

9441

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-10-5-74
Office No..... H-9441

LOCALITY

State ALASKA
General Locality UPPER PORTION OF COOK INLET
Locality PT. MACKENZIE TO PT.
WORONZOF

1974

CHIEF OF PARTY
K. William Jeffers

LIBRARY & ARCHIVES

DATE January 13, 1978

9441

Area 6
charts
16664 Serial
16660

HYDROGRAPHIC TITLE SHEET

H-9441

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-10-5-74

State Alaska

General locality Portion of Upper Cook Inlet

Locality ~~Knik Arm~~ Pt. Mackenzie to Pt. Woronzof

Scale 1:10,000 Date of survey 1974 Day 149-232
25 May-20 August 1974

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

Vessel NOAA Ship RAINIER (MSS 21) Launches RA-3, RA-4 & RA-5

Chief of party CDR K. William Jeffers

Surveyed by LT D. Seidel, LTJG R. Ellis, ENS H. Langeveld, ENS Gadd,
ENS G. Stroble, ENS Stanley, ENS C. Cavin

Soundings taken by echo sounder, hand lead, pole Ross Model 6000-544 S/N 1042, 1041-4

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Positions verified XXXXXXXX by Felipe Rosario Automated plot by PMC Xynetics Plotter

Soundings Verification by Felipe Rosario

Soundings in XXXXXXXX feet at MLW MLLW

REMARKS: The survey was made in GMT.

The survey is complete as required by Project Instructions.

XWW. 5/9/91

A. PROJECT

This hydrographic survey was conducted in accordance with PROJECT INSTRUCTIONS, OPR-469-RA-74, Upper Cook Inlet, Alaska, dated ~~15~~⁸ February, 1974.

B. AREA SURVEYED

The area covered by the survey is between longitudes 149° 54' 30" W and 150° 05' 00" W, with north and south borders Pt. Mackenzie and Point ~~Campbell~~^{Woronizot}. The survey was conducted between 29 May 1974 (JD 149) and 20 August (JD 232).

Junctions were made with the following Contemporary Surveys.

Registry Number	Field Number	Scale	Date
H-9438	RA-5-2-74	1:5,000	1974 ✓
H-9440	RA-10-4-74	1:10,000	1974 ✓
H-9442	RA-10-6074	1:10,000	1974 ✓

Prior surveys covering the area

H-3200	1:40,000	1910
H-4035	1:10,000	1918
H-8527	1:20,000	1955
H-8203	1:10,000	1955
H-8528	1:20,000	1960
H-8786	1:10,000	1964
H-8787	1:40,000	1963 ✓

C. SOUNDING VESSELS

Soundings were taken by three launches, RA-3 (2123), RA-4 (2124), and RA-5 (2125).

D. SOUNDING EQUIPMENT

The launches RA-3, RA4, RA-5 used Ross Fathometers, Model 6000-544 S/N 1042, Model 6000-544 S/N 1042, and Model 6000-544 S/N 1041-4.

During operation of the fathometers, the initial value was maintained near zero through continuous scanning.

No abstract of the initial correctors was compiled because any error in the initial value appears only in the analog record and does not effect the digitized soundings. Also, during the check scanning of the fathogram, the initial corrections were considered while reading the analog record. The fathogram was scanned continuously to agree with the analog record.

The blanking function was employed to eliminate spurious returns, and the fathometer was internally phased and adjusted so as to have no phase corrections, this being done at least once a week.

The T.R.A. was calculated from bar checks.

Velocity corrections were computed from TDC casts. TDC casts take precedence over Nansen Casts. Vertical cast comparisons were taken, but not used. Currents and mud made it difficult to tell when the cast hit bottom.

E. BOAT SHEETS

The Transverse Mercator Projection and soundings were plotted by RAINIER personnel using onboard PDP 8/e computer, S/N 1011, Plotter D-3, Hydroplot/Hydrolog Controller S/N 9.

Main scheme sounding lines are plotted in black ink, crosslines in red, and bottom samples in blue.

Rough plots were made daily of each day's work, a final plot being done subsequently. ✓

F. STATION CONTROL

Station control for SIT, RACE, and RACE POINT LIGHT 1966 used pre-existing triangulation. ANCHOR (ECC) was located from triangulation station ANCHOR. ZOF was located by traverse and intersection from triangulation stations ANCHOR 1964, and WORONZOF 1969. KEN was located to third order by intersection from triangulation stations WORONZOF 1969 and ANCHOR 1964. Copies of the computations follow in the Appendices. ✓

G. POSITION CONTROL

All control was by Motorola Mini-Ranger (a range-range system). The stations used for Mini-Ranger control were: 101, 102, 103, 104, 112, 113, 219. (See Signal List)

For details of Mini-Ranger use refer to Mini-Ranger Report, OPR-469-RA-74.

Periodic, unexplained reception difficulties occurred. Possible reasons for reception difficulties were phase cancellation, or C-band radar interference.

Calibration of Mini-Rangers was done at the start and end of each day's operation when possible. Calibration correctors and slope correctors were applied to the raw data for final plotting.

The calibration method most frequently used was the standard sextant calibration. However the method used for the final two or three cross lines used T-2 intersection (Refer to Mini-Ranger Report OPR-469-RA-74).

All range-range intersections were at angles greater than 30 degrees.

G. (cont.)

Note: the following Mini-Ranger Consoles and Transceivers were used.

Date	Ranger Console	Transceiver
29 May 1974		
RA-3	---	---
RA-4	720	727
RA-5	711	718
RA-6	715	720
11 June 1974		
RA-3	720	727
RA-4	---	---
RA-5	711	718
RA-6	715	720
17 June 1974		
RA-3	720	727
RA-4	720	727
RA-5	715	720
RA-6	711	718

The following Mini-Ranger transponders were used:

Code	1	2	3	4
Transponder	774	775	776	777

H. SHORELINE

Shoreline was obtained from manuscripts T-12015, T-12016, T-12017, and TP-00515.

The entire shoreline was field edited with no discrepancies found.

Refer to Field Edit Report OPR-469-RA-74.

