9442

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-10-6-74

Office No. H-9442

LOCALITY

State ALASKA

General Locality UPPER COOK INLET

Locality NORTH OF FIRE ISLAND

1974

CHIEF OF PARTY
K. William Jeffers

LIBRARY & ARCHIVES

DATE December 30, 1977

☆ U.S. GOV. PRINTING OFFICE: 1976—669-441

AREA - 6

9442

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-9442

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-10-6-74

State Alaska

General locality Upper Cook Inlet

Locality North of Fire Island

Scale 1:10,000 Date of survey 25 June to 22 Aug 1974

Instructions dated 15 Feb. 1974 Project No. OPR-469-FA, RA-74

Vessel NOAA Ship RAINIER and Launches 2123, 2124, 2125, and 2126 RA-3 RA-4 RA-5 RA-6

Chief of party CDR K. William Jeffers

Surveyed by M. Allen, K. Andreen, P. Gadd, H. Langeveld, D. Seidel, G. Stroble

Soundings taken by echo sounder, ~~hand lead, pole~~ Ross, Model 5000: S/N 1040, 1041, 1042

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Positions verified by A. E. Eichelberger Automated plot by PMC/Xynetics Plotter

Soundings Verification by A. E. Eichelberger

Soundings in ~~XXXXX~~ feet at ~~XXXX~~ MLLW

REMARKS: Time Meridian: 000°

The mean longitude of the survey is 150°10.0'W

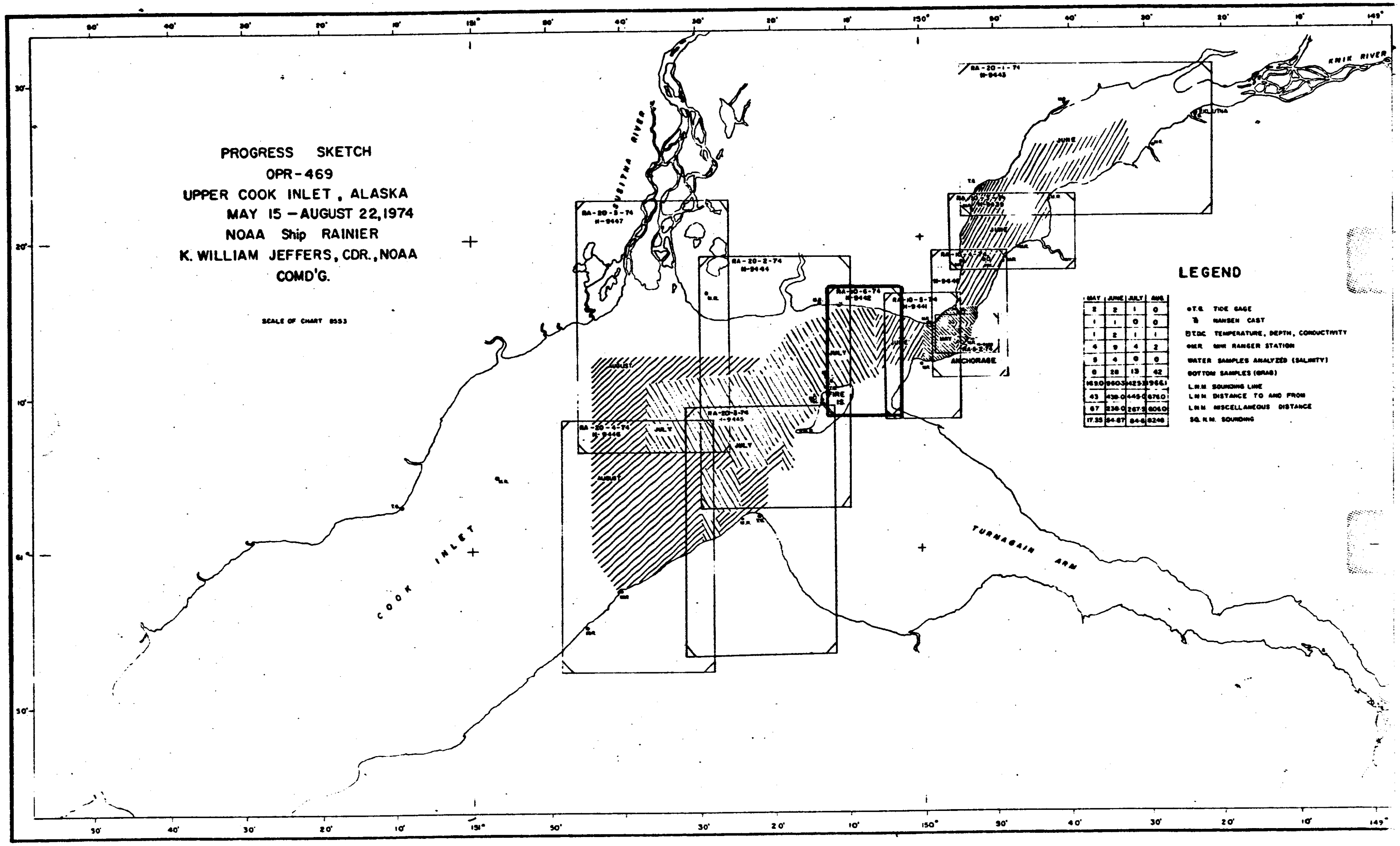
The survey is complete as required by project instructions

