

9073

Diag. Cht. No. 8554-2.

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. PF-20-2-69.....
Office No. H-9073.....

LOCALITY

State Alaska.....
General Locality Cook Inlet.....
Locality Vicinity of Augustine Island.....

19 69-74

CHIEF OF PARTY

E. A. Taylor, H. R. Lippald & G. A. Burroughs...

LIBRARY & ARCHIVES

DATE Nov. 15, 1979.....

9073
9073

Area 6

11
16
15
16

HYDROGRAPHIC TITLE SHEET

H-9073

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

PF 20-2-69

State Alaska

General locality Cook Inlet

See other title sheets also

Locality Vicinity of Augustine Island

Scale 1:20,000

Date of survey 3-4 June; 6 Aug-7 Sept. 1969

Instructions dated 15 April 1969

Project No. OPR 429

PATHFINDER Launches

vessel ML#1, ML#2, and ML#4

Chief of party CAPT E.A. TAYLOR

Surveyed by LT G. Holloway, LTJG M. Kawka, LTJG D. Wilson, LTJG R. Young, LTJG D. Danner, ENS R. Mathis, ENS N. Wright

Soundings taken by echo sounder, ~~transducer, pole~~ Raytheon DE 723 Echo Sounder

Graphic record scaled by Ships Personnel

Graphic record checked by Ships Personnel

Position verified by:

~~XXXXXXXXXX~~ V.F. Flor

Automated plot by PMC Synetics Plotter

Sounding verified by:

~~XXXXXXXXXX~~ V.F. Flor

and tenths

Soundings in fathoms ~~XXXX~~ at ~~XXXX~~ MLLW

REMARKS: This report describes the work completed on this sheet during the

1969 field season. Work on this sheet was interrupted during the season

to accomplish priority surveys in Cook Inlet. The work completes the null

area created by stations Juma and Augustine. The sheet is not complete.

In addition to the above stated field work, NOAA Ships PATHFINDER and

FAIRWEATHER accomplished field work on this survey in 1971 and 1974.

Applied to stds 4/24/80
[Signature]

A. PROJECT

The hydrography was done in accordance with project instructions CPR-429, dated April 15, 1969

B. AREA SURVEYED

The area Southwest of Augustine Island Cook Inlet, Alaska is covered by PF 20-2-69 boat sheet. The work on the sheet began June 3 and ended September 7; approximately 20 percent of the hydrography is complete. The area surveyed extends from Lat 59°17.5', Long 153°20.8' to Lat 59°17.5' Long 153°42' to Lat 59°21.4' Long 153°42' to Lat 59°19.5' Long 153°39.2' to Lat 59°19.8' Long 153°33.4' to Lat 59°19.1' Long 153°30'.

The sheet junctions with contemporary survey PF 20-1-69 and ~~other~~^{contemporary} survey H-8843 (PF 40-2-65). (H-9072)

C. SOUNDING VESSEL

ML #1, ML #3 and ML #4 were used in this survey. Position numbers for ML #1 are Blue, ML #2 are Violet and ML #4 are Brown.

D. SOUNDING EQUIPMENT

The Raytheon DE 723 fathometer was used throughout the survey:

<u>LAUNCH</u>	<u>POSITION NO.</u>	<u>FATHOMETER NO.</u>
ML #1	1-114	935
	2000-2301	552
ML #2	3001-3267	110
ML #4	1000-1573	551

E. SMOOTH SHEET

The smooth sheet will be prepared by BDHT, Pacific Marine Center. Ship's personnel have prepared punched paper tapes for the electronic processing.

F. CONTROL

Raydist was used exclusively for horizontal control. The red station CROW was a traverse station "Crow 1964" located on Crow Island. The blue station JUMI was located on "JUMA 1967" a triangulation station on Nordyke Island. See attachment for a description of Raydist equipment. ✓

Whole lane calibration was done using a bouy located near the working area. The redist set's partial lane calibrations were set at a calibration tower near Nordyke Island. The bouy was calibrated by carrying the calibration from the tower to the bouy.

G. SHORE LINE

Shore line detail was obtained from incomplete manuscripts T-12332 and 12333. No field edit was accomplished. ✓

H. CROSSLINES

Approximately 8.6 percent crosslines were run. Good agreement was obtained. ✓

I. JUNCTIONS

Good agreement along the junctions were obtained with PF 20-1-69 (H-9072) and with H-8843. (PF-40-2-65)

See Verifiers Report

J. COMPARISON WITH PRIOR SURVEY

Comparison with prior survey H-8843 (PF 40-2-65) was good along the junctions of the surveys. ✓

K. COMPARISON WITH CHARTS

Comparison with chart #8554 (10th Ed. Nov. 27, 1967) was good. ✓

L. ADEQUACY OF SURVEY

The completed work is considered adequate for charting. ✓

M. AIDS TO NAVIGATION

No aids to navigation exist in this area.

N. STATISTICS

Launch Hydrography	360 n.m.
Square miles of Hydrography	14.8 sq. n.m.
Number of positions	<u>1125</u> 1907
Bottom samples	None

O. MISCELLANEOUS

None.

P. RECOMMENDATIONS

None.

Q. REFERENCES TO REPORT

Raydist Report - 1969 - USCGCROSS PATHFINDER
Fathometer Report - 1969 - USCGCROSS PATHFINDER
SEASON'S Report - 1969 - USCGCROSS PATHFINDER

Respectfully submitted,

Richard S. Young
Richard S. Young
LTJG USN

TIDE NOTE

A pressure recording (bubbler) tide gage was reinstalled on Nordyke Island in June, 1969 for use with CPR-429. The height of MLLW above the tide staff zero was 8.3' feet in 1969, the time meridian used was 135°00' W.

All reduced, inked soundings on boat sheet PF 20-2-69 were based on Nordyke Island predicted tides.

~~02 #1~~ Vel Tables 1
H-9073

000076 00 0000 0001 000 0 000000 000000
000108 00 0001
000181 00 0002
000250 00 0003
000056 00 0000 0002 000 0 000000 000000
000108 00 0001
000181 00 0002
000250 00 0003
000053 00 0000 0003 000 0 000000 000000
000108 00 0001
000181 00 0002
000250 00 0003

ML # 1

2

4

1000 2/2 1000 1000
1000 1/2 1000 1000
1000 1/2 1000 1000

- ATTACHMENT -

RAYDIST EQUIPMENT

Each launch carried the DRS Raydist system made by Hastings-Raydist Co. The installation included a ZA-67A Navigator, a TA96 transmitter, a strip chart recorder, a Raydist VC-14 line follower, and a 24.5 foot whip antenna system. The antenna system was composed of a 14 foot length of RG-8U coaxial cable with the shield "flicating" and a 10.5 foot fiberglass whip mounted outside the launch. The Raydist set was powered by two 90 Ampere-hour 12 volt batteries in series connection to provide 24 volts of direct current. The strip chart recorder operated on 115 V.A.C., so a converter was used with a separate 12 volt battery for its own power source. The ground for the launch installation consisted of a 2' x 6' copper plate attached to the bottom of the boat hull.

Both the JUMA and CROW shore stations were one piece, self-contained units which were sealed to withstand foul weather. The installations consisted of 100 foot antennas constructed from 10 foot tower sections with a 15 foot whip antenna on top. The whole tower acted as the antenna and rested on an insulated base plate. The guys for the tower were nylon line. Four sets of guys were spaced at 90° intervals around the tower. A ground plane was constructed outward from the insulated base plate. It consisted of 16 wires, each 100 feet long, not buried, and equally spread from the antenna base. They were composed of #18 copper wire.

The shore stations each operated on 24 V.D.C. Eight 12 volt heavy duty 90 Ampere-hour batteries operated the stations at low power for 8-10 days. These batteries were either replaced or charged at the station site. Except during the replacement of the batteries, the stations were left unattended.

PRELIMINARY APPROVAL SHEET

REGISTRY NO. H-9073 PF 20-2-69

This hydrographic sheet has been examined and approved. The work done on this sheet up to this time is considered adequate for charting. Additional work to complete the sheet will be done during the 1970 field season.

E. A. Taylor

E. A. Taylor
CAPT USESSA
Commanding Ship PATHFINDER

HYDROGRAPHIC TITLE SHEET

H-9073

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

PF 20-2-69

State Alaska

General locality Cook Inlet

Locality Vicinity of Augustine Island

Scale 1:20,000 Date of survey 5 June - 10 July 1971

Instructions dated 26 March 1971 Project No. OPR 429

Vessel ML#1, ML#2, ML#3, and ML#4 (Pathfinder Launches)

Chief of party CAPT H.R. Lippold, Jr.

Surveyed by CDR S.C. Miller, LT R.K. Matsushige, LT D.E. Nortrup, LTJG R.C. Roush,
LTJG R. Louis, LTJG L.J. Oliver, LTJG K.G. Baldwin, LTJG A.O. Vonderohe

Soundings taken by echo sounder, hand lead, pole Raytheon DE 723 Echo Sounder, Ross 200A
Fathometer

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Positions verified by:

~~Projected by~~ V.F. Flor Automated plot by PMC Xynetics Plotter

Soundings verified by: V.F. Flor

~~XXXXXXXXXX~~

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

REMARKS: This report describes the work completed during the 1971 field season
for the area covered on sheet PF-20-2-69, and is a continuation of work
initiated during the 1969 field season. Work on this sheet is still not
complete. NOAA Ship FAIRWEATHER completed this survey in 1974.

