9328

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. FA-10-5-72

Office No. H-9328

LOCALITY

State Alaska

General Locality Cook Inlet

Locality Approaches to Iniskin Bay

1972-73

CHIEF OF PARTY
R. A. Houlder & C. A. Burroughs

LIBRARY & ARCHIVES

DATE 10-18-74

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

9328

FORM C&GS-537 (5-66)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H-9328

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

FIELD NO. FA-10-5-72

State: Alaska

General locality: ~~Lower~~ Cook Inlet

Locality: ~~Kamishak Bay~~ Approaches to Iniskin Bay

Scale: 1:10,000 Date of survey: ~~6-18 August 1972~~ 13 June - 1 Aug. 1973

Instructions dated: 2 March 1972 Project No.: OPR-429

Vessel: NOAA Ship FAIRWEATHER (MSS 20) (see attached title sheet)

Chief of party: R. H. Houlder, CAPT, NOAA, Comdg. & C. A. Burroughs

Surveyed by: CDR S. C. Miller, LCDR D. E. Nortrup, LT M. C. Grunthal, LT (jg) T. R. Crane, LT (jg) K. H. Underwood, ENS R. J. Schmidl

Soundings taken by ~~echo sounder, hand lead, pole~~: Echo Sounder

Graphic record scaled by: Ship's Personnel; ~~PDP8/E~~

Graphic record checked by: Ship's Personnel

Protracted by: Not Applicable Automated plot by: ~~PDP8/E~~ PMC - Gerber Digital Plotter

Soundings penciled by: ~~PDP8/E~~

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

REMARKS: Hydrography is incomplete.

Area 6

chart
8554
8665
8502

Applied to chts 11/14/74

DESCRIPTIVE REPORT

to accompany

Hydrographic Survey FA-10-5-72 (H-9328, 1:10,000)

Computer Boat Sheets FA-10-5A-72 & FA-10-5B-72

OPR-429

Lower Cook Inlet, Alaska

A. PROJECT

This project, OPR-429, is a continuation of previous work by NOAA ships in Kamishak Bay, Alaska. The survey was accomplished in accordance with project instructions, OPR-429-FA-72, Lower Cook Inlet, Alaska, dated 2 March 1972, and with the PMC OPORDER.

B. AREA SURVEYED

The area encompassed by sheet FA-10-5-72 (H-9328, 1972-73) is an irregularly shaped figure south and east of Iniskin and Iliamna Bays in Kamishak Bay, Lower Cook Inlet, Alaska. The approximate co-ordinates of this area are (1) 53°35' 00" N., 153°33'30" W.; (2) 59°35'00" N., 153°24'30" W.; (3) 59°38'15" N., 153°24'30" W.; (4) 59°38'00" N., 153°26'30" W.; (5) 59°38'30" N., 153° 29'00" W.; and (6) 59°38'30" N., 153°33'30" W. However, this entire area was not surveyed due to time limitations. The approximate co-ordinates of the area surveyed are (1) 53°35'00" N., 153°33'30" W.; (2) 59°35'00" N., 153°24'30" W.; (3) 59°36'30" N., 153°24'30" W.; (4) 59°36'30" N., 153°31'45" W.; (5) 59°38'00" N., 153°31'45" W.; and (6) 59°38'00" N., 153°33'30" W. All field work was accomplished between 6 August and 18 August 1972. Junctions were made with contemporary surveys FA-20-2-72 (H-9327, 1972-73) and FA-10-6-72 (H-9329, 1972-73). Detailed prior surveys of the area are H-3566, 1913 at a scale of 1:40,000; H-3567, 1913 at a scale of 1:20,000; and H-3568, 1913 at a scale of 1:80,000, and H-2887 (1907).

C. SOUNDING VESSELS

Two FAIRWEATHER launches were used to accomplish the hydrography. No color differentiation is made in plotting as all data was plotted by the onboard Hydroplot System. The position numbers used by each of the launches follow:

FA-6 (Hydrolog launch)	2001-2851
FA-5	6001-6124

D. SOUNDING EQUIPMENT

Launch FA-6 used a Ross Model 5000 Fathometer, Serial Number 1046. Launch FA-5 used a Raytheon DE-723 fathometer, serial number 558. Depths to 11 fathoms were measured by the Ross fathometer and to 7 fathoms by the Raytheon.

The echo sounding velocity corrections were determined by one Nansen cast and one TDC cast taken in 11 fathoms of water in Kamishak Bay. An abstract showing the results of these casts has been included in this report.

Bar checks were taken daily to determine transducer corrections and instrument error. An abstract of these corrections has been included in this report. See the "Fathometer and Velocity Corrections Report, OPR-429, NOAA Ship FAIRWEATHER, 1972", for more detailed information.

E. SMOOTH SHEET

All data was plotted by the onboard Hydroplot system, discrepancies found and resolved and the data re-plotted. All data has been logged and converted to the Hydroplot/Hydrolog Master Tape Format for smooth sheet processing by the electronic processing facilities at PMC.

F. CONTROL

The Hastings-Raydist DRS system was used exclusively for control. The red Raydist station (rate #1), signal 098, which was installed on Pomeroy Island (FIELD 1972-73) was located by third order triangulation methods at 59°37' 04.75" N., 153°22'24.31" W. The green Raydist station (rate #2), signal 099, was installed on Burr Point on Augustine Island over station BURR, 1913. See the "Horizontal Control Report, OPR-429, NOAA Ship FAIRWEATHER, 1972", and the appended Raydist Note. Calibration of Raydist Navigators was accomplished by 3-point sextant fixes. These fixes were converted to Raydist lane counts by the PDP8/E computer using Program AM560. Calibrations were made prior to beginning and at the day's end. Calibrations were also made during the work day as deemed necessary.

4th Order in 1972 and 3rd Order in 1973.

G. SHORELINE See Review.

Shoreline details were transferred to the boat sheet from T-sheets, T-12322 and T-12324, both of which were at a scale of 1:10,000. However, T-12322 extended west only to 153°31'24" W. and T-12324 extended east only to 153°31'54" W. This left a gap of 30" between the two 1:10,000 T-sheets. The shoreline for this area was taken as closely as possible from T-12316 at a scale of 1:20,000. For development of shoreline details refer to "Field Edit Report for T-12324, OPR-429, NOAA Ship FAIRWEATHER, 1972". Also refer to "Field Edit Report for T-12322 and T-12316, OPR-429, C&GS Ship PATHFINDER, 1969".

H. CROSSLINES

Approximately 8.7%, or 15.7 nautical miles, of the hydrography on sheet FA-10-5-72 was crosslines. The crosslines agreed very closely with the main scheme of hydrography with a maximum variance of .3 fathoms. A major portion of this variance was caused by the heavy swells into which and with which the launches were required to run.

I. JUNCTIONS

Junctions with contemporary survey FA 20-2-72, H-9327(1972-73) showed a maximum variance of .3 fathoms with nearly all the soundings agreeing within .2 fathoms.

J. COMPARISON WITH PRIOR SURVEYS See Review.

Prior surveys of this area are H-3566, 1913, at a scale of 1:40,000; H-3567, 1913, at a scale of 1:20,000; and H-3568, 1913, at a scale of 1:80,000, and H-2697, 1907.

A 4-3/4 fathom sounding at 59°36'14"N, 153°32'29"W was included in the Pre-Survey Review as being doubtful, unsupported, or undeveloped. This survey indicated a depth of 6.1 fathoms at the location. Concur RD.S.

A selection of soundings was also taken from the 1913 surveys and compared to soundings obtained during FA 10-5-72, H-9328(1972-73).

Comparison with H-3566 (1913) shows depth of .1 fathom shallower to .8 fathom deeper than were found during the present survey. The average shows depths about .5 fathom shallower than were found in 1913.

Depths found during the present survey range .2 to 1.3 fathoms shallower than H-3567 (1913) with a mean of about .7 fathoms shallower.

Depths found during the present survey range from .2 to 1.1 fathoms shallower than H-3568 (1913) with a mean of approximately .7 fathoms shallower.

K. COMPARISON WITH CHART See Review.

The largest scale chart of the survey area is 8665, Iliamna Bay, 4th Ed., 13 Jan. 1964, corrected thru Notice to Mariners, 4 April 1970, at a scale of 1:20,000. However, chart 8665 covers only that area west of 153°28'40"W. East of 153°28'40"W, the largest scale chart is 8554, Cook Inlet- Southern Part, 11th Ed., 18 April 1970, corrected thru Notice to Mariners, 16 April 1970, at a scale of 1:200,000.

Comparison with 8665 See Review.

1. On chart 8665 the area ~~east~~ west of Black Reef (app. 59°37'25"N) between 153°31'50"W and 153°32'30"W shows a depth of 6-1/4 to 6-1/2 fathoms. In the same area depths of 5.5 to 6.0 fathoms were found. OK
2. The 4-3/4 fathom sounding 59°36'15"N, 153°32'29"W was not found. Investigation by present survey adequate to disprove the existence of this depth at this location, however a 3.3 fm sdg was found 200 meters north at lat 59°36'37"ons. 153°32.99'
3. The shoal area whose easterly most extremity is shown at 59°35'56"N, 153°32'41"W was found at 59°35'56"N, 153°32'46"W. Concur RDS. OK
4. The area on the chart south of 59°36'00"N and east of 153°30'00"W shows depths of 7 fathoms. Depths found in this area ranged from 6.5 to ~~7.0~~ 7.8 fathoms. OK
5. All other comparisons with chart 8665 showed good agreement with the

depths on the chart usually from 0.0 to 0.3 fathom deeper.

Comparison with Chart 8554- Chart # 8554 is at such a small scale (1:200,000) as to make accurate comparisons difficult. However, several checks were taken as follows: See Review.

1. An 8.0 fm. sounding at 59°35'00"N, 153°28'07"W was found to be 7.1 fathoms. 7.9 fathoms by final reduced soundings.
2. An 8.0 fathom sounding at 59°35'25"N, 153°26'06"W was found to be 7.7 fathoms. 7.9 – 8.2 fathoms by final reduced soundings.
3. An 8.0 fathom sounding at 59° 36'00"N, 153°25'02"W was found to be 7.4 fathoms. 8.0 to 8.2 fathoms by final reduced soundings.
4. A 7.0 fathom sounding at 59°36'~~03~~18"N, 153°27'00"W was found to be 6.8 fathoms. 7.0 to 7.1 fathoms by final reduced soundings.

