9076

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. HT- 10 - 2 - 69

Office No. H-9076

LOCALITY

State ALASKA

General Locality COOK INLET - KNIK ARM

Locality FIRE ISLAND TO PT. WORONZOF

1969

CHIEF OF PARTY
H. A. TAYLOR, CAPT. USESSA

LIBRARY & ARCHIVES

DATE 7-20-71

U.S. GOVERNMENT PRINTING OFFICE: 1974-763-098

9076

FORM C&GS-537 (8-18-59)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-9076

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.

PF 10-2-69

State ALASKA

General locality ~~UPPER~~ COOK INLET - KNIK ARM

Locality ~~KNIK ARM SHOAL SURVEY~~ FIRE ISLAND TO PT. MORONZOF

Scale 1:10,000 Date of survey 25 July - 29 July, 1969

Instructions dated 30 Apr 69/ 6 June 69 Project No. OPR 469

Vessel USC&GSS PATHFINDER, MOTOR LAUNCHES #1, #2 and #4

Chief of party CAPT. E. A. TAYLOR

Surveyed by ~~ship's personnel~~ G. Holloway, R.D. Olson, J.C. Bishop, R. Lilly, K.A. Domoto, R.M. Mathis

Soundings taken by echo sounder, [redacted]

Graphic record scaled by ship's personnel

Graphic record checked by ship's personnel

Positions verified by [redacted] V. L. Davis Automated plot by PMC - Gerber Digital Plotter

Soundings [redacted] verified by V. L. Davis

Soundings in fathoms [redacted] at [redacted] MLLW

REMARKS:

Applied to chts 7/29/71
ACC.
Area VI

DTK

USCOMM-DC 19086-P65

A. PROJECT

This project is assigned under OPR-469. Original project instructions are dated 30 April 1969. Supplemental instructions specifying the Knik Arm survey are dated 6 June, 1969.

B. AREA SURVEYED

The area surveyed contains the charted shoal in Upper Cook Inlet between Pt. Woronzof and Fire Island. The survey limits are as follows:

NW limit: a line between 61°12'~~00~~36"N., 150°08'30"W. and 61° 13'40"N., 150°04'00"W.

NE limit: a line between 61°13'40"N., 150°04'00"W. and 61° 12'~~10~~24"N., 150°02'00"W.

SE limit: a line between 61°12'~~10~~24"N., 150°02'00"W. and 61° 10'~~50~~36"N., 150°06'~~30~~15"W.

SW limit: a line between 61°10'~~50~~36"N., 150°06'~~30~~15"W. and 61° 12'~~00~~24"N., 150°08'30"W.

The hydrography for this survey began on 25 July, 1969 and ended on 29 July, 1969

C. SOUNDING VESSELS

Motor launches #1 (blue position numbers 1001-1412), #2 (purple position numbers 11-157) and #4 (brown position numbers 2001-2458) of the USC &GS Ship PATHFINDER were used in this survey.

D. SOUNDING EQUIPMENT

Raytheon DE-723 echo sounders #552, #140 and #551 were used in motor launches #1, #2 and #4, respectively. Bar checks at 1, 2 and 4 fathoms were taken daily or twice daily.

E. SMOOTH SHEET

The smooth sheet ~~will be~~ was prepared with a Gerber Digital Plotter at the Pacific Marine Center.

F. CONTROL

Raydist was used exclusively for horizontal control.

The geographic position of the RED rate station was determined by second order triangulation based on positions of the Anchorage KENI T.V. Mast and MAC R.M. 3. The RED rate station is an eccentric station set 18.61 m. from MAC R.M. 3.

The geographic position of the GREEN rate station was determined as an intersection station based on the positions of MISERY 3, 1947 and POSSESSION, 1909. The geographic positions obtained are given below:

Towers plotted with circles

RED: 61°14'19".791 N., 149°59'06".239 W.

GREEN: 61°09'29".428 N., 150°04'04".999 W.

Field data and computations are appended. Filed with printouts

Launches were calibrated by visual sextant fixes while alongside Anchorage approach buoy #1. ?

G. SHORELINE

The entire area surveyed is offshore.

H. CROSSLINES

The percentage of crosslines run in this survey was 8.0%. When the empirically determined tide reducers were applied (see Tide Note), no significant discrepancies were found at crossings.

Apparent discrepancies do exist but are not consistent. It is believed that the combination of extreme tidal action & soft bottom characteristics contribute to the generation of localized depth anamolies.

