9446

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-20-4-74

Office No. H-9446

LOCALITY

State ..... Alaska

General Locality ..... Cook Inlet

Locality ..... Birch Hill to Point Possession

19 74-77

CHIEF OF PARTY
CDR. K.W. Jeffers, CDR. B.I. Williams

LIBRARY & ARCHIVES

DATE ..... April 27, 1979

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

AREA 6

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N/C 16013, 531

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H-9446

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-20-4-74

State ALASKA — See Other Title Sheet for 1977

General locality COOK INLET

Locality BIRCH HILL TO PT. POSSESSION

Scale 1:20,000 Date of survey 29 July 1974 - 16 August 1974

Instructions dated 18 February 1974 Project No. OPR-469-RA-74

Vessel NOAA Ship RAINIER's Launches 2123, 2124, 2125, 2126

Chief of party CDR K. William Jeffers

Surveyed by LT D. Siedel, LTJG G. Stroble, ENS S. Langveld, ENS R. Ellis, ENS K Andreen
LT L. Pfeifer

Soundings taken by echo sounder, ~~hand lead, pole~~ Ross Models 6000 S/N's 1042, 1041-4, 1040-3

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Positions Verified ~~Protracted~~ by F. L. Rosario Automated plot by PMC Xynetics Plotter

Soundings verified ~~Verification~~ by F. L. Roasrio

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

REMARKS: The survey was made in GMT.

The survey is complete as required by the project instructions with the exceptions discribed in section M. Adequacy of the Survey. The survey is considered adequate.

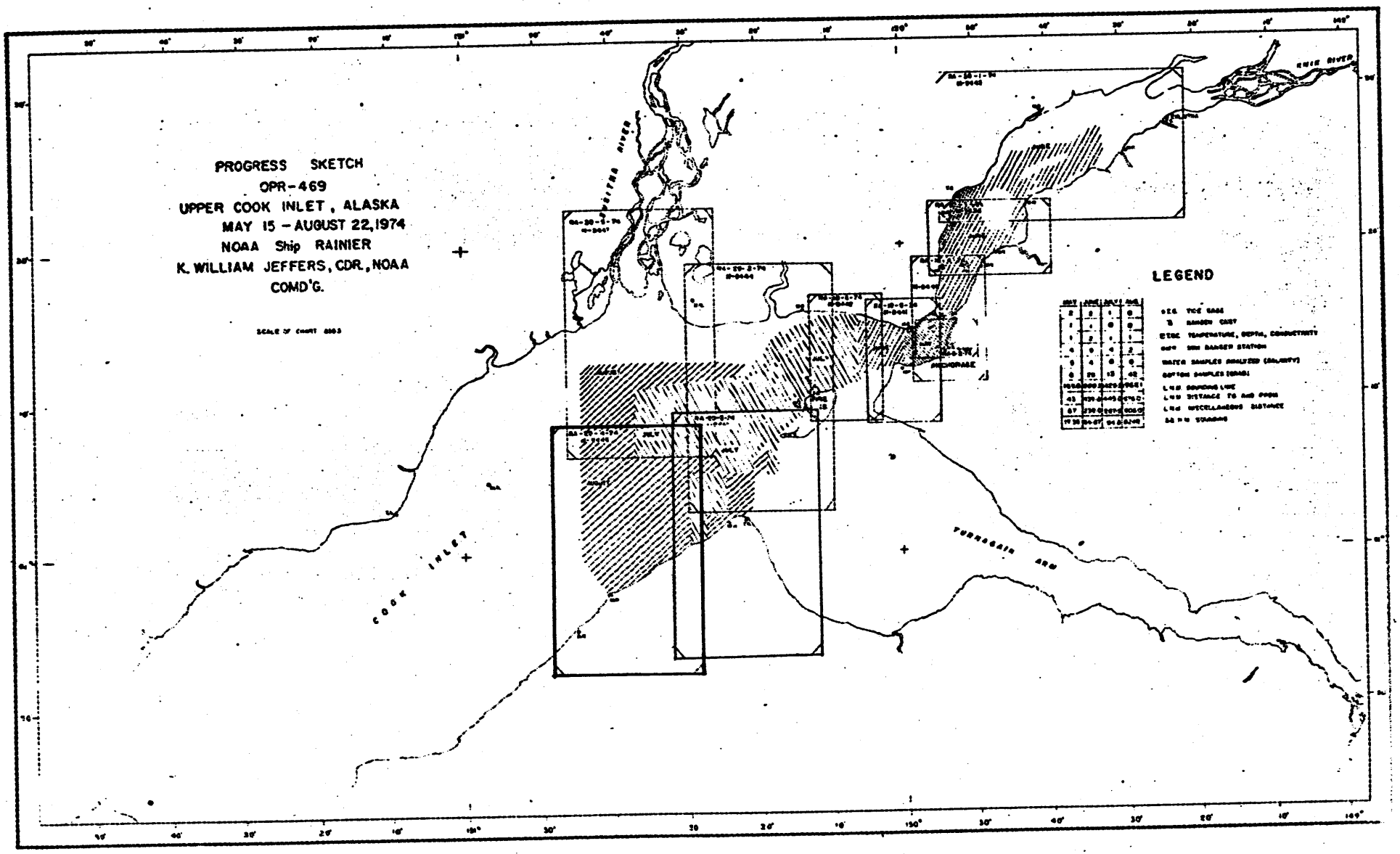
Additional work was done during the 1977 field season.

Appl'd. to sdgs.
WJT- 8-17-79

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


PROGRESS SKETCH
OPR-469
UPPER COOK INLET, ALASKA
MAY 15 - AUGUST 22, 1974
NOAA Ship RAINIER
K. WILLIAM JEFFERS, CDR., NOAA
COMD'G.
LEGEND
COOK INLET
TURNAGAIN ARM
KNIK RIVER
MATANUSKA RIVER
ANCHORAGE

A. Project

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

B. Area Surveyed

The area covered by this survey is between longitudes 150°31'10"W and 150°44'00"W, with north border of latitude 61°07'00"N and south to shoreline. The survey was conducted between 28 July 1974 (JD 209) and 16 August (JD 228).

Junctions were made with the following contemporary surveys.

