4/22	100	6/19		14.7
FE	FE-00423	4/22	100	6/19		1.52
EN	H-10756	6/17	100	6/24		4.4
TA	H-10758	6/21	100	6/24		0.6

Descriptive Report to Accompany Hydrographic Survey H-10743

Field Number RA-40-1-97
Scale 1:40,000
April – June 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-O324-RA dated January 30, 1997. Survey H-10743 corresponds to sheet B 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 Department of Fish and Game in support of cruise line, commercial fishing, and logging industries.

B. AREA SURVEYED

See Evaluation Report, Section B

The survey area extends from approximately four nautical miles southeast of Twin Point to Grand Island in Stephens Passage, Alaska. The northern limit of the survey is 58° 04' 18" N. The southern limit of the survey is a skewed line extending between 57° 50' 40" N, 133° 56' 37" W and 57° 53' 28" N, 133° 47' 45" W. The survey is bound by Glass Peninsula to the west. Both the mainland and junctions bind the eastern limit of the survey with surveys covering Taku Harbor, Limestone Inlet and Port Snettisham. A detailed listing of the eastern limit of this survey is outlined in the table below. This table begins at the northeast corner of the survey and ends on the southeast corner of the survey. Data acquisition was conducted from April 24 to June 18, 1997 (DN 114-169).

Latitude		Longitude
Bounded by Shoreline		
58/ 03/ 44.2		134/ 03/ 10.0
58/ 02/ 57.3		134/ 03/ 10.0
58/ 02/ 56.9		134/ 01/ 4.7
Bounded by Shoreline		
58/ 02/ 35.0		134/ 00/ 50.5
58/ 02/ 34.7		134/ 01/ 10.5
58/ 01/ 19.9		134/ 01/ 9.8
58/ 01/ 20.6		133/ 58/ 50.0
Bounded by Shoreline		
57/ 59/ 8.6		133/ 55/ 46.8
57/ 58/ 15.3		133/ 55/ 46.2
57/ 56/ 10.0		133/ 52/ 16.9
57/ 56/ 35.4		133/ 50/ 52.9
Bounded by Shoreline		

C. SURVEY VESSELS

Data were acquired by RAINIER and her survey launches as noted in the Survey Information Summary. (attached) ~~included with this report.~~ ~~Filed with Hydrographic Records.~~

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

All launch data were acquired and processed using the Hydrographic Data Acquisition and Processing System (HDAPS). Swath data collected by the RAINIER were acquired and processed using Intermediate Depth Swath Survey System (IDSSS) and Hydrochart II (Seabeam Inc.) programs. Bottom sample data collected by the RAINIER 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 all programs used to acquire and process data is included ~~in Appendix VI.~~ * is attached to this report.

E. SONAR EQUIPMENT ✓

Side Scan Sonar equipment was not used on this survey. - concur

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.

RA-1 surveyed using a KNUDSEN 320M echo sounder. The KNUDSEN 320M is a dual-frequency (100 kHz, 24 kHz), thermal echo sounder. The serial number for this unit is K96388.

The IDSSS configuration consisted of a data acquisition system (DAS) comprised of a Digital Equipment Corporation's (DEC) VAX Station 4000-90 computer system interfaced with a Seabeam Instruments Inc. Hydrochart II sonar system, Datawell heave-roll-pitch sensor (HIPPY), Sperry gyrocompass, a Trimble P-code GPS system. Hydrochart II is a multibeam sonar system that uses two transducer arrays to produce an athwartship swath of bathymetric data approximately 2.5 times the water depth. The DEC VAX Station 4000-90 computer collected input from the Hydrochart II, HIPPY, gyrocompass, and the navigation system. It also provided guidance to the helmsman and plotted a near real time contour map. The DAS consisted of the following equipment:

DAS EQUIPMENT
Hydrochart II Sonar System
DEC Server DSRVW-7C
DEC VAX Station 4000-90 (DAS)
TTi 8212 Tape Drive
Sperry MK 227 Gyrocompass
DATAWELL Hippy
ZETA 24" Plotter
DEC monitor

Data processing was also controlled on the DAS system. The DEC VAX Station 4000-90 computer was used to process the data and create corrected merge files, selected sounding files, and processing sheets.

Problems

On DN 130 the DAS system began to display multiple error messages (VP RESET COMPLETE) which progressively grew worse. Dataset 97133-1601 required many bad sections of data to be manually edited out by survey personnel. On DN 162 changing out both the Central Processing Unit (CPU) and the memory chips of the Hydrochart II Sonar System solved the problem. Concur Analysis of survey data during office processing indicated no significant problems.

* Filed with the Hydrographic Records.

G. CORRECTIONS TO ECHO SOUNDINGS ✓

Four 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 December 15, 1996. Velocity correctors were computed using the PC programs SEACAT and VELOCITY, version 3.3 (1997), 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-O324-RA. The data for vessels 2121, 2122, 2123 were collected in Shilshole Bay, Washington in the spring of 1997; data for vessels 2124 and 2126 were measured in the same location in spring of 1996. The data for 2125 were collected near Scull Island, Alaska in March 1997. RAINIER settlement and squat data* were acquired in 1994 and transducer draft was determined during dry-dock in 1995. 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-O324-RA. The launches are not equipped with heave, roll and pitch sensors.

Roll bias and patch test data of the Rainier's multibeam transducer array were collected in the spring, en-route to the working grounds. Roll bias was determined with the program *"ROLLBIAS"* in accordance with the ROLLBIAS users guide insert of the VMS user manual (1995). Corrections derived from the roll bias test were entered into the sheet parameter file but were not applied with VAXCOP since they were determined to be insignificant. Using zero values for the roll bias, the patch test data were analyzed to produce both pitch bias (alpha) and swath alignment (gamma) values. These values were entered into the sheet parameter file, *"SHEET_B.PAR"* and applied during VAXCOP processing.

The Coastal and Estuarine Oceanography Branch (N/OES334) through N/CS31 provided predicted tides for the project on diskette for the Ketchikan, Alaska reference station (945-0460). 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-10743 are in the Survey Information Summary.** ~~Included with this report.~~ ** Attached to 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 Sutron 8200 tide gauges at Speel River (945-2081) on April 16, 1997, Holkham Bay (945-2067) on May 13, 1997, and Crib Point (945-2082) on June 4, 1997. A tide gauge was also installed on April 21, 1997 at Taku Harbor (945-2123) to determine water levels in upper Stephens Passage in lieu of the Holkham Bay gauge. Refer to the Field Tide Notes and supporting data in Appendix V* for individual gauge performance and level closure information. This information has been forwarded to N/OES212 in accordance with HSG 50 and FPM 4.3. A request for approved tides was forwarded to N/OES23 in accordance with FPM 4.2.3 upon completion of the project.
TIDE NOTE DATED NOVEMBER 3, 1997 IS ATTACHED TO THIS REPORT.

