

H110718

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. RA-40-2-96
Registry No. H-10718

LOCALITY

State Alaska
General Locality Southwest Prince William Sound
Sublocality Southern Portion of
..... Knight Island Passage

1996

CHIEF OF PARTY
CAPT Dean R. Seidel, NOAA

LIBRARY & ARCHIVES

DATE APR 22 1998

HYDROGRAPHIC TITLE SHEET

H-10718

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

FIELD NO.

RA-40-2-96

State Alaska

General locality Southwest Prince William Sound

Locality Southern Portion of Knight Island Passage

Scale 1:40,000 Date of survey Sept. 12 - Oct 22, 1996

Instructions dated 8/23/96 Change #1-9/19/96 Project No. OPR-P139-RA

Vessel NOAA Ship RAINIER (2120)

Chief of party CAPT Dean R. Seidel, NOAA

Surveyed by CAPT D. Seidel, LT M. Larsen, LTJG E. Christensen

Soundings taken by echo sounder, hand lead, pole IDSSS Multi-Beam

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

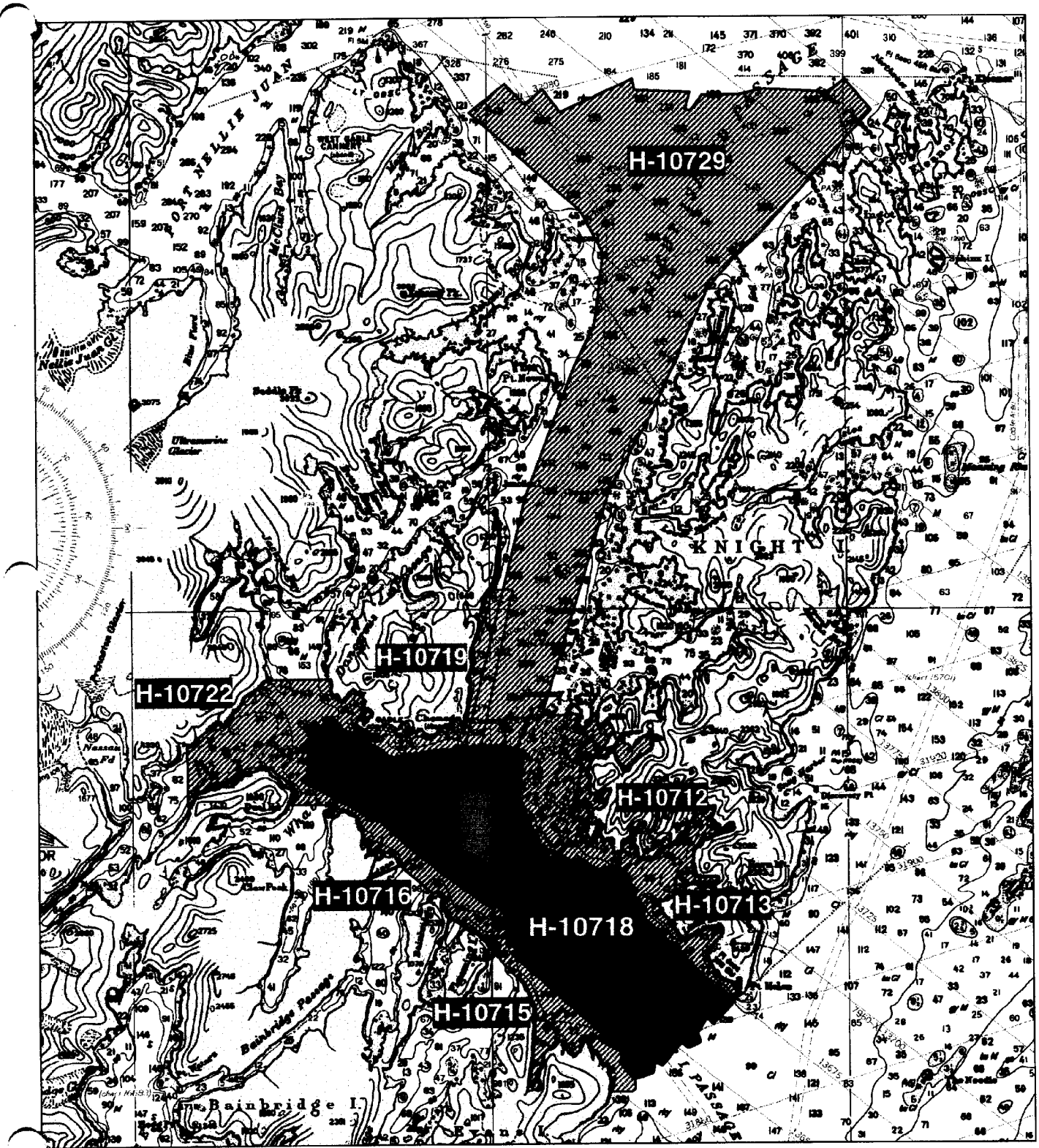
Evaluation by: E. Domingo, C.J. Barry Automated plot by HP Design Jet 650C

Verification by M. Bigelow, R. Mayor, C.J. Barry

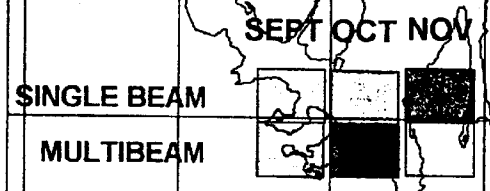
Soundings in fathoms ~~feet~~ at ~~NEW~~ MLLW and tenths

REMARKS: Time in UTC. Revisions and marginal notes in black were
generated during office processing. All separates are filed with
the hydrographic data, as a result page numbering may be
interrupted or non-sequential
All depths listed in this report are referenced to mean lower
low water unless otherwise noted.

