

9305

Diag. Cht. No. 8556.

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey . HYDROGRAPHIC
Field No. RA-20-1-72
Office No. H-9305

LOCALITY

State ALASKA
General Locality SHELIKOF STRAIT
Locality WEST OF SHUYAK STRAIT

1972

CHIEF OF PARTY
CAPT. G.E. HARADEN

LIBRARY & ARCHIVES

DATE 4-25-75

9305

DESCRIPTIVE REPORT
TO ACCOMPANY HYDROGRAPHIC SURVEY

RA-20-1-72

H-9305

Scale 1:20,000

1972

NOAA Ship RAINIER

Gerard E. Haraden
Commanding

HYDROGRAPHIC TITLE SHEET

H-9305

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

FIELD NO.

RA-20-1-72

State Alaska

General locality Shelikof Strait

Locality West of ^{Shuyak Strait} Eagle Cape, Shuyak Island

Scale 1 : 20,000 Date of survey June 16-22, 1972

Instructions dated March 3, 1972 Project No. OPR-478-RA-72

Vessel NOAA Ship Rainier

Chief of party Capt. G.E. Haraden

Surveyed by Lt. (jg) R. A. Schiro, Lt. (jg) J. W. McCabe, Lt. (jg) W. F. Turncliff

Soundings taken by echo sounder, hand lead, pole Ross Model 5000 S.N. 1040

Graphic record scaled by Ships Personnel

Graphic record checked by Ships Personnel

Protracted by _____ Automated plot by PMIC - Gerber-Digital/Complot-DP-3 Plotter

Soundings penciled by _____

Soundings in fathoms xxx at xxx MLLW _____

REMARKS: The Modified Transverse Mercator Projection, soundings and position numbers on the boat sheet were plotted by the RAINIER'S PDP-8/e computer and COMLOT plotter.

Positions and soundings verified by John E Lotshaw, cartographic technician

*Applied to atlas 5/16/75
CAB*

A. PROJECT

The survey was conducted in accordance with PROJECT INSTRUCTIONS: OPR-478-RA-72, dated 3 March 1972 and Change Number 1, dated 24 March 1972 and Change Number 2, dated 2 May 1972. ✓

B. AREA SURVEYED

This 11.8 square mile survey is centered approximately 3 miles west of Eagle Cape off the western shore of Shuyak Island, Alaska. The survey is bounded on the east by longitude 152° 42' W, on the south by latitude 58° 30.5' N, and on the west by longitude 152° 50' W. The northern limit of the survey is bounded by a NW-SE line, the extension of which was completed 22 June 1972. Listed below are four prior surveys of this area: ✓

extending from lat. 58° 35.00', long 152° 49.60' to lat 58° 32.00', long 152° 42.50'

Reg. No.	Scale	Year
H-2980	1:200,000	1908
H-4576	1:20,000	1926
H-5193	1:40,000	1931
H-5194	1:120,000	1931

Junctions were also made with the following contemporary surveys:

	H-920 ⁹	1:40,000	1971
H-8307	RA-10-4-72	1:10,000	1972
H-8304	RA-10-5-72	1:10,000	1972

C. SOUNDING VESSEL

All soundings were obtained by Uniflite launch RA-6 (#1262). ✓
All of the bottom samples were collected by the NOAA Ship RAINIER except for two that were obtained by RA-6. The soundings along main scheme lines are shown in black ink. The cross-lines are shown in red ink. All bottom samples are denoted on the boat sheet by green circles. The soundings on the boat sheet were plotted by the Complot Plotter in combination with Digital Equipment Corporation PDP 8/e computer.

D. SOUNDING EQUIPMENT

Launch RA-6 used a Ross Model 5000 Recorder Number 1040 in depths from 0 to 115 fathoms. Bar checks, down to 7 fathoms, were taken twice daily and the results abstracted. ✓
The fathometer was calibrated and phase checked generally every day and no phase correction is necessary.

