H10734 a&b

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-10-3-97 and RA 10-4-97

Registry No. H-10734a and H-10734b

LOCALITY

State Alaska

General Locality Northern Stephens Passage

Sublocality Middle Point to Young Bay and East to Point Hilda South and East of Point Hilda

1997

CHIEF OF PARTY

CAPT Alan D. Anderson, NOAA

LIBRARY & ARCHIVES

DATE MAR 27 1998

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-10734

FIELD NO.

RA-10-3&4-97

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

State: Alaska

General locality: Northern Stephens Passage

Locality: Middle Point to Young Bay and East to Point Hilda (H-10734a)
South and East of Point Hilda (H-10734b)

Scale: 1:10,000 Date of survey: March 21 - April 21, 1997

Instructions dated: 12/20/96, Change#1 4/3/97 Project No.: OPR-0328-RA

Vessel: NOAA Ship RAINIER (2120),RA-1(2121),RA-2(2122),RA-3(2123),RA-4(2124),RA-5(2125)
RA-6(2126)

Chief of party: CAPT Alan D. Anderson, NOAA

Surveyed by: NOAA Ship RAINIER Personnel

Soundings taken by echo sounder, ~~hand lead, pole~~: DSF-6000N , EG&G Model 260 Side Scan

Graphic record scaled by: RAINIER Personnel

Graphic record checked by: RAINIER Personnel

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

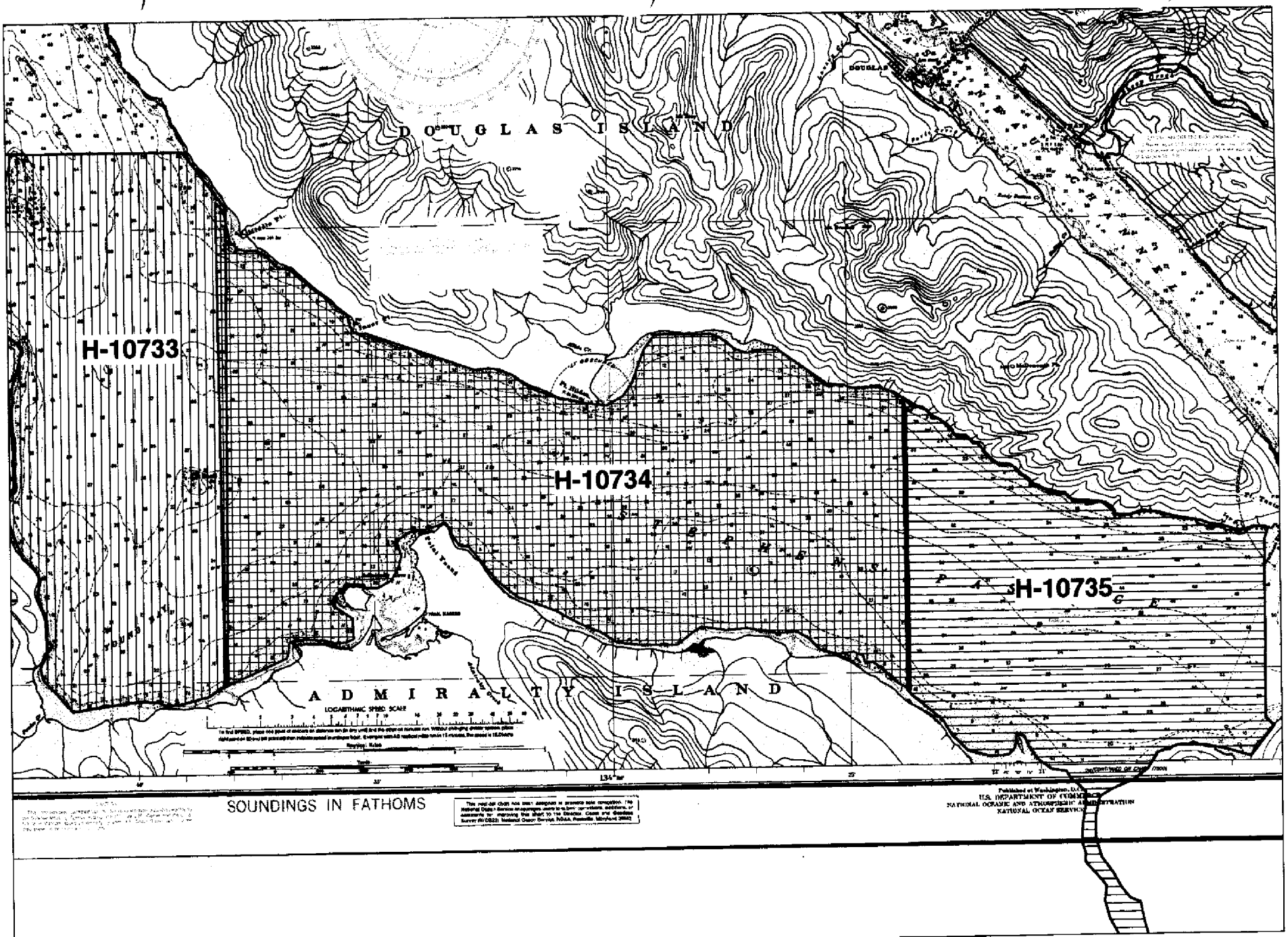
~~Protracted by~~

Verification by: E. Domingo

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

REMARKS: All times are UTC. This survey includes two normal sized survey sheets (H-10734A & H-10734B). Revisions and marginal notes in black were generated during office processing. All separates are filed with the hydrographic data, as a result page numbering may be interrupted or non-sequential. All depths listed in this report are referenced to mean lower low water unless otherwise noted.

