10160

10160

Diagram No. 8102-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ..... Hydrographic

Field No. RA-10-4-84

Office No. H-10160

LOCALITY

State ..... Alaska

General Locality ..... Behm Canal

Locality ..... Bell Arm & Anchor Pass

19 84

CHIEF OF PARTY
CDR J.P. Vandermeulen

☆U.S. GOV. PRINTING OFFICE: 1980—766-230

Areas
CHTS
17422
17420 } TO SIGN OFF SEE "RECORD OF APPLICATION TO CHARTS"
16016-no

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-10160

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 10-4-84

State Alaska

General locality Behm Canal

Locality Bell Arm and Anchor Pass

Scale 1:10,000 Date of survey Sept. 18 - Oct. 15, 1984

Instructions dated August 9, 1984 Project No. OPR-0168-RA-84

Vessel NOAA Ship RAINIER (S221), Launches 2123, 2124, 2125, and 2126

Chief of party CDR J. P. Vandermeulen, NOAA

Surveyed by ENS J. Griffin, ENS M. Pickett, ENS T. Porta, and SST R. Hastings

Soundings taken by echo sounder, hand lead, ~~pole~~ Raytheon DSF-6000N

Graphic record scaled by RAINIER Survey Department

Graphic record checked by RAINIER Survey Department

Verification ~~Protracted~~ by T. Jones Automated plot by PMC Xynetics Plotter

Evaluation ~~Verification~~ by A. Luceno

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

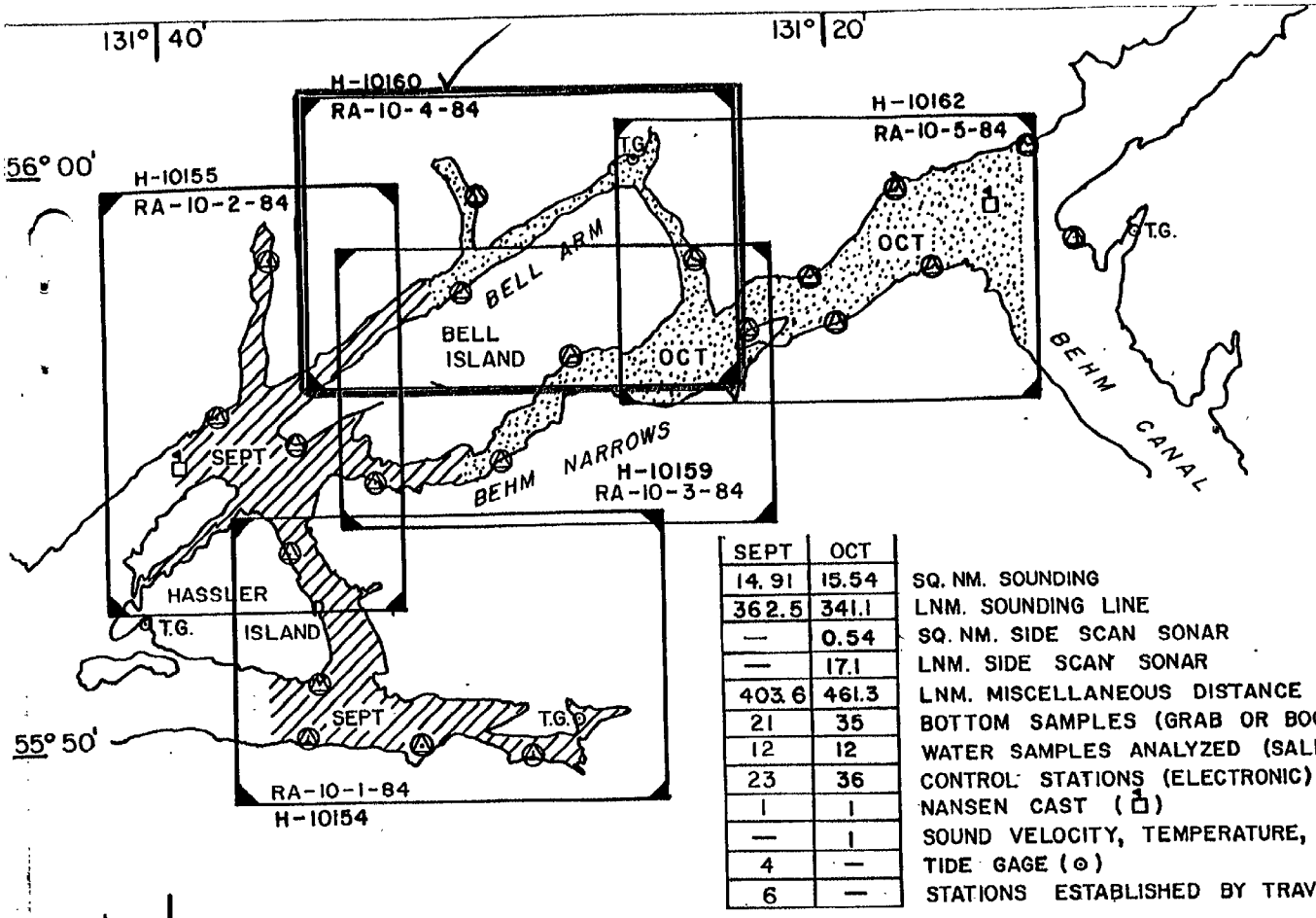
REMARKS: Marginal notes in black by Evaluator. Separates are filed with the Hydrographic data.