DESCRIPTIVE REPORT
HYDROGRAPHIC SURVEY H- 9073
FIELD NO. PF 20-2-69
SCALE 1:20,000

A. PROJECT

The hydrography for this project was completed in accordance with project instructions OPR-429, dated March 26, 1971. ✓

B. AREA SURVEYED

The area surveyed included sections west and south of Augustine Island, Cook Inlet, Alaska encompassing approximately the southwestern half of sheet PF 20-2-69. The 1971 work was a continuation of work begun during the 1969 season, and was completed between June 5, 1971 and July 20, 1971. ✓

The sheet limits are as follows:

North: 59° 26' N Latitude
South: 59° 18' N Latitude
East : 153° 15' W Longitude
West : 153° 42' W Longitude

This survey junctions with contemporary survey PF 20-1-69 (H- 9072) and the 1969 field season work on PF 20-2-69 (H- 9073). Work completed south of Augustine Island junctions with PF 40-2-65 (H- 8843) which was accomplished from May - September, 1968.

C. SOUNDING VESSELS

Motor Launches #1, #2, #3, and #4 were used in this survey. Position numbers for each vessel are plotted on their respective boatsheets with launch position number colors as follows:

ML #1 Violet
~~ML #2 Brown~~ *rejected*
ML #3 Red
ML #4 Blue

Bottom sample positions are shown in green.

D. SOUNDING EQUIPMENT

The following Raytheon DE 723 fathometers were used during the survey;

ML #1	#552
ML #2	#140
ML #4	#557

The ROSS 200A Fathometer was used on ML #3. Depths recorded ranged from 0 to 14⁶ fathoms with echo sounder corrections determined by daily bar checks and lead line comparisons.

E. SMOOTH SHEET

Smooth sheet plotting will be accomplished by the electronic data processing techniques at the Pacific Marine Center. Boat sheets with coordinates indicated were obtained from the Pacific Marine Center and checked and ruled by ship's personnel.

F. CONTROL

Horizontal control was accomplished by the use of Raydist Electronic Control. The two shore Raydist control stations were established over traverse stations "TINE 2, RM3", and "JUMA 1967". "TINE 2, RM3" was established on reference mark number 3 for South Augustine 2, a second order traverse station set up in 1964 on southwestern Augustine Island. "JUMA 1967", also a second order traverse station, was situated on the southwestern sector of Nordyke Island. Initially, the South Augustine station was designated as "RED" with the Nordyke station designated as "GREEN". Difficulties in the signal quality from the "RED" station arose at distances approximately 250 - 300 Raydist lanes from this station. Several attempts were made to eliminate this problem with the faulty set eventually replaced. No further difficulties resulted.

Operation frequencies of the base station and the mobile units are as follows:

JUMA(GREEN)	1653.015 KHz
TINE(RED)	1653.425 KHz
SET #1	3306.465 KHz

SET #2 3306.500 KHz
SET #3 3306.400 KHz

In addition, a calibration buoy was established at latitude 59° 20.9' N, longitude 153° 33.2'W, in order to assist and speed up the calibration time. For complete detail of Raydist control, see the accompanying Raydist note.

The southeastern part of the work, the area south of Augustine Island, was accomplished by Raydist assisted visual hydrography using photo-hydrographic signals for control purposes. Nordyke arcs were steered as positions were obtained by visual sextant fixes. These arcs ran approximately perpendicular to the shoreline. The photo-hydrographic signals were transferred to the boatsheet from incomplete manuscripts T-12332 and T-12333. This visual work made a western junction with the Raydist work completed during the 1971 season and a southern junction with PF 40-2-65; all junctions were in good agreement. *(H-8843)*

G. SHORELINE

Shoreline detail information was obtained from incomplete manuscripts T-12332 and T-12333. Field edit on T-12332 has been completed while the field edit on T-12333 remains incomplete. For further details, see the accompanying field edit report.

H. CROSSLINES

Crosslines accounted for approximately 7.9% of all work completed for this survey. Comparisons at crossings yielded very good agreement for most of the work.

I. JUNCTIONS

The survey junctions are in very good agreement. Included is the western junction, or PF 20-1-69 *(H-9072)* survey, which was completed following the finish of work on the PF 20-2-69 sheet work of 1971 as described above. Also, a good agreement exists between the 1971 field season work and the 1969 season work on the same boatsheet area. The 1969 work is Southwest of the 1971 work area. The south central junction with

(H-8843)

PF 40-2-65 work done in May -- September, 1968, agrees consistently with the visual hydrography work of 1971.

J. COMPARISON WITH PRIOR SURVEY

This comparison would entail a correlation essentially between the present survey and Coast and Geodetic Survey chart #8554 which agrees fairly well, but due to the limited numbers of soundings on this chart, few other conclusions can be drawn. ✓

K. COMPARISONS WITH CHART

Comparison with chart #8554 (10th Edition, November 27, 1967) *not available* was good. This area had not been previously developed to any extent, and therefore little comparison was available.

L. ADEQUACY OF SURVEY

The completed work is considered highly adequate for new charting purposes. Also all bottom sampling for the 1971 season work has been completed. ✓

M. AIDS TO NAVIGATION

No aids to navigation exist in this area.

N. STATISTICS

Statistics for the survey are as follows: ✓

<u>Launch</u>	<u>Type Control</u>	<u># Positions</u>	<u>Hydro. N.m.</u>
#1	Electronic	123 ⁰	362.1
	Visual	12	3.5
#2	Visual	22	3.4 <i>rejected</i>
#3	Electronic	533 ⁹²²	210 364.4
	Visual	1	0.0 <i>rejected</i>
#4	Electronic	4 ⁴⁸⁸	159.5
	Visual	469 476	131.1
Total Hydro. N.m.		1006.0	
Total Hydro. Sq. N.m.		33.4	
Total Bottom Samples		30	

O. MISCELLANEOUS

The area surveyed southeast of Augustine Island is foul one-half to one mile from the shoreline with numerous rocks bare at low tide. The inshore limit of the hydrography completed in this area varies due to the tidal conditions during the survey period. The one fathom curve is delineated in this area. In addition, initial Raydist problems were all overcome with the ship's personnel believing that the high quality of work was maintained throughout the survey.

P. RECOMMENDATIONS

PF 20-2-69 should be completed in the remaining area of the sheet. The tide gauge location for the 1971 season work was felt to have been adequately positioned for future work. In addition, the remaining hydrography may have to be accomplished by visual means if the Raydist station sites remain the same. It is recommended therefore that the station sites be moved, so that the remaining hydrography can be completed by electronic means.

Q. REFERENCES TO REPORTS

Descriptive Report Field No. PF 20-2-69 dated 1969

Raydist Report 1971	NOAA Ship Pathfinder
Fathometer Report 1971	NOAA Ship Pathfinder
Season's Report 1971	NOAA Ship Pathfinder
Field Edit Report 1971	NOAA Ship Pathfinder

Respectfully submitted,

Richard A. Zachariason

Richard A. Zachariason
ENS. NOAA

VELOCITY CORRECTORS

PF 20-2-69 ML #1
TABLE #14 (M)

0.0 - 8.0 0.0

PF 20-2-69 ML #3
TABLE #15 (N)

0.0 - 1.5 -0.1
1.6 - 4.2 0.0
4.3 - 5.5 -0.1
5.6 - 8.0 0.0

PF 20-2-69 ML #4
TABLE # 16 (O)

0.0 - 6.5 0.0
6.6 - 8.0 0.1

H-9073 Velocity Ta

1971 Work

000080 0 0000 0014 000 000000 000000

000120 0 0001

000180 0 0002

000250 0 0003

000015 0 1001 0015 000 000000 000000

000042 0 0000

000055 0 1001

000080 0 0000

000120 0 0001

000180 0 0002

000250 0 0003

000065 0 0000 0016 000 000000 000000

000080 0 0001

000180 0 0002

000250 0 0003

7

6

5

4

3

2

ABSTRACT OF CORRECTIONS TO RAYDIST MEASUREMENTS

Each launch set their lane count and partial lane count as was necessary. Due to drift in the Raydist set or poor initial calibration due to adverse weather, the partial lane count would in rare cases, be off by as much as two or three tenths of a lane at the end of the day. In an attempt to keep discrepancies to less than a tenth of a lane, these correctors are applied. There are no correctors for days when launches calibrated within a tenth of the true values at the beginning and end of hydrography.

Several corrections of over $\pm .2$ are noticeable in the correction table. ML#1 began day 172 with a negative green correction ($-.13$) which increased as the day progressed to $-.46$. Eight calibrations were necessary before consistent results were obtained. Adverse weather was probably responsible for these difficulties. On day 175, the red correction was $+.28$. This was probably because ML#1 ventured close to land, which interfered with Raydist reception.

