

10280

10280

Diagram No. 8802-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ... Hydrographic

Field No. RA-10-3-88

Registry No. H-10280

LOCALITY

State Alaska

General Locality ... Alaska Peninsula

Sublocality Aiugnak Columns and Vicinity

1988

CHIEF OF PARTY

CAPT. J.C. Albright

LIBRARY & ARCHIVES

DATE April 2, 1990

☆U.S. GOV. PRINTING OFFICE: 1985-566-054

CP
CHTS
500v
530v
531v
16006v
16568v
16560 New Chart
16011v
16013v
16580 all.

HYDROGRAPHIC TITLE SHEET

H-10280

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 10-3-88

State Alaska

General locality Alaska Peninsula

Locality Aiugnak Columns and Vicinity

Scale 1:10,000 Date of survey June 25 to September 2, 1988

Instructions dated March 6, 1987 Project No. OPR-P180-RA

Vessel NOAA Ship RAINIER (2120), (2123), (2124), (2125), (2126)

Chief of party CAPT J.C. Albright

Surveyed by LTJG J. Lovell, ENS P. Hill, ENS P. Meis, ENS M. Larsen, ENS K. Smith
ENS C. Groeneveld, ENS G. Noll

Soundings taken by echo sounder, ~~hand lead, etc.~~ DSF-6000, Pneumatic gage

Graphic record scaled by RAINIER personnel

Graphic record checked by RAINIER personnel

Verification by L. Deodato Automated plot by PMC Xynetics Plotter

~~XXXXXXXXXX~~ Evaluation by C.R. Davies

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

REMARKS: Revisions and marginal notes in black were generated during office processing. All separates are filed with the hydrographic data, as a result page numbering may be interrupted or non-sequential.

All times in UTC.

AWOIS/ SURF sm sm 4/4/90

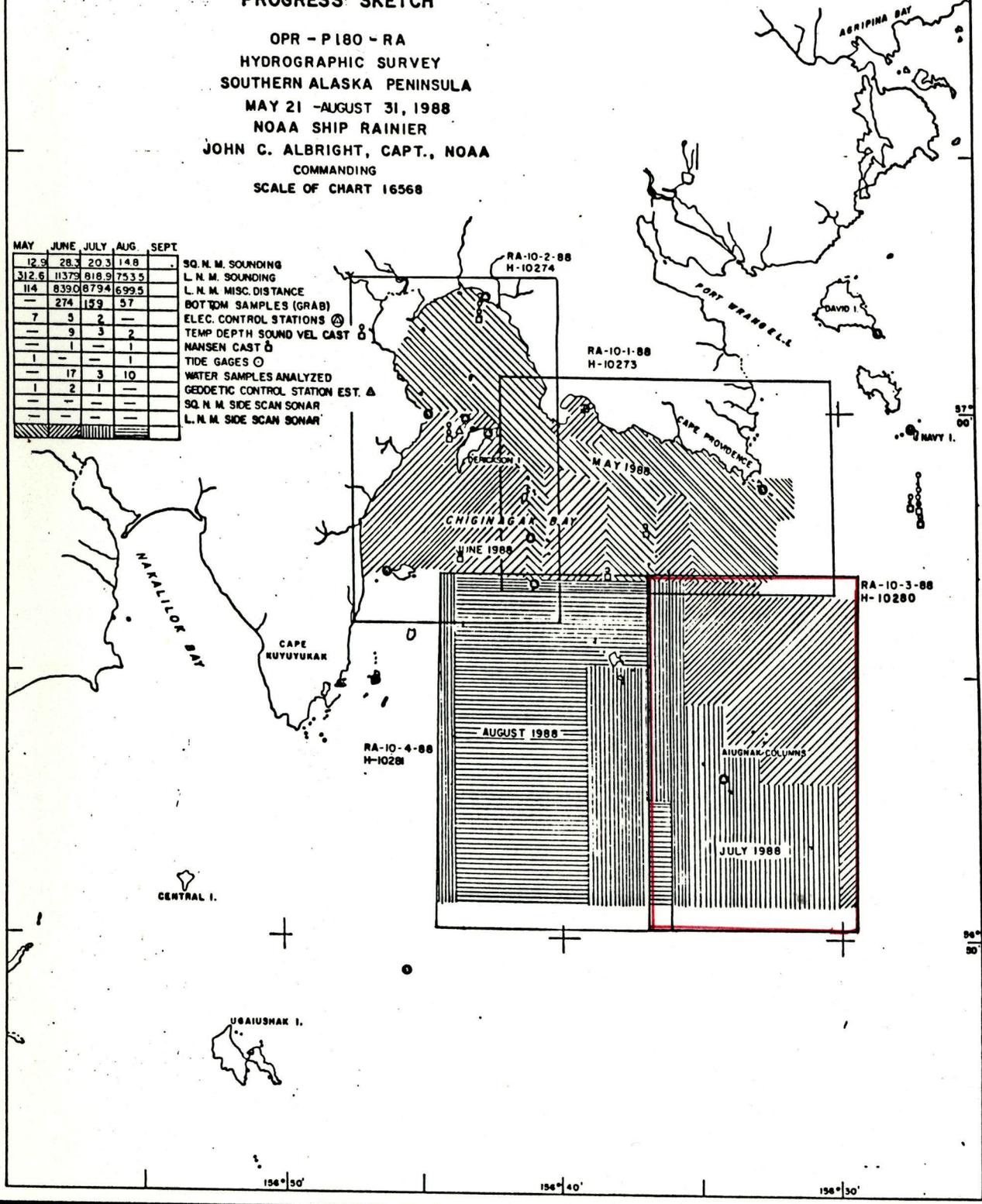
SA 3-28-97

PROGRESS SKETCH

OPR - P180 - RA
 HYDROGRAPHIC SURVEY
 SOUTHERN ALASKA PENINSULA
 MAY 21 - AUGUST 31, 1988
 NOAA SHIP RAINIER
 JOHN C. ALBRIGHT, CAPT., NOAA
 COMMANDING
 SCALE OF CHART 16568

MAY	JUNE	JULY	AUG	SEPT
12.9	28.3	20.3	14.8	
312.6	1137.9	818.9	753.5	
114	839.0	879.4	699.5	
	274	159	57	
7	3	2		
	9	3	2	
	1		1	
1			1	
	17	3	10	
1	2	1		

- SQ. N. M. SOUNDING
- L. N. M. SOUNDING
- L. N. M. MISC. DISTANCE
- BOTTOM SAMPLES (GRAB)
- ELEC. CONTROL STATIONS
- TEMP DEPTH SOUND VEL CAST
- NANSEN CAST
- TIDE GAGES
- WATER SAMPLES ANALYZED
- GEODETTIC CONTROL STATION EST.
- SQ. N. M. SIDE SCAN SONAR
- L. N. M. SIDE SCAN SONAR



87°
00'

86°
30'

154° 50'

154° 40'

154° 30'

Descriptive Report to Accompany Hydrographic Survey H-10280

Field Number RA-10-3-88

Scale 1:10,000

1988

NOAA Ship RAINIER

Chief of Party: Captain John C. Albright

A. Project ✓

This basic hydrographic survey of the southern Alaska Peninsula was completed as specified by Project Instructions OPR-P180-RA (changed from OPR-P180-FA in Change Number 3), dated March 6, 1987, Change Number 1, dated April 14, 1987, Change Number 2, dated September 2, 1987, and Change Number 3, dated April 22, 1988. The survey is one of the optional 1:10,000-scale surveys and is designated sheet AK on the revised sheet layout dated September 16, 1987.

This survey is one in a series which will provide contemporary hydrographic data for existing and proposed 1:80,000-scale charts that cover a portion of the southern Alaska Peninsula. This project responds to requests from the U.S. Coast Guard, Alaska congressional delegates, NOAA, Defense Mapping Agency, Fishing Vessel Owners Association, and the Kodiak Shrimp Trawlers Association.

B. Area Surveyed ✓

This survey is located in Chiginagak Bay, five nautical miles south of Cape Providence. The survey area extends from $56^{\circ}57'30''\text{N}$ to $56^{\circ}50'30''\text{N}$ and from $156^{\circ}29'00''\text{W}$ to $156^{\circ}37'00''\text{W}$. The area contains numerous rocks and islets, known as the Aiugnak Columns, that rise from 20 fathoms to heights in excess of 100 ft.

The bathymetry is generally rugged, especially to the north, with depths ranging between 20 and 80 fathoms. The bottom composition consists of rocky or hard bottom with numerous pinnacles. Several of the islands have large sea lion and fur seal rookeries.

Data acquisition was conducted from June 25 through September 2, 1988 (DN 177 - DN 246).

C. Sounding Vessels ✓

All data were acquired from RAINIER and four automated survey launches shown below:

<u>Vessel</u>	<u>EDP No.</u>	<u>Operation</u>
RAINIER	2120	Nansen/Plessey casts
RA-3	2123	Hydrography Shoreline Verification
RA-4	2124	Hydrography
RA-5	2125	Hydrography, Bottom Samples
RA-6	2126	Hydrography

No changes to the standard sounding configurations were necessary.

D. Sounding Equipment and Corrections to Echo Soundings ✓

All automated survey launches were equipped with Raytheon DSF-6000N echo sounders as shown below. The echo sounders were operated in the HIGH + LOW (HIGH DIGITIZED) function, using manual gain controls on both high and low frequencies to obtain the best analog trace. Soundings were recorded in fathoms and tenths of fathoms. Two-fathom bar checks were conducted and recorded daily, using both the LOW and the HIGH + LOW (HIGH DIGITIZED) functions, to ensure the echo sounders were functioning properly. Echo sounders were operated in accordance with the Provisional Instructions "RAYTHEON DSF-6000N ECHO-SOUNDER OPERATING AND PROCESSING INSTRUCTIONS," dated July 5, 1983, and the N/CG2 memorandum "DSF-6000N Depth Errors as a Function of Receiver Gain," dated May 23, 1986.

Raytheon DSF-6000N Echo Sounders

<u>Vessel</u>	<u>Serial Number</u>	<u>Day Numbers</u>
2123	A117N	194-235
2124	B046N	177-236
2125	A103N	177-236
	B046N	237
2126	A114N	180-246

The echo sounders functioned properly, with occasional minor problems. On day number 237 the echo sounder in vessel 2125 (S/N A103N) was replaced with S/N B046N due to a malfunction.

