

9621

Diag. Cht. No. 8553

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey HYDROGRAPHIC
Field No. FA-20-3-76
Office No..... H-9621

LOCALITY

State Alaska
General Locality Cook Inlet
Locality East Foreland to West Foreland

1976

CHIEF OF PARTY
R.E. Alderman

LIBRARY & ARCHIVES

DATE June 13, 1978

☆ U.S. GOV. PRINTING OFFICE: 1976-689-441

9621

ALLA-6
Chart
16600
107-500

HYDROGRAPHIC TITLE SHEET

H-9621

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

FIELD NO.

FA-20-3-76

State Alaska

General locality Cook Inlet

Locality East Foreland to West Foreland

Scale 1:20,000 Date of survey 22 July - 11 Sept 1976

Instructions dated 4 Feb 76 Project No. OPR-469-FA-76

Vessel NOAA Ship FAIRWEATHER FA-3 (Hull #1240, EDP #2023), FA-4 (Hull #1233, EDP #2024), FA-5 (Hull #1001, EDP #2025), FA-6 (Hull #1243, EDP #2026).

Chief of party CAPT Richard E. Alderman

Surveyed by LCDR Thomas, LCDR MacFarland, LTJG Doering, LTJG Kosinski, LTJG Poole, LTJG Sullivan, ENS Millett, ENS Garb, and ENS Crowell

Soundings taken by echo sounder, ~~XXXXXXXXXX~~ Ross Fathometer S/N #s 1036, 1054, 1046, 1047

Graphic record scaled by Ross 6000 Digitizer (S/N's 1-54, 1036, 1047 and 1046)

Graphic record checked by FAIRWEATHER Personnel

Positions verified

Plotted by Bruce A. Olmstead/Isagani A. Almacen Automated plot by PMC Xynetics Plotter

Soundings

Verification by Isagani A. Almacen

Soundings in fathoms ~~X~~ and tenths at ~~MLLW~~ MLLW

REMARKS: All survey records were kept in GMT.

The mean longitude of the survey is 151°34'00"W.

This ~~field~~ ^{Smooth} sheet is complete and adequate for charting.

*app'd to slide
1-10-79 - WST*

DESCRIPTIVE REPORT
NOAA SHIP FAIRWEATHER MSS-20
OPR-469-FA-76
SURVEY H-9621 (FA-20-3-76)

A. PROJECT

Project OPR-469-FA-76 was undertaken to provide a modern data base for charting purposes. It was carried out in accordance with project instructions dated 24 February 1976, and change numbers 1, 3 and 4, dated 29 March, 17 May and 30 July 1976, respectively. Other supplements to Instructions are dated February 4, 1976, April 7, 1976.

B. AREA SURVEYED

The survey was conducted from 22 July to 11 September 1976 and encompassed an area extending from East Foreland to West Foreland, between Nikiski and Boulder Point. The survey is bounded on the Northern limit by: 60°48' N and on the Southern limit by 60°41' N, on the Eastern limit by 151°20' W or shoreline and on the West limit by 151°40' W or the shoreline.

C. SOUNDING VESSELS

Hydrography was carried out with launches FA-3 (Hull #1240, EDP #2033), FA-4 (Hull #1233, EDP #2024), FA-5 (Hull #1001, EDP #2025) and FA-6 (Hull #1243, EDP #2026). FA-3 operated adjacent to West Foreland in Tide Zone D-2, (see field tide note in the appendix), while FA-4 operated immediately north of East Foreland in the eastern half of Tide Zone G. FA-6 operated only in Tide Zone E. FA-5 operated in the entire area of the survey but primarily in Tide Zones F and G. All hydrography on Field Sheet FA-20-3N-76 was carried out using launch FA-5 with the exception of the eastern half of Tide Zone G. FA-6 covered this area utilizing Mini-Ranger. The area covered by FA-6 extended from 151°24.6' W to the eastern limit of the sheet.

D. SOUNDING EQUIPMENT

Each launch used a Ross Fineline fathometer. TRA correctors of +0.4 fathoms, based on bar checks taken during the project and the known draft of the vessel, were used for each launch. Sound velocity correctors were determined from Martek casts taken in the project area. For details, see Report on Corrections to echo sounding, OPR-469-FA-76. The depths of soundings on this sheet range from approximately -1.3 fathoms to 84 fathoms.

Sounding Equipment:

<u>Vessel</u>	<u>Instrument</u>	<u>Model</u>	<u>S/N</u>
FA-3	Ross Fineline	5000	1036
FA-4	Ross Fineline	5000	1054
FA-5	Ross Fineline	5000	1046
FA-6	Ross Fineline	5000	1047

E. FIELD SHEET

The area surveyed was divided into two Field Sheets, the southern sheet, FA-20-3S-76, and the northern sheet, FA-20-3N-76. A modified transverse mercator projection was used for each sheet with a scale of 1:20,000. The skew on each sheet is 0° with the origin of FA-20-3S-76 at 60/40/12N, 151/50/36W and the origin of FA-20-3N-76 at 60/44/10N, 151/50/36W. In addition to these sheets, there are seven larger scale inserts of closely spaced developments. The inserts are summarized below: *Plots not included with records*

<u>Insert</u>	<u>Skew</u>	<u>Scale</u>	<u>Lat. N</u>	<u>Long. W</u>	<u>Feature</u>
FA-20-3-76	"A" 90,22,32	1:5000	60/41/06	151/26/42	Shoal
FA-20-3-76	"B" 57,22,40	1:5000	60/41/22	151/29/30	L.D. Shoal L.D. Pinnacle L.D. Wire Drag
FA-20-3-76	"C" 29,22,45	1:7500	60/43/00	151/24/42	L.D. Shoal
FA-20-3-76	"D" 0,22,19	1:2000	60/41/10	151/31/24	L.D.
FA-20-3-76	"E" 0,12,13	1:2000	60/45/42	151/28/24	L.D.
FA-20-3-76	"F" 0, 8, 9	1:2000	60/46/30	151/26/12	L.D.
FA-20-3-76	"G" 0,11,12	1:2000	60/47/30	151/40/50	L.D.

All data was plotted on the ship's hydroplot system utilizing a PDP 8/e computer and a complot plotter (model DP-3-5, S/N 5557-5). Copies of the parameter tape printouts are appended.

F. STATION CONTROL

Horizontal control used for electronic positioning equipment on this survey consisted of the following tringulation or traverse stations: PT 2 1963-1972, SOUTH RM 3 1975-1976, GRANITE RM 2 1975, BOULDER 1909-1976, and SOUTH M/R 1975. Additional points were established as needed by third order methods including KISH 1976 and Red Raydist base station (near EAST KALGIN 3 1976). Calibration points located by third order methods included C.P. RED, BOW and a calibration buoy. Refer to Horizontal Control Report OPR-469-FA-76.

Some work in Tide Zone D-2 on computer sheet FA-20-3S-76 and computer sheet FA-20-3N-76 was accomplished utilizing existing control on the oil platforms in the project area to obtain visual sextant calibrations. The platforms utilized were Dillon, Platform A (next to Platform Baker), Monopod, Texaco A, and King Salmon. Positioning of these platforms is described in Horizontal Control Report OPR-469-RA-75. No photogrammetrically located signals were used for this survey. The 1927 North American datum was used in all computations.

G. POSITION CONTROL

Hydrography on computer sheets FA-20-3S-76 and FA-20-3N-76 was controlled using both Teledyne Hastings Raydist electronic positioning equipment and Motorola Mine-Ranger electronic positioning equipment. All Raydist work was accomplished in the range/range mode, while Mini-Ranger work included both range/azimuth and range/range operation.

Two Raydist configurations were utilized to accomplish the hydrography. Initially, the pattern I, Green Raydist station was located over PT-2 1963-1972, with pattern 2, Red Raydist station, located near EAST KALGIN 3 1976. This initial configuration was utilized from 22 July 1976 through 6 August 1976. After 6 August 1976 the pattern I station (Raydist Red) was relocated over SOUTH RM 3 1975-1976 and the pattern II station (Raydist Green) over GRANITE RM 2 1975. Launches FA-5 and FA-6 utilized both the PT-2/KALGIN configuration and the SOUTH/GRANITE configuration in the range/range mode to accomplish work on field sheet FA-20-3S-76. Launch FA-3 utilized only the SOUTH/GRANITE configuration to accomplish work on field sheet FA-20-3S-76. Launch FA-5 was the only vessel which utilized Raydist control to accomplish work on field sheet FA-20-3N-76 and this was all done using the GRANITE/SOUTH configuration. Launches FA-5 and FA-6 were equipped with Raydist mobile transmitters (S/N's 90 and 83 respectively), navigators (S/N's 18 and 21 respectively) position indicators, panalogic interface units, strip chart recorders, plotting units, and 30 ft. whip antennas. The only exception was on 4 August 1976 when FA-3 was equipped with Raydist mobile transmitter (S/N 96), navigator (S/N 16), position indicators, a panalogic interface unit, strip chart recorder, ASI logger unit and a 30 ft. whip antenna throughout the project.

The strip chart recorders were annotated at each calibration and at frequent intervals in between. Electronic correctors were determined from the mean of calibrations normally taken twice daily and, in some cases, more frequently.

Mini-Ranger stations included a pattern I site over BOULDER 1909-1976 and a pattern II site over SOUTH RM 3 1975-1976.

Launch FA-4 utilized the pattern I site over BOULDER 1909-1976 in conjunction with a Wild T-2 theodolite also over BOULDER 1909-1976 to conduct range/azimuth operations in the eastern half of Tide Zone G on computer sheet FA-20-3S-76. All work by FA-6 on computer sheet FA-20-3N-76 was accomplished utilizing both Mini-Ranger patterns I and II in the range/range mode. Days and times of hydrography transponder and calibration data relative to the Mini-Ranger use are appended.