AWOIS and SURF ✓ RWD 2/98


DOUGLAS ISLAND
H-10733
H-10734
H-10735
ADMIRALTY ISLAND
LOGARITHMIC SPEED SCALE
SOUNDINGS IN FATHOMS

Descriptive Report to Accompany Hydrographic Survey H-10734

Field Number RA-10-3-97 & RA-10-4-97
Scale 1:10,000
March - April 1997
NOAA Ship RAINIER
Chief of Party: Captain Alan D. Anderson, NOAA

A. PROJECT ✓

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

F = 10734A
G = 10734B

B. AREA SURVEYED See Evaluation Report, Section B.

The survey area is in Northern Stephens Passage in the vicinity of Point Hilda. The survey's northern limit is the shoreline of Douglas Island and the southern limit is the shoreline of Admiralty Island. The surveys western limit is longitude 134° 38' 09" W and the eastern limit is 134° 23' 45" W. Data acquisition was conducted from March 21 to April 21, 1997 (DN 080-111).

C. SURVEY VESSELS ✓

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

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

E. SONAR EQUIPMENT ✓

Side scan sonar (SSS) operations were conducted using an EG&G model 260 slant-range corrected SSS recorder (S/N 0012106) and an EG&G 272-T-dual channel towfish (S/N 016989). The towfish was operated on the 100 kHz frequency.

The SSS towfish was towed with a 70 meter EG&G lightweight tow cable. The towfish was deployed manually on the starboard quarter of launch 2123, attached to the aft fall shackle by line and lead around the stern railing. The length of towcable deployed was determined by noting the measured markings on the towfish cable as these markings met the stern railing. The SSS towfish was adjusted to maintain a height off the bottom of 8 to 20 percent of the range scale. The 100- and 150-meter range scales were used. SSS operations were conducted at or less than 3 knots.

* Filed with the hydrographic data.

Two hundred percent SSS collection was conducted over the three pre-survey review items identified for chart 17315, dated January 4, 1997, and common to H-10734. In addition, 200% SSS collection was conducted over a charted 17-fathom sounding from H-4147WD. Degraded sonograms were rejected and rerun. A swath plot depicting SSS bottom coverage indicates that 200% SSS coverage was completed over a 175-meter radius. The recorder gain setting was adjusted for the best return for changing bottom conditions. A rub test was successfully conducted prior to operating the SSS.

Side scan sonograms were manually scanned for significant contacts in accordance with section 7.3.2 of the project instructions, a single contact of note was identified and entered into a HDAPS contact table. A subsequent echosounder development determined the contact to be a small (1 meter high) rock, 135 meters south of the charted 14 fathom sounding and not significant in depths of 34 meters. - concur 14fm located at Latitude 58/11/37, longitude 134/26/38 and is disussed in section M of this report.
Multi-beam echo sounder equipment was not used on this survey. Concur

F. SOUNDING EQUIPMENT ✓

The Raytheon DSF-6000N is a dual frequency (100 kHz, 24 kHz), paper trace echo sounder. Serial numbers are included on the headers of the daily Raw Master Printouts.* No problems that affect survey data were encountered. All DSF-6000N soundings were acquired in meters using the High + Low, high frequency digitized setting.

G. CORRECTIONS TO ECHO SOUNDINGS ✓

Three
~~Two~~ sound velocity casts were used for this survey. Information on the casts is included in the Survey Information Summary report. *

The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 219), calibrated December 15, 1996. Velocity correctors were computed using the PC programs SEACAT and VELOCITY, version 3.3, 1996), in accordance with Hydrographic Survey Guideline (HSG) No. 69. A printout of the Sound Velocity Corrector Table used in the HDAPS Post Survey program is included in the "Separates to be Included with Survey Data, IV. Sounding Equipment Calibrations and Corrections". *

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

The Coastal and Estuarine Oceanography Branch (N/OES334), through N/CS31, provided predicted tides for the project on diskette for the Juneau, Alaska reference station (945-2210). HDAPS listings of the data used in generating tide corrector tables are included in Appendix V of this report.* Tidal correctors as provided in the project instructions for H-10734 are provided in the Survey Information Summary included with this report. Approved tide note is attached to this report dated September 11, 1997

Juneau, Alaska (945-2210) and Ketchikan, Alaska (945-0460) are the primary control stations for datum determination. RAINIER personnel installed a Sutron 8200 tide gage at Point Young (945-2249) on March 19th, 1997. Refer to the Field Tide Notes and supporting data in Appendix V for *

* Filed with the hydrographic data.

individual gage performance and level closure information. This information has been forwarded to N/OES212 in accordance with HSG 50 and FPM 4.3. A request for approved tides was forwarded to N/OES23 at the completion of the project.

H. CONTROL STATIONS See Eval Rpt., section H.

The horizontal datum for this project is NAD 83. The control stations used for this survey are listed in ~~Appendix III~~. See the OPR-O328-RA-97 Horizontal Control Report for more information. this report.

I. HYDROGRAPHIC POSITION CONTROL See Eval Rpt., section I.

All soundings were positioned using differential GPS. Primary control was the VHF differential reference station at SCULL 2. The US Coast Guard Beacon at GUSTAVUS was used as a backup. Launch-to-launch DGPS performance checks were performed in accordance with Section 3.4.4 of the FPM. Two observations of position were made from two different DGPS base stations, SCULL 2 and GUSTAVUS, while the launches were rafted together with their GPS antennae within 2-3 meters of each other. RAINIER also used SHIPDIM, version 2.2R (April 1996) with a Trimble Centurion P-code receiver and an Ashtech sensor (both differentially-corrected) to monitor the performance of the reference stations. SCULL 2 was compared to GUSTAVUS at least once a week while installed. Some outliers were noted, but none indicated systematic or continuous errors in either the GUSTAVUS beacon or the VHF station at SCULL 2. The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-O328-RA.

