

10184

Diagram No. 8802-3

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-40-1-85.....

Office No..... H-10184.....

LOCALITY

State Alaska.....

General Locality .. Bristol Bay.....

Locality 25 Miles South of Round.....

Island.....

1985

CHIEF OF PARTY
CAPT J.P. Vandermeulen.....

LIBRARY & ARCHIVES

DATE August 14, 1986.....

10184

ACPG: Area 5

CHTS

16315
16011
16006

} For sign-off see
"Record of Application"

HYDROGRAPHIC TITLE SHEET

H-10184

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 40-1-85

State Alaska

General locality Bristol Bay

Locality 25 miles south of Round Island

Scale 1:40,000 Date of survey June 27 - August 5, 1985

Instructions dated April 30, 1985 Project No. OPR-R184-RA-85

Vessel RAINIER 2120, Launch 2125

Chief of party John P. Vandermeulen, CAPT, NOAA

Surveyed by LT Konrad, LT(jg) Pickett, ENS Griffin, ENS LaReau, ENS Porta, ENS Brown

Soundings taken by echo sounder, hand lead, pole DSF 6000N

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Verification by Patricia Niland Automated plot by PMC Xynetics Plotter

~~Processed by~~ Evaluation by Gordon E. Kay

Soundings in fathoms ~~feet~~ at MLW ~~MLLW~~ and tenths of fathoms

REMARKS: Marginal notes in black were made during evaluation of H-10184 at the Pacific Marine Center, Seattle, Washington. Separates are filed in the back of the accordion folder.

STANDARDS CK'D 8-18-86

Clay

✓ Awois and Surf Mud 8/86

SC 4-7-99

RWW 8/10/92

PROGRESS SKETCH

OPR-R184-RA-85

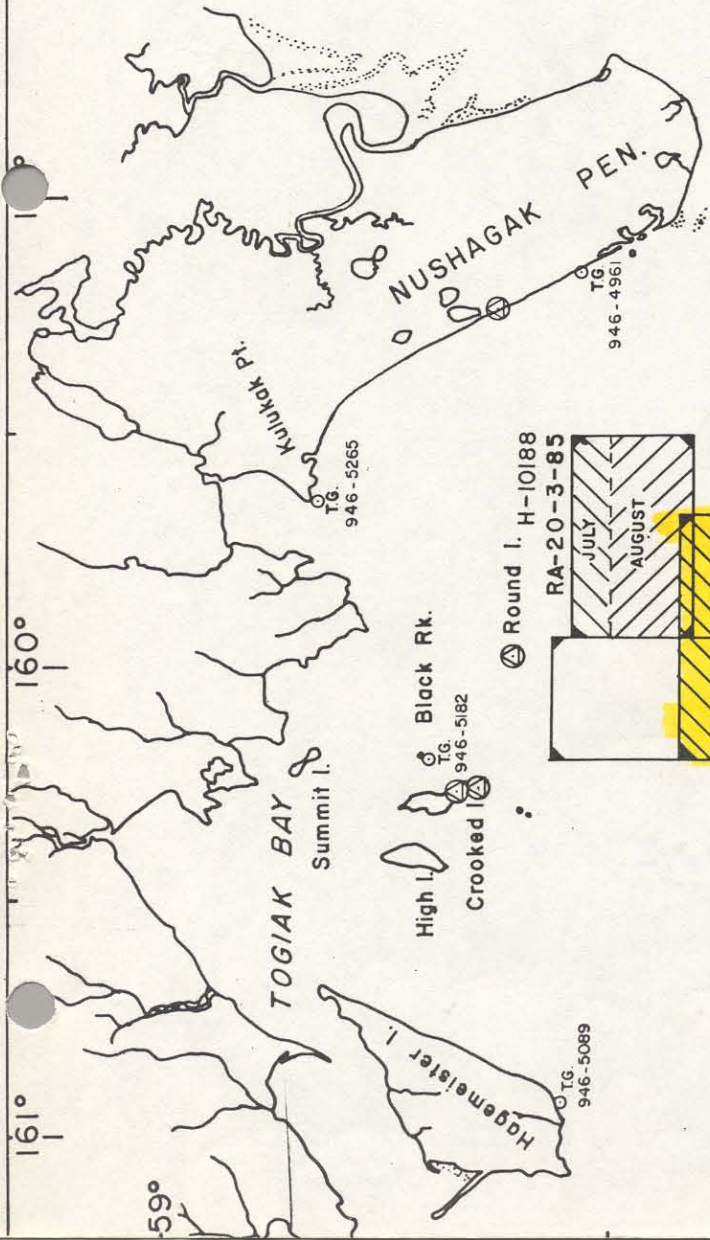
HYDROGRAPHIC SURVEY
TOGIAK BAY, ALASKA

JUNE 7 - AUGUST 27, 1985

NOAA SHIP RAINIER

JOHN P. VANDERMEULEN, CAPT., NOAA
COMMANDING

FROM CHART 16011



	JUNE	JULY	AUG.
SQ. N.M. Sounding	—	434.5	139.4
L.N.M. Misc. Distance	—	672.9	611.0
L.N.M. Sounding	—	2774.8	469.7
Bottom Samples (Grab)	31	39	115
Control Station (Electronic)	4	—	—
Temp., Depth, Sound Velocity	—	1	2
Nansen Cast	—	—	—
Tide Gages	4	—	—
Stations Located by Traverse	1	—	—
Water Samples Analyzed	—	2	4
SQ.N.M. Side Scan Sonar	—	—	—
L.N.M. Side Scan Sonar	—	—	—

B R I S T O L B A Y

59°

160°

161°

58°

161°

160°

159°

A. PROJECT

Basic hydrographic survey H-10184, sheet RA-40-1-85, was accomplished in accordance with Project Instructions OPR-R184-RA-85, Togiak Bay, Alaska, dated April 30, 1985.

✓

B. AREA SURVEYED

The area is bounded by latitudes 58/25/00 N and 58/00/00 N, and longitudes 159/38/00 W and 160/12/00 W. The project instructions state that the survey area will be bounded to the south by the 20-fathom curve. As discussed in Section K., the charted 20-fathom curve lies six miles south of the survey 20-fathom curve. RAINIER opted to define the southern limit at 58/00/00 N, a latitude just south of the charted 20-fathom curve.

✓

The area was surveyed to a scale of 1:40,000 and lies 10 - 36 nm south of Round Island in Bristol Bay. Survey operations were conducted from June 27 (DN 178) to August 5 (DN 217), 1985.

✓

C. SOUNDING VESSELS

All sounding data for this survey were obtained by the RAINIER (2120). RA-5 (2125) was used to collect a portion of the bottom samples. No unusual sounding vessel configurations occurred during the acquisition of hydrographic data. The RAINIER (2120) was utilized for all sound velocity casts.

✓

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Sounding Equipment

The RAINIER and RA-5 were equipped with Raytheon DSF-6000N dual-beam echo sounders. Serial numbers for sounding equipment used in this survey are as follows:

✓

<u>VESSEL</u>	<u>SERIAL NO.</u>
RAINIER (2120)	A123N, A119N, A117N, A115N
RA-5 (2125)	A103N

Settings for the DSF-6000 echo sounders throughout the survey were as follows:

RANGE SCALE: 0 - 25 fm (Phase 1)
20 - 45 fm (Phase 2)

CHART SPEED: 30 mm/min

✓

FUNCTION: High + Low (High frequency digitized)

GAIN SETTINGS: Manual

Sounding Equipment Failures

In general, the DSF-6000N echo sounders performed adequately during the course of the survey. However, a chronic problem did exist which caused repeated echo sounder failures. These failures were characterized by one of two symptoms; ✓

- 1) The graphic record and range scale would completely disappear. ✓
- 2) An excessive amount of noise would obliterate the graphic record.

As these failures occurred, new echo sounders were installed to replace those units which failed. During the survey period, the source of the problem could not be located. Upon completion of the survey, the repeated failures were traced to a loose connector in the 24-volt power supply. This loose connector apparently caused the voltage supply to fluctuate below 24 volts, affecting the DSF-6000N's processor, thus resulting in the sporadic behavior of the echo sounders. ✓

Data quality was not impaired by these failures as junctions between sounding lines recorded with different echo sounders agreed well. ✓

Transducer Depth and ANDIST

All soundings were recorded with the starboard aft transducer of the RAINIER with Raydist range-range control. The ANDIST associated with this transducer is 32.2 meters. ✓

Audit correction applied to month sheet data

A transducer depth of 2.3 fathoms was used to correct all soundings in this survey. This value has been used in prior surveys and can be derived from plans of the RAINIER. The transducer depth was verified using a 3D Instruments pneumatic gage (S/N 8504192). On July 29, 1985, divers placed the orifice of the pneumatic gage alongside the transducer. Measurements were recorded before and after fueling resulting in an average transducer depth of 2.3 fathoms for the aft transducers.

