9698

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. FA-20-3-77

Office No. H-9698

LOCALITY

State ..... Alaska

General Locality ..... Cook Inlet

Locality ..... Beluga River to Ivan River

19 77

CHIEF OF PARTY
B.I. Williams

LIBRARY & ARCHIVES

DATE ..... January 3, 1979

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

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NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-9698

HYDROGRAPHIC TITLE SHEET

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.

FA-20-3-77

State Alaska

General locality Cook Inlet

Locality Beluga River To Ivan River

Scale 1:20,000 Date of survey 25 July - 27 August 1977

Instructions dated March 2, 1977 and Launches Project No. OPR-469

Vessel NOAA Ship FAIRWEATHER, FA-3, FA-4, FA-5

Chief of party CDR B. I. Williams

Surveyed by ENS Steven K. Knight, ENS LeeAnne Roberts

Soundings taken by echo sounder, hand lead, pole Ross Fineline Fathometer

Graphic record scaled by ENS Steven K. Knight, ENS LeeAnne Roberts

Graphic record checked by ENS Steven K. Knight

Positions verified
~~Protracted~~ by Thelma O. Jones Automated plot by PMC Xynetics Plotter

Soundings
Verification by Thelma O. Jones

Soundings in fathoms and tenths ~~feet~~ at ~~MLW~~ MLLW

REMARKS: Greenwich Mean Time was used for all survey records.

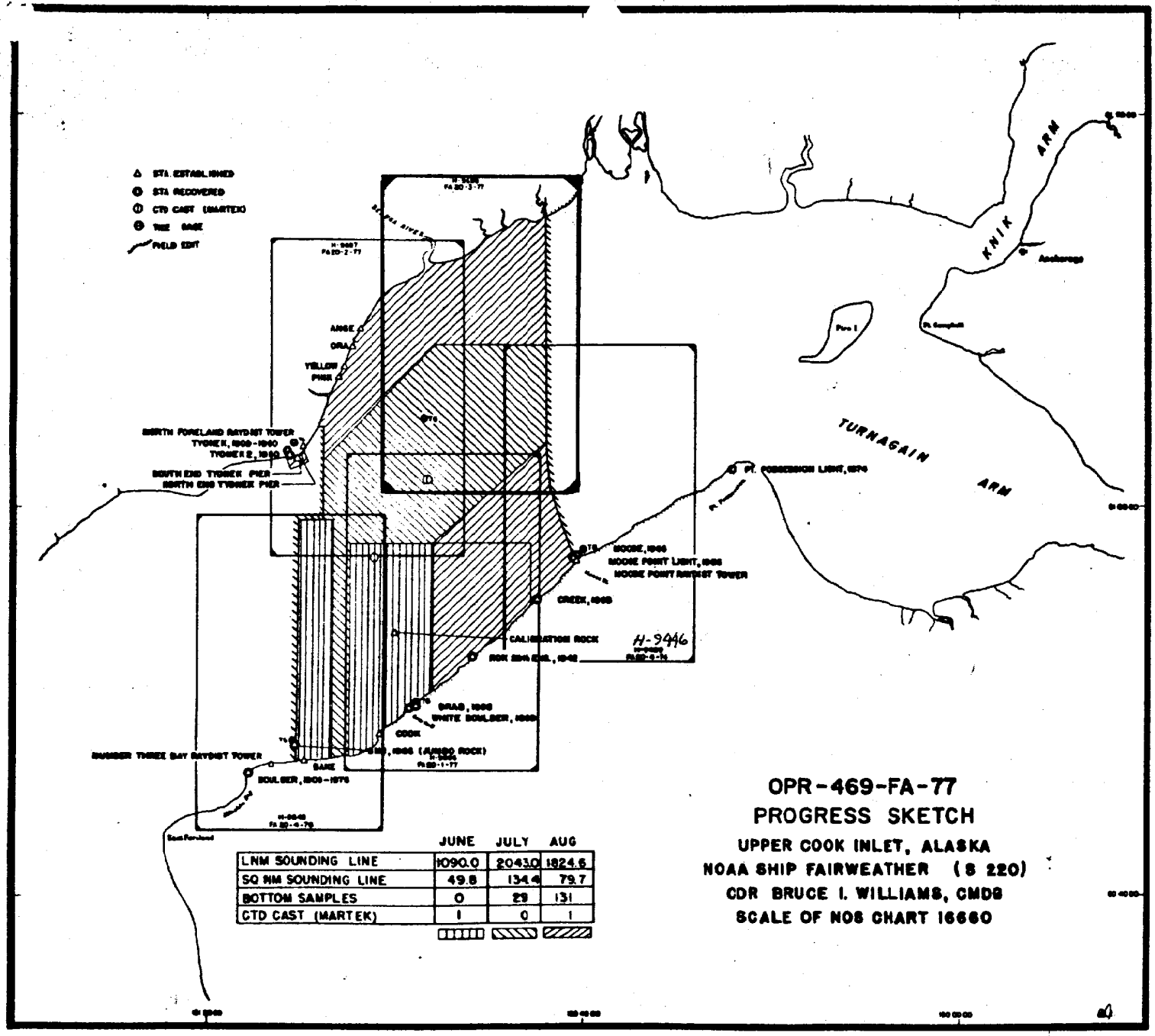
Misc. items have been removed from this D.R. and are filed with the field records

Applied to stds 4/20/79

K.W.W. 5/10/91

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

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



	JUNE	JULY	AUG
LNM SOUNDING LINE	1090.0	2043.0	1824.6
SQ NM SOUNDING LINE	49.8	134.4	79.7
BOTTOM SAMPLES	0	29	131
CTD CAST (MARTEK)	1	0	1

OPR-469-FA-77
PROGRESS SKETCH
UPPER COOK INLET, ALASKA
NOAA SHIP FAIRWEATHER (S 220)
CDR BRUCE I. WILLIAMS, CMDG
SCALE OF NOS CHART 16660

DESCRIPTIVE REPORT

OPR - 469 - FA - 77

FA - 20 - 3 - 77

H - 9698

A. PROJECT

This survey was part of OPR - 469 - FA - 77. It is a continuation of work in Cook Inlet intended to provide a new data base for nautical charts in the area. This survey was accomplished in accordance with project instruction OPR - 469 - FA - 77 dated March 2, 1977 with changes number 1 (~~3 May~~ 12 APR 1977), number 2 (2 May 1977) and 3 (12 May 1977).

B. AREA SURVEYED

The area surveyed was in upper Cook Inlet, Alaska, and lies between Point Possession and the village of Tyonek. The approximate boundaries are;

NORTH	The shoreline
EAST	150°43'40" W longtitude
SOUTH	61°01'30" N latitude
WEST	150°58'50" W longtitude

C. SOUNDING VESSEL

The ship (EDP# 2020), launches FA-3 (EDP# 2023, hull number 1011) and FA-4 (EDP# 2024, hull number 1010) were used for all sounding data on the survey. Launch FA-5 (EDP# 2025, hull number 1001) was used to gather all bottom sample data. FA-3 and FA-4 were run at fifteen knots through the water while on line, unless inclement weather caused a speed reduction (it would then be noted on the data printout). The ship was run at approximately twelve knots through the water.

