

10137

Diagram No. 8556-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. RA-20-3-84
Office No. H-10137

LOCALITY

State Alaska
General Locality Barren Islands
Locality Ushagat Island and Vicinity

19 84

CHIEF OF PARTY
CDR J.P. Vandermeulen

LIBRARY & ARCHIVES

DATE October 25, 1985

U.S. GOV. PRINTING OFFICE: 1980-766-230

10137

Area 5

CHTS

*16014
16640
16580
16513
530
531*

*7102
100
to sign off on
Record of Application*

HYDROGRAPHIC TITLE SHEET

H-10137

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

FIELD NO.

RA 10-3-84

State AlaskaGeneral locality Barren IslandsLocality Ushagat IslandScale 1:20,000 Date of survey June 15 to August 20, 1984Instructions dated February 16, 1984 Project No. OPR-P114-RA-84Vessel NOAA Ship RAINIER (2120)Chief of party CDR J. P. Vandermeulen, NOAASurveyed by Lt. S. Iwamoto, Lt. T. Rulon, LT (jg) S. Konrad, ENS J. Judson
ENS K. Barton, ENS J. Griffin, ENS C. Wilson, ENS K. PickettSoundings taken by echo sounder, hand lead, ~~XXX~~Graphic record scaled by RAINIER Survey DepartmentGraphic record checked by RAINIER Survey DepartmentVerification PMC~~XXXXXXXX~~ by R. Mueller Automated plot by Xynetics Plotter

Evaluation

~~XXXXXXXX~~ on by C.R. DaviesSoundings in fathoms ~~XXXX~~ at ~~XXX~~ MLLW and tenths of FATHOMSREMARKS: All times are in UTC. Marginal notes in black by Evaluator. Separates
are filed with the Hydrographic data.STANDARDS CK'D 10-29-85C. LayDUVOIS / SURF 17517 4/86SP4-16-97

152° 20'

152° 00'

151° 40'

151° 20'

PROGRESS SKETCH

CPR-PII4-RA-84

HYDROGRAPHIC SURVEY

SOUTHERN COOK INLET, ALASKA

59° 20' JUNE 16 - JULY 31, 1984

NOAA SHIP RAINIER

JOHN P. VANDERMEULEN, CDR., NOAA

COMD'G

JUN	JUL	AUG	SEP
38	25	26	98
447	3	13	62
359	0	1	66
7	13		
0	0		
8	8		
0	1		
0	0		
1	1		
4	0		
12	6		
2	0		

SO NM SOUNDING

LNM SOUNDING LINE

LNM MISCELLANEOUS DISTANCE

BOTTOM SAMPLES (GRAB)

WATER SAMPLES ANALYZED (SALINITY)

CONTROL STATIONS (ELECTRONIC)

SOUND VELOCITY, TEMPERATURE, DEPTH

NANSEN CAST

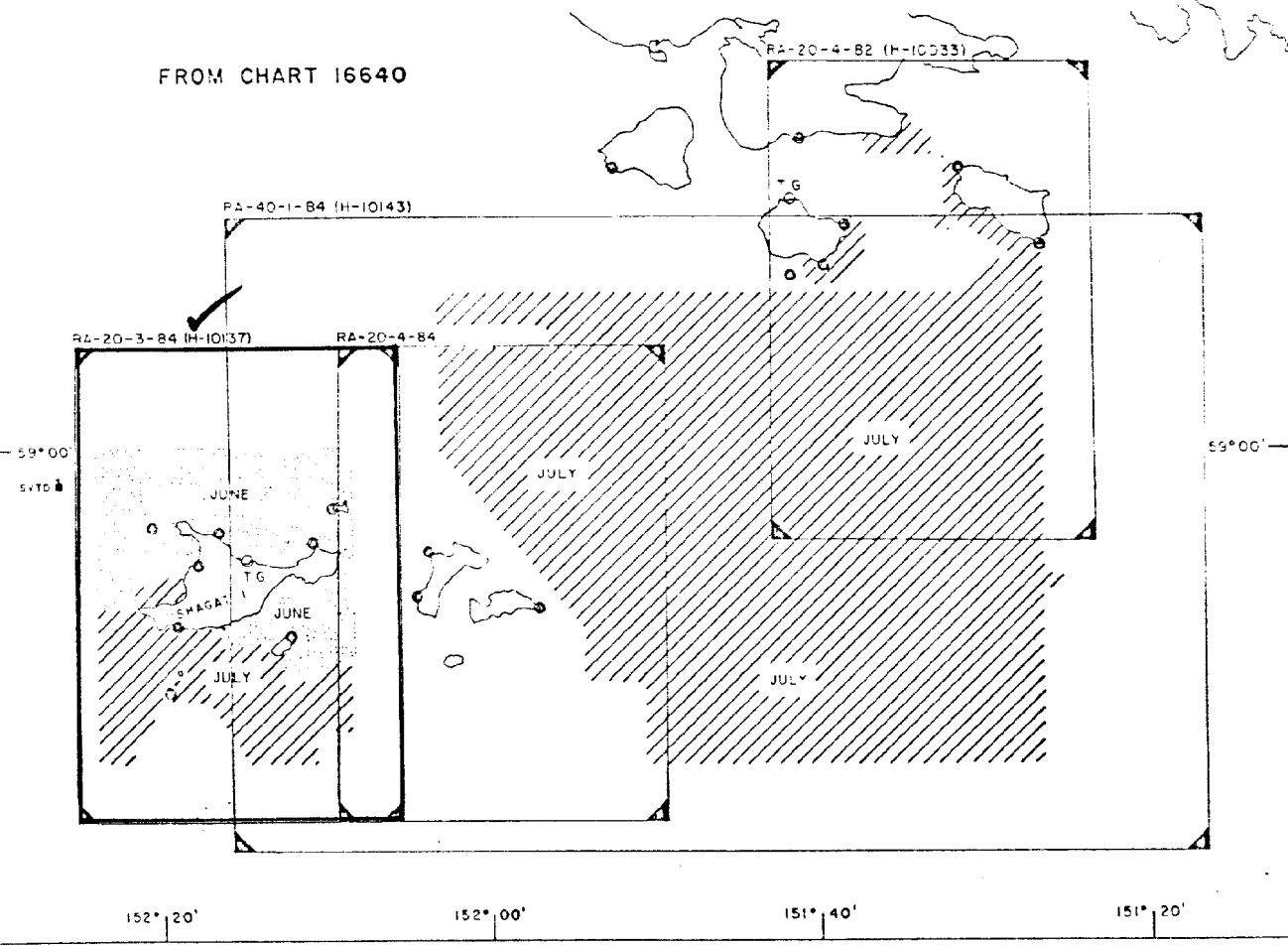
TIDE GAGE

STATIONS ESTABLISHED BY TRAVERSE

LNM SIDE SCAN SONAR

SO NM SIDE SCAN SONAR

FROM CHART 16640



59° 00'