TC/TI tapes were made in accordance with PMC OORDER Appendix Q. Printouts of the TC/TI tapes are included in the separates following the text. ✓

Sound Velocity-Settlement and Squat Corrections

Velocity corrections were derived from two Plessy 9040 SV/D/T profiling system casts: ✓

<u>Cast Number</u>	<u>Date</u>	<u>Position</u>
1	11 July 85 (DN 192)	57/58/35.6 N 159/59/58.7 W
2	5 Aug 85 (DN 217)	58/56/25.0 N 159/56/25.0 W

One table of velocity corrections was created by averaging both SV/D/T casts. The maximum velocity correction in this survey is +0.1 fathoms. The final field sheet was plotted with a preliminary velocity correction table based on the first cast. Printouts of the velocity tables are included in the separates following the text.

The transducer depth and sound velocity corrections were checked with leadline casts taken at various depths. The quality of the leadline comparisons was generally poor due to current and sea conditions throughout the survey area. Comparisons made at shallower depths generally confirmed the 2.3 fathom transducer depth. Insufficient precision in the comparisons measured at deeper depths made verification of the small velocity correction impossible.

Settlement and squat trials were conducted with the RAINIER on August 26, 1985. A LORAN-C controlled line was run over an area with a nearly flat bottom near Kulukak Point. Depth readings were recorded at the same three locations along the line while running at the following speeds: 0 rpms, 120 rpms (10 ft pitch), 150 rpms (10 ft pitch), and 180 rpms (10 ft pitch). The tide level was monitored during the trials. Results showed that the settlement and squat correctors for the RAINIER were less than 0.1 fathoms and were not applied to soundings.

Calibration information regarding the Plessy 9040 SV/D/T and the 3D Instruments pneumatic gage can be found in the Corrections to Echo Sounding Report, OPR-R184-RA-85.

Corrections Due to Sea Surface Conditions

Throughout the survey area, a regular sand and mud bottom was observed. Irregularities in the graphic record were generally due to sea conditions. Corrections for sea action were necessary for about 5 percent of the digitized soundings. Depths which digitized on or near the crests or troughs of waves were replaced with soundings scanned from the graphic record. The following guidelines were used in scanning out sea action:

1. In depths greater than 10 fathoms: If the digitized depth differed from the mean sea action depth by more than 0.2 fm, the sounding was changed to compensate for sea action.

2. In depths less than 10 fathoms: If the digitized depth differed from the mean sea action depth by more than 0.1 fm. the sounding was changed to compensate for sea action. ✓

On Days 197-198 about 20 percent of the digitized soundings were corrected for sea action. During this period, sea action averaged about 1 fathom. This condition at times exceeded the recommended operations cutoff outlined in Hydrographic Survey Guideline No. 31. Because of the extreme flatness of the bottom in this area it was determined that the graphic record could be scanned adequately and sounding operations continued. ✓

Tide Reduction of Data

Preliminary plots using tide correctors furnished in the project instructions resulted in crosslines and splits that disagreed with main scheme lines by 1 - 2 fathoms. During the course of the project, by analyzing real time tides, it was determined that the predicted tides for Black Rock reasonably reflected the tidal cycle in the immediate area. Therefore, predicted tides for Black Rock, derived directly from the 1985 Tide Tables were used to plot the final field sheets. By using these tide correctors, disagreements were reduced to not more than 1 fathom in all cases. ✓

E. HYDROGRAPHIC SHEETS

Three 1:40,000 scale plotter sheets designated RA-40-1N-85, RA-40-1E-85, and RA-40-1W-85 were prepared on the RAINIER with the PDP 8/e Hydroplot system which draws a modified transverse mercator projection. There are no larger scale expansion sheets. The final field sheets were prepared by ST Fred Perry. A list of parameters used to define the field sheets are provided in the separates following the report. ✓

All data and accompanying field records will be forwarded to the Pacific Marine Center for verification. ✓

F. CONTROL STATIONS

Three Class I Control Stations used for this survey were established in 1947 and 1948. Stations recovered and used for electronic control sites or calibration sites are as follows: ✓

<u>Signal #</u>	<u>Station</u>	<u>Class I</u>
101	PENINSULA AZ MK 1947	2nd Order
202	CROOKED AZ MK 1948	2nd Order
104	ROUND 1948	3rd Order

 ✓

Adjusted positions (Nov. 1976) for these stations were provided by NGS. Positions of CROOKED AZ MK 1948 and ROUND 1948 were verified by ground survey methods commensurate with Section 3.1.1.2 of the Hydrographic Manual. PENINSULA AZ MK 1947 was recovered in 1983 by PMC Photogrammetry Section and found to be in good condition. ✓

Station BOOB00 1985 (105) was established and located to Third Order Class I Standards for use as a calibration sight. CROOKED AZ MK 1948 Eccentric (100) was located for use as a Raydist site. Details of the location and verification of horizontal control can be found in the Horizontal Control Report for OPR-R184-RA-85. ✓

All positions in the survey are based on the 1927 North American Datum.

G. HYDROGRAPHIC POSITION CONTROL

This survey was conducted using the range-range method of position control. Hastings-Raydist ranging equipment was used for positioning all sounding lines. ✓

Some of the bottom samples were positioned using LORAN-C. The LORAN-C time delays were converted to Raydist ranges by using programs RK-321 and RK-300. The time delays were corrected for lattice errors found by comparison of Raydist and Loran positioning data as described in Section P. ✓

No problems were encountered while using the Raydist equipment other than a loss of two lanes which is addressed below. Motorola Mini-Ranger III equipment was used for setting and periodically checking the lane count on the Raydist equipment. Wild T-2 Theodolites were used for calibrating the Mini-Ranger equipment. A list of all equipment serial numbers follows:

Wild Theodolites

T-2 #75599E
T-2 #68648 ✓

Motorola Mini-Ranger III Equipment

Console #711
R/T Unit #C1712

Codes

E - #911721
F - #911711
D - #1569
B - #1628
O - #01789

Hastings-Raydist Equipment

DR-S System Navigator Model ZA-67A #58
Transmitter Model TA 96B #167 Frequency - 329647 kHz ✓
Red Shore Station #233 Frequency - 1648.015 kHz
Green Shore Station #120 Frequency - 1648.425 kHz

Gould Strip Chart Recorders

Model 220 #11662
Model 220 #11314

The Raydist shore stations and Mini-Ranger codes were set up on the following stations: ✓

Raydist Red - Signal 100, CROOKED 1948 AZ MK ECC
Raydist Green - Signal 101, PENINSULA 1947 AZ MK

Mini-Ranger Codes

D - Signal 102, CROOKED 1948 AZ MK ECC
O - Signal 103, PENINSULA 1947 AZ MK ✓
E & F - Signal 104, ROUND 1948
B - Signal 105, BOOBOO 1985

Mini-Ranger Calibration

On May 24 (DN 144), 1985, an opening baseline calibration for the Mini-Ranger equipment was conducted in Juneau, Alaska, following the specifications of PMC Oorder, Appendix M. A closing calibration will be conducted at the conclusion of operations. The Mini-Ranger system checks were performed by the theodolite intersection method. A system check was performed prior to data acquisition for this survey on July 10 (DN 191) for codes B, D, and E. No significant deviation from the base line calibration results was detected. A closing system check was not obtained immediately after finishing the sheet due to weather, but the opening system check for the beginning of the next sheet, performed on July 31 (DN 212), revealed no significant deviation from the baseline calibration results. ✓

No system check was performed for code O due to the lack of control in the area. This code was used for direct comparisons with the green Raydist station, which was initially calibrated using codes D, B and E, and upon computing a direct comparison, the range from code O was in close agreement with the observed Raydist range. This provided an indirect check on code O's performance. ✓

Code F was located on the same station as code E, and was not used.

