

H-10000

Diagram No. 8553-2

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey .. Hydrographic ..
Field No. RA-20-1-82 ..
Office No. H-10000 ..

LOCALITY

State Alaska ..
General Locality Cook Inlet ..
Locality Fire Island Shoal to Point ..
..... Woronzof ..
..... 19 82 ..
CHIEF OF PARTY
CDR R.J. Land

LIBRARY & ARCHIVES

DATE February 22, 1984 ..

NOAA FORM 77-28
(11-72)

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

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-10000

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

FIELD NO.

RA-20-1-82

State Alaska

General locality Cook Inlet

Locality Fire Island Shoal to Point Woronzof

Scale 1:20,000 Date of survey May 8 - June 9, 1982

Instructions dated January 27, 1982 Project No. OPR-P358-RA-82

Vessel NOAA Ship RAINIER Launches 2123, 2124 and 2125

Chief of party CAPT R. J. Land

Surveyed by LT J. O'Clock, ENS R. Koehler, ENS B. Postle

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

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Verified C. R. Davies Automated plot by PMC Xynetics Plotter

Evaluated K. M. Scott

Soundings in ~~fathoms~~ feet at MKW MLLW

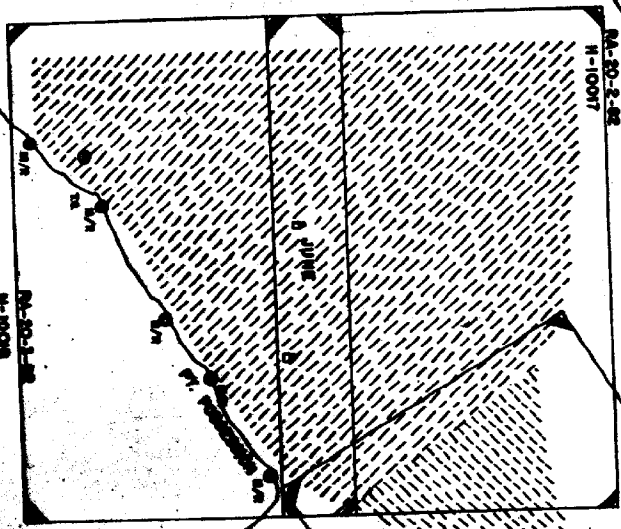
REMARKS:

AUG 15 3/22/84 MLT
3-684 - STANDARDS CK'D
C. Lay

XWW 5/9/96

	APR	MAY	JUN
NO. H.M. SOUNDINGS	3.0	54.6	148.2
L.M. SOUNDING LINE	52.8	1092.1	2364.1
L.M. MISCELLANEOUS DISTANCE	34.0	798.1	839.9
BOTTOM SAMPLES (GRAB)	18	77	108
WATER SAMPLES ANALYZED (SALINITY)	—	12	21
CONTROL STATIONS (ELECTRONIC)	1	3	4
NUMBER CAST (S)	—	2	3
TIDE GAUGE (S)	—	2	1
STATIONS ESTABLISHED BY TRANSVERSE	2	10	—

NO. H.M. SOUNDINGS
 L.M. SOUNDING LINE
 L.M. MISCELLANEOUS DISTANCE
 BOTTOM SAMPLES (GRAB)
 WATER SAMPLES ANALYZED (SALINITY)
 CONTROL STATIONS (ELECTRONIC)
 NUMBER CAST (S)
 TIDE GAUGE (S)
 STATIONS ESTABLISHED BY TRANSVERSE



PROGRESS SKETCH
 OPR-P358-RA-82
 HYDROGRAPHIC SURVEY
 APPROACHES TO PORT OF ANCHORAGE, ALASKA

NOAA SHIP RAINIER
 RALPH J. LAND, CAPT., NOAA
 COMD'G

FROM CHART 18000

APRIL 24 - JUNE 30 1982

181°00'

180°40'

180°20'

180°00'

179°40'

07°20'

07°00'

07°10'

07°30'

07°40'

180°00'

180°20'

180°40'

181°00'

A. PROJECT

Survey H-10000 was conducted in accordance with Project Instructions numbered OPR-P358-RA-82, Approaches to Port of Anchorage, Alaska, dated ~~February 4,~~ ^{January 27,} 1982, and a supplement to the Project Instructions, Change No. 1, dated March 26, 1982. (See Eval Rpt, Sect. 1)

B. AREA SURVEYED

Survey H-10000 was performed in Northern Cook Inlet between ~~Pt. Possession~~ ^{Fire Island Shoal} and Pt. Woronzof.

The actual area included the area between Longitude $150^{\circ} 03.0'$ W and $150^{\circ} 31.0'$ W at the north end, and the area between $150^{\circ} 01.0'$ W and $150^{\circ} 24.0'$ W at the south end. Being a Navigable Area Survey, the sounding lines did not extend past the 3 fathom line except over the shoals (which were fully developed). The survey also did not extend northward up the Little Susitna River channels nor south and southeast into Turnagin Arm.

Inclusive dates of the survey were May 8 - June ~~8,~~ ^{9,} 1982.

C. SOUNDING VESSEL

All soundings were obtained using the following hydrographic launches: RA-3 (2123), RA-4 (2124), and RA-5 (2125). No unusual sounding vessel configurations or problems were encountered.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Introduction

The echo sounding equipment for survey H-10000 was the Ross Fineline fathometer installed in launches RA-3, RA-4, and RA-5. This system includes the Ross model 400 transceiver, Ross model 5000 analog trace recorder, Ross model 6000 digitizer and a 100 khz transducer. Table I summarizes component serial numbers for each vessel.

Table I - Echo Sounding Equipment Serial Numbers

<u>Component</u>	<u>RA-3 (2123)</u>	<u>RA-4 (2124)</u>	<u>RA-5 (2125)</u>
Transceiver	1041	1080	1040
Analog Recorder	1071	1070	1042
Digitizer	1041	1080	1040

Sound Velocity Correctors

Sound velocity correctors for echo soundings were derived from data obtained from three Nansen casts performed during this survey. Details of the casts are summarized in Table II.

Table II - Nansen Cast Data

<u>Date</u>	<u>Location</u>	<u>Velocity Table No.</u>
May 4, 1982	61 ⁰ 13.5' N 149 ⁰ 57.5' W	1
May 17, 1982	61 ⁰ 14.7' N 149 ⁰ 54.5' W	2
June 14, 1982	61 ⁰ 02.5' N 150 ⁰ 31.6' W	3

Water samples were analyzed for salinity using standard laboratory procedures (see H.O.607, Instruction Manual for Obtaining Oceanographic Data, Third Edition, U.S. Naval Oceanographic Office, 1968). The salinometer used for salinity analysis was a Beckman model No. RS-7B (S/N 59265). The unit was calibrated in April 1982 by the Northwest Regional Calibration Center, Bellevue, Washington (see separates following text for calibration results). Results from the casts were compiled in computer program RK530, Velocity Correction Computations and run on the RAINIER's PDP 8/e computer system to yield velocity correctors for this survey. A list of computed correctors are provided in the separates following the text. Table III summarizes which cast correctors were applied to which blocks of time.

Table III - Velocity Correctors For Periods of Hydrography

<u>Cast Date</u>	<u>Days Cast Correctors Used</u>
May 4, 1982	JD 128 - JD 133
May 17, 1982	JD 134 - JD 151
June 14, 1982	JD 152 - JD 160

Launch Draft Correctors

Correctors for launch draft were determined from standard bar checks (see Hydrographic Manual, Fourth Edition, 1976). Bar checks were usually performed at least once a day during survey operations. However, due to swift currents or rough water, bar checks were sometimes rendered unfeasible.

Mean fathometer depth values were corrected for velocity and subtracted from the true bar depths. The resulting values agreed with the historic value of 1.8 feet for the survey launches TRA. Since there have not been any changes in the survey launches to cause a change in draft, the value of 1.8 feet was used in plotting the smooth field sheet.

Launch Settlement and Squat Corrections

Settlement and squat tests for launches RA-3, RA-4, and RA-5 were conducted at Shilshole Bay Marina in Puget Sound on April 2 and on April 6, 1982. The test results are included after the text.

Sounding Equipment Corrections

The initial trace on the analog recorders was continuously monitored by launch personnel to prevent any error due to a drifting initial. Daily phase calibrations were performed to prevent belt length error and stylus/paper misalignment. This was done in accordance with the calibration procedures contained in the PMC OORDER.

E. HYDROGRAPHIC SHEETS

Field sheets were prepared using the PDP 8/e complot system on board the RAINIER. All sheets were based on a modified transverse mercator projection. A list of parameters used to define the hydrographic sheets is attached on the separates following the text. All field records will be sent to the Pacific Marine Center, Seattle, Washington for verification. The smooth field sheets for this survey are plotted at a 1:20,000 scale. In addition, there are five semi-smooth expansion sheets at a 1:2500 scale. The shoal soundings of each development has been transferred to the smooth sheet.

F. CONTROL STATIONS

Horizontal control for Project OPR-P358-RA-82 was provided by the recovery of 28 existing stations and the establishment of twelve new stations. Five of these stations were used for Miniranger sites and are listed below:

RACE POINT LIGHT (OLD), 1966
WEST POINT, 1982
POINT POSSESSION LIGHT, 1974
MAC¹⁹⁴¹ RM3 1947, RM1 1960
WIND, 1982

In addition, the following were used as calibration signals:

POINT WORONZOF RANGE FRONT LIGHT, 1974
POINT MACKENZIE RANGE FRONT LIGHT, 1974
RAINIER, 1982
RACE POINT LIGHT, 1966
WEST POINT, 1982
POINT POSSESSION LIGHT, 1974
PRIMO
MOOSEHEAD
MOOSE POINT LIGHT, 1966

A copy of the Master Station List is included in the attachments. The stations used each day are listed in the raw data.

