H10808

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-10-3-98

Registery No.: H-10808

LOCALITY

State: Alaska

General Locality: Lynn Canal

Sublocality: Battery Point to Low Point

1998 -99

CHIEF OF PARTY
CAPT Alan D. Anderson, NOAA

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

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-10808

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-10-3-98

State: Alaska

General locality: Lynn Canal

Locality: Battery Point to Low Point

Scale: 1:10,000, Change #1 3/30/98 Date of survey: 4/24/98-5/27/98; 4/26/99

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

Vessel: RA-2,(2122), RA-3(2123)* RA-4(2124), RA-5(2125)

Chief of party: CAPT Alan D. Anderson, NOAA

Surveyed by: NOAA Ship RAINIER Personnel

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

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

Evaluation by: ~~Rxxxxxxxxxx~~ L. Deodato Automated plot by: HP Design Jet 650C

Verification by: M. Bigelow, D. Doles, R. Mayor, R. Shipley, L. Deodato

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

REMARKS: All times 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.

* Shallow water multibeam data (SWMB) collected but not useable.

AWOIS & SURF 12/8/99 MCR

PROGRESS SKETCH

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

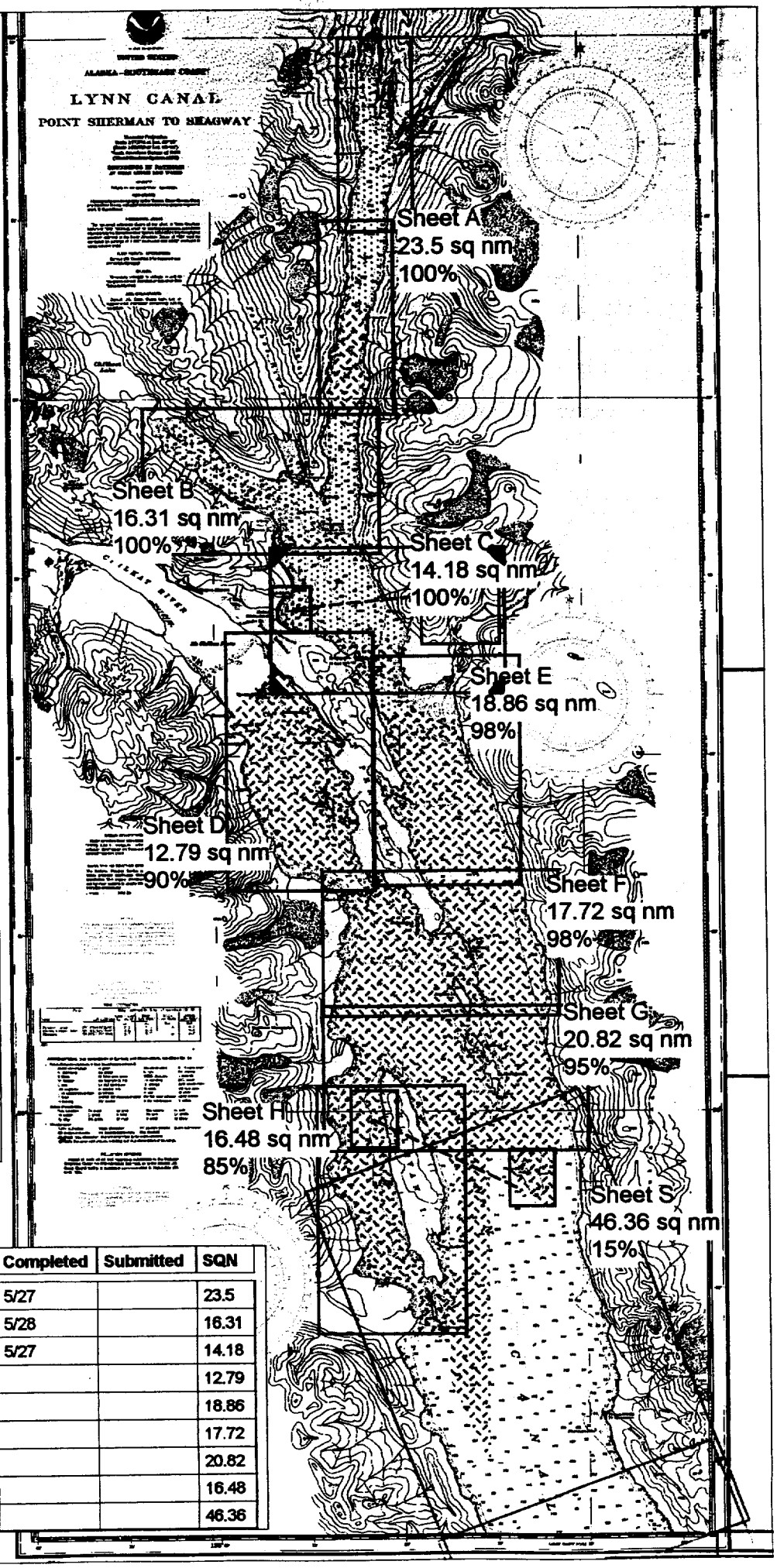
Chart 17317

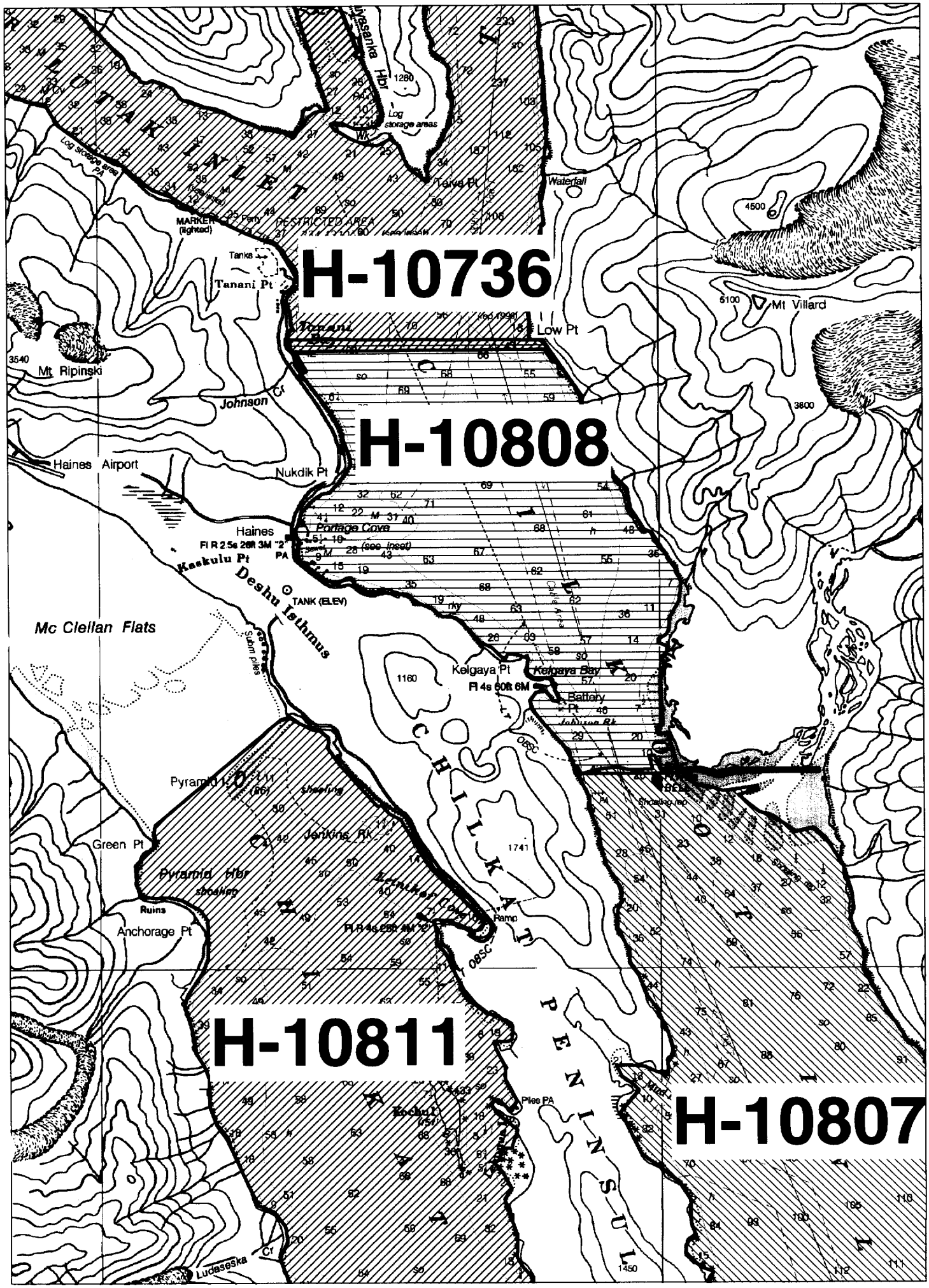
Downtime_Type	April	May
Weather - Hr	0	0
Mechanical -Hr	0	0
Electronic -Hr	1	0

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
H-10808
H-10811
H-10807
CHILKAT PENINSULA
CHILKAT INLET
Tanani Pt
Low Pt
Mt Ripinski
Mt Villard
Johnson Cr
Haines Airport
Nukdik Pt
Haines
Portage Cove
Kaskulu Pt
Deshu Isthmus
TANK (ELEV)
Mc Clellan Flats
Kelgaya Pt
Kelgaya Bay
Battery Pt
Pyramid Ldg
Green Pt
Jerkins Rk
Pyramid Hbr
Ruins
Anchorage Pt
Ramp
Piles PA
Waterfall
Log storage areas
Log storage area
MARKER (lighted)
RESTRICTED AREA
Tanks
Ferry
Subm piles
Shoaling
OBSC
Ludaseska

Descriptive Report to Accompany Hydrographic Survey H-10808

Field Number RA-10-3-98
Scale 1:10,000 (and 1:5000 scale Inset)
May 1998
NOAA Ship RAINIER
Chief of Party: Captain Alan D. Anderson, NOAA

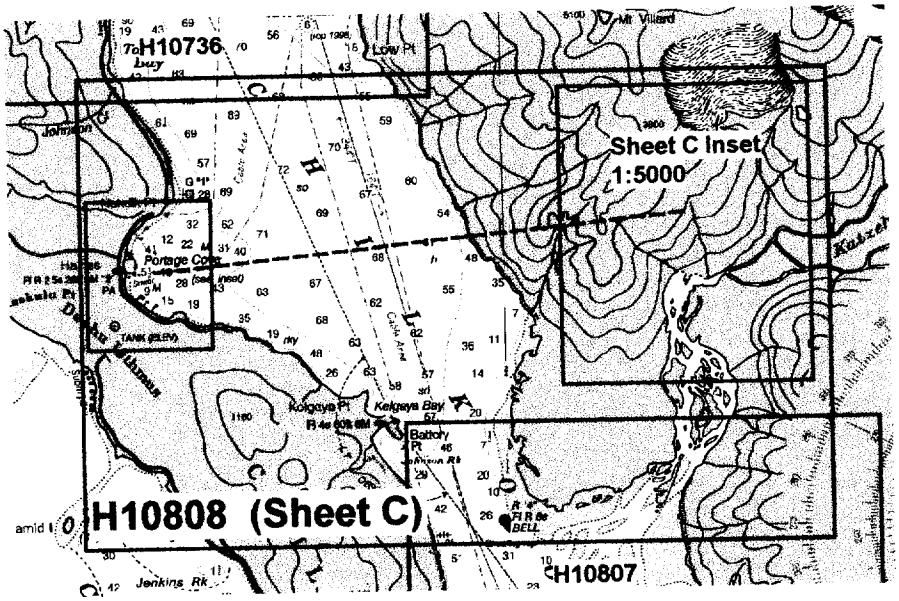
A. PROJECT ✓

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-10808** corresponds to **Sheet C** as defined in the sheet layout. This survey will provide data to supersede surveys performed in 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 in the Port of Haines, AK.