ML#3 experienced difficulty on day 173, beginning the day with a red correction of $+.12$, then losing 3 lanes in the afternoon. After recalibrating, a $+.22$ correction was kept while surveying due to the difficulty of calibration. At times, due to the difficulty in calibrating, launches were sent to work carrying errors up to $+.22$. To correct for these errors, the corrections applied tend to be high.

ML#4 encountered adverse weather on day 172; its corrections for that day reflect the difficulty of visual calibration in bad weather.

It is strongly believed that the corrections necessitated by factors mentioned above do not reflect unfavorably on the quality of the survey.

PF 20-2-69

CORRECTIONS TO RAYDIST

	<u>JULIAN DAY</u>	<u>RED CORRECTION</u>	<u>GREEN CORRECTION</u>
	161	0000.00	0000.00
ML#1	163	0000.01	0000.15
ML#1	164	0000.01	0000.18
	168	0000.00	0000.00
ML#1	172	0000.02	1000.24
ML#1	173	0000.13	0000.19
ML#1	174	1000.17	0000.06
ML#1	175	0000.28	0000.01
	177	0000.00	0000.00
ML#1	182	0000.14	0000.09
	187	0000.00	0000.00
ML#3	172	0000.05	1000.13
	164	0000.00	0000.00
ML#3	173	0000.22	1000.13
ML#3	175	0000.07	0000.15
	179	0000.00	0000.00
ML#3	178	0000.12	0000.04
	182	0000.00	0001.00
ML#4	156 161	0000.00 1000.13	0000.00 0000.03
	163	0000.00	0000.00
ML#4	172	0000.22	0000.15
	173	0000.00	0000.00
	174	0000.00	0000.00

Horizontal Control

Augustine Island

SIGNAL NAME	LATITUDE		LONGITUDE		ORIGIN OF	POSITION
	°	' meters	°	' meters	photo	<u>triangulation station</u>
001	59	19 1226.6	153	25 0898.7	T-12333	
01d 002	59	19 0778.8	153	28 0187.9	T-12332	
002	59	19 0796.4	153	28 0467.3	T-12332	
003	59	19 0542.3	153	30 0204.6	T-12332	
11/ 004 (TINE)	59	19 0804.5 ⁶	153	31 0263.7 ⁶	T-12332	TINE
005 (CENTER)	59	21 0559.0	153	31 0746.0	T-12332	CENTER
006	59	21 1738.6	153	32 0830.0	T-12332	
007	59	22 0430.0	153	33 0209.5	T-12332	
008 (ISLAND)	59	22 0664.0	153	34 0392.0	T-12332	ISLAND 1965
009	59	22 0943.5	153	34 0082.1	T-12332	
010	59	23 0395.3	153	33 0732.0	T-12332	
011	59	23 1166.3	153	32 0489.6	T-12332	
012	59	23 0806.2	153	30 0819.8	T-12332	
013	59	23 1320.7	153	28 0837.4	T-12332	
014	59	21 1795.2	153	20 0526.8	T-12333	
015	59	21 0924.4	153	20 0328.0	T-12333	
016	59	20 1602.7	153	21 0140.3	T-12333	
017	59	20 0589.0	153	21 0629.8	T-12333	
018	59	20 0110.9	153	22 0744.2	T-12333	
019	59	19 1536.9	153	23 0594.2	T-12333	
020	59	19 0656.8	153	24 0691.4	T-12333	

Horizontal Control

Augustine Island

<u>SIGNAL NAME</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>ORIGIN OF POSITION</u>	
	° ' meters	° ' meters	<u>photo</u>	<u>triangulation station</u>
MOUND	59 22 0520. ⁹ ₀	153 21 0157. ⁹ ₈	T-12333	MOUND (1913)
021	59 19 1063.5	153 27 0506.9	T-12332	
022	59 24 0662.8	153 27 0706.0	T-12332	
023 (BURR)	59 25 0212. ⁹ ₈	153 25 0198. ⁰ ₇	T-12333	BURR (1913)
027	59 22 0555.4	153 20 0557.4	T-12333	

TIDE NOTE

The standard tide gauge at Seldovia served as the reference station for the project. The accuracy of approximation cycle was .0010. Time correction to highs was -2.4 feet and to lows -.1 feet. The range ratio applied to highs was 1.000 and to lows 1.000.

The predicted tides thus corrected were used on boatsheets PF-20-1-69, PF-20-2-69 and PF-10-3-68.
(H-9072) (H-9073) (H-9100)

Two Bubbler Tide Gauges were installed to control the survey. One located at Augustine Island, latitude $59^{\circ} 22.42'N$, longitude $153^{\circ} 34.55'W$; and the other in Bruin Bay, latitude $59^{\circ} 22.32'N$ and longitude $154^{\circ} 00.19'W$. Operation at both sites was satisfactory.

Tide data from the Augustine Island gauge should be used to control sheets PF-20-1-69 and PF-20-2-69. Tide data from the Bruin Bay tide gauge should be used to control sheet PF-10-3-68.

Approval Sheet

Registry No. H-9073

This Descriptive Report has been examined and approved.



H.R. Lippold Jr.
Capt., NOAA
NOAA Ship PATHFINDER

HYDROGRAPHIC TITLE SHEET

H-9073

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

PF 20-2-69

State Alaska

General locality Cook Inlet

Locality Vicinity of Augustine Island

Scale 1:20,000 Date of survey 19 May - 31 May 1974

Instructions dated 17 January 1974 Project No. OPR 429

Vessel 2023, 2024, 2025, & 2026 Hull numbers 1240, 1233, 1001, and 1243 respectively
Fairweather Launches

Chief of party CDR. Charles A. Burroughs

Surveyed by LT J. Sowers, LTJG P. Chelgren, LTJG J. Murphy, ENS A. Anderson, ENS A. Snella

Soundings taken by echo sounder, hand lead, pole Ross Fineline Fathometers (S/N's 204065, 1046 and 1054)

Graphic record scaled by Ross 6000 Digitizers on all vessels

Graphic record checked by FAIRWEATHER Personnel

Positions verified by: V.F. Flor Automated plot by PMC Xynetics Plotter
~~XXXXXXXXXX~~

Soundings verified by: D.L. Duffy
~~XXXXXXXXXX~~
not fathoms

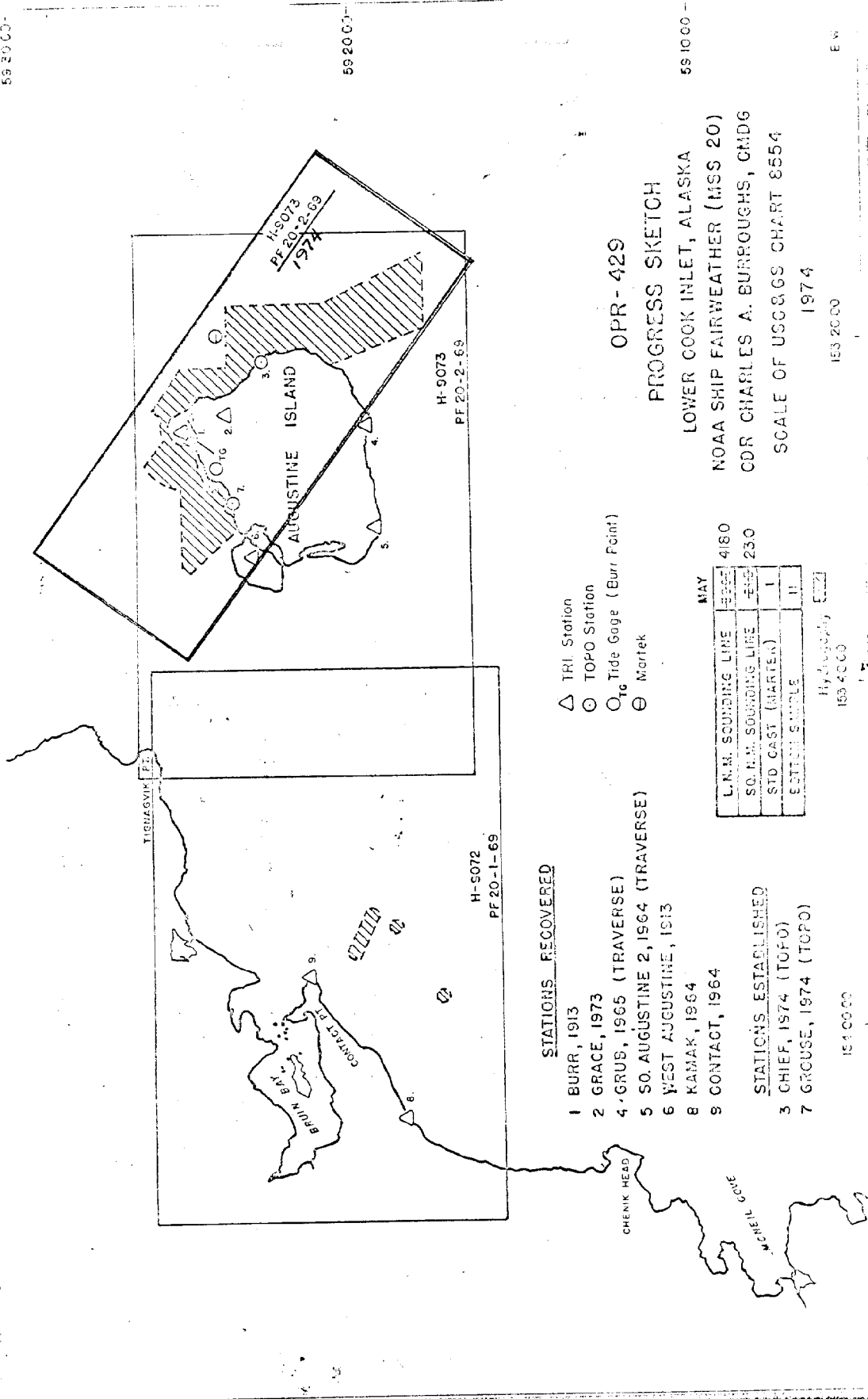
Soundings in fathoms ~~XXXX~~ at ~~XXXX~~ MLLW

