

9439

Diag. Cht. No. 8553.

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-10-3-74

Office No. H-9439

LOCALITY

State Alaska

General Locality Cook Inlet - Knik Arm

Locality Eagle Bay and Vicinity

1974

CHIEF OF PARTY

K. W. Jeffers

LIBRARY & ARCHIVES

DATE 3-5-76

9439

HYDROGRAPHIC TITLE SHEET

H-9439

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 10-3-74

State Alaska

General locality Gook Inlet - Knik Arm

Locality ~~Knik Arm, Eagle Bay and Vicinity~~

Scale 1:10,000 Date of survey June 10 - 19, 1974

Instructions dated February 8, 1974 Project No. OPR-469-RA-74

Vessel NOAA Ship RAINIER (MSS-21) ^{Launches} 2123(RA-3), 2124(RA-4), 2125(RA-5), 2126(RA-6)

Chief of party Cdr. K. William Jeffers

Surveyed by ^{RAINIER}
~~Rainier~~ personnel

Soundings taken by echo sounder, ~~hand lead, pole~~ Ross ~~5000~~ Fathometers

Graphic record scaled by ^{RAINIER}
~~Rainier~~ personnel

Graphic record checked by ^{RAINIER}
~~Rainier~~ personnel

Positions verified Harris/Kynetics

~~Plotted~~ by Karol M. Hoops Automated plot by PMC Plotter

~~verified~~ verified

Soundings ~~plotted~~ by Karol M. Hoops

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

REMARKS: Survey Time Zone = 0° Mean longitude of survey 149° 52' 00" W

Boatsheet is complete for charting purposes. No prior field work or descriptive or technical reports used to accomplish the field work.

Applied to stds 7/22/74
CH

DESCRIPTIVE REPORT
TO ACCOMPANY HYDROGRAPHIC SURVEY

H-9439

RA-10-3-74

Scale 1:10,000

NOAA SHIP RAINIER
CDR. K. WILLIAM JEFFERS
COMMANDING

A. Project

This survey was conducted in accordance with Project Instructions: OPR-RA-469-1974, dated 15³ February, 1974.

B. Area Surveyed

The precise area of this survey is the entire east-west span of Knik Arm from Lat. 61°³⁶33"N to Lat. 61°22'15"N.

The boatsheet was assigned field number RA-10-3-74, and Registry No. H-9439.

The survey began on 10 June, 1974 (JD 161) and was completed on 19 June, 1974 (JD 170).

C. Sounding Vessel

Soundings were obtained by one Uniflite launch (RA-6), one aluminum launch (RA-5), and two Bertram launches (RA-3 and RA-4).

D. Sounding Equipment and Corrections to Echo Soundings

All soundings were recorded on Ross Model 5000 fathometers. Launches RA-6, RA-5, and RA-3&4, used Ross S/N's 1040, 1041, and 1042, respectively.

During the operation of the Ross fathometer, the initial value on the fathogram was maintained near zero through continuous monitoring and periodic adjustment. The fathogram was scanned continuously in the field and compared to the digitized value to agree with the fathogram.

The blanking function was employed to eliminate spurious returns, and the fathometer was internally phased and adjusted so as to have no phase corrections. Phase checks were routinely made.

Bar checks down to 7 fm. were taken routinely and the results abstracted. Due to currents or weather, bar checks were not taken on the following days:

JD 162 RA-3
JD 163 RA-3&6
JD 170 RA-5

All applicable corrections are incorporated on a TC/TI (Transducer Correction/Table Indicator) Tape for automated processing (see appendix).

Velocity corrections were computed from bar checks and a TDC cast taken on June 18, 1974. A Nansen cast was taken although not applied; it was in good agreement.

Vertical cast comparisons were taken during the survey on launches RA-5 and RA-6. Due to currents and bottom characteristics, a bad comparison resulted (one to three foot differences). Therefore, a vertical lead-line cast versus Ross Fathometer comparison would be futile.

The sounding equipment operated well during the survey with no noteworthy errors which would have affected the accuracy of the soundings. For further information on sounding corrections refer to Corrections to Echo Soundings, OPR-RA-469-74.

E. Boatsheets

The boatsheet's Transverse Mercator Projection and soundings were plotted by RAINIER personnel using the onboard PDP/8e Complot System. The RAINIER used a PDP/8e S/N 1011 and a Houston Instrument Complot DP-3 plotter S/N 4670-4.

The Central Meridian of the survey is $118^{\circ}30'00''\text{W}$; and the southern control latitude is ^{6,278,000}~~3,615,000~~ meters north of latitude zero. Position numbers and soundings were machine plotted. Signals were hand plotted.

Main scheme sounding lines are plotted in black ink, crosslines in red.

F. Station Control

All Mini-Ranger stations and visual signals were established on existing triangulation stations, or located by intersection, resection, or open traverse. For more information, see Station List in appendix and Geodetic Control Report, OPR-RA-469-1974.

G. Position Control

This survey was controlled exclusively by Motorola Mini-Ranger (a range-range system). Mini-Ranger sites were picked to provide the strongest possible arc intersections. All hydrography was accomplished with arc intersection greater than 30° and less than 150°.

The Mini-Ranger receivers were calibrated at the beginning and end of each day and the results abstracted. The calibrations were accomplished by visual three-point sextant fixes on Mini-Ranger and visual stations. A mathematical solution for three-point sextant fixes were obtained by using program AM560s (with slope correction) version: 4/1/74, in the PDP/8e computer.

Mini-Ranger transponders remained the same throughout the survey. Serial numbers for the four codes are listed in the following table:

<u>Code</u>	<u>Serial number</u>
1	774
2	775
3	776
4	777

Mini-Ranger equipment used aboard the launches was interchanged during the survey as indicated by the following table:

<u>Date</u>	<u>Local time</u>	<u>Component</u>	<u>RA-5(s/n)</u>	<u>RA-6(s/n)</u>
5 May, 1974	0800	Range Console	711	715
		Receiver/Transmitter	718	720
17 June, 1974	1600	Range Console	715	711
		Receiver/Transmitter	720	718

H. Shoreline

All shoreline on survey H-9439 was transferred from 1973 manuscript numbers T-12003, T-12004, T-12005. The shoreline was field edited before the survey and the compilation of shoreline was found to be correct. Many detached rocks were found on the west shore of Knik Arm that were not on the manuscripts. Three-point sextant fix positions were submitted on these rocks.

Launch hydrography adequately delineated the MLLW line.

For more information, refer to Field Edit Report, OPR-RA-469-74.

I. Crosslines

Crosslines constituted 10% or 23 NM of the 215 NM of main scheme sounding lines run. Crosslines show only a fair junction with main scheme lines. In many places the difference is 4 feet. Predicted tides based on Anchorage were used in plotting the final boat sheet, which probably accounts for the discrepancies since the tide curve in the vicinity of Goose Creek (upper Knik Arm) is notably different.

The same sounding equipment was used for the crosslines as was used on the main scheme lines.

J. Junctions

Crosslines
Junctions with prior surveys are as follows:

<u>Registry No.</u>	<u>Scale</u>	<u>Date</u>
H-3200	1:40,000	1910
H-3674	1:40,000	1914

Discrepancies on the order of 15 to 20 feet are found in many areas. Until the smooth sheet is plotted using observed tide correctors, an accurate evaluation cannot be made.

Junctions with contemporary surveys are as follows:

<u>Registry No.</u>	<u>Scale</u>	<u>Date</u>
H-9440	1:10,000	1974
H-9443	1:10,000	1974

Soundings show excellent junction.