B. AREA SURVEYED ✓ See Evel Report, Section B

The survey area is in Lynn Canal, from Battery Point to Low Point. The survey area includes a 1:5000 scale inset of Portage Cove, the harbor for the town of Haines, AK. The survey's northern limit is latitude 59° 15' 49" N. The survey's southern limit is latitude 59° 12' 04" N. The eastern and western limits are bounded by shore. A single reconnaissance line was run in the outflow delta of the Katzehin River during high tide. The outflow delta was confirmed to be above the low water line and was not further surveyed. Data acquisition was conducted from April 24 (DN 114) to May 27, 1998 (DN 147). Concur



C. SURVEY VESSELS ✓

Data were acquired by RAINIER's survey launches as noted in the Survey Information Summary printout appended to 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 7.1a from Coastal Oceanographics and processed using Hydrographic Processing System (HPS). 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.* See discussion of launch shallow water multibeam, section F.

E. SONAR EQUIPMENT

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

F. SOUNDING EQUIPMENT ✓

Three different categories of echosounder systems were used for Project OPR-340-98 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. In addition, singlebeam launches were used to perform all shoreline verification. Concur

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

During the performance of this survey, the new SWMB systems were undergoing field-testing and the 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 Haines Harbor Small Craft Basin and its entrance, the pier face of the Haines City Pier, development of a 37 fathom sounding, and for AWOIS 52394 investigation. Processing of the data revealed that a significant amount of the data was corrupt and unusable. Therefore, no official SWMB data will be submitted with this survey. The SWMB system is described here for information only. concur The Smooth Sheet Contains launch single beam data only.

* Filed with the hydrographic data

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

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

The survey area of H-10808 was not deep enough for effective use of the IDSSS system. The IDSSS system was not used and is described here for information only. concur

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 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 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. There were no significant discrepancies seen between these two single beam echosounders within the survey area as displayed on the smooth sheet.

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 statement above.

* Filed with the hydrographic data.

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.* Not applicable to this survey

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 data for this survey:

Cast ** Number	DN	Latitude	Longitude	Table Depth (m)	HPS Table	Applied to Days
1	112	59-17-58 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	478.8	2	124-146
7	147	59-18-06 N	135-22-42 W	541.9	7	147

** Casts plot outside the survey area

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

Vessel Number	DN	Time (UTC)	Latitude	Longitude	Table Depth (m)
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

** Casts plot outside the survey area and approximately three nautical miles from Portage Cove. However, survey data was not useable.

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, 1998 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. ** Applied to final processed 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
SEA1K	0	1.02	945-2210
SEA1	0	1.03	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 February 16,1999 is attached.

H. CONTROL STATIONS ✓ See Eval Report, 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-O340-RA-98 Horizontal Control Report for more information.

I. HYDROGRAPHIC POSITION CONTROL ✓ See Eval Report, 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.

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. The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-0340-RA-98.

* Filed with the hydrographic data.

J. SHORELINE ✓ See Eval 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 00598. However, at the time of shoreline verification, neither CRS 00298 nor CRS 00598 were in usable form for import into Hypack. Consequently, shoreline used for shoreline verification was a MapInfo tracing, made by RAINIER personnel, of shoreline from NOS Chart 17317, 18th edition, June 14, 1997, 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.

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. 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. 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. Shoreline verification was 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 is recommended that they be added to the chart. Concur with clarification

FIX NUMBER	FEATURE with raw depth (or height in parentheses) in meters	DEPTH (m) corrected with predicted tides	POSITION of DP	NOTES
50045 ✓	Reef, new NE ext rng 5m brg 180M (0.8)m	0.6	59-14-40.711 N ✓ 135-25-17.936 W	DPs 50045-50049 define the same reef
50046 ✓	Reef, new SE ext rng 5m brg180M (0.5)m	0.9	59-14-38.999 N ✓ 135-25-17.936 W	
50047 ✓	Reef, new SW ext rng 5m brg 300M (0.2)m	1.10	59-14-37.703 N ✓ 135-25-22.646 W	This reef is marked by Nukdik Daybeacon G "1"
50048 ✓	Reef, new W ext rng 5m brg 060M (0.0)m	1.3	59-14-38.661 N ✓ 135-25-23.566 W	
50049 ✓	Reef, new NW ext rng 5m brg 070M (1.5)m	-0.2	59-14-40.223 N ✓ 135-25-20.735 W	Chart reef on inset
50076 ✓	Rock, new rng 1.5m brg 270M (0.3)m	0.9	59-13-59.533 N 135-26-14.209 W	Rock appears to be misplaced breakwater material O3 RK Chart
50106 ✓	Ldg, new NE ext rng 3m brg 230M (2.5)m	-1.4	59-13-35.644 N 135-25-23.410 W	Chart ledge on inset.

Smooth Sheet

Reef (6)

O6 RK

Ledge symbol

Smooth Sheet

50166 ✓	Ldg, new rng 3m brg 210M (4.0)m	-3.2	59-12-59.264 N ✓ 135-22-58.206 W	50166 – 50172 define the same ~~feet~~ ledge The reef extends northwest along the shoreline from Kelgaya Pt for approximately 2000 meters. Chart ledge as individual rocks
50167 ✓	Ldg, new rng 3m brg 210M (6.0)m	-5.4	59-13-13.878 N ✓ 135-23-31.580 W	
50168 ✓	Ldg, new rng 2.5m brg 150M (5.5)m	-5.0	59-13-16.101 N ✓ 135-23-40.761 W	
50169 ✓	Ldg, new rng 3.0m brg 210M (2.5)m	-2.1	59-13-18.031 N ✓ 135-23-53.996 W	
50170 ✓	Ldg, new rng 3.0m brg 200M (3.0)m	-2.7	59-13-19.894 N ✓ 135-23-58.915 W	
50171 ✓	Ldg, new rng 3.0m brg 250M (7.0)m	-6.8	59-13-28.627 N ✓ 135-24-28.315 W	
50172 ✓	Ldg, new rng 3.0m brg 160M (2.5)m	-2.9	59-13-28.840 N ✓ 135-24-36.506 W	
50174 ✓	Pier, new SE ext rng 2.0m brg 240M (10.0)m	-11.0	59-13-44.586 N ✓ 135-26-03.231 W	50174 refers to the south catwalk built for the Haines city pier dock expansion. See also Graphic J2 in this section.
50175 ✓	Pier, new addition rng 2.0m brg 180M (10.0)m	-11.1	59-13-46.434 N ✓ 135-26-07.819 W	50175 is along the pier face (mid-point) of the new expansion on the Haines city pier. See also Graphic J2 in this section. Chart pier revision
50176 ✓	Pier, new NW ext rng 2.0m brg 240M (10.0)m	-11.2	59-13-48.212 N ✓ 135-26-14.564 W	50176 refers to the southern extent of the new northern catwalk built for the Haines city pier dock expansion. See also Graphic J2 in this section. Chart catwalk
50177 ✓	Pier, floating, new rng 1.0m brg 120M (0.0)m	-1.3	59-13-45.720 N ✓ 135-26-14.544 W	50177-50178 refer to the same floating pier. See also Graphic J2 in this section. (Chart floating pier)
50178 ✓	Pier, floating, new rng 1.0m brg 090M (0.0)m	-1.3	59-13-46.466 N ✓ 135-26-12.542 W	

Ledge

New catwalk shown in red.

Pier revision added in red

New catwalk shown in red

Floating pier shown in red

The following additional Detached Position was taken on the original (charted) portion of the Haines City Pier: Concur

Smooth Sheet

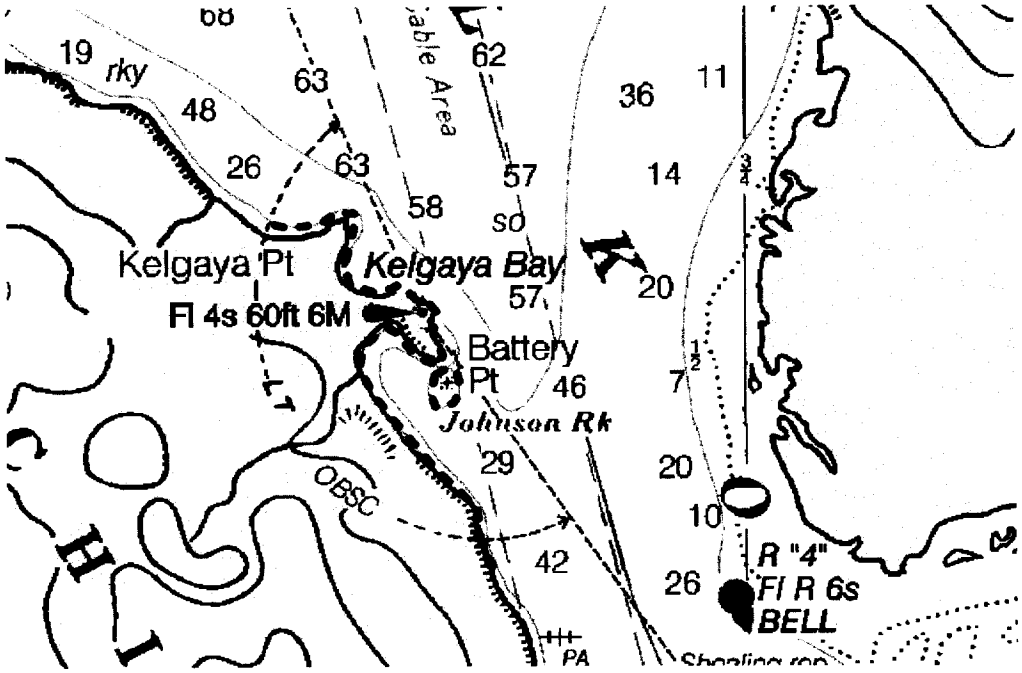
FIX NUMBER	FEATURE with raw depth (or height in parentheses) in meters	DEPTH (m) corrected with predicted tides	POSITION of DP	NOTES
50173 ✓	Pier, chd SE ext rng 2.0m brg 270M (10.0)m	-10.8	59-13-44.521 N ✓ 135-26-10.098 W	Refers to inshore edge of the original portion of the Haines City pier.

Original pier shown in black

Shoreline verification was not performed on a portion of the west side of Lynn Canal due to an oversight. The deficient region is from Kelgaya Pt to the southern limit* of the survey and is displayed in a red dashed line in Graphic J1 below. It is recommended that Johnson Rock (Lat 59-12-23.5 N, Long 135-21-46.1W) be retained as charted. See additional work dated 4/26/99 (attachment C)

* Shoreline in this area has been shown in brown on the Smooth Sheet from the chart.