REMARKS: The survey was run on GMT. The mean longitude of the survey was 153°24'W. This survey is the final work on PF 20-2-69, and is considered complete and adequate for charting. PF 20-2-69 was initiated by the PATHFINDER during the 1969 field season and was resumed during the 1971 field season. Reference is made to the descriptive reports for those two surveys.

59 20 00

59 20 00

59 10 00



STATIONS RECOVERED

- 1 BURR, 1913
- 2 GRACE, 1973
- 4 GRUS, 1965 (TRAVERSE)
- 5 SO. AUGUSTINE 2, 1964 (TRAVERSE)
- 6 WEST AUGUSTINE, 1913
- 8 KAMAK, 1964
- 9 CONTACT, 1964

STATIONS ESTABLISHED

- 3 CHIEF, 1974 (TOPO)
- 7 GRUSE, 1974 (TOPO)

- △ TRI Station
- TOPO Station
- _{TG} Tide Gage (Burr Point)
- ⊖ Martek

OPR - 429

PROGRESS SKETCH

LOWER COOK INLET, ALASKA
 NOAA SHIP FAIRWEATHER (MSS 20)
 CDR CHARLES A. BURROUGHS, CMDG
 SCALE OF USCGS CHART 8554
 1974

MAY	
L.N.M. SOUNDING LINE	4180
S.O.N.M. SOUNDING LINE	230
STD. CAST (MARTEN)	1
SECTION SAMPLE	11

Hydrography
 153 4000

151 00 00

EW

DESCRIPTIVE REPORT
NOAA SHIP FAIRWEATHER
OPR 429-FA-74

SURVEY H-9073
SHEET PF 20-2-69

A. PROJECT

The hydrography for this project was completed in accordance with project instructions OPR 429, dated 17 January 1974. The 1974 work was a continuation of work begun during the 1969 season by the PATH-FINDER and continued by them in 1971. The 1974 survey completes the sheet. ✓

B. AREA SURVEYED

The area surveyed included sections north, east, and southeast of Augustine Island, Cook Inlet, Alaska. Work was conducted during the period 19 May to 31 May 1974. The survey limits are as follows:

Southeast shore of Augustine Island at 59°20.3'N, 153°21.4'W
to 59°18.0'N, 153°19.7'W
to 59°18.0'N, 153°15.0'W
to 59°21.0'N, 153°18.0'W
to 59°24.0'N, 153°18.0'W
to 59°24.0'N, 153°21.0'W
to 59°26.7'N, 153°21.0'W
to 59°27.5'N, 153°23.0'W
to 59°27.5'N, 153°23.7'W
to 59°25.1'N, 153°30.0'W
to 59°25.1'N, 153°33.0'W
to 59°23.8'N, 153°31.0'W on the
northwest shore of Augustine Island. ✓

C. SOUNDING VESSELS

The survey was accomplished using launches FA-3 (2023), FA-4 (2024), FA-5 (2025), and FA-6 (2026). ✓

D. SOUNDING EQUIPMENT

All launches used Ross Fineline fathometers. A TRA corrector of +0.4 fathom was determined for each launch, based on bar checks taken at least daily during the project. ✓

The sounding velocity corrections were determined by a Martek cast taken off the northwest coast of Augustine Island. For details see Report on Corrections to Echo Soundings, OPR-429-FA-74. The depths of soundings made during this survey range from approximately 0 fathoms to 25 fathoms. ✓

D. SOUNDING EQUIPMENT (CON'T)

Sounding Instruments:

Vessel	Instrument	Model	S/N
FA-3	Ross Fineline	200-A	204065
FA-4	Ross Fineline	200-A	204065
FA-5	Ross Fineline	5000	1046
FA-6	Ross Fineline	5000	1054

Fathometer 204065 was interchanged between FA-3 and FA-4.

Velocity corrections were less than 1/2 of 1% of the applicable depths and were not applied.

E. BOAT SHEETS

All data was plotted by the shipboard HYDROPLOT system. The ship's PDP 8/e computer (S/N M-40-00000-1006) utilized a Complot plotter (model DP-3, S/N 4670-2). The projection used was a modified transverse Mercator at a scale of 1:20,000. One plotter sheet was required. The skew is 322 degrees and the origin is 59°25'00"N, 153°38'36"W. A copy of the parameter tape is appended.

F. STATION CONTROL

Horizontal control on this sheet consisted of existing triangulation and topographic stations established by third-order traverse and triangulation.

A third-order traverse was run, which originated at station GRACE 1973, traversed the eastern shore of Augustine Island, and closed on station GRUB 1965. The data for station GRACE 1973 was obtained from work done by the FAIRWEATHER in 1973, (Triangulation & Traverse Report, NOAA Ship FAIRWEATHER, OPR-429, Kamishak Bay, 1973). The data for GRUB 1965 is published in Volume IV, page 815.

Five traverse stations were established to provide control for the hydrography. Only station CHIEF 1974 was monumented with a topographic disk, none of the other stations being suitably located for a permanent marker. The azimuth closure on station GRUB 1965 was 8.5 seconds and the position closure amounted to 0.36 mm. at the scale of the survey. The traverse was not adjusted since GRUB 1965 was previously established by an open-ended traverse and is a no-check position of unknown reliability.

Station GROUSE 1974 was established by third-order triangulation from BURR 1913 and WEST AUGUSTINE 1913. A topographic disk was set at GROUSE 1974.

A minimum of four positions were observed with a T-2 theodolite at each station occupied. With one exception all distances were measured at least twice with CA1000 Tellurometers. The distance GRUB 1965-

F. STATION CONTROL (CON'T)

GRUB 1965 (ECC) was measured with a steel tape. Reciprocal vertical angles were observed to compute station elevations and reduce slope distances. The North American 1927 datum was used for all work.

No photogrammetrically-located signals were used for this survey.

G. POSITION CONTROL

The Motorola Miniranger electronic positioning equipment was used to control the entire survey on sheet PF-20-2-69. Transponders used were located over existing triangulation stations at WEST AUGUSTINE 1913, GRACE 1973, and BURR 1913 and over GROUSE 1974, CHIEF 1974, GAR 1974, HENRY 1974 and GRUBB 1965 (ECC) which were established for this survey by third-order traverse. Miniranger hydrography was run by launches FA-3, FA-4, FA-5, and FA-6. ✓

Electronic correctors were zero for all days run. Visual calibrations were performed for determination of any gross Miniranger errors. None were detected. Miniranger was calibrated on the test range at Sand Point prior to commencement of this project, and all four channels adjusted for zero error at that time. This calibration was considered to be superior to any done in the field, and field calibration checks were used only to determine any gross drift. That this is justified at the scale of this survey is borne out by the fact that junctions between areas run by different launches are excellent and all cross-lines are in excellent agreement with main-scheme hydrography.

Hydrography accomplished using Miniranger was considered entirely satisfactory and none had to be rejected. No equipment problems were encountered.

All Miniranger distances were reduced to sea level via PM 340; slope corrections were negligible.

H. SHORELINE

Shoreline detail information was obtained from T-12332 and T-12333, Class I map shoreline manuscripts. Field edit was completed in 1973 and data applied to these shoreline manuscripts in January 1974. The low waterline was not defined in some of the foul shoreline sections of the sheet. Soundings were run into the foul sections as sea and tidal conditions permitted. ✓

I. CROSSLINES

Crosslines accounted for 10%, or 38.1 nm., of all hydrography completed on this survey. Comparisons at crossings agreed within one fathom in water less than 14 fathoms deep, and never exceeded 2 fathoms difference in water over 14 fathoms. ✓

J. JUNCTIONS

The survey junctions with the 1:20,000 scale survey, FA 20-2-72 (H-9327), and with previous PATHFINDER work on the current sheet agreed within one fathom in water less than 14 fathoms deep, and never exceeded 2 fathoms difference in water over 14 fathoms. The survey junctions with the 1:40,000 scale surveys, FA 40-1-73 (H-9378) and PF 40-2-65 (H-8843), agreed within one fathom in water less than 14 fathoms deep, and never exceeded 2 fathoms difference in water over 14 fathoms.