H. CONTROL STATIONS ✓

The horizontal datum for this project is NAD 83. Station TWIN on Twin Point was recovered and used as a secondary hydrographic positioning control for the survey. Station SNET was established on the northern shore of Port Snettisham as a tertiary hydrographic positioning control station. The control stations used for this survey are ~~listed in Appendix III.~~ See the OPR-O324-RA-97 Horizontal Control Report for more information. listed in this report.

* Filed with the hydrographic records

I. HYDROGRAPHIC POSITION CONTROL ✓

All soundings were positioned using differential GPS. Primary control was the US Coast Guard Beacon at GUSTAVUS . The VHF differential reference station at TWIN was used as a backup. Launch-to-launch DGPS performance checks were performed in accordance with Section 3.4.4 of the FPM. Two observations of position were made from two different DGPS base stations, TWIN and GUSTAVUS, while the launches were rafted together with their GPS antennae within 2-3 meters of each other. Similar launch-to-launch DGPS performance checks were performed using Station SNET and GUSTAVUS. 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 reference stations. TWIN was compared to GUSTAVUS at least once a week while installed. Some outliers were noted, but none indicated systematic or continuous errors in either the GUSTAVUS beacon or the VHF station at TWIN. Similar SHIPDIM performance checks were preformed using station SNET and GUSTAVUS. The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-O324-RA.

J. SHORELINE ✓ See Evaluation Report, Section J.

Shoreline manuscripts from Coastal Mapping survey CM-8809 were supplied by N/CS341 in Standard Digital Data Exchange Format (SDDEF). The digital cartographic feature files DM-10304 through DM-10311 were projected to the survey grid with OPR-O324-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. For this survey the general limit of safe navigation of a survey launch is 10-30 meters offshore of apparent low tide, generally 5 meters of depth at Mean Lower Low Water. Features depicted on the "*ShorelineFeatures*" layer in the MapInfo workspace are the hydrographer's representation of the shoreline inshore of hydrography. Shoreline features inshore of the NALL were recorded while slowly transiting along the shore and are intended to aid chart compilation. These features are annotated on the smooth sheet based on final office processing.

Shoreline manuscript and field features were compared to an enlargement of chart 17300, plotted at survey scale by RAINIER personnel. Comparisons of shoreline depicted on prior surveys H-1897 (1:80,000, 1888), H-1919 (1:80,000, 1888), and H-1920 (1:80,000, 1888) were also made.

There is general agreement between the charted shoreline, prior surveys and what the hydrographer found on this survey. The survey area is surrounded by steep, rocky shoreline. During shoreline verification many charted rocks were observed to be plotted offshore of high points in shoreline manuscript ledges. An example of this can be seen with DP 40092, (58° 00' 28.9" N, 134° 05' 27.5" W), a charted rock disproval which plots offshore of a manuscript ledge. The hydrographer believes that many charted rocks plotted further offshore in the chart enlargement due to both enlargement distortions and cartographic license used to depict nearshore rocks at this scale of chart. This ~~theory~~ assumption is further supported by a comparison between the chart and prior surveys, which also depict rocks inshore of charted rock positions. For shoreline features inshore of hydrography the hydrographer recommends that manuscript shoreline and features be used to supersede charted rock positions ~~with the exception of~~ to include the 2 charted rocks (58° 00' 53.3" N, 134° 05' 45" W & 57° 59' 18.2" N, 134° 05' 56" W) which were depicted in the correct positions. – concur, chart area as shown on smooth sheet.

The following table summarizes new shoreline features offshore of the NALL; referenced to MLLW.

Shown on SS

Feature	Depth (meters)	Fix Number	Latitude	Longitude
Rock ✓	0.1 exposed	40014 60012-60014	57/59/44.5	134/05/07.1
Rock ✓	0.5 exposed	60031-60032	57/58/15.3	134/04/44.1
Rock ✓	0.3 exposed	60033	57/58/13.7	134/04/41.3

(0) Do not chart. Cannot show at chart Scale for X (8).
(3) Chart * (3)
(2) Do not chart. Cannot show at chart Scale for rock above.

Rock	1.7 exposed	20006	57/55/54.7	133/50/51.6
Rock	1.1 exposed	20011	57/55/52.1	133/50/46.4

SHOWN ON SS (5) Chart * (5)
(3) Do not chart. Cannot show at chart scale for rock above

In addition to these new rocks, two charted, offshore rocks were determined to be incorrectly depicted. Fix 40097, (57° 57' 57.4" N, 134° 02' 44.2" W), determined that a charted rock is actually an extension of a ledge (2a) on the southeast side of South Island. Fix 40098, (57° 56' 02.2" N, 134° 00' 58.8" W), is the new position of a charted rock, covered 0.5 meters at MLLW. - CONCUR.

(2) Chart ledge as depicted on smooth sheet
(3) Chart rock covers if as depicted on smooth sheet.

Finally, fix 40100 (57° 53' 54.9" N, 133° 58' 56.7" W), which is a submerged rock ridge discovered by echosounder during shoreline verification. Subsequent investigation by 10-meter splits determined the high point of this feature to be covered 4.7 meters, (2.6 fms) at fix 20289.02, (57° 53' 57.5" N, 133° 58' 58.8" W). This feature is shown as a 2² fm RK on the smooth sheet. Chart as a 2¼ RK based on approved tides.

K. CROSSLINES ✓

Crosslines agreed within 1 meter with mainscheme hydrography, except in areas of steep bathymetry. There was a total of 37.97 nautical miles of crosslines, comprising 9.8% of mainscheme hydrography.

L. JUNCTIONS ✓ See Evaluation Report, Section L.

This survey joins with four contemporary surveys. The adjacent surveys are listed below. Soundings between this survey and the five adjacent surveys were found to be in good agreement. Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after reduction to final vertical datum.

Registry #	Scale	Year	Area of Junction
H-10742	1:20,000	1997	North
FE-00432	1:10,000	1997	Northeast
H-10753	1:20,000	1997	East
H-10754	1:40,000	1997	South

M. COMPARISON WITH PRIOR SURVEYS ✓ See Evaluation Report, Section M.

Registry #	Scale	Date
H-1897	1:80,000	1888
H-1919	1:80,000	1888
H-1920	1:80,000	1888
H-4144 WD	1:40,000	1920
H-4147 WD	1:40,000	1921

Prior surveys H-1897 (1:80,000, 1888) and H-1919 (1:80,000, 1888) cover the entire area of this survey. H-1920 (1:80,000, 1888) covers from 57° 58' 00" N to the northern limit of the survey. H-4144 WD (1:40,000, 1920) is a wire drag which covers the entire area of this survey. H-4147 WD (1:40,000, 1921) is a wire drag which covers only the extreme northeast corner of this survey near Grave Point. The note on the wire drag surveys regarding area dragged is not less than 85 feet deep agrees with present survey data. There are several additional areas throughout the survey limits where swept depths were conducted to less than 85 feet.