I. JUNCTIONS

Prior surveys were not available to establish junctions.

For prior surveys see review
No junctions required by CPM-NEO

J. COMPARISON WITH PRIOR SURVEYS

Prior surveys were not available.

See "I"

K. COMPARISON WITH CHART

This survey was compared with C&GS Chart 8557 (27 Nov 67, 1:40,000). Several major changes were apparent.

Both the 4 fathom and 5 fathom contours previously shown North of the Pt. Mackenzie range have now shifted across the range in the vicinity West of channel buoys #1 and #2. However, this shoal lying along the northern limits of the survey also shows extensive erosion, amounting to increased depths of more than 3 fathoms over considerable area near the western limit of the survey. The 10 fathom contour previously within the western extent of the survey has retreated beyond the survey limits, although isolated 10 fathom depths remain.

Buoy #1 is most probably #3 as charted.

While substantially located as shown on the charts, the mid-channel shoal indicated by buoys #1 and #2 is varied in many details. Of particular importance is the enlarged southern extent of the 5 fathom contour which restricts the least depth for shipping to less than 30 feet at Mean Lower Low Water.

The shoal within the southern portion of the survey is also much as shown except for considerable erosion in its western extent.

L. ADEQUACY OF THE SURVEY

This survey is complete and adequate to supersede prior surveys.

M. AIDS TO NAVIGATION

Because channel buoys #1 and #2 are in place only from May 1 to Nov 1, these aids to navigation were not specifically investigated.

N. STATISTICS

	M.L.#1	M.L.#2	M.L.#4
Positions	412	147	458
Miles sounding line	58.9	25.2	74.0

	M.L.#1	M.L.#2	M.L.#4
Area surveyed (sq.N.Mi.)	6		
Tide gages installed	1		
Oceanographic stations	0		
Bottom samples	0		

O. MISCELLANEOUS

Both silting and erosion were very apparent over most of the surveyed area resulting in depth changes in excess of 4 fathoms in some areas.

P. RECOMMENDATIONS

The very substantial changes in depths, especially in the western portions of the surveyed area indicate the need for a more extensive survey and recharting of Upper Cook Inlet. It is recommended that a cautionary note regarding the shifting of the bottom under the influence of strong tidal currents be affixed to all applicable charts.

The unusual shape of the tide, the large tidal range and uncertainties as to proper time and range corrections to Anchorage predicted tides contribute to significant possible error in determining the tide at a given time and place. Since large vessels frequently depend upon a certain minimum tide for safe passage, a cautionary note on the charts and a discussion in the Tide Tables are recommended.

Difficulties encountered in obtaining reasonable tide reducers emphasize the need for an adequate number of suitably located tide gages to support hydrography in Cook Inlet.

Q. REFERENCE TO REPORTS

1. Raydist Report, 1969 Field Season, USC&GSS PATHFINDER

2. Fathometer Report, 1969 Field Season, USC&GSS PATHFINDER

3. Season's Report, 1969 Field Season, USC&GSS PATHFINDER

Respectfully submitted

Greg Holloway

Greg Holloway
Ensign, USESSA

LOGGING EQUIPMENT

A Friden Flexowriter (BCD code) was used to produce all punch tapes and printouts. The dual indicator formats were used on all tapes.

ML#1 TC/TI CORRECTIONS

PF 10-2-69

TIME	CORRECTIONS			VELOCITY	DAY
	DRAFT	INITIAL	TC/TI	TABLE	
111400	+0.3	0.0	0003	0001	206
115100	+0.3	-0.1	0002	0001	206
101900	+0.3	0.0	0003	0001	207
141500	+0.3	-0.1	0002	0001	207
090230	+0.3	+0.1	0004	0001	208
102800	+0.3	0.0	0003	0001	208
094800	+0.3	0.0	0003	0001	209
104500	+0.3	+0.1	0004	0001	209
085500	+0.3	0.0	0003	0001	210
091900	+0.3	+0.1	0004	0001	210
105730	+0.3	0.0	0003	0001	210

ML#2 TC/TI CORRECTIONS

PF 10-2-69

TIME	CORRECTIONS			VELOCITY	DAY
	DRAFT	INITIAL	TC/TI	TABLE	
091800	+0.3	0.0	0003	0001	208
092800	+0.3	+0.1	0004	0001	208
131800	+0.3	+0.3	0006	0001	208
141315	+0.3	+0.2	0005	0001	208
141930	+0.3	+0.3	0006	0001	208
142400	+0.3	+0.2	0005	0001	208