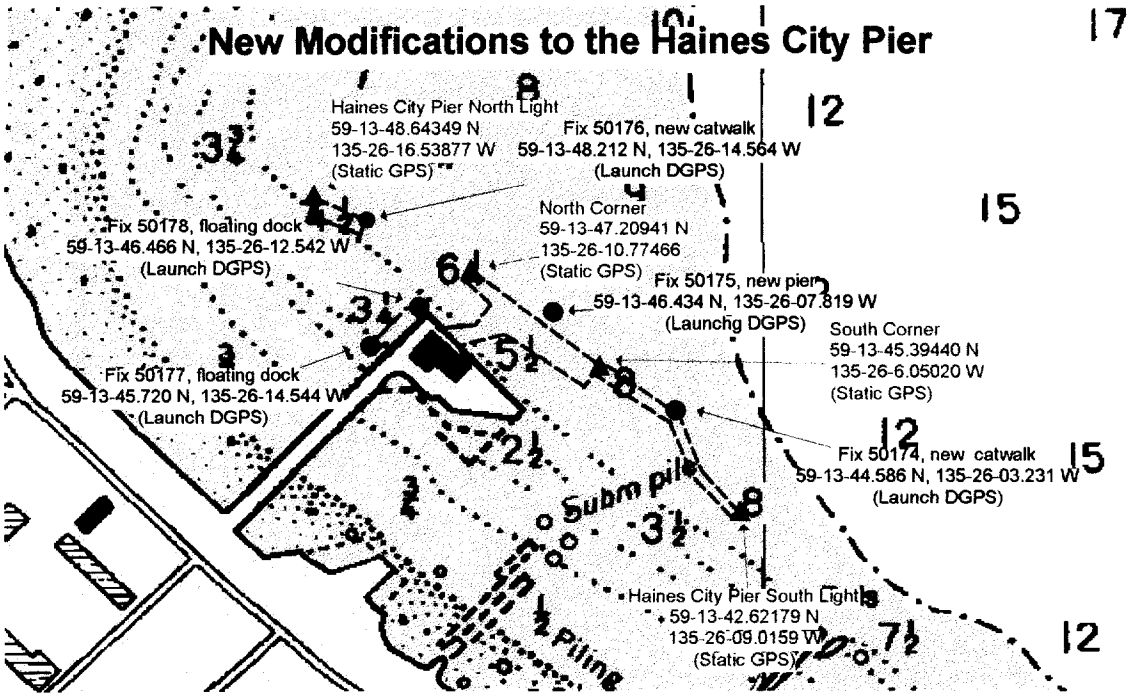
Graphic J 1 - Shoreline Verification Deficiency ✓



The following graphic shows the Hydrographer's representation of the new modifications to the Haines City Pier and is intended to aid in chart compilation. The graphic shows the general shape of the new pier, based on a combination of DGPS detached positions and Static GPS positions. A building plan for the pier was

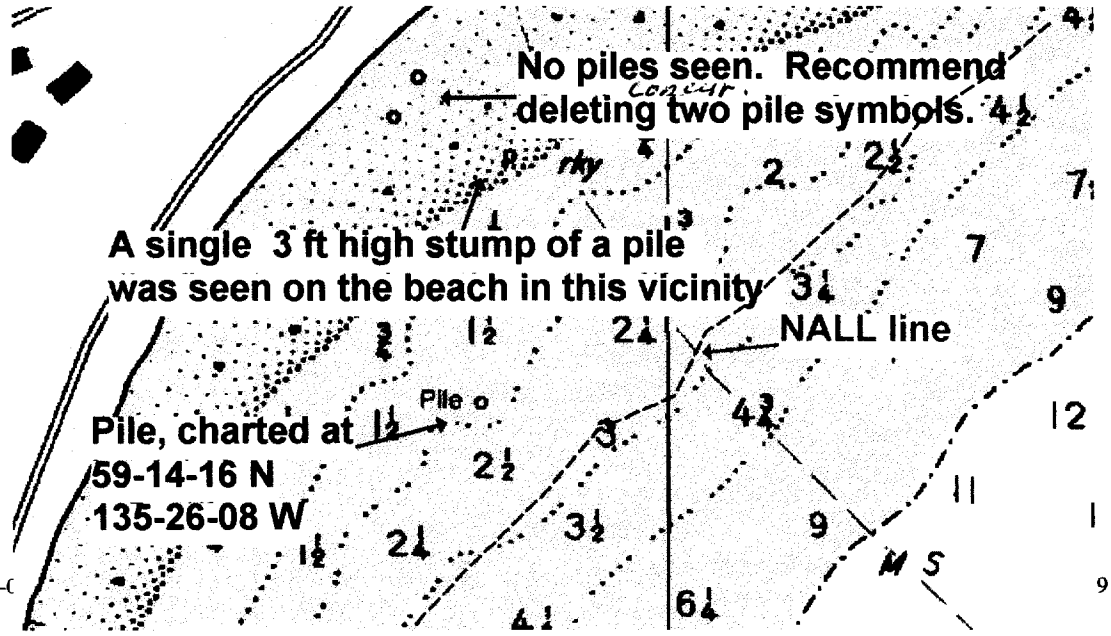
obtained from the Harbormaster and is included in ~~Section IV~~, Supplemental Correspondence (attached)
Haines City Pier has been added to the smooth sheet in red based on the survey information.

Graphic J 2 –New Modifications to the Haines City Pier



Of special note, the survey area of Portage Cove has numerous man-made features (piles, pier ruins etc) that exist inshore of the NALL and were consequently not positioned during shoreline verification. During the course of the Project, RAINIER spent several days moored at the Haines City Pier, during which time the Hydrographer visually scanned the area inshore of the NALL for agreement with Chart 17317, 18th edition, 6/14/97 (1:10,000 scale inset of Portage Cove). It is the Hydrographer's conclusion that the charted inset properly shows all features that were visually seen inshore of the NALL except for the following piles: Additional features not specifically addressed and or investigated are listed in the evaluation report, sections M and O.

Graphic J 3 – Charted Piles inside NALL



Charting Recommendations ✓

No pile was seen protruding out of the water in the vicinity of 59-14-16N, 135-26-08W during shoreline investigation at low tide. However, no further investigation was performed and it is recommended that the pile charted at 59-14-16N, 135-26-08 W be revised to a "subm pile".* The 3 ft pile stump seen further inshore appears to correlate to a pile charted at 59-14-21N, 135-26-07W, which is the seaward-most of three nearby charted piles (piles that are charted with "o" symbols only and no "pile" text). It is recommended that the seaward-most charted pile be retained* and a "pile" text be added. It is recommended that the inner two pile symbols charted at 59-14-23N, 135-26-10W and 59-14-22N, 135-26-11W be deleted from the chart. Concur

* These features have been transferred in color to the smooth sheet from H-6942 (1943) and described as noted above.

K. CROSSLINES ✓

Crosslines agreed very well with mainscheme hydrography, generally to within 1 meter. There were a total of 23.55 nautical miles of crosslines, comprising 13.9% of mainscheme hydrography. Concur

L. JUNCTIONS ✓ See Eval Report, Section L.

Junctions with the main survey area:

Registry #	Scale	Date	Junction side
H-10736	1:10,000	1998	North
H-10807	1:10,000	1998	South

Junction soundings with the surveys above were found to be in good agreement with this survey. Concur Differences of less than 1 meter were observed. 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.

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 #	Scale	Date	Area Covered
H-6942	1:5,000	1943	Haines Harbor (Portage Cove)
H-4226	1:40,000	1922	Wire drag survey
H-2057	1:40,000	1890	Chilkoot Inlet

Comparison with H-6942: Agreement is very good with H-6942, with soundings agreeing within ~~1-2~~ 0.5-1.0 fathoms. The most notable difference is a ½ fathom sounding shown on H-6942 at Nukdik Pt where H-10808 found a new reef with a height of 0.2 meters.* See section J., Shoreline, for details.

* Reef awash at MLLW based on approved tides.

Comparison with H-4226: H-4226 is mainly a wire drag survey. There was general agreement between

soundings shown on the prior survey. Concur See Evel Rpt., Section M.

Comparison with H-2057: H-2057 is a prior survey with sparse and widely spaced soundings. Agreement was good where direct comparisons could be made, with soundings agreeing to within 1-2 fathoms. Concur with clarification.

N. ITEM INVESTIGATIONS ✓

One AWOIS items was investigated and is described below.

ITEM INVESTIGATION REPORT ✓

AWOIS # : 52394	**DN:** 147
CHART #:17317 18th ed.	**VESNO:** 2125
ITEM DESCRIPTION: Rock awash, Rep 1994	
SOURCE: CL 954/94, LNM 32/94	

GEOGRAPHIC POSITION

	LATITUDE	LONGITUDE	POSITION #
	59-~~18-03.65~~ N 13-58.20	135-~~25-07.27~~ W 26-21.45	DP# 52191 Time 16:34:33 UTC
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)
METHOD OF INVESTIGATION: Visual			

FINDINGS: AWOIS 52394 is a rock awash, reported 1994. The AWOIS position is only 5 meters south of a float plane dock. (Note: if the AWOIS item actually existed at this location, it would be an extreme hazard to float plane docking operations conducted at low tide.)

The rock was investigated on DN 147 by visual investigation from a survey launch during a period of extreme low (negative) tide. The water was clear and shallow, with the sea-bottom in clear view to a depth of 7-10 ft. A detached position (DP # 52191) was taken at the launch's point of observation, which was along the south side the float plane dock. No rock was seen -- either projecting out of the water or submerged. The hydrographer continued the visual investigation by getting out of launch and walking in the water. He proceeded south (away from the float dock) along the shoreline in waist deep water for a distance of about 30 meters. Again, no rock was seen -- either projecting out of the water or submerged. (See photo #1 of the Supplementary Photographs at the end of this report.) ✓

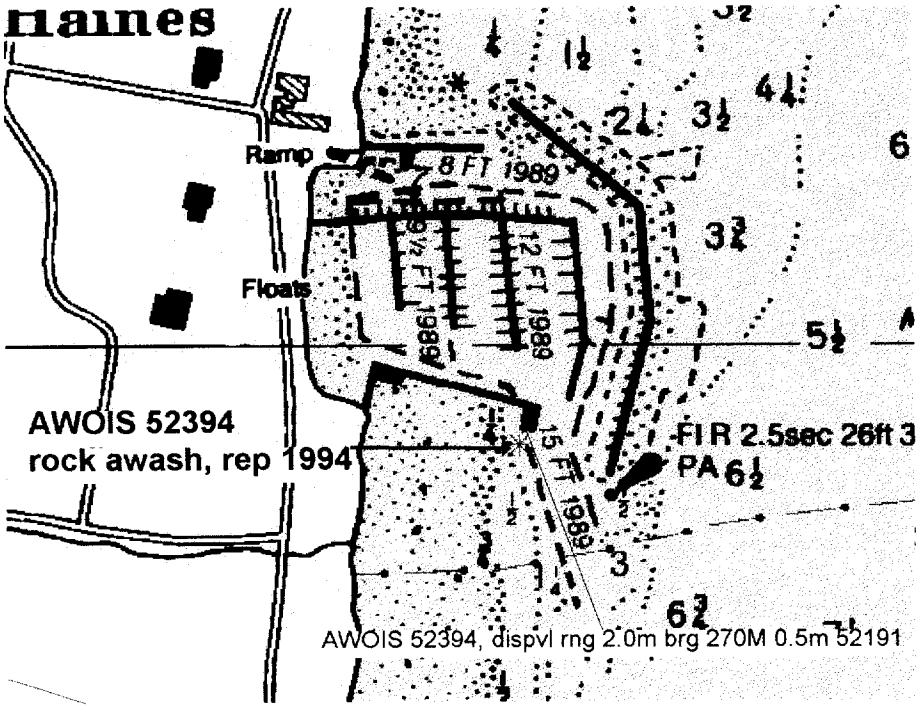
The investigation then focused on the exposed portion of the beach to the west of the float dock. The beach consists of many small rocks, about the size of cobblestones, embedded in a mud bottom. A pile of larger rocks (totaling about 2 feet high) was seen approximately 30-40 meters inshore* and due west of the AWOIS position. This larger pile of rocks may be the source of the AWOIS item. This pile of rocks is well inshore and is only covered during periods of extreme high tide. It is not significant to navigation and need not be charted. Concur

* Prior survey rock from H-6942 has been transferred to the smooth sheet at Lat 59/13/59N, Long. 135/26/24 W.

CHARTING RECOMMENDATIONS

Remove rock awash, rep 1994 from the chart. concur.

Graphic N1 – AWOIS 52394



O. COMPARISON WITH THE CHART ✓ See Eval Report, Section O.

Two charts are affected by this survey:

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

Chart 17317 ✓ (largest scale with full survey coverage)
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. Changes generally resulted from a more complete and thorough coverage of the survey area. 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. Concur

H-10808 shows:	Chart 17317, 18th ed. shows	Latitude	Longitude	Comments
33-59 fathoms ✓	6 ¼ fathoms	59-15-17 N ✓	135-25-46 W ✓	6 ¼ sounding is shown on prior survey H-2057 to be closer to shore. Recommend charting H-10808

Concur

				survey depths.
37 fathoms ✓	In-between charted 63 fathom and 71 fathom soundings	59-13-59.8 N ✓	135-24-03.6 W ✓	New shoal – recommend charting H-10808 survey depths. Concur
48 fathoms ✓	29 fathoms	59-12-08.8 N ✓	135-21-28.0 W ✓	Recommend charting H-10808 survey depths.* Concur

* See Evaluation Rpt., Section M.

A single cable was sighted running from shore into the center of the charted cable area in Portage Cove. The cable had a diameter of approximately 0.5 inches and appeared to be a communications cable. The cable was marked with an associated crossing sign on shore. Retain cable area as charted.