Registry Number	Field Number	Scale	Date
H-9447	RA-20-5-74	1:20,000	1974
H-9444	RA-20-2-74	1:20,000	1974
H-9445	RA-20-3-74	1:20,000	1974

Prior surveys covering the area:

H-8727	1:40,000	1963
H-8529	1:40,000	1960

C. Sounding Vessels

Soundings were taken by four launches, RA-3 (2123), RA-4 (2124), RA-5 (2125), and RA-6 (2126).

D. Sounding Equipment

The launches RA-3, RA-4, RA-5 and RA-6 used Ross Fathometers, Model 6000-544 S/N 1042, Model 6000-544 S/N 1042, Model 6000-544 S/N 1041-4, and Model 6000-537 S/N 1040-3 respectively.

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

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

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

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

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

E. Boat Sheets

The Transverse Mercator Projection and soundings were plotted by RAINIER personel using an onboard PDP 8/e computer, S/N 1011; a complot Plotter, Model DP-3, S/N 4670-4; and a Hydroplot/Hydrolog Controller S/N 9.

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

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

F. Position Control

All stations used pre-existing triangulation except for Phillips platform. The station at Phillips platform was located by T-2 intersection. Copies of the computations follow in the Appendices. plots off the sheet

G. Position Control

All control was by Motorola Mini-Ranger (a range-range system). The stations used for Mini-Ranger control were: 113, 116, 117, 118, 119, (see Signal List).

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

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

terference.

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

The calibration method most frequently used was T-2 intersection. Refer to Mini-Ranger Report, OPR-469-RA-74.

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

Note: The following Mini-Ranger consoles and Transceivers were used:

Launch	Ranger Console	Transceiver
RA-3	720	727
RA-4	720	727
RA-5	715	720
RA-6	711	718

The following Mini-Ranger transponders were used:

Code	1	2	3	4
Transponder	774	775	776	777

H. Shoreline

Shoreline was not obtained because the manuscripts were not available. MLLW was defined by soundings in all areas. Inshore lines sometimes were not run all the way into shore due to large rocks in many areas. The shoreline was not field edited.

See Verifiers report.

I. Crosslines

Crosslines amounted to 44.1 nautical miles or 4.4% of the main scheme. The crossline depths compared very well with main scheme. The largest discrepancies being 5 feet. Some of the discrepancies may be due to peaks. Most of the apparent discrepancies will probably be corrected when observed tide correctors are applied. The predicted tides that were used give a sinusoidal curve. Observed tides will probably not be sinusoidal.

J. Junctions

Junctions were made with contemporary surveys listed in part B. Comparisons were good between this boat sheet and H-9445, and H-9447. The maximum difference being 4 feet or less in most areas. The few differences that were larger were due to peaks or deeps.

K. Comparison with Prior Surveys

Comparison was made with prior surveys H-8727 and H-8529. The depths compared quite well in all cases. The maximum discrepancy was about one fathom. This one fathom discrepancy was scattered throughout the boatsheet. When observed tides are applied, these discrepancies may be removed.

L. Comparison with the Chart

C&GS Chart 8553 is the largest scale chart available of the area. It compares rather well in most areas. One fathom discrepancies occur

throughout the area surveyed. However, no new hazards to navigation were found.

Presurvey Review Items

Item Number	Latitude	Longitude	Presurvey Depth	H-9446
14	60°59'08"	150°38'45"	2 3/4 fthms.	16feet

M. Adequacy of the Survey

This survey is adequate for charting purposes. It should be noted that there is a small holiday at 61°01'25"N, 150°34'50"W, and improper spacing on a line to the south shore from 150°39'00"W, 60°59'02"N. The spacing is at 180 meters rather than the 100 meters required by the Hydrographic Manual and Project Instructions for depths less than 66 feet. Fathograms were scanned and checked for peaks and deeps, and appropriate changes made to the record.

N. Aids to Navigation

The floating and non-floating aids to navigation were adequately charted. Refer to Aids to Navigation and Landmarks for Charting Report, OPR-469-RA-74.

O. Statistics

1,044 nautical miles of soundings were run covering 51.5 square nautical miles. The statistics for the sounding vessels follows:

O. Statistics (cont.)

Launch	Miles of Hydro	No. of Positions	Bottom Samples
RA-3	40.5	139	0
RA-4	125	464	0
RA-5	588.5	1436	0
RA-6	290	784	0
SHIP	0	0	14
Totals	1044	2823	14

P. Miscellaneous

During JD221 and JD222 the personnel of NOAA Ship RAINIER ran 24 hours of continuous operation of launch RA-5(2125). This operation was called "Hydrothon 74". The total distance of survey line accomplished during this project was 326.664 nautical miles.

During "Hydrothon 74" there were only 8 stops of the launch in the 24 hour project period from 0810 August 9, to 0810 August 10. Three stops were for calibration, three stops for fuel, and two stops for crew changes. One coxswain, Seaman Surveyor Don Zeagler, drove the launch for 16 straight hours, or 214.447 nautical miles.

The crews of the launch were as follows:

	Dayshift	Swing	Graveyard
OIC	ENS Mezger	LTJG Stroble	LT Seidel
Asst. OIC	ENS Langeveld	ENS Ellis	ENS Andreen
Survey Tech.	JST Sparks	AST Read	AST Chrzastowski
Coxswain	SS Zeagler	SS Zeagler	AB Person
Miles Run	114.1	100.4	112.2
Time on Line	7 hrs, 13 min.	6 hrs, 49 min.	7 hrs, 52 min.
Average Speed	15.8 mph	14.8 mph	12.9 mph

Q. Recommendations

No further specific recommendations are considered necessary for this survey.

R. References to Reports

Corrections to Echo Soundings, OPR-469-RA-74.

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

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

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

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

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

S. Data Processing Procedures

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

per Mini-Ranger pair, per launch, per sheet. Pacific Marine Center's Processing Division is to decide whether daily correctors or average correctors are applicable.

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

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

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

Respectfully submitted,

Howard T. Langeveld

Howard T. Langeveld
ENS, NOAA

TIDE NOTE

RA-20-4-74 (H-9446)

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-20-4A&B-74	-40	-50	0.85	0.85

*Time is given in minutes; height, as a ratio .