L. ADEQUACY OF SURVEY

This survey is not complete and is not considered adequate for charting. See Review

M. AIDS TO NAVIGATION

No aids to navigation were located within the limits of this survey.

N. STATISTICS

	FA-6	FA-5	Fairweather
Position numbers:	2001-2851	6001-6124	0792
Miles of soundings:	172.3	20.9	
Total area surveyed:	8 Sq. nm.		
Total number of bottom samples:	~~197~~ 71		1

O. MISCELLANEOUS

There is an apparent discrepancy in the hydro of day 228 (positions 6001-6060) and day 230 (positions 6061-6124) of approximately 0.3 fathom. Cross-lines were not run in the area due to time and weather limitations. Part of discrepancy may be due to the difference between predicted and actual tides. Discrepancies adequately resolved by application of final tide correctors.

P. RECOMMENDATIONS

Since this survey was not completed, it is necessary that the following work be done:

1. Hydrography must be run in the area whose coordinates are (a) 59°36' 30"N, 153°24'30"W; (b) 59°38'15"N, 153°24'30"W; (c) 59°38'00"N, 153° 26'30"W; (d) 59°38'30"N, 153°29'00"W; (e) 59°38'30"N, 153°31'50"W; and (f) 59°36'30"N, 153°31'50"W.
2. All shoreline within the survey area must be run.

3. Further investigation should be made of the 0.6 and 0.7 fathom soundings at 59°36'19"N and 153°32'41"W between positions 2471 and 2472 on day 230.

4. The 5 fathom pre-survey review item located at 59°36'45"N, and 153° 27' 42"W should be investigated. See Review.

5. Investigation of discrepancy cited in sectio O.

Q. REFERENCES TO REPORTS

1. Fathometer and Velocity Correction Report, OPR-429, NOAA Ship FAIRWEATHER.

2. Horizontal Control Report, OPR-429, NOAA Ship FAIRWEATHER, 1972. not available

3. Field Edit Report, for T-12324, OPR-429, NOAA Ship FAIRWEATHER, 1972.

4. Field Edit Report, for T-12322, T-12316, OPR-429, C&GS Ship PATHFINDER, 1972.

Respectfully submitted,

for D E Northrup

Melvyn C. Grunthal
LT, NOAA

TRANSMITTAL SHEET

Field work was examined daily under the supervision of this command. Hydrography is incomplete and additional work is required.

R. H. Houlder
CAPT, NOAA
Cmdg., Ship FAIRWEATHER

TIDE NOTE

Field tide reduction of soundings was based on predicted tides from Iliamna Bay. Predicted tides were interpolated by PDP8/E Computer using Program AM500

Three Bristol Bubbler Tide Gages were installed in the project area. Location and period of operation are as follows:

Site	Location	Period
Ursus Cove	59° 30' 10"N 153° 43' 17"W	54 days 6 June- 7 August
Burr Pt.	59° 25' 06"N 153° 25' 12"W	71 days 13 June-23 August
Iliamna Bay	59° 37' 42"N 153° 36' 48"W	27 days 26 July-22 August

All gages operated on 135°W time for the entire period.

Ursus Cove- Gage S/N 67A16208

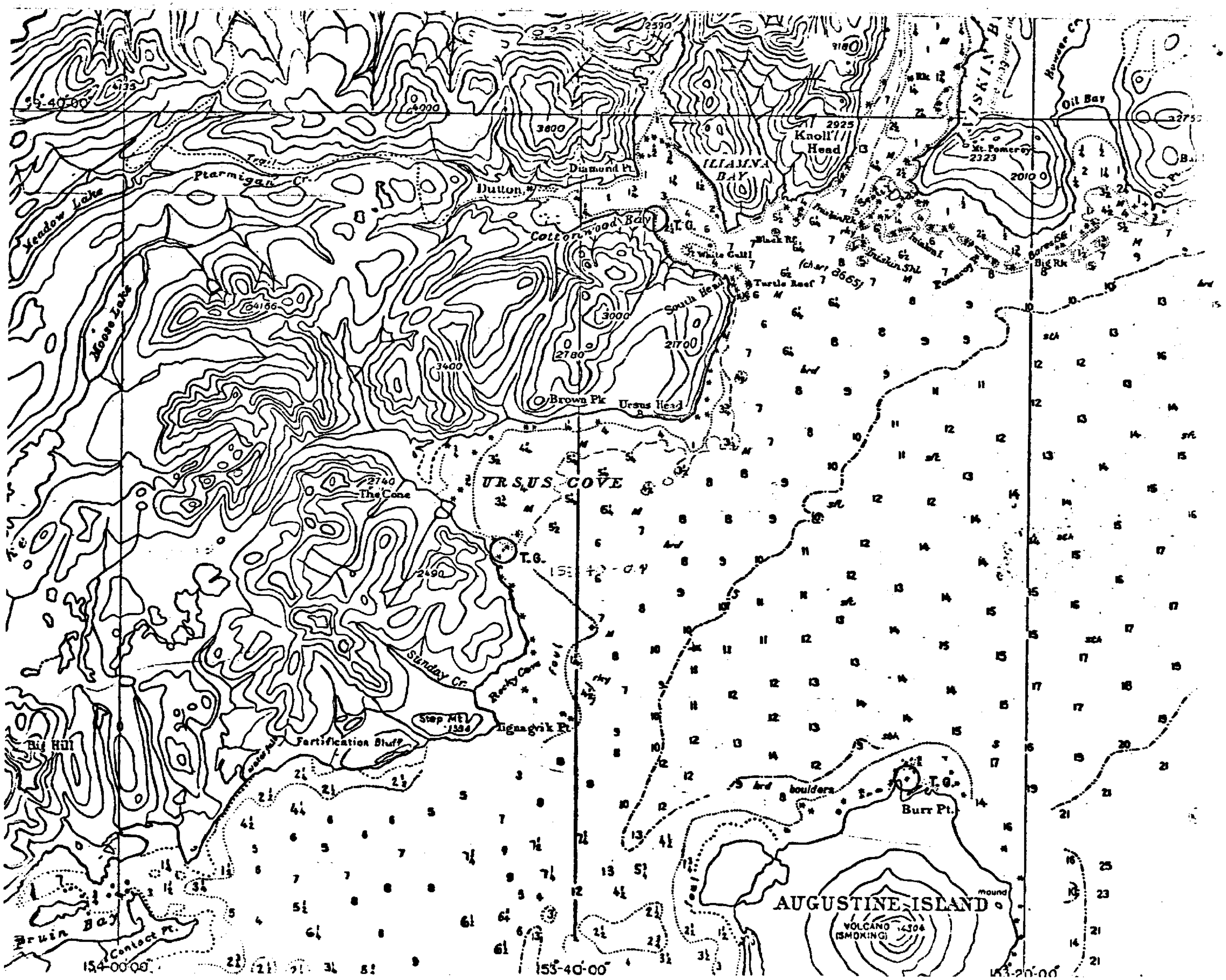
The gage was installed and began operation on 6 June. The staff was installed and levels run to the marks on 12 June, a day of lower tides. On 29 June the staff was discovered gone and a new staff installed at a different location. The marigram read 7.2 ft. greater than the first staff and and 7.4 ft. grater than the new staff. The gage operated extremely well during the entire period it was installed except for an 8 day beginning 11 July when no record was obtained. The gage was removed on 7 August. Levels were not re-run to the staff due to weather and time limitations.

Burr Point- Gage S/N 64A11028

The gage and staff were both installed on 13 June. From that date until 23 August 71 days of continously excellent data gathered. The marigram read 3.9 ft. greater than the staff during the entire period (mean value of all readings).

Iliamna Bay- Gage S/N 68A9337

The gage was installed and began operation on 26 July. The staff was installed the following day. The paper had advanced too fast each timea check was made until 11August when the clock speed adjustment was made. From then until removal on 22 August, an excellent record was obtained. Hourly marks were determined with spacing dividers for the earlier period. The marigram read 7.1 ft. greater than the staff (mean value of all readings).



Meadow Lake
Moose Lake
Ptarmigan Cr.
Trail
Dutton
Diamond Pt.
Cottonwood Bay
T.G.
ILIAMNA BAY
Knoll Head
2925
Mt. Pomeroy
2323
2010
Oil Bay
White Gull I.
Black Rk.
Turtle Reef
South Head
Ursus Head
Brown Pk
Big Rk.
(chart 8665)
URSUS COVE
The Cone
2740
2490
3400
3000
2780
2700
4000
3800
Sunday Cr.
Rocky Cove
foul
Step Mt.
1384
Iignagvik Pt.
Fortification Bluff
Big Hill
Bruin Bay
Contact Pt.
boulders
Burr Pt.
AUGUSTINE ISLAND
VOLCANO 4304
(SMOKING)
mound
154-00-00
153-40-00
153-20-00
59-40-00

VELOCITY CORRECTIONS

Velocity corrections to be applied to the soundings of sheet FA 10-5-72 (H-9328) are as follows:

Corrector	From	To
0.0 fm	0.0 fm	4.5 fm
+0.1	4.6	13.0
+0.2	13.1	16

For substantiation and details see Fathometer and Velocity Corrections Report, OPR-429, NOAA Ship FAIRWEATHER, 1972.