The Ross fathometer uses a stylus traveling in a straight line, thus no fine arc corrections were necessary. No abstract of initial correction was compiled in that any observed difference in the initial value appears only on the analog record and does not affect the digitized sounding. In check scanning the fathograms the initial correction was considered before reading the analog record. The fathogram was scanned continuously in the field by comparing it to the digitized values. Judicious use of the blanking function was made to eliminate spurious returns.

All corrections were logged onto the TC/TI tape. A 0.4 fathom draft correction was applied to the soundings obtained by the Uniflite launch.

Velocity corrections were computed from the bar checks and Nansen Cast taken on 21 June 1972 at latitude $58^{\circ} 32.6'$ N, longitude $152^{\circ} 51.1'$ W. The resulting velocity correction table was entered on tape and utilized via the TC/TI tape.

The above equipment operated well during all survey work. For further information on sounding equipment and corrections refer to Corrections To Echo Soundings, OPR-478, NOAA Ship RAINIER, 1972.

E. SMOOTH SHEET

The boat sheet's Modified Transverse Mercator Projection and soundings were plotted by RAINIER personnel using the onboard PDP 8/e Complot System. The boat sheet was prepared using a central meridian of $153^{\circ} 50'$ W and a control latitude of 6,301,000 meters North. Position numbers and Hi-Fix arcs were also plotted by the computer and plotter. The final smooth sheet will be plotted by PMC's Electronic Data Processing Division.

During the survey, personnel kept track of lost Hi-Fix lanes and updated the position input data so as to read the correct whole lane values. Any errors subsequently observed were entered on a corrector tape and applied to the boat sheet. The positions on this sheet have also been corrected for the partial lane corrections resulting from 3-point sextant fix calibrations before and after each period of hydrography. An abstract of these corrections appear in ~~the Separates~~ Appendix I following the text.

All soundings were plotted with draft (0.4 fathoms) and predicted tide corrections applied. The fathograms were scanned for peaks and deeps and compared against the printouts and all necessary corrections have been made.

Hourly heights will be furnished PMC Processing by the Ship. Reduction to MLLW, copies of the Marigrams, and verified copies of the hourly heights will be furnished by the tides division, Rockville. The smooth sheet will be plotted by the Pacific Marine Center's Electronic Data Branch. ✓

F. CONTROL

Hi-Fix electronic control, utilizing range-range mode, Type-A, moderate power, on frequency 1799.6kHz was used for position control throughout the survey. ✓

Slave station 1 was located on Nukshak Island, on the west shore of Shelikof Strait, Alaska. A 35 foot antenna was erected at approximately 125 feet above sea-level, on reference mark NUKSHAK RM 6 1971, latitude $58^{\circ} 23' 29.514''$ N and longitude $153^{\circ} 57' 40.528''$ W. The arcs generated by slave station 1 were drawn on the boat sheet with green ink.

Slave station 2 was located on Cape Douglas also on the western shore of Shelikof Strait. A 35 foot whip antenna was erected over triangulation station SOUTH DOUGLAS, 1908 latitude $58^{\circ} 50' 49.119''$ N and longitude $153^{\circ} 17' 47.572''$ W at an elevation of 178 feet above sea level. The arcs created by slave station 2 were drawn on the boat sheet with red ink.

The Hi-Fix receivers were calibrated at the beginning and end of each day's work. The calibration was accomplished by visual threepoint sextant fixes on previously established geodetic positions. A mathematical solution for three-point fixes was obtained by using program AM 560 in the PDP/8/e.

Before data cables on the launch were adequately shielded and grounded, interference, caused by the master transmitter on the launch, caused multiple lane gains and losses in the navigation interface. The interference did not affect the strip chart record. Lane losses can be seen by the jump in whole lanes annotated from the navigation interface on the strip chart and the jump in Hi-Fix values on the print out.

G. SHORELINE

There is no shore line within the limits of this survey. ✓

H. CROSSLINES

Crosslines on sheet RA-20-1-72 totaled 12.3 nautical miles or 17% of the total miles run. There is excellent agreement between main scheme and crosslines in all cases.