Raydist Calibration

The Raydist lane counts were set and checked using the Mini-Ranger system and program RK-561. These calibrations were performed on the following dates:

July 10 (DN 191)
July 14 (DN 195)
July 17 (DN 198) ✓
July 23 (DN 204)
July ~~24~~ (DN 205)
August ~~25~~ (DN 217)
August ~~26~~ (DN 218)

In addition to periodic calibrations of this type, numerous direct comparisons were performed during data acquisition. These were performed by recording the Mini-Ranger range from the code mounted on the Raydist tower at the station being checked, and then dividing the range by 45.453 meters/lane to obtain the equivalent Raydist lane count. These comparisons were recorded on the data printouts as they were being performed. ✓

Another type of lane count check was also performed during data acquisition. This check consisted of recording a Mini-Ranger range from a third, independent station when the Hydroplot system recorded its Raydist fix. The Raydist ranges were used to compute an X-Y position with program RK-300, and then a distance was computed from the independent station to this X-Y position. This computed distance was then compared to the observed Mini-Ranger range, verifying the lane count. These verifications were also recorded on the data printouts. ✓

Raydist Correctors

The final field sheets were plotted using the average of the opening and closing correctors for the period during which the data were acquired. For instance, the data acquired between the dates of July 14 and July 17 were plotted using an average of the corrector values obtained from the calibrations of July 14 and July 17. ✓

<u>Date</u>	<u>Red Corrector</u>	<u>Green Corrector</u>	<u>Av Red Corrector</u>	<u>Av Green Corrector</u>
<i>* REFER TO SMOOTH CORRECTORS IN SMOOTH POSITION/SETTING AND LINEFILE PRINTOUT.</i>				
10 July	-0.13	-0.04		
14 July	-0.12	+0.35	-0.13	+0.16
14 July	-0.12	+0.35		
17 July	+0.08	+0.20	-0.02	+0.28
17 July	+0.08	+0.20		
23 July	-0.02	-0.02	+0.03	+0.09
23 July	-0.14	-0.02		
26 July	-0.21	-0.03	-0.18	-0.02
6 Aug	-0.12	-0.34		
7 Aug	-0.33	-0.40	-0.22	-0.37
<i>* SEE LETTER OF Oct 28 1985, FROM S221-CARL W. FISHER SUBJECT PREPROCESSING EXAM-H-1010Y-Attached.</i>				
<i>Lane Loss REFERENCE ELECTRONIC CONTROL REPORT OAR-R184-RA-85</i>				

A lane loss took place on July 19 (DN 199) on the red Raydist channel. Just prior to the loss, a Mini-Ranger range from code D, signal 102, was recorded and a direct comparison was computed at fix number 3984. ✓

<u>Calculated Lane Count</u>	<u>Observed Lane Count</u>
921.02	921.00

While heading south between lines, two lanes were lost on the red station. This appears on the strip chart recorder around lane 1138. The survey tech and OIC on watch did not notice the loss of the lanes at the time. During the loss, a low pressure weather system was moving through the area. Twenty knot winds and rain were present. ✓

A Mini-Ranger comparison was computed after about 3/4's of the next line was completed, and the lane loss became apparent at that time.

<u>Calculated Lane Count</u>	<u>Observed Lane Count</u>
978.35	976.24
960.57	958.51

After the completion of this line at the north end of the sheet, the ship was stopped and a calibration was performed using the direct comparison method. ✓

Calculated Lane Count

Observed Lane Count

990.81
987.13
985.23

992.96
989.22
987.37

This confirmed the lane loss. While the ship was stopped, the Raydist was reset and then recalibrated. ✓

For positions 3961 to 3986, a +2.17 corrector was used to compensate for this lane loss.

For further information refer to the Electronic Control Report, OPR-R184-RA-85.

H. SHORELINE

There is no shoreline within the limits of this survey. ✓

I. CROSSLINES

A total of 204.8 nm of crosslines, comprising 9.1 % of total hydrography, were run on this survey. In all cases, comparisons between mainscheme and crossline hydrography were within one fathom.

J. JUNCTIONS

This survey junctions with two contemporary surveys. Survey RA-40-1-85 (H-10184) junctions to the north with survey RA-20-3-85 (H-10188) and to the west with survey RA-20-4-85 (H-10190). The junction with RA-20-3-85 was accomplished by running compatible east-west mainscheme hydrography, and the junction with RA-20-4-85 was accomplished by running north-south mainscheme hydrography. No irregularities in contours exist at the junction points. ✓

K. COMPARISON WITH PRIOR SURVEYS

Survey RA-40-1-85 (H-10184) was compared to one prior survey; H-7718 (1:100,000, 1948). All soundings from the prior survey within the limits of this survey were used for comparison. Agreement was consistently within one fathom with ⁵one exception: ✓

Depth from H-7718

Depth from H-10184

Lat/Lon

~~11~~
7 fm

11 fm

58/22/00 N
159/59/09 W ✓

Recommendation: Depth from survey H-10184 should supersede the prior survey depth for charting purposes.

L. COMPARISON WITH THE CHART

Survey RA-40-1-85 (H-10184) was compared with the following charts:

<u>Chart Number</u>	<u>Scale</u>	<u>Edition</u>	<u>Date</u>
16011	1:1,023,188	30 th	4/2/83
16315	1:1,000,000	1 st	3/9/85

SEE EVALUATION REPORT

All soundings from the charts within the limits of this survey were used for comparisons. All depths compared agreed within one fathom with the following three exceptions, all three on chart 16011.

<u>Charted Depth</u>	<u>Survey Depth</u>	<u>Lat/Lon</u>
② 15 fm SOURCE BP-18063 (1916)	17 fm	58/09/48 N 159/58/00 W

Recommendation: The survey depth should supersede the charted depth. *CONCUR*

<u>Charted Depth</u>	<u>Survey Depth</u>	<u>Lat/Lon</u>
12 fm UNKNOWN SOURCE	17 fm	58/12/15 N 160/09/48 W

Recommendation: The survey depth should supersede the charted depth. *CONCUR*

<u>Charted Depth</u>	<u>Survey Depth</u>	<u>Lat/Lon</u>
12 fm UNKNOWN SOURCE	21 fm	58/07/18 N 160/07/48 W

Recommendation: The survey depth should supersede the charted depth. *CONCUR*

(SEE @) — All three charted depths mentioned above have no known source. They do not appear on any prior survey supplied to the RAINIER, but they do appear on the 1948 version of the chart. All three depths should be removed from the chart. *CONCUR*

The charted 20-fathom curve lies approximately 6 nm south of the true 20-fathom curve. ✓

M. ADEQUACY OF THE SURVEY

This survey is complete and adequate to supersede all prior surveys for charting purposes. *CONCUR*

N. AIDS TO NAVIGATION

There are no aids to navigation within the limits of this survey, and none are recommended. ✓

O. STATISTICS

Linear nautical miles of hydrography	2450.8 nm
Square nautical miles of hydrography	400.8 nm sq
Number of positions	4160
Bottom samples	70
Velocity casts	2
Tide stations	4

 ✓

P. MISCELLANEOUS

No quantitative current measurements were recorded in the survey area. However, there were several instances when abrupt course changes (up to seven degrees) had to be made to maintain the ship on line. This translates to a 1-2 knot cross current gradient. On Day 204 in the vicinity of 58-24.0 N, and 160-00.0 W, a definite discontinuity on the water's surface was visible while running E-W lines. While crossing the discontinuity the helmsman had to adjust the base course about five degrees to maintain the ship on line. This occurrence was noted three times on the printout as "tide rips". In general, pronounced tidal current effects were evident in the survey area. ✓

LORAN-C data were acquired in conjunction with hydrography for 100% of the survey. A sample of 121 time delays was taken from the crosslines run on this survey and checked for accuracy in the following manner. Program RK-300 was used to compute a G.P. from the Raydist rates, and then program RK-321 was used to compute time delays from the G.P.'s. An error value was then determined by subtracting the computed time delays from the observed time delays. The errors for all 121 samples were averaged and a standard deviation was computed. From this average, a positional corrector in terms of a range and azimuth was computed. ✓

	<u>Mean Error</u>	<u>Std Dev</u>	<u>Max Error</u>	<u>Min Error</u>
9990-Z	+ 2.61	0.11	+ 2.83	+ 2.36
9990-Y	+ 2.59	0.12	+ 2.95	+ 2.38

Distance: 657.6 m Azimuth: 037/41/35.65

As per section 6.8 of the project instructions, all bottom samples have been sent to the Smithsonian Institution. ✓

This survey overlaps with a charted danger area to the south. The Air Force uses this area to conduct missile

tests. The operations officer at Elmendorf AFB in Alaska was contacted and informed of our planned survey operations. ✓

Q. RECOMMENDATIONS

This survey is complete and no additional field work is required. ✓

R. AUTOMATED DATA PROCESSING

Data acquisition and processing were accomplished in accordance with the Hydrographic Manual (Fourth Edition), Manual of Automated Hydrographic Surveys, the PMC OPORDERS, Hydrographic Survey Guidelines and the Hydrographic Data Requirements for 1985. ✓