ANVOS/SURF ✓ AAA 1/29/86

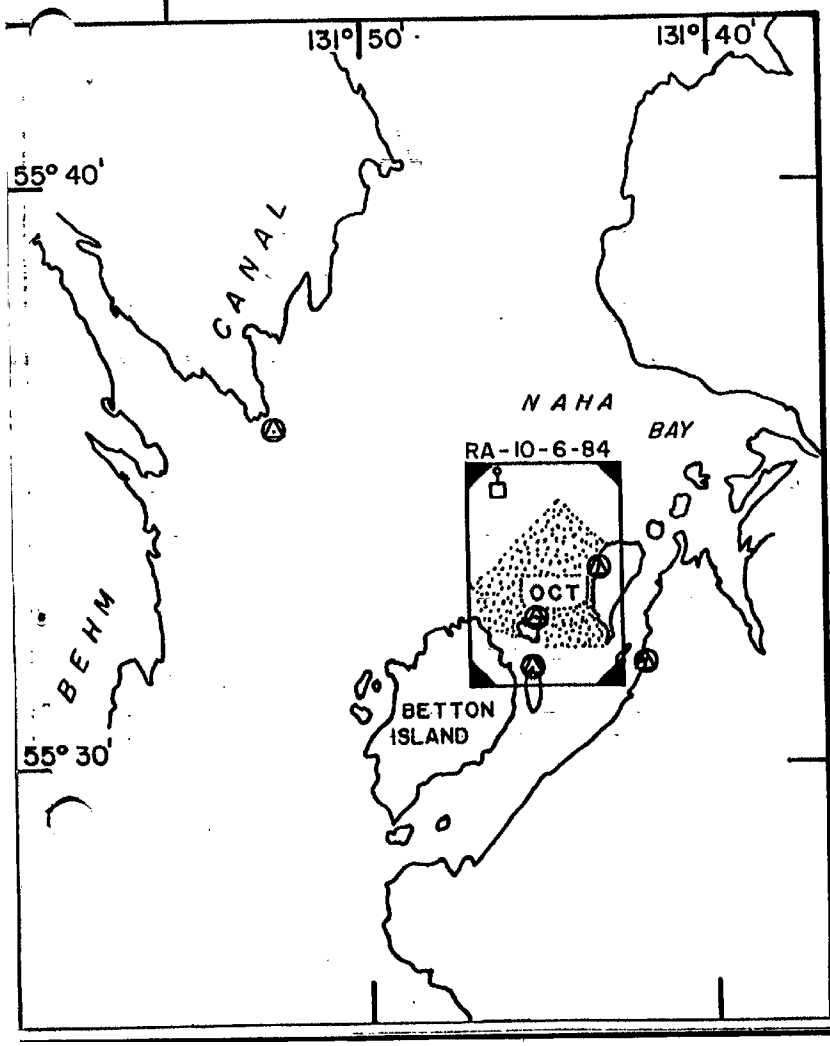
SC 4-2-97

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

☆ U. S. GOVERNMENT PRINTING OFFICE: 1976—665-661/1222 REGION NO. 6



SEPT	OCT	
14.91	15.54	SQ. NM. SOUNDING
362.5	341.1	LNM. SOUNDING LINE
—	0.54	SQ. NM. SIDE SCAN SONAR
—	17.1	LNM. SIDE SCAN SONAR
403.6	461.3	LNM. MISCELLANEOUS DISTANCE
21	35	BOTTOM SAMPLES (GRAB OR BOOMERANG)
12	12	WATER SAMPLES ANALYZED (SALINITY)
23	36	CONTROL STATIONS (ELECTRONIC)
1	1	NANSEN CAST (⊓)
—	1	SOUND VELOCITY, TEMPERATURE, DEPTH CAST
4	—	TIDE GAGE (⊙)
6	—	STATIONS ESTABLISHED BY TRAVERSE



PROGRESS SKETCH

OPR-0168-RA-84

HYDROGRAPHIC SURVEY

BEHM NARROWS, ALASKA

SEPT. 4 - OCT. 30, 1984.

NOAA SHIP RAINIER

JOHN P. VANDERMEULEN, CDR., NOAA

COMD'G

FROM CHART 17420

A. PROJECT

This basic hydrographic survey, registry number H-10160, was accomplished in accordance with Project Instructions OPR-0168-RA-84, Behm ~~Narrows~~ Canal, Alaska dated 9 August 1984, and Change No. 1, dated 17 August 1984.

B. AREA SURVEYED

This survey, conducted from ~~27~~ 18 September (JD ~~271~~ 262) to 15 October 1984 (JD 289), includes Bell Arm, Short Bay, and Anchor Pass, Alaska. The project area is bounded by latitudes 56/00/15 N and 55/57/30 N, and longitudes 131/34/10 W and 131/23/30 W.

C. SOUNDING VESSELS

Sounding data for this survey were obtained by vessels RA-3 (2123), RA-4 (2124), RA-5 (2125), and RA-6 (2126). Bottom samples were obtained by 2125 and the RAINIER (2120). No unusual sounding vessel configurations or problems occurred during hydrographic data collection.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Survey launches were equipped with Raytheon DSF-6000N dual beam echo sounders and depths on this survey ranged from 0 fathoms to 131 fathoms.