Chief, T. S. T/S. 8-16-78
WJT

XWW 5/9/91

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

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


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 8553
LEGEND
MAY JUNE JULY AUG.
2 2 1 0 T.G. TIDE GAGE
1 1 0 0 HANSEN CAST
1 2 1 1 T.D.C. TEMPERATURE, DEPTH, CONDUCTIVITY
4 9 4 2 MINI RANGER STATION
5 4 0 0 WATER SAMPLES ANALYZED (SALINITY)
0 28 13 42 BOTTOM SAMPLES (GRAB)
L.N.M. SOUNDING LINE
L.N.M. DISTANCE TO AND FROM
L.N.M. MISCELLANEOUS DISTANCE
SQ. N.M. SOUNDING
KNIK RIVER
SUSITNA RIVER
TURNAGAIN ARM
COOK INLET
ANCHORAGE
FIRE IS.
JUNE
JULY
AUGUST
RA-20-1-74
RA-20-2-74
RA-20-3-74
RA-20-4-74
RA-20-5-74
RA-20-6-74

A. Project

This hydrographic survey was conducted in accordance with Project Instructions, OPR-469-RA-74, Upper Cook Inlet, Alaska, dated February 8, 1974.

B. Area Surveyed

The area covered by this survey included a portion of Upper Cook Inlet, Alaska, approximately 5 miles west of Anchorage. The survey was bounded on the north by the northern shoreline of Cook Inlet and on the south by the northern shoreline of Fire Island and the northern limit of the mud flats in Turnagain Arm. The eastern limit for the survey was longitude 150°04'00"W and the western limit was longitude 150°12'00"W. The survey was commenced on June 25 (JD 176), 1974, and ended on August 22 (JD 233), 1974.

The survey made junctions with the following contemporary surveys:

Registry No.	Field No.	Scale
H-9441	RA-10-5(A)-74	1:10,000
H-9444	RA-20-2(B)-74	1:20,000

C. Sounding Vessel

NOAA Ship RAINIER launches 2123 (RA-3), 2124 (RA-4), 2125 (RA-5), and 2126 (RA-6) obtained all soundings for this survey. The RAINIER obtained the bottom samples.

D. Sounding Equipment and Corrections to Echo Soundings

Sounding equipment operated well during the survey. Ross fathometers (model 5000, serial numbers RA-5/1041, RA-6/1040, RA-4 and RA-3

sharing 1042) obtained all soundings. All launches worked within the entire range of depths and in various areas of the survey. Technicians monitored the fathometers continuously during operation and kept the initial value on the analogue trace at zero. In addition, the fathograms were scanned during real time sounding acquisition to compare analogue with digitized values. Major discrepancies between the values were changed to agree with the analogue value. The blanking function was employed to reduce spurious returns, and the fathometers were internally phased and adjusted so as to have no phase correction. Phase checks were made routinely by setting the Ross switch to "Calibrate Phase Set" and entering a depth to assure no change in phasing.

All applicable corrections were incorporated on a TC/TI (transducer Correction/Table Indicator) tape for automated processing (refer to separates following the text for listings of these tapes). A transducer correction (TRA) as determined for each of the launches from routine bar checks was used for processing of the soundings aboard the RAINIER. When bar checks were not available a value for TRA for each launch was used from the previous days' bar checks. Velocity corrections were computed from three TDC casts taken on 25 June, 29 July and 21 August, 1974. Two Nansen casts were also taken during the project for comparative values only. The results were in good agreement with the TDC casts. Vertical casts were taken for launches 2125 (RA-5) and 2126 (RA-6) during the project. Values from the vertical casts did not agree (one to two feet of difference) with the depths obtained from the Ross fathometer. During execution of the vertical casts the currents would put an unavoidable slope in the lead line, and in addition

it was difficult to determine when the leadline hit bottom. As a result an accurate depth for sounding comparison could not be obtained. It is recommended that these vertical casts not affect the corrections to echo soundings.

For further information refer to Corrections to Echo Soundings, OPR-469-RA-74.

E. Boat Sheet

The Transverse Mercator Projection and soundings were plotted by RAINIER personnel using the ship PDP8/e Hydroplot System. Equipment in the system included the PDP8/e computer (S/N 1011) and complot plotter (Model DP-3, S/N 4670-4).

The central meridian for the project was 150°10'00"W and the control latitude was 6,738,000 meters north of latitude zero. Rough plots were made daily and a final plot collated as the work progressed. No discernable distortion could be detected in the boat sheet during the period of the final plot.

F. Station Control

Electronic control stations for this survey made use of existing triangulation stations. Mini-Ranger sites were:

Station	Signal No.
ZOF 1974	101
[MAC RM3 1974, RM1 1960, 1964]	103
SIT 1966	112
RACE PT RM3 1964	113
MISERY 3 1944	114
RACE PT LT 1966	120

Topographic station ZOF, 1974 was established with third order precision and was the only newly established station used as an electronic control

station. ZOF was traversed (open) with a CA-1000 tellurometer and T-2 theodolite and was also trilaterated with a CA-1000 tellurometer. Refer to Geodetic Control Report, OPR-469-RA-74 for more specific procedures used is establishing this station.

Control stations for visual three-point fix and T-2 theodolite calibration of Mini-Rangers included the electronic control stations and other existing triangulation stations. Shelter Bay Hydro Signal (224), used for visual three-point fix calibration was established by open electronic traverse.

The ASCII signal tape used during the project contained more stations than are included in the station list and ASCII signal tape submitted with this report. Field copy of stations used during the project reflects these additional stations and is included in the separates following the text

G. Position Control

This survey made use of the super-high frequency (SHF) Motorola Mini-Ranger III (range-range) for position control of soundings. The system worked satisfactorily during the survey. Mini-Ranger stations that were established as described in Section F. Station Control of this report were located to prevent weak geometric configurations as range-range intersections (greater than 30 degrees). For information concerning the definition of areas that were controlled by the various pairs of electronic stations refer to Abstract of Positions in separates following the text. All position control was range-range except for position numbers 4365-4421 on July 14 (JD 196), which was range-visual.

