

# 10344

Diagram No. 8802-4

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-20-2-90  
Registry No. .... H-10344

### LOCALITY

State ..... Alaska  
General Locality .. Bristol Bay  
Sublocality ..... 10 Miles SE of Hagemeister  
..... Island  
.....  
..... 1990  
.....  
CHIEF OF PARTY  
..... CAPT J.C. Albright

### LIBRARY & ARCHIVES

DATE ..... March 2, 1992

# 10344

CHTS

16315 7BP 9/18/92

16305

16011

500 NC

H-10344

**HYDROGRAPHIC TITLE SHEET**

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

FIELD NO.

RA-20-2-90

State Alaska

General locality Bristol Bay

Locality 10 Miles SE of Hagemeister Island

Scale 1:20,000 Date of survey June 9 - July 16, 1990

Instructions dated April 30, 1990 Project No. OPR-R184-RA

Vessel NOAA Ship RAINIER (2120), and Launches RA-3 (2123), & RA-5 (2125)

Chief of party CAPT John C. Albright

Surveyed by LTJG Glang, LTJG Haines, ENS Schoonover, ENS Muench, ENS Weber, ENS Ward

Soundings taken by echo sounder, ~~hand lead, potex~~ DSF-6000N

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Verification by: M. Sanders, R. Shipley Automated plot by PHS Xynetics Plotter

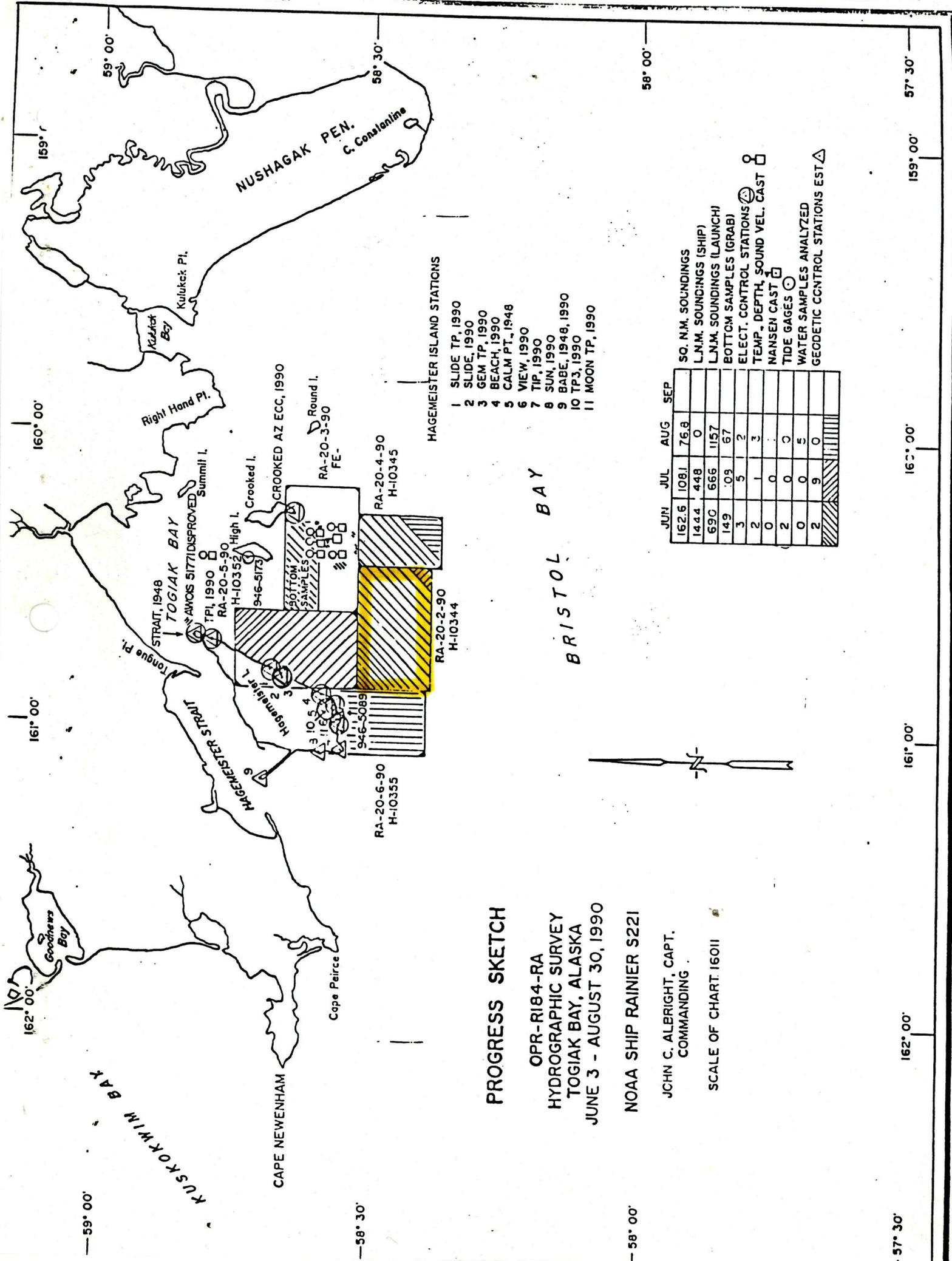
~~Produced by~~ Evaluation by: I. Almacen

Soundings in ~~fathoms feet~~ meters at MLW MLLW and decimeters

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

*3/1-30-97*  
*XW/L 3/18/92*

*AWO154 SURF - 3/92 RUD*



**PROGRESS SKETCH**

OPR-R184-RA  
 HYDROGRAPHIC SURVEY  
 TOGIAK BAY, ALASKA  
 JUNE 3 - AUGUST 30, 1990

NOAA SHIP RAINIER S221

JCHN C. ALBRIGHT, CAPT.  
 COMMANDING

SCALE OF CHART 16011

**HAGEMEISTER ISLAND STATIONS**

- 1 SLIDE TP, 1990
- 2 SLIDE, 1990
- 3 GEM TP, 1990
- 4 BEACH, 1990
- 5 CALM PT., 1948
- 6 VIEW, 1990
- 7 TIP, 1990
- 8 SUN, 1990
- 9 BABE, 1948, 1990
- 10 TFS, 1990
- 11 MOON TP, 1990

	JUN	JUL	AUG	SEP
SO. N.M. SOUNDINGS	162.6	108.1	76.8	
L.N.M. SOUNDINGS (SHIP)	14.4	4.48	0	
L.N.M. SOUNDINGS (LAUNCH)	690	666	1157	
BOTTOM SAMPLES (GRAB)	149	105	67	
ELECT. CONTROL STATIONS	3	5	2	
TEMP. DEPTH. SOUND VEL. CAST	2	1	3	
TIDE GAGES	0	0	0	
NANSEN CAST	2	0	0	
WATER SAMPLES ANALYZED	0	0	5	
GEODETIC CONTROL STATIONS EST	2	9	0	

## Descriptive Report to Accompany Hydrographic Survey H-10344

Field Number RA-20-2-90

Scale 1:20,000

June 1990

NOAA Ship RAINIER

Chief of Party: Captain John C. Albright

### A. PROJECT ✓

This basic hydrographic survey was completed in Bristol Bay, Alaska as specified by Project Instructions OPR-R184-RA, dated April 30, 1990 and Change No. 1 dated August 21, 1990. This survey is designated Sheet Q on the sheet layout dated December 12, 1989.

This survey is one in a series that will provide modern hydrographic data to update existing nautical charts, new preliminary charts, and for planned larger scale coverage of Bristol Bay from Cape Newenham to Cape Constantine. It responds to requests from the Alaska congressional delegation, U.S. Coast Guard, State of Alaska, Bristol Bay Native Association, Togiak Fishing Fleet, and other commercial fishermen.

### B. AREA SURVEYED ✓

The survey is located in Bristol Bay, Alaska, 32 NM south of Togiak and ten miles southeast of Hagemester Island. The survey limits are latitudes  $58^{\circ}23'30''\text{N}$  to  $58^{\circ}31'30''\text{N}$ , and longitudes  $160^{\circ}52'00''\text{W}$  to  $160^{\circ}26'52''\text{W}$ . Data acquisition was conducted from June 9 through July 16, 1990 (DN 160 to 197).

The bathymetry is gently sloping with depths ranging from 7 meters at the eastern limit to 23 meters at the western limit.

Bottom samples throughout the survey area consisted primarily of fine black sand.

### C. SURVEY VESSELS ✓

All data were acquired by NOAA Ship RAINIER and the two automated survey launches shown below:

<u>Vessel</u>	<u>EDP No.</u>	<u>Operation</u>
RAINIER	2120	Hydrography
RA-3	2123	Hydrography
RA-5	2125	Bottom Samples Velocity Casts

No changes to the standard sounding configurations were necessary.

**D. AUTOMATED DATA ACQUISITION AND PROCESSING** ✓

Data acquisition and processing were accomplished with Hewlett-Packard (HP) 340M workstations and the following HDAPS programs:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
SURVEY, w/ RAINIER mods	4.32	6-09-90
POSTSUR, w/ RAINIER mods	4.14	6-01-90
POSTSUR, w/ S&S mod	4.14	7-23-90
FILESYS	1.55	6-01-90
ABST, w/ RAINIER mods	3.05	6-01-90
PLOTALL, w/ RAINIER mods	1.60	6-01-90
	1.69	7-23-90
POINT	1.10	3-09-90
BACKUP	1.02	3-09-90
DIAGNOSTIC	2.15	3-09-90
INVERSE	1.10	7-03-90
INSTALL	1.20	3-09-90
COMPUTE	2.02	3-09-90
CONSTAT, w/ RAINIER mods	2.05	7-03-90
CONPLOT, w/ RAINIER mods	1.02	7-03-90
AUTOST (BIGAUTOST)	2.00	3-09-90
BASELINE	1.01	3-09-90

Velocity corrections were determined using:

<u>Program Name</u>	<u>Version</u>	<u>Version Date</u>
VELOCITY	1.11	3-09-90

The HDAPS Survey and Plotall programs are modified to print the tenth-meter fraction of each sounding as superscript. The position of each sounding is at the center of the integer character string.