K. Comparison with Prior Survey

<u>Pre-survey review item</u>	<u>Prior depth</u>	<u>1974 survey depth</u>
1. 61°19'03"N, 149°52'00"W	24 ft.	⁴⁵ 46 ft.
2. 61°18'57"N, 149°51'05"W	29 ft.	38 ft.
3. 61°19'13"N, 149°50'21"W	12 ft.	21 ft.
4. 61°19'25"N, 149°50'11"W	12 ft.	1922 ft.
5. 61°19'18" ²⁷ N, 149°52'30" ²⁷ W	15 ft.	22 10 ²³ ft. - 13ft 100m to west
6. 61°19'27"N, 149°52'24" ²⁸ W	13 ft.	8 14 ft. - 13ft nearby verifies prior depth.
7. 61°20'07"N, 149°47'33"W	24 ft.-	17 10 14 ft. - shoaling here
8. 61°20'14"N, 149°51'03"W	5 ft.	1318 ft. - shoal depths 9-10ft to west
9. 61°21'25"N, 149°52'09"W	14 ft.	34 ft. - New shoal 250 m. to west
10. 61°21'03"N, 149°44'26" ²⁶ W	7 ft	-6 ft shoaling

Pre-survey review items 1,2,3,4 and 5 are 10-20 ft. shoaler than the 1974 survey depths. Because of the sand and muddy nature of the bottom, subsidence could be a major factor to be considered. Items 6 & 7 agree within ^{Six Feet} ~~one foot~~ of the 1974 survey. The closest sounding taken near item number 8 is 120 meters, the shoalest being 13 ft. Approximately 400 meters to the west of item no 9 is a 10 foot shoal. The item also lies in a canyon or "hole" area which could have subsided.

It should also be noted that the observed tide correctors have not been applied to the soundings of this survey.

L. Comparison with the Chart

H-9439 shows excellent comparison with C&GS Chart 8557, 14th ed., December 29, 1973, as far as general bottom characteristics. The depths differ in general from 5 to 8 feet deeper than the chart.

On the west side of Knik Arm from Latitude 61°18'45"N to 61°20'00"N, many detached rocks were found extending farther offshore than are presently charted.

M. Adequacy of Survey

H-9439 is a complete survey and is recommended to super^sede all prior surveys. All fathograms were scanned and checked for peaks and deeps in the field. All fathogram annotations are clearly marked.

N. Aids to Navigation

Site Bay Radome is the only ^{landmark} aid to navigation in* this survey area, located at Latitude 61°23'48"N and Longitude 149°51'10.551"W. There are no other aids recommended in this area. For more information refer to Aids to Navigation and Landmarks for Charting, OPR-RA-469-74. * NE of survey area

O. Statistics

<u>Launch</u>	<u>Hydro miles</u>	<u>Positions</u>	<u>Bottom samples</u>
RA-3	85.8	440	0
RA-4	21.0	120	0
RA-5	80.7	443	0
RA-6	52.0	238	0
Ship	0.0	1	1

Q. Recommendations

Good anchorage area was observed by the RAINIER during survey operations in the vicinity of Latitude 61°18'30"N and Longitude 149°52'00"W.

R. References to Reports

1. Corrections to Echo Soundings, OPR-RA-469-74.
2. Field Edit Report, OPR-RA-469-74.
3. Geodetic Control Report, OPR-RA-469-74.
4. Electronic Control REport, OPR-RA-469-74.
5. Aids to Navigation and Landmarks for Charting, OPR-RA-469-74.
6. Tidal Bore Report, OPR-RA-469-74.

S. Data Processing Procedures

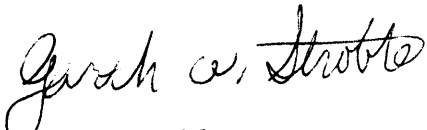
All standard procedures were used to obtain soundings. Launch RA-6 is equipped with a NOS Hydrolog system which when used in conjunction with program AM170, version 11/10/72 (without slope correction), allowed for all sounding data to be recorded in master tape format.

RA-5 used AM100, version: 11/10/72 which enabled the launch to plot on-line. Raw data was corrected to produce electronic master tapes. Each electronic master tape includes TRA and Mini-Ranger calibration correctors. Corrector tapes were prepared only to update Mini-Ranger calibration corrector. Revised master and master reduced to sea level tapes were made from electronic master tapes. Ignore correctors in the corrector word on master tapes. Use correctors as supplied on corrector tapes.

Other computer programs used during the survey include:

<u>Program</u>	<u>Version</u>	<u>Description</u>
AM200	23 March 1973	Off line plot
AM201	10 November 1972	Grid & Lattice Plot
AM300	24 May 1973	Utility Computations
AM301	8 December 1972	Vista
AM500	10 November 1972	Predicted tide generator
AM560s	10 April 1972	H/R calibration w/slope correction
AM602	10 March 1972	Elinore
PM340	1 December 1972	Master tape reduced to sea level
RK408	10 November 1972	Geodetic Inverse

Respectfully Submitted,



Garth W. Stroble
LTJG, NOAA

TIDE NOTE

RA-10-3-74 (H-9439)

Tide reducers for boatsheet soundings were generated by Hydro Plot Program AM500, using the daily values of Anchorage, Alaska reference station listed in "Tide Tables, High and Low Water Predictions, 1974, West Coast of North and South America", with the following correctors applied:

<u>BOATSHEET</u>	<u>CORRECTIONS TO ANCHORAGE</u>			
	<u>Time*</u>		<u>Height*</u>	
	H	L	H	L
RA-10-3A-74	+20	+25	0.00	0.00
RA-10-3B-74	+15	+20	0.00	0.00

* Time is given in minutes; height is given in feet.

The correctors were derived from an interpolation of the time and height differences between Anchorage and Eklutna for the area of the survey.

Verified Form 362, value of MLLW, Form 712, time and height relationships between gages, and recommended tidal zoning for the smooth sheet will be furnished by Tide Branch (C331) Rockville. The tide gages within the survey and/or bracketing it are:

<u>STATION</u>	<u>LOCATION</u>	<u>DATES OF INSTALLATION/REMOVAL</u>
1. Anchorage	61°14.3'N, 149°53.3'W	N/A
2. Goose Creek	61°23.5'N, 149°51.3'W	24 May/20 June

It should be noted that Anchorage reference station is the control station for all hydrography accomplished by the RAINIER on Project OPR-469 during 1974.

TC/TI CORRECTOR TAPE LISTING

RA-10-3-74 (H-9439)

FATHOMETER: ROSS 1042

VESSEL: 2123(RA-3)

175633 0 0018 0002 162 000000 000000
181243 0 0018 0002 163 000000 000000
000009 0 0018 0002 164 000000 000000
000009 0 0018 0002 165 000000 000000
202410 0 0018 0002 169 000000 000000
000011 0 0018 0002 170 000000 000000
001800 0 0018

FATHOMETER: ROSS 1042

VESSEL: 2124(RA-4)

200318 0 0013 0002 161 000000 000000
000018 0 0013 0002 162 000000 000000
010200 0 0013

FATHOMETER: ROSS 1041

VESSEL: 2125(RA-5)

232101 0 0016 0002 163 000000 000000
000137 0 0016 0002 164 000000 000000
004714 0 0016 0002 165 000000 000000
002737 0 0016 0002 169 000000 000000
003126 0 0016 0002 170 000000 000000
201000 0 0016

FATHOMETER: ROSS 1040

VESSEL: 2126(RA-6)

183654 0 0022 0002 163 000000 000000
192533 0 0022 0002 164 000000 000000
205700 0 0022

VELOCITY CORRECTION TAPE LISTING

RA-5-2-74(H-9438)

RA-10-3-74(H-9439)

RA-10-4-74(H-9440)

RA-10-5-74(H-9441)

RA-20-1-74(H-9443)

VESSEL: 2123(RA-3); 2124(RA-4); 2125(RA-5); 2126(RA-6)

000140 0 0000 0002 000 000000 000000
000400 0 0002
000650 0 0004
000900 0 0006
001150 0 0008
001290 0 0010

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2123 (RA-3) SHEET : RA-10-3A&3B-74

TIME	DAY	PATTERN 1	PATTERN 2
175633	162	-00017	-00006 ✓
181243	163	+00002	-00003 ✓
000009	164	+00002	-00003 ✓
180409	164	+00001	+00001
214729		-00003	-00001 ✓
000009	165	-00003	-00001
202410	169	-00006	+00011 ✓
000011	170	-00006	+00011 ✓

