

9209

Diag. Cht. No. 8556-2

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey ... HYDROGRAPHIC
Field No. ... RA-40-2-71
Office No. ... H-9209

LOCALITY

State ... ALASKA
General Locality ... SHELIKOF STRAIT
Locality ... SOUTH OF CAPE DOUGLAS

19 71

CHIEF OF PARTY

R. F. Janier, NOAA

LIBRARY & ARCHIVES

DATE ... 1/8/74

HYDROGRAPHIC TITLE SHEET

H-9209

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-40-2-71

State ALASKAGeneral locality Shelikof StraitLocality South of
Cape DouglasScale 1:40,000 Date of survey 16 June - 23 July 1971Instructions dated 28 January 1971 Project No. OPR-478-RA-71Vessel NOAA Ship RAINIERChief of party Capt. Roger F. LanierLt. Cdr. Gelb, Lt(jg) Muller, Lt(jg) Adams, Lt(jg) Suloff, Ens. Franklin,
Surveyed by Ens. Turnacliff, Ens. Farris, Ens. HollingsheadSoundings taken by echo sounder, ~~hand echograph~~ Raytheon DE-723 #819, #822Graphic record scaled by Ship's PersonnelGraphic record checked by Ship's Personnel

Positions verified

~~Recorded~~ by Stanley H. OtsuboAutomated plot by Shelby Digital PlotterSoundings ~~recorded~~ ^{verified} by Stanley H. OtsuboSoundings in fathoms ~~feet~~ at ~~M.T.W.~~ MLLWREMARKS: ⁰⁵³Applied to stbs 4/8/74
CAB

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-9209
(FIELD NO. RA-40-2-71)

SCALE 1:40,000
1971

NOAA SHIP RAINIER
CAPT ROGER F. LANIER
COMMANDING

A. PROJECT

Survey H-9209 (RA-40-2-71)⁽¹⁹⁷¹⁾ was conducted in accordance with PROJECT INSTRUCTIONS: OPR-478-RA-71, dated 28 January 1971. Change numbers 1 through 4 had no bearing on the survey of this sheet.

B. AREA SURVEYED

Survey sheet H-9209 is located at the northeast end of Shelikof Strait and borders Cape Douglas, Alaska (sketch appended). The survey boundary extends east from Cape Douglas along parallel $58^{\circ} 52'N$ to meridian $152^{\circ} 48'W$; south along that meridian to latitude $58^{\circ} 29'N$; southwest from that position to latitude $58^{\circ} 25.5'N$, longitude $152^{\circ} 55'W$; west along parallel $58^{\circ} 25.5'N$ to meridian $153^{\circ} 20'W$; north along that meridian to latitude $58^{\circ} 40.5'N$; northeast from that position to latitude $58^{\circ} 45'N$, longitude $153^{\circ} 12'W$; again north, on meridian $153^{\circ} 12'W$ to intersect the northern boundary near Cape Douglas (parallel $58^{\circ} 52'N$). The survey junctions to the northwest along the easterly coast of Cape Douglas with prior survey H-8841 (1:20,000-1965) and southeast of the Cape Douglas-Douglas Reef area with contemporary survey H-9210⁽¹⁹⁷¹⁾ (1:20,000, Field No. RA-20-1-71). In addition, the

survey junctions along the eastern edge with prior survey H-5194 (1:120,000-1931) and along the southern boundary with contemporary survey H-9201⁽¹⁹⁷¹⁾ (1:40,000, Field No. RA-40-1-71).

The survey was begun on 16 June 1971 and was carried out intermittently in conjunction with ship sheet RA-^{H-9201}40-1-71 and launch sheet RA-^{H-9201}20-1-71. Operations on this survey were completed 23 July 1971.

C. SOUNDING VESSEL

The NOAA Ship RAINIER (MSS-21) was the sounding vessel for the entire survey. ✓

D. SOUNDING EQUIPMENT

More than 98% of the soundings were recorded on Raytheon DE-723 fathometer number 819. In rare instances, when the instrument required service, soundings were recorded on the bridge fathometer, Raytheon DE-723, number 822. The fathometers performed well throughout the survey. ✓

Fine arc and AF checks were made at frequent intervals throughout the survey. The "Transducer Correction (TRA)" was obtained by summing initial, draft, and phase corrections. Initial corrections were scanned from the fathograms and an abstract of correctors was prepared. The draft of the DE-723 transducer was referenced to the recording draft gage and tabulated from the gage records. Phase corrections were derived from the observed phase

differences of the DE-723 units. All correctors were merged into the Transducer Correction/Table Indicator (TC/TI) tape for automated processing (see appendix).

Velocity corrections were computed from water temperature and salinity observations obtained from a Nansen cast taken on 1 June 1971, in Latitude 58° 48.2'N and Longitude 153° 08.0'W. The resulting velocity correction table was entered on tape and referenced in the TC/TI tape (see appendix). Velocity corrections on this sheet were less than $\frac{1}{2}$ of 1 percent of the depth and in accordance with Hydrographic Manual, section 5-114, were not applied.

For further sounding correction information, see Special Report, Corrections to Echo Soundings, OPR-478, NOAA Ship RAINIER, 1971.

E. SMOOTH SHEET

The smooth sheet will be mechanically produced at PMC on a flatbed plotter from automated processing tapes provided by this vessel. ✓

The mylar boat sheet (EDAT No. 21011) used for this survey was constructed by machine at PMC, verified by ship's personnel, and ruled by this vessel using the grid intersections provided. Hi-Fix electronic control hyperbolas were transferred to the sheet in the field from overlays prepared by PMC. Positions were applied to the sheet on-line and later smoothed, where necessary,

before soundings were inked. No calibration corrections were applied to the plot in the field other than on-line whole lane corrections.

F. CONTROL

Hi-fix electronic control, type A-moderate power, hyperbolic mode, frequency 1799.6 KHZ, was used for position control throughout the survey. A sketch showing control station locations is included in the appendix. ✓

The master station was located on Nukshak Island, on the west shore of Shelikof Strait, Alaska. A 35 ^{#200} foot whip antenna was erected at approximately 125 feet above sea-level, on reference mark NUKSHAK RM6 1971 (Lat 58° 23' 29.514"N, Long 153° 57' 40.528"W).

Slave station #1 was located on Dark Island at the North end of Shuyak Island, Alaska. The antenna was erected over station DARK 2 1971 (Lat 58° 38' 34.324"N, Long 152° 32' 32.049"W), at an elevation of approximately 115 feet. ^{#300}

Slave station #2 was located on a small peninsula of land two miles west of Broken Point, Kodiak Island, Alaska. The antenna was erected over station GAN 1971 (Lat 57° 52' 56.193"N, Long 153° 39' 46.739"W), at an elevation of approximately 75 feet. ^{#400}

The Hi-Fix operated smoothly and caused no significant problems throughout the survey. Calibration of ship-

board receivers was accomplished by visual three-point sextant fixes on signals located along the shoreline in the Cape Douglas area (table & sketch appended). A special calibration sheet was prepared (scale 1:10,000) for conversion of the three point fixes to Hi-Fix rates. For further calibration information, see Hi-Fix Report, OPR-478, NOAA Ship RAINIER, 1971.

