10352

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-20-5-90

Registery No. H-10352

LOCALITY

State Alaska

General Locality Bristol Bay

Sublocality East of Hagemeister Island

19 90

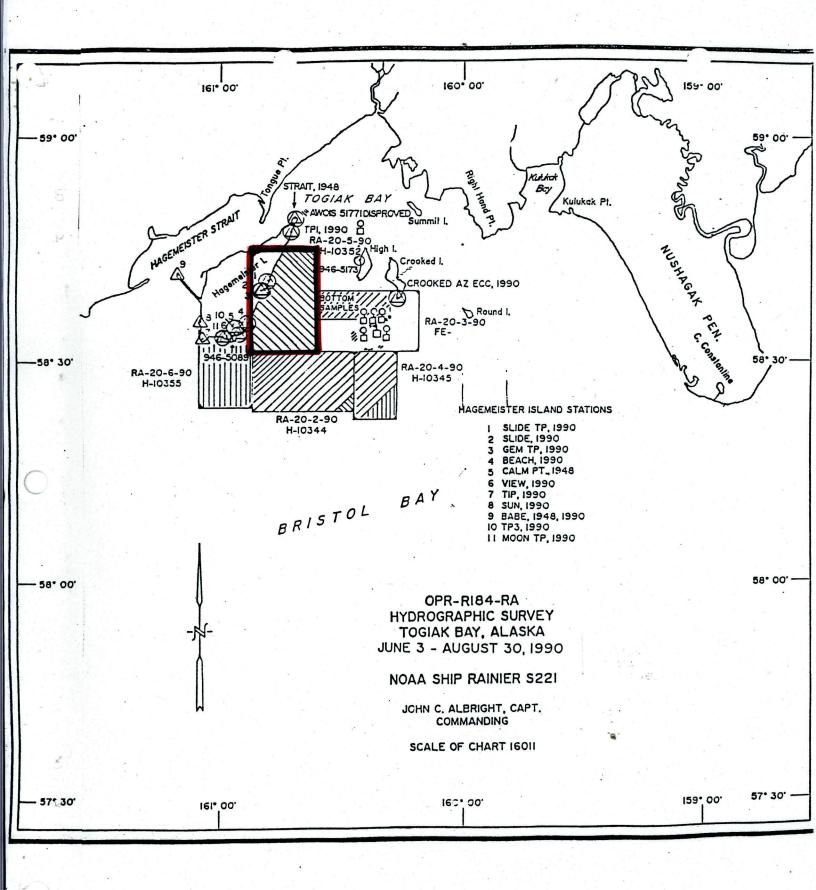
CHIEF OF PARTY CAPT J.C. Albright

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DATE August 25, 1992

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

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTER NO.
*	HYDROGRAPHIC TITLE SHEET	н-10352
	III DROOKAI IIIC III L SILLI	*
INSTRUCTIONS	- The Hydrographic Sheet should be accompanied by this form,	FIELD NO.
	letely as possible, when the sheet is forwarded to the Office.	RA-20-5-90
State	Alaska	
General locali	Bristol Bay	
Locality	East of Hagemeister Island	
Scale	1:20,000 Date of su	rveyJuly 1-20, 1990
Instructions da	April 30, 1990* Project No	OPR-R184-RA
Vessel	NOAA Ship RAINIER (2120), Launches RA-3 (2 and RA-6 (2126)	2123), RA-4 (2124), RA-5 (2125)
Chief of party.		
Surveyed by	LTJG Glang, LTJG Haines, LTJG Simmons, ENS ENS Ward and ENS Weber	Muench, ENS Schoonover,
	en by echo sounder, hand head pele DSF-6000N	
Graphic record	scaled byRAINIER Personnel	
Graphic record	checked byRAINIER Personnel	,
Evaluation Processed by	n by: R.N. Mihailov Autom	ated plot by PHS Xynetics Plotter
Verification by	Tholms O. Jones	
Soundings in	meters & decimeters xinohomus feek at xixix MLLW	
DEMARKS	All times are UTC. *Change No. 1 dated	August 21 1990
REMARKS:		
	Revisions and marginal notes in black we	
	processing. All separates are filed with	th the hydrographic data, as
~	a result page numbering may be interrupt	ted or non-sequential.
-		
-		
	· ; . :	
	28-97 Awass and sure -	Pwp 8/92



Descriptive Report to Accompany Hydrographic Survey H-10352

Field Number RA-20-5-90 Scale 1:20,000 July 1990

NOAA Ship RAINIER Chief of Party: Captain John C. Albright, NOAA

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 M 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 / See Evaluation Report, section 1.

The survey is located in Bristol Bay, Alaska, 27 NM south of Togiak, along the eastern shore of Hagemeister Island. This sheet is bounded to the north by latitude 58°44'42"; to the east by longitude 160°36'00"W; to the south by latitude 58°31'30"N; and to the west by longitude 160°52'00"W and Hagemeister Island. Data acquisition was conducted from July 1 through July 20, 1990 (DN 182 to 201).

Bathymetry is characterized by a fairly regular bottom interspersed with sand waves. Depths range from 49 m at the northern limit to 17 m at the southern limit. Near-shore bathymetry is characterized by a regular bottom rising quickly to the beach.

Bottom samples within the survey area consisted primarily of black sand, black pebbles, and black broken shells.

C. SURVEY VESSELS

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

<u>Vessel</u> RAINIER	EDP No. 2120	<u>Operations</u> Hydrography
RA-3	2123	Hydrography Shoreline verification
RA-4	2124	Hydrography Shoreline verification
RA-5	2125	Bottom samples
RA-6	2126	Hydrography

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:

Program Name	Version	Date Installed
SURVEY, w/RAINIER mods	4.32	6-09-90
	4.33	8-05-90
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
CONPUTE	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:

Program Name	Version	Version Date
VELOCITY	1.11	3-09-90

The HDAPS SURVEY and PLOTALL programs are modified to print the tenthmeter 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 No side scan sonar used on this survey.

