H10736

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-10-2-98

Registry No. H-10736

LOCALITY

State Alaska

General Locality Lynn Canal

Sublocality Southern Portion Taiya Inlet and Lutak Inlet

1998-99

CHIEF OF PARTY
CAPT Alan D. Anderson, NOAA

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NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-10736

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-10-2-98

State: Alaska

General locality: Lynn Canal

Locality: Southern Portion Taiya Inlet and Lutak Inlet

Scale: 1:10,000 Date of survey: 4/16/99 (Additional) 4/22/98 - 5/28/98

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

Vessel: NOAA Ship RAINIER(2120) and RAINIER Launches (2122),(2123),(2124),(2125),(2126)

Chief of party: CAPT Alan D. Anderson, NOAA

Surveyed by: CAPT A.Anderson,LT R.Fletcher,LCDR T.Niichel,LCDR D.Kruth,LT D.Baird, LTJG R. Sipos,RH M.Lathrop,ST J.Lazar,ST D.Pattison,ST W.Lin, ST M.Stecher

Soundings taken by echo sounder, ~~hand lead, pole~~ DSF-6000N,Knudsen 320M,IDSSS MB, RESON 8101 MB.

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Evaluation by: ~~Protracted by~~ R. Davies Automated plot by: HO 650C Plotter

Verification by: R. Davies

Soundings in fathoms ~~feet~~ at ~~MLW~~ MLLW (data collected in Meters)

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

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

AWOIS/SURF 11/16/99 MCR

* Change No. 1, dated 3/30/98

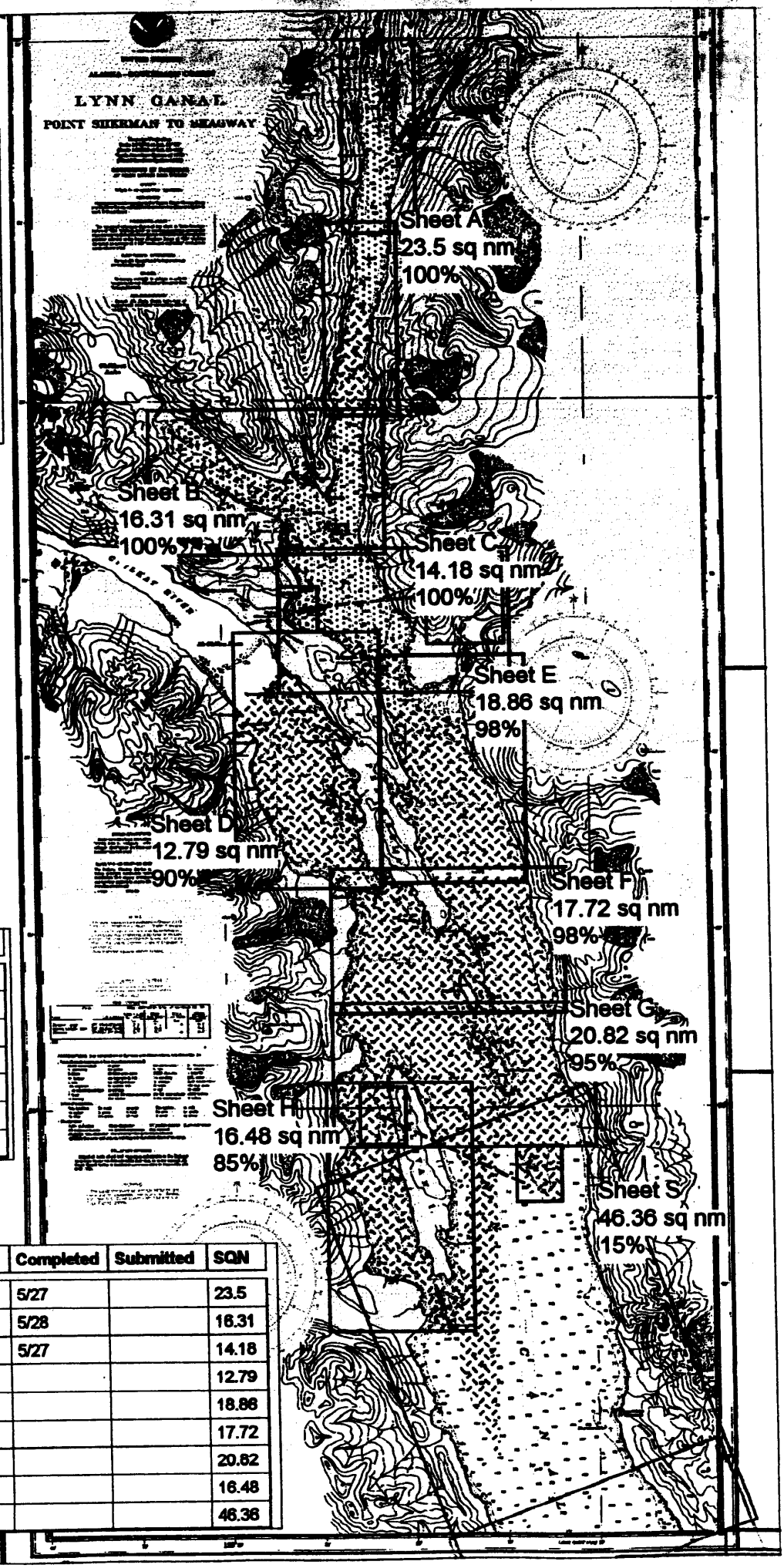
NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

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

PROGRESS SKETCH

OPR-O340-RA
Lynn Canal, Alaska
April - May 1998
Capt. A. D. Anderson, NOAA
Commanding

Chart 17317

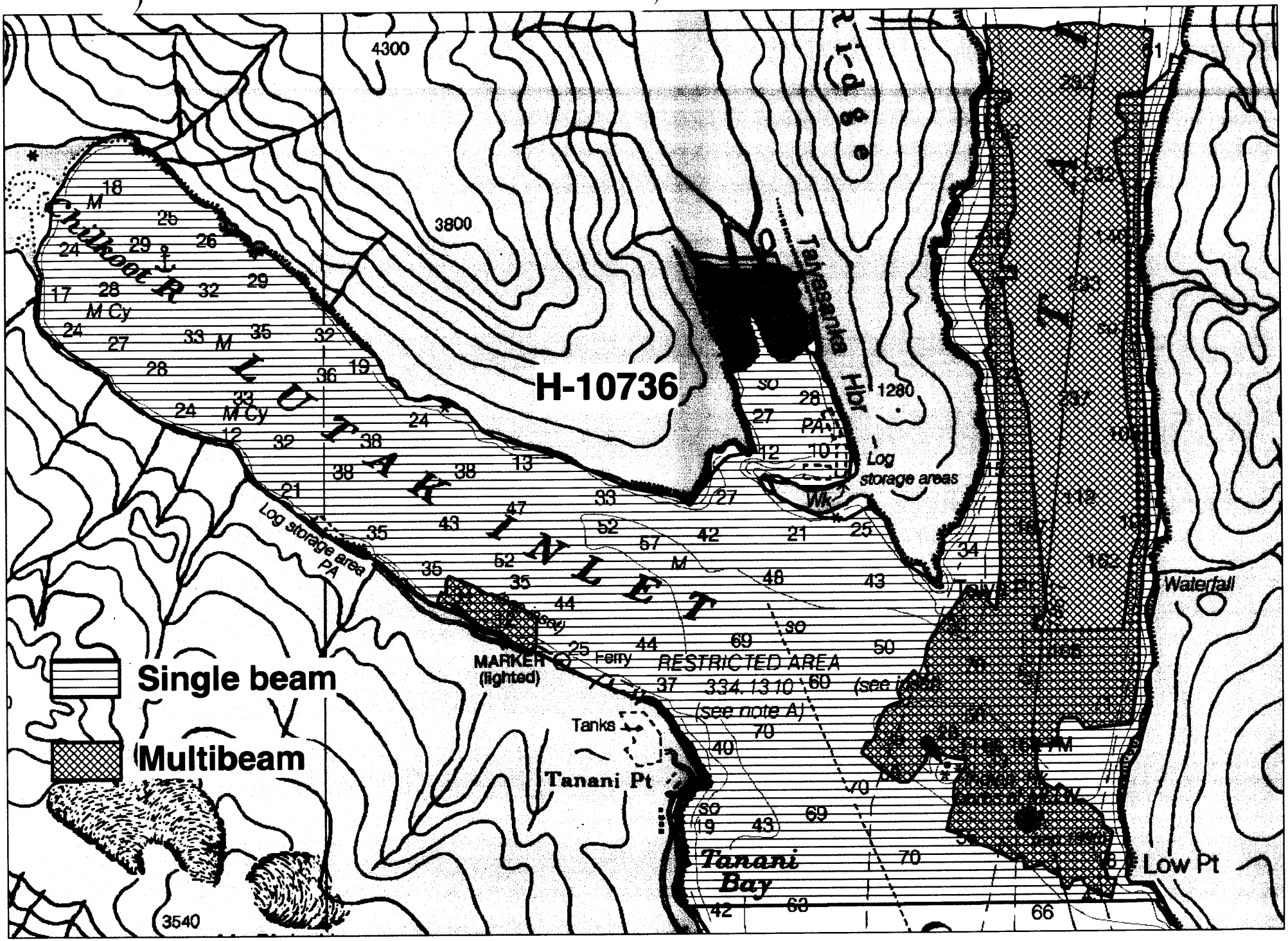


Downtime_Type	April	May
Weather - Hr	0	0
Mechanical -Hr	0	0
Electronic -Hr	1	0

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

* 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	90			12.79
E	H-10807	4/28	98			18.86
F	H-10810	5/6	98			17.72
G	H-10812	5/12	95			20.82
H	H-10815	5/21	85			16.48
S	H-10816	5/28	15			46.36


H-10736
Single beam
Multibeam
LUTAK INLET
Chilkoot R
Tanani Pt
Tanani Bay
Low Pt
Waterfall
Log storage areas
Log storage area
MARKER G
(lighted)
Ferry
RESTRICTED AREA
334.1310
(see note A)
Tanks
4300
3800
3540
1280

Descriptive Report to Accompany Hydrographic Survey H-10736

Field Number RA-10-2-98
Scale 1:10,000
April-May 1998
NOAA Ship RAINIER
Chief of Party: Captain Alan D. Anderson, NOAA

A. PROJECT ✓

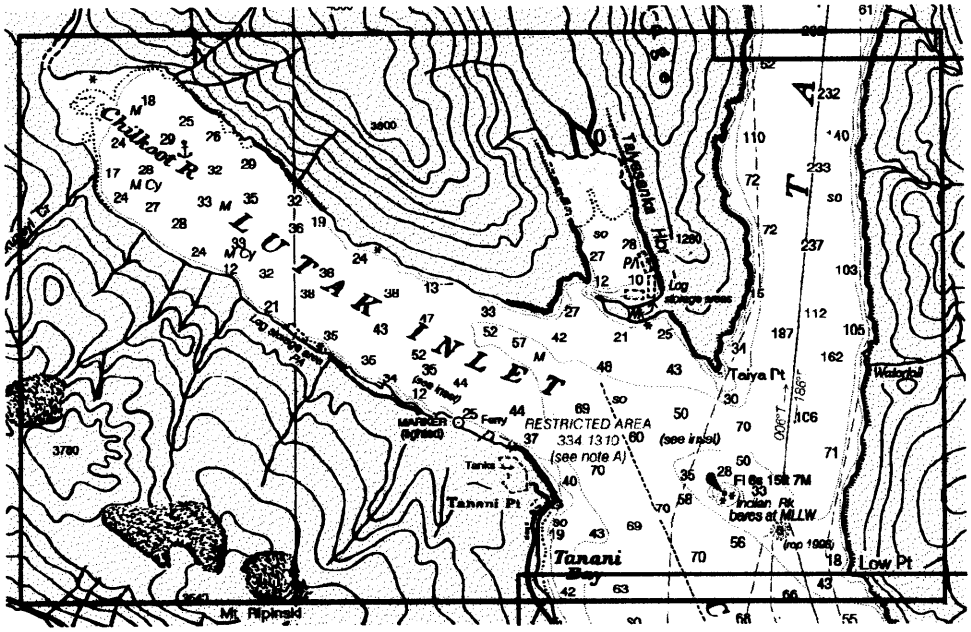
This basic hydrographic survey was completed in Lynn Canal as specified by Project Instructions OPR-0340-RA dated March 5, 1998 and Change No. 1 dated March 30, 1998. Survey **H-10736** corresponds to **Sheet B** as defined in the sheet layout. This survey will provide data to supersede surveys performed in 1890, 1905, 1922 and 1943. Requests for hydrographic surveys and updated charts in this area have been received from the Defense Mapping Agency, the U.S. Coast Guard, the Southeastern Alaska Pilot's Association, cruise ship lines, and local fishermen.