The HDAPS Postsur program (version 4.14) was modified on July 23, 1990 to apply settlement and squat (S&S) during data processing. All semi-smooth and final field sheets were plotted with S&S correctors.

The HDAPS Constat and Conplot programs are modified to allow up to 25-character descriptions to be entered in the "Remarks" field of a Contact Table. This is necessary for plotting legible bottom sample descriptions.

**E. SONAR EQUIPMENT** ✓

Not applicable.

## F. SOUNDING EQUIPMENT ✓

RAINIER and all survey launches were equipped with the Raytheon DSF-6000N echo sounders 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 meters and tenths of meters. Six-meter bar checks were conducted and recorded daily, using both the LOW and the HIGH + LOW (HIGH DIGITIZED) functions. The 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 Field Procedures Manual for Hydrographic Surveying (FPM).

### Raytheon DSF-6000N Echo Sounders

<u>Vessel</u>	<u>Serial No.</u>	<u>DN</u>
2120	A117N	160-171
2123	A114N	194-197

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

## G. CORRECTIONS TO ECHO SOUNDINGS ✓

Corrections to echo soundings were determined for static draft, heave, velocity of sound through water, settlement and squat, and predicted tides. Sounding correctors apply to both narrow and wide beams of the DSF-6000N echo sounder. Supporting data and computations for all corrections to echo soundings, except heave, are included in the Summer 1990 Corrections to Echo Soundings Data Package for OPR-R184-RA.

### Sound Velocity ✓

Correctors for the velocity of sound through water were determined from the casts listed below:

<u>Cast No.</u>	<u>Deepest Depth (m)</u>	<u>DN</u>	<u>Geographic Position</u>
1	23.5	164	58°35'18"N, 160°23'51"W
2	23.2	179	58°35'18"N, 160°23'24"W
3	24.1	198	58°35'24"N, 160°23'13"W

Sound velocity correctors were acquired with an AML SVP Profiler, S/N 3042, which was calibrated at the Northwest Regional Calibration Center (NRCC) in Bellevue, WA, on March 27, 1990.

The surface water temperature, and the corresponding sound velocity, increased over time during the 1990 project; therefore, sound velocity correctors were applied by time period to this survey. The casts used for each velocity table, and the days to which each velocity table is applied, are shown below:

<u>Velocity Table No.</u>	<u>Cast No.</u>	<u>Applicable DN</u>	<u>Vessel Acquiring Data</u>
2	1	160-169	RAINIER
4	2	170-186	RAINIER
5	3	191-197	2123

Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline 69 (HSG 69). Printouts of velocity tables used in the HDAPS Post Survey program are included in the separates supplementing this report. \*

#### Static Draft ✓

For the launch, the distance from the transducer face to the gunwale was measured with a large metal square. Static draft measurements were then determined by dropping a leadline from the gunwale to the water and subtracting this distance from the distance measured with the square. The measurements from the gunwale to the waterline were conducted with the fuel tanks averaging 3/4 full and three people aboard. A transducer depth of 0.6 meter was determined for the launch on March 20, 1990. This transducer depth agrees with the launch's historical records.

While RAINIER was in drydock on January 22, 1990, the distance from the transducer to an upper deck was measured with a leadline. Distances on both port and starboard sides (from the upper deck to the water) were then measured when the ship was refloated and the fuel tanks were at 70% capacity. A transducer depth of 4.5 meters was calculated from these measurements.

#### Settlement and Squat ✓

On June 29, 1990, RAINIER determined the HDAPS Survey and Post Survey programs were not applying settlement and squat correctors. The corrected Post Survey program was installed on July 23, 1990; therefore, settlement and squat correctors were applied to the final field sheet, but not applied during data acquisition.

Settlement and squat correctors were determined for Vesno 2123 on April 12, 1990, near Pt. Aldolphus in Icy Strait, AK. The test was conducted over a hard bottom in depths well exceeding seven times the vessel's draft. Both sea and wind were calm. Observations were made through a Zeiss Ni2 leveling instrument (S/N 103453) to a rod held vertically on deck, directly over the transducer. Correctors were computed in accordance with Hydrographic Manual 4.9.4.2.

Settlement and squat testing for RAINIER was not conducted in 1990 prior to this survey's completion. Data from RAINIER's April 1, 1989 Turnabout Island, Frederick Sound, AK, testing was used to compute correctors for this survey. Those correctors are included in Offset Table 1. RAINIER will forward the 1990 results when they become available.

The following is a summary of all Offset Tables used on this survey and their applicable period:

<u>Vessel No.</u>	<u>Offset Table No.</u>	<u>Period used on line (DN)</u>
2120	1	160-171
2123	3	194-197

\* Filed with the hydrographic data.

Copies of all offset tables are included with the separates supplementing this report. \*

**Heave** ✓

Corrections for heave were applied while scanning echograms. The scanning technique used in comparing the analog trace with the digital record eliminated significant fluctuations resulting from sea action.

**Other Calibrations** ✓

Bar check lines were calibrated by RAINIER personnel during January 1990 at PMC. Calibration forms are included in the Summer 1990 Corrections to Echo Soundings Data Package for OPR-R184-RA.

**Tide Correctors** ✓

Tidal zoning and correctors applicable to predicted tides for the Hagemeister Island, Alaska, reference tide station (946-5089) were provided in the Project Instructions, and are shown below.

<u>Zone</u>	<u>Time Corrections</u>	<u>Ratio</u>
West of longitude 160°36.0'W	direct	direct
East of longitude 160°36.0'W	High water: -30 min Low water: -30 min	direct

Correctors from the first zone were applied to all soundings on RA-20-2W-90 and RA-20-2C-90. Correctors from the second zone were applied to RA-20-2E-90, which lies east of 160°36.0'W. HDAPS listings of the data used in generating tide corrector tables are included in Appendix V of this report. \*

Tide gages were installed and maintained by RAINIER personnel at stations on the southeast side of Hagemeister Island (946-5089) and on the northwest side of High Island (946-5173). The field tide records and the Preliminary Field Tide Notes for these stations have been forwarded to N/OMA121 in accordance with HSG 50 and FPM 4.3. Requests for approved tides have been forwarded to N/OMA121. Copies of the Preliminary Field Tide Notes and the requests for approved tides are included in Appendix V. \*

**H. CONTROL STATIONS** ✓

Geographic positions for all control stations are based on North American Datum of 1983 (NAD83) and the Geodetic Reference System 1980 Ellipsoid.

Horizontal control stations are listed in Appendix III of this report. *Attached to this report.*

*\* Filed with the hydrographic data.*

Positions for existing stations are from the NGS data base and prior surveys conducted in 1985 and 1987. Several geographic positions are NAD83 adjusted and were obtained from N/CG2333. Existing stations were recovered in accordance with FPM 5.2.4. New stations were positioned via traverse methods to meet third-order class I standards. Further information can be found in the Summer 1990 Horizontal Control Report for OPR-R184-RA.

## I. HYDROGRAPHIC POSITION CONTROL ✓

Soundings were located using DM-54 Automatic Ranging Grid Overlay (ARGO) medium-range positioning system in the multi-range mode. ARGO was calibrated daily using Motorola Mini-Ranger Falcon 484 microwave, short-range positioning system. Bottom samples were located using a Furuno LC-90 Mark-II Loran positioning system. All systems were operated in a manner consistent with accuracy requirements specified in the Hydrographic Manual and FPM.

### Positioning Equipment ✓

Serial numbers of the mobile electronic positioning equipment (Mini-Ranger console/RTs, and ARGO range processing units and control display units) are recorded in the survey data. A complete list of the serial numbers of the electronic equipment used during the project is included in the Summer 1990 Electronic Control Data Package for OPR-R184-RA.

### Baseline Calibrations (for Mini-Ranger equipment only) ✓

Baseline calibrations were conducted in accordance with FPM 3.1.3.2 on May 20, 1990 (DN 140), in Bartlett Cove, Glacier Bay, Alaska, over a measured distance of 1678.4m. Detailed information, calibration data, and a description of the baseline can be found in the Summer 1990 Electronic Control Data Package for OPR-R184-RA.

### System Check Procedures ✓

The ARGO positioning system was calibrated with the Falcon positioning system using the Secondary by Primary System Calibration function in the HDAPS Survey program. With this method, the Falcon was designated as the primary positioning system and the ARGO was designated as the secondary positioning system. The calibrated position fix was computed by using three Falcon lines-of-position (LOPs). The program computes an inverse distance from the Falcon position fix to each secondary ARGO shore station. Partial lane correctors are shown as "residuals" on the secondary positioning screen. When the error circle radius (ECR) and maximum residual values of the Falcon position fell within the allowable limits stated in FPM 3.1.3.3, the ARGO partial lane correctors were minimized to less than  $\pm 0.05$  units. Hard copies of both calibrated system checks were produced using the Dump Alpha function and can be found in the survey data. Residuals for the Falcon system were displayed in meters and residuals for the ARGO system were displayed in units of lanes.