SVTD

59° 00'

152° 20'

152° 00'

151° 40'

151° 20'

<u>VESSEL</u>		<u>DATES</u>	<u>SOUNDING EQUIPMENT</u>	<u>SERIAL NO</u>
RA-3	(2123)	JD 169-233	Raytheon DSF-6000N	A119N
RA-4	(2124)	JD 169-172 JD 173-233	Raytheon DSF-6000N Raytheon DSF-6000N	A115N A117N
RA-5	(2125)	JD 182-233	Raytheon DSF-6000N	A123N
RA-6	(2126)	JD 169-233	Raytheon DSF-6000N	A103N

Both hardware and operational problems were encountered with the DSF-6000N echo sounders which were especially noticeable while in shallow water and operating in the dual beam/high digitize mode. For further details regarding this and other information relating to corrections to echo soundings see Corrections to Echo Soundings Report OPR-P114-RA-84.

The DSF-6000N echo sounders were operated primarily in the dual beam/high digitize mode. Approximately 5 percent of the time the high frequency beam could not track the bottom and instead appeared as noise on the graphic record. When this occurred the depth values were scanned from the medium frequency beam trace, or, at times, the echo sounders were operated in the wide beam only mode. There were no discrepancies at the junctions of the wide beam and narrow beam data as the two traces were in close agreement at the points of changeover.

All soundings were taken from the launches under Mini-Ranger Range-Range or Range-Azimuth control. Since the echo sounding transducers on launches are directly below the Mini-Ranger R/T units the ANDIST associated with these survey data is 0.0 meters. The final field sheets are plotted with this ANDIST value.

Bar checks were conducted at least once daily for both beams of the DSF-6000N echo sounder as per the Provisional Operating and Processing Instructions for the DSF-6000N Echo Sounder. All bar checks were performed within the survey area. They were used to confirm proper system function, and bar check data were combined with velocity data to determine launch TRA correctors. The TRA for the wide and narrow beams were within 0.1 fathom of each other and were averaged together to obtain a single TRA value.

These TRA calculations resulted in a 0.3 fathom TRA for launches 2123, 2125 and 2126 and a 0.2 fathom TRA for launch 2124. The 0.2 fathom TRA differs from the historical value of 0.3 fathoms when using the Ross echo sounder. This difference is due to an apparent instrument error of 0.1 fathom. The final smooth^{field} sheet was plotted with a preliminary TRA of 0.3 fathoms for all launches. The smooth sheet was plotted with a 0.2 fathom TRA corrector for vessel 2124.

Velocity corrections were derived from one SV/D cast and one Nansen cast taken during the survey. Two tables were created, each covering a specific period of time to account for the rise in water temperature during the survey. The velocity correctors apply to both beams of the DSF-6000N echo sounders and to all launches. The survey was plotted with a preliminary velocity correction table. Printouts of velocity tables are included in the separates following the text.

VELOCITY CASTS

<u>CAST NUMBER</u>	<u>DATE</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>
1 (SV/D)	03 JULY (184)	58-58-54N	152-26-12W
2 (Nansen)	02 AUGUST (214)	59-01-12N	151-54-42W

VELOCITY CASTS

<u>TABLE NUMBER</u>	<u>BASED ON CAST</u>	<u>APPLIABLE PERIOD</u>
4	1	JD 169-193
5	2	JD 214-233

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

E. HYDROGRAPHIC SHEETS ✓

Two field sheets designated RA-20-3E-84 and RA-20-3W-84 were prepared on the RAINIER using the PDP/8/E Hydroplot system which produces modified transverse Mercator projections. Smooth field sheet RA-20-3E-84 was plotted by SST Hastings and RA-20-3W-84 was plotted by ST Niland. Expansion sheets were prepared of areas which were developed, and a 1:10,000 scale field sheet was prepared for the sidescan work. A list of parameters used to define these field sheets is provided in the separates following the text.

All data and accompanying field records will be sent to Pacific Marine Center for verification.

F. CONTROL STATIONS ✓

Horizontal Control for survey H-10137 was provided by the recovery of 10 existing stations and the establishment of four new stations. These stations are listed below:

<u>Recovered Stations</u>	<u>New Stations</u>
BARE 1931 1984	SANDRA 1984
GRAY 1931	VAN 1984
PORT 1931	*SHAG TP
GATE 1931	*SHAG RMI
CHAR 1931	
MIC 1931	
LION 1931	
RIDGE 1931	
SUD 1931	
HEAD 1931 1975 1984	

*Preliminary geographic positions were used for SHAG TP and SHAG RMI. Final positions will be included in the Horizontal Control Report. *Field geographic positions were used to plot the smooth sheet.*

Misclosures were observed to two existing stations, HEAD 1931 ~~1975~~ and BARE 1931. New positions were calculated for these stations.

A copy of the master station list is included as part of this report. All stations are third order, Class 1, or better. New stations were established by third order traverse.

Details concerning geodetic control for this survey can be found in the Horizontal Control Report, OPR-114-RA-84.

G. HYDROGRAPHIC POSITION CONTROL ✓

Range/Range and Range/Azimuth were the methods used for hydrographic position control. Motorola Mini-Ranger III and Wild Theodolites (S/N 75599, 73226, and 68648) were the instruments used.

MINI-RANGER MOBILE EQUIPMENT

<u>Vessel</u>	<u>Console</u>	<u>R/T S/N</u>	<u>Applicable Dates</u>
2123	720	2710	6/15-8/20/84
2124	B0269	B1388	6/15-8/20/84
2125	715	1635	6/15-7/3/84
2125	715	911615	7/6-8/20/84
2126	711	B1405	6/15-8/20/84

MINI-RANGER SHORE EQUIPMENT

<u>Code</u>	<u>Transponder S/N</u>	<u>Station Numbers</u>
A	1645	105,214,205
B	4951	101,104
D	1569	104,206
E	911721	103,106,214
F	911711	100,104,107,205
0	C1789	104,205,211,203
1	C1883	200,211,212,214
2	B1106	102,206
3	1628	104,105

CALIBRATIONS AND PERFORMANCE

Mini-Ranger calibrations and systems checks were performed in accordance with PMC OORDER, Appendices M and S.