All new stations were established using Third Order, Class I methods. All work was computed using the North American Datum of 1927. Direct and intersection methods were used to establish all new stations. ✓

The details concerning the location and recovery of each station, including field records and computations are located in the Horizontal Control Report, OPR-P358-RA-82. ✓

G. HYDROGRAPHIC POSITION CONTROL

Range - Range and Range - Azimuth positioning methods were used during survey H-10000, employing Motorola Miniranger III systems, and a WILD T-2 theodolite. The tables below summarize the location of all miniranger mobile and shore equipment. ✓

Table I - Miniranger Mobile Equipment

<u>Vessel</u>	<u>Console S/N</u>	<u>R/T S/N</u>
2123	715	1660
2124	30269	1636
2125	720	2710

Table II - Miniranger Shore Equipment

<u>Code</u>	<u>Transponder S/N</u>	<u>Station</u>
A	1573	102
B	4951	101, 106
C	1628	104
E	911721	214
F	911615	104
O	911632	100, 214
1	911635	100, 106
2	B1106	214

Miniranger Calibration and System Checks

System checks were performed daily. These checks were completed by either horizontal sextant angles to visible Third Order triangulation stations or by launch to launch calibration method. The guide launch in the launch to launch method had previously calibrated by sextant angles. ✓

Miniranger baseline calibrations were completed at the Pacific Marine Center prior to departure to Alaska. Subsequent baseline calibrations pertinent to this survey took place at the Port of Anchorage municipal pier on May 27, 28, 29, June 11, and July 4, 5, 1982. The May baseline calibrations determined minimum signal ✓

strength cutoff values for each R/T - console pair. Final baseline correctors were the mean of the May, June and July calibrations. However, on June 20, 1982, the R/T magnetron (S/N 1660) on RA-3 became defective and was replaced. The new unit (S/N 1557) and console pair were not used in this survey. Only initial correctors were used in smooth plotting the data from RA-3 prior to June 20, 1982. Data for these calibrations is included in the Electronic Control Report. *(See Eval Rpt, Sect 1 and updated tables)*

H. SHORELINE

As stated in the project instructions OPR-P358-RA-82, this survey is a Navigable Area Survey and requires no field edit investigation. Shoreline for the field sheets was taken from the latest edition of chart 16664, blown up to 1:20000. Some discrepancies were observed on the northern mud flats which may have been caused by scouring and deposition.

I. CROSSLINES

A total of 88.2 miles of crosslines were run, representing 10.0% of the mainscheme mileage. Agreement of the 1097 comparisons between crossline and mainscheme soundings is as follows:

0 - 30 feet	48 comparisons within 1.2 feet 23 comparisons within 3.0 feet 6 comparisons greater than 3.0 feet
30 - 66 feet	577 comparisons within 3.0 feet 136 comparisons within 6.0 feet 6 comparisons greater than 6.0 feet
66 - 300 feet	298 comparisons within 9.0 feet 3 comparisons between 9 - 18.0 feet

(See Eval Rpt, Sect 3)

Crossline agreement is good since 84% of the comparisons meet the criteria as stated in Section 1.1.2 Part B.II.1 of the Hydrographic Manual. The observed discrepancies are distributed randomly on the sheets. The amount of disagreement found here is not unusual considering bottom profile irregularities, and that most of the compared soundings are not exactly coincident. When actual tides rather than predicted tides are applied a better comparison will occur. This is because of the non-sinusoidal characteristic of the actual tide curve compared to that of the computer generated sinusoidal curve. All launches involved in this survey (RA-3, RA-4 and RA-5) ran crosslines in addition to the mainscheme lines. The same launch did not necessarily run both types in a given area.

J. JUNCTION

The junction of this survey was compared with present surveys H-10012, H-10017 and H-10018. The following is a statement on the agreement of the comparisons: *(See Eval Rpt, Sect 5)*

H-10012

0 - 30 feet	10 comparisons within 1.2 feet 5 comparisons within 3 feet
30 - 66 feet	33 comparisons within 3 feet 4 comparisons within 6 feet
66 - 300 feet	9 comparisons within 9 feet

Junction agreement is good since 86% of the comparisons meet the criteria as stated in Section 1.1.2 Part B.II.1 of the Hydrographic Manual. ✓

H-10017

66 - 300 feet	12 comparisons within 9 feet
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Junction agreement was excellent since 100% of the comparisons meet the criteria as stated in Section 1.1.2. Part B.II.1 of the Hydrographic Manual. ✓

H-10018

30 - 66 feet	38 comparisons within 3 feet 2 comparisons within 6 feet
66 - 300 feet	74 comparisons within 9 feet

Junction agreement was excellent since 98% of the comparisons meet the criteria as stated in Section 1.1.2. Part B.II. of the Hydrographic Manual. ✓

K. COMPARISON WITH PRIOR SURVEYS

This survey was compared with prior surveys H-9442 (1974) 1:20,000 reduction, H-9444 (1974) 1:20,000, H-9445 (1974) 1:20,000, H-9447 (1974) 1:20,000, H-9760 (1978) 1:20,000 reduction, H-9966 (1981) 1:20,000 and FE 227 (1980) 1:20,000. The following is a statement on the agreement of the comparisons:

(See
Eval Rpt
Sect 6)

H-9442

0 - 30 feet	10 comparisons within 1.2 feet 9 comparisons within 3.0 feet 23 comparisons within 6.0 feet 92 comparisons between 6.0 - 32.0 feet
30 - 66 feet	65 comparisons within 3.0 feet 33 comparisons within 6.0 feet 23 comparisons within 9.0 feet 102 comparisons between 9.0 - 40.0 feet

66 - 300 feet 69 comparisons within 9.0 feet
 3 comparisons within 18.0 feet
 7 comparisons within 24.0 feet

33% of the comparisons meet the criteria as stated in Section 1.1.2.
Part B.II.1 of the Hydrographic Manual.

H-9444

0 - 30 feet 9 comparisons within 1.2 feet
 18 comparisons within 3.0 feet
 32 comparisons within 6.0 feet
 85 comparisons between 6.0 - 33.0 feet

30 - 66 feet 166 comparisons within 3.0 feet
 77 comparisons within 6.0 feet
 20 comparisons within 9.0 feet
 126 comparisons between 9.0 - 34.0 feet

66 - 300 feet 187 comparisons within 9.0 feet
 43 comparisons within 18.0 feet
 7 comparisons within 24.0 feet
 4 comparisons between 24.0 - 30.0 feet

47% of the comparisons meet with the criteria as stated in Section 1.1.2.
Part B.II.1 of the Hydrographic Manual.

H-9445

30 - 66 feet 56 comparisons within 3.0 feet
 7 comparisons within 6.0 feet

66 - 300 feet 7 comparisons within 9.0 feet
 1 comparison within 18.0 feet

89% of the comparisons meet the criteria as stated in Section 1.1.2.
Part B.II.1 of the Hydrographic Manual.

H-9447

30 - 66 feet 1 comparison within 3.0 feet
 3 comparisons within 6.0 feet
 6 comparisons between 9.0 - 23.0 feet

66 - 300 feet 331 comparisons within 9.0 feet
 5 comparisons within 18.0 feet
 3 comparisons within 24.0 feet

95% of the comparisons meet the criteria as stated in Section 1.1.2.
Part B.II.1 of the Hydrographic Manual.

H-9760

0 - 30 feet	11 comparisons within 1.2 feet 11 comparisons within 3.0 feet 12 comparisons within 6.0 feet 3 comparisons between 6.0 - 10.0 feet
30 - 66 feet	99 comparisons within 3.0 feet 35 comparisons within 6.0 feet 30 comparisons within 9.0 feet 37 comparisons between 9.0 - 20.0 feet
66 - 300 feet	70 comparisons within 9.0 feet 17 comparisons within 18.0 feet 11 comparisons within 24.0 feet 4 comparisons between 24.0 - 31.0 feet

53% of the comparisons meet the criteria as stated in Section 1.1.2. Part B.II.1 of the Hydrographic Manual.

H-9966

0 - 30 feet	19 comparisons within 1.2 feet 14 comparisons within 3.0 feet 40 comparisons within 6.0 feet 19 comparisons between 6.0 - 9.0 feet
30 - 66 feet	104 comparisons within 3.0 feet 63 comparisons within 6.0 feet 15 comparisons within 9.0 feet 14 comparisons between 9.0 - 13.0 feet
66 - 300 feet	27 comparisons within 9.0 feet

48% of the comparisons meet the criteria as stated in Section 1.1.2. Part B.II.1 of the Hydrographic Manual.

FE227

0 - 30 feet	13 comparisons within 1.2 feet 17 comparisons within 3.0 feet 14 comparisons within 6.0 feet 20 comparisons between 6.0 - 16.0 feet
30 - 66 feet	170 comparisons within 3.0 feet 58 comparisons within 6.0 feet 25 comparisons within 9.0 feet 16 comparisons between 9.0 - 20.0 feet
66 - 300 feet	70 comparisons within 9.0 feet 2 comparisons within 18.0 feet

63% of the comparisons meet the criteria as stated in Section 1.1.2. Part B.II.1 of the Hydrographic Manual.

The results of this survey do not show excellent agreement with prior surveys H-9442, H-9444, H-9760, H-9966 and FE227. Some of the discrepancies are due to the fact that the compared soundings are seldom exactly coincident. This is a particular problem with H-9442, 1:20,000 reduction and H-9760, 1:20,000 reduction since the sounding numbers are much smaller than the 1:20,000 smooth sheets. There was also marked disagreement with H-9444, H-9966 and FE227 due mainly to the changes on and near the three major shoals (Fire Island/Knik Arm/Woronzof) and a newly developing shoal at $61^{\circ} 12' 45''$ N $150^{\circ} 08' 00''$ W. In addition, the presence of strong currents, unstable bottom composition (sand and mud), high tidal ranges and the continual changes of the mud flat shore line are evidence that the bottom profile of this area is constantly changing.