System checks were conducted prior to data collection, and any time ECR and maximum residual values exceeded allowable limits.

### Problems and Unusual Position Configurations ✓

No problems were encountered during data acquisition. However, on several occasions, maximum residuals gradually increased over a period of minutes, indicating a jump in lanes. At these times, data acquisition was halted and a re-calibration conducted. Probable causes of lane jumps could have been fog, rain, skywaves, or ground changes on the antenna load.

A lack of ARGO equipment made it necessary to position bottom samples using a Furuno LC-90 Mark-II Loran positioning system. Because this system uses the WGS 72 datum, for which no shift to NAD 83 was available, RAINIER determined an average offset distance and azimuth from the Furuno positions to ARGO and MiniRanger positions on this survey. The records and calculations for this offset are included with the bottom sample records in the separates accompanying the survey data. This empirically determined shift to NAD 83 has been applied to all bottom samples on this survey.

### Antenna Offset Distances ✓

Antenna offset and layback correctors were determined and applied to the raw data. Copies of Offset Tables are in the separates included with the survey data.

### J. SHORELINE ✓

Not applicable.

### K. CROSSLINES ✓

A total of 92.0 nautical miles of crosslines were run perpendicular to mainscheme lines, representing 9.3% of the mainscheme hydrography. Crossline soundings agree to within one meter with mainscheme soundings in all areas. In several instances, the vessel acquiring 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.

### L. JUNCTIONS ✓

This survey junctions with H-10277 (1:20,000; 1988) and H-10352 (1:20,000; 1990) to the north, H-10355 (1:20,000; 1990) to the west, and H-10345 (1:20,000; 1990) to the east. There are no contemporary surveys to the south. No irregularities were found when comparing soundings and depth contours. Overall agreement of overlapping soundings between surveys is excellent, with all soundings agreeing to within two meters of the junction soundings. *See EVAL RPT., Sec. 5.*

**M. COMPARISON WITH PRIOR SURVEYS** ✓

This survey was compared to the following prior surveys:

✓ **BP-18063 (Old fishing industry chart; 1916):** ✓

One charted sounding originated from this blue print survey. A six fathom depth is charted at  $58^{\circ}28'24''\text{N}$ ,  $160^{\circ}49'24''\text{W}$ . Depths near this position range from 21 to 22 meters on this survey: a difference of approximately 10 meters deeper than the prior survey sounding. Hydrography on this survey was run at 100- and 200-meter line spacing in this area and shows no indication of shoaling to 6 fathoms, or 10.6 meters. However, four shoals one to two miles to the west and northwest of the charted sounding show depths of 9.8, 8.8, 12.1, and 10.1 meters. Probable causes for this discrepancy may be the techniques used for positioning and sounding during the prior survey.

**Recommendation:** The hydrographer recommends the data from this survey be used to supersede data from BP-18063. *Concur.*

**H-7718 (1:100,000; 1948; Reconn.):** ✓

Soundings on the copy of H-7718 provided (scale of 1:20,000) are illegible, making a direct comparison to this survey impossible. Therefore, a comparison was made to the soundings carried forward onto Chart 16315.

Six charted soundings originate from H-7718. Sounding agreement between surveys is excellent, with soundings agreeing to within three meters.

**Recommendation:** The hydrographer recommends soundings from this survey be used to supersede the soundings from the prior survey. *Concur.*

✓ **BP-134100 (Chart 16315, base; 1985-87; RAINIER Reconn., "Vanderchart"):** ✓

Overall sounding agreement between surveys is excellent, with soundings agreeing to within two meters.

**Recommendation:** The hydrographer recommends data from this survey be used to supersede data from the prior survey. *Concur.*

**N. COMPARISON WITH THE CHART** ✓

This survey was compared to NOS Preliminary Chart 16315, 6th Edition, January 6/90, 1:100,000 (NAD83).

**Comparison of Sounding Features** ✓

The charted depths originating from prior surveys are discussed in Section M, and will not be addressed here.

Three charted depths, 9<sub>3</sub>, 7<sub>4</sub>, and 5<sub>5</sub>, located at the northern limit of this survey, originate from junction survey H-10277. A comparison of soundings is as stated in Section L.

Four charted soundings are not referenced to a prior survey on the chart mark-up. Their charted positions and depths are listed below:

<u>Depth (fm)</u>	<u>Latitude</u>	<u>Longitude</u>
8	58°27'54"N	160°44'54"W
10	58°24'38"N	160°44'42"W
6	58°27'06"N	160°34'36"W
6	58°25'00"N	160°27'30"W

All four soundings agree to within two meters of soundings from this survey.

**Recommendation:** The hydrographer recommends sounding data from this survey be used to update the chart. *Concur.*

#### Comparison of Non-Sounding Features ✓

There are no non-sounding features within the limits of this survey.

#### Dangers to Navigation ✓

Two dangers to navigation within the limits of this survey were reported by radio message and hard copy to the Seventeenth Coast Guard District and DMAHTC. Copies of the correspondence are appended to this report. Position numbers associated with each reported danger are included on the copy of the radio message. *Copy attached to this report.*

#### O. ADEQUACY OF SURVEY ✓

This survey is complete and adequate to supersede the areas common to the prior surveys listed in Section 6.10 of the Project Instructions and for chart compilation in areas not previously surveyed. *Concur.*

#### P. AIDS TO NAVIGATION ✓

There are no floating or fixed aids to navigation, bridges, overhead cables, submerged pipelines, or ferry routes within the limits of the survey.

#### Q. STATISTICS ✓

<u>Vessel:</u>	<u>2120</u>	<u>2123</u>	<u>2125</u>	<u>Total</u>
# of Pos	2057	263	84	2404
NM Hydro	1097.7	65.6	0.0	1163.3

NM <sup>2</sup> Hydrography	101.0	Bottom Samples	84
Detached Positions	0	Current Stations	0
Tide Stations	2	Magnetic Stations	0
Velocity Casts	3		

**R. MISCELLANEOUS** ✓

During data collection it was observed that soundings from different days collected by the same vessel did not correspond to previous days' data. Contouring the sounding plots showed an uneven or s-curve bottom. The probable cause is inadequate predicted tides (as stated in Section 5.9 of the Project Instructions). A radio message from PMClx2 (R092040Z AUG 90) informed RAINIER that N/CG241 expects to resolve discrepancies caused by inadequate tide correctors after analysis of this year's tidal data. A copy of the radio message is included in Appendix VI of this report. *Copy attached to this report.*

Two areas of irregular bottom topography, located in the vicinity of 58°26'30"N, 160°41'30"W and 58°30'00"N, 160°35'00"W, are suspected to be sand waves for the following reasons: characteristic sand wave echogram trace, suspended sand at the water surface observed by personnel from the ship, suspended sand observed during dive operations, and bottom samples of fine black sand. *See EVAL RPT, Sec. 1.*

All bottom samples were submitted to the Smithsonian Institution.

The following fix numbers were duplicated during this survey: Fix Nos. 2000-2262; Vesno 2123; during DNs 194 through 197.

**S. RECOMMENDATIONS** ✓

None.

**T. REFERRAL TO REPORTS** ✓

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

<u>Title</u>	<u>Date Sent to</u> <u>N/CG245</u>
Summer 1990 Horizontal Control Report for OPR-R184-RA	September, 1990
Summer 1990 Electronic Control Data Package for OPR-R184-RA	September, 1990
Summer 1990 Corrections to Echo Soundings Data Package for OPR-R184-RA	September, 1990
Summer 1990 Coast Pilot Report for OPR-R184-RA	September, 1990

Respectfully Submitted,

*Heidi J. Muench*

Heidi J. Muench  
Ensign, NOAA

Approved and Forwarded,

*John C. Albright*

John C. Albright  
Captain, NOAA  
Commanding Officer

No	Type	Latitude	CONTROL STATIONS			Freq	Vel	Code	MM/DD/YY
			Longitude	H	Cart				
100-	A	058:34:41.239	160:55:09.657	0	250	1658.4	299670.0	1	06/08/90
101-	A	058:39:23.968	160:50:01.293	0	254	1658.4	299670.0	2	06/08/90
102-	A	058:38:19.199	160:16:16.481	0	254	1658.4	299670.0	3	06/08/90
200	F	058:34:41.239	160:55:09.657	253	250	0.0	0.0	2	06/08/90
201	F	058:39:23.968	160:50:01.293	232	254	0.0	0.0	5	06/08/90
202	F	058:38:19.199	160:16:16.481	71	254	0.0	0.0	3	06/08/90
203	F	058:49:01.447	160:41:03.793	22	250	0.0	0.0	B	07/11/90
204	F	058:40:51.508	160:47:58.431	7	254	0.0	0.0	E	07/15/90
205	F	058:39:30.556	160:49:14.911	10	250	0.0	0.0	4	07/15/90
206	F	058:35:04.044	160:52:45.530	14	250	0.0	0.0	F	07/15/90
207	F	058:47:14.904	160:42:20.529	5	254	0.0	0.0	1	07/11/90
208	F	058:33:38.440	160:55:35.694	16	254	0.0	0.0	1	08/05/90
209	F	058:33:16.040	160:57:09.142	10	250	0.0	0.0	4	08/05/90
210	F	058:33:04.248	160:57:49.321	21	254	0.0	0.0	C	08/05/90
211	F	058:32:46.208	161:04:32.374	15	250	0.0	0.0	B	08/05/90

100 CALM PT., 1948  
 101 GEM TP, 1990  
 102 CROOKED AZ ECC, 1990  
 200 CALM PT., 1948  
 201 GEM TP, 1990  
 202 CROOKED AZ ECC, 1990  
 203 STRAIT, 1948

For ARGO stations, the height of the base of the antenna was the station elevation.