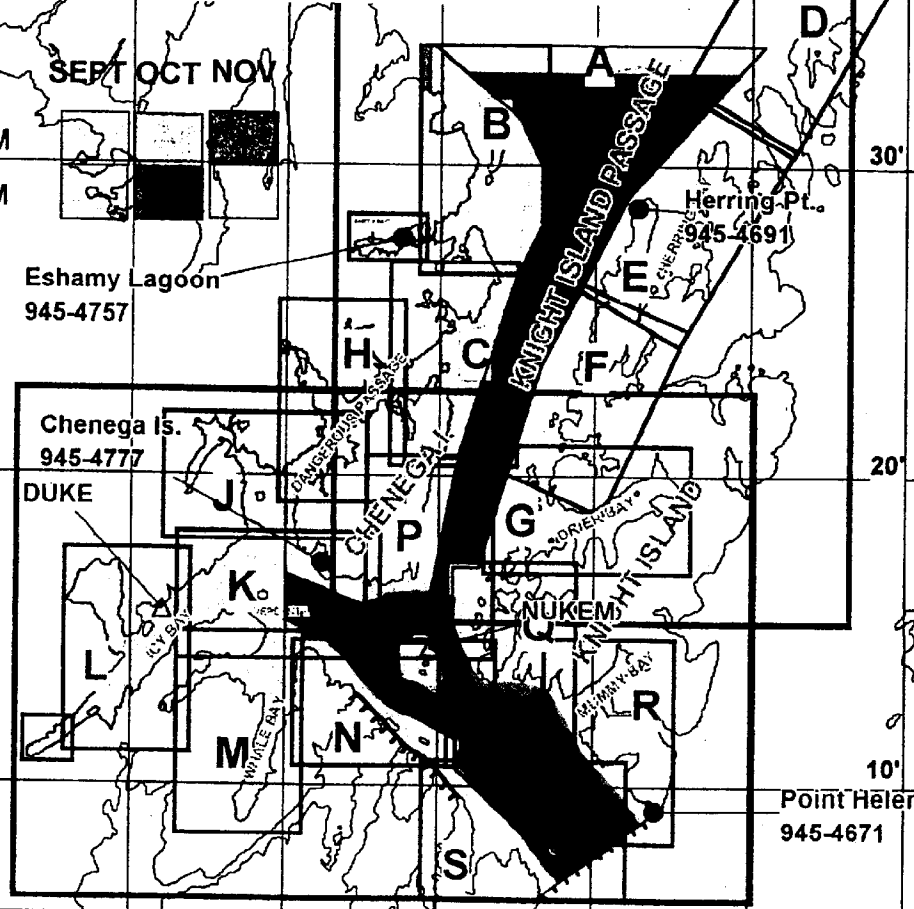
SURF/AWALS 3/20/98
mcr



PROGRESS SKETCH OPR-P139-96/
 SOUTHWEST PRINCE WILLIAM SOUND
 NOAA SHIP RAINIER
 CAPTAIN DEAN R. SEIDEL COMMANDING
 SEPTEMBER - NOVEMBER 1996



SINGLE BEAM
 MULTIBEAM



Sheet	Reg_No	Started	Percent	Completed	Submitted	SQNM
Q	H-10713	SEP 3	100%	SEP 24	OCT 25	10.4
R	H-10712	SEP 3	100%	SEP 12	OCT 11	5.8
S	H-10715	SEP 6	100%	SEP 11	OCT 11	4.5
N	H-10716	SEP 9	100%	SEP 21	OCT 11	6.5
T	H-10718	SEP 12	100%	OCT 21		32.7
L	H-10721	SEP 23	100%	OCT 16	NOV 15	9.4
J	H-10723	SEP 28	100%	OCT 14		5.4
P	H-10719	SEP 21	100%	OCT 10	OCT 25	5.1
M	H-10717	SEP 18	100%	OCT 7	OCT 25	7.8
K	H-10722	SEP 19	100%	SEP 28	NOV 15	9.7
H	H-10725	OCT 3	100%	OCT 20		7.3
C	H-10726	OCT 8	100%	OCT 23		9.1
B	H-10730	OCT 18	100%	NOV 1		16.5
A	H-10729	OCT 17	100%	NOV 1		52.7

Downtime_Type	Sept	Oct	Nov
Weather - Days	2	0	0
Mechanical -Hr	14	2	0
Electronic -Hr	2	0	0

Accomplished	Sept	Oct	Nov
LNM Hydro	1621	1783	4.2
LNM SSS	0	0.4	0
SQ NM	79.9	87.2	15.7
AWOIS Invest.	5	1	0
Other Invest.	14	27	0
LNM Multibeam	107.4	210.2	60.8

Descriptive Report to Accompany Hydrographic Survey H-10718

Field Number RA-40-02-96

Scale 1:40,000

September and October 1996

NOAA Ship RAINIER

Chief of Party: Captain Dean R. Seidel, NOAA

A. PROJECT ✓

This basic hydrographic survey was completed in the southern portion of Knight Island Passage, Southwest Prince William Sound, Alaska, as specified by Project Instructions OPR-P139-RA dated August 23, 1996. Survey H-10718 corresponds to sheet T as defined in the sheet layout included in the Project Instructions.*

This survey will provide contemporary hydrographic survey data for updating National Ocean Service charts of Prince William Sound. Requests for hydrographic surveys and updated charts have been received from the Defense Mapping Agency, United States Coast Guard, the Southwest Alaska Pilot's Association, cruise ship lines, and local fisherman.

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

The navigable area survey is located in the southern portion of Knight Island Passage, bounded by the limits of safe navigation between Point Helen and the southwest shore of Chenega Island. The survey's limits clockwise from the northwest corner are:

Latitude	Longitude
60° 16' 44" N	148° 10' 00" W
60° 15' 45" N	148° 05' 03" W
60° 16' 00" N	148° 03' 00" W
60° 16' 00" N	147° 59' 09" W
60° 14' 58" N	147° 59' 10" W
60° 13' 00" N	147° 57' 40" W
60° 12' 37" N	147° 52' 57" W
60° 11' 36" N	147° 50' 53" W

Latitude	Longitude
60° 08' 46" N	147° 47' 05" W
60° 06' 54" N	147° 52' 06" W
60° 08' 14" N	147° 54' 00" W
60° 10' 30" N	147° 58' 55" W
60° 11' 27" N	147° 58' 55" W
60° 12' 45" N	148° 03' 36" W
60° 14' 32" N	148° 06' 57" W
60° 15' 16" N	148° 10' 00" W

* CHANGE No. 1 DATED 9/19/96.