Initial Mini-Ranger baseline calibrations for this project were conducted at Lake Union, Seattle, Washington on 22 and 23 May 84. Following the failure of the R/T unit with console 715, and subsequent replacement, a baseline calibration for the new combination was performed on 6 July 84 at Elmendorf AFB, Anchorage, Alaska. Ending baseline calibrations for this survey were conducted on the Homer Spit, Homer, Alaska on 24 and 25 August 1984.

Only initial correctors were used to plot the smooth field sheet. The initial calibrations also determined the minimum signal strength cutoff values for each system. Daily system checks were performed using the launch to launch comparison, baseline crossing, or three-range method. Weekly critical checks were performed, using either three point sextant fix with check angle or two theodolite angles to confirm baseline correctors. Final base line correctors are not included with the data submitted with this report. For more information regarding calibrations and systems checks, refer to the Electronic Control Report, OPR-P114-RA-84. *Electronic control abstracts and final baseline correctors used for this survey includes the final baseline correctors.*

Mini-Ranger performance was generally good. All transponders were set up on third order, class I (or better) geodetic stations.

H. SHORELINE✓

Shoreline was applied to the field sheet from unregistered shoreline manuscripts TP-00825 and TP-00826. Field edit was performed during the course of this survey. Hydrography was sometimes conducted into areas considered foul by the field edit. Rocks located by the hydrographer are shown in red on the smooth sheet. Reference numbers for shoreline verification were not used by the hydrographer because shoreline verification was accomplished by the field editor.

Class III

*See Evac
Report Section
2*

I. CROSSLINES✓

A total of 52.5 nautical miles of crosslines were run during the survey, representing 5.1 % of the mainscheme mileage. Agreement of soundings at crossings was excellent, generally within 1 fathom and not exceeding 2 fathoms in areas of steep bottom gradients.

J. JUNCTIONS✓

This survey junctions to the north and west with contemporary survey H-10105, a 1:40,000 scale survey done in 1983. This survey also junctions to the east with RA-20-4-84, H-10149. All sounding comparisons were within 2 fathoms and countour lines continued in a smooth line with no abrupt changes.

*See Evac
Report Section
5*

K. COMPARISON WITH PRIOR SURVEYS ✓

There were no Pre-Survey Review items assigned to this survey. This survey was compared to the following prior surveys:

See FVAC
Report Section 6

SURVEY	SCALE	YEAR
H-3805	1:120,000	1915
H-5194	1:120,000	1931
H-5193	1:40,000	1931
H-5192	1:40,000	1931
H-5189	1:20,000	1931

All sounding comparisons were good, within 1 or 2 fathoms, except as stated below.

H-5194 and H-3805

These surveys overlapped only in small areas, and in conjunction with the large scale difference, a meaningful comparison could not be made. No charted soundings originate with these two surveys

concur

H-5193

A 41 fathom charted sounding at 58°50'03" N and 152°16'10" W should be superseded by a 38 fathom sounding on the present survey at latitude 58°50'04.93" N, longitude 152°16'04.68" W.

concur

H-5192

A 50 fathom charted sounding at 58°59'42" N and 152°13'20" W should be superseded by a 47 fathom sounding on the present survey at latitude 58°59'43.48" N, longitude 152°13'18.44" W.

concur

H-5189

TABLE 1 shows soundings that were not in agreement and should be superseded by the present survey:

Concur

TABLE 1

<u>Prior Depth (fm)</u>	<u>Present Depth (fm)</u>	<u>Location</u>	<u>Charted</u>
12	9.8 11.1	58/54/24 N 152/15/1 2 ₃ W	NO
14	6.2 6.8	58/52/0 8 ₃ 152/19/40	NO
35	29	58/51/25 152/19/3 0 ₂₉	NO
47	40	58/51/35 152/17/0 0 ₈	YES
13	9.3 10.2	58/53/2 8 ₆ 152/12/2 8 ₆	NO
22	18 17.6	58/51/57 152/19/5 2 ₁	YES
17	8.7 9.5	58/52/08 152/18/58	NO
*7.2	4.8 4.4	58/58/2 8 ₄ 152/08/1 7 ₈	NO

TABLE 2 shows soundings that were not in agreement and should not be superseded by the present survey because they were not specifically disproven.

TABLE 2

<u>Prior Depth (fm)</u>	<u>Present Depth (fm)</u>	<u>Prior Location</u>	<u>Charted</u>	
21	24 2	58/53/26 N 152/11/05 W	YES	21-fathom sounding was transferred to the smooth sheet from H-5189 (1931)
15	19.8 18	58/52/07 152/15/32	YES	15-fathom sounding was transferred to the smooth sheet from H-5189 (1931)
12	12 17	58/58/23 152/09/24	YES	chart according to smooth sheet.

*This area will be further developed on survey H-10149.

TABLE 3 indicates the results of developments of significant peaks in the survey area.

TABLE 3

Expansion No.	H-10137 Lat/Long	Present depth	Prior depth	Charted	Chart present survey depths except as noted below
1	58/56/ ¹⁹ 28 N 152/08/50 W	15 14	18	NO	
3	58/57/2 ¹ 1 152/15/45	11.9 10.8	10	NO	
4	58/58/27 152/17/5 ⁷ 7	11.6 10.9	12	YES	
4	58/58/10 152/17/30	10. ⁶ 8	12	NO	
* 5	58/56/2 ⁸ 8 152/19/42	5. ³ 8	5.8	YES	
6	58/55/3 ⁵ 7 152/10/55	10. ⁸ 2	13	YES	
6	58/55/40 154/10/5 ⁰ 49	10.5 6.2	11	NO	
6	58/55/4 ⁸ 4 152/10/03	4. ⁵ 6	11	YES	
7	58/52/5 ⁴ 7 152/12/35	9.4 8.8	11	YES	
8	58/53/1 ² 2 152/16/25	13.4 11	12	NO	Remain as charted
9	58/54/33 152/22/0 ⁷ 6	10.3 9.9	16	NO	
10	58/53/28 152/18/3 ² 1	11.4 10.7	13	YES	
11	58/52/30 152/21/35	9.9 10.3	12	YES	
12	58/52/ ²⁴ 18 152/18/5 ⁰ 1	9.5 10.0	18	NO	
12	58/52/08 152/18/58	9.5 8.7	17	NO	
13	58/53/3 ⁴ 4 152/11/45	7.0 6.8	11	YES	

In all cases the depth from the present survey should be used for charting, except where noted above. *concur*

* (A dive investigation was made on this submerged rock pinnacle on JD 215.)