The correctors were derived from an interpolation of the time and height differences between Fire Island and North Foreland 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
1. Anchorage	61 14.3'N, 149 53.3'W	N/A
2. Fire Island	61 09.4'N, 150 14.4'W	22 May/21 August
3. Possession	61 02.3'N, 150 24.0'W	20 June/16 August
4. North Foreland	61 02.7'N, 151 10.2'W	18 July/20 August

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

VELOCITY CORRECTOR TAPE LISTING

RA-5-2-74(H-9438) RA-10-3-74(H-9439)
RA-10-4-74(H-9440) RA-10-5-74(H-9441)
RA-10-6-74(H-9442) RA-20-1-74(H-9443)
RA-20-2-74(H-9444) RA-20-3-74(H-9445)
RA-20-4-74(H-9446) RA-20-5-74(H-9447)

TABLE #1
VESSEL: 2124(RA-4); 2125(RA-5); 2126(RA-6)

000500 0 0000 0001 000 000000 000000
001520 0 0002
002000 0 0004

TABLE #2
VESSEL: 2123(RA-3); 2124(RA-4); 2125(RA-5); 2126(RA-6)

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

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

000080 0 0000 0003 000 000000 000000
001100 0 0002

TABLE #4
VESSEL: 2124(RA-4); 2125(RA-5); 2126(RA-6)

000170 0 0000 0004 000 000000 000000
000390 0 0002
000626 0 0004
000850 0 0006
001070 0 0008
001300 0 0010
001530 0 0012

VELOCITY TAPE LISTING CONTINUED

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

```
000120 0 0000 0005 000 000000 000000
000300 0 0002
000485 0 0004
000680 0 0006
000850 0 0008
001040 0 0010
001230 0 0012
001410 0 0014
001610 0 0016
001870 0 0018
```

STATION LIST
H-9446
RA-20-4-74

STA	O	LATITUDE	LONGITUDE	CRT	ELEV	F. KHZ	TYPE/NAME	SOURCE
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	
116	7	61 02 16381	150 23 43391	139	0037	149835	POSSESSION 1909,1966	
117	7	61 04 36172	150 56 53605	243	0036	149835	PHILLIPS PLATFORM A 1974 INTERSECTION	REF.
118	7	60 55 16723	150 44 58088	139	0048	149835	BIRCH HILL USE 1941	
119	7	60 57 22872	150 41 01945	139	0012	149835	MOOSE POINT LIGHT 1966	
120	7	61 10 17462	150 12 35026	139	0061	149835	RACE POINT LT 1966	
220	7	61 02 03927	150 24 10774	243	::::	000000	PT POSSESSION LT 1974 RESECTION AND 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

APPROVAL SHEET

H-9443
RA-20-4-74

OPR-469-RA-74

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

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

K. William Jeffers

K. William Jeffers, CDR., NOAA
Commanding

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): Pt. Possession
Anchorage

Period: July - August 1974

HYDROGRAPHIC SHEET: H-9446

OPR: 469

Locality: Upper Cook Inlet (7/9-7/18: 5.8 ft.
Pt. Possession (7/26-7/31: 17.8 ft.

Plane of reference (mean lower low water): (8/2-8/21: 4.8 ft.
Anchorage 6.6 ft.

Height of Mean High Water above Plane of Reference is 24.6 ft.

Remarks: Recommended zoning:

East of 150°35' zone direct on Pt. Possession.
150°35'-150°42' apply range ratio x0.97 to Pt. Possession.
West of 150°42' apply range ratio x0.93 and a time correction of -15 minutes to Pt. Possession.

For times when Pt. Possession is not available use Anchorage applying the following range ratios and time corrections:

East of 150°35' x0.89 - 35 minutes
150°35'-150°42' x.86 - 35 minutes
West of 150°42' x0.83 - 50 minutes.

Clarence R Hubbard
for Chief, Tides Branch

NOAA FORM 77-28 (11-72) | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H-9446

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-20-4-74

State ALASKA

General locality COOK INLET — Also see other Title Sheet for 1974

Locality BIRCH HILL TO PT. POSSESSION

Scale 1:20,000 Date of survey 4 August - 26 August 1977

Instructions dated 2 March 1977 Project No. OPR-469-FA-77

Vessel NOAA Ship FAIRWEATHER Launches FA-4 (2024), FA-5 (2025), FA-6 (2026)

Chief of party CDR B. I. Willaims

Surveyed by LTJG G. Leigh, ENS M. Finke, LTJG R. Crowell, ENS L. Roberts

Soundings taken by echo sounder, ~~hand lead, pole~~ Ross Fineline Fathometers S/N 1054, 1036, 1047

Graphic record scaled by FAIRWEATHER Personnel

Graphic record checked by FAIRWEATHER Personnel

Protracted by Positions verified F. L. Rosario Automated plot by PMC Xynetics Plotter

Verification by Soundings verified F. L. Rosario

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

REMARKS: All survey records were kept on GMT. The mean longitude of this survey is 150!44'W. The field sheet is complete and adequate for charting.

Soundings in fathoms were reduced and plotted in feet at PMC.

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

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

Descriptive Report
NOAA Ship Fairweather S220
OPR-469-FA-77
Survey H-9446 (RA-20-4-74)Addendum

A. Project

This survey was conducted in accordance with Project Instructions OPR-469-FA-77, Northern Cook Inlet, Alaska, dated March 2, 1977, Change 1 dated April 12, 1977, Change 2 dated May 2, 1977, Change 3 dated May 12, 1977, and the PMC OPORDER.

B. Area Surveyed

The area covered by this survey is located in Upper Cook Inlet. The northern boundary of the survey is latitude 61°02'00"N. The southern boundary is the shoreline. The western boundary is longitude 150°47'00"W. The eastern boundary is a line from Moose Point to longitude 150°44'00" at the northern boundary. Hydrography was conducted from August 4, 1977(JD216) to August 26, 1977(JD238).

C. Sounding Vessels

Hydrography on this sheet was accomplished by launches FA-4(Hull # 1010, EDP #2024), FA-5(Hull #1001, EDP #2025), and FA-6(EDP #2026).

D. Sounding Equipment

TRA correctors of +0.3 fathoms for FA-4 and FA-5 and a TRA corrector of +0.4 fathoms for FA-6, based on measured draft and bar checks, were used. Sound velocity correctors were determined from 2 Martek casts taken within the project area. For details, see Report on Corrections to Echo Soundings, OPR-469-FA-77. The depths of soundings on this sheet range from -2.1 to 10.1 fathoms.