The Pleiades Island area, as identified by the following coordinates, was surveyed and included as part of survey H-10716: *Conax*

Latitude	Longitude
60° 14' ^{40"} 52" N	148° ^{01' 55"} 02' 00" W
60° 14' ^{40"} 52" N	148° 00' ^{18"} 00" W
60° 12' 45" N	148° 00' ^{18"} 00" W
60° 13' ^{20"} 00" N	148° ^{01' 55"} 02' 00" W
60° ^{14' 00"} 13' 18" N	148° ^{01' 55"} 02' 00" W

Data acquisition was conducted on September 12, 1996 (DN 256), September 13, 1996, September 17, 1996 (DN 261), and October 21, 1996 (DN 295) - *October 22, 1996 (DN 296).*

C. SURVEY VESSELS ✓

The RAINIER (Vessel Number 2120) was the only vessel used to acquire swath data, sound velocity casts, and bottom samples on this survey. No unusual vessel configurations or problems exist for this survey.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Data were acquired and processed using Intermediate Depth Swath Survey System (IDSSS) and Hydrochart II (Seabeam Inc.) program. A complete listing of all programs used to acquire and process data is included in Appendix VI.* A listing of RAINIER batch processing program (NAT.COM) used to streamline processing is included in Appendix VI, Supplemental Correspondence.*

E. SONAR EQUIPMENT

Side scan sonar equipment was not used on H-10718. ✓ *Conax*

F. SOUNDING EQUIPMENT ✓

The IDSSS "Phase III" configuration consisted of a data acquisition system (DAS) and a data processing system (DPS). No other sonar equipment was used during this survey. The DAS consisted of a Digital Equipment Corporation's (DEC) VAX Station 4000-90 computer system interfaced with a Seabeam Instruments Inc. Hydrochart II sonar system, Datawell heave-roll-pitch sensor (HIPPY), Sperry gyrocompass, a Trimble P-code GPS system, and Ashtech DGPS system. Hydrochart II is a multibeam sonar system that uses two transducer arrays to produce an athwartship swath of bathymetric data, approximately 2.5 times the water depth.

The DEC VAX Station 4000-90 computer collected input from the Hydrochart II, gyrocompass, and the navigation system. It also provided guidance to the helmsman and plotted a near real time contour map.

The DAS consisted of the following equipment:

DAS EQUIPMENT

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

The DPS was also controlled by the DEC VAX Station 4000-90 computer. A second workstation was used to process the data and create corrected merge files, selected sounding files, and final field sheets. The DPS consisted of the following equipment:

DPS EQUIPMENT

DEC VAX Station 4000-90 (DPS) ✓
TTi 8212 Tape Drive
DEC monitor
Bruning 36 inch Plotter

G. CORRECTIONS TO ECHO SOUNDINGS ✓

Correctors for the velocity of sound through water were determined from the casts listed below:

Velocity Table #	Cast #	DN	Cast Position	Deepest Depth (m)	Applicable DN
24	24	256	60° 14' 30" N 147° 59' 18" W	765.2	256-294
26	26	295	60° 14' 20" N 147° 59' 15" W	762	295

The sound velocity cast was acquired with SBE SEACAT Profiler (S/N 219), calibrated January 16, 1996. Velocity correctors were computed using the PC programs SEACAT and VELOCITY, version 2.11 (1995), in accordance with Hydrographic Survey Guideline (HSG) No. 69.

A printout of the Sound Velocity Corrector Tables used for input into the Hydrochart II subsystem is included in the submitted package. *

Data acquired on DN 256/257 and 295^{/296} used sound velocity corrector tables from same day casts. A zone comparison between the casts on DN 256 and DN 295 determined the magnitude of the change in the sound velocity profile was large enough to require updating the sound velocity corrector table in accordance with the Hydrographic Manual Fifth Edition (7.5.4, 7.5.5).

DN 261 was acquired without the benefit of a zone comparison or updated sound velocity corrector table. The agreement of data from this day with junctions in the overlap of adjacent lines, multibeam data acquired on other days, and contemporary single beam surveys, provides sufficient confidence in the adequacy of using the DN256 cast profile with DN261 data.

Static Draft ✓

A transducer depth was determined using Field Procedures Manual (FPM) Fig 2.2 for the RAINIER during drydock in spring 1995. The draft of the ship's transducer was determined to be 4.4 meters and was entered into the start-up dialog of the Hydrochart II subsystem.

Settlement and Squat ✓

The multibeam data acquired by the ship cannot be corrected for settlement and squat. Historical values have been 0.1 meters at standard speed (12 knots). A total draft of 4.5 meters was used for this survey to account for the settlement and squat.

Parameter Table ✓

The parameter table contains offsets for the GPS antenna, static draft measurements, pitch, roll, and gyro biases, and plotter sheet parameters. The parameter table is contained in the "Separates to be Included with Survey Data". *

Roll-bias tests were conducted in Frederick Sound, Alaska in the vicinity of Point McCartney (latitude 57° 02' 30" N, longitude 134° 06' 30" W) on April 2, 1996 (DN 93). A patch test was also conducted in Frederick Sound in the vicinity of Cape Fanshaw (latitude 57° 08' 45" N, longitude 133° 38' 30" W) on April 3, 1996 (DN 94). Office of NOAA Corps Operations (NC) support personnel calculated the starboard and port array biases to be 0.00° and the port and starboard pitch biases to be 0.84° and 1.56°, respectively. Roll bias and pitch bias values were entered into the survey parameter file and applied to all data.

The gyro bias for the port array was determined to be 1.11° West and the gyro bias for the starboard array was determined to be 1.05° West. These biases were calculated by NC support personnel from data obtained during the roll bias and patch tests and are in agreement with the historical RAINIER gyro error of approximately 1.5° West. The values were entered into the parameter table and applied to all datasets.