L. COMPARISON WITH CHART

H-10137 was compared to the following:

<u>Chart Number</u>	<u>Scale</u>	<u>Editions</u>	<u>Date</u>
16606	1:77,000	7th	Oct. 20, 1979

Present charted soundings originate with the prior surveys discussed in section K. There are no dangers to navigation identified or reports submitted by the ship for this survey. Six dangers to navigation were identified during the Preprocessing Examination, Oct. 24, 1984.

See Eval Report section 7

The following charted features, which do not exist on any prior surveys, are considered disproven by hydrography and field edit through visual inspection at low water and should be removed from the chart.

concur
see Eval Report section 7

<u>Features</u>	<u>Source</u>	<u>Latitude</u>	<u>Longitude</u>
Rock (bares)	TP00825 class III	58/54/07 ⁸ N	152/21/00 ³ W
Islet	TP00825 class III	58/54/40 ²	152/21/32 ⁰
Rock (bares)	TP00825 class III	58/55/23	152/19/09 ⁸
Islet	TP00825 class III	58/56/30	152/14/54 ²
Rock	Air Photo	58/56/4A ⁰	152/15/00 ^{14 54}

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede all prior surveys for charting purposes except as noted in section K.

See Eval Report section 6

N. AIDS TO NAVIGATION

There are no Aids to Navigation within the limits of this survey.

concur

O. STATISTICS

Sounding Vessel	Linear Nautical Miles of Hydro	Square Nautical Miles of Hydro	Number of Positions
2123	247.5		1109 1157
2124	433.7		1913 1686
2125	70.1		504 552
2126	273.3		1925 1719
TOTAL	1024.6	82.55	5451 5116

Bottom Samples: 1720
Velocity Casts: 2
Tide Stations: 1

P. MISCELLANEOUS ✓

Some very substantial tidal currents were observed in the survey area. These currents were especially strong around the smaller islands and islets. Work was generally performed in these areas at times when the currents were at a minimum. See *smooth sheet for locations*.

Bottom samples were not submitted to the Smithsonian Institute.

Q. RECOMMENDATIONS ✓

This survey is complete and no additional field work is *concur* recommended.

R. AUTOMATED DATA PROCESSING ✓

Data acquisition and processing were accomplished in accordance with the Hydrographic Manual (Fourth Edition), Manual of Automated Hydrographic Surveys, the PMC OORDER, Hydrographic Survey Guidelines and the Hydrographic Data Requirements for 1984.

Soundings and positions were collected by a Hydroplot system using Hyperbolic Range/Range Hydroplot program RK 112 and Range-Azimuth Hydroplot program RK 116. Daily master tapes and corresponding corrector tapes include the TRA for the sounding vessels, electronic control baseline correctors for Mini-Ranger consoles and R/T units, and all depth corrections. Velocity tapes were generated from SV/D and Nansen cast data. The following is a list of all computer programs and version dates used for data acquisition or processing:

<u>Number</u>	<u>Description</u>	<u>Version</u>
RK 112	Hyperbolic, R/R Hydroplot	4/23/84
RK 116	Range-Azimuth Hydroplot	4/28/84
RK 201	Grid, Signal, and Lattice Plot	4/18/75
RK 211	Range/Range Non-Real Time Plot	2/13/84
RK 212	Visual Station Table Load	4/01/74
RK 216	Range/Azimuth Non-Real Time Plot	2/24/84
RK 300	Utility Computations	10/21/80
RK 330	Reformat and Data Check	5/04/76
PM 360	Electronic Corrector Abstract	2/02/76
RK 407	Geodetic Inverse/Direct Computation	9/25/78
AM 500	Predicted Tide Generator	11/10/72
RK 530	Layer Corrections for Velocity	5/10/76
RK 561	H/R Geodetic Calibration	12/01/82
AM 602	Elinore-Line Oriented Editor	12/08/82
AM 606	Tape Duplicator	8/22/74

<u>Number</u>	<u>Description</u>	<u>Version</u>
AM 607	Self-Starting Binary Loader	8/10/80
RK 610	Binary Tape Duplicator	12/01/82
RK 612	Line Printer List	3/22/78
RK 900	Plot Test Tape Generator for AM902	5/07/76
RK 901	Core Check	3/01/72
AM 902	Real Time Checkout	11/10/72
DA 903	Diagnostic-Instruction Timer	2/27/76
RK 905	Hydroplot Controller Checkout	3/18/81
RK 935	Hydroplot Hardware Tests	3/15/82


The HP9815A programmable calculator was used to compute the geographic positions of control stations.

S. REFERENCES TO OTHER REPORTS ✓

The following reports contain information related to this survey.

Echo Sounding Report	OPR-P114-RA-84
Electronic Control Report	OPR-P114-RA-84
Horizontal Control Report	OPR-P114-RA-84
Coast Pilot Report	OPR-P114-RA-84
Field Edit Report	OPR-P114-RA-84

Respectfully submitted,



Mark H Pickett
ENS NOAA

To accompany
RA-20-3-84

SIDE SCAN SONAR OPERATIONS
USHAGAT ISLAND
BARREN ISLANDS, ALASKA

PROJECT

Side Scan Sonar operations were performed in conjunction with the NOAA Ship RAINIER's hydrographic survey project, OPR-P114-RA-84, Southern Cook Inlet in the vicinity of the Barren Islands. The purpose of this project was to determine the possibilities of using side scan sonar to identify seabed texture.

AREA SURVEYED

A total of 12.595 nautical miles of side scan data was collected in a 6 square mile area on the north shore of Ushagat Island. The limits of the survey extend from the 10 fathom curve seaward to the 30 fathom curve and westward from 152 11.5 W to 152 15.0 W. The inclusive dates of the survey were from 27-29 June, 1984 (JD 179-181). Fix numbers 3241-3337 were used for the side scan data and 5000-5023 for the bottom samples.

SOUNDING VESSELS

Two launches were used to complete this project. Launch 2123 (RA-3) was equipped with a Klein Side Scan Sonar unit. Launch 2125 (RA-5) was used to collect bottom samples. No unusual sounding vessel configurations or problems were encountered.

HORIZONTAL CONTROL STATIONS

The following horizontal control stations were used in this survey.