Sounding Equipment:

vessel	instrument	S/N
FA-4	Ross Fineline Fathometer	1054
	Ross Digitizer	1046
	Ross Transceiver	1046
	Ross Invertor	1046
FA-5	Ross Fineline Fathometer	1036
	Ross Digitizer	1036
	Ross Transceiver	1048
	Ross Invertor	1103

Sounding Equipment (cont.)

vessel	instrument	S/N
FA-6	Ross Fineline Fathometer	1047
	Ross Digitizer	1047
	Ross Transceiver	1047
	Ross Invertor	1053

E. Hydrographic Sheets

All data was plotted by the shipboard Hydroplot system: PDP8e computer(S/N 9524) and Complot plotter(model DP3-5, S/N 6166-22). The projections were modified transverse Mercator. Two plotter sheets were required: RA-20-4-74 and RA-20-4-74 insert. RA-20-4-74 has a skew of 90,22,40, a scale of 1:20,000, and an origin at 60°53'42"N, 150°35'54"W. The RA-20-4-74 insert has a skew of 0,22,40, a scale of 1:2500, and an origin at 60°58'35"N, 150°43'30"W. A copy of the parameter tape printouts is appended.

F. Station Control

The control stations used for this survey are the following: Moose Point Light 1966, Creek 1963, Moose Point Red Raydist, and Number Three Bay Green Raydist. Moose Point Light and Creek were existing triangulation stations, and the red and green raydist stations were established by 3rd order, class 1 traverse methods. For details, see Horizontal Control Report, OPR-469-FA-77.

G. Hydrographic Position Control

The methods of sounding line position control used for this survey are: Range-Azimuth, Range-Range Miniranger, and Range-Range Raydist. All hydrography done by launch FA-4 was obtained using range-range raydist. Pattern 1 was Moose Point Red Raydist, pattern 2 was Number Three Bay Green Raydist. All hydrography done by launch FA-6 was obtained using range-range miniranger. Hydrography done by launch FA-5 was obtained using both range-range miniranger and range-azimuth. Minirangers were positioned as follows: pattern 1 on Moose Point Light 1966, and pattern 2 on Creek 1963. The Wild T-2 used for range-azimuth was positioned over Moose Point Light 1966 and initialed on Creek 1963. Miniranger console #702, used by launch FA-5, did not digitize the numbers 2, 3, 4 or 5 in the units position of pattern 1. This was easily corrected for the range-azimuth data, as pattern 2

was set to the same station as pattern 1 on the miniranger console. The range-range data taken JD-220 232600 GMT through JD-221 034112 GMT, position #'s 1442-1527, may be as much as 4 meters off in pattern 1. Console #702 was replaced by console #701 on JD-221. Miniranger transponder #703, positioned on Creek 1963 and used by launch FA-5 as pattern 2 for range-range hydrography position #'s 1442-1462, stopped working JD-221 and was replaced by transponder #701. All data with dubious position control was rejected and done over. In addition to the calibrations described in the Electronic Control Report, OPR-469-FA-77, check calibrations were carried out at least twice daily for the miniranger systems used. The T-2 initial was checked frequently during the periods of observation. A list of electronic control equipment is appended.

H. Shoreline

The shoreline details were obtained from the field manuscript T-12029. Existing shoreline details were verified by field edit and changes were made as necessary and transfered to the field sheet. The zero fathom curve was delineated in all areas within this survey.

I. Crosslines

The 320.1 n.m. of hydrography run on this sheet includes 16.4 n.m. of crossline. This accounts for 5.1% of all hydrography. Comparisons at crossings are good with no more than 0.3 fm. variation.

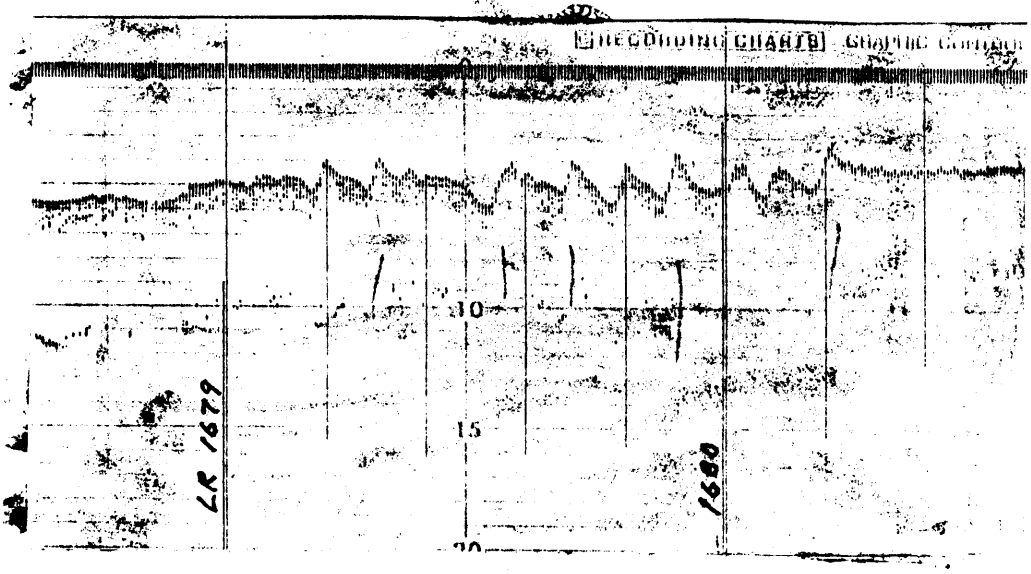
J. Junctions

This survey junctions with the contemporary surveys H-9698 (FA-20-3E-77) on the north and H-9696(FA-20-1E-77) on the west. ~~The survey junctions with the prior survey H-9446, 1:20,000, 1974, on the east side.~~ Comparisons with the contemporary surveys are within 0.3 fm. at junctions,and comparisons with the prior survey are within 0.5 fm. at the junction.

K. Comparison With Prior Surveys

No comparison with the prior survey of this area was required by the project instructions.

Presurvey Review Item #14, updated April 21, 1977, "two sunken rocks" was investigated by running basic hydrography at 20 m. spacing with some 10 m. spacing. This PSR item originated with a note "boulders" on H-3210 (1910, 1:40,000). No isolated submerged boulders were found, however, the bottom in this area consists of a series of rocky ridges.