J. SHORELINE See Eval Rpt, section J & M.

The shoreline manuscript from Coastal Mapping survey CM-8904 was supplied by N/CS341 in Standard Digital Data Exchange Format (SDDEF). The digital files from DM-10046 through DM-10051 were projected to the survey grid with OPR-O328-RA-97 geodetic parameters using program Shore version 2.0, provided by N/CS32, and plotted on the survey using HDAPS. DM-10047 and DM-10049 apply to this survey.

Limited shoreline verification was conducted in accordance with the Project Instructions. For this survey the general limit of safe navigation of a survey launch is 5-50 meters offshore of apparent low tide, with the exception of Admiralty Cove, west of Point Young, where a mud flat precludes safe navigation within 300 meters of apparent low tide. Water depths along this limit of safe navigation are generally 3-5 meters at Mean Lower Low Water. Features shown inshore of the NALL are the hydrographer's representation of the shoreline while slowly transiting along the shore, and are intended to aid chart compilation.

Shoreline manuscript and field features were compared to an enlargement of chart 17315, plotted by RAINIER personnel, as well as digital overlay of data on the chart image in MapInfo. Charted features matched the shoreline as observed during the current survey except for the following.

Charted Feature	Geographic Position	Observed Feature
Numerous boulders	58° 13′ 00″ N 134° 30′ 20″ W H-10734B	Additional boulders located to the west of charted symbol
Submerged rocks	58° 10′ 30″ N 134° 29′ 30″ W 58° 10′ 30″ N 134° 30′ 30″ W H-10734B	Submerged rocks are a continuation of the numerous boulders found on beach
Ledge(Retain)	58° 10′ 10″ N 134° 25′ 00″ W	None, ledge does not exist do not concur
Numerous boulders	58° 13′ 40″ N 134° 27′ 00″ W H-10734B	No boulders, beach is gravel and sand
None	58° 10′ 50″ N 134° 35′ 52″ W	New rock, fix 10157, DN 098

H-10734A

Rocks transferred from prior in this area. Not located during survey. Feature shown on survey.

* (?)

Charted Feature	Geographic Position	Observed Feature
Near ledge	58° 14′ 12″ N 134° ~~34~~ 37′ 59″ W	New rock, fix 50015, DN 086
None	58° 10′ 03″ N 134° 24′ 39″ W 58° 10′ 15″ N 134° 24′ 57″ W	Foul with rock areas noted
None	58° ~~10~~ 11′ 30″ N 134° 30′ 00″ W 58° 10′ 30″ N 134° ~~30′ 00″~~ 28′40″ W	Kelp Kelp

¥(0) -H10734A
Foul areas noted on smooth sheet
H-10734A
H-10734B

A new area foul with rock was also identified during shoreline verification, inside the NALL line at latitude 58° 10′ ~~15~~ 08″, longitude N 134° 24′ ~~27~~ 40″ W. Hydrography was unintentionally run inside the NALL line near the foul area at a high stage of tide. Area is shown as foul on the smooth sheet.

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

Shoreline Manuscript Feature	Geographic Position	Observed Feature
5 rocks	58° 10′ 30″ N 134° 36′ ~~50~~ 00″ W H-10734A	Rocks not found after 15 minute visual search at low water, 2-4 meter depths, 8 meter visibility, and 10 meter line spacing
Rocks	58° 14′ 42″ N 134° 37′ 09″ W 58° 14′ 38″ N 134° 36′ 59″ W 58° 14′ 17″ N 134° 36′ 02″ W 58° 13′ 25″ N 134° 32′ 54″ W 58° 13′ 24″ N 134° 32′ 43″ W 58° 13′ 05″ N 134° 31′ 08″ W 58° 13′ 19″ N 134° 25′ 52″ W 58° 13′ 48″ N 134° 28′ 42″ W 58° 13′ 46″ N 134° 28′ 42″ W	Rocks are the largest of numerous boulders H-10734A H-10734A H-10734B
2 rocks	58° 10′ 10″ N 134° 36′ 55″ W H-10734A	Rocks not found at low water, 3-5 meter water depths and 8 meter visibility

Not shown on the smooth sheet

Rocks are graphically shown on the smooth sheet.

Not shown on the smooth sheet

Discrepancies between charted and field shoreline should be resolved using the manuscript shoreline and field work notes as recorded in the MapInfo digital file named "Shoreline_Remarks".

K. CROSSLINES ✓

Crosslines agreed within 1 meter with mainscheme hydrography, except in areas of steep bathymetry. There was a total of 38.2 nautical miles of crosslines, comprising 8.9% of mainscheme hydrography.

L. JUNCTIONS See Eval Rpt, section L.

The following contemporary surveys junction with survey H-10734.