Tide Correctors ✓

Predicted tides for the project were provided on tape by N/OES334 through N/CS31. Tidal correctors as provided in the project instructions for H-10718 are:

Zone	Time Correction	Height Correction
PWS35	-0 hr 06 mins	x0.95

Cordova, Alaska (945-4050) and Valdez, Alaska (945-4240) were used as the primary control stations for datum determination at all subordinate stations. RAINIER personnel installed Sutron 8200 GOES-transmitter equipped tide gage at Point Helen (945-4671) on September 2, 1996. Refer to the Field Tide Notes and supporting data in Appendix V for 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 in accordance with FPM 4.2.3. *TIDE NOTE DATED JANUARY 16, 1997 IS ATTACHED. SEE EVAL. REPT., SECTION H.*

H. CONTROL STATIONS ✓ *SEE EVAL. REPT., SECTION H.*

The horizontal datum for this project is NAD 83. One new station, NUKEM, was established on the northernmost rock of the Pleiades Islands using static GPS observations from station ROCK, with a check to station DUKE. The control stations used for this survey are listed in Appendix III.*See the OPR-P139-RA-96 Horizontal Control Report for more information. *CONTROL STATIONS LIST IS ATTACHED.*

I. HYDROGRAPHIC POSITION CONTROL ✓ *SEE EVAL. REPT., SECTION I.*

All soundings were positioned using differential GPS. Primary control was a VHF differential reference station installed at station NUKEM. Station DUKE, USCG Cape Hinchinbrook DGPS beacon, and the USCG Potato Point DGPS beacon were used as alternate sources of differential corrections. The serial numbers for the ship based GPS equipment are listed below:

<u>ITEM</u>	<u>SERIAL NUMBER</u>
Trimble Centurian Receiver	0080198647 ✓
MBX-2 Radio Beacon Receiver	Y-1190
Ashtech Sensor	700417B119

Calibrations & System Check Methods ✓

RAINIER used SHIPDIM, version 2.2R (April 1996), modified for use with the Trimble Centurian P-code receiver. The stations at NUKEM and HINCHINBROOK provided input for daily comparisons. Some outliers were noted, but none indicated systematic or continuous errors in the HINCHINBROOK beacon. The SHIPDIM OUTLIER.SUM results are included in the project data for OPR-P182-RA.

J. SHORELINE ✓ *SEE EVAL. REPT., SECTION J.*

There was no shoreline in the survey area covered by the multibeam system. Shoreline shown on final field sheets is for orientation purposes.

K. CROSSLINES ✓

Crosslines agreed within 1 meter with mainscheme hydrography. Crossline mileage was 12.2 nautical miles or 9.3 % of total mainscheme hydrography.

L. JUNCTIONS ✓ *SEE EVAL. REPT., SECTION L.*

The following contemporary surveys junction with survey H-10718.

Junction	Survey	Field Number	Scale
Northern Limit	H-10719	RA-10-24-96	1:10,000
Northeastern Limit	H-10712	RA-10-18-96	1:10,000
Southeastern Limit	H-10713	RA-10-19-96	1:10,000
Southwestern Limit	H-10715	RA-10-20-96	1:10,000
Western Limit	H-10716	RA-10-21-96	1:10,000
Northwestern Limit	H-10722	RA-10-23-96	1:10,000

Northern Limit H-10729 RA-10-3-96 1:40,000

Soundings were found to be generally in good agreement. Agreement was very good in more gently sloping bottom terrain and varied by as much as 11 meters in areas of steep slopes. Final comparison will be made at the Pacific Hydrographic Branch (PHB).

M. COMPARISON WITH PRIOR SURVEYS ✓ *SEE EVAL. REPT., SECTION M*

Prior surveys covering this survey areas are as follows:

Prior Survey	Scale	Date	Datum
H-2916 *	1:40,000	1907	Valdez
H-2983 *	1:20,000	1908	Valdez
H-3027 *	1:20,000	1909	Valdez
H-3188 *	1:20,000	1910	Valdez
H-5409 *	1:20,000	1933	Valdez
H-8388 *	1:10,000	1957	NAD27
H-8389 *	1:10,000	1957	NAD27
<i>H-2873 *</i>	<i>1:40,000</i>	<i>1906</i>	<i>Valdez</i>

Prior survey soundings were found to be in fair agreement with those from the current survey. Least depths from the current survey were shoaler or matched prior surveys. Areas in which prior survey soundings vary widely from the current survey have been sounded with 100 percent bottom coverage and probably arise from improved modern positioning and sounding equipment, positioning and scaling errors from the older surveys, or the low sounding density of the prior surveys. 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 assigned to this survey. *Concur*

O. COMPARISON WITH THE CHART ✓ *SEE EVAL. REPT., SECTION O.*

This survey was compared in the field to features portrayed on chart 16702 9th Edition, July 21, 1990, 1:40,000 scale, (NAD 83), chart 16704, 11th Edition, April 21, 1990, 1:20,000 scale (NAD 83), and chart 16701, 16th Edition, June 1, 1996, 1:81,436 scale (NAD 83).

Comparison of charted soundings with the survey is discussed in Section M., Comparison with Prior Surveys, and require no further discussion.

Final comparisons will be made at PHB after application of real tide correctors.

Dangers to Navigation ✓

There were no dangers to navigation within the limits of H-10718. *Concur*

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

Survey H-10718 is complete and adequate to supersede prior soundings and features in their common areas. *Do not concur*

Q. AIDS TO NAVIGATION ✓

There were no aids to navigation on H-10718. *Plerades light plots within the survey limits. This fixed aid plots on H-10716 but has been shown on this survey to depict its geographic location.*

R. STATISTICS ✓

NM Hydrography	144
Velocity Casts	2
Detached Positions	0
Selected Soundings	10,092
Bottom Samples	4
Tide Stations	1
NM ² Hydrography	32.7
Dives	0

S. MISCELLANEOUS ✓

Bottom samples were collected and sent to the Smithsonian Institution in accordance with Project Instructions.