This survey is in general agreement with the prior surveys, particularly in the flat and deep areas. In the prior surveys the location of shoal areas are well depicted spatially but this survey found shoaler depths. For example, on prior surveys (H-1897, H-1919, & H-1920), the shoal east of South Island centered at 57° 58'

lat. 57/58/25.722 N, LONG. 134/00/44.296

20" N, 134° 00' 50" W is depicted between 85-96 fm. This survey found the shoalest depth in the same area to be 71 fm. The shoal also extends farther north and south than depicted in the prior surveys. In a similar case this survey found contours off Twin Point extending farther to the southeast than depicted in the prior surveys (H-1897 & H-1919). ~~These contours differ~~ Differences in depths by as much as 14 fm as can be seen in the 49 fm. depth in the vicinity of a prior positioned 63 fm. at 57° 53' 20" N, 133° 57' 15" W. - concur chart area as shown on smooth sheet.

This survey has also located two shoal areas poorly positioned or missed by the prior surveys. Although a 97 fathom shoal on prior surveys (H-1897 & H-1919) is well positioned at 57° 57' 20" N and 133° 53' 29" W there is no indication of the ~~81~~ survey fathom depth just to the northeast at 57° 57' 32" N and 133° 53' 43" W. In another instance there is no indication of an 81 fathom sounding at 58° 03' 03" N and 134° 02' 27" W where between 128 and 145 fathoms are depicted on the prior surveys (H-1897, H-1919, & H-1920). A deep sounding of 156* fathoms at 58° 03' 28" N, 134° 04' 00" W on the prior surveys (H-1897, H-1919, & H-1920) was not observed on the present survey. Chart areas as shown on smooth sheet.

* Present survey found depths ranging from 139-141 Fathoms.

N. ITEM INVESTIGATIONS ✓

No AWOIS items were assigned to this survey. - Concur

O. COMPARISON WITH THE CHART See Evaluation Report, Section O.

Chart 17300, 1:209,978, 27th Edition, 8/14/93 is the largest scale chart covering the survey area. Do not concur
Comparison of soundings is described in Section M. 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 H-10743. Concur
No dangers discovered during office processing.

P. ADEQUACY OF SURVEY

Survey H-10743 is complete and adequate to supersede prior soundings and features in their common areas. - concur

Q. AIDS TO NAVIGATION ✓

No aids to navigation fall within the limits of this survey. Grave Point Light was positioned on survey F00432 and data are included in the field examination encompassing this area.

R. STATISTICS ✓

Statistics are listed in the Survey Information Summary. (Attached to Report) ~~included with this report. filed with hydrographic records~~

S. MISCELLANEOUS ✓

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. No bottom sample ~~was~~ were obtained in the area between Station Pt. And South Is. As bottom sample equipment was inoperable.

No unusual tidal currents or magnetic variations were found during this survey.

Comparison between single beam and multibeam soundings in areas of common coverage showed good agreement. - concur

T. RECOMMENDATIONS

None.

U. REFERRAL TO REPORTS

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

Title	Date Sent	Office
OPR-O324-RA Horizontal Control Report	Aug 1997	N/CS34
OPR-O324-RA 1997 Coast Pilot Report	July 1997	N/CS26
Project related data for OPR-O324-RA	July 1997	N/CS34

Respectfully Submitted,

James B. Jacobson
SST, NOAA

Approved and Forwarded,

Alan D. Anderson
Captain, NOAA
Commanding Officer

Survey Information Summary

Project: OPR-0324-97 **Project Name:** STEPHENS PASSAGE

Instructions Dated: 1/30/97 **Project Change Info:**

Change #	Dated
1	4/3/97

Sheet Letter: B **Registry Number:** H-10743

Sheet Number: RA-40-1 -97

Survey Title: TWIN POINT TO GRAND ISLAND

Data Acquisition Dates: From: 24-Apr-97 114 To: 18-Jun-97 169

Vessel Usage Summary

VESNO	MS	SPLITS	DEV	XL	S/L	DP	BS	DIVE
2120	8			3			1	
2121	2	2	2		2			
2122	3		1	1	2	2		
2124	2		1		2	2		
2125	1							
2126	1	1	1		4	3		

Sound Velocity Cast Information

Launch Table #	Ship Table #	Cast DN	Max Depth	Position	Applicable DN
3	13	119	281	58/05/04	119-122
				134/04/54	
4		129	424	58/55/12	123-150
				133/56/00	
6		157	397.3	57/51/24	151-163
				133/51/24	
7		169	429.6	57/51/16	164-169
				133/51/18	

Tide Zone Information

Zone #	Time Corr.	Height Corr.
SEA8	000 hr 24 min	X1.03

Tide Gage Information

Tide Gage #	Gage Name	Installed	Removed
945-2210	JUNEAU	1/1/97	12/31/99
945-2081	SPEEL RIVER	4/16/97	6/19/97
945-2067	HOLKHAM BAY	5/13/97	6/27/97
945-2082	CRIB POINT	6/4/97	6/19/97
945-2123	TAKU HARBOR	4/21/97	6/19/97
945-0460	KETCHIKAN	1/1/97	12/31/99

Statistics Summary

Type	Total:
BS	7
DEV	91.55
DP	19

Percent XL:	9.8%
SQNM:	52.3

MS	388.58
S/L	32.45
SPLIT	10.3
XL	37.97

HOAPS Pre-Survey Program Version: 7.14 PRE-SURVEY: CONTROL STATION TABLE ✓ 13:12:49 7 F

Station No	Type	Lat	Lon	H	Cart	Freq	Vel Code	MM/DD/YY	Station Name
1	1	F 058:25:06.006	135:41:48.000	0	250	0.0	0	03/01/92	GUSTAVUS
2	2	F 057:59:22.443	133:50:34.643	0	250	0.0	0	03/01/92	SNET
3	3	F 057:54:43.873	133:59:33.022	0	250	0.0	0	03/01/92	TWIN
4	4	F 057:50:12.165	133:48:50.563	0	250	0.0	0	03/01/92	MIDWAY ISLAND LT