MLLW was defined by soundings in most areas. Inshore lines sometimes were not run all the way into shore due to steep slope or bad tidal conditions.

I. CROSSLINES

Crosslines amounted to 22.1 nautical miles or 6.6% of the main scheme. In many areas the depths differ by as much as 8 feet. Some of the discrepancies may be due to peaks. Most of the apparent discrepancies will probably be corrected when observed tide correctors are applied. ✓

J. JUNCTIONS

Junctions were made with contemporary surveys listed in Part B. Comparisons were good between this boat sheet and RA-5-2-74 and RA-10-4-74. The maximum difference being 4 feet or less. The junctions with RA-10-6-74 were 6 feet different in some spots. The differences were consistent enough so that when observed tide correctors are used they may become very small. ✓

K. COMPARISONS WITH PRIOR SURVEYS

Main scheme soundings compared well with prior survey H-8527 except at the northern edge of that survey where there appears to have been a great deal of silting and thus shallower depths. Differences of 20 feet occur north of latitude $61^{\circ} 14' 30''$. Differences of less than 8 feet occur in most areas south of latitude $61^{\circ} 14' 00''$. This difference could be corrected in many areas south of $61^{\circ} 14'$ when observed tide correctors are applied.

Comparison was also made with prior survey H-8787. The depths from this survey compared in most areas to within 8 feet. However, large

discrepancies were noted in the following areas:

Latitude	Longitude	H-8787	H-9441
61°13'22"	149°59'55"	128	145 126
61°13'31"	149°58'13"	79	97 ✓
61°13'33"	149°57'57"	92	87 ✓

These two surveys were the most recent surveys. Other pertinent surveys were not compared because they were unavailable.

L. COMPARISON WITH THE CHART

C&GS Chart 8557 (Dec. 29, 1973) was the largest scale chart of the area. The contour lines compare rather poorly with the chart. The shoal at the southwestern end of the survey is not nearly so large as the charts indicate. MLLW has remained in approximately the same position at north and south shores. No new hazards to navigation were found.

Presurvey Review Items

<u>Item No.</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Presurvey Depth</u>	<u>H-9441</u>
5,7,6	Refer to Field Edit Report RA-469-1974			SSS
8	61°13'55"	150°00'00"	28	35 46
	61°13'40"	149°57'07"	58	70 69
	61°13'22"	149°56'28"	24	63 66
	61°13'22"	149°56'22"	--	22 62
9	61°14'02"	150°03'05"	23	10 23
	61°14'02"	150°02'15"	39	45 23
	61°12'35"	150°01'45"	17	20 25
	61°13'12"	150°00'44"	56	36 42
	61°13'12"	150°00'40"	--	40 52
	61°12'10"	150°03'10"	29	32 35

See Verifier's Report

M. ADEQUACY OF THE SURVEY

This survey is adequate for the charting purposes. Fathograms were scanned and checked for peaks and deeps, and appropriate changes made to the record. ✓

N. AIDS TO NAVIGATION

The floating and non-floating aids to navigation were adequately charted. Refer to Coast Pilot Report OPR-RA-469-74. ✓

O. STATISTICS

337 nautical miles of soundings were run covering 11,7 square nautical miles.

<u>Launch</u>	<u>Miles of Hydro</u>	<u>Number of Positions</u>	<u>Bottom Samples</u>
RA-3	14.7	87	
RA-4	143	823	7
RA-5	179	1251	13
Ship	--	--	13
Totals	337	2161	20

P. MISCELLANEOUS

None ✓

Q. Recommendations

No further specific recommendations are considered necessary for this survey.

See Verifier's Report

R. REFERENCES TO REPORTS

Corrections to Echo Soundings, OPR-469-74.

Geodetic Control Report (Mini-Ranger System), OPR-469-74.

Electronic Control Report, OPR-469-RA-74.

Field Edit Report, OPR-469-RA-74.

Report to Accompany Hydrographic Survey, H-9439, OPR-469-RA-74.

Aids to Navigation and Landmarks for Charting Report, OPR-469-RA-74. ✓

S. DATA PROCESSING PROCEDURES

Data acquisitions and processing was conducted using standard procedures. Soundings were obtained using the Hydrolog/Hydroplot system with computer program AM 100 (version date 10 November, 1972) in launch 2125 (RA-5) and by using the Hydrolog system with computer program AM 170 (version date 10 November, 1972) in launch 2126 (RA-6). Raw data tapes were corrected for misdepths and Mini-Ranger malfunctions to produce electronic master tapes. For each electronic master tape an electronic corrector tape was made that included TRA and Mini-Ranger calibration correctors. Also included on the electronic corrector tape were peaks, deeps, and Mini-Ranger malfunctions that were time and coursed between soundings with good fix data. The boat sheet was plotted with these tapes. Revised master and corrector tapes and master reduced to sea level tapes were made from the electronic master tapes. Additional corrector tapes are supplied with Mini-Ranger correctors as averaged from the entire project. These additional tapes are submitted per Mini-Ranger pair, per launch, per sheet. Pacific


Marine Center's Processing Division is to decide whether daily correctors or averaged correctors are applicable.

Proper formats were observed for all tapes and printouts were made for all of these tapes. Ignore correctors in the corrector words on master tapes. Use daily correctors as supplied on the corrector tapes.

Other computer programs used during the survey include the following programs:

<u>Program</u>	<u>Version Date</u>	<u>Description</u>
AM 200	23 March 1973	Offline Plot
AM 201	10 November 1972	Grid and Lattice Plot
AM 300	24 May 1973	Utility Computations
AM 301	8 December 1972	VISTA
PM 340	1 December	Reduction to Sea Level
AM 407	10 November 1972	Geodetic Inverse
RK 408	10 November 1972	Direct Geodetic Computation
AM 500	10 November 1972	Predicted Tide Generator
AM 560S	10 April 1972	Mini-Ranger Calibration with Slope Correction
AM 602	10 March 1972	Elinore
WANG		Intersection for Teletype Output

Respectfully Submitted,


Howard T. Langeveld
Ensign, NOAA



TIDE NOTE

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

Tide reducers for boatsheet sounding were generated by Hydro Plot Program AM 500, 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."