Carried forward note "Boulders" from H-3210

There are 2-3 foot high standing waves above these ridges, such as those usually found above slightly submerged rocks. This is probably the reason behind the "boulders" note.
Recommendation: The two sunken rock symbols should be removed from the chart. Concur

L. Comparison With The Chart

Comparison was made with the soundings from chart 16660, 1:194,154, Cook Inlet, Northern Part, 18th edition, Dec. 18, 1976. Variation was less than 0.5 fm. in depths of 0-8 fm. and 1.0 fm. in depths of 9-10 fm.

M. Adequacy of Survey

All fathogram field survey records were scanned and checked for peaks and deeps with appropriate changes made to the original records. The survey is complete and adequate to supercede prior surveys for charting.

N. Aids To Navigation

There are no floating aids to navigation on this survey.

O. Statistics

	FA-4	FA-5	FA-6
Total number of positions	323	855	176
n.m. of soundings	62.2	196.3	61.6

Total area - 15 sq. n.m.
Total bottom samples - 7
Moose Point Tide Station - latitude 60°57.8'N, longitude 150°40.4'W

P. Miscellaneous

Greenwich Mean Time was used for all survey records.

Q. Recommendations

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

R. Automated Data Processing

All range-range raydist data was collected using program RK-111 Range-Range Real Time Hydroplot, version 1-30-76. All range-range miniranger and range-azimuth data was collected using ASI loggers(FA-5 S/N 3, FA-6 S/N 2). Program RK-330 Reformat and Data Check, version 5-4-76, was used to reformat all Logger and RangeAzimuth with delayed Azimuth tapes into RangeRange and RangeAzimuth Master tapes. The semismooth and smooth field sheets were plotted using RK-211 Range-Range Non-Real Time Plot, version 1-30-76, for the Range-Range data and RK-212 Visual Station Table Load, version 4-1-74, and RK-216 Range-Azimuth Non-Real Time Plot, version 2-5-76, for the Range-Azimuth data.

S. References To Reports

Report On Corrections To Echo Soundings, OPR-469-FA-77
Horizontal Control Report, OPR-469-FA-77
Electronic Control Report, OPR-469-FA-77

Submitted by:

LeeAnne Roberts, Ensign, NOAA

U.S. DEPARTMENT OF COMMERCE

June 6, 1978 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): 945-5824 Moose Point

Period: August 4-26, 1977

HYDROGRAPHIC SHEET: H-9446

OPR: 469

Locality: Upper Cook Inlet, Alaska

Plane of reference (mean lower low water): 3.1 ft.

Height of Mean High Water above Plane of Reference is 23.0 ft.

Remarks: Recommended zoning:

I. North of 61°04' apply +10 minute time corrections.

II. South of 61°04' zone direct.

NOTE: This supercedes the tide note for sheet H-9446 dated January 30, 1978.

Don M. Spillman

BS Chief, Tides Branch

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-9446

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 T-12029	
BIRCH HILL ✓									X	1
COOK INLET									X	2
MOOSE POINT ✓									X	3
MOOSE POINT SHOAL		X								4
POINT POSSESSION (TITLE) ✓										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
				Approved:						17
										18
				Chas. C. Hamilton						19
				Chief Geographer - C&GS						20
				20 JUNE 1979						21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

APPROVAL SHEET

FOR

SURVEY H-9946

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: 3/27/79

Signed: [signature]

Title: Chief, Verification Branch

REGISTRY NO. H-9446

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:

NOAA FORM 77-27 (5-77) | U. S. DEPARTMENT OF COMMERCE NOAA | HYDROGRAPHIC SURVEY NUMBER H-9446

HYDROGRAPHIC SURVEY STATISTICS

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	20
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. ARC, EXCESS	9

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

T-SHEET PRINTS (List) Class I T-12020 and T-12030

SPECIAL REPORTS (List) Electronic Control Report (3 vols 1974) Correction to Echo Soundings 1974 Horizontal Control Report 1974

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			4174
POSITIONS CHECKED		4174	
POSITIONS REVISED		13	
SOUNDINGS REVISED		736	
SOUNDINGS ERRONEOUSLY SPACED		54	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	
	TIME – HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	20		
VERIFICATION OF CONTROL		38	
VERIFICATION OF POSITIONS		161	
VERIFICATION OF SOUNDINGS		465	
COMPILATION OF SMOOTH SHEET		74	
APPLICATION OF TOPOGRAPHY		42	
APPLICATION OF PHOTOBATHYMETRY			
JUNCTIONS		32	
COMPARISON WITH PRIOR SURVEYS & CHARTS		52	
VERIFIER'S REPORT		71	
OTHER		130	
TOTALS	20	1065	1085

Pre-Verification by: James S. Green	Beginning Date: 12/24/74	Ending Date: 1/7/75
Verification by: F. L. Rosario	Beginning Date: 1/28/75	Ending Date: 3/5/79
Verification Check by: James L. Stringham and James S. Green	Time (Hours): 60	Date: 3/8/79
Marine Center Inspection by: HIT	Time (Hours): 15	Date: 13 4/11/79
Quality Control Inspection by: G. K. Myers	Time (Hours): 61	Date: 6/19/79
Requirements Evaluation by: [illegible]	Time (Hours): 2 1/2	Date: 7/11/79

Carstens 4 hrs 7/24/79

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	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 on 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