ARGO Station	Antenna Elevation (m)
100	253
101	232
102	71

LIST OF GEOGRAPHIC POSITIONS

SPN	STATION NAME	GPN CODE		LATITUDE			LONGITUDE			G-NBR
		QUAD	QSN	K	DEG	MN	SEC	DEG	MN	
1	CALM PT.	581604	1002	9	58	34	41.23871	160	55	9.65683
2	GEM	581604		9	58	39	33.67300	160	49	37.11600
3	CROOKED 1948 AZ MK	581601	1003	9	58	38	19.09589	160	16	16.30403
4	TWINS	581601		9	58	35	52.96261	160	18	34.13400
5	CROOKED AZ ECC	581601		5	58	38	19.19901	160	16	16.48091
6	GEM TP	581604		5	58	39	23.96812	160	50	1.29255
7	STRAIT	581604	1004	9	58	49	1.44709	160	41	3.79277
8	QUIG	581604		5	58	55	32.28800	160	42	21.66200
9	TP1	581604		5	58	47	14.90366	160	42	20.52860
10	TP2	581604		5	58	46	43.36256	160	42	50.51878
11	SLIDE TP	581604		5	58	40	51.50769	160	47	58.43052
12	SLIDE	581604		5	58	39	30.55622	160	49	14.91082
13	BEACH	581604		5	58	35	4.04360	160	52	45.52980
14	TP3	581604		5	58	33	38.43961	160	55	35.69411
15	VIEW	581604		5	58	33	16.03965	160	57	9.14181
16	MOON TP	581604		5	58	33	4.24775	160	57	49.32148
17	TIP	581604		5	58	32	46.20841	161	4	32.37421
18	TP4	581611		5	58	33	14.55152	161	5	.79746
19	BIRD TP	581604		5	58	33	15.73570	161	5	1.48738
20	SUN	581611		5	58	35	38.06447	161	5	14.93257
21	STER	581611		9	58	36	49.26800	161	4	24.70400
22	----									
23	TONGUE POINT 2	581604		9	58	48	42.73700	160	50	17.18200
24	VELO	581604		9	58	44	38.71200	160	55	7.61200
25	BABE	581611		5	58	41	38.12533	161	10	21.78185

GPN CODE 5 - Field Position  
 GPN CODE 9 - NGS Published Position

## LIST OF ELEVATIONS &amp; GEOID HGT

SPN	STATION NAME	HGT CODE K	ELEVATION (M)	GEOID HGT (M)	ELEVATION SOURCE
1	CALM PT.	5	252.8302		NOS
2	GEM	9	236.6300		NGS
3	CROOKED 1948 AZ MK	9	71.7420		NGS
4	TWINS	9	8.2890		NGS
5	CROOKED AZ ECC	4	71.3890		NOS
6	GEM TP	5	232.0051		NOS
7	STRAIT	9	11.7000		NGS
8	QUIG	5	71.2150		NOS
9	TP1	5	3.2981		NOS
10	TP2	5	4.9646		NOS
11	SLIDE TP	5	4.8830		NOS
12	SLIDE	5	7.7923		NOS
13	BEACH	5	4.4300		NOS
14	TP3	5	10.3490		NOS
15	VIEW	5	3.4190		NOS
16	MOON TP	5	15.3169		NOS
17	TIP	5	8.4512		NOS
18	TP4	5	3.2126		NOS
19	BIRD TP	5	6.6675		NOS
20	SUN	5	1.8351		NOS
21	STER	9	21.8770		NGS
22	----				
23	TONGUE POINT 2	9	3.7480		NGS
24	VELO	9	73.1330		NGS
25	BABE	5	5.0386		NOS



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

Office of NOAA Corps Operations  
NOAA Ship RAINIER S221  
1801 Fairview Avenue East  
Seattle, Washington 98102-3767

September 10, 1990

Director  
DMAHTC  
Attn: MCNA  
6500 Brooks Lane  
Washington, D.C. 20315-0030

Dear Sir:

While conducting hydrographic survey operations in Bristol Bay, Alaska, NOAA Ship RAINIER discovered 20 dangers to navigation. An additional 4 dangers to navigation were discovered on a bathymetric trackline from Cape Peirce to Cape Etolin, Alaska. They have been reported to DMAHTC (NAVWARN) and the Seventeenth Coast Guard District. A copy of the correspondence describing the dangers is enclosed.

Sincerely,

John C. Albright  
Captain, NOAA  
Commanding Officer

Enclosure





**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
Office of NOAA Corps Operations  
NOAA Ship RAINIER S221  
1801 Fairview Avenue East  
Seattle, Washington 98102-3767

September 10, 1990

Commander  
Seventeenth Coast Guard District  
Post Office Box 3-5000  
Juneau, Alaska 99802

Dear Sir:

Attached is a confirmation copy of the radio message sent to your office regarding the dangers to navigation which I recommend for inclusion in the Local Notice to Mariners for the Seventeenth Coast Guard District. A copy of the charts showing the areas in which the dangers exist is also attached.

Sincerely,

John C. Albright  
Captain, NOAA  
Commanding Officer

Enclosures

cc: DMAHTC  
N/CG221  
PMC



KUS / TPOST  
 EJA / 090230Z Sep 9

FTTUZYUW RUHPTEF0029 2520223-UUUU--RUHPSUU.  
 .ZNR UUUUU  
 P 090223Z SEP 90  
 FM NOAA S RAINIER  
 TO CCGDSEVENTEEN JUNEAU AK  
 DMAHTC (NAVWARN) WASHINGTON DC//MCNM//  
 INFO NOAA MOP SEATTLE WA  
 ACCT CM-VCAA

BT  
 UNCLAS

NOAA SHIP RAINIER HAS FOUND 20 DANGERS TO NAVIGATION IN BRISTOL BAY, ALASKA (PROJECT OPR-R184-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEYS H-10344 (10 MILES SE OF HAGEMEISTER ISLAND; ITEMS QA-QB), H-10345 (NINE MILES SOUTH OF THE TWINS; ITEMS VA-VE), H-10352 (EAST OF HAGEMEISTER ISLAND; ITEMS MA-MF), AND H-10355 (SOUTH OF HAGEMEISTER ISLAND; ITEMS NA-NG). FOUR ADDITIONAL DANGERS TO NAVIGATION WERE DISCOVERED BY LORAN C POSITIONING ALONG A BATHYMETRIC TRACKLINE FROM CAPE PEIRCE TO ETOLIN STRAIT, ALASKA (ITEMS TA-TD). THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN LOCAL NOTICE TO MARINERS:

CHARTS AFFECTED:	DATE	SCALE	DATUM
16315 6TH ED	JAN 6/90	1:100,000	NAD83
16305 6TH ED	DEC 2/89	1:100,000	NAD83
16011 32TH ED	FEB 3/90	1:1,023,188	NAD83
16006 29ND ED	AUG 23/86	1:1,534,076	NAD27

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	CHART	DEPTH	DATUM	LATITUDE	LONGITUDE	POSITION NUMBERS
QA.	SHOAL	16315	4FM 1FT	NAD83	58-26-43.93N	160-27-35.99W	2006+9 ✓
	COV	16011	4FM	NAD83			Unrevised..
	(H-10344)	16006	4FM	NAD27	58-26-46.74N	160-27-28.12W	Retained as reported.
QB.	SHOAL	16315	3FM 4FT	NAD83	58-28-14.45N	160-27-33.66W	2009+8 ✓
	COV	16011	3 1/2FM	NAD83			
	(H-10344)	16006	3 1/2FM	NAD27	58-28-17.26N	160-27-25.79W	

VA. THE SHOAL CHARTED AT 58-31-24N, 160-22-48W (NAD83) EXTENDS SOUTH TO 58-28-48N. DEPTHS SHOALER THAN 1 FATHOM MAY BE ENCOUNTERED IN THIS AREA OF SHIFTING SAND WAVES.