T. RECOMMENDATIONS ✓

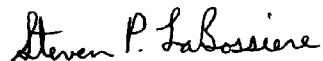
None

U. REFERRAL TO REPORTS ✓

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

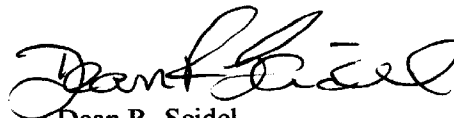
<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Fall 1996 Horizontal Control Report	November, 1996	N/CS34
Fall 1996 Coast Pilot Report	November, 1996	N/CS26
Project Related Data	Incremental	N/CS34
Secchi Disk Observations	November, 1996	N/CS31

Respectfully Submitted,



Steven P. LaBossiere
Lieutenant, NOAA

Approved and Forwarded,



Dean R. Seidel
Captain, NOAA
Commanding Officer

CONTROL STATIONS as of 1 Dec 1999 ✓

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
1	G	060:14:26.408	148:00:42.205	18	250	0.0	0.0		09/03/96	NUKEM
2	G	060:15:37.435	148:18:06.007	18	250	0.0	0.0		10/07/96	DUKE
3	L	060:09:11.260	147:45:58.680	27	257 200	0.0	0.0		10/07/96	PT. HELEN LIGHT LL#25925
4	L	060:18:46.233	147:55:04.532	23	257 200	0.0	0.0		10/07/96	NEW YEAR ISLAND LIGHT LL#25915
5	L	060:14:22.912	148:00:37.765	26	257 200	0.0	0.0		10/07/96	PLEIADES LIGHT LL#25920
6	B	060:14:18.000	148:38:48.000	0	250	0.0	0.0		00/00/00	CAPE HINCHINBROOK USCG BEACON
7	B	061:03:24.000	146:41:48.000	0	250	0.0	0.0		00/00/00	POTATO POINT USCG BEACON
8	L	060:30:41.607	147:56:03.672	36	257 200	0.0	0.0		10/24/96	CRAFTON ISLAND LIGHT LL#25910
9	G	060:39:13.513	147:55:58.265	18	250	0.0	0.0		10/23/96	ROCK (pub)

APPROVAL SHEET

for

H-10718

RA-40-02-96

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.



Dean R. Seidel
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: January 16, 1997

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR-P139-RA

HYDROGRAPHIC SHEET: H-10718

LOCALITY: Southern Portion of Knight Island Passage, Southwest
Prince William Sound, Alaska

TIME PERIOD: September 12 - October 22, 1996

TIDE STATION USED: 945-4777 Chenega Island, Southwest End, AK
Lat. 60° 17.2'N Lon. 148° 07.2'W

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

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.300 meters

TIDE STATION USED: 945-4671 Point Helen, Knight Island, AK
Lat. 60° 09.2'N Lon. 147° 46.0'W

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

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.240 meters

TIDE STATION USED: 945-4691 Herring Point, Knight Island Passage,
AK

Lat. 60° 28.5'N Lon. 147° 47.5'W

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

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.362 meters

TIDE STATION USED: 945-4240 Valdez, AK

Lat. 61° 07.5'N Lon. 146° 21.7'W

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

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.389 meters

REMARKS: RECOMMENDED ZONING

Use zones identified as: PWS16, PWS17, PWS20, PWS21, PWS26, PWS27,
PWS28, PWS29, PWS30, PWS31, PWS32, PWS33, PWS34, PWS35, PWS35A,
PWS36, PWS37 & PWS38

Refer to attachment(s) for zoning information.

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



CHIEF, TIDAL ANALYSIS BRANCH



GEOGRAPHIC NAMES

H-10718

Name on Survey	A CHART NO. 16702, 16701 B ON PREVIOUS SURVEY 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							
KNIGHT ISLAND PASSAGE	X		X								2
PLEIADES ISLANDS	X		X								3
PRINCE WILLIAM SOUND	X		X								4
(title)											5
BAINBRIDGE ISLAND *	X		X								6
BAINBRIDGE POINT *	X		X								7
EVANS ISLAND *	X		X								8
EVANS POINT *	X		X								9
GAGE ISLAND *	X		X								10
KNIGHT ISLAND*	X		X								11
POINT COUNTESS*	X		X								12
SQUIRE ISLAND*	X		X								13
SQUIRE POINT*	X		X								14
											15
* Added during office processing.											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

Approved

Crute C. Loy
Chief Geographer

APR 21 1997

HYDROGRAPHIC SURVEY STATISTICS

H-10718

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		N/A
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		N/A
DESCRIP- TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR- GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS
ACCORDION FILES	1				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES					

SHORELINE DATA

SHORELINE MAPS (List): **DM 10295, DM 10296, DM 10299, DM 10300, DM 10302**
 PHOTOBATHYMETRIC MAPS (List): **NA**
 NOTES TO THE HYDROGRAPHER (List): **NA**
 SPECIAL REPORTS (List): **NA**
 NAUTICAL CHARTS (List): **16701, 16th Ed., June 1, 1996; 16702, 9th Ed., July 21, 1990**
 OFFICE PROCESSING ACTIVITIES **16704, 11th Ed., April 21, 1990**
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	38.5		38.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS		15	15
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		10.5	10.5
GEOGRAPHIC NAMES			
OTHER			
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS		
	38.5	25.5	64

Pre-processing Examination by Pacific Hydrographic Branch	Beginning Date 10/28/97	Ending Date 3/21/97
Verification of Field Data by M. Bigelow, G. Nelson, R. Mayor, E. Domingo, C. Barry	Time (Hours) 38.5	Ending Date 10/30/97
Verification Check by B. Olmstead	Time (Hours) 3	Ending Date 12/19/97
Evaluation and Analysis by C. Barry	Time (Hours) 10.5	Ending Date 12/16/97
Inspection by B. Olmstead	Time (Hours) 5	Ending Date 12/29/97

EVALUATION REPORT

H-10718

A. PROJECT

Project information is discussed in the hydrographer's report.

B. AREA SURVEYED

The survey area is adequately described in the hydrographer's report. Page-size plots of the charted area depicting the limits of supersession accompany this report as Attachments 1 thru 3.

The bottom consists mainly of gray mud and broken shingle. Depths range from 34 to 322 fathoms.

C. SURVEY VESSELS

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

At the time of the survey certification the format for transmission of digital data had not been formally approved. In the interim, digital data for this survey exists in the standard HPS format that is a database format using the .dbf extension. In addition, the sounding plot was created with .dbf (extension) and enhanced using the MicroStation system, are filed both in the MicroStation drawing format, .dgn (extension); and in the more universally recognized graphics transfer format, .dxf (extension). Copies of these files will be retained at PHB until data transfer protocols are developed and approved. All multibeam merge files (full resolution format), selected soundings files and support files will also be retained at PHB.

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 not used on survey H-10718.

F. SOUNDING EQUIPMENT

Sounding equipment is discussed in the hydrographer's report.