Occasionally during the survey the Mini-Ranger system would malfunction

for short periods of time giving erratic ranges or no ranges at all. The cause of the malfunctions could not be ascertained at the time of the survey, but was believed to be either reflection problems from the steep bluffs, phase cancellation, or electronic interference from the numerous military installations in the area. In any event, the malfunctions did not seriously affect the survey and were handled with little difficulty in the processing of the data. Soundings that involved Mini-Ranger malfunctions were deleted from the master tape and inserted on the corrector tape to be plotted in time and course between soundings with adequate fix data.

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

Date	Time(L)	Component	Launch & S/N 2123	2124	2125	2126
25 June	0800	Range Console	720	None	715	711
		R/T	727		720	718
12 July	0800	R/C	None		720	-	-
		R/T			727	-	-
19 August	0800	R/C	715	None	720	-
		R/T	720		727	-

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

Code	Serial Number
1	774
2	775
3	776
4	777

Calibration of the Mini-Ranger system was accomplished by two different methods. During the first portion of the survey visual three-point sextant fixes were accomplished, once in the morning and once in the afternooon, visibility permitting. In the latter portion of the survey, when the sextant fixes were becoming weak or unreliable due to lack of signals, a theodolite calibration system was instituted. On this particular boat sheet the theodolite system was used only during development work the last days of the survey. Refer to Electronic Control Report (Mini-Ranger system) OPR-469-RA-74 for details of the theodolite calibration system.

A mathematical solution for three-point fixes was obtained by using program Am 560S (With slope correction) in the PDP 8/e computer. Results of the calibrations were analyzed and the corrections obtained from the analysis were applied through the corrector tape when the data was processed in the evening. The theodolite calibrations were processed using the Wang Calculator program "Intersection for Teletype output" (700/PF/022) and Am 300 in the PDP 8/e computer. Again the results were analyzed and applied through the corrector tape in the evening processing. The position control of the plot of the soundings on the boat sheet include the correctors from each applicable type of calibration. Mini-Ranger slope correction however, was not applied to position control of soundings. Refer to Electronic Control Report (Mini-Ranger System) OPR-469-RA-74, for further information concerning the operation of the Mini-Ranger III System during the project.

H. SHORELINE

Shoreline for the boat sheet was transferred from T-Sheet Manuscripts T-12002, T-12014, and ~~T-12017~~. All shoreline and topographic detail on the boat sheet was verified by field edit and rocks that would be potential danger to navigation were located with three-point sextant fixes. Random three-point sextant fixes were taken on previously photo-identified rocks. On rocks that were checked no movement could be ascertained from the previous photo information. No changes in detail in the T-Sheet manuscripts were necessary. Additional rocks delineated by field edit were added to the boat sheet in red. For field edit of the north shoreline of Fire Island is will be necessary to refer to Ra-20-2B-74 (H-9444). Field edit on this boat sheet was complete. For further information on shoreline refer to Field Edit Report, OPR-469-RA-74.

I. CROSSLINES

Crosslines totaled 63.3 nautical miles or 12.2 per cent of the main scheme of soundings. Some crossline soundings as compared to main scheme soundings differed by as much as ~~seven~~ eight feet. Possible cause of this discrepancy could be the predicted tides from the reference station at Anchorage Alaska, which were used to reduce all soundings. Observed tide correctors to be applied at Pacific Marine Center;s Processing Division will probably make crossings agree within closer limits. All Crossline soundings were plotted in red.

J. JUNCTIONS

Junctions were made with contemporary surveys H-9441 (RA-10-5A-74) and H-9444 (RA-20-2B-74) which were plotted in purple and blue respectively. Junction soundings sometimes differed by as much as nine feet. The depth curves do not continue smoothly in some areas of the junctions as a result of the sounding differences. It is expected that the application of observed tides will greatly decrease the differences between junction soundings.

K. COMPARISONS WITH PRIOR SURVEYS

This survey verified the existence of presurvey review item number ten. The existence of the shoal was verified with a least depth of 18 5 feet at latitude 61° 12' 19"N, longitude 150° 05' 17"W. The difference between this 18 5 foot sounding and the 12, 14, and 15 foot soundings of the prior surveys could be the result of the use of predicted tides for the area. some prior least depths returned

Main scheme soundings were compared with prior surveys H-8787 (1:20,000) 1964 and H-7186 (1:20,000) 1947. There are major differences between the soundings of this survey and H-7186. In places the difference approaches 60 feet. A difference of this magnitude indicates a majorshift in the extent and position of the mudflats along the north shore of Upper Cook Inlet. northward slight of about 1 mile In the Southern portion of the survey agreement with prior survey H-8787 is somewhat better although the differences remain significant, approaching 30 feet in some areas. The major differences are all in the vicinity of the mud flats in the upper 2/3 's of the survey area. Those in the navigational areas all show

an increase in depth.

Considering that H-8787 is post earthquake the differences could only be attributed to erosion and deposition of the mud flats by the extreme tidal currents through the area.

L. COMPARISON WITH THE CHART

This survey was compared with C&GS chart 8557, scale 1:40,000, 14 Edition dated 29 December 1973.

There are large differences in certain areas between the compared soundings of this survey and the soundings on 8557. Soundings south of 61° 11' 30"N agree within reasonable limits. North of that latitude the disagreements become greater. Along latitude 61° 12'N on the western side of the survey the differences approach 40 feet. These areas are along the southern edge of the mud flats. In navigational areas there is generally acceptable agreement (5 feet) and where the difference is greater this survey shows the greater depth.