I. JUNCTIONS

Survey RA-20-1-72 junctions with the following surveys: ✓

	Field No.	Scale	Year	Color on boat sheet
H-9303	RA-10-4-72	1:10,000	1972	Blue
H-9304	RA-10-5-72	1:10,000	1972	Green

Both contemporary surveys show excellent agreement with this survey, as shown by the excellent junctioning of depth curves between the surveys.

J. COMPARISON WITH PRIOR SURVEYS

There is only one Presurvey review item within this survey a $7\frac{1}{2}$ fathom sounding at latitude $58^{\circ} 31' 42''$ and longitude $152^{\circ} 42' 50''$. Investigation of this item revealed a 5.2 fathom shoal at latitude $58^{\circ} 31' 32''$ N and longitude $152^{\circ} 42' 50''$ W. ~~300 meters south of the charted $7\frac{1}{2}$ fathom shoal.~~ See Review sect. 6-A-1 ✓

There are five prior surveys in this area which are listed under B. Area Surveyed. All of the prior surveys show excellent agreement. ✓

K. COMPARISON WITH THE CHARTS

This survey was compared with charted soundings on charts 8533 (4th Ed. April 7/'69, 1:78,000) and 8573 (3rd Ed. June 16/'69, 1:20,000). The sounding comparison is excellent in all cases. ✓

L. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede all prior surveys for charting. ✓

M. AIDS TO NAVIGATION

No aids to navigation exist in the RA-20-1-72 survey area. ✓

N. STATISTICS

Sheet RA-20-1-72 contains $24\frac{5}{8}$ positions, 83.1 nautical miles of sounding lines, approximately 11.8 square nautical miles of survey area and 10 bottom samples. ✓

O. DATA PROCESSING

All data was recorded in master tape format using the on-line Hydrolog system controlled by program AM 170. Corrector tapes were prepared using the standard Hydrolog format for all peaks, deeps, sounding and control changes. ✓

Separate master tapes and corrector tapes were prepared for each day. Standard formats, as specified in the INSTRUCTION MANUAL, Automated Hydrographic Surveys, were used for the TC/TI and Velocity Correction tapes. ✓

Note: TRA corrector values and velocity table numbers shown on the Hydroplot/Hydrolog tapes are to be ignored for processing at Pacific Marine Center. The correct data is listed on the TC/TI tape.

P. RECOMMENDATIONS

None. ✓

Q. REFERENCES TO REPORTS

1. Corrections to Echo Soundings, OPR-478, NOAA Ship RAINIER, 1972.* ✓
2. Hi-Fix Report, OPR-478, NOAA Ship RAINIER, 1972.*

*To be submitted

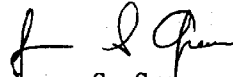
Respectfully submitted,

Wayne F. Turna
for Wayne F. Turnacliff
Lt.(jg), NOAA

APPROVAL SHEET

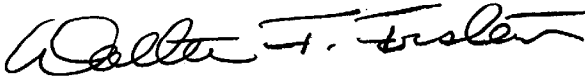
The smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual, except as noted in the Verifier's Report.

Examined and approved,



James S. Green
Supervisory Cartographic Technician

Approved and forwarded,



Walter F. Forster, Cdr., NOAA
Chief, Processing Division
Pacific Marine Center

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center:

Hourly heights are approved for Form 362

Tide Station Used (NOAA Form 77-12): Hogg Island

Period: June 4 - August 22, 1972

HYDROGRAPHIC SHEET: H9305

OPR: 478

Locality: Shelikof Strait

Plane of reference (mean lower low water): 3.6 ft.

Height of Mean High Water above Plane of Reference is 12.8 ft.

Remarks: Zone direct on Hogg Island.