D. SOUNDING EQUIPMENT

The Ross Fineline Fathometer, model 5000, was used on both FA-3 (serial number 1047 for Julian date 203 thru 220, and serial number 1046 for Julian date 221 thru 238), FA-4 (serial number 1054) and the ship (serial number 1046).

No correctors were applied for settlement and squat. A TRA corrector of 2.3 fathom was applied to all ship soundings. The corrector was determined from leadline soundings.
A TRA corrector of +0.3 fathom was applied to all launch soundings. The TRA corrector was determined from bar checks and measurements. Sound velocity correctors were determined from two Martek casts (Martek serial number 375) taken in the area, concurrent with hydrography (see the Report on Correctors to Echo Soundings OPR-469-FA-77), they were not applied to soundings on the field sheet. Depths of peaks and deeps were corrected for error due to bad fathogram trace position adjustment. Depths on this sheet range from -1.3 to +23.0 fathoms.

E. FIELD SHEET

All field sheets were constructed on board the NOAA Ship FAIRWEATHER, using a PDP-8/e (S/N 09524) computer and a complot plotter model DD-3-5 (S/N 5557-5). A modified transverse mercator projection was used, with a scale of 1;20,000. The field sheet was separated into east and west sheets whose respective origins are; 61°00'48" N, 150°40'00" W and 61°00'48" N, 150° 48'36" W. The skew was 90°.
A single insert was required with a scale of 1:2,500 and a skew of 0° . The origin of the insert was 61° 05'50" N, 150°55'40" W .

F. STATION CONTROL

All horizontal control was based on the 1927 North American Datum. All horizontal control stations used were third order, class 1, or better. The horizontal control stations were either established by Fairweather personnel or were existing stations. For additional information see the appended Horizontal Control Report (OPR-469-FA-77). No photogrammetrically located signals were used.

G. HYDROGRAPHIC POSITION CONTROL

The Teledyne Hastings Raydist system in the range-range mode was used for position control for all hydrography. The left station was near Moose Point

and the right was near Number Three Bay. Launch FA-3 used Raydist Navigator serial number 21 and mobil transmitter serial number 83, launch FA-4 used navigator serial number 18 and mobil transmitter serial number 90, launch FA-5 used navigator serial number 16 and mobil transmitter serial number 90. The ship used navigator serial number 18 and mobil transmitter serial number 90.

The Raydist transmitter on board FA-3 (serial number 83) had a drifting output impedence which made it necessary to adjust the transmitter each hour. All Raydist transmitters were kept energized in the standby mode overnight in an effort to prevent drift during warm-up. The Raydist transmitter on FA-4 had very little drift.

Raydist calibration was accomplished using either calibration buoys attached to rocks or three point sextant fixes and computer program RK561. When using a calibration buoy at high tide it was possible to be over the designated spot on the rock by putting tension on the line anchoring the buoy until the line was vertical. At low tide, when the rock was exposed above the surface of the water, the launch would pull alongside the rock for calibration. At all times an estimate was made of the distance and bearing to the designated spot on the rock with respect to the Raydist antenna. This distance was then applied to the geographic position of the calibration point (in lanes) to calibrate the system. The electronic correctors at the beginning and end of the day were compared and if they differed by more than .25 lanes, the corrector was interpolated throughout the day (on some days a mid-day calibration was done which verified a linear drift).

During processing it was found that the data of Julian day 222 (fix numbers 1992 to 2083) was in error. The Raydist initial had been in error by 30 lanes (red pattern). The redundent soundings were edited from the data of day 222 and the remaining soundings were plotted.

H. SHORELINE

The following field manuscripts were used for obtaining shoreline data; ~~T-11998~~, T-11999, T-12010, and T-12011. The shoreline was verified from a helicopter since it was almost impossible, due to mud flats up to ten nautical miles wide, to get close to shore via small boat.

On the field sheet it appeared that the zero fathom curve was properly delineated, but plotting with real tides indicated a lack of detail regarding the zero fathom curve. Similarly it was found that the photographically located channels in the mud flats in the vicinity of the zero fathom area and shoreward were inadequately developed. Large discrepancies between real and predicted tides made further development of these areas seem unnecessary because they appeared to be above the tidal datum.

I. CROSSLINES

Crosslines represented six per cent of the total miles of hydrography. The maximum crossline/main scheme discrepancy is one fathom.

J. JUNCTIONS

This sheet junctioned within a fathom of the following contemporary sheets; H-9697 and H-9696. This sheet junctioned within a fathom of survey H-9447. H-9446 agrees within a fathom except at 61°05'27" N, 150°43'52" W and 61°05'31" N, 150°43'52" W, there are eight and nine fathom soundings near a 28 foot sounding on H-9446. This is in an area of shoaling and high currents. A comparison of depth curves on H-8727 (see section K of this report), H-9446 and this survey indicate that it is very possible that the shoal in this area is moving. Because of this the present survey is considered to be the most accurate data available for the area. Although further development appears to have been warranted, it was not done because discrepancies between real and predicted tides made comparisons between field sheets and prior surveys of little value. The referenced 28 ft. sounding is considered to be superseded by present survey depths.

See Verifiers Report

Supersede 28' with more recent present depths

K. COMPARISON WITH PRIOR SURVEYS

This survey agreed within a fathom of prior survey H-8727 with two exceptions.

At 61°05'11" N, 150°43'50" W, there is an 8.7 fathom sounding where prior survey H-8727 (BO-40-2-63) shows a 5.1 fathom sounding. There is no indication of a sounding this shoal in the vicinity, which concurs with H-9446 (RA-20-4A-74), but due to lack of further development it is not considered disproved.

At 61°05'15" N, 150°43'50" W, there is a group of seven fathom or greater soundings where H-8727 has a 4.6 fathom sounding. H-9446 (RA-20-4A-74) is within a fathom of this

See Verifiers Report - Section VI-B

Major changes in bottom invalidates chart depth

survey, but is intermediate between this survey and H-8727 in the vicinity. Due to lack of further development the 4.6 fathom sounding is not disproved.(See Verifier's Report-item VI-B) Although further development appears to have been warranted, it was not done because discrepancies between real and predicted tides made comparisons between field sheets and prior surveys of little value.

The area adjacent to the geographic position of PSR item number fifteen was sounded and wire dragged, using an otter board system, at a spacing of twenty meters, with a coverage of over 90% of the area. The pipe in question was not located, although there were scattered echoes (one half fathom bumps on an otherwise smooth bottom). The half fathom bumps were plotted on the inset as ~~depths of~~ zero fathoms; so a straight line pattern can be easily seen. The existence of the pipe is in doubt. ~~It is recommended that the pipe be continued on the chart as an existence doubtful.~~

Normal, main scheme hydrography was carried out in the area of PSR item number 31. Nothing significant was found.

The geographic position of PSR item number 32, the Phillips Petroleum Co. oil platform "A" had been determined prior to this survey in 1974 by the NOAA Ship RAINIER using geodetic methods. The geographic position is 61°04'36.172"N, 150°56'53.605" W.

L. COMPARISON WITH THE CHART

Comparison of this sheet and NOS chart 16660 indicate agreement within a fathom. The pipe designated "position approximate" on chart 16660 was not located (see section K of this report regarding PSR 15).

M. ADEQUACY OF THE SURVEY

This survey is complete and adequate for charting.