TRANSDUCER & INITIAL CORRECTORS

BOATSHEET FA 10-5-72 LAUNCH FA-6

H-9328

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	TRA CORR.	INITIAL CORR.	TOTAL CORR.
219	FA 10-5A-72	101247	2001	+0.4	0.0	+0.4
219	FA 10-5A-72	145410	2190	+0.4	-0.1	+0.3
219	FA 10-5A-72	150010	2194	+0.4	-0.2	+0.2
220	FA 10-5A-72	085656	2204	+0.4	0.0	+0.4
223	FA 10-5A-72	095949	2416	+0.4	0.0	+0.4
223	FA 10-5A-72	112646	2466	+0.4	+0.2	+0.6
223	FA 10-5A-72	113024	2468	+0.4	+0.1	+0.5
223	FA 10-5A-72	113842	2472	+0.4	+0.2	+0.6
223	FA 10-5A-72	114012	2473	+0.4	0.0	+0.4
223	FA 10-5A-72	115220	2480	+0.4	-0.1	+0.3
223	FA 10-5A-72	115520	2482	+0.4	0.0	+0.4
223	FA 10-5A-72	120502	2485	+0.4	-0.1	+0.3
223	FA 10-5A-72	120802	2487	+0.4	0.0	+0.4
228	FA 10-5A-72	133352	2490	+0.4	0.0	+0.4
230	FA 10-5A-72	091924	2655	+0.4	0.0	+0.4
230	FA 10-5B-72	160328	2805	+0.4	0.0	+0.4
231	FA 10-5A-72	130347	2826	+0.4	0.0	+0.4

TRANSDUCER & INITIAL CORRECTORS

BOATSHEET FA 10-5-72 **LAUNCH** FA-5

H-9328

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	TRA CORR.	INITIAL CORR.	TOTAL CORR.
228	FA 10-5B-72	142400	6001	+0.2	0.0	+0.2
230	FA 10-5B-72	142445	6061	+0.3	0.0	+0.3

SIGNAL LIST

FA 10-5-72, H-9378 (1972-73)

051	59°37'22.75"	153°31'17.98"	Photo ID Manuscript T-12324 ✓
052	59°38'28.12"	153°28'50.32"	Triangulation station "Entrance 1913" ✓
096	59°37'31.43"	153°25'24.94"	Triangulation station "Iniskin 1913" ✓ shown here
098	59°37'04.75"	153°22'24.31"	Red Raydist located by 4th order triang. ✓ unadj. Reestablished by 3rd order methods in 1973 (unadj.)
099	59°25'06.88"	153°25'12.56"	Green Raydist Triang. Sta. "Burr 1913" ✓ adj.

RAYDIST NOTE See Raydist Note for 1973 work.

Hastings Raydist electronic positioning equipment, operating in range-range mode, was used to control hydrography on sheets FA 20-2-72 (H-9327 (1972-73)) and FA 10-5-72 (H-9328 (1972-73)). The "green" station was located over triangulation station "BURR 1913" at 59° 25' 06.88" N, 153° 25' 12.56" W throughout the project. The "red" station was located, by fourth order triangulation, over topographic station "FIERCE 1972" on Pomeroy Island at 59° 37' 04.75" N, 153° 22' 24.31" W between 07 June and 08 July and again between 31 July and 20 August. Between 09 July and 27 July the "red" station was located, by third order triangulation, over topographic station "MAX 1972" at 59° 27' 52.32" N, 153° 42' 06.75" W.

unadj. 1972 work on H-9328.

unadj., not used for H-9328 (1972-73)

Base station antennas consisted of 3 sections of 10' triangular aluminum tower sections and a telescoping 30' whip. Ground planes were twelve 50' sections of 24" wide 1" mesh "chicken wire" with copper wire connectors radiating from the antenna base plate. Power to the base stations was provided by eight 12v batteries connected in series-parallel to yeild 24 volt supply. Remote on off switches were utilized to prolong battery life. Batteries were recharged aboard ship and base station batteries replaced after approximately 10 days of operation.

Launches were equipped with Raydist transmitters, navigators, 12' fiber glass whip antennas, and stripchart recorders. Strip chart records were monitored and annotated at all times between beginning and end of day calibrations. Calibration of Raydist navigators was accomplished by three-point fixes with check angeles. Generally all calibration signals were situated over existing triangulation stations, however, in the vicinity of Iliamna Bay a photo identified signal was used as a check angle signal. Sextant fixes were converted to Raydist lane count by PDP8/e computer using program AM-560. A calibration buoy was established in the vicinity of Rocky Cove to facilitate calibration and allow whole lane calibration in periods of restricted visibility.

Raydist rate calibration was generally made such that the corrector would le less than 0.10 lane. Daily correctors were determined by averaging the beginning and end of day calibrations. Apperent phase shifts were particularly troublesome to launch FA-6, the hydrolog equipped launch, producing some rather high rate correctors. No definitive explanation for the problem could be determined. All lane jumps were detected and correctors applied.

General performance of the Raydist system was good, however considerable interference was experienced in the "green" station at Burr Point. It is strongly suspected that a radio beacon type transmitter very near the frequency of the Raydist and located on the north side of Augustine Island was the cause of the interference problem. No contact was made with the operators of this station but its existence was reported by researchers camped on the island for much of the summer. As in the previous project, it was necessary to detune the Raydist transmitter aboard FA-6 to prevent interference with the onboard computer.

Raydist equipment used during the project is as follows:

Base Stations- Model AA-60

Unit	Green	Red
S/N	15	14
Frequency	1653.425 Khz	1653.015 Khz

Mobile Transmitters- Model TA-96

S/N	22	34	20
Frequency	3306.500 Khz	3306.400 Khz	3306.465 Khz

Mobile Navigators- Model ZA-67A

S/N	47	54	26
Freq. Filter Red	470 Hz	370 Hz	435 Hz
Freq. Filter Grn	350 Hz	450 Hz	385 Hz

Lane Width- 45.315 meters

An abstract of daily Raydist rate correctors is included herewith. On any day when the corrector on either rate, for any portion of the day, exceeded 0.4 lanes a calibration record in included and the strip chart for that day is included in the submitted field data.

ELECTRONIC CORRECTORS

BOATSHEET FA 10-5-72 LAUNCH FA-6

H-9328

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	PATTERN I CORRECTOR	PATTERN II CORRECTOR
219	FA 10-5A-72	101247	2001	-0.08	0.00
220	FA 10-5A-72	085656	2204	-0.02	-0.07
220	FA 10-5A-72	143624	2400	-0.02	-0.35
223	FA 10-5A-72	095949	2416	-0.53	-0.12
228	FA 10-5A-72	133352	2490	+0.38	-0.29
230	FA 10-5A-72	091924	2655	+0.15	+0.12
230	FA 10-5B-72	160328	2805	+0.15	+0.12
231	FA 10-5A-72	130347	2826	+0.02	+0.04

ELECTRONIC CORRECTORS

BOATSHEET FA 10-5-72 LAUNCH FA-5

H-9328

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	PATTERN I CORRECTOR	PATTERN II CORRECTOR
228	FA 10-5B-72	142400	6001	+0.10	+0.08
230	FA 105B-72	142445	6061	-0.13	-0.20

SINGLE INDICATOR
TRA CORRECTION/TABLE INDICATOR (TC/TI)
PA 10-5B-72 (A9328, 1972-73) LAUNCH FA-5

1972
Work

```
142400 0 0002 0002 228 000000 000000
142445 0 0003 0002 230 000000 000000
164645 0 0003
```

SINGLE INDICATOR
TRA CORRECTION/TABLE INDICATOR (TC/TI)
FA10-5A-72 LAUNCH FA-6
(A-9328, 1572-73)

```
101247  0  0004  0002  219  000000  000000
145410  0  0003
150010  0  0002
085656  0  0004  0002  220  000000  000000
095949  0  0004  0002  223  000000  000000
112646  0  0006
113024  0  0005
113842  0  0006
114012  0  0004
115220  0  0003
115520  0  0004
120502  0  0003
120802  0  0004
133352  0  0004  0002  228  000000  000000
091924  0  0004  0002  230  000000  000000
130347  0  0004  0002  231  000000  000000
160554  0  0004
```

1972
work

3/22/73

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): Iliamna Bay

Period: July 27 - August 22, 1972

HYDROGRAPHIC SHEET: H-9329 H-9328 H-9327

OPR: 429

Locality: Kamishak Bay, Alaska

Plane of reference (mean lower low water): 6.4 ft.

Height of Mean High Water above Plane of Reference is 13.4 ft.

Remarks: Zoning requirements: 1. Recommend use of Iliamna Bay hourly heights direct in Iliamna Bay and south to Ursus Head.

Robert A. Cummings

Chief, Tides Branch

FORM C&GS-537 (5-66)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.
H-9328

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

FIELD NO.
FA 10-5-72

State: Alaska

General locality: ~~Lower~~ Cook Inlet

Locality: ~~Kamishak Bay~~ Approaches to Iniskin Bay (see other title sheet)

Scale: 1:10,000 Date of survey: 13 June- 1 August 1973

Instructions dated: 1 February 1973 Project No.: OPR-429

Vessel: NOAA Ship Fairweather (MSS 20)

Chief of party: Charles A. Burroughs, Cdr., NOAA, Comdg.

Surveyed by: Cdr. F.L.Jefferies, Lcdr. F.P.Rossi , Lcdr. J.C.Albright, Lt. R.D. Hopkins Lt(jg). A.J.Potok, Lt(jg) W.A. Wert, Ltjg T.E. DeFoor, Ens. R.C. Pate, Ens. J.A. Murphy, Ens. A.D. Anderson, Ens. A.M. Snella

Soundings taken by echo sounder, hand lead, pole: Echo Sounder

Graphic record scaled by: Ship's Personnel; ~~PDPS/E~~

Graphic record checked by: Ship's Personnel

Protracted by: Not Applicable Automated plot by: ~~PDPS/E~~

Soundings penciled by: ~~PDPS/E~~

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

REMARKS:

USCOMM-DC 37009-P66

DESCRIPTIVE REPORT
to Accompany

Hydrographic Survey FA 10-5-72 (H-9328), 1:10,000)
Computer Boat Sheets FA 10-5A-72 & FA 10-5B-72

OPR-429 Lower Cook Inlet, Alaska

NOAA Ship FAIRWEATHER
Cdr. Charles A. Burroughs, Cmdg.

A. PROJECT

This project, OPR-429, is a continuation of previous work done by NOAA Ships Pathfinder and FAIRWEATHER in Kamishak Bay, Alaska. The survey was accomplished in accordance with project instructions OPR-429 FA-73, Lower Cook Inlet, Alaska, dated 1 February 1973 and the Pacific Marine Center OPORDER. supplemented by Change No1, Project Instructions OPR-429-FA-73.