G. SHORELINE

Shoreline details on the survey sheet in the Cape Douglas area were taken from manuscripts T-12930 and T-13156, both 1:20,000, and reduced to 1:40,000. ✓

The actual investigation of this shoreline was made in conjunction with launch sheet RA-20-1-71 (H-9210) and reference is made to the appropriate descriptive report for further details. Shoreline in the vicinity of Black Cape was scaled from C&GS-8533, the largest scale chart of the area.

The shoreline will be shown on junctional surveys H-9210 and H-9305.

H. CROSSLINES

Ten percent of the total miles run for this survey are crosslines. Comparisons of soundings at crossings are very good and generally agree within one fathom. ✓
No adjustments are necessary.

I. JUNCTIONS

Comparison of soundings at junctions with adjacent surveys show very good agreement. The junctions near Cape Douglas with prior survey H-8841 (1:20,000-1965) and near Black Cape with prior survey H-5194* (1:120,000- ✓

* This was not given as a junctional survey in the OPR-478 instructions.

1931) are well documented on the boatsheet and demonstrate excellent agreement. In like manner, the junction with contemporary survey H-9211 H-9210(1971) (1:20,000, Field No. RA-20-1-71) is well documented and demonstrates excellent agreement between the launch work and ship work. No adjustment is necessary at either junction. The junction with contemporary survey H-9201 ⁽¹⁹⁷¹⁾ (1:40,000, Field No. RA-40-1-71) was achieved by running continuous sounding lines across the junction area and plotting one common position on both survey sheets. Some one fathom differences in soundings occurred at this junction and are attributed to the use of different predicted tide reference stations for the two surveys. The differences will be resolved with the application of actual tide corrections.

J. COMPARISON WITH PRIOR SURVEYS

Soundings obtained during this survey agree very well with prior survey H-2980 (1908-1909, 1:200,000). Soundings agree within 2 fathoms throughout the survey area with slightly larger discrepancies near the center of the sheet where the visual control of the prior survey may be in question. ✓

The shoal areas of 55 fm and 61 fm ^{*} circled on the pre-survey review near the 153° 02' meridian were located by the RAINIER and developed as indicated. Least depths encountered were 52 fm in Lat. 58° 44.6'N, Long. 153° 02.5'W and 58 fm in Lat. 58° 42.4'N, Long. 153° 01.5'W for the respective shoal areas. In view

of superior positioning control and sounding techniques H-9209 should supersede H-2980 in all applicable areas.

K. COMPARISON WITH CHART

The survey compares favorably with soundings from C&GS-8556, 1967. Most depths shown on this chart were taken from the prior survey mentioned above. No new dangers to navigation were noted within the confines of this survey.

L. ADEQUACY OF SURVEY

The survey should be considered complete and adequate to supersede prior surveys for charting.

M. AIDS TO NAVIGATION

No floating or maintained aids to navigation exist within the confines of this survey.

N. STATISTICS

<u>VESSEL</u>	<u>MILES HYDRO</u>	<u>NO. POSITIONS</u>	<u>SQ. MILES</u>
RAINIER (MSS-21)	1486.4	2330	380.1

24 Bottom Samples were obtained, one Nansen cast was taken, and Tide gages were maintained at Cape Douglas, Nukshak Island, and Port William.

O. MISCELLANEOUS

No unusual characteristics were noted within the confines of this survey.

Bottom samples were obtained in conjunction with this survey at locations distributed throughout the survey area. Sample spacing is approximately eight inches at the scale of the boatsheet and is considered

adequate in view of the generally consistent characteristics of the samples obtained (see appendix).

The time meridian for all hydrography on this survey was 135°W.

P. DATA PROCESSING

All data was processed in accordance with the Instruction Manual, Automated Hydrographic Surveys.

Raw data was hand logged on time using the dual indicator format with the logger connected to a Flexowriter. Equipment failures on JD 168, Pos. 265-272, 327-332; JD 178, Pos. 524-610; and JD 203-204, Pos. 2076-2332 necessitated the on time use of sounding volumes. Data from the volumes was later hand logged onto punch paper tape. Raw data tapes were then edited for all sounding changes, peaks and deeps, errors in time, and errors in the recorded Hi-Fix rates.

One dual indicator electronic control format corrector tape was produced for the entire sheet and was used to apply calibration corrections to the basic survey data.

Standard formats were used for the TC/TI and velocity correction tapes. Hourly heights tidal data is being furnished Pacific Marine Center's Electronic Data Processing Branch. In accordance with the PMC OPORDER, the tide reducer tape will be made by EDAT.

Q. RECOMMENDATIONS ✓

None

R. REFERENCES TO REPORTS

1. Corrections to Echo Soundings, OPR-478, NOAA Ship RAINIER, 1971. ✓
2. Descriptive Report to Accompany Hydrographic Survey, H-9210 (RA-20-1-71), OPR-478, NOAA Ship RAINIER, 1971.
3. Field Edit Report, T-12930 & T-13156, OPR-478, NOAA Ship RAINIER, 1971.
4. Geodetic Surveying Operations, OPR-478, NOAA Ship RAINIER, 1971.
5. Hi-Fix Report, OPR-478, NOAA Ship RAINIER, 1971.
6. Tide Report, OPR-478, NOAA Ship RAINIER, 1971.

Respectfully Submitted,

J. Richard Faris

J. Richard Faris
Ens., NOAA

ABSTRACT OF CORRECTIONS TO
ECHO SOUNDINGS

VELOCITY TAPE OPR-478

Depth	Vel. Corr.	Vel. Tab.
004000	0000	0001
000060	1001	0003
000900	0000	
001300	0001	
000070	1001	0004
000800	0000	
001300	0001	
000050	1002	0005
000300	1001	
001300	0000	

TC/TI Tape Format

Sheet RA-40-2-71

Time	Phase	Initial	Draft	Total	Tab	Day
083300	0	0	2.3	2.3	0001	167
084530	-.4			1.9		
085045	-.7			1.6		
091015	-.4			1.9		
091530	-.7			1.6		
092000	-.4			1.9		
092645	-.7			1.6		
092900	-.4			1.9		
095130	-.7			1.6		
153000	-.4			1.9		
153130	0			2.3		
154430	-.4			1.9		
154730	-.7			1.6		
185500	-.7			1.6		
084100	-.7	0	2.3	1.6	0001	168
085900	-.4			1.9		
090115	0			2.3		
090500	-.4			1.9		
090715	-.7			1.6		
112400	-.4			1.9		
113730	-.7			1.6		
114500	-.4			1.9		
115400	-.7			1.6		
123600	-.4			1.9		
123830	0			2.3		
124100	-.4			1.9		
124145	-.7			1.6		
125300	-.5			1.8		
125900	-.7			1.6		
132645	-.4			1.9		
133930	-.7			1.6		
134745	-.4			1.9		
141230	-.7			1.6		
144715	-.4			1.9		
154200	-.7			1.6		
172000	-.4			1.9		
172430	-.7			1.6		
173545	-.4			1.9		
182815	-.7			1.6		
191830	-.4			1.9		
192900	0			2.3		
193930	0			2.3		