Gene R. Hubbard
for Chief, Tides Branch

✓

~~APPENDIX I~~
~~SEPARATES FOLLOWING THE TEXT~~

1. Tide Note
2. Abstract of Corrections to Echo Soundings (*Filed in cahier with fath.*)
3. List of Calibration Signals
4. Hi-Fix Correctors (*Filed in cahier with fath.*)

TIDE NOTE

RA-20-1-72

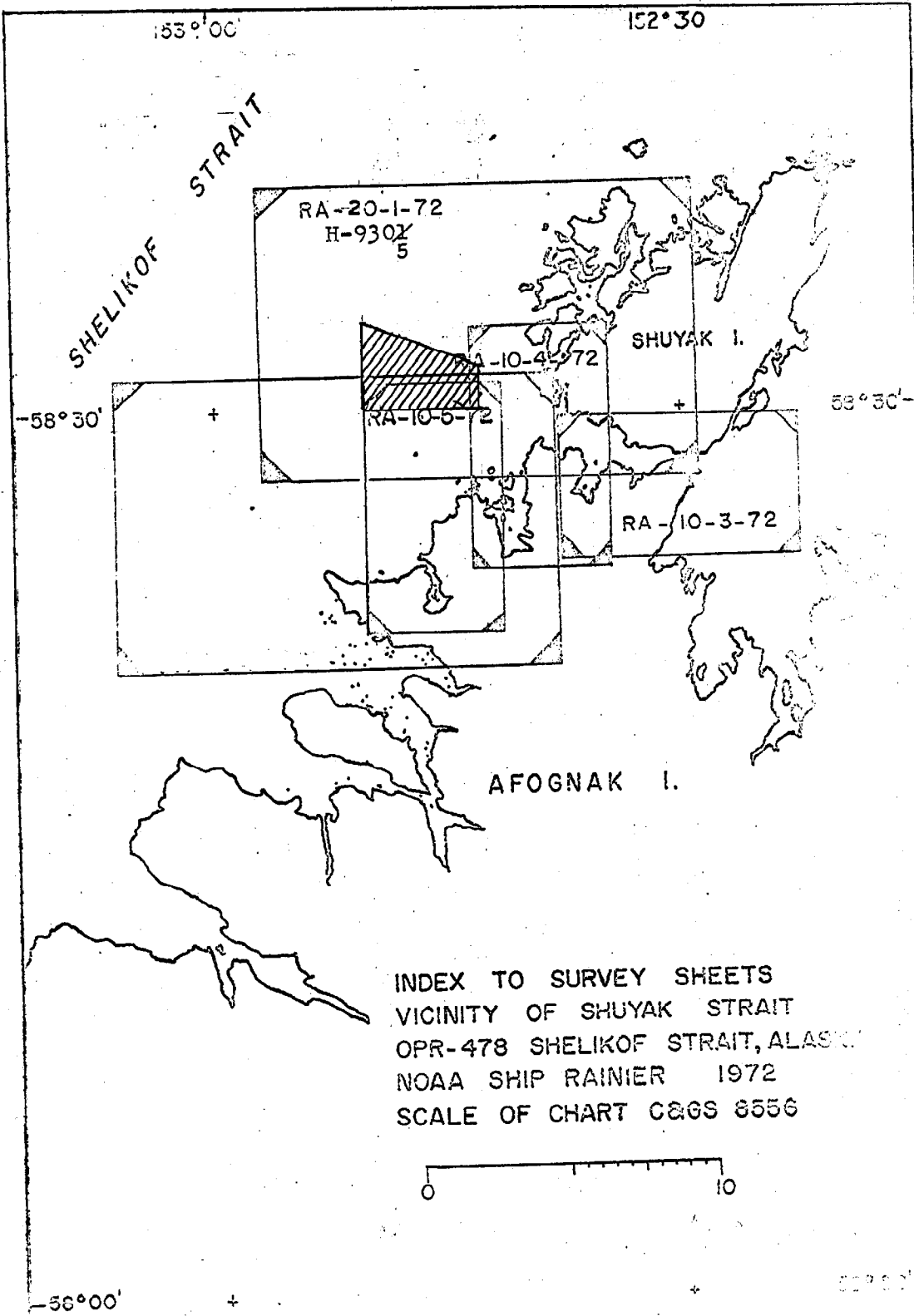
It is recommended that the tide stations established at Hogg Island, Bluefox Bay, Afognak Island (latitude $58^{\circ} 27.6'$ N and longitude $152^{\circ} 41.9'$ W) be used to control the soundings on this survey. This gage operated on time meridian 135° W. Hourly heights will be furnished PMC processing division by the ship. Reduction to MLLW, copies of the marigrams, and verified copies of the hourly heights will be furnished by Tides Division, Rockville.