N. AIDS TO NAVIGATION

light list

There were no aids to navigation on this survey.

Phillips Platform "A" is lighted & a horn (priv. maint)

O. STATISTICS

VESSEL	POSITIONS	NM
Ship (2020)	1353	354.7
FA-3 (2023)	1342	340.9
FA-4 (2024)	1283	412.1

Area	67.3 sq. nm
Bottom Samples	50
Martek Casts	2

P. MISCELLANEOUS

Greenwich Mean Time was used for all survey records. The tidal datum for the final sounding plot generated by FAIR-WEATHER personnel was based primarily on tidal data from the Phillips Platform "A" ADR tide gage.

Q. DATA ACQUISITION AND PROCESSING

All on-line hydrographic data was gathered using the launch and ship hydroplot systems, and program RK111 (version 1/30/76). All data tapes were checked for format and parity errors using program RK330 (version 5/04/76). All soundings were plotted with the ship's main hydroplot system, consisting of a PDP8/E computer (S/N 09524), complot plotter, model DP-3-5 (S/N 6166-22), program RK211 (version 1/30/76), and program RK201 (version 4/18/75).

Soundings which were within one third sounding interval of an annotated peak were not plotted so that shoal soundings would be easily read. However the information was retained on the data tape (it was deleted from the plot using a corrector tape).

R. RECOMMENDATIONS

It is recommended that the survey be accepted and used for charting.

S. REFERENCES

Field Edit Report, OPR-469-FA-77

Horizontal Control Report, OPR-469-FA-77
Report on Corrections to Echo Soundings, OPR-469-FA-77
Electronic Systems Calibration Report, OPR-469-FA-77

Submitted by;

Steven K Knight

ENS Steven K. Knight, NOAA

FIELD TIDE NOTE

OPR-469-FA-77
(H-9446), (H-9648), (H-9696), (H-9697), (H-9698).

Field tide reductions, of soundings, are based on Anchorage (control) predicted tides and were interpolated by PDP 8/E computer, utilizing program AM500. The time of predicted tides was GMT. The time and height corrections, applied to the Anchorage predicted tides, were as follows:

FIELD SHEET	HEIGHT (ratio)	HIGH WATER	LOW WATER
FA 20-4E-76 (H-9648)	0.73	-1hr. 26m.	-1hr. 53m.
FA 20-1-77 (H-9696)	0.79	-1hr. 04m.	-1hr. 16m.
FA 20-2-77 (H-9697)	0.81	-40m.	-53m.
FA 20-3-77 (H-9698)	0.88	-36m.	-50m.
RA 20-4-74	0.82	-56m.	-1hr. 05m.

The final smooth field plot used tide reducers calculated from the applicable tide gage and were applied as follows:

FIELD SHEET (SMOOTH)	TIDE GAGE
FA 20-4E-76 (H-9648)	JUMBO ROCK #945-5781
FA 20-1-77 (H-9696)	GRAY CLIFF #945-5787
FA 20-2-77 (H-9697)	NORTH FORELAND #945-5869 (Tyonek Pier)
FA 20-3-77 (H-9698)	PHILLIPS PLATFORM "A" #945-5885
RA 20-4-74 (H-9446)	MOOSE POINT #945-5824

Five bubbler tides gages and one ADR tide gage were installed in the five designated tide gage sites as contained in the project instructions. Locations and periods of operation were as follows:

SITE	LOCATION	PERIOD OF OPERATION
JUMBO ROCK 945-5781	LAT. 60°47.7'N LONG. 151°10.2'W	21 May to 25 Aug. 1977
GRAY CLIFF 945-5787	LAT. 60°50.0'N LONG. 150°58.3'W	31 May to 09 June 1977 19 June to 30 Aug. 1977
MOOSE POINT 945-5824	LAT. 60°57.8'N LONG. 150°40.4'W	03 June to 30 Aug. 1977
PHILLIPS PLATFORM A 945-5885	LAT. 61°04.6'N LONG. 150°57.1'W 6.9	07 June to 30 Aug. 1977 (ADR and Bubbler Tide Gage)
NORTH FORELAND (TYONEK PIER) 945-5869	LAT. 61°02.6'N LONG. 151°09.7'W	02 June to 30 Aug. 1977

JUMBO ROCK

Gage S/N 63A2921, range 0-40 ft., was installed and operational 21 May 1977. Operation was excellent until 1 July when the lower staff and orifice was washed out by stormy seas. The staff and orifice was replaced 13 July and continued operation until 27 July when again stormy seas removed the lower staff section and the orifice. Replacement was effected on 29 July and excellent tide recording continued until the nitrogen ran out on 25 August 1977. The gage was removed on 30 August 1977.

The marigram staff relation is as follows:

STAFF 0=0 ft. marigram, 21 May to 01 July 1977.
STAFF 0=3.8 ft. marigram 13 July to 27 July 1977.
STAFF 0=0.1 ft. marigram 29 July to 30 August 1977

GRAY CLIFF

Gage S/N 63A17967, range 0-40 ft., was installed and was operating on 31, May 1977. On June 8, it was noted, on the marigram, that the tubing had a submerged leak. On 9 June the tubing parted and was repaired, however, subsequent investation of the marigram revealed that the orifice was migrating with the current even though it was attached to a 300 pound concrete block. It was then decided to move the tide gage installation to a location on an offshore rock and elevate it on a section of 3 1/2 inch pipe 21 feet in length. This eliminated the 3000 feet of tubing which was a continual problem. On 19 June the new installation was effected and the gage operated perfectly until time of removal, on 30 August 1977.

The marigram reads 6.4 feet greater than the staff.

MOOSE POINT

Gage S/N 67A16206, range 0-40 feet, was installed on a section of 3 1/2 inch pipe 21 feet long, on an offshore rock, on 3 June 1977. This type of installation eliminates the exceedingly long run of tubing needed in upper Cook Inlet and is feasible whenever project demands dictate long term tide obervations in areas of extremely high currents. There was a intermittent loss of tide data, due to a faulty pen, from 5 June through 9 June and again from 17 June to 20 June. The paper jammed, on the sprockets, 2, July and was corrected 6 July at which time a new pen was installed. The gage performed very good from 6 July until removal on 30 August 1977.

The marigram reads 2.0 feet greater than the staff.

PHILLIPS PLATFORM TYONEK "A"

ADR tide gage S/N 7304A/1380M9 was installed, in a vacant six inch (free flooding) pipe, in leg number 4 on 7 June 1977 and ran excellently until removal on 30 August 1977. The maximum time difference, at any inspection was three minutes.

The marigram reads 38.18 feet greater than the mean of the taped water heights. The water heights were taped, using a weighted inverted cloth tape, from a fixed point on the platform.

In addition, bubbler tide gage S/N 73A236 range 0-50 feet was installed, in free flooding leg number 3, to facilitate smooth field tide reducers on sheet FA 20-3-77 (H-9698). The record was good until 26 June when the paper slipped on the sprockets and jammed. It was corrected on 30 June and ran well until 1 August when the clock ran down. The clock was restarted 3 August and on 7 August the pen was knocked off its pivot. The pen was replaced on 15 August and on 25 August the paper again skipped sprockets and jammed. The gage was removed on 30 August 1977.

The bubbler marigram reads 4.74 feet greater than the mean on the taped water heights.