VESSEL		SOUNDING EQUIPMENT	SERIAL NO
RA-3	(2123)	Raytheon DSF-6000N	A119N
RA-4	(2124)	Raytheon DSF-6000N	A117N
RA-5	(2125)	Raytheon DSF-6000N	A123N
RA-6	(2126)	Raytheon DSF-6000N	A103N

The DSF-6000N echo sounders were operated primarily in the dual beam high frequency digitized mode. In order to ensure that high and low frequency beams were tracking the steep contours of the bottom close to shore the launches were operated at low speeds (700-1500 rpm). The high and low frequency gain controls and the phase controls were operated manually because the high frequency beam could not track the bottom when these controls were in the automatic mode.

Nevertheless, approximately 5 percent of the time the high frequency trace could not track the bottom. When this occurred the depth values were scanned from the low frequency beam trace. There were no discrepancies at the junctions of the high and low frequency beams data as the two traces were in close agreeement at the points of changeover. In depths of over 100 fms the 6DB+ boost was used when needed.

All soundings were taken from the launches under Mini-Ranger Range-Azimuth control. Since the echo sounding transducers on the launches are directly below the Mini-Ranger R/T units, the ANDIST associated with the survey data is 0.0 meters. The final field sheets were plotted with this ANDIST value.

Bar checks were conducted at least once daily for both beams of the DSF-6000N echo sounder as per the Provisional Operating and Processing Instructions for the DSF-6000N Echo Sounder. All bar checks were performed within the survey area. The bar checks were used to confirm proper system function, and bar check data were combined with velocity data to determine launch TRA correctors. The TRA for the wide and narrow beams were within 0.1 fathom of each other. These TRA calculations resulted in a 0.3 fathom TRA for launches 2123, 2125 and 2126, and a 0.2 fathom TRA for launches ~~2123 and~~ 2124. The 0.2 fathom TRA differs from the historical value of 0.3 fathoms when using the Ross echo sounder. This difference is due to an apparent instrument error of 0.1 fathom. The smooth field sheet was plotted with a TRA of 0.3 fathoms for all launches.

Refer to sect. 4 of Eval. Report

Velocity corrections were derived from two Nansen casts taken during the survey as listed below. A final table of velocity corrections was created averaging both Nansen casts. However, the smooth field sheet was plotted with a preliminary velocity correction table based only on the first Nansen cast. Printouts of velocity tables are included in the separates following the text.

VELOCITY CASTS

CAST NUMBER	DATE	LATITUDE	LONGITUDE
1 (Nansen)	18 SEPT (262)	55-55-00N	131-39-36W
2 (Nansen)	10 OCTOBER (284)	55-59-12N	131-15-42W

TC/TI tapes were made in accordance with PMC OPORDER, Appendix Q. Printouts of the TC/TI tapes are included in the separates following the text. For further information and details relating to correction to echo soundings see Corrections to Echo Soundings Report OPR-0168-RA-84.

E. HYDROGRAPHIC SHEETS

Two 1:10,000 scale field sheets designated RA-10-4E-84 and RA-10-4W-84 were prepared on the RAINIER using the PDP 8/E Hydroplot system which produces modified transverse Mercator projections. Two 1:2,500 scale expansion sheets were prepared of areas of extensive hydrographic development. The smooth field sheet was plotted by AST Cole. A list of parameters used to define the field sheets is provided in the separates following the text.

All data and accompanying field records will be sent to the Pacific Marine Center in Seattle, Washington for verification.

F. CONTROL STATIONS

Position control for survey H-10160 consisted of establishing four triangulation marks, two temporary points, and recovering existing stations. Stations PATRICIA 1984, LOOSA 1984, JUDE 1984, and SCOTTY 1984 were positioned by Third-order, Class I positions. See the Horizontal Control Report, OPR-0168-RA-86, for details. All existing stations recovered were Third-order.

STATIONS RECOVERED	NEW STATIONS
ANCHOR 1930	BELL TP
BIG 1930	JUDE 1984
BOLT 1930	LOOSA 1984
BOAT 1930	PATRICIA 1984
CLA 1930	SCOTTY 1984
ELSIE 1930	SHORT BAY TP
GRIN 1930	
NAIL 1930	
NIL 1930	
OPE 1930	
PIP 1930	
TIX 1930	

G. HYDROGRAPHIC POSITION CONTROL

Range/Azimuth was the method used for hydrographic positioning. Motorola Mini-Ranger III and Wild Theodolites were the instruments used. The following tables summarize the serial numbers and locations of all mobile and shore positioning equipment.

CALIBRATIONS AND PERFORMANCE

Mini-Ranger calibrations and systems checks were performed in accordance with PMC OPORDER, Appendices M and S. Initial baseline calibrations for this project were conducted on the Homer Spit, Homer, Alaska on 25 August 1984. Ending baseline calibrations were performed at Lake Union, Seattle, Washington on 7 to 9 November 1984. No significant variation was found between initial and ending calibration corrections.

Only initial correctors were used to plot the smooth field sheet. The initial calibrations also determined the minimum signal strength cut off values for each system. For more information regarding systems checks and calibrations refer to the Electronic Control Report OPR-0168-RA-84.

Daily static calibrations for each code used were performed at Third-order Class I stations along the water's edge in the project area. This satisfied the requirement for weekly critical and daily non-critical systems checks.

Bottom samples obtained by the RAINIER on 18 September 1984 (JD 262) were positioned via radar fixes.

Mini-Ranger performance was generally very good. All transponders were set up on Third-order, Class I (or better) geodetic stations.

