

H10815

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-10-9-98
Registry No.	H-10815
LOCALITY	
State	Alaska
General Locality	Lynn Canal
Sublocality	Sullivan Island and Vicinity
1998	
CHIEF OF PARTY CAPT A.D. Anderson	
LIBRARY & ARCHIVES	
DATE	AUG 30 1999

HYDROGRAPHIC TITLE SHEET

H-10815

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

FIELD NO.

RA-10-9-98

State Alaska

General locality Lynn Canal

Locality Sullivan Island and Vicinity

Scale 1:10,000 Date of survey 5/21/98 - 6/22/98

Instructions dated March 5, 1998 * Project No. OPR-0340-RA

Vessel RA-2(2122), RA-3(2123), RA-4(2124), RA-5(2125), RA-6(2126)

Chief of party CAPT A.D. Anderson

Surveyed by CAPT A. Anderson, LT R. Fletcher, LCDR D. Kruth, RH K. Sampadian, ST J. Lazar, ST A. Lim, ST D. Pattison, ST W. Lin, ST M. Stecher

Soundings taken by echo sounder, ~~hand level~~, ~~pot~~ DSF-6000N, Knudsen 320M

Graphic record scaled by RAINIER PERSONNEL

Graphic record checked by RAINIER PERSONNEL

Evaluation by K. Sampadian Automated plot by HP1050C

Verification by M. Bigelow, D. Doles, R. Mayor, K. Sampadian

Soundings in fathoms ~~1/10~~ at ~~MLLW~~ 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.

SURF/AWCIS 7/29/99
MLR

*Change No.1 March 30, 1998

LYNN CANAL
POINT SIERMAN TO SEAGWAY

Numbered Progression
Sheet 1 of 9
Scale 1:50,000
Vertical Datum
MCCORDS OF ALASKA
AT SEA, LITTLE LAKES

PROGRESS SKETCH

OPR-0340-RA
Lynn Canal, Alaska
April - June 1998
Capt. A. D. Anderson, NOAA
Commanding
Chart 17317

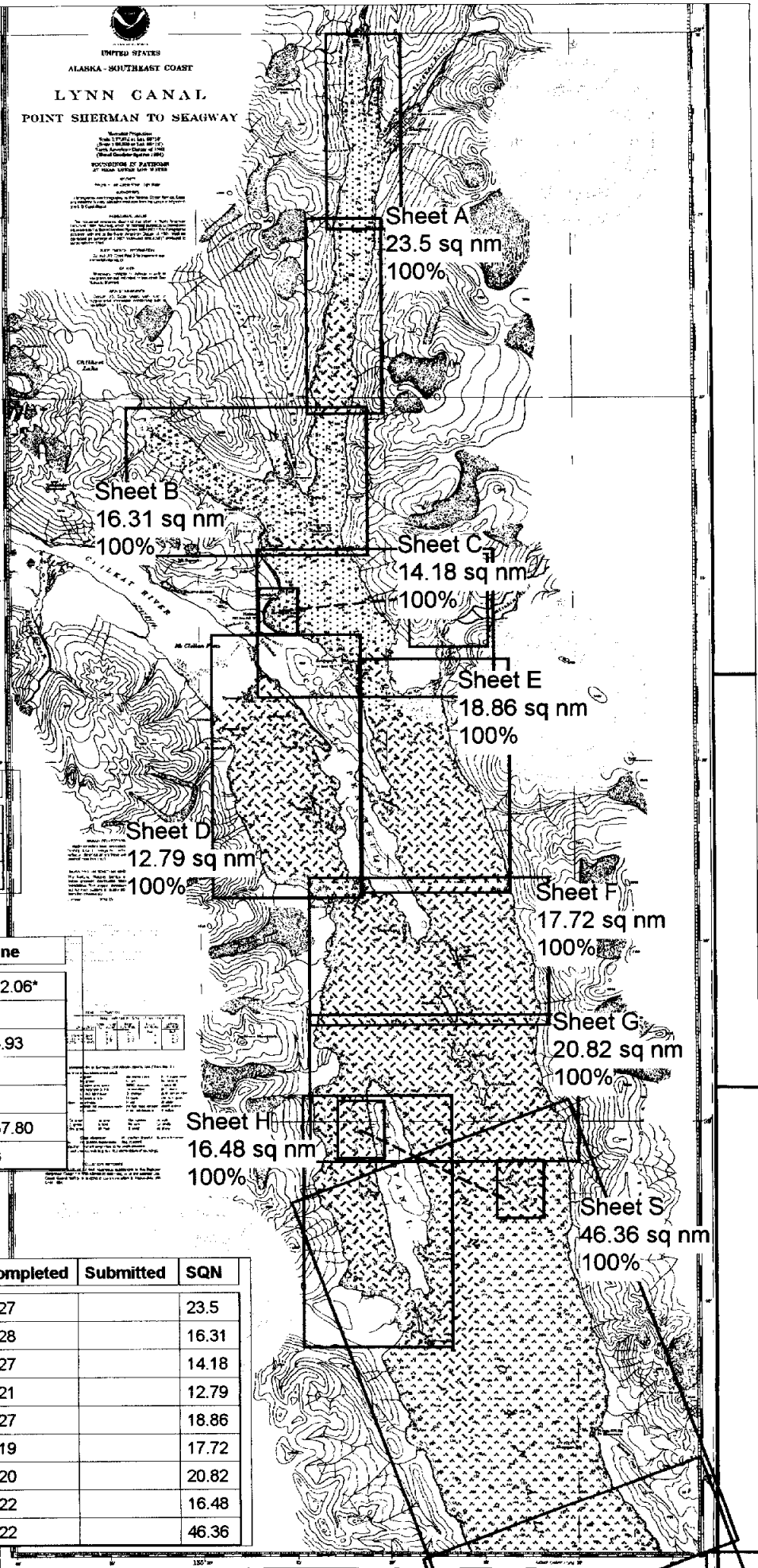


Downtime_Type	April	May	June
Weather - Hr	0	0	0
Mechanical -Hr	0	0	0
Electronic -Hr	1	0	0

Accomplished	April	May	June
LNM Hydro	745.57*	1787.8*	892.06*
LNM SSS	0	0	0
SQ NM	43.89	98.20	44.93
AWOIS Invest.	0	16	7
Other Invest.	0	2	0
LNM Multibeam	59.7	395.3	287.80
Days at Sea	15	25	13

* Does not include SWMB

Sheet	Reg No	Started	Percent	Completed	Submitted	SQN
A	H-10806	4/29	100	5/27		23.5
B	H-10736	4/22	100	5/28		16.31
C	H-10808	4/24	100	5/27		14.18
D	H-10811	5/11	100	6/21		12.79
E	H-10807	4/28	100	5/27		18.86
F	H-10810	5/6	100	6/19		17.72
G	H-10812	5/12	100	6/20		20.82
H	H-10815	5/21	100	6/22		16.48
S	H-10816	5/28	100	6/22		46.36