B. AREA SURVEYED

The area encompassed by sheet FA 10-5-72 (H-9328 (1972-73)) is an irregularly shaped figure south and east of Iniskin and Iliamna Bays in Kamishak Bay, Lower Cook Inlet, Alaska. The approximate coordinates of this area are (1) 59° 35' 00" N., 153° 33' 30" W.; (2) 59° 35' 00"N., 153°24'30"W., (3) 59°38'15"N., 153°24'30"W.; (4) 59°38'00"N., 153° 26' 30" W.; (5) 59°38'30"N., 153°29'00"W., and (6) 59°38'30"N., 153°33' 33"W. Also an additional area with an approximate east boundary of the 153°21'45"W Meridian was added for clarity purposes.

Much of this area was surveyed last season (1972) by the NOAA Ship FAIRWEATHER. The approximate coordinates of the area surveyed in 1972 are (1)59°35'00"N., 153°33'30"w.; (2) 59°35'00"N., 153°24'30"W.; (3) 59°36'30"N., 153°24'30"W.; (4) 59°36'30"N., 153°31'45"W.; (5) 59° 38'00"N., 153°31'45"W.; and (6) 59°38'00"N., 153°33'30"W. All work was accomplished between 6 August and 18 August 1972 and all information needed to supplement the smooth sheet and sounding records were included in the Descriptive Report submitted at the completion of the 1972 Lower Cook Inlet project.

The approximate boundaries of the area surveyed under the 1973 OPR-429 project instructions are (1) on the west by the 153°31'45"W Meridian; (2) on the east by the 153°21'45" Meridian; (3) and on the south by the 59°36'30"N. Parallel; and (4) on the north by the 59°38'15"N. Parallel plus (5) all inshore lines on the entire FA 10-5-72 (H-9328 (1972-73)) Boat Sheet. The rest of this Descriptive Report will be concerned only with this area.

All field work was accomplished between 13 June and 1 August 1973. Junctions were made with contemporary surveys of 1972, FA 10-6A-72 (H-9329 (1972-73)); of 1973, FA 20-1-73 (H-9329 (1973)) and ; of 1972, PF 10-1-69. (H-9071 (1969))

Detailed prior surveys of the area are H-3566 performed in 1913 at a scale of 1:40,000; H-3567 in 1913 at a scale of 1:40:000, and H-3568 surveyed in 1913 at a scale of 1:80,000.

C. SOUNDING VESSELS

Three FAIRWEATHER launches were used to accomplish the hydrography. No color differentiation was made in plotting as all data was plotted bt the on-board Hydroplot System. The position numbers used at the "type of hydro" for each of the launches used are as follows:

Launch #	Type of hydro	Position #
FA-3	DP's, BS and visual hydro.	2001-2493 3001-3067
FA-4	" " "	9001-9242, 8001-8174 (visual)
FA-5	Raydist hydro.	4106-5057 5063-5373
FA-5	Visual hydro .	4001-4105

D. SOUNDING EQUIPMENT

Ross Fineline fathometers were used in all launches in depths 0 fathoms to 15 fathoms.

Launch #	Ross Model #	Serial #
FA-3	200A	204065
FA-4	400A	None
FA-5	5000	1036

Sounding Velocity Correctors for sheet FA 10-5-72 were less than 1/2 of 1% of the depth; therefore, zero correctors were applied. Sounding Velocity Corrections were determined by two Martek Casts taken to depths of 14 and 15 meters on 31 May and 3 June. A Velocity Correction Abstract is appended hereto. For details and substantiation, see Fathometer and Velocity Correction Report, OPR-429, NOAA Ship FAIRWEATHER, 1973.

TRA and instrument error corrections were determined by Bar Checks or Leadline Comparisons. All hydrography was run with initial set at zero. An Abstract of the daily TRA and instrument error corrections is appended hereto.

All fathometers performed satisfactorily throughout the survey.

E. SMOOTH SHEET

All data was plotted utilizing the hydroplot system, discrepancies were located and rectified and the data replotted in a final boatsheet form. All data has been logged in the hydroplot master data tape format for smooth plotting by PMC.

F. CONTROL

The approximate area north of Parallel 56°36'50"N. and east of Meridian 153°27'00"W. was surveyed using visual control. Signals for visual control were located either by third order triangulation stations or over photo identified points. Photo identification was made using 1:10,000 ratio prints, plotted on manuscript T-12317 and GP's were determined from the plot. Signal locations were plotted on the 1:10,000 boatsheet using a PDP8/E computer.
T-12317 is a 1:20,000 scale manuscript.

The remainder of the survey area was controled by Hastings-Raydist electronics positioning equipment. Raydist Base Stations were installed on third order triangulation stations located at MOUND 1913 (ecc.), SOUTHHEAD 1907(ecc.), and FIERCE 1972. See the "Horizontal Control Report, OPR-429, NOAA Ship FAIRWEATHER, 1973" and the appended Raydist Note. Calibration of Raydist Navigators was accomplished by three-point sextant fixes. These fixes were converted into Raydist lane counts by the PDP8/E Computer using program AM560. Calibrations were made prior to beginning of hydrography and at day's end.
Fierce was located by third order methods in 1973.

G. SHORELINE See Review.

Shoreline details were transfered to the Boat Sheet from incomplete manuscript T-12317, which is at a 1:20,000 scale. See "Field Edit Report, OPR-429, NOAA Ship FAIRWEATHER, 1973". For further development of shoreline details refer to "Field Edit Report, for T-12324, OPR-429, NOAA Ship FAIRWEATHER, 1972". Also refer to "Field Edit Report for T-12322 and T-12316, OPR-429, C&GS Ship PATHFINDER, 1969".

H. CROSSLINES

Approximately 11.6% or about 35.0 nautical miles of the hydrography on sheet FA 10-5-72, H-9328(1972-73) was crosslines. The average agreement was within 0.1 fathoms. Disregarding areas with very steep or irregular bottom configurations the maximum variance with the scheme was 0.3 fathoms. The disagreements due to precipitous bottom configuration were checked against fathograms and determined to be accurate within the limitations of the survey.

I. JUNCTIONS See Review.

Junctions with survey FA 20-1-73, H-9379(1973) on the average, agreed within 0.1 fathoms with a maximum variance of 0.2 fathoms. The few junctions with the 1973 survey of FA 10-6A-72, H-9329(1972-73) agreed excellently. The 1972 Survey of PF 10-1-69, H-9071(1969) agreed on the average within 0.2 fathoms with a maximum variance of 0.5 fathoms, with the PF 10-1-69, H-9071(1969) survey usually the deeper of the soundings. The portion of FA 10-5-72, H-9328(1972-73) run in 1972 agreed with the 1973 survey with an average variance of 0.1 fathoms and a maximum variance of 0.3 fathoms.

J. COMPARISON WITH PRIOR SURVEYS See Review.

The prior survey of the area is H-3567, 1913 at a scale of 1:20,000.

Comparison of the survey H-3567 with FA 10-5-72 (H-9328) resulted in a variance of soundings of only ± 0.2 fathoms

A pre-survey review item (an unsupported depth of 5 fathoms) reported at 59°36'45"N, 153°27'40"W., was surveyed revealing a flat bottom in this area at 6.8 fathoms. However, slightly to the NE at location 59°37'05"N, 153°27'00"W., a shoal of 4.3 to 4.6 fathoms was found. This shoal was present on the prior survey.

K. COMPARISON WITH CHARTS See Review.

The largest scale chart of the survey area is 8665, Iliamna Bay, 4th Ed., 13 Jan. 1964, corrected thru Notice To Mariners, 18 Dec. 1973, at a scale of 1:20,000. However, chart 8665 covers only that area west of parallel 153°28'40"W. East of parallel 153°28' 40"W., the largest scale chart is 8544, Cook Inlet-Southern Part, 12th Ed., 13 May 1972, corrected thru Notice To Mariners, 2 June 1973, at a scale of 1:200,000.

Comparison with chart 8665
On chart 8665, the soundings are only plotted to within a quarter of a fathom. And even with that, the compared depth agrees within ± 0.3 fathoms of those from this survey.

Comparison with chart 8554
Chart 8554 is at such a small scale (1:200,000) as to make accurate comparison difficult. Also, the depths are only printed to within a half fathom. For these reasons it is considered that a comparison with chart 8554 would be of little or no use.

L. ADEQUACY OF THE SURVEY See Review.

This survey is complete and considered adequate for charting purposes.

M. AIDS TO NAVIGATION

No aids to navigation are located within the limits of this survey.

N. STATISTICS

Launch No.	Miles of sounding	Sq. miles of soundings	No. of bottom samples taken	No. of positions
FA-3	68.4	- - - -	0	562
FA-4	36.8	- - - -	29	345 ~~243~~
FA-5	191.2	- - - -	0	1369
Total	296.4	16	29	2174

O. MISCELLANEOUS

None

P. RECOMMENDATIONS

There ~~is~~ are no further recommendations at this time.

Q. REFERENCES TO REPORTS

1) Fathometer and Velocity Correction Report, OPR-429, Lower Cook Inlet, Alaska, NOAA Ship FAIRWEATHER, 1973.

2) Horizontal Control Report, OPR-429, Lower Cook Inlet, Alaska, NOAA Ship FAIRWEATHER, 1973.

3) Field Edit Report, OPR-429, Lower Cook Inlet, Alaska, NOAA Ship FAIRWEATHER, 1973

4) Field Edit Report for T-12324, OPR-429, Lower Cook Inlet, Alaska, NOAA Ship FAIRWEATHER, 1972.

5) Field Edit Report for T-12322 ans T-12316, OPR-429, Lower Cook Inlet, Alaska, C&GS Ship PATHFINDER, 1969.

Respectfully submitted,

Frank P. Rossi

for Thomas E. DeFoor
Lt(jg), NOAA

TRANSMITTAL SHEET

Field work was examined daily under the supervision of this command. Hydrography is considered complete and no additional work is considered necessary.

Charles A. Burroughs
Cdr., NOAA
Cmdg., Ship Fairweather

Tide Note

Field tide reduction of soundings was based on predicted tides from Illiamna Bay which were interpolated by PDP-8/E computer using AM 500. The standard gage at Seldovia on which Illiamna Bay is referenced was tended by the NOAA Ship McArthur operating in the same area during OPR-429-FA-73.