VB.	SHOAL	16315	2FM 3FT	NAU83	58-28-25.33N	160-20-53.30W	8172+0
	COV	16011	2 1/2FM	NAD83			
		16006	2 1/2FM	NAU27	58-28-28.14N	160-20-45.43W	
VC.	SHOAL	16315	2FM 4FT	NAD83	58-30-26.53N	160-17-43.34W	2292+5
	COV	16011	2 1/2FM	NAD83			
		16006	2 1/2FM	NAU27	58-30-29.33N	160-17-35.47W	
VD.	SHOAL	16315	2FM 4FT	NAD83	58-30-21.62N	160-20-39.15W	2228+7
	COV	16011	2 3/4FM	NAD83			
		16006	2 3/4FM	NAU27	58-30-24.42N	160-20-31.28W	

VE.	SHOAL	16315	3FM	2FT	NAD83	58-25-45.80N	160-25-35.00W	8285+7
	COV	16011	3	1/4FM	NAD83			
		16006	3	1/4FM	NAD27	58-25-48.61N	160-25-27.14W	
MA.	SHOAL	16315	4FM	4FT	NAD83	58-34-45.62N	160-43-10.90W	765+5
	COV	16011	4	3/4FM	NAD83			
		16006	4	3/4FM	NAD27	58-34-48.43N	160-43-02.99W	
MB.	ROCK	16315	0FM	1FT	NAD83	58-42-41.79N	160-46-40.10W	2430
	COV	16011	0FM		NAD83			
		16006	0FM		NAD27	58-42-44.59N	160-46-32.16W	
	EAST LIMIT OF FOUL AREA							
MC.	ROCK	16315	0FM	2FT	NAD83	58-42-18.93N	160-46-52.86W	2434
	COV	16011	1/4FM		NAD83			
		16006	1/4FM		NAD27	58-42-21.74N	160-46-44.92W	
	EAST LIMIT OF FOUL AREA							
MD.	ROCK	16305	2FT		NAD83	58-40-51.14N	160-47-49.88W	2446
	UNCOV	16315	2FT		NAD83			
		16011	2FT		NAD83			
		16006	2FT		NAD27	58-40-53.95N	160-47-41.95W	
	EAST LIMIT OF FOUL AREA							
ME.	ROCK	16305	0FT		NAD83	58-39-28.94N	160-49-08.05W	5118
	UNCOV	16315	0FT		NAD83			
		16011	0FT		NAD83			
		16006	0FT		NAD27	58-39-31.75N	160-49-00.18W	
	EAST LIMIT OF FOUL AREA							
MF.	NUMEROUS ROCKS COVERING LESS THAN 0FM 3FT LIE WITHIN 100M OF THE EAST SHORE OF HAGEMEISTER ISLAND BETWEEN LATITUDES 58-41-00N AND 58-42-15N (NAD83). MARINERS SHOULD EXERCISE CAUTION WHEN NAVIGATING CLOSE INSHORE IN THIS AREA.							
NA.	SHOAL	16315	3FM	5FT	NAD83	58-32-02.99N	161-00-50.37W	4393+3
	COV	16305	3FM	5FT	NAD83			
		16011	3	3/4FM	NAD83			
		16006	3	3/4FM	NAD27	58-32-05.81N	161-00-42.45W	
NB.	SHOAL	16315	3FM	2FT	NAD83	58-31-06.59N	161-00-26.34W	8287+6
	COV	16305	3FM	2FT	NAD83			
		16011	3	1/4FM	NAD83			
		16006	3	1/4FM	NAD27	58-31-09.42N	161-00-18.43W	
NC.	SHOAL	16315	4FM	2FT	NAD83	58-28-12.98N	161-00-15.65W	8033+8
	COV	16305	4FM	2FT	NAD83			
		16011	4	1/4FM	NAD83			
		16006	4	1/4FM	NAD27	58-28-15.81N	161-00-07.75W	
ND.	SHOAL	16315	5FM	2FT	NAD83	58-26-07.30N	161-04-17.23W	8566+3
	COV	16305	5FM	2FT	NAD83			
		16011	5	1/4FM	NAD83			
		16006	5	1/4FM	NAD27	58-26-10.13N	161-04-09.32W	
NE.	SHOAL	16315	7FM	0FT	NAD83	58-24-54.98N	160-58-51.14W	2155+1
	COV	16305	7FM	0FT	NAD83			
		16011	7FM		NAD83			
		16006	7FM		NAD27	58-24-57.81N	160-58-43.25W	

NF.	SHOAL	16315	5FM	3FT	NAD83	58-26-02.93N	160-54-50.14W	4991+5
	COV	16305	5FM	3FT	NAD83			
		16011	5	1/2FM	NAD83			
		16006	5	1/2FM	NAD27	58-26-05.76N	160-54-42.24W	
NG.	SHOAL	16315	2FM	0FT	NAD83	58-30-30.05N	160-57-33.21W	8196+2
	COV	16305	2FM	0FT	NAD83			
		16011	2FM		NAD83			
		16006	2FM		NAD27	58-30-32.87N	160-57-25.30W	

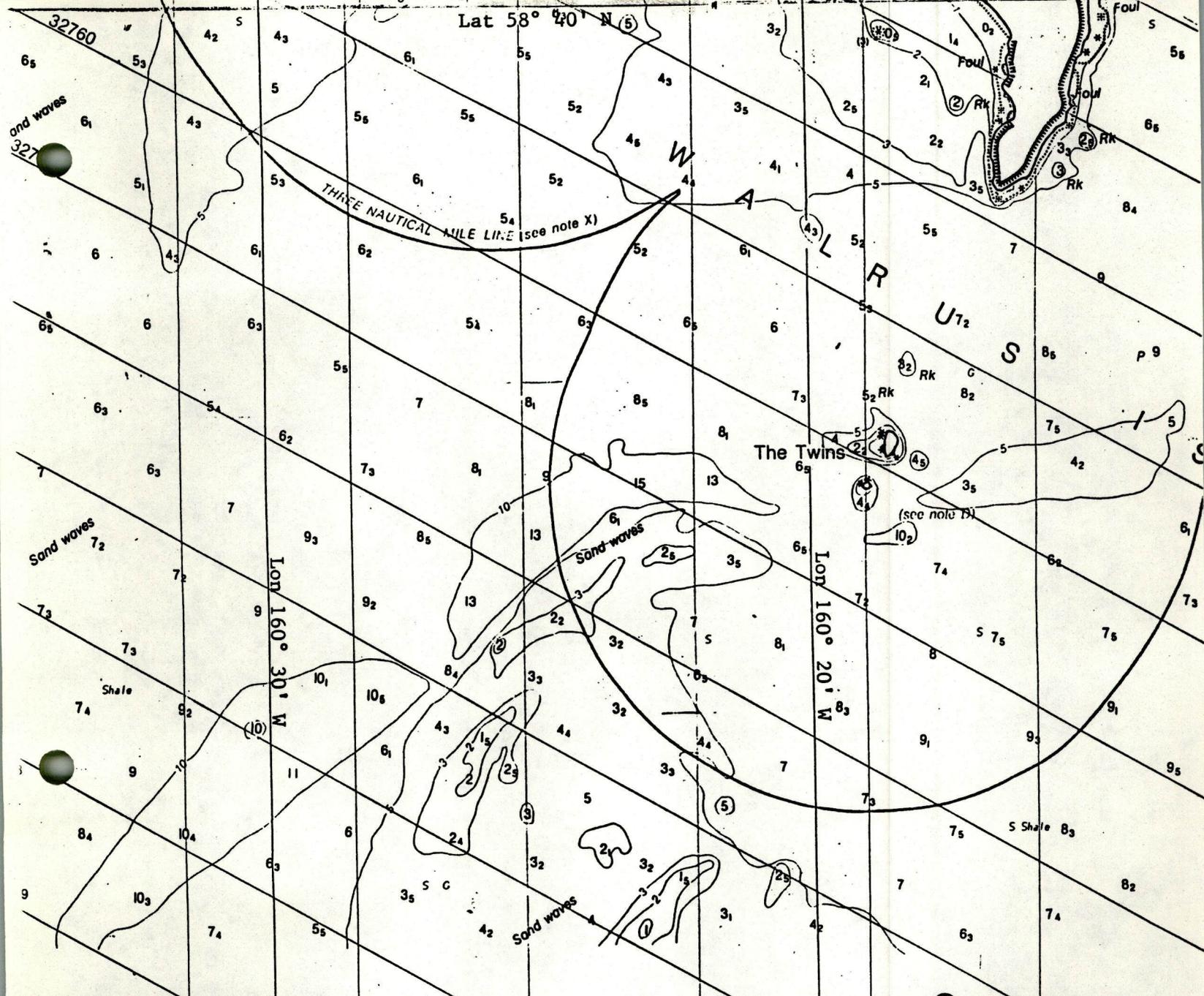
LORAN C POSITIONING (POSITION APPROXIMATE):

TA.	SHOAL	16305	13FM	4FT	NAD83	58-28.2N	161-52.1W	067+3
	COV	16006	13	1/2FM	NAD27	58-28.3N	161-52.0W	
TB.	SHOAL	16305	13FM	5FT	NAD83	58-29.8N	161-55.0W	010+2
	COV	16006	13	3/4FM	NAD27	58-29.8N	161-54.8W	
TC.	SHOAL	16006	6	1/4FM	NAD27	60-34.9N	165-42.7W	037+2
	COV							
TD.	SHOAL	16006	5	1/2FM	NAD27	59-53.3N	165-09.3W	054+1
	COV							

THIS IS ADVANCE INFORMATION SUBJECT TO OFFICE REVIEW. QUESTIONS CONCERNING THIS MESSAGE SHOULD BE DIRECTED TO THE CHIEF, PACIFIC HYDROGRAPHIC SECTION AT (206) 526-6835. A LETTER WITH ATTACHED CHARTLET IS BEING MAILED TO CONFIRM THIS MESSAGE.