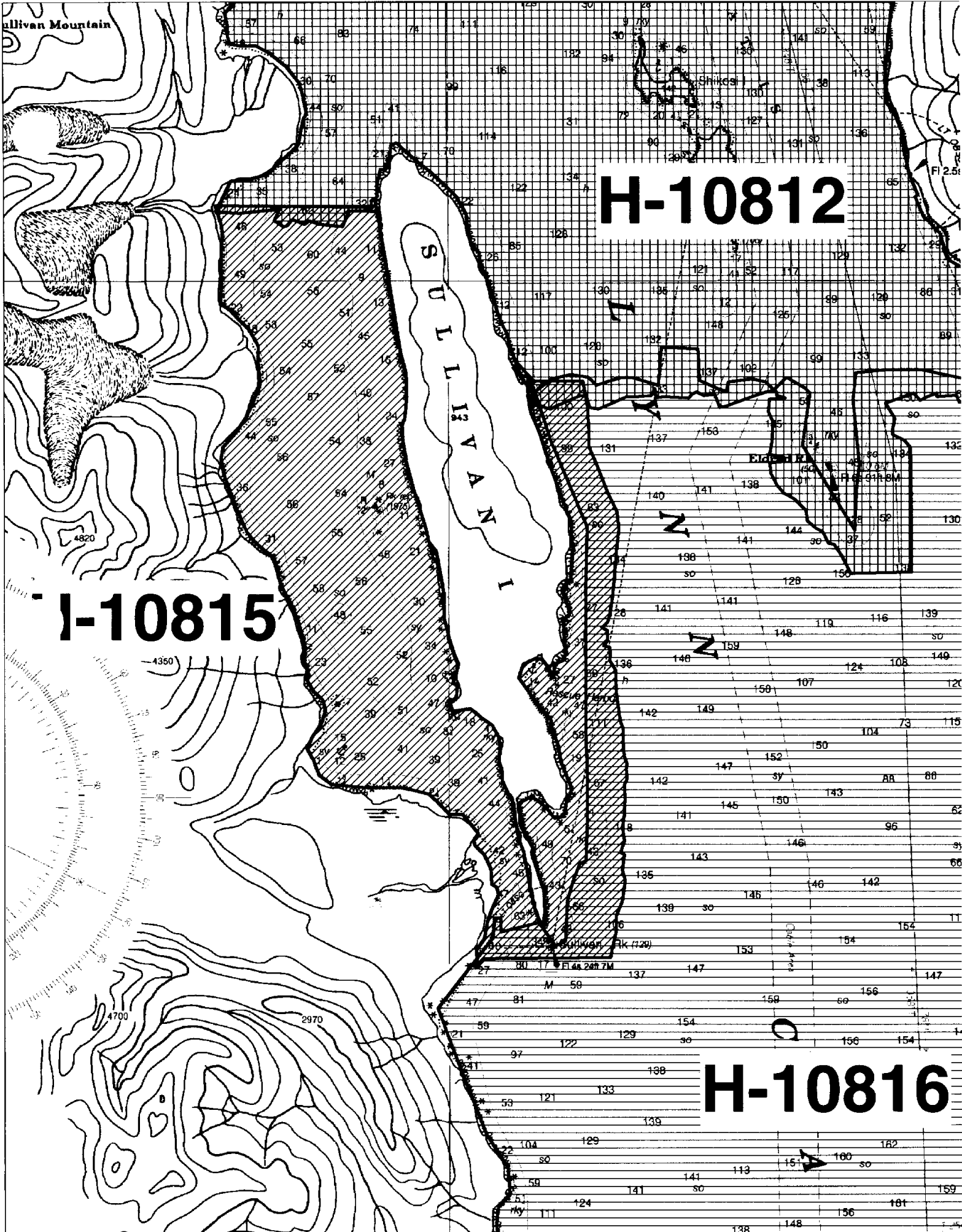
Sullivan Mountain

H-10812

SULLIVAN I

I-10815

H-10816



Descriptive Report to Accompany Hydrographic Survey H-10815

Field Number RA-10-09-98

Scale 1:10,000

NOAA Ship RAINIER

Chief of Party: Captain Alan D. Anderson, NOAA

A. PROJECT ✓

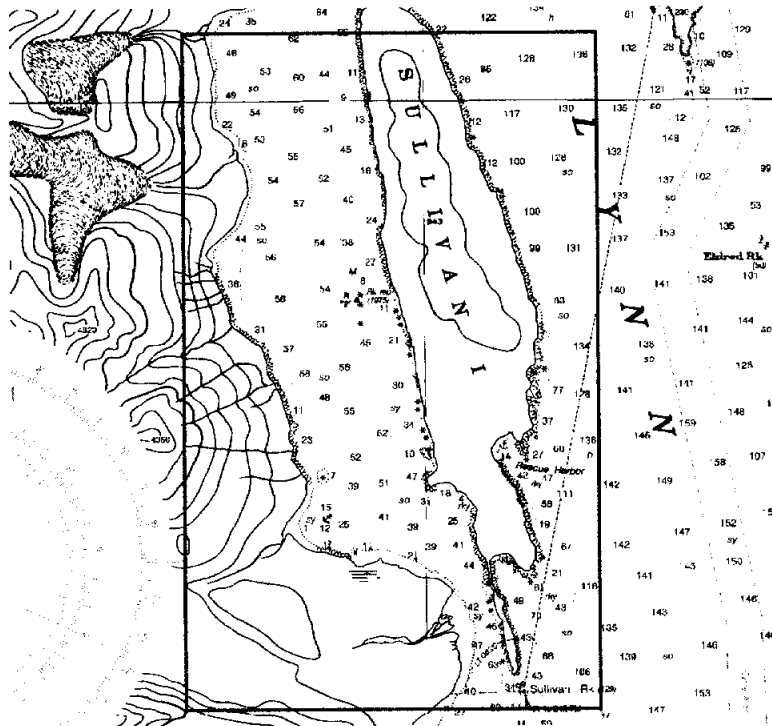
This basic hydrographic survey was completed in Lynn Canal, Alaska as specified by Project Instructions OPR-O340-RA-98 dated March 5, 1998 and change No.1 dated March 30, 1998. Survey H-10815 corresponds to **sheet H** as defined in the sheet layout and **sheet 08** as defined in the Hydrographic Processing System (HPS) program. 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 Southeastern Alaska Pilot's Association (SEAPA) and the commercial fishing industry.

Alaska State Ferry Vessels and large cruise ships routinely travel through the survey area. The deepest draft vessel observed in the survey area was a luxury cruise ship with a length of over 800 ft, an approximate draft of 35-40 ft, and a complement of over 2000 passengers. The vessel was sighted east of Sullivan Island.

B. AREA SURVEYED ✓ SEE EVAL. REPORT, SECTION B.

~~The survey area is the Vicinity of Sullivan Island.~~ ^{SULLIVAN ISLAND AND VICINITY} This area is characterized by steep sloping near-shore bathymetry. The narrow passage between the southern tip of Sullivan Island and the delta outflow to the west facilitates entry to a popular anchorage.

The survey's approximate northern limit is latitude $59^{\circ}00'41''$ N, the southern limit is $58^{\circ}53'42''$ N, the western limit is longitude $135^{\circ}24'05''$ W and the eastern limit is $135^{\circ}16'34''$ W. Data acquisition was conducted from May 21 to June 22, 1998 (DN 141 to 173).



C. SURVEY VESSELS ✓

Data were acquired by RAINIER's survey launches as described below and as noted in more detail in the Survey Information Summary appended to this report.