✓

K. COMPARISON WITH PRIOR SURVEYS

Prior surveys ~~H-3566~~ and H-3568 (1913) ^{was} were not available for comparison.

✓

L. COMPARISON WITH CHART

Comparison with the few soundings in the project area on chart #8554 (13th Edition, May 25, 1974, at a scale of 1:200,000) was good considering the difference between the chart and survey scales.

✓

M. ADEQUACY OF SURVEY

All fathogram field survey records were scanned and checked for peaks and deeps. The survey is complete and adequate to supersede prior surveys for charting.

✓

N. AIDS TO NAVIGATION

There are no aids to navigation in the survey area.

O. STATISTICS

<u>Vessel</u>	<u>Total Positions</u>	<u>NM</u>
FA-3 (2023)	245	33.2
FA-4 (2024)	490 ²	96.6
FA-5 (2025)	1310 1288	232.0
FA-6 (2026)	145 134	21.0
		<u>382.8</u>

✓

Total area - 21.5 sq. n.m.
Total bottom samples -- 11

P. MISCELLANEOUS

Greenwich Mean Time was used for all survey records.

✓

P. MISCELLANEOUS (CON'T)

The University of Alaska maintains a summer field camp in the Burr Point area. This facility consists of two metal buildings for housing seismic research crews during the summer months. This cove is attainable via a small unmarked channel at any water above MLLW and could afford protection for small boats, but its use is not recommended without local knowledge. ✓

Q. RECOMMENDATIONS

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

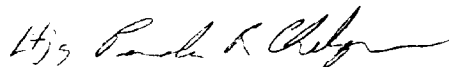
R. REFERENCES TO REPORTS

Report on Corrections to Echo Soundings, OPR-429-FA-74 ✓
Electronic Systems Calibration Report, OPR-429-FA-74
Coast Pilot Report, OPR-429-FA-74

S. DATA PROCESSING PROCEDURES

FA-3 and FA-4 used ASI Loggers to acquire and compile all on-line hydrographic data. FA-5 used program AM-170, version 11/10/72, on its PDP 8/e computer to acquire and compile all on-line hydrographic data. FA-6 used program AM-100, version 11/10/72, on its PDP 8/e computer to acquire and compile all on-line hydrographic data. The ship used program AM-200, version 3/23/73, on its PDP 8/e computer to compile the field sheet, and used program RK211, version 5/7/74, to compile separate sounding and position plots for the sake of clarity. ✓

Submitted by:



Lt(jg) Pamela R. Chelgren, NOAA

SOUND VELOCITY CORRECTOR ABSTRACT

The following sound velocity correctors are to be applied
to all soundings on sheets:

PF-20-1-69 (H-9072)
PF-20-2-69 (H-9073)

<u>Depth (Fathoms)</u>	<u>Corrector (Fathoms)</u>
0.0- ³⁰ 25 .0	0.0

STATION LIST
H-9072

STA	O	LATITUDE	LONGITUDE	CRT	ELEV (M)	F (KHz)	TYPE/NAME	SOURCE
001	4	59 18 4175	154 05 2655	139	137	1498.35	KAMAK 1964	591542
002	4	59 21 2900	153 57 0265	139	146	1498.35	CONTACT 1964	591533

STATION LIST
H-9073

STA	O	LATITUDE	LONGITUDE	CRT	ELEV (M)	F (KHz)	TYPE/NAME	SOURCE
001	4	59 23 0624	153 32 2775	139	32	1498.35	WEST AUGUSTINE 1913	591533
002	4	59 23 3729	153 29 0701	139	18	1498.35	GROUSE 1974 ✓	@
003	4	59 25 0689 ^B	153 25 1248 ⁵⁶	139	16	1498.35	BURR 1913	591532
004	4	59 23 4448	153 24 0017	139	47	1498.35	GRACE 1973	#
005	4	59 22 4635	153 20 4161	139	16	1498.35	CHIEF 1974 ✓	@
006	4	59 21 3112	153 20 2204	139	27	1498.35	GAR 1974 ✓	@
007	4	59 21 0077	153 20 5340	139	29	0000.00	FOXY 1974 ✓	@
008	4	59 20 1866	153 21 3972	139	7	1498.35	HENRY 1974 ✓	@
009	4	59 19 2186	153 24 4494	139	22	1498.35	GRUB 1965 (ECC) ✓	591532

@ FAIRWEATHER 1974 electronic traverse - - See 1974 Descriptive Report H-9073

FAIRWEATHER Triangulation and Traverse Report, Kamishak Bay, Alaska, 1973

HORIZONTAL CONTROL COMPUTATIONS

PF-20-2-69

Kamishak Bay, Alaska

OPR-429

The computations in this section were made using the PDP-8/E computer. All angles were turned using a T-2 theodolite. Distances were measured using steel tape or CA1000 Tellurometers. Computer programs used were RK 407 Geodetic Inverse, version date, 11/10/72 and RK 409 Geodetic Utility Package, version date, 9/5/73.

Attached are the traverse and triangulation computations for the following stations:

CHIEF	1974*
GAR	1974
FOXY	1974
HENRY	1974
GRUB	1965 (ECC)
GROUSE	1974*,**

*-Monumented with topographic disk

** -Established by triangulation

FIELD GEOGRAPHIC POSITIONS

LOCALITY Kamishak Bay, Lower Cook Inlet NORTH AMERICAN 1927 DATUM Third ORDER TRAVEL STATE Alaska

STATION	LATITUDE AND LONGITUDE		AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE METERS
WEST AUGUSTINE 1913 r. '74 d.m.	59 23 153 32	06.235 27.754	253 06	73 09	GROUSE 1974	3311.262
GROUSE 1974 d.m.	59 23 153 29	37.286 07.012	233 07	53 10	BURR 1913	4622.815
BURR 1913 r. '74 d.m.	59 25 153 25	06.878 12.556				
GRACE 1973 r. '74 d.m.	59 23 153 24	44.481 00.171	299 49	119 52	CHIEF 1974	3614.108
CHIEF 1974 d.m.	59 22 153 20	46.345 41.610				
GAR 1974 n.d. n.m.	59 21 153 20	31.124 22.039				
FOXY 1974 n.d. n.m.	59 21 153 20	00.770 53.405				
HENRY 1974 n.d. n.m.	59 20 153 21	18.665 39.719				
GRUB 1965 (ECC) n.d. n.m.	59 19 153 24	21.866 44.941				
GRUB 1965 r. '74 d.m.	59 19 153 24	23.097 46.479				

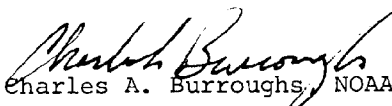
No check on position. Abbreviations used: d.=described; m.=marked; n.=not; r.=recovered; l.=lost; p.=probably. (Examples: n.d.=not described; P. l.=pro. / lost.)

APPROVAL SHEET

PF 20-2-69

H-9073

The boatsheet and all accompanying records are hereby approved. The survey was conducted under my personal supervision and the boatsheet and other records were examined daily. This survey is complete and adequate to supersede prior surveys for charting.


Cdr. Charles A. Burroughs, NOAA
Commanding Officer
NOAA Ship FAIRWEATHER MSS-20

12 September 1974

FIELD TIDE NOTE

Field tide reduction of soundings was based on predicted tides from Seldovia, Alaska, corrected to Iliamna Bay, Alaska, and were interpolated by the PDP8/E computer utilizing AM-500.

One gage was used for the project area. Site, location and time zone are listed below.

<u>SITE</u>	<u>LOCATION</u>	<u>TIME ZONE</u>
Burr Point	59° 25' 06" N 153° 25' 12" W	GMT

BURR POINT TIDE GAGE- BRISTOL BUBBLER (SN-73A232)

The gage and staff were installed and began operation on 17 May 1974. Sixteen days of continuous records were obtained before the gage was removed 1 June 1974. Two shifts in the marigram record occurred during the project, a 0.6 foot increase on 25 May 1974, 0100 hrs, and a 0.7 foot decrease on 30 May 1974, 0330 hrs. Divers examined the orifice and hose line. The orifice was resting upright on a clear flat sandy bottom. There was no seaweed or other foreign debris on the hose or anchor buoy line. The hose was still weighted to the bottom as originally installed. The gage was examined and no internal leaks were found. The mechanical linkage was checked with no apparent defects. No malfunctions could be traced to the gage. No adjustments have been made to the hourly heights at this time. The gage reads 10.7 feet greater than the staff.

LEVELS

The beginning and ending levels for the Burr Point tidal bench marks checked with an average of 0.01 feet. However, in comparing levels over previous years, a noticeable shift in relative elevations has occurred. In particular, BM 4 dropped 0.26 feet over a period of one year (1973 to 1974). It is believed that a comparison of the 1972 to 1973 levels would also show relative shifts.

ZONING

Tide correctors based upon Burr Point should be applied to all 1974 soundings on surveys H-9072 and H-9073.