The sewer outfall due south of the Haines Harbor Small Craft Basin was also sighted running from shore into the water and appears to be charted adequately. The sewer outfall was marked with an associated crossing sign on shore. Retain, Sewer as charted

Dangers to Navigation

There were no Danger to Navigation reports submitted in conjunction with this survey. Concur

P. ADEQUACY OF SURVEY ✓ See Eval Rpt., Sections M, O and P

Survey H-10808 is complete and adequate to supersede prior soundings and features in their common areas with the exception of Johnson Rock*, which should be retained as charted. Concur with clarification
* See additional work dated 4/26/99 (Attachment C)

Q. AIDS TO NAVIGATION ✓

Five navigational aids exist within the survey limits.

The following five navigational aids were positioned by this survey. See Section Q, Descriptive Report Inserts (attached) ~~Appendix II. Non-Floating Aids and Landmarks for Charts~~, for details. All aids serve the apparent purposes for which they were intended. Concur

Name	Positioned by	1998 Light List No.	Survey Position	Comments
Haines Small Boat Harbor Light 2 ✓	Static GPS	23910	59-13-57.79350 N ✓ 135-26-17.46938 W	
Haines City Pier North Light ✓	Static GPS	Not listed	59-13-48.64349 N ✓ 135-26-16.53877 W	Marks new catwalk of Haines City Pier
Haines City Pier South Light ✓	Static GPS	Not listed	59-13-42.62179 N ✓ 135-26-00.90159 W	Marks new catwalk of Haines City Pier
Battery Point Light ✓	Static GPS	23905	59-12-36.93924 N ✓ 135-21-54.81352 W	
Daybeacon G "1" ✓	DGPS	23915	59-14-39.240 N* ✓ 135-25-17.980 W (average of DPs 47788 and 50181) *Pos 47788 used for location of Daybeacon Lat. 59/14/39.254 N Long. 135/25/18.131	New Daybeacon G "1" replaces previous Buoy G "1" DP Fix No.s 47788 and 50181 were within 4.8 meters of one another

Note: Katzehin River Flats R "4" (Light List No. 23900) is addressed in survey H-10807. Concur Transferred to the smooth sheet.

R. STATISTICS ✓

Refer to the Survey Information Summary attached to this report.

S. MISCELLANEOUS ✓

Forty 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 singlebeam echosounding equipment to warrant removing the wire drag tint from the chart. Do not concur.

The charted cable area in Portage Cove greatly restricts the area available for anchoring large ships in the harbor. It is recommended that the source documentation of the cable area be investigated to see if its charted limits can be safely reduced. 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,

Eric J. Sipos
Lieutenant (JG), NOAA

Approved and forwarded,

Alan D. Anderson
Captain, NOAA
Commanding Officer

Photo 1. AWOIS 52394 investigation. Floatplane dock is on the left.

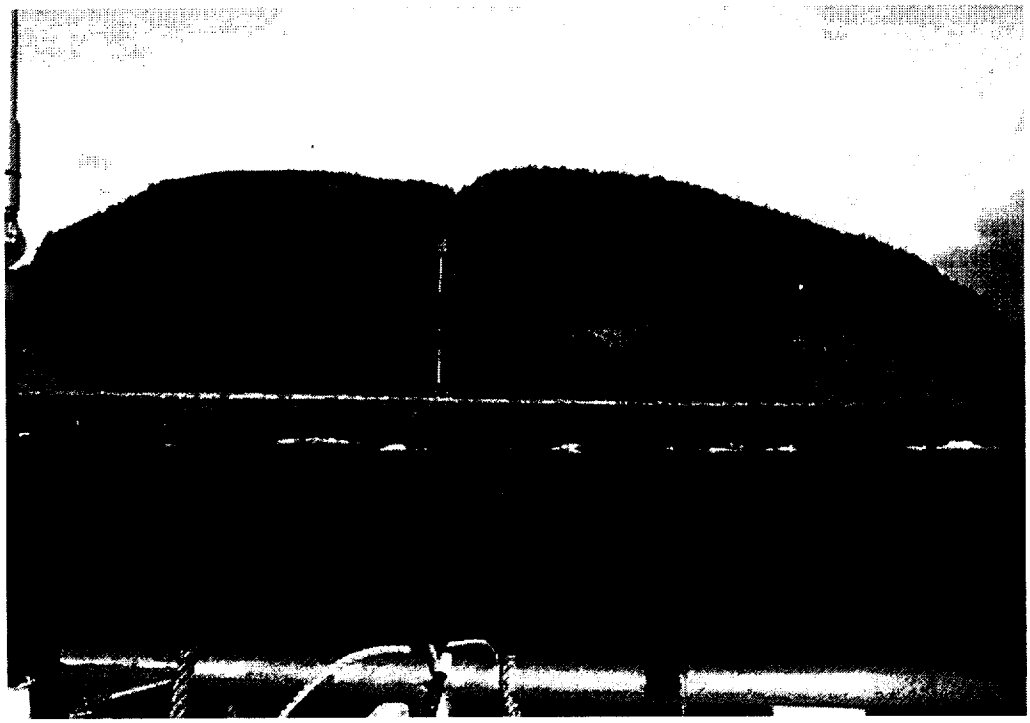


Photo 2. Reef marked by Nukdik G "1" Daybeacon.

Photo 3. New north catwalk – part of new modifications to Haines City Pier

Photo 4. New pier face -- modification to Haines City Pier

Photo 5 – Charted pier ruins – inshore of NALL, at approx. position 59-13-41 N, 135-26-08 W.

M. ITEM INVESTIGATIONS ✓

Note: Items were assigned as AWOIS 52444-46 and were not addressed as instructed. mcR 12/8/99

There were three Additional Work items assigned for survey H-10808.

Item Investigation #1

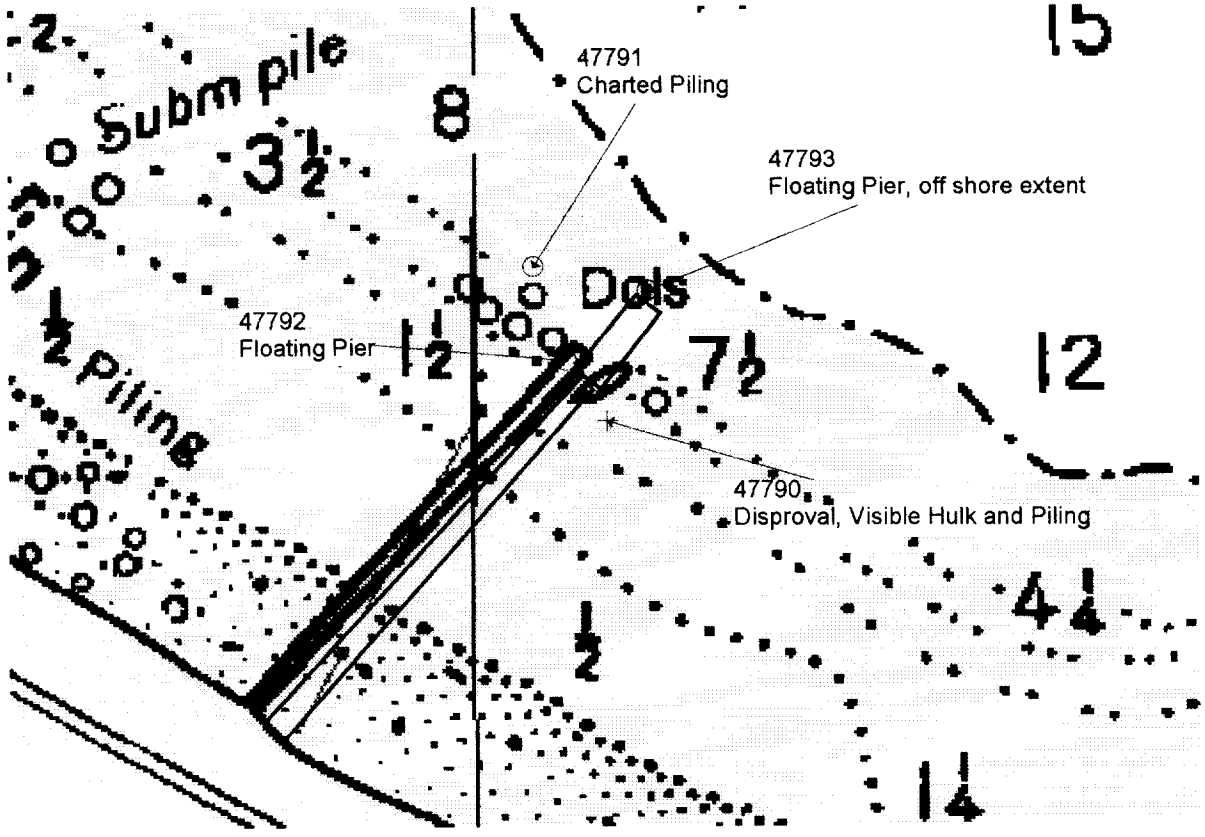
ITEM # : 1	**DN:** 116
CHART #: 17317 (1:77,812, 18th Edition, 6/14/97)	**VESNO:** 2124
ITEM DESCRIPTION: Visible Hulk and ~~Piling~~ Dolphin	
SOURCE: Chart 17317	

Geographic Position

	LATITUDE	LONGITUDE	POSITION #
CHARTED:	59° 13' 40" N	135° 25' 57" W	
OBSERVED:	59° 13' 39.572" N ✓	135° 25' 57.429" W ✓	47790,47792,47793
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)
METHOD OF INVESTIGATION: 5 minute Visual Search, 100 meter radius, 5 meter water visiblity, 7 to 3 meter water depths.			
FINDINGS: No evidence of visible hulk nor piling were seen; a 45' vessel was moored at a floating pier less than 10 meters from Detached Position			

Charting Recommendations

The hydrographer recommends removing the visible hulk and ~~piling~~ dolphin* at the charted positions and charting the area as found during this survey.* Concur with clarification. Retain charted dolphin as submerged.



Item Investigation #2 ✓

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

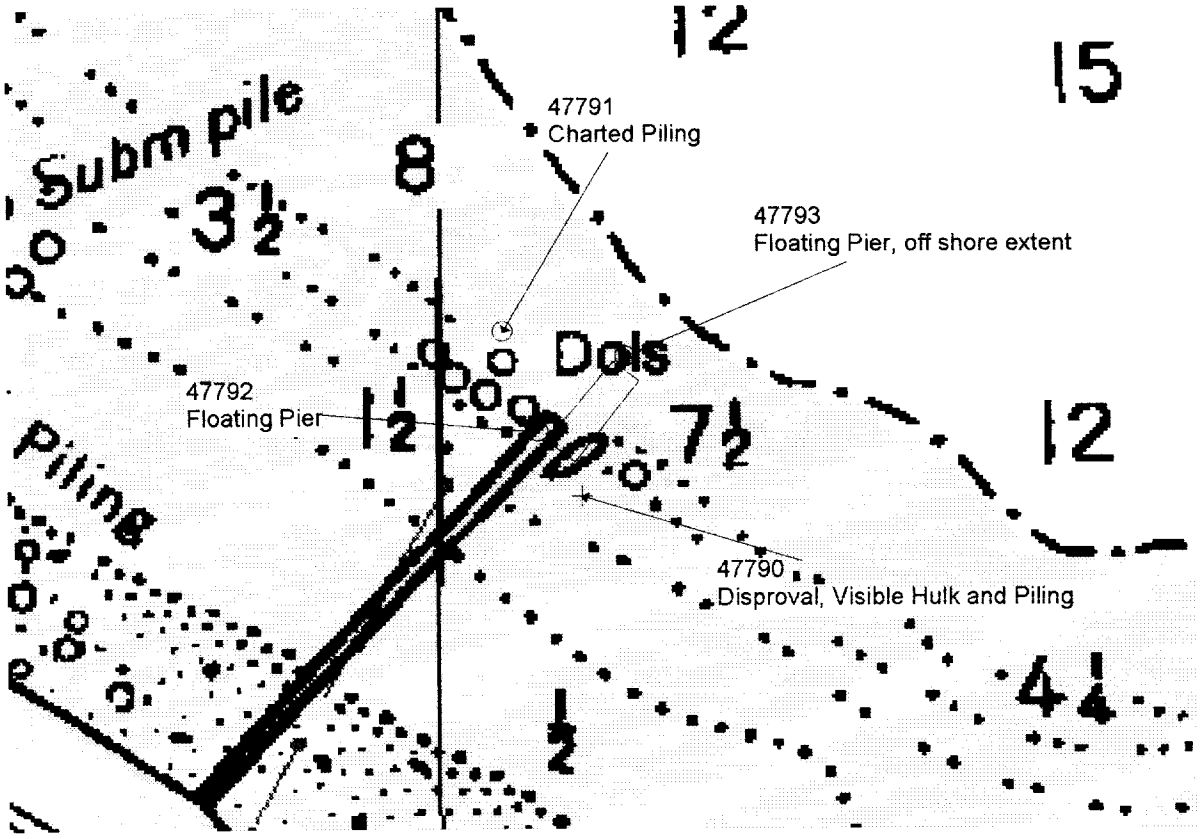
Geographic Position

	LATITUDE	LONGITUDE	POSITION #
CHARTED:	59° 13' 40.7" N	135° 25' 59.0" W	
OBSERVED:	59° 13' 41.096" N ✓	135° 25' 58.912" W ✓	47791
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)
METHOD OF INVESTIGATION: Visual Search			
FINDINGS: Single ~~Piling~~ Dolphin – made up of 6 ~~dolphins~~ piles lashed together.			