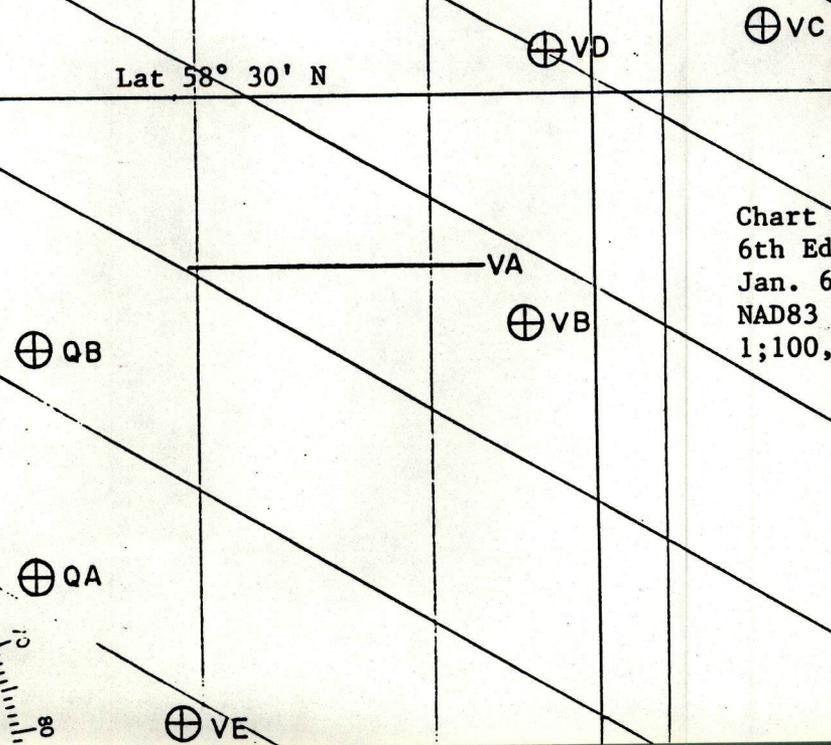
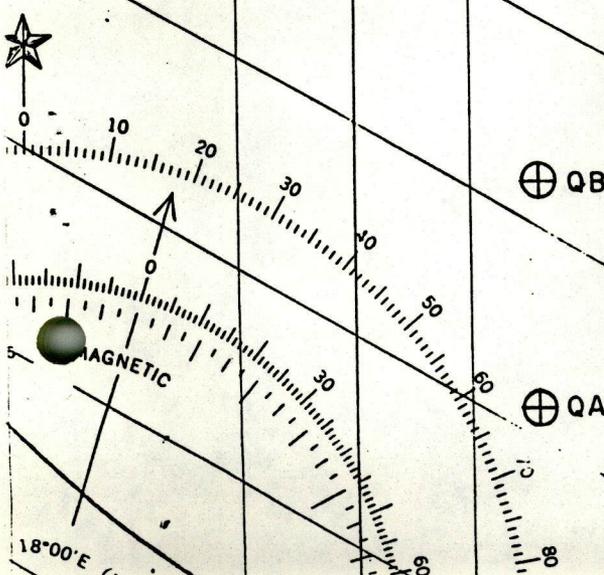
BT  
#0029

NNNN



Undoubtedly additional shoal spots south of The Twins. (Rep 1948)

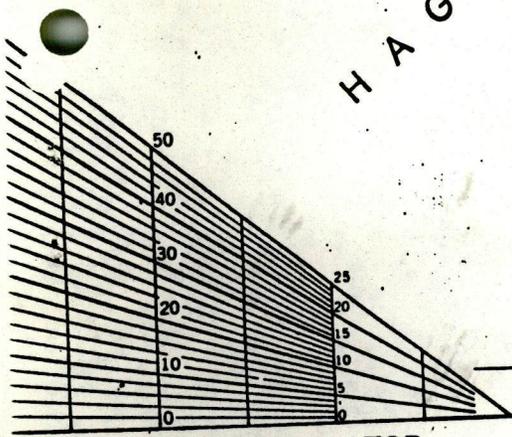
Chart 16315  
6th Edition  
Jan. 6/90  
NAD83  
1:100,000



Further shoaling

There appears to be a  
between High and Hager

H A G E M E I



AN LINEAR INTERPOLATOR

AN-C  
EXPLANATION

- ..... 100kHz.
- ..... 99,900 Microseconds
- ..... STATIONS: (Not individual sta-)

any  
any  
any

THIS CHART  
9990-Z

is published by the Defense  
should not be used with this  
shown have been adjusted  
determined overland signal  
have not been verified by  
Every effort has been  
utical mile accuracy criteria  
Coast Guard. Mariners are  
rely on the lattices in inshore

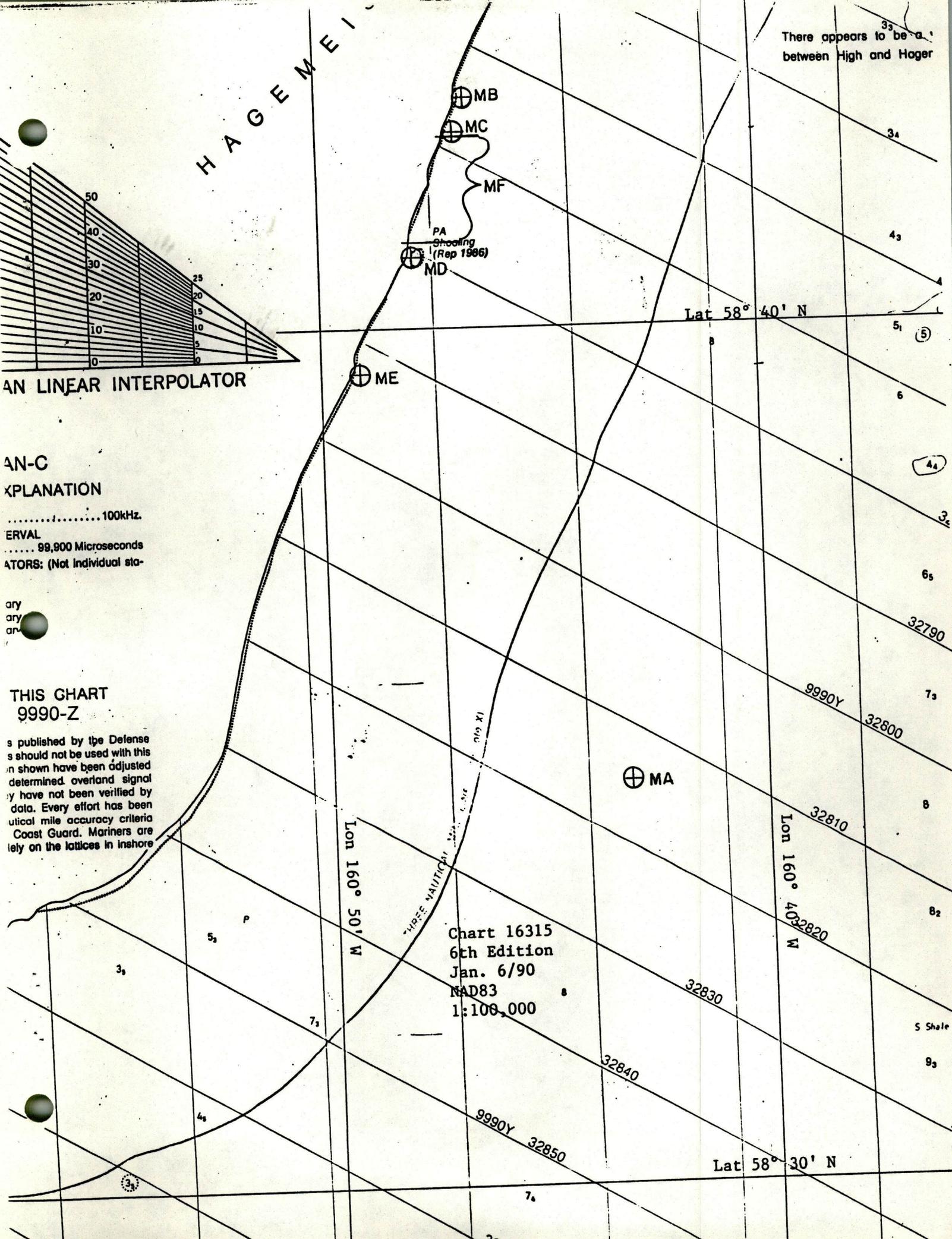


Chart 16315  
6th Edition  
Jan. 6/90  
NAD83  
1:100,000

Lat 58° 40' N

Lat 58° 30' N

Lon 160° 50' W

Lon 160° 40' W

51 (5)