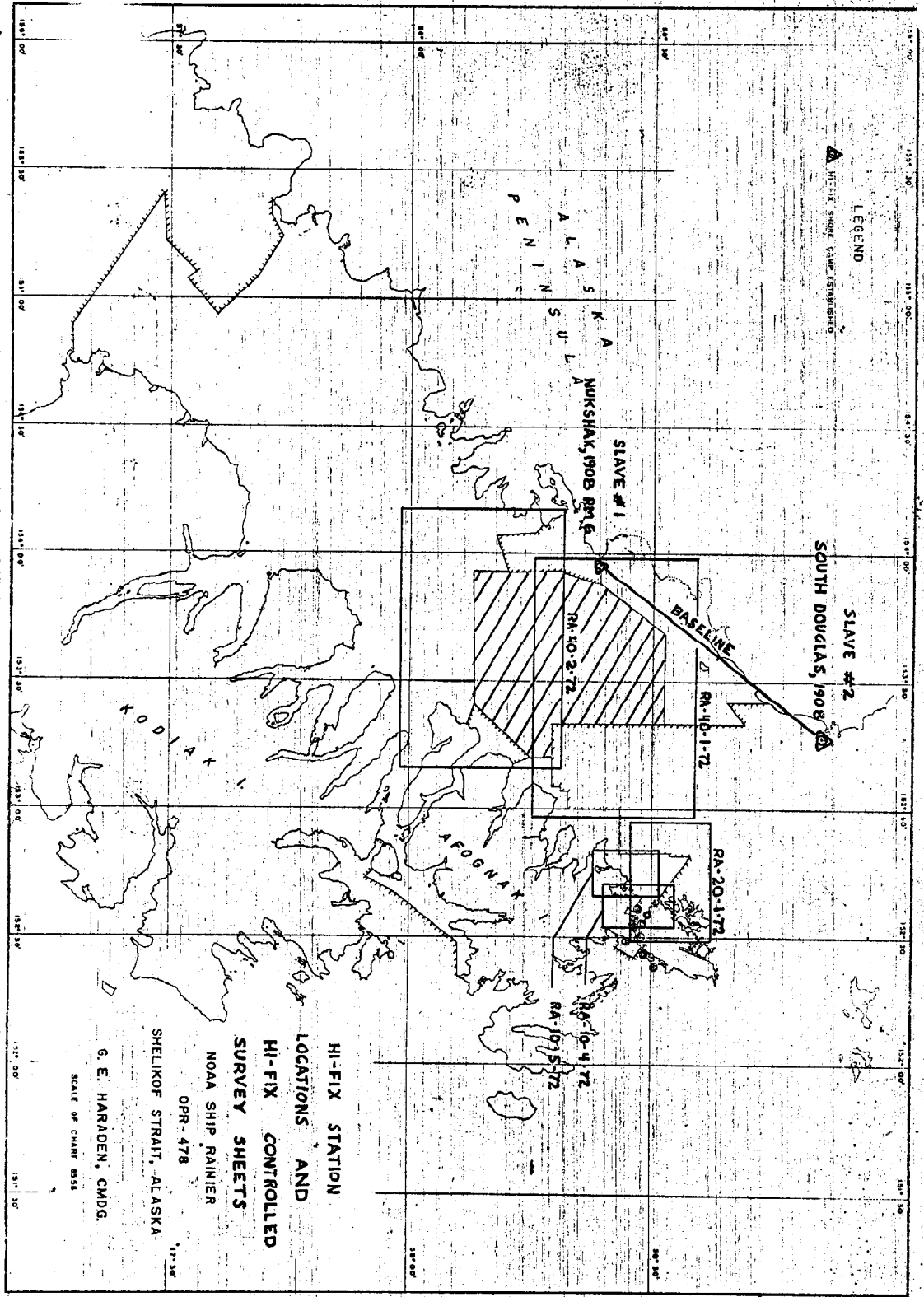
Predicted tides for the boat sheet were obtained from the Tide Tables, 1972, North American Coast using the Red Fox Bay subordinate station. The tides were applied directly to the data when plotted by the computer.