F. SOUNDING EQUIPMENT

RAINIER and all survey launches were equipped with the Raytheon DSF-6000N echo sounders shown below. The echo sounders were operated on 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 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

Vessel	Serial No.	DN
2120	A117N	182-185
2123	A114N	183-200
	A117N	201
2124	B048N	193
	A119N	193-197
	B046N	198-200
2125	B046N	194-195
	B048N	195
2126	A119N	183

The echo sounders were continuously monitored during data acquisition. All sounding data was scanned at least two times to ensure all significant peaks were inserted, and also to verify the digitized depths. Fathograms checked

during office processing.

G. CORRECTIONS TO SOUNDINGS

Corrections to echo soundings were determined for velocity of sound through water, static draft, settlement and squat, heave, 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:

Cast	Deepest		Geographic	
No.	Depth (m)	DN	Position	
2	23.2	179	58°35'18"N, 160°23'24"W Plot ac	totte
3	24.1	198	58°35'24"N, 160°23'13"W the sur	vey
	dela .		limits.	

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 this 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:

	100		Vessel Acquiring
Velocity Table No.	Cast No.	Applicable DN	<u>Data</u>
3	2	183-184	All Launches
4	2	182-185	RAINIER
5	3	193-201	All Launches

Velocity correctors were computed using the 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 all launches, 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 all launches on March 20, 1990. This transducer depth agrees with the launches' historical records.

* Filed with hydrographic 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 two of the automated survey launches in Shilshole Bay, WA, on February 23 (Vesno 2124 and 2126). Vesno 2123 was tested on April 12, 1990, near Pt. Aldolphus in Icy Strait, AK.

All tests were conducted over a hard bottom in depths well exceeding seven times the vessels' drafts. 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. Results from RAINIER's April 1, 1989, Turnabout Island, Frederick Sound, AK, test were 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:

	Offset	Period Used
VESNO	Table No.	On Line (DN)
2120	1	182-185
2123	3	183-201
2124	4	193-200
2126	6	183

Copies of all offset tables are included with the separates accompanying the survey data.

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.

* Filed with hydrographic data.

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

Daily predictions for the Hagemeister Island, Alaska, reference tide station (946-5089) were applied directly for both heights and times to all data acquired during this survey. HDAPS listings of the data used in generating tide corrector tables are included in Appendix V. $\frac{1}{3}$

Tide gages were installed and maintained by RAINIER personnel at stations on the southeast side of Hagemeister Island (946-5089) and on the west side of High Island (946-5173). The field tide records and the Field Tide Notes for these stations have been forwarded to N/OMA1212 in accordance with HSG 50 and FPM 4.3. Requests for approved tides have been forwarded to N/OMA12. Copies of the Field Tide Notes and the requests for approved tides are included in Appendix V.

H. CONTROL STATIONS / See Evaluation Report, Section 2.

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

used on this survey are attached to this report.

Horizontal control stations are listed in Appendix III-of this report:

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 and Motorola Mini-Ranger Falcon 484 microwave, short-range positioning system in the multiple-range modes. Bottom samples were located using Furuno LC-90 Mark-II Loran positioning system and the Mini-Ranger Falcon system.

Positioning Equipment

The following tables summarize the Falcon mobile console/RT units and shore transponders used:

* Filed with hydrographic data.

Mobile Equipment

EDP No.	Vessel	Console/RT	<u>DN</u>
2120	RAINIER	F0245/F3413 F0245/F3414	182 182- 184- 185
2123	RA-3	D0051/B1405 E0148/F3413	183 184-201
2124	RA-4	D0051/D2395	193-200
2126	RA-6	E0148/F3414	183

Shore Equipment

Transponder		Transponder	
Serial No.	Code	Serial No.	Code
B1106	2	C1883	11(B)
E2713	3	F3256	14(E)
F3248	4	G3501	15(F)
B1413	5		

^{*} hexadecimal/numerical designations

Serial numbers of the 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.

Baseline Calibrations (for Mini-Ranger equipment only)

All baseline calibrations were conducted in accordance with FPM 3.1.3.2. On May 20, 1990 (DN 140), calibrations were conducted in Bartlett Cove, Glacier Bay, Alaska, over a measured distance of 1678.4m. On July 10, 1990 (DN 191), calibrations were conducted on Hagemeister Island, Bristol Bay, Alaska, over a measured distance of 1224.3m. Detailed information, calibration data, and a description of the baselines is included in the Summer 1990 Electronic Control Data Package for OPR-R184-RA.

The final field sheets were plotted with the correctors determined from the baseline calibrations. System check results confirmed the calibration data applied to the raw positioning data was adequate for the scale of this survey.

System Check Procedures

Falcon critical system checks were conducted in accordance with FPM 3.1.3.3 when not used in conjunction with ARGO. Printouts of HDAPS screen graphics

displaying multiple lines of position confirmed that the error circle radius and maximum residual did not exceed allowable limits.

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-positions (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 fell within the allowable limits stated in FPM 3.1.3.3, the ARGO partial lane correctors were minimized to less than ±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 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

Three positioning configurations were used for collecting sounding data: ARGO, Falcon, and a hybrid of ARGO and Falcon. The hybrid use of ARGO and Falcon LOPs was very useful and worked well for this survey,

On DN 184, the RT unit, S/N B1405, in Vesno 2123 failed. The console/RT pair in Vesno 2123 was replaced with console/RT E0148/F3413.