Junction	Survey	Field Number	Scale
Western Limit	H-10733	RA-10-02-97	1:10,000

Junction	Survey	Field Number	Scale
Eastern Limit	H-10735	RA-10-05-96	1:10,000

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

M. COMPARISON WITH PRIOR SURVEYS See Eval Rpt., section M.

Prior surveys covering this survey area are as follows:

Prior Survey	Scale	Date
H-6273	1:20,000	1937
H-6268	1:10,000	1937
H-4147WD	1:40,000	1920-1921
H-2055	1:40,000	1890
H-3987WD	1:20,000	1917

Prior survey soundings were found to be in fair agreement with those from the current survey. Least depths from the current survey were more shoal or in agreement with prior surveys with several exceptions. Current survey depths for an area east of Point Young covered by survey H-2055 were found to be one to four meters deeper in places. Least depths from the priors that were found to be more shoal than the current survey were sounded with 100 percent low-frequency bottom coverage and disproved. The following cleared depths from wire drag surveys have been echo sounded with 100 percent bottom coverage where depths from the current survey were found to be deeper. In addition, the two charted 14 fathoms, 9 fathom (all pre-survey review items dated January 4, 1997 for chart 17315), and 17 fathom soundings from H-4147WD were surveyed with 200% SSS.

Prior Survey	FM	M	Latitude	Longitude	H-10734 FM*	H-10734 M	
H-4147WD	14	25.6	58° 11′ 24″ N	134° 25′ 31″ W	19.14	34.9	H-10734 b
H-4147WD	14	25.6	58° 11′ 37″ N	134° 26′ 38″ W	19.1	34.9	H-10734 b 18.1 picks somewhere south of 19.1
H-4147WD	17	31	58° 12′ 29″ N	134° 31′ 12″ W	35	64	H-10734 a
H-4147WD	9	16.5	58° 12′ 49″ N	134° 28′ 02″ W	~~12.2~~ 12.9	24.1	H-10734 a
H-4147WD	16	29.3	58° 11′ 36″ N	134° ~~28~~ 32 37″ W	16.2	29.6	H-10734 a
H-3987WD	8	14.6	58° 11′ ~~29~~ 43″ N	134° ~~26~~ 34 ~~29~~ 43″ W	~~8.7~~ 7.7	14.1	H-10734 a
H-3987WD	8	14.6	58° 11′ ~~23~~ 37″ N	134° ~~26~~ 34 ~~22~~ 53″ W	8.54	13.7	H-10734 a

* Reduced for approved tides

Differences between the current survey and priors can most probably be attributed to improved modern positioning and sounding equipment. Final comparisons will be done at PHB after reduction to final sounding datum using tidal information collected concurrently with this survey.

N. ITEM INVESTIGATIONS ✓

There were no AWOIS items for survey H-10734. Pre-survey review and chart discrepancy items are listed in Section M, ~~and Section I~~.

O. COMPARISON WITH THE CHART See Eval Rpt., section O.

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

Chart	Scale	Edition Number	Date	Datum
17315	1:40,000	21st	August 3, 1991	NAD 83
17316	1:80,000	16th	January 5, 1991	NAD 83
17300	1:209,978	27th	August 14, 1993	NAD 83

Comparison of charted soundings with the survey is described in Section M, Comparison with Prior Surveys, and requires no further discussion. Non-sounding features are discussed in Section J. Final sounding comparisons will be made at PHB after reduction to final vertical datum.

Dangers to Navigation ✓

No dangers to navigation were reported to the Seventeenth Coast Guard District for this survey. Concur

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

Survey H-10734 is complete and adequate to supersede prior soundings and features in their common areas. Do not concur

Q. AIDS TO NAVIGATION ✓

Middle Point Light, Inner Point Daybeacon, and Point Hilda Light were positioned using static GPS methods from station SCULL 2 on April 4, 1997. See the attached Section Q insert for detailed comparison of these position to the charted and Light List positions. No other aids to navigation are present on survey H-10734. Concur

R. STATISTICS ✓

Statistics are listed in the Survey Information Summary included with ~~this report.~~ the survey data.

S. MISCELLANEOUS ✓

Bottom samples were collected and sent to the Smithsonian in accordance with Project Instructions. No unusual tidal currents were found during this survey. Three bottom samples were not acquired in the northeast corner of sheet G. Variability between bottom samples was minimal and the hydrographer is confident the bottom type for the area continues to be green mud. Secchi disk observations were not performed on this survey because cloud cover was greater than the allowable amount as per Change No. 1 to project instructions. Severe local magnetic variations were encountered in the vicinity east of Scull Island for northerly courses.

T. RECOMMENDATIONS ✓

The hydrographer recommends removal of the wire drag green tint from the charts common to this survey. The wire drag tint without wire depth now confuses the mariner with non-bathymetric information. This information was useful when most soundings were derived from sparse leadline surveys. Modern surveys such as this one supersede wire drag clearances and hangs, prior survey soundings, and features seaward of the launch navigational limit by investigating, with high-percentage echosounder coverage, diver, side scan or visual investigation, all shoals and features that may pose a hazard to navigation. – concur, recommend removing wire drag green tint.

U. REFERRAL TO REPORTS ✓

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

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

Respectfully Submitted,

Steven P. LaBossiere
Lieutenant, NOAA

Approved and Forwarded,

Alan D. Anderson

Alan D. Anderson
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 24 Apr 1997

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

NOAA FORM 76-40
(8-74)
Repalces C&GS Form 567

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [x] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [ ] TO BE CHARTED
- [x] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
RAINIER	ALASKA	Vicinity of Point Hilda Northern Stephens Passage	4-Apr-97

The following objects HAVE [ ] HAVE NOT [ ] *been inspected from seaward to determine their value as landmarks.*