(See
Eval Rpt
Sect. 6)

L. COMPARISON WITH THE CHART

This survey compared with chart 16664 18th Edition, January 16, 1982 (prelim), 1:40,000 scale enlarged to 1:20,000. The soundings compared as follows:

(See
Eval Rpt
Sect 7)

1:40,000 enlarged to 1:20,000

0 - 30 feet	58 comparisons within 1.2 feet 29 comparisons within 3.0 feet 41 comparisons within 6.0 feet 138 comparisons between 6.0 - 40.0 feet
30 - 66 feet	178 comparisons within 3.0 feet 76 comparisons within 6.0 feet 32 comparisons within 9.0 feet 72 comparisons between 9.0 - 31.0 feet
66 - 300 feet	101 comparisons within 9.0 feet 9 comparisons within 18.0 feet

46% of the comparisons meet the criteria as stated in Section 1.1.2. Part B.II.1 of the Hydrographic Manual.

The results of this survey do not show excellent agreement with the published chart 16664, 1:40,000 scale enlarged to 1:20,000. Since compared soundings often do not lie on top of one another, especially with the 2X enlargement of the 1:40,000 scale, some discrepancies will result.

A new shoal (unnamed) was located at $61^{\circ} 12' 45''$ N, $150^{\circ} 08' 00''$ W (see expansion #2) and was extensively developed. The shoalest depth was a 18.0 foot sounding. This item should be placed on the next chart.

(See Eval Rpt
Sect 6)

It is recommended that a previously unnamed shoal at $61^{\circ} 11' 30''$ N, $150^{\circ} 04' 30''$ W be named Woronzof Shoal on the next chart (see Geographic Names Attachment). (See Eval Rpt, Sect 6)

Survey information indicates that the Fire Island Shoal (~~see expansion sheet #5~~) continues to migrate in an east-southeast direction toward the Pt. Mackenzie Range. A comparison was made with the 1981 (H-9966) and 1982 (RA-20-1-82) surveys using the 6 foot and 18 foot contours with the following conclusions:

1. On the southeasterly side of the shoal, both the 6 foot and the 18 foot contours shifted on an average of 50 meters in a southeasterly direction.

2. On the northeasterly side of the shoal, the 6 foot and 18 foot contours shifted an average 100 meters in a southeasterly direction.

3. The most westward extent of the 6 foot contour is approximately 300 meters east of the 1981 survey; the 18 foot contour moved about 500 meters.

4. The most eastward extent of the 6 foot contour is approximately 100 meters east of the 1981 survey; the 18 foot contour shows no significant change.

5. The least depths over the shoal do not show any significant change, however the data has not been reduced with final tide and velocity correctors.

(See Eval Rpt Sect 6)

Survey information also indicates that when survey H-9442 (1974) and H-9760 (1978) are compared with the 1982 results it is apparent that the Woronzof Shoal has moved approximately 150 meters in a southeasterly direction over the past 8 years. Though the 1974 and 1978 surveys are reductions, the comparisons show a valid movement and it should be noted and changed on the chart along with the changes concerning the Fire Island Shoal.

(See Eval Rpt Sect 6)

M. ADEQUACY OF SURVEY

This survey is complete and sufficient to supersede all prior surveys for charting purposes.

N. AIDS TO NAVIGATION

There are three floating aids to navigation in the survey area. All are seasonal, and depending on ice conditions, are in place from approximately May 1 to November 1. Comparison with the Light List, Vol. III, 1982, revealed position discrepancies for Lighted Bell Bouy 5 (LL# 3508) listed at $61^{\circ} 08.25'$ N, $150^{\circ} 20.83'$ W located by hydrographic methods at $61^{\circ} 08.6'$ N, $150^{\circ} 20.7'$ W and Knik Arm Shoal Lighted Bouy 7 (LL# 3513) listed at $61^{\circ} 12.2'$ N, $150^{\circ} 05.2'$ W, located by Hydrographic methods at $61^{\circ} 12.2'$ N, $150^{\circ} 05.3'$ W.

All floating aids were located in depths which agree within two feet of depths noted in the Light List. The charted positions of Bouys 5 and 7 (scaled from chart #16664) agree with the Light List Buoy positions, and inverse computations (attached) show them to be 1372.7 m and 79.8 m respectively in error of the hydrographic position. Locations of floating aids, further description and hydrographic fix number references are listed in the attached Floating Aids to Navigation Form. Comparison of the fixed aids to navigation, as listed on NOAA Form 76-40, with the Light List also revealed positional errors. The Fire Island Range Front Light (LL# 3511) was verified as located at 61° 10.4' N, 150° 11.9' W, it is listed at 61° 10.3' N, 150° 12.1' W. The Fire Island Range Rear Light (LL# 3512) is listed as being 433 yards, 242° from the front range, whereas an inverse computation on the verified positions of the two range lights results in a distance separation of 467.2 m or 510.9 yards. Comparison of the fixed aids with the most recent charts reveals that Race Point Light, a new structure, is positioned incorrectly on chart #16660 and is listed PA on chart #16664. All remaining fixed aids and landmarks were verified or recommended for deletion or revision and are listed on the NOAA 76-40 Forms included with the report.

(See Updated 76-40 attached)

O. STATISTICS

<u>Survey Launch</u>	<u>Linear/Nautical Miles of Hydrography</u>	<u>Square Nautical Miles</u>	<u>Number of Positions</u>
RA-3 (2123)	620.3	- - -	2511
RA-4 (2124)	431.7	- - -	1852
RA-5 (2125)	26.8	- - -	109
TOTAL	<u>1078.8</u>	<u>48.7</u>	<u>4472</u>

Bottom samples: 55.

One tide station was maintained on Fire Island near Old Race Pt. Light.

Three Nansen casts were taken in the survey area.

P. MISCELLANEOUS

All NAV DOWN errors generated during the course of hydrography on the computer launches were corrected in the corrector tapes.

Q. RECOMMENDATIONS

This survey is considered complete and adequate, and there are no recommendations except for the items previously mentioned in Section L (Comparison with the chart).

(See Eval Rpt Sect 9)

R. AUTOMATED DATA PROCESSING

Data acquisition and processing were accomplished per instructions in the Hydrographic Manual (4th Edition), Manual of Automated Hydrographic Surveys, the PMC OORDER, Hydrographic Survey Guidelines and the Hydrographic Data Requirements for 1982.

Soundings and positions were taken by an ASI Logger and a Hydroplot system using range - range program RK111 and RK112. There are daily master tapes and corresponding corrector tapes which include the TRA for the launches and electronic control baseline correctors for mini-ranger consoles and R/T units and all depth corrections. Velocity tapes were generated from Nansen cast data. The following is a list of all computer programs and version dates used for data acquisition or processing:

	<u>PDP 8/e Programs</u>	<u>Version Date</u>
RK111	Range-Range Real Time Plot	01/30/76
RK112	Hyperbolic, R/R Hydroplot	08/04/81
RK201	Grid, Signal and Lattice Plot	04/18/75
RK211	Range-Range Non-Real Time Plot	02/02/81
RK212	Visual Station Table Load	04/01/74
RK216	Range Azimuth Non-Real Time Plot	02/09/81
RK300	Utility Computations	10/21/80
RK330	Reformat and Data Check	05/04/76
PM360	Electronic Corrector Abstract	02/02/76
RK407	Geodetic Inverse/Direct Computation	09/25/78
AM500	Predicted Tide Generator	11/10/72
RK530	Layer Corrections for Velocity	05/10/76
RK561	H/R Geodetic Calibration	02/19/75
AM602	Elinore-Line Oriented Editor	05/20/75
AM603	Tape Consolidator	10/10/72
RK606	Tape Duplicator	08/22/74

The HP97 and HP9815A programmable calculators were used to compute geographic positions of electronic control stations and visual signals for calibrations.

S. REFERRAL TO REPORTS

The following reports contain information related to this survey:

Echo Sounding Report	OPR-P358-RA-82
Electronic Control Report	OPR-P358-RA-82
Horizontal Control Report	OPR-P358-RA-82
Coast Pilot Report	OPR-P358-RA-82

Respectfully submitted,

James W. O'Clock, LT, NOAA

James W. O'Clock
LT, NOAA

FIELD TIDE NOTE

Field tide reduction of soundings for H-10000 was based on predicted tides from Anchorage, Alaska. Corrections were obtained from the preliminary Tidal Zoning OPR-P358-RA-82. The predicted tides were interpolated using program AM500.

The reference station, Anchorage, Alaska (945-5920, Lat $61^{\circ} 14.3'$ N, Long $149^{\circ} 53.3'$ W) was repaired on April 26, 1982 by RAINIER personnel in conjunction with the Pacific Tide Party. The subordinate station, FIRE ISLAND (945-5912, Lat $61^{\circ} 10.4'$ N, Long $150^{\circ} 12.3'$ W) provided for direct control of hydrography on H-10000. It was installed on May 6, 1982 and removed on July 1, 1982. For this gage, the staff value of the zero line on the tide record was +1.4 feet and the time meridian for records anotation was 135° W (ADT).