TC/TI Tape Format

Sheet RA-40-2-71

Time	Phase	Initial	Draft	Total	Tab	Day
103100	0 A	0	2.2	2.2	0001	173
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110815	-.7 C	0		1.5		
120015	-.4 B	0		1.8		
124600	-.7 C	0		1.5		
125200	-.7 C	0		1.5		
081530	0 A	0	2.2	2.2	0001	175
083100	-.4 B	0		1.8		
083545	-.7 C	0		1.5		
102000	-.7 C	0		1.5		
141800	-.7 C	0	2.2	1.5	0001	176
163915	-.4 B	0		1.8		
164130	0 A	0		2.2		
165115	0	0		2.2		
083000	0	0	2.2	2.2	0001	178
084415	-.4	0		1.8		
084715	-.7	0		1.5		
092945	-.4	0		1.8		
093715	-.7	0		1.5		
100045	-.4	0		1.8		
100945	-.7	0		1.5		
103100	-.4	0		1.8		
103400	0	0		2.2		
113330	-.4	0		1.8		
113700	-.7	0		1.5		
115830	-.4	0		1.8		
120130	0	0		2.2		
131900	-.7	0		1.5		
145500	-.7	0		1.5		
161700	-.7	0	2.2	1.5	0001	189
162000	-.7	.1		1.6		
162330	-.7	0		1.5		
173200	-.7	.1		1.6		
173430	-.7	0		1.5		
173730	-.7	-.1		1.4		
180200	-.7	0		1.5		
205515	-.7	-.1		1.4		
210345	-.7	0		1.5		
235900	-.7	0		1.5		
000000	-.7	0	2.2	1.5	0001	190
003030	-.4	0		1.8		
004145	-.7	0		1.5		
021400	-.7	-.1		1.4		
023015	-.7	0		1.5		

TC/TI Tape Format

Sheet RA-40-2-71

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031915	-.4	0	2.2	1.8		
032000	-.3			1.9		
032600	-.7			1.5		
041945	-.4			1.8		
043115	-.7			1.5		
043330	-.4			1.8		
044015	-.7			1.5		
044615	-.4			1.8		
044700	-.7			1.5		
225600	-.4			1.8		
225815	-.7			1.5		
230245	-.4			1.8		
230330	-.4	-.1		1.7		
230700	-.4	0		1.8		
231015	-.7			1.5		
231315	-.4			1.8		
231630	-.4	.1		1.9		
232345	-.7			1.6		
233530	-.7	0		1.5		
234315	-.4			1.8		
234400	-.4	.1		1.9		
234530	0			2.3		
234900	0	0		2.2		
235000	0			2.2		
084130	0	0	2.2	2.2	0001	193
084945	-.4			1.8		
085330	-.7			1.5		
090915	-.4			1.8		
100600	-.7			1.5		
100730	-.4			1.8		
101415	-.7			1.5		
101630	-.4			1.8		
104200	-.7			1.5		
104630	-.4			1.8		
110345	-.7			1.5		
120100	-.4			1.8		
125415	-.7			1.5		
125545	-.4			1.8		
125800	-.7			1.5		
130015	-.4			1.8		
130700	-.7			1.5		
130915	-.4			1.8		
132845	-.7			1.5		
135330	-.4			1.8		
141215	-.7			1.5		

TC/TI Tape Format

Sheet RA-40-2-71

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141600	-.4	0	2.2	1.8		
141945	-.7			1.5		
142545	-.4			1.8		
143530	-.7			1.5		
143830	-.4			1.8		
145245	-.7			1.5		
145845	-.4			1.8		
151300	-.7			1.5		
164630	-.4			1.8		
164930	-.7			1.5		
170130	-.4			1.8		
170730	-.7			1.5		
170900	-.4			1.8		
171030	-.7			1.5		
172315	-.4			1.8		
173430	-.7			1.5		
180915	-.4			1.8		
181730	-.7			1.5		
182930	-.4			1.8		
183915	-.7			1.5		
210700	-.4			1.8		
211215	-.7			1.5		
212845	-.4			1.8		
214000	-.4			1.8		
121100	-.4	0	2.2	1.8	0001	200
121445	-.7			1.5		
124400	-.4			1.8		
133145	-.7			1.5		
134800	-.4			1.8		
142015	-.7			1.5		
142800	-.4			1.8		
144430	-.4			1.8		
084400	0	0	2.2	2.2	0001	201
084515	-.4			1.8		
084915	-.7			1.5		
091330	-.4			1.8		
093300	-.7			1.5		
093645	-.4			1.8		
101345	-.4	-1		1.7		
110345	-.7	0		1.4		
114945	-.7	0		1.5		
121630	-.4			1.8		
122230	-.3			1.9		
122400	-.4			1.8		
122540	-.7			1.5		

TC/TI Tape Format

Sheet RA-40-2-71

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123435	-.4			1.8		
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124245	-.3			1.9		
124500	-.4			1.8		
131715	-.3			1.9		
131845	-.4			1.8		
132800	-.7			1.5		
133900	-.7			1.5		
134230	-.3			1.9		
134445	-.7			1.5		
135530	-.4			1.8		
144710	-.7			1.5		
145230	-.4			1.8		
150315	-.7			1.5		
152515	-.5			1.7		
152730	-.7			1.5		
153500	-.4			1.8		
153530	-.7			1.5		
153715	-.5			1.7		
154600	-.7			1.5		
161520	-.7	.2		1.7		
161600	-.7	0		1.5		
162115	-.4	1		1.8		
163500	-.4	-.1		1.7		
170915	-.7	1		1.4		
171115	-.7	0		1.5		
174945	-.4			1.8		
175030	0			2.2		
175500	-.4			1.8		
175715	-.7			1.5		
180000	-.4			1.8		
180100	-.7			1.5		
180445	-.5			1.7		
181215	.1			2.3		
183400	0			2.2		
184515	.1			2.3		
184945	0			2.2		
194045	.1			2.3		
200700	0			2.2		
202415	.1			2.3		
202715	0			2.2		