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-0328-RA		H-10734	NAD 83

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE °	LATITUDE " D.M. Meters	POSITION LONGITUDE °	LONGITUDE " D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	METHOD AND DATE OF LOCATION FIELD	CHARTS AFFECTED
LL# 23775	Point Hilda Light Fl W 6s	58 13	02.194 ~~02~~ 62	134 30	22.547 ~~22~~ 376		F-GPS-L 4/4/97	17300 17315
LL# 23780	Inner Point Daybeacon	58 13	51.963 ~~52~~ 1609	134 35	22.035 ~~22~~ 359		F-GPS-L 4/4/97	17300 17315
LL# 23785	Middle Point Light Fl W 4s	58 14	53.607 ~~54~~ 1671	134 37	43.710 ~~44~~ 718		F-GPS-L 4/4/97	17300 17315 17316

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD		☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER
POSITIONS DETERMINED AND/OR VERIFIED	Capt. A. D. Anderson	FIELD ACTIVITY REPRESENTATIVE OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64)

OFFICE

1. OFFICE IDENTIFIED AND LOCATED OBJECTS
   Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.
   EXAMPLE: 75E (C) 6042
   8 - 12 - 75

FIELD

1. NEW POSITION DETERMINED OR VERIFIED
   Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

   A. Field positions* require entry of method of location and date of field work.
   EXAMPLE: F - 2 - 6 - L
   8 - 12 - 75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont.)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.
EXAMPLE: P - 8 - V
8 - 12 - 75
74L (C) 2982

II. TRIANGULATION STATION RECOVERED
When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.
EXAMPLE: Triang. Rec.
8 - 12 - 75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH
Enter 'V-Vis.' and date.
EXAMPLE: V-Vis.
8 - 12 - 75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

NOAA FORM 76-40 (8-74)

SUPERSEDES NOAA FROM 76-40 (2-71) WHICH IS OBSOLETE, AND EXISTING STOCK SHOULD BE DESTROYED UPON RECEIPT OF REVISION.

☆ U. S. GPO : 1975-0-665-080/1155

Section Q: Descriptive Report Insert

Name of Aid: Point Hilda Light ✓
Light List #: 23775

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

Positioning Information

	Latitude (N)	Longitude (W)
Charted Pos.	58/13/02.5	134/30/23
Survey Pos.	58/13/02.17400	134/30/22.54733

	Easting	Northing
Charted Pos.	29624.5	16784.1
Survey Pos.	29631.9	16774.0

Difference between Charted and Surveyed Position: Distance: 13 meters
(Bearing from Surveyed to Charted Position) Bearing: 324 deg T

Characteristics
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: _____ Private? Yes [ ] No [ ]
Is aid seasonally maintained? Yes [ ] No [ ]
Frequency of Maintenance: _____

Apparent Purpose: _____

Other Information:

Section Q: Descriptive Report Insert

Name of Aid: Inner Point Daybeacon ✓
Light List #: 23780

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

Positioning Information

	Latitude (N)	Longitude (W)
Charted Pos.	58/13/52	134/35/21
Survey Pos.	58/13/51.96335	134/35/22.03562

	Easting	Northing
Charted Pos.	24761.4	18319
Survey Pos.	24744.5	18317.8

Difference between Charted and Surveyed Position: Distance: 17 meters
(Bearing from Surveyed to Charted Position) Bearing: 86 deg T

Characteristics
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: _____ Private? Yes [ ] No [ ]
Is aid seasonally maintained? Yes [ ] No [ ]
Frequency of Maintenance: _____

Apparent Purpose: _____

Other Information:

Section Q: Descriptive Report Insert

Name of Aid: Middle Point Light ✓
Light List #: 23785

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

Positioning Information

	Latitude (N)	Longitude (W)
Charted Pos.	58/14/54	134/37/42
Survey Pos.	58/14/53.60703	134/37/43.71006

	Easting	Northing
Charted Pos.	22464	20240.9
Survey Pos.	22436.1	20228.8

Difference between Charted and Surveyed Position: Distance: 30 meters
(Bearing from Surveyed to Charted Position) Bearing: 67 deg T

Characteristics
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: _____ Private? Yes [ ] No [ ]
Is aid seasonally maintained? Yes [ ] No [ ]
Frequency of Maintenance: _____

Apparent Purpose: _____

Other Information:

APPROVAL SHEET

for

H-10734

RA-10-03-97 & RA-10-04-97

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Guidelines; and the 1994 version of the Field Procedures Manual in producing this survey. The data were examined daily during data acquisition and processing.

The field sheet and accompanying records have been examined by me, are considered complete and adequate for charting purposes, and are approved.

Alan D. Anderson
Captain, NOAA
Commanding Officer

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: September 11, 1997

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-0328-RA

HYDROGRAPHIC SHEET: H-10734

LOCALITY: Northern Stephens Passage, AK. (Sheets F & G)

TIME PERIOD: March 21 - April 21, 1997

TIDE STATION USED: 945-2249 Young Bay, AK.
Lat. 58° 11.0'N Lon. 134° 35.2'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.690 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SEA4A & SEA4B
Refer to attachments for zoning information.

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

Note 2:
Juneau, AK was used as control for datum determination for all subordinate tide stations for this survey. Relative sea level trends show that the areas of Juneau Alaska are undergoing continual uplift. The relative sea level trend observed at Juneau for the time period 1950 through 1993 is -0.0114 m/yr. with a standard error of 0.0005 m/yr. As a result of high rate of sea level change, the 1960 to 1978 Tidal Epoch value of Mean Lower Low Water (MLLW) used as chart datum and reference datum for NOS tidal predictions does not reflect present conditions. The data are under review to determine an updated value of MLLW. An interim value was computed for Juneau, based on the series of data from 1989 to 1991 and controlled by the 1960-1978 Epoch datums at Ketchikan which is more stable. The provided values adjust the chart datum to a more realistic level and in a direction that is more conservative for navigation purposes.