Note: Vessel number 2123 is configured to acquire either shallow water multi-beam or single-beam data. During this survey VN 2123 was used only for single-beam data acquisition. *CONCUR*

VN	DN	TYPE OF HYDROGRAPHY
2122	141	MS,XL
	142	MS
	167	S/L, SPLIT, DP
	168	SPLIT,DEV,DP
2123	146	XL,SPLIT
	148	MS,SPLIT
2124	145	MS,SPLIT
	171	SPLIT
2125	144	MS,XL
	148	SL,DP
	167	S/L, XL, BS
2126	142	MS,XL
	144	MS,SPLIT
	146	S/L, XL, DP, SPLIT
	148	S/L, DP
	168	SPLIT
	169	SPLIT
	170	DEV
173	SPLIT, DP	

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓ SEE EVAL. REPORT, SECTION D.

Single beam echosounder data were acquired using HYPACK version 7.1a from Coastal Oceanographics and processed using Hydrographic Processing Software (HPS). Raster images and shoreline data in MapInfo facilitated charted and prior survey comparisons. A complete listing of software for HYPACK and HPS is included in Appendix VI.

E. SONAR EQUIPMENT ✓

Side Scan Sonar (SSS) equipment was not used on this survey. *CONCUR*

F. SOUNDING EQUIPMENT ✓

The primary sounding instrument for this survey was the Raytheon DSF-6000N, which is a dual frequency (100 kHz, 24 kHz), digital recording fathometer with an analog paper trace. DSF-6000N soundings were acquired in meters using the High + Low, high frequency digitized setting, but in depths over 300 meters, low frequency was scanned in place of the high when the fathometer lost its high frequency trace. The Knudsen 320M is a dual frequency, thermal depth sounder using the same transducer frequencies. Discrepancies between the Knudsen and DSF-6000N were noted in considerably steep areas, especially along the east side of the survey. Serial numbers are included in ~~the Separates.~~

Appendix VI

RAINIER's IDSSS data acquisition system was not used on this survey. However, the IDSSS system was used on junctioning survey H-10816 and provided soundings in areas of overlapping coverage. The IDSSS system is referred to in this report and is consequently described for additional information.

The IDSSS data acquisition system (DAS) consists of a Digital Equipment Corporation's (DEC) VAX Station 4000-90 computer system interfaced with a Seabeam Instruments Inc, and was used in all the areas deeper than 150 meters, throughout survey H-10812 and H-10816. Hydrochart II sonar system, Datawell heave-roll-pitch sensor (HIPPY) is a multibeam sonar system that uses two transducer arrays (at 36 kHz) 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 VAX Station 4000-90 (DAS)
Sperry MK 227 Gyrocompass
ZETA 24" Plotter

DEC Server DSRVW-7C
TTi 8212 Tape Drive
DATAWELL Hippy
DEC monitor

The ship speed was reduced to provide full ensonification of the sea floor and provide a minimum of 4 pings per plotable unit area (PUA). A PUA of 50 meters was used during processing of the Hydrochart II data.

The DEC VAX Station 4000-90 computer was used to process the data and create corrected merge files and selected sounding files which were exported and combined with single-beam data in HPS and in MapInfo.

Explanatory Notes about Survey Depth Discrepancies in Steep and Deep Areas: ✓

Note 1: Discrepancies between the Knudsen and DSF-6000N echosounders were noted in deep areas with extremely steep slopes, where DSF-6000N soundings are usually shoaler than Knudsen soundings. Inherent differences between the two measurement systems such as beam width, frequency, power output, receiver sensitivity, bottom tracking functions, and timing latency are greatly exaggerated in such areas, and consequently, differing depths between the two systems can be expected. Due to the extremely steep slopes and deepness of the area, such differences are not significant to navigation and it is recommended that the shoaler of the soundings be charted. ~~CONCUR~~

Note 2: The automated bottom tracking function of either echosounder can begin following a relatively strong side lobe return and lose track of the weaker main beam return. Therefore, in steep areas, even when using a single echosounder system, lines run in the offshore direction can be shoaler than lines run in the in-shore direction. This is not significant to navigation as the difference is in the conservative direction and occurs in deep water and it is again recommended that the shoaler of the soundings be charted. ~~CONCUR~~

Note 3: It should be noted that RAINIER's Intermediate Depth Swath System (IDSSS) tended to compare well with the Knudsen in areas of overlapping coverage of the steep areas. ~~CONCUR~~
DEPTHS ON THE SMOOTHSHEET COLLECTED WITH THE DIFFERENT ECHO
SOUNDERS REFLECT RELATIVELY GOOD AGREEMENT.
G. CORRECTIONS TO ECHO SOUNDINGS ✓ SEE EVAL. REPORT, SECTION G.

The sound velocity casts were acquired with SBE SEACAT Profilers (S/N 219 and 2543), calibrated January 23, 1998 and January 10, 1998 respectfully. Velocity correctors were computed using the PC programs SEACAT and VELOCITY, version 3.3 (1997), in accordance with Field Procedures Manual (FPM) section 2.4.3. Printouts of the sound velocity profile, data, and correctors used in field processing are included in the "Separates to be Included with Survey Data, IV. Sounding Equipment Calibrations and Corrections". *

The following sound velocity casts were used for corrections to this survey: ✓

DN	HPS TABLE NO	POSITION	DEPTH (M)	APPLIED TO DAYS
139	5	59/00/15 N 135/16/43 W	311.3	139-143
144	14	59/00/17 N 135/16/46 W	286.3	144-147
148	6	58/56/24 N 135/14/39 W	363.7	148-165
166	8	58/48/24 N 135/09/36 W	374.1	166-169
170	15	58/52/55 N 135/12/12 W	330.2	170-173

Settlement and squat correctors for vessel 2122 were last measured on June 11, 1998 in Shakan Strait, AK.
Settlement and squat correctors for vessel 2123 were last measured on March 24, 1998 in Port Angeles, WA.
Settlement and squat correctors for vessel 2124 were last measured on June 11, 1998 in Shakan Strait, AK.
Settlement and squat correctors for vessel 2125 were last measured on June 21, 1998 in Litnikoff Cove, AK.
Settlement and squat correctors for vessel 2126 were last measured on June 10, 1998 in Shakan Strait, AK.

Settlement and squat, static draft, transducer offset, and GPS antenna offsets were entered into an offset table * for each vessel and applied to raw sounding data during post processing. Printouts of these tables are included with project data for OPR-O340-RA-98. Offset tables 1-6 correspond to the last digit of the vessel number. Static drafts and transducer offsets for vessels 2122, 2123, 2124, 2125, and 2126 were measured on March 26, 1998. CONCUR

Predicted Tidal correctors for this survey were generated by importing predicted tidal data for Juneau tide Station 945-2210 from commercial Tide and Current software into HPS. This survey area corresponds to Zone Station SEA2 of the Project Instructions and has a time corrector of 0 minutes and a range ratio corrector of 1.02 from the predicted reference station 945-2210.

Refer to the 1998 Final Field Tide Note and supporting data in Appendix V for individual tide gauge performance and level closure information. This information was forwarded on July 7, 1998 to N/OES2 along with a request for approved tides/water levels. ✓

APPROVED TIDE NOTE DATED FEBRUARY 16, 1999 IS ATTACHED.

H. CONTROL STATIONS ✓ SEE EVAL. REPORT, SECTION H.

The horizontal datum for this project is NAD 83. The control stations used for this survey are listed in Appendix III. *See the OPR-O340-RA-98 Horizontal Control Report for more information.

CONTROL STATION LIST IS ATTACHED.

I. HYDROGRAPHIC POSITION CONTROL ✓ SEE EVAL REPORT, SECTION I.

All soundings were positioned using differential GPS (DGPS). VHF differential reference stations at Taiya Point (TAI), Eldred Rock (ACE), and Chilkat Peninsula (LITNIKOF) were used as primary hydrographic control. The USCG beacon located at Gustavus, AK was also used when the VHF reference stations were unavailable.