GEOGRAPHIC NAMES

H-10000

ALASKA, COOK INLET
Name on Survey
PT. POSSESSION TO
PT. WORONZOF

A ON CHART NO. 15660
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 GRAND McNALLY ATLAS
H U.S. LIGHT LIST
K

	A	B	C	D	E	F	G	H	K
COOK INLET	X								1
FIRE ISLAND	X								2
FIRE ISLAND SHOAL	X								3
KNIK ARM SHOAL	X								4
NORTH POINT	X								5
POINT CAMPBELL	X								6
POINT WORONZOF	X								7
RACE POINT	X								8
SHELTER BAY	X								9
WEST POINT	X								10
WORONZOF SHOAL **ok pending BGN decision									11
ALASKA (title block)									12
POINT POSSESSION (title block)									13
									14
** NAME ASSIGNED BY NOAA SHIP RAINIER AS PER PROJECT INSTRUCTIONS									15
OPR-P358-RA-82 - Submitted new name proposal to U.S. Board on									16
Geographic names 7/7/1983 CGH CG2x5									17
									18
									19
									20
									21
									22
									23
									24
									25

Approved

Charles E. Harrington
Chief Geographer - N/CG2x5

7 July 1983

VELOCITY CORRECTOR TAPE LISTING
RA-20-1-82(H-10000)

TABLE NO. 1
HYDRO FROM 4/28, JD 118 TO 5/13, JD 133

UNIT - FEET
000080 0 0000 0001 000 000000 010000
000220 1 0002
000375 1 0004
000515 1 0006
000660 1 0008
000790 1 0010
000940 1 0012
001020 1 0014
001260 1 0016
001400 1 0018
001540 1 0020
001690 1 0011
001850 1 0024
001970 1 0026
002110 1 0028
002240 1 0030
999999 1 0032

TABLE NO. 2
HYDRO FROM 5/14, JD134 TO 5/31, JD151

UNIT - FEET
000220 0 0000 0002 000 000000 010000
000585 1 0002
000940 1 0004
001290 1 0006
001680 1 0008
001910 1 0010
002400 1 0012
999999 1 0014

TABLE NO. 3
HYDRO FROM 6/1, JD152 TO 6/19, JD170

UNIT - FEET
000630 0 0000 0003 000 000000 010000
001630 0 0002
002500 0 0004
999999 0 0006

TC/TI TAPE LISTING
FA-20-1-82 (H-10000)

VESSEL: 2123(RA-3)
FATHOMETER S/N: 1071

190949 0 0000 0000 128 212300 000000
201608 0 0016 0001 128 000000 000000
194006 0 0020 0001 129 000000 000000
194444 0 0016
201533 0 0020
201800 0 0016
204858 0 0020
205134 0 0016
210716 0 0020
210853 0 0016
212251 0 0020
212454 0 0016
215536 0 0020
215754 0 0016
221227 0 0020
221426 0 0016
222756 0 0020
223000 0 0016
230209 0 0020
174447 0 0016 0001 130 000000 000000
214301 0 0020
214435 0 0016
220953 0 0020
221121 0 0016
223629 0 0020
224847 0 0016
230206 0 0020
230431 0 0016
231703 0 0020
231859 0 0016
233132 0 0020
234246 0 0016
235506 0 0020
235605 0 0016
000801 0 0020 0001 131 000000 000000
000935 0 0016
002121 0 0020
002315 0 0016
003411 0 0020
191513 0 0016
193119 0 0020
193401 0 0016
194358 0 0020
194731 0 0016
195744 0 0020
195944 0 0016
205100 0 0020

VESSEL: 2123(FA-3) (CONT)

211152 0 0016
211622 0 0020
220304 0 0016
221259 0 0020
221417 0 0016
223335 0 0020
223622 0 0016
225232 0 0020
225639 0 0016
231512 0 0020
231744 0 0016
233032 0 0020
233307 0 0016
233758 0 0020 0001 133 000000 000000
234221 0 0016
000518 0 0020 0002 134 000000 000000
190720 0 0016 0002 137 000000 000000
191915 0 0020
192637 0 0016
210937 0 0020
211226 0 0016
221710 0 0020 0002 138 000000 000000
222108 0 0016
223445 0 0020
223623 0 0016
223941 0 0020
224128 0 0016
224434 0 0020
224632 0 0016
224951 0 0020
225126 0 0016
203649 0 0020 0002 139 000000 000000
203911 0 0016
204406 0 0020
204546 0 0016
205028 0 0020
205208 0 0016
205520 0 0020
205815 0 0016
210336 0 0020
210555 0 0016
211120 0 0020
231932 0 0016
233158 0 0020
233449 0 0016

VESSEL: 2123(PA-3) (CONT.)

234715 0 0020
235032 0 0016
000444 0 0020 0002 140 000000 000000
000617 0 0016
190105 0 0020
190348 0 0016
193436 0 0020
194040 0 0016
201503 0 0020
201835 0 0016
204944 0 0020
211232 0 0016
221250 0 0020 0002 142 000000 000000
221520 0 0016
224129 0 0020
224306 0 0016
200309 0 0020 0002 143 000000 000000
200523 0 0016
203624 0 0020
203941 0 0016
203106 0 0016 0003 152 000000 000000
203927 0 0000 0000 154 000000 000000
204403 0 0018 0003 154 000000 000000
205355 0 0000 0000 154 000000 000000
214426 0 0016 0003 154 000000 000000
185914 0 0000 0000 160 000000 000000
195900 0 0000 0000 160 000000 000000

VESSEL: 2124(PA-4)
FATHOMETEF S/N: 1070

191020 0 0014 0001 129 212400 000000
000129 0 0018 0001 130 000000 000000
183758 0 0014
002204 0 0018 0001 131 000000 000000
182919 0 0014 0001 132 000000 000000
193915 0 0018
184822 0 0014 0001 133 000000 000000
230933 0 0018
001657 0 0018 0002 134 000000 000000
192950 0 0020 0002 138 000000 000000
203229 0 0018
190639 0 0014 0002 140 000000 000000
234150 0 0020
220004 0 0014 0002 141 000000 000000

VESSEL: 2124(PA-4) (CONT.)

210456 0 0020 0002 142 000000 000000
220050 0 0014
222005 0 0020
222457 0 0014
224637 0 0020
232700 0 0014
235458 0 0020
235850 0 0014
002341 0 0020 0002 143 000000 000000
002757 0 0014
183130 0 0018
210831 0 0020
214814 0 0014
184439 0 0018 0002 144 000000 000000
212231 0 0020
224121 0 0018
192205 0 0014 0002 145 000000 000000
223603 0 0020
000225 0 0018 0002 146 000000 000000
200936 0 0018 0003 153 000000 000000
204006 0 0014
215015 0 0015
190539 0 0014 0003 154 000000 000000
005000 0 0014 0003 155 000000 000000

VESSEL: 2125(PA-5)
FATHOMETEP S/N: 1042 ✓

223348 0 0000 0000 132 212500 000000
183444 0 0018 0002 137 000000 000000
202220 0 0020 0002 139 000000 000000
221300 0 0018 0002 141 000000 000000
200000 0 0000 0000 142 000000 000000
202620 0 0018 0002 143 000000 000000
000619 0 0000 0000 144 000000 000000
224500 0 0000 0000 145 000000 000000

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2123

SHEET : FA-20-1N-82

TIME	DAY	PATTERN 1	PATTERN 2
190949	128	+00004	-00002
000012	129	+00004	-00002
184934	129	+00004	-00002
174447	130	+00004	-00002
000005	131	+00004	-00002
191513	131	+00004	-00002
190438	132	+00004	-00002
211750	133	-00002	-00000
000011	134	-00002	-00000
190720	137	-00002	-00000
000038	138	-00002	-00000
221226	138	-00002	-00000
000005	139	-00002	-00000
201940	139	-00002	-00000
231932		-00000	+00005
000002	140	-00000	+00005
184842	140	-00000	+00005
000819	141	-00000	+00005
204414	141	-00000	+00000
000022	142	-00000	+00000

ELECTRONIC COEFFICIENT ABSTRACT

VESSEL : 2124

SHEET : PA-20-1N-82

TIME	DAY	PATTERN 1	PATTERN 2
191020	129	+00004 ²	+00000 ¹
000009	130	+00004 ²	+00000 ¹
183758	130	+00004 ²	+00000
000002	131	+00004 ²	+00000
192141	131	+00004 ²	+00000
182919	132	+00004 ²	+00000
184822	133	+00004 ²	+00000
230933	133	+00000 ¹	+84020
001657	134	+00000	-05421
020000		+00000	+00000
213225	137	+00000 ¹	+84480
000545	138	+00000	-06591
002000		+00000	+00000
192305	138	+00000 ²	+35050
235000		+00000	+00000
203229	138	+00004 ²	+00000
215251	139	+00000 ¹	+00000 ¹
000005	140	+00000	+00000 ¹
190623	140	+00000	+00000 ¹

FOR RANGE AZIMUTH HYDRO DISPERSED PATTERN 2 COEFFICIENTS.

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2125

SHEET : FA-20-1N-82

TIME	DAY	PATTERN 1	PATTERN 2
191146 193476	137	-00003	+00004
202220	139	+00000	+35009
230000		+00000	+00000
214311	141	-00002	-81301
001640	142	-00002	-19268
022500 200000		+00000	+00002
202620	143	+00000	+00009

FOR RANGE AZIMUTH HYDRO DISREGARD PATTERN 2 CORRECTORS.

ELECTRONIC CORRECTION ABSTRACT

VESSEL : 2125

SHEET : RA-20-1N-82

TIME	DAY	PATTERN 1	PATTERN 2
223348	132	-0000 ⁰	-0000 ²
000106	133	-0000 ⁹	-0000
200000	142	+00000	-0000
000619	144	-0000 ¹²	-0000
000103	145	-0000 ¹²	-0000

ABOVE CORRECTIONS ARE FOR BOTTOM SAMPLES ONLY.

