

10104

443-3323

Diagram No. 8554-3

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-40-3-83
Office No. H-10104

LOCALITY

State Alaska
General Locality Cook Inlet
Locality Offshore Augustine Island
..... to Cape Douglas

1983

CHIEF OF PARTY
CDR J.P. Vandermeulen

LIBRARY & ARCHIVES

DATE September 7, 1984

10104

Area 6
CHTS

16606 ✓
16608 ✓
16648 ✓

16640 ✓ 200
16586 ✓
16013 ✓
To sign off see
Record of Application
to Charts.

531 ✓
500 ✓

HYDROGRAPHIC TITLE SHEET

H-10104

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-40-3-83

State Alaska

General locality Cook Inlet

Locality Offshore Augustine Island to Cape Douglas

Scale 1:40,000

Date of survey July 21 - August 11, 1983

Instructions dated February 18, 1983

Project No. OPR-P114-RA-83

Vessel NOAA SHIP RAINIER (2120)

Chief of party J. P. Vandermeulen, CDR, NOAA

Surveyed by LCDR D. Yeager, LT S. Iwamoto, LT S. Ludwig, LTJG M. Mathwig, LTJG R. Koehler, ENS B. Postle, ENS J. Judson, ENS J. Logue, ENS K. Baron, SST

Soundings taken by echo sounder, hand lead, pole Ross Fineline Fathometer System Hastings