Calibration of Raydist and Mini-Ranger was accomplished through the fixed point method, by the use of horizontal sextant angles including a check angle and also by the intersection method utilizing Wild T-2 theodolites. Fixed points included C.P. RED, BOW and a calibration buoy established by the ship's force in Nikiski Bay.

C.P. RED was used by launches FA-5 and FA-6 as a calibration point for range/range operations with the PT-2/KALGIN Raydist configuration. The calibration point consisted of a fixed red lantern mounted beside a catwalk on the southern most end of the Standard Oil Company pier at Nikiski. The light overhung the water's surface beside the southernmost pier piling. The launch antenna could be positioned directly beneath the light. The massive pier structure is constructed of steel. No apparent calibration discrepancies were observed as a result of using this point, though initial and final daily calibrations sometimes varied as much as 0.3 lanes. This variation was never directly attributed to the steel structure and no noticeable variation occurred from high to low tide when significantly more of the pier was exposed.

BOW was used by launch FA-4 for all range/azimuth Mini-Ranger hydrography, except on 13 August 1976 when FA-4 used the intersection method. BOW consisted of the overhanging bow of a grounded liberty ship hull that formed the distant end of the No. 2 pier facility. BOW and Red were located by third order three point intersection as described in Horizontal Control Report OPR-469-FA-76. (Since the survey, the pier facility including BOW has been removed by Dillingham Corp.).

The Nikishka Bay calibration buoy was established to accommodate launch operations in conjunction with the SOUTH/GRANITE Raydist configuration as well as Mini-Ranger launch operations north of East Forelands. The position of the buoy was determined each day by the intersection method utilizing Wild T-2 cuts from KISH 1976 and BOULDER 1909-1976. There was evidence that tidal currents in the area caused some shifting in the buoy. As a result the T-2 cuts were observed concurrently with the morning calibrations and correctors called by radio to the launches after computing. For details, see Electronic Systems Calibration Report, OPR-469-FA-76. The Nikishka Bay calibration buoy was utilized by launches FA-5 and FA-6 for range/range Raydist operations on computer sheets FA-20-3S-76 and FA-20-3N-76, and also by FA-6 for range/range Mini-Ranger operations on computer sheet FA-20-3N-76.

Visual calibrations by horizontal sextant angles, including a check angle, were utilized by launch FA-3 while working in Tide Zone D-2 on field sheet FA-20-3S-76 and also by launch FA-5 while working in Tide Zone D-2 on field sheet FA-20-3N-76. Oil platforms as described in section "F" of this report were utilized as visual objects. In each case, a prescribed derrick on the platform was observed, as noted on the appended signal list. Since the derricks are not fixed on the platforms, a minor degree of position error may have been introduced in some instances. The intersection method utilizing Wild T-2 theodolites over KISH 1976 and BOULDER 1909-1976 was used to calibrate FA-4 on 13 August 1976 while conducting Mini-Ranger range/azimuth operations and to calibrate FA-5 on 13, 14 and 16 August 1976 while conducting Raydist range/range operations. This method of calibration proved most reliable but was not widely used due to manpower and time consumption.

Electronic correctors derived from the calibration data, were applied to the observed readings before plotting on the field sheet. Slope corrections were automatically applied by the off-line plot programs.

H. SHORELINE

The shoreline details were obtained from manuscripts T 12038, T 12039, T 12044, T 12046₍₂₎ and T 12045₍₂₎ and were verified by field edit.

The low waterline was delineated by soundings as much as possible, however approach to beaches in most areas was hindered by swift alongshore currents, charted boulders, and salmon gill netting activities which included offshore buoys, running lines, floats and nets.

I. CROSSLINES

The 1062.5 n.m. of hydrography run on this sheet includes 102.3 n.m. of crosslines. The crosslines comprise 9.6% of the main scheme hydrography. Comparisons at crossings do not exceed 1.0 fathoms, and generally they are less than 0.5 fathoms. ✓

J. JUNCTIONS

The survey junctions the north with contemporary survey H-9541 (1:20,000, 1975) and to the east with contemporary survey H-9075 (1:5000, 1969) and the incomplete contemporary survey, FA-20-4-76 (H-9648). In each case, soundings agree within at least 1 fathom and generally agreement is closer than 0.5 fathoms.

The survey junctions to the south with contemporary survey FA-20-1-76 (H-9619), to the west with contemporary survey FA-20-2-76 (H-9620), and to the east with contemporary survey H-9075 (1:5000, 1969). In each case, soundings agree within at least 1 fathom and generally, agreement is closer than 0.5 fathoms. ✓

In the vicinity of ^{RIG TENDER DOCK} ~~Nitiski wharf~~, field sheet FA-20-3S-76 junctions with contemporary survey H-9074 (1:5000, 1969). Agreement is again within less than 1 fathom.

K. COMPARISON WITH PRIOR SURVEYS

This survey was compared with the following surveys: H-3196 (1:40,000, 1910), H-3198 (1:120,000, 1910), H-3199 (1:100,000, 1910), H-3210 (1:40,000, 1910) H-8726 (1963) 1:40,000 ✓
H-8530 (1:40,000, 1960), H-8617 W.D. (1:20,000, 1961), and H-8618 (1:20,000, 1961). In each case, agreement of soundings was within 1 fathom except as noted below:

H-3196

Agreement with this survey was within 2 fathoms or better in depths of 10 fathoms or less and it was within 3 fathoms or better in depths of greater than 10 fathoms. A valid comparison with this survey is difficult to make due to the largely irregular nature of the bottom in the overlapping region. In areas where the bottom tends to be most uniform, the agreement is generally within 1 fathom. There do not appear to be any major discrepancies, and those which are observable are attributable to position control inaccuracy and/or sounding control inaccuracy rather than physical changes in the bottom.

H-3198

The only noteworthy discrepancy in the comparison with this survey is a sounding in approximate position 60-41.5N, 151-36W which is indicated as 118 feet (carried on NOAA chart no. 16660 as 19 fathoms). This sounding was noted in the pre-survey review as "questionable". The line spacing in this area was 380 meters and the bottom was found to slope uniformly with a depth of 42 fathoms in the position of the 19 fathom "questionable" sounding. A limited area was sounded with a line spacing of 50 meters to search for any noteworthy variation in the otherwise uniform bottom. No variations were detected. It is recommended that the 19 fathom sounding derived from H-3198 on NOAA chart no. 16660 be deleted as there is no evidence of any peaks or other unusual features in this area. The bottom is of a uniformly sloping nature in this region. ✓

H-3199

In most areas, survey H-3199 varies by less than 2 fathoms from this survey and in depths of less than 10 fathoms, the variation is less than 1 fathom. However noteworthy discrepancies occur in approximate position 60-47N, 151-37 W and again in approximate position 60-47.7 N, 151-39W. In each of these areas H-3199 shows a prominent finger-like projection of the 20 fathom curve in a northeasterly direction. In the first case (60-47N, 151-37W) no projection of the 20 fathom curve was detected. The 20 fathom curve was found to extend as a roughly straight line along an axis with a bearing of about 350 degrees true without any evidence of the northeasterly protusion as shown on H-3199. In the latter case (60-47.7N, 151-39W), the 20 fathom curve is shown on H-3199 to protrude in a northerly direction as a finger-like extension. Field Sheet FA-20-3N-76 does not indicate a continuous finger-like projection as mentioned above. Instead, the 20 fathom curve extends in a relatively straight course along an axis of about 350 degrees true. Deeper water (to 29 fathoms) cuts through the base of the "finger-like" projection indicated on H-3199, but a 20 fathom curve appears again in approximate position 60-48.2N, 151-38N as an off-lying region of shoaler water. Line spacing on H-3199 was too great to delineate this region clearly. In this case, positioning control appears to have resulted in discrepancies as follows:

<u>H-3199 Sounding</u>	<u>H-9621 FA-20-3N-76 Sounding</u>	<u>Position</u>
16 FATHOMS	27 fathoms	60-47.6N, 151-38.5 W ✓
19 FATHOMS	25 fathoms	60-47.8N, 151-38.8 W ✓
14 FATHOMS	24 fathoms	60-47.7N, 151-39.0W ✓

A westerly shift of the H-3199 soundings would bring them more closely in agreement with those of FA-20-3N-76/ Returning to the first case (60-47N, 151-37W), all soundings which indicated a northeasterly protrusion of the 20 fathom curve on H-3199 were taken on the same line. Gross positioning error most likely resulted in this erroneously portrayed feature. No evidence of major bathymetric change in this area was found during the course of this survey. The close agreement of most soundings of H-3199 with those of this survey also rule out major geophysical changes as an explanation of the noted discrepancies.

H-8618 Unreviewed

Agreement with this survey is within 1 fathom for approximately 90% of the soundings. Noteworthy discrepancies are itemized below. Each of these appears to be the result of position error, sounding error or simply sounding a slightly different portion of the bottom in an area where there is significant irregularity of the surface. The latter explanation appears to be true in many cases because nearly all of the noted discrepancies occur in regions where the fathograms reveal a relatively irregular bottom while in areas where the bottom is smooth, agreement is best.