CURRENT HOAPS SOFTWARE LISTED ON NOAA Ship RAINIER
26 Jun 1997

PROGRAM NAME	CURRENT PROGRAM VERSION	HOAPS VERSION DATE	FIELD UNIT LOAD DATE
BACKUP	2.00	27-Oct-93	03-Dec-99
BASELINE	1.14	07-Apr-93	03-Dec-99
BIGABST	2.08	27-Sep-95	01-Oct-96
BIGAUTOST	3.01	01-Feb-93	03-Dec-99
BLKEDIT	2.03	21-Aug-95	03-Dec-99
CARTO	2.19	31-May-96	06-Sep-99
CLASSIFY	2.14	13-Sep-95	01-Dec-99
CONTACT	2.49	27-Feb-96	24-May-96
CONVERT	3.67	16-May-95	03-Dec-99
DAS_SURV	6.90	16 JAN 97	30-Apr-97
DIAGNOSE	3.06	10-Apr-95	03-Dec-99
DISC_UTIL	1.00	01-Feb-93	03-Dec-99
DP	2.50	17-Mar-97	01-Dec-99
DPCONVERT	1.03	24-Feb-95	03-Dec-99
DSNEDITS	1.06	05-Jun-95	03-Dec-99
EXCESS	4.33	21-Jun-95	03-Dec-99
EXPORT	1.03	13-Mar-96	03-Dec-99
FILESYS	3.46	26-Mar-96	06-Jun-97
GRAFEDIT	1.10	07-Jul-95	30-Nov-99
HIPSTICK	1.01	28-Jul-93	03-Dec-99
HPRAZ	1.26	22-May-93	03-Dec-99
INVERSE	2.02	06-Feb-95	10-Sep-96
LISTDATA	1.02	19-Apr-93	03-Dec-99
LOADNEW	2.13	24-Feb-95	03-Dec-99
LSTAWDIS	3.12	26-Mar-96	30-Nov-99
MAINMENU	1.30	06-Jul-95	10-Apr-96
MAN_DATA	3.15	28-Jun-96	01-Dec-99
NEWPOST	6.13	26-Sep-94	03-Dec-99
PLOTALL	2.37	17-Aug-95	10-Sep-96
POINT	2.12	24-Feb-95	03-Dec-99
PREDICT	2.01	07-Apr-93	03-Dec-99
PRESURV	7.14	07-Mar-96	02-Dec-99
PRINTOUT	4.05	11-Jul-95	03-Dec-99
QUICK	2.09	15-Sep-95	03-Dec-99
RAMSAVER	1.02	07-Apr-93	02-Dec-99
REAPPLY	3.01	20-Apr-97	06-May-97
RECOMP	1.04	24-Feb-95	03-Dec-99
SCANNER	1.00	10-Jul-93	30-Nov-99
SELPRINT	2.05	07-Jun-94	03-Dec-99
SHOREPLT	7.14	07-Mar-96	30-Nov-99
SYMBOLS	2.11	08-Nov-95	03-Dec-99
VERSIONS	1.02	08-Nov-95	03-Dec-99
ZOOMEDIT	2.50	31-Oct-96	02-Nov-96

APPROVAL SHEET

for

H-10743

RA-40-1-97

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 reviewed by me and are considered complete and adequate for charting purposes, and are approved. All records are forwarded for final review and processing to N/CS34, Pacific Hydrographic Branch.

Approved and forwarded,

Alan D. Anderson
Captain, NOAA
Commanding Officer
NOAA Ship RAINIER

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: November 3, 1997

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-O324-RA
HYDROGRAPHIC SHEET: H-10743

LOCALITY: Stephens Passage, AK. (Sheet B)

TIME PERIOD: April 24 - June 18, 1997

TIDE STATION USED: 945-2082 Crib Point, Port Snettisham, AK.
Lat. 58° 05.7'N Lon. 134° 44.3'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.550 meters

TIDE STATION USED: 945-2123 Taku Harbor, AK.
Lat. 58° 04.1'N Lon. 134° 00.6'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.531 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: SEA8, SEA9 & SEA10
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.

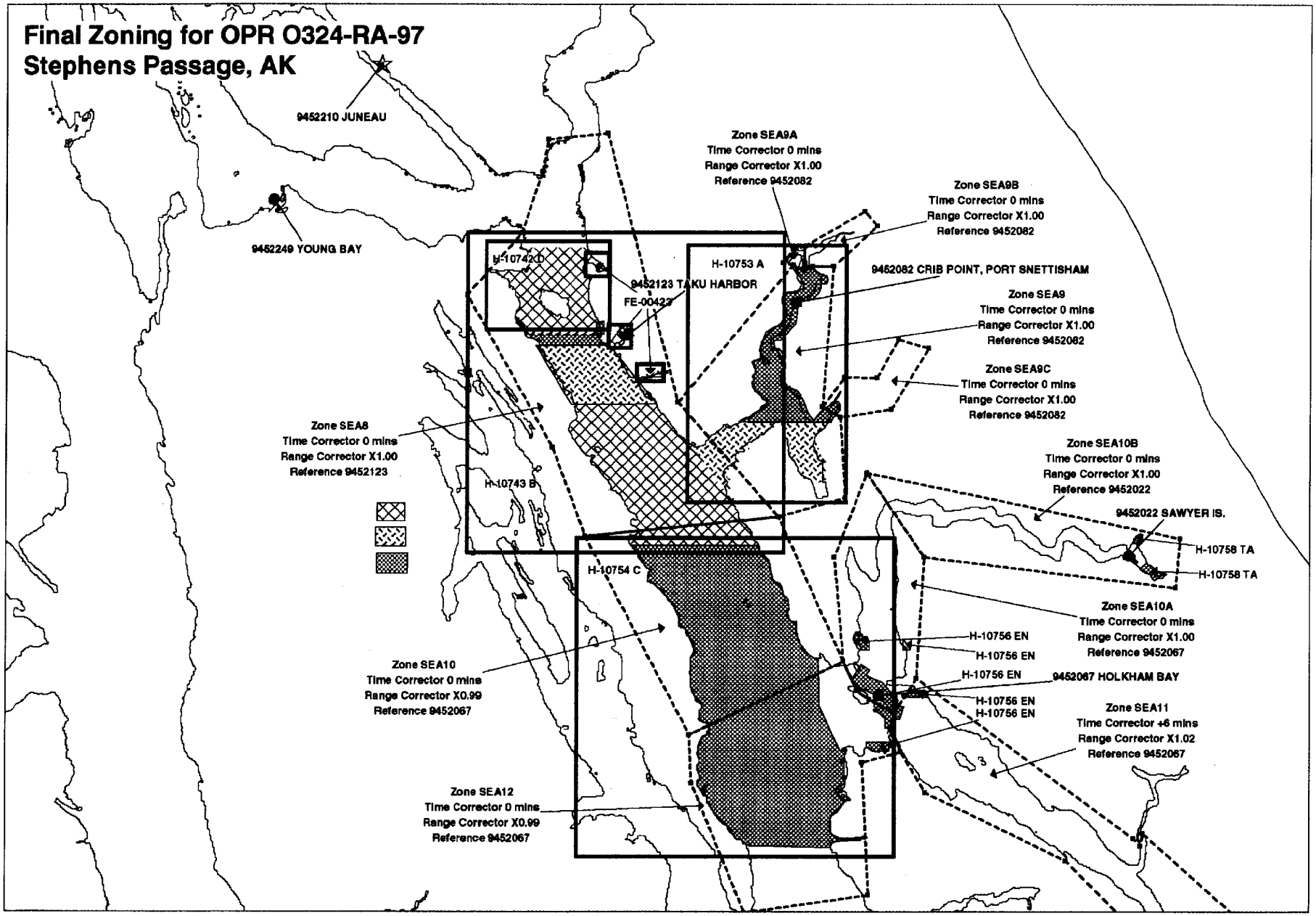
Final tide zone node point locations for OPR O324-RA-97,
Sheet H-10743.