The echo sounders were continuously monitored during data acquisition. All sounding data was scanned at least two times, not only to ensure all significant peaks and deeps were inserted, but also to verify the digitized depths.

The echo sounders failed to track properly at times while running over extremely steep, irregular bottoms. Running at minimum speeds usually alleviated this problem, and overall data quality was not compromised, but marginal analog traces could sometimes not be avoided. For further information concerning echo sounder performance, see the 1988 Corrections to Echo Soundings Report for OPR-P180-RA.

Diver-obtained least depths were determined with a 3D Instruments pneumatic depth gage (S/N 8504192N). The gage was operated in accordance with Hydrographic Survey Guideline #55, and was last calibrated March 15, 1988 by the Pacific Operations Group (N/OMA 1214). In addition, field system checks were performed each day the pneumatic depth gage was used.

Corrections to Echo Soundings ✓

Corrections to echo soundings were determined for heave, static draft, velocity of sound through water, settlement and squat, and predicted tides. These correctors are eventually to be applied to all echo soundings. All correctors except settlement and squat have been applied to soundings on the final field sheets; settlement and squat correctors will be applied at the Pacific Marine Center during verification. Variations in the instrument initial, stylus arm length, and belt tension are not present with the DSF-6000N.

Heave ✓

Corrections for heave were applied while scanning the echograms. The scanning technique used in comparing the analog trace with the digital record was chosen to eliminate fluctuations greater than 0.2 fathom resulting from sea action. In certain areas, the extremely irregular bottom topography made it sometimes difficult to determine which fathogram features were caused by sea action. *Data was analyzed during office processing and found to contain no significant problems.*

Static Draft ✓

Transducer depths of 0.3 fathom were measured for all launches on March 23, 1988 by divers using a large metal T-square. The draft measurements were made at PMC with the fuel tanks averaging 3/4 full. For each launch, measurements with no people and with four people aboard were made, and the average computed. The transducer depths of 0.3 fathom agree with RAINIER historical records.

Transducers are mounted starboard, midships, in a location such that all sounding corrections apply to both the low- and high-frequency echo-sounder signals.

Sound Velocity ✓

Corrections for the velocity of sound through water were determined from five of the six Plessey SVD casts conducted during the project which are listed below:

<u>Cast No.</u>	<u>Cast Depth (m)</u>	<u>Day Number</u>	<u>Geographic Position</u>
9	200	181	56°58.2'N, 156°27.2'W
10	150	189	56°58.1'N, 156°26.8'W
12	225	206	56°58.2'N, 156°27.3'W
13	170	220	56°56.9'N, 156°38.2'W
Nansen #2	150	234	56°58.3'N, 156°27.0'W
14	200	234	56°58.2'N, 156°27.0'W
15	150	248	56°54.7'N, 156°43.2'W

The Plessey Sound Velocity Sensor, S/N 5652, was connected to a Hewlett\Packard 5326B Universal Frequency Counter, S/N 1312A02159. The sound velocity sensor was calibrated at the Northwest Regional Calibration Center in Bellevue, Washington on April 4, 1988 and September 28, 1988.

One Nansen cast and Cast #14 were performed to ensure the Plessey sensor was operating properly. The sound velocities determined by the two methods showed very good agreement. Surface water temperatures and samples were obtained during each Plessey cast as additional checks on the Plessey system.

In accordance with Change No. 3 to the Project Instructions, RAINIER personnel tested and evaluated a new sound velocity computation program developed by N/CG21. Results of the test agreed well with the traditional computation method outlined in Section 4.9.5.2 of the Hydrographic Manual. A report documenting the test results was forwarded to N/CG24 on July 18, 1988. The new velocity corrector program, VELOCITY, was used to compute velocity correctors as there was no significant difference in results between the two methods.

The surface water temperature, and the corresponding sound velocity, increased continuously until nearly the end of the survey, at which point it began cooling. The following table indicates the casts used for each velocity table. Velocity table number 2 is based on the mean of casts 9 and 10, as shown below.

<u>Velocity Table No.</u>	<u>Cast No.</u>	<u>Applicable DN</u>
2	9,10	173-196
3	12	201-210
4	13	215-237
5	15	243-248

Velocity correctors were applied at 0.1-fathom increments for each velocity table. The velocity tapes have been forwarded with the survey data; tape listings are included in Appendix IV of this report. All supporting data for the Plessey and Nansen casts can be found in the 1988 Corrections to Echo Soundings Report for OPR-P180-RA.

Settlement and Squat ✓

Settlement and squat correctors were determined for the automated survey launches at Shilshole Bay, Washington, on March 30, 1988. Misreadings of the level for vessel 2123 necessitated a rerun of the settlement and squat correctors for that vessel in Farragut Bay, Alaska on May 5, 1988. All tests were conducted over a hard bottom in depths well exceeding seven times the vessels' drafts. Both seas and wind were calm. Observations were made using a Zeiss Ni2 leveling instrument (S/N 87102) to a rod held vertically on the deck of each launch, almost directly over the transducer.

Ten level readings were made at each speed tested, and the average taken, to compute the correctors. Tide staff readings were taken concurrently with each set of level readings, and all tidal height differences were normalized to the tidal height of the dead-in-the-water level readings before the correctors were computed.

Soundings on the final field sheets are not corrected for settlement and squat. TC/TI tapes for each automated sounding vessel have been prepared and submitted with this survey (Appendix IV). Records of settlement and squat data are included in the 1988 Corrections to Echo Soundings Report for OPR-P180-RA. *Filed with the hydrographic data*

Predicted Tides ✓

All survey soundings are reduced to MLLW, based on predicted tides at the Kodiak, Alaska reference tide station (945-7292) and the tidal zone correctors provided in the Project Instructions. The following two zone correctors for the Kodiak tide station encompass the survey area:

<u>Applicable Area</u>	<u>Time Correction</u>		<u>Height Ratio</u>
	<u>High Water</u>	<u>Low Water</u>	
North of latitude 56°55.0'N	+ 20 min	+ 40 min	x1.28
South of latitude 56°55.0'N	+ 20 min	+ 40 min	x1.20

To aid in shipboard data acquisition and processing, only the correctors for the southern zone were applied to the survey data. Field tide records have been forwarded to N/OMA 121, in accordance with Hydrographic Survey Guideline #50 and the PMC OORDER.

A tide station was established at Derickson Island (945-8522) and maintained by RAINIER personnel. Another tide station was installed on Ugaiushak Island with the intention of beginning hydrography on sheet G. RAINIER did not acquire any survey data for that sheet; however, the tide gage data may be applicable to this survey. The Field Tide Note for these stations is included in Appendix II of this report. A request for approved tides has been forwarded to N/OMA 121 (Appendix IX). *Filed with the hydrographic data.*

E. Hydrographic Sheets ✓

All field sheets were prepared aboard RAINIER, on a Houston Instrument Complot DP-3 roll plotter, using the PDP8/e HYDROPLOT system and program RK201, "Grid, Signal, Lattice Plot". Program RK201 draws a Modified Transverse Mercator projection. The two 1:10,000-scale final field sheets were designated RA-10-3E-88 and RA-10-3W-88. Mainscheme splits were run in various areas in order to better define the highly irregular bottom; these soundings are also plotted on the final field sheets. Six 1:5,000-scale expansion sheets (Expansion A-F), containing 30 developments located throughout the survey, were used to increase the legibility of soundings in areas where line spacing was reduced to 25 meters. The limits of each expansion sheet are delineated on the final field sheets. As all data could not be added to the sheets without compromising the legibility, each final field sheet is accompanied by a 1:10,000-scale D.P. overlay. Parameter tape listings for all field sheets are included in Appendix I of this report. *Filed with the hydrographic data*

Depth contours were drawn on the final field sheets in accordance with the Hydrographic Manual. In areas of steep bathymetry, all prescribed contours were not portrayed in order to retain legibility.

In plotting the final field sheets, overprints were removed by various techniques. The pen was manually lifted and special corrector tapes were made to remove individual soundings; these tapes have not been submitted. Some soundings, including least depths, have been transferred by hand to the final field sheets from NSP data.

On DN 179, VESNO 2124 (position numbers 40791-41060) used an incorrect position for station KAYAK. This caused a skew of the mainscheme lines near the eastern survey limits when the data were plotted with the correct position.

All field sheets, accompanying field records and this Descriptive Report are being forwarded to the ~~Pacific Marine Center (N/MOP21)~~ for verification.

Pacific Hydrographic Section (N/CG 245)

F. Control Stations ✓

The following eight geodetic stations were used to control this survey:

Station	Order, Class	Date Established	Signal No.
AIUGNAK*	1,I	1944	101
CHIG*	2,I	1944	102
DERICK*	3,I	1988	104
FOUL*	1,I	1944	103
KAYAK*	3,I	1988	111
PRO*	2,I	1944	100
PR-16	3,I	1988	106
RADIAL*	3,I	1988	112
PR-54	3,I	1988	110

* Stations located offshore on islands.

Positions for AIUGNAK, CHIG, FOUL and PRO are from the NGS data base. All existing control stations were recovered in accordance with methods stated in Section 3.1.4 of the PMC OORDER. DERICK, KAYAK, PR-16 and RADIAL were positioned by closed traverses by RAINIER personnel; the field positions are not adjusted. Station PR-16 was originally an aero-triangulation point. Geographic positions are based on the North American Datum of 1927 and the Clark Ellipsoid of 1866.

All stations meet or exceed Third-order, Class I standards for positioning. Further information can be found in the 1988 Horizontal Control Report for OPR-P180-RA.

G. Hydrographic Position Control ✓

All soundings were located using Motorola's Mini-Ranger III microwave positioning equipment in the HYDRO PLOT range-range acquisition mode.