On occasion, while using ARGO, maximum residuals would gradually increase over a period of minutes, indicating a jump in lanes. At these times, data acquisition was halted and a recalibration conducted. Probable causes of lane jumps were fog, rain, skywaves, or ground changes to 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 WGS72 datum, for which no shift to NAD83 was available, RAINIER determined an average offset distance and azimuth from the Furuno position 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 NAD83 has been applied to all bottom samples positioned by Furuno Loran on this survey.

Antenna Offset Distances

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

* Filed with hydrographic data.

J. SHORELINE / See Evaluation Report, Section 2

Two 1:20,000-scale shoreline maps (T-Sheets) were used to transfer shoreline detail to the final field sheets. The shoreline north of latitude 58^o42'00"N originates from TP-01181 (1:20,000; NAD27, 1986). TP-00933 (1:20,000; NAD27, 1986) covers the area south of latitude 58^o42'00"N.

Shoreline verification was conducted either at or near lower low water in accordance with FPM 7.0. There are no areas where shoreline verification was not completed. The high water line was verified as shown on the T-Sheets by hydrographic means.

Detached positions (DPs) taken at lower low water indicate the T-Sheet photography was probably flown during a stage of tide higher than Mean Lower Low Water (MLLW). As a result, several new foul areas, rocks, and ledges were discovered. Of these discoveries, four of significance are noted here: The four items, listed below were reported as dancers to havingation by the Noad ship Rainer. Refer to the smooth sheet for graphic portrayal.

1. A foul area, at the base of a prominent rock slide, at 58°39'28.94"N, 160°49'08.05"W, contains at least four rocks which are awash or covered less than 1 meter at MLLW. This foul area contains 5 rocks.

- 2. A foul area at 58°40'51.14"N, 160°47'49.88"W, contains at least five rocks which cover less than 1 meter at MLLW. concur
- 3. A foul area at 58°42'18.93"N, 160°46'52.86"W, contains boulders and small reefs which cover less than 1 meter at MLLW. Foul sica with rocks
- 4. A foul area at 58°42'41.79"N, 160°46'40.10"W, contains boulders and small reefs which cover less than I meter at MLLW. This area is shown smooth sheet as foul with one rock symbol (02) In addition to these foul areas, numerous rocks, both covered and exposed at MLLW, occur between latitudes 58°40'51.14"N and 58°42'18.93"N, within 100 meters of shore. Submitted as part of danger to ravigation letter.

DPs recorded on the raw master printouts were annotated in the field. A detailed paper plot showing all DPs and notes relating to each feature is included with the sheets submitted with this survey. Position numbers for all DPs are plotted on the two DP overlays. Heights are recorded in meters and are corrected for predicted tides. Concur

K. CROSSLINES

A total of 82.6 nautical miles of crosslines were run perpendicular to mainscheme lines, representing 8.6% of the mainscheme hydrography. Crossline soundings agree to within one meter with mainscheme soundings. The vessel which acquired crossline data did not always collect the corresponding mainscheme data. The agreement between soundings acquired by different echo sounders in a common area is as stated above.

L. JUNCTIONS / See Evaluation Report, Section 5

This survey junctions with H-10277 (1:20,000; 1988) and H-10276 (1:20,000; 1988) on the eastern boundary, and H-10355 (1:20,000; 1990) on the western boundary. On the northern boundary, this survey junctions with H-10253 (1:20,000; 1987), and to the south with H-10344 (1:20,000; 1990). No irregularities were found when comparing soundings and depth contours. Overall agreement between overlapping soundings is very good, with all junction soundings agreeing to within one meter.

M. COMPARISON WITH PRIOR SURVEYS / See Evaluation Report, Section 6

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

Several charted soundings originate from BP-18063. While these soundings are few in number, they do agree to within two meters with depths from this survey.

Recommendation: The hydrographer recommends that the soundings acquired on this survey be used to supersede those from BP-18063. - concur

H-7718 (1:100,000; 1948; Recon.):

This survey was compared to a 1:20,000-scale enlargement of H-7718. Six soundings from the reconnaissance survey fall within the limits of this survey. Although most of the soundings on H-7718 are illegible, those that are legible agree to within 2 meters. - CONCUV

Recommendation: The hydrographer recommends that the soundings acquired on this survey be used to supersede those from H-7718. - concur

N. COMPARISON WITH THE CHART / See Evaluation Report Section 7

This survey was compared to the following NOS preliminary charts: 16315, 6th Edition, January 6/90, 1:100,000 (NAD83); and 16305, 6th Edition, December 2/89, 1:100,000 (NAD83). 7th Ed March 2,1991 16315 were not available during this 7th Ed February 9,1991 16305 survey and have been comparison of Sounding Features compared during office processing

Comparison of Sounding Features

originates with BP130921

The PA Shoaling (REP 1986) at 58040'51"N, 160047'42"W, was confirmed by hydrographic means, and found to be a foul area which was discussed in Item 2 of Section J, Shoreline, of this report.

Comparison of Non-Sounding Features

Shoreline features discussed in Section I should be portrayed on the chart. These features should be charted as portrayed on the smooth sheet. Dangers to Navigation

Six dangers to navigation lie within the limits of this survey and were reported by radio message and hard copy to the Seventeenth Coast Guard District and the

Defense Mapping Agency Hydrographic/Topographic Center (DMAHTC). Copies of this correspondence and position numbers associated with each reported danger are included in Appendix I.

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. *Appropriate prior surveys are listed in Section M, Comparison with Prior Surveys, and section 7 of the Evaluation Report.

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 this survey.