Charting Recommendations

The hydrographer recommends removing the charted 5 dolphins* and charting the single ~~piling~~ dolphin found during this survey. Concur with clarification

*Retain five charted dolphins and revise notation to Submerged.



Item Investigation #3 ✓

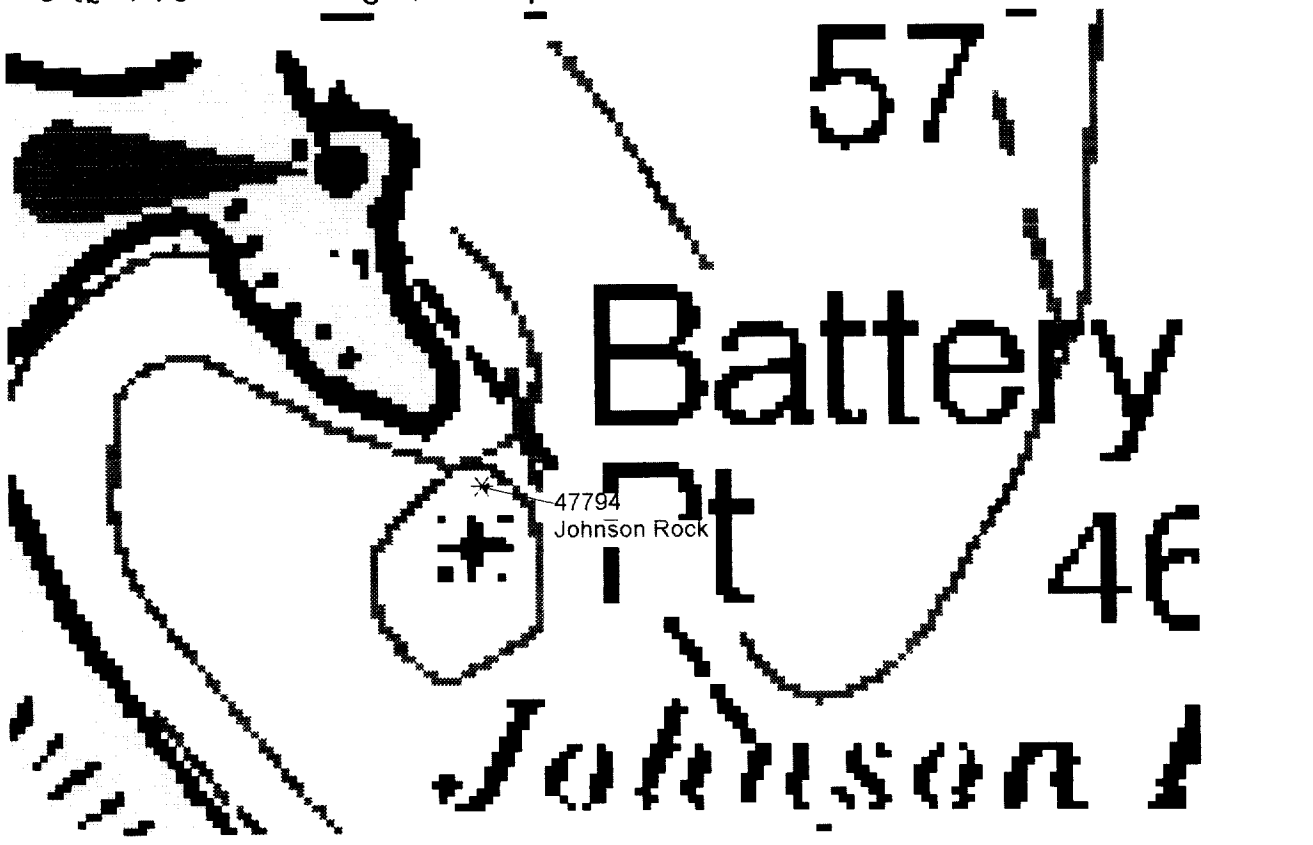
ITEM # : 3	**DN:** 116
CHART #:17317 (1:77,812, 18th Edition, 6/14/97)	**VESNO:** 2124
ITEM DESCRIPTION: Submerged Rock (Johnson Rock)	
SOURCE: Chart 17317	

Geographic Position

	LATITUDE	LONGITUDE	POSITION #
CHARTED:	59° 12.38' N	135° 21.75' W	
OBSERVED:	59° 12' 25.465" N ✓	135° 21' 45.317" W ✓	47794
POSITIONED BY:	DGPS	**DATUM:**	MLLW (NAD 83)
METHOD OF INVESTIGATION: Echo Sounder Search			
FINDINGS: Submerged rocky peak 1.8 meters below MLLW, about 75 meters southeast of Battery Pt			

Charting Recommendations

The hydrographer recommends retaining the charted rock at the position found during this survey. Concur with clarification
Delete charted rock. Chart 0₅ Rk at surveyed location.



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: C **Registry Number:** H-10808

Sheet Number: RA-10-03-98

Survey Title: BATTERY POINT TO KATZEHIN RIVER

Data Acquisition Dates: **From:** 24-Apr-98 114 **To:** 27-May-98 147

Vessel Usage Summary

VESNO	MS	SPLITS	DEV	XL	S/L	DP	BS	DIVE
2124	2	2			1	1		
2125	1	3			4	6	1	
2126	3	3		2				

Sound Velocity Cast Information

Launch Table #	Ship Table #	Cast DN	Max Depth	Position	Applicable DN
1	20	112	546	59/17/58 135/22/43	
9	20	117	551.5	59/18/36 135/22/42	
2	20	124	478.8	59/24/45 135/21/09	
7	20	147	541.9	59/18/06 135/22/42	

Tide Zone Information

Tide Gage Information

Statistics Summary

Type	Total:
BS	41
DP	24
MS	169.11
S/L	10.92
SPLIT	189.86
XL	23.55

Percent XL: 13.9%

SQNM: 14.18

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: Battery Point Light
Light List #: 23905

Method of Positioning Static GPS: [X] DGPS: [ ] Other: _____

Positioning Information

	Latitude (N)	Longitude (W)
Charted Pos.	59-12-36.4	135-21-54.7
Survey Pos.	59-12-36.93924	135-21-54.81352 ✓

	Easting	Northing
Charted Pos.	43419.7	162638.4
Survey Pos.	43417.9	162655.1

Difference between Charted and Surveyed Position: Distance: 17 meters
(Bearing from Surveyed to Charted Position) Bearing: 174 deg T

Characteristics Flash White 4 seconds
Do characteristics match Light List? Yes [x] No [ ] NA. [ ]
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: _____

Other Information: Published position: 58-12.6 N 135-21.9 W (1998 Light List)

Section Q: Descriptive Report Insert ✓

Name of Aid: Haines Small Boat Harbor Light "2"
Light List #: 23910

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

Positioning Information

	Latitude (N)	Longitude (W)
Charted Pos.	59-13-56.7	135-26-17.8
Survey Pos.	59-13-57.79350	135-26-17.46938 ✓

	Easting	Northing
Charted Pos.	39251.9	165132.7
Survey Pos.	39257.2	165166.5

Difference between Charted and Surveyed Position: Distance: 34 meters
(Bearing from Surveyed to Charted Position) Bearing: 189 deg T

Characteristics Flash Red 2.5 seconds
Do characteristics match Light List? Yes [x] No [ ] NA. [ ]
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: _____

Other Information: Published position: 58-13.9 N 135-26.3 W (1998 Light List)

Section Q: Descriptive Report Insert ✓

Name of Aid: Nukdik Point Daybeacon G "1"
Light List #: 23915

Method of Positioning Static GPS: [ ] DGPS: [X] Other: _____

Positioning Information

	Latitude (N)	Longitude (W)
Charted Pos.	59-14-39.9	135-25-14.6
Survey Pos.	59-14-39.2 ✓	135-25-~~18.131~~ ✓

	Easting	Northing
Charted Pos.	40257.5	166466.8
Survey Pos.	40201.5	166446.9

Difference between Charted and Surveyed Position: Distance: 59 meters
(Bearing from Surveyed to Charted Position) Bearing: 70 deg T

Characteristics Unlighted
Do characteristics match Light List? Yes [x] No [ ] NA. [ ]
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: unknown
Maintained By: Coast Guard ? Yes Private? No Yes [x] No [ ]
Is aid seasonally maintained? unknown Yes [ ] No [ ]
Frequency of Maintenance: unknown

Apparent Purpose: Marks off-shore reef at Nukdik Point

Other Information: Published position: 58-14.7 N 135-25.3 W (1998 Light List)

Daybeacon G "1" replaces Buoy G "1". Chart 17317 (18th ed.) still shows the buoy, but the buoy has actually been dis-established and replaced with the Daybeacon. The listed charted position on this page refers to the charted position of the old buoy. The survey position refers to the new Daybeacon. The daybeacon sits on the high point of an offshore reef exposed at low water. Concur

Section Q: Descriptive Report Insert ✓

Name of Aid: Haines City Pier North Light
Light List #: Not lisited

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

Positioning Information

	Latitude (N)	Longitude (W)
Charted Pos.	uncharted	uncharted
Survey Pos.	59-13-48.64349	135-26-16.53877 ✓

	Easting	Northing
Charted Pos.	uncharted	uncharted
Survey Pos.	39271.2	164883.3

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

Characteristics Red Flashing 7 Seconds
Do characteristics match Light List? Yes [ ] No [ ] NA. [x]
If no, what are the characteristics? Red Flashing 7 Seconds

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: unknown
Maintained By: Coast Guard Private? Yes [ ] No [ ]
Is aid seasonally maintained? unknown Yes [ ] No [ ]
Frequency of Maintenance: unknown

Apparent Purpose: marks new northern catwalk of Haines city pier

Other Information: Published position: None

Section Q: Descriptive Report Insert

Name of Aid: Haines City Pier South Light
Light List #: Not lisited

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

Positioning Information

	Latitude (N)	Longitude (W)
Charted Pos.	uncharted	uncharted
Survey Pos.	59-13-42.62179	135-26-00.90159

	Easting	Northing
Charted Pos.	uncharted	uncharted
Survey Pos.	39518.7	164696.3

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

Characteristics
Do characteristics match Light List? Yes [ ] No [ ] NA. [x]
If no, what are the characteristics? Flashing Red 7 Seconds

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: unknown
Maintained By: Coast Guard Private? Yes [ ] No [ ]
Is aid seasonally maintained? unknown Yes [ ] No [ ]
Frequency of Maintenance: unknown

Apparent Purpose: marks new southern catwalk of Haines city pier

Other Information: Published position: None

APPROVAL SHEET

for

H-10808

RA-10-3-98

Standard field surveying and processing procedures were followed in producing this survey in accordance with the Hydrographic Manual, ~~Fifth~~ 4th 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 16, 1999

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-O340-RA
HYDROGRAPHIC SHEET: H-10808

LOCALITY: Battery Point to Low Point, Alaska
TIME PERIOD: April 24 - May 27, 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: SEA1, SEA1L.