Positioning Equipment

Six Mini-Ranger console-R/T pairs and ten shore transponders were used during the survey. The following table summarizes the vessel and console-R/T pair configurations:

<u>Day Numbers</u> <u>(DN)</u>	<u>Vessel</u> <u>EDP No.</u>	<u>Vessel</u> <u>Name</u>	<u>Console-R/T</u> <u>Serial No.</u>
194-195 202-216 221-238	2123	RA-3	720/911615 702/B1089 720/B1405
177-234 236	2124	RA-4	30269/B1388 720/B1405
177-179 203-207 219-236	2125	RA-5	711/B1405 720/B1405 702/B1089
180-246	2126	RA-6	715/911102

The table below lists the shore equipment used during this survey:

<u>Transponder Serial Number</u>	<u>Code</u>
C1789	A
E2869	B
G3500	C
911634	D
F3256	E
G3501	F
B1412	0
C1883	1
B1106	2
911635	3

Baseline Calibrations ✓

The four baseline calibrations which affect the survey data were conducted over water in accordance with PMC OORDER 3.3.1 (see table below). Calibration data and descriptions of the baselines can be found in the 1988 Electronic Control Report for OPR-P180-RA.

<u>Location</u>	<u>Distance</u>	<u>DN</u>	<u>Description</u>
Kodiak, AK	1626 m	148 162	Bell Flats Hwy to NOS Tidal BM
Chiginagak Bay, AK	1322 m	196	Mainland to island N of Derickson Is.
Seattle, WA	1312 m	265	Sandpoint pier to Matthews Beach

The correctors from one calibration were applied to data up to the day of the next calibration. The same correctors should be applied to the smooth sheets except in cases where the difference between two consecutive baseline calibrations exceeds 4 m. In accordance with PMC OORDER 3.3.1.3, prorated correctors have been computed at 2-m increments for console-R/T 711-B1405 as the correctors for code 3 exceeded the 4-m difference between baseline calibrations. The hydrographer recommends the following prorated corrector be applied to data acquired with the console-R/T unit mentioned above:

A 5-meter correction was applied to Day 177 and 178

<u>VESNO 2125</u>	<u>Code</u>	<u>Day Number</u>	<u>Corrector</u>
Console 711	Code 3	178-189	-5m
R/T B1405		177-178	

Appendix XI contains the abstracts of baseline calibration results used to determine the applicable dates and amounts of prorated correctors.

Filed with the hydrographic data

System Check Procedures ✓

In accordance with PMC OORDER 3.3.1.2, critical system checks were made at least weekly and noncritical checks were made daily when critical checks were not acquired. RA-5 (VESNO 2125) did not regularly perform system checks on days of bottom sample collection, but did so on days bracketing the non-calibrated periods.

RAINIER personnel installed a Third-Order Class I position for a fixed-point critical calibration at CAL ROCK NORTH (commonly known as "Cal Rock") within Chiginagak Bay. Transponders located at stations PRO, PR-16, and DERICK were successfully calibrated at this site. Another fixed-point calibration site, CAL ROCK SOUTH, was located on the shore of an island within the bay during a theodolite calibration. Launches used this site for checking transponder codes at stations PR-54 and KAYAK.

A range-visual critical systems check site was established on DN 189. Banners were constructed at stations FOUL, CHIG and KAYAK, and coxswains steered the range created by CHIG and FOUL to a point where a known sextant angle between the range and station KAYAK occurred. Transponders located on stations AIUGNAK, KAYAK, CHIG, FOUL, and RADIAL were henceforth critically calibrated using this method. The following Tamaya sextants were used:

<u>RA-3</u>	<u>RA-4</u>	<u>RA-5</u>	<u>RA-6</u>
T3859	T2974	T3733	T3009
T2975	T3722	T2985	T3862

Noncritical system checks were conducted using the launch-to-launch or baseline crossing methods. In general, system checks fell within the allowable rejection limits and no systematic discrepancies with opening baseline correctors were observed.

One T-2 calibration was conducted on DN 220 (VESNO 2123).

Problems and Unusual Position Configurations ✓

Console 711, paired with R/T B1405, due to its failure to remain calibrated was returned to Seattle on DN 200. Some drift in the console was evident during critical systems checks with transponder codes 2 and 3; baseline calibrations confirmed drift with these codes. Data from this survey are not affected by the drift in code 2. The correctors recommended for code 3 with this console-R/T pair are given above.

Null zones and erratic ranges were occasionally experienced due to the destructive interference of direct and reflected microwaves. Time and course interpolations were used during data processing to correct the position of soundings taken when launches approached null zones (as indicated by the launches' erratic steering needles and automated plotters).

A small amount of survey positioning data was acquired with signal strengths one unit below the computed cutoff values. The use of these signal strengths may result in range discrepancies with baseline correctors of less than 5 meters, less than 0.5 millimeter at the scale of the survey, and do not cause significant degradation of positional quality.

The following table summarizes significant events in the electronic control for the survey:

<u>DN</u>	<u>Event Description</u>
162	Kodiak opening calibration of new codes 1, B, D for all console-R/T pairs; code 2 closed and re-opened with 711-B1405 (June 10, 1988)
168	Console-R/T pair 711-B1405 removed from RA-3, placed in RA-5 (June 16, 1988)
177	First day of data acquisition for H-10280 (June 25, 1988)
196	Chiginagak closing calibration for all console-R/T pairs (July 14, 1988)
200	Console 711 returned to Seattle (July 18, 1988)

- 201 Chiginagak opening calibration for 720/B1405 and 702/B1089; all codes including new code A (July 19, 1988)
- 218 Console-R/T unit 702/B1089 placed in RA-5 and 720/B1405 switched to RA-3 (August 5, 1988)
- 218 Code D failed; no closing calibration (August 5, 1988)
- 246 Last day of data acquisition for H-10280 (September 2, 1988)
- 265 Seattle closing calibration for OPR-P180 (September 21, 1988)

Antenna Offset Distances (ANDIST) ✓

Each launch had its antenna located over its depth transducer, making the ANDIST corrector 0.0 in all cases.

H. Shoreline *See Final Report section 2*

Shoreline features north of latitude $56^{\circ}56'30''N$ were transferred to the final field sheet from a 1:10,000-scale enlargement of 1:20,000-scale shoreline map ("TP-sheet") TP-01153. There is no aerial photographic coverage for the remaining features within the survey area. The 18-meter westward shift of all shoreline detail was applied to the TP-sheet and the final field sheets in accordance with Section 3.1.3.1 of the Project Instructions and the memorandum from N/CG2311 dated August 19, 1986 (Appendix XI). *Attached to this report*

Shoreline verification was conducted in accordance with section 3.6 of the PMC OORDER either at or near low water. Shoreline details which were verified or added to the TP-sheet are shown on the final field sheet in black. There are no areas where verification was not accomplished. *CMC/WV*

Per direction from N/CG24, the high water lines of the islands beyond the limits of photo-coverage were determined by hydrographic methods. They are shown in brown on the final field sheets for orientation purposes. Limits of ledges, reefs and foul areas were positioned during low water and are shown in black. *The HWL of the Islands and Islets below $56^{\circ}54'30''N$ are shown in dashed red.* Due to the steepness of the islands and islets, hydrography reveals that the high water lines of the TP-sheet features are accurately depicted. However, based on detached positions taken at low water, it is evident that the photography for the TP-sheet was flown during a stage of tide higher than MLLW, possibly as high as mid-tide. All changes to shoreline features are shown in red on the final field sheet.

The locations of all offshore features were recorded as detached positions on raw data printouts, and occasionally annotated on master printouts at the ends of sounding lines. Cartographic codes were assigned in the field records.

Detached positions were plotted on the D.P. overlays with their five-digit position numbers. Heights are given in feet and have been corrected for predicted tides. Heights given for rocks and islets refer to the highest portion of each feature.

I. Crosslines ✓

Crosslines were oriented perpendicular to the mainscheme sounding lines, and amounted to 9.3% of the mainscheme mileage. All soundings agree to within 1 fm except in areas of very steep bathymetry where agreement is within 2 fm. In several instances the vessel acquiring the crossline data did not acquire the corresponding mainscheme data. The agreement between soundings obtained by different echo sounders in a common area is as stated above.

J. Junctions *See EVAL Report section 5*

This survey junctions with four surveys: H-10225 (1986; 1:20,000-scale) to the east, with H-10273 (1988; 1:10,000-scale) and H-10243 (1987; 1:10,000-scale) to the north, and with H-10281 (1988; 1:10,000-scale) to the west. H-10273 and H-10281 were conducted concurrently with this survey. Agreement of soundings and depth contours between this survey and the junction surveys is considered very good, with all co-plotted soundings agreeing to within 1 fm. *CONCUR*

K. Comparison With Prior Surveys ✓

There are no prior surveys within the limits of H-10280.

L. Comparison With the Chart *See EVAL Report Section 7*

This survey was compared to NOS preliminary chart 16568, 5th edition, 9 December 1978, 1:106,600. *and Chart 16568 6th Edition, dated April 29, 1987*

Comparison of Sounding Features

The 27 charted soundings within this survey area originate from BP-39630 (1944), a 1:20,000 U.S.C. & G.S. reconnaissance survey, which was not available for comparison. Agreement between this survey and the charted soundings is considered good, with over 80% agreeing to within 2 fm. The extremely irregular bathymetry coupled with the techniques employed positioning and sounding during the reconnaissance survey reasonably accounts for all the remaining sounding discrepancies. There are no general shoaling or deepening trends in the survey area. *CONCUR*

Line spacing was reduced to 50 meters over most of the survey area in order to locate shoal depths and to better define depth contours. Additional 25-meter line spacing developments oriented normal to mainscheme hydrography were also conducted. Dive operations conducted in depths less than 10 fathoms resulted in least depths determined for fifteen features identified within the area of the shoal developments. Each site was assigned a dive site number, and these numbers appear on the development overlay sheets and the dive investigation forms. All diver-obtained least depths which could be legibly plotted on the chart were reported as dangers to navigation and will not be discussed here. Least depths obtained from the remaining ten dive investigations were deeper than adjacent features reported as dangers, and are listed below: *In areas where numerous rocks were positioned a note "Rky" was annotated on the smooth sheet.*