H. SHORELINE

Shoreline was applied to the field sheet from enlargements of 1:20,000 scale registered shoreline manuscripts TP-01159 and TP-01160. Field edit was not conducted by the hydrographer. Rocks, ledges, and new features located by the hydrographer are shown in red on the smooth field sheet. Reference numbers for shoreline verification were used by the hydrographer.

I. CROSSLINES

A total of 11.6 nautical miles of crossline were run during the survey, representing 12.3% of the mainscheme mileage. Agreement of soundings at crossings was good, generally within 1 fathom and not exceeding 2 fathoms in areas of steep bottom gradients.

J. JUNCTIONS

This survey junctions to the west with RA-10-2-84, H-10155; to the south with RA-10-3-84, H-10159 . All sounding comparisons were within 2 fathoms and contour lines continued in a smooth line with no abrupt changes.

WILD THEODOLITE S/N

T-1: 14055, 65516
T-2: 57259, 73226, 68648, 75599

MINI-RANGER MOBILE EQUIPMENT

VESSEL	CONSOLE	R/T S/N	DATES
2123	720	713370	274-277
	711	B1405	277-289
2124	B0269	B1388	271-286
2125	715	911615	275
2126	711	B1405	276

A suspected failure in the R/T for system 720 on JD 277 caused it to be replaced by system 711 which was in vessel 2126 at the time. Subsequent testing of system 720 by electronics technicians revealed no failures, so no data was affected by the problem.

MINI-RANGER SHORE EQUIPMENT

CODE	TRANSPONDER S/N	CODE	TRANSPONDER S/N
A	1645	2	B1106
F	911711	1	C1883

JULIAN DATES

ST		271	273	274	275	276	277	278	286	287	289
A	128		1				1				
T	130	1									
I	133		1	1			1				
O	134							1			
N	137							1	2	2	F
	138			A							
N	142	1									
U	145			1			1				
M	148				1						
B	149				1						
E	150					1					
R	151								2		
S	164								2		

K. COMPARISON WITH PRIOR SURVEYS

This survey was compared to the following prior surveys:

Refer to Sect. 6 of Eval. Report

SURVEY	SCALE	YEAR
~~H-5103~~	~~1:20,000~~	~~1930~~
H-5144	1:20,000 1:10,000 (Inset)	1931

There were no AWOIS items in this survey area.

All soundings were within 1 or 2 fathoms except as listed below.

H-5144

The following table shows soundings that were not in agreement and should be superseded by the present survey: concur

PRIOR DEPTH(FM)	PRESENT DEPTH(FM)	PRIOR LOCATION	PREVIOUSLY CHARTED	VICINITY OF POSITION
~~62~~	~~59~~	~~55/57/39~~ 131/34/08	~~NO~~	outside sheet limits
*18	15.6	55/58/06 131/23/42	NO	7116 +02
*19	16.3	55/58/06 131/24/02	NO	6169 +01
15	12.2	55/58/29 131/24/25	NO	6129
**6	8.7	56/00/00 131/25/35	YES	7124 +02
132	126	55/57/28 131/33/18	YES	4045 +02 4049 +02
79	~~50~~ 45	55/57/28 131/33/01	NO	79
122	11~~7~~ 2	55/57/42 131/32/45	NO	4063 +02
121	10~~9~~ 4	55/57/48 131/32/22	YES	4073 +04

* Developed on expansion sheet No. 1.
** Developed on expansion sheet No. 2.

L. COMPARISON WITH THE CHART

H-10160 was compared to a 1:10,000 enlargement of the following chart:

Refer to Sect. 7 of Eval. Report

Chart Number	Scale	Edition	Date
17422	1:79,000	6th	15 August 1981

Present charted soundings originate with the prior surveys discussed in section K.

There are no dangers to navigation identified or reports submitted by the ship for this survey.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede all prior surveys for charting purposes. ✓

N. AIDS TO NAVIGATION

There are no aids to navigation within the limits of this survey. ✓

O. STATISTICS

Sounding Vessel	Linear Nautical Miles of Hydro	Square Nautical Miles of Hydro	Number of Positions
2123	12.3		~~816~~ 186
2124	72.8		~~1242~~ 1172
2125	0.0		~~10~~ 9
2126	9.2		~~183~~ 183
2120			3
TOTALS	94.3	3.30	~~2251~~ 1553

Bottom Samples: 11

Velocity Casts: 2

Tide Stations: 3

P. MISCELLANEOUS

No anomalous currents were observed or reported during this survey. ✓

No Loran-C data were collected.

Bottom samples were sent to the Smithsonian Institute.

Many of the geodetic stations used for positioning control were below high water, thereby limiting the times available for running hydrography.

Q. RECOMMENDATIONS

This survey is complete and no additional field work is recommended.

R. AUTOMATED DATA PROCESSING

Data aquisition and processing were accomplished in accordance with the Hydrographic Manual (Fourth Edition), Manual of Automated Hydrographic Surveys, the PMC OPORDER, Hydrographic Survey Guidelines, and the Hydrographic Data Requirements for 1984.

Soundings and positions were taken by ASI Loggers and Hydroplot systems. Range/Azimuth program RK 116 was used in conjunction with the Hydroplot system.