TC/TI Tape Format

Sheet RA-40-2-71

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214120	0			2.2		
215700	.1			2.3		
215830	0			2.2		
220515	.1			2.3		
221030	0			2.2		
221715	.1			2.3		
222230	0			2.2		
223600	.1			2.3		
224330	0			2.2		
224800	.1			2.3		
225700	0			2.2		
230000	.1			2.3		
230815	0			2.2		
232730	.1			2.3		
235800	.1			2.3		
000000	.1	0	2.2	2.3	0001	202
015200	0			2.2		
015630	.1			2.3		
050845	0			2.2		
051230	.1			2.3		
051700	0			2.2		
052130	.1			2.3		
053030	0			2.2		
053115	.1			2.3		
062130	0			2.2		
063200	.1			2.3		
073330	-.5			1.7		
073845	.1			2.3		
085900	0			2.2		
093730	.1			2.3		
100300	.1	-.1		2.2		
114050	0			2.1		
114845	0	0		2.2		
122200	.1			2.3		
141830	0			2.2		
151000	.1			2.3		
170000	0			2.2		
170430	-.3			1.9		
171245	0			2.2		
171630	-.3			1.9		
172015	0			2.2		

TC/TI Tape Format

Sheet RA-40-2-71

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203900	.1			2.3		
220000	0			2.2		
230530	.1			2.3		
235800	.1			2.3		
000000	.1	0	2.2	2.3	0001	203
005630	0	0		2.2		
010030	0	-1		2.1		
010500	.1			2.2		
015030	0			2.1		
021230	.1			2.2		
021700	0			2.1		
022000	.1			2.2		
042300	0			2.1		
042900	.1			2.2		
051745	0			2.1		
052430	.1			2.2		
054600	.1	0		2.3		
060815	0			2.2		
063900	.1			2.3		
065445	0			2.2		
074700	.1			2.3		
080845	0			2.2		
081615	.1			2.3		
082045	0			2.2		
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092215	0			2.2		
095630	.1			2.3		
100015	0			2.2		
100315	.1			2.3		
100530	0			2.2		
101430	.1			2.3		
113100	.1	-1		2.2		
124730	0			2.1		
134100	.1			2.2		
135045	0			2.1		
145720	0	0		2.2		
195150	0	0		2.2		
100415	0	0	2.2	2.2	0001	204
103845	.1	0		2.3		

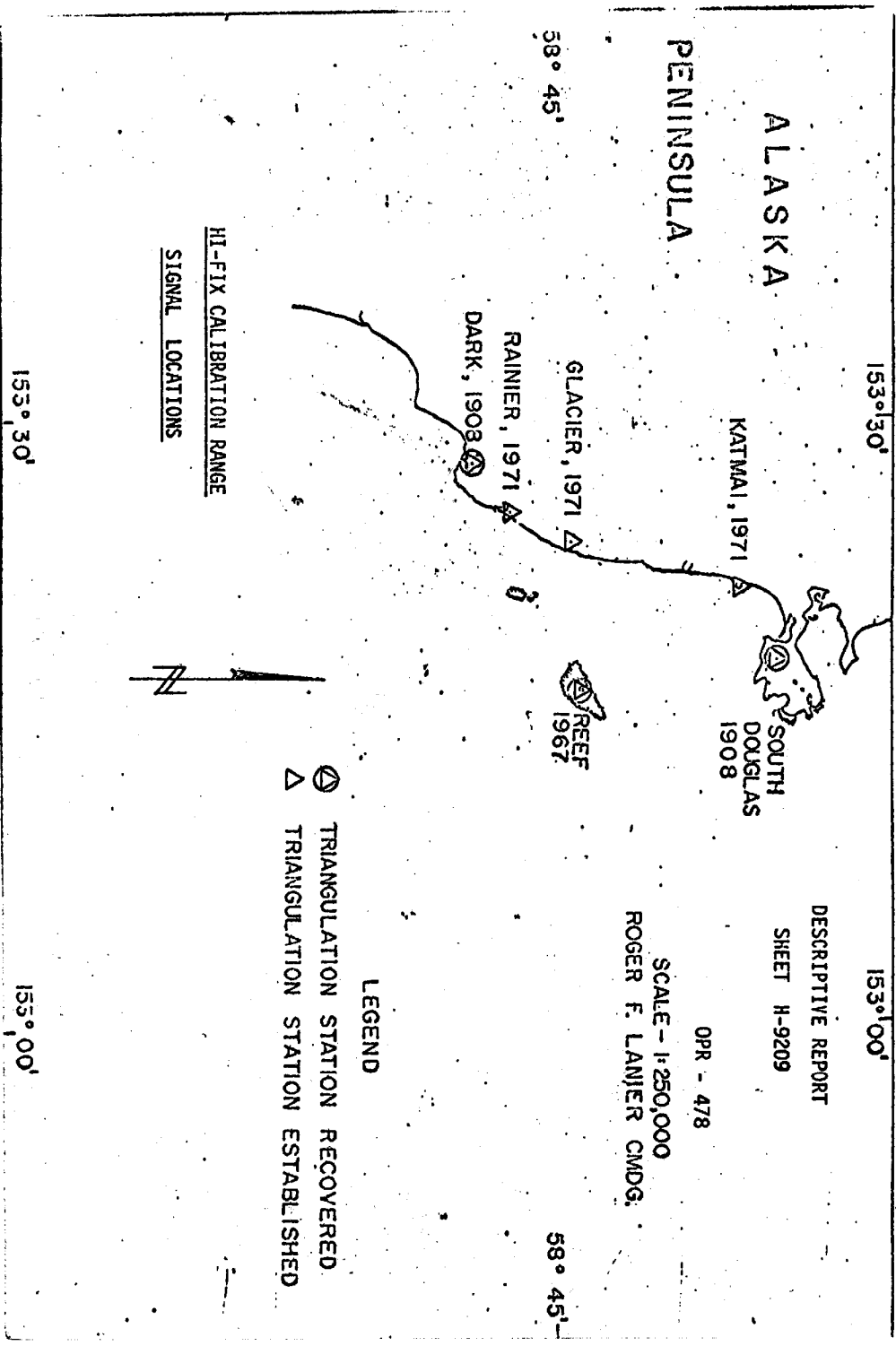
ABSTRACT OF CORRECTIONS TO
DISTANCE MEASUREMENTS

SHEET SHIP "RAINIER"

```
OPR.....478
SHEET RA.....40-2-71
TYPE OF DATA....Raw
Flexowriter.....X
COMMENTS:
Corrector tape for
"Rainier"; smooth logged
```

CORRECTOR TAPE ABSTRACT

[illegible]



153° 30'

153° 00'

ALASKA

PENINSULA

KATMAI, 1971

SOUTH
DOUGLAS
1908

GLACIER, 1971

REEF
1967

RAINIER, 1971

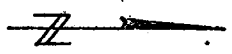
DARK, 1908

58° 45'

58° 45'

- LEGEND
- ⊙ TRIANGULATION STATION RECOVERED
 - △ TRIANGULATION STATION ESTABLISHED

HI-FIX CALIBRATION RANGE
SIGNAL LOCATIONS



153° 30'

153° 00'