ML#4 TC/TI CORRECTIONS

PF 10-2-69

TIME	CORRECTIONS			VELOCITY	DAY
	DRAFT	INITIAL	TC/TI	TABLE	
112030	+0.3	0.0	0003	0001	206
100800	+0.3	0.0	0003	0001	207
132700	+0.3	+0.1	0004	0001	207
145700	+0.3	0.0	0003	0001	207
085500	+0.3	0.0	0003	0001	208
100115	+0.3	+0.1	0004	0001	208
133800	+0.3	0.0	0003	0001	208
094700	+0.3	-0.1	0002	0001	209
100330	+0.3	0.0	0003	0001	209
085400	+0.3	0.0	0003	0001	210
092230	+0.3	+0.1	0004	0001	210
093630	+0.3	0.0	0003	0001	210

APPROVAL SHEET

The field work on this hydrographic sheet has been examined and approved. This survey is complete and adequate to supersede prior surveys. More extensive survey and recharting of Upper Cook Inlet are recommended.

Eugene A. Taylor

E. A. Taylor
CAPT USESSA
Commanding Officer
USC&GSS PATHFINDER

TIDE NOTE

On 25 July 1969 a bubbler tide gage was installed on the northeast point of Fire Island at latitude 61°10.5'N. and longitude 150°09.4'W. Due to failure of the gas regulator, the gage was replaced 26 July 1969. The clock drive then malfunctioned. When removed 29 July 1969, the air line to the orifice had been parted due to rough weather.

For purposes of sounding reduction, predicted tides for Anchorage were used subtracting 15 minutes from times of tide and 0.2 feet from the heights of high water in accordance with correspondence from the Chief, Tides Division dated 12 Sept 1969. 0.3 fathom draft correction was added to each depth. The results on boat sheets PF-10-2-69 A, B and C indicated a general disagreement at their junctions and with the crosslines.

Because of the large tidal range, the rate of rise of water may exceed 0.1 ft./min. Thus errors in time correction can account for more than 0.2 feet of discrepancy per minute of error. Empirically it was found that by applying the observed Anchorage tides without corrections for time of tide but subtracting 1.3 feet from heights of high water, the boat sheet showed general agreement. The results, including 0.3 fathom draft correction, are plotted on the boat sheet "Composite of PF-10-2-69".

FORM C&GS-712
(8-9-64)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

March 12, 1970

~~[redacted]~~ Pacific Marine Center

Plane of reference approved in ~~[redacted]~~ Tide tape printout

HYDROGRAPHIC SHEET PF 10-2-69

Locality: Knik Arm, Cook Inlet, Alaska

~~[redacted]~~ Year 1969

Plane of reference is mean lower low water

Tide Station Used (Form C&GS-681):

Anchorage

Height of Mean High Water above Plane of Reference is as follows:

28.3 feet

Remarks

J. M. Symons
Chief, Tides and Currents Branch

USCOMM-DC 6660-P64

FORM CD-101 (11-63) (PRES. BY A.O. 205-101)

UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
Coast and Geodetic Survey

TO : Commanding Officer
USC&GSS PATHFINDER

RECEIVED
SEP 23 1969
SHIP PATHFINDER

DATE: September 12, 1969

In reply refer to: C3312-173-CSS

FROM : Chief, Tides Section
Oceanography Division

SUBJECT: Cook Inlet tidal data

Requested mean lower low water elevations above staff zero are as follows:

Iniskin Bay	4.0 feet
Nikiski	6.7 feet
Anchorage	7.6 feet

For the Knik Arm project area (Lat. 61°12'15", Long. 150°05'15") subtract 15 minutes from times of tide at Anchorage. Subtract 0.2 ft. from high water heights after reference to MLLW. There is no correction needed for low water heights.

Hourly heights at Anchorage for July 25-29 will be sent as soon as possible.