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 off of ~~Taiya~~ Aiya Point.

B. AREA SURVEYED ✓ See Eval Rpt., Section B.

and the Southern portion of

The survey area includes Lutak Inlet, Taiya Inlet ~~and~~ IN Lynn Canal. The survey's northern limit is latitude 59° ~~59' 13~~ 20 00" N. The survey's southern limit is 59° ~~17' 40.4~~ 15 44" N, the western limit is 135° ~~27' 24.3~~ 32 42" W and the eastern limit is 135° 22' 08" W. Data acquisition was conducted from April 22 (DN 112) to May 28, 1998 (DN 130).



C. SURVEY VESSELS ✓

Data were acquired by RAINIER and her survey launches as noted in the Survey Information Summary printout appended to this report. No Survey Information Summary could be found with this report.

This project included the use of a new vessel configuration. Launches 2121 and 2123 were configured during the 1997-1998 winter inport period with Reson SeaBat 8101 Shallow Water Multibeam (SWMB) systems. The Reson SeaBat 8101 SWMB system is described in Section F., Sounding Equipment. The center of the launch keels were cut and modified to house the SWMB transducers. The originally installed DSF-6000N single beam transducers remained installed as before.

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

Single beam echosounder data were acquired using Hypack version 7.9 from Coastal Oceanographics and processed using Hydrographic Processing System (HPS). Swath data collected by the RAINIER were acquired and processed using Intermediate Depth Swath Survey System (IDSSS) and Hydrochart II (Seabeam Inc.) programs. Shallow water multibeam (SWMB) echosounder data were acquired using the Reson SeaBat 8101 with ISIS version 3.21 and processed using CARIS software. Raster image and shoreline data in MapInfo facilitated charted and prior survey comparisons. Final Detached Positions and soundings based on predicted tides were saved in MapInfo 4.5 format. 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 However, it should be noted that the Reson Seabat 8101 SWMB system provides a low-resolution digital SSS record of the SWMB swath. This SSS imagery is primarily used to aid in final processing of the SWMB depth data but can also be used to provide imagery of features such as wrecks, rocks, and obstructions. Concur

F. SOUNDING EQUIPMENT ✓

Three different categories of echosounder systems were used and are described below. The individual system(s) chosen for use in a given area were decided at the discretion of the Hydrographer using the guidance stated in the Project Instructions and depended upon the limitations of each system, the bottom topography, the water-depth, and the ability of the platform vessel to safely navigate in the area.

1. Launch Singlebeam (VN 2122, 2124, 2125, 2126): ✓

The singlebeam sounding instruments for this survey were the Raytheon DSF-6000N and Knudsen 320M, which are dual frequency (100 kHz, 24 kHz), digital recording singlebeam fathometers with analog paper traces. 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. Serial numbers are included in the Separates.* Singlebeam launches were used to collect mainscheme hydrography in areas that were considered too hazardous or too shallow for shipboard IDSSS coverage, generally areas less than 150 meters of depth. Concur In addition, singlebeam launches were used to perform all shoreline verification. Concur

2. Launch Shallow Water Multibeam (SWMB) (VN 2121, 2123): ✓

The Reson SeaBat 8101 is a multibeam echosounder system that measures relative water depths across a

* Filed with the hydrographic data

wide swath perpendicular to the vessel's path. The Reson SeaBat 8101 ensonifies the seafloor with a 150° swath consisting of 101 individual 1.5° x 1.5° beams. The system was designed to meet International Hydrographic Organization standards to measure the seafloor at a maximum range of 320 meters. The system's maximum depth range under actual field conditions has proven to be much less. RAINIER has discovered that maximum attainable depths are approximately 80-150 meters, depending on sea conditions and bottom topography. Serial numbers are included in the Separates. During the performance of this survey, the SWMB system was undergoing field testing and its data processing system was undergoing software improvements. Consequently, the use of the SWMB system was minimal and was restricted to collecting full-bottom coverage of the reported 6 fathom shoal near Indian Rock (AWOIS 52379) and for the investigation of the wreck found in Lutak Inlet at 59-17-00.5N , 135-28-07.5 W. Concur

3. Shipboard Intermediate Depth Multibeam (IDSSS) (VN 2120): ✓

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, for use in acquiring full-bottom coverage in navigable areas deeper than 150 meters. 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 Server DSRVW-7C
DEC VAX Station 4000-90 (DAS)	TTi 8212 Tape Drive
Sperry MK 227 Gyrocompass	DATAWELL Hippy
ZETA 24" Plotter	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 can be noted in deep areas with extremely steep slopes, with DSF-6000N soundings usually being 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 these areas, such differences are not significant to navigation and it is recommended that the shoaler of the soundings be charted. See Evac Report, section P. Concur with clarification

Note 2: The automated bottom tracking function of either singlebeam 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, exclusive echosounder system, lines run in the off-shore 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. See Evac Report, section P Concur with clarification

Note 3: It should be noted that throughout the 1998 Field Season, Rainier's Intermediate Depth Swath System (IDSSS) tended to compare well with the Knudsen in steep areas of overlapping coverage. It was

also observed that the launch SWMB systems tended to compare well with the Knudsen in steep areas of overlapping coverage. All echosounding systems compared extremely well in flat areas and in areas with moderate slope. Concur

G. CORRECTIONS TO ECHO SOUNDINGS ✓

Sound Velocity Correctors: ✓

Four sound velocity casts were acquired within the survey limits as shown in the appended Survey Information Summary report. The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 219), calibrated January 26, 1998. Velocity correctors were computed using the PC programs SEACAT and VELOCITY, version 3.3 (1997), in accordance with Field Procedures Manual (FPM) section 2.1.2. 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 velocity casts supplied correctors for singlebeam and IDSSS multibeam data for this survey:

Cast Number	DN	Latitude	Longitude	Table Depth (m)	HPS Table	Applied to Days
1	112	59-17-~~98~~ 58 N	135-22-43 W	546.0	1	112-116
9	117	59-18-36 N	135-22-42 W	551.5	9	117-123
2	124	59-24-45 N	135-21-12 W	474.8	2	124-146
7	147	59-18-06 N	135-22-42 W	541.9	7	147-148

The following velocity casts supplied correctors for SWMB data for this survey:

Vessel Number	DN	Time (UTC)	Latitude	Longitude	Table Depth (m)
2121	112	1801	59-18-05 N	135-22-46 W	328.1
2123	127	2248	59-16-30 N	135-22-00 W	72.3
2123	130	1809	56-16-45 N	135-25-00 W	88.1

Vessel Offset Correctors: ✓

Settlement and squat correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2, using FPM Fig. 2.4, and are included with project data for OPR-O340-RA-98. 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. The offset tables are included with project data for OPR-O340-RA-98.

Static draft and transducer offsets for launches 2121, 2122, 2123, 2124, 2125 and 2126 were measured on March 26, 1998. RAINIER'S static transducer depth was determined during dry-dock in April 1998 using the form in Field Procedures Manual (FPM) Fig. 2.3. Offset table #7 was used for the RAINIER.

Settlement and squat values for launch 2121 were last measured on March 24, 1998 at Port Angeles, WA.
Settlement and squat values for launch 2122 were last measured on June 11, 1998 at Shakan Strait, AK.
Settlement and squat values for launch 2123 were last measured on March 24, 1998 at Port Angeles, WA.
Settlement and squat values for launch 2124 were last measured on June 11, 1998 at Shakan Strait, AK.
Settlement and squat values for launch 2125 were last measured on March 23, 1997 at Letnikof Cove, AK.
Settlement and squat values for launch 2126 were last measured on June 21, 1998 at Shakan Strait, AK.
Settlement and squat values for the RAINIER were last measured on September 21, 1997 at Kings Bay, AK.

* Filed with the hydrographic data.

Predicted Tidal Correctors: ✓

The Coastal and Estuarine Oceanography Branch (N/OES334) through N/CS31 provided predicted tides for the project on diskette for the Juneau, Alaska reference station (945-2210). HPS listings of the data used in generating tidal correctors are included in Appendix V* of this report. This survey area corresponds to the following zones as specified in the Project Instructions:

Zone	Time Corrector (minutes)	Range Ratio	Predicted Reference Station
SEA1D	0	1.02	945-2210
SEA1	0	1.03	945-2210
SEA1G	0	1.02	945-2210
SEA1F	0	1.02	945-2210

Real Tidal Correctors: ✓

Juneau, Alaska (945-2210) and Skagway, Alaska (945-2400) are the primary control stations for datum determination at all subordinate stations. RAINIER personnel installed Sutron 8200 tide gauges at Taiyasanka (945-2434) on April 21, 1998, and Berners Bay (945-2346) on April 20, 1998. The Taiyasanka gauge was removed on May 28, 1998 and the Berners Bay gauge was removed on June 21, 1998. Refer to the Field Tide Notes and supporting data in Appendix V* for individual gage performance and level closure information. This information was forwarded to N/OES212 on July 20,1998 in accordance with HSG 50 and FPM 4.7. A request for approved tides was forwarded to N/OES23 in July 18,1998 in accordance with FPM 4.8. Approved tide note dated Feb 12, 1999 is attached.

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

The horizontal datum for this project is NAD 83. Station TAI was recovered on April 21, 1998 and was used to verify and establish local geodetic control for this survey. See the OPR-0340-RA-98 Horizontal Control Report for more information.

I. HYDROGRAPHIC POSITION CONTROL ✓ See Evel Rpt., section I.

All soundings were positioned using differential GPS. Primary hydrographic control was based on a VHF differential GPS reference station at TAI and repeated on a second VHF frequency by the ship. The USCG beacon GUSTAVUS located in Icy Straits was used as secondary control. Concur

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. RAINIER also used SHIPDIM, version 2.2R (April 1996) with a Trimble Centurion P-code receiver and an Ashtech sensor (both differentially-corrected) to monitor the performance of the USCG Beacon. Periodic comparisons and occasional performance checks were logged with the SHIPDIM system. Some outliers were noted, but none indicated systematic or continuous errors in the beacons. Concur The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-0340-RA-98.

* Filed with the hydrographic data.

J. SHORELINE See Evaluation Report, Section J

There were no registered photogrammatic shoreline manuscripts provided for this survey. Shoreline from NOS Chart 17317, 18th edition, June 14, 1997 was enlarged to a scale of 1:40000 and was graphically revised with 1993 uncontrolled photogrammetric sources and provided to RAINIER as Cartographic Revision Surveys (CRS) 00298 and 00498. CRS 00298 and CRS 00498 have slight differences in areas of overlapping coverage where the shoreline is a generalization of shoreline from Chart 17317, 18th edition. Consequently, shoreline shown is a MapInfo tracing, made by RAINIER personnel, of shoreline from NOS Chart 17317, 18th edition, June 14, 1997, graphically revised to include features from both CRS 00298 and CRS 00498, and is shown in brown for orientation purposes only.

Limited shoreline verification was conducted in accordance with the Project Instructions and FPM. For this survey, the NALL (Navigable Area Limit Line) was defined by the limit of safe navigation of a survey launch during a period of extreme low (negative) tide. The NALL runs at a distance of 5-50 meters offshore of the apparent low water line. Depths along the NALL are generally 2-15 m MLLW. Features seen off-shore of the NALL were positioned with the launch's DGPS by taking Detached Positions. Features seen inshore of the NALL were not positioned. Concur, Shoreline verification data was analyzed during office processing and shown on the smooth sheet.

Field features were compared to an enlargement of a chart 17317, 18th edition, 6/14/97. There was general agreement between the charted shoreline and what the hydrographer found on this survey. Concur An exception is that actual shoreline between Lat 59-17-03.32 N, Long 135-22-04.65 W to Lat 59-17-24.95 N, Long 135-22-01.81 W was found to be mis-charted. The actual shoreline for this section is approximately 85 meters east of where it's shown on the chart. Discrepancies between charted and field shoreline should thus be resolved in favor of the CRS shoreline and field work as shown on the final field Detached Position and Bottom Sample plot provided to PHB. Concur Handwritten notes and features shown on the accompanying SHORELINE NOTES plot are the hydrographer's representation of the features seen in-shore of the NALL while slowly transiting along the shore, and are intended to aid chart compilation.

The following is a list of all Detached Positions taken on new features. It is recommended that they be added to the chart: Concur with clarification.