Format: Longitude in decimal degrees (negative value denotes Longitude West),
Latitude in decimal degrees
Tide Station (in recommended order of use)
Average Time Correction (in minutes)
Range Correction

	Tide Station Order	AVG Time Correction	Range Correction
Zone SEA8			
-134.04478 58.239803	945-2123	0	1.00
-133.929274 58.010814	945-2249	-6	0.96
-133.765896 57.91308	945-2210	0	0.97
-134.080082 57.896614			
-134.132552 57.972586			
-134.272032 58.10242			
-134.183573 58.155284			
-134.15 58.207113			
-134.140172 58.234618			
-134.04478 58.239803			
Zone SEA9			
-133.929274 58.010814	945-2082	0	1.00
-133.743541 58.127911	945-2123	0	1.01
-133.725 58.123			
-133.711667 58.126667			
-133.677106 58.126828			
-133.694649 58.007198			
-133.665601 57.998293			
-133.657338 57.929546			
-133.765896 57.91308			
-133.929274 58.010814			
Zone SEA10			
-134.080082 57.896614	945-2067	0	0.99
-133.910199 57.726615	945-2123	0	1.00
-133.659922 57.78936			
-133.765896 57.91308			
-134.080082 57.896614			

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.

CHIEF, OPERATIONAL ANALYSIS BRANCH


Final Zoning for OPR O324-RA-97
Stephens Passage, AK
9452210 JUNEAU
9452249 YOUNG BAY
Zone SEA9A
Time Corrector 0 mins
Range Corrector X1.00
Reference 9452082
Zone SEA9B
Time Corrector 0 mins
Range Corrector X1.00
Reference 9452082
9452082 CRIB POINT, PORT SNETTISHAM
Zone SEA9
Time Corrector 0 mins
Range Corrector X1.00
Reference 9452082
Zone SEA9C
Time Corrector 0 mins
Range Corrector X1.00
Reference 9452082
H-10742 D
H-10753 A
9452123 TAKU HARBOR
FE-00422
Zone SEA8
Time Corrector 0 mins
Range Corrector X1.00
Reference 9452123
H-10743 B
H-10754 C
Zone SEA10B
Time Corrector 0 mins
Range Corrector X1.00
Reference 9452022
9452022 SAWYER IS.
H-10758 TA
H-10758 TA
Zone SEA10A
Time Corrector 0 mins
Range Corrector X1.00
Reference 9452067
H-10756 EN
H-10756 EN
H-10756 EN
9452067 HOLKHAM BAY
H-10756 EN
H-10756 EN
Zone SEA10
Time Corrector 0 mins
Range Corrector X0.99
Reference 9452067
Zone SEA11
Time Corrector +6 mins
Range Corrector X1.02
Reference 9452067
Zone SEA12
Time Corrector 0 mins
Range Corrector X0.99
Reference 9452067

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10743

Name on Survey	A ON CHART NO. 17300, 17313, 17314	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
ALASKA (title)	X		X							1
GLASS PENINSULA	X		X							2
GRAND ISLAND	X		X							3
GRAVE POINT	X		X							4
LIMESTONE INLET	X		X							5
MIDWAY ISLANDS *	X		X							6
PORT SNETTISHAM	X		X							7
POINT ANMER	X		X							8
POINT STYLEMAN	X		X							9
SENTINEL POINT *	X		X							10
SHARP POINT *	X		X							11
SOUTH ISLAND	X		X							12
STATION POINT	X		X							13
STEPHENS PASSAGE (title)	X		X							14
STEPHENS PASSAGE	X		X							15
STOCKADE POINT	X		X							16
TAKU HARBOR	X		X							17
TWIN POINT	X		X							18
										19
* Plots outside the survey area.					Approved					20
										21
					Donna J. Lowell					22
					Chief Cartographer					23
					SEP 30 1997					24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27(H) (9-83)

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER: H-10743

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

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

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	1					
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List): DM 10304, DM 10305, DM 10306, DM 10307 and DM 10308

PHOTOBATHYMETRIC MAPS (List): NA

NOTES TO THE HYDROGRAPHER (List): NA

SPECIAL REPORTS (List): NA

NAUTICAL CHARTS (List): 17300 27th Ed., August 14, 1996

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	*EVALUATION*	*TOTALS*
POSITIONS ON SHEET			
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS			
VERIFICATION OF SOUNDINGS			
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION	31		31
COMPILATION OF SMOOTH SHEET	101		101
COMPARISON WITH PRIOR SURVEYS AND CHARTS		8	8
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		32	32
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	132	40	172

Pre-processing Examination by: Pacific Hydrographic Branch	*Beginning Date*: 8/14/97	*Ending Date*: 8/21/97
Verification of Field Data by: M. Bigelow, R.Mayor, E. Domingo, G. Nelson	*Time (Hours)*: 132	*Ending Date*: 1/28/98
Verification Check by: B. Olmstead	*Time (Hours)*: 5	*Ending Date*: 3/5/98
Evaluation and Analysis by: B. Mihailov	*Time (Hours)*: 40	*Ending Date*: 2/18/98
Inspection by: B. Olmstead	*Time (Hours)*: 9	*Ending Date*: 3/29/98

EVALUATION REPORT

H-10743

A. PROJECT

Project information is discussed in the hydrographer's report.