There are daily master tapes and corresponding corrector tapes which include the TRA for the sounding vessels, electronic control baseline correctors for Mini-Ranger consoles and R/T units and all depth corrections. Velocity tapes were generated from Nansen cast data. The following is a list of all computer programs and version dates used for data aquisition or processing:

Number	Description	Version
RK 116	Range-Azimuth Hydroplot	4/28/84
RK 201	Grid, Signal, and Lattice Plot	4/18/75
RK 212	Visual Station Table Load	4/01/74
RK 300	Utility Computations	10/21/80
RK 330	Reformat and Data Check	5/04/76
AM 360	Electronic Corrector Abstract	2/02/76
RK 407	Geodetic Inverse/Direct Computation	9/25/78
RK 500	Predicted Tide Generator	11/10/72
RK 530	Layer Corrections for Velocity	5/10/76
RK 561	H/R Geodetic Calibration	12/01/82
AM 602	Elinore-Line Oriented Editor	12/08/82
AM 606	Tape Duplicator	8/22/74
AM 607	Self-Starting Binary Loader	8/10/80
RK 610	Binary Tape Duplicator	12/01/82
RK 612	Line Printer List	3/22/78
RK 900	Plot Test Tape Generator for AM902	5/07/76
RK 901	Core Check	3/01/72

AM 902	Real Time Checkout	11/10/72
DA 903	Diagnostic-Instruction Timer	2/27/76
RK 905	Hydroplot Controller Checkout	3/18/81
RK 935	Hydroplot Hardware Tests	3/15/82
RK 950	Hardware Tests (Documentation Only)	6/02/75

The HP 9815A and the HP 97 progammable calculators were used to compute the geographic positions of control stations.

S. REFERENCES TO OTHER REPORTS

The following reports contain information related to this survey:

Echo Sounding Report	OPR-0168-RA-84
Electronic Control Report	OPR-0168-RA-84
Horizontal Control Report	OPR-0168-RA-84
Coast Pilot Report	OPR-0168-RA-84

Respectfully Submitted,

Thomas K. Porta

Thomas K. Porta
Ensign, NOAA

APPROVAL SHEET

DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SURVEY

RA-10-4-84

H-10160

In producing this sheet, standard procedures were observed in accordance with the Hydrographic Manual, PMC OPORDER, and the Instruction Manual for Automated Hydrographic Surveys. The data was examined daily during the execution of the survey.

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

John P. Vandermeulen
Commander, NOAA
Commanding Officer

MASTER STATION LIST
OPR-0168-RA-84
BEHM NARROWS, ALASKA

RA-10-4-84(H-10160)

FINAL VERSION

~~114 1 55 55 42944 131 36 43589 139 0001 000000~~
~~/ONIP 1930 NGS LISTING~~

128 1 55 58 39377 131 30 28061 250 0001 000000
/BOLT,1930 NGS LISTING

~~129 1 55 55 47787 131 36 23392 139 0003 000000~~
~~/COW 1930 NGS LISTING~~

130 1 55 56 53318 131 35 03491 250 0001 000000
/GRIN,1930 NGS LISTING

132 1 55 57 58605 131 23 39401 250 0001 000000
/ANCHOR,1930 NGS LISTING

133 1 55 58 12289 131 30 37540 250 0002 000000
/BOAT,1930 NGS LISTING

134 1 55 56 16492 131 23 39507 250 0001 000000
/CLA,1930 NGS LISTING

~~135 1 55 57 37569 131 23 14007 250 0002 000000~~
~~/GUP 2 1929 NGS LISTING~~

137 1 55 57 37871 131 24 20246 250 0001 000000
/ELSIE,1930 NGS LISTING

138 1 56 00 09263 131 25 46650 250 0001 000000
/OPE,1930 NGS LISTING

142 1 55 57 53976 131 31 20080 250 0002 000000
/TIX,1930 NGS LISTING

144 1 55 57 36613 131 33 28686 139 0001 000000
/NIL,1930 NGS LISTING

145 1 55 58 18159 131 31 30693 250 0001 000000
/PIP,1930 NGS LISTING

146 1 55 58 36653 131 30 58526 139 0001 000000
/SCOTTY RAINIER

148 1 55 59 35331 131 30 43283 250 0001 000000
/PATRICIA ~~1984~~ RAINIER

149 1 55 59 08679 131 30 59237 254 0000 000000
/SHORT BAY TP RAINIER

150 1 55 58 32517 131 24 05414 250 0001 000000
/LOOSA ~~1984~~ RAINIER

151 1 55 59 53308 131 25 28903 250 0001 000000
/JUDE RAINIER

164 1 55 59 57748 131 26 32090 254 0001 000000
/BELL TP ~~1984~~ RAINIER

~~173 1 55 57 09333 131 34 29442 139 0001 000000~~
~~/NAIL 1930~~ ~~NGS LISTING~~

~~174 1 55 57 22061 131 32 51700 139 0001 000000~~
~~/BLG 1930~~ ~~NGS LISTING~~

ASCII SIGNAL TAPE LISTING
RA-10-4-84(H-10160)