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 while the launches were rafted together with their GPS antennae within 2-3 meters of each other. DGPS Performance Check Abstract is included in the "Separates to be Included with Survey Data, III. Horizontal Position Control and Corrections to Position Data". *

J. SHORELINE ✓ SEE EVAL REPORT, SECTION 5.

The shoreline manuscript from Coastal Mapping survey CM-8709 (NAD 83) was supplied by N/CS31 in the form of a raster image file in a .PCX format for import to MapInfo and HYPACK. The raster images of TP-01524 and TP-01525 were digitized in MapInfo at the Pacific Hydrographic Branch and then imported into HYPACK for use as the source shoreline. In addition, charted features that differed from the TP and CM shoreline were digitized in MapInfo for import to HYPACK for field verification. It should be noted, however, that a prior edition of chart 17317 was inadvertently used to digitize these charted features instead of the most recent edition (the 18th edition).

Limited shoreline verification was conducted in accordance with the Project Instructions and the FPM. For this survey the general limit of safe navigation of a survey launch is 5-150 meters offshore of apparent low tide, generally 2-15 meters of depth at Mean Lower Low Water.

Surveyed field features were compared to the shoreline manuscripts, as well as to an enlargement of chart 17317, 18th edition, 6/14/97. There was general agreement between the charted and TP shoreline and what the hydrographer found on this survey. Discrepancies between charted and field shoreline should be resolved in favor of the manuscript shoreline and field work as shown on the final field Detached Position and Bottom Sample plot. Features shown on the Shoreline Notes plot are the hydrographer's representation of the shoreline while slowly transiting along the shore, and are intended to aid chart compilation. *CONCUR*
DATA HAS BEEN ANALYZED DURING OFFICE PROCESSING AND SHOWN ON THE SMOOTH-SHEET AS WARRANTED.
The following is a list of all Detached Positions taken on new features. It also contains all Detached Positions taken to verify features depicted on the (T-sheet) shoreline manuscript.

Fix Number	Feature	Geographic Position of Detached Position	Corrected Depth (meters)
25296	Rock, New rng 2m brg 045M (0.3)m 25296	58-56-20.14 N ✓ 135-20-04.47W ✓	-1.10
25401	Rock, T-sheet disproval; part of ledge 25401	58-54-12.99 N ✓ 135-18-31.66W ✓	5.20
25402	Rock, T-sheet rng 3m brg 275M (0.3)m 25402	58-57-52.14 N ✓ 135-21-11.08W ✓	-0.70
25403	Rock, New rng 3m brg 140M 0.3m 25403	58-57-54.92 N ✓ 135-21-12.52W ✓	-0.10
25404	Rock, New rng 2m brg 180M 0.5m 25404	58-57-54.31 N ✓ 135-21-10.97W ✓	0.10
27143	Rock, T-sheet rng 3m brg 050M AWASH 27143	58-57-52.62 N ✓ 135-21-11.14W ✓	-0.70
27144	Rock, T-sheet rng 0m brg 150M 2.5m 27144	58-57-53.33 N ✓ 135-21-11.11W ✓	1.80
27145	Rock, T-sheet rng 0m brg 070M 2.0m 27145	58-57-53.02 N ✓ 135-21-11.75 W ✓	1.30
51784	Rock, T-sheet rng 3m brg 060M AWASH 51784	58-57-48.17 N ✓ 135-20-31.03W ✓	0.70
62205	Rock, T-sheet rng 1m brg 340M 0.1m 62205	58-55-01.40 N ✓ 135-17-58.28W ✓	-2.10
62257	Ledge, T-sheet rng 3m brg 325M (0.2)m 62257	58-55-12.91 N ✓ 135-18-33.23 W ✓	-3.30
62258	Ledge, T-sheet rng 2m brg 017M (0.2)m 62258	58-55-11.07 N ✓ 135-18-30.95 W ✓	-3.30
62259	Ledge, T-sheet rng 2m brg 210M (0.2)m 62259	58-55-13.87 N ✓ 135-18-31.60 W ✓	-3.40
62802	Ledge, T-sheet rng 0m brg 260M AWASH 62802	58-56-19.80 N ✓ 135-18-05.20W ✓	-5.30
62823	Ledge, T-sheet 2m brg 060M (0.3)m 62823	58-56-23.15 N ✓ 135-18-14.01W ✓	-5.60
62840	Ledge, T-sheet 2m brg 250M AWASH 62840	58-56-22.52 N ✓ 135-18-05.34 W ✓	-5.20
63496	Rock, New rng 3m brg 340M 0.3m 63496	58-55-08.47 N ✓ 135-18-25.34 W ✓	1.60
63510	Rock, T-sheet rng 0m brg 145M 0.4m 63510	58-55-00.75 N ✓ 135-17-56.53 W ✓	1.70
63511	Rock, T-sheet rng 5m brg 285M 0.1m 63511	58-54-59.86 N ✓ 135-17-55.81 W ✓	1.30
63617	Rock, T-sheet rng 1m brg 290M (1.0)m 63617	58-57-12.45 N ✓ 135-17-44.54 W ✓	-0.50
63631	Ledge, New rng 5m brg 230M (0.5)m 63631	58-57-29.98 N ✓ 135-17-43.00W ✓	-0.20
63633	Ledge, New rng 3m brg 250M (0.2)m 63633	58-57-31.58 N ✓ 135-17-44.22W ✓	0.00
65073	Rock, New rng 4m brg 205M (1.0)m 65073	58-56-11.31 N ✓ 135-22-09.80W ✓	-0.50
65074	Reef, New rng 12m brg 233M (4)m 65074	58-56-07.73 N ✓ 135-21-52.01W ✓	-3.60
65075	Reef, New rng 5m brg 195M (4)m 65075	58-56-09.29 N ✓ 135-21-55.31W ✓	-3.60
65076	Reef, New rng 2.5m brg 090M (4)m 65076	58-56-08.36 N ✓ 135-22-00.32W ✓	-3.70
65077	Reef, New rng 2.5m brg 345M (4)m 65077	58-56-05.52 N ✓ 135-21-57.11W ✓	-3.70
67962	Rock, New rng 3m brg 160M 0.3m 67962	58-57-55.27 N ✓ 135-21-12.82 W ✓	1.00
67964	Rock, New rng 4m brg 190M 0.5m 67964	58-57-54.64 N ✓ 135-21-11.86 W ✓	1.20
67966	Rock, T-sheet rng 5m brg 330M (0.5)m 67966	58-57-51.65 N ✓ 135-21-11.34 W ✓	0.10
67992	Ledge, T-sheet rng 4m brg 085M (2)m 67992	58-56-23.39 N ✓ 135-20-06.34 W ✓	-2.00
67993	Ledge, T-sheet rng 4m brg 150M (3)m 67993	58-56-25.34 N ✓ 135-20-03.94 W ✓	-3.10
67994	Rock, New rng 3m brg 075M (0.5)m 67994	58-56-20.21 N ✓ 135-20-04.60 W ✓	-0.70

SMOOTH SHEET

* (3)
 Ext. ledge; remove *
 Excessed for DAY BEACON
 Excessed for position
 67962
 * COV 1 ft
 } PART OF FOUL AREA
 O^o RK
 * (1)
 Ledge
 * (1) High pt. of ledge
 Ledge
 Ledge
 Ledge
 Ledge
 IRK
 IRK
 O^o RK
 * (1)
 } foul area
 * (0)
 } Reef (1)
 * COV 2 ft
 PART OF FOUL AREA
 * (1)
 } Ledge
 see position 25296