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.

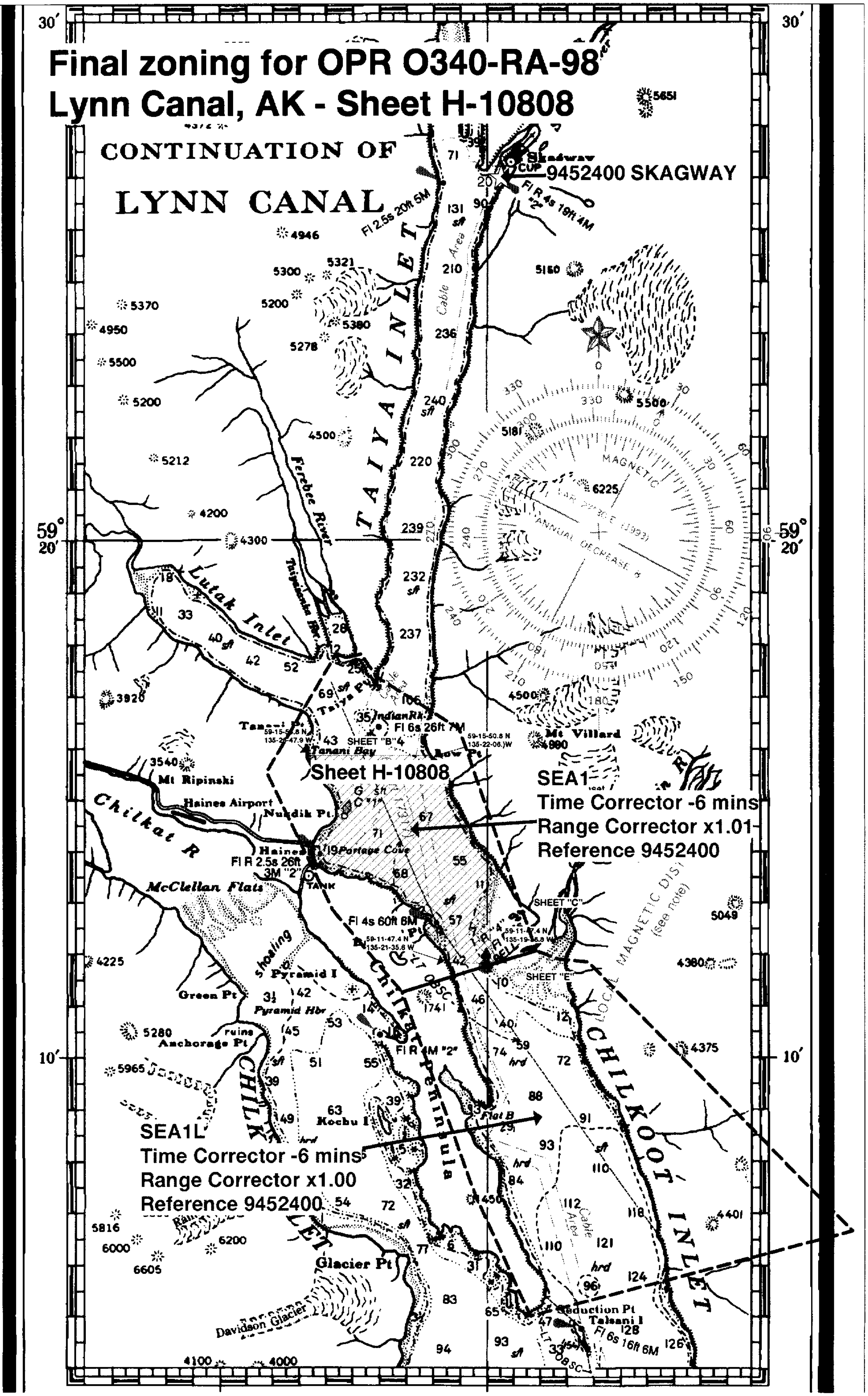
Thomas N. Mero 2/17/99

CHIEF, REQUIREMENTS AND ENGINEERING BRANCH

Final tide zone node point locations for OPR 0340-AHP-98, Sheet H-10808.

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 SEA1L			
-135.303335 59.200565	945-2400	-6	1.00
-135.387161 59.18722			
-135.341223 59.121611			
-135.306731 59.082928			
-135.105993 59.11054			
-135.270989 59.19686			
-135.289805 59.19791			
-135.303335 59.200565			


Final zoning for OPR O340-RA-98
Lynn Canal, AK - Sheet H-10808
CONTINUATION OF
LYNN CANAL
9452400 SKAGWAY
TAIYA INLET
Lutak Inlet
Ferebee River
Sheet H-10808
SEA1
Time Corrector -6 mins
Range Corrector x1.01
Reference 9452400
SEA1L
Time Corrector -6 mins
Range Corrector x1.00
Reference 9452400
Mt Ripinski
Haines Airport
Chilkat R
McClellan Flats
Haines
Portage Cove
Mt Villard
Pyramid I
Green Pt
Anchorage Pt
Kochu I
Chilkat Peninsula
CHILKOOT INLET
Glacier Pt
Davidson Glacier
Seduction Pt
Talsani I
SHEET "B"
SHEET "C"
SHEET "E"

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-O340-RA
HYDROGRAPHIC SHEET: H-10808

LOCALITY: Battery Point to Low Point, 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-10808 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.

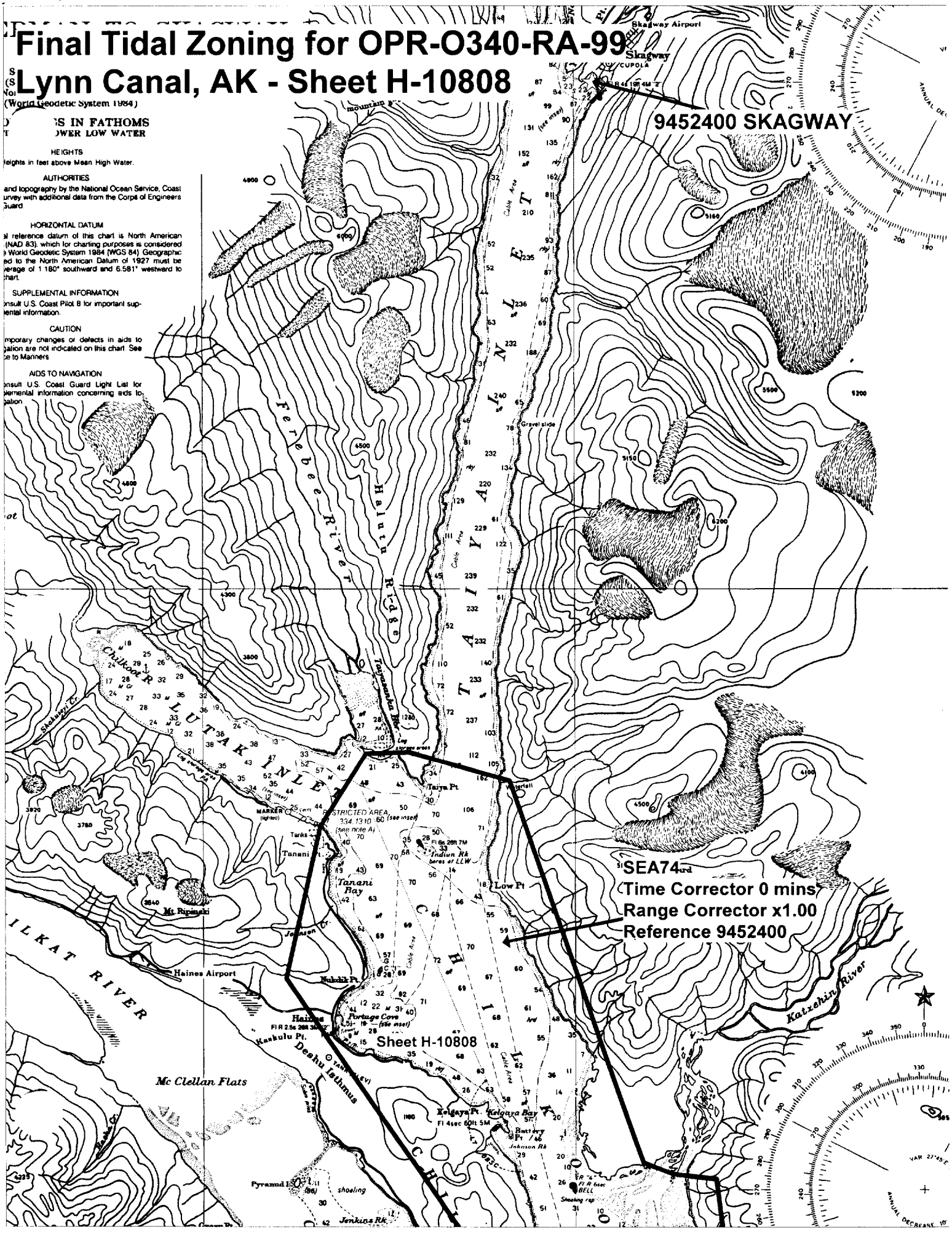
For ----------
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

Final tide zone node point locations for OPR-O340-RA-99,
Sheet H-10808.

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-10808



(World Geodetic System 1984)

S IN FATHOMS
OWER LOW WATER

HEIGHTS

Heights in feet above Mean High Water.

AUTHORITIES

and topography by the National Ocean Service, Coast urvey with additional data from the Corps of Engineers Guard.

HORIZONTAL DATUM

al reference datum of this chart is North American (NAD 83), which for charting purposes is considered World Geodetic System 1984 (WGS 84). Geographic ed to the North American Datum of 1927 must be verage of 1.180" southward and 6.581" westward to hart.

SUPPLEMENTAL INFORMATION

nsult U.S. Coast Pilot 8 for important sup- ental information.

CAUTION

mporary changes or defects in aids to gation are not indicated on this chart. See e to Mariners

AIDS TO NAVIGATION

nsult U.S. Coast Guard Light List for lemental information concerning aids to- gation.

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10808

Name on Survey	A ON CHART NO. 1731	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
BATTERY POINT	X		X							2
CHILKAT PENINSULA	X		X							3
CHILKOOT INLET	X		X							4
HAINES (ppl)	X		X							5
JOHNSON CREEK	X		X							6
JOHNSON ROCK	X		X							7
KATZEHIN RIVER	X		X							8
KELGAYA BAY	X		X							9
KELGAYA POINT	X		X							10
LOW POINT	X		X							11
LYNN CANAL (title)	X		X							12
NUKDIK POINT	X		X							13
PORTAGE COVE	X		X							14
TANANI BAY	X		X		[redacted]					15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Dennis J. Kanesburg
Chief Cartographer JAN 7 1999

NOAA FORM 76-155 SUPERSEDES C&GS 197

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

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER: H-10808

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			1		
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List):	CRS 00198 and 00298
PHOTOBATHYMETRIC MAPS (List):	NA
NOTES TO THE HYDROGRAPHER (List):	NA
SPECIAL REPORTS (List):	NA
NAUTICAL CHARTS (List):	Chart 17317 18th Ed., 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			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			

	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS			
VERIFICATION OF SOUNDINGS			
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	210.5		210.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS		50	50
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		59	59
GEOGRAPHIC NAMES			
OTHER* (Chart Compilation)		92	92
TOTALS	210.5	201	411.5

*USE OTHER SIDE OF FORM FOR REMARKS

Pre-processing Examination by Pacific Hydrographic Branch	*Beginning Date* 10/26/98	*Ending Date* 10/26/98
Verification of Field Data by M.Bigelow,D.Doles,R.Mayor,R.Shipley,L.Deodato	*Time (Hours)* 210.5	*Ending Date* 5/3/99
Verification Check by B. Olmstead	*Time (Hours)* 14	*Ending Date* 5/20/99
Evaluation and Analysis by L.Deodato	*Time (Hours)* 109	*Ending Date* 11/16/99
Inspection by B. Olmstead	*Time (Hours)* 10	*Ending Date* 11/16/99

EVALUATION REPORT

H-10808

A. PROJECT

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

B. AREA SURVEYED

The survey area is adequately discussed 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 Attachments 1, 1A and 1B.