<u>Feature</u>	<u>Position</u>	<u>Least Depth (fm)</u>	<u>Position Number</u>	<u>Dive Site Number</u>
Rock ridge	^{15.63} 56°53'16"N ^{43.78} 156°34'44"W	6.65 RK	6001	1 ✓
Rock ridge	⁰³ 56°53'16"N ²⁸ 156°34'46"W	^{7.5} 8.0 RK	6002	3 ✓
Rock ridge	²¹ 56°53'14"N ¹⁰⁴ 156°35'22"W	^{8.8} 9.0 RK	6004	10 ✓
Rock ridge	^{6.73} 56°52'37"N ¹⁰⁸ 156°33'31"W	⁶ 7.8 RK (excessal)	6007	11B ?
Rock ridge	^{09.98} 56°53'10"N ^{26.94} 156°34'37"W	^{7.7} 7.8 RK	5000	4 ✓
Rock outcrop	²¹ 56°53'24"N ^{12.94} 156°35'13"W	⁵ 6.6 RK	5001	8 ✓
Rock outcrop	^{09.92} 56°53'10"N ¹³ 156°34'43"W	⁴ 9.5 RK (excessal) 9.1 RK	5002	5 ✓
Rock pinnacle	⁰² 56°53'19"N ⁰⁵ 156°35'17"W	⁶ 7.2 RK	5003	7 ✓
Rock	¹⁰ 56°53'27"N ³⁶ 156°35'23"W	⁷ 6.8 RK	5004	9 ✓
Rock outcrop	^{49.78} 56°52'50"N ¹⁷ 156°34'19"W	⁷ 6.9 (Excessal) 5.2 RK	6015	12 ✓

The dive investigation forms completed for each dive contain all information regarding each feature. The forms are included within the accordion files submitted with this survey. A copy of the dangers to navigation letter included in Appendix X of the report includes the position numbers of each dive. *Attached to the report.*

Non-Sounding Features

The group of islets, surrounding ledges, and reefs at 56°56'48"N, 156°35'36"W are depicted accurately on the chart. However, the rock charted at 56°56'45"N, 156°35'57"W was not seen during visual searches on DN 194 and DN 222. Depths of 15 fms were obtained in the area of the charted rock. The hydrographer recommends removing the rock and charting the same area as per survey data. *CONCUR ✓*

The area in the vicinity of the Aiugnak Columns, centered at 56°53'54"N, 156°33'00"W, is charted as a foul area. Visual inspection of the area revealed four islets within the area, three of which are charted accurately. The fourth islet is charted as a rock, west of the easternmost islet (56°53'52"N, 156°32'48"W). The five remaining charted rocks in this area were not visible during inspection on DN 222. Sounding lines were run through the area and detached positions were obtained at the charted positions of the rocks to disprove their existence (DN 237, Position # 50129-50138). Depths of 6.9 to 22.9 fms exist within the area of the charted rocks; no rocks are evident on the fathograms. The hydrographer recommends the charted rocks within the area be removed, and the data from this survey be used to update the chart. *CONCUR ✓*

Danger to Navigation Reports ✓

Eleven dangers to navigation were discovered and have been reported, by radio message and letter, to the Commander, Seventeenth Coast Guard District and the Defense Mapping Agency Hydrographic/Topographic Center (DMAHTC) (Appendix X). Position numbers associated with each item have been noted on the letter within the appendix. *Attached to this report*

There are no AWOIS items within the survey area. *CONCUR*

M. Adequacy of Survey ✓

This survey is complete and adequate to be used for charting purposes, and to supersede any historical data. *CONCUR*

N. Aids to Navigation ✓

There are no floating or fixed aids to navigation within the survey area. *CONCUR*

O. Statistics ✓

	<u>2123</u>	<u>2124</u>	<u>2125</u>	<u>2126</u>	<u>Total</u>
No. of Positions	2837	3186	1006	1413	8442
LNM Hydrography	266.0	459.3	103.1	175.1	1003.5

Square Miles of Hydrography	24.0
Miles of Side Scan	0
Bottom Samples	113
Tide Stations	2
Velocity Casts	5
Magnetic Stations	0
Current Stations	0

P. Miscellaneous ✓

All bottom samples have been submitted to the Smithsonian Institution (Appendix VII). *filed w/ hydrographic data.*

Simultaneous LORAN-C and Mini-Ranger III positioning information was acquired across the survey area and was forwarded to DMAHTC per PMC OORDER 1.2.4. Only two of the three time delays shown on chart 16568 were acquired during the comparison. LORAN-C receivers aboard RAINIER and one sounding vessel could not lock onto the 9990-X signals. Therefore, all acquired LORAN-C time delays are from 9990-Y and 9990-Z signals.

No current measurements were made during this survey, as no anomalous current conditions were observed.

Q. Recommendations ✓

None

R. Automated Data Processing ✓

Data acquisition and processing were accomplished with a PDP 8/e HYDROPLOT computer system, using the following programs:

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>VERSION</u>
RK 112	HYPERBOLIC,R/R HYDROPLOT	3/01/86
RK 201	GRID, SIGNAL, AND LATTICE PLOT	4/18/75
RK 221	COMB R/R & HYPER PLOT NON-RT	7/25/86
RK 300	UTILITY COMPUTATIONS	10/21/80
RA 362	RK 330 AND AM 602 COMBINED	8/20/84
RK 407	GEODETIC INVERSE/DIRECT COMP	9/25/78

RK 409	GEODETIC UTILITY PACKAGE	9/20/78
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
RK 606	TAPE DUPLICATOR	8/22/74
AM 607	SELF-STARTING BINARY LOADER	8/10/80
RK 610	BINARY TAPE DUPLICATOR	1/31/85
RK 900	PLOT TEST TAPE GENERATOR FOR AM902	5/07/76
PM 901	CORE CHECK	3/01/72
AM 902	REAL TIME CHECKOUT	11/10/72
DA 903	DIAGNOSTIC-INSTRUCTION TIMER	2/27/76
RK 905	HYDROPLOT CONTROLLER CHECKOUT	3/18/81
RK 935	HYDROPLOT HARDWARE TESTS	3/15/82
RK 950	HARDWARE TESTS (DOCUMENTATION ONLY)	6/02/75
	VELOCITY (new N/CG21 program)	3/11/88

Position Numbers

The following position numbers are duplicated within the survey data:

<u>DAY NUMBER</u>	<u>VESSEL NUMBER</u>	<u>POSITION #</u>
177, 178	2124	40262
177,236-237	2125	50000-50138
204, 207	2123	30775-30832
234, 235	2123	32530-32533

Five-digit position numbers were used during data acquisition to reduce the number of blocks of position numbers designated for each sounding vessel. This change from the standard four-digit position numbers stated in Section 1.4.5.2 of the Hydrographic Manual was approved by N/MOP21.

S. Referral to Reports ✓

The following supplementary reports contain additional information relevant to this survey:

<u>TITLE</u>	<u>DATE SENT TO MARINE CENTER</u>
Horizontal Control Report, OPR-P180-RA	October, 1988
Electronic Control Report, OPR-P180-RA	October, 1988

Corrections to Echo Soundings Report
OPR-P180-RA

September, 1988

Marine Mammal Report, RP-12-88

September, 1988

Coast Pilot Report, OPR-P180-RA

October, 1988

Respectfully Submitted,

Mark S. Larsen

Mark S. Larsen
Ensign, NOAA

Approved and Forwarded,

John C. Albright

John C. Albright
Captain, NOAA

1988 FIELD TIDE NOTE

OPR-P180-RA, Southern Alaska Peninsula, Alaska

OPR-P180-RA, Southern Alaska Peninsula, Alaska, includes four hydrographic surveys which were completed from May through September, 1988. The surveys are H-10273 (Sheet H), H-10274 (Sheet J), H-10280 (Sheet AK), and H-10281 (Sheet AL). Field-tide reduction of soundings was based on predicted tides computed with program AM 500, Predicted Tide Generator, by using the predicted tides for the Kodiak, Alaska, reference station (945-7292). Two of the four corrector zones stated in Section 5.9 of the Project Instructions affect the surveys. The table below shows the corrector sets and the surveys to which they apply:

Hydrographic Area	Time Correction		Height Ratio	Registry Number
	High Water	Low Water		
N of 56°55.0'N	+0hr 20min	+0hr 40min	x1.28	H-10273, H-10274
Between 56°55.0'N and 56°50.0'N	+0hr 20min	+0hr 40min	x1.20	H-10280, H 10281

Near the beginning and end of the project, leveling was conducted at the Sand Point reference station (945-9450) to connect six bench marks with the staff. The opening levels were conducted by the Anchorage Liaison Officer on May 15, 1988. Closing levels will be conducted by RAINIER personnel, and will be submitted separately. The Sand Point tide station serves as the control station for datum determination for all subordinate stations.

The following tide stations were installed in the project area:

DERICKSON ISLAND, SOUTHERN ALASKA PENINSULA, ALASKA (945-8522)

Geographic Locale - 56°59'40"N, 156°43'10"W (North Chiginagak Bay)

Installation Date - May 22, 1988

Removal Date - September 05, 1988

Gage Type - Bristol bubbler (S/N 68A-9335) with a backup Bristol bubbler (S/N 67A-16205). The gages were placed on a flat rock at the base of a talus slope approximately 14 feet above the high water mark, and were secured to the rock with eye bolts and aircraft wire. The orifice tubing was secured with rocks and eye bolts. The orifices were secured to a steel plate which was subsequently anchored to the bottom with rocks.

Staff - Two cables and two 2x4's braced the staff at the 2.5-ft mark. These were anchored by lag bolts into a vertical rock face. The staff was also secured at the 7.0-ft mark to the rock face by means of a lag bolt. Two small pieces of 2x4 shimmed the top of the staff and were anchored by lag bolts and nails. The staff stop was a piece of angle iron anchored to the side of the staff at the 9.0-ft mark.

Staff Zero/Gage Zero

Gage # 68A-9335: 7.82 ft

Gage # 67A-16205: 7.41 ft

Gage Time - Universal Coordinated Time

Bench Marks - Five bench marks were recovered at this station: 8522 A 1987, 8522 B 1987, 8522 C 1987, 8522 D 1987, and 8522 E 1987. The five bench marks were connected in the initial and final leveling.

Levels - Installation levels were completed on May 22, 1988, connecting the five bench marks mentioned above. Final leveling was completed on September 05, 1988. The final levels agreed with the installation and historical levels to within 0.003 meters.

Marigram Records -

GAGE # 68A-9335: Marigram records are continuous:

<u>FROM</u>	<u>TO</u>
05/22/88 @ 2100	05/25/88 @ 1612
05/25/88 @ 1620	06/01/88 @ 1806
06/01/88 @ 1819	06/04/88 @ 1630
06/04/88 @ 1646	06/17/88 @ 1624
06/17/88 @ 1642	06/24/88 @ 2330*
06/25/88 @ 0018	07/07/88 @ 1624
07/07/88 @ 1630	07/22/88 @ 1630
07/22/88 @ 1642	07/28/88 @ 1630*
07/28/88 @ 1712	08/05/88 @ 1618
08/05/88 @ 1630	08/18/88 @ 1624
08/18/88 @ 1648	08/30/88 @ 1645
08/30/88 @ 1700	09/05/88 @ 1618**

* Marigram records removed.