CHIEF, TIDAL ANALYSIS BRANCH

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10734-A

Name on Survey	A ON CHART NO. 17313, 17316, 17308	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
ADMIRALTY COVE	X		X							2
ADMIRALTY ISLAND	X		X							3
DOUGLAS ISLAND	X		X							4
HILDA, POINT	X		X							5
INNER POINT	X		X							6
MIDDLE POINT	X		X							7
STEPHENS PASSAGE	X		X							8
YOUNG, POINT	X		X			-				9
YOUNG BAY	X		X							10
										11
										12
										13
										14
										15
										16
										17
										18
					Approved:					19
										20
										21
					Chief Cartographer					22
					JUN 30 1997					23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10734-B

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 17315, 17300	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
ADMIRALTY ISLAND	X		X							2
DOUGLAS ISLAND	X		X							3
HILDA, POINT	X		X							4
HILDA CREEK	X		X							5
STEPHENS PASSAGE	X		X							6
										7
										8
										9
										10
										11
										12
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										14
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										17
										18
					Approved					19
					Chief Geographer					20
										21
										22
					JUN 30 1997					23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

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

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER
H-10734A & B

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	3					
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List): DM-10295 & DM-10296

PHOTOBATHYMETRIC MAPS (List): NA

NOTES TO THE HYDROGRAPHER (List): NA

SPECIAL REPORTS (List): NA

NAUTICAL CHARTS (List): 16701 , 16th Ed., and 16705 16th Ed.

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	48		48
COMPARISON WITH PRIOR SURVEYS AND CHARTS		2	2
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		43	43
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	48	45	93

Pre-processing Examination by M. Bigelow	*Beginning Date* 6/24/97	*Ending Date* 6/24/97
Verification of Field Data by E. Domingo	*Time (Hours)* 48	*Ending Date* 10/22/97
Verification Check by B. Olmstead	*Time (Hours)* 4	*Ending Date* 12/30/97
Evaluation and Analysis by B. Mihailov	*Time (Hours)* 43	*Ending Date* 12/7/97
Inspection by B.A. Olmstead	*Time (Hours)* 6	*Ending Date* 1/8/98

EVALUATION REPORT

H-10734A&B

A. PROJECT

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

B. AREA SURVEYED

Survey H-10734 was divided into two plotter sheets H-10734A and H-10734B. The survey was conducted offshore of southern Douglas Island, vicinity of Point Hilda, Northern Stephens Passage, Alaska. H-10734A is the western extent, and H-10734B the eastern extent of the survey area.

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

The bottom consists mainly of green mud and gray mud. Other components include medium pebbles, medium gravel, fine to coarse sand and broken shingles. Depths range from zero to 36 fathoms.

C. SURVEY VESSELS

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

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

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

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

E. SONAR EQUIPMENT

Side Scan Sonar equipment was used on survey H-10734. The data has been filed with the hydrographic records for survey H-10734.

F. SOUNDING EQUIPMENT

The hydrographer's report contains a discussion on sounding equipment.

G. CORRECTIONS TO SOUNDINGS

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

Predicted tides were used for reduction of soundings during field processing. During office processing, tide reductions were derived from approved hourly heights zoned direct from the following tide gages: Young Bay, Alaska, and Juneau, Alaska gages 945-2249 and 945-2210.

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:	–1.195 seconds	(–36.986 meters)
Longitude:	6.373 seconds	(104.119 meters)

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

I. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. The quality of several positions exceeds limits in terms of horizontal dilution of precision (HDOP). These positions are isolated and occur randomly throughout the survey area. A review of the data, however, suggests that none of these fixes are used to position dangers to navigation. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable. 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 maps DM-10047 and DM-10049, scale 1:20,000 were compiled on NAD 83 and apply to this survey. Shoreline drawn on the smooth sheet originates from 1:20,000 scale digital files provided by the Coastal Mapping Program. The digitized files and the survey file were merged during MicroStation processing.

The were no MHW revisions on this survey.

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10734a and H-10734b junctions with the following surveys:

Survey	Year	Scale	Area
H-10733	1997	1:10,000	Western Limit
H-10735	1997	1:10,000	Eastern Limit

The junction with survey H-10733 and H-10735 are complete; soundings and depth curves are in good agreement within the common areas. A "Joins" note has been shown on the surveys.

M. COMPARISON WITH PRIOR SURVEYS

H-1897	(1888)	1:80,000
H-2055	(1890)	1:40,000
H-6268	(1937)	1:10,000
H-6273	(1937)	1:20,000

The above prior surveys cover the entire area of the present survey. There is no consistent pattern in the depth changes between the prior surveys and the present survey. Differences in depths generally range from 1 to 2 fathoms. The differences may be attributed to greater sounding coverage, improved positioning and sounding techniques and relative accuracy of the data acquisition methods. This is reflected in a comparison with standard depth curves, which reveal no consistent indication of accretion seaward or movement inshore.

Survey H-10734a and H-10734b is adequate to supersede the prior surveys within the common area.

T-3848	(1921)	1:20,000

Numerous submerged rocks charted at latitude 58/10/30N, longitude 134/29/30W and latitude 58/10/30N, longitude 134/30/30W originate with prior shoreline T-3848. The shoreline has remained relatively stable and H-10734 compares well with the prior's shoreline map.

Survey H-10734a and H-10734b are adequate to supersede the above prior survey within the common area, with the exception of the following features, which have been transferred to the smooth sheet.