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Verification

~~Reviewed~~ by S. H. Otsubo, I. A. Almacen

Automated plot by PMC Xynetics Plotter

Evaluation

~~Verification~~ by C. R. Davies

Soundings in fathoms feet at MLW MLLW

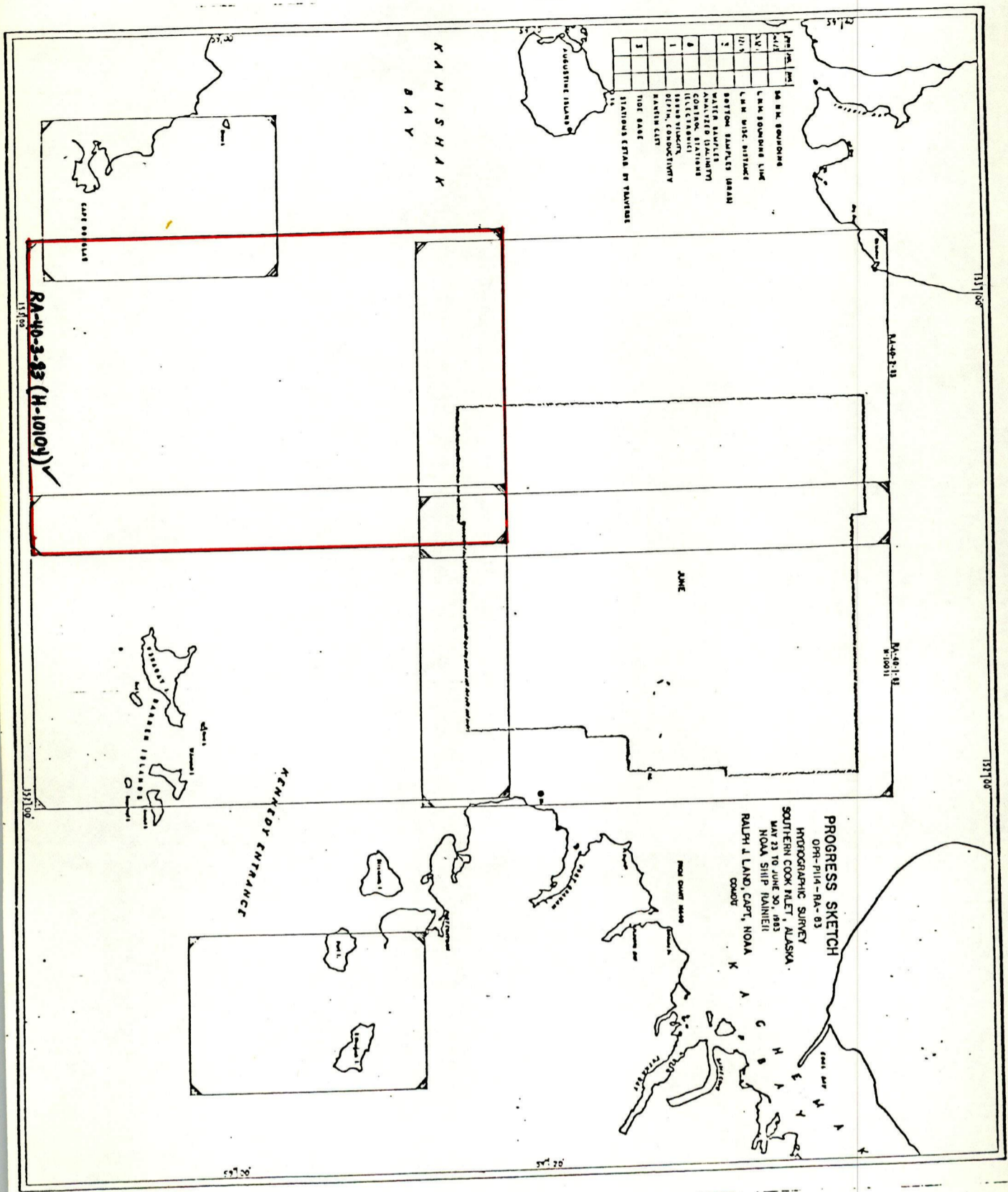
REMARKS: All times are in UTC

Annotations in black made during evaluation.

AWOIS - 9/18/84 mjt

SURF - 9/18/84 mjt

*SC 5-6-97
Upd to STD 9-13-84 AS*



A. PROJECT

This basic hydrographic survey accomplished in accordance with Project Instructions OPR-P114-RA-83, Southern Cook Inlet, Alaska dated February 18, 1983 and Change number 1, dated March 18, 1983.

B. AREA SURVEYED

This survey was conducted in southern Cook Inlet. The western survey limit was $153^{\circ} 05.5'W$ and the eastern limit was $152^{\circ} 34.0'W$. The northern and southern limits were defined by latitudes $59^{\circ} 15'N$ and $58^{\circ} 50'N$, respectively. The inclusive dates of this survey were from July 21, 1983 to August 12, 1983.

C. SOUNDING VESSEL

The NOAA Ship RAINIER (2120) was the only vessel used in conducting this survey. No unusual sounding vessel configuration or problems were encountered.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Sounding Equipment

All echo soundings obtained during this survey were obtained by NOAA Ship RAINIER (2120). The ship was equipped with a Ross Fineline Fathometer system which included the following components: a model 4000 transceiver (S/N 1080), a model 5000 analog trace recorder (S/N 1070), a model 6000 digitizer (S/N 1040) and a 100 Khz transducer.

Sound Velocity Correctors

Table No. 1 summarizes the STD cast data obtained for this survey using STD (S/N 5652) Model No. 9040 calibrated May 1983.

Table No. 1

STD Cast Data

<u>Date</u>	<u>Location</u>
July 23, 1983 (JD) 204	$58^{\circ} 51.0'N$ $152^{\circ} 32.7'W$
July 27, 1983 (JD) 208	$58^{\circ} 54.3'N$ $153^{\circ} 12.5'W$

Preliminary velocity correctors were determined from the July 23, 1983 cast. (See Echo Soundings Report, OPR-P114-RA-83 for details concerning computations).

Velocity correctors were also determined from the data obtained by the July 27, 1983 STD cast. For each set of data, actual depths minus the velocity corrections were graphed versus the velocity corrections. Velocity Table No. 4 and the final velocity tape correctors were determined by averaging the results of the two graphs. Depths corresponding to standard velocity correction intervals were scaled from the resultant graph. A copy of the graphs, velocity Table No. 4 and a listing of the velocity tape are provided in the separates following the text. See letter Feb. 28, 1984, New table #4 in Report.