Platform employees acted as tide observers on an as time permits basis.

NORTH FORELAND (TYONEK PIER)

Gage S/N 73A725 range 0-50 feet was installed and operational on 2 June 1977. Operation was good, with slight time variations, until 28 July. From 28 July until removal on 30 August there were moderate to severe time problems caused by defective chart rolls.

The marigram reads 1.8 feet greater than the staff.

LEVELS

Jumbo Rock was leveled on installation to two previously established bench marks. On each new lower staff installation and again upon removal levels were run to the two marks. There was no evidence of the orifice moving during any of the recording periods.

Gray Cliff was leveled to five newly established marks on 5, June 1977. Upon completion of the offshore installation, two additional marks were established and leveled. Upon removal, levels were run to six of the marks and indicated no shift in elevation.

Moose Point was leveled on 24 June 1977 to three eyebolts and the pipe collar at the base of the gage supporting pipe. On 25 August, prior to removal of the gage, levels were again run to the aforementioned points and two bench marks established.

Phillips Platform A was leveled on 24 August 1977. A temporary point on the rail, surrounding the catwalk, adjacent to leg number four, was used as the initial for all taped water heights. Previous bench mark descriptions were useless, as minor changes to the physical structure of the platform precluded recovering previously used points.

North Foreland (Tyonek Pier) was leveled on 3 June 1977 and two additional bench marks were established as construction had destroyed two previous marks. Levels were again run on 23 August 1977 and bench mark 9 was found destroyed. There was good agreement between the levels of 3 June and the levels of 23 August.

Miscellaneous

The ADR tide gage, on the platform, and the bubbler tide gage at Gray Cliff should be used to rectify any questionable data, from other gages in the survey area, as these two gages ran without problems. It was also apparent that the Nupro valves, used on some of the gages, tended to attenuate the rise and fall to the point that minor stepping of the trace was apparent. This happened even though the valves were fully open. It is recommended that the 0-40 feet and 0-50 feet gages be equipped with conventional valves when used in area of extreme tides.

Submitted by;

Earl R. Krick

Earl R. Krick
Chief Survey Technician

VELOCITY TABLE
Sound Velocity Corrector Abstract

The following sound velocity correctors are to be applied to all soundings in fathoms on the surveys FA-20-1-77 (H-9696), FA-20-2-77 (H-9697), and FA-20-3-77 (H-9698). Also the following sound velocity correctors are to be applied to the additional work on surveys RA-20-4-74 (H-9446) and FA-20-4-76 (H-9648).

Depth Fathom	Corrector (Fathom)
0.0-6.8	+0.0
6.9-19.7	+0.1
19.8-31.7	+0.2
31.8-44.0	+0.3

The following sound velocity correctors are to be applied to the survey in feet of the Tyonek Lumber Pier on survey FA-20-2-77 (H-9697).

Depth Feet	Corrector (Feet)
0.0-20.1	+0.0
20.2-59.4	+0.5
59.5-96.4	+1.0

ABSTRACT OF RAYDIST EQUIPMENT UTILIZATION

H-9446, H-9648, H-9696, H-9697 & H-9698

BASE STATION LOCATIONS

RAYDIST RED - S/N 124 - Julian days 158 thru 238
The station frequency is 1650.015 KHz and used a 35 Ft. whip antenna on a 40 Ft. tower with a 50 Ft. radial ground plane. The station was located at MOOSE POINT RED RAYDIST at 60° 57' 21.730" N 150° 40' 46.305" W on a small grassy knoll about 100 M from the water on a small point.

RAYDIST GREEN - S/N 125 - Julian days 158 thru 202
The station frequency is 1650.425 KHz and used a 35 Ft. whip antenna on a 40 Ft. tower with a 50 Ft. radial ground plane. The station was located at NORTH FORELAND RAYDIST TOWER at 61° 03' 03.606" N 151° 09' 30.202" W on a small grassy knoll about 50 M from the water on the tip of the North Foreland in Upper Cook Inlet Alaska.

RAYDIST GREEN - S/N 125 - Julian days 202 thru 238
The station frequency is 1650.425 KHz and used a 35 Ft. whip antenna on a 40 Ft. tower with a 50 Ft. radial ground plane. The station was located at NUMBER 3 BAY GREEN RAYDIST at 60° 46' 47.268" N 151° 12' 53.261" W on a grassy ridge about 50 M from the water.

MOBILE TRANSMITTERS

FA-3 (2023): Model TA-96B, S/N 96, Frequency 3300.465 KHz
J.D. 158 thru 193
FA-3 (2023): Model TA-96B, S/N 83, Frequency 3300.520 KHz
J.D. 194 thru 238
FA-4 (2024): Model TA-96B, S/N 90, Frequency 3300.400 KHz
J.D. 158 thru 238 except for ship hydro.
FA-5 (2025): Model TA-96B, S/N 83, Frequency 3300.520 KHz
J.D. 158 thru 193
FA-5 (2025): Model TA-96B, S/N 96, Frequency 3300.465 KHz
J.D. 194 thru 238
Ship (2020): Model TA-96B, S/N 90, Frequency 3300.400 KHz
All ship Hydro

MOBILE NAVIGATORS

FA-3 (2023): Model ZA-75C, S/N 16, Frequency 330/490 Hz
J.D. 158 thru 193
FA-3 (2023): Model ZA-75C, S/N 21, Frequency 435/385 Hz
J.D. 194 thru 238
FA-4 (2024): Model ZA-75C, S/N 18, Frequency 370/480 Hz
J.D. 158 thru 238 except for ship hydro.

FA-5(2025): Model ZA-75C, S/N 21, Frequency 435/385 Hz
J.D. 158 thru 193
FA-5(2025): Model ZA-75C, S/N 16, Frequency 330/490 Hz
J.D. 194 thru 238
Ship(2020): Model ZA-75C, S/N 18, Frequency 370/480 Hz
All ship hydro

POWER SUPPLY

The power supply for all base station locations was thermal electric generators.

OPR-469-FA-77 SERIAL NUMBERS

LOCATION OF MOBILE RAYDIST SYSTEMS

	Transmitter	Navigator	
FA-3	96	16	J.D. 160-193
FA-3	83	21	J.D 194-End of Project
FA-4	90	18	All Hydro
FA-5	83	21	J.D. 160-193
FA-5	96	16	J.D. 194-End of Project
Ship	90	18	All Ship Hydro

LOCATION OF RAYDIST BASE STATIONS

Raydist Red - S/N 124 - MOOSE Pt. Red Raydist - All Hydro
Raydist Green - S/N 125 - NORTH FORELAND Green Raydist - Start until J.D. 202
Raydist Green - S/N 125 - NUMBER THREE BAY Green Raydist - J.D. 202 to End

LOCATION OF MINIRANGER CONSOLES FOR HYDRO

Console 702 and T/R 702 - FA-5 - J.D. 216-221
Console 701 and T/R 701 - FA-5 - J.D. 221-223
Console 703 and T/R 703 - FA-6 - J.D. 221-223
Console 702 and T/R 702 - FA-6 - J.D. 232-235 Tyonek Pier Survey

Location of Miniranger Transponders:
Transponder - S/N704 - MOOSE Pt. Light J.D. 216-223
Transponder - S/N703 - CREEK - J.D. 220-221
Transponder - S/N702 - TYONEK 1909/1960 - J.D. 232-235
Transponder - S/N701 - CREEK - J.D. 220-223