Q. STATISTICS

Vessel:	2120	2123	2124	2125	2126	TOTAL
# of Pos.	1107	522	1130	71	3	2833 2842
NM of Hydro	447.8	204.8	390.6		1.2	1044.4
N.M. ² Hydrograp	phy	94		Velocity	Cast	2
Detached Position	ons	49		Tide Stati	ions	2
Bottom Samples		76		Current/N Stations	Magnetic	0

R. MISCELLANEOUS

An area of irregular bottom topography, in the vicinity of 58°34'45.62"N, 160°43'10.90"W, is suspected by the hydrographer to be sand waves for the following reasons: characteristic sand wave echogram trace, suspended sand at the water surface observed from the ship during high winds and storms, suspended sand observed during dive operations, and bottom samples of fine black sand. Sand notation has been added to the smooth sheet at the above location. During data acquisition systematic discrepancies were observed between adjacent and overlapping sounding lines acquired on different days. S-curve depth contours were also indicative of inadequate predicted tides (as anticipated in Section 5.9 of the Project Instructions). A radio message from PMC1X2 (R092040Z AUG 90, included in Appendix VI of this report) states that N/CG241 expects discrepancies caused by inadequate tide correctors to be resolved after analysis of this year's tidal data. — With the application of approved tides and zonung crosslines agree within 0.2 meters.

All bottom samples were forwarded to the Smithsonian Institution.

No current measurements were made in 1990 as no anomalous currents were observed within this survey's limits.

Date sent to

S. RECOMMENDATIONS

None

T. REFERRAL TO REPORTS

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

Title Summer 1990 Horizontal Control Report for OPR-184-RA	N/CG245 September 1990
Summer 1990 Electronic Control Data Package for OPR-184-RA	September 1990
Summer 1990 Corrections to Echo Soundings Data Package for OPR-184-RA	September 1990
Summer 1990 Coast Pilot Report for OPR-184-RA	September 1990

Respectfully Submitted,

David K. Simmons

Lieutenant (j.g.), NOAA

Approved and Forwarded,

John C. Albright Captain, NOAA

Commanding Officer

				CONTROL STA	TIONS	3	3	1	_ 31,53	
	No	Type	Latitude	bongitude	Н	Cart	Freq	Vel	Code	MM/DD/YY
	100	A	058:34:41.239	160:55:09.657	0	250	1658.4	299670,0		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	В	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
	707	<u> </u>	058:47:14.904	160:42:20.529	5	254	0.0	0.0	1	07/11/90
	208	<u> </u>	058:33:38.440	160:55:35.694	16	254	0.0	0.0	- 1	08/05/90
•	709		058:33:16.040	160:57:09.142	10	250	0.0	0.0	4	08/05/90
	210		058:33:04.248	160:57:49.321	21	254	0.0	0.0	—	08/05/90
	211	;	058:32:46.208	161:04:32.374	15	250	0.0	0.0		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 204 SLIDE TP, 1990 205 SLIDE, 1990 206 BEACH, 1990

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	



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,

ohn 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 <u>Local Notice to Mariners</u> 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



160-20-31,28W

PTTUZYUW RUHPTEF0029 2520223-UUUU--RUHPSUL ZNR UUUUU P 090223Z SEP 90 FM NOAAS RAINIER TO CCGDSEVENTEEN JUNEAU AK DMAHTC (NAVWARN) WASHINGTON DC//MCNM// INFO NOAAMOP SEATTLE WA ACCT CM-VCAA BT

ADVANCE

UNCLAS

COV

16011 2 374FM

16006 2 3/4FM

NDAA 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: 16315 6TH ED JAN 6/90 1:100,000 NAD83 16305 GTH ED DEC 5189 1:100,000 NADBB 16011 32TH ED FEB 3/90 1:1,023,188 NAD83 1600€ 29ND ED AUG 23/86 1:1,534,076 NAU27

DEPTHS ARE REDUCED TO MLLW BASED ON PREDICTED TIDES.

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	ITEM	DANGER	CHART	DEPTH	DATUM	LATITUDE	LONGTTUDE	NUMBERS
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			16006		NAU27	58-26-46.74N	160-27-28.12W	
				SFM 4FT 3 1/2FM	NAD83 NAD83	58-28-14.45N	160-27-33.66W	2009+8
	•		16006	3 1/2FM	NAD27	58-28-17.26N		
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		COV	16011	2FM 4FT 2 1/2FM	NADS3 NADS3	58-30-24.53N		2292+5
	vo.						140-17-85.47W	
		Contract Con	the same of the sa	2FM 4FT	NADGO	58-30-21.62N	140-20-39.15W	2228+7