The following two rocks are not shown on the shoreline manuscript (T-sheet) but are depicted on the current edition of the chart. Detached Positions were not taken. Reference numbers refer to the position fix obtained nearest to the feature:

Reference Number	Feature	Charted Position	Investigation method and results	Charting * Recommendation
R-66746 (This is also AWOIS 52404) (See Section N., Item Investigations, for further details.)	Charted Rock	58-57-59 N ✓ 135-21-15 W ORIGINATES FROM CL 1932/75	Visual search at extreme low tide and 5-10 meter line spacing echosounder development. (Fix No.s 66426-67960) Results: Rock not found	Remove from the chart. ✓ CONCUR FOUL AREA FOUND 100 meters SOUTH OF CHARTED ROCK.
R-66774	Charted Rock	58-57-42 N ✓ 135-21-14 W ORIGINATES FROM H-4202WD (1921)	Visual search at extreme low tide and 5-10 meter line spacing echosounder development. (Fix No.s 66426-67960) Results: Rock not found.	Remove from the chart. ✓ CONCUR FOUL AREA FOUND 150 meters NORTH OF CHARTED ROCK.

* CHART THIS AREA BASED ON THE PRESENT SURVEY INFORMATION.

The following six rocks are not shown on the shoreline manuscript (T-sheet) but are depicted on the chart. These rocks are in shore of the NALL, as shown on the prior chart edition inadvertently used for field verification, and were consequently not verified with Detached Positions. However, these rocks are off-shore of the NALL as shown on the current edition (18th), and it is realized that Detached Positions would normally have been taken. Based on a review of the T-sheet shoreline manuscript, these six charted rocks appear to represent features shown further toward shore on the shoreline manuscript. It is strongly suspected that they are not new rocks, but rather charting depictions of manuscript rocks that have been pulled sea-ward due to cartographic license. Reference numbers refer to the position fix obtained nearest to the feature: CONCUR

Reference Number	Feature	Approximate Charted Position	
R-51788	Charted Rock	58-57-40 N	135-20-29 W ✓
R-51263	Charted Rock	58-57-21 N	135-20-18 W ✓
R-26439	Charted Rock	58-56-48 N	135-20-09 W ✓
R-25280	Charted Rock	58-56-35 N	135-20-04 W ✓
R-50467	Charted Rock	58-56-30 N	135-20-00 W ✓
R-25372	Charted Rock	58-54-43 N	135-18-48 W ✓

It is recommended that the charting depiction of these six rocks be moved further inshore to more closely agree with the shoreline manuscript. ✓ CONCUR

K. CROSSLINES ✓

Crosslines agreed very well with mainscheme hydrography. Depths generally agreed within one meter except in areas of steep bathymetry. (See Section F., Sounding Equipment, for details.) There were a total of 16.48 nautical miles of crosslines, comprising 18.3% of mainscheme hydrography.

L. JUNCTIONS ✓ SEE EVAL. REPORT, SECTION L.

Registry No.	Scale	Date	Junction side
H-10812	1:10,000	1998	North
H-10816	1:20,000	1998	South and East

Soundings on these 1998 surveys were found to be in good agreement, except at the northeast corner of this survey where discrepancies exist with H-10812. This is likely due to the difference in equipment used and how the DSF-6000N and the Knudsen track the bottom in areas of steep bathymetry. (See Section F., Sounding Equipment, for details.) Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after reduction to final vertical datum.

M. COMPARISON WITH PRIOR SURVEYS ✓ SEE EVAL. REPORT, SECTION M.

Registry No.	Scale	Date	Area Covered
H-02057	1:40000	1890-1905	Entire Survey
H-04202WD	1:40000	1921	Entire Survey
H-04202WD additional work	1:40000	1922	Entire Survey

H-02057:

Soundings from the current survey agree very well with soundings from prior survey H-02057. Exceptions are three soundings shown on prior survey H-02057 that are significantly shoaler than soundings from the current survey. (See Section O., Comparison with the Chart, for more details.) ✓ CONCUR

Shoreline from this survey agrees well with shoreline from prior survey H-02057. An exception is that H-02057 shows no indication of rocks located on the west side of Sullivan Island near daybeacon R "2". ✓ CONCUR

H-4202WD Additional Work:

Soundings from the current survey agree well with the depths shown on H-4202WD, which are understood to be wire drag cleared depths and not least depths. ✓ CONCUR

The current survey found rocks in the location of where the prior survey notes a reef. This area is currently marked by daybeacon R "2". ✓ CONCUR

Retain 3³/₄ fathom sounding (SEE SECTION O, COMPARISON WITH THE CHART FOR MORE DETAILS) and revise to chart as 3₄.

N. ITEM INVESTIGATIONS ✓

AWOIS No. 52404 ✓

Item Description: Obstruction, (Rock Awash)

Source: CL1932/75 -- USC&GS-LTR 8/5/75; NM50/75 12/13/75 (SEE SUPPLEMENTAL CORRESPONDENCE, APPENDIX VI)*

AWOIS Position: 58° 57' 58.54" N, 135° 21' 14.62" W

Required Investigation: Full

Chart Affected: 17317

Investigation

Date(s):	June 17, 1998 (DN 168)	Visual inspection
	June 19, 1998 (DN 170)	Echosounder Development
	June 22, 1998 (DN 173)	Visual inspection

Investigation Summary: A visual inspection during a period of extreme low (negative) tide and single-beam echo sounder development of 5-10 meter line spacing were used to locate the reported rock awash. The result of the investigation was that no rock was found at the charted or reported position. The average depth surrounding the reported position is 7 meters. It should be noted that a cluster of rocks is located approximately 115 meters to the southeast of the reported AWOIS position. These rocks are visible at extreme low tide and are currently marked by the Sullivan Island Daybeacon R "2". (The rocks in this rock cluster were positioned by this survey and are addressed in Section J., Shoreline.) It is the opinion of the hydrographer that AWOIS 52404 actually refers to the rock cluster, but with an imprecise reported position from 1975. ✓ CONCUR

Charting Recommendation

The hydrographer recommends removal of the charted rock (Rep, 1975) at 58° 57' 58.54" N and 135° 21' 14.62" W. ✓ CHART FOUL NOTE AND ROCKS FROM THE PRESENT SURVEY.