B. AREA SURVEYED

The survey area is adequately described in the Hydrographer's report. Page-size plots of the charted area depicting the limits of supersession accompany this report as Attachments A, B and C.

The bottom consists mainly of mud, sand and gravel. Depths range from 0 to 180 fathoms.

C. SURVEY VESSELS

Survey vessel information is found in the hydrographer's report.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data were processed using the Multibeam Support Vax system, the Hydrographic Processing System (HPS), AutoCad (Version 12.0) and MicroStation 95.

Digital data for this survey exists in the standard HPS format, that is a database format using the .dbf extension. In addition, the plot is filed both in the MicroStation drawing format, i.e., dgn (extension), and in the more universally recognized graphics transfer format, .dxf (extension). Copies of these files will be retained at PHB until data forwarded to headquarters has been accepted and approved. Database records forwarded are in the Internal Data Format(IDF) and are in compliance with specifications in existence at the time of survey processing.

The drawing files necessarily contain information that is not part of the HPS data set such as geographic names 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 data is plotted using a Modified Transverse Mercator projection and are depicted on a single sheet.

E. SONAR EQUIPMENT

Side scan sonar equipment was not used on survey H-10743.

F. SOUNDING EQUIPMENT

Sounding equipment has been adequately addressed in the hydrographer's report.

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: Crib Point, Port Snettisham, Stephens Passage, Alaska, gage 945-2082, Taku Harbor, Stephens Passage, Alaska, gage 945-2123, and Young Bay, Alaska, gage 945-2249.

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:	-1.200 seconds	(-37.124 meters)
Longitude:	6.274 seconds	(103.196 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 15 meters 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 maps DM 10304, DM 10305, DM 10306, DM 10307 and DM 10308, scale 1:20,000, were compiled on NAD83 and apply to this survey. Shoreline drawn on the smooth sheet originates from the above digital manuscripts as provided in digital format by the Coastal Mapping Program. The digitized files and the survey file were merged during MicroStation processing.

No revisions to the Mean High Water Line have been made to the smooth sheet.

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10743 junctions with the following surveys:

Survey	Year	Scale	Area
H-10742	1997	1:20,000	North
H-10753	1997	1:20,000	East
H-10754	1997	1:40,000	South
F00432	1997	1:10,000	Northeast

The junctions with surveys H-10742, H-10753, H-10754, and F00432 are complete. "Joins" notes have been added to the smooth sheet where applicable. A few soundings from the junctional survey F00432 have been transferred within the common areas of H-10743 to better delineate the bottom configuration.

M. COMPARISON WITH PRIOR SURVEYS

Survey H-10743 was compared with following prior surveys.

H-1897	(1888)	1:80,000
H-1919	(1888)	1:80,000
H-1920	(1888)	1:30,000

The above prior surveys cover the entire area of the present survey. Differences in depths generally range from 2 to 5 fathoms. There is no consistent pattern of shoaling or an increase in depths between the prior surveys and the present survey. A comparison of standard depth curves with the prior surveys reveal little change in configuration except where present hydrography defined existing shoal areas to be more extensive then found in 1888. The differences may be attributed to greater sounding coverage, improved positioning and sounding techniques and relative accuracy of the data acquisition methods. With the exception of the following, H-10743 is adequate to supersede the above prior surveys within the common area.

The following bottom samples were transferred to the smooth sheet from the above prior surveys.

Feature	Latitude (N)	Longitude (W)	Survey
Sft M	58/04/30	134/05/20	1920
Sft M	58/02/58	134/03/30	1920
Sft M	58/01/40	134/02/00	1920
Stk M	58/01/25	134/00/20	1920
Sft M	57/57/58	133/54/50	1919
Sft bu M	57/56/20	133/54/50	1919
Sft bu M	57/56/35	133/52/50	1919

H-4144WD	(1920)	1:40,000
H-4147WD	(1920-21)	1:40,000

The above wire-drag surveys cover the entire area of the present survey. An adequate coverage of the area was accomplished during this survey to substantiate the supersession of the prior

wire drag information within the common area and the removal of the wire drag green tint on Chart 17313. All wire drag soundings and clearance depths have been adequately addressed.

H-10743 is adequate to supersede the above prior wire drag surveys within the common area.

N. ITEM INVESTIGATIONS

There were no AWOIS items assigned to this survey.

O. COMPARISON WITH CHART

Survey H-10743 was compared with the following charts.

Chart	Edition	Date	Scale	Datum
17300	27th	Aug. 14, 1996	1:209,978	NAD83
17313	7th	November 11, 1989	1:40,000	NAD83
17314	11th	May 25, 1991	1:20,000	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 application of this survey to charts of a scale greater than 1:80,000 may require the generalization of features such as ledges, and reefs. The recommended charting disposition of specific ledges or reefs is their depiction as isolated rocks. The application of this survey to charts of a scale less than 1:80,000 may be accomplished without generalization of features. Features from survey H-10743 have been generalized on chart 17300 along the shoreline where applicable.

Survey H-10743 is adequate to supersede charted hydrography within the charted area.

b. Dangers To Navigation

No dangers to navigation were discovered during survey operations. No dangers to navigation were found during office processing.

P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10743 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 Project Instructions, and 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 with the exception of the following. In the event that the field units submission of survey data will exceed four weeks from completion of field work, the Chief of

Party will submit a written explanation for the delay indicating the anticipated transmittal date to the Chief of the appropriate processing section. Marine Center ships forward their explanation through the Marine Center Director. Field work for survey H-10743 was completed on June 18, 1997 but not received for office processing until September 2, 1997.

Q. AIDS TO NAVIGATION

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

There is one fixed aid to navigation, Grave Point Light, which has been discussed in the Evaluation Report for junctional survey F00432. Refer to NOAA Form 76-40 attached to F00432 for positional information.

There were no features of landmark value located within the area of this survey.

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. The Hydrographer's Descriptive Report in particular was well written. No additional work is recommended.

U. REFERRAL TO REPORTS

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

Bob Mihailov
Cartographer

APPROVAL SHEET
H-10743

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.

Bruce A. Olmstead Date: 4/2/98
Bruce A. Olmstead
Senior Cartographer, Cartographic Section
Pacific Hydrographic Branch

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.