G. CORRECTIONS TO SOUNDINGS

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

Predicted tides were used for reduction of soundings during field processing. During office processing, tide reductions were derived from approved hourly heights zoned direct from the following tide gages: Chenega Island, Southwest End, Alaska, gage 945-4777 and Valdez, Alaska, gage 945-4240 . Point Helen, Knight Island, Alaska, gage 945-4671 and Herring Point, Knight Island Passage, Alaska, gage 945-4691 listed in the Tide Note were not used.

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: -2.262 seconds (-70.020 meters)
Longitude: 7.273 seconds (112.103 meters)

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

I. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 15 was computed for survey operations. The quality of several positions exceeds limits in terms of horizontal dilution of precision (HDOP). These positions are isolated and occur randomly throughout the survey area. A review of the data, however, suggests that none of these fixes are used to position dangers to navigation. The features or soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable.

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

Additional information concerning calibrations and system checks can be found in the hydrographer's report and in the separates related to horizontal position control and corrections to position data.

J. SHORELINE

Shoreline maps DM 10295, DM 10296, DM 10299, DM 10300, and DM 10302, scale 1:20,000, were compiled on NAD83 and apply to this survey. Shoreline drawn on the smooth sheet originates from the above digital manuscripts as provided in digital format by the Coastal Mapping Program. The digitized files and the survey file were merged during MicroStation processing.

L. JUNCTIONS

Survey H-10718 junctions with the following surveys:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10712	1996	1:10,000	Northeastern Limit
H-10713	1996	1:10,000	Southern Limit
H-10715	1996	1:10,000	Southwestern Limit
H-10716	1996	1:10,000	Western Limit
H-10719	1996	1:10,000	Northern Limit
H-10722	1996	1:10,000	Northwestern Limit
H-10729	1996	1:40,000	Northern Limit

The junctions with surveys H-10713, H-10715, H-10716, H-10719 and H-10729 are complete. "Joins" notes have been added to the smooth sheet where applicable. A few soundings from the junctional surveys have been transferred within the common areas of H-10718 to better delineate the bottom configuration. The junctions with H-10712 and H-10722 were not formally completed since these surveys were processed previously. However, depths are in good agreement within the common area. "Adjoins" notes have been added to the smooth sheet where applicable.

Soundings within the junction overlap with H-10712, H-10713, H-10715, H-10716, H-10719 and H-10722 are typically shoaler on survey H-10718. The cause of the difference is not detailed within the hydrographer's report. However, discussion with the hydrographer reveals that the cause is related to the differing types of technology employed to acquire depths. The offshore survey employed a multi-beam echo sounder system while the inshore surveys employed single-beam echo sounder technology. The hydrographer explains that the single-beam systems were unable to provide accurate soundings in areas of sloping bottom where echo sounder pulse energy had been dissipated by depth. He recommended the selection of depths from survey H-10718 over those from inshore surveys. The evaluator concurs.

M. COMPARISON WITH PRIOR SURVEYS

H-2833 (1906) 1:40,000
H-2916 (1907) 1:40,000
H-2983 (1908) 1:20,000
H-3027 (1909) 1:20,000
H-3188 (1910) 1:20,000
H-5409 (1933) 1:20,000
H-8388 (1957) 1:10,000
H-8389 (1957) 1:10,000

The prior surveys listed above cover the entire area of the present survey. Sounding agreement with these prior surveys reveals general differences of 3 to 10 fathoms between 1906 and 1957. These differences may be attributed to greater sounding coverage, improved positioning and sounding methods and relative accuracy of the data acquisition techniques.

Survey H-10718 is adequate to supersede the prior surveys within the common area with the following exception: Some bottom characteristics originating from the above listed prior surveys were transferred in color to the present survey. Of note, when comparing to the source document it appears that the charting placement of these characteristics has been generalized.

O. COMPARISON WITH CHART

Survey H-10718 was compared with the following charts.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16701	16th	June 1, 1996	1:81,436	NAD83
16702	9th	July 21, 1990	1:40,000	NAD83
16704	11th	April 21, 1990	1:20,000	NAD83

a. Hydrography

Charted hydrography originates with the previously discussed prior surveys. The compilation of charts from survey H-10718 should take into account the significant overlap with inshore surveys. Close examination of depths indicates shoaler depths on the inshore surveys than on the offshore surveys. Although the surveys are contemporary they differ significantly in the type of technology employed to acquire depths. Discussion with the hydrographer reveals that the deeper depths originating with the offshore surveys are considered to better represent the true bottom configuration. The reasons for this are discussed in Section L. Therefore, charts covering the area of survey overlap have been compiled using depths originating from H-10718.

In accordance with the Hydrographic Guideline No. 39, the effect of the 1964 Prince William Sound earthquake were considered in the comparison of this survey. Prince William Sound experienced a bottom uplift of 4-32 feet during the 1964 earthquake. Based on the changeability of the survey area and the differences in data acquisition, no reasonable adjustment value for prior soundings could be determined.

The shoreline depicted on the smooth sheet is in poor agreement with the shoreline on chart 16701. The differences appear random and are possibly attributed to the age of charted shoreline versus survey shoreline. The newer survey shoreline is compiled at a larger scale than that charted and, accordingly, provides much more detail. The charted shoreline should be updated with latest photogrammetric data. See Section J for a listing of available shoreline maps.

Survey H-10718 is adequate to supersede charted hydrography within the charted 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-10729 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 following exception:

The holiday at 60°13.0'N, longitude 147°59.0'W exists due to poor positional fix geometry discovered during office processing. Depths in this area range from 260 to 280 fathoms and the small amount of bad hydrographic data has been rejected and does not effect the quality of the survey.

Q. AIDS TO NAVIGATION

There are no fixed and/or floating aids to navigation within the survey area. Pleiades Light, which occurs in the common area with survey H-10716, (1:10,000, 1996), is shown on this survey to depict it's geographic location.

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

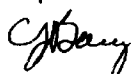
Miscellaneous information is discussed in the hydrographer's report. No additional miscellaneous items were noted during office processing.