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. Fire Island	61°09.4'N, 150°14.4'W	22 May/21 August

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.

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STATION LIST
 H-94
 RA-/O-5-74

STA	O	LATITUDE	LONGITUDE	CRT	ELEV	F.	KHZ	TYPE/NAME	SOURCE
101	4	61 12	15360 150	00	49560	243	0048 149835	ZOF 1974	REF.*
								OPEN ELECTRONIC TRAVERSE AND TRILATERATION	
102	7	61 13	11576 149	54	05541	243	0029 149835	ANCHOR 1964 ECCENTRIC OPEN TAPED TRAVERSE	REF.
103	7	61 14	19454 149	59	05884	139	0028 149835	MAC RM3 1947 RM1 1960,1964	
104	4	61 14	20461 149	58	56770	243	0028 149835	KEN 1974 INTERSECTION	REF.
105	5	61 18	23836 149	54	32781	243	0053 149835	SIT 1966	
113	7	61 10	04988 150	13	21466	139	0053#149835	RACE POINT RM3 1964	
114	7	61 16	38012 150	28	14734	139	0025 149835	XXXXXXXXXX MISERY 3, 1944	
201	7	61 09	34034 150	01	54683	139	::::: 000000	ANCHOR 1964	
207	7	61 13	46510 149	52	35348	139	::::: 000000		

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

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 05.804
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 37.602
113 RACE POINT RM3 1964	1	53 M	61 10 04.988	150 13 21.406
114 MISERY 3 1974	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

Field Copy of Stations
OPR-469-RA-74
MINIRANGER STATIONS AND VISUAL SIGNAL LIST

(CONTINUED)

5 SEP 74

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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 50.152
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 10.851
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 00.839
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 32.066
224 SHELTER BAY HYDRO SIGNAL 1974	61 08 04.144	150 14 42.330
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

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

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

TO BE CHARTED
 TO BE DELETED

ORIGINATING LOCATION
Coastal Mapping Division

DATE
Feb., 1974

ORIGINATING ACTIVITY
 FIELD INSPECTION
 FIELD EDIT
 COMPILATION
 FINAL REVIEW
 QUALITY CONTROL AND REV.

(See reverse for responsible person):

The following objects have been inspected from seaward to determine their value as landmarks:

CHARTING NAME	DESCRIPTION	LATITUDE		LONGITUDE		METHOD AND DATE OF LOCATION (See instructions on reverse of this form)			CHARTS AFFECTED	
		D.M. METERS		D.M. METERS		FIELD INSPECTION	COMPILATION	FIELD EDIT		
		° /	'	° /	'					
JOB NUMBER RH- STATE:	SURVEY NUMBER CM-7310 TP-	DATUM N.A. 1927								
light	Pt. Mackenzie Front Range	61 14	22.600	149 59	17.331	Est. 10/14/63		F.3 1974	8557 8553	
light	Pt. Mackenzie Rear Range	61 14	29.172	149 58	52.579	Est. 10/14/63		F.3 1974	8557 8553	
light	Pt. Mackenzie LT.	61 14	19.534	149 59	06.010	rebuilt 9/5/66		F.1 1973	8557 8553	
light	Pt. Woronzof Front Range	61 12	09.025	150 01	11.115	Est. 11/19/70		F.3 1974	8557 8553	
light	Pt. Woronzof Rear Range	61 12	10.372	150 00	53.363	Est. 11/19/70		F.2 1974	8557 8553	
Buoy	Red Starboard Lighted Buoy "8"	61 12	53.44	150 01	22.40			F.5 (see reverse)	8557 8553	

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

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

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

ORIGINATING LOCATION
 Coastal Mapping Division, Norfolk, VA.
 DATE
 Feb, 1974

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

JOB NUMBER AK- CM-7310 STATE: Alaska	SURVEY NUMBER T - 12015 TP-	DATUM N.A. 1927	POSITION				METHOD AND DATE OF LOCATION (See instructions on reverse of this form)			CHARTS AFFECTED
			LATITUDE		LONGITUDE		FIELD INSPECTION	COMPILATION	FIELD EDIT	
			D.M.METERS	0 /	D.P.METERS	0 /				
Range Light	Pt. Mackenzie Range Front Light (Qk Fl)	61 14 0699	22.58 0699	149 59 0260	17.43 0260	Est. 10-14-63	July 1973 73E(c) 9473	P.1	8557 8553	
Range Light	Pt. Mackenzie Range Rear Light (E Int 6 sec)	61 14 0903	29.17 0903	149 58 0783	52.48 0783	Est. 10-14-63	9473 July, 1973	P. 1	8553 8557	
Light	Pt. Mackenzie Light 1973 (Fl 6 sec)	61 14	19.534	149 59	06.010	rebuilt 9-5-66		F.1 July 1973	8557 8553	
Range Light	Pt. Woronzof Range Front Light (Qk Fl)	61 12 0280	09.05 0280	150 01	10.85 0162	Est. 11-19-70	9470 July 1973	P.1	8557 8553	
Range Light	Pt. Woronzof Range Rear Light (E Int 6 sec)	61 12 0319	10.31 0319	150 00	53.23 0795	Est. 11-19-70	9470 July 1973	P.1	8557 8553	
Buoy	Red Starboard Lighted Buoy (Qk Fl R) '18"	61 12	53.44	150 01	22.40			F.5 (see reverse)	8557 8553	

APPROVAL SHEET

H-9441

RA-10-5-74

Cook Inlet - 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 execution of the survey.

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


K. William Jeffers

CDR., NOAA

Commanding Officer

NOAA Ship RAINIER

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

Tide Station Used (NOAA Form 77-12): Anchorage

Period: May - June 1974

July - August 1974 (Green/Hubbard by phone)

HYDROGRAPHIC SHEET: H-9441

OFR: 469

Locality: Entrance to Knik Arm, Upper Cook Inlet

Plane of reference (mean lower low water): 6.6 ft.

Height of Mean High Water above Plane of Reference is 26.8 ft.