NAU27 - 58-30-24,42N

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ADVANCE INFORMATION

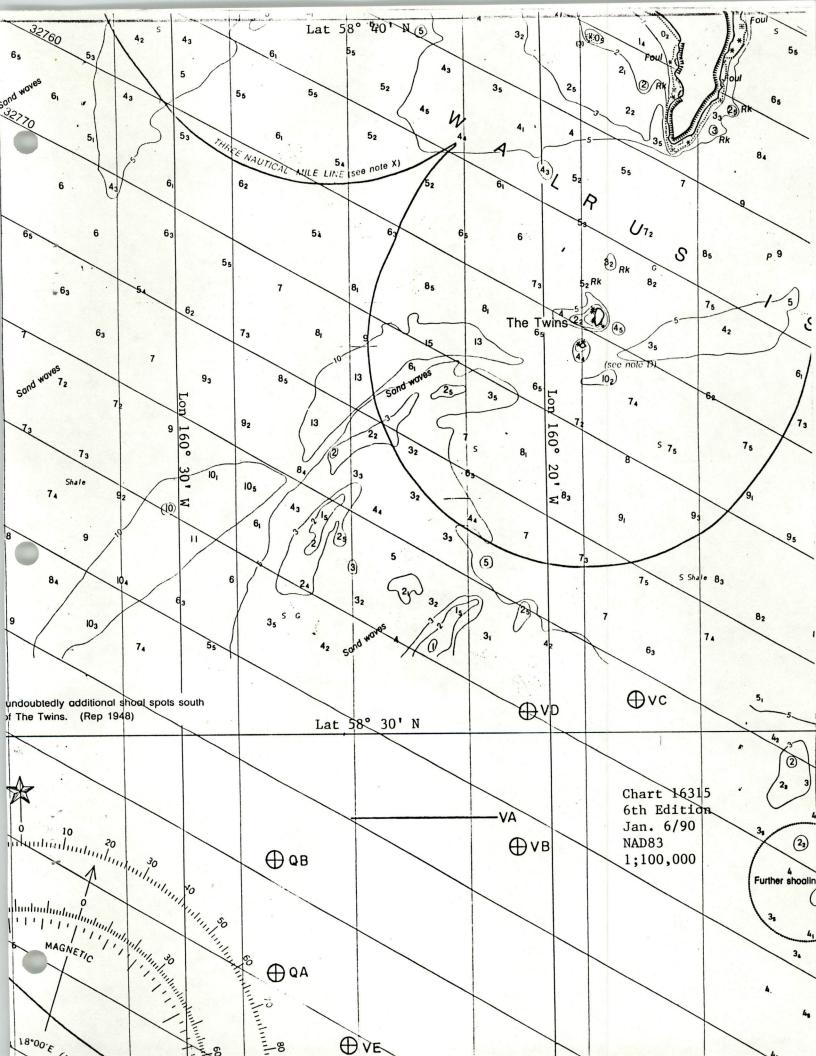
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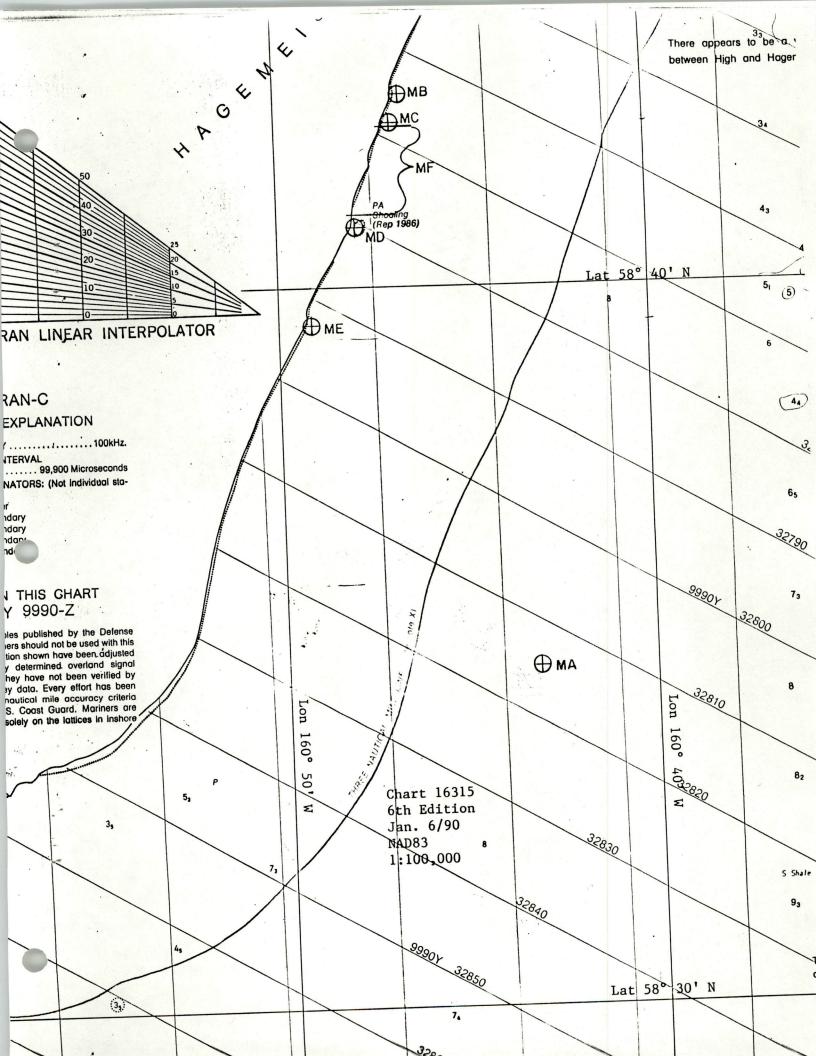
THIS IS ADVANCE INFORMATION SUBJECT TO OFFICE REVIEW.
QUESTIONS CONCERNING THIS MESSAGE SHOULD BE DIRECTED TO THE
CHIEF, PACIFIC HYDROGRAPHIC SECTION AT (204) 526-4835. A
LETTER WITH ATTACHED CHARTLET IS BEING MAILED TO CONFIRM
THIS MESSAGE.