Additional work was conducted on April 26, 1999 concerning three charted items not adequately addressed and or investigated during 1998 survey operations. These items are identified as Attachments A, B and C and are attached to this report.

The bottom consists primarily of sand, mud, and pebble. Depths generally range from -1.6 to 68 fathoms.

C. SURVEY VESSELS

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

The data is plotted using a Modified Transverse Mercator projection and are depicted on a single sheet.

E. SONAR EQUIPMENT

Side Scan Sonar was not used during survey H-10808.

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), 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, soundings and elevations have been reduced to Mean Lower Low Water (MLLW) or Mean High Water (MHW) as appropriate with verified tide correctors obtained from the Center for Operational Oceanographic Products and Services (CO-OPS). The correctors are zoned direct from tide gage, Skagway, Alaska, gage 945-2400.

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 field 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:	-1.227 seconds	(-37.963 meters)
Longitude:	6.538 seconds	(105.874 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. 257 positions exceed HDOP by 0.1 to 0.6 and 6 positions by 8.7 to 9.3. The six positions with excessive HDOP were in between soundings and were smoothed in the field. None of the above were used to position dangers to navigation. The soundings located by these fixes were 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 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

There are no photogrammetric source data for this survey. Shoreline shown in brown on the smooth sheet originates from CRS 00198, and CRS 00298 dated 1993 and Chart 17317 18th Edition dated June 14, 1997 and are for orientation only. The shoreline data and the

hydrographic data were merged in MicroStation during the compilation of the smooth sheet The results of the fieldwork as portrayed on the smooth sheet should supersede charted shoreline within the common area.

There were four MHW revisions on this survey. These revisions have been depicted in red and 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)	Revision
59/13/45	135/26/10	Pier
59/13/41	135/25/57	Floating pier
59/15/00	135/21/18	Approximate MHWL
59/14/30	135/20/45	"
59/11/48	135/19/09	"
59/14/12	135/20/30	"

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10808 junctions with the following surveys.

Survey	Year	Scale	Area
H-10736	1998	1:10,000	North
H-10807	1998	1:10,000	South

The junctions with surveys H-10736 and H-10807 are complete. Several depths within the common area of H-10807 have been transferred to the present survey to better portray the bottom configuration and standard depth curves. A "Joins" note has been added to the smooth sheet where applicable.

M. COMPARISON WITH PRIOR SURVEYS

The present survey was compared to the following prior survey work.

Survey	Year	Scale
H-2057	1890-1905	1:40,000

Prior survey H-2057 covers the entire area of the present survey and was conducted using leadlines and visual positioning. A comparison was made using a digital copy of H-2057. The registration and legibility of this prior survey to the present survey was good.

Sounding agreement with the 1890-1905 survey work reveals differences of 0.5-1 fathom in depths to thirty fathoms. Differences from 2-4 fathoms are readily evident in depths over thirty fathoms. In all cases, the present survey reveals a consistently shoaler trend except as noted below.

A 57 fathom depth charted at latitude 59/14/56N, longitude 135/25/03W falls in present survey depths of sixty seven fathoms. Further review of the prior survey shows this depth to be charted approximately 100 meters north of its true position. Based on the prior survey

position, the present survey found similar depths within the common area. The evaluator recommends charting this area based on the present survey information.

The 29 fathom sounding charted at latitude 59/12/09N, longitude 135/21/29W, originates from H-2057 and likely is the result of erroneous leadline depth and or positional error. Fifty meter line spacing was conducted over the common area with no indication of any significant shoaling. The present survey found depths of 48-49 fathoms. The evaluator recommends removing the charted 29 depth and charting this area based on the present survey information.

Differences with the prior survey are mostly attributed to better bottom coverage, improved positioning and sounding methods and relative accuracy of the data acquisition technique. The present survey is adequate to supersede the prior survey within the common area.

Survey	Year	Scale	Datum
H-6942	1943	1:5,000	NAD 27
H-6943	1943	1:600	NAD 27

These prior surveys cover the area of Portage Bay. A comparison was made using a digital copy of H-6942. The registration and legibility of this prior survey was good. The digital copy of H-6943 was poor. A comparison was made using a hard copy raster plot.

Present survey depths reveal consistently shoaler differences of 0.5-1 fathom since the 1942 survey work. Differences with the 1943 survey work are mostly attributed to better bottom coverage, improved positioning and sounding methods and relative accuracy of the data acquisition techniques.

The following features were brought forward in color to the smooth sheet. These features generally fall outside the NALL and most were not specifically addressed by the hydrographer.

Features	Latitude N	Longitude W	Color	Prior Survey
rock	59/14/29	135/25/44	purple	H-6942
"	59/14/28	135/25/45	"	"
pile	59/14/21	135/26/07	"	"
pile (subm)	59/14/16	135/26/08	"	"
rock	59/14/08	135/26/24	"	"
"	59/14/07.8	135/26/23	"	"
"	59/14/06	135/26/24	"	"
"	59/14/04	135/26/25	"	"
"	59/13/59	135/26/25	"	"
rky	59/13/51.5	135/26/27	"	"
ruins	59/14/10	135/26/24	"	"
"	59/13/44	135/26/17	"	"
"	59/13/42	135/26/15	"	"
dol	59/13/38.4	135/26/07	"	"
"	59/13/38	135/26/06	"	"
ledge	59/13/37	135/25/34	"	"
"	59/13/29	135/24/53	"	"
dol	59/13/42	135/26/16	orange	H-6943
"	59/13/42	135/26/15	"	"
"	59/13/40	135/26/11	"	"
"	59/13/39.9	135/26/10	"	"

"	59/13/39	135/26/08	"	"
"	59/13/38.9	135/26/08	"	"

With the transfer of the above prior survey features to the present survey, H-10808 is adequate to supersede the prior surveys within the common area.

Survey	Year	Scale	Datum
H-4226WD	1922	1:40,000	NAD27

The prior survey listed above covers the area of the present survey and was conducted using wire drag, leadline and visual positioning techniques. The comparison was made using a digital copy of H-4226WD. The registration and legibility of this prior survey to the present survey was good.

The few charting soundings originating from this prior survey are located along the east side of Chilkoot Inlet. Sounding agreement with the 1922 survey work reveals differences of 0.5-1 fathom. There was no consistent pattern of shoaling and or an increase in depths except as noted below.

The 14 fathom sounding charted at latitude 59/13/03N, longitude 135/20/30W originates from H-4226WD and is likely the result of an erroneous leadline depth and or positional error. Fifty meter line spacing was conducted over the common area with no indication of any significant shoaling. The present survey found depths of 22-24 fathoms. The evaluator recommends removing the charted 14 fathom depth and charting this area based on the present survey information. Remaining areas of the prior work reflects wire drag sweeps set to specific depths with no associated sounding information. Charted soundings originating from this prior drag survey has been satisfactorily addressed and should be superseded by the present survey.

N. ITEM INVESTIGATIONS

AWOIS # 52394 was satisfactorily discussed in the hydrographer's report. AWOIS 52444-46 were assigned for 1999 add. work and are only addressed as add. work items. Investigation was incomplete. mcr 12/8/99

O. COMPARISON WITH CHART

Survey H-10808 was compared with the following chart.

Chart	Edition	Date	Scale	Datum
17317	18th	June 14, 1997	1:77,812	NAD83

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 features shown on the chart inset are from miscellaneous sources and were not addressed by the hydrographer and should be retained as charted:

Feature	Latitude N	Longitude W
islet	59/14/35.4	135/25/36.7
pile	59/13/41.4	135/26/11.9

ruins (centered)	59/13/40.7	135/26/08.1
subm pile	59/13/42.3	135/26/08.1
"	59/13/41.9	135/26/07.2
"	59/13/41.6	135/26/07.8
pile	59/13/39.2	135/26/11.1
"	59/13/39.0	135/26/07.7
"	59/13/38.9	135/26/10.0
"	58/13/38.8	135/26/09.9
"	59/13/38.4	135/26/06.8
"	59/13/37.9	135/26/07.8

The following features shown on the chart inset are from miscellaneous sources and were visually investigated and not seen by the hydrographer. These charted features were not adequately investigated as to their existence during additional work conducted on April 26, 1999. Retained as charted with subm dols notation.

Feature	Latitude N	Longitude W
Subm dol	59/13/40.8	135/26/00.3
"	59/13/40.7	135/25/59.8
"	59/13/40.5	135/25/59.3
"	59/13/40.4	135/25/59.0
"	59/13/40.3	135/25/58.6
"	59/13/39.7	135/25/56.6

Johnson Rock, charted at latitude 59/12/22.827N, longitude 135/21/42.577W originates from a miscellaneous source and was not adequately investigated during 1998 survey operations. This rock was subsequently assigned as additional work and included in this report as Attachment C.

The following controlling depths in the Haines smallboat marina should be retained as charted; 10 ft 1993, 12 ft 1993 and 13 ft 1993. The charted 8 ft 1993 controlling depth should be revised to 6 ft 1998 based on the present survey information.

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.

Except as noted above, survey H-10808 is adequate to supersede charted hydrography within the common area.

b. Dangers to navigation

No dangers to navigation were discovered during survey operations and/or during office processing.

P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10808 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, with the exception of the following.

Several charted features originating from miscellaneous sources and seaward of the NALL were not specifically addressed during survey operations. Three of these charted items were further investigated in April 1999 as additional work and are included in this report as Attachments A, B and C. Additional items remaining unresolved are listed in the evaluation report, section O.

Sounding velocity casts taken on day 127 and 130 plot approximately 3 nautical miles north of Portage Cove. These casts were to be used for Shallow Water Multibeam (SWMB) data. However, the SWMB was found to be corrupt and unusable. Specifications require that velocity casts for SWMB be taken in close proximity to the survey area.

In the event that the field units submission of survey data will exceed four weeks from the completion of 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-10808 was completed on May 27, 1998 but not transmitted for office processing until October 26, 1998.

Q. AIDS TO NAVIGATION

Five fixed aids were located during survey operations. One fixed aid was transferred to the smooth sheet from H-10807. The charted landmark at latitude 59/13/30.2N, longitude 135/26/37.7W (tank) was not visually verified by the hydrographer and should be retained as charted. There were no floating aids to navigation within the survey area. Additional information is found in the hydrographer's report, section Q, and the descriptive report inserts (attached).

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

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

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

T. RECOMMENDATIONS

This is a good hydrographic survey. Additional work is recommended on a low priority basis to investigate those features listed in the evaluation report, section O.

U. REFERRAL TO REPORTS

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

Leonardo T. Deodato
Cartographer

APPROVAL SHEET
H-10808

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: 11/16/99
Bruce A. Olmstead
Senior Cartographer, Cartographic Team
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.