Soundings and positions were collected by a Hydroplot system using the Hyperbolic Range/Range Hydroplot program Rk 112. Daily master tapes and corresponding corrector tapes include the TRA for the sounding vessels, electronic control correctors for the Raydist green and red stations, and all depth corrections. Velocity tapes were generated from SV/D/T cast data. The following is a list of all computer programs version dates used for data acquisition or processing: ✓

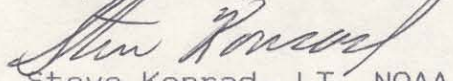
<u>Number</u>	<u>Description</u>	<u>Version</u>
RK 112	Hyperbolic, R/R Hydroplot	4/23/84
RK 201	Grid, Signal, and Lattice Plot	4/18/75
RK 211	Range/Range Non-Real Time Plot	2/13/84
RK 300	Utility Computations	10/21/80
RK 321	LORAN-C Computations	10/21/80
RK 330	Reformat and Data Check	5/04/76
PM 360	Electronic Corrector Abstract	2/02/76
RK 407	Geodetic Inverse/Direct Computation	9/25/78
AM 500	Predicted Tide Generator	11/10/72
RK 530	Layer Corrections for Velocity	5/10/76
RK 561	H/R Geodetic Calibration	12/01/82
RK 562	Theodolite Calibration	9/05/84
AM 602	Elinore-Line Oriented Editor	12/08/82
AM 606	Tape Duplicator	8/22/74
AM 607	Self-Starting Binary Loader	8/10/80
RK 610	Binary Tape Duplicator	12/01/82
RK 612	Line Printer List	3/22/78
RK 900	Plot Test Tape Generator for AM902	5/07/76
RK 901	Core Check	3/01/72
AM 902	Real Time Checkout	11/10/72
DA 903	Diagnostic-Instruction Time	2/27/76
RK 905	Hydroplot Controller Checkout	3/18/81
RK 935	Hydroplot Hardware Tests	3/15/82

S. REFERENCE TO OTHER REPORTS

The following reports contain information relevant to this survey:

- * Corrections to Echo Soundings Report OPR-R184-RA-85
- Electronic Control Report OPR-R184-RA-85
- Horizontal Control Report OPR-R184-RA-85
- Coast Pilot Report OPR-R184-RA-85

Respectfully submitted,


Steve Konrad, LT, NOAA

* Filed with the field records for H-10190
KWW 8/2/92

APPROVAL SHEET


DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SURVEY

RA 40-1-85 (H-10184)

In producing this sheet, standard procedures were followed in accordance with the Hydrographic Manual, Hydrographic Survey Guidelines, and PMC OPORDERS. The data were examined daily during the execution of this survey.

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


John P. Vandermeulen
Captain, NOAA
Commanding Officer



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

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

May 23, 1986 N/MOP211C/GEK

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

Dear Sir:

During office review of hydrographic survey H-10184, titled, 25 Miles South of Round Island, Bristol Bay, Alaska, the following change affecting charts 16011 and 16315 was noted. Questions concerning the survey may be directed to Cdr. Thomas W. Richards, Chief, Nautical Chart Branch, telephone (206) 526-6835.

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

A least depth of 4.6 fathoms was located on a charted 5-fathom shoal at latitude 58°24'03.4"N, longitude 160°05'03.0"W. The shoal is located 12.2 nautical miles, bearing 198°57.32' true from the southern tip of Round Island.

Sincerely,

Robert L. Sandquist
Rear Admiral, NOAA
Director, Pacific Marine Center



MASTER STATION LISTING
OPR-R184-RA-85.TOGIAK BAY. AK

VERSION FINAL

100	3	58	38	22048	160	16	08578	254	0092	329647	
/CROOKED 1948 AZ MK ECC (RED RAYDIST) PRELIM G.P											
101	3	58	37	40676	159	14	47361	250	0053	329647	
/PENINSULA 1947 AZ MK(GREEN RAYDIST) PRELIM G.P											
102	3	58	38	22048	160	16	08578	254	0081	000000	
/CROOKED 1948 AZ MK ECC (M/R) PRELIM G.P											
103	3	58	37	40676	159	14	47361	250	0042	000000	
/PENINSULA 1947 AZ MK (M/R) PRELIM G.P											
104	3	58	36	19285	159	58	33257	250	0430	000000	
/ROUND 1948 PRELIM G.P											
105	3	58	39	35290	160	15	14561	250	0127	000000	
/BOOB00 RAINIER G.P											
200	3	58	42	10704	160	17	10642	139	0050	000000	
/CROOKED 1948 PRELIM G.P											
201	3	58	50	49897	160	13	15720	139	0151	000000	
/SUMMIT 1948 AZ MK 581601											
202	3	58	38	21908	160	16	08412	250	0050	000000	
/CROOKED 1948 AZ MK PRELIM G.P											

*

FIELD TIDE NOTE
RA-40-1-85
H-10184

Field tide reduction of soundings was based on predicted tides from Nushagak Bay, Alaska. Corrections were applied from Black Rock, Walrus Islands, Bristol Bay, Alaska. Black Rock predicted correctors are as follows:

TIME		HEIGHT	
<u>high</u>	<u>low</u>	<u>high</u>	<u>low</u>
+7 min	-7 min	-10.2	.70 (ratio)

The predicted tides were derived using program AM500. All times of both predicted and recorded tides are UTC.

Bristol Bubbler tide gages were installed at four locations in the project area. At three of these locations backup gages were installed. Tide station information follows:

BLACK ROCK (946-5182)

Geographic Locale - Black Rock, Walrus Islands, Bristol Bay, Alaska. 58-42.5 N, 160-11.3 W.
Installation Date - 6/8/85.
Gage Type - Two 0-30 scale Bristol Bubblers, primary S/N 63A 2920 and backup S/N 67A 16205.
Level and 3 hr Obs - 6/10/85.
Bench Marks - Three recovered (BM No. 1 1948, No. 2 1948, No. 3 1948). Two set (BMs 5182 A 1985, 5182 B 1985).
Gage/Water - Primary = 19.3 ft (from BM 5182 A)
- Backup = 20.1 ft.
Removal Date - 8/24/85
Marigram Records - Primary (6/10/85 - 8/24/85) lost 5 days of records from 7/5/85 @ 1930 UTC through 7/10/85 at 2030 UTC when the marigram paper ran out. Primary gage lost 7 days from 7/10/85 - 7/17/85 when the marigram paper jumped sprockets.
- Backup (6/27/85 - 8/24/85)

On 6/26/85 it was discovered that the staff was destroyed and the orifice tubing on the backup gage (S/N 63A 2920) had separated. A second staff was installed and divers repaired the orifice tubing. The new staff was leveled to three benchmarks and three hour observations were done on both gages.

On 7/23/85 it was discovered that the second staff was destroyed. Both gages were still operating. A third staff was installed and on 7/31/85 was leveled to three benchmarks. A 1 hr observation was done on both gages.

On 8/11/85 it was discovered that the third staff was destroyed. Both gages were still operating. Levels were run to the waters edge for the remainder of the project.

The levels run on 8/22/85 to the waters edge suggested that the backup gage orifice may have moved during the period 8/14 - 8/22. The marigram during that period shows heavy storm action and the orifice may have moved to a position approximately 1 foot shallower. Final levels on 8/24/85 confirmed this difference.

KULUKAK POINT (946-5265)

Geographic Locale - Kulukak Point, AK. 58-50.4 N, 159-38.8W
Installation Date - 6/11/85
Gage Type - Bristol Bubbler 0-30 ft scale, S/N 64A
11028.
Level and 3 hr Obs - 6/12/85
Bench Marks - Set 5 (BM's 5265 A 1985, 5265 B 1985,
5265 C 1985, 5265 D 1985, 5265 E 1985).
Gage/Staff - 16.1 ft
Removal Date - 8/24/85
Marigram Records - Uninterrupted records 6/12/85 - 8/7/85

On 6/25/85 it was discovered that 5 ft of the staff had broken off below the bottom bolt. The staff was secure and observations could still be made at low water by taping the distance to the water level from the lowest staff graduation.

Because of severe weather in the area this gage was not checked during August. On 8/24/85 the gage was removed. The staff was missing and the orifice tubing was broken. Final levels could not be run to the waters edge since the gage was not operating. Levels were run to the benchmarks only.

HAGEMEISTER ISLAND (946-5089)

Geographic Locale - South end, Hagemeister Island, AK.
58-33.4 N, 160-57.0 W.

Installation Date - Gage 6/21/85.
- Staff 6/28/85.

Gage Type - Two 0-30 ft scale Bristol Bubblers
Primary S/N 64A 11042, Backup S/N 67A
16209.