Smooth Sheet

FIX NUMBER	FEATURE with raw depth (or height in parentheses) in meters	DEPTH (m) corrected with predicted tides	POSITION of DP	NOTES
22025 ✓	rk, new rng 5m brg 040M (1.5)m 22025	-0.7	59-18-10.157 N 135-29-05.373 W	Chart *
22156 ✓	islt, hp of rf chd rng 1m brg 110M (5)m 22156	-3.9	59-17-14.766N 135-24-01.752 W	Refers to one islet, (Charted) surrounded by a reef. See Note J1.
22159 ✓	islt, hp of rf chd rng 2m brg 000M (5)m 22159	-3.9	59-17-13.403N 135-24-04.165W	
22160 ✓	islt, hp of rf chd rng 3m brg 190M (4)m 22160	-2.9	59-17-15.348N 135-24-01.742W	
50664 ✓	reef, new rng 2m brg 060M 0.3m 50664	-0.1	59-17-12.446 N 135-24-03.751 W	Chart *
50665 ✓	reef, new rng 1m brg 090M 0.1m 50665	-0.2	59-17-12.951N 135-24-03.248 W	
22157 ✓	rk, new rng 3m brg 180M 0m 22157	1.1	59-17-16.598N 135-24-02.076W	Not shown at chart scale

* (3)

Reef (12)

07 RK

Smooth sheet

22158 ✓	rk, new rng 2m brg 195M 0m 22158	1.1	59-17-13.546 N 135-24-00.553 W	Not shown at chart scale	0^{8} RK
22173 ✓	rk, new rng 2m brg 200M 0m 22173	1.1	59-17-32.906 N 135-23-53.698 W	" "	0^{8} RK
22244 ✓	rk, new rng 2m brg 205M 0.5m 22244	1.5	59-19-13.135 N 135-23-44.446 W	" "	1 RK
22265 ✓	ldg, new rng 2m brg 195M (3)m 22265	-2.2	59-18-23.919 N 135-23-46.569 W	22265 and 22266 refer to the same ledge	
22266 ✓	ldg, new rng 6m brg 180M (3)m 22266	-2.3	59-18-24.496 N 135-23-46.576 W	Chart *	> Ledge (2)
22267 ✓	ldg, new rng 2m brg 270M (2)m 22267	-1.3	59-18-23.094 N 135-23-43.954 W	22267 and 22268 See above refer to the same ledge	
22268 ✓	ldg, new rng 5m brg 165M (2)m 22268	-1.3	59-18-23.687 N 135-23-44.721 W		
62555 ✓	ldg, new rng 5m brg 200M (1.5)m 62555	-0.4	59-15-58.395 N 135-26-27.121 W	Chart :!:	* (2)
50666 ✓	rk, new rng 1m brg 150M 0.3m 50666	0.0	59-17-11.609 N 135-24-01.719 W	Identified as a Danger to Navigation in letter dated July 27, 1998	* (1) Chart :!:
21052 ✓	plng cement new rng 10m brg 080M (1.5)m 21052	-0.3	59-17-54.383 N 135-25-00.146 W	Chart pile symbol Label Piles	Row of piles (2)
21771 ✓	piling, new rng 1m brg 145M 0m 21771	-5.5	59-18-22.258 N 135-25-18.180 W	Chart pile symbol Label Piles	> Piles (18)
21772 ✓	piling, new rng 1m brg 140M 0m 21772	-5.5	59-18-21.435 N 135-25-17.240W	See above	
62480 ✓	piling, new rng 1m brg 165M (12)m 62480	-11.0	59-17-00.66 N 135-28-09.42 W	Chart Pile MLLW	> Piles (5)
62481 ✓	piling, new rng 1m brg 175M (12)m 62481	-11.0	59-16-59.98 N 135-28-07.25 W	Chart Pile MLLW	
62482 ✓	piling, new rng 1m brg 120M (12)m 62482	-11.0	59-16-59.38 N 135-28-05.4 W	Chart Pile MLLW	
62483 ✓	ramp, new rng 1m brg 085M (12)m 62483	-11.0	59-17-00.03 N 135-28-04.6 W	Chart ramp	Notation - Ramp
62484 ✓	pier, new rng 3m brg 035M (12)m 62484	-11.0	59-16-59.62 N 135-28-01.8 W	Retain as shown on chart	Pier
62485	pier, new rng 2m brg 220M (12)m 62485	-11.0	59-16-55.082 N 135-27-44.315 W	" "	Pier
62486 ✓	piling, new rng 2m brg 110M (12)m 62486	-11.0	59-16-54.687 N 135-27-42.867 W	Chart Pile MLLW	> Piles (5)
62487 ✓	piling, new rng 2.5m brg 100M (12)m 62487	-11.0	59-16-54.543 N 135-27-42.133 W	Chart Pile MLLW	

Note J1: The islet shown on Chart 17317, 18th edition at Lat 59-17-15.8N, Long 135-24-04.49W should be removed from the chart and replaced with the ~~islet~~/reef identified by this survey. Present Survey found a reef uncovering 12ft at MLLW. See previous Page for detached positions. Concur

The following is a list of all Detached Positions taken on features that were verified to be correctly shown on the CRS shoreline manuscript.

Smooth Sheet

FIX NUMBER	FEATURE with raw depth (or height in parentheses) in meters	DEPTH (m) corrected with predicted tides	POSITION of DP	NOTES
62460 ✓	pier, crs rng 1m brg 175M (10)m 62460	-9.2	59-17-11.904 N 135-28-50.274 W	Chart Pier revision
62461 ✓	pier, crs rng 1m brg 210M (10)m 62461	-9.2	59-17-09.714 N 135-28-40.153 W	" "
62462 ✓	pier, crs rng 1m brg 175M (10)m 62462	-9.2	59-17-08.679 N 135-28-37.342 W	
62488 ✓	piling, crs rng 1.5m brg 180M (12)m 62488	-11.0	59-16-53.312 N 135-27-38.002 W	Chart Pile MHW
62489 ✓	pltfrm steel, crs rng 2m brg 145M (12)m 62489	-10.9	59-16-48.897 N 135-27-16.023 W	Chart MHW revision
62490 ✓	pier ltd, crs rng 2m brg 155M (12)m 62490	-10.9	59-16-48.265 N 135-27-10.771 W	62490 and 62491 refer to the same pier Chart Pier revision
62491 ✓	pier ltd, crs rng 1.5m brg 290M (12)m 62491	-10.9	59-16-47.343 N 135-27-07.267 W	

Pier

Pile (5)

Platform and pier

Piers

The following is a list of all Detached Positions taken on features that are shown on the Chart but not on the CRS shoreline manuscript:

FIX NUMBER	FEATURE with raw depth (or height in parentheses) in meters	DEPTH (m) corrected with predicted tides	POSITION of DP	NOTES
62492 ✓	pltfrm steel, chd rng 2m brg 160M (12)m 62492	-10.9	59-16-45.583 N 135-27-02.344 W	Chart MHW revision

Platform and pier

The following is a list of all features seaward of the NALL that were inadvertently not verified with a Detached Position. (Reference numbers refer to the position fix obtained nearest to the feature): Refer to the hydrographer's report, section 19, Additional Work Item Investigations (Attached).

FIX NUMBER	FEATURE	Charted Position	Comments	Charting Recommendation
R52961 ✓	Rock	59-16-20.57N ✓ 135-24-03.76W	R52961 refers to a charted rock just east of Indian Rk Light. The existence of the rock was visually verified.	Retain as charted
R51771 ✓	Rock	59-16-22.66N ✓ 135-23-55.48W	R51771 refers to a charted rock just south of Indian Rk Light. The existence of the rock was visually verified.	Retain as charted

Do not concur
Remove from chart
Retain note (bares at MLLW)

Do not concur
Remove from chart
Retain note (bares at MLLW)

K. CROSSLINES

Crosslines agreed within 1 meter with mainscheme hydrography, except in areas of steep bathymetry. There were a total of 17.12 nautical miles of crosslines, comprising 10.2% of mainscheme hydrography. Concur

L. JUNCTIONS See Evac Rpat, section L

Junctions with the main survey area:

Registry #	Scale	Date	Junction side
H-10808	10:000	1998	South
H-10806	~~1:5,000~~ 1:10,000	1998	North

Junction soundings with the surveys above were found to be in good agreement with this survey. Differences of less than 1 to 3 fathoms were observed, except in steep sloping areas. Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after reduction to final vertical datum. Concur

M. COMPARISON WITH PRIOR SURVEYS See Evac Rpat, section m

The following table depicts prior surveys that lie within that area surveyed for H-10736. H-10736 was compared to each of these priors with the results listed below.

Registry #		Date	Area Covered
H-6944		1943	Lutak Inlet
H-4226		1922	Wire drag survey
H-2059		1890	Taiyasanka Harbor
H-2057		~~1905~~ 1890-95	Taiya Inlet

Comparison with H-6944: These surveys were compared by over-laying the prior survey utilizing MapInfo. There was excellent agreement between surveys (within 1 fathom) throughout survey area. Concur

Comparison with H-2057: The current survey overlaps with only with a small portion of H-2057. This comparison was made by rubber sheeting the current survey with the prior survey. H-2057 is a prior survey with sparse and widely spaced soundings. Agreement was good where direct comparisons could be made between soundings and varied in areas with steep sloping sides (as would be expected). Concur with Clarification

Comparison with H-2059. This survey was rubber sheeted with the prior survey. The only area of comparison was within Taiyasanka Harbor. Soundings within the center of the harbor are 5-8 fathoms shallower than those shown on the prior survey. Concur with clarification.

Comparison with H-4226: This prior was mainly a wire drag survey. There was general agreement between soundings shown on the prior survey. Concur

N. ITEM INVESTIGATIONS ✓

Six AWOIS items were investigated and are described below. In addition, a new wreck was identified and

investigated and is also described below.

ITEM INVESTIGATION REPORT ✓

AWOIS # : 52389	**DN:** 117
CHART #:17317 18th ed.	**VESNO:** 2121
ITEM DESCRIPTION: Log storage area	
SOURCE: CL1825/76	

GEOGRAPHIC POSITION

	LATITUDE	LONGITUDE	POSITION #
Log Storage Area	59-18-03.65 N	135-25-07.27 W	Disproved with fixes 21807-21603
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)
METHOD OF INVESTIGATION: Visual, Echo Sounder			

FINDINGS: AWOIS numbers 52389 is a log storage area in Taiyasanka harbour. A visual search of the area was conducted. Additionally, hydrographic data was also collected in this area which proves the correct area was searched. This log storage location was inspected for signs of logging activities. No activity was seen. A hydrographer then interviewed the Haines Harbormaster about this log storage area. The harbormaster said that there has been no logging activity since the pulp mill shut down about 8 years ago. When the pulp mill was in operation, logs were stored in this area to wait for processing. Since the pulp mill shut down, there has been no logging activity on the waterways. The city of Haines does own a logging facility west of the ferry terminal that operates on land only. The city's land logging operation and shipment is by trucks only. No boat transportation of logs occurs in Lutak Inlet or other nearby waterways.

CHARTING RECOMMENDATIONS

Remove log storage. Concur

ITEM INVESTIGATION REPORT ✓

AWOIS # : 52390	**DN:** 117
CHART #:17317 18th ed.	**VESNO:** 2121
ITEM DESCRIPTION: Log storage area	
SOURCE: CL1365/69 CL1825/76	

GEOGRAPHIC POSITION

	LATITUDE	LONGITUDE	POSITION #
Log Storage Area	59-17-49.82 N	135-25-15.61 W	Disproved with fixes 21882; 21620; 21700-702; 21619-620; 21880; 21044
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)

METHOD OF INVESTIGATION: Visual, Echo Sounder

FINDINGS: AWOIS numbers 52390 is a log storage area in Taiyasanka harbour. A visual search of the area was conducted. Additionally, hydrographic data was also collected in this area which proves the correct area was searched. This log storage location was inspected for signs of logging activities. No activity was seen. A hydrographer then interviewed the Haines Harbormaster about this log storage area. The harbormaster said that there has been no logging activity since the pulp mill shut down about 8 years ago. When the pulp mill was in operation, logs were stored in this area to wait for processing. Since the pulp mill shut down, there has been no logging activity on the waterways. The city of Haines does own a logging facility west of the ferry terminal that operates on land only. The city's land logging operation and shipment is by trucks only. No boat transportation of logs occurs in Lutak Inlet or other nearby waterways. Recommendation: Remove all log storage areas on the water.