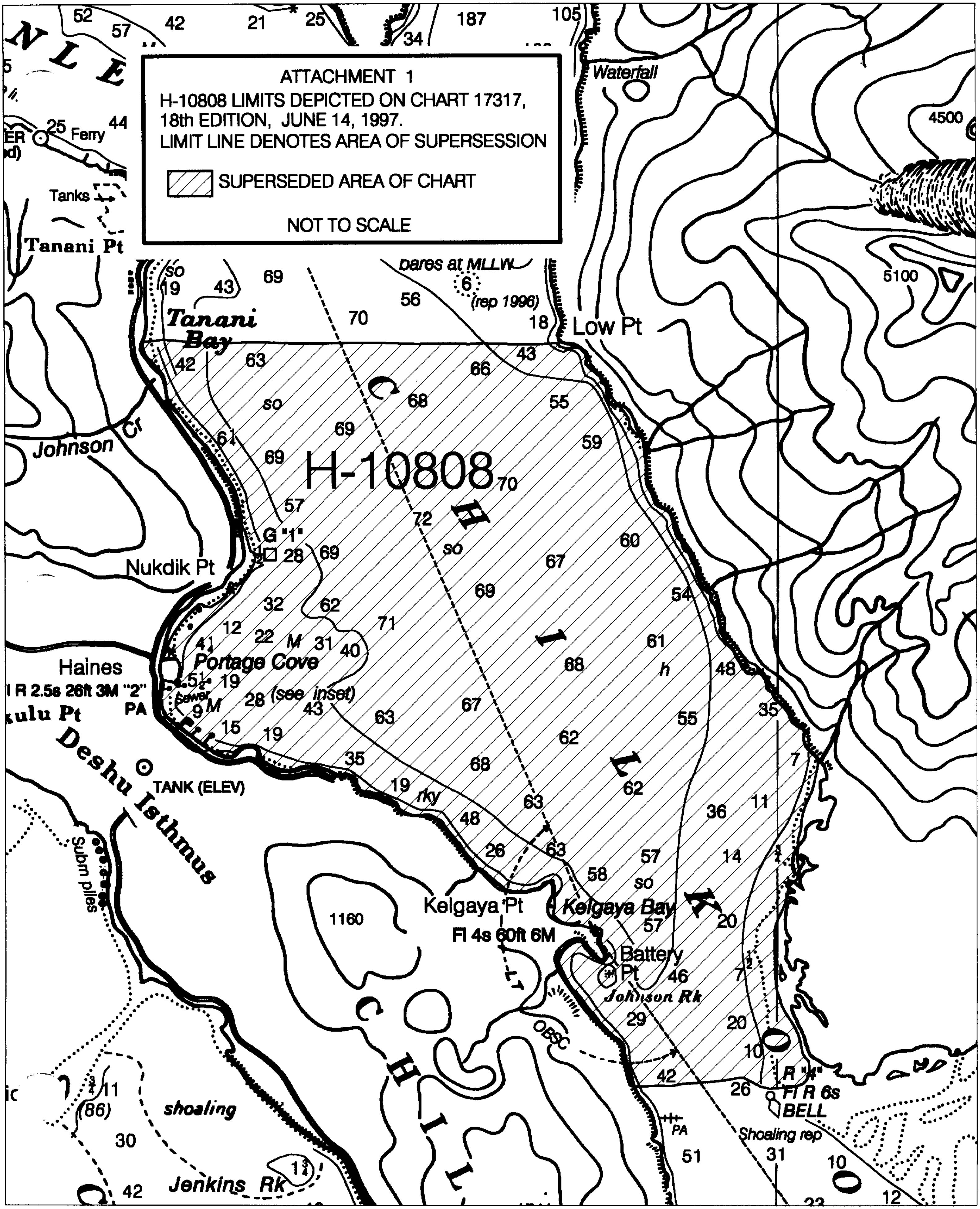
James C Gardner Date: 11-26-99
James C. Gardner
Commander, NOAA
Chief, Pacific Hydrographic Branch

****

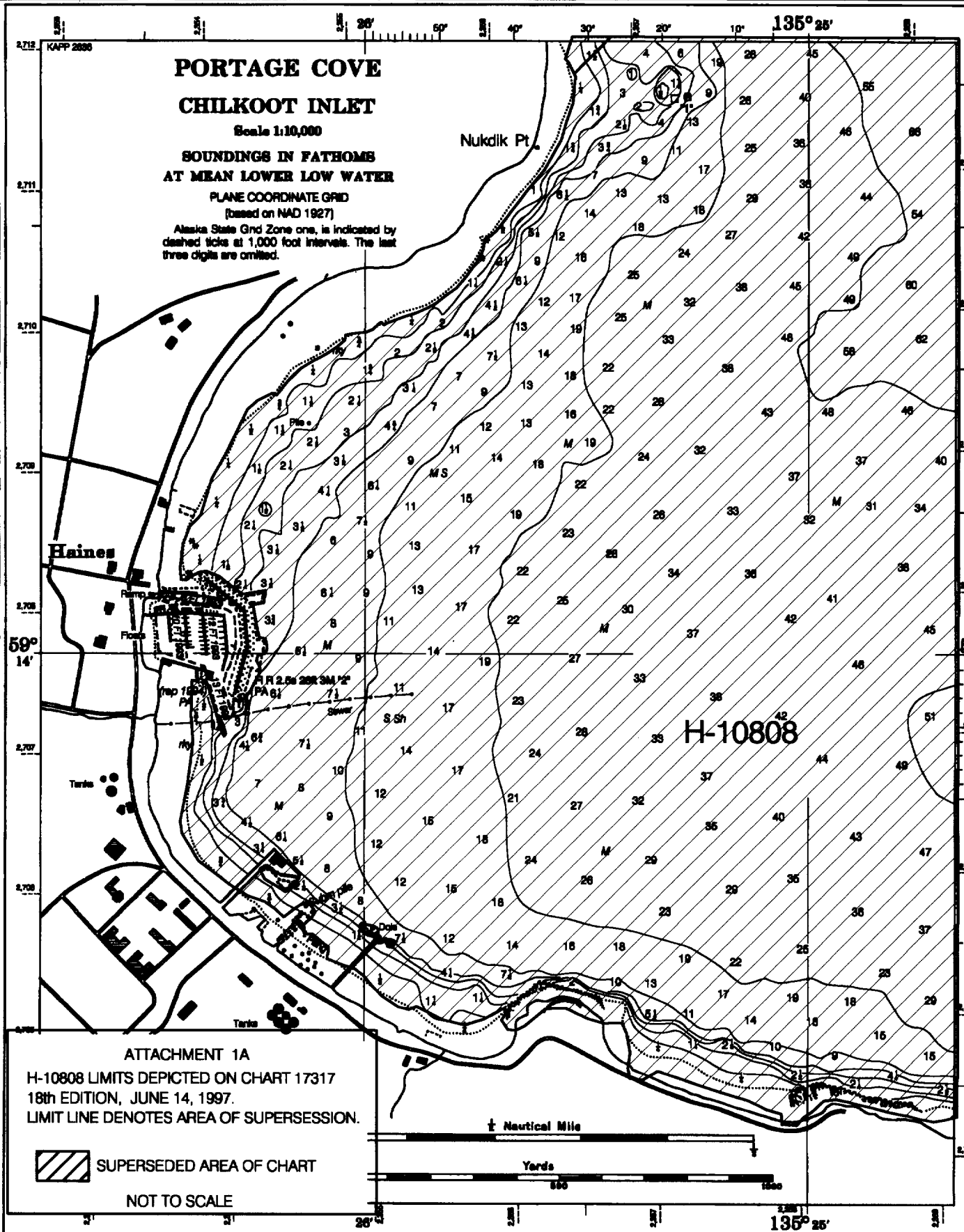
Final Approval

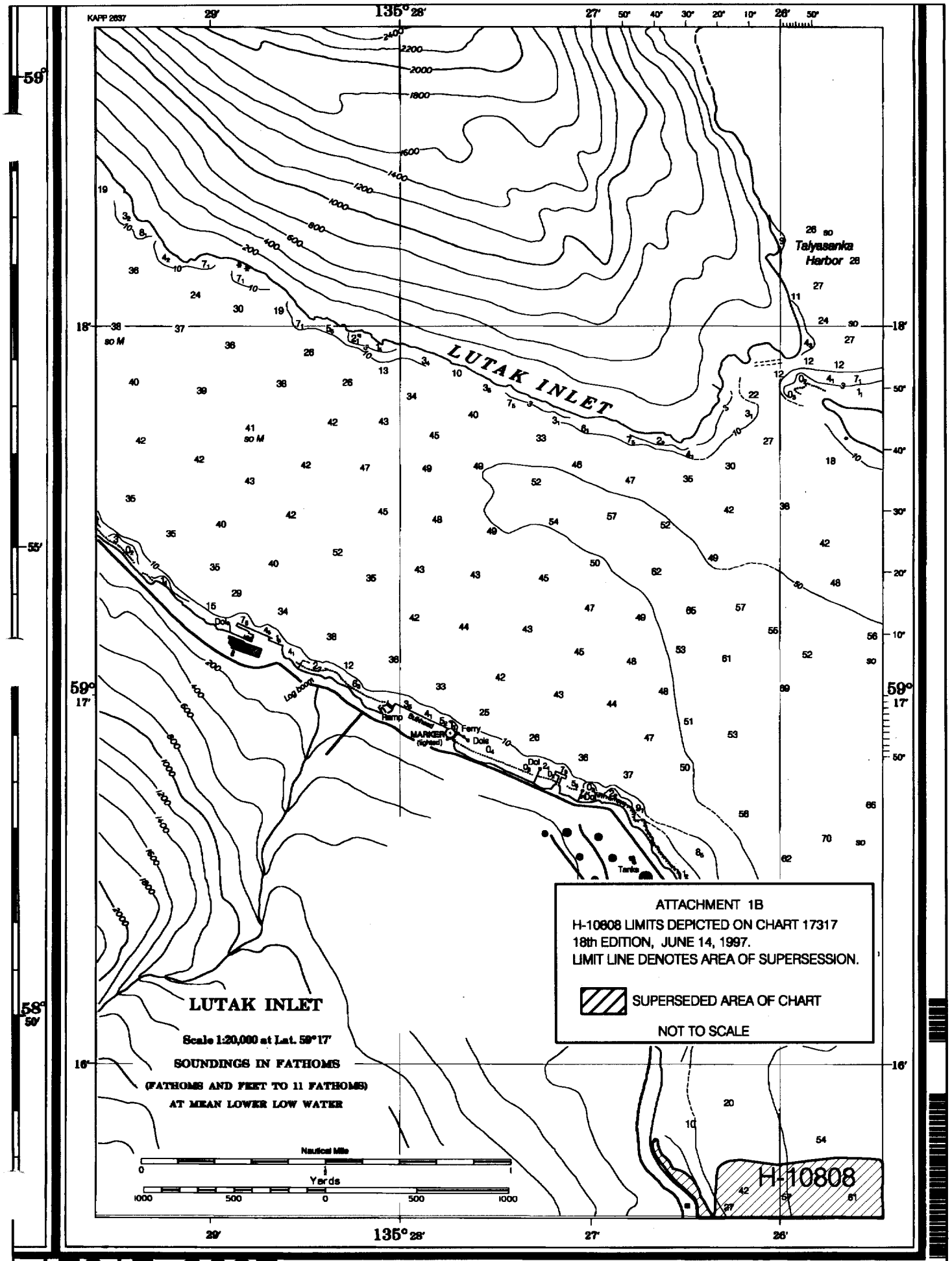
Approved:

Samuel P. De Bow Date: Jan. 7, 2000
Samuel P. De Bow, Jr.
Captain, NOAA
Chief, Hydrographic Surveys Division



ATTACHMENT 1
H-10808 LIMITS DEPICTED ON CHART 17317,
18th EDITION, JUNE 14, 1997.
LIMIT LINE DENOTES AREA OF SUPERSESSION
SUPERSEDED AREA OF CHART
NOT TO SCALE
H-10808
Waterfall
Tanani Pt
Tanks
Ferry
Tanani Bay
bares at MLLW
(rep 1996)
Low Pt
Johnson Cr
G "1"
Nukdik Pt
Haines
Portage Cove
(see inset)
Sewer
PA
TANK (ELEV)
Deshu Isthmus
Subm piles
rky
Kelgaya Pt
Kelgaya Bay
Fl 4s 60ft 6M
Battery Pt
Johnson Rk
OBSC
R "4"
Fl R 6s
BELL
Shoaling rep
shoaling
Jenkins Rk


PORTAGE COVE
CHILKOOT INLET
Scale 1:10,000
SOUNDINGS IN FATHOMS
AT MEAN LOWER LOW WATER
PLANE COORDINATE GRID
(based on NAD 1927)
Alaska State Grid Zone one, is indicated by dashed ticks at 1,000 foot intervals. The last three digits are omitted.
Nukdik Pt.
Haines
H-10808
135° 25'
59° 14'
ATTACHMENT 1A
H-10808 LIMITS DEPICTED ON CHART 17317
18th EDITION, JUNE 14, 1997.
LIMIT LINE DENOTES AREA OF SUPERSESSION.
SUPERSEDED AREA OF CHART
NOT TO SCALE
Nautical Mile
Yards



17317 2637

Lynn Canal from Pt. Sherman to Skagway)

17317

SOUNDINGS IN FATHOMS - SCALE 1:77,812

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-10808

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	5/7/99	Leo T. [illegible]	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. Application of soundings 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
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			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED