10063

Diagram No. 8201-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ....Navigable Area Hydrographic..
Field No. ....RA-10-9-82....
Office No.....H-10063....

LOCALITY

State ....Alaska....
General Locality ..Boca de Quadra....
Locality ....Marten Arm and Vicinity....

....

19 82

CHIEF OF PARTY
CAPT R.J. Land

LIBRARY & ARCHIVES

DATE ....March 5, 1984....

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

10063

AREA
CHTS
17427 } to sign off see
17420 } Record of Application

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.
H-10063

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-10-9-82

State Alaska

General locality Boca de Quadra

Locality Marten Arm and Vicinity

Scale 1:10,000 Date of survey November 2 - 16, 1982

Instructions dated June 2, 1982 Project No. OPR-0361-RA-82

Vessel NOAA Ship RAINIER Launches 2123, 2124, 2125, 2126

Chief of party R. J. Land, CAPT, NOAA

Surveyed by LT J. O'Clock, LT S. Ludwig, ENS W. Loque, ENS J. Judson

Soundings taken by echo sounder, hand lead, pole ROSS Fineline Fathometer Systems

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Verified by J. Shofner Automated plot by PMC Xynetics Plotter

Evaluation by K. M. Scott

Soundings in fathoms ~~feet~~ at ~~XXXX~~ MLLW

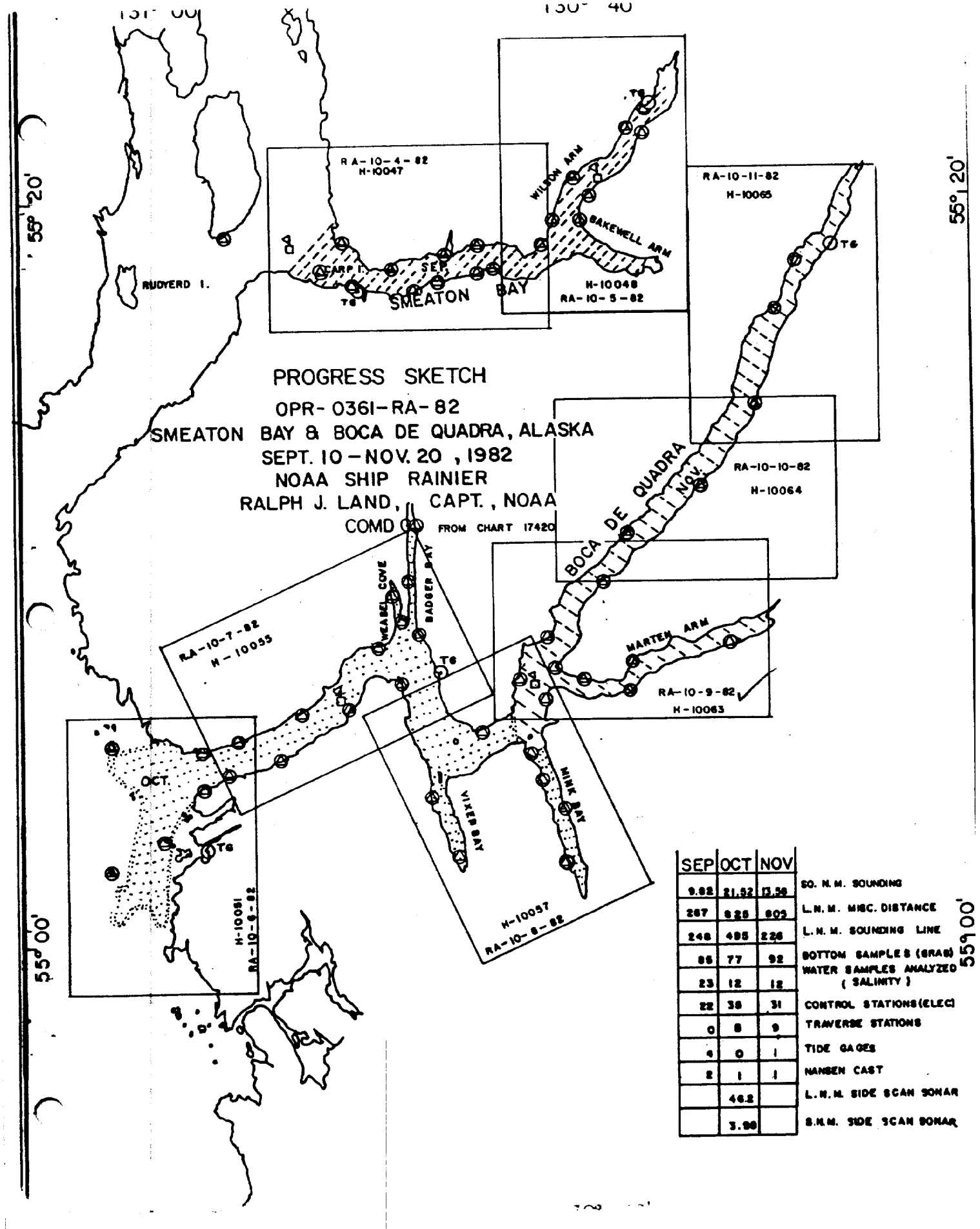
REMARKS: Comments in black ink by evaluator

3-6-84 - STANDARDS CK'D
C. LOY

AWOIS - 6/28/84 MGJ

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

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



SEP	OCT	NOV	
9.82	21.92	13.58	SQ. N.M. SOUNDING
267	525	805	L.N.M. MISC. DISTANCE
248	495	226	L.N.M. SOUNDING LINE
85	77	92	BOTTOM SAMPLES (GRAB)
23	12	12	WATER SAMPLES ANALYZED (SALINITY)
22	35	31	CONTROL STATIONS (ELEC)
0	8	9	TRAVERSE STATIONS
4	0	1	TIDE GAGES
2	1	1	NANSEN CAST
	46.2		L.N.M. SIDE SCAN SONAR
	3.98		S.N.M. SIDE SCAN SONAR

A. PROJECT

Survey H-10063 was conducted in accordance with Project Instructions OPR-0361-RA-82, Smeaton Bay and Boca de Quadra, Alaska, dated June 2, 1982, and supplements to the Project Instructions, Change No. 1, dated July 28, 1982 and Change No. 2, dated August 23, 1982.

B. AREA SURVEYED

Survey H-10063 was performed in Boca de Quadra, including Marten Arm. The area included the navigable waters between 55° 10.7' N Lat. and 55° 06.5' N Lat. for its northern and southern limits and extends from 130° 44.5' W Long. to the end of Marten Arm for its western and Eastern limits.

The inshore limit was defined by the one fathom curve where possible. Because of the very steep inshore bottom gradient, the one fathom curve was not possible on several lines. However, the inshore lines were always less than 100 meters from shore, thus meeting the requirement stated in Section 4.11.2.1 of the Hydrographic Manual. Inclusive dates of the survey were November 2 - 16, 1982.

C. SOUNDING VESSEL

All soundings were obtained using the following hydrographic launches: RA-3 (2123), RA-4 (2124), RA-5 (2125), and RA-6 (2126). No unusual sounding vessel configuations or problems were encountered.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

All information contained in this section is applicable to survey H-10063. Sounding equipment is discussed as well as corrections, which include sound velocity, draft, settlement and squat, instrument corrections for blanking, and phase and initial drift errors. Analog interpretation problems are also discussed.

Sounding Equipment

Echo soundings obtained during survey H-10063 were taken by RAINIER launches RA-3 (2123), RA-4 (2124) and RA-6 (2126). RA-5 (2125) was used for bottom sampling only. Each launch was equipped with Ross Fineline Fathometer Systems. These systems include the following Ross components: Model 400 transceivers, model 5000 analog trace recorders, model 6000 digitizers, and 100 khz transducers. The serial numbers of these components are summarized in Table I.

Special Analog Interpretation Problems

Fathograms were scanned for peaks and deeps on-line and again at the end of each work day as part of standard scanning procedures. Due to the steepness of the bottom topography, side echoes were prevalent in the area of this survey. The side echo problem was enhanced when sounding parallel to a steep bottom gradient. The fathometers were operated using the manual gain control rather than the automatic gain control (AGC) to help keep the occurrence of side echoes to a minimum. Digital depths were replaced by analog depths whenever they were found to represent side echoes rather than the true bottom. However, due to the difficulty of interpreting side echoes, some interpretation discrepancies may still exist in areas where side echoes were prevalent.

E. HYDROGRAPHIC SHEETS

Smooth hydrographic sheets were prepared on board the RAINIER S221 using the PDP 8/e Complot System. The sheets were based on modified transverse mercator projections. A list of parameters used to define the hydrographic sheets are attached in the seperates following the text. All soundings on the smooth sheets have been corrected for predicted tides, launch draft, preliminary velocity correctors and mini-ranger baseline calibration correctors. The smooth field sheets are plotted at 1:10,000 scale.

Two field sheets, RA-10-9S-82 and RA-10-9N-82 covered the survey area. Field records will be forwarded to Pacific Marine Center, Seattle, Washington.

The maximum line spacing required in the Project Instructions is 200 meters. In some areas closer line spacing was accomplihsed to further develop shoals or possible anchorage areas.

Depths of 20 fathoms or more occurred only 10 - 30 meters from the shore in most places, therefore, the 200 meter mainscheme line spacing was not split inshore in these areas.

F. CONTROL STATIONS

The following control stations were recovered. All are Second Order stations on the North American 1927 Datum.

ORDER	1933
MINK	1933
~~BOULDER~~	~~1933~~
~~SLIME~~	~~1933~~
ALDER	1933
SPLIT	1933
FACE	1933

All were recovered as described. ~~Five~~ Seven new control stations were established for this survey. All are within Marten Arm. They are:

PIRKKO, 1982
JUNE, 1982
GEORGE, 1982
MARTEN, 1982
HARVEY, 1982
BOCA, 1982
DE, 1982

All ~~five~~ stations were established in accordance with Third Order Class I specifications on the North American 1927 Datum. For more information, refer to Horizontal Control Report, OPR-0361-RA-82.

G. HYDROGRAPHIC POSITION CONTROL

Electronic range/range and range/azimuth methods were used for hydrographic position control. Motorola mini-ranger III positioning systems and Wild Theodolites were used. The Tables below summarize the location of all mini-ranger mobile and shore equipment.

TABLE I

Mini-ranger Mobile Equipment

Vessel	Console S/N	R/T S/N
2123	720	2710
2124	30269	1636
2125	715	1660
2126	711	1646

TABLE II

Mini-ranger Shore Equipment

Code	Transponder S/N	Station Number
A	1645	Not used
B	4951	203, 206
C	1628	163, 164, 165, 180, 203, 206, 208
D	1569	163, 164, 207, 208
E	911721	Not used
F	911711	Not used
2	B1106	Not used

Ending calibration for these codes occurred in Seattle, Washington on November 30, 1982. For more information concerning initial and ending calibrations, refer to the Electronic Control Report OPR-0361-RA-82.

Miniranger Calibration and System Check

Four calibration techniques were used when performing system checks. These included launch to launch, static, baseline crossing along with observing horizontal sextant angles to visible Third Order, Class I or better geodetic stations.

Miniranger baseline calibrations for this survey were performed on October 29 - 30, 1982 and November 30, 1982. These calibrations took place in Ketchikan, Alaska and Seattle, Washington. Only the initial correctors were used to plot the smooth field sheet. The initial baseline calibration for each R/T console pair and transponder combinations also determine minimum signal strength cutoff values for each system. The data for all baseline calibrations are included in the Electronic Control Report.

Miniranger Performance

All shore stations were positioned on Third Order, Class I or better geodetic stations. Power was supplied by two 12-volt batteries connected in series. Overall, shore transponder units performed very well with few problems as did all mobile equipment.

H. SHORELINE

The shoreline for this survey was transferred from enlargements of U.S. Geological Survey Quadrangle maps at 1:63,360 scale. The enlargements initially provided were not at the correct scale and had to be enlarged a second time to 1:10,000 by an enlargement projector at Marine Operations Pacific, Seattle, Washington. This resulted in a large amount of distortion rendering the shoreline inaccurate. Therefore, on the final smooth sheets it was necessary to adjust (in certain areas) the shoreline to conform with plotted sounding positions.

See Eval. Rpt Sect. 2

In addition, the shoreline compiled from the U.S.G.S. Quadrangle maps does not agree with the prior surveys or the charted shareline. The shoreline compiled from the Quadrangle maps is more accurate. Hence, it is recommended that the old shoreline be updated in the near future. A good check on the accuracy of the shoreline is the fact that nearly all the geodetic stations are located near the tree line, which is also approximately the high water line.

Another major error was noted on the U.S. Geological Shoreline maps. The bottom characteristic chart symbol "rky" was misinterpreted as a "rock awash" (*) symbol, and was transferred as such to the shoreline maps. These "rock awash" symbols were deleted from the smooth field sheets. No futher investigation was conducted because many of these were in areas where the depth approaches 100 fathoms.

I. CROSSLINES

A total of 13.1 nautical miles of crosslines were run representing 18.2% of the mainscheme mileage. Agreement of the 71 comparisons between crossline and mainscheme sounding is as follows:

0 - 11 fathoms	4 comparisons within 0.2 fathoms
	2 comparisons within 0.5 fathoms
	0 comparisons within 1.5 fathoms
	0 comparisons greater than 1.5 fathoms
11 - 55 fathoms	1 comparison within 0.2 fathoms
	1 comparison within 0.5 fathoms
	1 comparison within 1.5 fathoms
	0 comparisons greater than 1.5 fathoms
55 - 110 fathoms	22 comparisons within 0.2 fathoms
	8 comparisons within 1.5 fathoms
	8 comparisons within 3% of depth
	1 comparison greater than 3% of depth
Greater than 110 fathoms	15 comparisons within 1.5 fathoms
	7 comparisons within 3% of depth
	2 comparisons greater than 3% of depth

Crossline agreement is excellent since 97.2% of the comparisons meet the criteria as stated in section 1.1.2, Part B.II.1 of the Hydrographic Manual. The minor discrepancies which exist seem to be the result of a small position difference along a very steep bottom gradient. Two launches (RA-3 and RA-4) ran crosslines in addition to the mainscheme lines.

J. JUNCTION

The junction of this survey was compared with present surveys H-10057 and H-10064. The junction between the north and south sheets were also compared. Results of the comparisons are as follows:

H-10057

There were no concurrent soundings between surveys H-10057 and H-10063. This is because of uniform spacing due to data gathered by the same

launch and using the same control. Three crossline soundings overlapped between the sheets and showed good agreement. Depth contours do show good agreement.

H-10063 (RA-10-9S-82/RA-10-9N-82)

11 - 55 fathoms	1 comparison within 1.5 fathoms
	1 comparison greater than 3% of depth
	7 comparisons within 1.5 fathoms
	2 comparisons within 3% of depth

Junction agreement was excellent since 91% of the comparisons meet the criteria as stated in section 1.1.2, Part B.II.1 of the Hydrographic Manual. The one discrepancy appears to be the result of a small difference in positioning, which, yields a relatively large difference in depth due to the steep bottom gradient. See Eval. Rpt Sect. 5

H-10064

11 - 55 fathoms	1 comparison within 1.5 fathoms
55 - 110 fathoms	1 comparison within 1.5 fathoms
	2 comparisons greater than 3% of depth
Greater than 110 fathoms	9 comparisons within 1.5 fathoms
	3 comparisons greater than 3% of depth

Junction agreement was poor since 64.7% of the comparisons meet the criteria as stated in section 1.1.2, Part B.II.1 of the Hydrographic Manual. The largest discrepancies occur where bottom slopes are very steep. Hence, a small difference in positioning yields a relatively large difference in depth.

K. COMPARISON WITH PRIOR SURVEYS

The current survey was compared with prior surveys H-2149 (1892) and H-5389 (1933).

The 1892 survey indicates a shoreline which varies a large amount from the U.S.G.S. Quadrangle shoreline. If outstanding shore features are aligned for comparison, sounding agreement is fair. The 1933 survey only extends into a portion of the current survey. Comparisons made between concurrent soundings showed good agreement. It is recommended that this latest survey (H-10063) be used to update the next chart edition. See Eval. Rpt Sect. 6

L. COMPARISON WITH THE CHART

This survey was compared with chart 17427, 4th Edition, July 7, 1979 1:80,000 scale enlarged to 1:10,000. Agreement of the 45 comparisons is as follows:

0 - 11 fathoms	1 comparison within 1.5 fathoms 3 comparisons greater than 1.5 fathoms
11 - 55 fathoms	6 comparisons within 1.5 fathoms 11 comparisons greater than 3% of depth
55 - 110 fathoms	8 comparisons within 1.5 fathoms 4 comparisons within 3% of depth 2 comparisons greater than 3% of depth
Greater than 110 fathoms	8 comparisons within 3% of depth 2 comparisons greater than 3% of depth

Agreement is poor since only 60% of the comparisons meet the criteria as stated in section 1.1.2, Part B.II.1 of the Hydrographic Manual. Many discrepancies were observed. The difference in the comparisons can be largely attributed to the enlargement of the 1:80,000 scale chart to 1:10,000. Enlarging the chart distorts the published soundings. They appear to be much too large and very inaccurate. Several of the published soundings appear to be much further from shore than they should be. The enlarged soundings make comparisons with any one sounding, from the current survey, virtually impossible. This is simply because no one sounding from the survey is exactly coincident with the enlarged and charted sounding. In all cases, the present surveyed soundings should be used.

See Eval Rpt Sect. 7

M. ADEQUACY OF SURVEY

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

N. AIDS TO NAVIGATION

There are no aids to navigation in the survey area.

O. STATISTICS

Survey Launch	Linear Nautical Miles of Hydro	Square Nautical Miles of Hydro	Number of Positions
RA-3	18.8	---	~~271~~ 269
RA-4	39.9	---	~~469~~ 450
RA-5	----	---	~~25~~ 31
RA-6	13.0	---	~~65~~ 64
TOTAL	71.7	7.75	~~830~~ 812

Bottom Samples: 25

P. MISCELLANEOUS

There were no dangers to navigation reported in the survey area.

Q. RECOMMENDATIONS

This survey is considered complete and adequate to supersede prior surveys.

R. AUTOMATED DATA PROCESSING

Data acquisition and processing were accomplished per instructions in the Hydrographic Manual (Fourth Edition), Manual of Automated Hydrographic Surveys, the PMC OPORDER, Hydrographic Survey Guidelines and the Hydrographic Data Requirements for 1982.

Soundings and positions were taken by an ASI Logger and a Hydroplot system using range azimuth program FA181. There are daily master tapes and corresponding corrector tapes which include the TRA for the launches and 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 acquisition or processing:

	PDP 8/e Programs	Version Date
FA181	Range-Azimuth Hydrolog	02/23/78
RK201	Grid, Signal and Lattice Plot	04/18/75
RK212	Visual Station Table Load	04/01/74
RK216	Range Azimuth Non-Real Time Plot	02/09/81
RK300	Utility Computations	10/21/80
RK330	Reformat and Data Check	05/04/76
PM360	Electronic Corrector Abstract	02/02/76
RK407	Geodetic Inverse/Direct Computation	09/25/78
AM500	Predicted Tide Generator	11/10/72
RK530	Layer Corrections for Velocity	05/10/76
RK561	H/R Geodetic Calibration	02/19/75
AM602	Elinore-Line Oriented Editor	05/20/75
AM603	Tape Consolidator	10/10/72
RK606	Tape Duplicator	08/22/74
	Focal	1969
	Nansen Cast Calculations	08/15/79

The HP97 and HP9815A programmable calculators were used to compute geographic positions of electronic control stations and visual signals for calibrations.

S. REFERRAL TO REPORTS

The following reports contain information related to this survey:

Echo Sounding Report	OPR-0361-RA-82
Electronic Control Report	OPR-0361-RA-82
Horizontal Control Report	OPR-0361-RA-82
Coast Pilot Report	OPR-0361-RA-82

Respectfully submitted:

William G. Logue, Jr.

William G. Logue
ENS, NOAA

Field Tide Note

Field tide reduction of soundings for survey H-10063 was based on predicted tides from Ketchikan, Alaska. Corrections were obtained from Preliminary Tidal Zoning OPR-0361-RA-82. The predicted tides were derived using program AM500. The reference station, Ketchikan, Alaska (945-0460), Lat. 55° 19.5' N, Long. 131° 37.5' W, was leveled on October 2 and November 12, 1982. These levels agreed with the historic records.

Two subordinate tide stations provided data for survey H-10063. The Kestrel Tide Gage (945-0305), Lat. 55° 07.1' N, Long. 130° 47.9' W, was installed on September 28, and removed on November 20, 1982. Initial and final levels for this gage were run on September 28 and November 17, 1982. The staff value of the zero line on the tide record was +5.0 feet and the time meridian for records annotation was 0° (UTC). The gage operated very well the entire period.

The Boca de Quadra, Northeast Arm Tide Gage (945-0398), Lat. 55° 18.7' N, Long. 130° 29.5' W, was installed on November 3 and removed on November 20, 1982. Initial and final levels for this gage were run on November 3 and 18, 1982. The staff value of the zero line on the tide record was +1.7 feet and the time meridian for records annotation was 0° (UTC).

Both the Kestrel and Boca de Quadra gages operated very well.

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10063

Name on Survey	A ON CHART NO. 17427	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									1
BACTRIAN POINT	X									2
BOCA DE QUADRA	X									3
MARTEN ARM	X									4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
					Approved:					19
										20
					Charles E. Harrington					21
					Chief Geographer - NOAA					22
					27 Sept. 1983					23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

VELOCITY CORRECTOR TAPE LISTING
OPR-0361-RA-82
BOCA DE QUADRA, ALASKA

ALL SHEETS

TABLE NO. 8
UNIT - 'FATHOMS

```
000045 0 0000 0008 001 000000 000000
000120 0 0001
000215 0 0002
000290 0 0003
000365 0 0004
000445 0 0005
000525 0 0006
000610 0 0007
000690 0 0008
000785 0 0009
000880 0 0010
000980 0 0011
001070 0 0012
001350 0 0014
001540 0 0016
001720 0 0018
001910 0 0020
002095 0 0022
002270 0 0024
999999 0 0026
```

TC/TI TAPE LISTING
RA-10-9-82 H-10063

LAUNCH - 2123 (RA-3)
FATHO: 1071,1072

215109 0 0005 0008 309 212300 000000
192519 0 0000 0000 311 000000 000000
193718 0 0005 0008 311 000000 000000
233000 0 0005 0008 312 000000 000000

LAUNCH - 2124 (RA-4)
FATHO: 1042

213902 0 0003 0008 306 212400 000000
190022 0 0000 0000 311 000000 000000
191910 0 0003 0008 311 000000 000000
175000 0 0003 0008 320 000000 000000

LAUNCH - 2125 (RA-5)
FATHO: 1070

214910 0 0000 0000 308 212500 000000
235959 0 0000 0000 313 000000 000000

LAUNCH - 2126 (RA-6)
FATHO: 1046

184920 0 0003 0008 313 212600 000000
204100 0 0003 0008 314 000000 000000

Final Baseline Correctors

RA-10-9-82

H-10063

VESSEL: 2123 (RA-3)
RANGE CONSOLE: S/N 720
R/T UNIT: S/N 2710

CODE	FIRST CAL. INITIAL (1)	SECOND CAL. (2)	FINAL CAL.	REMARKS
B	-1	~~0~~ -1	~~0~~ -1	All other codes not used.

VESSEL: 2124 (RA-4)
RANGE CONSOLE: S/N 30269
R/T UNIT: S/N 1636

CODE	FIRST CAL. INITIAL (1)	SECOND CAL. (2)	FINAL CAL.	REMARKS
B	1	2	2	
C	3	~~32~~	~~32~~	
D	2	3	2	

VESSEL: 2125 (RA-5)
RANGE CONSOLE: S/N 715
R/T UNIT: S/N 1660

CODE	FIRST CAL. INITIAL (1)	SECOND CAL. (2)	FINAL CAL.	REMARKS
B	0	3	2	
C	0	0	0	
D	4	~~4~~ 3	4	

VESSEL: 2126 (RA-6)
RANGE CONSOLE: S/N 711
R/T UNIT: S/N 1646

CODE	FIRST CAL. INITIAL (1)	SECOND CAL. (2)	FINAL CAL.	REMARKS
D	-2	4	1	

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2123 SHEET : RA-10-9-82

TIME	DAY	PATTERN 1	PATTERN 2
215109	309	+00000-1	-34075
234300		+00000	+00000
220747	310	+00000-1	-69460
000005	311	+00000	-57099
000334		+00000	+00000
180544	311	+00000	-50176
000138	312	+00000	-27273
001100		+00000	+00000
175633	312	+00000	-38005
233000		+00000-1	+00000

FOR RANGE/AZIMUTH HYDRO DISREGARD PATTERN 2 CORRECTORS.

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2124 SHEET : RA-10-9-82

TIME	DAY	PATTERN 1	PATTERN 2
213902	306	+000032	+45329
235959		+00000	+00000
224152	307	+000032	+89380
235341		+00000	+00000
195956	308	+000032	-54379
222231		+000032	-18392
235100		+00000	+00000
191402	309	+000032	-90491
235754		+00000	+00000
173725	310	+000032	-58000
000231	311	+000032	-45261
000859		+00000	+00000
173548	311	+000032	-68093
220600		+00000	+00000
224156	311	+000032	-78157
235959		+00000	+00000
171702	312	+000032	-12153
181000		+00000	+00000
185229	312	+000032	-98227
235800		+00000	+00000
172458	313	+000032	-00000
194600		+00000	+00000
212625	313	+000032	+36270
220000		+00000	+00000
172447	320	+000032	+60280
175000		+00000	+00000

FOR RANGE/AZIMUTH HYDRO DISREGARD PATTERN 2 CORRECTORS.

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2125 SHEET : RA-10-9-82

TIME	DAY	PATTERN 1	PATTERN 2
214910	308	+00000	-53002
172751	311	+00002	-50268
214801		+00004	-74269
213545	312	+00000	-04563
230943		+00004	-19060
232858		+00006	-64188
000949	313	+00006	+93249
001000		+00000	+00000
234236	313	+00004	+00000

FOR RANGE/AZIMUTH BOTTOM SAMPLES DISREGARD PATTERN 2 CORRECTORS.

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2126 SHEET : RA-10-9-82

TIME	DAY	PATTERN 1	PATTERN 2
184920	313	+00001	-51028
202800		+00000	+00000
181820	314	+00001	-06247
204100		+00000	+00000

FOR RANGE/AZIMUTH HYDRO DISREGARD PATTERN 2 CORRECTORS.

MASTER STATION LIST
OPR-0361-RA-32
BOCA DE QUADRA, ALASKA

FINAL VERSION

163 1 55 07 02352 130 44 02064 139 0000 000000
/ALDER 1933 NGS COMPUTER LISTING

164 3 55 03 10018 130 42 45628 250 0000 000000
/FACE 1933 NGS COMPUTER LISTING

165 4 55 07 20042 130 42 26153 250 0000 000000
/SPLIT 1933 NGS COMPUTER LISTING

~~166 4 55 06 31330 130 42 51666 139 0000 000000~~
~~/SLIME 1933 NGS COMPUTER LISTING~~

167 4 55 04 56348 130 42 55496 250 0000 000000
/ORDER 1933 NGS COMPUTER LISTING

~~168 4 55 03 54575 130 42 17941 139 0000 000000~~
~~/RAM 1933 NGS COMPUTER LISTING~~

169 4 50 03 34436 130 42 01622 250 0000 000000
/EGG 1933 NGS COMPUTER LISTING

170 4 55 03 05483 130 41 42922 139 0000 000000
/PONT 1933 NGS COMPUTER LISTING

171 2 55 02 39504 130 41 36367 139 0000 000000
/SPITS 1933 NGS COMPUTER LISTING

172 5 55 02 07253 130 41 56668 139 0000 000000
/BREAK 1933 NGS COMPUTER LISTING

173 5 55 02 52042 130 42 15852 250 0000 000000
/DU 1933 NGS COMPUTER LISTING

174 5 5003 06118 130 42 24353 139 0000 000000
/DRILL 1933 NGS COMPUTER LISTING

175 3 55 03 54216 130 42 52362 139 0000 000000
/SOAP 1933 NGS COMPUTER LISTING

176 0 55 04 20711 130 43 01719 139 0000 000000
/AND 1933 NGS COMPUTER LISTING

~~177 3 55 04 32506 130 43 03141 139 0000 000000~~
~~/BIG 1933 NGS COMPUTER LISTING~~

~~178 3 55 04 44317 130 43 20726 250 0000 000000~~
/BEACH 1933 NGS COMPUTER LISTING

179 5 55 05 04104 130 43 33126 250 0000 000000
~~/GRASSY 1933 NGS COMPUTER LISTING~~

180 0 55 05 21618 130 43 43465 250 0000 000000
/MINK 1933 NGS COMPUTER LISTING

~~181 7 55 05 18571 130 44 27028 139 0000 000000~~
/BRICK 1933 NGS COMPUTER LISTING

182 7 55 05 05738 130 45 11001 139 0000 000000
/JOHN 1933 NGS COMPUTER LISTING

183 7 55 04 53927 130 45 45672 250 0000 000000
/SON 1933 NGS COMPUTER LISTING

184 2 55 04 29761 130 47 55550 139 0000 000000.
/GANN 1933 NGS COMPUTER LISTING

185 4 55 04 20474 130 47 55434 139 0000 000000
/SHINE 1933 NGS COMPUTER LISTING

186 2 55 03 53778 130 47 34420 139 0000 000000
/BLACK 1933 NGS COMPUTER LISTING

187 2 55 03 22077 130 47 18494 139 0000 000000
/ROUND 1933 NGS COMPUTER LISTING

188 2 55 02 59281 130 47 04278 250 0000 000000
/RAVEN 1933 NGS COMPUTER LISTING

189 3 55 02 18322 130 46 55763 250 0000 000000
/LORD 1933 NGS COMPUTER LISTING

190 3 55 02 47787 130 47 28539 139 0000 000000
/HANG 1933 GS COMPUTER LISTING

191 3 55 03 21774 130 47 48039 139 0000 000000
/VIXEN 1933 NGS COMPUTER LISTING

192 3 55 03 54055 130 48 09540 250 0000 000000
/LONE 1933 NGS COMPUTER LISTING

193 3 55 04 23527 130 48 13255 139 0000 000000
/PULL 1933 NGS COMPUTER LISTING

194 3 55 04 42171 130 48 19477 250 0000 000000
/BAGO 1933 NGS COMPUTER LISTING

195 3 55 04 41297 131 10 47875 139 0000 000000
~~/ROSEN 1932 NGS COMPUTER LISTING~~

~~196 3 55 09 42399 130 49 12231 250 0000 000000~~
/BADGER

197 4 55 11 13972 130 48 59779 250 0000 000000
/KAY

198 3 55 09 19260 130 49 50858 250 0000 000000
~~/PEGLEG~~

199 1 55 07 05753 130 41 16127 139 0000 000000
/PIRKKO

~~201 4 55 01 26576 131 03 29334 139 0016 000000~~
~~/BLACK ROCK LIGHT 1929 NGS COMPUTER LISTING~~

202 0 55 05 18432 131 03 04294 250 0010 000000
/SLATE ISLANDS LIGHT

203 0 55 07 32707 130 38 53128 250 0000 000000
/GEORGE

204 3 55 08 05239 130 37 18096 139 0000 000000
/MARTEN

205 6 55 07 59034 130 34 31200 250 0000 000000
/HARVEY

206 6 55 06 46486 130 39 08001 250 0000 000000
/JUNE

207 0 55 11 02850 130 39 07832 250 0000 000000
/CAROLINE

208 4 55 09 45306 130 40 18814 250 0000 000000
/BOCA

209 7 55 12 20338 130 35 56246 250 0000 000000
/DE

~~210 4 55 14 28140 130 33 12498 250 0000 000000~~
/QUADRA

211 3 55 16 59862 130 32 09418 250 0000 000000
/JUDY

212 3 55 18 14803 130 31 02646 250 0000 000000
/ROSIE

213 4 55 18 41682 130 29 27054 250 0000 000000
~~/BILLY~~

NOAA FORM 75-44

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

CRUISE	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
2125	OPR-0361-RA-82	1982	RA-10-9-82 H-10063		

SERIAL NO.	DATE	SAMPLE POSITION LATITUDE 55°N	SAMPLE POSITION LONGITUDE 130° W	DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
5000	JD 308 11/4/82	06/42.78	42/49.12	56.2	45#	2"		gn	M, crs S	uknown crystal or sponge. also mineral fiber	
5001	"	06/58.02	42/20.86	94.9	"	"		br, ~~bk~~ gn	S, P, M, Cl		
5002	"	06/51.50	41/42.37	98.4	"	"		gn	M, crs S		
5003	"	06/57.30	41/04.52	67.9	"	"		gn	M		
5004	"	06/55.24	40/24.54	93.9	"	"		gn	M, Cl		
5005	"	06/54.84	39/45.26	89.5	"	"		gn	M, G, P, St, Sh		
5086	JD 311 11/7/82	07/00.67	38/44.53	84.1	"	"		gn	S, fne G, brk Sh		
5087	"	07/36.21	38/27.37	86.3	"	"		gn	M		
5088	"	07/36.03	37/22.29	97.0	"	"		gn	M, St, brk Sh		
5089	"	08/09.21	36/46.91	95.6	"	"		gn, bk	M		
5090	"	07/53.59	35/42.67	88.5	"	"		bk	M, fne S		
5091	"	08/10.43	34/49.76	82.9	"	"		bk	M	organic matter	
5092	"	08/18.68	34/02.79	37.9	"	"		bk	M		
5093	"	06/54.60	43/58.83	67.4	"	"		gn	M	sponge	
5094	"	07/20.56	43/50.97	77.9	"	"		gn	M, St		
5095	"	07/46.24	43/39.56	74.5	"	"		gn	M, med S		
5096	"	07/52.34	42/55.52	72.7	"	"		gn	M, crs G	sponge	

* more than one line per sample if necessary.

* U.S. GOVERNMENT PRINTING OFFICE: 1978—665-018/1084

NOAA FORM 75-44
(11-72)

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
2125	OPR-0361-RA-82	1982	RA-10-9-82 H-10063		

SERIAL NO.	DATE	SAMPLE POSITION LATITUDE 55°N	SAMPLE POSITION LONGITUDE 130°W	DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
5097	JD 311 11/7/82	08/32.47	42/19.66	90.8	45#	2"		gn	M, med P		
5098	"	08/28.41	41/27.23	74.9	"	"		gn	M, fne G		
5099	"	08/00.20	41/43.49	61.0	"	"		gn	fne S	very small sample, possibly rocky	
5100	"	07/40.92	42/04.80	73.8	"	"		gn	M		
5101	"	07/18.25	42/35.91	27.9	"	"		br	fne S sponge	very small sample possibly rocky	
5102	JD 312 11/8/82	08/14.13	42/33.17	55.9	"			gn	fne S	small sample, possible rocky bottom	
5103	"	09/14.47	42/03.19	81.1	"			gn	fne S, Co	No sample first try. Small sample 2nd try. Possible rocky bottom.	
5104	"	09/44.71	41/32.80	78.0	"			gn	fne S, med P	small sample. possible rocky bottom.	
5105	"	10/10.40	39/30.36	79.1	"			gn	fne S, med P		
5106	"	09/55.37	40/06.23	83.6	"			gn	M		
5107	"	09/37.56	40/40.10	80.8	"			gn	M		
5108	JD 313 11/9/82	09/17.12	41/07.85	82.8	"			gn	fne S, brk Sh	small sample. possible rocky bottom.	
~~5110~~	"	~~10/10.65~~	~~39/29.48~~	~~79.1~~	"			br	med S RLH 12/14/82	(same location as # 5105)	
5111	"	10/17.36	40/16.02	69.9	"			gn/bk	M		
5112	"	10/00.41	40/52.05	74.2	"			bk	M		

Use more than one line per sample if necessary.

★ U.S. GOVERNMENT PRINTING OFFICE: 1978—665-018/1084

TABLE I

Echo Sounding Component Serial Numbers

Launch	2123	2124	2125	2126
Transceiver	1041	1040	1042	1080
Analog	1071	1042	1070	1046
Digitizer	1041	1080	1042	1040

Sound Velocity Corrections

Two Nansen casts were performed in order to determine sound velocity corrections. Table II summarizes the Nansen cast data.

TABLE II

Nansen Cast Data

Date	Location	Velocity Table
18 October, 1982	55° 06.5' N 130° 52.6' W	8
18 November, 1982	55° 06.9' N 130° 43.3' W	8

Water samples obtained from the Nansen casts were analyzed for salinity using a Beckman model No. RS-713 salinometer (S/N 59265) and standard laboratory procedures (see H.O. 607, Instruction Manual for Obtaining Oceanographic Data, Third Edition, U.S. Naval Oceanographic Office, 1968). The salinometer was last calibrated in April, 1982 by the Northwest Regional Calibration Center, Bellevue, Washington. The calibration results are provided in the separates following the text.

Velocity correction tables were yielded by inserting the Nansen cast results into computer program RK 530: Velocity Correction Computations (May 10, 1976 version) which was run on RAINIER's PDP 8/e digital computer system.

The standard velocity correctors for this survey were obtained by graphing the actual depths minus velocity corrections versus velocity correction and picking off depths that corresponded to standard correction intervals (see Hydrographic Manual, Fourth Edition, 1976). A list of computed correctors is provided in the separates following the text.

Launch Draft Corrections

Corrections for launch draft were determined from standard bar checks (see Hydrographic Manual, Fourth Edition, 1976). Bar checks were performed daily, except when wind or rough seas prevented launch personnel from obtaining accurate bar check data.

Mean fathometer depth values were corrected for velocity and subtracted from the true bar depths. The resulting values agreed with the historic value of 0.3 fathoms for the survey launches TRA's except for RA-3. The TRA for RA-3 was computed to be 0.5 fathoms which agrees with the prior TRA, computed since the installation of the side scan sonar equipment on this launch.

The smooth field sheets for this survey were plotted using a launch TRA value of 0.3 fathoms except for soundings obtained by RA-3. These soundings were plotted using a launch TRA value of 0.5 fathoms.

Launch Settlement and Squat Corrections

Settlement and squat tests were conducted at Shilshole Bay Marina in Puget Sound, Washington on April 2 and April 6, 1982 and at Port Chatham, Alaska on July 23, 1982. The second location was used to obtain new settlement and squat values for RA-3 after the installation of the side scan sonar equipment. A leveling rod was located over the transducer on each launch. An observer on shore sighted through a level to the rod and recorded the readings at various speeds. These readings were taken at speeds increasing from 0 RPM to 2600 RPM (full ahead) for each launch except RA-4, which went to 2800 RPM. A second set of readings was taken at speeds decreasing from full ahead to 0 RPM. The two sets of readings were then averaged to yield the final settlement and squat correctors. A list of the final correctors is included in the separates following the text.

Settlement and squat correctors were not applied to the final smooth field sheets of this survey. All soundings were obtained at speeds for which the corrector equaled 0.0 fathoms.

Sounding Instrument Correctors

During survey operations the blanking depth was set to a value shoaler than the shoalest bottom expected and was adjusted as the depth changed. Corresponding analog trace depths were substituted for missing digital soundings as a part of standard scanning procedures.

The initial trace on the analog recorders was continuously monitored to prevent any error caused by a drifting initial. Phase calibrations were also performed to prevent belt tension error and stylus/paper misalignment on launch fathometers in accordance with PMC OPORDER.

NOAA FORM 77-27 (5-77)

U. S. DEPARTMENT OF COMMERCE NOAA

HYDROGRAPHIC SURVEY NUMBER: H-10063

HYDROGRAPHIC SURVEY STATISTICS

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	2
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. 3 ARC, 2 EXCESS	6

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	2		1			
VOLUMES						
BOXES			1			

T-SHEET PRINTS (List)

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS: PRE-VERIFICATION	AMOUNTS: VERIFICATION	AMOUNTS: TOTALS
POSITIONS ON SHEET		812	812
POSITIONS CHECKED			
POSITIONS REVISED		104	
SOUNDINGS REVISED			
SOUNDINGS ERRONEOUSLY SPACED			
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED			

PROCESSING ACTIVITY	TIME – HOURS: PRE-VERIFICATION	TIME – HOURS: VERIFICATION	TIME – HOURS: EVALUATION	TIME – HOURS: TOTALS
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	01	VER/EVAL		01
VERIFICATION OF CONTROL		05	01	06
VERIFICATION OF POSITIONS		10	02	12
VERIFICATION OF SOUNDINGS		70	03	73
COMPILATION OF SMOOTH SHEET		26	22	48
APPLICATION OF TOPOGRAPHY		00	00	00
APPLICATION OF PHOTOBATHYMETRY		00	00	00
JUNCTIONS		00	01	01
COMPARISON WITH PRIOR SURVEYS & CHARTS		00	03	03
VERIFIER'S REPORT		07	09	16
OTHER		00	05	05
TOTALS	01	118	46	165

Pre-Verification by: J. L. Stringham	Beginning Date: 4/4/83	Ending Date: 4/4/83
Verification by: J. N. Shofner	Beginning Date: 8/2/83	Ending Date: 1/12/84
Evaluation by: K. M. Scott	Time (Hours): 28	Date: 1/16/84
Verification Check by: J. L. Stringham, J. S. Green	Time (Hours):	Date:
Marine Center Inspection by:	Time (Hours):	Date:
Quality Control Inspection by:	Time (Hours):	Date:
Requirements Evaluation by:		

APPROVAL SHEET

DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SURVEY

H-10063

RA-10-9-82

In producing this sheet, standard procedures were observed in accordance with the Hydrographic Manual, PMC OPORDER, Hydrographic Survey Guideline, 1982 Data Requirements Letter, 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.

Ralph J. Land
CAPTAIN, NOAA
Commanding Officer

PACIFIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO: H-10063 FIELD NO: RA-10-9-82

Alaska, Boca de Quadra, Marten Arm and Vicinity

SURVEYED: November 2-16, 1982

SCALE: 1:10,000 PROJECT NO: OPR-0361-RA-82

SOUNDINGS: CONTROL: Mini-Ranger
Range/Azimuth

Chief of Party.....CAPT R. J. Land

Surveyed By.....LT J. O'Clock
LT S. Ludwig
ENS W. Logue
ENS J. Judson

Automated Plot By.....PMC Xynetics Plotter

Verified By.....J. Shofner

Evaluated By.....K. M. Scott

1. INTRODUCTION

H-10063 is a navigable area survey accomplished by the NOAA Ship RAINIER launches in accordance with Project Instructions OPR-0361-RA-82 dated June 2, 1982, Change No. 1 dated July 28, 1982, and Change No. 2 dated August 23, 1982.

Predicted tides based on the Ketchikan gage with time and range adjustments were utilized during shipboard processing. Tide correctors used for the reduction of final soundings are computed from approved hourly heights zoned direct from the NE Arm Boca De Quadra gage (945-0398). (See appended Tide Note).

The electronic correctors were revised during verification to reflect the baseline correctors applicable to the appropriate Mini-Ranger transponder unit. Correctors applied to the survey data are included in the smooth printouts.

2. CONTROL AND SHORELINE

Geodetic positions for control stations governing hydrography are field positions for newly established stations and published positions for previously established stations referenced to North American 1927 datum. In accordance with Hydrographic Guideline Number 17, shoreline is not shown on the smooth sheet because of conflict with charted shoreline and the USGS quads.

3. HYDROGRAPHY

Crosslines incorporated within this survey are in good agreement. Discrepancies are attributed to the nature of the bottom.

The bottom configuration, development of shoal soundings, determination of least depths, and delineation of standard depth curves are adequate.

4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual of July 4, 1976.

5. JUNCTIONS

H-10063 joins H-10064 (1:10,000) 1982 to the north and H-10057 (1:10,000) 1982 to the south. Soundings, depth curves, and junction notes are inked in agreement.

6. COMPARISONS WITH PRIOR SURVEYS

H-2149 (1:20,000) 1892 H-5389 (1:20,000) 1933

Prior survey soundings are comparable indicating a very stable bottom. Differences in methods of shoreline delineation, sounding acquisition and datum adjustments are apparent when comparing the two prior surveys as well as the current survey. This accounts for differences encountered.

The inlet and ledge shown at approximately latitude 55°07'41"N longitude 130°36'57.5"W on H-2149 was further delineated during this survey. This area is described as being rocky. Four rocks were located, three of which are plotted at the following positions: latitude 55°07'39.61"N longitude 130°36'57.17"W, latitude 55°07'40.65"N longitude 130°36'54.98"W, and latitude 55°07'39.24"N longitude 130°36'53.7"W. The fourth rock lies slightly inshore at latitude 55°07'40.61"N longitude 130°36'55.71"W and is not plotted due to congestion at the scale of this survey.

A rock awash 9 feet MLLW was located in 1933 and plotted on H-5389 at approximately latitude 55°06'57.5"N longitude 130°44'08"W. Three rocks in that vicinity were located by the field party. Two rocks, the highest and farthest offshore, are shown on H-10063 at latitude 55°07'00.06"N longitude 130°44'10.03"W, and latitude 55°06'59.67"N longitude 130°44'11.39"W.

There are no presurvey review items within the survey limits.

H-10063 is adequate to supersede all prior survey data within the common area.

7. COMPARISON WITH CHART

17427 (4th Ed., July 7, 1979)

a. Hydrography - Charted information originates with the prior survey discussed previously.

The appended chartlet shows the survey area.

There have been no dangers to navigation identified or reports submitted by the ship or PMC processing for this survey.

H-10063 is adequate to supersede charted hydrography within the common area.

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

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

8. COMPLIANCE WITH PROJECT INSTRUCTIONS

H-10063 (RA-10-9-82) adequately conforms to the project instructions as amended and noted in section 1 of this report.