O. COMPARISON WITH THE CHART ✓ SEE EVAL. REPORT, SECTION O.

Chart 17300
27th Ed. August 1993
Scale: 1:209,978

Chart 17317
18th Ed. June 14, 1997
Scale: 1:77,812

Soundings from this survey agree very well with soundings shown on Chart 17317, generally to within one fathom. ✓ CONCUR

This survey shows that shoaling has occurred in the delta region located west of the southern tip of Sullivan Island. The chart shows 42 to 47 fathoms where the current survey found 0-30 fathoms. The following table lists additional differences between the chart and present survey. ✓

Approximate Chart Position	Chart 17317 (fathoms)	Survey H10815 (fathoms)	Source of charted soundings
59-00-18 N 135-21-22 W	11	22	H-02057 ✓
58-56-55 N 135-21-55 W	48	58 59	H-02057 ✓
58-55-51 N 135-20-00 W	3 3/4	11.6 - 26	H-04202WD ✓
58-54-14 N 135-17-42 W	66	90.5 91	H-02057 ✓

The charted 11 fathom sounding was adequately disproved by this survey and should be replaced with soundings from this survey. ✓ CONCUR

The charted 48 fathom sounding was adequately disproved by this survey and should be replaced with soundings from this survey. ✓ CONCUR

It was discovered during shipboard review (after the ship had left the survey area) that H-10815 did not adequately develop the charted 3 3/4 sounding for disproval. It was noted during a review of prior survey 4202WD (additional work) that there is a 22-foot value depicted on the wire drag survey precisely where the 3 3/4 fathom depth is currently charted. It was initially believed that the 22-foot value shown on 4202WD was a wire drag cleared depth. However, it was later confirmed that it is a lead line sounding from 4202WD (See Supplemental Correspondence, Appendix VI). Therefore, it is recommended that it be retained as charted. ✓

* ATTACHED

The charted 66 fathom sounding was adequately disproved by this survey and should be replaced with depths from this survey. It should be noted that junctioning survey H-10816 provided full bottom IDSSS coverage of this area, and that it also showed 90 fathom depths. ✓ CONCUR

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 found during this survey. CONCUR

P. ADEQUACY OF SURVEY ✓ SEE EVAL. REPORT, SECTION P.

Survey H-10815 is complete and adequate to supersede prior soundings and features in their common areas except as noted in Section O., Comparison with the Chart. ✓ CONCUR

Q. AIDS TO NAVIGATION ✓

The following two fixed navigational aids are within the survey area. They were located and a third-order position was obtained with GPS. The full reports are in Appendix II. *

Name	Light List No.	Charted Position	Survey Position	Difference (meters)
Sullivan Island Light	23870	58-53-52 N 135-18-10 W	58-53-52.89 N ✓ 135-18-09.02 W ✓	43
Sullivan Island Daybeacon "2"	23875	58-57-55 N 135-21-18 W	58-57-52.24 N ✓ 135-21-11.39 W ✓	145

Sullivan Island Light (LL98- 23870) adequately serves the apparent purpose for which it was established and is adequately charted. ✓

Sullivan Island Daybeacon "2" (LL98- 23875) adequately serves the apparent purpose for which it was established. The charted position appears to have been intentionally offset from its true position in order to keep the charted rock that it marks from being obscured. It is recommended that the charted position of the daybeacon "2" be changed to reflect the new accurately surveyed position. Both features are significant to navigation and should be charted. If depicting both features obscures one another it is recognized that one or the other must be offset. Based on RAINIER's usage of the daybeacon for anchor bearings, it is strongly recommended that the position of the charted rock be offset rather than the daybeacon. ✓

R. STATISTICS ✓

Refer to the Survey Information Summary attached to this report.

S. MISCELLANEOUS ✓

Twenty-one bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. No unusual tidal currents or magnetic variations were found during this survey.

T. RECOMMENDATIONS ✓ SEE EVAL. REPORT, SECTION T.

The hydrographer believes the survey area has been adequately ensonified with dual frequency echosounding equipment to warrant removing the wire drag tint from the chart. ✓ CONCUR

Numerous moderate-sized vessels, including RAINIER, frequently transited through the narrow passage west of the southern tip of Sullivan Island. The navigable pathway of this narrow passage is defined by shoaling to the west and charted rocks to the east. It is recommended that the charted sounding density in this area be increased to better define the bottom. Based on RAINIER's own experience transiting through this narrow passage, it is also strongly recommended that additional contours be charted. For example, a defined 10 and 30 fathom depth curve would greatly aid the mariner in choosing the safest course for the vessel. ✓ THE EVALUATOR RECOMMENDS THAT THE MARINE CHART DIVISION CONSIDER FOR FUTURE CHART PORTRAYAL

The anchorage marked by the charted anchorage symbol at Lat 58-55-41 N, Long 135-21-52 W was frequently used by RAINIER, as well as several smaller vessels. It is recommended that the anchorage symbol be retained and that nearby bottom characteristics be updated with samples obtained from this survey. ✓ CONCUR

It is recommended that the anchorage symbol charted at Lat 58-56-26 N, Long 135-18-30 W in Rescue Harbor be retained and that the bottom characteristic at the entrance of Rescue Harbor be updated with samples obtained from this survey. ✓ CONCUR

U. REFERRAL TO REPORTS ✓

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

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
OPR-O340-RA Horizontal Control Report Project related data for OPR-O340-RA-98	June 25, 1998 Incremental	N/CS34 N/CS34

Respectfully Submitted,



Kimberley Sampadian
Rotating Hydrographer, NOAA

Approved and Forwarded,



Alan D. Anderson
Captain, NOAA
Commanding Officer

List of Horizontal Control Stations ✓

NAME	STATE	TYPE	LATITUDE	LONGITUDE	SITEID	DEC_LAT	DEC_LON
ACE	AK	DGPS Flyaway	58 58.2659N	135 13.2729W	n/a	58.97109833	135.22121500
ANNETTE ISLAND	AK	USCG Beacon	55 04.1000N	131 36.0000W	889	55.06833333	131.60000000
GUSTAVUS	AK	USCG Beacon	58 25.1000N	135 41.8000W	892	58.41833333	135.69666667
LETNIKOF	AK	DGPS Flyaway	59 10.4206N	135 24.0383W	n/a	59.17367667	135.40063833
TAI	AK	DGPS Flyaway	59 17.2739N	135 24.1058W	n/a	59.28789833	135.40176333

Survey Information Summary

Project: OPR-0340-98 **Project Name:** LYNN CANAL

Instructions Dated: 3/5/98 **Project Change Info:**

Change #	Dated
1	3/30/98

Sheet Letter: H **Registry Number:** H-10815

Sheet Number: RA-10-09-98

Survey Title: Vicinity of Sullivan Island

Data Acquisition Dates: **From:** 21-May-98 141 **To:** 22-Jun-98 173

Vessel Usage Summary

VESNO	MS	SPLITS	DEV	XL	S/L	DP	BS	DIVE
2122	3	5	1	2	2	5		
2123	1	2		1				
2124	1	2						
2125	1			3	5	3	3	
2126	3	5	1	2	6	8		

Sound Velocity Cast Information

Launch Table #	Ship Table #	Cast DN	Max Depth	Position	Applicable DN
10	20	118	250.5	59/05/59	
				135/16/28	
11	20	125	287.8	59/06/42	
				135/16/19	
12	20	128	281.3	59/02/42	
				135/18/12	
13	20	132	277.5	59/02/30	
				135/17/48	
5	20	139	311.3	59/00/15	
				135/16/43	
14	20	144	286.3	59/00/17	
				135/16/46	
6	20	148	363.7	58/56/24	
				135/14/39	
8	20	166	374.1	58/48/24	
				135/09/36	
15	20	170	330.4	58/52/55	
				135/12/12	

Tide Zone Information

Zone #	Time Corr.	Height Corr.
SEA2	000 hr 00 min	X1.01

Tide Gage Information

Tide Gage #	Gage Name	Installed	Removed
945-2346	BERNERS BAY	4/20/98	6/22/98

Statistics Summary

Type	Total:
BS	21
DEV	26.37
DP	17
MS	203.5
S/L	24.15
SPLIT	224.27
XL	37.28

Percent XL:	18.3%
SQNM:	16.48

APPROVAL SHEET

for

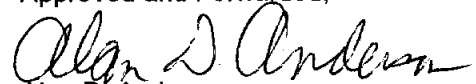
H-10815

RA-10-9-98

Standard field surveying and processing procedures were followed in producing this survey in accordance with the Hydrographic Manual, ^{Fifth Edition}~~Fourth~~; the Hydrographic Survey Guidelines; and the Field Procedures Manual, as updated for 1998.