ELECTRONIC CORRECTION ABSTRACT

VESSEL : 2123

SHEET : PA-20-15-82 ✓

TIME	DAY	FATTFFN 1	FATTFFN 2
214928	142	+00000	-00002
000005	143	+00000	-00002
185301	143	+00000	-00002
002840	144	+00000	-00002
193221	144	+00000	-00002
000000	145	+00000	-00002
191225	145	+00000	-00002
000004	146	+00000	-00002
203106	152	+00000	-00002
000014	153	+00000	-00002
192214	153	-00002	+00001
000024	154	-00002	+00001
185726	154	-00002	+00001
000005	155	-00002	+00001
183157	155	-00002	+00001
000009	156	-00002	+00001
202642	158	-00002	+00001
195058	159	-00002	+00001
185041	160	-00002	+00001

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2124

SHEET : PA-20-15-82

TIME	DAY	PATTERN 1	PATTERN 2
220004	141	+00000	+00000
000001	142	+00000	+00000
200236	142	+00000	+00000
000002	143	+00000	+00000
183130	143	+00000	+00000
000009	144	+00000	+00000
184439	144	+00000	+00000
192205	145	+00000	+00000
000009	146	-00000 ¹⁰	-00000 ¹⁰
223723	152	+00000	+00000
000006	153	+00000	+00000
200936	153	+00000	-00002
001434	154	+00000	-00002
190539	154	+00000	-00002
000003	155	+00000	-00002

MASTER STATION LIST
 OFF-F358-FA-82
 ANCHORAGE, ALASKA

FINAL VERSION

100	3	61	11	21628	150	00	58376	250	0084	000000	
/WIND 1982											
101	3	61	13	13222	149	54	01358	250	0044	000000	
/ANCHOR STEAM 1982											
102	1	61	14	19454	149	59	05885	250	0027	000000	
/MAC RM3 1947 FM1 1960											
103	4	61	13	13193	149	54	01309	243	0044	000000	
/ANCHOR STEAM 1982 ECCENTRIC											
104	4	61	07	35804	150	16	48041	250	0005	000000	
/WEST POINT 1982											
105	4	61	10	05201	150	13	21833	250	0052	000000	
/FACE POINT LIGHT 1982 NEW (LL3510)											
106	4	61	02	03954	150	24	10627	250	0023	000000	
/PT POSSESSION LIGHT 1974 611502(LL3507)											
107	7	61	00	20505	150	30	17765	250 ²⁴³	0028	000000	
/PRIMO 1982 (TEMPORARY)											
108	7	60	59	08021	150	34	17820	250 ²⁴³	0022	000000	
/MOOSEHEAD 1982 (TEMPORARY)											
109	6	60	57	22856	150	41	01915	250	0009	000000	
/MOOSE PT. LIGHT, 1966 601504(LL3506)											
110	2	60	55	16655	150	44	57212	250	0029	000000	
/CPEEK 1963, 1964 601504(1006)											
200	4	61	13	56027	149	52	21662	139	0107	000000	
/ANCHORAGE ACS MICROWAVE TOWER, CENTER, 1982											
201	4	61	13	46510	149	52	35348	139	0068	000000	
/ANCHORAGE MUNICIPAL TANK, 1964 611493											
202	3	61	12	25181	149	55	20367	139	0075	000000	
/ANCHORAGE RADIO STA KINI TOWER, 1954, 1964 611493											

203	3	61	14	19554	149	59	05994	139	0030	000000	
/POINT MACKENZIE LIGHT 1973											
											611493(LL3517)
204	3	61	14	22627	149	59	17289	139	0029	000000	
/PT. MACKENZIE RNG. FRONT LT., 1974											
											611493(LL3518)
205	3	61	14	29188	149	58	52550	139	0043	000000	
/PT. MACKENZIE RNG. REAR LT., 1974											
											611493(LL3519)
206	3	61	09	34034	150	01	54687	139	0110	000000	
/SITE POINT RADOME 1964											
											611502(1025)
207	3	61	10	38206	149	58	50663	139	0079	000000	
/PATCO INTERNATIONAL CONTROL TOWER 1982											
208	3	61	10	22690	150	11	51552	139	0038	000000	
/FIRE ISLAND RNG FRONT LT, 1974											
											611502(LL3511)
209	3	61	10	15602	150	12	19144	139	0050	000000	
/FIRE ISLAND RNG REAR LT, 1974											
											611502(LL3512)
210	3	61	12	09033	150	01	11117	139	0024	000000	
/PT WORONZOF RNG FRONT LT, 1974											
											611502(LL3515)
211	3	61	12	10383	150	00	53325	139	0036	000000	
/PT WORONZOF RNG REAR LT, 1974											
											611502(LL3516)
212	4	61	12	15117	150	00	49417	139	0048	000000	
/PT WORONZOF LIGHT "10", 1982											
											(LL3514)
213	1	61	07	35808	150	16	48039	250	0009	000000	
/FIRE ISLAND LIGHT, 1967 , 1982											
											611502(LL3509)
214	1	61	10	17462	150	12	35026	250	0052	000000	
/RACE POINT LIGHT, 1966 COLD											
											611502
215	4	61	07	50319	150	14	45240	139	0070	000000	
/RAINIER, 1982											

NOAA FORM 76-40
(9-74)

NONFLUORESCENT LANDMARKS FOR CHARTS

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

Replaces CAGS Form 567.

TO BE CHARTED
 TO BE REVISED
 TO BE DELETED

REPORTING UNIT
(Field Party, Ship or Office)

NOAA SHIP RAINIER

STATE

Alaska

LOCALITY

Northern Cook Inlet

DATE

7/19/82

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

OPR PROJECT NO.

JOB NUMBER

SURVEY NUMBER

DATUM

OPR-P358-RA-82

N.A.

H-10000

N.A. 1927

POSITION

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

OFFICE

FIELD

CHARTS
AFFECTED

CHARTING
NAME

DESCRIPTION
(Record reason for deletion of landmark or aid to navigation.
Show triangulation station names, where applicable, in parentheses)

RA DOME

(FIRE ISLAND PAA RADOME, 1974)
STRUCTURE HAS BEEN DESTROYED

LATITUDE

POSITION

LONGITUDE

° / ' //

° / ' //

61 08

D.M. Meters

D.P. Meters

36.252

150 12

53.376

6/10/82

F-VIS-V

16664

16660

See L 8 (83)

ORIGINATING ACTIVITY
 HYDROGRAPHIC PARTY
 GEODETIC PARTY
 PHOTO FIELD PARTY
 COMPILATION ACTIVITY
 FINAL REVIEWER
 QUALITY CONTROL & REVIEW GRP.
 COAST PILOT BRANCH
 (See reverse for responsible personnel)

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

- TO BE CHARTED
- TO BE REVISED
- TO BE DELETED

REPORTING UNIT
(Field Party, Ship or Office)
NOAA Ship RAINIER

STATE
Alaska

LOCALITY
Northern Cook Inlet

DATE
7/19/82

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

NONFLOATING AIDS ~~OR MARKS~~ FOR CHARTS

ORIGINATING ACTIVITY

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

(See reverse for responsible personnel)

The following objects HAVE BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.
OPR PROJECT NO. OPR-P358-RA-82

JOB NUMBER N.A.

SURVEY NUMBER H-10000

DATUM N.A. 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	LATITUDE		LONGITUDE		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED
		° /	// D.M. Meters	° /	// D.P. Meters	OFFICE	FIELD	
LIGHT	(RACE POINT LIGHT, 1982) FIELD POSITION	61 10	05 201	150 13	21 833		F-3-6-L 5/4/82	16664 16660
	1982 LIGHT LIST #3510 THIS LIGHT IS A NEW STRUCTURE, BUILT IN THE VICINITY OF THE OLDER LIGHT STRUCTURE WHICH IS STILL STANDING BUT NOT LIGHTED, ITS POSITION IS INCORRECT ON CHART #16660 AND LISTED PA ON CHART #16664							
LIGHT	(FIRE ISLAND LIGHT, 1982) FIELD POSITION	61 07	35 808	150 16	48 039		F-2-6-L 5/23/82	16664 16660
	1982 LIGHT LIST #3509							
	MC							
	DIP FILE							

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 367.

TO BE CHARTED
 TO BE REVISED
 TO BE DELETED

REPORTING UNIT
(Field Party, Ship or Office)

NOAA Ship RAINIER

STATE

Alaska

LOCALITY

Northern Cook Inlet

DATE

7/19/82

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY

HYDROGRAPHIC PARTY
 GEODETIC PARTY
 PHOTO FIELD PARTY
 COMPILATION ACTIVITY
 FINAL REVIEWER
 QUALITY CONTROL & REVIEW GRP.
 COAST PILOT BRANCH

(See reverse for responsible personnel)

The following objects HAVE BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

OPR PROJECT NO.

OPR-P358-RA-82

JOB NUMBER

N. A.

DATUM

N. A. 1927

POSITION

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

CHARTING NAME

DESCRIPTION

(Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)

LATITUDE

D.M. Meters

LONGITUDE

D.P. Meters

OFFICE

FIELD

CHARTS AFFECTED

LIGHT

(FIRE ISLAND RNG FRONT LT, 1974)
FIRE ISLAND RANGE FRONT LIGHT -

61 10

22.690

150 11

51.552

770.6

Triang. Rec.

5/4/82

16664
16660

LIGHT

(FIRE ISLAND RNG REAR LT, 1974)
FIRE ISLAND RANGE REAR LIGHT -

61 10

15.602

150 12

19.144

286.2

Triang. Rec.