Remarks: Recommended Zoning:

Apply the following range ratios and time corrections
to the Anchorage hourly heights:

West of 150°00': x0.94 - 12 minutes
East of 150°00': x0.97 - 12 minutes

James R. Hubbard
for Chief, Tides Branch

APPROVAL SHEET

FOR

SURVEY H- 9441

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position print-out has been made. A new final sounding print-out has been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the verifier's report.

Date: 21 Nov 77

Signed:

[Signature]

Title:

Chief, Verification Branch

GEOGRAPHIC NAMES

Survey No.

H-9441

Name on Survey

Name on Survey	On previous survey										
	A	B	C	D	E	F	G	H	K		
ANCHORAGE	(8557) 16664	H-8527 H-8528									1
	(8553) 16660	H-8786 H-3200									2
		H-8200									3
CHESTER CREEK	(8557) 16664	H-4035 H-8786									4
	(8553) 16660										5
											6
FISH CREEK	(8557) 16664										7
											8
											9
KNIK ARM	(8557) 16664	H-4035 H-8527									10
	(8553) 16660	H-8528 H-8786									11
											12
POINT MACKENZIE	(8557) 16664	H-8528 H-3200									13
	(8553) 16660										14
											15
POINT WORONZOF	(8557) 16664	H-4035 H-8528									16
	(8553) 16660	H-3200									17
											18
TURNAGAIN HEIGHTS											19
BOOTLEGGERS COVE											20
COOK INLET											21
											22
											23
											24
											25
											26

APPROVED

Chas. E. Harrington

CHIEF GEOGRAPHER - C3x8

21 JUNE 1978

HYDROGRAPHIC SURVEY STATISTICS
 HYDROGRAPHIC SURVEY NO. H-9441

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET ^{with PNO, excess} control overlay		1	BOAT SHEETS		2	
DESCRIPTIVE REPORT		1	OVERLAYS (preliminary)		24	
DESCRIPTION	DEPTH RECORDS	HORIZ. QNT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES			1-smooth			
CAHIERS	2-with printouts					
UMES						
BOXES						
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	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				1980
POSITIONS CHECKED		2040		
POSITIONS REVISED		380		
DEPTH SOUNDINGS REVISED		917		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		45		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
Verification of Control		20		
Verification of Positions		77		
Verification of Soundings		210		
Smooth Sheet Compilation		125		
ALL OTHER WORK	14	210	HIT- 15	
TOTALS	14	642		
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
A.E. Eichelberger, James Green	12/6/74		12/31/74	
VERIFICATION BY	BEGINNING DATE		ENDING DATE	
J.L. Stringham, F.L. Rosario	12/18/74		9/7/77	
REVIEW BY	BEGINNING DATE		ENDING DATE	
<i>Q.C.I. - F.A. SAULSBURY</i> <i>Carters whrs 4/28/78</i>			2/13/78 - 86hrs	

Paumotu 8/2/78 4hr

REGISTRY NO. H-9441(1974)

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. _____

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 REQUIRED _____ INITIALS _____

REMARKS:

H-9441

Information for Future Presurvey Reviews

None

<u>Position</u> <u>Lat.</u>	<u>Index</u> <u>Long.</u>	<u>Bottom Change</u> <u>Index</u>	<u>Use</u> <u>Index</u>	<u>Resurvey</u> <u>Cycle</u>
611	1500	9	2	10 years
611	1501	8	2	10 years

PACIFIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO: H-9441

Portion of Pt. Mackenzie to Pt. Woronzof
Upper Cook Inlet, ~~Knik Arm~~, Alaska

FIELD NO: RA-10-05-74

SURVEYED: 29 May - 20 August 1974

SCALE: 1:10,000

PROJECT NO: OPR-469

SOUNDINGS: Ross Fineline Fathometer

CONTROL: Mini-Ranger

Chief of Party.....K.W. Jeffers, CDR, NOAA
Surveyed by.....LT D. Seidel, LTJG R. Ellis,
ENS H. Langeveld, ENS Gadd,
ENS G. Stroble, ENS Stanley,
ENS C. Cavin
Automated Plot by.....PMC Kynetics Plotter
Verified by.....F. L. Rosario
Inked by.....L. Deodato
September 7, 1977

I. INTRODUCTION

Basic hydrography in Upper Cook Inlet, Knik Arm, Alaska, was accomplished on H-9441 by the ship RAINIER as part of OPR-469-RA-74.

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.

Boatsheet soundings were reduced from Anchorage predicted tides. Smooth sheet soundings were reduced from the Anchorage standard gage approved tides. Tide reducers used on the smooth sheet, west of 150°, had a 0.94 ratio with a minus 12 minutes correction. Those for east of 150° had a 0.97 ratio with a minus 12 minutes correction.

Stationing an observer at the Anchorage tide gage site to record staff readings at the times of hydrography could have fostered some confidence in the actual tides. Such a practice could have conclusively proven or disproven the accuracy of the predicted tides in this area. There exists the possibility of more than a slight effect on the tides due to (a) the shoreline or topographic configuration, (b) wind and currents, and (c) the extreme distance between the established tide station and the survey area.

II. CONTROL AND SHORELINE

All hydrography was accomplished utilizing the Mini-Ranger system. See Items "F" and "G", "Position Control" and "Mini-Ranger Report OPR-469-RA-74" for an adequate description of control used for this survey. Daily calibration correctors were used for all the sheets of OPR-469-RA-74. However, there might be a slight compromise in the calibration corrections used. Often, the daily calibrations were performed away from the work area or the areas of calibration were not within the sheet limits.

Shoreline was transferred in ink from unreviewed Class I manuscripts T-12007, T-12015 and T-12016 and pencilled in from the Class III manuscript T-12017.

Photography for these manuscripts was done in 1973 with the field edit work for the Class I's performed in 1974.

Symbolization for T-12016 is very poor in at least three places:

- a) Lat. 61°12'15", Long. 149°57'45"
- b) Lat. 61°12'40", Long. 149°55'40"
- c) Lat. 61°14'07", Long. 149°57'45"

The control listing used for verification is appended.