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2125 (RA-5)

SHEET : RA-10-3A-74

TIME	DAY	PATTERN 1	PATTERN 2
184140	170	+00001	+00024

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2125 (RA-5)

SHEET : RA-10-3B-74

TIME	DAY	PATTERN 1	PATTERN 2
232101	163	+00006	-00013 ✓
000137	164	+00006	-00013 ✓
220144	164	+00010	+00004 ✓
004714	165	+00010	+00004 ✓
194847	169	+00007	-00002 ✓
175732	169	-00004	+00014 ✓
003126	170	-00004	+00014 ✓
022737	169	+00001	+00014 ✓
195802	170	+00001	+00024 ✓

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2126 (RA-6)

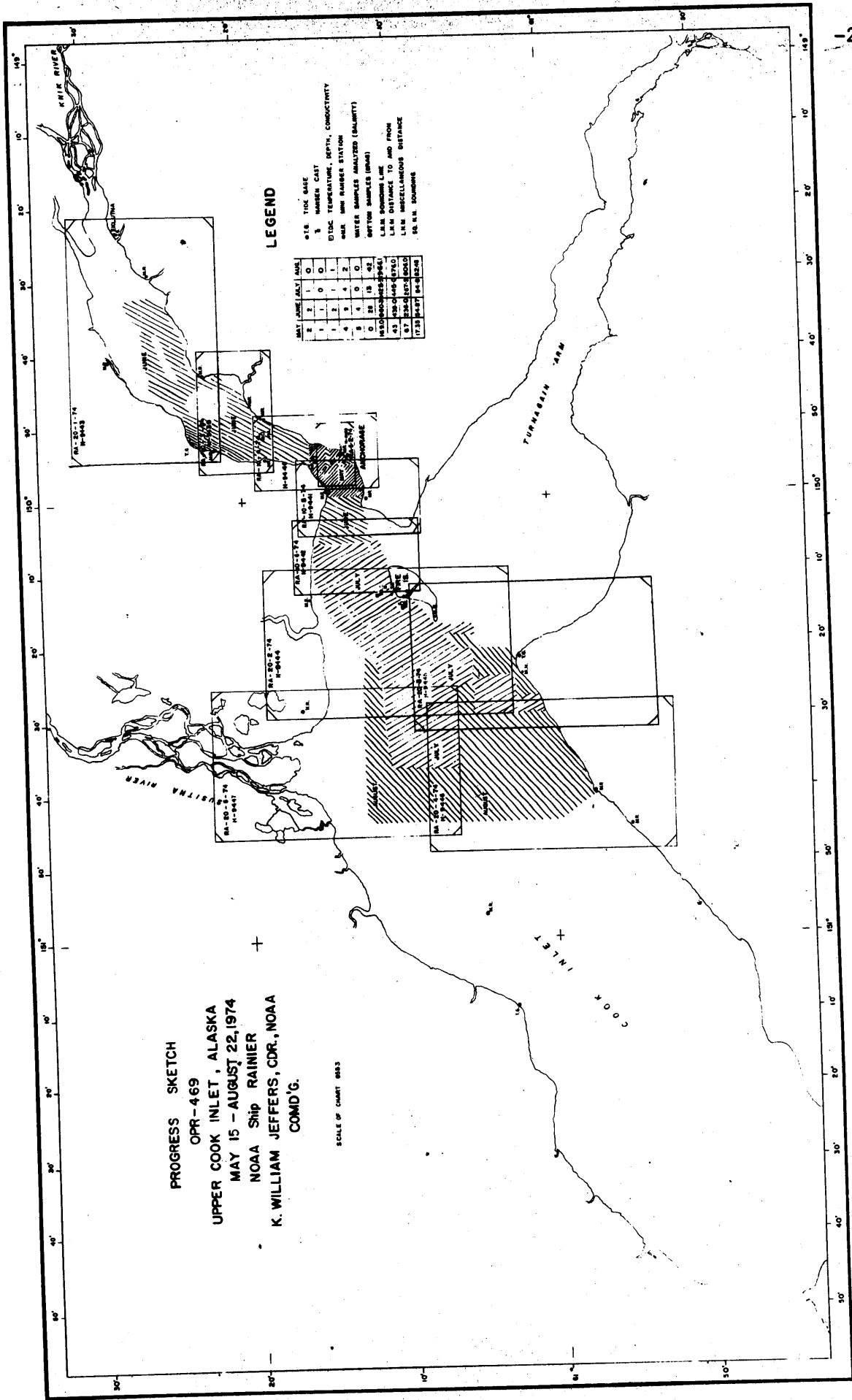
SHEET : RA-10-3B-74

TIME	DAY	PATTERN 1	PATTERN 2
183654	163	-00003	-00006 ✓
192533	164	+00005	+00000 ✓

STATION LIST
H-9439
RA-10-3-74

STA	O	LATITUDE	LONGITUDE	CRT	ELEV	F.	KHZ	TYPE/NAME	SOURCE
105	5	61 18 23836	149 54	32781	243 0053	149835	FIFE 1974 INTERSECTION	REF.	
106	7	61 18 30584	149 49	02638	243 0021	149835	DAVE 1974 RESECTION	REF.	
107	2	61 19 24380	149 47	05491	243 0044	149835	SKI 1974 OPEN TAPED TRAVERSE	REF.	
108	6	61 21 38090	149 53	20460	139 0060	149835	ARM USE 1941,1964		
109	7	61 22 13524	149 42	59924	243 0040	149835	LAP 1974 RESECTION	REF.	
110	5	61 28 22216	149 40	45257	139 0024	149835	ROSE 1914,1964		
201	7	61 09 34034	150 01	54683	139 ::::	000000	SITE POINT RADOME 1964		
203	7	61 12 25181	149 55	20367	139 ::::	000000	ANCHORAGE RADIO STATION KENI TOWER 1954,1964		
212	7	61 17 01974	149 49	22604	139 ::::	000000	GLOBE BIE USE 1961,1964		
213	5	61 19 05814	149 54	57722	139 ::::	000000	MULE 1973		
214	7	61 19 23850	149 47	06044	139 ::::	000000	BIRCH USE 1941,1964		
215	1	61 21 38149	149 53	20857	139 ::::	000000	ARM USE RM3 1964		
216	2	61 22 19513	149 43	06059	139 ::::	000000	PAL 2 1973		
217	7	61 23 48762	149 51	10551	139 ::::	000000	SITE BAY RADOME 1964		

* REFER TO "GEODETIC CONTROL REPORT", OPR-469-RA-74
FOR COMPUTATIONS
50 METERS PRIOR TO 13 JULY 1974
::: VISUAL SIGNAL--NO ELEVATION OBSERVED IN THE FIELD
G.P.'S APPEAR AS ON PARAMETER TAPES



LEGEND

- TIDE GAGE
- NUMBER CAST
- DTIC TEMPERATURE, DEPTH, CONDUCTIVITY
- WSR MM RAIN GAGE STATION
- WATER SAMPLES ANALYZED (SALINITY)
- WATER SAMPLES (SWAT)
- LUNA SOUNDING LINE
- LUNA DISTANCE TO AND FROM
- LUNA MISCELLANEOUS DISTANCE
- S.S. N. SOUNDING