5/10/82

16664

1982 LIGHT LIST #3511

LIGHT LIST POSITIONAL ERROR

NC

DIP FILE

1982 LIGHT LIST #3512

LIGHT LIST POSITIONAL ERROR

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

VESSEL	SERIAL NO.	DATE	PROJ. NO.		YEAR	DEPTH FEET (from bottom)	WEIGHT OF SAM- PLER	AP- PROX. PEN- TRA- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief, i.e., slope, plain, disposition, etc.)	OBS. INIT.
			LATITUDE	LONGITUDE									
2125	(RA-5)	1982	OPR-1558-RA-82		82								
			FIRE ISLAND SHOAL, ALASKA RA-20-1-82 (H-10000)										7/2/82
			SAMPLE POSITION										
			LATITUDE	LONGITUDE									
			61	150									
5000		5/12	11° 00.81"	07° 03.77"	82	44.4	25/60			bk	spks		MRM
5001		5/12	11° 19.83"	05° 25.88"	82	12.8	"			bk	spks		MRM
5002		5/12	11° 26.37"	04° 35.48"	82	8.1	"			-	spks		MRM
5003		5/12	11° 38.98"	03° 43.23"	82	12.3	"			-	spk crs S		MRM
5004		5/12	11° 57.32"	02° 29.02"	82	11.0	"			-	spk S. sml P		MRM
5005		5/12	12° 54.66"	03° 48.73"	82	43.2	"			-	spk S		MRM
5006		5/12	13° 46.38"	04° 49.63"	82	32.2	"			-	fne spks		MRM
5007		5/12	13° 59.28"	06° 11.20"	82	19.7	"			-	spk crs S		MRM
5008		5/12	12° 22.34"	05° 32.81"	82	34.6	"			-	spk S		MRM
5009		5/13	11° 59.61"	07° 07.19"	82	57.5	"			-	spk S		MRM
5010		5/13	11° 22.60"	09° 29.29"	82	89.5	"			-	fne spk S, P		MRM
5011		5/13	12° 38.17"	09° 25.39"	82	51.3	"			-	spk S		MRM
5150		5/22	11° 00.25"	11° 41.01"	82	79.0	"			gy	fne S sml P		BSP
5151		5/22	11° 59.70"	11° 30.24"	82	52.0	"			gy	med. S		RGG
5152		5/22	11° 20.68"	14° 01.77"	82	77.0	"			gy	S G		RGB
5153		5/22	11° 40.23"	16° 09.70"	82	51.0	"			gy	crs S		BSP
5154		5/22	11° 34.10"	18° 35.94"	82	62.7	"			gy	crs S		BSP

Use more than one line per sample if necessary.

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

VESSEL	SERIAL NO.	DATE	PROJ. NO.		YEAR	DEPTH FEET	SAMPLE POSITION		WEIGHT OF SAM- PLER	AP- PROJ. TIE- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, density, color, silt. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INT.	
			08R-358	RA-82			LATITUDE	LONGITUDE								
2125 (RA-5)		1982	61°	150	82									7/2/82		
			FIRE ISLAND SHOAL, ALASKA													
			RA-20-1-82 (H-10000)													
5155	5/22	11° 00' 10" N	150° 21' 23" W	75.0	25.166						gy	crs S		BSP		
5156	5/22	10° 39' 08" N	150° 57' 73" W	50.9	"						gy	crs S		BSP		
5157	5/22	10° 33' 36" N	150° 46' 15" W	74.9	"						gy	fine S		BSP		
5158	5/22	10° 19' 88" N	150° 40' 59" W	56.6	"						gy	crs med. P		BSP		
5159	5/22	09° 32' 66" N	150° 18' 84" W	46.5	"						gy	med P med S		BSP		
5160	5/22	08° 43' 43" N	150° 23' 76" W	31.5	"						gy	crs P		BSP		
5161	5/22	09° 49' 8" N	150° 19' 24" W	68.2	"						gy	med S		BSP		
5178	5/24	08° 25' 96" N	150° 35' 09" W	44.6	"						gy	med P		BSP		
5179	5/24	09° 30' 57" N	150° 53' 13" W	35.0	"						gy	med S		BSP		
5180	5/24	10° 31' 17" N	150° 29' 05" W	60.1	"						gy	med S		BSP		
5181	5/24	10° 43' 27" N	150° 35' 90" W	100.3	"						gy	med S		BSP		
5182	5/24	09° 45' 24" N	150° 29' 39" W	80.5	"						gy	med s crs S	Sml wood pieces present in sample	BSP		
5183	5/24	08° 54' 40" N	150° 17' 09" W	33.1	"						gy	fine S		BSP		
5184	5/24	08° 37' 54" N	150° 55' 83" W	79.0	"						gy	fine S		BSP		
5185	5/24	08° 19' 37" N	150° 03' 91" W	52.3	"						gy	fine s, st		BSP		
5186	5/24	07° 20' 63" N	150° 36' 11" W	63.1	"						gy	fine s, st, crs G		BSP		
5187	5/25	07° 17' 57" N	150° 28' 66" W	62.4	"						gy	st		BSP		

Use more than one line per sample if necessary.

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

VESSEL	SERIAL NO.	DATE	SAMPLE POSITION		DEPTH FEET (if different)	YEAR	PROJ. NO.	AP. PEN. TRA. TION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	CHECKED BY	DATE CHECKED	REMARKS (Unusual conditions, cohesiveness, detritus, color, size, no. type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
			LATITUDE	LONGITUDE											
2125 (RA-5)		1982	61°N	150°W		82	08P-P35B-RA-82						7/2/82		
	5188	5/25	06° 29.52' N	129° 53' W	45.7					gy	fine S				BSP
	5189	5/25	05° 21.59' N	131.59' W	43.7					gy	fine S, crs P				BSP
	5190	5/25	04° 42.94' N	133.30' W	67.9					gy	fine S				BSP
	5191	5/25	06° 0.15' N	146.82' W	70.5					gy	fine S, crs P				BSP
	5192	5/25	06° 49.44' N	138.54' W	79.5					gy	fine S				BSP
	5193	5/25	06° 57.13' N	139.0' W	85.0					gy	fine S				BSP
	5194	5/25	07° 46.43' N	135.51' W	103.5					gy	med crs P				BSP
	5195	5/25	08° 23.65' N	131.92' W	72.0					gy	fine S				BSP
	5196	5/25	08° 18.14' N	114.5' W	36.0					gy	fine S				BSP
	5197	5/25	08° 16.86' N	126.73' W	56.0					gy	fine S				BSP
	5198	5/25	07° 32.36' N	151.07' W	91.6					gy	fine S med P				BSP
	5199	5/25	07° 47.75' N	151.42' W	84.0					gy	fine S				BSP
	5200	5/25	08° 41.01' N	130.56' W	88.2					gy	crs S med P				BSP
	5201	5/25	09° 01.26' N	138.05' W	89.3					gy	fine S med P				BSP
	5202	5/25	08° 41.01' N	143.82' W	72.0					gy	med S				BSP
	5203	5/25	09° 18.83' N	137.19' W	70.0					gy	med S				BSP
	5204	5/25	10° 30.25' N	126.23' W	77.4					gy	crs S				BSP

Use more than one line per sample if necessary.

FLOATING AIDS TO NAVIGATION

AID NAME (LIGHT LIST)	GEOGRAPHIC POSITION (BY HYDROGRAPHY) **	GEOGRAPHIC POSITION (BY CHART, LIGHT LIST, COAST PILOT, ETC.)	PURPOSE OF AID	LIGHT LIST?	HYDROGRAPHIC RECORD REFERENCE
LIGHTED BELL BUOY 5 (BLACK)	61° 08' 24.63 N 150° 21' 43.88 W	LIGHT LIST - 61° 08' 15" N 150° 20' 50" W CHART #16664 - 61° 08' 18.6" N 150° 21' 54" W	MARKS FIRE ISLAND SHOAL	#3508	POS. # 1872 JD 160/161 VESSEL NO. 2123
KNIK ARM SHOAL LIGHTED BUOY 7 (BLACK)	61° 12' 26.63 N 150° 05' 20.20 W	LIGHT LIST - 61° 12' 12" N 150° 05' 12" W CHART #16664 - 61° 12' 15" N 150° 05' 15.6" W	MARKS SOUTH EDGE OF KNIK ARM SHOAL	#3513	POS. # 3000 JD 128 VESSEL NO. 2123
KNIK ARM SHOAL NORTH SIDE BUOY 2KA (RED)	61° 12' 28.34 N 150° 05' 20.15 W	CHART #16664 - 61° 12' 27" N 150° 05' 32" W	MARKS NORTH EDGE OF KNIK ARM SHOAL	#3513	POS. # 3001 JD 128 VESSEL NO. 2123
** POSITIONS SCALED OFF HYDROGRAPHIC EXPANSION SHEETS.					

RTTUZYUW RUHPTEF003 1542102-UUUU--RUHPSUU.
ZNR UUUUU
R 032102Z JUN 82
FM NOAAS RAINIER
TO CCGDSEVENTEEN JUNEAU AK
USCGC SEDGE
NOAACPM SEATTLE WA
INFO COGARD MSO ANCHORAGE AK
CM GRNC
BT

NOJ | 6.433
MHZ
PJT
04/JUN/82

UNCLAS
RA-PMC-023.
COGARD MSO ANCHORAGE INFO TO NOAA LIAISON OFFICE JOE TALBOT
REFERENCE: FIRE ISLAND SHOAL INVESTIGATION, PROJECT
INSTRUCTIONS OPR-P358-RA-82
PRELIMINARY SURVEY INFORMATION INDICATES THAT THE FIRE ISLAND
SHOAL CONTINUES TO MIGRATE IN AN EAST-SOUTHEAST DIRECTION
(TOWARD THE PT. MACKENZIE RANGE). A COMPARISON WAS MADE
BETWEEN THE 1981 AND 1982 SURVEYS USING THE 6 FOOT AND 18
FOOT CONTOURS WITH THE FOLLOWING CONCLUSIONS:
1. ON THE SOUTHEASTERLY SIDE OF THE SHOAL, BOTH THE 6 FOOT
AND THE 18 FOOT CONTOURS SHIFTED ON AN AVERAGE OF 50 METERS
IN A SOUTHEASTERLY DIRECTION.
2. ON THE NORTHEASTERLY SIDE OF THE SHOAL, THE 6 FOOT AND
18 FOOT CONTOUR SHIFTED AN AVERAGE 100 METERS IN A
SOUTHEASTERLY DIRECTION.
3. THE MOST WESTWARD EXTENT OF THE 6 FOOT CONTOUR IS
APPROXIMATELY 300 METERS EAST OF THE 1981 SURVEY; THE 18 FOOT
CONTOUR MOVED ABOUT 500 METERS EAST.
4. THE MOST EASTWARD EXTENT OF THE 6 FOOT CONTOUR IS
APPROXIMATELY 100 METERS EAST OF THE 1981 SURVEY; THE 18 FOOT
CONTOUR SHOWS NO SIGNIFICANT CHANGE.
5. THE LEAST DEPTHS OVER THE SHOAL DO NOT SHOW ANY SIGNIFICANT
CHANGE, HOWEVER THE DATA HAS NOT BEEN REDUCED WITH FINAL
TIDE AND VELOCITY CORRECTORS.