III. HYDROGRAPHY

Hydrographic coverage was adequate within the prescribed limits. Unfortunately, poor scanning and hydrographic practices did not provide the hydrographer with the necessary data to anticipate the limits of the NE-SW-orientated shoal that bares extensively about 1.0 nautical mile west southwest of Pt. Woronzof. This shoal is about 0.4 mi. in length. Considerable re-scanning was necessary to effect the eventual "limits" and "heights" of this shoal. *Shoal is adequately delineated*

Inshore lines, at times, were not run all the way into shore due to steep slope or bad tidal conditions, as per item "H. SHORELINE" of the Descriptive Report.

The hydrographer's near-total reliance on the tide "correctors to resolve crossline and/or junction areas" was poor practice. (e.g. See items I, J, K of the Descriptive Report) If other checks on field data discrepancies were, in fact, conducted, no such documentation was found. Crosslines amounted to only 6.6 percent of the main-scheme sounding lines but did compare favorably.

IV. CONDITION OF SURVEY

A source of question is the method of calibration, i.e. -away from the survey area, sometimes even off of the sheet's limits.

The charted shoal, about 1.0 mile west southwest of Pt. Woronzof, should have resulted in a system of lines more suitable for development. All indications were that no concerted effort was attempted at determining the extent of this shoal's height and delineation. *Development of this shoal is completely adequate.*

The main-scheme soundings, the junctional soundings, crossline soundings, and the inadequately developed aforementioned shoal, should have served as portentous indicators of possible difficulties during the verification phase. A cursory examination of the smooth boatsheet soundings should have conveyed, literally, a sense of the inadequacies of this survey.

Notes referring to wind and sea conditions and their effects on the surveying work would have been valuable during the verification phase. With these exceptions, the smooth sheet and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the Provisional Hydrographic Manual.

V. JUNCTIONS

Considerable difficulty was encountered in accomplishing satisfactory junctions with H-9438 and H-9440 to the east and H-9442 to the west. Affected also was the charted shoal (about 1.0 mile WSW of Pt. Woronzof), parts of which fell common with H-9442. *see G.C. critique*

Junctional depth curves with the aforementioned surveys have been inked accordingly. Surveys H-9438 and H-9440 had been mailed to Rockville previously.

VI. COMPARISON WITH PRIOR SURVEYS

As per Project Instructions OPR-469-FA, RA-74 - Upper Cook Inlet, Alaska, all pre-1964 (earthquake) surveys are to be considered invalid. Survey H-8787 is, in fact, a 1964 post-earthquake reconnaissance survey. The nature of these reconnaissance surveys, as necessitated by the destructiveness and intensity of that year's Good Friday earthquake, makes even H-8787, a poor prior survey for comparison. However, the smooth soundings did compare favorably with, as yet, unreviewed survey H-8787. Differences of from 3-8 feet were common between these two surveys. These differences could possibly be due to, among other factors, the varying modes of control and/or sounding equipment.

H-9441 is adequate to supersede H-8787, and the pre-1964 prior surveys, for its area of coverage.

VII. COMPARISON WITH THE CHART

Comparison was made with C&GS Chart 16664 (14th Ed., 12/29/73). Most charted soundings appear to originate from H-8787 and H-8527, refer to the chartlet attached to this report.

As noted in the Descriptive Report, the smooth sheet contour lines compare rather poorly with the chart. The shoal at the southwestern end of the survey is not nearly so large as the chart indicates.

A noticeable difference between H-9441 and the chart is the absence of the isolated bare feature just to the northeast of the aforementioned and larger shoal area.

Dispositions of Pre-Survey Review (OPR-469) (Sheet 1 of 2) 12/7/66

Item #5. "The Foul area charted in about Lat. $61^{\circ}12'10''$, Long. $149^{\circ}58'05''$ originates with 1964 Air Photos, and is the apparent limit of debris from the landslides in the Turnagin Heights area caused by the 1964 earthquake. ✓

The limits of the "Foul" area has been ascertained as per depiction on Class I manuscript, TP-12015. ✓

Item #6. The barge charted in Lat. $61^{\circ}14'30''$, Long. $150^{\circ}00'01''$ originates with T-12015 (1960-1963) which shows it to be a "fixed barge" apparently grounded. ✓

The symbolization and the note barge is now depicted as Wreck Barge in the charted location as per Class I manuscript, TP-12015. ✓

Item #7. The note Boulders charted in two places in the vicinity of Lat. $61^{\circ}14'25''$, Long. $150^{\circ}00'55''$ originates with H-8213 (1955) which contains a note: "numerous large boulders bareing at low water in this area." ✓

The note Boulders charted in two places have been superseded by an explanatory note... "area foul with small rocks and boulders" as per Class I manuscript, TP-12015. ✓

Item #8. The 35-foot sounding added to the chart in Lat. $61^{\circ}13'18''$, Long. $149^{\circ}59'54''$ originates with H-7186 (1947) and is supported by a 39-ft. sounding cleared by 32-ft. and a bottom characteristic "rky" on H-4036 W.D. (1918), a 37-ft. sdg. on H-8213 (1955) and a 41-ft. sdg. on H-8528 (1960). ✓

Soundings obtained on H-9441 uncovered a 43-foot least depth. However, the system of sounding lines employed has been deemed inadequate. With discreet

modifications in the orientation, of sounding lines, supportive soundings or possibly even lesser depths might be uncovered. The 15th Edition, March 29, '75 of C&GS Chart 8557 (16664) shows a 33-foot sounding just to the east northeast of the 35-foot also. So the 35-foot sounding is not considered disproved and has been transferred to the smooth sheet from H-7186, 1947. See Section IX Additional Field Work for a recommendation for additional field work. *Retain charted 33' sdg.*

#Item 9.

The 56-foot sounding charted in Lat. $61^{\circ}13'12''$, Long. $150^{\circ}00'44''$ originates with the unverified smooth sheet of H-8787 (1964). A 42-ft. sdg. cleared by 31-ft. was previously found here on H-4036 W.D. (1918), supported by a 46-ft. sounding on H-7186 (1947) and the bottom characteristic "boulders" charted nearby from H-4035 (1918).