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
```

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

[X] TO BE CHARTED [ ] TO BE REVISED [ ] TO BE DELETED	REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
	NOAA SHIP FAIRWEATHER	ALASKA	UPPER COOK INLET	SUMMER 1977

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-469		H-9446	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE // D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE // D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
MOOSE POINT LIGHT	Light and Day Mark	60°57'	22.8720	150°41'	01.9449		F-2-6-L 1977 Triag. Rec. 1977	8553 16660
	The light was located in 1966 and checked during the summer of 1977							

L-12/78

-30-

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	FAIRWEATHER Personnel	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	FAIRWEATHER Personnel	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U.S. GOVERN PRINTING OFFICE: 1974-665-073/1030 Region 6

APPROVAL SHEET

FIELD NO : RA-20-4-74

REGISTER NO : H-9446

This Fieldsheet and all accompanying records are hearby approved. This survey was conducted under my supervision and the survey is complete and adaquate for charting purposes.

Bruce I. Williams

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

PACIFIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO. H-9446

ALASKA, COOK INLET, BIRCH HILL TO PT. POSSESSION

28 July 1974 - 16 August 1974, 4 August 1977 - 26 August 1977

SCALE: 1:20,000

PROJECT NO.: OPR-469-RA-74
OPR-469-FA-77

SOUNDINGS: Ross Fineline Fathometer

CONTROL: 1974 Range/Range Mini-Ranger
1977 Range-Azimuth
Range/Range Mini-Ranger
Range/Range Raydist

CHIEF OF PARTY . . . . . CDR K. William Jeffers
CDR B. I. Williams

SURVEYED BY . . . . . 1974 LT D. Siedel, ENS H. Langeveld, ENS R. Mercer, ENS R. Ellis ENS K. Andreen, ENS D. Stanley, LT L. Pfeifer
1977 LTJG G. Leigh, LTJG R. Crowell, ENS M. Finke, ENS L. Roberts

AUTOMATED PLOT BY: Xynetics Plotter (PMC)

VERIFIED BY: F. L. Rosario

I. INTRODUCTION

Basic survey H-9446 was conducted during two separate time spans: 28 July 1974 to 16 August 1974 and 4 August 1977 to 26 August 1977. The area surveyed was between longitudes 150°29'00" to 150°48'00" and between latitude 61°08'00" south to the shoreline.

The Ship RAINIER performed the 1974 field work while the Ship FAIRWEATHER completed the hydrography during the 1977 field season.

Several unusual problems were encountered in the verification process. Among them are: (a) The 1974 field work was originally verified without use of the Class I Manuscripts T-12020, T-12029, T-12030. Consequently, the inshore areas had to be re-verified upon the availability of these manuscripts during the verification process following the 1977 field season. The 1974 work was originally dealt with as an incomplete survey. (b) The 1974 survey was conducted in feet while the 1977 work utilized the fathom mode. Re-scanning was extensive

to effect the viability between the 1974 and 1977 work. (c) Most of the peaks and deeps paralleling the southern shoreline were not logged. (d) Often references to rocks in the fathogram were either confusing, incomplete, and/or unsubstantiated.

Originally, the 1974 field work was processed through several PSS phases until it was decided to classify the sheet as incomplete. Thereupon, the subsequent decision to survey the 1977 data in fathoms and the use of a different tide gage other than those used in 1974, resulted in an extensive re-verification effort.

Projection parameters used to prepare the boatsheets have been revised to center the hydrography on the smooth sheet. Parameters used by PMC are appended in the smooth printout. All correctors used to plot and reduce soundings on H-9446 can be located in the smooth printout.

The signal list from the field was revised to include only aids to navigation, signals used for calibration, and signals used to control hydrography on H-9446.

Soundings on the smooth field sheets for both years were reduced from Anchorage predicted tides. H-9446 smooth sheet soundings were reduced from Anchorage and Point Possession gages for the 1974 work and from the Moose Point gage for the 1977 work. A total of eight tide zones were utilized. The comparison between the boatsheet and smooth sheet soundings revealed good agreement in general. Discrepancies of any significance are treated accordingly in section VI, Comparison with Prior Surveys.

II. CONTROL AND SHORELINE

Horizontal control is adequately described in Sections F and G of the Descriptive Reports and in the appended ship's "Horizontal Control Note" and "Electronic Control Note".

The following Class I unreviewed manuscripts, with their respective dates of photography and field edit were used for this survey:

T-12020	August 1966, June 1977
T-12029	August 1966, June 1977
T-12030	August 1966, June 1977

The shoreline manuscripts weren't available during the 1974 field season. However, MLLW was defined by soundings in most areas. Inshore lines sometimes were not run all the way into shore due to large rocks in many areas. The shoreline was not field-edited until 1977.

The rock plotted on the smooth sheet at Lat. 60°57'48"N and 150°40'24"W was not plotted on the Class I manuscript and has been transferred from the field sheet without supporting positional information.

III. HYDROGRAPHY

Crosslines are in generally good agreement, falling within 1 foot in the deeper areas.

Standard depth curves could be adequately drawn except for inshore areas where the launches' progress was impeded by the menacing presence of large rocks.

The 1977 data was obtained in the fathom mode, (which was then converted into feet) while the 1974 data was obtained in feet.