<u>Position</u>		H-8618 (fathoms)	FA-20-30-76 (fathoms)	
60-46.6N	151-25.8W	10	7.5	8.0 ✓
60-44.9N	151-24.5W	13	7.7	8.0 ✓
60-44.8N	151-23.9W	10 16	14	Prior work rescanned
60-44.9N	151-25.1W	9.45	12	9.5 ✓ Subsidence factor applied
60-45.0N	151-25.2W	15	10.0	9.5 ✓
60-44.2N	151-28.5W	11	6.7	✓
60-43.8N	151-28.4W	12	8.4	9.3 ✓
60-42.3N	151-30.0W	7	8.7	9.2 ✓
60-42.3N	151-30.2W	4.78	7	5.5 Subsidence factor applied, carried fwd.
60-41.8N	151-29.9W	11	9.4	7 ✓
60-41.6N	151-30.8W	12	8.4	9.8 ✓
60-41.5N	151-31.3W	12	8.8	11.7 ✓
60-41.5N	151-27.5W	6.5	4.7	5.0 ✓

L. COMPARISON WITH CHART

The survey was compared with NOAA chart 16660, Cook Inlet, northern part, 17th Edition, 18 October 1975, scale 1:194,154 at latitude 61/00/00N, which is the largest scale chart that covers the entire survey area.

While shoal delineation and depth comparisons are in agreement over most of the surveyed area, a number of noteworthy differences are apparent. These are described below:

1. Chart 16660 shows a maximum depth in the surveyed area of 75 fathoms in 60-42.3N, 151-37.8W. The survey found a depth of 71 fathoms in this position with a maximum depth of 84 fathoms in position 60-46.2N, 151-36.3W. Hence the modern survey has turned up a greater depth than previously known. The difference in the 75 fathom and 71 fathom soundings is attributed to positioning and sounding errors.
2. Chart 16660 shows a depth of 19 fathoms in position 60-41.5N, 151-36W. The survey shows a depth of 42 fathoms. The 19 fathom sounding has already been addressed in the comparison with prior survey H-3198. It is considered to be erroneous and it is recommended that the 19 fathom sounding be deleted from future editions of the chart.
Disregard, unreliable. Concur
3. Chart 16660 shows a depth of 16 fathoms in 60-47.1N, 151-37.3W. This sounding apparently originated with survey H-3199 and is believed to be erroneous as already mentioned in the comparison with H-3199. The survey shows a depth of 56 fathoms in 60-47.1N, 151-37.3W. It is recommended that the 16 fathom sounding be deleted from future editions of the chart.
Doubtful, poor control Concur
4. Chart 16660 shows a reported obstruction (position approximate) in 60-46.4N, 151-41.9W. The obstruction was noted as PSR item 33 and was described as a 350 foot steel pipe-laying boom visible at low water as reported in Notice To Mariners number 24 of 1967. On Julian

Day 224 at 2100 GMT a thorough visual search of the area was conducted by launch FA-5 with a -2.0 foot tide. It was a sunny clear day with calm water, but due to the murky nature of the water, it was impossible to see below the surface. Despite a careful search, no visible signs of the reported obstruction were present. Spot checks on two other days with at least -1.0 foot tides also failed to reveal the obstruction. On Julian Day 229 launch FA-5 again searched for the obstruction by sounding the bottom over the suspect area with a line spacing of 20 meters. The search revealed a uniformly flat bottom with a depth of approximately 5 fathoms. There was no indication of any form of obstruction. It is recommended that the obstruction be deleted from future editions of the chart as it appears to have been removed.

See Verifier's Report, para. VI B C

5. Chart 16660 shows a cleared depth of 5 1/2 fathoms in 60-43.6N, 151-27.8W as determined by wire drag in survey H-8617 W.D. The wire drag is noted in the pre-survey review. This survey revealed a shoal depth of 6.0' fathoms in the same approximate position as the wire drag sounding show on the chart. Survey H-8617 W.D. shows an actual ~~least~~ depth of 37 feet in this position. It is recommended that the wire drag cleared depth of 5 1/2 fathoms be deleted from future editions of the chart in favor of the least depth sounding of 6.0' fathoms as determined by this survey and supported by the wire drag survey itself.
 * Least depth not ascertained by prior sounding, being depth was 36 feet. See O.C. Report, para 5.
6. Chart 16660 shows a depth of 5 fathoms from ~~unknown~~ sources in 60-43.3N, 151-29.2W while the survey shows a depth of approximately 8 fathoms in this position. On Julian Day 217 launch FA-5 developed the area with a line spacing of 25 meters and detected a least depth of 4.5' fathoms in position 60-43.2N, 151-29.2W. The development is shown on inset B to the field sheet. It is recommended that the 4.5' fathom depth be charted in place of the 5 f. depth.
 B.S. H-8618
 CONCUR
7. Chart 16660 shows a depth of 5 fathoms from ~~unknown~~ sources in position 60-42.35N, 151-31.7W while the field sheet shows a depth of 11.5 fathoms in this position. Since no indication of shoaling appeared on any of the fathograms in this location, 200 meter line spacing was employed without a special effort to develop the area in the vicinity of the 5 fathom sounding. In the interest of navigation safety it is recommended that the 5 f. sounding be retained. ~~Prior work repositioned during verification. Chart present survey depths.~~
 Boat sheet H-8618
8. Chart 16660 shows a depth of 6 1/2 fathoms from ~~unknown~~ sources in position 60-42.7N, 151-31.2W while the field sheet shows a depth of approximately 15 fathoms in this position. A thorough search of this area with a line spacing of 50 meters revealed a shoal with a least depth of 7.75 fathoms in position 60-42.6N, 151-30.9W. It is recommended that in the interest of navigation safety the 6 1/2 f. depth be retained. 7 fathoms carried forward
 (6.6)
 Boat sheet H-8618
9. Chart 16660 shows a depth of 8 1/2 fathoms from ~~H-8199~~ at 60-43.9N, 151-26.0W while the field sheet shows shoal water immediately to the west of the position of the 8 1/2 fathom sounding shown on 16660.
 H-8618
 Resounded in prior records (12 fms)

* SEE VERIFIER'S REPORT

The sounding on chart 16660 is apparently misplaced, as there is no indication of such shoal waters except to the west of the position shown. It is recommended that the 8 1/2 fa. sounding be deleted in favor of sounding information provided by this survey.

10. Chart 16660 shows a depth of 8 3/4 fathoms from ~~unknown sources~~ ^{Boat sheet H-8618} in 60-44.7N, 151-28.4W while the field sheet shows a depth of 15 fathoms. Line spacing in this area was 200 meters and no splits were run in search of a 8 3/4 fathom sounding as the bottom in this particular area appears on the fathograms as relatively flat and uniform without any indication of such shoaling or evidence of obstructive features. It is recommended that this sounding should be retained in the interest of navigation safety. Rescanned in prior records (14 fms), chart present survey information.
11. Chart 16660 shows a depth of 8 1/4 fathoms from ~~unknown sources~~ ^{Boat sheet H-8618} in 60-45.3N, 151-29.9W while the survey shows a depth of 13 fathoms. Line spacing in this location was maintained at 200 meters since the fathograms revealed a relatively flat and featureless bottom in this location with no sign of shoaling or obstructive features. It is recommended that this sounding be retained in the interest of navigation safety. Repositioned, chart present survey depths.
12. Chart 16660 shows "wells" in various positions over the surveyed area. PSR item 31 required an examination of all fathograms for traces of these wells. All fathograms were examined with negative results. It is recommended that these wells be retained on the chart. Concur

A few significant features which are not shown on chart 16660 were detected during the course of this survey. These are itemized below:

1. A distinct isolated pinnacle with a least depth of 6.7⁶ fathoms was located in 60-44.2N, 151-28.6W after an extensive search with a line spacing of 20 meters and less. Chart 16660 shows a depth of 9 fathoms in this vicinity. The pinnacle rises from a depth of approximately 10 fathoms. The developed area is shown on inset B to the field sheet. Shoalest depths shown on smooth sheet.
2. A 7.5^{8.0} fathom peak was revealed by a closely spaced development in position 60-46.6N, 151-25.8W. The obstruction rises from a seemingly flat bottom with a depth of approximately 11 fathoms. Chart 16660 shows a depth of 10.5 fathoms in this area. The developed region is shown in inset F to the field sheet. It is possible that the obstruction is a large boulder. Boulders the size of this obstruction are commonly observed along the beaches in the vicinity of Boulder Point and West Foreland. Shoalest depths shown on smooth sheet.
3. Two peaks were detected in close proximity to one another in position 60-47.6N, 151-40.4W, after conducting a search with a line spacing of 20 meters and less. The peaks have respective depths of 8.6^{8.8} fathoms and 8.8^{8.8} fathoms. Both peaks rise abruptly from a relatively flat and uniform bottom with a depth of approximately 11 fathoms. There is no indication of these obstructions on chart 16660. Once again, these obstructions may be large boulders as evidenced by their distinctly sharp traces on the fathograms. The developed area is shown on inset G to the field sheet. Shoalest depths shown on smooth sheet

* SEE VERIFIERS' REPORT

M. ADEQUACY OF SURVEY

All fathogram field survey records were scanned for peaks and deeps. This survey is complete and adequate to supercede prior surveys for charting with the exception of H-8618. It is recommended that this survey supplement H-8618 rather than supercede it. The two surveys both provide significant detailed information. Each survey contains information that the other is lacking, yet they are both in close agreement where a valid comparison can be made. Present survey information is adequate to supersede H-8618 with the exceptions as noted.

N. AIDS TO NAVIGATION

The only floating aid to navigation in the surveyed area is the red nun buoy "N 2". The buoy was found in the position shown on chart 16660, 17th edition, 18 October 1975. As the chart indicates buoy "N 2" is on station only from 1 May to 1 November of each year.