** Gage removed

GAGE # 67A-16205: Marigram records are continuous:

<u>FROM</u>	<u>TO</u>
05/22/88 @ 2100	06/08/88 @ 2112
06/08/88 @ 2124	06/26/88 @ 1630*
06/26/88 @ 1730	07/19/88 @ 2118
07/19/88 @ 2154	07/21/88 @ 1642
07/21/88 @ 1700	07/28/88 @ 1630*
07/28/88 @ 1712	08/02/88 @ 2354
08/02/88 @ 0000	08/18/88 @ 1624
08/18/88 @ 1648	09/05/88 @ 1618**

* Marigram records removed.

** Gage removed

Station Problems

RAINIER was in Kodiak on the weekend of 26 through 29 August, 1988. During this inport, the Derickson Island tide gages were opened by unauthorized personnel resulting in the theft of various tools. No vandalism to the gages or staff occurred.

No other station problems were encountered during data acquisition.

UGAIUSHAK ISLAND, SOUTHERN ALASKA PENINSULA, ALASKA (945-8553)

Geographic Locale - 56°47'42"N, 156°51'06"W

Installation Date - August 11, 1988

Removal Date - September 04, 1988

The Ugaiushak Island tide station was installed with the intention of beginning hydrographic sheet G. RAINIER did not acquire any data for that sheet; however, the data may be applicable to offshore sheets H-10280 and H-10281.

Gage Type - Bristol bubbler (S/N 67A-10292) with a backup Bristol bubbler (S/N 73A-235). The gages were placed on a flat rock at the base of a steep rock cliff about 15 feet above the high water mark, and were secured to the rock with eye bolts and aircraft wire. The orifice tubing was secured with rocks and eye bolts. The orifices were secured using two separate eye bolts with hose clamps (the eye bolts were anchored into the side of a steep rock ledge).

Staff - Two angle irons braced the staff at the base and at the 4.5 ft mark. These were anchored by lag bolts into the side of a vertical rock ledge. The staff was also secured at the 7.0-ft mark to a 2x4 anchored to the rock ledge by means of a lag bolt. The staff stop was a stainless steel lag bolt secured to the staff at the 9.0 ft mark.

Staff Zero/Gage Zero

Gage # 67A-10292: 3.23 ft.

Gage # 73A-235: 3.35 ft.

Gage Time - Universal Coordinated Time

Bench Marks - Five bench marks were established at this station: 8553 A 1988, 8553 B 1988, 8553 C 1988, 8553 D 1988, and 8553 E 1988. The five bench marks were connected in the initial and final leveling.

Levels - Installation levels were completed on August 11, 1988, connecting the five bench marks mentioned above. Final levels were completed on September 04, 1988. The initial and final levels agreed to within 0.004 m.

Marigram Records -

GAGE # 67A-10292: Marigram records are continuous:

<u>FROM</u>	<u>TO</u>
08/11/88 @ 2112	08/31/88 @ 1930
08/31/88 @ 2212	09/04/88 @ 1724*

* Gage removed.

GAGE # 73A-235: Marigram records are continuous:

<u>FROM</u>	<u>TO</u>
08/11/88 @ 2112	08/21/88 @ 1700
08/21/88 @ 1706	08/31/88 @ 2212
08/31/88 @ 2218	09/04/88 @ 1724*

* Gage removed.

Station Problems

On 31 August, 1988, at 1930 the primary gage (# 67A-10292) trace fell to zero. Upon investigation, a nitrogen leak was found at the 90° fitting which joins the supply hose to the supply valve. The fitting was replaced by RAINIER personnel, and the gage operated normally for the duration of the project.

No other station problems were encountered during data acquisition.

MASTER STATION LIST
 OPR-P180-RA, ALASKA PENINSULA
 RA-10-3-88

VERSION

SEPTEMBER 30, 1988

100	1	56	58	33386	156	32	48468	250	0011	000000	
/PRO		1944			NGS QUAD		561564		STA.		1015
101	1	56	53	03001	156	34	16924	250	0031	000000	
/AIUGNAK		1944			NGS QUAD		561564		STA.		1001
102	1	56	56	42909	156	41	05540	250	0015	000000	
/CHIG		1944			NGS QUAD		561564		STA.		1004
103	1	56	57	40436	156	41	06955	250	0038	000000	
/FOUL		1944			NGS QUAD		561564		STA.		1008
104	1	56	59	41039	156	42	19472	250	0023	000000	
/DERICK,		1988							RAINIER G.P.		
106	1	57	02	1461 ⁰⁶	156	42	514 ³⁸⁵	250	0018	000000	
/PR-16		1976 ⁸⁸							RAINIER G.P.		
111	1	56	56	09225 ^{4 52504}	156	47	05338 ^{6 48812}	250	0040	000000	
/KAYAK		1988							RAINIER G.P.		
112	1	56	48	5511 ⁰⁸	156	45	3920 ⁴	250	0018	000000	
/RADIAL		1988							RAINIER G.P.		
113	1	56	59	51806	156	43	21073	139	0001	000000	
/CAL. ROCK NORTH		1988							RAINIER G.P.		
114	1	56	59	37060	156	43	42030	139	0000	000000	
/CAL. ROCK SOUTH		1988							RAINIER G.P.		
110		56	56	57521	156	46	21810	250			
/PR-54,		1988							RAINIER G.P.		



FOO-
U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

NOAA Ship RAINIER S-221
1801 Fairview Ave. East
Seattle, WA 98102-3767

September 19, 1988

Director
DMAHTC
6500 Brooks Lane
Washington, DC 20315

Dear Sir:

During 1988 surveys along the southern Alaska Peninsula, NOAA Ship RAINIER has discovered additional offshore dangers to navigation. They have been reported to the Seventeenth Coast Guard District for publication in the Local Notice to Mariners. A copy of the report describing them is enclosed. This information supplements my letters of 12 and 19 August 1988.

Sincerely,

A handwritten signature in cursive script that reads "John C. Albright".

John C. Albright
Captain, NOAA
Commanding Officer

Enclosures





U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

NOAA Ship RAINIER S-221
1801 Fairview Avenue East
Seattle, Washington 98102-3767

September 19, 1988

Commander
Seventeenth Coast Guard District
P.O. Box 3-5000
Juneau, AK 99802

Dear Sir:

Attached is a confirmation copy of the radio message sent to your office regarding additional offshore dangers to navigation which I recommend for inclusion in the Local Notice to Mariners for the Seventeenth Coast Guard District. A chartlet showing the locations of the reported dangers is also attached. This information supplements my letters of 12 and 19 August 1988.

Sincerely,

A handwritten signature in cursive script that reads "John C. Albright".

John C. Albright
Captain, NOAA
Commanding Officer

Enclosures

cc:DMAHTC
N/CG222
N/MOP



JCA

252 2501600

PTTUZYUW RUHPTEFOEM 2241703-UUUU--RUHPSUU.

ZNR UUUUU

P ~~XXXXXX~~ SEP 88

P 141600Z

FM NOAAS RAINIER

TO CCGDSEVENTEEN JUNEAU AK

INFO NOAMOP SEATTLE WA

DMAHTC WASHINGTON DC //NVS//

ACCT CM-VCAA

BT

UNCLAS

REQUEST FOLLOWING BE PUBLISHED IN LOCAL NOTICE TO MARINERS FOR SEVENTEENTH DISTRICT:

Hand Carry 14-Sep-88 1820Z

"THE NOAA SHIP RAINIER HAS COMPLETED 1988 CHARTING OPERATIONS IN CHIGINAGAK BAY, SOUTHERN ALASKA PENINSULA, A PREVIOUSLY UNSURVEYED AREA. THE FOLLOWING DANGERS TO NAVIGATION HAVE BEEN DISCOVERED ON SURVEY H-10280, AIUGNAK COLUMNS AND VICINITY, AND SURVEY H-10281, 6 MI SW OF CAPE PROVIDENCE. IT IS IMPORTANT TO NOTE THAT UNCHARTED DEPTHS SHOALER THAN THOSE LISTED HERE EXIST THROUGHOUT THIS AREA. THESE SHOALER DEPTHS HOWEVER CONFORM TO THE GENERAL BOTTOM CONTOURS. THE DANGERS REPORTED BELOW ARE ISOLATED FEATURES LOCATED DURING THE SURVEYS WHICH RISE SIGNIFICANTLY ABOVE SURROUNDING DEEPER DEPTHS. MARINERS ARE URGED TO CONTINUE TO NAVIGATE WITH EXTREME CAUTION IN THIS AREA UNTIL ALL DATA FROM SURVEYS H-10280 AND H-10281 ARE APPLIED TO CHART 16568. ALL DEPTHS AND HEIGHTS REDUCED TO MLLW USING PREDICTED TIDES AND ALL POSITIONS BASED ON NAD27 DATUM. FEATURES BELOW ARE NUMBERED CONSECUTIVELY WITH DANGERS PREVIOUSLY DISCOVERED DURING 1988 SURVEYS IN THE VICINITY OF CHIGINAGAK BAY.