Three Bristol Bubbler tide gages were installed in the project area. Location and period of operation are as follows:

Site	Location	Period
Oil Bay	59° 38' 00" N 153° 14' 50" W	64 Days 7 June - 10 August
Burr Point	59° 25' 00" N 153° 25' 12" W	69 Days 5 June - 16 August
Illiamna Bay	59° 37' 42" N 153° 36' 48" W	29 Days 25 May - 1 July

Illiamna Bay S/N 67A16205

The gage and staff were installed and began operation on 25 May. There were two periods during the time of operation when a record was not obtained. From 29 May to 31 May a broken orifice hose ruined the trace and from 29 June to 1 July the marigram paper slipped off the drive sprockets leaving a very poor trace. The gage was removed on 1 July. The levels indicated that the staff had risen 0.266 ft. during the period of operation. Inspection of the tide record and the staff showed that this was possible. A total of 29 days of data was gathered. The marigram read 9.0 ft. greater than the staff.

Burr Point S/N 68A14940

The gage and staff were installed on 5 June. From that date until 16 August, 69 days of excellent data was obtained, with the exception of a 3-day period starting 14 June when no record was obtained due to the lack of paper. The marigram read 8.4 ft. greater than the staff.

Oil Bay S/N 64A11030

The gage and staff were installed and began operation on 6 June. The levels were not run until the following day in order to give the new bench marks time to set. From that date until 10 August, 64 days of continuous excellent data was obtained. The marigram read 3.9 ft. greater than the staff. There was a problem keeping a staff at this site due to heavy surf action. Three separate staffs were installed and leveled. The second was installed on 3 July and was 8.3 ft. less than the marigram. The third was installed on 1 August and was 9.1 ft. less than the marigram.

RAYDIST NOTE - OPR 429

Raydist electronic positioning equipment, operating range-range mode, was used to control hydrography on sheets FA-40-1-73 and FA-20-1-73 and portions of sheets FA-10-5A-72 and FA-10-5B-72. H-9328 (1972-73).

LOCATION:

Two triangulation stations were occupied eccentrically as base stations. "MOUND 1913 ecc" located on Augustine Island at latitude 59°22'16.72"N, and longitude 153°21'10.17"W. "SOUTH HEAD 1907 ecc" located at the southern entrance to Illiamna Bay at latitude 59°36'23.37"N, and longitude 153°33'32.00"W. A third base station was established over topographic station "FIERCE 1972" on Pomeroy Island at latitude 59°37'04.75"N, and longitude 153°22'24.3[illegible]"W. Both eccentrically located base stations were established by occupying the triangulation station, turning an angle, and taping a short distance using third-order accuracy.

BASE STATIONS:

Base stations "FIERCE 1972" and "SOUTH HEAD 1907 ecc" consisted of three sections of 10-ft. triangular aluminum towers with a 30-ft. telescoping whip. Station "MOUND 1913 ecc" used only two sections of tower and a whip. Ground planes were twelve 50-ft. sections of 24-in. wide 1-in. mesh chicken wire with copper wire connectors radiating from the antenna base plate. Power to the base stations was provided by eight 12-volt batteries connected in series-parallel to yeild 24-volt supply. Remote on-off switches were utilized to prolong battery life. Batteries were recharged aboard ship and base station batteries replaced after approximately 70 hours of operation.

LAUNCHES:

All launches were equipped with Raydist transmitters, navigators, 12-ft. fiberglass whip antennas and strip chart recorders. Strip chart records were annotated at all times between beginning and end of day calibrations.

CALIBRATION:

Calibration of Raydist navigators was accomplished by three-point sextant fixes. All calibration signals were situated over triangulation stations. Sextant fix positions were coverted to Raydist lane count by PDP/8e computer using program AM-560. A calibration buoy was established approximately 2 miles south of Oil Point to facilitate calibration and allow whole lane calibration during periods of restricted visibility.

PATTERN CORRECTORS:

Daily correctors were determined by averaging the beginning and end of day calibrations. Occasional phase shifts and lane jumps were encountered and were either explained or accurately defined on strip chart records with respect to time and amount. When lane jumps or phase shifts could not be accurately determined, the data was not accepted and was rejected.

PERFORMANCE:

Raydist performance during this project was not very favorable. Upon first arriving on the working grounds, a geophysical exploration ship, "SEASCOPE", was using their Raydist system in the area. Their system over-powered ours and delayed Raydist operations for the first 23 days. Launch FA-5 and the ship worked well, but difficulties were encountered with FA-6 and FA-3.

Below is an outline of the problems:

1) During 4 days of operation, the navigational interface, on FA-6, produced frequent counting errors. Random losses of 0.2 and 0.3 lanes were detected and correctors applied to the Hydroplot Controller as needed. In one case, the accumulative correctors amounted to 3.2 lanes.

2) Navigator (serial #26) and Transmitter (serial #20) malfunctioned, cold solder joints in the cable links, and salt water in the antenna coupler caused frequent loss of the slave signal. Whenever loss of the signal and resulting lane jumps were positively ~~resolved~~, hydro was terminated and the system recalibrated. This accounted for over 50% loss in the hydro time of launch FA-6.

Attempts to resolve these problems resulted in constant juggling of navigators and transmitters between launches. Abstract of equipment activity is included herewith.

LANE WIDTH:

Lane width is 45.315 meters.

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : FA-5 SHEET : FA-10-5A-72 H-0328 (1972-73)

TIME	DAY	PATTERN 1	PATTERN 2
121326	190	+00003	-00010
090409	192	-00008	-00014

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : FA-5 SHEET : FA-10-5B-72 (N9328, 1972-73)

TIME	DAY	PATTERN 1	PATTERN 2
114343	169	-00001	+00003
094533	170	-00012	-00020
145952	172	-00006	+00003
124159	176	-00024	-00002
183124		-00002	+00003
095940	180	+00025	+00015
091613	182	+00000	+00000
093949	183	-00003	+00003
125659	190	+00003	-00010
132823	191	+00008	-00002
152410		+00002	-00010
100730	192	-00008	-00014

SOUND VELOCITY CORRECTOR ABSTRACT

Zero sound velocity correctors are to be applied to all soundings on sheets

FA 10-5-72 (H-9328) and
FA 10-6-72 (H-9329).

TRANSDUCER & INITIAL CORRECTORS

BOATSHEET FA10-5A-72 LAUNCH FA-5

H-9328 (1972-73)

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	TRA CORR.	INITIAL CORR.	TOTAL CORR.
190	FA10-5A-72	121326	5063	+0.4	0.0	+0.4
192	"	090409	5175	NO	BAR CHECK	

TRANSDUCER & INITIAL CORRECTORS

BOATSHEET FA10-5B-72 LAUNCH FA-3

H-9328 (1972-73)

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	TRA CORR.	INITIAL CORR.	TOTAL CORR.
164	FA10-58-72	133600	3001	+0.3	0.0	+0.3
166	"	094900	2007	+0.3	0.0	+0.3
168	"	105330	2073	+0.2	0.0	+0.2
169	"	130330	2116	+0.3	0.0	+0.3
172	"	142000	2158	+0.3	0.0	+0.3
172	"	144815	2169	+0.3	-0.1	+0.2
172	"	145900	2171	+0.3	0.0	+0.3
172	"	153700	2188	+0.3	+0.1	+0.4
172	"	155130	2194	+0.3	0.0	+0.3
172	"	163300	2206	+0.3	+0.1	+0.4
177	"	084400	2214	+0.3	+0.1	+0.4
177	"	084800	2218	+0.3	-0.1	+0.2
177	"	085200	2220	+0.3	0.0	+0.3
177	"	094800	2232	+0.3	-0.1	+0.2
177	"	095630	2234	+0.3	0.0	+0.3
179	"	105030	2337	+0.3	0.0	+0.3
190	"	114300	2431	+0.3	0.0	+0.3

TRANSDUCER & INITIAL CORRECTORS

BOATSHEET FA10-5B-72 LAUNCH FA-4

H-9320 (1972-73)

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	TRA CORR.	INITIAL CORR.	TOTAL CORR.
191	FA10-5B-72	092500	8001	+0.4	0.0	+0.4
197	"	103600	8098	+0.4	0.0	+0.4
198	"	131300	8139	+0.4	0.0	+0.4
199	"	132630	9001	+0.2	0.0	+0.2
205	"	090100	9043	+0.4	0.0	+0.4
212	"	142400	9130	+0.4	+0.2	+0.6
213	"	150400	9180	+0.4	+0.0	+0.4

TRANSDUCER & INITIAL CORRECTORS

BOATSHEET FA10-5B-72 LAUNCH FA-5

H-9320 (1972-73)

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	TRA CORR.	INITIAL CORR.	TOTAL CORR.
165	FA10-5B-72	105729	4002	+0.4	0.0	+0.4
169	"	114343	4106	+0.4	0.0	+0.4
170	"	094533	4241	+0.4	0.0	+0.4
172	"	145952	4409	NO BAR CHECK		
178	"	124159	4467	NO BAR CHECK		
180	"	095940	4659	NO BAR CHECK		
182	"	091613	4791	+0.4	0.0	+0.4
183	"	093949	4830	+0.4	0.0	+0.4
190	"	125659	5079	+0.4	0.0	+0.4
0	"	132823	5131	NO BAR CHECK		
192	"	100730	5217	NO BAR CHECK		

SIGNAL LIST

FA-10-5-72
H-9328 (1972-73)

#	Latitude	Longitude	Origin of station
002	59°38'28.12"N	153°28'50.32"W	Triangulation Station - Entrance 1913
003	59°37'31.43"N	153°25'24.94"W	" " - Iniskin 1913
004	59°37'04.75"N	153°22'24.32"W	" " - Fierce 1972-73
007	59°22'16.72"N	153°21'10.17"W	" " - Mound 1913 (ecc.)
011	59°36'23.37"N	153°33'32.00"W	" " - South head ~~09~~ 1907 (ecc.)
059	59°37'22.75"N	153°31'17.98"W	Photo Identified T-12317
300	59°37'55.58"N	153°26'27.17"W	" " "
301	59°37'55.58"N	153°26'00.00"W	" " "
302	59°38'08.40"N	153°26'11.80"W	" " "
303	59°38'11.79"N	153°25'49.13"W	" " "
304	59°38'26.04"N	153°25'49.01"W	" " "
305	59°38'33.54"N	153°25'21.38"W	" " "
306	59°38'18.03"N	153°24'54.24"W	" " "
307	59°38'15.51"N	153°24'34.14"W	" " "
308	59°37'29.08"N	153°25'34.18"W	" " "
309	59°37'31.02"N	153°25'19.52"W	" " "
310	59°37'31.99"N	153°24'25.51"W	" " "
311	59°37'05.04"N	153°22'14.80"W	" " "
312	59°37'01.29"N	153°22'05.61"W	" " "
313	59°38'22.88"N	153°23'58.58"W	" " "
314	59°38'22.13"N	153°23'21.06"W	" " "
315	59°38'09.69"N	153°22'34.94"W	" " "
316	59°37'53.77"N	153°22'03.06"W	" " "
317	59°37'52.19"N	153°21'46.56"W	" " "
318	59°37'33.44"N	153°21'07.65"W	" " "
319	59°37'25.01"N	153°20'40.18"W	" " "
320	59°37'08.92"N	153°22'29.98"W	" " "
321	59°37'21.33"N	153°20'21.68"W	" " "
322	59°37'26.82"N	153°19'40.12"W	" " "

H-9328
B.S.