Martha A. Winn

Martha A. Winn

FORM 197
(3-16-55)

GEOGRAPHIC NAMES

Survey No. H-9076

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
Cook Inlet										1
FIRE ISLAND										2
NORTH POINT										3
PT. WORONZOF										4
KNIK ARM										5
										6
PT. CAMPBELL	ch 8557	OFF The Sheet								7
PT. MACKENZIE	ch 8557									8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

PREPARED BY

Frank W. McCloy

CARTOGRAPHIC TECHNICIAN

APPROVED BY

A. Joseph Wright

CHIEF GEOGRAPHER

C. E. Harrington 27 Mar 1964

FORM C&GS-946
(REV. 11-65)
(PRESC. BY HYDROGRAPHIC MANUAL 20-2, 6-84, 7-18)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
NAUTICAL CHART DIVISION

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H 9076

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS	4
DESCRIPTIVE REPORT	1	OVERLAYS	3 PRELIM. 1 SMOOTH

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	1		2			
CAHIERS	2					
VOLUMES	6					
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				1017
POSITIONS CHECKED		107	40	147
POSITIONS REVISED		4	38	42
DEPTH SOUNDINGS REVISED		163 REV. 64 ADDED	15	242
DEPTH SOUNDINGS ERRONEOUSLY SPACED		17	0	17
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0	0	0
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		—	0	0
JUNCTIONS		—	0	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		246	8	254
SPECIAL ADJUSTMENTS		8	21	29
ALL OTHER WORK		130	66	196
TOTALS		384	74	458

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY		
VERIFICATION BY V.L. Davis	10/2/70	5-19-71
REVIEW BY D. Hill		10-29-74

USCOMM-DC 36271-P65

Insp. [illegible] Romesburg 11-26-74

Reg. No. H-9076

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

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

CARDS CORRECTED

DATE_____ TIME REQ'D_____ INITIALS_____

REMARKS:

Reg. No. _____

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

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

MAGNETIC TAPE CORRECTED

DATE_____ TIME REQ'D._____ INITIALS_____

REMARKS:

H-9076 (1969)

Information for Future Pre-Survey Reviews

This survey is located midchannel in Upper Cook Inlet and centered about the shoal in lat. 61°12.3', long. 150°05.3'. The area is affected by vigorous tidal currents and experiences marked progressive modification of the bottom topography. New surveys should provide better acquisition of bottom characteristics.

Position Index		Bottom Change	Use	Resurvey
Lat.	Long.	Index	Index	Cycle
611	1501	8	2	10 Years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9076 FIELD NO.PF-10-2-69

Alaska, Cook Inlet-Knik Arm Fire Island to Pt. Woronzof

SURVEYED: July 25 - July 29, 1969

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

SOUNDINGS: DE-723 Depth Recorders CONTROL: Raydist (Range-Range)

Chief of Party ..... E. A. Taylor
Surveyed by ..... G. Holloway
..... R. D. Olson
..... J. C. Bishop
..... K. Lilly
..... K. A. Domoto
..... R. M. Mathis
Automated Plot by ..... Gerber Digital Plotter-PMC
Verified and Inked by ..... V. L. Davis
Reviewed by ..... D. J. Hill
Date: 10-25-74
Inspected by ..... D. J. Romesburg

1. Description of the Area

This survey covers that part of Cook Inlet between Fire Island and Pt. Woronzof, and is centered about a 1.9 fathom depth on a middleground shoal in lat. 61°12.3', long. 150°05.3'. Defined by the 5-fathom curve this shoal is located between two extensive shoreward shoals the southermost of which is awash at MLLW. Depths increase west of long. 150°05.0' to a survey maximum of 10.3 fathoms. East of this meridian a maximum depth of 9.8 fathoms occurs at the survey margin.

This entire area is affected by severe tidal action and subject to drastic bottom changes.

2. Control and Shoreline

The origin of control is adequately covered in Part F of the Descriptive Report.

There is no shoreline shown on this survey. Several geographic names, however, have been added to the smooth sheet for orientation purposes.

3. Hydrography

A. Depths at crossings are in good agreement. Crossing differences between the regular sounding lines and cross-line Day 210, positions 2438 to 2448 varies from .5 to .9 of a fathom. These discrepancies are attributed to the continuous bottom changes that result from strong tidal currents in this area.

B. The usual depth curves are adequately delineated. Several brown and dashed curves were added to better delineate isolated features.

C. The development of the bottom configuration and the investigation of least depths are considered adequate except for the least depth on the shoal in lat. 61°12.3', long. 150°05.3' which was investigated by fathometer only. No attempt was made to verify the least depth by handlead or drift soundings.

4. Condition of the Survey

The field work, sounding records, smooth plotting and Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual and Instruction Manual for Automated Hydrographic Surveys except for the following:

A. There is no source indicated in the survey records for the description, "Rk", near the least depth on the shoal centered on the survey in lat. 61°12.3', long. 150°05.3'. The apparent origin is H-7186 (1947) on which appears the bottom characteristic "rky." Failure to conduct bottom sampling as required by paragraph 5-76

of the Hydrographic Manual (Pub 20-2) necessitates the inference that the description is accurate, based on the permanence of the feature in an otherwise highly changeable area.