H-10280

					Position #
120.	ROCK COVERED	6.5	FATHOMS AT	56/53/14N 156/34/42W	6000
121.	ROCK COVERED	6.98	FATHOMS AT	56/53/21N 156/35/16W	6003
122.	ROCK COVERED	5.42	FATHOMS AT	56/52/51N 156/34/20W	6005
123.	ROCK COVERED	6.98	FATHOMS AT	56/52/36N 156/33/32W	6006
124.	ROCK COVERED	8.54	FATHOMS AT	56/50/55N 156/34/36W	6014
125.	SHOAL COVERED	9.64	FATHOMS AT	56/56/40N 156/36/27W	31250 ⁺¹
126.	SHOAL COVERED	9.6	FATHOMS AT	56/52/55N 156/33/47W	42743 ^{+3.5}
127.	SHOAL COVERED	10.21	FATHOMS AT	56/53/12N 156/33/48W	43037 ⁺¹
128.	SHOAL COVERED	4.86	FATHOMS AT	56/56/36N 156/35/54W	31317 ⁺³
129.	SHOAL COVERED	10.20	FATHOMS AT	56/56/38N 156/35/35W	31332 ⁺⁵
130.	SHOAL COVERED	11.21	FATHOMS AT	56/52/49N 156/36/44W	32857 ⁺³

H-10281

131.	ROCK COVERED	5.2	FATHOMS AT	56/53/26N 156/38/03W
132.	SHOAL COVERED	7.7	FATHOMS AT	56/53/41N 156/40/02W
133.	SHOAL COVERED	7.2	FATHOMS AT	56/54/40N 156/40/22W
134.	ROCK COVERED	4.4	FATHOMS AT	56/55/24N 156/39/03W
135.	ROCK COVERED	6.9	FATHOMS AT	56/52/37N 156/39/19W
136.	ROCK COVERED	6.2	FATHOMS AT	56/55/28N 156/37/22W
137.	ROCK COVERED	7.9	FATHOMS AT	56/54/19N 156/38/27W
138.	SHOAL COVERED	10.9	FATHOMS AT	56/51/53N 156/39/33W
139.	SHOAL COVERED	10.9	FATHOMS AT	56/54/42N 156/39/41W
140.	SHOAL COVERED	7.7	FATHOMS AT	56/54/39N 156/38/54W
141.	SHOAL COVERED	4.3	FATHOMS AT	56/54/51N 156/38/34W
142.	SHOAL COVERED	10.9	FATHOMS AT	56/52/56N 156/39/18W

- 143. SHOAL COVERED 10.9 FATHOMS AT 56/52/47N 156/38/07W
- 144. SHOAL COVERED 8.6 FATHOMS AT 56/52/35N 156/37/04W
- 145. SHOAL COVERED 10.4 FATHOMS AT 56/52/58N 156/36/58W
- 146. SHOAL COVERED 10.3 FATHOMS AT 56/51/56N 156/41/45W
- 147. SHOAL COVERED 10.7 FATHOMS AT 56/54/45N 156/40/49W
- 148. ISLAND INCORRECTLY CHARTED AT 56/49/20N 156/45/40W
CORRECT POSITION IS 56/48/55N 156/45/39W

THE FOLLOWING NOS PRELIMINARY CHART IS AFFECTED:

16568 5TH ED DEC 9/78 1:106600

THIS IS ADVANCE INFORMATION SUBJECT TO OFFICE REVIEW.

QUESTIONS CONCERNING THESE DATA CAN BE DIRECTED TO:

DIRECTOR, PACIFIC MARINE CENTER

1801 FAIRVIEW AVENUE EAST

SEATTLE, WASHINGTON 98102

(206) 442-7656"

A LETTER WITH ATTACHED CHARTLET IS BEING MAILED TO YOU TO
CONFIRM THIS MESSAGE.

BT

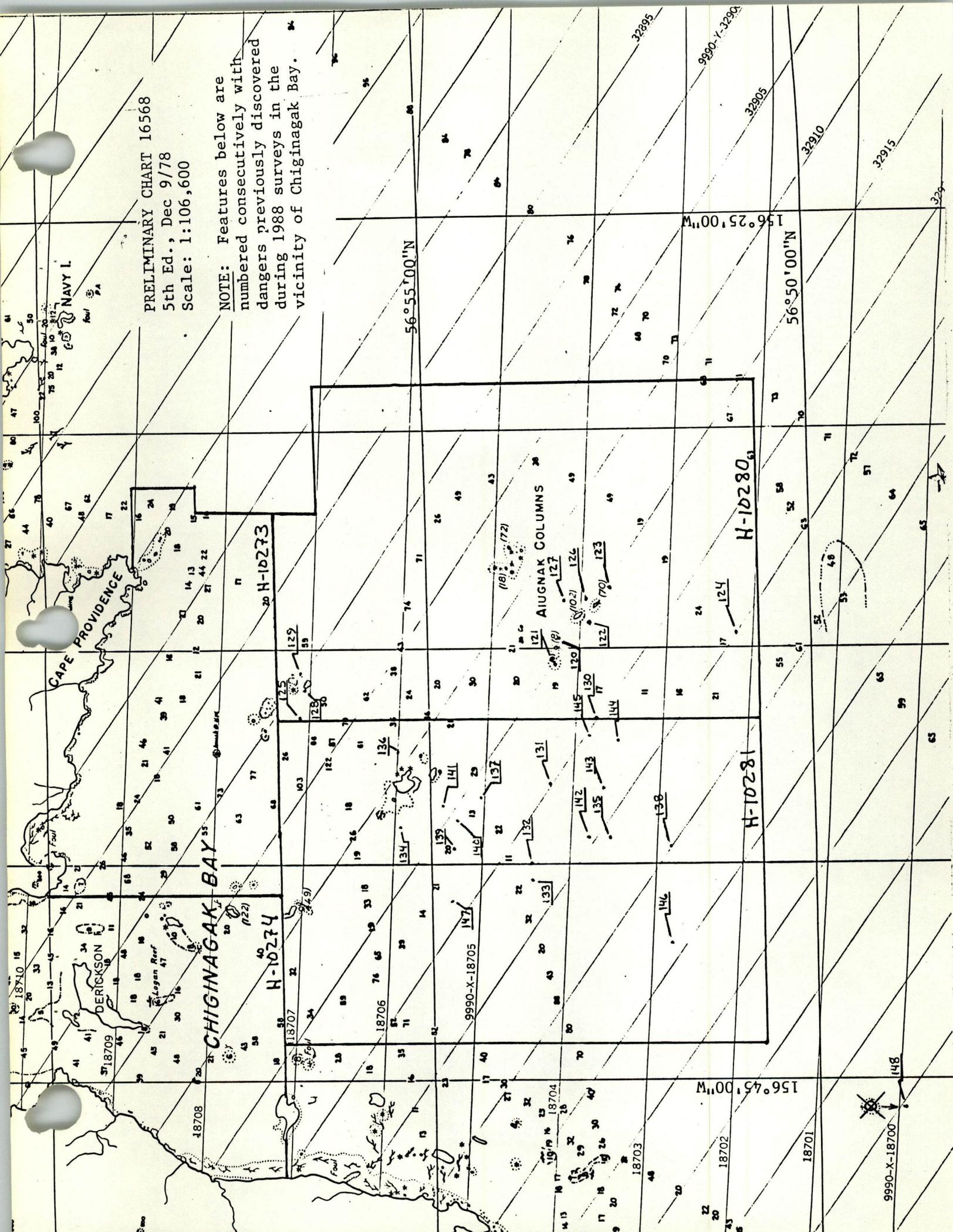
#0211

0252

NNNN

PRELIMINARY CHART 16568
5th Ed., Dec 9/78
Scale: 1:106,600

NOTE: Features below are
numbered consecutively with
dangers previously discovered
during 1988 surveys in the
vicinity of Chiginagak Bay.





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL OCEAN SERVICE
 Pacific Marine Center
 1801 Fairview Avenue East
 Seattle, Washington 98102-3767

OCT 8 1986

N/MOP21/TWR

RECEIVED

BY _____

OCT 20 1986

NOAA FAIRWEATHER (S220)
 Seattle, Washington

ca ju
L
xo Rev
NRK
ops/cst
Action/RL

TO: Commanding Officer
 NOAA Ship FAIRWEATHER

Robert L. Sandquist

FROM: N/MOP - Robert L. Sandquist

SUBJECT: Aerotriangulation Stations and Shoreline Accuracy
 for OPR-P180-FA-86.

REF: NOAA Ship FAIRWEATHER Memorandum Dated 8/19/86 Same Subject

REF: N/CG2311 Memorandum Dated 8/19/86 Same Subject

The Photogrammetry Branch has determined that the shoreline map discrepancy reported by FAIRWEATHER was due to photogrammetry using geodetic control based upon a 1948 adjustment during aerotriangulation bridging rather than using the most recent 1976 adjustment. They recommend mean adjustment values of 17.4 meters in longitude and 2.3 meters in latitude be used when applying data from these manuscripts.

Your proposed solution of shifting all manuscript data 1.8 millimeters to the west before applying them to your 1:10,000 scale final field sheets is totally acceptable. The recommended values proposed by the Photogrammetry Branch will be used by the Nautical Chart Branch when compiling the smooth sheets for these surveys.

Further instructions for the future use of data from Job CM8200 will be contained in your 1987 project instructions for OPR-P180.

You are commended for your diligence in uncovering this discrepancy in the field. Well done. ←

w/Attachment (Ref. 2)

cc: N/CG24
 N/MOP211





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

NOAA Ship FAIRWEATHER
1801 Fairview Ave. East
Seattle, Washington 98102

August 19, 1986

TO: N/MOP - Robert L. Sandquist

FROM: Commanding Officer *J. W. Carpenter*
NOAA Ship FAIRWEATHER 5220

SUBJECT: Aerotriangulation Station and Shoreline Accuracy
for OPR-P180-FA-86

For project OPR-P180-FA-86, Southern Alaska Peninsula, FAIRWEATHER was supplied with 17 aerotriangulated hydrographic control stations (Job CM-8200, Cape Kilokak to Cape Kumlik, Alaska). This field season afforded the first opportunity to use some of the photogrammetric sites for hydrographic control.

To verify the location of station PR-12, launch critical system checks were accomplished using theodolite intersection. Differences of 15 to 20 meters from the Mini-Ranger baseline correctors were found. To verify other photo stations, a First-Order geodetic station (ASH) was occupied with horizontal angles (four-plate settings) turned from a First-Order station (PINA) to PR-72, PR-10, and PR-11. Using the computed distances from ASH to the aerotriangulated stations, differences between the observed and computed angles leads to positional errors of 17 to 18 meters (see Attachment A).

Third-Order, Class I positions were then determined for PR-12, PR-13, and PR-68. All three geodetic positions are approximately 18 meters west of the aerotriangulated positions (see Attachment A). This is the same error that was found with stations PR-72, PR-10, and PR-11, discussed above.

The majority of hydrography running west into the shoreline indicates that the high water line and ledge limits are west of where the shoreline manuscript depicts them. In many cases positive soundings are on or above the high water line. Comparison of detached positions on offshore rocks to the manuscript rock locations is difficult due to the rocks' large size and the launch orientation while taking the fix.