DESCRIPTIVE REPORT

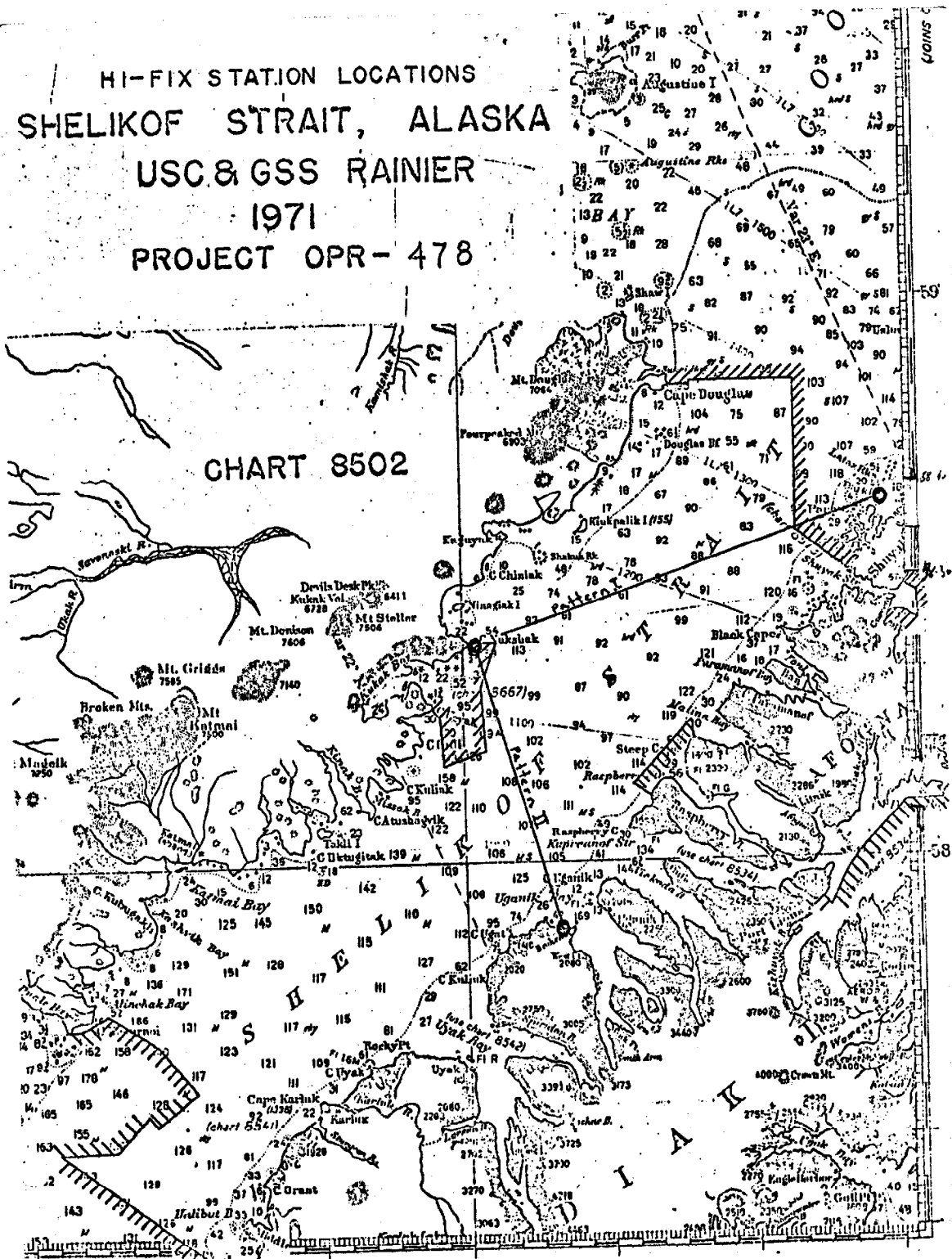
SHEET H-9209

OPR - 478

SCALE - 1:250,000

ROGER F. LANIER CMDG.

HI-FIX STATION LOCATIONS
SHELIKOF STRAIT, ALASKA
USC & GSS RAINIER
1971
PROJECT OPR-478



ALPHABETICAL LIST OF STATIONS

H-9209 (RA-40-2-71)

Sig. No.

104	DARK, 1908	✓
102	GLACIER, 1971	✓
106	KATMAI, 1971	✓
103	RAINIER, 1971	✓
101	REEF, 1967	✓
105	SOUTH DOUGLAS, 1908	✓

POSITION ABSTRACT

<u>J.D.</u>	<u>Pos. Numbers</u>
167	1-162
168	163-379
173	380-428
175	429-471
176	472-523
178	524-610
189	611-772
190	773-938
193	939-1198
200	1199-1249
201	1250-1526
202	1527-2031
203	2032-2296
204	2297-2332

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

VESSEL		PROJ. NO.	YEAR	SHEET		NO.	CHECKED BY	DATE CHECKED			
RAMBLER		0172-478	71	PA-40-2-71			Reams, D. H.	July 27, 1971			
SERIAL NO.	DATE	SAMPLE POSITION		DEPTH of Sample Fm	WEIGHT of Sample Fm	AP. PROZ. TION	LENGTH of CORE	COLOR of SED. MENT	FIELD DESCRIPTION	REMARKS	OBS. INIT.
		LATITUDE	LONGITUDE								
2240	32-38.14 109°45.5	58°50.4	153°10.0	94.0				gn M, fine S	gn M, fine S	Shells & fragments of shells in all samples	
2247	119°00 42.8	58°49.7	153°03.0	86.0				gn M, fine S	gn M, fine S		
2254	1144 15	58°51.5	152°57.4	86.0				gn M, fine S	gn M, fine S		
2259	12052	58°57.9	152°52.4	88.0				gn M, fine S	gn M, fine S		
2268	123730	58°47.0	152°50.9	88.5				gn M, fine S	gn M, fine S		
2273	1256 50	58°47.3	152°50.7	81.0				gn M, fine S, P	gn M, fine S, P		
2278	131555	58°47.4	153°02.2	79.5				gn M, fine S	gn M, fine S		
2279	134100	58°46.9	153°06.6	102.0				gn M, fine S	gn M, fine S		
2285	1450 20	58°44.4	153°12.3	86.0				gn M, fine S	gn M, fine S		
2286	152740	58°44.4	153°02.0	94.0				gn M, fine S, P	gn M, fine S, P		
2287	155000	58°43.4	152°56.2	80.0				gn M, fine S, P	gn M, fine S, P		
2288	161400	58°43.7	152°55.2	85.0				gn M, fine S, P	gn M, fine S, P		
2289	163700	58°39.3	152°50.6	89.0				gn M, fine S, P	gn M, fine S, P		
2290	170400	58°39.2	152°59.2	83.0				gn M, fine S, P	gn M, fine S, P		
2291	172800	58°39.2	153°07.0	90.5				gn M, fine S, P	gn M, fine S, P		
2292	1750	58°39.1	153°17.2	70.0				gn M, fine S	gn M, fine S		
2293	182830	58°33.4	153°17.2	92.0				gn, fine S.	Hard bottom		

Use more than one line per sample if necessary.