FATHOMETER LOCATIONS

FA-3 - S/N 1047 - Start - J.D. 220 after J.D. 220 till End S/N 1046
FA-4 - S/N 1054 - All Hydro
FA-5 - S/N 1036
FA-6 - S/N 1047
Ship - S/N 1046 All Ship Hydro

CALIBRATION POINTS - OPR-469 SUMMER 1977

START OF PROJECT TO JULY 21, 1977

CALIBRATION ROCK - 60/53/31.030 N 150/59/36.873 W
PATTERN 1 - NORTH FORELAND$ - GREEN RAYDIST 437.11
PATTERN 2 - MOOSE POINT RED RAYDIST 406.83

EBB
PATTERN 1 - NORTH FORELAND$ - GREEN RAYDIST 437.13
PATTERN 2 - MOOSE POINT RED RAYDIST 407.03

FLOOD
PATTERN 1 - NORTH FORELAND$ - GREEN RAYDIST 437.08
PATTERN 2 - MOOSE POINT RED RAYDIST 406.64

BM 1 1960 (JUMBO ROCK) - 60/47/41.415 N 151/10/13.525 W
PATTERN 1 - NORTH FORELAND$ - GREEN RAYDIST 628.92
PATTERN 2 - MOOSE POINT RED RAYDIST 708.20

OTTER ROCK - 60/53/15.4072 N 150/54/07.4104 W
PATTERN 1 - NORTH FORELAND$ - GREEN RAYDIST 504.33
PATTERN 2 - MOOSE POINT RED RAYDIST 314.48

CALIBRATION POINTS JULY 21, 1977 TO THE END OF THE PROJECT

CALIBRATION BUOY
PATTERN 1 - MOOSE PT. RED RAYDIST 406.83
PATTERN 2 - NUMBER 3 BAY GREEN RAYDIST 382.12

FLOOD
PATTERN 1 - MOOSE PT. RED RAYDIST 406.64
PATTERN 2 - NUMBER 3 BAY GREEN RAYDIST 382.32

EBB
PATTERN 1 - MOOSE PT. RED RAYDIST 407.03
PATTERN 2 - NUMBER 3 BAY GREEN RAYDIST 381.93

OTTER ROCK
PATTERN 1 - MOOSE PT. RED RAYDIST 314.47
PATTERN 2 - NUMBER 3 BAY GREEN RAYDIST 458.72

BM 1 1960 (JUMBO ROCK)
PATTERN 1 - MOOSE PT. RED RAYDIST 708.20
PATTERN 2 - NUMBER 3 BAY GREEN RAYDIST 64.79

BIRCH ROCK - 60/56/05.8817 N 151/46/23.5963 W
PATTERN 1 - MOOSE PT. RED RAYDIST 123.24
PATTERN 2 - NUMBER 3 BAY GREEN RAYDIT 651.56
MINIRANGER - MOOSE PT. LIGHT 1966 5397.4
MINIRANGER - CREEK 1963 2002.7

SOUTH PIER LIGHT (TYONEK LUMBER PIER)
61/02/34.076 N 151/09/47.712 W
MINIRANGER CALIBRATION CHECK FROM TYONEK 1909,1960 - 1041.7M

NORTH PIER LIGHT (TYONEK LUMBER PIER)
61/02/37.315 N 151/09/35.403 W
MINIRANGER CALIBRATION CHECK FROM TYONEK 1909,1960 - 1198.6M

OPR-469 UPPER COOK INLET SIGNAL TAPE

MOOSE POINT RED RAYDIST (UNMARKED - ESTB. 1977)
001 7 60 57 21730 150 40 46305 254 0015 330040

NORTH FORELAND RAYDIST TOWER (GREEN RAYDIST UNMARKED - ESTB. 1977)
002 0 61 03 03606 151 09 30202 254 0031 330040

BOULDER 1909-1976
003 7 60 46 18353 151 15 25906 139 0066 000000

BM1 1960 (JUMBO ROCK TIDE GAGE)
004 7 60 47 41415 151 10 13525 139 0004 000000

COOK (UNMARKED - ESTB. 1977)
005 7 60 48 18201 151 01 10020 254 0004 000000

BAKE (UNMARKED - ESTB. 1977)
006 7 60 46 58980 151 07 38712 254 0004 000000

DRAB 1966
007 7 60 49 45088 150 57 32017 250 0046 000000

CREEK 1963
008 7 60 55 16716 150 44 57189 250 0026 000000

MOOSE 1966
009 7 60 57 23549 150 40 59312 250 0007 000000

MOOSE POINT LIGHT 1966
010 7 60 57 22872 150 41 01945 250 0010 000000

ROK 29TH ENG 1942
011 7 60 52 15798 150 51 45956 250 0027 000000

POINT A (UNMARKED - ESTB. 1977)
012 7 61 00 20495 150 30 17848 254 0030 000000

PT POSSESSION LIGHT 1974
013 7 61 02 03927 150 24 10744 139 0018 000000

NUMBER 3 BAY GREEN RAYDIST (UNMARKED - ESTB. 1977)
014 7 60 46 47268 151 12 53261 254 0047 330040

PINK (UNMARKED - ESTB. 1977)
015 0 61 06 45575 151 05 41697 243 0002 000000

YELLOW (UNMARKED - ESTB. 1977)
016 0 61 07 15284 151 05 13532 243 0002 000000

ORA (UNMARKED - ESTB. 1977)
017 0 61 08 12925 151 04 24806 243 0002 000000

ANGE (UNMARKED - ESTB. 1977)
018 0 61 09 09918 151 03 25311 243 0002 000000

NORTH END TYONEK PIER (LIGHT - ESTB. 1977)
019 0 61 02 37315 151 09 35403 243 0002 000000

SOUTH END TYONEK PIER (LIGHT - ESTB. 1977)
020 0 61 02 34076 151 09 47712 243 0002 000000

TYONEK 1909,1960
021 0 61 02 43855 151 10 54088 250 0030 000000

APPROVAL SHEET

Field Number; FA-20-3-77

Register Number; H-9698

This field sheet and all accompanying records are hereby approved. This survey was conducted under my supervision and the survey is complete and adequate for charting purposes.

Bruce I. Williams

CDR Bruce I. Williams
Commanding Officer
NOAA Ship FAIRWEATHER, S-220

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-9698

Name on Survey	A ON CHART NO. 16660	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	
BELUGA RIVER	X									1
COOK INLET	X									2
IVAN RIVER (at edge of sheet)										3
LEWIS RIVER	X									4
THEODORE RIVER	X									5
										6
										7
										8
										9
										10
										11
										12
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										25

APPROVED
Chas. E. Harrington
CHIEF GEOGRAPHER - C3x5
15 Feb. 1979

NOAA FORM 76-155 SUPERSEDES C&GS 197

U.S. DEPARTMENT OF COMMERCE

March 1, 1978 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): 945-5885 Phillips Platform "A"

Period: July 25 - August 27, 1977

HYDROGRAPHIC SHEET: H-9698

OPR: 469

Locality: Upper Cook Inlet, Alaska

Plane of reference (mean lower low water): 5.73 ft.