B. Least depths were determined by fathometer only. Verification by handlead or drift soundings was not attempted.

C. A discussion of Pre-Survey Review Item 10, as specified in the Project Instructions, was not included as part of the Descriptive Report.

D. The position of the calibration buoy was not included in the survey records.

E. In the vicinity of lat. 61°12.0', long. 150°02.0' portions of sounding lines controlled by excessively slim Raydist lane intersections were adjusted as much as 200 meters in order to conform to dead reckoning information.

5. Junctions

There are no contemporary junctional surveys in this area. Except for differences of 2.5 and 5 fathoms in the northwest corner and along the southeast boundary, respectively, soundings along the limits of the present survey are in harmony with the charted depths.

6. Comparison with Prior Surveys

A.	H-3200 (1910) 1:40,000	H-4211 (1922) 1:40,000	Rejected
	H-3200a (1914) 1:40,000	H-5104 (1930) 1:40,000	
	H-4035 (1918) 1:10,000	H-7186 (1947) 1:20,000	

Except for bottom characteristics the above surveys have been superseded by H-6658 (1941) and H-8213 (1955) discussed below and need not be considered in this review.

B. H-6658 (1941) 1:20,000 H-8728 (1963) 1:20,000 (Unverified)
H-8213 (1955) 1:20,000 H-8787 (1964) 1:20,000 (Unverified)
H-8528 (1960) 1:20,000

A comparison between the present survey and these prior surveys reveals radical changes in the bottom configuration. The 5-fathom curve defines an isolated shoal in lat. 61° 12.3', long. 150°05.3' on the present survey whereas in 1955 this feature spanned the entire width of the surveyed area. Minimum depth on the shoal has not changed appreciably. Severe scouring has produced 5 fathom channels to the north and south of this shoal. The 5-fathom curve in the NW portion of the survey has migrated southward 1050 meters into an area of prior depths of 7.5 fathoms. At the western limit of the survey this curve veers NW for 1360 meters into an area of previous 3.2 fathom depths. The greatest changes have occurred in the vicinity of lat. 61°11.6', long. 150°07.4', where earlier depths of 5 fathoms were recorded versus 10.1 fathoms on the present survey. These drastic changes are due primarily to the strong tidal currents that are continually shifting and moving the bottom materials in this area and to a lesser degree by the transport and deposition of sediments by ice.

The present survey with the addition of bottom characteristics brought forward from earlier surveys, is adequate to supersede the prior surveys within the common area.

7. Comparison with Chart 8557, 14th Ed. December 29, 1973

A. Hydrography

Most of the charted hydrography originates with the previously discussed prior surveys which require no further consideration supplemented by partial application of depths from the boat sheet (Bp-76280) and verified smooth sheet of the present survey.

1. Changes of as much as 200 meters were made in soundings and curves in the vicinity of Pt. Woronzof.

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

B. Aids to Navigation

Two seasonal floating aids to navigation within the survey limits were not investigated due to the temporary nature of their stationing.

8. Compliance with Project Instructions

This survey adequately complies with the Project Instructions except as noted in Paragraph 4C of this review.