USCGM-OC 3701b-P06

APPROVAL SHEET

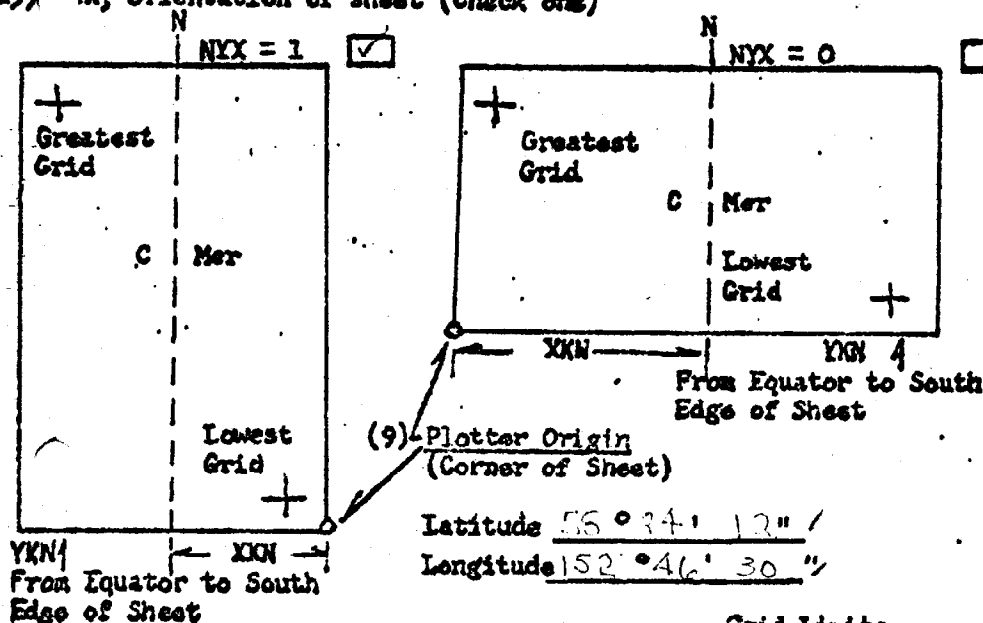
H-9209 (RA-40-2-71)

This survey was performed under my direction using standard electronic surveying procedures. Records were inspected daily. This report and the accompanying data are approved.

Roger F. Lanier

Roger F. Lanier
CAPT., NOAA

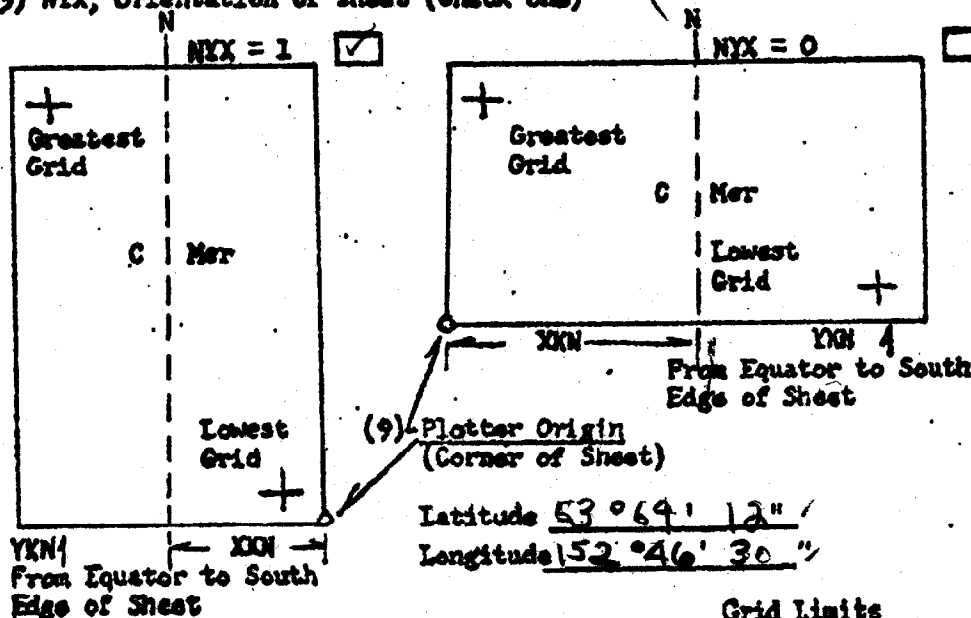
- (1) Project No. OPR-478 (4) Requested by _____
- (2) H No. H-9209 (5) Ship or Office RAINIER
- (3) Field No. RA-40-2-71 (A) (6) Date Required ASAP
- (7) Visual ☐ Ft.(0) or Fathoms (1) ☐ (8) Electronic ☒ (fill out form #3)
- (10) XKN (SP 5) Distance from CMER to East Edge (NYX = 1)
or West Edge (NYX = 0). (Origin) 18,027.51 Meters
- (11) YKN (SP 241) Distance from Equator to South Edge
of Sheet. (Origin) 6,475,996.446 Meters
- (12) Central Meridian 153° 05' 00"
- (13) Survey Scale 1:40,000
- (14) Size of Sheet (Check one) 36x60 ☐ 42x60 ☐ 36x54 ☒
- (15) X, Orientation of sheet (Check one)



- Grid Limits**
- (16) Greatest Latitude 58° 52' 00" (Projection Line
Interval Page 4
Hydro Manual)
- (17) Lowest Latitude 58° 26' 00"
- (18) Difference 26' 00" (19) 26' 00" (20) 13 / YKN
- (21) Greatest Longitude 153° 02' 00"
- (22) Lowest Longitude 152° 48' 00" (24) 152° 48' 00"
- (23) Difference 34' 00" (25) 17 / XKN

FORM # 2
PARAMETERS FOR DIGITAL COMPUTING
POLAR MIC PROJECTION

- (1) Project No. OPP-478
9209 21011
(2) H No. 21011
(3) Field No. 21011/A
(4) Requested by _____
(5) Ship or Office RAINER
(6) Data Required PSAP
(7) Visual ☐ Ft. (0) or Fathoms (1) ☐ (8) Electronic ☒ (fill out form #3)
(10) XKN (SP 5) Distance from CMER to East Edge (NYX = 1) or West Edge (NYX = 0). (Origin) 18,027.51 Meters
(11) YKN (SP 241) Distance from Equator to South Edge of Sheet. (Origin) 6,475,991.44 Meters
(12) Central Meridian 155° 05' 68"
(13) Survey Scale 2:40,000
(14) Size of Sheet (Check one) 36x60 ☒ 42x60 ☐
(15) NYX, Orientation of sheet (Check one)