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

1/15/73

Processing Division: Pacific Marine Center

Hourly heights are approved for Tide Tape Printout

Tide Station Used (NOAA form 77-12): Augustine Island

Period: June 5 - August 10, 1971

HYDROGRAPHIC SHEET: H-9073

OPR: 429

Locality: Kamishak Bay, Cook Inlet, Alaska

Plane of reference (mean lower low water): 4.2 ft.
which is feet on tide staff.

Height of Mean High Water above Plane of Reference is 13.9 ft.

Remarks: Hourly heights have been revised in red and verified.

<u>Julian Day</u>	<u>Hour</u>	<u>Julian Day</u>	<u>Hour</u>
161	1000-1100	177	0900-1500
	1400-1500	178	1100, 1300-1700
163	1300, 1700-1800	179	0900-1600
164	0900-1000	182	0900-1300
	1400-1500	188	1200
168	0900-1400	190	1300-1400
172	1300	191	1100-1500
173	0800, 1000-1700		
174	0900, 1100, 1400		
175	1200-1400		
	1600-1700		

A. J. A. Combs

Chief, Tides Branch

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

TIDE NOTE FOR HYDROGRAPHIC SHEET 1724/73

Processing Division: Pacific Marine Center

Hourly heights are approved for Tide tape printout

Tide Station Used (NOAA form 77-12): Nordyke I, Alaska

Period: June 3-June 4, 1969

HYDROGRAPHIC SHEET: H-9072 H-9073

OPR: 429

Locality: Kamishak Bay, Cook Inlet, Alaska

Plane of reference (mean lower low water): 8.1

Height of Mean High Water above Plane of Reference is 14.3

Remarks:

[Handwritten Signature]

Chief, Tides Branch

10/28/75

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): Burr Point

Period: May 17-31, 1974

HYDROGRAPHIC SHEET: H-9073

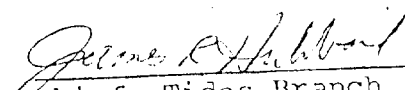
OPR: 429

Locality: Lower Cook Inlet

Plane of reference (mean lower low water): 9.8 ft.

Height of Mean High Water above Plane of Reference: 13.7 ft.

Remarks: Zone direct.


Chief, Tides Branch

GEOGRAPHIC NAMES

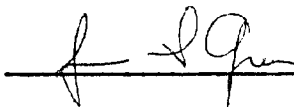
H-9073

Name on Survey	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">A ON CHART NO. 8354</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">B ON PREVIOUS SURVEY NO.</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">C ON U.S. QUADRANGLE MAPS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">D FROM LOCAL INFORMATION</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">E ON LOCAL MAPS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">F P.O. GUIDE OR MAP</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">G RANDOMLY ATLAS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">H U.S. LIGHT LIST</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">K</div> </div>											
	AUGUSTINE ISLAND	X										
BURR POINT	X											2
COOK INLET	X											3
KAMISHAK BAY	X											4
												5
												6
												7
												8
												9
												10
												11
												12
											Approved:	13
											<i>Chris E. Harrington</i>	14
											Chief Geographer - C325	15
											8 JAN 1980	16
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APPROVAL SHEET
FOR
SURVEY H- 9073

- 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: Aug 5, 1979

Signed: 
Title: Chief, Verification Branch

HYDROGRAPHIC SURVEY STATISTICS

H-9073

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	11 & 5
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS & ARC, EXCESS	3

DESCRIP-TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	5 with printouts & misc. data					1 - tides & misc. data
VOLUMES	27					
BOXES			1 - 4 parts			1 - Sawtooth records

T-SHEET PRINTS (List) TP-12332-33

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			5986
POSITIONS CHECKED		5986	
POSITIONS REVISED		120	
SOUNDINGS REVISED		347	
SOUNDINGS ERRONEOUSLY SPACED		0	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	4		
VERIFICATION OF CONTROL		16	
VERIFICATION OF POSITIONS		345	
VERIFICATION OF SOUNDINGS		410	
COMPILATION OF SMOOTH SHEET		83	
APPLICATION OF TOPOGRAPHY		20	
APPLICATION OF PHOTOBATHYMETRY		N/A	
JUNCTIONS		8	
COMPARISON WITH PRIOR SURVEYS & CHARTS		8	
VERIFIER'S REPORT		42	
OTHER		10	
	4		
TOTALS	4	942	

Pre-Verification by James S. Green	Beginning Date Sept. 26, 1974	Ending Date Sept. 26, 1974
Verification by V. F. Flor D. L. Duffy	Beginning Date Dec. 13, 1971	Ending Date Aug. 10, 1979
Verification Check by A. E. Eichelberger - James S. Green	Time (Hours) 54	Date Aug. 17, 1979
Marine Center Inspection by HIT	Time (Hours) 16	Date Sept 11, 1979
Quality Control Inspection by F. P. SAULSBURY	Time (Hours) 153	Date 1-7-80
Requirements Evaluation by D. J. Hill	Time (Hours) 4	Date 3/24/79

A. Myers 2/11/80 27 sec.

REGISTRY NO. H9073

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:

PACIFIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO: H-9073

FIELD NO: PF-20-2-69

Alaska, Cook Inlet, Vicinity of Augustine Island

SURVEYED: 3-4 June, 6 Aug-7 Sept 1969; 5 June-10 July 1971;
19-31 May 1974

SCALE: 1:20,000

PROJECT NO: OPR-429

SOUNDINGS: Raytheon DE 723
Ross Fineline

CONTROL: R/R Raydist, R/R
MiniRanger, Visual

Chief of Party.....CAPT E.A. Taylor & H.R. Lippold,
Jr., CDR C.A. Burroughs

Surveyed by.....See listing below

1969
LT G. Holloway
LTJG M. Kawka
LTJG D. Wilson
LTJG R. Young
LTJG D. Danner
ENS R. Mathis
ENS N. Wright

1971
CDR S. Miller
LT R. Matsushige
LT. D. Nortrup
LTJG R. Roush
LTJG R. Louis
LTJG L. Oliver
LTJG K. Baldwin
LTJG A. Vonderohe

1974
LT J. Sowers
LTJG P. Chelgren
LTJG J. Murphy
ENS A. Anderson
ENS. A. Snella

Automated plot by.....PMC Xynetics Plotter
Verified by.....V.F. Flor, D.L. Duffy

I. INTRODUCTION

H-9073 is a basic survey conducted by NOAA Ships PATHFINDER and FAIRWEATHER from 3-4 June, 6 August-7 September 1969; 5 June-10 July 1971 and 19-31 May 1974. The area surveyed was in the southern part of Cook Inlet, Alaska, surrounding Augustine Island.

Field tide reduction of soundings were based on predicted tides for Nor-dyke Island, Kamishak Bay in 1969, predicted tides for the Augustine Island area in 1971 and predicted tides for Iliamna Bay in 1974. The reference station was the standard gage at Seldovia.

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.

Due to the abnormal amount of duplicate position numbers, two smooth position overlays 1969-71 and 1974 have been submitted.

No unusual problems were encountered during verification of this survey.

Smooth sheet compilation was completed by A.E. Eichelberger, Carto-Tech.

II. CONTROL AND SHORELINE

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

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

T-12332 1962-71
T-12333 1962-71,73

*see Q.C. Report,
Item 4*

A reef symbol on manuscript T-12332 centered at Latitude 59°24.5'N, Longitude 153°29.5'W, was not transferred to the smooth sheet. Hydrography adequately defines this shoal area with two high points depicted as rock awash symbols on the smooth sheet. *Concur FPS*

A reef symbol on manuscript T-12333 centered at Latitude 59°21.95'N, Longitude 153°20.15'W was not transferred to the smooth sheet. Hydrography crosses the reef symbol with no indication of a shoal area. *Do not concur FPS*
Reef was added to the smooth sheet since it fell between lines of s.d.s.
Foul limit lines were transferred from the shoreline manuscripts even though extensive hydrography was conducted within some of the foul areas. The Descriptive Reports of 1971 and 1974 state the foul areas extend a considerable distance offshore Augustine Island. *Concur*

Compiler note:

Sounding lines were run within the foul limits at favorable stages of the tide and sea conditions. All submerged boulders within the limits were not individually located.

Elevations were left off two shoals on manuscript T-12332 at Latitude 59°22.7'N, Longitude 153°31.7'W. Elevations of 9 feet above MLLW does not agree with the definition of a shoal area. *Do not concur added elevation during Q.C.I.*

III. HYDROGRAPHY

Crossline agreement was excellent, generally within 0.2 fathom with a maximum difference noted of 0.4 fathom.

Standard depth curves could be adequately drawn, except for the zero curve, *which is only partially developed* due to offshore rocks and the general foul condition of the inshore area. Brown curves were used to highlight least depths not identified by standard depth curves. *Also small portions of the 1&2 fm. curves could not be drawn due to a lack of development*

The main scheme hydrography is adequate to delineate bottom configuration and least depths, except isolated shoal soundings obtained by the normal line spacing, were not developed to determine a possible lesser depth. *concur*

There are 41 bottom samples in this survey. Sample, position number 6976, of 1971 was plotted on the smooth sheet from the Oceanographic Log Sheet (form C&GS 733M). No positional data could be located in the raw records or on the boat sheet.