All smooth field sheets were prepared using the preliminary velocity correctors.

Sounding Vessel Draft Corrector

The historical draft of RAINIER (2.6 fm) was applied to all echo soundings obtained during this survey. A listing of the TC/TI tape is provided in the separates following the text.

Sounding Instrument Correctors

During survey operations the blanking depth was set to a value shoaler than the shoalest bottom expected. Analog depths were substituted for missing or erroneous digital soundings as part of standard scanning procedures.

The initial trace on the analog recorder was maintained at zero and monitored to prevent any error caused by a drifting initial. When the initial was found to be off, it was corrected during scanning. Phase calibrations and belt tension checks were performed in accordance with section 4.9.6 of the Hydrographic Manual, Hydrographic Survey Guidelines and PMC OORDER, Appendix B.

E. HYDROGRAPHIC SHEETS

Hydrographic field sheets based on a modified transverse mercator projection were prepared for this survey by using the PDP8/E Hydroplot system on board the RAINIER. A list of parameters used to define each field sheet is attached in the separates following the text.

Two 1:40,000 scale field sheets, designated RA-40-3W-83 and RA-40-3E-83, were used to cover the survey area.

No irregularities in scale or projection were encountered.

All data and accompanying field records were forwarded to the Pacific Marine Center, Seattle, Washington, for verification.

F. CONTROL STATIONS

One new station, BLUFF POINT 2 RM 5, was established to Third-Order, Class I specification and was used for a Raydist site.

All other control stations were existing geodetic stations on the North American 1927 Datum. For more information, refer to the Horizontal Control Report, OPR-P114-RA-83.

G. HYDROGRAPHIC POSITION CONTROL

Range/Range Raydist was the only method used for hydrographic position control. Calibration of Raydist was performed using sextant fixes based on Third Order, Class I or better positions. Occasional checks to Raydist positions were computed using Mini-Ranger III systems.

A Raydist antennae to transducer (ANDIST) correction (32.2m) has been applied via the parameter tape.

There were two Raydist shore stations. All soundings were based on position control from these two locations. Raydist mobile equipment consisted of the DR-S system navigator (model 2a-67A, serial number 58) and the Hazlow navigation interface (serial number 15). The tables below summarize the Mini-Ranger mobile and shore equipment and Raydist shore locations:

Mini-Ranger Mobile Equipment

<u>Vessel</u>	<u>Console</u>	<u>R/T S/N</u>
2120	720	2710

Mini-Ranger Shore Equipment

<u>Code</u>	<u>Transponder S/N</u>	<u>Station Number</u>
C	1628	104
D	1569	106
2	B1106	107

Raydist Shore Equipment

<u>Code</u>	<u>Station Number</u>
Green	100
Red	101

Raydist Calibration and System Check

Raydist calibrations were accomplished by two sextant angles and a check angle. Partial lane correctors were determined from the average of three sextant fixes with inverse distance less than ten meters. Smooth field sheets are plotted with partial lane correctors averaged from initial and ending calibrations.

Mini-Ranger fixes were computed and compared to Raydist, when possible to confirm whole lane count. Mini-Ranger baseline calibrations were conducted at Mare Island, California on May 3, 1983. For more information concerning calibrations, refer Electronic Control Report OPR-P114-RA-83.

Raydist and Mini-Ranger Performance

All shore stations were positioned on Third Order, Class I or better geodetic stations. Power to Raydist was supplied by Teledyne generators. Power to Mini-Rangers was supplied by 12-volt batteries connected in series.

The Raydist performed very well. On July 26, 1983 (JD 207), lane jumps occurred, due to bad weather. Corrections were made shortly afterwards and a calibration was performed at the end of the day to confirm whole lane count. On July 27, 1983 (JD 208), the system navigator was accidentally turned off. Several lanes were lost and corrections were made shortly afterwards. Again, a calibration was performed on the same day.

Mini-Ranger systems worked well.

H. SHORELINE

No shoreline is present within the area of this survey.