CHARTING RECOMMENDATIONS

Remove log storage. Concur

ITEM INVESTIGATION REPORT ✓

AWOIS # : 52391	**DN: 117**
CHART #:17317 18th ed.	**VESNO: 2121**
ITEM DESCRIPTION: Log storage area	
SOURCE: CL1825/76; BP105325	

GEOGRAPHIC POSITION

	LATITUDE	LONGITUDE	POSITION #
Log Storage Area/ Wreck note	59-17-53.03 N	135-25-01.43 W	Disproved with fixes 21054-55; 21711-21712; 21049; 21877
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)

METHOD OF INVESTIGATION: Visual, Echo Sounder

FINDINGS: AWOIS numbers 52391 is a log storage area in Taiyasanka harbour. A visual search of the area was conducted. Additionally, hydrographic data was also collected in this area which proves the correct area was searched. This log storage location was inspected for signs of logging activities. No activity was seen. A hydrographer then interviewed the Haines Harbormaster about this log storage area. The harbormaster said that there has been no logging activity since the pulp mill shut down about 8 years ago. When the pulp mill was in operation logs were stored in this area to wait for processing. Since the pulp mill shut down, there has been no logging activity on the waterways. The city of Haines does own a logging facility west of the ferry terminal that operates on land only. The city's land logging operation and shipment is by trucks only. No boat transportation of logs occurs in Lutak Inlet or other nearby waterways.

Additionally this AWOIS consisted of a leader pointing to a wreck location. Visual wreckage/debris was seen in the charted location above the apparent high water line from position fix #21878, DN 117. The debris looked like the skeletal remains of a large wooden vessel. The launch could not get close enough to position the debris.

CHARTING RECOMMENDATIONS

Remove log storage. Leave charted wreck and leader as is. Concur

ITEM INVESTIGATION REPORT ✓

AWOIS # : 52392	**DN:** 113, 115, 118
CHART #:17317 18th ed.	**VESNO:** 2124, 2126
ITEM DESCRIPTION: Log storage area	
SOURCE: CL1825/76	

GEOGRAPHIC POSITION

	LATITUDE	LONGITUDE	POSITION #
Log Storage Area	59-17-33.07 N	135-29-56.49 W	Disproved with fixes 60390; 60328; 62430-60432; 43090-43091
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)

METHOD OF INVESTIGATION: Visual, Echo Sounder

FINDINGS: AWOIS numbers 52392 is a log storage area in Lutak Inlet. A visual search of the area was conducted. Additionally, hydrographic data was also collected in this area which proves the correct area was searched. This log storage location was inspected for signs of logging activities. No activity was seen. A hydrographer then interviewed the Haines Harbormaster about this log storage area. The harbormaster said that there has been no logging activity since the pulp mill shut down about 8 years ago. When the pulp mill was in operation logs were stored in this area to wait for processing. Since the pulp mill shut down, there has been no logging activity on the waterways. The city of Haines does own a logging facility west of the ferry terminal that operates on land only. The city's land logging operation and shipment is by trucks only. No boat transportation of logs occurs in Lutak Inlet or other nearby waterways.

CHARTING RECOMMENDATIONS

Remove log storage. Concur

ITEM INVESTIGATION REPORT ✓

AWOIS # : 52393	**DN:** 115, 118
CHART #:17317 18th ed.	**VESNO:** 2126, 2124
ITEM DESCRIPTION: Log Boom	
SOURCE: CL1284/67	

GEOGRAPHIC POSITION

	LATITUDE	LONGITUDE	POSITION #
Log Boom	59-17-04.96 N	135-28-28.6 W	Disproved with fixes 62473-62471; 42526
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)

METHOD OF INVESTIGATION: Visual, Echo Sounder

FINDINGS: AWOIS numbers 52393 is a log boom in Lutak Inlet. A visual search of the area was conducted. Additionally, hydrographic data was also collected in this area which proves the correct area was searched. This log boom location was inspected for signs of logging activities. No activity was seen. A hydrographer then interviewed the Haines Harbormaster about this log storage area. The harbormaster said that there has been no logging activity since the pulp mill shut down about 8 years ago. When the pulp mill was in operation logs were stored in this area to wait for processing. Since the pulp mill shut down, there has been no logging activity on the waterways. The city of Haines does own a logging facility west of the ferry terminal that operates on land only. The city's land logging operation and shipment is by trucks only. No boat transportation of logs occurs in Lutak Inlet or other nearby waterways.

CHARTING RECOMMENDATIONS

Remove log boom. Concur

ITEM INVESTIGATION REPORT ✓

AWOIS # : 52379	**DN:** 113, 127,130
CHART #:17317	**VESNO:** 2120 2123 2126
ITEM DESCRIPTION: 6 Fathom shoal	
SOURCE: LNM32/96 (8/6/96) 17th CGD. Position 59-16-07.2N; 135-23-16.4 W. Originally reported by the M/V Sun Princess in position 59-16.1N; 135-23.3W	

GEOGRAPHIC POSITION

	LATITUDE	LONGITUDE	POSITION #
Reported 6 fathom shoal (8/6/96):	59-16-07.2N	135-23-16.4 W	
OBSERVED: 10.6 fathom	59-16-07.09 N	135-23-15.26 W	Multi-beam fix #70,293, DN 130 Time 192901 File name d2113030
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)

METHOD OF INVESTIGATION: A search with a radius greater than 100 meters was conducted centered on the reported position of the 6-fathom shoal. A 20-meter spacing echosounder development was first conducted over the entire area. In addition, a Shallow Water Multi beam launch surveyed the same area providing greater than 100% coverage. Finally ship's IDSSS Hydro Chart II conducted a similar survey. 7*

FINDINGS: The shallow water multi-beam launch found a least depth of 10.6 fathom. It was determined with greater than 100% coverage of the area on DN 130. Subsequent development revealed no shoaler depths. This new depth should be added to the chart after final processing and application of smooth tides. The reported 6 fathom sounding should be removed. Concur
* Based on application of approved tides.
Further investigation by the hydrographer suggests that the draft of the vessel from the original report was not taken into account by the cartographer during sounding reduction for charting purposes. The depth reported under the keel of M/V Sun Princess was 10 Meters (32.8 ft). Correcting for tides, gives an approximate 6 fathom sounding (which was charted). However, when the draft of the vessel is added to the keel depth sounding, which must be done, produces a sounding very close to the depths found during the survey. The vessel had a reported draft of 26.6 ft. 10 meters = 32.8 ft. 32.8 ft + 26.6 ft = 59.4 ft (9.9 fathoms), which is very close to actual depths found.

CHARTING RECOMMENDATIONS

The 10.6 7 fathom sounding should be added to the chart after final processing and application of smooth tides. The reported 6 fathom sounding should be removed. Concur

Chart 10 4 fathom sounding

ITEM INVESTIGATION REPORT ✓

AWOIS # : NONE	**DN:** 230
CHART #:17317	**VESNO:** 2123
ITEM DESCRIPTION: Wreck	
SOURCE: Initially discovered during mainscheme singlebeam data acquisition– Fix No. 42454.2	

GEOGRAPHIC POSITION

	LATITUDE	LONGITUDE	POSITION #
Reported: N/A			
OBSERVED: Wreck (position of SWMB least depth)	59-17-00.5 N	135-28-07.5 W	VN 2123, DN 130, Time 2238 UTC, line 019_2232, File name 2411500, ping # 3149, beam # 41
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)

METHOD OF INVESTIGATION: A SWMB search was conducted along the pier face where the initial singlebeam echosounder hit was found.

FINDINGS: The SWMB side scan imagery clearly showed a wreck. The wreck is approximately 54 m in length and 10 m in width. The wreck is located on a steep slope and is oriented with the bow to the south-east and the stern to the north-west. The shoalest point is at the bow. Its least depth was determined by SWMB to be 10.6 meters (MLLW), at a position of Lat 59-17-00.5 N, Long 135-28-07.5 W. The stern has an approximate least depth of 27 meters.

The Haines Harbormaster office was contacted and queried for possible information about the wreck. The Harbormaster had no knowledge of the wreck. Mr. Ed Laparry, the owner of the pier where the wreck was found, was also contacted. Mr. Laparry had no knowledge of the wreck and indicated that it must have occurred prior to 1987, the year that he purchased the pier. Mr. Laparry is the owner of the Captain's Choice Hotel in Haines, AK and can be contacted at the hotel's phone number of 907-766-3111. Mr. Laparry indicated that the prior owner of the pier was a Mr. John Snobel with a phone number of 907-766-2228. Mr. Snobel could not be reached.

CHARTING RECOMMENDATIONS

Chart a wreck with a least depth of 10.6 m (5.8 9 fathoms) at Lat 59-17-00.5 N, Long 135-28-07.5 W. Concur

Chart 5₅ WK

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

Two charts are affected by this survey:

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

Chart 17317
18th Ed. June 14, 1997
Scale: 1:77,812
Inset Scale: 1:10,000

Chart 17317, (1:77,812, 18th edition) is the largest scale chart covering the survey area. Sounding agreement is satisfactory with the present survey except as noted below. Changes generally resulted from a more complete and thorough coverage of the areas. These differences are a result of the natural shifting of the seafloor, greater sounding coverage, improved positioning, and sounding methods including the application of modern data acquisition techniques.

A general comparison of soundings are as follow: Soundings charted in Taiyasanka Harbor are generally 5-8 fathoms deeper than those found on the current survey. These should be changed to reflect the current survey. The charted 112 fathom and 187 fathom soundings (Chart #17317) in Taiya Inlet to the northeast of Taiya Point are incorrect. The current survey shows the correct depths as 213 and 101 fathoms, respectfully. This area was surveyed and 100% bottom coverage was obtained using the Hydro Chart II. This area should be charted as shown on the current survey. The charted 6 fathom sounding southeast of Indian Rock was disproved and should be removed. See discussion of AWOIS item 52379 in Section N. Non-sounding features are discussed in Section J. and Section N. Final sounding comparisons will be made at PHB after reduction to final vertical datum. concur concur

Dangers to Navigation ✓

One rock, just south of Taiya Point, was reported to the Seventeenth Coast Guard District on July 27, 1998 as a danger to navigation. Copies of the correspondence can be found in ~~Appendix I of~~ this report.

Feature Type	Fix Number	Latitude (N)	Longitude (W)
Rock ✓	50666	59-17-11.610	135-24-01.720

P. ADEQUACY OF SURVEY See Eval Rpt., Section P.

Survey H-10736 is complete and adequate to supersede prior soundings and features in their common areas. Concur with clarification

Q. AIDS TO NAVIGATION ✓

One navigational aid exists within the survey limits. Indian Rock Light, Light List No. 23920, adequately serves the apparent purpose for which it was established. See Appendix II. Non-Floating Aids and Landmarks for Charts, for details. (See Section Q, Descriptive Report Insert, attached)

Name	1998 Light List No.	Survey Position	Recommendation
Indian Rock Light ✓	23920	59-16-23.86 N 135-24-02.24 W	Charted adequately

concur

R. STATISTICS ✓

Refer to the Survey Information Summary attached to this report. Not provided

S. MISCELLANEOUS ✓

Fourteen 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 ✓

The hydrographer believes the survey area has been adequately ensonified with singlebeam and mutibeam echosounding equipment to warrant removing the wire drag tint from the chart. Concur ✓

U. REFERRAL TO REPORTS ✓

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

Title	Date Sent	Office
OPR-0340-RA Horizontal Control Report	June 25, 1998	N/CS34
Project related data for OPR-0340-RA	Incremental	N/CS34

Respectfully Submitted,

David J. Kruth

David J. Kruth
Lieutenant Commander, NOAA

Reviewed by,

Eric J. Sipos
Lieutenant (JG), NOAA

Approved and forwarded,

Alan D. Anderson
Captain, NOAA
Commanding Officer

Rocks off Taiya, Facing North East

Rocks off Taiya, facing West

Supplementary Photos of Rock off Taiya Point

Rocks off Taiya, Facing Southwest

Rocks of Taiya, Facing Northeast

Rocks off Taiya, facing West

M. ADDITIONAL WORK ITEM INVESTIGATIONS

There were two Additional work items assigned for survey H-10736. ✓

Item Investigation #1

ITEM # : 1	**DN:** 116
CHART #:17317 (1:77,812, 18th Edition, 6/14/97)	**VESNO:** 2124
ITEM DESCRIPTION: Charted Rock	
SOURCE: Chart 17317	