STATION NAME	DATE	TIME	NO. OF CASTS
1	5-15-74	0800	1
2	5-15-74	1200	1
3	5-15-74	1600	1
4	5-15-74	2000	1
5	5-15-74	0000	1
6	5-15-74	0400	1
7	5-15-74	0800	1
8	5-15-74	1200	1
9	5-15-74	1600	1
10	5-15-74	2000	1
11	5-15-74	0000	1
12	5-15-74	0400	1
13	5-15-74	0800	1
14	5-15-74	1200	1
15	5-15-74	1600	1
16	5-15-74	2000	1
17	5-15-74	0000	1
18	5-15-74	0400	1
19	5-15-74	0800	1
20	5-15-74	1200	1
21	5-15-74	1600	1
22	5-15-74	2000	1
23	5-15-74	0000	1
24	5-15-74	0400	1
25	5-15-74	0800	1
26	5-15-74	1200	1
27	5-15-74	1600	1
28	5-15-74	2000	1
29	5-15-74	0000	1
30	5-15-74	0400	1
31	5-15-74	0800	1
32	5-15-74	1200	1
33	5-15-74	1600	1
34	5-15-74	2000	1
35	5-15-74	0000	1
36	5-15-74	0400	1
37	5-15-74	0800	1
38	5-15-74	1200	1
39	5-15-74	1600	1
40	5-15-74	2000	1
41	5-15-74	0000	1
42	5-15-74	0400	1
43	5-15-74	0800	1
44	5-15-74	1200	1
45	5-15-74	1600	1
46	5-15-74	2000	1
47	5-15-74	0000	1
48	5-15-74	0400	1
49	5-15-74	0800	1
50	5-15-74	1200	1
51	5-15-74	1600	1
52	5-15-74	2000	1
53	5-15-74	0000	1
54	5-15-74	0400	1
55	5-15-74	0800	1
56	5-15-74	1200	1
57	5-15-74	1600	1
58	5-15-74	2000	1
59	5-15-74	0000	1
60	5-15-74	0400	1
61	5-15-74	0800	1
62	5-15-74	1200	1
63	5-15-74	1600	1
64	5-15-74	2000	1
65	5-15-74	0000	1
66	5-15-74	0400	1
67	5-15-74	0800	1
68	5-15-74	1200	1
69	5-15-74	1600	1
70	5-15-74	2000	1
71	5-15-74	0000	1
72	5-15-74	0400	1
73	5-15-74	0800	1
74	5-15-74	1200	1
75	5-15-74	1600	1
76	5-15-74	2000	1
77	5-15-74	0000	1
78	5-15-74	0400	1
79	5-15-74	0800	1
80	5-15-74	1200	1
81	5-15-74	1600	1
82	5-15-74	2000	1
83	5-15-74	0000	1
84	5-15-74	0400	1
85	5-15-74	0800	1
86	5-15-74	1200	1
87	5-15-74	1600	1
88	5-15-74	2000	1
89	5-15-74	0000	1
90	5-15-74	0400	1
91	5-15-74	0800	1
92	5-15-74	1200	1
93	5-15-74	1600	1
94	5-15-74	2000	1
95	5-15-74	0000	1
96	5-15-74	0400	1
97	5-15-74	0800	1
98	5-15-74	1200	1
99	5-15-74	1600	1
100	5-15-74	2000	1

PROGRESS SKETCH
 OPR-469
 UPPER COOK INLET, ALASKA
 MAY 15 - AUGUST 22, 1974
 NOAA Ship RAINIER
 K. WILLIAM JEFFERS, CDR., NOAA
 COMD'G.

SCALE OF CHART 6833

OPR-469-RA-74
 MINIRANGER STATIONS AND VISUAL SIGNAL LIST
 =====

5 SEP 74
 =====

VESSELS MINIRANGER ANTENNA ELEVATION
 =====

EFFECTIVE	SHIP	RA-3	RA-4	RA-5	RA-6
08 MAY 74	25 M	2 M	2 M	2 M	2 M
25 JUN 74	25 M	2 M	2 M	3 M	2 M
16 JUL 74	25 M	2 M	4 M	6 M	6 M
22 JUL 74	25 M	2 M	4 M	5 M	5 M
15 AUG 74	25 M	4 M	4 M	5 M	5 M

=====

MINIRANGER STATIONS	CODE	ELEV	LATITUDE	LONGITUDE
101 ZOF 1974	4-2-4-3	48 M	61 12 15.360	150 00 49.560
102 ANCHOR 1964 (ECC)	2-1	29 M	61 13 11.576	149 54 05.541
103 MAC RM3 1947 RM1 1960	3	28 M	61 14 19.454	149 59 05.884
104 KEN 1974	3	28 M	61 14 20.461	149 58 56.770
105 FIFE 1974	1-4	53 M	61 18 23.836	149 54 32.781
106 DAVE 1974	2	21 M	61 18 30.584	149 49 02.638
107 SKI 1974	1	44 M	61 19 24.380	149 47 05.491
108 ARM USE 1941 1964	3	60 M	61 21 38.090	149 53 20.460
109 LAP 1974	4	40 M	61 22 13.524	149 42 59.924
110 ROSE 1914 1964	2	24 M	61 28 22.216	149 40 45.257
111 PETERS W BASE 1922 1964	4	16 M	61 25 40.302	149 29 19.288
112 SIT 1966	2	17 M	61 15 51.370	150 12 37.662
113 RACE POINT RM3 1964	1	*53 M	61 10 04.988	150 13 21.466
114 MISERY 3 1944	4	25 M	61 16 38.012	150 28 14.734
115 FIRE ISLAND LT 1966	3-2-4	12 M	61 07 35.754	150 16 48.087
116 POSSESSION 1909	2-3	37 M	61 02 16.381	150 23 43.391
117 PHILLIPS PLATFORM A 1974	2	36 M	61 04 36.172	150 56 53.605
118 BIRCH HILL USE 1941	4	48 M	60 55 16.723	150 44 58.088
119 MOOSE POINT LT 1966	4	12 M	60 57 22.872	150 41 01.945
120 RACE POINT LT 1966	1	61 M	61 10 17.462	150 12 35.026

=====

*50 M PRIOR TO 13JUL74

OPR-469-RA-74
MINIRANGER STATIONS AND VISUAL SIGNAL LIST

=====

(CONTINUED)

5 SEP 74

=====

ADDITIONAL VISUAL SIGNALS		LATITUDE			LONGITUDE		
=====		=====			=====		
201	SITE POINT RADOME 1964	61	09	34.034	150	01	54.683
202	PT WORONZOF 6 1969	61	12	11.079	150	00	50.182
203	ANCH RADIO STA KENI TWR 1954 1964	61	12	25.181	149	55	20.367
204	ANCHORAGE TV STA KENI MAST 1964	61	13	07.869	149	53	32.868
205	ANCH TV STA KTVA TOWER 1954 1964	61	13	09.991	149	52	31.162
206	ANCHOR 1964	61	13	12.285	149	54	03.699
207	ANCHORAGE MUNICIPAL TANK 1964	61	13	46.510	149	52	35.348
208	ANCH ACS MICROWAVE TOWER 1960 1964	61	13	55.988	149	52	21.661
209	PT MACKENZIE LIGHT 1973	61	14	19.534	149	59	06.010
210	SANDBAG 1960 1964	61	14	40.491	149	52	21.193
211	SAWYER 2 USE 1963 1964	61	15	13.767	149	50	56.051
212	GLOBE BIE USE 1961 1964	61	17	01.974	149	49	22.604
213	MULE 1973	61	19	05.814	149	54	57.722
214	BIRCH USE 1941 1964	61	19	23.850	149	47	06.044
215	ARM USE RM3 1964	61	21	38.149	149	53	20.857
216	PAL 2 1973	61	22	19.513	149	43	06.059
217	SITE BAY RADOME 1964	61	23	48.762	149	51	10.551
218	AIRPORT BEACON ELMENDORF AFB 1968	61	15	40.264	149	49	44.198
219	RACE PT LIGHT 1966 - SAME AS 120	61	10	17.462	150	12	35.026
220	PT POSSESSION LT 1974	61	02	03.927	150	24	10.774
221	PT WORONZOF INTAKE TANK 1974	61	12	15.438	150	01	00.889
222	FIRE ISLAND FAA RADOME 1974	61	08	36.166	150	12	53.478
223	WEST POINT BARGE HYDRO SIGNAL 1974	61	07	43.480	150	16	32.666
224	SHELTER BAY HYDRO SIGNAL 1974	61	08	04.144	150	14	42.380
225	PT WORONZOF RANGE FRONT LT 1974	61	12	09.025	150	01	11.115
226	PT WORONZOF RANGE REAR LT 1974	61	12	10.372	150	00	53.363
227	PT MACKENZIE RANGE FRONT LT 1974	61	14	22.600	149	59	17.331
228	PT MACKENZIE RANGE REAR LT 1974	61	14	29.172	149	58	52.579
229	FIRE ISLAND RANGE FRONT LT 1974	61	10	22.677	150	11	51.555
230	FIRE ISLAND RANGE REAR LT 1974	61	10	15.589	150	12	19.148
=====		=====			=====		