⊙'s on BACK

- Grid Limits
- (16) Greatest Latitude 58° 52' 00" (Projection Line Interval Page 4)
(17) Lowest Latitude 58° 20' 00" (Hydro Manual)
(18) Difference 26' 00"
(19) _____
(20) 13' YEN
(21) Greatest Longitude 153° 32' 00"
(22) Lowest Longitude 152° 48' 00" (24) _____
(23) Difference 34' 00" (25) _____ XEN

Hyperbolic
COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE - RANGE)

- ✓ (1) Project No. 473 (2) H. No. 9209 (3) Field No. RA-40-2-71
- ✓ (4) Type of Control: SHORAN, RAYDIST, HI-FIX, RADAR
 Frequency (for conversion of RAYDIST or HI-FIX lanes to meters) 1799.6 KHz
- ✓ (5) ^{SLAVE} ~~RANGE ONE (R1)~~ Latitude 59° 33' 34.32" N
 Station Name DARK 2, 1971 Longitude 152° 32' 32.49" W
- ✓ (6) ^{SLAVE} ~~RANGE TWO (R2)~~ Latitude 57° 52' 56.93" N
 Station Name CHAM, 1971 Longitude 153° 39' 46.73" W
- (7) ~~Asimuth from R1 to R2~~ ϕ 58° 23' 29.514" N
- ✓ (8) ^{MASTER} ~~Baseline length in Meters RMG~~ NIUKSHAK λ 153° 57' 40.528" W M.
- (9) Location of survey with respect to Electronic Baseline: CHECK ONE
 (To determine: imagine an observer standing at R1 and looking directly at R2 --- if the survey area is to the observer's LEFT then A is negative; if the survey area is to the observer's RIGHT then A is positive.)
 -A (minus) +A (plus)
- (10) if SHORAN corrections are applied by the equation, $K(X) + C = D$, where X is SHORAN distance and D is true distance, enter the Constant Coefficients of the equations here:
 K(R1) , C(R1) , K(R2) , C(R2)
- (11) Number of Velocity Tables to be used:
 None, One, More than one.
- (12) This form is submitted only as an aid in preparing a boat sheet projection.
 This form applies to all data on this survey.
 This form applies to part of the data on this survey -
 Time and Date limitations: From To
 Position Number Limitations: From To
 This is Form #3 Sheet # of Sheets for this survey.
- (13) Other Remarks:

9209

-HYDRO B PARAMETER CARD

H-Nº 2181
Field Nº 018 178
Date 5/7/71

PARAMETER CARD 1B

		DEG	MIN	SECONDS											
MASTER K1	NUKSHAK RM 6	58	23	29	5	1	2	3	4	5	6	7	8	9	10
HYDRO NAME															
	LONG	153	57	40	5	5	4	2	6	0	5	3	0	6	
SLAVE K2 1	DARK 2, 1971	58	38	34	2	2	2	3	4	2	2	3	4	0	6
HYDRO NAME															
	LONG	152	32	32	5	4	9	1	5	2	0	6	0	6	
SLAVE K2 2	GAN, 1971	59	52	56	2	2	8	3	7	6	1	9	0	6	
HYDRO NAME															
	LONG	153	39	46	5	5	3	1	8	6	7	4	0	6	
FREQUENCY															
IDENTIFICATION NUMBER															
YEAR OF SURVEY															

M-S1: 87,308.448 m. AZ: 250° 41' 38.131"

M-S2: 59,380.978 m. AZ: 342° 29' 41.300"

~~HYPO I AND II VARYING CAMDS~~

2012

2012

53-17

Lowest Int. Intersection	5	8	6	60	✓	YST	1	3	3	4	3	4	1	8	7	13
Lowest Int. Intersection	15	2	48	00	✓	XST	2	1	3	3	6	0	0	0	0	6
Difference between Grid			02		✓	DXY	5	5	0	0	0	0	0	0	7	6
Interval (Long)						XSN	21	22	23	24	25	26	27	28	29	30
Interval (Int)						YSN	21	22	23	24	25	26	27	28	29	30

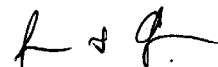
Computed
Punched
Checked
Date

2

APPROVAL SHEET

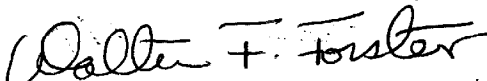
The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report)

Examined and approved,



James S. Green
Supervisory Cartographic Technician

Approved and forwarded,



Walter F. Forster, LCDR, NOAA
Chief, Processing Division
Pacific Marine Center

TIDE NOTE

H-9209 (RA-40-2-71)

It is recommended that the tide station established at Cape Douglas, Alaska Peninsula, in Latitude $58^{\circ} 50.4'N$ and Longitude $153^{\circ} 18.8'W$ be used to control the soundings on this survey. This gage operated on time meridian $135^{\circ}W$. Hourly heights are being furnished to the Pacific Marine Center Processing Division and the Tides Section in Rockville. See the Tide Report, NOAA Ship RAINIER, OPR-478, 1971, for more information on this gage.

Predicted tides for the boat sheet were applied directly from the Red Fox Bay, Shuyak Strait (No. 1815) tide station.

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): Cape Douglas, S.W., Alaska

Period: 6/15 - 7/26, 1971

HYDROGRAPHIC SHEET: H-9209, H9210

OPR: 478

Locality: Shelikof Strait, Alaska

Plane of reference (mean lower low water): 9.2
which is 2.1 feet on tide staff.

Height of Mean High Water above Plane of Reference is 12.9 ft.

Remarks: Hourly heights have been revised in red & verified as follows:

<u>Date</u>	<u>Hours</u>
June 19	1900
21	0100
22	1000-1400 ✓
23	1000-1800 ✓
24	0700-1200 ✓
25	1300-1800 ✓
26	0800-1000 ✓
July 20	0600, 1100, 2300 ✓
21	0500, 0600, 1100, 1300 ✓
	1400, 1900, 2300 ✓
22	0000, 0600, 0800 ✓
	1100, 1200, 1300 ✓
	1400, 1800, 1900 ✓
24	1200

Hourly heights which were computed from the Seldovia observation have been entered for:

July 26 1900-2100 ✓

Robert A. Cunningham

Chief, Tides Branch

GEOGRAPHIC NAMES

Survey No. H-9209

Name on Survey	A On Chart No.	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	
CAPE DOUGLAS										1
DOUGLAS REEF										2
SHELIKOF STRAIT										3
CAPE BLACK										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

APPROVED BY:

Chas. B. Hamington

STAFF GEOGRAPHER

18 APRIL 1974

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-9209

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION			AMOUNT
SMOOTH SHEET & PNO		1	BOAT SHEETS			1
DESCRIPTIVE REPORT		1	OVERLAYS			3 1
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	1					
CAHIERS	1					
VOLUMES	2					
BOXES			2			

T-SHEET PRINTS (List)

SPECIAL REPORTS (List)