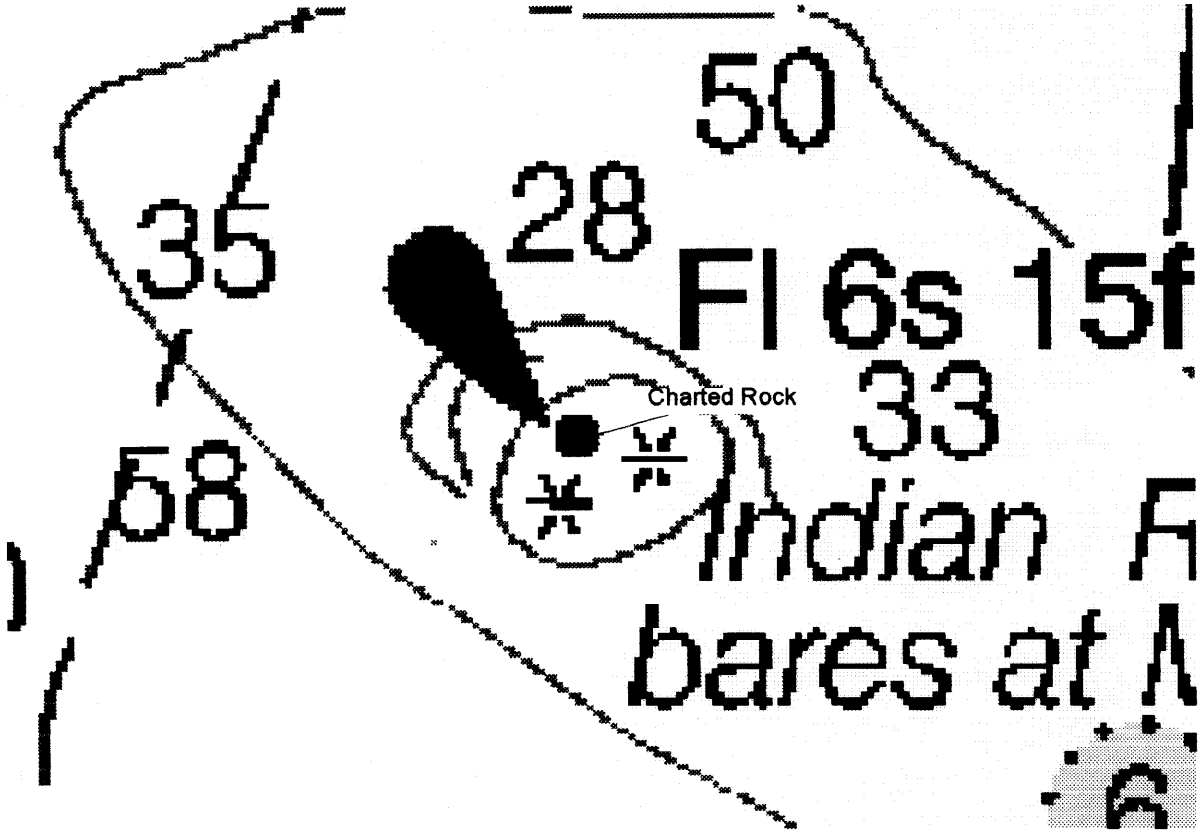
Geographic Position

	LATITUDE	LONGITUDE	POSITION #
CHARTED:	59° 16.38' N	135° 23.90' W	
OBSERVED:	59° 16' 23.456" N * UTM	135° 24' 00.156" W * UTM	45660
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)
METHOD OF INVESTIGATION: Visual Search and Singlebeam Echo Sounder			
FINDINGS: Rock			

* MTM 59/16/23.392 135/24/6.185

Charting Recommendations

The hydrographer recommends retaining the charted rock, using the position found during this survey. Do not concur Remove charted rock, chart the light and note "Indian Rock bares at MLLW



Item Investigation #2 ✓

ITEM # : 2	**DN:** 116
CHART #: 17317 (1:77,812, 18th Edition, 6/14/97)	**VESNO:** 2124
ITEM DESCRIPTION: Charted Rock	
SOURCE: Chart 17317	

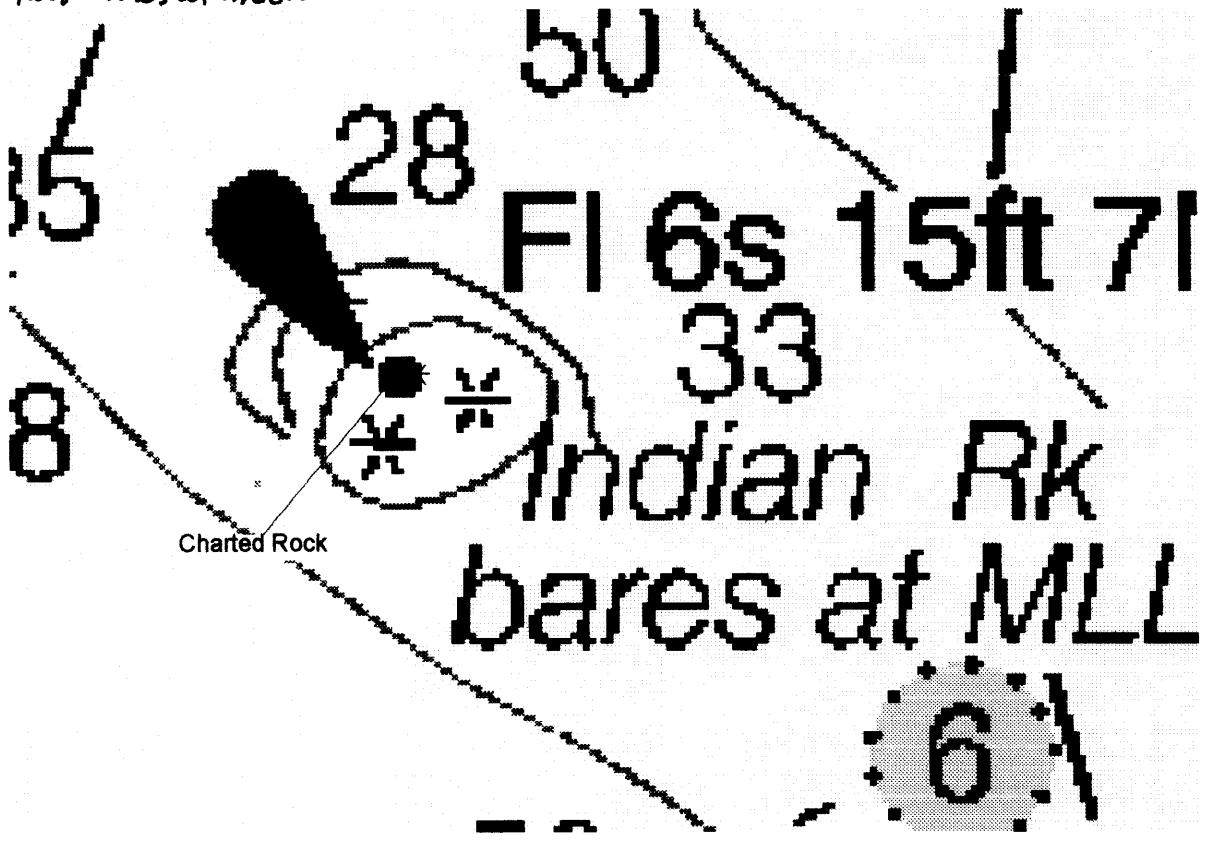
Geographic Position

	LATITUDE	LONGITUDE	POSITION #
CHARTED:	59° 16.33' N	135° 24.06' W	
OBSERVED:	59° 16' 23.366" N * UTM	135° 24' 02.138" W * UTM	45661
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)
METHOD OF INVESTIGATION: Visual Search and Singlebeam Echo Sounder			
FINDINGS: Rock			

* MTM 59/16/23.386 , 135/24/2.106

Charting Recommendations

The hydrographer recommends retaining the charted rock, using the position found during this survey. Do not concur; Remove charted rock, retain charted light and note "Indian Rock bares at MLLW.



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

Section Q: Descriptive Report Insert ✓

Name of Aid: Indian Rock Light
Light List #: 23920

Method of Positioning GPS: [x] DGPS: [ ] Other: _____

Positioning Information

	Latitude (N)	Longitude (W)
Charted Pos.	59-16.36	135-24.0
Survey Pos.	~~59-16.39~~ 59/16/23.86	~~135-24.04~~ 135/24/02.24
	Easting	**Northing**
Charted Pos.	41447.1	169610.9
Survey Pos.	41411.7	169681.0

Difference between Charted and Surveyed Position: Distance: 79 meters
(Bearing from Surveyed to Charted Position) Bearing: 153 deg T

Characteristics Flashing White, 6 seconds
Do characteristics match Light List? Yes [x] No [ ]
If no, what are the characteristics? _____

Does the aid adequately serve its apparent purpose? Yes [x] No [ ]
If no, why not? _____

New/Uncharted Aids (if information is known or easily obtained)
Date Est: _____
Maintained By: Coast Guard Private? Yes [ ] No [ ]
Is aid seasonally maintained? Yes [ ] No [ ]
Frequency of Maintenance: _____

Apparent Purpose: Mark Indian Rock

Other Information: Published position 59-16.4; N; 135-24.0 W

Published characteristics: Fl W 6s, 15 ft, 7M

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF COAST SURVEY
Pacific Hydrographic Branch
Seattle, Washington 98115-0070

October 6, 1998

ADVANCE INFORMATION

Commander (OAN)
Seventeenth Coast Guard District
P.O. Box 25517
Juneau, AK 99802

Dear Sir:

During office review of hydrographic survey H-10736, Alaska, Lynn Canal, Vicinity of Lutak Inlet, several additional shoal soundings were found and are considered to be potential dangers to navigation.

It is recommended that the enclosed Report of Dangers to Navigation be included in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6836.

Sincerely,

James C. Gardner

James C. Gardner
Commander, NOAA
Chief, Pacific Hydrographic Branch

Enclosure

cc: NIMA
NCS/261

ADVANCE
INFORMATION

REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H-10736

Survey Title: State: ALASKA
Locality: Lynn Canal
Sublocality: Vicinity of Lutak Inlet

Project Number: OPR-O340-RA, NOAA Ship RAINIER

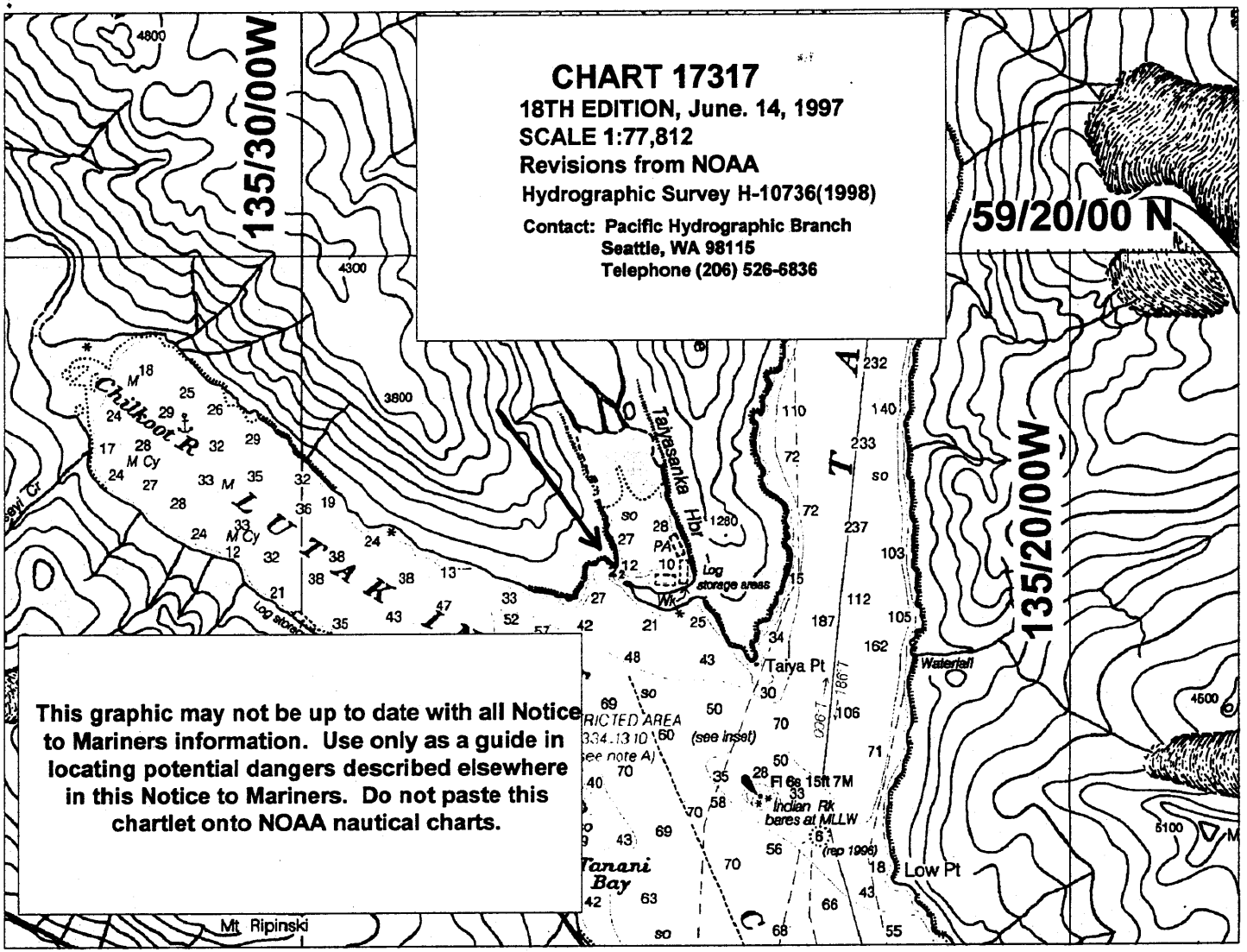
Survey Date: April 22 -May 28, 1998

Soundings are reduced to Mean Lower Low Water using predicted tides and are positioned on NAD 83.