Kathy Simmons Date: 4/13/98
Kathy Simmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

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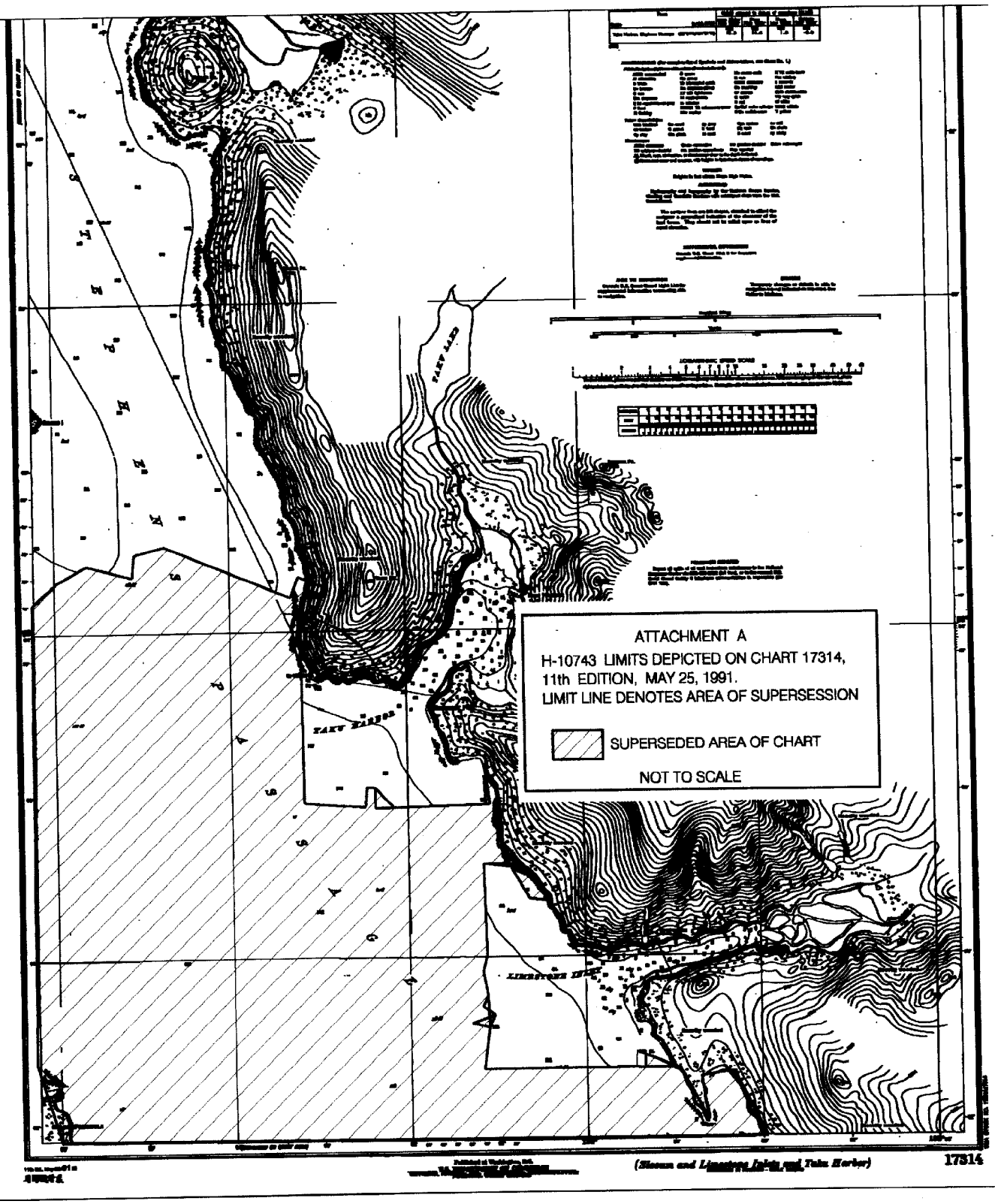
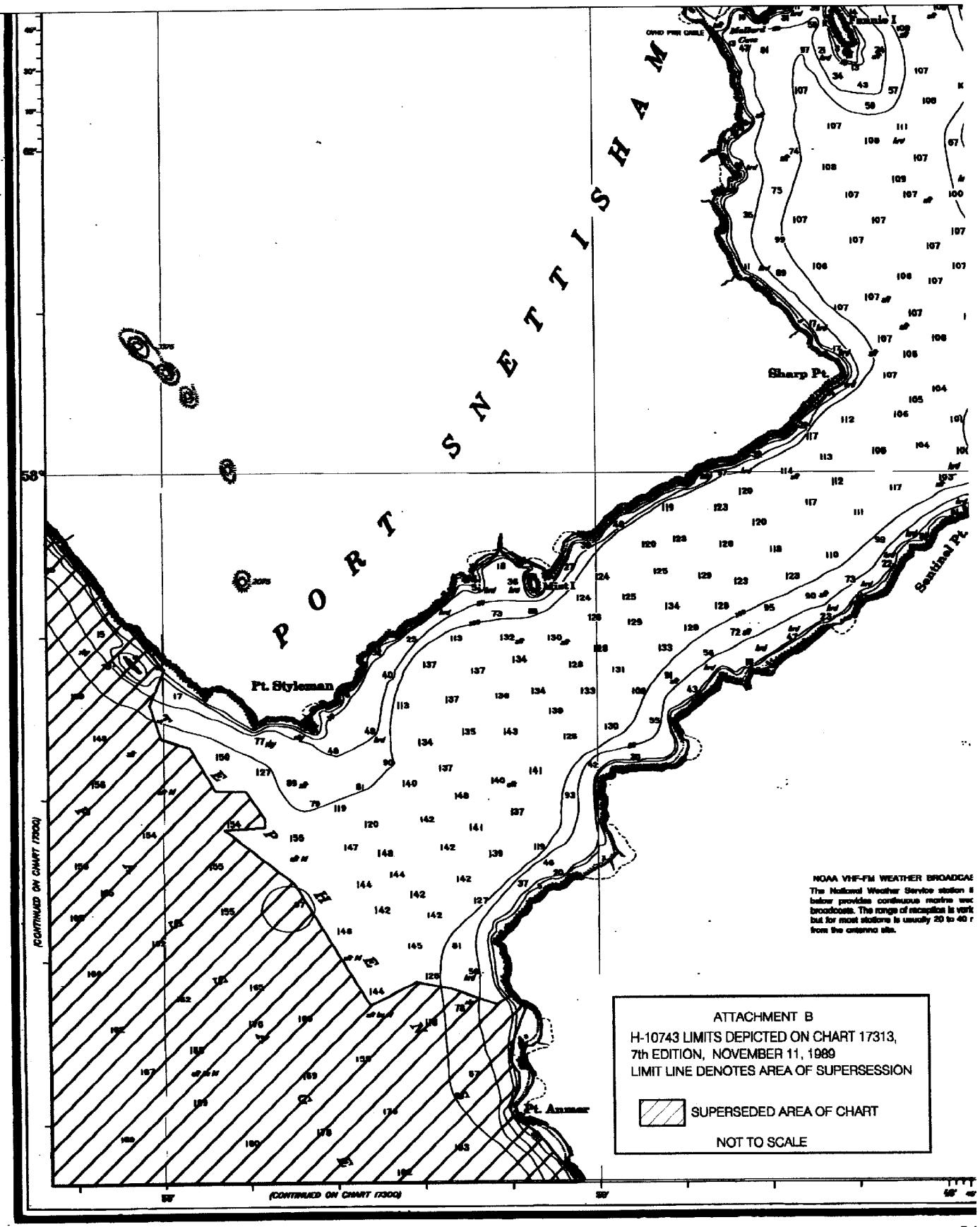
Final Approval