44

32790

73

8

82

S Shale

93

T

0

9990Y 32850

32830

32840

32810

32800

65

6

34

43

33

76

32800

31

46

73

33

53

P

3000 NAUTICAL MILES

IX 610

IX 610

Chart 16315  
6th Edition  
Jan. 6/90  
NAD83  
1:100,000

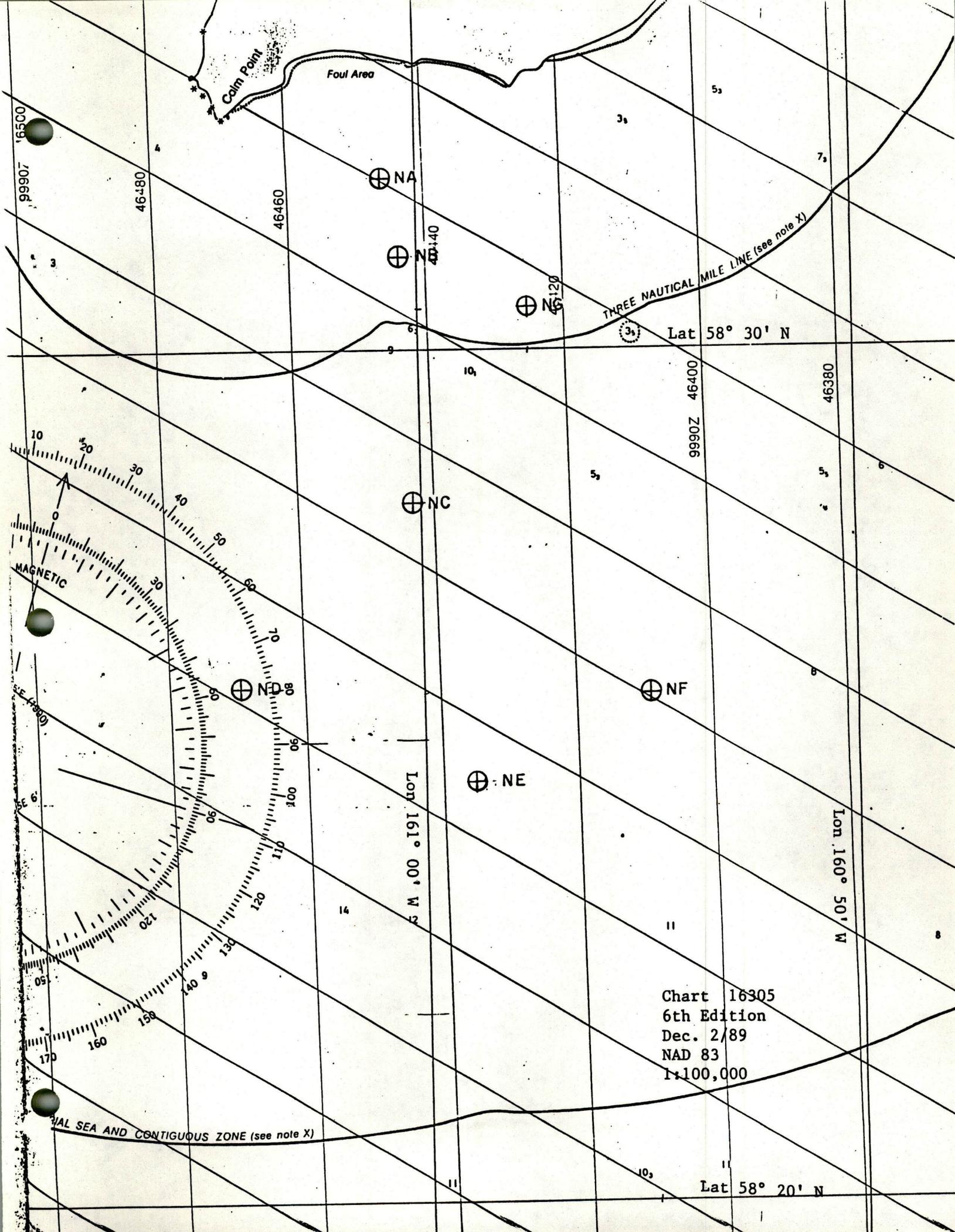


Chart 16305  
 6th Edition  
 Dec. 2/89  
 NAD 83  
 1:100,000

TERMINAL SEA AND CONTIGUOUS ZONE (see note X)



KUS / TPOST  
EJA / 182215 Z AUG 90

R 092040Z AUG 90

FM NOAA MOP SEATTLE WA

TO NOAA S RAINIER

BT

UNCLAS

RA-PMC-160-189/PMC1X2/PMC1

SUBJ: SOUNDING DISCREPANCIES

NOREP

1. N/CG241 INDICATES RESOLUTION OF SOUNDING DISCREPANCIES CAUSED BY INADEQUATE TIDE CORRECTORS IS EXPECTED TO OCCUR WHEN TIDAL DATA IS THOROUGHLY ANALYZED IN ROCKVILLE.
2. ACCURATE TIDE CORRECTORS MAY NOT BE DETERMINED BEFORE YOU LEAVE PROJECT AREA.

BT

## APPROVAL SHEET

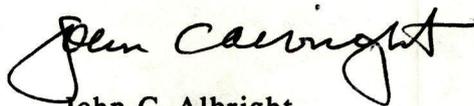
for

**H-10344**

(RA-20-2-90)

Standard procedures were followed in accordance with the Hydrographic Manual (Fourth Edition), the Hydrographic Survey Guidelines, and the Field Procedures Manual in producing this survey. The data were examined daily during data acquisition and processing.

The field sheets 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

ORIGINAL

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: May 9, 1991

MARINE CENTER: Pacific

OPR: R184

HYDROGRAPHIC SHEET: H-10344 (REVISED)

LOCALITY: Ten Miles South of Hagemeister Island, Bristol Bay,  
Alaska

TIME PERIOD: June 9 - July 16, 1990

TIDE STATIONS USED: 946-5089 Hagemeister Island, Alaska  
Lat.  $58^{\circ} 33.4'N$  Lon.  $160^{\circ} 57.0'W$

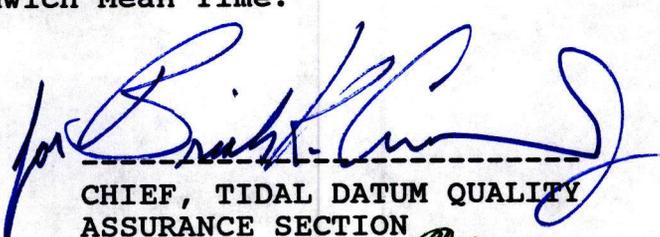
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 11.16 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 6.7 ft.

REMARKS: RECOMMENDED ZONING

1. East of  $160^{\circ} 30.0'W$ , heights are direct and apply a -45 min. time correction to 946-5089.
2. West of  $160^{\circ} 30.0'W$  and east of  $160^{\circ} 40.0'W$ , heights are direct and apply a -30 min. time correction to 946-5089.
3. West of  $160^{\circ} 40.0'W$  and east of  $160^{\circ} 50.0'W$ , heights are direct and apply a -15 min. time correction to 946-5089.
4. West of  $160^{\circ} 50.0'W$ , zone direct on 946-5089.

Note: Times are tabulated in Greenwich Mean Time.

  
CHIEF, TIDAL DATUM QUALITY  
ASSURANCE SECTION

GEOGRAPHIC NAMES

Name on Survey	ON CHART NO. 16315										
	A	B	C	D	E	F	G	H	K		
	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND McNALLY ATLAS	U.S. LIGHT LIST				
ALASKA (TITLE)	X										1
BRISTOL BAY	X										2
(TITLE) HAGEMEISTER ISLAND											3
											4
											5
											6
											7
											8
											9
											10
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											23
											24
											25

Approved:

*Charles E. Harrington*  
Chief Geographer - N/CG275

MAR - 5 1991

**HYDROGRAPHIC SURVEY STATISTICS**

H-10344

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION			AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS			5
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						
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			2813	
POSITIONS REVISED	84		84	
SOUNDINGS REVISED	211		211	
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	33		33	
VERIFICATION OF SOUNDINGS	106		106	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	56		56	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		13	13	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		28	28	
GEOGRAPHIC NAMES				
OTHER: Digitizing	1			
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	196	41	237

Pre-processing Examination by LT M. Brown	Beginning Date 9/10/90	Ending Date 9/26/90
Verification of Field Data by M. Sanders, R. Shipley	Time (Hours) 195	Ending Date 11/26/91
Verification Check by J. Stringham, S. Otsubo	Time (Hours) 45.5	Ending Date 12/18/91
Evaluation and Analysis by I. Almacen	Time (Hours) 41.0	Ending Date 1/22/92
Inspection by D. Hill	Time (Hours) 2	Ending Date 2-4-92

## EVALUATION REPORT H-10344

### 1. INTRODUCTION

Survey H-10344 is a basic hydrographic survey accomplished by the NOAA Ship RAINIER, under the following Project Instructions.

OPR-R184-RA, dated April 30, 1990  
CHANGE NO. 1, dated August 15, 1990

This survey was conducted in Alaska and covers an area in Bristol Bay, ten miles southeast of Hagemeister Island. The surveyed area extends from latitude 58/23/30N to latitude 58/31/30N and stretches from longitude 160/26/55W to longitude 160/52/00W. This is the initial basic survey of the area, the prior survey contained a few lines of reconnaissance hydrography. The bottom generally consists of mud, sand, gravel and pebbles. Depths range from 5.9 to 24.1 meters.

Predicted tides for Hagemeister Island, Alaska, were used for the reduction of soundings during field processing. Approved hourly heights zoned from Hagemeister Island, gage 946-5089, were used during office processing.

During the processing of the 1990 surveys in Bristol Bay, difficulties were encountered in attempting to junction with the surveys conducted during the previous field seasons. These discrepancies were brought to the attention of the Hydrographic and Marine Boundary Unit (N/OMA1231), which provided revised zoning for this survey. Since there was little historical tide data for the area and the differences were also due to inadequate zoning on the older surveys, revised zoning was also provided for junction survey H-10277. Survey H-10277 has had the revised tide zoning applied and recomputed depths are plotted on a sounding overlay.

The two (2) areas of irregular bottom located in the vicinity of latitude 58/26/30N, longitude 160/41/00W, and latitude 58/30/00N, longitude 160/35/00W, and discussed in Section R of the hydrographer's report were suspected to be sand wave formations. However, the jagged trace noted in some portions of the echograms shows slight resemblance to the familiar profile of sand waves. It resembles more of the profile caused by wave action. Furthermore, these areas could also be within the "amphidronic region" mentioned in Section 5.9 of the Project Instructions, where the effect of no amplitude on the observed tides may have caused some errors in the reduction of soundings.

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 the specifications contained in Hydrographic Survey Guideline No. 52, Standard Digital Data Exchange Format, April 15, 1986. Certain descriptive information, however, may not be in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete depiction of survey data.

## 2. CONTROL AND SHORELINE

Sections H and I of the hydrographer's report and the Summer 1990 Horizontal and Electronic Control Reports for OPR-R184-RA contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are 1990 field and published values based on NAD 83. These values were used during office processing for the computation of positions. The smooth sheet and accompanying overlays are annotated with NAD 27 adjustment ticks based on values determined with the NGS program, NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: -2.817 seconds (-87.155 meters)  
Longitude: 7.884 seconds ( 127.812 meters)

The year of establishment of control stations shown on the smooth sheet originates with the NGS listing and the previously referenced horizontal control report.