Level and 3 hr Obs - 6/29/85.
Bench Marks - Set 5 (BM's 5089 A 1985, 5089 B 1985,
5089 C 1985, 5089 D 1985, 5089 E 1985)

Gage/Staff - Primary 9.4 ft
- Backup 9.1 ft.

Removal Date - 8/23/85

Marigram Records - Primary (6/29/85 - 8/14/85) bad
records from 7/24/85 - 8/13/85 when
marigram paper jumped sprockets. Lost
records from 8/6/85 - 8/13/85.
- Backup (6/29/85 - 8/14/85) lost 4 days
from 7/20/85 - 7/24/85 when the gage
timer drive gear disengaged. Lost
records from 7/26/85 - 8/1/85 when
marigram paper jammed. Lost
records from 8/6/85 - 8/13/85.

In this location very strong currents and tidal surges were observed. The marigrams show these anomalies and combined with heavy surf in the area caused some difficulty in obtaining good staff/gage comparisons.

On 8/13/85 it was discovered that the tide station was completely destroyed. Gages, orifices, and staff were not found. New gage S/N 73A-231 was installed on this date. Levels were run to the waters edge and a 2 hour observation was performed. The gage/water constant (from BM 5089 C) = 12.6 ft. This gage ran for 13 hours before the tubing was broken by a severe storm. Final levels were run to benchmarks only.

NUSHAGAK PENINSULA (946-4961)

Geographic locale - Southwest side Nushagak Peninsula, AK
58/31.4 N, 159/09.2 W
Installation date - 6/24/85
Gage type - Two 0-30 ft Bristol Bubblers
Primary S/N 67A 10294
Backup S/N 68A 14940
Level and 3 hr Obs - 6/27/85
Bench Marks - Set 5 rod marks 6 ft into ground (BM's
4961 A 1985, 4961 B 1985, 4961 C 1985,
4961 D 1985, 4961 E 1985)
Gage/Water - Primary = 20.3 ft (from BM 4961 A)
- Backup = 25.4 ft
Removal Date - 8/24/85
Marigram records - Primary (6/27/85 - 8/7/85) lost 8 days
from 7/24/85 - 7/31/85 when the
marigram paper jammed.
- Backup (6/27/85 - 8/7/85)

Because of high surf conditions and an unremarkable shoreline a tide staff could not be installed, therefore, levels were run to the waters edge. During the 3 hr observation the backup gage marigram had to be re-zeroed to ensure recording of minus tides. Three feet were added to the backup gage trace. The second half of the observation reflects the resetting of the trace.

On 6/27/85 it was discovered that the tubing had parted from the orifice on the backup gage (S/N 68A 14940). Divers repaired and secured the orifice tubing.

Scanning the marigram for the primary gage from 7/17/85 - 7/24/85 revealed that the orifice was clogged with sand. On 7/31/85 divers were sent to investigate this problem and it was discovered that the orifice tubing had recently ruptured. The tubing was repaired and the sand was cleared from the orifice and tubing.

On 8/11/85 both gages were found to be inoperative. The orifice tubing was broken and the orifices were covered by two feet of sand and could not be recovered. Due to weather conditions these gages were not re-installed.

LEVELS

The control station at Unalaska was leveled June 15, 1985. Final levels were run August 16, 1985. No problems were encountered with this station.

Final levels on the subordinate stations compared very well.

GAGES

Field comparisons were made using marigram data from each tide station and a predicted tide curve for Black Rock.

Based on Black Rock Predicted:

<u>GAGE</u>	<u>TIME CORR.</u>	<u>RANGE RATIO</u>
Black Rock	-30 min	1.1
Kulukak	-45 min	1.2
Nushagak	-70 min	1.2
Hagemeister	+60 min	0.7

These approximate values are based on a sample of five days taken during the period of the survey.

ZONING

It should be noted that the predicted tides supplied in the project instructions proved to be inadequate. Preliminary plots showed disagreements up to 2 fathoms in some areas of crosslines and splits. Predicted tides off Black Rock provided better agreement in these areas minimizing disagreements to 1 fathom. During this survey, all four stations were in operation. The Tides and Water Level Branch in Rockville will supply smooth tide correctors for this survey.

MISCELLANEOUS

At all four tide station locations the gages were exposed to open water and heavy surf conditions. Many times they were impossible to tend and went for extended periods without being checked.

In scanning the marigrams which had jumped sprocket holes special methods were needed to obtain accurate hourly heights. The large time errors were distributed linearly and heights had to be corrected by the amount that the sprockets missed the guide holes in the marigram paper.

H-10184

GEOGRAPHIC NAMES

Name on Survey	Source of Name										1
	A	B	C	D	E	F	G	H	K		
BRISTOL BAY	X										1
											2
											3
											4
											5
											6
											7
											8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25



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

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

October 15, 1985

N/MOP21/DWY

TO: Commanding Officer
NOAA Ship RAINIER

Robert L. Sandquist

FROM: N/MOP - Robert L. Sandquist

SUBJECT: Preprocessing Examination of Surveys:
H-10184, Alaska, Bristol Bay, Twenty Five Miles South
of Round Island
H-10188, Alaska, Bristol Bay, Ten Miles Southeast of Round Island
H-10190, Alaska, Bristol Bay, Twenty Miles South of Crooked Island

Hydrographic surveys H-10184, H-10188, and H-10190 have been reviewed in accordance with Hydrographic Survey Guideline No. 15, and the Preprocessing Examination Critique for these surveys is attached. These surveys are accepted conditionally for Marine Center processing pending your response which will resolve the discrepancies noted in section D.3 of the critique. Please express my appreciation to the personnel of the NOAA Ship RAINIER for their efforts in accomplishing this work.

The Preprocessing Examination Critique is designed to provide information which will be useful to the command for maintaining the quality of future hydrographic surveys. I encourage you to use this information constructively. Comments from the command on specific critique items are welcome.

Attachment

cc: N/MOP2x1
N/MOP21x2
N/MOP211 (3) ✓
N/CG2





U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Pacific Marine Center
Nautical Chart Branch
7600 Sand Point Way NE
BIN C15700
Seattle, WA 98115-0700

W
N/MOP21x1/SRI

TO: N/MOP - Robert L. Sandquist

FROM: N/MOP21 *David W. Yeager*
David W. Yeager

SUBJECT: Preprocessing Examination for H-10184, H-10188, and H-10190

I. SURVEY INFORMATION

A. Field No. RA-40-1-85 Registry No. H-10184
RA-20-3-85 H-10188
RA-20-4-85 H-10190

B. State: Alaska
General Locality: Bristol Bay
Sublocality: Twenty Five Miles South of Round Island
Ten Miles Southeast of Round Island
Twenty Miles South of Crooked Island

C. Project Instructions: OPR-R184-RA-85
Original dated: April 30, 1985

D. Dates:

	<u>H-10184</u>	<u>H-10188</u>	<u>H-10190</u>
Field Work Commenced:	<u>June 27, 1985</u>	<u>July 21, 1985</u>	<u>August 5, 1985</u>
Field Work Completed:	<u>August 5, 1985</u>	<u>August 5, 1985</u>	<u>August 27, 1985</u>
plus six weeks:	<u>Sept. 16, 1985</u>	<u>Sept. 16, 1985</u>	<u>October 1, 1985</u>
Data received at			
Marine Center:	<u>Sept. 12, 1985</u>	<u>Sept. 18, 1985</u>	<u>Sept. 27, 1985</u>
plus one month:	<u>Oct. 12, 1985</u>	<u>Oct. 18, 1985</u>	<u>Oct. 27, 1985</u>
Examination critique transmitted to field:	<u>October 16, 1985</u>		
Target for completion of Marine Center processing:	<u>April 16, 1986</u>		



II. PREPROCESSING EXAMINATION CRITIQUE

Hydrographic surveys H-10184, H-10188, and H-10190 were performed by personnel of the NOAA Ship RAINIER, Capt. John P. Vandermeulen, commanding. The following personnel supervised portions of the data acquisition: Lt. Konrad, Lt. (jg) Pickett, Ens. Griffin, Ens. Porta, Ens. LaReau, and Ens. Brown.

A. Danger to Navigation Report

Apparently no dangers to navigation were reported by the field unit for any of the surveys. No statements were made in Section L of the Descriptive Report concerning dangers to navigation (Hydrographic Manual, Section 5.9).

No dangers to navigation were identified during the preprocessing examination.

B. Compliance with Instructions

These surveys are in compliance with the project instructions except as noted in this report.