A significent danger to navigation at latitude 61° 12' 03"N, longitude 150° 04' 48"W was discovered during the survey. Development of the area showed a least depth of ~~19~~ 20 feet below MLLW (using ~~predicted~~ approved tides). The least depth was the third out of position number 6085 on 25 June (JD 176). The Coast Guard Notice to Mariners was notified by radio message. A copy of the message is included in Separates Following the Text.

M. ADEQUACY OF THE SURVEY

This hydrographic survey is complete and adequate to supercede prior surveys for charting purposes. The survey is deficient, however, in the development of the zero foot curve along portions of the northern and southern limits of the survey. Inshore lines sometimes were unable to run all the way due to steep slope or bad tidal conditions.

The fathogram was scanned in the field and checked for peaks and deeps. Changes andadditions were made to the original records accordingly.

N. AIDS TO NAVIGATION

The floating and non-floating aids to navigation were adequately charted. A new aid is recommended on the newly discovered shoal mentioned in Section "L". Refer to Aids to Navigation and Landmarks for Charting Report, OPR-469-RA-74.

O. STATISTICS

This survey contains 564.7 nautical miles of soundings covering an area of 17.3 square nautical miles obtained by the following vessels:

Vessel	Nautical Miles	Positions	Remarks
2120	-----	7	Bottom Samples
2123	182.3	926	Hydrography
2124	64.2	405	Hydrography
2125	226.4	932	Hydrography
2126	91.8	376	Hydrography
Totals	564.7	2639	

Refer to Abstract of Positions in Separates Following the Text for further information on statistics.

P. MISCELLANEOUS

None

Q. RECOMMENDATIONS

No further specific recommendations are considered necessary for this survey.

R. REFERENCES TO REPORT

Corrections to Echo Soundings, OPR-469-RA-74
Field Edit Report, OPR-469-RA-74
Geodetic Control Report, OPR-469-RA-74
Electronic Control Report (Mini-Ranger System), 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. Proper formats were observed for all tapes and printouts were made for all tapes. Ignore Mini-Range corrector words on master tapes. Use daily correctors as supplied on the corrector tapes.

All position control was range-range except for position numbers 4365-4421 on 14 July (JD 196) which was range visual.

Respectfully submitted,

G.W. Stanley
LT. (jg)., NOAA

TIDE NOTE

RA-10-6-74 (H-9442)

Tide reducers for boatsheet soundings 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," with the following correctors applied :

BOATSHEET	CORRECTIONS TO ANCHORAGE			
	Time*		Height*	
	H	L	H	L
RA-10-6A-74	+15	+15	0.00	0.00
RA-10-6B-74	+15	+15	0.00	0.00

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

The correctors were derived from an interpolation of the time and height differences between Anchorage and Fire Island 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:

STATION	LOCATION	DATES OF INSTALLATION/REMOVAL
Anchorage	61 14.3'N, 149 53.3'W	N/A
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 RAINIER on project OPR-469 during 1974.

STATION LIST
H-9442(RA-10-6-74)

STA	O	LATITUDE	LONGITUDE	CRT	ELEV	F. KHZ	TYPE/NAME	SOURCE
101	4	61 12 15360	150 00 49560	243	0048	149835	ZOF 1974 OPEN ELECTRONIC TRAVERSE AND TRILATERATION	REF.*
103	7	61 14 19454	149 59 05884	139	0028	149835	MAC RM3 1947 RM1 1960,1964	
112	7	61 15 51370	150 12 37662	139	0017	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	MISERY 3 1944	
115	7	61 07 35754	150 16 48087	139	0012	149835	FIRE ISLAND LIGHT 1966	
120	7	61 10 17462	150 12 35026	139	0061	149835	RACE POINT LT 1966	
201	7	61 09 34034	150 01 54683	139	::::	000000	SITE POINT RADOME 1964	
202	7	61 12 11079	150 00 50182	139	::::	000000	PT WORONZOF 6 1969	
207	7	61 13 46510	149 52 35348	139	::::	000000	ANCHORAGE MUNICIPAL TANK 1964	
208	7	61 13 55988	149 52 21661	139	::::	000000	ANCHORAGE ACS MICROWAVE TOWER 1960,1964	
209	2	61 14 19534	149 59 06010	139	::::	000000	PT. MACKENZIE LIGHT 1973	
224	7	61 08 04144	150 14 42380	243	::::	000000	SHELTER BAY HYDRO SIGNAL 1974 OPEN ELECTRONIC TRAVERSE	REF.
225	5	61 12 09025	150 01 11115	243	::::	000000	PT WORONZOF RANGE FRONT LT 1974 INTERSECTION	REF.
226	5	61 12 10372	150 00 53363	243	::::	000000	PT WORONZOF RANGE REAR LT 1974 OPEN STADIA TRAVERSE	REF.
227	1	61 14 22600	149 59 17331	243	::::	000000	PT MACKENZIE RANGE FRONT LT 1974 INTERSECTION	REF.
228	1	61 14 29172	149 58 52579	243	::::	000000	PT MACKENZIE RANGE REAR LT 1974 INTERSECTION	REF.

* 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

Field Copy of Stations

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 00.839
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 32.666
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

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

ORIGINATING ACTIVITY
- ☐ FIELD INSPECTION
- ☒ FIELD EDIT
- ☐ COMPILATION
- ☐ FINAL REVIEW
- ☐ QUALITY CONTROL AND RE

(See reverse for responsible perso

☒ TO BE CHARTED
☐ TO BE DELETED

ORIGINATING LOCATION: Coastal Mapping Division, Norfolk, Va.