O. STATISTICS

<u>Vessel</u>	<u>Positions</u>	<u>Hydrography (n.m.)</u>
FA-3	323	47.0
FA-4	356	59.5
FA-5	2654	720.8
FA-6	933	235.2

Total area: 65 sq. miles

Total bottom samples: 43

P. MISCELLANEOUS

Greenwich mean time was used for all survey records. Sea conditions, especially chop and the exceptionally strong currents, made bar checks difficult and sometimes hazardous. Therefore, the number of bar checks were on the low side and were supplemented by calibrating the phase set of the Ross fathometer daily.

Q. RECOMMENDATIONS

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

R. REFERENCE TO REPORTS

Report on corrections to echo soundings, OPR-469-FA-76

Field edit reports, OPR-469-FA-76

Horizontal control report, OPR-469-FA-76

Horizontal control report, OPR-469-RA-75

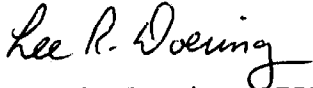
Electronic systems calibration report, OPR-469-FA-76

S. DATA PROCESSING PROCEDURES

Program RK-111, version (30 January 1976) was used on FA-3, FA-5 and FA-6 to acquire and compile hydrographic on-line data. The ASI hydrolog system was used by FA-4 to acquire and compile range/azimuth data. Program RK-211,

version (15 January 1976) was used on the ship's hydroplot system to plot FA-3, FA-5 and FA-6's data on the field sheet. Program RK-216, version (5 February 1976) was used to plot FA-4's data.

Submitted by:

A handwritten signature in cursive script that reads "Lee R. Doering". The signature is written in dark ink and is positioned above the typed name.

Lee R. Doering, LTJG, NOAA

APPROVAL SHEET

Field No. FA 20-3-76

Register No. H-9648

The fieldsheet and all accompanying records are hereby approved. The survey was conducted under my supervision and, to the best of my knowledge, is complete and adequate to supersede all prior surveys.



Capt. Richard E. Alderman, NOAA
Commanding Officer
NOAA Ship FAIRWEATHER, MSS-20

KALGIN ISLAND REGION SIGNAL LIST - COOK INLET, ALASKA
FA-OPR-469-76

GREEN RAYDIST - PT-2 1963/1972 NEAR CAPE KASILOF
001 3 60 21 55694 151 22 27251 250 0018 330040

RED RAYDIST - NEAR EAST KALGIN 3 1976
002 3 60 29 08328 151 50 08046 250 0060 330040

PT-2 NO 1 1972
003 3 60 21 55543 151 22 27372 139 0018 000000

AUDRY 1964
004 3 60 30 50559 151 16 37445 139 0018 000000

ASH 1976
005 3 60 30 54366 151 55 32676 250 0058 000000

SOC POLE
006 3 60 30 09937 151 53 13735 243 0001 000000

EAST KALGIN LIGHT OFFSET
007 3 60 29 08118 151 50 06375 243 0060 000000

KENAI RIVER REAR RANGE 1975
008 3 60 33 05308 151 15 29940 139 0000 000000

DRIVER 1967
009 3 60 35 10989 152 09 43010 139 0000 000000

GRAY HOUSE
010 3 60 30 38377 151 54 47702 243 0000 000000

DROWNED 1975-1976
011 3 60 29 17294 151 48 12597 139 0000 000000

SOC 1976
012 3 60 30 09890 151 53 12913 139 0001 000000

FIRM 1953
013 3 60 44 01799 151 56 14617 139 0005 000000

PTFM DILLON - SOUTHERN MOST
014 3 60 44 08138 151 30 45892 243 0012 000000

PTFM "C" - - CENTER
015 3 60 45 50263 151 30 08560 243 0012 000000

KUSTATAN 1909
016 3 60 43 14472 151 45 07720 139 0025 000000

MICROWAVE TOWER NEAR STATION DRIVER
017 3 60 35 49478 152 09 59547 250 0035 000000

NIKISHKA #2 SIGNAL LIST - COOK INLET ALASKA
FA-OPR-469-76

PTFM DILLON - SOUTHERN MOST

014 3 60 44 08138 151 30 45892 243 0012 000000

PTFM "C" - NEXT TO PTFM DILLON

015 3 60 45 50263 151 30 08560 243 0012 000000

SOUTH M/R 1975

018 3 60 44 09309 151 21 13189 250 0048 000000

UNION 1969

019 3 60 44 09721 151 21 09677 139 0040 000000

BOULDER 1909

020 3 60 46 18353 151 15 25906 250 0061 000000

SOUTH 1975

021 3 60 44 09021 151 21 13213 139 0048 000000

PTFM DOLLY VARDEN WEST DERRICK - NEAR WEST FORELAND
SOUTHERN MOST PTFM

022 3 60 48 28350 151 37 59272 243 0000 000000

GRANITE RM 2 1975 - RAYDIST GREEN

023 3 61 00 42705 151 20 39358 250 0037 330040

SOUTH RM 3 1975-1976 - RAYDIST RED

024 3 60 44 09226 151 21 13309 250 0048 330040

PTFM "A" - NEXT TO PTFM BAKER

025 3 60 47 44865 151 29 45156 243 0000 000000

PTFM BAKER - NORTHERN MOST

026 3 60 49 45665 151 29 00943 243 0000 000000

PTFM MONOPOD

027 3 60 53 48760 151 34 43901 243 0000 000000

TEXACO PTFM "A" EAST DERRICK

028 3 60 55 10227 151 33 26201 243 0000 000000

✓ PTFM SPARK - NORTHERN MOST OF GROUP

029 3 60 ~~44~~ 42499 151 31 49330 243 0000 000000

55

See attached letter, dated Apr 9, 1981 RWD

KISH 1976

030 3 60 44 39625 151 17 32114 139 0048 000000

PTFM GRAYLING - EAST DERRICK

031 3 60 50 22597 151 36 46761 243 0000 000000

PTFM KING SALMON

032 3 60 51 55588 151 36 20079 243 0000 000000

EAST FORELAND LIGHT 1973

033 3 60 43 11842 151 24 18524 139 0000 000000

BOW OF SHIPS AT NIKISHKA #2

034 3 60 44 36056 151 18 34535 139 0000 000000

ROCK GAMMA

101 3 60 45 23423 151 15 47804 253 0000 000000

ROCK A

102 3 60 46 24070 151 15 28538 253 0000 000000

JUMBO ROCK 1976

103 3 60 47 41370 151 10 13489 250 0003 000000

VELOCITY TABLE 0001

SOUND VELOCITY CORRECTOR ABSTRACT

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

FA-20-1-76	(H-9619)
FA-20-2-76	(H-9620)
FA-20-3-76	(H-9621)
FA-20-4-76	(H-9648)

<u>Depth (fm)</u>	<u>Corrector (fm)</u>
0.0 - 3.6	+ 0.0
3.7 - 11.1	0.1
11.2 - 18.9	0.2
19.0 - 26.6	0.3
26.7 - 33.9	0.4
34.0 - 41.7	0.5
41.8 - 49.1	0.6
49.2 - 56.9	0.7
57.0 - 64.4	0.8
64.5 - 71.9	0.9
72.0 - 90.0	1.0

FIELD TIDE NOTE

OPR-469-FA-76
(H-9619), (H-9620), (H-9621), (H-9648)

Field tide reductions of soundings are based on Nikiski (control) predicted tides, and were interpolated by PDP 8/e computer utilizing AM 500. The times of both predicted and recorded tides were on GMT. Time and height corrections, applied to the Nikiski predicted tides, were as follows:

<u>Tide zone*</u>	<u>Height (ratio)</u>	<u>High water</u>	<u>Low water</u>
A	1.00	-15 min.	-10 min.
B	.93	-10	-10
C	.89	-15	-25
D ₁	.87	+15	- 5
D ₂	.88	+20	+20
E	.94	+20	+10
F	.98	0	0
G	.98	+25	+25
H	1.00	+35	+35

Four 0-40 Bristol Bubbler gages were installed in the project area, locations and periods of operation were as follows:

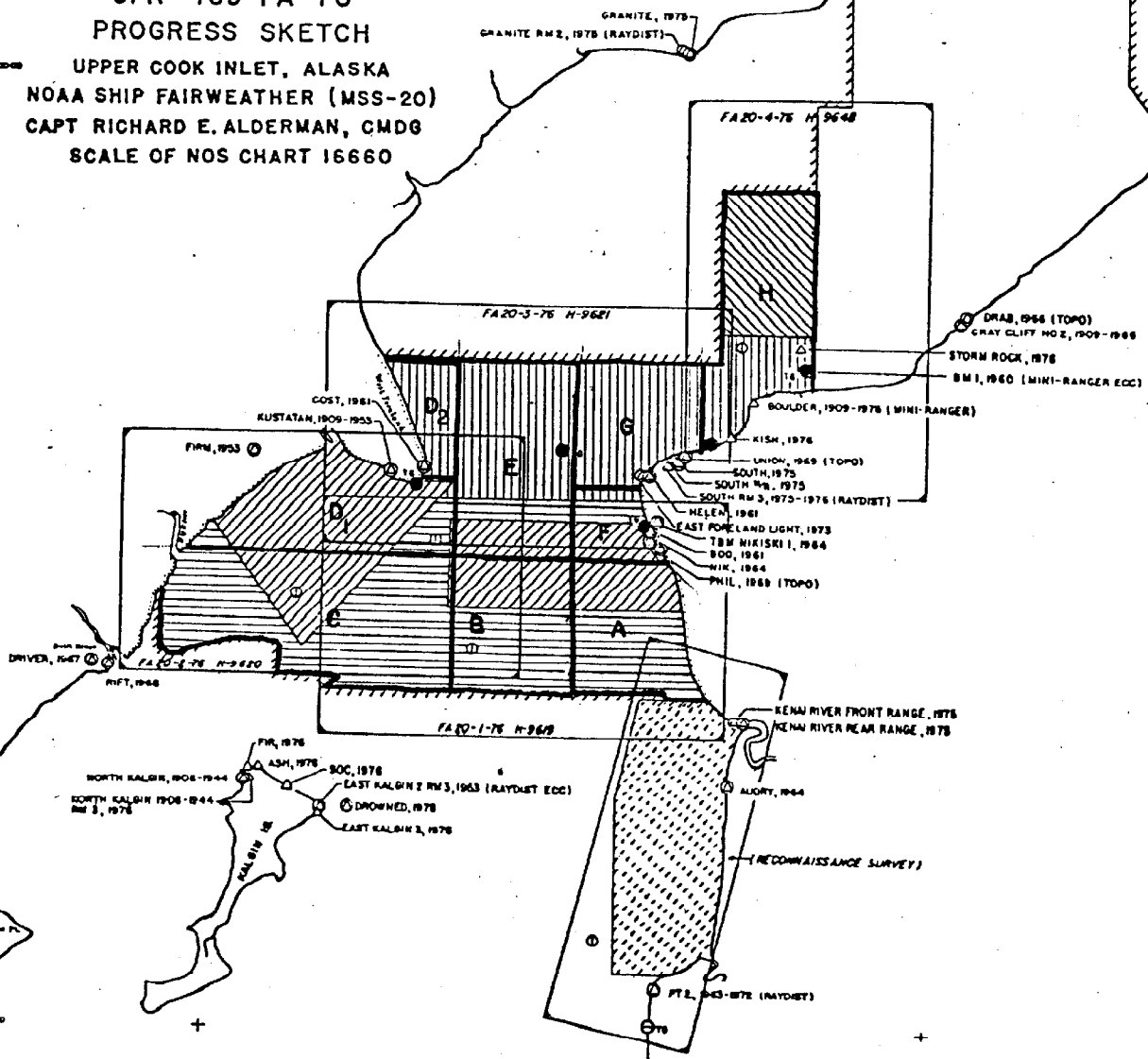
<u>Site</u>	<u>Location</u>	<u>Period</u>
West Foreland T-20	60°42.75' N. 151°43.60' W.	2 July June 76 to 25 August 76
Nikishka No. 2 T-33	60°44.35' N. 151°18.28' W.	29 July to 12 Sep 76
Platform T-39 Dillon	60°44.20' N. 151°31.80' W.	26 June to 6 Sep 76
Jumbo Rock Boulder Point	60°47.80' N. 151°10.20' W.	17 Aug to 11 Sep 76

West Foreland

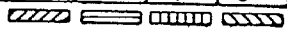
Gage s/n 67A16206 was installed and began operating 2 Jun 76. Unexplainable loss of data recording, at about 0900-1800 GMT, occurred daily. The reducing valve was changed, 13 June, but failed to remedy this. The gage was removed and replaced by gage s/n 68A9329 on 16 June. On 17 June the orifice tubing was found separated from the orifice. New tubing, orifice, and anchor stand was installed and gage operation restarted on 17 June. On 17 July the drive spring ran down and was restarted the same day. On 31 July the marigram paper was changed and 0-20ft paper was installed. This required correction to the actual recorded heights before final recording on the hourly heights sheets. On 19 August the nitrogen tank pressure was lost and restarted the same day. The data collection stopped on 25 August. In between all other periods gage operation was fair with slight time errors.

*see chart section pg. A-2

OPR-469-FA-76
PROGRESS SKETCH
 UPPER COOK INLET, ALASKA
 NOAA SHIP FAIRWEATHER (MSS-20)
 CAPT RICHARD E. ALDERMAN, CMDG
 SCALE OF NOS CHART 16660



	JUNE	JULY	AUG	SEPT
LNM SOUNDING LINE	1312.2	1581.9	1261.3	194.5
SO NM SOUNDING LINE	80.2	74.2	114.0	23.6
BOTTOM SAMPLES	13	55	8	82
STD CAST (MARTEK)	2	2	1	0



- △ STA. ESTABLISHED
- STA. RECOVERED
- ⊙ STD CAST (MARTEK)
- TIDE GAGE
- FIELD EDIT

West Foreland cont'd

On 15-17 July and 19-25 August inconsistent time errors were encountered. The marigram reads 13.4 ft. greater than the staff, for 2 June to 16 June. New gage marigram reads 14.0 ft. greater than the staff for 16 June to 14 July. With the new staff the marigram reads 13.4 ft. greater than the staff.

Nikishka No. 2

Gage s/n 63A2921 was installed and operating on 29 June. On 27 August the orifice pressure tubing was cut and was repaired 30 August. On 10 Sept. the orifice tubing was again cut and repaired the same day. Removal was on 12 Sept. Operation and quality between all other periods was very good.

The marigram reads .09 ft. greater than the mean of the taped water heights. See Taped Water Heights pg.A-5.

Platform

This gage was checked bi-weekly by a reliable platform employee, the resulting data was clean, continuous, and had numerous accurate time checks. Gage s/n 67A16204 was installed 26 June and ran well until 6 Sept. On 30 July 0-20 ft. paper was installed, this required a correction to be applied before final recording of the hourly heights sheets. The water heights were taped measurements using a weighted cloth tape that was initialed on bench mark A.

The marigram reads 1.7 ft. greater than the mean of the taped water heights, (see pg.A-6), these heights being related to an arbitrary zero point 80 ft. below bench mark A.

Of interest was the recording of currents by this gage(see pg.A- 7).Due to no orifice the gage was sensitive to slight changes of water height inside the platform leg. These water height changes were recorded and occurred simultaneously with currents. Also observed was that sea and swell did not affect the gage as would be expected.

Jumbo Rock

Gage s/n 62A91 was installed 17 August and lost to the sea soon thereafter. Gage s/n 67A16206 was installed 30 August but had faulty chart paper installed. This resulted in lost data from the paper jumping the sprockets. New paper was installed 3 Sept. and the gage was operational till removal on 11 Sept. Time errors were minor.

The marigram reads 5.2 ft. greater than the staff.

Levels

West Foreland was leveled to five previously established bench marks. The staff was destroyed and the reinstalled staff was leveled to bench mark 3

on 14 July. Removal levels of 8 Sept. showed the staff to have settled .153 ft. and bench mark 4 to have settled .030 ft.

Nikishka No. 2 was leveled to six previously established bench marks on 30 June. Checks between the initial point (for taped water heights) on the ship and two bench marks showed the ship to have settled .42 ft. by 30 August and raised .18 ft. by 8 Sept.

Platform Dillon had temporary bench mark A used as the initial for the taped water heights and was leveled to two other points. All points were described and stamped. No shifts were detected.

Jumbo Rock was leveled to one previously established bench mark and one newly established bench mark. No shifts were detected.

Zoning

No zoning was attempted in the field. It is recommended that zoning be done by the Tides Branch after review of existing and observed data. The recommended preliminary zoning supplied by the Tides Branch prior to the start of the surveys worked very well. Minor differences at crossline intersections and survey junctions supported this. Only in a few small areas did tide correction abnormalities occur, and these were minor (1 fathom).

Miscellaneous


Time errors caused by slippage of the chart paper are listed below. The West Foreland gage was corrected for and scanned for hourly heights. The Jumbo Rock problem was more erratic no hourly heights have been obtained.

West Foreland -----15-17 July, clock rate adjusted, spring ran down before rate of error could be determined.

20-23 Aug., paper slipping on sprockets.

Jumbo Rock -----30 Aug-3 Sep., paper slipping on sprockets.

Tide Note submitted by


M. F. Sullivan

Taped Water Heights - value equivalents to zero on marigram

Nikishka No.2

<u>Tape Reading</u>	<u>Feet of water</u> <u>(above orifice*)</u>		<u>Gage Reading</u>	<u>Difference</u>
28' 10"	12.6	12.0	12.0	-0.6
16' 6"	24.9		24.8	-0.1
32' 99"	8.6		8.0	+0.3
24' 9"	16.6		17.0	-0.4
10' 8"	30.7		31.2	+0.5
20' 2"	21.2		21.3	+0.1
24' 8"	16.7		17.2	+0.5
14' 6"	26.9		26.8	-0.1
26' 4"	15.0		14.7	-0.3
10' 11"	30.5		31.5	+1.0
Mean				+0.9

* initial for tape = 41.380 ft above orifice

Taped Water Heights - Value equivalents to zero on marigram

Platform

<u>Tape Reading</u>	<u>Ft. Water*</u>	<u>Wind</u>	<u>Gage Reading</u>	<u>Difference</u>
57' 11"	22.1	N.R.	23.6 ft	+1.5 ft
49' 2"	30.8	N.R.	32.1	1.3
63' 6"	16.5	10 k	17.9	1.4
51' 9"	28.2	N.R.	29.5	1.3
65' 2"	14.8	0	16.1	1.3
64' 3"	15.8	5	18.0	2.2
55' 10"	24.2	3	26.4	2.2
49' 10"	30.2	0	31.4	1.2
45' 7"	34.4	0	35.5	1.1
67' 8"	12.3	00	14.3	2.0
66' 2"	13.8	0	15.8	2.0
67' 0"	13.0	0	15.0	2.0
57' 9"	22.2	8	23.6	1.4
62' 0"	18.0	17	19.9	1.9
59' 3"	20.8	15	22.4	1.6
65' 9"	14.2	11	16.8	2.6
55' 5"	24.6	25	28.0	3.4
49' 5"	30.6	8	32.4	1.8
44' 11"	35.1	10	36.5	1.4
54' 9"	25.2	30	28.1	2.9
57' 3"	22.8	3	24.7	1.9
48' 8"	31.3	25	35.4	4.1
Mean				<u>1.9</u>
Mean w/o units with greater than .30% deviation				<u>1.7</u>

*above an arbitrary zero point, 80 ft. below initial (BM A)

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): West Foreland, Nikishka,
Platform Dillon, Nikiski

Period: July 22 - September 11, 1976.