LIST OF CALIBRATION SIGNALS

APPENDIX II

1. Index to Survey Sheets
2. Sketch of Hi-Fix Station Locations
3. Abstract of Positions *Filed in cahier with fathograms*
4. C&GS Form 733-M Bottom Sample Data " " " " "
5. Parameter Tape Listing of RA-20-1-72 " " " " "
6. Approval Sheet





LEGEND

▲ HI-FIX STATION
 ● HI-FIX STATION CAMP ESTABLISHED

SLAVE #2
 SOUTH DOUGLAS, 1908

SLAVE #1
 NURSHAN, 1908

BASELINE

RA-10-1-72

RA-10-2-72

RA-20-1-72

RA-10-4-72

RA-10-5-72

HI-FIX STATION

LOCATIONS AND

HI-FIX CONTROLLED

SURVEY SHEETS

NOAA SHIP RAINIER

OPR-478

SHELIKOF STRAIT, ALASKA

G. E. HARADEN, CMDG.

SCALE OF CHART 1:558

APPROVAL SHEET

OPR-478

RA-20-1-72

The field work and data were examined daily during this survey. The survey is considered adequate and no additional field work is recommended.

The boat sheet and accompanying records are approved for transmittal to PMC Processing Division.

GE Haraden

G. E. Haraden
CAPT, NOAA

GEOGRAPHIC NAMES

9305 ✓

Name on Survey	A	ON CHART NO.	B	ON PREVIOUS SURVEY NO.	C	ON U.S. QUADRANGLE MAPS	D	FROM LOCAL INFORMATION	E	ON LOCAL MAPS	F	P.O. GUIDE OR MAP	G	GRAND McNALLY ATLAS	H	U.S. LIGHT LIST	K
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APPROVED
Chas. E. Harrington
 STAFF GEOGRAPHER
 5 AUG 1975

HYDROGRAPHIC SURVEY STATISTICS
 HYDROGRAPHIC SURVEY NO. H-9305

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET & PNO		1	BOAT SHEETS		1	
DESCRIPTIVE REPORT		1	OVERLAYS		3	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES			1			
CAHIERS	1					
VOLUMES						
BOXES						

T-SHEET PRINTS (List)

SPECIAL REPORTS (List)

All records for this survey are contained in one cahier, as listed above

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				245*
POSITIONS CHECKED		245		
POSITIONS REVISED		2		
DEPTH SOUNDINGS REVISED		150		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		0		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
Verification of Control		3	0	
Verification of Positions ^{Junctions}		4	4	
Verification of Soundings		53	1	
Smooth Sheet Compilation		30	0	
ALL OTHER WORK		16	25	
TOTALS		106	30 hrs	
PRE-VERIFICATION BY N.L. Lestenkof	BEGINNING DATE 1/7/74	ENDING DATE 2/11/74		
VERIFICATION BY <i>J. E. Lotshaw</i> J.E. Lotshaw	BEGINNING DATE 11/11/74	ENDING DATE 4/11/75		
REVIEW BY <i>Kenneth W. Wellman</i> INSPECTION - F.A. SAULSBURY	BEGINNING DATE 8-18-75	ENDING DATE 8-22-75		

INSPECTION - F.A. SAULSBURY

Carroll

2 hr 9/1/76

REGISTRY NO. H-9305

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey, the following shall be completed:

CARDS CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

REGISTRY NO. H-9305

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

H-9305

Items for Future Presurvey Reviews

Most of the bottom changes are attributed to the surveying methods employed on the prior surveys.