114	1	55	55	42944	131	36	43609	139	0001	000000
128	1	55	58	39377	131	30	28061	250	0001	000000
129	1	55	55	47783	131	36	23392	139	0003	000000
130	1	55	56	53318	131	35	03491	250	0001	000000
132	1	55	57	58605	131	23	39401	250	0001	000000
133	1	55	58	12289	131	30	37540	250	0002	000000
134	1	55	56	16492	131	23	39507	250	0001	000000
135	1	55	57	37569	131	23	14007	250	0002	000000
137	1	55	57	37871	131	24	20246	250	0001	000000
138	1	56	00	09263	131	25	46650	250	0001	000000
142	1	55	57	53976	131	31	20080	250	0002	000000
144	1	55	57	36613	131	33	28686	139	0001	000000
145	1	55	58	18159	131	31	30693	250	0001	000000
146	1	55	58	36653	131	30	58526	139	0001	000000
148	1	55	59	35331	131	30	43283	250	0001	000000
149	1	55	59	08679	131	30	59237	254	0000	000000
150	1	55	58	32517	131	24	05414	250	0001	000000
151	1	55	59	53308	131	25	28903	250	0001	000000
164	1	55	59	57748	131	26	32090	250	0001	000000
173	1	55	57	09333	131	34	29442	139	0001	000000
174	1	55	57	22061	131	32	51700	139	0001	000000

DATE: 1/4/85

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Pacific

OPR: 0168

Hydrographic Sheet: H-10160

Locality: Bell Arm to Anchor Pass, Alaska

Time Period: September 18 - October 15, 1984

Tide Station Used: 945 0807 Convenient Cove, Alaska

Plane of Reference (Mean Lower Low Water): 14.58 ft.

Height of Mean High Water Above Plane of Reference: 14.8 ft.

Remarks: Recommended Zoning:,

Zone Direct

James R. Hubbard
Chief, Tidal Datums Section

FIELD TIDE NOTE
RA-10-4-84
H-10160

Field tide reduction of soundings was based on predicted tides from Ketchikan, Alaska (945-0460). Corrections were obtained from Preliminary Tidal Zoning OPR-0168-RA-84. The predicted tides were derived using program AM500.

Three Bristol Bubbler tide gages were installed at three locations in the project area. Location and period of operation are as follows:

SITE	LOCATION	PERIOD
Convenient Cove	55/52.1 N 131/41.3 W	Sept.4 - Oct.17, 1984
Fitzgibbon Cove	55/59.0 N 131/10.5 W	Sept.5 - Oct.17, 1984
Head of Bell Arm	56/00.2 N 130/25.8 W	Sept.26 - Oct.4, 1984

CONVENIENT COVE

Gage (S/N 63A2921) was installed and began operation September 4, 1984. The staff was also installed and leveled September 4. Excellent records were obtained with no interuptions. The marigram reads 6.0 ft greater than the staff.

FITZGIBBON COVE

Gage (S/N 736620) was installed and began operation Sept. 5, 1984. The staff was also installed and leveled Sept. 5. Good records were obtained with the exception of a loss of 5 days from 1330 October 6 to 1800 October 11 when the marigram paper jammed. The ship was unable to check the gage during this period because of an extended in-port due to weather. No hydro was run during this period. The marigram reads 6.9 ft less than the staff.

HEAD OF BELL ARM

Gage (S/N 63A2928) was installed and began operation Sept. 26, 1984. Some reconnaissance was required to find a suitable spot. The gage was installed near triangulation mark OPE 1930. No staff was installed, therefore, levels

were run from OPE 1930 to the waters edge. Excellent records were obtained from September 26 through October 4, 1984. On October 12 more hydro was run in this area. For tidal data, levels were run from benchmark OPE to the waters edge for an 8 hr period.

LEVELS

The reference station at Ketchikan was leveled September 10, 1984. Final levels were run October 19, 1984. Initial and final levels compared very well.

Final levels on the subordinate stations showed no significant movement of the tidal staffs.

NOAA FORM 76-155 (11-72)

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

SURVEY NUMBER

H-10160

GEOGRAPHIC NAMES

** Name on Survey	A ON CHART NO. 17420	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 *	
ANCHOR PASS	X								X	1
BEHM NARROWS	X								X	2
BELL ARM	X								X	3
BELL ISLAND	X								X	4
CLEVELAND PENINSULA	X								X	5
ELSIE POINT	X								X	6
POINT LEES	X								X	7
SHORT BAY	X								X	8
BEHM CANAL (title)										9
ALASKA (title)										10
* DICTIONARY OF ALASKA PLACE NAMES: Geological Survey Professional Paper 567;										11
1967; reprinted 1971 with minor revisions.										12
										13
										14
										15
										16
										17
										18
					Approved:					19
					Charles E. Harrington					20
					Chief Geographer - N/CG2x5					21
					5 FEB. 1985					22
										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-10160

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	7
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	2

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	2					
ENVELOPES						
VOLUMES	1					
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	*EVALUATION*	*TOTALS*
POSITIONS ON SHEET			1553
POSITIONS REVISED			3825
SOUNDINGS REVISED			41
CONTROL STATIONS REVISED			0
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	73.5		73.5
VERIFICATION OF SOUNDINGS	148.0		148.0
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	62.5		62.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS		31.0	31.0
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		28.0	28.0
GEOGRAPHIC NAMES			
OTHER* DIGITIZATION	100		100
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	294.0	59.0	353.0

Pre-processing Examination by M. Kenny	*Beginning Date*		*Ending Date* 3/6/84
Verification of Field Data by T. Jones	*Time (Hours)* 260.5		*Ending Date* 10/20/85
Verification Check by J. Stringham, B. Olmstead, and J. Green	*Time (Hours)* 57.0		*Ending Date* 11/26/85
Evaluation and Analysis by A. Luceno	*Time (Hours)* 59.0		*Ending Date* 11/26/85
Inspection by D. Hill	*Time (Hours)* 2		*Ending Date* 12/02/85

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PACIFIC MARINE CENTER
EVALUATION REPORT
H-10160

1. INTRODUCTION

H-10160 was accomplished by NOAA Ship RAINIER in accordance with the following project instructions:

OPR-0168-RA-84, dated August 9, 1984
Change Number 1, dated August 17, 1984

This is a basic hydrographic survey located in southeast Alaska and covers Anchor Pass, Bell Arm, and Short Bay.