IV. CONDITION OF SURVEY

With the exception of the following items, the hydrographic records, field sheets and sections of the reports are adequate and conform to the requirements of the Hydrographic Manual.

a. Some sections of the Descriptive Reports are inadequate in discussion and disposition of items required by the Hydrographic Manual.

b. The southwest and southeast portions of the survey lack sufficient bottom samples.

c. Following is a tabulation of duplicate position numbers:

<u>Number</u>	<u>Year</u>	<u>Launch</u>
2001-2245	1969	3021
2001-2245	1974	3023
97-144	1969	3021
97-144	1971	3021
1000-1326	1969	3024
1000-1326	1971	3021
5001-5986	1971	3024
5001-5986	1974	2025

d. Indications of shoal areas were not developed. Critical offshore depths on the chart were not investigated or addressed in the Descriptive Report. *Critical offshore depths were charted from the present survey's boat sheets. Therefore, this comment is invalid. See section 6.*

e. The original Descriptive Report, for the 1969 season was not received from the Ship PATHFINDER. A search of the records removed from the vessel after decommissioning was conducted without recovering the original report. *of the Verifier's report*

V. JUNCTIONS

H-9073 junctions with the following contemporary surveys:

H-8843 (1965-67-68) to the south ✓
 H-9072 (1969-71-74) to the west ✓
 H-9327 (1972) to the north and northwest ✓
 H-9378 (1973) to the east ✓

H-8843 junctions with excellent agreement. One sounding has been transferred to H-9073. Minor adjustment of the 10 and 5 fathom curve will be required on H-8843 at Latitude 59°18.0'N, Longitude 153°34.2'W on H-8843 to conform with the larger scale H-9073. *Minor adjustments made during E.C.I. Junction is adequate.*

H-9072 junctions with generally good agreement with isolated maximum differences of 0.4 fathom. One area on H-9072, centered at Latitude 59°22.2'N, Longitude 153°41.9'W, is shoaler by 1.5 fathoms. This discrepancy could be attributed to sand migration during the three year period of hydrography on both surveys. *Twenty soundings have been transferred to H-9073 to delineate junction depth curves.* Minor adjustments to the 10 fathom curve will be required on H-9072, previously submitted,

to agree with lesser depths on H-9073. *Adjustments made during Q.C.I. - junction is adequate.*

H-9327 junctions with good agreement with a maximum difference of 1 fathom rounded to even fathoms in depths over 11 fathoms.

~~Thirty five~~ *Several*

~~Twenty two~~ soundings have been transferred to H-9073 to delineate junctional depth curves. Minor adjustments to the 10 fathom curve will be required on H-9327 previously submitted to Rockville. *Adjustments made during Q.C.I. - junction is adequate.*

H-9378 junctions were generally in good agreement with a maximum difference of 1.0 fathom rounded to even fathoms in depths over 11.0 fathoms. Five soundings have been transferred to H-9073 to delineate junction depth curves. A 2.0 fathom discrepancy in the 10.0 fathom curve exists at latitude 59°22'45"N, longitude 153°21'00"W with the shoaler depth curve on H-9378. H-9073 is a larger scale survey and is more detailed in the junction area causing a displacement of the 10.0 ^{and 20.0} fathoms curve on H-9378. It is recommended the 10.0 ^{and 20.0} fathom curve at this particular location on H-9378 previously submitted to Rockville, be adjusted to the larger scale survey H-9073. *Adjustments made during Q.C.I. - junction is adequate.*

VI. COMPARISON WITH PRIOR SURVEYS

H-2978 (1908) 1:120,000
H-3568 (1913) 1:80,000
F.E. NO. 3 1947 1:200,000

Comparison with H-2978 is marginal as only eight soundings fall within the limits of H-9073. Agreement is generally good with soundings slightly shoaler on the present survey.

Comparison with H-3568 is in good agreement with little change in basic depths. The shoreline is an approximation on H-3568, but the prominent rocks plotted on the prior survey are also indicated on the present survey at the same location. One rock awash symbol at latitude 59°23.4'N, longitude 153°21.0'W now falls within a foul with rocks area on Class I manuscript T-12333. A group of four submerged rocks centered at latitude 59°24.0'N, longitude 153°29.5'W falls within a foul limit area on Class I manuscript T-12332 and an area of rocks on the present survey.

F.E. No. 3 ¹⁹⁴⁷ was not available for comparison, contact was made with Quality Control Branch in Rockville, and it was determined that F.E. No. 3 was not used for a charting source in this area or required for comparison. *Do not concur, see Q.C. Report, item 5*

The shoreline on the prior surveys is approximate with the present survey, employing photogrammetric methods, presenting a more accurate high-water line delineation. There has been minimal change in general depths, with the present survey more detailed due to scale and modern methods employed.

PSR dashed circle item 3.0 fathoms ^{charted from H-2978(1908)} at latitude 59°20.3'N, longitude 153°19.5'W: Least depth obtained on this survey is 2.0 fathoms (sounding #621003 of 1974). Recommend the 2.0 fathom be charted from this survey. *concur*

H-9073 is adequate to supersede the above prior surveys in areas of common coverage.

VII. COMPARISON WITH CHART 8554 (16640) 13th Edition, May 25, 1974

a. Hydrography

Two soundings from H-2978 (1908) to the southeast and 22 from H-3568 (1913) to the north of Augustine Island, could be identified as originating from the prior surveys. *Over 50 sdgs were identified during Q.C.1 as originating with FE 3-1947. Several sdgs also originated with the boat sheets of the present survey.*

PSR dashed circle item 3.0 fathoms at latitude 59°21.3'N, longitude 153°40.1'W: Least depth obtained on this survey is 4.0 fathoms. Recommend source be researched and if reliable, the 3.0 fathom continue to be charted. *3 fm sdg charted from FE No. 3-1947. Chart depths as shown on the present survey.*

Noticeable discrepancies exist between charted isolated least depths and the present survey. Following is a tabulation of pertinent charted shoaler soundings:

Chart	H-9073	Latitude	Longitude
3.0 fm	9.1 fm	59°21.9'N	153°41.1'W
2 1/2 fm	3.3 fm	59°21.5'N	153°39.0'W
2 1/2 fm	4.0 fm	59°22.0'N	153°36.7'W
2 3/4 fm	4.0 fm	59°21.3'N	153°36.7'W
2 1/2 fm	3.1 fm	59°21.6'N	153°35.0'W
3.0 fm	3.7 fm	59°18.6'N	153°33.5'W
1 3/4 fm	2.8 fm	59°19.3'N	153°21.8'W
Rock PA	4 rocks in area	59°18.7'N	153°30.3'W

→ considered to be an 8 fm boat sheet sdg. erroneously charted as 3 fms. - disregard 3 fm sdg.

Sources of charted sdgs are 1969 & 1971 boat sheets of the present survey. Chart depths as they appear on the present survey.

chart rocks as shown on the present survey

It is recommended the source of the least depths listed be determined, and if reliable, the soundings be retained as charted.

With the additional investigation required noted above, H-9073 is adequate to supersede charted hydrography of common areas.

Sources of unidentified soundings are the Boat Sheets of 1969 & 1971

b. Aids to Navigation

There are no aids to navigation established within the survey area.

VIII. COMPLIANCE WITH PROJECT INSTRUCTIONS

This survey adequately complies with the Project Instructions dated 15 April 1969, 26 March 1971 and 17 January 1974.

IX. ADDITIONAL FIELD WORK

H-9073 is considered a good basic survey. No additional field work is recommended.

Respectfully submitted,
A.E. Eichelberger
 A.E. Eichelberger
 Cartographic Technician
 August 10, 1979

Examined and approved

J. S. Green
 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 E
Seattle, WA 98102

DATE : 12 September 1979

OA/CPM32/JSG

TO : OA/CPM - Eugene A. Taylor

FROM : OA/CPM3 -  John W. Carpenter

SUBJECT: PMC Hydrographic Inspection Team Report for Survey H-9073

This survey is a basic hydrographic survey of the vicinity of Augustine Island, Cook Inlet, Alaska. This survey was conducted by NOAA Ships PATHFINDER in 1969 and 1971 and FAIRWEATHER in 1974, in accordance with Project Instructions OPR-429-PF-69 dated April 15, 1969, OPR-429-PF-71 dated March 26, 1971 and OPR-429-FA-74 dated January 17, 1974.

This survey would have been improved had the shoal soundings in the following areas been more fully developed:

The 1.5 fathom sounding at Latitude 59°25'17"N and Longitude 153°27'58"W *concur*

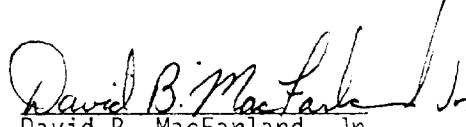
The 3.5 fathom sounding at Latitude 59°18'14"N and Longitude 153°22'44"W *concur*

The 6.4 fathom sounding at Latitude 59°18'28"N and Longitude 153°20'49"W *concur*

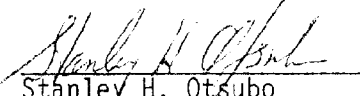
The survey presented to the HIT contained some depth curves made continuous beyond the area of hydrography in attempt to respond to comments received from the Quality Control Branch. The HIT unanimously concurred that the depth curves should not be shown unless supported by sounding data.