<u>Position</u>	<u>Index</u>	<u>Bottom Change</u>	<u>Use</u>	<u>Resurvey</u>
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle</u>
583	1525	3	2	50 years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE SURVEYS DIVISION

MODIFIED HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9305

FIELD NO. RA-20-1-72

Alaska, Shelikof Strait, West of Shuyak Strait

SURVEYED: June 16-22, 1972

SCALE: 1:20,000

PROJECT NO.: OPR-478

SOUNDINGS: Ross Digital Depth Recorder
(Model 5000)

CONTROL: Hi-Fix
(Range-Range)

Chief of Party	G. E. Haraden
Surveyed by	R. A. Schiro
.....	J. W. McCabe
.....	W. F. Turnacliiff
Automated Plot by	Gerber Digital Plotter (PMC)
Verified by	J. E. Lotshaw
Reviewed by	K. W. Wellman
.....	Date: August 22, 1975
Inspected by	F. P. Saulsbury

1. Control and Shoreline

The origin of control is given in part F of the Descriptive Report

There is no shoreline within the limits of this survey.

2. Hydrography

A. Depths at crossings are in good agreement.

B. The usual depth curves are adequately delineated. A few dashed curves were added to emphasize isolated shoal depths.

C. The development of the bottom configuration and the investigation of least depths are considered adequate.

3. Condition of the Survey

The sounding records, automated plotting and Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual supplemented by the Instruction Manual - Automated Hydrographic Surveys except

that the Descriptive Report Data Record and Form No. 3, Computer Parameters for Electronically Controlled Surveys, forms were not initiated or included in the Descriptive Report as required by the automated surveys manual.

4. Junctions

An adequate junction has been effected with H-9209 (1971) on the west. The junctions with unverified surveys H-9303 (1972) on the east and H-9304 (1972) on the south will be considered in their respective reviews.

Present depths are in general harmony with charted depths on the northeast where no contemporary surveys junction with the present survey.

5. Comparison with Prior Surveys

A. H-2980 (1908-09) 1:200,000

This prior survey covers most of the area of the present survey; however, no further consideration or discussion is necessary in the present review.

B. H-4576 (1926) 1:20,000 H-5193 (1931) 1:40,000 H-5194 (1931) 1:120,000

These prior surveys cover most of the area of the present survey. A comparison between the prior surveys and the present survey reveals generally stable bottom with minor differences of ± 1 fathom in depths greater than 20 fathoms. In lesser depths, some soundings of the present survey are as much as 2 to 4 fathoms shoaler than prior depths. These depth differences are attributed mainly to the less accurate methods employed on the prior surveys and to some slight natural changes in the bottom.

The depth curves on the present survey follow the same general configuration as on the prior survey; however, the 20 and 30 fathom curves have shifted generally westerly and southwesterly respectively, connecting formerly isolated segments of corresponding depths and discrediting the continued existence of the intervening 1 to 2 fathoms deeper depths.

With the addition of soundings and bottom characteristics carried forward from prior surveys, the present survey is adequate to supersede the prior surveys within the common area.

6. Comparison with Chart 16604 (formerly 8533) latest print date 4/21/73 16605 (formerly 8573) latest print date 6/7/75

A. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration supplemented by the partial application of the boat sheet (Bp 85278) and verified smooth sheet of the present survey.

Attention is directed to the 7 1/2-fathom sounding charted in latitude 58°31.68', longitude 152°42.83' which originates with the boat sheet of the present survey (Bp 85278). The sounding is an unnumbered Presurvey Review item that was erroneously transferred to the boat sheet approximately 300 meters north of its correct position. This sounding should be deleted from the chart.

Except as noted above the present survey is adequate to supersede the charted hydrography within the common area.

B. Aids to Navigation

There were no aids to navigation within the area of the present survey.

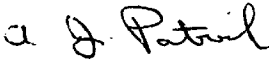
7. Compliance with Instructions

This survey adequately complies with the Project Instructions.

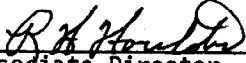
8. Additional Field Work

This is an excellent basic survey and no additional field work is recommended.

Examined and Approved:



Chief
Marine Surveys Division



Associate Director
Office of Marine Surveys
and Maps