9. ADDITIONAL FIELD WORK

This is a good navigable area survey. No additional field work is required; however, it is advisable to compile new shoreline from up-to-date photography.

Respectfully submitted,

Karol M. Scott

Karol M. Scott
Cartographer
January 12, 1984

This survey has been verified and evaluated. I have examined the survey and it meets Charting and Geodetic Services survey standards and requirements for use in nautical charting except as noted in the Evaluation Report. The survey is recommended for approval.

James S. Green

James S. Green
Supervisory Cartographer

DATE: February 8, 1983

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 945-0398 NE Arm, Boca De Quadra, Alaska

Period: November 2-16, 1982

HYDROGRAPHIC SHEET: H-10063

OPR: 0361

Locality: Boca De Quadra, Alaska

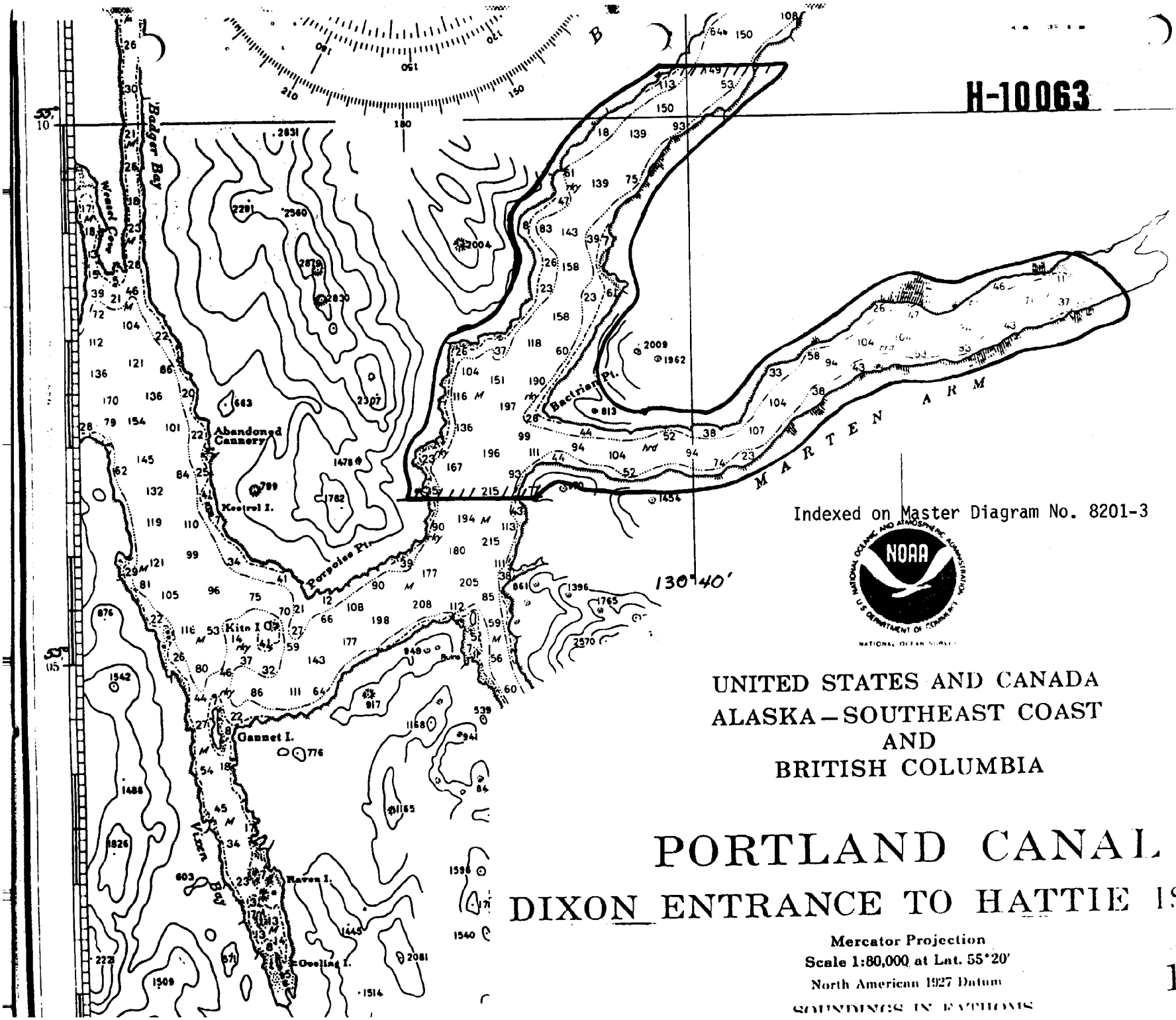
Plane of reference (mean lower low water): 5.8 ft.

Height of Mean High Water above Plane of Reference is 14.2 ft.

REMARKS: Recommended Zoning:

Zone Direct

Chief, Tidal Datums Section, Tides & Water Levels Branch



H-10063

Indexed on Master Diagram No. 8201-3

NOAA

UNITED STATES AND CANADA
ALASKA—SOUTHEAST COAST
AND
BRITISH COLUMBIA

PORTLAND CANAL

DIXON ENTRANCE TO HATTIE ISLAND

Mercator Projection
Scale 1:80,000 at Lat. 55°20'
North American 1927 Datum
SOUNDINGS IN FATHOMS

17427

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10063

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.

Ned C Austin 2/2/84
Chief, Nautical Chart Branch (Date)

CLEARANCE: SIGNATURE AND DATE:

N/MOP2:LWMordock Lawrence W. Mordock 2/7/84

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.

Charles K. Jansen 2/21/84
Director, Pacific Marine Center (Date)

FORM C&GS-8352
(8-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10063

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
17427	6/13/84	J. Baily	~~Full~~ Part ~~Before~~ After ~~Verification~~ Evaluation Review Inspection Signed Via
			Drawing No. 12 Exam. for critical corrs.
			~~No corr.~~ Revised soundings and revised curves to show shoaler cond. where
17420	11/30/84	J. Baily	~~Full~~ Part ~~Before~~ After ~~Verification~~ Evaluation Review Inspection Signed Via
			Drawing No. 32 Exam. for critical corrs. thru
			Drwg. 17427 #12. No corr.
17427	10/25/89	ALMACEN	Full ~~Part~~ ~~Before~~ After Verification Evaluation Review Inspection Signed Via
			Drawing No. full application of sndgs. from 88.
17420	10/5/90	ALMACEN	Full ~~Part~~ ~~Before~~ After Verification Evaluation Review Inspection Signed Via
			Drawing No. FULL APPLICATION OF SNDGS. FROM 85 THRU 17427
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8556-P63