Height of Mean High Water above Plane of Reference is 22.2 ft. - Phillips Platform

Remarks: Recommended zoning:

(1) West of 150°50' zone direct.
(2) East of 150°50' apply +10 minute time correction and range ratio x1.03.

Don Spalding

Chief, Tides Branch

NOAA FORM 77-27 (5-77) | U. S. DEPARTMENT OF COMMERCE NOAA | HYDROGRAPHIC SURVEY NUMBER

HYDROGRAPHIC SURVEY STATISTICS

H-9698

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	10 (5 $\frac{1}{5}$)
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. ARC, EXCESS	5

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	with Printouts 3					
VOLUMES	1					
BOXES			1-Smooth			

T-SHEET PRINTS (List) T-11999, T-12010, T-12011

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	AMOUNTS: VERIFICATION	AMOUNTS: TOTALS
POSITIONS ON SHEET			4183
POSITIONS CHECKED		4183	
POSITIONS REVISED		19	
SOUNDINGS REVISED		241	
SOUNDINGS ERRONEOUSLY SPACED		0	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	
	TIME – HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	5		
VERIFICATION OF CONTROL		8	
VERIFICATION OF POSITIONS		59	
VERIFICATION OF SOUNDINGS		149	
COMPILATION OF SMOOTH SHEET		24	
APPLICATION OF TOPOGRAPHY		3	
APPLICATION OF PHOTOBATHYMETRY		0	
JUNCTIONS		23	
COMPARISON WITH PRIOR SURVEYS & CHARTS		18	
VERIFIER'S REPORT		26	
OTHER		13	
TOTALS	5	323	

Pre-Verification by James S. Green	*Beginning Date* 12/19/77	*Ending Date* 12/19/77
Verification by Thelma O. Jones	*Beginning Date* 2/3/78	*Ending Date* 10/26/78
Verification Check by A.E. Eichelberger, J.S. Green	*Time (Hours)* 57	*Date* 11/6/78
Marine Center Inspection by HIT	*Time (Hours)* 17	*Date* 12/14/78
Quality Control Inspection by R. W. Wellman	*Time (Hours)* 53	*Date* 2-15-79
Requirements Evaluation by J Baumgardner	*Time (Hours)* 3	*Date* 3/21/79

Cartens 9 hr 2/23/79

REGISTRY NO. _____

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

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

CARDS CORRECTED

DATE_____ TIME REQUIRED_____ INITIALS_____

REMARKS:

REGISTRY NO. H-9698

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:

PACIFIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO: H-9698 FIELD NO: FA-20-3-77

Alaska, Cook Inlet, Beluga River to Ivan River

SURVEYED: 25 July - 27 August 1977

SCALE: 1:20,000 PROJECT NO: OPR-469

SOUNDINGS: Ross Fineline
Fathometer-Model 5000 CONTROL: Range-Range Raydist

Chief of Party.....CDR B. I. Williams
Surveyed by.....ENS Steven K. Knight
ENS LeeAnne Roberts
Automated plot by.....PMC Xynetics Plotter
Verified by.....Thelma O. Jones
26 October 1978

I. INTRODUCTION

H-9698 is a basic survey conducted by NOAA Ship FAIRWEATHER from 25 July - 27 August 1977. The area surveyed was in the northern part of Cook Inlet, Alaska. The approximate boundaries are: the shoreline to the north, latitude 61°01'00" to the south, longitude 150°43'00" to the east and longitude 151°00'00" to the west.

Field tide reduction of soundings are based on Anchorage predicted tides. Smooth sheet soundings were reduced using approved tidal data from Phillips Platform "A" tide gage.

Projection parameters used to plot the field sheets have been revised to center the hydrography on the smooth sheet. Parameters used by PMC are listed in the Sounding Printout. All correctors used to plot and reduce soundings are listed in the Sounding Printout.

The corrector for the Antenna distance for the ship's hydrography was not noted in the survey records, resulting in a replot of the survey, and additional work for the verifier.

II. CONTROL AND SHORELINE

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

The class I unreviewed photogrammetric manuscripts utilized on this survey with their respective dates of photography and field edit are:

T-12010	1961, 66-77
T-12011	1961, 66-77
T-11999	1966-77 (See Q.C. Report-item 1)

III. HYDROGRAPHY

Crossline agreement was excellent, within a fathom throughout the survey.

Standard depth curves could be adequately drawn, and brown curves were used to highlight least depths in development areas.

The main scheme hydrography is adequate to delineate bottom configuration and to determine least depths, except for the 5 fathom shoal in the junction area of H-9446. See Section V of Verifier's Report.

There are 50 bottom samples in this survey.

IV. CONDITION OF SURVEY

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

a. Event marks were missing for numerous soundings.
b. Duplicate position numbers, 1-113, were used for the development.
c. Antenna distance correction for the ship hydrography was not applied or noted in the survey records.
d. Several missed depths were misinterpreted, resulting in erroneously plotted soundings.
e. Descriptive Reports were not assembled properly before submitting to PMC. Original report was loose pages and the copy was stapled in one corner.

(See Q.C. Report-item 2)

V. JUNCTIONS

H-9698 junctions with the following contemporary surveys:

H-9447 (1974) to the Northeast
H-9446 (1974-77) to the South and Southeast
H-9696 (1977) to the South and Southwest
H-9697 (1977) to the ~~South and~~ West

} These surveys were not available during QC inspection

H-9447 junctions within a fathom, causing slight changes in the curves, which will necessitate adjustment of the curves on H-9447, previously submitted to Rockville. (See Q.C. Report-item 3)

H-9446 junctions within a fathom, except in the vicinity of Lat. 61°05'30", Long. 150°44'00". H-9446 shows a shoal of which there is no indication on the present survey. A comparison of the depth curves on prior survey H-8727 (1963) and H-9446 shows the same shoaling, although the area appears to be shifting northward, and not easterly, as indicated in Section J of the Descriptive Report. Since this shoal area was not disproved by hydrography, eleven soundings and the 5 and 10 fathom curves were transferred from H-9446. Disregard. Shoaler depths from H-9446 are considered invalid.

H-9696 - soundings agreement was excellent, within 2 fathoms, curves and note were inked accordingly. (See Q.C. Report-item 4)

H-9697-junction agreement of the soundings and curves in the area of the 0, 1, and 2 fathom curves was excellent, within 2 fathoms. In the area of the 3, 5, and 10 fathom curves, the soundings were .3 to 1 fathom deeper on H-9698. The deeper depths were excessed to permit transfer of shoal depths from H-9697, to effectively correlate the depth curves.

VI. COMPARISON WITH PRIOR SURVEYS

A (See Q.C. Report-item 5)

B H-3211 (1910) 1:40,000
H-3199 (1910) 1:100,000
H-8727 (1963) 1:40,000
H-8529 (1960) 1:40,000

See Q.C. Report-item 7

Comparison with H-3211, and H-3199 ~~shows excellent agreement in soundings within a fathom.~~ There have been changes in the shoreline, probably due to the shifting of the mud flats.

Comparison with H-8727 was generally within a fathom. There is a shoal in the vicinity of Lat. 61°05'30", Long. 150°44'00" which does not appear on the present survey. The 5.3 and 4.6 fathom soundings mentioned in the Descriptive Report are apparently part of the shoal area that has shifted northward. (See Section K of the Descriptive Report for details) The bottom configuration on all priors has changed, although not a significant amount. This change is ~~probably~~ due to ~~sedimentation~~, natural causes.