HYDROGRAPHIC SHEET: H-9621

OPR: 469

Locality: Upper Cook Inlet, Alaska

Nikiski	10.8 ft.
West Foreland	6.9 ft.
Nikishka	9.4 ft.
Dillon	17.3 ft.

Plane of reference (mean lower low water):
Height of Mean High Water above Plane of Reference is
17.4 ft. - West Foreland; 20.2 ft. - Nikishka; 19.3 ft. - Dillon

Remarks: Recomend multi-zage zoning on West Foreland, Nikishka, and
Platform Dillon.

Amended zoning instructions as of 11/23/77:

(For July 21-29 use Nikiski with +25 minute time correction and range
ratio x 1.03 to correct to Nikishka).

Don M. Spillner

Chief, Tides Branch

GEOGRAPHIC NAMES

H-9621

Name on Survey

A ON CHART NO.
B ON PREVIOUS SURVEY NO.
C ON U.S. QUADRANGLE MAPS
D FROM LOCAL INFORMATION
E ON LOCAL MAPS
F P.O. GUIDE OR MAP
G RAND McNALLY ATLAS
H U.S. LIGHT LIST

Photographed
Manuscript

Name on Survey	A	B	C	D	E	F	G	H	Source	Index
COOK INLET									T-12039 T-12044 T-12045 T-12046	1
EAST FORELAND	16660									2
NIKISHKA No. 2	16660									3
NIKISHKA BAY	16660									4
WEST FORELAND	16660									5
NIKISHKA										6
RIG TENDER DOCK										7
										8
										9
										10
										11
										12
										13
										14
										15
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										30

APPROVED

Chas. E. Harrington

CHIEF GEOGRAPHER - C3XB

1 Nov. 1978

APPROVAL SHEET
FOR
SURVEY H- 9621

- 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: 5/14/78

Signed:

f. S. Jew

Title:

Chief, Verification Branch

HYDROGRAPHIC SURVEY STATISTICS

H-9621

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS & PRELIMINARY OVERLAYS		7	
DESCRIPTIVE REPORT		1	SMOOTH OVERLAYS: POS. ARC, EXCESS		5	
DESCRIP-TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	3 with Printouts	3				
VOLUMES	2	2				
BOXES			1-Box			
T-SHEET PRINTS (Lia) 4ea T-12038, T-12039, T-12044 & T-12045						
SPECIAL REPORTS (Lia)						

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			4361
POSITIONS CHECKED		4361	
POSITIONS REVISED		908	
SOUNDINGS REVISED		355	
SOUNDINGS ERRONEOUSLY SPACED			
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED			
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	7		
VERIFICATION OF CONTROL		8	
VERIFICATION OF POSITIONS		152	
VERIFICATION OF SOUNDINGS		309	
COMPILATION OF SMOOTH SHEET		118	
APPLICATION OF TOPOGRAPHY		32	
APPLICATION OF PHOTOBATHYMETRY		-	
JUNCTIONS		8	
COMPARISON WITH PRIOR SURVEYS & CHARTS		32	
VERIFIER'S REPORT		24	
OTHER		4	
TOTALS	7	687	694
Pre-Verification by James S. Green	Beginning Date 11/24/76	Ending Date 11/24/76	
Verification by B.A. Olmstead, I.A. Almacen	Beginning Date 8/26/77	Ending Date 4/21/78	
Verification Check by M.G. Sanders, S.H. Otsubo, T.S. Green	Time (Hours) 28	Date 5/15/78	
Marine Center Inspection by	Time (Hours) 17	Date 5/23/78	
Quality Control Inspection by K.W. DeKazarian	Time (Hours) 76	Date 10/31/78	
Requirements Evaluation by D.L. Hill	Time (Hours) 3	Date 12/5/78	

2 copies of report 11/21/78

Reg. No. 9621

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:

PACIFIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO: H-9621

FIELD NO: FA-20-3-76

Alaska, Upper Cook Inlet, East Foreland to West Foreland

SURVEYED: 22 July - 11 Sept 1976

SCALE: 1:20,000

PROJECT NO: OPR-469

SOUNDING: Ross Finline Fathometer

CONTROL: Raydist & Mini-Ranger

Chief of Party.....CAPT Richard E. Alderman
Surveyed by.....LCDR L. Thomas, LCDR D. MacFarland,
LTJG L. Doering, LTJG Kosinski,
LTJG Poole, LTJG Sullivan,
ENS Millett, ENS Garb and
ENS Crowell
Automated plot by.....PMC Xynetics Plotter
Verified by.....Isagani A. Almacen
April 21, 1978

I. INTRODUCTION

This is a basic hydrographic survey of the northern portion of Cook Inlet covering the area extending from East Foreland to West Foreland and bounded on the north by Lat. 60°48.0' and on the south by Lat. 60°41.0'.

Hydrography was conducted from 22 July to 11 September 1976 by NOAA Ship FAIRWEATHER.

Hydrography was controlled using Teledyne Hastings Raydist and Motorola Mini-Ranger III electronic positioning equipment. On this survey, the raydist was utilized on range/range mode, while the mini-ranger in both range/range and range/azimuth modes of operation.

II. CONTROL AND SHORELINE

Horizontal Control used on this survey consisted of existing triangulation stations and traverse stations. The source of control is described on paragraph F of the Ship's Descriptive Report.

No photogrammetrically located signals were used on this particular survey.

Shoreline detail information was obtained from unreviewed Class I shoreline manuscripts T-12038, T-12039, T-12044, T-12046⁽²⁾ and T-12045(2).

The dates of photography and field edit are as follows:

T-12038:✓	August 1966-- June, July 1975 & July 1976
T-12039:✓	August 1966-- March, August 1976
T-12044:✓	August 1966-- August 1976
T-12046:(2)✓	June 1967, July 1972-- July, August 1976
T-12045:(2)-	August 1966, June 1967, July 1972-- July, August 1976

Due to the presence of numerous isolated rocks scattered along the coast and the dangerous condition of approach to beaches caused by prevailing strong alongshore currents, some of the rock elevations were not determined and in some areas on this survey, the low water line was not delineated.

Rock elevations appearing on the smooth sheet are based on actual tides.

III. HYDROGRAPHY

Crossline soundings on this survey were in good agreement.

The development of the bottom configuration and the determination of least depths are adequate except in some instances mentioned in the succeeding sections of this report.

The construction of depth curves on the smooth sheet is complete, with the exception of several inshore curves and the low water line.

IV. CONDITION OF SURVEY

The automated plotting of smooth sheet, as well as the accompanying overlays, hydrographic records, reports and the field procedures employed on this survey are adequate. It conform to the requirements mentioned in the hydrographic manual.

V. JUNCTIONS

✓ H-9074 (1969), 1:5,000

Agreement with this junction survey is satisfactory except for the elevation of the rock at Lat. 60°41'35.5"N, Long. 151°23'59.5"W. The rock originated from H-8618 (1961) survey with elevation of 18 feet at MLLW, was carried forward on survey H-9074 (1969) with elevation 20 feet at MLLW and later found to be 1 foot above MLLW based on the latest field edit of the area. Photographs of 1972 (at mid-tide) show no evidence of a rock at this elevation uncovering 20 feet. Prior value disregarded.

✓ H-9541 (1975), 1:20,000 ✓

Junction to the north of this survey is considered satisfactory. Some soundings from the survey were carried forward on the smooth sheet to supplement the inshore portion of the junction. Depth curves and note were inked on the smooth sheet.

✓ H-9619 (1976), 1:20,000 ✓

Agreement with this junction survey to the south is good. Depth curves and note were inked on the smooth sheet.

✓ H-9620 (1976), 1:20,000 ✓

Junction to the west is satisfactory, taking into consideration the significant irregularity of the bottom configuration of the inshore portion of the survey. Curves and note were inked on the smooth sheet.

H-9648 (1976), 1:20,000 ✓

This junction survey to the east is still in the preliminary verification stage and no junction has been accomplished.

VI. COMPARISON WITH PRIOR SURVEYS

This survey was compared to the following prior surveys:

- ✓ H-3215 (1910), 1:40,000
- ✓ H-3210 (1910), 1:40,000
- ✓ H-3196 (1910), 1:40,000
- ✓ H-3198 (1910), 1:120,000
- ✓ H-3199 (1910), 1:100,000
- ✓ H-8530 (1960), 1:40,000 Unreviewed
- ✓ H-8617 (1961), 1:20,000 (WD)
- ✓ H-8618 (1961), 1:20,000 Unreviewed
- ✓ H-8726 (1963), 1:40,000

H-3198 (1910), 1:120,000

Comparison with this survey is good, except for the 19-fathom sounding at Lat. 60°41.60'N, Long. 151°35.90'W noted in the presurvey review as "questionable". Neither a shoal sounding was found in the field after running a 50-meter interval development lines, nor any variation of the bottom configuration detected in the general area of 41 to 42 fathoms depth. I concur with the Ship's recommendation that the 19-fathom charted sounding originating from this prior survey be deleted as there are no evidence of shoal features in the area to prove its existence. Prior sounding records indicate sounding to be unreliable. ✓

H-3199 (1910), 1:100,000

There is no indication of the prominent finger-like projection of the 20-fathom depth curve present on the 1910 survey. The recent survey shows the 20-fathom curve as a smooth curved line extending approximately in the north to south direction. This finger-like projection on the prior survey appears to be the result of position and sounding errors or the geophysical changes that have occurred on this particular area since 1910.