C. Final Field Sheets

1. The length of the surveyed area on sheet H-10188 exceeded the 122cm limit and will require plotting on an oversized sheet (Hydrographic Manual, Section 1.2.4).

2. Additional depth curves should have been drawn on each survey at a spacing of 3-4cm to display bottom relief (Hydrographic Manual 4.5.7.4).

D. Descriptive Report

1. Section D. Sounding Equipment and Corrections to Echo Soundings of the Descriptive Report was very informative particularly concerning scanning procedures during the surveys.

2. No statements regarding currents was included in Section P, Miscellaneous of the Descriptive Report for H-10190 (Project Instructions, Section 8.1.3).

3. Discrepancies exist between the Raydist correctors listed in Section G. of the Descriptive Report and the correctors appearing on the Electronic Corrector Abstract. It is not clear which correctors are intended as final correctors (Attachments A1, A2).

H. Tide Data

1. A request for smooth tides was not found in the separates to the Descriptive Report for survey H-10188 (OPORDER Appendix G).

2. The field unit is commended for evaluating and applying more accurate predicted tides than was available. It was not apparent, however, that N/CG241 was notified of the anomalies as required in Section 5.9.1 of the project instructions.

J. Position Control


Partial Raydist lane corrections were adequately determined using Mini Rangers while the ship was stopped; however, on occasion, the results of on line comparisons were used in the determination of final partial correctors (Attachment A-2, B). It should be recognized that online comparisons are adequate to check whole lane count; however, due to vessel forward motion and electronic time delays, these comparisons are not adequate to determine partial lane correctors (Hydrographic Manual 4.4.3.3).

N. Survey Acceptance

The preprocessing examination for H-10184, H-10188, and H-10190 was conducted under the time constraints of Hydrographic Survey Guideline No. 15. All comments contained herein are based on a spot check of the data, and it is possible that some problem areas have not been addressed.

Based on the data examined, and except for the items noted in the critique. H-10184, H-10188, and H-10190 are in compliance with the project instructions and I recommend that they be accepted for Nautical Chart Branch processing.

Prepared by:


Stanley R. Iwamoto
Lieutenant, NOAA

Attachment A-1

H-10184

Date	DN	Red Corrector	Green Corrector	Av Red Corrector	Av Green Corrector
10 July	191	-0.13	-0.04		
14 July	195	-0.12	+0.35	-0.13	+0.16
14 July	195	-0.12	+0.35		
17 July	198	+0.08	+0.20	-0.02	+0.28
17 July	198	+0.08	+0.20		
23 July	204	-0.02	-0.02	+0.03	+0.09
23 July	204	-0.14	-0.02		
26 July	206	-0.21	-0.03	-0.18	-0.02
25					
28 Aug	217	-0.12	-0.34		
7 Aug	218	-0.33	-0.40	-0.22	-0.37

Lane Loss

A lane loss took place on July 19 (DN ²⁰⁰~~199~~) on the red Raydist channel. Just prior to the loss, a Mini-Ranger range from code D, signal 102, was recorded and a direct comparison was computed at fix number ~~3984~~ 3949.

Calculated Lane Count

Observed Lane Count

921.02

921.00

While heading south between lines, two lanes were lost on the red station. This appears on the strip chart recorder around lane 1138. The survey tech and OIC on watch did not notice the loss of the lanes at the time. During the loss, a low pressure weather system was moving through the area. Twenty knot winds and rain were present.

A Mini-Ranger comparison was computed after about 3/4's of the next line was completed, and the lane loss became apparent at that time.

Calculated Lane Count

Observed Lane Count

978.35
960.57

976.24
958.51

{DN ²⁰⁰200, 2052 UTC}

After the completion of this line at the north end of the sheet, the ship was stopped and a calibration was performed using the direct comparison method.

Attachment A-2

H-10184

TELEPHONE CORRECTOR ABSTRACT

VELOCITY : 2120

SHEET : RA-40-1-85

TIME	DAY	PATTERN 1	PATTERN 2
125148	197	-00002 ✓	+00028 ✓
154708	197	-00002 ✓	+00028 ✓
200628	197	-00002 ✓	+00028 ✓
000017	198	-00002 ✓	+00028 ✓
015845	198	-00002 ✓	+00028
090344	198	+00003 ✓	+00009) ?
070955	199	-00008 +.03	-00002 +.09
150405	199	-00008	-00002
000029	200	-00008	-00002
011315	200	-00008	-00002
054942	200	-00008	-00002
100205	200	-00008	-00002
194801		-00008	-00002
214414		+00217 +2.03	-00002
000013	201	-00004 +.03	-00002
		-00004	-00002
021431	201	-00004	-00002
062513	201	-00004	-00002
164800	201	-00004	-00002
205134	201	+00000	+00000
231851	201	-00004	-00002
000027	202	-00004	-00002
055616	202	-00004 +.03	-00002 +.09
004204	204	-00004 -.18	-00002 -.02
051136	204	-00004 -.18	-00002 -.02
040244	205	-00009 -.18	+00011 -.02
081207	205	-00018 ✓	-00002 ✓

Pattern 1 lost two lanes, however, partial lane correctors remain as determined by calibration: +1.92

Attachment B

H-10190

8

Date	DN	Red Corrector	Green Corrector	Av Red Corrector	Av Green Corrector
5 August	217	-0.12	-0.34		
6 August	218	-0.33	-0.40	-0.23	-0.37
6 August	218	-0.33	-0.40		
6/7 August	*	-0.04	-0.15	-0.19	-0.28
7 August	219	-0.22	-0.21		
7 August	*	-0.12	-0.05	-0.17	-0.13
13 August	225	+0.02	+0.13		
14 August	226	-0.29	+0.31	-0.14	+0.22
22 August	234	+0.19	+0.17		
23 August	235	+0.41	-----	+0.30	+0.17
24 August	236	+0.07	+0.50		
24 August		+0.12	+0.33	+0.10	+0.42

* Denotes average of on line comparisons.

ON LINE COMPARISONS SHOULD NOT BE USED TO DETERMINE PARTIAL LANE CORRECTORS.

Raydist Failures

Several atmospheric related failures occurred during data acquisition for this survey. The first of these failures took place on August 7 (DN 219) at time 5:25:15 UTC. At that time, both of the Raydist channels were lost, that is, the phase meters stopped rotating for an extended period of time. When the failure initially took place, the line was broken, but the ship's course and speed were maintained so that a lane count could be determined from the strip chart record. After two to three minutes, it was decided that the failure might be more than a temporary loss of the signal, and the ship was stopped. After about five minutes, the phase meters began turning again, and it was determined that the loss of signal was due to weather, as there was a front moving through the area at the time. The phase meters were re-set, and a new calibration was performed. The lane count for the data acquired prior to the failure was verified by checking the on line comparisons. An average of these comparisons was used for plotting the final field sheet, and they appear in the table above.

The second failure occurred on the same day as the first failure, and in much the same way. The failure took place at time 10:37:23 UTC. At that time the phase meters stopped, and it was decided at that time that weather and sea conditions had deteriorated to the point where reliable data could not be acquired. The ship left the survey area in order to avoid the

RECEIVED

OCT 31 1985

PACIFIC MARINE CENTER



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

NOAA Ship RAINIER
1801 Fairview Ave East
Seattle Wa. 98102

JAM
MOP 2, 21

October 28, 1985
els

TO: N/MOP - Robert L. Sandquist

FROM: S221 - *Carl W. Fisher*
Carl W. Fisher

SUBJECT: Preprocessing Examination of H-10184

This memo addresses a question raised in the Preprocessing Examination of survey H-10184 concerning partial Raydist lane correctors. As pointed out in Section D.3 of the critique, discrepancies exist between the Raydist correctors listed in Section G. of the Descriptive Report and the correctors appearing on the Electronic Corrector Abstract.

RAINIER has determined that the corrector listing given in Section G. of the Descriptive Report is not valid. The proper correctors are as listed in the Electronic Corrector Abstract. Field records forwarded with the survey should confirm this.

The table listed in the Descriptive Report reflects preliminary correctors computed based on an unadjusted position of NUSHAGAK PENINSULA AZ MK, 1948. This station was used as the GREEN Raydist site, as well as a calibration signal. When the adjusted position of this station was determined the correctors were recomputed. The change was applied to the final tapes (as reflected by the Electronic Control Abstract) but was mistakenly omitted in the Descriptive Report listing. If further clarification is needed, RAINIER will provide assistance upon arrival in Seattle on November 14.