<u>Station Name</u>	<u>Signal Number</u>	<u>Geographic Position</u>
Van 1984	105	58/58/14.2 N 152/09/31.3 W
Ski T.P.	106	58/56/13.4 N 152/11/57.5 W

Station Van 1984 is a Third Order Class I or better station. Ski T.P. (T.P. designating "temporary position") was located using an azimuth and measured distance from a Third Order station.

FIELD SHEETS

One field sheet was prepared at a 1:10,000 scale using the RAINIER's PDP/8e Hydroplot system which produces modified transverse Mercator projections. A list of the parameters used to define this sheet is included at the end of the text. Hydrography and side scan data were collected in Launch 2123 using a similar system and a real-time range/range program, designated RK 112.

ELECTRONIC EQUIPMENT

Electronic equipment onboard the launches was similar. DSF-6000N fathometers (S/N's A119N and A117N for Launches 2123 and 2125, respectively) were used on both boats to determine depths and data was collected in the high frequency digitized model.

Motorola Mini-Rangers were used for position control for this project. The following tables summarizes the mobile and shore equipment.

<u>Launch</u>	<u>Mobile Equipment</u>	
	<u>Console S/N</u>	<u>R/T S/N</u>
2123	720	713300
2125	715	911615

<u>M/R Code</u>	<u>S/N</u>	<u>Shore Equipment</u>		
		<u>Station</u>	<u>Signal #</u>	<u>Dates Used</u>
A*	1645	Van 1984	105	JD 179-180
E	911721	Ski T.P.	106	JD 179-181
3	1628	Van 1984	105	JD 181

* Code A was replaced by code 3 after it fell approximately 30 feet down a cliff. Only bottom samples were collected using code 3.

A Klein Side Scan Sonar system was used on Launch 2123. The following is a list of the important specifications of the system.

Recorder

Model # - 521
S/S Freq.- 100 kHz
Range Scale Used - 150 m (each channel)
Paper Speed Used - 60 Lines/cm
Scale Lines - 15 m

Towfish

Model # - 422X5-101AF
Application - General Purpose/Variable Beam
Horizontal Beam Width - 1 degree
Output Freq. - 100 kHz
Pulse Length - 0.1 millisecond
Vertical Beam Width Angle - 40 degrees
Tilt Below Horizontal - 10 degrees

The towfish was streamed at cable lengths varying from 40 to 380 feet. No unusual problems associated with side scan operations were encountered.

24 bottom samples were collected by Launch 2125 on JD 181 to provide a basis for comparison with the sonargram.

All computer generated data and the bottom samples will be forwarded to the Northwest Ocean Service Center, Seattle Washington in care of Dr. John Ball.

Respectfully Submitted,

Kenneth W. Barton

Kenneth W. Barton
Ensign NOAA

Approved and Forwarded,

John P. Vandermeulen
John P. Vandermeulen
Commander NOAA
Commanding Officer

CYTHACHIMUK H

Page 1 of 2



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

November 2, 1984 N/MOP21/MRK

*Alaska
CMM 4/86*

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

Dear Sir:

During office review of hydrographic surveys H-10137 and H-10149, Barren Islands, Alaska, the following changes affecting charts 16606 and 16640 were noted. Questions concerning the surveys may be directed to Lt. Cdr. David W. Yeager, Chief, Nautical Chart Branch, telephone (206) 526-6835.

The following statements are recommended for inclusion in the Local Notice to Mariners:

"An uncharted shoal covered by 9.9 fathoms (MLLW based on predicted tides) is at latitude 58°54'33"N, longitude 152°22'06"W, bearing 268 degrees true, 13.0 nautical miles from East Amatuli Island Light."

"An uncharted shoal covered by 6.2 fathoms (MLLW based on predicted tides) is at latitude 58°52'04"N, longitude 152°19'40"W, bearing 256 degrees true, 12.1 nautical miles from East Amatuli Island Light."

"An uncharted shoal covered by 8.7 fathoms (MLLW based on predicted tides) is at latitude 58°52'08"N, longitude 152°18'58"W, bearing 256 degrees true, 11.7 nautical miles from East Amatuli Island Light."

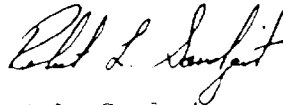
"An uncharted shoal covered by 8.8 fathoms (MLLW based on predicted tides) is at latitude 58°52'57"N, longitude 152°12'34"W, bearing 256 degrees true, 8.35 nautical miles from East Amatuli Island Light."

"An uncharted shoal covered by 6.8 fathoms (MLLW based on predicted tides) is at latitude 58°53'34"N, longitude 152°11'46"W, bearing 260 degrees true, 7.8 nautical miles from East Amatuli Island Light."



"An uncharted shoal covered by 4.5 fathoms (MLLW based on predicted tides) is at latitude 58°54'46"N, longitude 152°05'10"W, bearing 267 degrees true, 4.25 nautical miles from East Amatuli Island Light."

Sincerely,



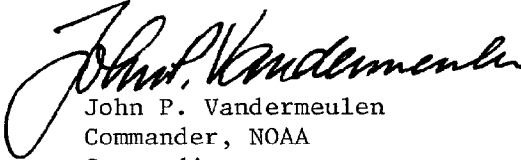
Robert L. Sandquist
Rear Admiral, NOAA
Director, Pacific Marine Center

APPROVAL SHEET

DISCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SHEET
RA-20-3-84

In producing this sheet, standard procedures were observed in accordance with the Hydrographic Manual, PMC OORDER, and the Instruction Manual for Automated Hydrographic Surveys. The data was examined daily during the execution of the survey.