ABSTRACT OF POSITIONS

VESSEL: RA-3 (BERTRAM LAUNCH)

<u>Day</u>	<u>Positions</u>	<u>Ctrl</u>	<u>S1</u>	<u>M</u>	<u>S2</u>	<u>Remarks</u>
162	3000-3052	04	108	✓	109	Hydro
163	3053-3221	04	108	✓	109	Hydro, Rej. pos. 3098-3126
164	3222-3395	04	109	✓	106	Hydro
169	3396-3441	04	108	✓	109	Hydro

VESSEL: RA-4 (BERTRAM LAUNCH)

161	4001-4125	04	108	✓	109	Hydro Rej. pos. 4115-4120
-----	-----------	----	-----	---	-----	------------------------------

VESSEL: RA-5 (ALUMINUM LAUNCH)

163	5000-5066	04	109	✓	106	Hydro Rej. pos. 5076-78
164	5069-5179	04	109	✓	106	Hydro Rej. pos. 5146-47, 5168-72
168	5180-5246	04	110	✓	107	Hydro
169	5300-5358	04	109	✓	107	Hydro rej. pos. 5352-55
	5359-5440	04	108	✓	109	Hydro
170	5441-5466	04	109	✓	107	Hydro
	5483-5527	04	109	✓	107	Hydro rej. pos. 5502

VESSEL: RA-6 (UNIFLITE LAUNCH)

163	6000-6184	04	108	✓	109	Hydro rej. pos. 6050-52
164	6241-6296	04	105	✓	108	Hydro

NOAA FORM 76-40
(2-71)
PRESCRIBED BY
PHOTOGRAMMETRY INSTRUCTION NO. 64.

U.S. DEPARTMENT OF COMMERCE-NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
~~NON~~FLOATING AIDS OR LANDMARKS FOR CHARTS

DATE
Feb, 1974

ORIGINATING LOCATION
Coastal Mapping Division, Norfolk, Va.

TO BE CHARTED
 TO BE DELETED

The following objects have ~~(XXXXXX)~~ been inspected from seaward to determine their value as landmarks:

JOB NUMBER 24-	STATE: Alaska	DESCRIPTION	DATUM				POSITION				METHOD AND DATE OF LOCATION (See instructions on reverse of this form)				CHARTS AFFECTED
			SURVEY NUMBER		LATITUDE		LONGITUDE		FIELD INSPECTION		COMPILATION		FIELD EDIT		
			T-	TP-	D.M. METERS	D.M. METERS	0	0	0	0	D.P. METERS	D.P. METERS	D.P. METERS	D.P. METERS	
		Radome	61 23	48.762	149 51	10.551			F.1					8557 8553	

ORIGINATING ACTIVITY
 FIELD INSPECTION
 FIELD EDIT
 COMPILATION
 FINAL REVIEW
 QUALITY CONTROL AND REVIEW
 (See reverse for responsible personnel!)

APPROVAL SHEET

H-9439
RA-10-3-74

OPR-469-RA-74
Knik Arm-Alaska

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

The boat-sheet and the accompanying records have been examined by me and are considered complete and adequate for charting purposes and are approved.

K. William Jeffers
K. William Jeffers, CDR, NOAA
Commanding

CONTROL FOR: C09439 DATE OF LISTING: 01-19-76

GEOGRAPHIC POSITIONS IN DEGREES, MINUTES, AND SECONDS

REC'D NUMBER	YR	STA NUM	CAK10 CODE	LABEL ANGLE	VECTOR DISP.	PLOT CODE	NAME	STATION HEIGHT	FREQUENCY (KHZ)	LATITUDE (S)	LONGITUDE (E)
1	76	0	243	307.00	.60	0	FIFE 1974	0.0	0.00	0 0 0.000	0 0 0.000
2	74	105	254	174.00	4.40	0	DAVE 1974	0.0	149835.00	61 18 23.840	149 54 32.780
3	74	106	254	307.00	.70	0	SKI 1974	0.0	149835.00	61 18 30.590	149 49 2.620
4	74	107	254	35.00	2.00	0	ARM USE 1941 1964	0.0	149835.00	61 19 24.380	149 47 5.490
5	74	108	250	155.00	7.00	0	LAP 1974	0.0	149835.00	61 21 38.090	149 53 20.460
6	74	109	254	330.00	1.00	0	ROSE 1914 1964	0.0	149835.00	61 22 13.520	149 42 59.920
7	74	110	250	307.00	.60	0	SITEPOINT RADOME 1964	0.0	149835.00	61 28 22.210	149 40 45.220
8	74	201	139	307.00	.60	0	ANCHORAGE RADIO STATION	0.0	0.00	61 9 34.030	150 1 54.680
9	74	203	139	307.00	.60	0	KENI TOWER 1954 1964	0.0	0.00	61 12 25.190	149 55 20.320
10	74	203	139	326.97	1.76	0	GLOBE BITE USE 1961 1964	0.0	0.00	61 17 1.970	149 49 22.600
11	74	212	139	307.00	.70	0	MULE 1973	0.0	0.00	61 19 5.810	149 54 57.720
12	74	213	139	195.00	3.40	0	BIRCH USE 1941 1964	0.0	0.00	61 19 23.850	149 47 6.040
13	74	214	139	307.00	.70	0	ARM USE RM3 1964	0.0	0.00	61 21 38.150	149 53 20.860
14	74	215	243	184.00	7.50	0	PAL 2 1973	0.0	0.00	61 22 19.510	149 43 6.050
15	74	216	139	30.00	1.00	0	SITE BAY KADOME 1964	0.0	0.00	61 23 48.760	149 51 10.550
16	74	217	139	307.00	.60	0		0.0	0.00		

FILE CERTIFIED CORRECT FOR PLOTTING BY:..... DATE:.....

000140 0 0000 0002 000 000000 000000
000400 0 0002
000650 0 0004
000900 0 0006
001150 0 0008
001290 0 0010

*Velocity Corrector Tape
Table #2*

200318 0 0013 0002 161 000000 000000
000018 0 0013 0002 162 000000 000000
010200 0 0013

JC/II Corrector 2124

232101 0 0016 0002 163 000000 000000
000137 0 0016 0002 164 000000 000000
004714 0 0016 0002 165 000000 000000
002737 0 0016 0002 169 000000 000000
003126 0 0016 0002 170 000000 000000
201000 0 0016

JC/II Corrector 2125

183654 0 0022 0002 163 000000 000000
192533 0 0022 0002 164 000000 000000
205700 0 0022

JC/II Corrector 2126

175633 0 0018 0002 162 000000 000000
181243 0 0018 0002 163 000000 000000
000009 0 0018 0002 164 000000 000000
000009 0 0018 0002 165 000000 000000
202410 0 0018 0002 169 000000 000000
000011 0 0018 0002 170 000000 000000
001800 0 0018

JC/II Corrector 2123

Vessel 2124 Days 161-162 Positions 4001-4125

x200318 6 0173 4001 161 000003 100002 0000 000 000
200338 6 0220
200358 6 0225
200418 6 0222
200458 6 0317
200518 6 0334
202518 6 0334
202538 6 0380
203418 6 0385
203618 6 0440
203758 6 0300
203958 6 0330
204418 6 0290
204638 6 0439
204658 6 0450
204718 6 0467
204738 6 0482
205158 6 0139
205218 6 0210
205238 6 0240
205258 6 0268
205338 6 0338
205418 6 0430
205438 6 0513
205458 6 0469
205958 6 0300
213938 6 0278
214158 6 0240
214318 6 0408
214338 6 0400
214358 6 0408
214418 6 0461
214430 8 0488
215018 6 0179
215058 6 0234
215138 6 0322
215158 6 0392
220038 6 0199
220158 6 0250
220318 6 0398
220338 6 0416
220358 6 0455
220408 8 0479
220958 6 0282
221018 6 0370
221038 6 0430
221050 8 0470
221758 6 0210
222218 6 0300
000018 6 0081 4098 162 000003 100002 0000 000 000

Corrector Tape

4/1/75

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 Form 362

Tide Station Used (NOAA Form 77-12): Goose Creek

Period: June 1974

HYDROGRAPHIC SHEET: H-9439

OPR: 469

Locality: Knik Arm, Upper Cook Inlet

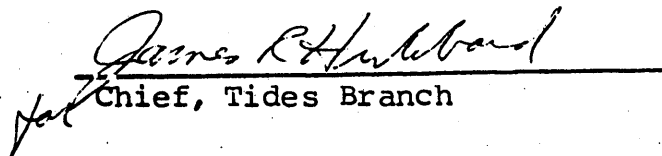
Plane of reference (mean lower low water): 10.4 ft. May 23-June 8
10.7 ft. June 11-June 24

Height of Mean High Water above Plane of Reference is 29.3 ft.