In some instances during the survey, the maximum allowable limits of error circle radius (ECR) and residual values have been exceeded. However, the positioning of soundings were found consistent with the surrounding areas. The data obtained at these particular areas have been accepted, as the effect of larger ECR and residual values appear to be insignificant. None of these survey positions are used to locate dangers to navigation.

There is no shoreline on this survey.

## 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, April 1990 Edition.

## 5. JUNCTIONS

Survey H-10344 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10277	1988	1:20,000	North
H-10345	1990	1:20,000	East
H-10352	1990	1:20,000	North
H-10355	1990	1:20,000	West

The junction with surveys H-10345, H-10352 and H-10355 is complete.

The junction with survey H-10277 was accomplished with a sounding overlay based on the revised tidal zoning provided for this survey. Soundings are in good agreement, however, some soundings have been transferred to survey H-10344 to justify depth curves and portray shoaler information within the adjoining area. Since this survey was conducted in meters and survey H-10277 in fathoms and the depth curves delineate different depths, the junction could not be formally completed.

There are no contemporary surveys to the south, however, a comparison was made to chart 16315, 6th Edition, January 1990. Present survey soundings generally agree with the few charted soundings in this still undeveloped junction area.

## 6. COMPARISON WITH PRIOR SURVEYS

H-7718(1948) 1:100,000

Survey H-7718 provides limited coverage of the area of this survey. Comparison with this prior survey is satisfactory. No significant discrepancies were found between the two surveys. Survey H-10344 was accomplished with more accurate positioning and depth determination systems that were not available during the 1948 reconnaissance survey.

Survey H-10344 is adequate to supersede the prior survey within the common area.

There are no AWOIS items originating from survey H-7718 applicable to the present survey.

## 7. COMPARISON WITH CHART

Chart 16315, 6th edition, dated January 6, 1990; scale 1:100,000

Chart 16315, 7th edition, dated March 2, 1991; scale 1:100,000

### a. Hydrography

The charted hydrography on the 6th edition of chart 16315 originates from prior survey H-7718 and miscellaneous sources and requires no further discussion. Charted hydrography on the 7th edition of chart 16315 originates from the unverified field sheet.

Survey H-10344 is adequate to supersede charted hydrography within the common area.

### b. AWOIS

There are no AWOIS items originating from miscellaneous sources.

### 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 two dangers to the USCG and DMAHTC on September 10, 1990. A copy of the message is attached.

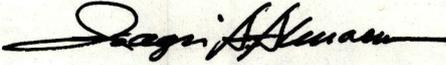
No additional dangers were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10344 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

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

  
Isagani A. Almacen  
Cartographer

APPROVAL SHEET  
H-10344

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproval of charted data. The digital data have been completed and all revisions and processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts have been made and are included with the survey records. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

*Dennis J. Hill* Date: 2-4-92  
Dennis J. Hill  
Chief, Hydrographic Processing Unit  
Pacific Hydrographic Section

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

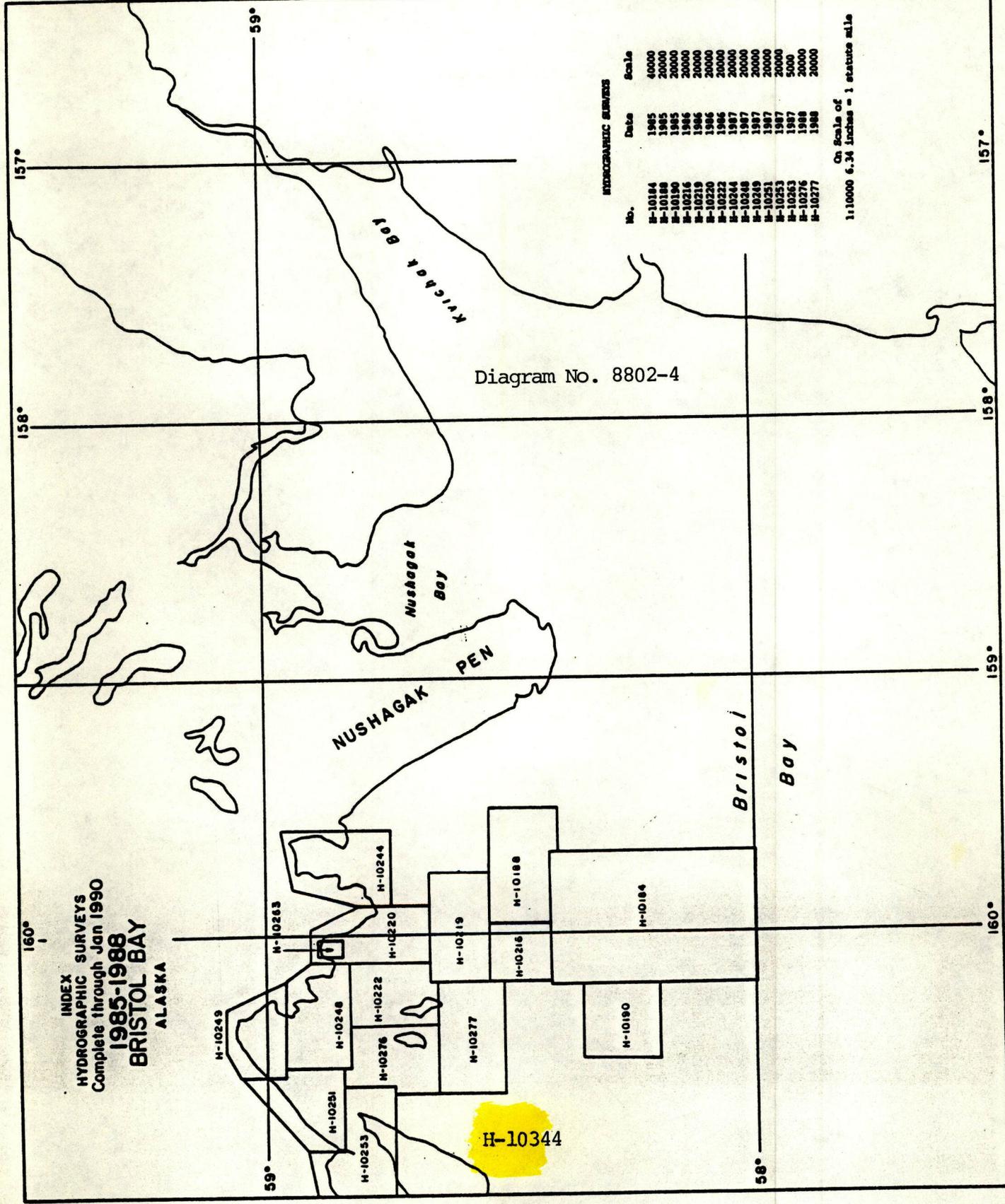
*Douglas G. Hennick* Date: 2/5/92  
Commander Douglas G. Hennick, NOAA  
Chief, Pacific Hydrographic Section

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Final Approval

Approved:

*J. Austin Yeager* Date: 3/16/92  
J. Austin Yeager  
Rear Admiral, NOAA  
Director, Coast and Geodetic Survey



INDEX  
HYDROGRAPHIC SURVEYS  
Complete through Jan 1990  
1985-1988  
BRISTOL BAY  
ALASKA

Diagram No. 8802-4

HYDROGRAPHIC SURVEYS

No.	Date	Scale
H-10184	1985	40000
H-10188	1985	20000
H-10190	1985	20000
H-10216	1986	20000
H-10219	1986	20000
H-10220	1986	20000
H-10222	1986	20000
H-10244	1987	20000
H-10248	1987	20000
H-10249	1987	20000
H-10251	1987	20000
H-10253	1987	5000
H-10263	1988	20000
H-10276	1988	20000
H-10277	1988	20000

On Scale of  
1:10000 6.34 inches = 1 statute mile

MARINE CHART BRANCH  
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10344

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
16305	10-23-90	Bruce Alan O'Connell	<del>Full Part Before</del> Marine Center Approval Signed Via <i>Partial application of</i> Drawing No. <i>Sndgs from field sheet</i>
16315	10-4-90	Royce N. Mchafar	<del>Full Part Before</del> Marine Center Approval Signed Via <i>Partial application</i> Drawing No. <i>of Sndg from field sheet</i>
16315	7-31-92	ALMADEN	<del>Full Part Before</del> After Marine Center Approval Signed Via <i>Full application of</i> Drawing No. <i>Sndgs. from SS.</i>
16305	8-7-92	ALMADEN	<del>Full Part Before</del> After Marine Center Approval Signed Via <i>Full application</i> Drawing No. <i>of sndgs. from SS.</i>
530	8-12-92	ALMADEN	<del>Full Part Before</del> After Marine Center Approval Signed Via <i>Examined. No.</i> Drawing No. <i>Sndgs. or charts. applied.</i>
16011	10-28-92	ALMADEN	<del>Full Part Before</del> After Marine Center Approval Signed Via <i>Full application of</i> Drawing No. <i>sndgs. from SS thru 16315.</i>
16006	10-30-92	ALMADEN	<del>Full Part Before</del> After Marine Center Approval Signed Via <i>Full application</i> Drawing No. <i>of sndgs. from SS thru 16011.</i>
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> After Marine Center Approval Signed Via Drawing No.