Comparison with the small portion of H-8529 not superseded by H-8727 (61°02' to 61°05', 150°44' to 150°51'), indicates little change in basic depths, generally .2 to .3 fathoms deeper on H-9698, with isolated differences less than a fathom. These differences are attributable to natural changes.

PSR item 15, a pipe rep. PA at 61°06.2', 150°55.0' ~~was~~ is adequately disposed of in Section K of the Descriptive Report.

PSR item 31 - Six abandoned oil wells centered at 61°03.6', 150°56.0': Nothing significant was found in this area. It is recommended that the oil wells continue to be charted as shown.

PSR item 32 - a platform at 61°04.6', 150°56.9' ~~was~~ is adequately disposed of in the Descriptive Report.

PSR dashed circle item 6 1/4 fm. at 61°03.8', 150°46.0': Least depth obtained on this survey is 6.4 fm. at 61°03.8', 150°45.8', Sounding #661605. Recommend the 6 1/4 fm. ~~continue to~~ be ~~charted as shown~~ deleted from the chart. (See Q.C. Report-item 6)

With the transference of the shoal mentioned previously in Section V of the Verifier's Report from junction survey H-9446 (1974-77), H-9698 is adequate to supersede all priors in areas of common hydrography.

VII. COMPARISON WITH CHART 16660 (18th Edition, December 18, 1976)

a. Hydrography

All soundings originated with previously discussed prior surveys, ~~H-8727, H-3199 and H-3211.~~ Which require no further consideration. Sounding comparison and discrepancies were discussed in Section VI. The shoreline apparently was charted from the photogrammetric manuscripts used for this survey.

There is no mention in the Descriptive Report of the pipeline area as depicted on the chart. There is no indication of unusual shoaling on the survey. The pipelines are apparently below the bottom. It is recommended the pipelines continue to be charted as shown.

~~This~~ Except as discussed in item VI above, the present survey is adequate to supersede all charted hydrography of common areas.

b. Aids to Navigation

There are no aids to navigation pertaining to this survey, except for the privately maintained lights and horn on Phillips Platform "A" at 61°04.6', 150°56.9'.

VIII. COMPLIANCE WITH PROJECT INSTRUCTIONS

This survey adequately complies with the Project Instructions dated 2 March 1977, Change No. 1 dated 12 April 1977, Change No. 2 dated 2 May 1977 and Change No. 3 dated 12 May 1977.

IX. ADDITIONAL FIELD WORK

This is a good basic survey. No additional field work is recommended.

Respectfully submitted

A. E. Eichelberger

for Thelma O. Jones
Cartographic Technician
October 26, 1978

Examined and approved,

James S. Green
Chief, Verification Branch

APPROVAL SHEET

FOR

SURVEY H- 9698

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: 11/9/78

Signed: [signature]

Title: Chief, Verification Branch

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY

Pacific Marine Center
1801 Fairview Ave. E.
Seattle, WA 98102

DATE : 14 December 1978

TO : E. A. Taylor
Director, Pacific Marine Center

FROM : Glen R. Schaefer
Chief, Processing Division

SUBJECT: PMC Hydrographic Inspection Team Report for Survey H-9698

This survey is a basic hydrographic survey from Beluga River to Ivan River, Cook Inlet, Alaska. This survey was conducted by NOAA Ship FAIRWEATHER in 1977 in accordance with Project Instructions OPR-469-FA-77 dated 2 March 1977 and Changes 1-3 dated 12 April 1977, 2 May 1977, and 12 May 1977, respectively.

Drift of the Raydist Navigation system occasionally exceeded the 10 meter allowable for averaging morning and evening correctors and was noticed by the field personnel. However, additional mid-day calibrations were not taken. Linear interpolation was selected with correctors applied in the shipboard processing phase in 0.3 lane increments. The area of the survey having these large corrections is in the southeast corner of the survey where small horizontal shifts do not effect the drawing of the depth curves.

The inspection team finds H-9698 to be a good basic survey adequate to supersede common areas of prior surveys and charted hydrography. Administrative approval is recommended.

Glen R. Schaefer

David B. MacFarland, Jr.

James W. Steensland

James W. Stringham

ADMINISTRATIVE APPROVAL

H-9698

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

Eugene A. Taylor, RADM
Director
Pacific Marine Center

15 Dec. 1978
Date

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

OA/C352:KWW

February 15, 1979

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

THRU: Chief, Quality Control Branch

FROM: K. W. Wellman
Quality Evaluator

SUBJECT: Quality Control Report for H-9698 (1977), Alaska, Cook Inlet, Beluga River to Ivan River

A quality control inspection of H-9698 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths and navigation hazards, junctions, shoreline transfer, decisions and actions by the verifier, and cartographic presentation of data.

In general, the present survey was found to conform to National Ocean Survey standards and requirements except as discussed in the Verifier's Report, the HIT Report, and as follows:

1. Reference section II of the Verifier's Report:

Photogrammetric manuscript T-11999 was inappropriately listed in the referenced section of the Verifier's Report. The shoreline coverage on the referenced T-sheet falls beyond the limits of the present survey.

2. Section IV of the Verifier's Report is supplemented by the following:

f. Reference section L of the Descriptive Report:

The referenced section of the Descriptive Report is deficient in that the edition and date of the chart were not included by the hydrographer. (See section 5.3.4(L) of the Hydrographic Manual--Fourth Edition.)

3. The comments pertaining to adjoining survey H-9447 included in section V of the Verifier's Report are supplemented by the following:

There has been a minor natural shift of bottom sediments during the intervening 3 years between the present survey and H-9447. Present depths

generally range to 0.5 fathom shoaler than general depths within the common area on H-9447. Such depth differences are considered to be within acceptable limits of junctional agreement in general depths exceeding 7 fathoms. In lesser depths, however (north of latitude 61°11.50'), such differences render the 1-fathom depth curve irreconcilable and distort the 5-fathom depth curve. Accordingly, a partial butt junction between the present survey and H-9447 has been effected in the common area north of latitude 61°11.50'. An adequate junction has been effected to the south of the indicated latitude.

4. Reference section V of the Verifier's Report:

It is stated in the referenced section that junctional agreement of soundings is ". . . excellent, within 2 fathoms." This implies that depth differences of as much as 2 fathoms may exist in the junctional areas. Such differences are inconsistent with the designation "excellent agreement." Junctional differences of such magnitude are usually not considered acceptable and require additional examination of the pertinent records to determine the cause(s) and to effect a reconciliation of the hydrography within the common areas. Butt junctions may be necessary if the noted 2-fathom differences are irreconcilable.

5. Prior survey H-3044 (1909) was not considered during verification. It is discussed below to effect its formal supersession by the present survey.

Section VI of the Verifier's Report is supplemented by the following:

A. H-3044 (1909) 1:100,000

The small-scale reconnaissance survey covers a small portion of the present survey with only a few sounding lines within the common area. The few soundings within the common area afford no adequate basis for comparison and are superseded by the present survey.