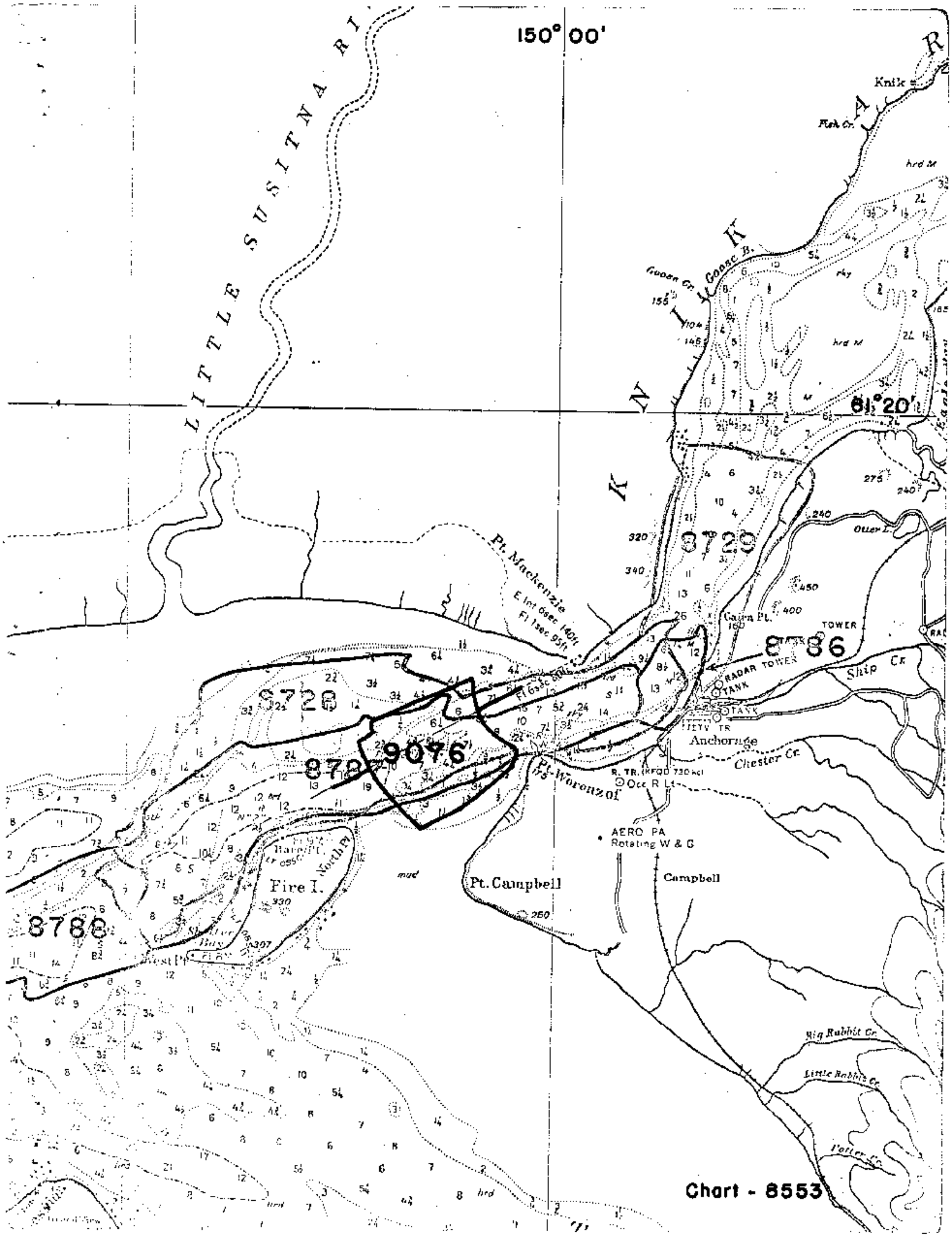
9. Additional Field Work

This is an adequate basic survey and no additional field work is recommended.

Inspected and Approved:

R K Houlton
Chief
Marine Chart Division

Robert C. Munson
Associate Director
Office of Marine Surveys and Maps


150° 00'
LITTLE SUSITNA RI
KNIK AR
Knik
61° 20'
Pt. Mackenzie
E Int 6sec 140ft
Fl 1sec 95ft
Cairn Pt.
TOWER
RADAR TOWER
TANK
Ship Cr.
Anchorage
Chester Cr.
Pt. Woronzof
AERO RA
Rotating W & G
Pt. Campbell
Campbell
Fire I.
North Pt.
West Pt.
Big Rabbit Cr.
Little Rabbit Cr.
Otter L.
8728
8729
8786
9076
8788
Chart - 8553

(3-26-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9076

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
			After ~~before~~
8557	8-2-71	Kennon	~~Full~~ Part ~~Before~~ ~~After~~ Verification ^ Review Inspection Signed Via
			Drawing No. Revise sdgs + curves —
			before
8533	10-13-71	J. Graham	~~Full~~ Part ~~Before~~ ~~After~~ Verification ^ Review Inspection Signed Via
			Drawing No. 17 App'd misc corrections thru
			cht. 8557 dwg. #14
8553	5/19/77	Naitok	~~Full Part Before After Verification Review~~ Inspection Signed Via
			PART Part
			Drawing No. 23 Considered ~~fully~~ appld. Re-examine
			hydro thru 8557 after full application to 8557.
			~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
8557	10/5/77	H.J. Brawski	Drawing No. Exam'd for shoal conditions only, revised
			(2) soundings & made minor revisions to MLLW line & 6, 12, 18 ft curves
16665	6/11/81	J. Bailey	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. Exam. No corr. Superceded by H-9441,
			H-9442, and H-9760.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
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			Drawing No.