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


John P. Vandermeulen
Commander, NOAA
Commanding

MASTER STATION LIST
 OPR-P114-RA-84
 SOUTHERN COOK INLET, ALASKA
 RA-20-3-84 (H-10137)

FINAL VERSION

100	5	58	57	167 ⁴⁸ 52	152	16	1916 ⁵ 7	250	0015	000000		
/SHAG RM 1 1984											RAINIER	
101	7	58	57	02693	152	10	41783	250	0015	000000		
/GATE 1931											NGS LISTING	
102	6	58	56	44882	152	03	46872	250	0008	000000		
/PORT 1931											NGS LISTING	
103	6	58	57	228 ⁶⁰ 00	152	16	228 ²⁸⁹ 00	254	0001	000000		
/SHAG T.P.											RAINIER	
104	1	58	57	297 ¹⁶ 40	152	20	373 ²⁰³ 00	250	0000	000000		
/MIC											NGS LISTING	
105	4	58	58	1417 ³ 4	152	09	3129 ⁷ 0	250	0000	000000		
/VAN 1984											RAINIER	
106	3	58	56	13380	152	11	57533	254	0025	000000		
/SKI T.P.											RAINIER	
107	3	58	56	2125 ⁴ 3	152	17	4663 ³ 4	250	0053	000000		
/SANDRA 1984											RAINIER	
200	7	58	57	15006	152	02	29471	250	0001	000000		
/CHAR 1931											NGS LISTING	
201	3	58	57	368 ⁷⁷⁴ 16	152	18	322 ³⁵⁹ 94	139	0277	000000		
/HEAD 1931-1975											NGS LISTING 1984 field G.P.	
203	3	58	54	386 ⁶¹ 07	152	03	155 ⁶⁷ 97	254	0022	000000		
/DRAG TP											RAINIER	
205	4	58	55	20243	152	04	36341	250	0009	000000		
/GRAY 1931											NGS LISTING	
206	3	58	56	0753 ⁶ 4	152	09	2348 ⁵ 4	250	0012	000000		
/BARE 1931-1984											RAINIER 1984 field G.P.	
*	211	1	58	54	19360	152	18	02090	250	0006	000000	
/RIDGE 1931											NGS LISTING	
*208	1	58	56	11618	152	00	40328	250	0009	000000		
/Turk 1931											NGS LISTING	

CON/T

212 3 58 54 06876 152 12 11590 250 0066 000000
/SUD 1931 NGS LISTING

214 6 58 52 16293 152 19 44111 250 0009 000000
/LION 1931 NGS LISTING

~~215 4 58 52 43043 152 02 04379 250 0030 000000~~ NOT USED
/CAMILLE 1984 RAINIER

FIELD TIDE NOTE
RA-20-3-84
H-10137

Field tide reduction of soundings for survey H-10137 was based on predicted tides from Seldovia, Alaska (945-5500). Corrections were obtained from Preliminary Tidal Zoning OPR-P114-RA-84. The predicted tides were derived using program AM500.

The reference station at Seldovia was leveled on June 21, 1984. Five permanent benchmarks (including the primary mark) were connected to the ETG reading mark. Levels were run at the end of survey operations on August 24, 1984. Initial and final levels compared very well.

A subordinate station at Ushagat Island, Alaska (945-5478) provided data for this survey. A standard Bristol Bubbler tide gage was installed in a small harbor on the north side of Ushagat Island on June 17, 1984, (58/56/30N, 152/14/30W). Five permanent benchmarks were recovered near the site. Initial levels were run to these marks on June 17, 1984. A tide staff was not installed. For tide staff observations, levels were run to the waters edge.

On August 9, 1984 a storm in the area prevented the ship from checking the gage. This storm caused the orifice to relocate to a position 3.0 ft deeper. Records are consistent and should be accurate throughout the period. The orifice was secured at the new level by divers on August 17. The orifice remained in this position until 2300 August 19, when the marigram was lost completely until the completion of hydro at 1500 August 20, 1984.

The gage will be removed following the final levels planned for September 1, 1984.

DATE: 1/2/85

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Pacific

OPR: P114

Hydrographic Sheet: H-10137

Locality: Ushagat Island and Vicinity, Cook Inlet, Alaska

Time Period: June 17 - August 20, 1984


Tide Station Used: 945-5478 Ushagat Island, Alaska

Plane of Reference (Mean Lower Low Water): 15.45 ft.

Height of Mean High Water Above Plane of Reference: 12.9 ft.

Remarks: Recommended Zoning:

1. North of latitude $59^{\circ}00.0'$ apply a -10 minute time correction to all heights.
2. South of latitude $59^{\circ}00.0'$ to $58^{\circ}54.0'$ zone direct.
3. South of latitude $58^{\circ}54.0'$ apply a -10 minute time correction to all heights.


Chief, Tidal Datums Section

(FIELD) GEOGRAPHIC NAMES

H-10137

Name on Survey											
	A	B	C	D	E	F	G	H	K		
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS.	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	RAND McNALLY ATLAS	U.S. LIGHT LIST			
BARREN ISLANDS											1
USHAGAT ISLAND											2
NORD ISLAND											3
SUD ISLAND											4
ALASKA (title)											5
KENNEDY ENTRANCE											6
STEVENSON ENTRANCE											7
COOK INLET											8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
										Approved:	19
											20
										<i>Charles G. Hartington</i>	21
										Chief Geographer - NYC 62x5	22
										OCT 15 1984	23
											24
											25

HYDROGRAPHIC SURVEY STATISTICS

H-10137

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

RECORD DESCRIPTION		AMOUNT		RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1		SMOOTH OVERLAYS: POS., ARC, EXCESS		7	
DESCRIPTIVE REPORT		1		FIELD SHEETS AND OTHER OVERLAYS		15	
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS		
ACCORDION FILES	4						
ENVELOPES							
VOLUMES	1						
CAHIERS							
BOXES							

SHORELINE DATA

SHORELINE MAPS (List): **TP-00825, 826**
 PHOTOBATHYMETRIC MAPS (List):
 NOTES TO THE HYDROGRAPHER (List):
 SPECIAL REPORTS (List):
 NAUTICAL CHARTS (List): **Chart 16606**

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 INDEX Processed			5124
POSITIONS REVISED			8
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION	6.5		6.5
VERIFICATION OF CONTROL	6.5		6.5
VERIFICATION OF POSITIONS	153.5		153.5
VERIFICATION OF SOUNDINGS	89		89
VERIFICATION OF JUNCTIONS	3		3
APPLICATION OF PHOTOBATHYMETRY	0		0
SHORELINE APPLICATION: VERIFICATION	14		14
COMPILATION OF SMOOTH SHEET / Verifiers Report	60		60
COMPARISON WITH PRIOR SURVEYS AND CHARTS		39.0	39.0
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		17.5	17.5
GEOGRAPHIC NAMES			
OTHER: Digitization			
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	332.5	565
Pre-processing Examination by J. Stringham	Beginning Date 12/12/84	Ending Date 12/12/84	
Verification of Field Data by R. Mueller	Time (Hours) 332.5	Ending Date 6/18/85	
Verification Check by J. Stringham, B. Olmstead, J. Green	Time (Hours) 67.0	Ending Date 9/27/85	
Evaluation and Analysis by C.R. Davies	Time (Hours) 56.5	Ending Date 9/27/85	
Inspection by D. Hill	Time (Hours) 2	Ending Date 9/27/85	