142000	4	0077	9177	213	050540	057590	0303	314	004
143700	4	0069	9178	213	058560	119420	0003	307	321
145100	4	0019	9179	213	100240	124350	0003	315	319
160000	4	0048	9194	213	066380	126430	0311	003	303
162500	4	0047	9195	213	078530	090560	0300	307	004
173000	4	0088	9207	213	078000	059140	0002	003	004
104500	4	0000	9226	214	047410	035240	0011	002	003
105500	4	0000	9227	214	063100	063100	0011	002	003
110500	4	0000	9228	214	083380	069540	0011	002	003
111000	4	0000	9229	214	105590	059290	0011	002	003
113000	4	0000	9230	214	131240	041580	0011	002	003
114000	4	0000	9231	214	032240	009020	0002	003	004
115000	4	0000	9232	214	027500	006020	0002	003	004
120500	4	0000	9233	214	026340	008140	0002	301	003
140000	4	0000	9234	214	063080	053300	0002	301	004
140500	4	0000	9235	214	065180	035560	0002	301	004
143000	4	0000	9236	214	037320	020500	0002	301	004
144000	4	0000	9237	214	023140	014070	0002	301	004
144500	4	0000	9238	214	032040	015410	0002	301	004
145500	4	0000	9239	214	057180	020040	0002	301	004
151000	4	0000	9240	214	090120	026140	0002	301	004
151500	4	0000	9241	214	098120	038490	0002	301	004
152000	4	0000	9242	214	038440	021310	0302	303	003
153000	4	0000	9243	214	013520	014250	0302	303	003
153500	4	0000	9244	214	087020	012000	0002	300	003
154000	4	0000	9245	214	034350	009250	0002	300	003
155500	4	0000	9246	214	011240	117120	0300	004	011
160500	4	0000	9247	214	124080	035410	0002	305	003

BOTTOM SAMPLES
ELECTRONIC MASTER TAPE PRINTOUT
FA 10-5A-72 H9328 (1972-73)
SHIP FAIRWEATHER & FA-6
DAYS 222; 231
POS. # 00792; 02841 - 02851

AUG 27 1973

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2020 72 222 1 01
103000 0000 0000 000000 000000
103000 00100 00792 007365 042299
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gy M fne S Fairweather

```
2026 72 231 1 01
140534 0000 0000 000000 000000
140534 00065 02841 022306 044939
143007 00071 02842 019667 043917
144301 00074 02843 017042 043325
145529 00079 02844 014637 042845
150620 00083 02845 012075 042526
151518 00087 02846 010049 042374
152859 00091 02847 008233 042393
154421 00082 02848 006172 045031
155250 00081 02849 008575 045134
155930 00077 02850 010901 045334
160554 00075 02851 013584 045589
```
gy fne S, gy M " " " FH 2

BOTTOM SPEEDS

ELECTRONIC CORRECTOR TAPE PRINTOUT

FA 10 - SA-7V H 9328 (1972-73)

SHIP FAIRWEATHER; FA-6

DAYS: 222; 231

AUG 2 [illegible]

```
103000 0 0026 2020 222 000000 000000
235959 1 9999
140534 0 0000 2026 231 000002 000004 FA-6
235959 1 9999
```

PARAMETER TAPE PRINTOUT

FA 10-5-72
H-9328 (1972-73)

Parameter tape for field sheet FA 10-5A-72

FEST=105000
CLAT=6486000
CMER=152/35/0
GRID=30
PLSCL=10000
PLAT=59/33/33
PLON=153/34/48
S1LAT=59/37/04.75
S1LON=153/22/24.32
S2LAT=59/22/16.72
S2LON=153/21/10.17
Q=3306.45
VESNO=202X
YR=73

Parameter tape for field sheet FA 10-5B-72

FEST=105000
CLAT=6486000
CMER=152/35/0
GRID=30
PLSCL=10000
PLAT=59/35/45
PLON=153/34/48
S1LAT=59/37/04.75
S1LON=153/22/24.32
S2LAT= 59/22/16.72
S2LON=153/21/10.17
Q=3306.465
VESNO=2025
YR=73

POLYCONIC PROJECTION 1812/72

(1) Project No. OPR 429

(4) Requested by Processing to combine 1972 & 1973 Field Work (Nick)

(2) H No. 9328

(5) Ship or Office

(3) Field No. FA-10-5-72

(6) Date Required 12/27/73

(7) Visual [ ] Pt.(0) or Fathoms (1) [1] (8) Electronic [XXX] (fill out form #3)

(10) XKN (SP 5) Distance from CMER to East Edge (NYX = 1) or West Edge (NYX = 0). (Origin) 7536.48 (391) Meters

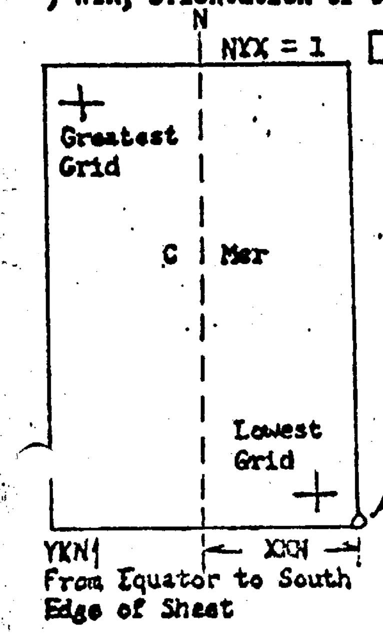
(11) YKN (SP 241) Distance from Equator to South Edge of Sheet. (Origin) 6,606,052.359 Meters

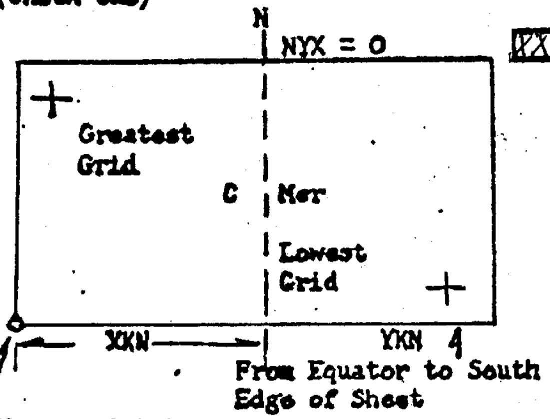
(12) Central Meridian 153 ° 27 ' 00 "

(13) Survey Scale 1: 10,000

(14) Size of Sheet (Check one) 36x60 [XX] 42x60 [ ]

(15) NYX, Orientation of sheet (Check one)





(9) Plotter Origin (Corner of Sheet)

Latitude 59 ° 34 ' 15 "

Longitude 153 ° 35 ' 00 "

Grid Limits

(16) Greatest Latitude 59 ° 39 ' 00 " (Projection Line Interval Page 4 Hydro Manual)

(17) Lowest Latitude 59 ° 34 ' 30 "

(18) Difference 4 ' 30 " (19) 0 ' 30 "

(20) 9 YSN

(21) Greatest Longitude 153 ° 39 ' 30 "

(22) Lowest Longitude 153 ° 20 ' 00 " (24) 0 ' 30 "

(23) Difference 19 ' 30 " (25) 39 XSN

COMPUTER PA[illegible]RS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE - RANGE)

(1) Project No. OPR 429 (2) H. No. H [illegible]328 (3) Field No. FA 10-5-72

(4) Type of Control: ____ SHORAN, XXX RAYDIST, ____ HI-FIX, ____ RADAR
Frequency (for conversion of RAYDIST or HI-FIX lanes to meters) ____

(5) RANGE ONE (R1)
Station Name PIERCE 1972
Latitude 59° 37' 04.75" N
Longitude 153° 22' 24.31" W

(6) RANGE TWO (R2)
Station Name RUPP 1913
Latitude 59° 25' 06.88" N
Longitude 153° 25' 12.56" W

(7) Azimuth from R1 to R2 06° 48' 43.024"

(8) Baseline Length in Meters 22,372.324 M.

(9) Location of survey with respect to Electronic Baseline: CHECK ONE
(To determine: imagine an observer standing at R1 and looking directly at R2 --- if the survey area is to the observer's LEFT then A is negative; if the survey area is to the observer's RIGHT then A is positive.)

____ -A (minus) XXXX +A (plus)

(10) if SHORAN corrections are applied by the equation, K(X) + C = D, where X is SHORAN distance and D is true distance, enter the Constant Coefficients of the equations here:

K(R1) _____, C(R1) _____, K(R2) _____, C(R2) _____.

(11) Number of Velocity Tables to be used:

___None, XXXX One, ___ More than one.

(12) _____ This form is submitted only as an aid in preparing a boat sheet projection.

XXX This form applies to all data on this survey.

_____ This form applies to part of the data on this survey -

Time and Date limitations: From _____ To _____

Position Number Limitations: From _____ To _____

This is Form #3 Sheet # 1 of 1 Sheets for this survey.