DATE: Feb,1974

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

JOB NUMBER: PH- 6013
STATE: Alaska
SURVEY NUMBER: T - 12014
TP-
DATUM: N.A.1927
POSITION

CHARTING NAME	DESCRIPTION	LATITUDE ° ′	LATITUDE ″ D.M.METERS	LONGITUDE ° ′	LONGITUDE ″ D.P.METERS	METHOD AND DATE OF LOCATION (See instructions on reverse of this form) FIELD INSPECTION	COMPILATION	FIELD EDIT	CHARTS AFFECTED
Light	Race Point Light Fl 2½ sec	61 10	17.462	150 12	35.026	rebuilt 8-21-65		F.1 1966	8557 8553
Buoy	Red Nun "2"	61 12	27.72	150 05	36.85			F.5 1974 (see reverse)	8557 8553
Buoy	Black Stbd. Buoy "7" (lighted)	61 12	13.51	150 05	23.48			F.5 1974 (see reverse)	8557 8553
									72

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

ORIGINATING ACTIVITY
- ☐ FIELD INSPECTION
- ☒ FIELD EDIT
- ☐ COMPILATION
- ☐ FINAL REVIEW
- ☐ QUALITY CONTROL AND REV

(See reverse for responsible person

☒ TO BE CHARTED
☐ TO BE DELETED

ORIGINATING LOCATION: Coastal Mapping Division

DATE: Feb, 1974

The following objects have (~~have not~~) been inspected from seaward to determine their value as landmarks:

JOB NUMBER: PH- 6013
STATE: Alaska
SURVEY NUMBER: T - 12013 TP-
DATUM: N.A. 1927

CHARTING NAME	DESCRIPTION	POSITION LATITUDE ° ′	LATITUDE ″ D.M.METERS	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P.METERS	METHOD AND DATE OF LOCATION (See instructions on reverse of this form) FIELD INSPECTION	COMPILATION	FIELD EDIT	CHARTS AFFECTED
light	Fire Island Light 1966	61 07	35.754	150 16	48.087	rebuilt 8-21-65		F.1 1966	8557 8553
light	Fire Island Range F-ront 1974	61 10	22.677	150 11	51.555	Est. 11/8/69		F.3	8557 8553
light	Fire Island Range Rear 1974	61 10	15.589	150 12	19.148	Est. 11/8/69		F.2	8557 8553
Radome	Fire Island Radome FAA 1974	61 08	~~36.166~~	150 12	~~54.478~~			F.3	8557 8553

73

APPROVAL SHEET

H-9442 (RA-10-6-74)

OPR-RA-469-74

UPPER COOK INLET

ALASKA

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

The boatsheets 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

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): Fire Island
Anchorage

Period: June - July 1974

HYDROGRAPHIC SHEET: H-9442

OPR: 469

Locality: Upper Cook Inlet

Plane of reference (mean lower low water): Fire Island (5/21-6/24: 9.3 ft.
(6/26-6/30: 13.4 ft.
(7/5-8/22: 12.2 ft.
Anchorage 6.6 ft.

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

Remarks: Recommended Zoning:

Apply range ratio x 1.02 to Fire Island hourly heights.

When Fire Island is not available, use Anchorage applying a range ratio x0.94 and a -15 minutes time correction.

James R Hubbard
for Chief, Tides Branch

GEOGRAPHIC NAMES

Survey No.

H-9442

Name on Survey	A On Chart No 8557	B On previous survey No	C On U S quadrangle maps	D From local information	E On local maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K T-12052	
COOK INLET	X									1
FIRE ISLAND	X									2
KNIK ARM SHOAL										3
NORTH POINT	X									4
SUSITNA FLATS									X	5
										6
										7
										8
										9
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										24
										25

APPROVED

Chas. E. Harrington

CHIEF GEOGRAPHER - C3x8

14 July 1978

APPROVAL SHEET

FOR

SURVEY H-9442

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: 11/29/77

Signed: [signature]

Title: Chief, Verification Branch

NOAA FORM 77-27
(9-72)
(PRESC. BY HYDROGRAPHIC MANUAL 20-2, 6-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9442

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	3 parts 2
DESCRIPTIVE REPORT	1	OVERLAYS (preliminary)	16

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES			1-smooth			
CAHIERS	1-with printouts & tide data					
VOLUMES						
BOXES						

T-SHEET PRINTS *(List)* Class I, T-12002, T-12014 (copies)

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				2639
POSITIONS CHECKED		2639		
POSITIONS REVISED		10		
DEPTH SOUNDINGS REVISED		735		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		0		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
Verification of Control		4		
Verification of Positions		150		
Verification of Soundings		223		
Smooth Sheet Compilation		25		
ALL OTHER WORK		81	HIT 13	
TOTALS	19	483		

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY A. E. Eichelberger, J.L. Stringham	1/14/75	4/21/75
VERIFICATION BY A.E. Eichelberger A.E. Eichelberger	4/28/75	7/18/77
REVIEW BY R.C.I. F.P. SALISBURY RWCampbell 12405 7/6/78		2/13/78 – 65 hrs

Baumgardner 8/8/78 5 hrs

* U.S. G.P.O. 1972-769-562/439 REG.#6

REGISTRY NO. H-9442(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-9442

Information for Future Presurvey Reviews

A future survey of this area should acquire bottom samples on outstanding shoals. The area containing the shoals most critical to navigation, in the vicinity of latitude 61°12.30', longitude 150°05.30', should be surveyed with wire drag to ascertain least depths.