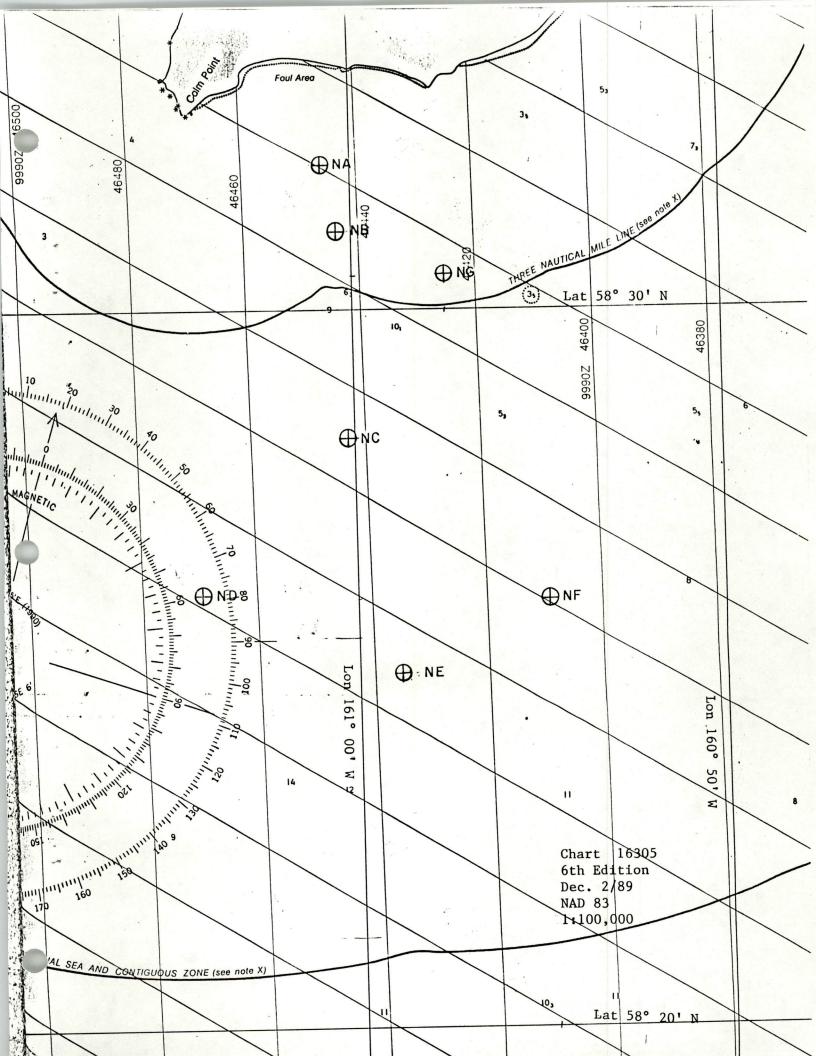
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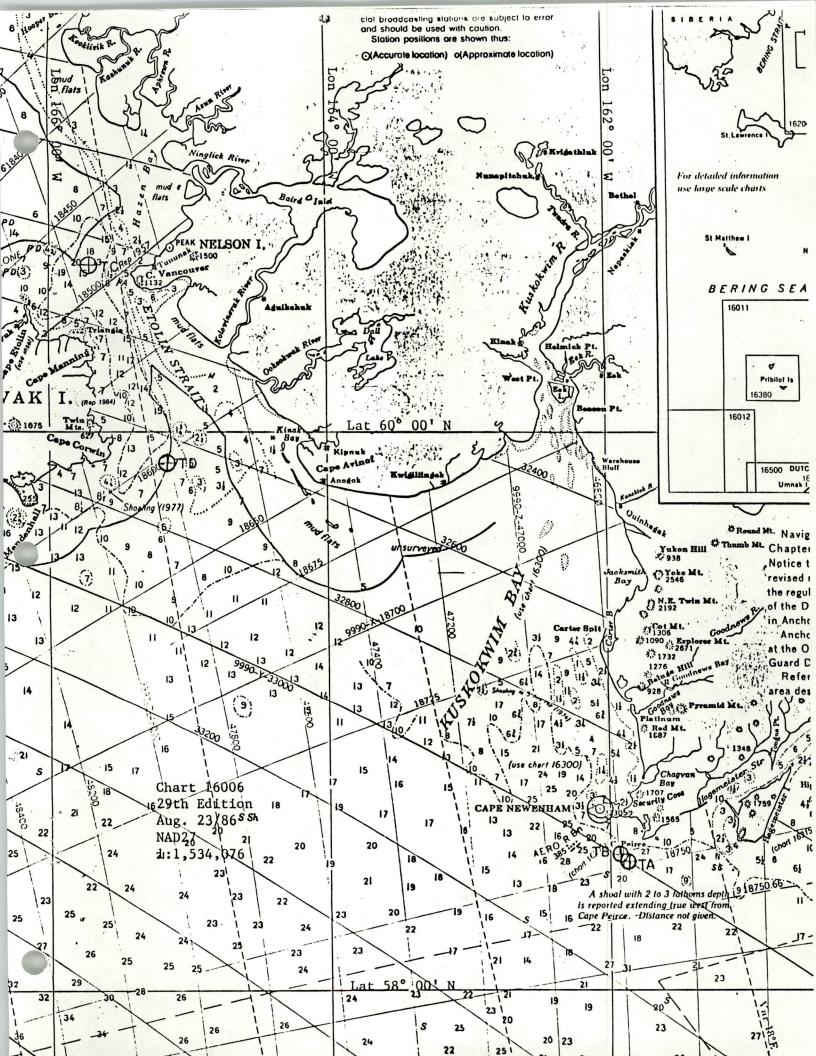
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for H-10352

RA-20-05-90

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 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

ORIGINAL

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: June 7, 1991

MARINE CENTER: Pacific

OPR: R184

HYDROGRAPHIC SHEET: H-10352 (REVISED)

LOCALITY: East of Hagemeister Island, Bristol Bay, Alaska

TIME PERIOD: July 1 - July 21, 1990

TIDE STATIONS USED: 946-5089 Hagemeister Island, Alaska Lat. 58° 33.4'N Lon. 160° 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° 40.0'W and north of 58° 40.0'N, apply a x1.24 range ratio and a -30 min. time correction to 946-5089.
- 2. East of 160° 40.0'W, north of 58° 35.0'N and south of 58° 40.0'N, apply a x1.12 range ratio and a -30 min. time correction to 946-5089.
- 3. East of 160° 40.0'W and south of 58° 35.0'N, heights are direct and apply a -30 min. time correction to 946-5089.
- 4. West of 160° 40.0'W and north of 58° 40.0'N, apply a x1.24 range ratio and a -15 min. time correction to 946-5089.