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

TIDE NOTE FOR HYDROGRAPHIC SHEET

SUPERSEDED 6/7/91

DATE: 12/20/85

Marine Center: Pacific

OPR: R-184

Hydrographic Sheet: H-10184

Locality: 25 miles south of Round Island, Bristol Bay, AK

Time Period: June 27 - August 5, 1985

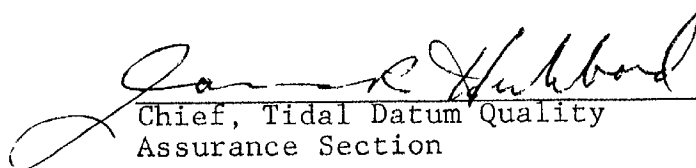
Tide Station Used: 946-5182 Black Rock, AK

Plane of Reference (Mean Lower Low Water): 20.29 ft.

Height of Mean High Water Above Plane of Reference: 9.0 ft.

Remarks: Recommended Zoning:

- 1) east of longitude $159^{\circ}53.0'$ apply -80 minute time correction to all heights
- 2) west of longitude $159^{\circ}53.0'$ apply -80 minute time correction and xl.07 range ratio to all heights


Chief, Tidal Datum Quality
Assurance Section

ORIGINAL

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: June 7, 1991

MARINE CENTER: Pacific

OPR: R-184

HYDROGRAPHIC SHEET: H-10184 (REVISED)

LOCALITY: 25 Miles South of Round Island, Bristol Bay, Alaska

TIME PERIOD: June 27 to August 5, 1985

TIDE STATIONS USED: 946-5182 Black Rock, Alaska
Lat. 58° 42.5'N Lon. 160° 11.3'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 20.29 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 9.0 ft.

REMARKS: RECOMMENDED ZONING

1. East of 160° 00.0'W, apply a -10 min. time correction and a x0.80 range ratio to Black Rock (946-5182).
2. West of 160° 00.0'W, times are direct and apply a x0.80 range ratio to Black Rock (946-5182).

Note: Times are tabulated in Greenwich Mean Time.

James E. Hubbard

CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

HYDROGRAPHIC SURVEY STATISTICS

H-10184

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

RECORD DESCRIPTION		AMOUNT		RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1 + 1		SMOOTH OVERLAYS: POS., ARC, EXCESS		5	
DESCRIPTIVE REPORT		1		FIELD SHEETS AND OTHER OVERLAYS		3	
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS		
ACCORDION FILES							
ENVELOPES							
VOLUMES	1						
CAHIERS	2						
BOXES							

SHORELINE DATA

- SHORELINE MAPS (List):
- PHOTOBATHYMETRIC MAPS (List):
- NOTES TO THE HYDROGRAPHER (List):
- SPECIAL REPORTS (List):
- NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			4054
POSITIONS REVISED			0
SOUNDINGS REVISED			118
CONTROL STATIONS REVISED			0
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	29		29
VERIFICATION OF SOUNDINGS	45.5		45.5
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	22.0		22.0
COMPARISON WITH PRIOR SURVEYS AND CHARTS		17	17.0
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		19	19.0
GEOGRAPHIC NAMES			
OTHER: Digitizing			
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	96.5	36
Pre-processing Examination by Lt. Stanley R. Iwamoto	Beginning Date 6/27/85	Ending Date 8/5/85	
Verification of Field Data by P. Niland	Time (Hours) 96.5	Ending Date 4/25/86	
Verification Check by J. Stringham, S. Otsubo, B. Olmstead, J. Green	Time (Hours) 22	Ending Date 5/19/86	
Evaluation and Analysis by G.E. Kay	Time (Hours) 36	Ending Date 5/19/86	
Inspection by D.J. Hill	Time (Hours) 2	Ending Date 5/20/86	

PACIFIC MARINE CENTER
EVALUATION REPORT
H-10184

1. INTRODUCTION

H-10184 was accomplished by NOAA Ship RAINIER in accordance with the following project instructions:

OPR-R184-RA-85, Togiak Bay, Alaska, dated April 30, 1985

This is a basic survey of the northern portion of Bristol Bay, Alaska situated 25 miles south of Round Island. The offshore limit of this survey is latitude $58^{\circ}00'36''N$ where 26-fathom depths can be found. The northern limit of the survey near Round Island at latitude $58^{\circ}25'00''N$ is an area of decreasing depths. The minimum survey depth of 4.6 fathoms is in this area. The eastern limit of the survey is longitude $159^{\circ}41'00''W$ and the western limit is longitude $160^{\circ}12'00''W$. Bottom characteristics are typically sand and mud with some patches of gravel.

Predicted tides used during field processing were based upon Nushagak Bay, Alaska, reference station with corrections applied from Black Rock, Alaska. Tide correctors used for the reduction of final soundings reflect approved hourly heights zoned from Black Rock, Alaska (946-5182).

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. An antenna distance correction of 32.2 meters has been applied to the position data during office processing. The revised data is listed in the smooth position and sounding printouts.

A digital file for this survey has been generated and includes categories of information required to comply with N/CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, dated September 7, 1983. Certain descriptive information, however, may not be included in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete information.

2. CONTROL AND SHORELINE

Hydrographic control and positioning are adequately discussed in sections F and G of the hydrographer's report and in the Horizontal and Electronic Control Reports for OPR-R184-RA-85.

Horizontal control station positions used during hydrography are either published or field positions based on the North American Datum of 1927.

There is no shoreline within the limits of this survey.

3. HYDROGRAPHY

Soundings at line crossings are in good agreement. The depth curves could be completely and adequately drawn. Delineation of the bottom configuration and the determination of least depths are adequate.

4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change Three, except as noted in the Preprocessing Examination Report, dated October 15, 1985.

5. JUNCTIONS

H-10184 junctions with the following surveys:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Color</u>	<u>Area</u>
H-10188	1985	1:20,000	Red	North
H-10190	1985	1:20,000	Violet	West

The junctions have been adequately effected.

There are no contemporary surveys to the east or to the south. South of latitude 58°13'30"N there are no contemporary surveys to the west. A comparison with charted depths reveals a poor agreement with the present survey. Differences of up to 9 fathoms are evident. The shoaler charted depths are attributed to positional inaccuracies of the miscellaneous source data.

6. COMPARISON WITH PRIOR SURVEYS

H-7718 (1948) 1:100,000 - Present survey data compares well with this prior survey. Present depths are less than 1/2 fathom shoaler or deeper than this prior, indicating a very stable bottom.

There are no AWOIS items within the limits of this survey.

H-10184 is adequate to supersede the prior survey within the common area.

7. COMPARISON WITH CHART

a. Hydrography

Chart 16011, 30th Edition, dated April 2, 1983; scale 1:1,028,188

Most charted information originates from the prior survey discussed in section 6 of this report. Other soundings on Chart 16011 originate from miscellaneous sources. For additional information see section L of the hydrographer's report.

Chart 16315, Provisional Chart 1st Edition, dated March 9, 1985;
scale 1:100,000
Chart 16315, Preliminary Chart 2nd Edition, dated January 4, 1986;
scale 1:100,000

These charts overlap this survey north of latitude 58°20'00"N. Soundings on Chart 16315, 1st Edition originate from the prior survey H-7718 and unknown sources. The data within the common area of H-10184 has been superseded on the 2nd Edition by data from the field sheet. Present smooth sheet data compares well, however, considering that the charted field sheet data is unverified, the present smooth sheet data should supersede Chart 16315 and Chart 16011 within areas of common coverage.

Geographic names appearing on the smooth sheet originate with Chart 16315.

There have been no dangers to navigation identified or reports submitted by the hydrographer for this survey but a dangers to navigation report (copy attached) has been forwarded to the U.S. Coast Guard by the Pacific Marine Center.

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

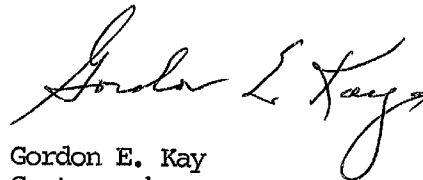
c. Aids to Navigation - There are no fixed or floating aids within the limits of this survey.

8. COMPLIANCE WITH INSTRUCTIONS

H-10184 adequately complies with the project instructions noted in section 1 of this report.

9. ADDITIONAL FIELD WORK

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



Gordon E. Kay
Cartographer

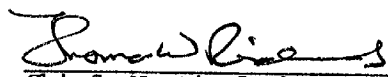
This survey has been examined and it meets Charting and Geodetic Services standards and requirements for use in nautical charting. The survey is recommended for approval.



Dennis Hill
Chief, Hydrographic Section

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10184


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.