Approved:

Andrew A. Armstrong III Date: May 5, 1998
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division


ATTACHMENT A
H-10743 LIMITS DEPICTED ON CHART 17314,
11th EDITION, MAY 25, 1991.
LIMIT LINE DENOTES AREA OF SUPERSESSION
SUPERSEDED AREA OF CHART
NOT TO SCALE
17314



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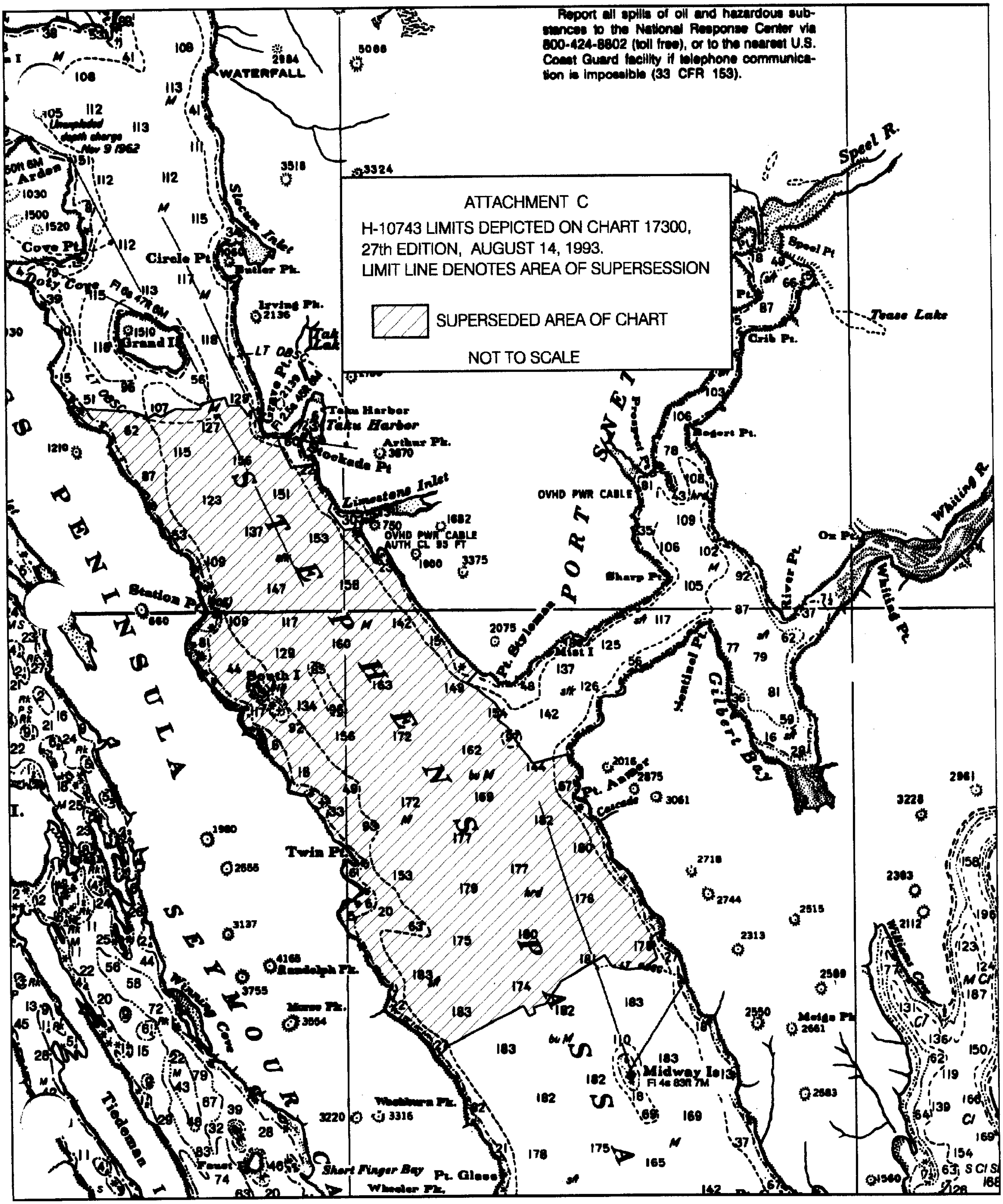
Report all spills of oil and hazardous substances to the National Response Center via 800-424-8802 (toll free), or to the nearest U.S. Coast Guard facility if telephone communication is impossible (33 CFR 153).
ATTACHMENT C
H-10743 LIMITS DEPICTED ON CHART 17300, 27th EDITION, AUGUST 14, 1993.
LIMIT LINE DENOTES AREA OF SUPERSESSION
SUPERSEDED AREA OF CHART
NOT TO SCALE
WATERFALL
Speel R.
Speel Pt
Tease Lake
Circle Pt.
Butler Pt.
Cove Pt.
Grand I.
Irving Pt.
Taku Harbor
Arthur Pt.
Limestone Inlet
OVHD PWR CABLE
Crib Pt.
Bogert Pt.
Sharp Pt.
Ox Pt.
Whiting R.
Whiting Pt.
River Pt.
Gilbert Bay
Station Pt.
South I.
Pt. Anmer
Twin Pt.
Randolph Pt.
Washburn Pt.
Midway Is.
Short Finger Bay
Pt. Glass
Wheeler Pt.
STEPHENS PASSAGE
PORT SNETTISHAM
SEYMOUR CANAL
Tiedeman I

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-10743

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
17313	2/2/98	Bob Mihaufer	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. Full application of soundings and features from smooth sheet.
17314	2/2/98	Bob Mihaufer	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. Full application of soundings and features from smooth sheet
17300	1/29/98	Bob Mihaufer	Full ~~Part Before~~ After Marine Center Approval Signed Via Full application of
			Drawing No. soundings and features from smooth sheet and thru
			charts 17313, 17314.
			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
			Drawing No.
			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
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.