Chart affected: 17317, 18TH Edition June 14, 1997, scale 1:77,812, NAD 83

DANGER TO NAVIGATION	LATITUDE(N)	LONGITUDE(W)
2 fathoms 2 feet	59/17/53.70	135/25/54.36
2 fathoms 2 feet	59/17/54.03	135/25/53.11

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch at (206)526-6836.



ADVANCE INFORMATION

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

NOAA Ship RAINIER
July 27, 1998

Commander (mon)
Seventeenth Coast Guard District
Post Office Box 25517
Juneau, Alaska 99802-5517

ADVANCE INFORMATION

Dear Sir:

The following dangers to navigation should be included in the Local Notice to Mariners. These features were positioned by the NOAA Ship RAINIER while conducting hydrographic surveys in Lynn Canal, Alaska. The dangers are shown graphically on the attached chartlet and affect chart 17300, 27th edition, August 14, 1993 & chart 17317, 18th edition, June 14, 1997. Positions were acquired using differential GPS and are given in the NAD 83 datum. Depths have been corrected to Mean Lower Low Water using predicted tides.

Feature Type	Depth (fm)	Latitude (N)	Longitude (W)	Position Number	Depth Meters	Survey Number
Rock		59:17:11.610	135:24:01.720	50666		H-10736
Submerged Rock	0.25	59:08:15.073	135:23:07.129	20039	0.5	H-10811
Shoal depth	0.5	59:08:15.847	135:23:18.339	45242	1.1	H-10811
Shoal depth	1.25	59:08:04.230	135:23:07.564	29176	2.3	H-10811
Shoal depth	4.5	59:06:18.880	135:21:37.266	64927	8.3	H-10811
Rock		59:04:52.838	135:16:39.527	53886		H-10810
Shoal depth	7	59:03:02.094	135:15:35.837	54393	12.9	H-10810
Shoal depth	4.5	59:03:48.945	135:17:31.152	54334	8.3	H-10810
Shoal depth	0.5	59:05:50.624	135:19:58.098	54214	0.9	H-10810
Shoal depth	4.25	59:06:04.023	135:20:41.069	53935	7.7	H-10810
Rock		58:58:30.384	135:13:35.839	41928		H-10812

This is advance information subject to office review. Questions concerning this letter should be directed to the Chief, Pacific Hydrographic Branch, (206) 526-6835. Refer to survey project OPR-O340-RA and Danger to Navigation message RA-5-98.

Sincerely,

Alan D. Anderson

Alan D. Anderson
Captain, NOAA
Commanding Officer

Attachment

Cc: NIMA
PMC
N/CS261
N/CS34

ADVANCE INFORMATION

APPROVAL SHEET

for

H-10736

RA-10-2-98

Standard field surveying and processing procedures were followed in producing this survey in accordance with the Hydrographic Manual, Fifth Edition; 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

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 12, 1999

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-O340-RA
HYDROGRAPHIC SHEET: H-10736

LOCALITY: Lutak Inlet, AK
TIME PERIOD: April 21 - May 28, 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

TIDE STATION USED: 945-2434 Tiayasanka Harbor, AK
Lat. 59° 17.9'N Lon. 135° 26.1'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.824 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SEA1, SEA1D, SEA1F & SEA1G.

Refer to attachments for zoning information.

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

Note 2: Use tide data from the appropriate station for each zone according to the order in which they are listed in the Tidezone corrector files. For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data are not available. All zones within a survey sheet may not have the same order of applicable tide stations.

Thomas N. Mero 2/12/99

CHIEF, REQUIREMENTS AND ENGINEERING BRANCH

Final tide zone node point locations for OPR O340-RA-98, Sheet H-10736.

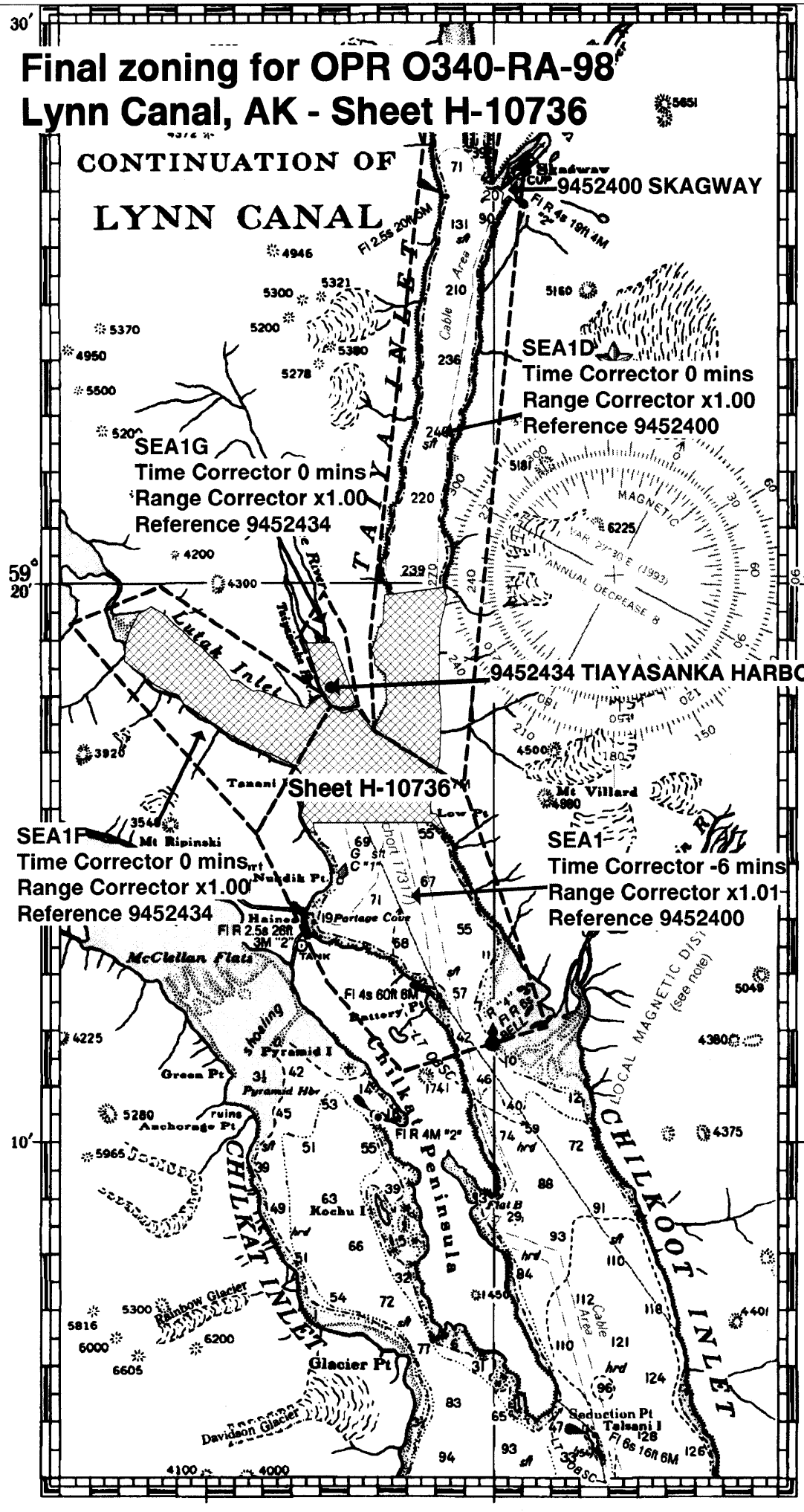
Format: Longitude in decimal degrees (negative value denotes Longitude West),
Latitude in decimal degrees
Tide Station (in recommended order of use)
Average Time Correction (in minutes)
Range Correction

	Tide Station Order	AVG Time Correction	Range Correction
Zone SEA1			
-135.430336 59.213684	945-2400	-6	1.01
-135.387161 59.18722			
-135.303335 59.200565			
-135.351351 59.272134			
-135.403119 59.288988			
-135.412317 59.296248			
-135.421584 59.295129			
-135.428148 59.296314			
-135.471448 59.258189			
-135.430336 59.213684			
Zone SEA1D			
-135.31633 59.45583	945-2400	0	1.00
-135.330076 59.450301			
-135.335279 59.452373			
-135.325555 59.482326			
-135.339823 59.483217			
-135.346609 59.476037			
-135.349706 59.476919			
-135.351254 59.476904			
-135.363299 59.479614			
-135.3659 59.479662			
-135.365621 59.478717			
-135.371399 59.477693			
-135.405623 59.316041			
-135.403119 59.288988			
-135.351351 59.272134			
-135.31633 59.45583			
Zone SEA1F			
-135.471448 59.258189	945-2434	0	1.00
-135.579036 59.32089	945-2400	-6	1.02
-135.526904 59.331963			
-135.433296 59.3			
-135.428148 59.296314			
-135.471448 59.258189			

Zone SEA1G

-135.428148	59.296314	945-2434	0	1.00
-135.433296	59.3	945-2400	-6	1.02
-135.446425	59.317043			
-135.432251	59.330231			
-135.420297	59.319083			
-135.412317	59.296248			
-135.421584	59.295129			
-135.428148	59.296314			

Final zoning for OPR O340-RA-98
Lynn Canal, AK - Sheet H-10736



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: October 6, 1999

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-0340-RA
HYDROGRAPHIC SHEET: H-10736

LOCALITY: Lutek Inlet, Lynn Canal, AK
TIME PERIOD: April 26, 1999

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: SEA74.

Refer to attachments for zoning information.

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

Note 2: Juneau, AK and Skagway, AK were used as datum control for subordinate tide stations and for tidal zoning in this hydrographic survey. Accepted datums for these two stations have been updated recently and have changed significantly from previous values.

The current National Tidal Datum Epoch (NTDE) used to compute tidal datums at tide stations is the 1960-78 NTDE. Traditionally, NTDEs have been adjusted when significant changes in mean sea level (MSL) trends are found through analyses among the stations of the National Water Level Observation Network (NWLON). Epochs are updated to ensure that tidal datums are the most accurate and practical for navigation, surveying and engineering applications and reflect the existing local sea level conditions. For instance, analyses of sea level trends show that a new NTDE is necessary and efforts are underway to update the 1960-78 NTDE to a more recent 19-year time period.

TIDE NOTE FOR HYDROGRAPHIC SURVEY SHEET H-10736 cont.

However, analyses also show that there are several geographic areas which are strongly anomalous from the average sea level trends found across the NWLON and must be treated differently. One of these areas is in southeast Alaska covering the Lynn Canal, Icy Strait, and Glacier Bay region. Juneau and Skagway show relative sea level trends of -0.038 ft/yr and -0.052 ft/yr, respectively due to land emergence from the retreat of glaciers over recent geological time. NOS has adopted a procedure of computing accepted tidal datums for these anomalous regions by using a MSL value calculated from the last several years of data rather than the 19-year NTDE. The accepted range of tide is still based on the 19-year NTDE and, when applied to the updated MSL, will result in updated values for Mean High Water (MHW) and Mean Lower Low Water (MLLW) derived through standard datum calculation procedures. For both Juneau and Skagway, the MSL values were computed from the period of 1994-1998. This resulted in a lowering of the MLLW datums relative to land by -0.40 ft at Juneau and -0.53 ft at Skagway compared to the previous MLLW elevations used in last year's surveys. Subordinate tide stations in the area used for hydrographic surveys and controlled by Juneau or Skagway will be affected similarly. Accepted datums have been computed and may be accessed on the Internet through the URL specification http://www.co-ops.nos.noaa.gov.