It is recommended that Job CM-8200 be reviewed as an 18-meter error to the east is suspected in both the aerotriangulated positions and the shoreline. FAIRWEATHER will not attempt to use any photogrammetric station positions from this project until the problem is resolved. Geodetic control has been extended south to Cape Providence as of this time.

It is felt that to best display manuscript data on the final field sheets all features from the manuscript (including shoreline) should be shifted 1.8 millimeters to the west before application to the final field sheets. As work is beginning on final field sheets H-10214 and H-10215, resolution

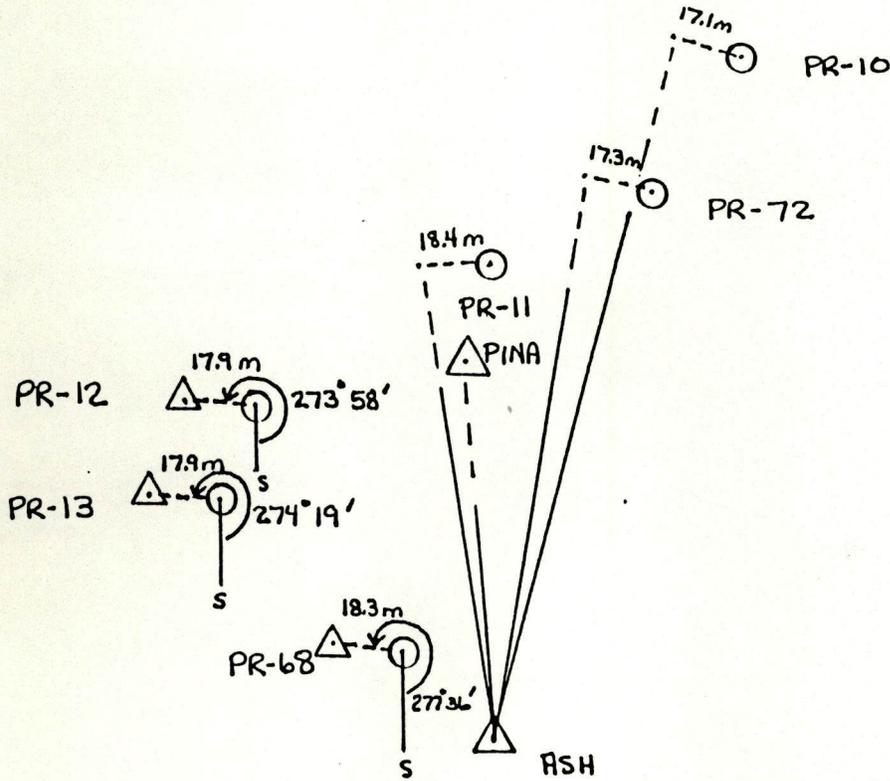
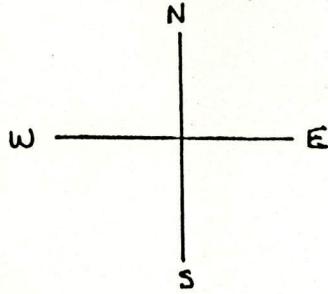


of this problem would be appreciated as soon as possible. If instructions have not been received before drafting is to begin, manuscript features will be shifted as described above.

Nautical Chart Branch may have an interest in knowing that the reference number method (PMC OORDER, Appendix P) was used for verifying the majority of alongshore manuscript rocks. Time and weather conditions will not permit obtaining detached positions on these rocks before the end of the field season.

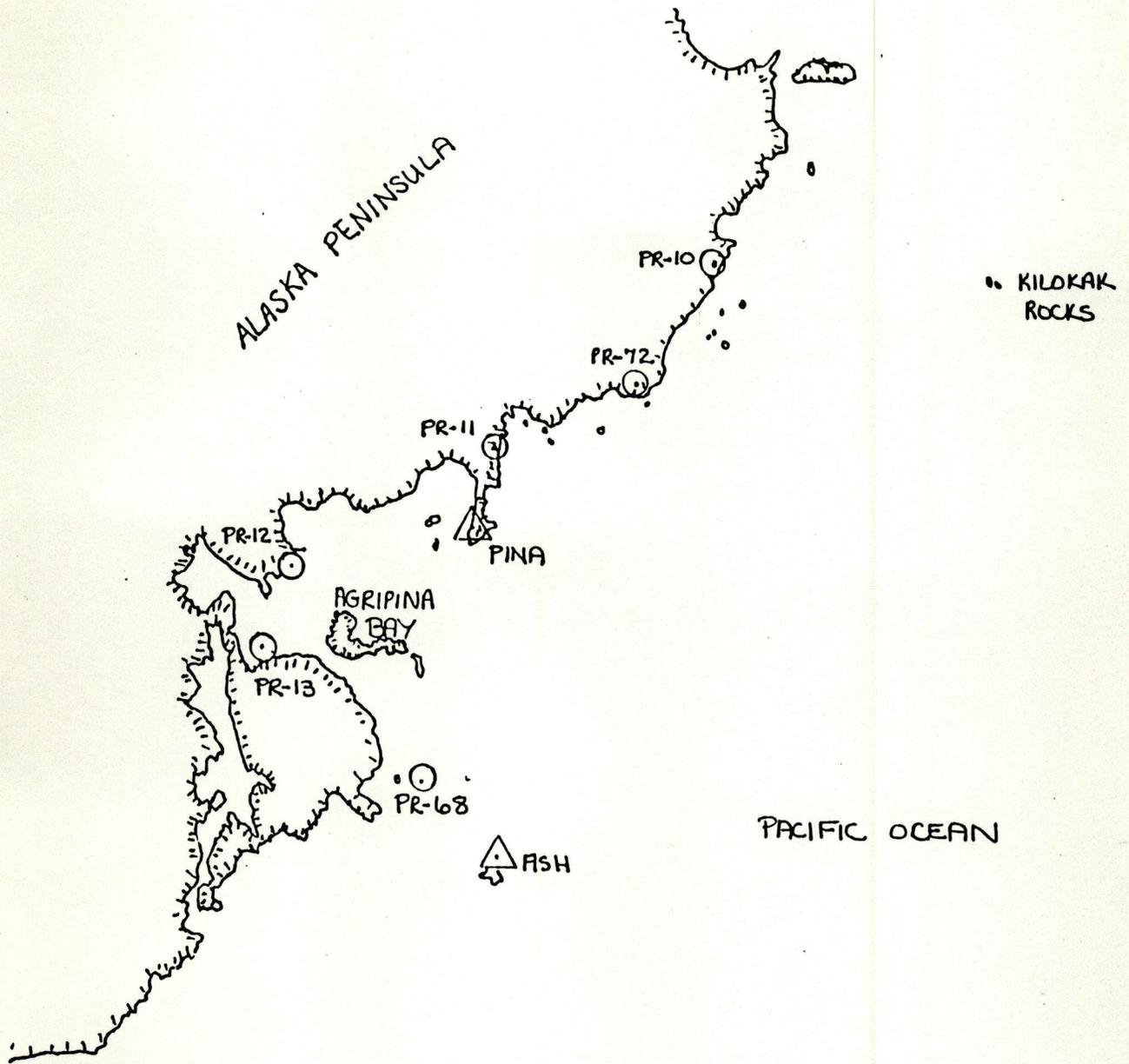
Attachments

ATTACHMENT A - Displacement of Stations



- = Aero-triangulated Positions
- △ = Geodetic Positions

ATTACHMENT B - Station Locations





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

September 18, 1986

N/CG2311:PD

TO: N/MOP - Robert L. Sandquist
FROM: N/CG2 - J. Austin Yeager *Fred Jensen*
SUBJECT: Aerotriangulation Stations and Shoreline Accuracy for
OPR-P180-FA-86
REF: Memorandum to N/MOP from Commanding Officer, NOAA Ship
FAIRWEATHER, Same Subject, dated August 19, 1986

The Commanding Officer, NOAA Ship FAIRWEATHER S220, has established that the control points furnished by the Aerotriangulation Unit, Photogrammetry Branch (PB), for Job CM-8200, Cape Kilokak to Cape Kumlik, Alaska, have a datum shift of approximately 18 meters. PB investigated this discrepancy and found it correct. When this project was bridged by aerotriangulation, the control points used were based on a 1948 geodetic adjustment. A new geodetic adjustment was performed in 1976. This adjustment caused a datum shift in longitude of approximately 1 second and .05 to .1 second in latitude.

Five geodetic control stations were selected from Job CM-8200 extending over the whole project. A comparison was made between the 1948 and 1976 adjustments.

<u>Station</u>	<u>1948 Adjustment</u>	<u>1976 Adjustment</u>	<u>Datum Shift</u>	<u>Meters</u>
Lagoon 1944	57°06'02.626" 156°30'28.250"	57°06'02.722" 156°30'29.290"	.096" 1.040"	2.97 17.50
Port 1944	57°00'40.699" 156°35'41.795"	57°00'40.792" 156°35'42.836"	.093" 1.041"	2.87 17.57
Yant 1944	56°50'45.505" 157°06'22.039"	56°50'45.579" 157°06'23.072"	.074" 1.033"	2.29 17.51
Sut 1925	56°34'17.611" 157°12'56.916"	56°34'17.673" 157°12'57.916"	.062" 1.000"	1.92 17.08
Lag 1954	56°40'38.729" 157°31'53.263"	56°40'38.779" 157°31'54.285"	.050" 1.022"	1.55 17.40



The mean value of this adjustment is 17.4 meters in longitude and 2.3 meters in latitude. This should be taken into consideration when applying these manuscripts.

A copy of this Memorandum will be inserted in each Descriptive Report for Job CM-8200.

cc:

N/MOP21 - Richards ✓
N/CG22 - Nortrup
N/CG23 - Brewer
N/CG24 - Matsushige

APPROVAL SHEET

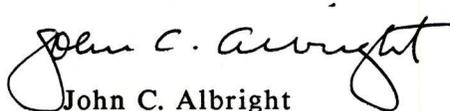
Descriptive Report to Accompany Hydrographic Survey

RA-10-3-88

H-10280

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and the PMC OORDER in producing this survey. The data were examined daily during data acquisition and processing.