Tides printout filed in cahier

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				
POSITIONS CHECKED		2331	31	
POSITIONS REVISED		71	0	
DEPTH SOUNDINGS REVISED		43	18	
DEPTH SOUNDINGS ERRONEOUSLY SPACED		----	2	
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		----	0	
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS			0	
JUNCTIONS		12	6	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		56	7	
SPECIAL ADJUSTMENTS		40	0	
ALL OTHER WORK		54	22	
TOTALS		162	35	
PRE-VERIFICATION BY		BEGINNING DATE	ENDING DATE	
VERIFICATION BY <i>Stanley H. Otsubo</i>		BEGINNING DATE	ENDING DATE	
REVIEW BY <i>Karin Malycke</i>		BEGINNING DATE	ENDING DATE	
		16 May 1973	17 Dec. 1973	
		April 8, 1975	30 April 1975	

Drop. F. B. Powers 15 hrs. 6-30-75 *Forwarded to U.S. G.P.O. 1972-769-562/439 REG.#6*

Reg. No. H-9209

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey the following shall be completed:

CARDS CORRECTED

DATE _____ TIME REQ'D _____ INITIALS _____

REMARKS:

Reg. No. H-9209

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE _____ TIME REQ'D. _____ INITIALS _____

REMARKS:

H-9209

Items for Future Presurvey Reviews

Because this is an area of minor bottom change and the present survey has adequately developed the bottom, the resurvey cycle is 50 years.

OFFICE OF MARINE SURVEYS AND MAPS
MARINE CHART DIVISION
MODIFIED HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9209

FIELD NO. RA-40-2-71

Alaska, Shelikof Strait, South of Cape Douglas

SURVEYED: June 16 - July 23, 1971

SCALE: 1:40,000

PROJECT NO.: OPR-478

SOUNDINGS: Raytheon DE-723
Depth Recorder

CONTROL: Hi-Fix (Hyper-
bolic Mode)

Chief of Party	R. F. Lanier
Surveyed by	E. M. Gelb
.....	R. K. Muller
.....	M. L. Adams
.....	D. L. Suloff
.....	N. M. Franklin
.....	W. F. Turnacliffe
.....	J. R. Faris
.....	S. J. Hollinshead
Automated Plot by	Gerber Digital Plotter (PMC)
Verified by	S. H. Otsubo
Reviewed by	K. Malycke
.....	Date: April 30, 1975
Inspected by	F. B. Powers

1. Control and Shoreline

The source of control is adequately described in paragraph F of the Descriptive Report.

There is no shoreline within the limits of this survey.

2. Hydrography

A. Depths at crossings are in adequate agreement.

B. The usual depth curves were adequately delineated.
The 60-fathom depth curve was added to more adequately define the bottom configuration.

C. The development of the bottom configuration and the investigation of least depths are considered adequate.

3. Condition of the Survey

The plotting, sounding records, and various printouts are adequate and conform to the requirements of the Hydrographic Manual supplemented by the Instruction Manual - Automated Hydrographic Surveys.

4. Junctions

Adequate junctions were effected with H-8841 (1965) on the northwest, H-9381 (1973) on the southeast, and H-9210 (1971) on the northwest. The junctions on the south with H-9201 (1971) and on the southeast with H-9305 (1972) will be discussed in the reviews of those surveys.

No contemporary surveys junction with the present survey on the north, northeast, and southwest. However, present survey depths in those areas are in general harmony with charted depths.

5. Comparison with Prior Surveys

H-2980 (1908) 1:200,000

This small scale reconnaissance survey contains nothing of value for comparison purposes and is superseded by the present survey.

6. Comparison with Charts
- | | |
|------|-----------------------------------|
| 8556 | (latest print date Nov. 20, 1971) |
| 8554 | (latest print date May 25, 1974) |
| 8533 | (latest print date Apr. 21, 1973) |

A. Hydrography

The charted hydrography originates with the previously discussed prior survey which requires no further consideration.

The present survey is adequate to supersede the charted hydrography within the common area.

B. Aids to Navigation

There are no aids to navigation located within the limits of the present survey.

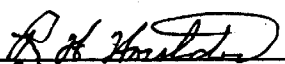
7. Compliance with Instructions

The survey adequately complies with the Project Instructions.

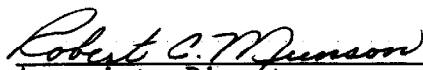
8. Additional Field Work

This is a good basic survey and no additional field work is recommended.

Examined and Approved:



Chief
Marine Chart Division



Associate Director
Office of Marine Surveys
and Maps

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. B-9209

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
8556	4/11/74	M. D. Kanis	Full Part Before After Verification Review Inspection Signed Via Drawing No. <u>EXAMINED for critical corrections</u>
8502	4/15/74	M. D. Kanis	Full Part Before After Verification Review Inspection Signed Via Drawing No. <u>EXAMINED for critical corrections - thru 8556</u>
8500	4/15/74	M. D. Kanis	Full Part Before After Verification Review Inspection Signed Via Drawing No. <u>EXAMINED for critical corrections - thru 8502</u>
8554	4/13/74	M. D. Kanis	Full Part Before After Verification Review Inspection Signed Via Drawing No. <u>EXAMINED for critical corrections - no corrections</u>
8533	3-10-75	H. J. Brunchi	Full Part Before After Verification Review Inspection Signed Via Drawing No. <u>Revised 100 fm. Depth Curve & Added Numerous Soundings NE of Agassiz Is.</u>
8556	3-20-75	M. D. Kanis	Full Part Before After Verification Review Inspection Signed Via Drawing No. <u>EXAMINED for Application - NO CORRECTIONS NECESSARY</u>
8554	14/2/75	M. D. Kanis	Full Part Before After Verification Review Inspection Signed Via Drawing No. <u>EXAMINED for critical corrections - NO CORRECTIONS</u>
8556 (16580)	2/26/76	Kennon	Full Part Before After Verification Review Inspection Signed Via Drawing No. <u>Re-examined on sdg. added at 58° 30' 152° 50' (32 fm sdg.) Deleted 28, added 16 fm sdg. at 58° 48' 152° 14'</u>
8533	2/26/76	Kennon	Full Part Before After Verification Review Inspection Signed Via Drawing No. <u>Re-examined Seven soundings added to chart vicinity of 58° 30' - 152° 50'</u>
8556	7/29/77	M. J. Fries	Full Part Before After Verification Review Inspection Signed Via Drawing No. <u>Fully App'd hydro throughout common area</u>
16640	4/11/78	KANIS	Full application after signature To Draw Aid Print #18
16648	3/9/79	D. A. Clements	Full application after signature to Draw #1
16013	8/1/79	Don E. Stumbel	Fully applied to Drawing #25 thru chart 16580 (8556)
531 (8500)	8/6/79	Don E. Stumbel	Fully applied to Drawing #16 thru chart 16013 (8502)
16608	10/29/81	J. A. Graham	Fully app'd hydro to new chart
16604	10/19/82	M. Sayer	Fully applied thru chart 16608 Draw #1