PACIFIC MARINE CENTER
EVALUATION REPORT
H-10137

1. INTRODUCTION

H-10137 was accomplished by the NOAA Ship RAINIER in accordance with the following project instructions:

OPR-P114-RA-84, dated February 16, 1984
Change Number 1 dated April 27, 1984
Change Number 2 dated June 21, 1984

This is a basic hydrographic survey in the vicinity of Ushagat Island, one of the Barren Islands, which are located between Kennedy Entrance and Stevenson Entrance to Cook Inlet, Alaska. The survey is centered on Ushagat Island and extends north two nautical miles to latitude $59^{\circ}00'10.0''N$ and south five nautical miles to latitude $58^{\circ}49'24''N$. To the east, the survey extends one-half nautical mile from Ushagat Island to longitude $152^{\circ}08'18''W$ and west one nautical mile to longitude $152^{\circ}23'48''W$. The shoreline is typically rocky with many fringing ledges. Numerous beaches are rough, being gravel or boulder strewn. The mean low water line has not been developed in most areas due to the difficult surveying conditions near shore. Offshore from the main island Ushagat, there are smaller islands and several rocky shoals which are marked by rocks uncovering at MLLW or which rise to minimum depths of approximately 5 fathoms. Deepest depths in the area are approximately 90 fathoms in the southern portion of the area. Bottom characteristics are generally sand, stones and shells.

Predicted tides based on the Seldovia, Alaska gage with time and range adjustments were utilized during shipboard processing. Tide correctors used for the reduction of final soundings are computed from approved hourly heights from one temporary tide gage, Ushagat Island.

Projection parameters were changed to center the hydrography on the smooth sheet and to change the projection to polyconic.

The TC/TI correctors were changed on Vessel 2124 to reflect the proper TRA corrector of 0.2 fathoms.

The electronic correctors were also changed to incorporate the results of the final baseline calibrations.

2. CONTROL AND SHORELINE

All horizontal control stations used for controlling hydrography were established in accordance with Third Order Class I or better geodetic standards. The smooth sheet was plotted using published NGS coordinates for existing stations and field positions for newly established stations.

Hydrographic positioning was conducted using Motorola Mini-Ranger III, configured in both range-range and range-azimuth modes. Baseline

calibrations were performed before and after completing the hydrography. Daily system checks to confirm the baseline values were conducted using launch to launch comparison, baseline crossing, and the three-range method.

All remaining information affecting the positioning and station control of this survey is contained in paragraph F and G of the Descriptive Report, the Horizontal Control and Electronic Control Report for OPR-P114-RA-84.

The applicable unreviewed Class I shoreline manuscripts and dates are as follows:

<u>Manuscript Number</u>	<u>Date of Photography</u>	<u>Date of Field Edit</u>
TP-00825	August 1975, June 1976	August 1984
TP-00826	August 1975, June 1976	August 1984

The mean high waterline was not shown on the smooth sheet except for small islands and islets. All other foreshore/offshore features which are awash or uncovered at the sounding datum but are covered at mean high water were transferred to the survey.

3. HYDROGRAPHY

Crossline soundings are in good agreement. Generally, all standard depth curves are complete and satisfactory, except in areas that are foul and those on steep slopes near shoreline.

The bottom configuration and least depths were adequately determined with the exception of several prior survey soundings that have been brought forward to the smooth sheet and the following:

<u>Depth (fm)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
6 ⁸	58°52'03"	152°19'39"
9 ²	58°53'09"	152°17'48"
9 ⁹	58°53'20"	152°13'33"

4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual except as noted in the Preprocessing Examination Report, dated November 2, 1984 and the following:

- a. Some soundings warranted further development to locate the least depths (see Section 3, Hydrography, and prior soundings brought forward on the smooth sheet.) The investigation of these features was incomplete (Hydrographic Manual 4.3.4 and 4.1.1.7), however, additional field work to resolve these problems should have no special priority due to the generally rocky nature of the entire area.

b. The delineation of ledges as portrayed on the field sheet differed from those shown on the Class I manuscript. If these changes were noted during field edit or hydrography, the changes should have been depicted on the field sheet in red ink and the changes explained in Section H of the Descriptive Report (Hydrographic Manual 1.6.2, 4.5.8 and 5.3.4.H).

c. Six dangers to navigation were found during the preprocessing examination of the final field sheets. The hydrographer should review the final field sheet for possible dangers to navigation and should initiate the reporting of these dangers. (Hydrographic Manual 1.6.4, 5.9, PMC OPCODE appendix A, and project instructions 6.13).

5. JUNCTIONS

H-10137 joins H-10149 to the east and the soundings and depth curves are inked in agreement.

H-10137 adjoins H-10105 to the north and west. This survey was processed earlier and is not at the Pacific Marine Center. The soundings and depth curves are in agreement except for the 30-, 40-, and 50-fathom depth curves between latitude 58°52'13"N to 58°55'06"N. These curves should be adjusted on H-10105 to coincide with H-10137.

There are no contemporary surveys to the south; however, a comparison with charted depths reveals good agreement with the present survey.

6. COMPARISON WITH PRIOR SURVEYS

H-3805 (1915) 1:120,000
 H-5194 (1931) 1:120,000
 H-5193 (1931) 1:40,000
 H-5192 (1931) 1:40,000
 H-5189 (1931) 1:20,000

The present survey soundings compare within ± 1 to 2 fathoms of the prior survey soundings. These differences are attributed to the relative accuracy of the data acquisition techniques and datum adjustments.

Several prior soundings and descriptive notes were transferred from H-5793 (1931) and H-5189 (1931) to depict shoaler information and tide rips. With the exception of the prior soundings brought forward on H-10137, this survey is adequate to supersede the prior information within the limits of hydrography.

7. COMPARISON WITH CHART

Chart 16606, 7th Edition, October 20, 1979

a. Hydrography - Charted information originates with the prior surveys discussed in Section 6 of this report and from miscellaneous sources.

The charted features listed below originate with the photography for TP-00825. These features do not appear on any prior surveys or Class I

shoreline manuscripts, and were not confirmed during hydrographic operations or field edit. It is recommended that these features be removed from the chart.