Soundings of 47-ft. on H-8213 (1955) and 46-ft. on H-8528 (1960) were also found at this location.

A 42-foot sounding was uncovered during this current survey, thus supporting a similar depth found on H-4036 W.D. (1918) and opening up the possibility of lesser depths. It is deemed that, again, with discretion in the orientation of sounding lines and also because of the "Boulders" notation in proximity, a more thorough investigation is in order. *Retain charted 42 ft. sdg. Adequately developed.*

A disposition of disproved
Dashed - Circled Items *is in the O.C. critique*
from H-8213 (1955)

(a) A ^{*}28-foot sounding encircled in dashed lines on the Pre-Survey Review chartlet (at approx. Lat. $61^{\circ}12'57''$, Long. $150^{\circ}00'00''$) was not supported by soundings on this survey. Soundings of 33 and 35 feet were found in this vicinity; however, which also gives rise to the possibility of lesser depths. *30-ft. sdg. brought fwd. Retain 30-ft sdg.*

(b) The ^{*}17-foot sounding at approx. Lat. $61^{\circ}12'35''$, Long. $150^{\circ}01'45''$, encircled in dashed lines, is supported by a 21-foot sounding found during this survey. Again, a discreet system of sounding lines might help prove or disprove the 17-foot sounding. *19-ft. sdg. brought fwd. Retain 19-ft. sdg.*

** with 2' earthquake subsidence 28-ft sdg. is 30-ft. — 17-ft. sdg. is 19-ft.*

- From H-7186 (1947)*
- (c) A 39-foot sounding, encircled in dashed lines at approx. Lat. $61^{\circ}12'45''$, Long. $150^{\circ}02'15''$ can neither be proven or disproven by this survey. The least depth found near this coordinate was a 41-foot sounding. Therefore, the 39-foot sounding is not considered disproven, due to the apparent lack of sounding lines. *with 2-ft. earthquake subsidence retain 41-ft. sdg.*
- (d) No concerted effort was directed in formulating a disposition for the remaining six (6) encircled dashed sounding items. (See Pre-Survey Review. OPR-469 (Sheet 1 of 2) 12/7/66) These items are all shoaler than data from this survey and, therefore, should continue to be charted from its source.

Additionally, no disposition was made regarding charted rocks at the various locations; i.e.:

- (a) 2 charted rocks to the south and 1 charted rock *carried fwd* to the east of Pt. MacKenzie.
- (b) Several charted rocks to the east and west of *carried fwd.* Pt. Woronzof.

These rocks are neither disproven or confirmed by this survey. They should be referred to their sources, and if valid, retained on the chart.

The 1977 Pre-Survey Review Update OPR-469, dated 4/21/77, recommends additional field work on some of the aforementioned items.

Charted positions of aids in the survey area adequately mark the features intended. The fixed aids to navigation are plotted on the smooth survey sheet. However, the location of the floating aid-to-navigation (i.e. - buoy to the north northwest of Pt. Woronzof) was not available in the hydrographic records. The "Coast Pilot Report OPR-RA-469-74" referred to in Section N of the Descriptive Report for H-9441 could not be located at PMC nor at the Coast Pilot Branch in Rockville. Buoy "8" (QK FI R) was plotted using G.P.'s from Form 76-00, attached to the ship's report. Note that the chart identifies this as Buoy "10", whereas the ship and the 1974 C.G. Light List identifies it as Buoy "8".

However, because of the preponderance of data from these more current surveys and their intraviability, this survey is considered adequate to supersede charted hydrography with the exceptions noted above.

VIII. COMPLIANCE WITH INSTRUCTIONS

H-9441 adequately complies with Project Instructions - OPR-469-FA, RA-74, Upper Cook Inlet, Alaska, dated 15 February 1974.

IX. ADDITIONAL FIELD WORK

The only recommendation for additional field work falls in line with field work requirements of Items 8 and 9 of Pre-Survey Review Updates OPR-469, dated 12/7/66 and 4/21/77. Credibility of the data in these areas would be enhanced if the additional sounding lines were run in a more east-west orientation (instead of the previous north-south lines as in the 1974 work).

This survey as a whole can be considered as a fair basic survey.

X. NOTES TO COMPILER

Attention should be directed to Items 8 and 9 of the Pre-Survey Review requirements dated 4/21/77 noted in the preceding paragraph and to the pencilled areas where Class I manuscript was not available.

Respectfully submitted,

Felipe L. Rosario
5.12/29/30/77

Felipe L. Rosario
Cartographic Technician
August 29, 1977

Examined and approved,

J S Green

James S. Green
Chief, Verification Branch



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

9 December 1977

TO: Eugene A. Taylor
Director, PMC

EATaylor

FROM: *Glen R. Schaefer*
Glen R. Schaefer
Chief, Processing Division

SUBJECT: PMC Hydrographic Survey Inspection Team Report - H-9441

This survey is a basic survey of Knik Arm, Cook Inlet, AK. This survey was conducted by NOAA Ship RAINIER in 1974 in accordance with Project Instructions OPR-469-RA-74, dated 8 February 1974. ✓

Positional control of sounding lines in the vicinity of Latitude 61°11'35"N and Longitude 150°02'45"W was weak, as noted on the PFO, due to the very slim angle of intersection of the range rates. ✓ These sounding lines showed a consistency with themselves and soundings showed consistency with adjacent soundings and soundings of crosslines. Consequently, the data was retained.


The ship failed to adequately investigate, resolve and document some PSR items on this survey. Those critical PSR items requiring additional investigation have already been included in the draft Project Instructions for a 1978 survey scheduled to cover a portion of the western part of this survey.


The smooth sounding sheet was plotted prior to the automation of the Title Block Data. The title block will be applied by Rockville in accordance with previous procedures. ✓



The inspection team finds H-9441 to be a fair basic survey, adequate to supersede common areas of prior surveys and charted hydrography.