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



John C. Albright
Captain, NOAA
Commanding Officer

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: October 31, 1988

MARINE CENTER: Pacific

OPR: P180

HYDROGRAPHIC SHEET: H-10280

LOCALITY: Alaskan Peninsula, Aiugnak Columns and Vicinity, Alaska

TIME PERIOD: June 25 - September 3, 1988

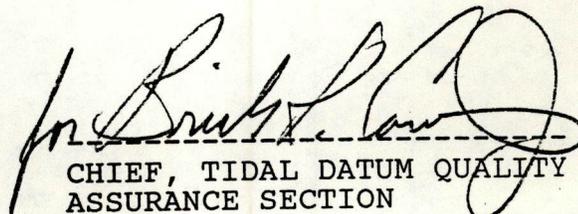
TIDE STATION(S) USED: 945-8522 Derickson Island, AK

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 2.19 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 9.5 ft.

REMARKS: RECOMMENDED ZONING

1. Zone direct


CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

GEOGRAPHIC NAMES

Name on Survey	A. ON CHART NO. 16568 B. ON PREVIOUS SURVEY NO. C. ON U.S. QUADRANGLE MAPS D. FROM LOCAL INFORMATION E. ON LOCAL MAPS F. P.O. GUIDE OR MAP G. RAND MCNALLY ATLAS H. U.S. LIGHT LIST K.										
	A	B	C	D	E	F	G	H	K		
ALASKA, ALASKA PENINSULA AIUGNAK COLUMNS AND VICINITY	X		X								1
ALASKA (TITLE)											2
ALASKA PENINSULA (title)											3
											4
											5
											6
											7
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											25

Approved:

Charles E. Harrington

Chief Geographer

JUN 14 1989

HYDROGRAPHIC SURVEY STATISTICS

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		7
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		9
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDION FILES	2				
ENVELOPES					
VOLUMES	1				
CAHIERS					
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			6926	
POSITIONS REVISED				
SOUNDINGS REVISED				
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	107		107	
VERIFICATION OF SOUNDINGS	223		223	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	137		137	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		6	6	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		10	10	
GEOGRAPHIC NAMES				
OTHER*				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	467	16	483

Pre-processing Examination by	J. Stringham	Beginning Date	10/17/88	Ending Date	11/17/88
Verification of Field Data by	L. Deodato	Time (Hours)	467	Ending Date	11/17/88
Verification Check by	J. Stringham, B. A. Olmstead	Time (Hours)	75	Ending Date	10/31/89
Evaluation and Analysis by	C. R. Davies	Time (Hours)	16	Ending Date	12/6/89
Inspection by	B.A. Olmstead	Time (Hours)	17	Ending Date	1/8/90

EVALUATION REPORT
H-10280

1. INTRODUCTION

Survey H-10280 is a basic hydrographic survey accomplished by the NOAA Ship RAINIER under the following Project Instructions.

OPR-P180-RA, dated March 6, 1987
CHANGE NO. 1, dated April 14, 1987
CHANGE NO. 2, dated September 2, 1987
CHANGE NO. 3, dated April 22, 1988

This survey occurred in Alaska and covers an area off the southern Alaska Peninsula south of Cape Providence in the vicinity of Aiugnak Columns. The surveyed area extends from latitude 56°50'40"N to latitude 56°57'00"N, and from longitude 156°29'00"W to longitude 156°36'50"W. This is the initial basic survey of this area, which is characterized by a very irregular bottom with numerous pinnacle rocks rising abruptly off the bottom and extensive foul areas. The bottom consists of mud, shells, pebbles and sand. Depths range from zero to 105 fathoms.

Predicted tides for Kodiak, Alaska were used for the reduction of soundings during field processing. Approved hourly heights zoned from Derickson Island, Alaska, gage 945-8522, were used during office processing.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. The TRA, sound velocity and electronic control correctors are adequate. An accompanying computer printout contains the parameters and the correctors.

A digital file has been generated for this survey as required by N/CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983. The file, however, is incomplete. Certain feature descriptive information, all line type data and miscellaneous isolated features are not in the digital record due to the present lack of digitizing resources. The user should refer to the smooth sheet for complete depiction of survey data.

2. CONTROL AND SHORELINE

Sections F and G of the hydrographer's report and the Horizontal and Electronic Control Reports for OPR-P180-RA, 1988 contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are 1988 field and published values based on NAD 27. These values were used during office processing for the computation of positions. The smooth sheet and accompanying overlays are annotated with NAD 83 adjustment ticks based on values determined by N/CG121. Geographic positions based on NAD 83 may be plotted on the smooth sheet utilizing the NAD 27 projection by applying the following corrections.

Latitude: 2.626 seconds (81.2 meters)
Longitude: -7.372 seconds (-124.6 meters)

The year of establishment of control stations shown on the smooth sheet originates with the hydrographer's signal list.

There are six weak fixes, angles of intersection less than 30 degrees or more than 150 degrees, noted in this survey. However, there are no significant plotting differences between the soundings located by these fixes and those in adjacent areas. Also, none of these fixes are used to position dangers to navigation. These fixes are considered acceptable.

The following shoreline map applies to this survey.

	<u>Photo Date</u>	<u>Class</u>
TP-01153	July 1982, Aug. 1983	III

A 17.4 meter shift in longitude and a 2.3 meter shift in latitude was applied when transferring the shoreline from this manuscript to the smooth sheet in accordance with section 3.1.3.1 of the Project Instructions and the attached memorandum from N/CG2, dated September 18, 1986.

There is no photographic coverage on TP-01153 south of latitude 56°54'30"N. Shoreline depicted on the smooth sheet below this latitude originates with this survey and is shown as dashed red. Although this data was acquired without supporting positional information, it is considered adequate for nautical charting.

3. HYDROGRAPHY

Hydrography is adequate to:

- a. delineate the bottom configuration, determine least depths, and draw the standard depth curves;
- b. reveal there are no significant discrepancies or anomalies requiring further investigation; and
- c. show the survey was properly controlled and soundings are correctly plotted.

4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual.

5. JUNCTIONS

Survey H-10280 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10225	1986	20,000	east
H-10243	1987	10,000	north
H-10273	1988	10,000	north
H-10281	1988	10,000	west

The junction with surveys H-10225 and H-10243 have not been formally completed since those surveys were previously processed and forwarded for charting. The junction comparison was made using a copy. Soundings are in good agreement. Portions of the depth curves on surveys H-10225 and H-10243 should be adjusted to conform with those on survey H-10280.

The junction with surveys H-10273 and H-10281 have been completed. Some soundings have been transferred to survey H-10280 to better portray the bottom and shoaling in the common area.

6. COMPARISON WITH PRIOR SURVEYS

There are no prior surveys within the limits of survey H-10280.

7. COMPARISON WITH CHART

Chart 16568, 5th edition, dated December 9, 1978;
scale 1:106,600
Chart 16568, 6th edition, dated April 29, 1989;
scale 1:106,600

a. Hydrography

Charted hydrography on the 5th edition of the chart originates from miscellaneous sources. The 6th edition has been updated from the Dangers to Navigation Report submitted by the hydrographer for this survey.

Survey H-10280 is adequate to supersede charted hydrography within the common area.

b. AWOIS

There are no AWOIS items originating from miscellaneous sources within the limits of survey H-10280.

c. Controlling Depths

There are no charted channels with controlling depths within the area of this survey.

d. Aids to Navigation

There are no fixed or floating aids located within the area of this survey.

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

The hydrographer reported 11 dangerous rocks and shoals to the USCG, DMAHTC and N/CG222. A copy of the message and report is attached. No additional dangers were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10280 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

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

Charles R. Davies

Charles R. Davies
Cartographer

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

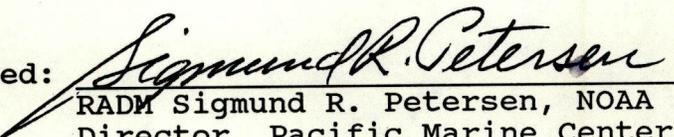
for *Bruce Alan Olmstead*
Dennis Hill
Chief, Hydrographic Unit

APPROVALS

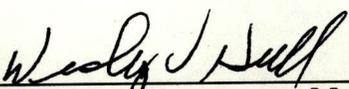
I have reviewed the smooth sheet, accompanying data, and reports associated with hydrographic survey H-10280. This survey meets or exceeds Charting and Geodetic Services' standards for products in support of nautical charting.



Commander Pamela Chelgren-Koterba, NOAA (Date)
Chief, Pacific Hydrographic Section

Approved:  1/23/90

RADM Sigmund R. Petersen, NOAA (Date)
Director, Pacific Marine Center

Approved:  4/3/90

RADM Wesley V. Hull, NOAA (Date)
Director, Charting and Geodetic Services

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10280

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
16568	12/18/89	ARMACEN	Full Part Before After Marine Center Approval Signed Via <i>full application of</i> Drawing No. <i>sndgs. from 55.</i>
16013	9/11/90	ARMACEN	Full Part Before After Marine Center Approval Signed Via <i>full application of</i> Drawing No. <i>sndgs. from 55 thru 16568.</i>
500	9/12/90	ARMACEN	Full Part Before After Marine Center Approval Signed Via <i>full application of</i> Drawing No. <i>sndgs. from 55 thru 16013.</i>
530	10/2/90	<i>Elias B. Dominguez</i>	Full Part Before After Marine Center Approval Signed Via <i>Examined, No</i> Drawing No. <i>Endgs or corrections applied.</i>
16011	10/19/90	<i>Elias B. Dominguez</i>	Full Part Before After Marine Center Approval Signed Via <i>Full application</i> Drawing No. <i>of Sndgs from 55 thru 16568, 16013.</i>
531	10/22/90	<i>Elias B. Dominguez</i>	Full Part Before After Marine Center Approval Signed Via <i>Examined, No</i> Drawing No. <i>Sndgs or corrections applied.</i>
200 16568	11/13/90	<i>Tracy Sanford</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>9 Reapplied</i>
500 500	1 10-1-93	<i>R. Elliott</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>7 Reexamined & Reapplied thru 16006 #27</i>
530 530	10-1-93	<i>R. Elliott</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>36 Reapplied thru 16006 #27</i>
531	10-1-93	<i>R. Elliott</i>	Full Part Before After Marine Center Approval Signed Via Drawing No. <i>321 Reapplied thru 16006 #27</i>