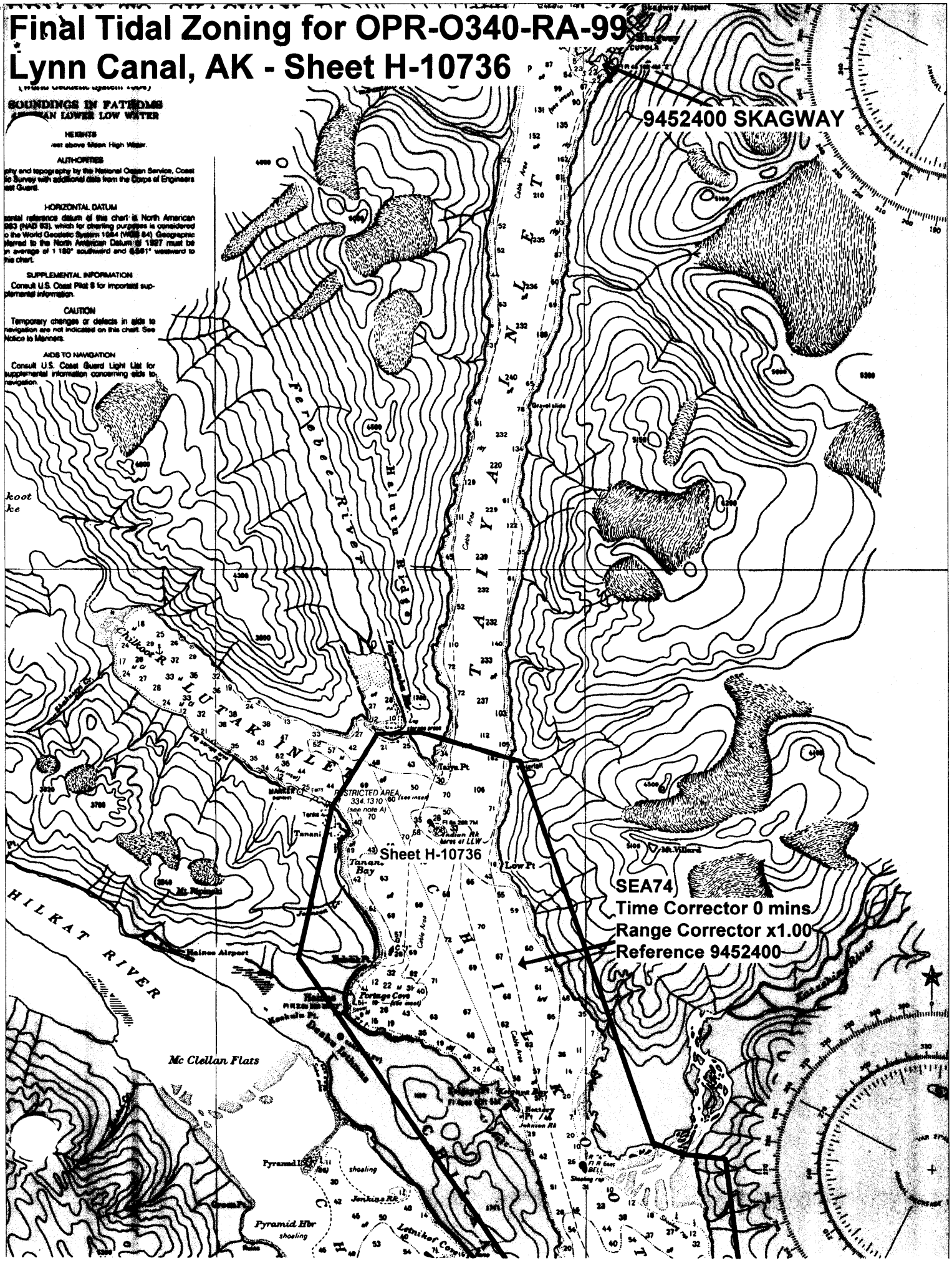
for ----------
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

Final tide zone node point locations for OPR-O340-RA-99,
Sheet H-10736.

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 SEA74			
-135.262771 59.162603	9452400	0	1.00
-135.334123 59.151404			
-135.364789 59.169708			
-135.463039 59.243268			
-135.447721 59.278484			
-135.427282 59.295342			
-135.407735 59.295667			
-135.362768 59.289021			
-135.303335 59.200565			
-135.289805 59.19791			
-135.270989 59.19686			
-135.262771 59.162603			

Final Tidal Zoning for OPR-O340-RA-99
Lynn Canal, AK - Sheet H-10736



NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10736

Name on Survey	A ON CHART NO. 1737	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
CHILKOOT INLET	X		X							2
CHILKOOT RIVER	X		X							3
FEREBEE RIVER	X		X							4
INDIAN ROCK	X		X							5
LOW POINT	X		X							6
LUTAK INLET	X		X							7
LYNN CANAL (Title)	X		X							8
SHAKUSEYI CREEK	X		X							9
TAIYA INLET	X		X							10
TAIYA POINT	X		X							11
TAIYASANKA HARBOR	X		X							12
TANANI BAY	X		X		[redacted]					13
TANANI POINT	X		X							14
					Dennis O. Romberg					15
					Chief Geographer			NOV 12 1998		16
										17
										18
										19
										20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

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

HYDROGRAPHIC SURVEY STATISTICS

H-10736

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

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

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

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	*EVALUATION*	*TOTALS*
POSITIONS ON SHEET			
POSITIONS REVISED			
OUNDINGS 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	187.5		187.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		32	32
GEOGRAPHIC NAMES			
OTHER* (Chart Compilation)		59	59
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	187.5	91	278.5

Pre-processing Examination by	M. Bigalow	*Beginning Date* 10/5/98	*Ending Date* 10/7/98
Verification of Field Data by	R. Mayor, M. Bigalow, R. DAvies	*Time (Hours)* 187.5	*Ending Date* 10/14/99
erification Check by	B. Olmstead	*Time (Hours)* 17	*Ending Date* 10/15/99
Evaluation and Analysis by	R. Davies	*Time (Hours)* 32	*Ending Date* 10/14/99
Inspection by	B Olmstead	*Time (Hours)* 12	*Ending Date* 10/15/99

EVALUATION REPORT

H-10736

A. PROJECT

The hydrographer's report contains an adequate discussion of the project information.

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 Attachment 1.

The hydrographer has determined the inshore limits of safe navigation by defining a Navigable Area Limit Line (NALL) throughput 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.

Two additional work items charted as rocks awash, in close proximity to Indian Rock were investigated during the 1999 field season. The results of this investigation have been merged with the 1998 fieldwork and are shown on the smooth sheet for survey H-10736.

The bottom consists mainly of mud. Depths range from Mean Lower Low Water (MLLW) to 246 fathoms.

C. SURVEY VESSELS

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Field acquisition and processing of survey data has been adequately discussed in the hydrographer's report, section D. Office processing was accomplished using the Hydrographic Processing System (HPS), CARIS/HIPS, the Multibeam Support Vax system, 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 are plotted using a Modified Transverse Mercator projection and are depicted on a single sheet.

E. SONAR EQUIPMENT

Sonar equipment was not used during survey H-10736.

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, static draft, dynamic draft (settlement and squat), sound velocity, and heave, pitch and roll. 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: Skagway, AK, 945-2400 and Tiayasanka Harbor, AK, 945-2434.

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:	-1.179 seconds	(-36.474 meters)
Longitude:	6.587 seconds	(104.278 meters)

I. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations.

The quality of several positions exceeded 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.

During intermediate depth multibeam data gathering, satellite configuration as indicated by HDOP and number of satellites, is monitored visually on the IDSSS and Trimble displays, and data are not collected when HDOP exceeds 3.75. In the event that the differential GPS corrector signal is lost, a switch to P-Code is made automatically by the receiver. Although P-Code accuracy is less accurate than DGPS (a maximum of 15 meters), it is an acceptable limit of accuracy for a survey of 1:10,000 scale. Data was analyzed during office processing and found to contain no significant errors.

During shallow water multibeam (SWMB) data gathering, satellite configuration as indicated by HDOP and the number of satellites, is monitored visually on HYPACK. The final positions

are provided by the POS-MV, which combines the DGPS position with inertial navigation information. In the event that the differential GPS corrector signal is lost, the POS-MV will continue to provide positions based on inertial navigation. Data was analyzed during processing to ensure it contains no significant errors.

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 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 (shown in brown) on the smooth sheet is for orientation only, and originates with: Chart 17317, 18th Edition, June 14, 1997, Cartographic Revision Surveys (CRS) 00298 and 00498, dated 1993.

The shoreline verification data and the hydrographic data were merged in Microstation during compilation of the smooth sheet. The results of the fieldwork as portrayed on the smooth sheet should supersede charted shoreline information within the common area. Further discussions concerning shoreline noted during this survey is included in the hydrographer's report, section J.

There are six areas depicting MHW revisions on this survey. These revisions have been depicted in dashed red on the smooth sheet and are adequate to supersede prior photogrammetric shoreline maps. These revisions are centered at the following positions.

Latitude(N)	Longitude(W)
59/16/15	135/22/18
59/19/30	135/31/54
59/18/42	135/30/03
59/18/06	135/25/03
59/16/45	135/27/12
59/17/10	135/28/45

K. CROSSLINES

Crosslines are adequately discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10736 junctions with the following surveys:

Survey	Year	Scale	Area
H-10806	1998	1:10,000	Northern Limits
H-10808	1998	1:10,000	Southern Limit

The junction with survey H-10808 is complete. A "Joins" note has been added to the smooth sheet where applicable. The junction with H-10806 was not formally completed since this

survey was processed previously. However, depths are in good agreement within the common area. An "Adjoins" note has been added to the smooth sheet.

M. COMPARISON WITH PRIOR SURVEYS

Survey	Year	Scale
H-2057	(1890-95)	1:20,000
H-2059	(1890)	1:10,000

Prior surveys H-2057 and H-2059 generally cover the entire area of the present survey. A comparison was made using a digital copy of H-2057 and H-2059. The registration and legibility of this prior survey to the present survey was good.

Sounding agreement with survey H-2057 and the present survey is good. However, H-2057 has been partially superseded by survey H-6944 along a line west of longitude 135/26/00W. Charted depths still originating from survey H-2057 cover the area around Tanani Point to Taiya Point and includes Indian Rock. Sounding agreement with the 1890-1905 survey work reveals differences of 2-4 fathoms in depths to 50 fathoms. Differences to 8 fathoms are readily evident in depths over 50 fathoms and along the steeper slopes. In all cases, the present survey reveals a consistently shoaler trend. Survey H-2059 covers the entrance to Taiyasanka Harbor and north toward the Ferebee River. Dynamic changes in depth are readily seen in the harbor north of latitude 59/18/06N. Here, shoaling from 14-29 fathoms has occurred since the 1890 survey. Deposition of material from the Ferebee River has created a delta across the northern portion of the harbor that rises up very rapidly to near Mean Lower Low Water from 10-fathom depths. Smaller depth changes depicting shoaling, (5-8 fathoms), have taken place south of latitude 59/18/06N since the prior work. Differences in depths are primarily due to the deposition of material from the Ferebee River. Other differences may be attributed to greater sounding coverage, improved positioning and sounding methods and relative accuracy of the data acquisition techniques.

A ledge was brought forward to survey H-10736 from prior survey H-2057. This feature listed below.

Feature	Latitude(N)	Longitude(W)
ledge	59/16/18	135/26/21

With the transfer of the feature from the prior survey, survey H-10736 is adequate to supersede the prior surveys within the common area.

Survey	Year	Scale
H-6944	1943	1:10,000

Prior survey H-6944 covers Lutak Inlet. Sounding agreement is excellent with the present survey with depths differing from 1 to 2 fathoms. There appears to be no consistent pattern of shoaling or an increase in depths since 1943. Standard depth curves compare well with the prior work. Differences in depths may be attributed to greater sounding coverage, improved positioning and sounding methods and relative accuracy of the data acquisition techniques. Features brought forward from the prior survey are listed below. These items were not addressed and or investigated during survey operations.

Feature	Latitude(N)	Longitude(W)
rocky	59/19/02	135/30/55
rocky	59/18/56	135/30/40
rock	59/16/42	135/26/51
rock	59/17/28	135/29/39

With the transfer of features from the prior survey, survey H-10736 is adequate to supersede the prior survey within the common area.

Survey	Year	Scale
H-4226WD	1922	1:40,000

Wire drag survey H-4226 covers an area in the vicinity of Indian Rock between Low Point and Taiya Point. All wire-drag soundings and clearance depths were investigated. Adequate sounding development was accomplished to remove prior soundings in the area of common coverage.

Survey H-10736 is adequate to supersede the prior wire-drag survey within the common area.

N. ITEM INVESTIGATIONS

There were six AWOIS items assigned to this survey. These items have been adequately addressed in section N of the hydrographer's report.