(13) Other Remarks:

FORM #3

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

1973 Field work

(RANGE - RANGE)

(1) Project No. 429 (2) H. No. H 9328 (3) Field No. EH 10-5-72

(4) Type of Control: ___ SHORAN, ___ RAYDIST, XX HI-FIX, ___ RADAR
Frequency (for conversion of RAYDIST or HI-FIX lanes to meters) 3306.965

(5) RANGE ONE (R1)
Station Name FILRCE 1972
Latitude 59° 37' 04.75"
Longitude 153° 22' 29.32"

(6) RANGE TWO (R2)
Station Name MOUND 1913 CCC
Latitude 59° 22' 16.72"
Longitude 153° 21' 10.17"

(7) Azimuth from R1 to R2 ° ' "

(8) Baseline Length in Meters _____ M.

(9) Location of survey with respect to Electronic Baseline: CHECK ONE
(To determine: imagine an observer standing at R1 and looking directly at R2 --- if the survey area is to the observer's LEFT then A is negative; if the survey area is to the observer's RIGHT then A is positive.)

_____ -A (minus) XX +A (plus)

(10) If SHORAN corrections are applied by the equation, K(X) + C = D, where X is SHORAN distance and D is true distance, enter the Constant Coefficients of the equations here:

K(R1) _____, C(R1) _____, K(R2) _____, C(R2) _____.

(11) Number of Velocity Tables to be used:

___None, ___ One, ___ More than one.

(12) _____ This form is submitted only as an aid in preparing a boat sheet projection.

_____ This form applies to all data on this survey.

_____ This form applies to part of the data on this survey -

Time and Date limitations: From _____ To _____

Position Number Limitations: From _____ To _____

This is Form #3 Sheet # _____ of _____ Sheets for this survey.

(13) Other Remarks: DAY 169 4106 - 4240 Launch 5
170-172 4241 - 4466
178 4467 - 4658
180 4659 - 4790
190 5058 - 5130
197 5175 - 5178

[illegible] 1974

SIGNAL PLOTTER CARDS

H-NO.			LATITUDE	LONGITUDE	X	Y	X
09328	002	73	59382812	153285032	06098	08224	002
09328	003	73	59373143	153252494	09477	06382	003
09328	004	73	59370475	15322243	12450	05518	004
~~09328~~	~~007~~	~~73~~	~~59221672~~	~~153211017~~	~~13713~~	~~66678~~	~~007~~
09328	011	73	59362337	153333200	01457	04176	011
09328	059	73	59372275	153311798	03666	06102	059
09328	300	73	59375558	153262717	08452	07167	300
09328	301	73	59375558	153260000	08899	07167	301
09328	302	73	59380840	153261180	08705	07584	302
09328	303	73	59381179	153254913	09078	07694	303
09328	304	73	59382604	153254901	09080	08157	304
09328	305	73	59383354	153252138	09534	08401	305
09328	306	73	59381803	153245424	09981	07897	306
09328	307	73	59381551	153243414	10312	07815	307
09328	308	73	59372908	153253418	09325	06306	308
09328	309	73	59373102	153251952	09566	06369	309
09328	310	73	59373199	153242551	10455	06401	310
09328	311	73	59370504	153221480	12607	05527	311
09328	312	73	59370129	153220561	12758	05406	312
09328	313	73	59382288	153235858	10897	08054	313
09328	314	73	59382213	153232106	11514	08031	314
09328	315	73	59380969	153223494	12273	07628	315
09328	316	73	59375377	153220306	12798	07111	316
09328	317	73	59375219	153214656	13070	07060	317
09328	318	73	59373344	153210765	13711	06452	318
09328	319	73	59372501	153204018	14163	06179	319
09328	320	73	59370892	153222998	12357	05653	320
09328	321	73	59372133	153202168	14468	06059	321
09328	322	73	59372682	153194012	15152	06239	322

Destroyed 2-9-74

Signal 007 won't plot - beyond limits of sheet

Change Sig ⊙ 004 Fierce, 1972 to conform with their Field G.P. (Triangulation & Traverse Report), '73

⊙ 004 [illegible] 2-9-74 [illegible]

JAN 22 1974

SIGNAL PLOTTER CARDS

H-NO.			LATITUDE	LONGITUDE	X	Y	X	
09328	051	Invalid	72 59372275	153311798	03666	06102		051
~~09328~~	~~052~~	~~Invalid~~	~~72 59382812~~	~~153260936~~	~~06771~~	~~08224~~		~~052~~
09328	096		72 59373143	153252494	09477	06382		096
09328	098		72 59370475	153222431	12450	05518		098
09328	099	off sheet but station for Replot	72 59250688	153251256	09691	21922		099

Destroyed ⊙ 052 2-9-74

OK
KH 1/24/74

See second sheet

APPROVAL SHEET

The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report)

Examined and approved,

James S. Green
Supervisory Cartographic Technician

Approved and forwarded,

for

Walter F. Forster, Cdr., NOAA
Chief, Processing Division
Pacific Marine Center

Category II
Priority 5

1/24/74

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): Oil Bay
Iliamna Bay

Period: 4 June - August 10, 1973

HYDROGRAPHIC SHEET: H-9328

OPR: 429

Locality: Kamishak Bay, Alaska

Plane of reference (mean lower low water): Oil Bay 9.0 ft.
Iliamna Bay 7.7 ft.

Height of Mean High Water above Plane of Reference is 13.5 feet
21.5
21.2

Remarks: Zoning: Apply Oil Bay tides to entire sheet west to junction of H-9329. Use Iliamna Bay gage for remainder of sheet.

Note: If hourly heights are not available, Oil Bay tides may be applied here.

For C. V. Thurlow
Chief, Tides Branch

GEOGRAPHIC NAMES

Survey No.

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
BLACK REEF										1
COOK INLET										2
*ENTRANCE ROCK										3
ILIAMNA BAY										4
INISKIN BAY										5
INISKIN ISLAND										6
INISKIN ROCK										7
INISKIN SHOAL										8
MUSHROOM ISLETS	off survey									9
NORTH HEAD										10
POMEROY ISLAND										11
SCOTT ISLAND										12
SOUTH HEAD										13
TURTLE REEF										14
*VERT ISLAND										15
WHITE GULL ISLAND	off smooth sheet									16
										17
										18
										19
										20
										21
* FROM - GEOLOGICAL SURVEY 15 MIN. QUAD. ILIAMNA (C-2) ALASKA 1958										22
										23
										24
										25
										26

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

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9328

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET & PNO	1	BOAT SHEETS	5
DESCRIPTIVE REPORT	1	OVERLAYS	3

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	1					
VOLUMES	6					
BOXES			1			

T-SHEET PRINTS *(List)*

SPECIAL REPORTS *(List)*

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				3198
POSITIONS CHECKED		3192	5	
POSITIONS REVISED		35	1	
DEPTH SOUNDINGS REVISED		37	179	
DEPTH SOUNDINGS ERRONEOUSLY SPACED		10	2	
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0	-	
	TIME (MANHOURS)			
Verification of Control		8	8	
Verification of Positions		77	8	
Verification of Soundings		295	80	
Smooth Sheet Compilation		211	200	
ALL OTHER WORK			78	
TOTALS		591	374	

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY		
VERIFICATION BY Matthew G. Sanders	2 February 1974	23 Sept. 1974
REVIEW BY R.D. Sanocki	February 1975	6 June 1975

Cor. Insp. D.V. Romesburg 57 hrs. 4-5-76

Reg. No. 9328

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

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

CARDS CORRECTED

DATE_____ TIME REQ'D_____ INITIALS_____

REMARKS:

Reg. No. _____

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

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

MAGNETIC TAPE CORRECTED

DATE_____ TIME REQ'D._____ INITIALS_____

REMARKS:

H-9328

Items for Future Presurvey Reviews

The bottom in this area appears to be little changed from the prior surveys; however, the area is subject to severe earthquakes and volcanic activity. The least depth over Iniskin Shoal in the vicinity of latitude 59°37.2', longitude 153°27.5' should be verified.

The bottom change index in this survey area is 3 and the use index is 0. Resurvey cycle is 50 years.

OFFICE OF MARINE SURVEYS AND MAPS

MARINE SURVEYS DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9328 FIELD NO. FA-10-5-72

Alaska, Cook Inlet, Approaches to Iniskin Bay

SURVEYED: August 6-18, 1972, and June 13 - August 1, 1973

SCALE: 1:10,000 PROJECT NO.: OPR-429

SOUNDINGS: DE-723 Depth Recorder
Ross Digital Depth Recorders

CONTROL: Raydist (Range-Range)
Sextant Fixes on
Shore Signals

Chief of Party	R. H. Houlder
	C. A. Burroughs
Surveyed by	J. C. Albright
	A. D. Anderson
	T. R. Crane
	T. E. DeFoor
	M. C. Grunthal
	R. D. Hopkins
	F. L. Jefferies
	S. C. Miller
	J. A. Murphy
	D. E. Nortrup
	R. C. Pate
	A. J. Potok
	F. P. Rossi
	R. J. Schmidl
	A. M. Snella
	K. H. Underwood
	W. A. Wert
Automated Plot by	Gerber Digital Plotter (PMC)
Verified by	M. G. Sanders
Reviewed by	R. D. Sanocki Date: June 6, 1975
Cursory inspection made--survey processing considered complete	D. J. Romesburg April 5, 1976

1. Description of the Area

This survey covers an irregular area along the western shore of lower Cook Inlet, Alaska. The survey extends from approximately 1-1/2 miles south of

South Head northeasterly alongshore past the entrances of Iliamna and Iniskin Bays to longitude 153°20'.

This survey area is relatively flat with depths of 5 to 9 fathoms. However, numerous ledges, rocks, reefs, islands, tidal flats, and shoals exist within a mile of the shore. At the southern approach to Iniskin Bay, Iniskin Shoal rises from depths of 7 to 8 fathoms to 0.7 fathom. Iniskin Rock is exposed at mean lower low water approximately 1/2 mile north of the shoal.

Bottom characteristics are primarily sand, mud, and rocky.

2. Control and Shoreline

The source of the control is adequately described in the Descriptive Report.

The shoreline on the smooth sheet originates with reviewed Class I shoreline manuscripts T-12316 (1962-72), T-12317 (1962-1969), T-12322 (1962-69), T-12324 (1962-72), T-12325 (1962-72), and T-12328 (1962-72).

3. Hydrography

A. Depths at crossings are in adequate agreement.

B. The usual depth curves were adequately delineated with the exceptions of the low water and 1-fathom curves which could not be shown in certain areas because of numerous rocks and ledges in the intertidal zone. Brown and dashed curves were added to emphasize important bottom features.