Anchor Pass is a narrow strait which separates the northeast end of Bell Island from the mainland. The deep portion of the pass is located at the south entrance and gradually decreases from 74 fathoms with mud bottom to 0.4 fathom with rocky bottom at the north entrance. A shoal with a least depth of 15.6 fathoms in surrounding depths of 22 to 28 fathoms is located near mid channel at latitude 55°58'07"N, longitude 131°24'04"W.

Bell Arm separates the northwest shore of Bell Island from the mainland and is joined by Anchor Pass at its head. It has depths of 10 to 16 fathoms with mud bottom increasing gradually to a maximum depth of 131 fathoms towards the western entrance. A constricted portion of the main channel at latitude 55°59'15"N, longitude 131°28'15"W has a minimum depth of 12 fathoms.

Short Bay is a small, narrow bay entering into the mainland on the northwest side of Bell Arm. Depths range from 13 fathoms at the entrance to 16 fathoms with mud bottom at the north end.

Predicted tides based on the Ketchikan, Alaska reference station with subordinate station Behm Canal were used during field processing. Tide correctors used for the reduction of final soundings reflect approved hourly heights zoned from the Convenient Cove, Alaska, Bristol Bubbler tide gage.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. The TRA corrector for survey launch 2123 and electronic control correctors for survey launches 2123, 2124 and 2126 were revised during office processing to reflect appropriate correctors from bar check data and baseline and static calibrations. The revised data is listed in the smooth position/sounding printout.

The digital file for this survey has been generated and includes categories of information required to comply with N/CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983. Certain descriptive information, however, may not be included in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete information.

2. CONTROL AND SHORELINE

Hydrographic control and positioning are adequately discussed in sections F and G of the Descriptive Report and in the Horizontal and Electronic Control Reports for OPR-0168-RA-84.

Horizontal control station positions used during hydrography are either published or field positions based on the North American datum of 1927.

Applicable shoreline manuscripts are TP-00159 and TP-00160. These are registered Class III maps and originate from photography dated June 1982.

The field sheet shows conflicts between the hydrography and the shoreline from the TP sheet on the eastern shore of Short Bay between latitudes 55°58'40"N and 55°59'33"N and between latitudes 56°00'02"N and 56°00'06"N. The hydrographer depicts these areas by means of dashed lines in red ink on the field sheet. These conflicts on the eastern shore of Short Bay are resolved and shown on the smooth sheet as follows:

Between latitudes 55°58'40"N and 55°59'03"N the final smooth plot of the survey vessel's position reveals that the plotted sounding lines on the field sheet were, for an unknown reason, displaced by up to 30 meters eastward. The delineation of the shoreline on the TP manuscript was verified to be in its correct position based on the estimated distance of the shore from the beginning or ending position of the sounding lines. Therefore, the shoreline from the TP sheet was transferred to the smooth sheet for this area.

Just north of this area between latitudes 55°59'09"N and 55°59'25"N the TP sheet high water line was also found to be in conflict with the hydrography. Notes from the raw records indicate that the beginning or ending positions of the sounding lines were from 8 to 10 meters from the shore. A check with members of the hydrographic party reveals that there were branches of trees overhanging this portion of the HWL which obscured the feature in the aerial photographs. Moreover, the shoreline as shown on prior survey H-5144 accomplished in 1931 agrees more closely with the distance from the shore as estimated from the positions of the survey launches. The shoreline shown in brown ink on the smooth sheet was brought forward from an enlarged paper copy of H-5144. It is recommended that the shoreline in this area be charted from the source of the topography of H-5144.

The shoreline revision by the hydrographer, between latitude 55°59'25"N and latitude 55°59'33"N, was transferred to the smooth sheet.

Shoreline between latitudes 56°00'02"N and 56°00'06"N was transferred to the smooth sheet from the TP manuscript as conflicts were resolved during verification.

The hydrographer also shows revision of the shoreline from the TP sheet by means of dashed lines in red ink on the field sheet on the north shore of Bell Arm between longitudes 131°27'02"W and 131°28'51"W. The smooth position plot reveals that the conflict was caused by marginal positioning of the sounding vessel. The shoreline from the TP sheet was transferred to the smooth sheet.

The shoreline on the eastern end of Bell Arm between latitude 56°00'03"N and 56°00'07"N was transferred to the smooth sheet from the hydrographer's revision as shown on the field sheet.

3. HYDROGRAPHY

Soundings at line crossings are in good agreement. The depth curves are complete and satisfactory except those on steep slopes near the shoreline. The delineation of the bottom configuration and determination of least depths are adequate. Ledges shown on the TP sheets were transferred to the smooth sheet.