The delineation of the bottom configuration on this survey is adequate enough to disprove the existence of the 20-fathom curve projection including the charted 16-fathom sounding at Lat. 60°47.10'N, Long. 151°37.10'W. The charted 16-fathom sounding falls in the general area of 57 to 63 fathoms on the recent survey and I, therefore, agree with Ship's recommendation that this charted sounding be deleted from future editions of the chart covering the area.

H-8617 (1961), 1:20,000 (WD)

Two (2) wire drag^{hang} depths of ~~5-1/2~~^{6.1 and 6.2} fathoms located at Lat. 60°43.65', Long. 151°27.70' and Lat. 60°43.53', Long. 151°27.70', were carried forward on the smooth sheet to supplement the recent survey. No conflicts exist with wire drag depths and present survey soundings. See Q.C. Report para. 5.

H-8618 (1961) 1:20,000

Agreement with this survey of 1961 could be rated as satisfactory, taking into consideration the tectonic subsidence caused particularly by the 1964 earthquake and the unusual character of the bottom in this area of Cook Inlet. Some significant soundings were carried forward on the smooth sheet to supplement the latest survey.

Except in the areas previously mentioned in this report. Agreement with prior surveys are generally satisfactory, considering the changes in the bottom configuration since the last surveys, ~~the differences in the method of surveying and the datum and scales used for comparison.~~

The following are presurvey review items covered on this survey.

A. PSR Item 31: Fathograms were examined for possible traces of the reported abandoned oil drilling wells charted at the following locations within the survey area:

- (1) Lat. 60°45.70'N, Long. 151°38.¹⁵20'W ✓
- (2) Lat. 60°44.70'N, Long. 151°38.25'W ✓
- (3) Lat. 60°44.20'N, Long. 151°31.20'W ✓
- (4) Lat. 60°41.30'N, Long. 151°32.00'W ✓
- (5) Lat. 60°41.50'N, Long. 151°39.70'W ✓

C/L 328/1968 or
N m 24/1969

No traces or evidence of obstruction was detected in the area of the charted oil wells. However, since these items have not been disproven, it is recommended that they be retained on the chart.

B. PSR Item 32: The following oil drilling platforms were located in the field by NOAA Ship RAINIER in 1975 (see Horizontal Control Report, OPR-469-RA-75) and used as control on this recent survey.

- Origin C/L 1179 (1967)
C/L 1177 (1966)
- (1) PTFM DOLLY VARDEN (West Derrick) - Lat. 60°48'28.350"N, Long. 151°37'59.272"W.
 - (2) PTFM DILLON - Lat. 60°44'08.138"N, Long. 151°30'45.892"W
 - (3) SHELL PTFM "A" - Lat. 60°47'44.865"N, Long. 151°29'45.156"W.
 - (4) SHELL PTFM "C" - Lat. 60°45'50.263"N, Long. 151°30'08.560"W

C. PSR Item 33, LNM 24, 1967: The reported obstruction at lat. 60°46.40'N, Long. 151°41.90'W described as a 350-foot steel pipe-laying boom visible at low water was searched for in the field. No indication of obstruction was found and I, therefore, concur with Ship's recommendation that it should be deleted from future editions of the chart.

See DR L 4 Compiler to evaluate

Except for the 1961 wire drag survey H-8617, the current survey is adequate to supersede the prior surveys for areas of common coverage.

VII. COMPARISON WITH CHART

A. The smooth sheet was compared with Chart 16660 (C&GS 8553), 17th Edition, 18 October 1975 (1:194,154). The charted depths originated mostly from the 1910 prior surveys and the rest from 1960, 1961 and 1963 surveys off the coast of East Foreland. In general, the agreement is satisfactory, except in some areas particularly in the middle of the channel where the soundings from the 1910 survey appear to be shoaler. These differences could be attributed to positioning and sounding errors including the effect of tectonic subsidence and the unusual character of bottom in Cook Inlet.

Chart 16660 shows the following depths from ~~unknown origin~~ ^{Boat sheet H-8618 (BP 61577-80)} where sufficient development has not been accomplished in the field during this survey:

- See Descriptive Report, paragraphs
- (1) 5-fathom -- Lat. 60°42.³⁵50', Long. 151°31.⁷90' L. 7.
 - (2) 6 1/2 fathom -- Lat. 60°42.⁷⁰70', Long 151°31.²⁰20' L. 8.
 - (3) 8 3/4 fathom -- Lat. 60°44.70', Long 151°28.40' L. 10.
 - (4) 8 1/4 fathom -- Lat. 60°45.30', Long 151°29.90' L. 11.

The source for these charted soundings should be confirmed, and if valid, retained on the chart. See Des. Report, para L.

The two peaks mentioned on paragraph L.^{3, page 9.} (Comparison With Chart) of the Ship's Descriptive Report was actually only one peak with a least depth of 8 1/2 fathoms. It is recommended that it be incorporated in the chart of the area. Lat 60°47.6', Long 151°40.5' ✓

B. Aids to Navigation

A red nun buoy (N"2") located at Lat. 60°42'19.95"N, Long. 151°30'19.03"W, is the only aid to navigation that was verified in the field. It was found in good condition and adequately serves the purpose intended. ✓
The buoy is maintained only at this location from 1 May to 1 November of each year.

No information as to the condition of lights and horns on the charted oil drilling platforms was mentioned on the ship's report.

This survey^{with additions noted} is adequate to supersede charted hydrography within the common area.

VIII. COMPLIANCE WITH PROJECT INSTRUCTIONS

This survey complies with the Project Instructions.

IX. ADDITIONAL FIELD WORK


This survey is a good basic hydrographic survey and no additional field work is recommended. ✓

X. NOTES TO COMPILER

The position numbers listed below were used twice or three times on different days and launches on this survey. ✓

6001-6136 (FA-5, JD 231)
6001-6559 (FA-6, JD2209, 210, 211, 212, 214 & 215)
6001-6468 (FA-6, JD 230, 231, 232, 233, 238, 240 & 242)
6500-6559 (FA-6, JD 243)

Respectfully submitted,


Isagani A. Almacen
Cartographic Technician
21 April 1978

Examined and approved,


James S. Green
Chief, Verification Branch



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Pacific Marine Center, 1801 Fairview Ave. E.
Seattle, Wa 98102

1 June 1978

Ed
TO: Eugene A. Taylor
Director, PMC

FROM: *Glen R. Schaefer*
Glen R. Schaefer
Chief, Processing Division

SUBJECT: PMC Hydrographic Inspection Team Report for Survey H-9621

This survey is a basic hydrographic survey of East Foreland to West Foreland, Cook Inlet, Alaska. This survey was conducted by NOAA Ship FAIRWEATHER in 1976 in accordance with Project Instructions OPR-469-FA, RA-76 and Change Nos. 1-4 dated 29 Mar 1976, 7 April 1976, 17 May 1976, and 30 July 1976, respectively.

Raydist calibrations were performed alongside steel structures. Although there is no clear indication that any unsatisfactory electronic correctors were used for this survey, the potential for phase shift errors is known to exist when the vessel is operated very near large land masses or metal structures.

The inspection team finds H-9621 to be a very good basic survey adequate to supersede common areas of prior surveys and charted hydrography. Administrative approval is recommended.

Glen R. Schaefer
Glen R. Schaefer

John C. Albright
John C. Albright

James W. Steensland
James W. Steensland

James L. Stringham
James L. Stringham



ADMINISTRATIVE APPROVAL
H-9621

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

1 JUN 1978

Date



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

C352/RWD

October 31, 1978

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

THRU: Chief, Quality Control Branch

FROM: R. W. DerKazarian *R.W. DerKazarian*
Quality Evaluator

SUBJECT: Quality Control Report for H-9621 (1976), East Foreland to
West Foreland, Cook Inlet, Alaska

A quality control inspection of H-9621 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, the survey was found to conform to the National Ocean Survey's standards and requirements except as stated in the Verifier's Report, the HIT Report, and as follows:

1. Junctions for the most part were adequately accomplished during verification; however, it was necessary to transfer several shoaler soundings and adjust curves on the present survey. Closer examination of the junctional sheets would be desirable.

In the vicinity of longitude $151^{\circ}4'$ present depths of 5 to 10 fathoms appear to be .3 to .6 fathom deeper than depths on H-9541 (1975). No apparent reason could be ascertained except for possible seasonal change.

2. Soundings carried forward from prior surveys were adjusted to compensate for subsidence (0.9 foot) caused by the 1964 earthquake in accordance with "Volume III, The Prince William Sound, Alaska, Earthquake of 1964 and Aftershocks."

3. Presurvey Review items 31, 32, and 33 addressed in the Verifier's Report "Comparison with Prior Surveys" would have been more appropriately discussed under "Comparison with Charts"; these items do not originate with a National Ocean Survey source.



H-9621

2

4. The following information is in addition to the Verifier's Report, paragraph VI:

a. H-8530 (1960) 1:40,000 (Unreviewed)

A comparison with prior and present depths reveals fair agreement. A large portion of this prior survey common in area to the present survey falls in depths between 11 and 20 fathoms, and inasmuch as the prior depths are in whole fathoms and the present survey is in fathoms and tenths, no meaningful comparison could be made.

H-8618 (1961) 1:20,000 (Unreviewed)

A very irregular bottom exists inshore of the 10-fathom curve from latitude $60^{\circ}43'$, longitude $151^{\circ}25'$ to latitude $60^{\circ}45'$, longitude $151^{\circ}22'$. In comparing the prior and present work, isolated deepening of as much as 2 fathoms exists throughout the common area of the survey, which is probably attributed to migration of the bottom and slight subsidence caused by the 1964 earthquake. In examining the prior survey records, it is evident that some control problems existed inshore with their visual control; several observations had been rejected and hydrography was plotted on time and course. Several prior shoaler depths examined in the records were scanned in error; these soundings have been adjusted on that survey.