 5-29-86
Chief, Nautical Chart Branch (Date)

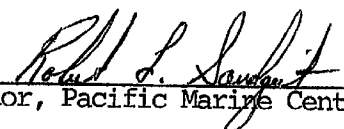
CLEARANCE:

N/MOP2:LWMordock

SIGNATURE AND DATE:

 5-29-86

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.

 5-29-86
Director, Pacific Marine Center (Date)

ADDENDUM
H-10184

Survey H-10184 has been revised. This revision consists of a recomputation of depths and heights based on the establishment of a new tidal datum. The revisions are displayed on a film overlay which is intended to supplement hydrographic information previously displayed on the smooth sheet. The latest Tide Note, documenting the new tidal datum, has been attached to the descriptive report. The completed revision plot has been inspected with regard to delineation of depth curves, depiction of critical depths, junctions, cartographic symbolization, comparison with prior surveys and the verification or disproval of charted features. The digital data have been completed and all revisions and processing have been entered into the magnetic tape record for this survey. A final sounding listing has been made and is included with the survey records. The revised data and records comply with NOS requirements for use in nautical charting.

Dennis Hill Date 1-29-92
Dennis J. Hill
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

I have reviewed the smooth sheet revision overlay and accompanying data. This overlay and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting.

Douglas G. Hennick Date 1/29/92
Commander, Douglas G. Hennick, NOAA
Chief, Pacific Hydrographic Section

Final Approval

Approved:

J. Austin Yeager Date 10/27/94
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

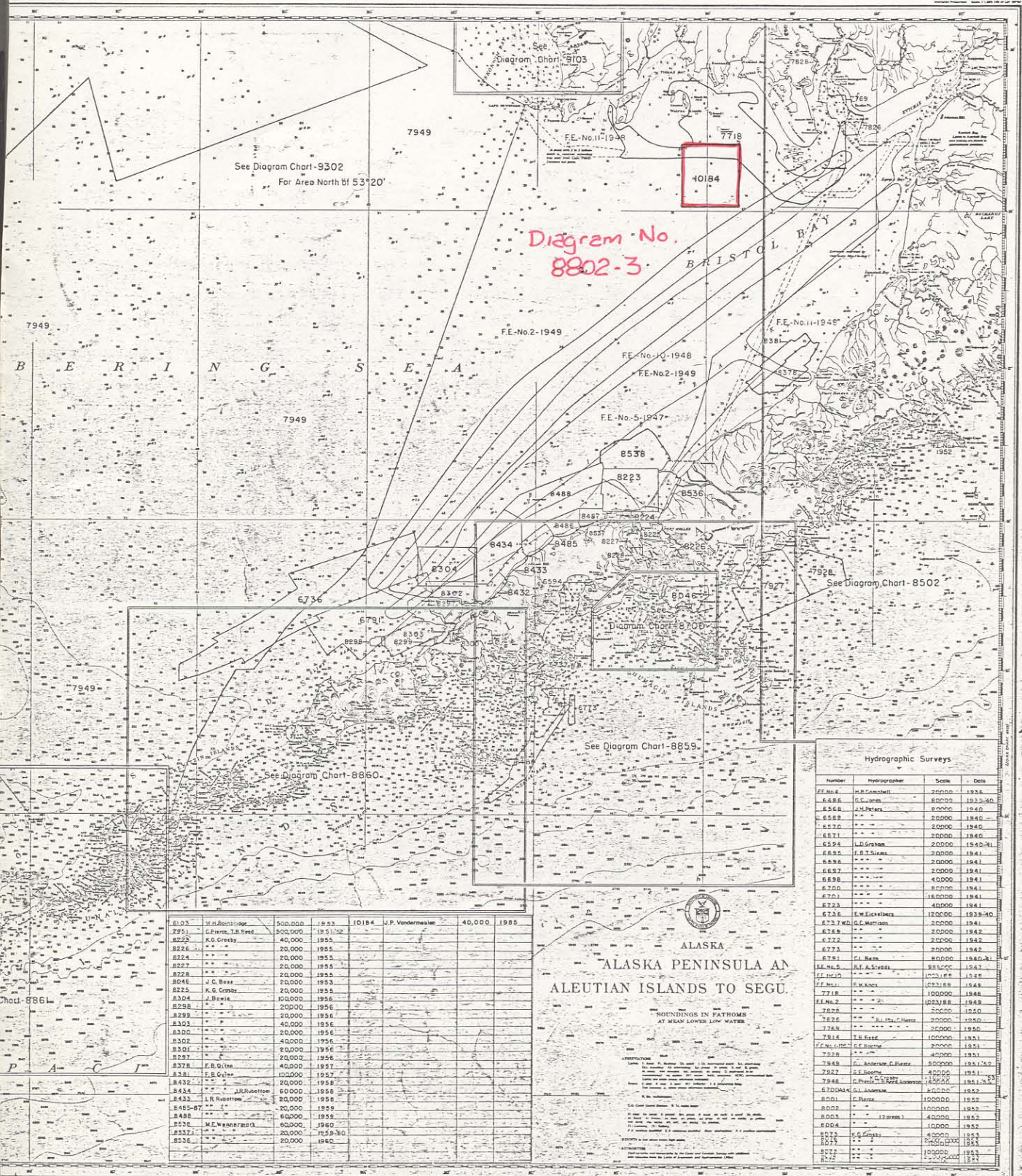


Diagram No.
8802-3

Diagram No.	Hydrographer	Scale	Date
8103	W.H. Rountledge	500,000	1953
8191	C. F. H. ...	500,000	1951
8222	K.G. ...	40,000	1955
8226	"	20,000	1955
8224	"	20,000	1955
8227	"	20,000	1955
8228	"	20,000	1955
8046	J.C. Bass	20,000	1953
8225	K.G. ...	20,000	1955
8304	J. ...	20,000	1956
8298	"	20,000	1956
8299	"	20,000	1956
8303	"	40,000	1956
8300	"	20,000	1956
8302	"	40,000	1956
8301	"	50,000	1956
8327	"	20,000	1956
8378	F.B. ...	40,000	1957
8381	F.B. ...	100,000	1957
8432	"	20,000	1958
8434	J.R. ...	60,000	1958
8423	J.R. ...	20,000	1958
8485-87	"	20,000	1959
8488	"	60,000	1959
8538	M.E. ...	50,000	1960
8537	"	20,000	1959-60
8536	"	20,000	1960

Number	Hydrographer	Scale	Date
6486	H.C. ...	20,000	1923-24
6568	J.H. ...	20,000	1926
6569	"	20,000	1926
6570	"	20,000	1926
6571	"	20,000	1926
6594	L.D. ...	20,000	1940-41
6632	F.B. ...	20,000	1941
6656	"	20,000	1941
6687	"	20,000	1941
6698	"	40,000	1941
6700	"	20,000	1941
6701	"	100,000	1941
6723	"	40,000	1941
6736	E.W. ...	120,000	1938-40
6737	W.C. ...	20,000	1941
6748	"	20,000	1942
6772	"	20,000	1942
6773	"	20,000	1942
6781	C.L. ...	20,000	1940-41
6806	A.L. ...	20,000	1947
6807	"	20,000	1947
6808	"	20,000	1947
6809	"	20,000	1947
6810	"	20,000	1947
6811	"	20,000	1947
6812	"	20,000	1947
6813	"	20,000	1947
6814	"	20,000	1947
6815	"	20,000	1947
6816	"	20,000	1947
6817	"	20,000	1947
6818	"	20,000	1947
6819	"	20,000	1947
6820	"	20,000	1947
6821	"	20,000	1947
6822	"	20,000	1947
6823	"	20,000	1947
6824	"	20,000	1947
6825	"	20,000	1947
6826	"	20,000	1947
6827	"	20,000	1947
6828	"	20,000	1947
6829	"	20,000	1947
6830	"	20,000	1947
6831	"	20,000	1947
6832	"	20,000	1947
6833	"	20,000	1947
6834	"	20,000	1947
6835	"	20,000	1947
6836	"	20,000	1947
6837	"	20,000	1947
6838	"	20,000	1947
6839	"	20,000	1947
6840	"	20,000	1947
6841	"	20,000	1947
6842	"	20,000	1947
6843	"	20,000	1947
6844	"	20,000	1947
6845	"	20,000	1947
6846	"	20,000	1947
6847	"	20,000	1947
6848	"	20,000	1947
6849	"	20,000	1947
6850	"	20,000	1947

ALASKA
ALASKA PENINSULA AND
ALEUTIAN ISLANDS TO SEGU.

SOUNDINGS IN FATHOMS
AT MEAN LOWER LOW WATER

ALASKA
ALASKA PENINSULA AND
ALEUTIAN ISLANDS TO SEGU.