G. R. Schaefer, CDR


J. C. Albright, ICDR



J. W. Steensland


M. G. Sanders

ADMINISTRATIVE APPROVAL

H-9441

The smooth sheet and reports of this survey have been examined and the survey is adequate for charting and to supersede common areas of prior surveys.



Eugene A. Taylor, RADM
Director
Pacific Marine Center

9 DEC 1977

Date



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

C352/FPS

June 1, 1978

TO: *A. J. Patrick*
A. J. Patrick
Chief, Marine Surveys Division

THRU: Chief, Quality Control Branch

FROM: F. P. Saulsbury *F. P. Saulsbury*
Quality Evaluator

SUBJECT: Quality Control Report for H-9441 (1974), Alaska, Upper Portion
of Cook Inlet, Knik Arm, Anchorage to Point Woronzof

A quality control inspection of H-9441 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, shoreline transfer, smooth plotting, decisions and actions taken by the verifier, and the cartographic presentation of data. In general, it was found to conform to the National Ocean Survey's standards and requirements except as stated in the reports by the verifier and Hydrographic Inspection Team and as follows:

1. Depth curves did not always delineate natural features and because of this were occasionally revised to better delineate bottom configuration. A few curves were added where omitted and a few supplemental curves were added to emphasize shoal soundings or features. Small portions of the 0-, 6-, and 12-foot depth curves were added as dashed curves because of a lack of hydrography in some inshore areas.
2. The junction on the west with H-9442 (1974) was accomplished during the inspection of that survey. The junction on the northeast with H-9440 (1974) was made during quality control inspection. In the junction on the east with H-9438 (1974) overlapping curves were made coincidental where soundings were in agreement. In the southern area of the junction where soundings on the present survey are 2 feet shoaler than counterpart soundings on H-9438, a butt junction was made, retaining the soundings from the larger scale survey H-9438 for charting.
3. A landmark description was added to the radio mast on the present survey, charted as such in latitude $61^{\circ}12.42'$, longitude $149^{\circ}55.34'$.
No elevations were found in the survey records.



4. The rock awash charted from H-6658 (1941) in latitude $61^{\circ}12.11'$, longitude $149^{\circ}59.28'$ uncovers 4 feet at MLLW on its original source. This rock was not found on the present survey, falls in present depths of minus 7 to 16 feet, and is considered to have been completely covered with sediments.
5. The two islets and five rocks awash, charted northeast of Point Mac-kenzie, within the green tint, between longitude $149^{\circ}56.60'$ and $149^{\circ}55.60'$, generally originating with H-8729 (1963), differ with present survey information. The rocks and their positions should be charted as they appear on the present survey.
6. Presurvey Review Item 8 addresses a 35-foot sounding charted from H-7186 (1947) in latitude $61^{\circ}13.28'$, longitude $149^{\circ}59.92'$ while overlooking the least depth on this rocky shoal, a 33-foot sounding charted in latitude $61^{\circ}13.30'$, longitude $149^{\circ}59.78'$ from an NOS special shoal investigation of 1971 (Chart Letter 1154 of 1971). The 35-foot sounding carried forward in review was revised to 37 feet to reflect 1964 earthquake subsidence of 2 feet and a bottom characteristic "rky" was brought forward from H-4036 W.D. (1918). This wire-drag survey cleared the area with an effective drag depth of 32 feet. The charted 33-foot sounding is the least depth obtained on this shoal and should be retained as charted. No further investigation or additional work is recommended.
7. Some of the shoal soundings shown on the Presurvey Review mark-up chart as dashed circle items are considered to fall in areas of changeable bottom. The following is an itemized disposition of these soundings.
 - a. The 5- and 7-foot soundings formerly charted from H-8213 (1955) in latitude $61^{\circ}12.12'$, longitude $150^{\circ}03.18'$ and latitude $61^{\circ}12.20'$, longitude $150^{\circ}02.86'$, respectively, are no longer charted. They were formerly down slope of a prominent shoal that has migrated southward approximately 400 meters, and now fall in depths of about 30 feet.
 - b. The 23-foot sounding charted from H-8213 (1955) in latitude $61^{\circ}13.92'$, longitude $150^{\circ}03.72'$ falls in an area that has shoaled to 20 to 21 feet on the present survey.
 - c. The 58-foot sounding charted from unverified survey H-8787 (1964) in latitude $61^{\circ}13.69'$, longitude $149^{\circ}57.10'$ falls in a changeable area and is considered discredited by 68-foot depths on the present survey.
 - d. The 24-foot sounding charted from H-8213 (1955) in latitude $61^{\circ}13.20'$, longitude $149^{\circ}56.48'$ is discredited by 27-foot present survey depths. A least depth of 23 feet on the present survey is found 90 meters west of the charted 24-foot sounding and adequately indicates the shoal in this area.

e. The 27-foot sounding charted from H-6658 (1941) in latitude $61^{\circ}14.17'$, longitude $149^{\circ}56.45'$ is discredited by 39- to 59-foot present survey depths. The fact that this area was cleared in 1918 by a wire drag with effective depths of 40 to 41 feet on H-4036 established the changeable nature of the bottom at this location. Least depths of 34 feet are found on the present survey 130 meters northwest of the charted 27-foot sounding.

The 36-foot sounding charted from H-6658 (1941) in latitude $61^{\circ}14.18'$, longitude $149^{\circ}56.06'$, falling in present survey depths of 60 to 62 feet, is discredited for the same reasons as for the preceding 27-foot sounding.