I. CROSSLINES

A total of 107.7 nautical miles of crosslines were run during the survey, representing 11.8% of the mainscheme mileage. The crossline comparison was excellent with all crossline soundings falling within 1 fm of the mainscheme soundings.

J. JUNCTIONS

This survey junctions with six contemporary surveys. In all but one mentioned below, comparison was excellent. All soundings were within 1 fm and contour lines continued in a smooth line with no abrupt changes. Below is a list of all junction surveys.

<u>Survey</u>	<u>Scale</u>	<u>Year</u>	<u>Location</u>
H-8843	1:40,000	1965	West
H-9209	1:40,000	1971	South
H-9378	1:40,000	1973	Northwest
*H-10099	1:40,000	1983	North
*H-10106 ⁵	1:40,000	1983	East
*H-10104 ⁶	1:20,000	1983	West

*The junction with these surveys do not overlap because they were accomplished by the same vessel in the same year.

Comparison with H-10106⁵ (RA-40-4-83) was good except in an area between latitude 59° 00.0'N and 58° 56.0'N along longitude 152° 34.0'W. A seabed slope exists between the two adjacent sounding lines.

K. COMPARISON WITH PRIOR SURVEYS

H-10104 was compared to the following prior surveys: H-2980 at 1:200,000 (1908-1909), H-3805 at 1:120,000 (1915), both enlarged to 1:40,000 scale, and H-5914⁵¹⁷⁴ at 1:120,000 scale (1931).

H-2980

Comparisons were fair, ranging from 0-4 fm. No specific trends could be ascertained from the few soundings due to the enlargement and age of the prior survey.

H-3805

Comparisons were, in general, not good. A major deepening trend is evident throughout the survey with differences of 10-20 fm. Meaningful comparisons cannot be made in such a changed bottom. Particularly, a 55 fm sounding located at 59° 03'N and 152° 57.2'W was not evident in an area of 80 fm soundings on the present survey.

It is especially recommended that this survey supersede the soundings on H-3805 for charting purposes.

see EVAL
Report Sec. 6

5194
H-5974

The survey overlap was confined to a small area in the southeast corner of RA-40-3E-83 bordered by the eastern sheet limit, $152^{\circ} 45' W$, the southern sheet limit and $59^{\circ} 00' N$. ✓

Comparisons were good, generally, within 2 fm. The 90 and 100 fm contour lines showed excellent agreement. ✓ *concur*

L. COMPARISON WITH THE CHART

The survey was compared to an enlargement to 1:40,000, of Chart 16640, Eighteenth Edition, November, 1980. Comparison was also made with Chart 16640, Nineteenth Edition, April 1983, however, an enlargement was not made. Deepening has occurred throughout most of the survey area. Chart 16640 was produced from the prior surveys previously discussed (ref. section K). ✓

No dangers to navigation were found. ✓

M. ADEQUACY OF SURVEY

This survey is complete and sufficient to supersede prior surveys for charting purposes. ✓

N. AIDS TO NAVIGATION

There are no floating or fixed aids to navigation in this survey area. ✓

O. STATISTICS

<u>Survey Vessel</u>	<u>Linear Nautical Miles</u>	<u>Square Nautical Miles</u>	<u>Number of Positions</u>
(2120)	1016.5	297.91	1237-1224

Bottom Samples: 15
Tide Stations: 2
Velocity Casts: 2

P. MISCELLANEOUS

Loran-C was interfaced with the Hydroplot system as per section 8.4 of the Project Instructions. No malfunctions of the receiver occurred, except on (JD) 204, between positions 1005-1030, when it was not tracking properly. ✓

No anomalous currents were reported or observed.