The inspection team finds H-9073 to be a good basic survey adequate to supersede common areas of prior surveys and charted hydrography. Administrative approval is recommended.


John W. Carpenter


David B. MacFarland, Jr.



James W. Steensland


Stanley H. Otsubo



ADMINISTRATIVE APPROVAL
H-9073

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



Eugene A. Taylor, RADM
Director
Pacific Marine Center

Sept. 13, 1979
Date



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

OA/C352:FPS

January 7, 1980

TO: Glen R. Schaefer *GS*
Chief, Hydrographic Surveys Division

THRU: Chief, Quality Control Branch *gm*

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

SUBJECT: Quality Control Report for H-9073 (1969, 1971, and 1974),
Alaska, Cook Inlet, Vicinity of Augustine Island

A quality control inspection of H-9073 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, shoreline transfer, smooth plotting, decisions and actions taken by the verifier, and the cartographic presentation of data. In general, it was found to conform to the National Ocean Survey's standards and requirements except as stated in the Verifier's Report and as follows:

1. In some cases, graphic records are not properly identified due to omissions in date or serial number of the specific fathometer used during sounding.
2. Many spike-like traces which protrude about a fathom above the bottom profile on most of the fathograms for DE 723 Fathometer No. 557 used in 1971 are questionable. These anomalies are not addressed in the Descriptive Report. However, an examination of the records during quality control revealed some depths were indiscriminately scanned from these traces which are considered spurious strays. The depths were corrected on the smooth plot and accordingly revised in the smooth sounding listing by the quality evaluator.
3. The following shoal soundings shown on the verified smooth sheet were in error. These soundings were rescanned by the quality evaluator because they were unsupported.

<u>Soundings (fathoms)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
9.9 revised to 12	59°23.50'	153°19.59'
12 revised to 17	59°20.37'	153°17.64'
6.7 revised to 6.4	59°18.49'	153°20.80'



4. An examination of the contemporary final review topographic manuscripts revealed no differences with comparable Class I manuscripts used during the verification of the present survey. However, the transfer of topographic shoreline to the smooth sheet is generally inexact. Also, positions of rocks in many instances were not accurately transferred from the T-sheets. The center points of many of these items are not in proper alignment with the original topographic location.

The sunken rock on T-12333 (1962-71, 73) in latitude $59^{\circ}25.53'N$, longitude $153^{\circ}24.78'W$ was determined to be a rock awash on H-9327 (1972) and should be charted as such. ✓

The bare rock on T-12332 (1962-71) in latitude $59^{\circ}23.81'N$, longitude $153^{\circ}30.79'W$ was determined to uncover 16 feet at MLLW on the present survey and should be charted as such.

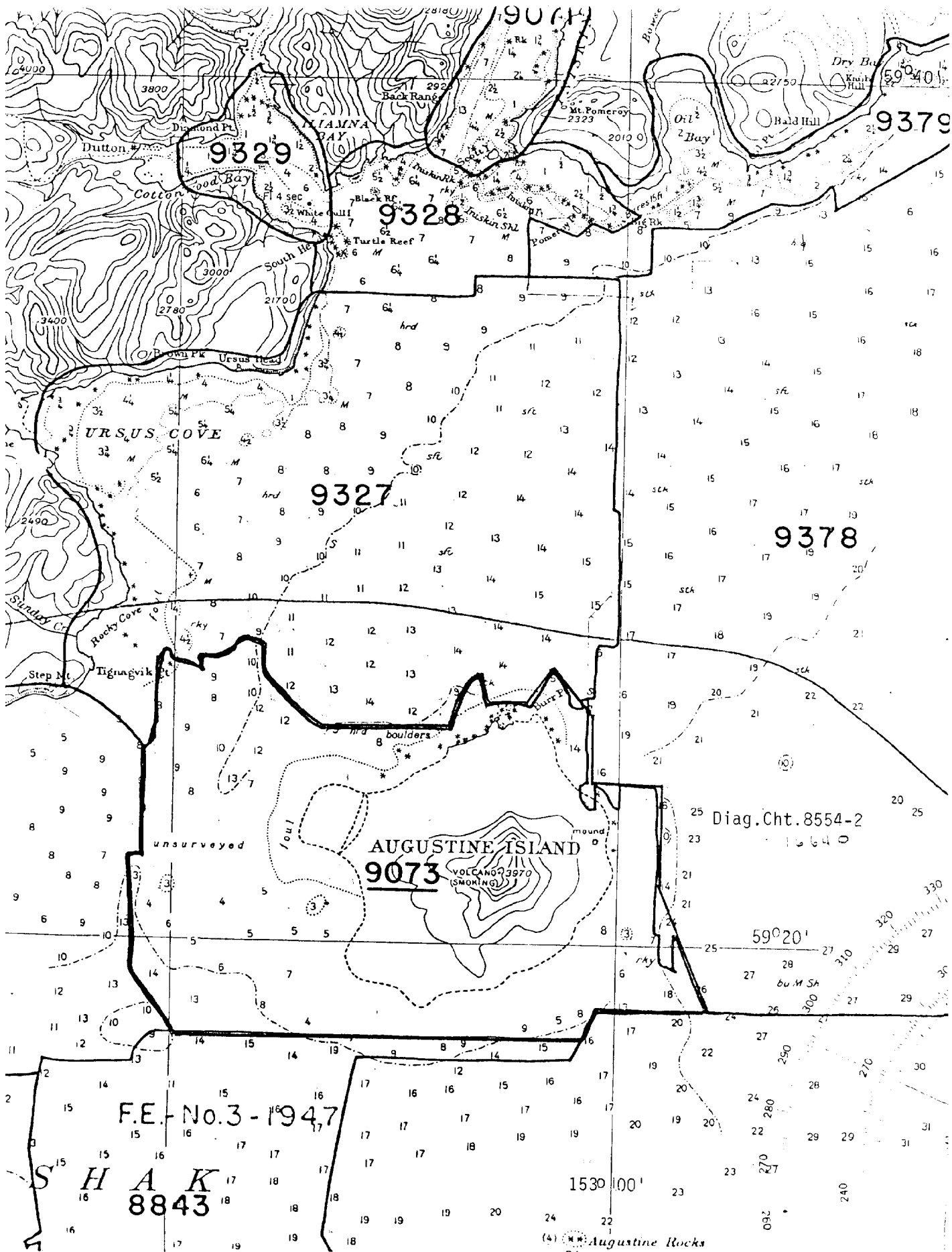
5. Contrary to statements in the Verifier's Report, F.E. No. 3, 1947 is the principal source for charted soundings within the common area of the present survey.

It is considered that prior topographic survey T-3568 (1913) is the charting source for several rocks charted in the area adjacent to the northern shore of St. Augustine Island. This topographic survey is not mentioned in the Verifier's Report. It was unavailable at the time of quality control. The delineation of rocks on the present survey is considered adequate to supersede the rocks shown in the common area on the chart.

6. The source of charted depths listed in section VII of the Verifier's Report should have been identified as originating from boat sheet data of the present survey. A discussion regarding an examination of this available data with the 1974 edition of the chart should have been made during verification.

7. The charted rocks falling in the common area of the present survey should have been addressed in the Verifier's Report, inasmuch as the origin of these rocks probably could not be ascertained. (See item 5 of this report.)

cc:
OA/C35
OA/C351





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

APR 9 1980

OA/C351:DJH

TO: OA/CPM - Eugene A. Taylor

FROM: *for* OA/C3 - *R. Lanier*
Roger F. Lanier

SUBJECT: H-9073 (1969, 1971, and 1974), OPR-429, Alaska, Cook Inlet, Vicinity
of Augustine Island, 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 January 7, 1980 (copy attached), and the Hydrographic Survey Inspection Team Report, dated September 12, 1979, is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-429, OPR-429-PF-71, and OPR-429-FA-74, dated April 15, 1969, March 26, 1971, and January 17, 1974, respectively.

Attachment

cc:
OA/C352 w/o att.



10TH ANNIVERSARY 1970-1980
National Oceanic and Atmospheric Administration
A young agency with a historic
tradition of service to the Nation

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9073

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
16648 N.C.	4/2/80	J. A. Graham	Full Part Before After Verification Review Inspection Signed Via Drawing No. 7 (N.C.) <i>App'd misc critical corrections only.</i>
16640	4/13/80	<i>RAUER</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. 20 thru 16647
16013	6/5/80	<i>KALIS</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. 25 <i>Applied thru 16640</i>
16648	7/31/84	B. Farnandez	Full Part Before After Verification Review Inspection Signed Via Drawing No. 2
16640	10/27/84	J. H. O'Connor	Full Part Before After Verification Review Inspection Signed Via Drawing No. 22 <i>Applied thru cht 16648</i>
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
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