Feature	Latitude(N)	Longitude(W)
subm rock	58/10/31	134/30/27
subm rock	58/10/30.5	134/30/24
subm rock	58/10/25	134/29/54
subm rock	58/10/24	134/29/41
subm rock	58/10/25	134/29/37
subm rock	58/10/23	134/29/25

H-3987WD	(1917)	1:20,000
H-4147WD	(1920-21)	1:40,000

The above wire-drag surveys cover the entire area of the present survey. All wire-drag soundings and clearance depths were investigated and have been adequately addressed in the hydrographer's report.

Survey H-10734a and H-10734b are adequate to supersede the prior wire-drag surveys within the common area.

N. ITEM INVESTIGATIONS

There were no AWOIS items assigned to this survey. Three pre-survey review items assigned to this survey were adequately investigated and have been addressed in the hydrographer's report.

O. COMPARISON WITH CHART

Survey H-10734a and H-10734b were compared with the following charts:

Chart	Edition	Date	Scale	Datum
17300	27th	Aug. 14, 1993	1:209,978	NAD83
17315	21st	Aug. 3, 1991	1:40,000	NAD83
17316	16th	Jan. 5, 1991	1:80,000	NAD83
17316	17th	June 14, 1997	1:80,000	NAD83

a. Hydrography

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

Survey H-10734a and H-10734b are adequate to supersede charted hydrography within the charted area.

b. Dangers To Navigation

No dangers to navigation were discovered during survey operations and reported to the USCG. No additional dangers to navigation were found during office processing.

P. ADEQUACY OF SURVEY

Hydrography contained on survey H-10734a and H-10734b is adequate to:

a. delineate the bottom configuration, determine least depths, and draw the required depth curves;

b. reveal there are no significant discrepancies or anomalies requiring further investigation; and

c. show the survey was properly controlled and soundings are correctly plotted.

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

The area in the vicinity of latitude 58/10/30N, longitude 134/28/30W was not in compliance with the spacing of sounding lines to determine least depths and/or develop significant shoal areas.

Q. AIDS TO NAVIGATION

Three fixed aids to navigation exist within the survey area. They were located and adequately mark the features intended. See the Descriptive Report and section Q attachments for more detailed information. There are no floating aids to navigation within the survey area.