Remarks: Recommended zoning:

North of $61^{\circ}20'$ - zone direct on Goose Creek.

South of $61^{\circ}20'$ - apply range ratio x0.98 and a
time correction of - 15 minutes.


Chief, Tides Branch

H-9439
Name on Survey

	A	B	C	D	E	F	G	H	K	
EAGLE BAY ✓										1
EAGLE RIVER ✓										2
EAGLE RIVER FLATS ✓										3
GOOSE BAY ✓										4
KNIK ARM ✓										5
MULE CREEK ✓										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26

Approved
Chas. E. Harrington
 Staff Geographer - CS1x2
 23 June 1976

On Coast No. 16664
 On Survey No.
 On U.S. Coast
 From 1882
 Indian
 On 1881
 P. O. Guide
 Rang. Maps
 U. S. List

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-9139

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET & 2-Overlays		1	BOAT SHEETS		2	
DESCRIPTIVE REPORT		1	OVERLAYS		3	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES			1			
CAHIERS	1 & P/O					
VOLUMES						
BOXES						
T-SHEET PRINTS (List) T-12003, T-12004(2), T-12005(2)						
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	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				1242
POSITIONS CHECKED		1242		
POSITIONS REVISED		1		
DEPTH SOUNDINGS REVISED		120		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		0		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		10		
JUNCTIONS		9		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		204		
SPECIAL ADJUSTMENTS		18		
ALL OTHER WORK		48		
TOTALS		279	HIT 18	
PRE-VERIFICATION BY <i>A. E. Eichelberger</i> A. E. Eichelberger		BEGINNING DATE 12/10/74	ENDING DATE 12/12/74	
VERIFICATION BY <i>Karol M. Hoops</i> Karol M. Hoops		BEGINNING DATE 1/2/75	ENDING DATE 1/28/76	
REVIEW BY <i>J.H. Engle</i> Quality Contr. Insp. <i>J.H. Engle</i> 43 hrs		BEGINNING DATE 6-10-76	ENDING DATE 6-22-76	

REGISTRY NO. _____

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 REQUIRED _____ INITIALS _____

REMARKS:

REGISTRY NO. 9439

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

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

Revise sounding number 535903

MAGNETIC TAPE CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

VERIFIER'S REPORT

RA-10-3-74

H-9439

This survey was verified and plotted at the Pacific Marine Center, Seattle, Washington. Information relating to this survey is provided as specified in Chapter 6 of the Provisional Hydrographic Manual.

I. INTRODUCTION

The major problems encountered during verification of this survey were due to the numerous electronic control pairs used and the different characteristics of the vessels used to accomplish the hydrography. See Section III for further discussion on these items.

Projection parameters used to prepare the boatsheet have been revised to combine the two boatsheets and center the hydrography on the smooth sheet. Parameters used by PMC are appended.

Tide reduction values changed between the boatsheet stage and verification of soundings. The boatsheet used corrections based on predictions from the Anchorage standard gage (see Ship's Tide Note). This caused great discrepancies between the main scheme and crosslines of the boatsheet.

Tide correctors for this survey were abstracted from marigrams from the Goose Creek Gage and approved by Tide Branch, Rockville. Four tide zones were incorporated in the survey because of a time shift of 15 minutes and the fact the gage washed out and had to be replaced giving a different plane of reference. These correctors could not be compared accurately with the predicted tides from Anchorage due to the extreme tide range. No problems attributable to tides were encountered in the internal junctions or the junction with H-9440, which was zoned from Anchorage. Tide correctors are accepted as correct.

II. CONTROL AND SHORELINE

The following unreviewed Class I Maps were used to transfer shoreline.

T-12003(2), T-12004(2) (1:10,000)

a. Date of Photography	July 1973
c. Date of Field Edit	May - Sept 1974
d. Date of Final Compilation	January 1975

T-12005(2) (1:10,000)

a. Date of Photography	June - July 1973
c. Date of Field Edit	May 1974
d. Date of Final Compilation	February 1975

T-12007(2) (1:10,000)

a. Date of Photography	July 1973
c. Date of Field Edit	May - September 1974
d. Date of Final Compilation	January 1975

T-12008(2) (1:10,000)

a. Date of Photography	June - July 1973
c. Date of Field Edit	May 1974
d. Date of Final Compilation	January 1975

The signal list supplied by the ship has not been changed except to round the seconds to the hundredth. The control listing used for verification is also appended. (See Signal List Descriptive Report)

III. HYDROGRAPHY

The basic hydrography reflects differences in overlapping soundings due to individual vessel characteristics and control. Throughout this survey, data collected by launches 3 and 4 junction; launch 5 data is 2 to 3 feet shoaler than that of launches 3 and 4; and launch 6 data is at least 3 to 4 feet shoaler than data from launches 3 and 4. Whenever two launches junction, there exists a pronounced difference between soundings; therefore, in excessive overlap areas the least reliable soundings have been excessed.

Launch 5 positions 5505 - 5518 have been excessed. Soundings appear to be offset as much as 170 meters. This area involved a different set of control stations and effected a junction between launch 5 supplementary work with launch 3's main scheme.

Soundings on crossline 6169 - 6175 do not agree with the main scheme of hydrography run by the same launch, launch 6, less than one hour previous incorporating the same control. The soundings of the crossline were excessed and main scheme soundings retained.

The basic hydrography incorporated in this survey was adequate to delineate the bottom characteristics and determine least depth in most cases. Exception to this is the fact that the inshore foul limits depicted on the manuscript were not disproven. These foul limits have been transferred to the smooth sheet as outlined in Chapter 7 of the Provisional Manual.

No detached positions were taken on rocks during the time of hydrography. All elevations and positions of rocks were applied to the Class I Maps from Field Edit conducted prior to hydrography.

Only one bottom sample was taken during progress of the survey. Beach characteristics have been transferred from the shoreline manuscripts.

IV. CONDITION OF THE SURVEY

The hydrographic records, overlays, smooth sheet and report are adequate and conform to the requirements of the hydrographic manual.

V. JUNCTIONS

The junction with contemporary survey H-9440, 1974 (1:10,000) to the south is a butt junction. Agreement was good. The junction note and curves are inked.

This survey junctions to the north with H-9443, 1974 (1:20,000). Junctions of the area have been completed and depth curves inked. This junction was accomplished with no difficulty. Agreement of the reduced soundings was good. Difficulty encountered by the ship personnel is attributed to inaccurate tide reducers.

VI. COMPARISON WITH PRIOR SURVEYS

There are ten pre-survey review items included within the limits of this survey. Only one area was developed. The shoal at Latitude $61^{\circ}19'27''$, Longitude $149^{\circ}52'38''$ has been defined and the least depth of $\frac{9}{13}$ feet has been confirmed from hydro records. This may not be the shoalest depth. The remaining items were not investigated. Any differences found during verification are noted in ink in the Descriptive Report, Paragraph K. * Scanning error. Should be 13 ft. Same as Stan 6. Agrees with charted 13.