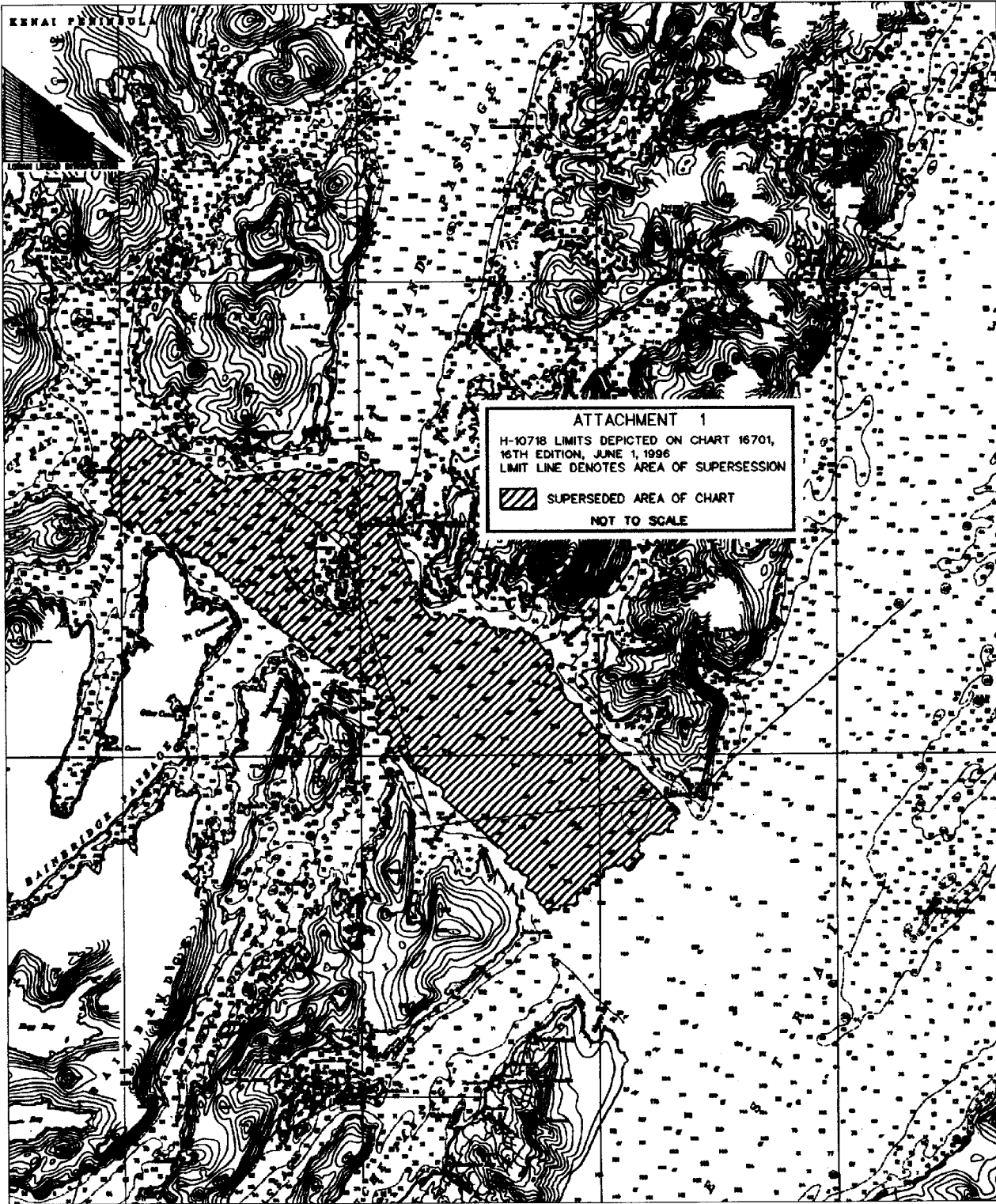
T. RECOMMENDATIONS

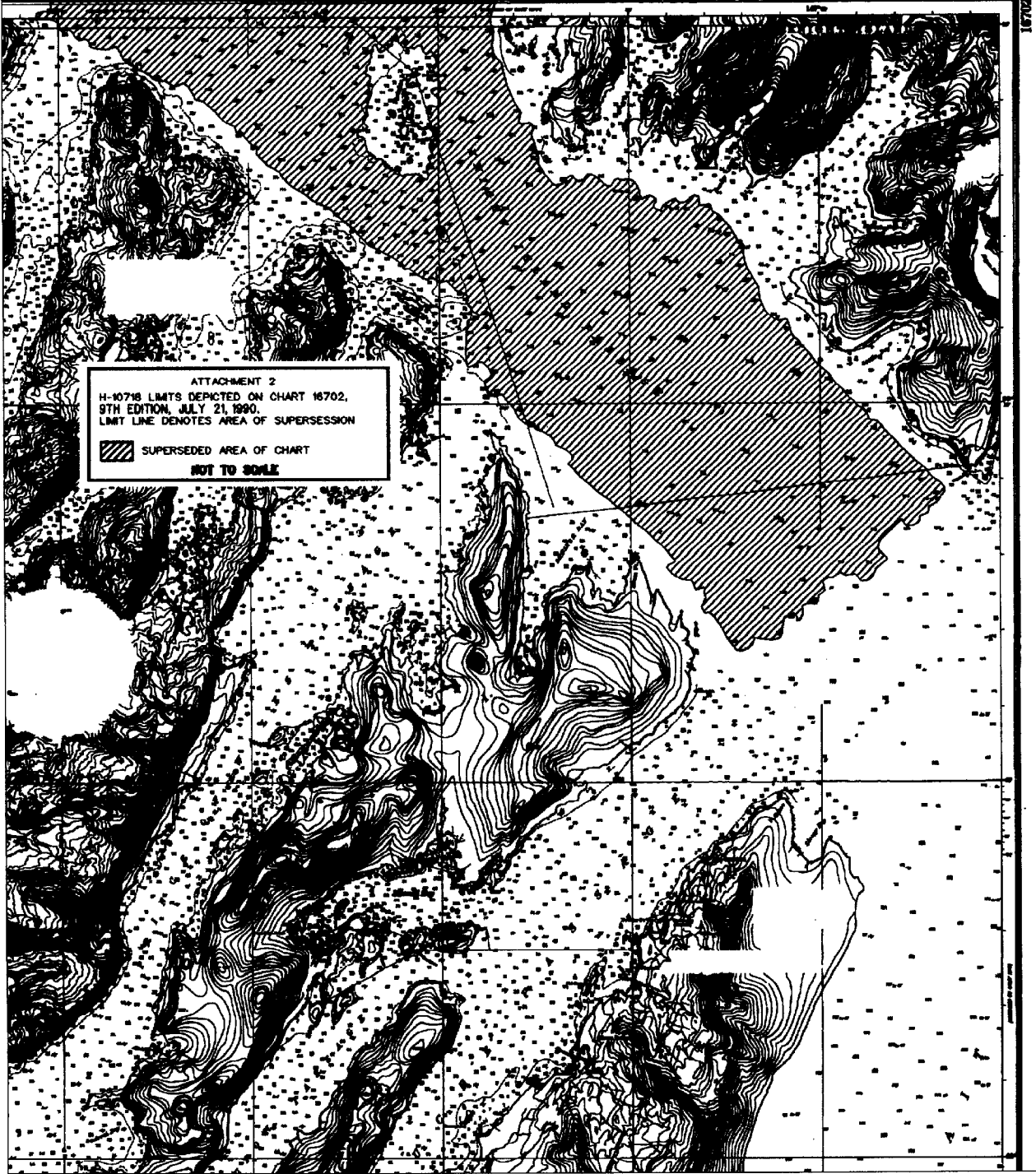
This is a good hydrographic survey. Although data specified in section P was rejected, the depth of the area precludes the necessity for additional work.