<u>Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
rock awash	58°54'08"	152°21'03"
islet	58°54'42"	152°21'30"
rock awash	58°55'24"	152°19'08"
islet	58°56'30"	152°14'52"
islet	58°54'24"	152°11'38"

An islet charted at latitude 58°56'43"N, longitude 152°14'54"W originates from one of the miscellaneous sources, Air Photo L255 (1965). It does not appear on any prior surveys or Class I shoreline manuscripts, and was not confirmed during hydrographic operations or field edit. It is recommended that the islet be removed from the chart.

H-10137 is adequate to supersede charted hydrography within the common area.

The geographic names shown on the smooth sheet originates from this chart.

b. Controlling Depths - There are no controlling depths within the limits of H-10137.

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

8. COMPLIANCE WITH INSTRUCTIONS

H-10137 adequately complies with the project instructions except where noted in Section 4 of this report.

9. ADDITIONAL FIELD WORK

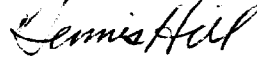
This is an adequate survey and no additional field work is recommended.

Respectfully submitted,

Charles R. Davies

C. R. Davies
Cartographer

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



Dennis Hill
Chief, Hydrographic Section

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10137

I have reviewed the smooth sheet, accompanying data, and reports of this hydrographic survey. Except as noted in the Evaluation Report, the hydrographic survey meets or exceeds Charting and Geodetic Services (C&GS) standards, complies with instructions, and is accurately and completely represented by the smooth sheet and digital data file for use in nautical charting.


Chief, Nautical Chart Branch (Date)


CLEARANCE:

N/MOP2:LWMordock

SIGNATURE AND DATE:

 9/30/85

After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards with only the exceptions as noted above. The above recommendations are forwarded with my concurrence.

 9-30-85
Director, Pacific Marine Center (Date)

INDEX
HYDROGRAPHIC SURVEYS
Complete through May 1969
1942-1965
SHELIKOF STRAIT
ALASKA
HYDROGRAPHIC SURVEYS

No.	Date	Scale
H-6726Δ	1942	10,000
H-6828Δ	1942	800
H-6829Δ	1942	20,000
H-6829 & Ad. Wk.	1944	100,000
F. E. No. 3	1946-47	200,000
H-7194	1947	20,000
H-7195	1947	20,000
H-7196	1947	40,000
H-7197	1947	40,000
H-7012	1949	40,000
H-7822	1949	10,000
H-7824	1950	5,000
F. E. No. 7	1954	10,000
H-8118	1954	10,000
H-8284	1956	5,000
H-8490	1959	5,000
H-8619Δ (12 areas)	1961	40,000
H-8619Δ	1965	40,000

Scale of 1:10000 6.34 inches = 1 statute mile
1:20000 3.17 inches = 1 statute mile
Δ With Drag

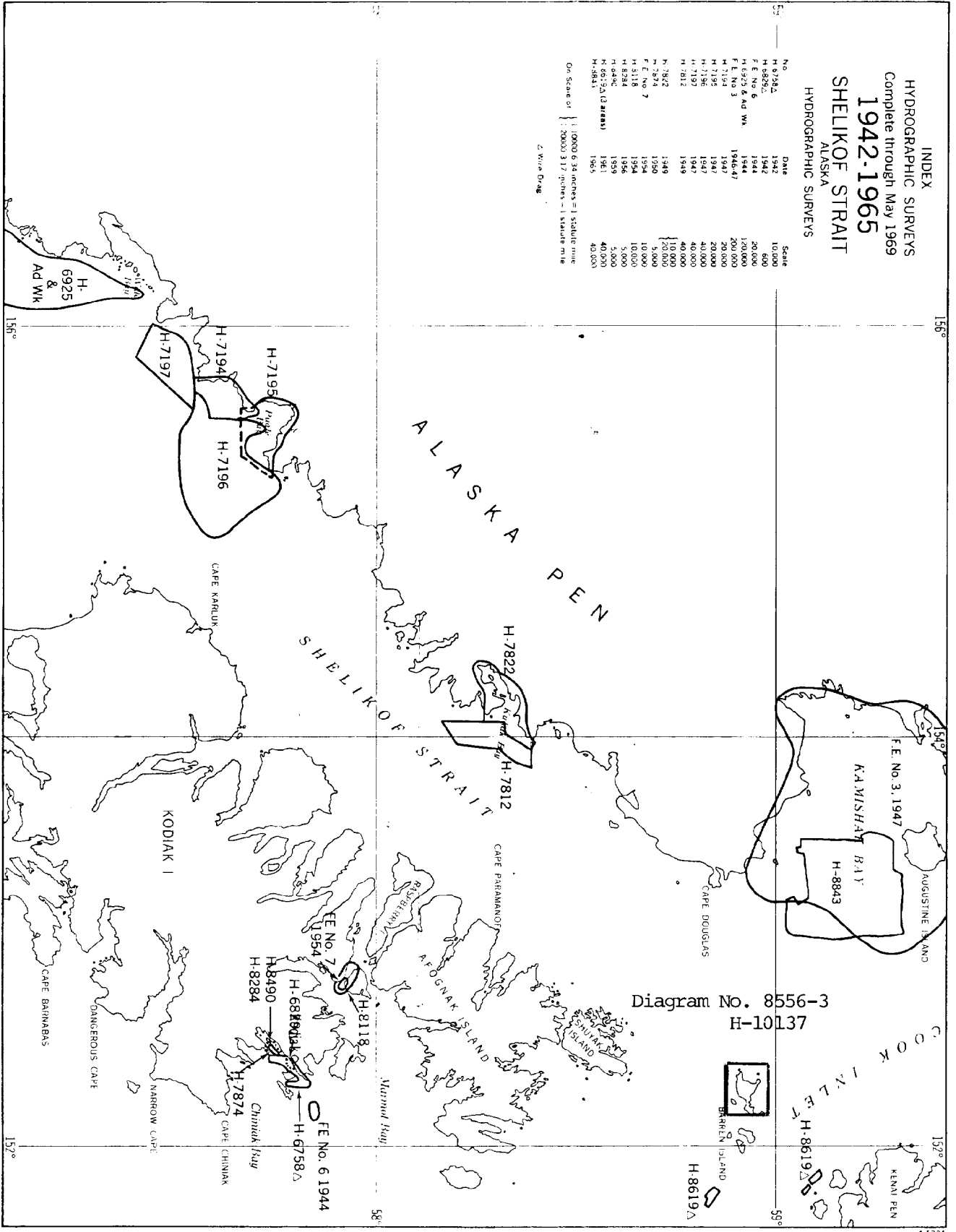


Diagram No. 8556-3
H-10137