Several selected soundings and bottom characteristics have been carried forward to supplement the present survey.

H-8726 (1963) 1:40,000

Prior survey depths common in area to the present survey are reconnaissance in nature; no meaningful comparison could be made.

b. Several "rky" bottom characteristics have been carried forward from H-3196, H-3210, and H-3216 of 1910 to supplement the present survey.

With the addition of the items carried forward above and noted in paragraph VI of the Verifier's Report, the present survey is adequate to supersede these prior surveys in the common area.

5. The circled Presurvey Review 5 1/2-fathom cleared depth sounding from H-8617 (1961) WD in latitude $60^{\circ}43.65'$, longitude $151^{\circ}27.70'$, and also the 6-fathom sounding in latitude $60^{\circ}43.53'$, longitude $151^{\circ}27.70'$ were not disproved by the present survey. These items were incorrectly transferred as 5.5-fathom soundings to the present survey, which represent cleared depths. The shoalest depths obtained were 36 and 37 feet,

AWOIS
52194
52195
RWD
2/95

Applied 53 to 16662 Dwg 1 at above positions
did not correct for subsidence per RWD, DEN, FPS

10/20/81 vtn

respectively, which in this case are the hang depths; the actual sounded depths obtained were 37 and 41 feet respectively. The hang depths with the subsidence factor have been applied to the smooth sheet.

6. The following information is in addition to the Verifier's Report "Comparison with Chart":

In addition to the prior surveys mentioned in paragraph VI of the Verifier's Report and paragraph 4 above which require no further consideration, the origin of the charted hydrography includes several chart letters that were adequately discussed in paragraph VI of the Verifier's Report. Several charted shoal depths were charted from the boat sheet of H-8618 (1961), blueprints 61577-80. During verification of that survey several lines were repositioned and soundings rescanned. These soundings have been indicated in the Descriptive Report, paragraph L, and in the Verifier's Report, paragraph VII, as source unknown. These soundings have been adequately disposed of during the quality evaluation.

7. The final sounding printout was not annotated in all cases during verification when soundings were put into excess.

8. The HIT did not enter their time on the "Hydrographic Survey Statistics" sheet.

CC:
C35
C351



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

APR 9 1981

OA/C352:RWC

TO: OA/C32 - Lavon L. Posey
FROM: OA/C35 - Glen R. Schaefer *Dale E. Westbrook for*
SUBJECT: Position of Oil Platform "Spark," Cook Inlet, Alaska

The position of oil platform "Spark" shown on H-9621 (1976) in latitude 60°44'42.499"N, longitude 151°31'49.330"W was found to be erroneous, and, as a result, we have deleted the platform from this survey.

The correct position for this platform is latitude 60°55'42.499"N, longitude 151°31'49.330"W as shown on H-9541 (1975). Reference CL-1777/69, Form 76-40.

Chart 16660 presently shows a platform at each of the above positions. The platform symbol charted from the erroneous information on H-9621 should be removed from the chart.

Appropriate background material is attached.

Attachments (3):

~~Portion of DR H-9621 (1976)~~
Portion of DR H-9541 (1975)
~~CL-1381/69~~



10TH ANNIVERSARY 1970-1980

National Oceanic and Atmospheric Administration

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NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

(HYDROGRAPHIC)

Type of Survey .. HYDROGRAPHIC

Field No. RA-20-5-75

Office No. H-9541

LOCALITY

State ALASKA

General Locality COOK INLET

Locality TRADING BAY

.....
1975
.....

CHIEF OF PARTY

Charles K. Townsend

LIBRARY & ARCHIVES

DATE January 27, 1978

1509

STATION LIST
(CONTINUED)

128 3 60 55 16705 150 44 55812 250 0039 329646
SHORT 1975 60 150 4
NORTHERN RAYDIST STATION
ELEVATION GIVEN IS TO TIP OF RAYDIST ANTENNA
REF. HORIZONTAL CONTROL REPORT

129 3 60 59 57419 151 17 52089 250 0027 000000
BRUCE 1975 60 151 1
ELEVATION INCLUDES M/R TRANSPONDER ELEVATION
REF. HORIZONTAL CONTROL REPORT

130 3 60 44 09021 151 21 13213 250 0075 329646
SOUTH 1975 60 151 1
SOUTHERN RAYDIST STATION
ELEVATION GIVEN IS TO TIP OF RAYDIST ANTENNA
REF. HORIZONTAL CONTROL REPORT

131 3 61 00 42103 151 20 37491 139 0042 000000
GRANITE 1975 61 151 2
REF. HORIZONTAL CONTROL REPORT

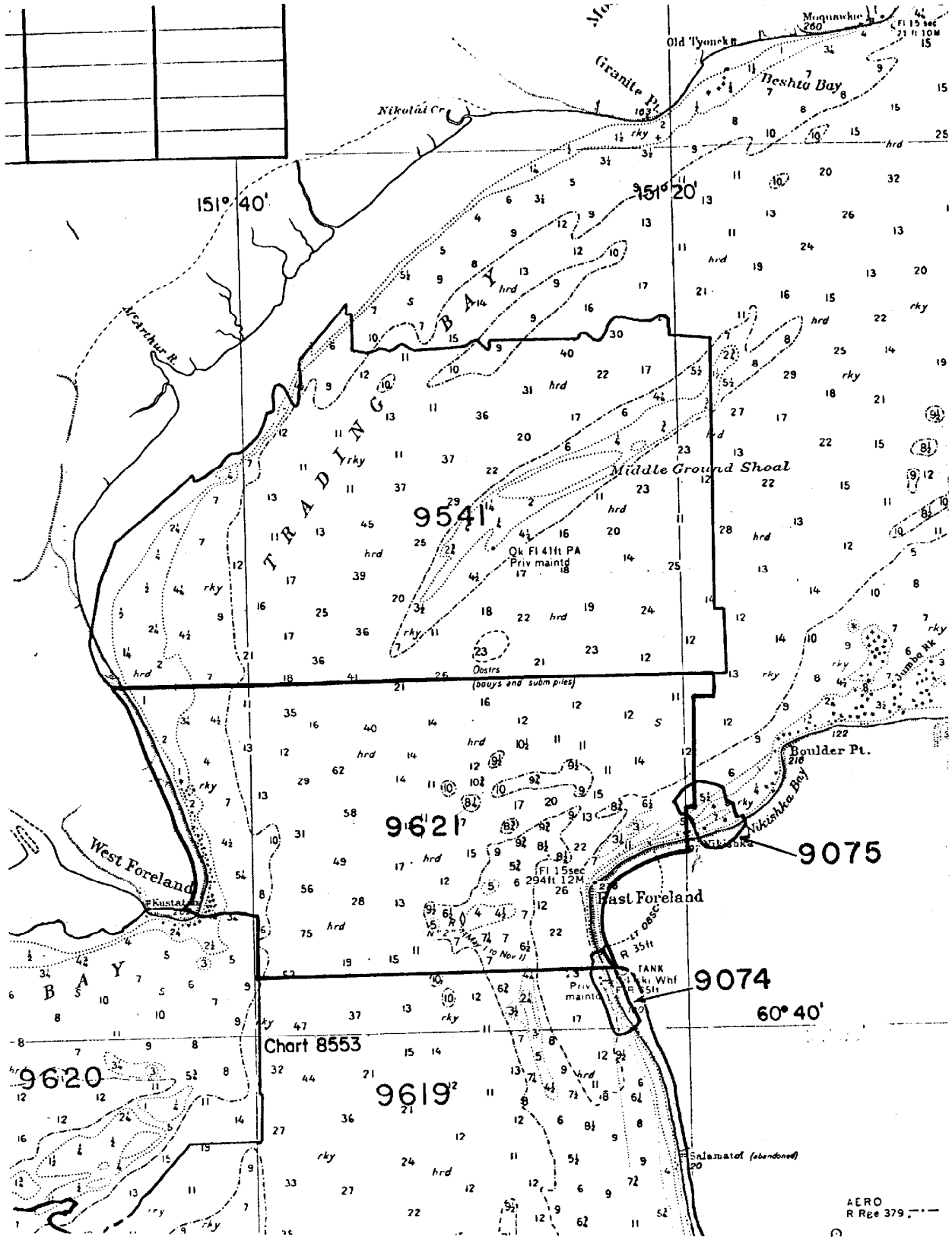
132 3 60 44 09721 151 21 09677 139 0059 000000
UNION 1969 60 151 1
RECOVERED AS TOPOGRAPHIC STATION
REF. HORIZONTAL CONTROL REPORT

133 3 61 00 44406 151 20 22369 250 0038 000000
GRANITE M/R 1975 61 151.2
ELEVATION INCLUDES M/R TRANSPONDER ELEVATION
REF. HORIZONTAL CONTROL REPORT

134 3 60 44 09309 151 21 13189 250 0065 000000
SOUTH M/R 1975 60 151.1
ELEVATION INCLUDES M/R TRANSPONDER ELEVATION
REF. HORIZONTAL CONTROL REPORT

135 3 61 00 37437 151 30 03220 250 0015 000000
GOOSE FLAT 1909 61 151 3
FROM 1966 PATHFINDER SURVEY
ELEVATION INCLUDES M/R TRANSPONDER ELEVATION

136 3 60 55 42499 151 31 49330 243 0000 000000
PTFM 10 1975 60 151 4
ATLANTIC RICHFIELD PLATFORM SPARK ←
DERRICK
REF. HORIZONTAL CONTROL REPORT



AERO
R Rec 379