C. The development of the bottom configuration is considered adequate. Investigations for least depths on shoals by lead line or developments were not made.

4. Condition of the Survey

The survey records, automated plotting, Descriptive Report, and verification are adequate and conform to the requirements of the Hydrographic Manual and the Instruction Manual - Automated Hydrographic Surveys except as follows:

A. Many offshore rocks, limits of foul areas, shoals, and reefs, transferred from the shoreline manuscripts and shown in blue on the boat sheet, were not disposed of by the hydrographer in accordance with section 5-67 of the Hydrographic Manual.

B. Examinations or hand lead verification of least depths were not made on offlying shoals.

C. Bottom characteristics recorded in the volumes for the 1973 field work differ from those shown on the boat sheet. The Oceanographic Log Sheet-M for FA-4, 1973, agrees with the data shown on the boat sheet. The smooth sheet reflected what was shown in the volumes but was revised by the reviewer to concur with the Oceanographic Log Sheet and boat sheet.

D. Objects upon which signals were located offshore of the high water line were not described on the boat sheet.

E. A table required by the Instruction Manual - Automated Hydrographic Surveys cross referencing position numbers, day numbers, and vessel used was not included in the Descriptive Report.

F. During the combined field edit and hydrographic operation, many offlying rocks were not verified and subsequently the height above datum was not ascertained. Discrepancies between the location of certain rocks on the present survey, the prior surveys, and the photogrammetric locations were not resolved in the field. Numerous detached positions on rocks not plotted on the Class I shoreline manuscripts were added to the present survey during review from Field Edit notebooks and from information noted in Field Edit Reports and on Field Edit Ozalids. The final smooth sheet delineation of features alongshore and offshore of the mean high water line were made by the resolution of data from the present hydrographic survey, the shoreline manuscripts noted in paragraph 2, and field edit information.

G. Elevation data from the hydrographer and field editor reduced several islets to awash features on the smooth sheet.

H. Numerous soundings listed in the final smooth printout as not being in excess were not plotted on the smooth sheet. Many of these depths were shoal depths and affected depth curve delineations.

I. Signals used for visual control east of longitude 153°27.0' were stated to be plotted using 1:10,000-scale ratio prints for shoreline manuscript T-12317 in the Descriptive Report. T-12317 is a 1:20,000-scale shoreline manuscript. The use of smaller scale photogrammetric manuscripts for plotting control for larger scale surveys is a questionable practice.

J. The additional area described in paragraph B of the Descriptive Report (1973 work) was apparently accomplished using methods applicable to a 1:20,000-scale smooth sheet. Subsequently this area was not developed as well as the remainder of the survey.

5. Junctions

An adequate junction was effected with H-9327 (1972-73) to the south and with H-9071 (1969) to the north. The junction with H-9329 (1972-73) to the west is discussed in the review of that survey. H-9379 (1973) which junctions to the east was not available at the time of review and will be discussed in the review of that survey. One line of sdgs. rejected (pos 8099-8108) during junction with H-9379. RWP 9/78

6. Comparison with Prior Surveys

H-2887	(1907)	1:10,000
H-3566	(1913)	1:40,000
H-3567	(1913)	1:20,000
H-3568	(1913)	1:80,000

These prior surveys taken together cover the area of the present survey. A comparison of these surveys with the present survey reveals a general agreement with the present survey data. The differences found can be attributed to the different survey methods employed and the scales of the prior surveys.

Numerous rocks awash shown on the prior surveys were not disproved by the present survey and were brought forward to the present survey.

Several soundings, including a least depth of four feet (0.7 fathom) on Iniskin Shoal in latitude 59°37.2', longitude 153°27.52', were carried forward from H-3567 (1913) to supplement the present survey.

With the addition of supplementary bottom characteristics and the above mentioned items from the prior surveys the present survey is considered adequate to supersede the prior surveys within the common area.

7. Comparison with Chart 8554, 13th Ed., May 25, 1974
8665, 5th Ed., February 19, 1972

A. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration.

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

B. Aids to Navigation

There are no aids to navigation within the area of the present survey.

8. Compliance with Instructions

The survey adequately complies with the Project Instructions with the exception that resolution of discrepancies concerning common data between the boat sheet and field edit data was not achieved as required by paragraph 8 of the 1972 Project Instructions.

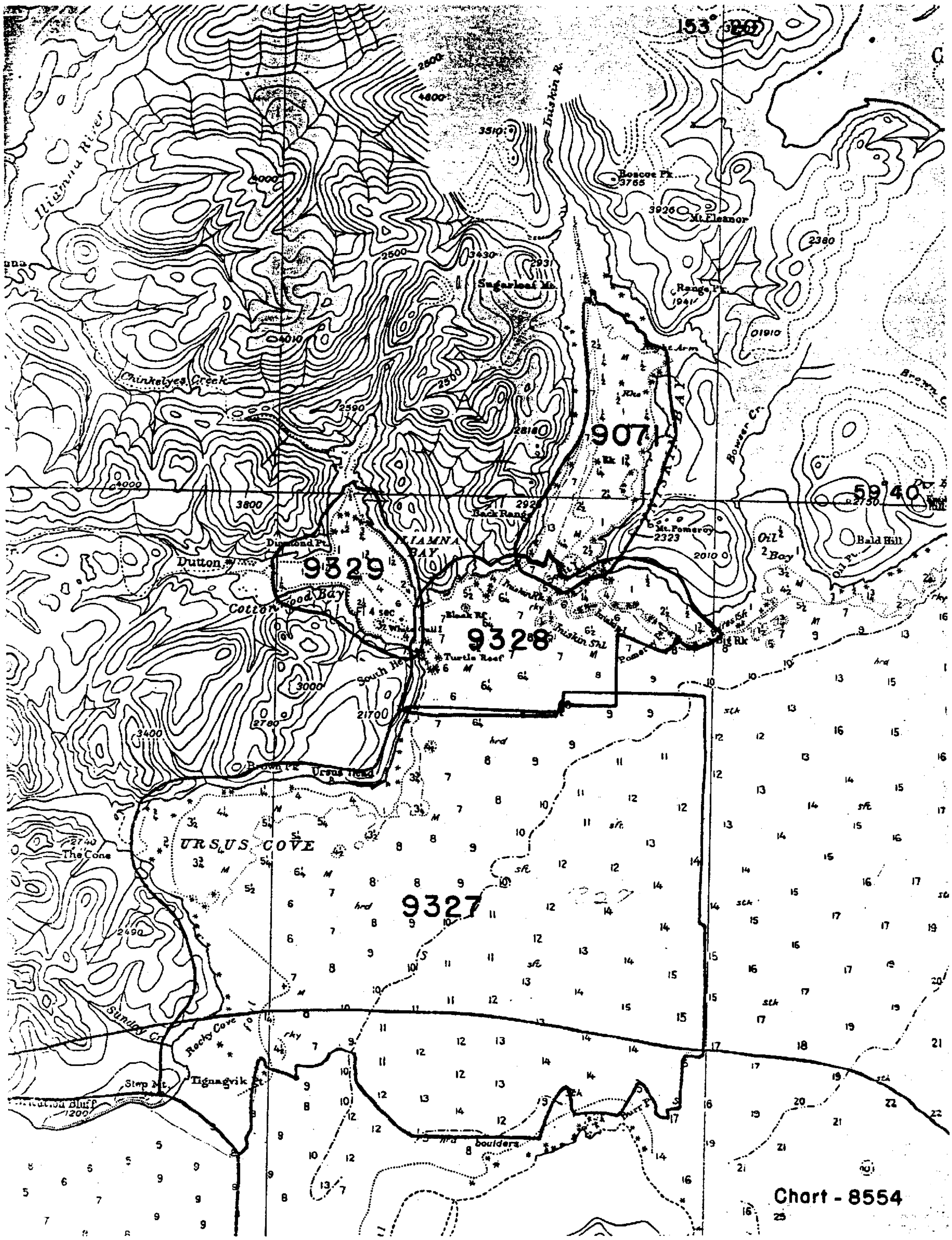
9. Additional Field Work

This is considered to be an adequate basic survey and no additional field work is recommended. Iniskin Shoal in latitude 59°37.2', longitude 153°27.5' is shown on the present survey to have a least depth of 0.7 fathom originating with H-3567 (1913). Additional development at a convenient time should be accomplished to verify the least depth of this feature.

Examined and Approved:

Chief
Marine Surveys Division

Associate Director
Office of Marine Surveys
and Maps


9071
9329
9328
9327
Chart - 8554
Iliamna River
Chinkelyes Creek
Sugarloaf Mt.
Roscoe Pk.
Mt. Eleanor
Range Pt.
Bowser Cr.
Bald Hill
Mt. Pomeroy
Oil Bay
Back Range
Diamond Pt.
Dutton
ILIAMNA BAY
Cottonwood Bay
Turtle Reef
Big Rk
South Head
Ursus Head
URSUS COVE
The Cone
Sunday Cr.
Rocky Cove
Tignagvik Pt.
Step Mt.
boulders

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9328

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
8665	12/11/74	S. Manty	Full Part Before After Verification Review Inspection Signed Via
			Drawing No. Examined for Notice to Mariners
			No Notices required
8554	12/11/74	S Manty	Full Part Before After Verification Review Inspection Signed Via
			Drawing No. Examined for Notice to Mariners
			No Notices required
			~~Full~~ Part Before ~~After Verification~~ Review Inspection Signed Via
8502	7/22/75	S. Manty	Drawing No. ~~after Verification~~ Examined thru 8554 for critical
			Corr. - No Corr.
8665	9/12/75	Mailed	~~Full~~ Part ~~Before~~ After ~~Verification~~ Review ~~Inspection Signed~~ Via
(16644)			Drawing No. Revised hydro
8554	11/10/75	KNUS	~~Full~~ Part ~~Before~~ After Verification Review ~~Inspection Signed~~ Via
			Drawing No. Revised Hydro - the area west
			of 153° 28' 30" thru Chart 8665)
16648	3/9/76	D.A. Clements	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 1
16013	8-5-97	William Hogan	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. APPLIED IN FULL THRU CHART 16648
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

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

USCOMM-DC 8559-P83