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

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

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

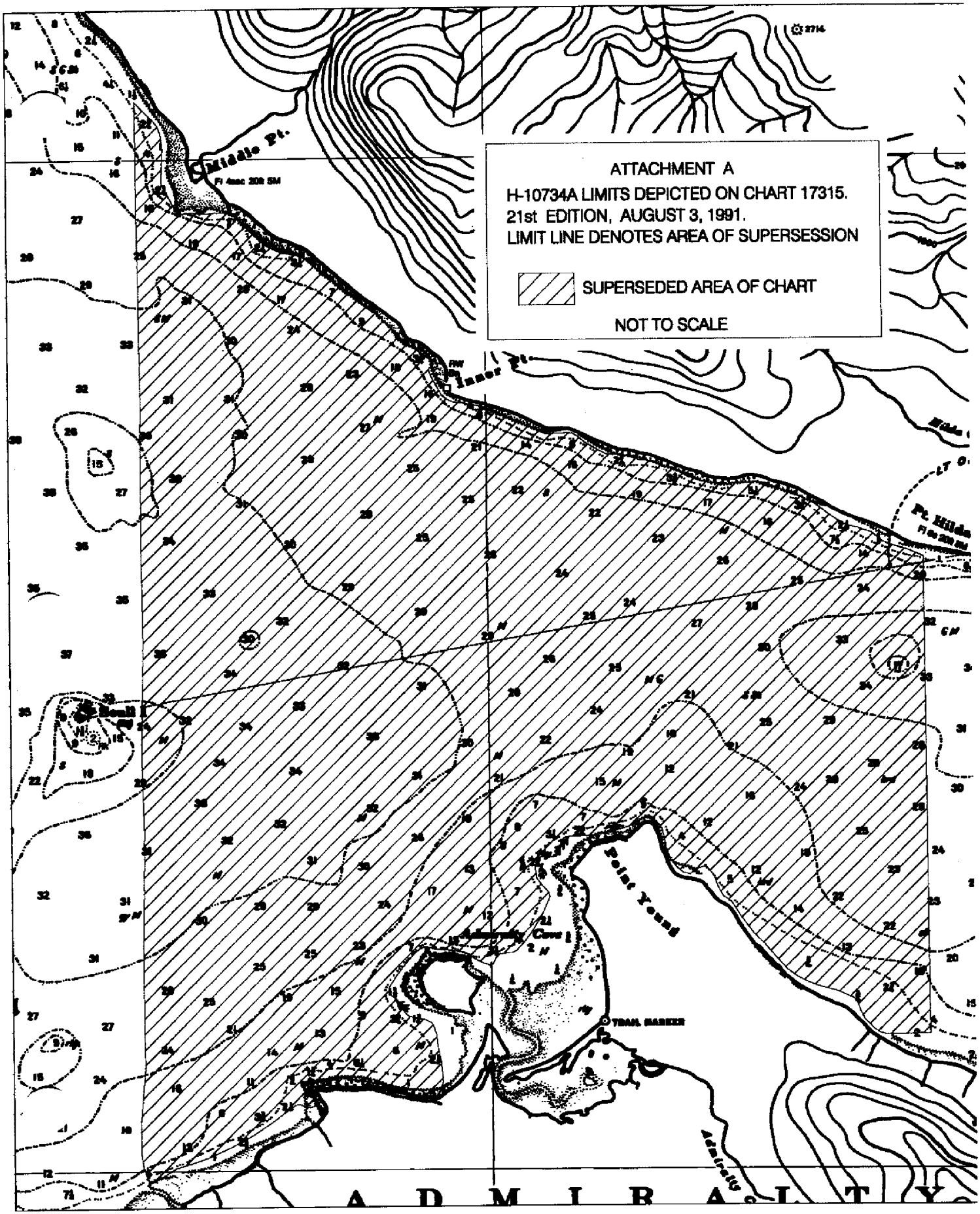
T. RECOMMENDATIONS

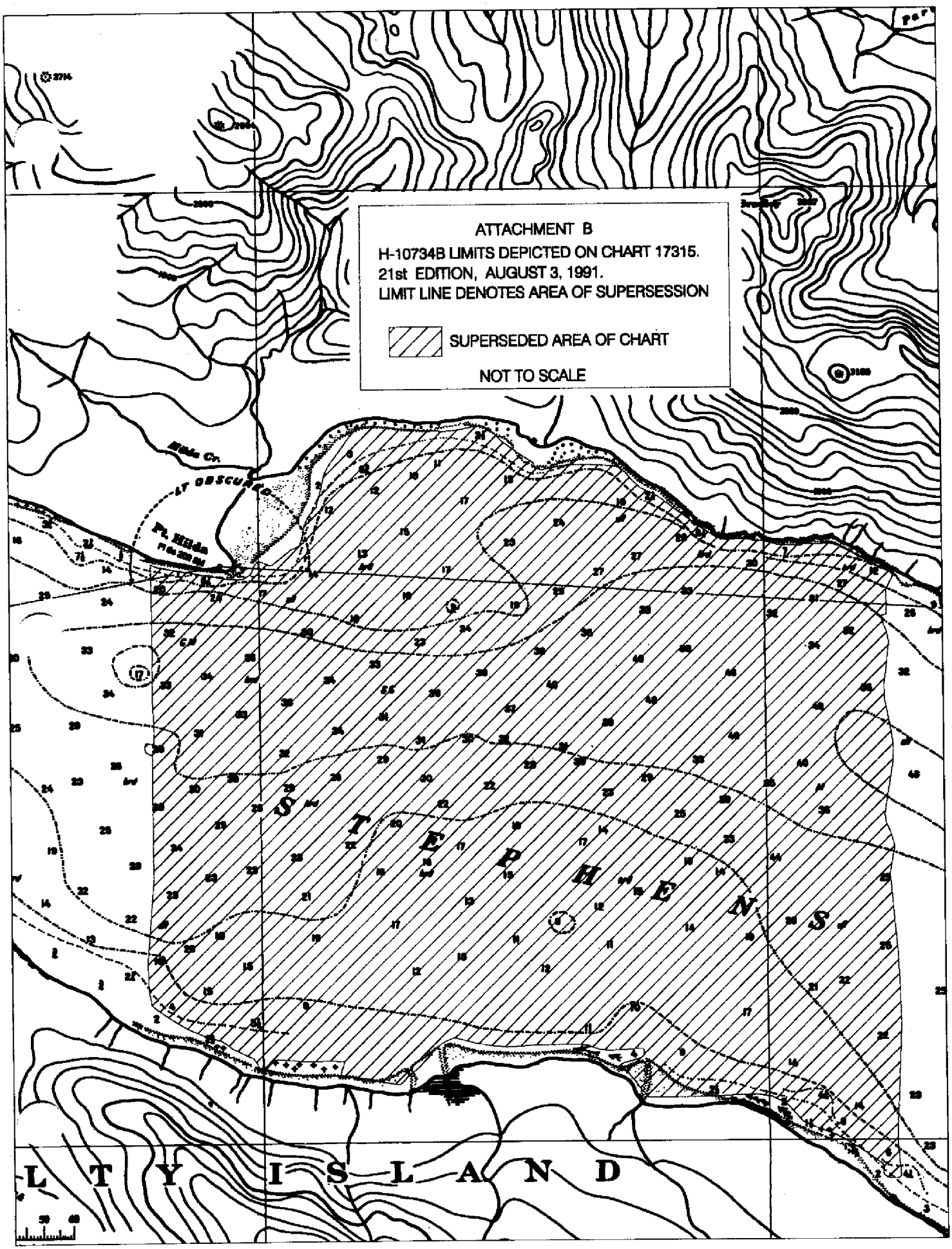
This is a good hydrographic survey. The submerged rocks mentioned in section M require no further investigation and should be retained as charted. Additional work is required on a low priority basis to investigate the area mentioned in section P

U. REFERRAL TO REPORTS

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

Bob Mihailov
Cartographer


ATTACHMENT A
H-10734A LIMITS DEPICTED ON CHART 17315.
21st EDITION, AUGUST 3, 1991.
LIMIT LINE DENOTES AREA OF SUPERSESSION
SUPERSEDED AREA OF CHART
NOT TO SCALE
Middle Pt.
Inner Pt.
Point Young
TRAIL BARKER
ADMIRALTY


ATTACHMENT B
H-10734B LIMITS DEPICTED ON CHART 17315.
21st EDITION, AUGUST 3, 1991.
LIMIT LINE DENOTES AREA OF SUPERSESSION
SUPERSEDED AREA OF CHART
NOT TO SCALE
Hilda Cr.
LT OBSCURED
Pt. Hilda
STEPHENS
LTY ISLAND

APPROVAL SHEET
H-10734A and H-10734B

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: 1/12/98
Bruce A. Olmstead
Senior Cartographer, Cartographic Section
Pacific Hydrographic Branch

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Kathy Timmons Date: 1/25/98
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

****

Final Approval

Approved:

Andrew A. Armstrong III Date: March 25, 1998
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

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-10734 a & b

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
17315	11/20/97	Bob McShaifer	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. Full 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.
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			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.