The field sheet and accompanying records have been examined by me, 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: February 16, 1999

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-O340-RA

HYDROGRAPHIC SHEET: H-10815

LOCALITY: Vicinity of Sullivan Island, Alaska

TIME PERIOD: May 21 - June 22, 1998

TIDE STATION USED: 945-2400 Skagway, AK

Lat. 59° 27.0'N Lon. 135° 19.5'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.799 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: SEA2.

Refer to attachments for zoning information.

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

Thomas N. Mero 2/12/99

CHIEF, REQUIREMENTS AND ENGINEERING BRANCH



Final tide zone node point locations for OPR 0340-RA-98,
Sheet H-10815.

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 SEA2			
-135.44689 59.072625	945-2400	-6	0.99
-135.342726 58.841529			
-135.097316 58.8506			
-135.105993 59.11054			
-135.306731 59.082928			
-135.341223 59.121611			
-135.44689 59.072625			

GEOGRAPHIC NAMES

H-10815

Name on Survey	A	B	C	D	E	F	G	H	K
	ON CHART NO. 11517	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	RAND McNALLY ATLAS	U.S. LIGHT LIST	
ALASKA (title)	X		X						1
LYNN CANAL	X		X						2
RESCUE HARBOR	X		X						3
SULLIVAN ISLAND	X		X						4
SULLIVAN ROCK	X		X						5
									6
									7
									8
									9
									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25

Dennis J. Roseburg
 CHLT Roseburg
 DEC 31 1998

HYDROGRAPHIC SURVEY STATISTICS

H-10815

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): TP-01524, TP-01525					
PHOTOBATHYMETRIC MAPS (List): NA					
NOTES TO THE HYDROGRAPHER (List): NA					
SPECIAL REPORTS (List): NA					
NAUTICAL CHARTS (List): Chart 17317 18th Edition June 14, 1997					

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				
EDINGS 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				
COMPILATION OF SMOOTH SHEET	235.5		235.5	
COMPARISON WITH PRIOR SURVEYS AND CHARTS				
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		30	30	
GEOGRAPHIC NAMES				
OTHER (Chart Compilation)		123	123	
USE OTHER SIDE OF FORM FOR REMARKS				
	TOTALS	235.5	153	388.5
Pre-processing Examination by M. Bigelow	Beginning Date 9/2/98	Ending Date 10/22/98		
Verification of Field Data by M. Bigelow, D. Doles, R. Mayor, K. Sampadian	Time (Hours) 235.5	Ending Date 6/10/99		
ation Check by B. Olmstead	Time (Hours) 18	Ending Date 6/11/99		
Evaluation and Analysis by K. Sampadian	Time (Hours) 153	Ending Date 6/30/99		
Inspection by B. Olmstead	Time (Hours) 14	Ending Date 6/30/99		

EVALUATION REPORT

H-10815

A. PROJECT

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

B. AREA SURVEYED

The survey area is adequately described in the hydrographer's report.

The hydrographer has determined the inshore limits of safe navigation by defining a Navigable Area Limit Line (NALL) 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 specific limits of supersession accompanies this report as Attachment 1.

The bottom consists mainly of green mud. Depths range from -2 to 141 fathoms.

C. SURVEY VESSELS

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Field acquisition of survey data was accomplished using HYPACK. Survey data were processed using the Hydrographic Processing System (HPS) and MicroStation 95.

Processed digital data for this survey exists in the standard HPS format, a database format using the .dbf extension. In addition, the smooth sheet drawing is filed in the MicroStation format, i.e., dgn extension. Copies of these files have been forwarded to the Hydrographic Surveys Division and a backup copy retained at PHB. 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 (MTM) projection and are depicted on a single 1:10,000 scale sheet.

E. SONAR EQUIPMENT

Side scan sonar was not used during survey H-10815.

F. SOUNDING EQUIPMENT

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

G. CORRECTIONS TO SOUNDINGS

Soundings and elevations below Mean High Water (MHW) 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 Skagway, AK., tide gauge 945-2400. Refer to the approved tide note attached to this report concerning recommended tidal zoning.

H. CONTROL STATIONS

Section H of the hydrographer's report contains adequate discussion of horizontal control.

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:	-1.165 seconds	(-36.038 meters)
Longitude:	6.617 seconds	(105.748 meters)

I. HYDROGRAPHIC POSITION CONTROL

Section I of the hydrographer's report contains adequate discussion of hydrographic positioning.

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 4.0 was used for survey operations per the project instructions. The quality of some positions exceeds limits in terms of 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.

DGPS performance checks were conducted in the field and found adequate.

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

Additional information concerning specific control system type, 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 TP-01524 and TP-01525, scale 1:20,000, originate from CM-8709 and were compiled on NAD83 to apply to this survey. Shoreline drawn on the smooth sheet in black originates from the above digital data as provided by the Coastal Mapping Program. The shoreline data and the hydrographic data were merged in MicroStation during the compilation of the smooth sheet.

The shoreline map and the results of the fieldwork as portrayed on the smooth sheet should supersede charted shoreline.

There were no MHW revisions on this survey.

K. CROSSLINES

Crosslines are adequately discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10815 junctions with the following surveys:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10812	1998	1:10,000	North
H-10816	1998	1:20,000	South and East

The junctions with surveys H-10812 and H-10816 are complete. The junctional differences mentioned in the hydrographer's report with H-10812 are directly attributed to data collection over steep slopes. This data was further analyzed during office processing and found to contain no significant problems. However, a few soundings from H-10812 have been transferred in color within the common area to better delineate the bottom configuration. A "Joins" note has been added to the smooth sheet.

Additional information regarding the performance of sounding equipment in areas of steep bathymetry is found in the hydrographer's report, section F.

M. COMPARISON WITH PRIOR SURVEYS

<u>Survey</u>	<u>Year</u>	<u>Scale</u>
H-2057	1890	1:40,000

The above prior survey covers the entire area of the present survey. The present survey was compared to a digital copy of this prior survey. The registration of H-2057 to the present survey and the legibility of the digital copy were good. Differences in depths generally range from 1 to 2 fathoms with the present survey. A comparison of standard depth curves with the prior survey reveals little change in configuration except where present hydrography defined new and or existing shoal areas. The most prominent area of shoaling which has occurred since 1890-1905 is situated approximately 0.5 nautical miles northwest of Sullivan Rock from latitude 58/54/08 N to 58/54/49 N, from longitude 135/18/55 W to 135/19/11 W. Along here, shoaling from 5 to 40 fathoms has taken place over the past 108 years. Deposition of material from an unnamed river has created a delta across the river mouth that extends several hundred meters from south to north and rises up rapidly from 10 to 0 fathoms over a 55-meter distance.

Other than the area discussed above and a better delineation of shoal areas, there appears to be no consistent pattern of shoaling or an increase in depths since the prior survey. Differences between the prior survey and the present survey may be attributed to greater sounding coverage, improved positioning and sounding methods, and relative accuracy of the data acquisition techniques.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>
H-4202WD	1921	1:40,000
H-4202WD Add. Wk.	1922	1:40,000

The wire-drag surveys listed above cover the entire area of the present survey. An attempt was made to compare H-4202WD (digital and analog copy) to the present survey. The registration of the digital copy was good but the legibility was poor. H-4202WD Add. Wk. was compared to the present survey using a digital copy. Registration and legibility of the digital copy were good.