O. COMPARISON WITH CHART

Survey H-10736 was compared with the following chart:

Chart	Edition	Date	Scale
17317	18th	June 14, 1997	1:77,812

a. Hydrography

Charted hydrography originates with the previously discussed prior surveys and miscellaneous source data. The prior surveys have been adequately addressed in section M and require no further discussion. The following miscellaneous features currently charted were not specifically discussed and or investigated during survey operations.

Feature	Latitude(N)	Longitude(W)
Marker(lighted)	59/16/54	135/27/45
Dol	59/16/44	135/27/04
Dol	59/16/48	135/27/16
Dols	59/17/09	135/28/49
Dol	59/17/12	135.28/56
Ruins	59/17/54	135/26/05
Ruins/log boom	59/17/05	135/26/31
Ruins	59/17/56	135/26/05

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.

The present survey work combining single beam and multibeam coverage are considered adequate to remove the charted green tint.

One rock charted at latitude 59/19/24.31N, longitude 135/32/47.61W should be removed from the chart. This rock is now located above the Mean High Water Line (MHWL).

With the exception of those items listed above, survey H-10736 is adequate to supersede charted hydrography within the common area.

b. Dangers To Navigation

One danger to navigation was discovered during survey operations. An additional danger was discovered during office processing. Both dangers to navigation were reported to the USCG on July 27, 1998 and October 6, 1998. Copies of these reports are attached.

P. ADEQUACY OF SURVEY

With the exception of the following the hydrography contained on survey H-10736 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.

With the exception of the following, the hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual, April 1994 Edition.

In the event that the field units submission of survey data will exceed four weeks from the 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 will forward their explanation through the Marine Center Director. Fieldwork for survey H-10736 was completed on May 28, 1998 but not transmitted for office processing until October 2, 1998.

Some anomalous soundings were acquired during this survey. They originate from the poor performance of the echo sounder on steep slopes. The hydrographer attempted to correct the problem by editing the raw sounding data, however, the quality of the echo sounder trace is so poor in some areas that the edits are likely based on judgement rather then quantifiable data. Office review of the problem has determine that, with the exception of obviously erroneous depths, which have been revised and or rejected, further editing is not reasonable since no corrective action can be taken to improve the quality of the trace. The judgement of the hydrographer has been accepted and generally the data was not altered during office processing.

Two holidays exist between latitudes 59/18/15N and 59/19/00N, along longitude 135/22/15W and between latitudes 59/19/00N and 59/20/00N, along longitude 135/23/21W. These areas are covered by the ships multibeam system. The holidays were caused by the rejection of data collected by several of the transducers outer beams and are not covered by 100% bottom coverage.

Q. AIDS TO NAVIGATION

One fixed aid to navigation exists within the survey area. It was located and adequately marks the feature intended. See the hydrographer's report, section Q, and the descriptive report insert attached.

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

A charted marker (lighted) at approximate latitude 59/16/54N, longitude 135/27/42W was not located during survey operations. This marker should be retained as charted.

R. STATISTICS

Statistics are adequately 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 adequate hydrographic survey. Additional work is recommended on a low priority basis on items discussed in sections M and O of this report.

U. REFERRAL TO REPORTS

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

Charles R. Davies
Cartographer

APPROVAL SHEET
H-10736

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: 10/15/99
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: 10-21-99
James C. Gardner
Commander, NOAA
Chief, Pacific Hydrographic Branch

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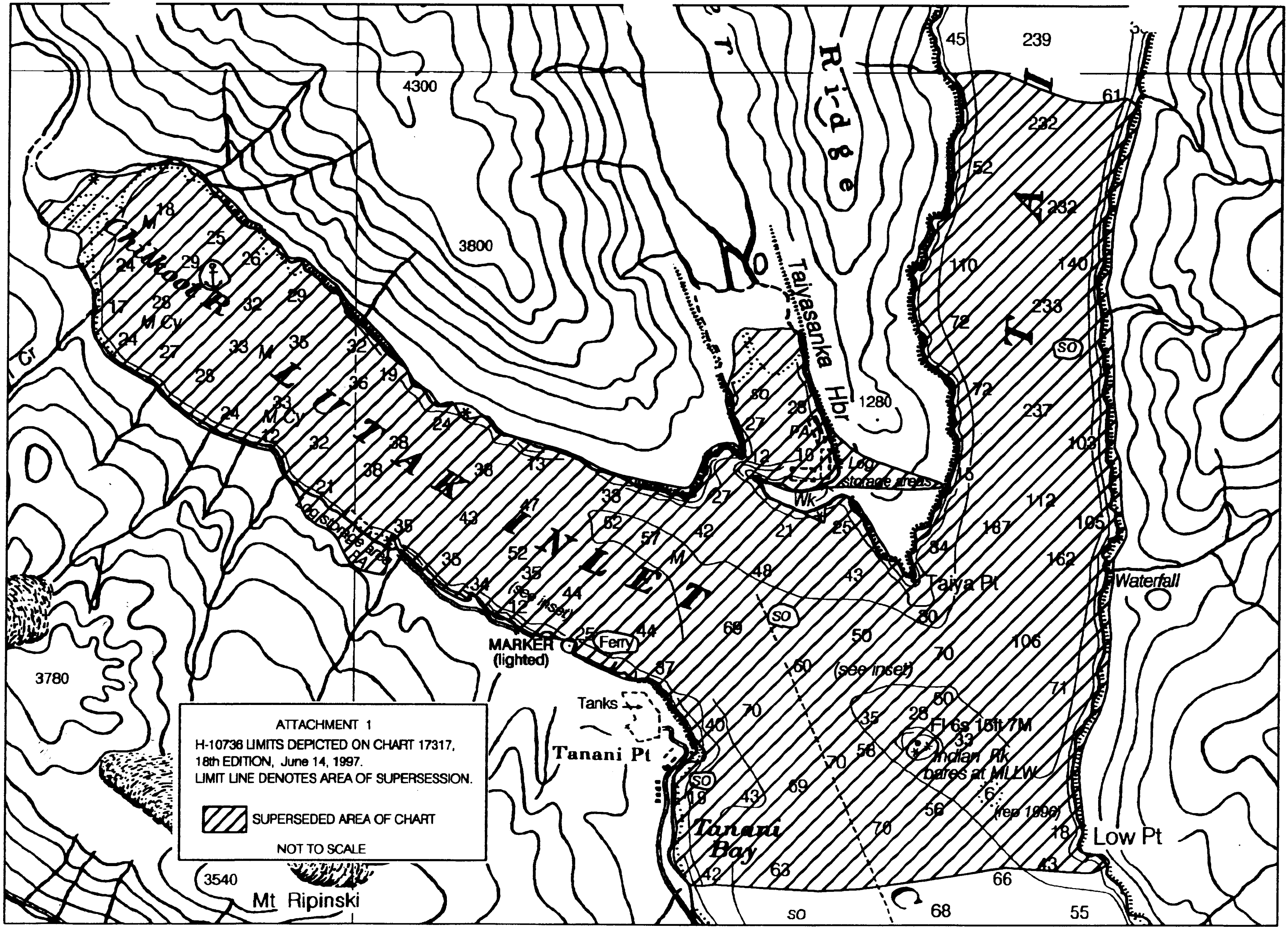
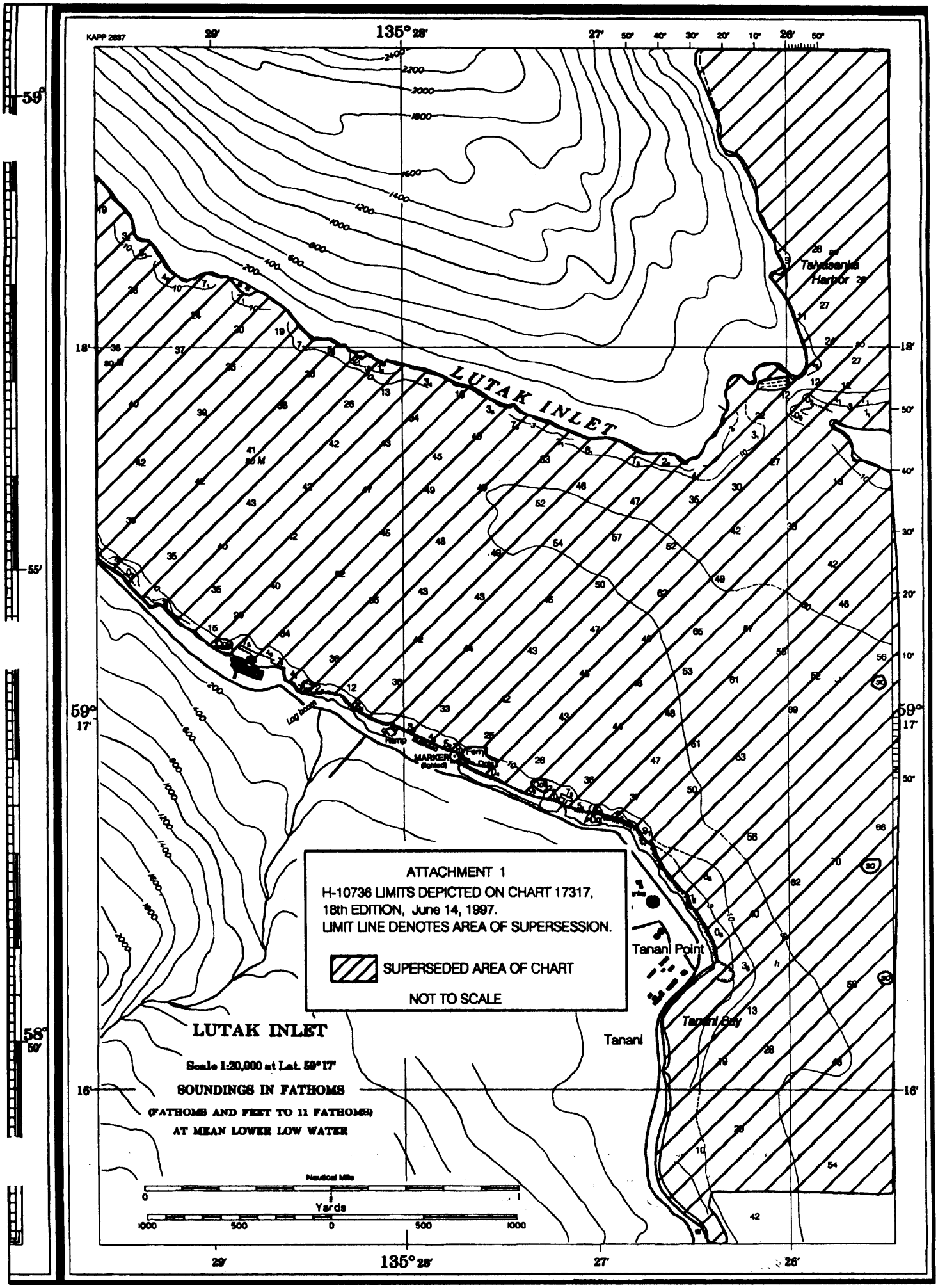
Final Approval

Approved:

Samuel P. De Bow Date: 12-22-99
Samuel P. De Bow
Commander, NOAA
Chief Hydrographic Surveys Division


ATTACHMENT 1
H-10736 LIMITS DEPICTED ON CHART 17317, 18th EDITION, June 14, 1997.
LIMIT LINE DENOTES AREA OF SUPERSESSION.
SUPERSEDED AREA OF CHART
NOT TO SCALE
Chilkoot R
Taiyasanka Hbr
Ridge
Log storage areas
Taiya Pt
Waterfall
Low Pt
MARKER (lighted)
Ferry
Tanks
Tanani Pt
Tanani Bay
Fl 6s 15ft 7M
Indian Rk bares at MLLW
(see inset)
Mt Ripinski
3540
3780
3800
4300
1280


KAPP 2697
135° 28'
29'
27'
26'
59°
55'
56° 50'
18'
16'
59° 17'
LUTAK INLET
Taiyasanka Harbor
Tanani Point
Tanani Bay
Tanani
ATTACHMENT 1
H-10736 LIMITS DEPICTED ON CHART 17317,
18th EDITION, June 14, 1997.
LIMIT LINE DENOTES AREA OF SUPERSESSION.
SUPERSEDED AREA OF CHART
NOT TO SCALE
LUTAK INLET
Scale 1:20,000 at Lat. 59°17'
SOUNDINGS IN FATHOMS
(FATHOMS AND FEET TO 11 FATHOMS)
AT MEAN LOWER LOW WATER
Nautical Mile
Yards
1000
500
0
500
1000

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-10736

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
17317	5/5/99	Russ Davies	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via Full Application
			Drawing No. of Sndgs, curves and features from smooth sheet
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
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			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.