- 5. West of 160° 40.0'W, north of 58° 35.0'N and south of 58° 40.0'N, apply a x1.12 range ratio and a -15 min. time correction to 946-5089.
- 6. West of 160° 40.0'W and south of 58° 35.0'N, heights are direct and apply a -15 min. time correction to 946-5089.

Note: Times are tabulated in Greenwich Mean Time.

CHIEF, TIDAL DATUM QUALITY

ASSURANCE SECTION

SURVEY NUMBER U.S. DEPARTMENT OF COMMERCE NOAA FORM 76-155 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION H-10352 GEOGRAPHIC NAMES OH PREVIOUS SURVEY од силат но. 16315 ON U.S. MAPS ANGLE P.O. GUIDE OR WAP G RAMO ACHALLY

G RAMO TLAS TP-01181 Name on Survey 1 X X ALASKA (TITLE) X 2 X X BRISTOL BAY X 3 X X X HAGEMEISTER ISLAND 4 5 6 7 8 9 10 11 12 13 14 15 Approved: 16 17 18 19 FEB 22 1991 20 21 22 23 24 25

NOAA FORM 77- (9-83)	27(H)		NT OF COMMERCE REGISTRY NUMBER			
(9=63)	HYDROGE	RAPHIC SURV	EY STATISTICS		н-10352	
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RECOF	RD DESCRIPTION	AMOU	INT	RECORD DESCRIP	TION	AMOUNT
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DESCRIPTIVE	REPORT	1	FIELD SHEE	TS AND OTHER OV	ERLAYS	4
DESCRIP- TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR- GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
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VOLUMES						
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		The following statistics	s will be submitted with the ca	artographer's report on the s	survey	
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				VERIFICATION	EVALUATION	TOTALS
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POSITIONS REVIS	ED		100			
SOUNDINGS REV	ISED					
CONTROL STATIC	ONS REVISED					
					TIME-HOURS	
				VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING	G EXAMINATION					
VERIFICATION OF	CONTROL					
VERIFICATION OF	POSITIONS			79		79
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Time (Hours)

Time (Hours)

Verification Check by
J. Stringham, B. Olmstead

Evaluation and Analysis by R. N. Mihailov

D. Hill

Ending Date 3/5/92

Ending Date
6 | 19 | 92

Ending Date 8/3/92

EVALUATION REPORT H-10352

1. INTRODUCTION

Survey H-10352 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 21, 1990

This survey was conducted in Alaska and covers the area in Bristol Bay along the eastern shore of Hagemeister Island. The survey area is approximately 25 nautical miles south of the town of Togiak, Alaska. Sheet limits extend from latitude 58/31/30N to latitude 58/44/42N and longitude 160/36/00W to longitude 160/52/12W. The bottom consists mainly of sand and broken shells. Except for depths of 1 meter or less along the shoreline, soundings generally range from 4.9 meters in the north increasing to 17.8 meters along the southern survey limits.

Predicted tides for Hagemeister Island were used for the reduction of soundings during field processing. Approved hourly heights zoned from Hagemeister Island, Alaska, gage 946-5089, 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 that includes categories of information required to comply with 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 information.

2. CONTROL AND SHORELINE

Sections H and I of the hydrographer's report and the summer horizontal control report for OPR-R184-RA, contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are 1985 and 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 correction.

Latitude:

-2.808 seconds

(-86.894 meters)

Longitude:

7.922 seconds

(127.817 meters)

The year of establishment of control stations shown on the smooth sheet originates with the horizontal control records and published NGS data.

The quality of several positions exceeds limits in terms of the error circle radius and residual or have angles of intersection less than 30 degrees or more than 150 degrees. A review of the data indicates that none of these fixes are used to position the dangers to navigation contained within the limits of this survey. The soundings located by these fixes are consistent with the surrounding data. Refer to section I of the hydrographer's report for a further discussion of this data.

The following shoreline maps apply to this survey.

Map Number	Photo Date	Class
TP-01181	July-August 1985	III
TP-00933	July-August 1985	III

Shoreline drawn on the smooth sheet originates from 1:20,000 scale maps compiled on NAD 27. A grid adjustment to NAD 83 was performed during office processing using datum values as provided by the NGS program NADCON.

3. HYDROGRAPHY

Except for the delineation of the zero curve, 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, except as follows.

The hydrographer did not compare with all prior surveys as required in section 6.10 of the project instructions. The prior shoreline maps, T-9247 and T-9252, should have been addressed by the hydrographer in Section M, Comparison with Prior Surveys.

5. JUNCTIONS

Survey H-10352 junctions with the following surveys.

Survey	Year	Scale	Area
H-10253	1987	1:20,000	North
H-10276	1988	1:20,000	Northeast
H-10277	1988	1:20,000	Southeast
H-10355	1990	1:20,000	West
H-10344	1990	1:20,000	South

The junctions with surveys H-10253, and H-10276, have not been formally completed as these surveys were previously processed and forwarded for charting. The junctions were made using copies. The depths on survey H-10352 are in meters, while soundings on surveys H-10253 and H-10276 are in fathoms. Soundings are in good agreement, however, the depth curves shown on these surveys delineate different depths and therefore, do not agree. Some soundings have been transferred to survey H-10352 to better portray the common area.

The junction with survey H-10277 was accomplished using a sounding overlay (corrected with revised tide zoning values). Soundings are in good agreement. Some soundings have been transferred to survey H-10352 to delineate the depth curves and better portray the common area.

The junctions with surveys H-10344 and H-10355 are complete and the soundings are in good agreement. Several soundings from survey H-10355 were transferred to survey H-10352 to better portray the common area.