Position Index		Bottom Change Index	Use Index	Resurvey Cycle
Lat.	Long.			
611	1501	8	2	10 years
611	1502	9	2	10 years

PACIFIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO: H-9442 FIELD NO: RA-10-6-74

Alaska, Cook Inlet, North of Fire Island

SURVEYED: 25 June to 22 August 1974

SCALE: 1:10,000 PROJECT NO: OPR-469

SOUNDINGS: Ross Fineline Fathometer CONTROL: Mini-Ranger

Chief of Party.....K. W. Jeffers, CAPT
Surveyed by.....M. Allen, K. Andreen, P. Gadd, H. Langveld, D. Seidel, G. Stroble
Automated Plot by.....Xynetics Plotter (PMC)
Verified by.....A. E. Eichelberger
July 18, 1977

I. INTRODUCTION

H-9442 is a basic survey conducted by Ship RAINIER from 25 June to 22 August 1974. The area covered by this survey is located in Cook Inlet, north of Fire Island. This is a good basic survey, adequate to supersede common areas of prior surveys and charted hydrography.

Positions 4365 to 4421, Launch 2124, day 196, were originally obtained and logged in a range-visual control format. Verification was difficult as one of the visual signals used (#227) plots beyond the sheet limits. No computer program was available at PMC to process range-visual positioning. These 57 positions were checked and transferred from the field sheet, then converted manually to a range-range control format.

Data for this survey was computed on straight-line interpolation between positions. The verifier added rates to inbetween soundings where necessary to control the course of the sounding vessel.

Field sheet soundings were reduced for tide from the predicted daily values for the standard gage at Anchorage with appropriate time corrections for Fire Island. Smooth sheet soundings were reduced using smooth tidal data from the Fire Island temporary tide station and the Anchorage standard gage when the Fire Island gage was inoperative.

II. CONTROL AND SHORELINE

Horizontal Control is adequately described in Paragraph F of the Descriptive Report.

The following Class I Unreviewed Shoreline Manuscripts with their respective dates of photography and field edit were utilized on H-9442:

T-12ØØ2	1966-74
T-12Ø14	196Ø (63-74)

III. HYDROGRAPHY

Five crosslines were in poor agreement with main scheme soundings.

a. Position 517Ø-5176: Positions rejected, soundings 3-4 fts. shoaler.
b. Position 575Ø-5796, 592Ø-5943: Crosslines were run close to the baseline between control stations resulting in weak positioning. Soundings 2-3 ft. deeper, several rejected.
c. Position 59Ø9-5918: Soundings 6-8 ft. deeper, several rejected. This crossline run 56 days after the beginning of hydrography.
d. Position 5822-5836: Soundings 2-3 ft. deeper, a few rejected.

The zero curve as portrayed on T-sheets was disproven by hydrography. Standard depth curves could be adequately drawn except for the zero curve along the mud flats at the northern edge of the smooth sheet.

The basic hydrography incorporated in this survey is adequate to delineate the bottom configuration and to determine least depths. Except for unsupported questionable soundings, there were no major difficulties in the verification of main scheme hydrography.

This area of Cook Inlet is subject to frequent change due to tidal action and shifting of the sandy bottom. The smooth sheet is representative of depth conditions at the time of the survey.

There are seven (7) bottom samples in this survey. No additional samples were transferred from prior surveys due to the transient character of the area.

IV. CONDITION OF SURVEY

With the following exceptions, the hydrographic records, overlays, smooth sheet and reports are adequate and conform to the requirements of the Hydrographic Manual.

a. Control Station #114 was used beyond the PMC accepted range of reliability. See Mini-Ranger System Report, OPR-412, submitted by LCDR Ludvik Pfeifer, Ship RAINIER 1974. Hydrography was conducted simultaneously on more than one survey, possibly resulting in improper transponder antenna pointing to some areas.

b. Deficiency in number of bottom samples obtained.
c. Knik Arm Shoal Lighted Buoy 7 and Knik Arm Shoal North Side Buoy 2 not located during hydrography. (Plotted from Form 76-40)
d. Comparison was made with pre-earthquake survey H-7186 (1:20,000) 1947 instead of post-earthquake survey H-9076 (1:10,000) 1969.

V. JUNCTIONS

This survey junctions to the east with H-9441 (1974). A few soundings were rejected on H-9442 in deference to shoaler and more reliable depths on H-9441. With minor adjustments, a satisfactory junction was made and the depth curves and junction note was inked accordingly. A 29-ft. sounding was transferred from H-9441.

A satisfactory junction was made to the west with H-9444 (1974) with good agreement. The depth curves and junction note were inked.

VI. COMPARISON WITH PRIOR SURVEYS

H-8787, 1:20,000 (1964)
H-9076, 1:10,000 (1969)

H-8787, (1:20,000) 1964 is an unverified, unreviewed survey of the area. Soundings on H-9442 vary from 27 ft. shoaler to 8 fts. deeper with a general trend being shoaler. The cause of these differences is probably due to the changeable nature of the area.

This survey is adequate to supersede H-8787 in areas of common hydrography.

H-9076, (1:10,000) 1969 is the only verified post-earthquake survey of the area. Soundings on H-9442 vary from 6 ft. shoaler to 17 fts. deeper than H-9076. General deepening has occurred since 1969. The exposed shoal centered at Lat. 61°11.7', Long. 150°04.0' has eroded and is now covered at MLLW west of 150°04.0'. covered by 1 to 2 ft.

This survey is adequate to supersede H-9076 in areas of common hydrography.