Data for the 1977 work also included work on Pre-Survey Item #14, the raw data being plotted enlarged to 1:2,500 scale.

The basic hydrography is adequate to delineate the bottom configuration and to determine the least depths.

IV. CONDITION OF SURVEY

The automated plotting of the smooth sheet, accompanying overlays, hydrographic records, reports and field procedures are adequate and conform to the requirements stated in the hydrographic manual. The exceptions are:

1. There were serious deficiencies in the nature of notes on the fathograms and on the printouts in referring to rock sizes, shapes, distances from the launch, etc.

2. The shoreline manuscripts weren't field-edited during the 1974 field season, making it difficult to verify and/or resolve discrepancies.

3. A sizeable portion of the hydrography extended to beyond the recommended distances for the various EDM systems.

4. There were duplicate position numbers (i.e. the 3000 series in 1974 and 1977) involving numbers 3000-3180 for 1977, while 1974 carried position numbers 3000-3205.

V. JUNCTIONS

The following junctions were accomplished:

H-9445 (1974), 1:20,000 to the East
Junction with this survey is satisfacotry. Curves and note for this junction are inked.

H-9447 (1974), 1:20,000 to the North
Junction with this survey is satisfactory. Curves and note for this junction are inked.

H-9698 (1977), 1:20,000 to the Northwest
Junction with this survey is satisfactory. Curves and note for this junction are inked. Actual butt junctions made in area of Lat. 61°05.5', Long. 150°44' due to major change in bottom which invalidates shoals previously charted depths.

H-9696 (1977), 1:20,000 to the Southwest
Junction with this survey is satisfactory. Curves and note for this junction are inked.

All these junctions agreed to within 2 to 4 feet of each other in depths over 30 feet and to within 1 to 2 feet in depths to 30 feet.

VI. COMPARISON WITH PRIOR SURVEYS

H-3199 (1910) 1:100,000
H-3203 (1910) 1:40,000
H-3210 (1910) 1:40,000
H-6678 (1941) 1:40,000
H-8529 (1960) 1:40,000
H-8727 (1963) 1:40,000

Comparison with the above prior surveys show good agreement with soundings falling within 6 feet at deeper depths. Soundings in depths up to 30 feet agreed to within 1 to 2 feet. The discrepancies could be a result of the mechanics of sedimentation.

Pre-Survey Review Item #14, dated April 21, 1977, "two sunken rocks" was investigated by running basic hydrography at 20 meter spacing with some 10 meter spacing. The saturation of developmental lines coupled with the reasonably "clear" fathograms obviates the fact that there are no "rocks" as such. The submerged rock symbols, located at approximately Lat 60°58'50", Long, 150°42'30", fell among 13 to 18 or 20 foot soundings on the smooth sheet. There are two isolated 12 foot soundings just to the north at between Lat 60°58'58" to 60°58'59" and between Long 150°42'20" to 150°42'40". In view of these facts, it is recommended that the two sunken rock symbols be removed from the chart.

In addition, as per item 3.3 Junctions, in the Project Instructions, surveys prior to the 1964 earthquake are not considered valid. Therefore, this survey supersedes all the above mentioned prior surveys for the areas of common coverage. Several rocks awash were retained from prior surveys as subsidence was only 1-2 ft.

The dashed circle PSR item, the 2 fathom sounding charted at Lat 60°58.8' and Long 150°40.2' plots in 21 feet on this survey. A seven foot shoal was found approximately 400 meters south. The charted 2 fathoms is superseded by the data from this survey.

The dashed circle PSR item, the 2 3/4 fathoms charted at Lat 60°59.1' and Long 150°38.8' plots on a 15 foot shoal on this survey. The charted 2 3/4 fathoms is superseded by the data from this survey.

The dashed circle PSR item, the 1 fathom sounding charted at Lat 61°00.7' and Long 150°36.7' and was noted questionable plots over 24 feet on this survey. There are no shoal indications present, however, the 1 fathom curve lies only 400 meters to the south. This charted 1 fathom sounding is also superseded by the data from this survey.

VII. COMPARISON WITH CHART 16660 (16th Edition, Sept 28/74)

a. Hydrography

Comparison was made with chart 16660, 1:194,154, Cook Inlet, Northern Part, 16th Edition, Sept 28, 1974.

About 75 percent of the soundings originated with prior surveys H-3199, H-3210, H-6678, H-8529, and H-8727. The rest of the soundings could not be identified. Sounding comparison and discrepancies were discussed in Section VI.

The dashed "Foul with boulders" limit line as depicted on the Class 1, T-Sheet TP-12029, was adhered to throughout most of its course. However, it was moved outward to enclose other shoal features (resulting from hydrography) on the smooth survey sheet.

H-9446 has also produced a Moose Point Shoal which now encompasses the combined general areas of the charted Moose Point Shoal and a smaller shoal just to its northeast.

The source of a ten fathom sounding charted at approximately Lat 60°05' and Long 150°37.2' could not be identified from the prior survey comparison. Ten is a part sheet sdg. H-8525 (1960) that should be disregarded.

The sounding line spacing in the area of the charted ten fathom sounding is approximately 200 meters. Recommend the validity of the charted ten fathom sounding be checked before carrying as charted.

This survey is adequate to supersede all charted hydrography of common areas.

b. Aids to Navigation

The only aid to navigation on this survey is Moose Point Light located at Lat 60°57.4' Long 150°41.0'. This aid appears to serve it's intended purpose.

VIII. COMPLIANCE WITH PROJECT INSTRUCTIONS