Item 9 of the pre-survey review has a prior depth of 14 feet. Even though the present sounding of 34 feet is adjacent, there appears a least sounding of 9 feet in the immediate vicinity (250 m west of 34) see pg 5. except item 6 (See page 5 of this Descr. Report)

Items 3 through 10 were found to be depths from prior surveys, H-3200 (1910) and H-3674 (1914). Hydrography incorporated in this survey seems to be sufficient to supersede charted data. Items 1 and 2 of the pre-survey review was found to originate with H-8729, (1963). Even though these items were not investigated individually, the hydrography tends to disprove those soundings.

In general H-8729 does not agree with the hydrography of the area. The other prior surveys covering this hydrography are more closely related to the current soundings. All of these surveys are prior to the major earthquake of 1964.

Prior surveys H-3200, H-3674, and H-8729 are of limited value for comparison between prior and present depths due to major earthquake activity in this area in recent years and strong currents. Significant changes to the bottom configuration have occurred. Yet there has been no other prior survey or reconnaissance survey in the area since 1964. No* rocks or soundings have been transferred. * Several rocks, bottom characteristics and sounding carried forward. See Critique

After reviewing the prior survey, it is concluded that H-9439 should supersede all prior surveys of this area.

VII. COMPARISON WITH CHART

This survey was compared to Chart 16664, the 14th Edition, 29 December 1973. The rock awash at approximately 61°19'53"N and 149°45'07"W falls on an island* in the channel. The island does not appear on photographs or in hydrographic records. Its origin seems to be prior survey H-3200; if so, the verifier feels there is enough information to disprove it. A rock taken from the T-sheet at approximately 61°19'53" 149°45'37" seems to be the same rock. † This rock appears as a submerged rock on the 15th Edition of the same chart. Further investigation of the source of the two rocks should be made if they are to be retained on the chart. * not an island. See Critique † not a subm rock symbol but a "rock awash at sounding datum". See Critique.

One more notable difference between the chart and smooth sheet is a sunken rock at 60°19'47", 149°53'27". This rock was neither verified or disproven by this survey. Other sources should be checked and the rock carried forward to preserve the conservative aspect of the chart. Retain on ch. carried forward. See Critique

During comparison with Chart 16664, 15th Edition, 29 March 1975, two rocks were discovered at Latitude 61°19'20"N, Longitude 149°49'23"W which the hydrographer or field editor could not confirm. After investigation of the sources, they were found to have been added from Notice to Mariners, 25 June 1974 (appended). These rocks* could not be confirmed from 1973 photos in the area by the Coastal Mapping Section of the Atlantic Marine Center. Unless confirmation of the existence of these rocks has been substantiated, this verifier recommends their deletion. ** These rocks were removed from the chart by authority of N to M 44 of 1975.

There are no aids to navigation within the survey limits.

It is the verifier's opinion that the present survey soundings of H-9439 are adequate to supersede charted soundings.

VIII. COMPLIANCE WITH INSTRUCTIONS

Considering hydrography north of Lat. $61^{\circ}20'00''$ was reconnaissance, this survey adequately follows the project instructions for line spacing.

IX. ADDITIONAL FIELD WORK

This survey is adequate to supersede charted information in the area.

Future development in the area may necessitate a basic survey at a later date.

Respectfully submitted,



Karol M. Hoops
Cartographic Technician
January 28, 1976

Examined and approved,



James S. Green
Chief, Verification Branch



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY Pacific Marine Center
1801 Fairview Ave. E., Seattle, Washington 98102

Date : 24 February 1976

Reply to Attn. of: CPM 3

To : CPM - H.R. Lippold, Jr. RADM
Director, Pacific Marine Center

From : *Donald E. Nortrup*
Donald E. Nortrup, LCDR
Chief, Processing Division

Subject: PMC Hydrographic Survey Inspection Team Report - H-9439

This survey is a combination basic/reconnaissance survey of Knik Arm, Alaska conducted by NOAA Ship RAINIER in 1974 in compliance with Project Instructions OPR-469-RA-74, dated 15 February 1974. This survey caused considerable consternation within the inspection team. A number of minor cartographic and report modifications have been made as a result of the inspection. Resolution of remaining survey deficiencies are not possible with available data.

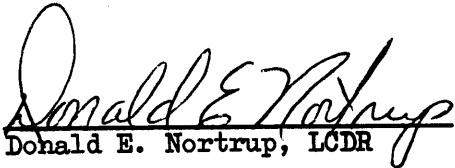
The most serious survey deficiency is cited in Section III of the Verifier's Report, i.e. the failure to junction between the various sounding vessels. The inspection team concurs in the verifier's handling of the discrepancies. However, this discrepancy does raise doubts concerning the accuracy of a major portion of the survey data. Fortunately, the questionable data appears to err in the conservative. Two factors seem to have contributed to this discrepancy:

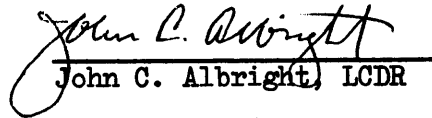
- A. The dearth of bar check and/or leadline comparisons accomplished during the survey.
- B. The attributing of discrepancies to the difference between predicted and actual tides.

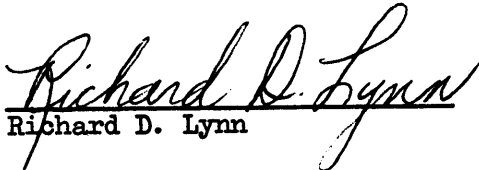
A considerable number of shoal soundings, including dashed-circle pre-survey review items, were insufficiently developed to reliably establish least depths. This was particularly true in the reconnaissance portion of the survey. Similarly, several charted rocks were not adequately investigated or documented, see Verifier's Report, Section VII.

Despite its deficiencies, this survey is recommended for approval on the basis that it is adequate to supersede prior surveys. This recommendation is based on the following considerations:

- A. The source of charted information in approximately 90% of the survey area is 1:40,000 surveys conducted in 1910 and 1914. The remaining area is covered by a 1963 (pre-earthquake) survey.
- B. The survey area is subject to continuing change through erosion, deposition, and potential tectonic activity.
- C. The current survey indicates significant shoaling of the navigable portions of the survey area vis-à-vis the prior surveys and the chart.


Donald E. Nortrup, LCDR


John C. Albright, LCDR

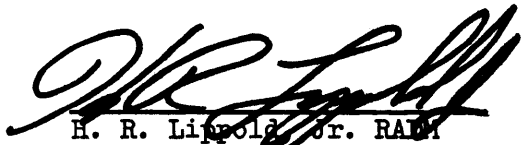

Richard D. Lynn


Dean R. Seidel, LCDR

ADMINISTRATIVE APPROVAL

H-9439

The smooth sheet and reports of this survey have been reviewed
and found to be adequate for charting.



H. R. Lippold, Jr. RADM
Director, Pacific Marine Center

2/25/76
Date

H-9439

Items for Future Presurvey Reviews

This area is subject to severe change because of the mud bottom and very strong current action. The 1964 earthquake, severe in nearby Anchorage, is believed to have caused change in the bottom in Knik Arm also. Several rocks with elevations as great as 16 feet above MLLW on the 1963 survey could not be seen at low tide on the present survey. They may have been affected by the earthquake. Any future survey should dispose of all rocks carried forward to the present survey from prior surveys.

<u>Position Index</u>		<u>Bottom Change Index</u>	<u>Use Index</u>	<u>Resurvey Cycle</u>
<u>Lat.</u>	<u>Long.</u>			
611	1495	9	1	25 years
612	1495	9	1	25 years
611	1500	9	2	10 years
612	1500	9	1	25 years



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

C35x2

July 7, 1976

a. A. Potts
TO: Chief, Marine Surveys Division
THRU: Chief, Quality Control Branch
FROM: D. R. Engle
Quality Evaluator *DR Engle*
SUBJECT: Quality Control Report, H-9439 (1974), Cook Inlet-Knik Arm,
Alaska

A quality control inspection has been accomplished to evaluate the accuracy and adequacy of the survey with respect to data acquisition, delineation of the bottom, determination of least depths and navigational hazards, junctions, shoreline transfer, decisions and actions taken by the verifier, and cartographic presentation of data.