PSR item #10, a 12 ft. sounding at Lat. 61°12.3', Long. 150°05.3': A least depth of 15 ft. on this survey, sndg. no. 515706, launch 2125 day 181. See PSR Item #43 for disposition.

Dashed circle 22 ft. at Lat. 61°13.05', Long. 150°04.5': No indication of this elongation of the 30 ft. curve is apparent, a depth of 32 ft. plotted on H-9442. Recommend soundings from H-9442 be charted.

Dashed circle 21 ft. at Lat. 61°14.1, Long. 150°06.3': A least depth of 6 ft. on this survey, sounding no. 621501, launch 2126 day 177. Recommend depths from H-9442 be charted.

Presurvey Review Update of 4-21-77:

PSR Item #42, 19 ft. rock at Lat. 61°12.Ø5', Long. 15Ø°Ø4.8': A least depth of 2Ø ft. using approved tides from the standard gage at Anchorage, sounding no. 6Ø85Ø3, launch 2126 day 1976. This feature is identified as a rock in the Notice to Mariners message to Coast Guard District 17, of August 1974, (copy included),and indicated on Chart 16664 (C&GS 8557), 15th Ed., March 29, 1975. The hydrographic records do not reveal any investigation that this shoal sounding has been determined to be a rock. The least depth was scanned from the fathogram for day 176. A Rk note has been applied to the smooth sheet to conform with accepted information.

PSR item #43, a shoal with a least depth of 11 ft. at Lat. 61°12.3', Long. 15Ø°Ø5.3': Same item as PSR #1Ø of 12/7/66. This area was developed at 5Ø meter spacing with a least depth of 15 ft. on this survey. The 11 ft. sounding was transferred from H-9Ø76 in brown ink.

VII. COMPARISON WITH CHART C&GS 8557, 14th Ed., 29 December 1973 (1:4Ø,ØØØ)

All identified post-earthquake depths on included chartlet of 8557 originated from prior surveys H-8787 (1964) and H-9Ø76 (1969). With the addition of a least depth of 11 ~~fms.~~ ft. (PSR item #43, noted in Paragraph VI), this survey is adequate to supersede charted hydrography.

a. Controlling Depths
There were no controlling depth notes on Chart 8557.

b. Aid to Navigation
The charted positions of aids adequately mark the features intended. Note that buoy N "6" was not in place at the time of the survey, but subsequently marks PSR Item #42.

VIII. COMPLIANCE WITH PROJECT INSTRUCTIONS

This survey adequately complies with the Project Instructions dated 15 February 1974.

IX. ADDITIONAL FIELD WORK

This is a good basic survey. Additional investigation is indicated in the Kaik Arm Shoal area (Presurvey Review Items 42 and 43), by close line development or slack water leadline to determine least depths.

Respectfully submitted,
A. E. Eichelberger
A. E. Eichelberger
Cartographic Technician
July 18, 1977

Examined and approved,
James S. Green
Chief, Verification Branch

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Pacific Marine Center

16 December 1977

TO: Eugene A. Taylor
Director, Pacific Marine Center

FROM: Glen R. Schaefer
Chief, Processing Division

SUBJECT: PMC Hydrographic Survey Inspection Team Report - H-9442

This survey is a basic survey of Cook Inlet, Alaska, north of Fire Island. This survey was conducted by NOAA Ship RAINIER in 1974 in accordance with Project Instructions OPR-469-RA-74, dated 8 February 1974.

It is recommended that PSR Item #42 (19-foot rock at Latitude 61°12.05'N Longitude 150°04.8'W) and PSR Item #43 (11-foot shoal at Latitude 61°12.3'N Longitude 150°05.3'W) be included with the next set of Project Instructions for work in this area as they were not completely resolved by this survey. concur JPS these items are addressed in the PSR Update for S-P207-FA-78, dated 4-5-78

The inspection team finds H-9442 to be a good basic survey, adequate to supersede common areas of prior surveys and charted hydrography.

G. R. Schaefer, CDR

J.C. Albright, LCDR

J.W. Steensland

M.G. Sanders

ADMINISTRATIVE APPROVAL
H=9442

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.

E.A. Taylor

Eugene A. Taylor, RADM
Director
Pacific Marine Center

12/19/77
Date

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

C352/FPS

January 25, 1978

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

THRU: Chief, Quality Control Branch

FROM: F. P. Saulsbury
Quality Evaluator

SUBJECT: Quality Control Report for H-9442 (1974), Alaska, Upper Cook Inlet, North of Fire Island

A quality control inspection of H-9442 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 report by the verifier and Hydrographic Inspection Team and as follows:

1. In the junction with H-9441 (1974) on the east, minor revisions were made to overlapping depth curves to make them identical.

2. Depth curves were added where omitted, corrected where in conflict with soundings, and revised where soundings supported a more definitive portrayal of bottom configuration.

3. The rock awash charted in latitude 61°10.42', longitude 150°12.38' from H-3200 (1910) is considered to be an erroneous location of the rock awash charted approximately 70 meters south in latitude 61°10.40', longitude 150°12.38' from T-12014 (1960-63). The latter rock is also shown on the present survey and uncovers 16 feet at MLLW.