BT
#0036

NNNN

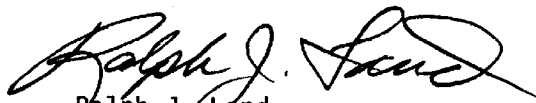
0102Z NOJ DE WTEF INT QSL L QRU ERE QRVVKK

APPROVAL SHEET

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
H-10000
RA-20-1-82

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

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


Ralph J. Land
Captain, NOAA
Commanding Officer

HYDROGRAPHIC SURVEY STATISTICS

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	2
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		3			
VOLUMES						
BOXES						

T-SHEET PRINTS (List) Chart Enlargement 16664, 18th Ed., 1:20,000

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			4621
POSITIONS CHECKED		4621	
POSITIONS REVISED			
SOUNDINGS REVISED		495	
SOUNDINGS ERRONEOUSLY SPACED			
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED			
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	06	*((VER))/(EVAL)	06
VERIFICATION OF CONTROL		04/04	08
VERIFICATION OF POSITIONS		88/06	94
VERIFICATION OF SOUNDINGS		122/06	128
COMPILATION OF SMOOTH SHEET		28/29	57
APPLICATION OF TOPOGRAPHY		04/01	05
APPLICATION OF PHOTOBATHYMETRY		00/00	00
JUNCTIONS		03/04	07
COMPARISON WITH PRIOR SURVEYS & CHARTS		00/08	08
VERIFIER'S REPORT		06/35	41
OTHER		00/05	05
TOTALS	06	255/98	359
Pre-Verification by J. S. Green	Beginning Date 8/27/82	Ending Date 8/27/82	
Verification by C. R. Davies	Evaluation by K. M. Scott	Beginning Date 10/18/82	Ending Date 11/18/83
Verification Check by J. L. Stringham, T. O. Jones, J.S. Green	Time (Hours) 33	Date 11/22/83	
Marine Center Inspection by	Time (Hours)	Date	
Quality Control Inspection by	Time (Hours)	Date	
Requirements Evaluation by	Time (Hours)	Date	

*Time in this column is for Verification (VER) and Evaluation (EVAL)

PACIFIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO: H-10000

FIELD NO: RA-20-1-82

Alaska, Cook Inlet, Fire Island Shoal to Point Woronzof

SURVEYED: May 8 - June 9, 1982

SCALE: 1:20,000

PROJECT NO: OPR-P358-RA-82

SOUNDINGS: Ross Fineline
Fathometer

CONTROL: Mini-Ranger
Range/Range
Range/Azimuth

Chief of Party.....CAPT R. J. Land

Surveyed By.....LT J. O'Clock
ENS R. Koehler
ENS B. Postle

Automated Plot By.....PMC Xynetics Plotter

Verified By.....C. R. Davies

Evaluated By.....K. M. Scott

1. INTRODUCTION

H-10000 is a navigable area survey conducted in accordance with Project Instructions OPR-P358-RA-82 dated January 27, 1982, Change No. 1 dated March 26, 1982, and Change No. 2 dated September 15, 1982.

The portion of Cook Inlet portrayed on this survey includes Fire Island Shoal, Knik Arm Shoal, and an additional shoal west of Point Woronzof. These sand shoals change seasonally with tidal currents and weather effects. These present a significant danger to mariners enroute to Anchorage.

Predicted tides based on the Anchorage gage were utilized during shipboard processing. Tide correctors used for the reduction of final soundings are approved hourly heights from the Fire Island gage (945-5912) with time and range corrections. (See appended Tide Note.)

The electronic correctors were revised during verification to reflect the baseline correctors applicable to the appropriate Mini-Ranger transponder units and their combinations. These are reflected in the tables appended to the Descriptive Report as inked changes.

2. CONTROL AND SHORELINE

Geodetic positions for control stations used during hydrography are primarily published positions for previously established stations adjusted to the North

American 1927 datum. Newly established control stations with field positions complete the control file.

Mini-Ranger electronic control was employed in range/range and range/azimuth modes during hydrographic operations. Baseline calibrations were used to correct system errors.

Shoreline was transferred in brown for orientation only from a 1:20,000 scale enlargement of Chart 16664. No rocks or foreshore detail were transferred.

3. HYDROGRAPHY

Crosslines incorporated within this survey are in good agreement. Discrepancies are attributed to the nature of the bottom.

The bottom configuration, development of shoal soundings, determination of least depths, and delineation of standard depth curves are adequate.

4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual of July 4, 1976, with the following exception.

The Descriptive Report is deficient in addressing the Comparison with the Prior Surveys and Chart. Three pages of numerical tabulations do not meet the requirements set forth by the Hydrographic Manual, section 5.3.4(K). The general comparison of the survey area and attributable changes is summed up in less than one page of pertinent information.

5. JUNCTIONS

H-10000 joins H-10012 (1:10,000) 1982 to the north and H-10017 (1:20,000) 1982 to the south. Soundings, depth curves, and junction notes are inked in agreement.

6. COMPARISONS WITH PRIOR SURVEYS

H-9441 (1:10,000) 1974	H-9447 (1:20,000) 1974
H-9442 (1:10,000) 1974	H-9760 (1:10,000) 1978
H-9444 (1:20,000) 1974	FE-227 (1:20,000) 1980
H-9445 (1:20,000) 1974	H-9966 (1:20,000) 1981

Comparison of prior survey soundings show a fairly stable bottom in the channels on either side of Fire Island Shoal and Knik Arm Shoal.

Significant shoaling is noted on the northern side of the channel opposite Fire Island. Changes of up to 50 feet are not uncommon.

Four predominate shoals lie within the sheet limits. Each shoal is discussed below with limits indicated by the 18 foot curve.

Presurvey Review Item 1, Fire Island Shoal, is the most formidable shoal in this portion of Cook Inlet, extending from latitude 61°08'18"N, longitude 150°24'02"W to latitude 61°09'24"N, longitude 150°19'24"W. This shoal is

constantly shifting and has been tracked regularly (H-9444 in 1974, FE-227 in 1980, H-9966 in 1981 and H-10000 in 1982). While the depths remain comparable, a slight shift southeastwardly is noticeable. As this shoal is encroaching on the shipping route, it should continue to be monitored carefully. The 31 foot shoal at latitude $61^{\circ}08'36''\text{N}$, longitude $150^{\circ}18'50''\text{W}$ found on H-9966 (1981) is now 30 feet and has migrated towards the southeast approximately 80 meters to latitude $61^{\circ}08'34''\text{N}$, longitude $150^{\circ}18'42''\text{W}$. Lighted buoy 5 adequately marks the channel limits. Present survey soundings supersede all prior soundings delineating this shoal.

Knik Arm Shoal lies midchannel, oriented in the northeasterly direction extending from latitude $61^{\circ}12'15''\text{N}$ to longitude $150^{\circ}05'30''\text{W}$ and latitude $61^{\circ}12'30''\text{N}$, longitude $150^{\circ}05'10''\text{W}$, and has a least depth of 14 feet MLLW. Previous surveys of this area (H-9442 in 1974 and H-9760 in 1978) indicated least depths of 16 and 17 feet. Knik Arm Shoal appears to be stable in its location, unlike the others included within the present survey limits. Two buoys adequately mark its location (see Descriptive Report, section N).

A previously undeveloped shoal has appeared west of Knik Arm Shoal. That shoal, which is yet unnamed, is oriented 60°T ENE between latitude $61^{\circ}12'30''\text{N}$, longitude $150^{\circ}09'01''\text{W}$ and latitude $61^{\circ}13'06''\text{N}$, longitude $150^{\circ}06'59''\text{W}$, with depths recorded between 16 and 18 feet. Prior survey soundings in that area ranged from 26 to 38 feet on H-9442 in 1974, a shoaling of up to 20 feet. Needless to say, present survey soundings are critical and representative of the area.

Another shoal, locally known as Woronzof Shoal, lies west of Point Woronzof, with an orientation approximately 65°T , and extends from latitude $61^{\circ}11'09''\text{N}$, longitude $150^{\circ}06'59''\text{W}$ to latitude $61^{\circ}12'06''\text{N}$, longitude $150^{\circ}02'12''\text{W}$. Comparison of least depths indicate a shift of approximately 220 meters SSE.

One sounding recorded on prior survey H-9760 is significantly shoaler than present survey soundings. That sounding, a -2 foot, at latitude $61^{\circ}11'52.5''\text{N}$, longitude $150^{\circ}03'18''\text{W}$ has not been transferred to the present survey, since it is no longer representative of the area due to the constant migration of the mud bottom.

H-10000 is adequate to supersede all prior survey soundings with the common area.

7. COMPARISON WITH CHART

16664 (18th Ed., January 16, 1982)

a. Hydrography - Charted information, with the exception of the shoreline and aids, originates with the prior surveys discussed previously.

The appended chartlet shows the limits of the survey area.

H-10000 is adequate to supersede charted hydrography within the common area.

b. Controlling Depths - There are no controlling depths within the limits of the survey.

c. Aids to Navigation - Charted aids to navigation have been located and adequately serve their intended purpose.

8. COMPLIANCE WITH PROJECT INSTRUCTIONS

H-10000 (RA-20-1-82) adequately complies with the project instructions as amended and noted in section 1 of this report.