4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change Three, except as noted in the Preprocessing Examination Report, dated March 6, 1985, and as follows:

a. Ledges shown on the TP sheets were not transferred to the field sheet. There is no mention in the report regarding the disposition of these features.

b. The hydrographer showed revisions of the shoreline by dashed lines in red ink on the field sheet based on the distance of the survey vessel from the shore. These conflicts and the rationale for the revision of the shoreline from the TP manuscript should have been documented in the Descriptive Report.

c. Bar checks for determining sounding correctors were generally taken at the 1-fathom depth. Bar checks should have been taken at the 2-fathom depth. (See DSF-6000N Instruction Manual, section 4.9.5.1.1).

d. The three charted rocks in the vicinity of latitude 56°00'11"N, longitude 131°31'16"W were not verified or disproven during this survey. The Descriptive Report should have contained a recommended disposition for these features.

e. This survey would have been improved if the bottom character of the feature located at latitude 55°58'07"N longitude 131°24'04"W had been determined.

5. JUNCTIONS

H-10160 junctions with the following surveys:

Survey	Year	Scale	Note	Color	Area
H-10155	1984	1:10,000	Joins	Violet	E
H-10159	1984	1:10,000	Joins	Red	W

Soundings were transferred from H-10155 and H-10159 to effect adequate junctions.

6. COMPARISON WITH PRIOR SURVEYS

H-5144 (1931) 1:20,000 (1:10,000 Anchor Pass inset)

Short Bay

Soundings generally agree within 1 fathom. A rock shown as covered 2 feet at MLLW on H-5144 was found to uncover 4 feet at MLLW at latitude 55°59'53.64"N, longitude 131°30'54.19"W (position 4831).

Another rock uncovering 7 feet at MLLW was located at latitude 55°58'42.30"N, longitude 131°30'39.60"W. This rock is in the general vicinity of a note on H-5144 which describes a ledge as uncovering 1 foot at MLLW.

Anchor Pass

Soundings generally agree within 1 fathom. There is no indication in the present survey that the rock shown on H-5144 as uncovering 2 1/2 feet at MLLW at latitude 55°57'45"N, longitude 131°23'34"W has been verified. This rock was carried forward to the present survey as uncovering 2 feet instead of 2 1/2 feet according to present specifications for labeling rock elevations.

The note "maximum current 3 knots" shown on H-5144 in the vicinity of latitude 55°59'45"N, longitude 131°25'30"W was brought forward to the present survey.

A minimum depth of 15.6 fathoms was obtained on a shoal at latitude 55°58'07"N, longitude 131°24'04"W, where a minimum depth of 18 fathoms is shown on H-5144.

Bell Arm

Soundings generally agree within 2 fathoms except near the south shore of the arm at the western limit of the sheets where the 100 fathom curve on the present survey extends farther offshore.

Rocks uncovering 5 feet at MLLW were located in the present survey at latitude 55°57'29.69"N, longitude 131°32'30.25" (position 4275) and at latitude 55°57'30.35"N, longitude 131°32'27.33"W (position 42761). Notes

about ledges uncovering 13 1/2 feet and 9 1/2 feet at MLLW are shown on H-5144 in this general vicinity.

H-10160 is adequate to supersede the prior surveys within their common areas.

7. COMPARISON WITH CHART

Chart 17422, 6th Edition, dated August 15, 1981; scale 1:79,334

a. Hydrography - Most charted information originates with the prior surveys discussed in section 6 of this report. Other soundings and charted features originate with miscellaneous sources not readily ascertainable. The three charted rocks awash in the vicinity of latitude 56°00'11"N, longitude 131°31'16"W were not verified or disproven by this survey nor mentioned in the Descriptive Report. It is recommended that these rocks be retained on the chart.

Geographic names appearing on the smooth sheet have been approved by the Chief Geographer and are placed in accordance with this chart.

H-10160 is adequate to supersede charted hydrography within the common area.

No dangers to navigation were reported by the field unit or during office processing.

b. Controlling Depths - There are no controlling depths within the limits of this survey.

c. Aids to Navigation - There are no fixed aids within the limits of this survey.

8. COMPLIANCE WITH INSTRUCTIONS

H-10160 adequately complies with the project instructions as amended and noted in section 1 of this report.

9. ADDITIONAL FIELD WORK

This is an adequate basic hydrographic survey. No additional field work is recommended.

Respectfully submitted,

Arsenio Luceno

Arsenio Luceno
Cartographer

This survey has been examined and it meets Charting and Geodetic Services standards and requirements for use in nautical charting. The survey is recommended for approval.

Dennis Hill
Chief, Hydrographic Section

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10160

I have reviewed the smooth sheet, accompanying data, and reports of this hydrographic survey. Except as noted in the Evaluation Report, the hydrographic survey meets or exceeds Charting and Geodetic Services (C&GS) standards, complies with instructions, and is accurately and completely represented by the smooth sheet and digital data file for use in nautical charting.

David W. Yeager
Chief, Nautical Chart Branch (Date)

CLEARANCE: SIGNATURE AND DATE:

N/MOP2:LWMordock

After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards with only the exceptions as noted above. The above recommendations are forwarded with my concurrence.

Robert L. Saufler
Director, Pacific Marine Center (Date)

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Washington, D.C.

Hydrographic Index No. 110K

A-5324

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-10160

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
17422	3/23/89	ALMACEN	Full ~~Part Before~~ After Marine Center Approval Signed Via full application of
			Drawing No. soundings from SS.
17420	4/6/89	ALMACEN	Full ~~Part Before~~ After Marine Center Approval Signed Via full application of
			Drawing No. soundings thru SS + 17422.
			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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SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.

Appd to Stds 1-28-86 [illegible]