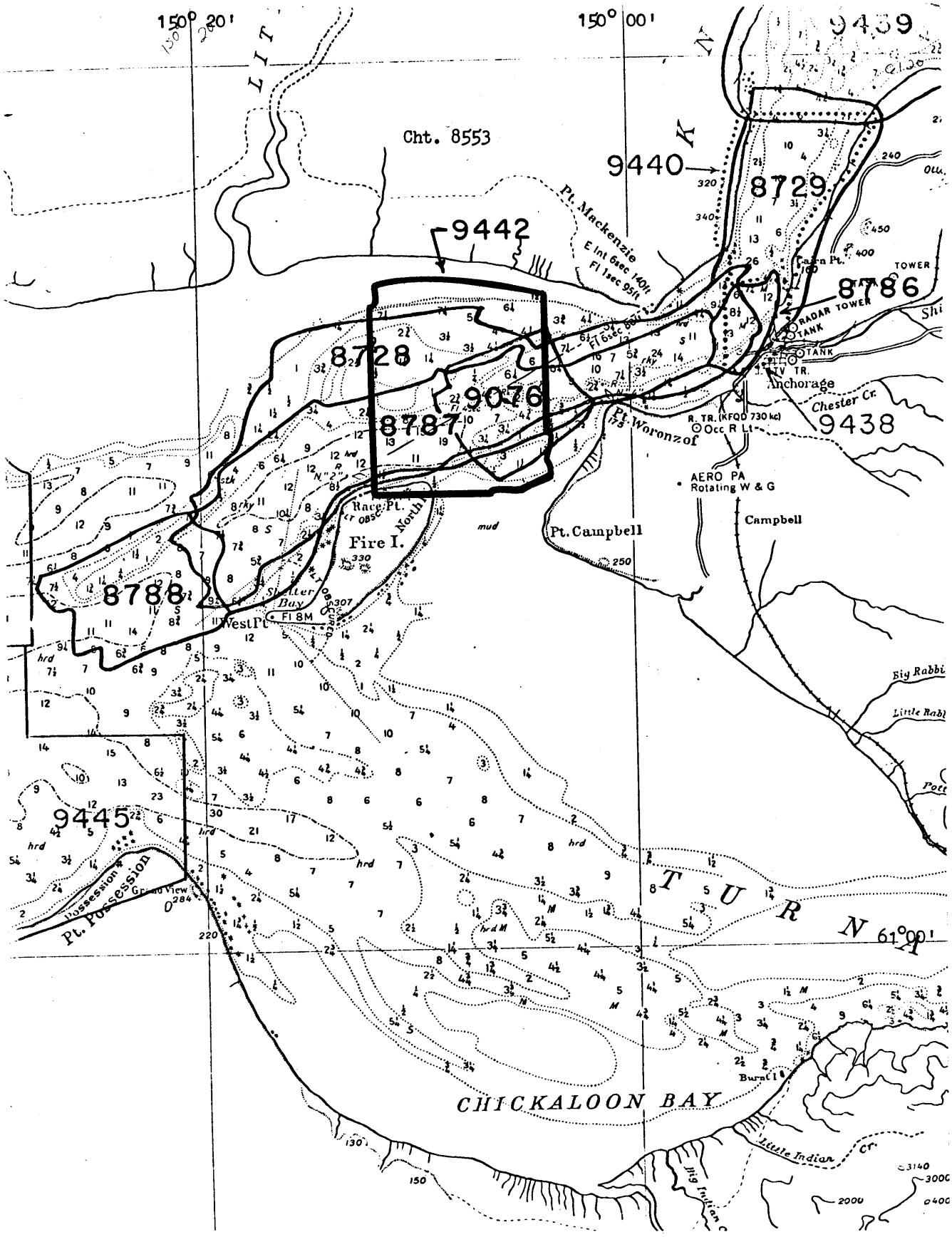
4. No source was found for the "pile like" symbol charted in latitude 61°10.75', longitude 150°10.15'. Prior chart editions show a 9-foot sounding at this location. This "pile like" symbol is exactly aligned with the previously charted 9-foot sounding and is considered to be an erroneous characterization possibly from a mistake in negative engraving.

5. This survey covers an area subject to drastic and continuing change as a result of earthquakes, exceptionally strong tidal currents, and transport of sediments by ice. In this portion of Cook Inlet the edge of the mud flats on the north shore has receded as much as 0.7 mile and the south edge of the shoal intruding from the westward has shifted northward about 0.6 mile since 1955.

A noticeable lack of bottom samples on shoals on both the prior surveys and present survey compromised the selection of shoal soundings to be brought forward. Only soundings considered to be over rocky bottom were carried forward.

With the addition of these soundings carried forward the present survey is considered adequate to supersede prior surveys within the survey area.

cc:
C35
C351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9439
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Pt. Mackenzie
E Int 6sec 140ft
Fl 1sec 95ft
Fl 6sec
Cairn Pt.
TOWER
RADAR TOWER
TANK
TV TR.
Anchorage
Chester Cr.
R. TR. (KFQD 730 kc)
Occ R Lt
Pt. Woronzof
AERO PA
Rotating W & G
Campbell
Pt. Campbell
Race Pt.
North
Fire I.
Shelter Bay
West Pt
Fl 8M
mud
Big Rabbi
Little Rabbi
Possession
Pt. Possession
Grand View
CHICKALOON BAY
Little Indian
Big Indian Cr.
Burial I
61° 00'

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9442

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	4-7-78	W. J. Borowski	Full Part Before After Verification Review Inspection Signed Via
			Drawing No. Quality Control Survey, fully appld
			all Hydro data
8553	6/12/78	Kanis	Full ~~Part Before~~ After Verification Review ~~Inspection Signed~~ Via
			Drawing ~~No.~~ Aid Proof #14 - thru Chart 16664 (8557)
			Drawing Aid Proof #18
16665	5/28/81	J. Bailey	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. Applied thru DRWG 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.
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			Drawing No.

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

USCOMM-DC 8558-P63