The following deficiencies are noted:

1. Unresolved differences in overlapping areas of hydrography by the various launches remain. These differences, discussed in detail by the verifier and the HIT team, reflect doubt of the overall accuracy of the survey.
2. Where unresolved differences occurred the less reliable soundings were excessed instead of rejected by the verifier.
3. Junctional depth curves were not brought into agreement with H-9443, nor was the least depth on a shoal feature in latitude 61°21.9', longitude 149°52.4' transferred to the larger scale survey in the junctional area.
4. Datum was not shown on rock notes. Legends such as "Rock awash" or "Rock covered 3 feet" must be referenced to a datum such as MLLW to be meaningful.
5. The "8-foot shoal" in latitude 61°19'27", longitude 149°52'38" discussed by the verifier under Comparison with Prior Surveys is erroneous.



The hydrographer, and apparently the verifier, scaled the fathogram 5 feet in error. The least depth is actually 13 feet and was revised on the smooth sheet during Quality Control inspection.

6. The questionable rock in the verifier's report, section VII, paragraph 1, in latitude $61^{\circ}19'53''$, longitude $149^{\circ}45'07''$ originates with H-3200 (1910). It is enclosed by a danger curve and a 6-foot depth curve which was inadvertently tinted yellow, giving it the appearance of an island on the chart. The present hydrography discredits the existence of this item and it should be removed from the chart. The second rock, mentioned in the same paragraph, originates with contemporary T-12005 (73-74) and is correct as charted. (The symbol on the chart ~~⊛~~ is not a submerged rock but is symbolization for a rock which is awash at the sounding datum.)

7. Several rocks on both sides of Knik Arm in approximate latitude $61^{\circ}19'$ charted from H-8729 (1963) as rocks awash were not found on the present survey. However, their existence is not considered disproved and they were carried forward to the present survey as submerged rocks during Quality Control inspection.

8. The two rocks in latitude $61^{\circ}19'20''$, longitude $149^{\circ}49'23''$ discussed in the verifier's report in section VII, paragraph 3, were erroneous and have been removed from the chart by authority of Notice to Mariners 44 of 1975.

9. The rock covered 2 feet at MLLW in latitude $61^{\circ}19'52''$, longitude $149^{\circ}45'29''$ from field edit information on the boat sheet had not been transferred to the smooth sheet nor had it been applied to the manuscript of T-12005(2). However, it is supported by a side echo on the launch #3 fathogram and was applied to the smooth sheet of the present survey during Quality Control inspection.

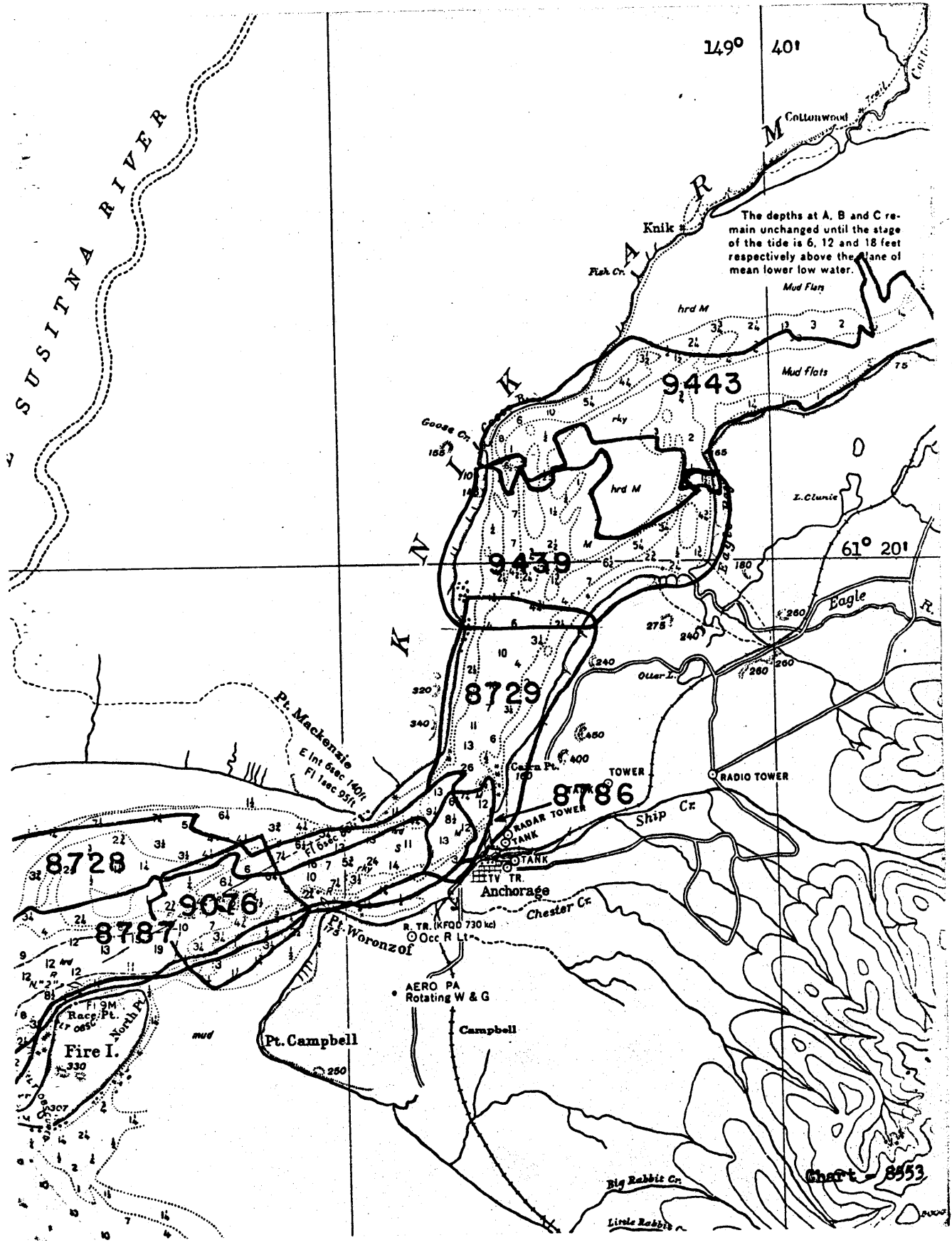
10. Bottom characteristics were insufficient. Only one sample was recorded. Several were carried forward from prior surveys in the areas of lesser change.

11. No Approval Sheet (figure 6-4 Provisional Hydrographic Manual) was attached to the Descriptive Report.

12. Station 216 Pal 2, 1973, was plotted incorrectly on the control overlay.

With the above exceptions this survey is considered to be adequate and to comply with the project instructions.

CC:
C351



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9439

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
8557	11/08/76	R.S. House	Full Part Before After Verification Review Inspection Signed Via Drawing No. Full <i>Part</i> app'd hydro
			<i>Part After</i>
8553	11/10/76	R.S. House	Full Part Before After Verification Review Inspection Signed Via Drawing No. 22 Full app'd thru cht 8557
8557	4/78	ROZAWSKI	Full Part Before After Verification Review Inspection Signed Via Drawing No. Aid Proof #18
8553	6/15/78	KANS	Full Part Before After Verification Review Inspection Signed Via Drawing No. Aid Proof #24 (Thru Chart 8557 - Dwg #18)
16665	5/28/81	J. Bailey	Full Part Before After Verification Review ^{OC} Inspection Signed Via Drawing No. App'd. thru Dwg Aid Proof 16664 #19.
			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.
			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.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.

The following data has been removed from this DR
and filed with the field records:

Miniranger Calibration Logs
ASCII Signal tape List
Parameter tape listing
Oceano Log (Bottom sediment data)
Parameters for Projections
Parameters for Electronic Control
Data Identification Lists by Tape No.