The few charted soundings originating from these prior surveys were in good agreement with the present survey and have been adequately addressed except as follows:
The charted 3 ¾ sounding located at 58/55/50 N 135/19/59 W originates from H-4202WD Add. Wk. and was not adequately investigated. Additional discussion is found in the hydrographer's report, section O. This prior sounding has been brought forward in green to the smooth sheet.

Remaining areas of the prior drag work reflects wire drag sweeps set to specific depths with no associated sounding information and have been adequately addressed by the present survey. Except as noted above, the present survey is adequate to supersede the prior wire-drag surveys.

Additional information regarding comparison of prior surveys is found in the hydrographer's report, sections M and O.

N. ITEM INVESTIGATIONS

AWOIS item 52404 was investigated during this survey and is adequately addressed in section N of the hydrographer's report.

O. COMPARISON WITH CHART

Survey H-10815 was compared with the following chart:

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>
17317	18th	June 14, 1997	1:77,812

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 except as noted below.

A presently charted 3 ¾ fathom sounding originating from prior wire drag survey H-4202WD Add. Wk. was retained and depicted in green on the chart drawing. This sounding has been revised to fathoms and feet (3₄) to conform to new chart units.

The application of this survey to charts of a scale less than 1:40,000 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 greater than 1:40,000 may be accomplished without generalization of features. Features from H-10815 have been generalized on chart 17317 along the shoreline were applicable.

With the exception noted above, survey H-10815 is adequate to supersede charted hydrography within the common area.

b. Dangers To Navigation

No danger(s) to navigation were discovered during survey operations and/or during office processing.

P. ADEQUACY OF SURVEY

The hydrography contained on survey H-10815 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 1998 Edition except as follows:

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-10815 was completed on June 22, 1998 but not received for office processing until September 2, 1998.

Q. AIDS TO NAVIGATION

The following two fixed aids to navigation exist within the survey area. They were located and adequately mark the features intended. For specific information, see the hydrographer's report section Q and Descriptive Report inserts (attached).

There are no charted landmarks within the survey area. There were no features of landmark value found during this survey.

R. STATISTICS

Statistics are adequately itemized in the hydrographer's report.

S. MISCELLANEOUS

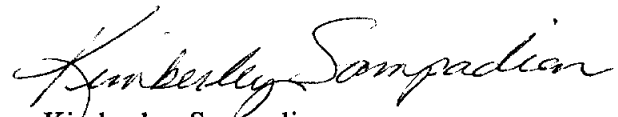
Miscellaneous information is adequately discussed in the hydrographer's report. No additional miscellaneous items were noted during office processing.

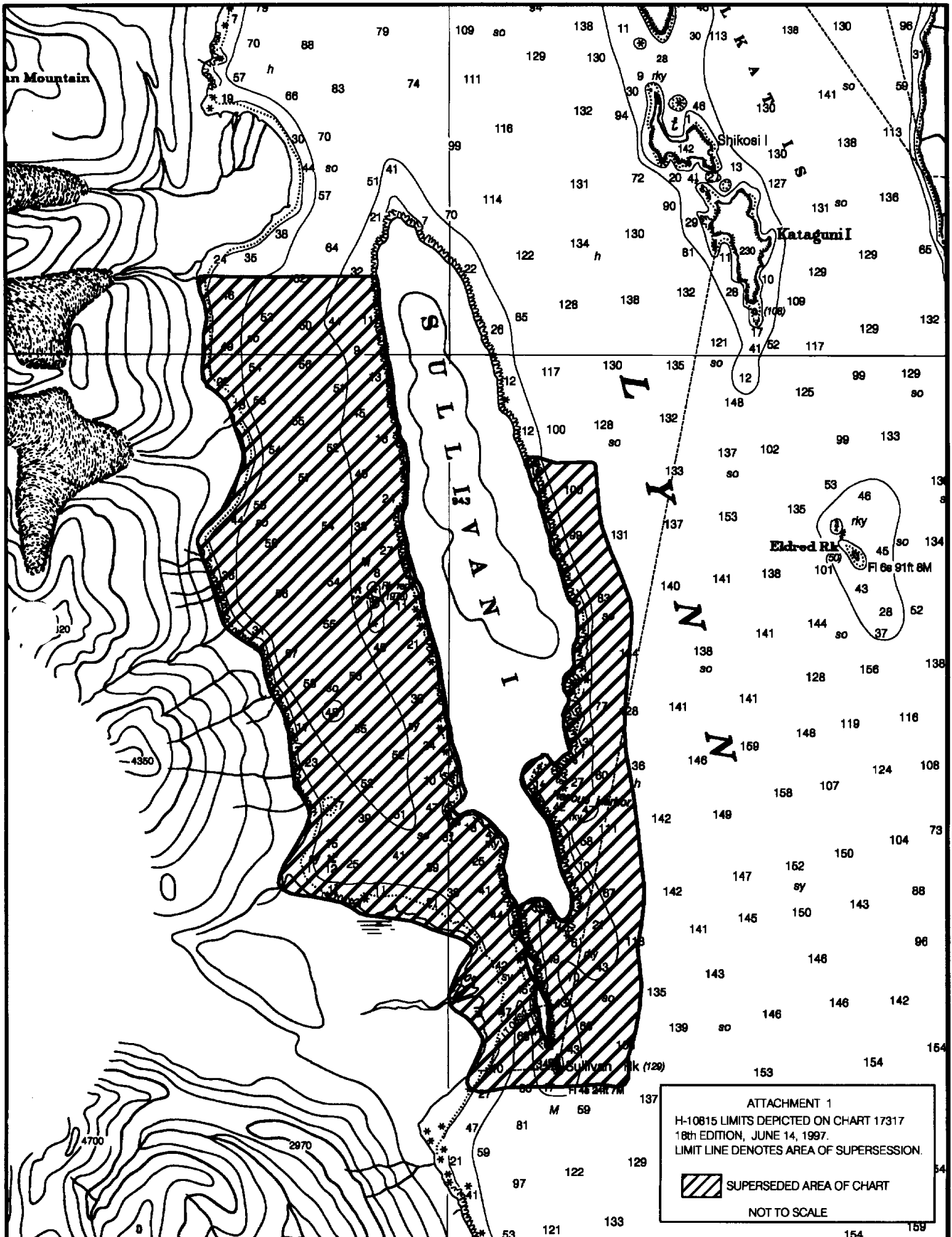
T. RECOMMENDATIONS

Survey H-10815 is a good hydrographic survey. However, additional fieldwork is recommended on a low priority basis to investigate the retained prior wire-drag sounding mentioned in sections M and O of this report.


U. REFERRAL TO REPORTS

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


Kimberley Sampadian
Physical Scientist



ATTACHMENT 1
 H-10815 LIMITS DEPICTED ON CHART 17317
 18th EDITION, JUNE 14, 1997.
 LIMIT LINE DENOTES AREA OF SUPERSESSON.

 SUPERSEDED AREA OF CHART

NOT TO SCALE

APPROVAL SHEET
H-10815

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: 6/30/99
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.

James C. Gardner Date: 7-12-99
James C. Gardner
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Samuel De Bow Date: August 30, 1999
Samuel De Bow
Cdr, NOAA
Chief, Hydrographic Surveys Division