This survey adequately complies with the Project Instructions dated 18 February 1974, and 2 March 1977, Change No. 1 dated 12 May 1977 and changes 2 dated 12 May 1977, and 3 dated 12 May 1977.

IX. ADDITIONAL FIELD WORK

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

Respectfully Submitted,

James L Stringham
for F. L. Rosario
Cartographic Technician
5 March 1979

Examined and Approved,

A. E. Eichelberger
for James S. Green
Chief, Verification Branch

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

DATE : April 13, 1979

TO : OA/CPM - Eugene A. Taylor

FROM : OA/CPM 3 - Glen R. Schaefer

SUBJECT: PMC Hydrographic Inspection Team
Report for Survey H-9446

This survey is a basic hydrographic survey from Birch Hill to Point Possession, Cook Inlet, Alaska. This survey was conducted by NOAA Ship RAINIER in 1974 and FAIRWEATHER in 1977 in accordance with Project Instructions OPR-469-FA, RA-74 dated February 8, 1974, and Project InstructionsOPR-469-FA-77 dated March 2, 1977, and Change Nos. 1 through 3 dated April 12, 1977, May 2, 1977, and May 12, 1977, respectively.

The HIT team concurs with the verifier's comments. Additionally noted items which would have tended to improve the quality of the survey are: (1) increase the number of cross lines to the percentage specified in the Hydrographic Manual, and (2) refrain from adjusting the loading of the Raydist antenna unless the calibration of the system is adequately checked to assure that proper correctors are being used.

The inspection team finds H-9446 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

Stanley H. Otsubo

ADMINISTRATIVE APPROVAL

H-9446

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

13 April 1979
Date

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

OA/C352:GKM

June 19, 1979

R.H.Carstens

TO: R. H. Carstens
Acting Chief, Hydrographic Surveys Division

G.K.Myers

FROM: G. K. Myers
Chief, Quality Control Branch

SUBJECT: Quality Control Report for H-9446 (1974-77), Alaska, Cook Inlet, Birch Hill to Possession Point

A quality control inspection 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. Junctions examined by the quality evaluator were properly made during verification, except in the area of latitude 61°05.5', longitude 150°44'. Here, major changes in the bottom invalidate the prior soundings. Depths in this area on the present survey were therefore superseded by a partial butt junction with H-9698 (1977). The junction with H-9696 (1977) will be inspected during the quality evaluation of that survey.

2. Comments in the Verifier's Report item 4 pertaining to the validity of depths on preearthquake surveys do not obviate the need for a comparison to be made with depths on the most recent prior surveys that cover the common area of the present survey. Undeveloped features on the present survey still warrant consideration.

The character of Moose Point Shoal extending 4 miles in a northeast-southwest direction about 2 miles from shore has essentially remained the same. However, noticeable changes have occurred at the extremities of this feature. Here, depths uncovering along the western edge have migrated about 600 meters westward while the 12-foot curve in the eastern part has extended 200 meters to the east. The least depths over

an offshore shoal extending in an east-west direction in the immediate vicinity of latitude 61°06', longitude 150°41.5' are less than the preceding survey depths and the change indicates a marked instability in this feature.

Differences in areas of deeps reveal present depths to be generally 7 to 10 feet shoaler than prior depths.

These changes are considered to be mainly attributed to sediments carried by tidal currents.

The bottom within the 12-foot depth curve near shore is considered stable. Here, rocks have been carried forward from H-3210 in order to supplement present hydrography. One bottom characteristic has been brought forward from this prior survey.

3. A few soundings in the area of the present survey were revised to rocks awash during quality control from annotations which identified these features on the fathograms.

cc:
OA/C35
OA/C351

Found missing from D.R. Cogg mailed 11-7-83 K.W.W.

C352

AUG 2 1979

OA/C351:CBE

TO: OA/CPM - Eugene A. Taylor

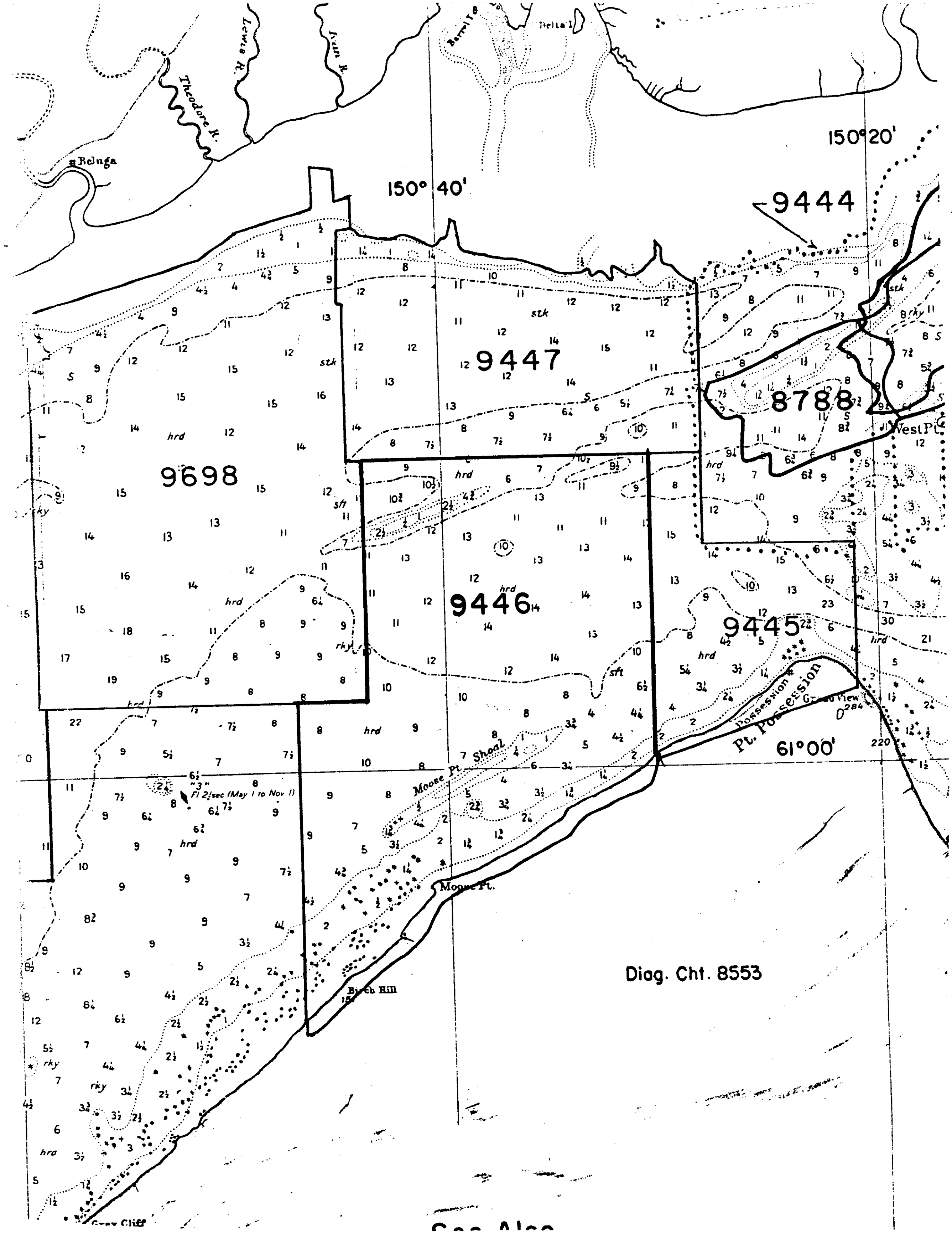
FROM: OA/C3 - Richard H. Houlder for /s/ J. Austin Yeager

SUBJECT: H-9446 (1974-77), Alaska, Cook Inlet, Birch Hill to Possession Point, Report of Compliance with Project Instructions

The smooth sheet and Descriptive Report for the subject survey have been examined. This survey, except as noted in the Quality Control Report, dated June 19, 1979 (copy attached), and the Hydrographic Survey Inspection Team Report, dated April 13, 1979, is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-469-RA-74, dated February 18, 1974, and OPR-469-FA-77, dated March 2, 1977.

Attachment

cc:
OA/C35 w/o att.
OA/C352 w/o att.



Beluga
Theodore R.
Lewis R.
Delta I.
150°20'
150° 40'
9444
9447
8788
9698
9446
9445
West Pt.
Moose Pt. Shoal
Moose Pt.
Pt. Possession
Possession
61°00'
Birch Hill
Diag. Cht. 8553

(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9446

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 QC
16660	2/29/80	Nartok	Full ~~Part Before~~ After Verification Review QC Inspection Signed Via Drawing No. 25 Fully appl'd
16663	7/2/81	H. J. Borawski	Full ~~Part Before~~ After Verification Review Q/C Inspection Signed Via Drawing No. #1 Fully app'd hydro in area common with 16663, remainder of survey to be app'd thru 16665.
16665		J. Bailey	Full ~~Part Before After~~ Verification Review QC Inspection Signed Via Drawing No. Fully Applied
			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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