6. Reference section VI-B of the Verifier's Report:

Most of the charted Presurvey Review items discussed in the referenced section originate with sources other than the prior surveys and were inappropriately included in the referenced section of the Verifier's Report. Any necessary comments pertaining to such charted items would have been more appropriately included in the chart comparison section of the Verifier's Report. However, if significant charted features originating with prior surveys are not disproved by the present survey, then they must be carried forward to supplement the present survey. In such cases, appropriate references to such features should be included in the "Comparison

with Prior Surveys" section of the Verifier's Report. (See the memorandum dated March 21, 1977, from the Office of Marine Surveys and Maps entitled "Verifier's Report Format.")

Reference the comments pertaining to the Presurvey Review dashed-circled 6 1/4-fathom charted sounding included in section VI-B of the Verifier's Report:

The referenced sounding originates with H-6678 (1941). This sounding is considered no longer valid due to the general changes in the bottom configuration as revealed by the comparisons between the present and prior surveys. The referenced 6 1/4-fathom sounding should be deleted from the chart.

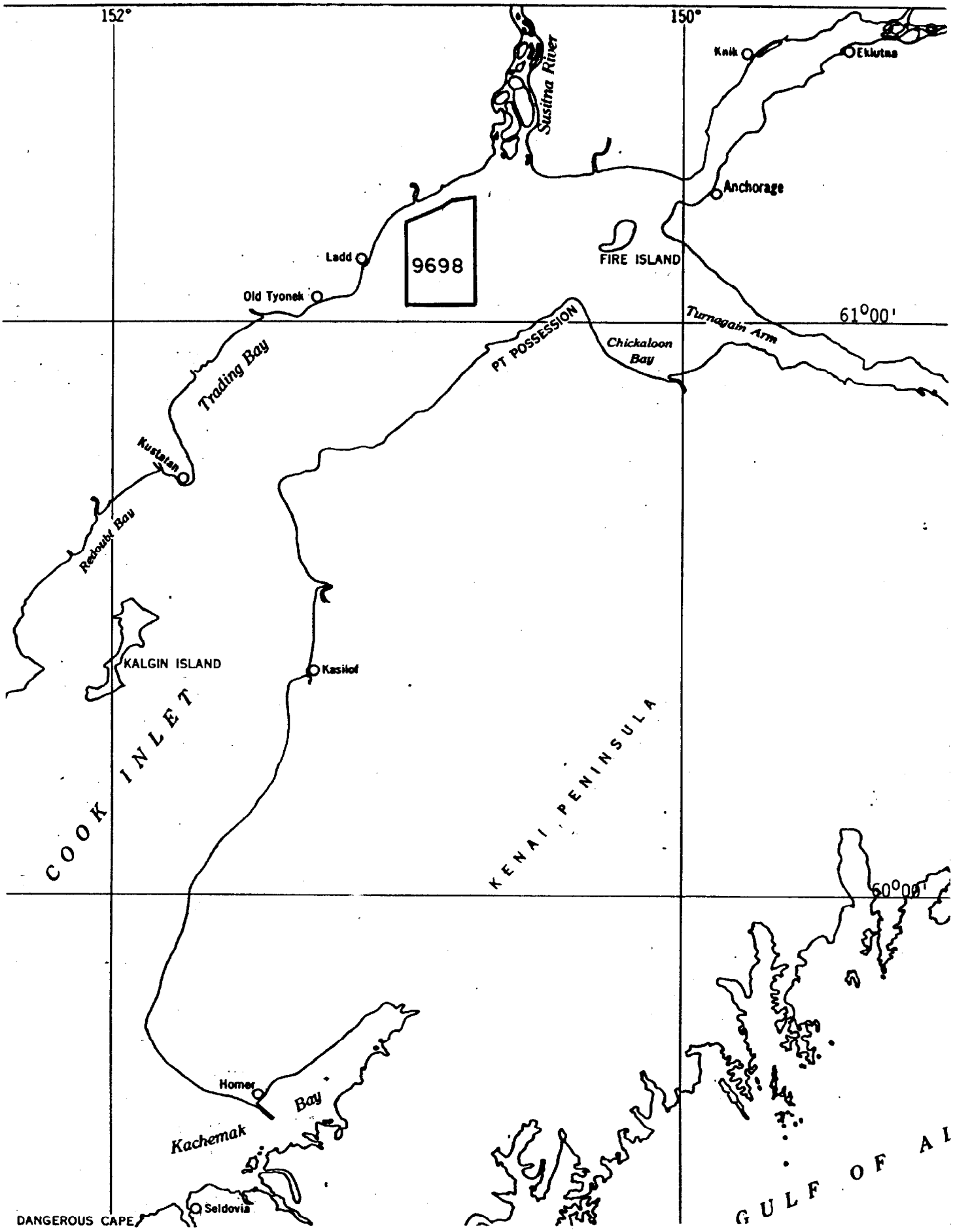
7. Prior survey H-6678 (1941) was not considered during verification. This prior survey serves as a source for numerous charted soundings. During verification, these charted soundings were erroneously attributed to an origin with other prior surveys listed in section VI of the Verifier's Report. In this case, no such soundings are shown on the sources indicated on the marked chart section submitted by the verifier. Such erroneous procedure questions the credibility of the verifier's chart markup and thus necessitates closer scrutiny of the relevant recommendations included in the Verifier's Report.

8. Section VI-B of the Verifier's Report (second paragraph) is supplemented by the following:

The crest of the shoal appears to migrate to the north and south within a range of approximately 600 meters. The shoalest depths on the shoal (within the common area) fell approximately 300 meters to the north and south of the present survey position in 1941 and 1963 respectively. Present depths are generally 8 to 10 fathoms deeper than prior depths as shown on H-6678 in the former area of the crest of the shoal. Elsewhere, present depths within the common area are generally 1 fathom deeper than those on H-6678.

9. The shoal discussed in items V and VI of the Verifier's Report, latitude 61°05.5', longitude 150°44.0', has been subject to major changes. The earlier soundings retained from survey H-9446 (1974-77) are considered invalid and are superseded by present depths. The referenced soundings have been deleted from the present survey.

cc:
C35
C351


152°
150°
Susitna River
Knik
Eklutna
Anchorage
9698
FIRE ISLAND
Ladd
Old Tyonek
61°00'
Turnagain Arm
Chickaloon Bay
PT POSSESSION
Trading Bay
Kustatan
Redoubt Bay
KALGIN ISLAND
Kasilof
COOK INLET
KENAI PENINSULA
60°00'
Homer
Bay
Kachemak
Seldovia
DANGEROUS CAPE
GULF OF AL

(3-25-63) NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9698

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
16660	4/23/79	Naitor	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via GC
			Drawing No. 24 Proof Made misc corrs only
16663	5/13/81	H.J. Borawski	Full ~~Part Before~~ After ~~Verification~~ ~~Review~~ Inspection Signed Via QC
			Drawing No. #1 Fully appld hydro after Q/C inspection appld thru 16665 where necessary
16665		J. Bailey	Full ~~Part Before~~ After Verification Review Inspection Signed Via GC
			Drawing No.
16662	12/31/81	Naitor	
			Full ~~Part Before~~ After Verification Review Inspection Signed Via GC
			Drawing No. 1 thru 16663
16660	4/26/91	B. Szatkowski	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 29 thru 16663
			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.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975. USCOMM-DC 8558-P63

platform

L-328 (1988)

176 (64)