8. The following prior surveys were compared during quality control inspection to ascertain stability or change in the bottom. Inasmuch as many soundings are charted from these surveys, an examination of the surveys was considered necessary for a proper evaluation of the charted shoal soundings.

a. Post 1964 earthquake surveys

H-9076 (1969)
 H-8787 (1964)
 H-8786 (1964)

b. Pre 1964 earthquake surveys

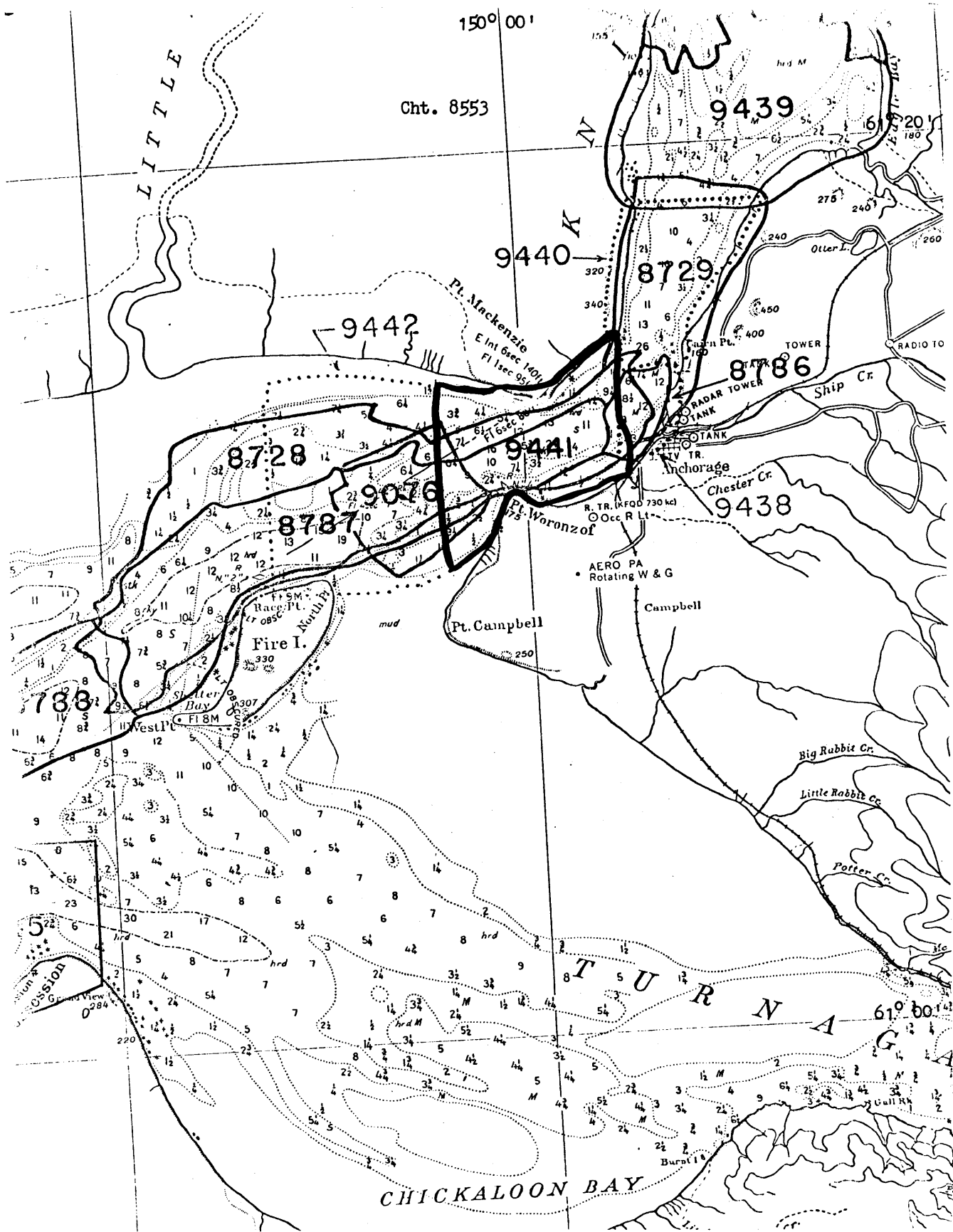
H-8729 (1963)	H-6658 (1941)
H-8528 (1960)	H-6657 (1941)
H-8527 (1960)	H-5104 (1930)
H-8468 (1959)	H-4035 (1918)
H-8213 (1955)	H-3200a (1913)
H-8203 (1955)	H-3200 (1910)
H-7186 (1947)	

H-4036 W.D. (1918) was compared with the present survey and no conflicts were noted with effective drag depths except in a sand ridge area in the vicinity of latitude $61^{\circ}14.25'$, longitude $149^{\circ}56.60'$. Present survey depths are 1 to 5 feet shoaler than 39- to 41-foot effective drag depths. Depths in this area should be charted from the present survey.

9. The shoreline previously transferred in pencil from T-12017(2) was inked during quality control inspection inasmuch as no field edit will be done on that survey. The "submerged 3 ft at MLLW" note accompanying the "wrecked car" plotted in latitude $61^{\circ}12.61'$, longitude $149^{\circ}56.30'$ from T-12016(2) was arbitrarily revised to "uncovers 3 ft at MLLW" inasmuch as the car falls shoreward of the MLLW line.

Except for some stable rocky features the bottom in this area is subject to considerable change. Depth changes as great as 10 feet have occurred west of Point Woronzof since survey H-9076 (1969). The offlying detached shoal southwest of the point has shifted southwestward, inshore shoals have eroded, and offshore areas have scoured. In the northeast portion of the present survey a shoaling of 15 to 20 feet has occurred in portions of the area since H-8729 (1963).

cc:
C35
C351



Cht. 8553

150° 00'

LITTLE

9439

9440

20'

9442

8729

8786

8728

9441

8787

9076

9438

788

Fire I.

Pt. Campbell

AERO PA
Rotating W & G

Campbell

Big Rabbit Cr.

Little Rabbit Cr.

Potter Cr.

TURNAGA

61° 30'

CHICKALOON BAY

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9441

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
8553	6/26/78	XAVIS	Full Part Before After Verification Review Inspection Signed Via Drawing No. ²⁴ Thru chart 8557, DWS #18
8557	1/28/77	Graham	Full Part Before After Verification Review Inspection Signed Via
	3/6/77	Borowski	Drawing No. 18 Full after Q.C.
	Review	Kenna	Added additional C 5095 after Q.C. see report
	10/12/78		Full Part Before After Verification Review Inspection Signed Via Drawing No.
16665	8/28/81	J. Bailey	Full Part Before After Verification Review ^{QC} Inspection Signed Via Drawing No. Applied thru DRWG AIR 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.
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