U. REFERRAL TO REPORTS

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


C.J. Barry
Cartographer

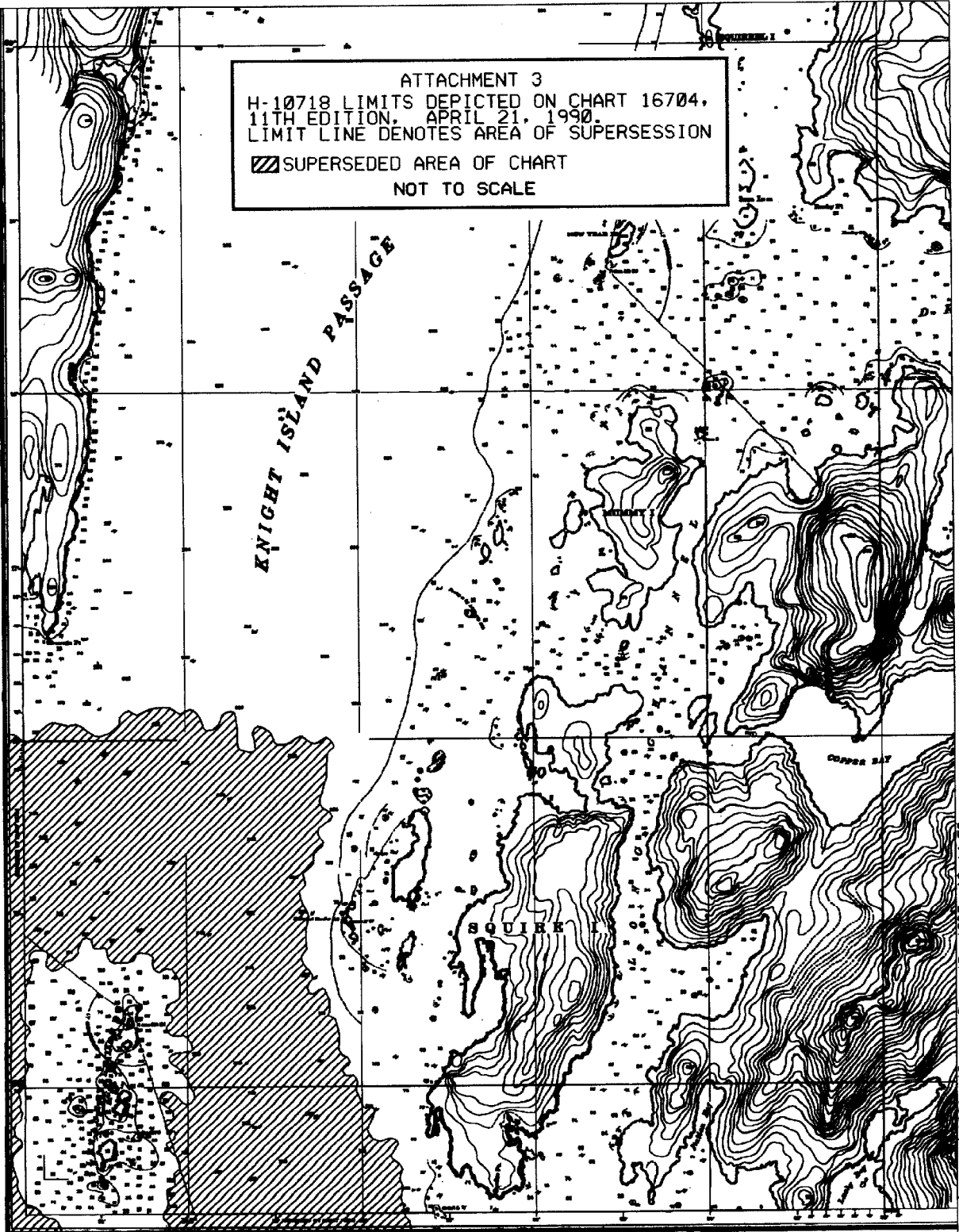




ATTACHMENT 2
 H-10718 LIMITS DEPICTED ON CHART 16702,
 9TH EDITION, JULY 21, 1990.
 LIMIT LINE DENOTES AREA OF SUPERSESSON
 SUPERSEDED AREA OF CHART
NOT TO SCALE

16702
 c:\h-10718\attach\16702-18.dgn Dec. 10, 1997 08:24:46

ATTACHMENT 3
H-10718 LIMITS DEPICTED ON CHART 16704,
11TH EDITION, APRIL 21, 1990.
LIMIT LINE DENOTES AREA OF SUPERSESION
▨ SUPERSEDED AREA OF CHART
NOT TO SCALE



16704

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NOAA CHART SERVICE

c:\h-10718\attach\16704-18.dgn Dec. 18, 1997 12:44:56

APPROVAL SHEET
H-10718

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: 1/7/98
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: 1/12/98
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Jack A. Walker ACTG for Date: April 22, 1998
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