9. ADDITIONAL FIELD WORK

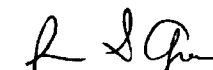
This is a good navigable area survey; however, due to the nature of the area's shifting shoals, Chart Investigations and Field Examinations should be conducted periodically. It is critical that tide control be given priority consideration as a few minutes will indicate a false shift.

Respectfully submitted,



Karol M. Scott
Cartographer
November 18, 1983

This survey has been verified and evaluated. I have examined the survey and it meets Charting and Geodetic Services survey standards and requirements for use in nautical charting except as noted in the Evaluation Report. This survey is recommended for approval.



James S. Green
Supervisory Cartographer

Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102

September 16, 1982

Commanding Officer
Seventeenth Coast Guard District
P.O. Box 3-5000
Juneau, Alaska 99803


Dear Sir:

The following dangers to navigation were located by the NOAA Ship RAINIER during hydrographic survey operations in Northern Cook Inlet, Alaska. These dangers to navigation are submitted for inclusion in the local Notice to Mariners for NOAA Chart 16664. Indicated least depths are reduced to MLLW based on predicted tides.

1. Revised least depths of 30 feet on charted shoaling at latitude $61^{\circ}08'37.5''N$, longitude $150^{\circ}18'42''W$ and latitude $61^{\circ}08'42''N$, longitude $150^{\circ}18'36''W$.

2. Extensive shoaling to 18 feet at latitude $61^{\circ}12'30''N$, longitude $150^{\circ}08'43''W$ extending northeast to latitude $61^{\circ}13'08.5''N$, longitude $150^{\circ}06'50''W$ and approximately 400 meters wide with least depth of 13 feet at latitude $61^{\circ}12'49.5''N$, longitude $150^{\circ}07'36''W$.

Sincerely,


Charles K. Townsend
Rear Admiral, NOAA
Director, Pacific Marine Center

bc: C322
C.O., RAINIER

DATE: November 3, 1982

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

Tide Station Used (NOAA Form 77-12): 945-5912 Fire Island, Alaska

Period: May 8 - June 9, 1982

HYDROGRAPHIC SHEET: H-10000

OPR: P358


Locality: Northern Cook Inlet, Fire Island, Alaska

Plane of reference (mean lower low water): 6.79 ft.

Height of Mean High Water above Plane of Reference is 26.1 ft.

REMARKS: Recommended Zoning:

1. East of longitude $150^{\circ}35'$ to $150^{\circ}30'$ apply -20 minute time correction and x0.92 range ratio.
2. East of the previous line to $150^{\circ}25'$ apply -20 minute time correction and x0.94 range ratio.
3. East of the previous line to $150^{\circ}20'$ apply -10 minute time correction and x0.96 range ratio.
4. East of the previous line to $150^{\circ}15'$ apply x0.98 range ratio.
5. East of the previous line to $150^{\circ}05'$ zone direct.
6. East of the previous line to $150^{\circ}00.0'$ apply +10 minute time correction and x1.02 range ratio.


Chief, Tidal Datums and Information Branch



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**U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration**

National Ocean Service
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

DEC 30 1983

Commander (OAN)
Seventeenth Coast Guard District
P. O. Box 3-5000
Juneau, Alaska 99802

Dear Sir:

During final office review of hydrographic survey H-10000, Fire Island Shoal to Point Woronzof, Cook Inlet, Alaska, changes affecting chart 16664 were noted. Questions concerning the survey may be directed to Capt. Ned C. Austin, Chief, Nautical Chart Branch, telephone (206) 527-6835.

The following statement is recommended for inclusion in the Local Notice to Mariners:

"A 14 foot sounding at latitude 61°12'19"N, longitude 150°05'18"W supersedes a charted 16 foot sounding as the minimum depth on Knik Arm Shoal."

Sincerely,

10
Charles K. Townsend
Rear Admiral, NOAA
Director, Pacific Marine Center

bc: N/CG222



ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10000

I have reviewed the smooth sheet, accompanying data, and reports of this hydrographic survey. Except as noted in the Evaluation Report, the hydrographic survey meets or exceeds Charting and Geodetic Services (C&GS) standards, complies with instructions, and is accurately and completely represented by the smooth sheet and digital data file for use in nautical charting.

for William A. Best 12/29/83
Chief, Nautical Chart Branch (Date)

CLEARANCE:

N/MOP2:LWMordock

SIGNATURE AND DATE:

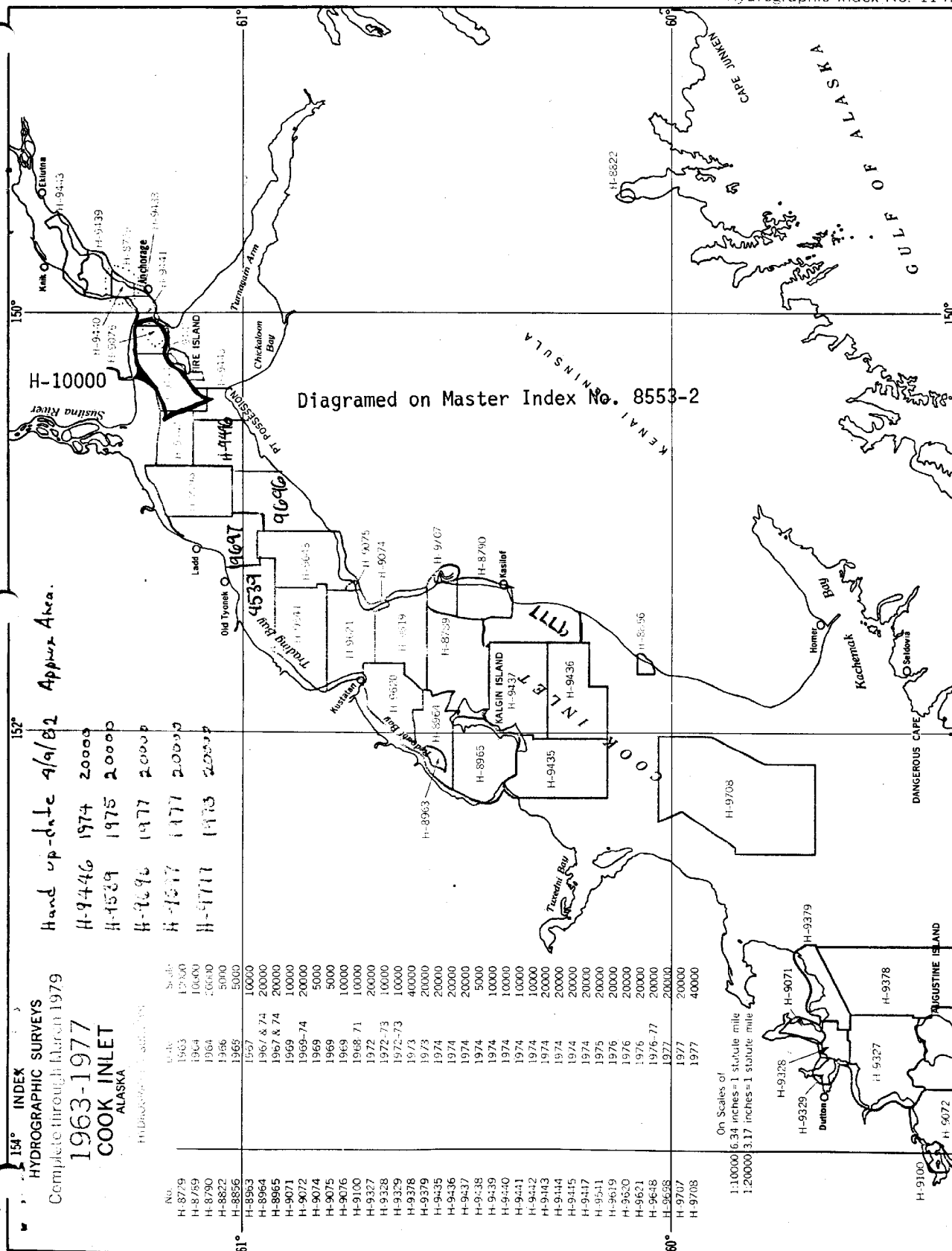
[Signature] 1/3/84

After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards with only the exceptions as noted above. The above recommendations are forwarded with my concurrence.

[Signature] 1/6/84
Director, Pacific Marine Center (Date)

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Washington, D.C.

Hydrographic Index No. 114E



Hand up-date 4/9/82 Approx Area.

H-9446 1974 20000
H-1539 1975 20000
H-9496 1977 20000
H-1577 1977 20000
H-9777 1978 20000

INDEX
HYDROGRAPHIC SURVEYS
Complete through March 1979
1963-1977
COOK INLET
ALASKA

No.	Date	Scale
H-8729	1963	10000
H-8769	1964	10000
H-8790	1964	20000
H-8822	1966	5000
H-8856	1968	5000
H-8963	1967	10000
H-8964	1967 & 74	20000
H-8965	1967 & 74	20000
H-9071	1969	10000
H-9072	1969-74	20000
H-9074	1969	5000
H-9075	1969	5000
H-9076	1969	10000
H-9100	1968 & 71	10000
H-9327	1972	20000
H-9328	1972-73	10000
H-9329	1972-73	10000
H-9378	1973	40000
H-9379	1973	20000
H-9435	1974	20000
H-9436	1974	20000
H-9437	1974	20000
H-9438	1974	5000
H-9439	1974	10000
H-9440	1974	10000
H-9441	1974	10000
H-9442	1974	10000
H-9443	1974	10000
H-9444	1974	20000
H-9445	1974	20000
H-9447	1974	20000
H-9541	1975	20000
H-9619	1976	20000
H-9620	1976	20000
H-9621	1976	20000
H-9648	1976-77	20000
H-9658	1977	20000
H-9707	1977	20000
H-9708	1977	40000

On Scales of
1:10000 6.34 inches = 1 statute mile
1:20000 3.17 inches = 1 statute mile