6. COMPARISON WITH PRIOR SURVEYS

H-7718 (1948) 1:100,000

Survey H-7718 is a reconnaissance survey with one line of positions (7 soundings), along the southwest portion of the present survey. The prior survey is up to 2 meters shoaler than the present survey. Taking into consideration the differences in the scales of the surveys and the methods of surveying, comparison with this prior is satisfactory.

Survey H-10352 is adequate to supersede survey H-7718 for the area of common coverage.

T-9247 (1948) 1:20,000 T-9252 (1948) 1:20,000

Shoreline maps T-9247 and T-9252 cover the entire survey area of the present survey. Comparison of the mean high waterline compiled from 1948 photography reveals little change with the present survey shoreline. The shoreline along the southeast coastline of Hagemeister Island has remained stable since 1948.

Survey H-10352 is adequate to supersede the prior shoreline maps as a source for charted hydrography within the common area.

There are no AWOIS items originating from this prior survey applicable to this survey.

7. COMPARISON WITH CHART

Chart 16305, 6th edition, dated December 2, 1989; scale 1:100,000 (NAD 83)

Chart 16305, 8th edition, dated March 21, 1992; scale 1:100,000 (NAD 83)

Chart 16315, 6th edition, dated January 6, 1990; scale 1:100,000 (NAD 83)

Chart 16315, 8th edition, dated March 21, 1992; scale 1:100,000 (NAD 83)

a. Hydrography

The charted hydrography on the 6th edition of chart 16305 and 16315 originates from the prior survey mentioned in section 6 of this report and requires no further discussion.

Charted hydrography on the 7th and 8th editions of charts 16305 and 16315 has been updated through partial application of soundings and features from the final field sheet and unknown sources.

Survey H-10352 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 to navigation located within the limits of survey H-10352.

There are no charted landmarks within the survey area. The hydrographer has recommended no features of landmark value.

e. Geographic Names

Geographic 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 six dangers to navigation to the DMAHTC and the Seventeenth Coast Guard District. Copies of these reports are attached. No additional dangers were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10352 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

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

Robert N. Mihailov Cartographer

P.M. Mihay

APPROVAL SHEET H-10352

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.

Domis Hill	Date:	8-3-92	
Dennis J. Hill Chief Hydrographic Processing Unit			
Chief, Hydrographic Processing Unit Pacific Hydrographic Section			

Date: 8

Date:

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.

Commander Douglas G. Hennick, NOAA

Chief, Pacific Hydrographic Section

Final Approval

Approved:

J. Austin Yeager Rear Admiral, NOAA

Director, Coast and Geodetic Survey

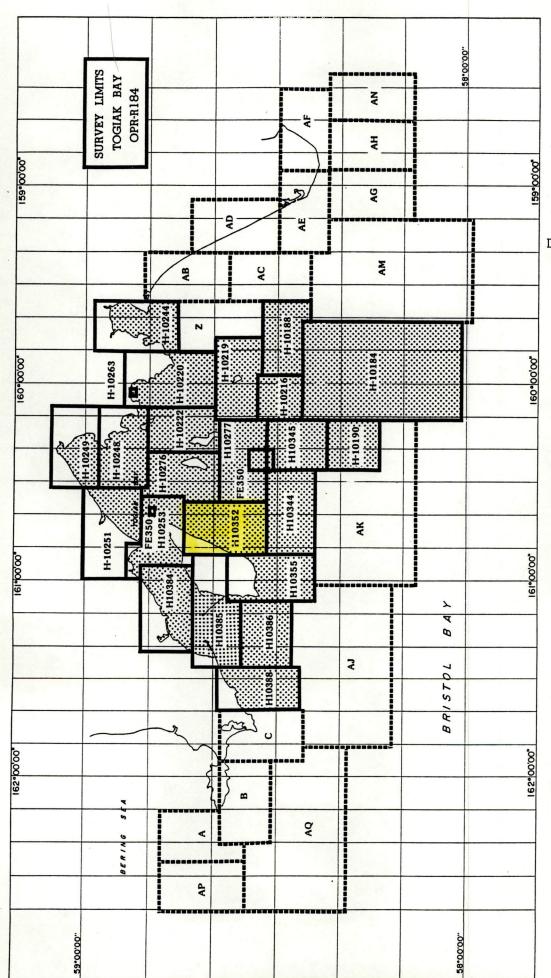


Diagram No. 8802-3

MARINE CHART BRANCH RECORD OF APPLICATION TO CHARTS

H-10352

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO.

INSTRU	CTIONS
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- 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.

		CARTOCRAPHER	made under "Companson with Charts" in the Review. REMARKS
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	i	2.3	Full Part Before After Manne Center Approval Signed Via
	Total Control		
	613 3		Drawing No.
			Drawing No.

MARINE CHART BRANCH RECORD OF APPLICATION TO CHARTS

H-10352

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO.

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.
 - nder "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
16315	10-3-90	Roset of marker	Ent Part Before siter Marine Center Approval Signed Via Partie application of
03/3		7.17	Drawing No. Indes from field Sheet
6305	10-23-90	Raute Alam Opmika	First Part Before when Marine Center Approval Signed Via Partial application of Drawing No. 3ndgs from field Sheet
16315	8-5-92	R.n. Miharte	Full Part Bariote After Marine Center Approval Signed Via FULL APPLICATION
			Drawing No. OF SNOGS FROM S.S.
6305	8/10/92	R.n.m. Park	Full Part Before After Marine Center Approval Signed Via Full application of Drawing No. SACGS. From SS,
530	10-4-93	PElliot	Full Part Before After Marine Center Approval Signed Via
330	10270	X. (300 sta)	Drawing No. 36 Re-exam, apply sndgs thru 16006 #27
		1	Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
4.			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.