Sand wave features, 1-4 fm high, exist in the northeast corner of the survey area bounded by $59^{\circ} 15' N$, $59^{\circ} 10' N$, $152^{\circ} 42' W$, and $152^{\circ} 34' W$. ✓

Q. RECOMMENDATIONS

None ✓

R. AUTOMATED DATA PROCESSING

Data acquisition and processing were accomplished per instructions in the Hydrographic Manual (4th Edition), Manual Automated Hydrographic surveys, the PMC OPORDER, Hydrographic Survey Guidelines and the Hydrographic data requirements for the 1983 field season. ✓

Soundings and positions were taken by a Hydroplot system using Range-Range/Hyperbolic Hydroplot Program RK 112. There are daily master tapes and corresponding corrector tapes which include the TRA, electronic calibration correctors for Raydist and all depth corrections. Velocity tapes were generated from Sound Velocity Temperature Depth (STD) cast. 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	8/04/81
RK 201	Grid, Signal, and Lattice Plot	4/18/75
RK 211	Range-Range Non-Real Time Plot	2/02/81
RK 300	Utility Computations	10/21/81
RK 330	Reformat and Data Check	5/04/76
PM 360	Electronic Corrector Abstract	2/02/76
RK 409	Geodetic Utility Package	9/20/78
AM 500	Predicted Tide Generator	11/10/72
RK 561	H/R Geodetic Calibration	12/01/82
AM 602	Elinore--Line Oriented Editor	12/08/82
RK 610	Binary Tape Duplicator	12/01/82
AM 902	Real Time Checkout	11/10/72
DA 903	Diagnostic--Instruction Timer	2/27/76
RK 905	Hydroplot Controller Checkout	3/18/81
RK 935	Hydroplot Hardware Tests	3/15/82
RK 950	Hardware Tests (Documentation Only)	6/02/75
RK 606	Tape Duplicator	8/22/74
AM 607	Self-Starting Binary Loader	8/10/80

The HP-9815 and HP-97 calculators were used to compute geographic positions of electronic control stations and velocity of sound corrections for the plotting of smooth field sheets.

S. REFERRAL TO REPORTS

The following reports contain information related to this survey.

Echo Sounding Report	OPR-P114-RA-83
Electronic Control Report	OPR-P114-RA-83
Horizontal Control Report	OPR-P114-RA-83
Coast Pilot Report	OPR-P114-RA-83

Respectfully Submitted,

Kenneth W. Barton

Kenneth W. Barton, ENS, NOAA

PARAMETER TAPE LISTING
RA-40-3-83 (H-10104)

RA-40-3W-83
SKEW:90,21,54
FEST=76000
CLAT=6514000
CMER=152/30/0
GRID=2/0
PLSCL=40000
PLAT=58/47/12
PLON=152/47/00
VESNO=2120
YR=83
ANDIST=32.2

RA-40-3E-83
SKEW:90,21,54
FEST=76000
CLAT=6514000
CMER=152/30/0
GRID=2/0
PLSCL=40000
PLAT=58/47/12
PLON=152/31/00
VESNO=2120
YR=83
ANDIST=32.2

FIELD TIDE NOTE
RA-40-3-83

Field tide reduction of soundings for survey H-10104 was based on predicted tides from Seldovia, Alaska (945-5500). Corrections were obtained from Preliminary Tidal Zoning OPR-P114-RA-83. The predicted tides were derived using program AM500.

The reference station at Seldovia was leveled at the beginning of survey operations on May 24, 1983. Three permanent benchmarks (including the primary mark) were connected to the tide staff. Levels were run to five permanent benchmarks at the end of survey operations on August 12, 1983. Initial and final levels compared favorably.

Two subordinate stations provided data for survey H-10104.

A bubbler tide gage was installed on June 4, 1983 at the historical site near Burr Point on Augustine Island (945-6537), $59^{\circ} 25.2'N$, $153^{\circ} 25.5'W$. Five permanent benchmarks were recovered and leveled on June 5, 1983. The staff value of the zero line on the analog tide record is +12.8 feet. The gage operated well throughout the period of hydrography. Final levels for this gage were run on August 17, 1983. Comparison of initial and final levels indicated that no significant movement of the staff occurred during the survey period.

The second bubbler tide gage was installed on July 21, 1983 at the historical site in Sukoi Bay at Cape Douglas (945-6477), $58^{\circ} 51.8'N$, $153^{\circ} 16.8'W$. Five permanent benchmarks were recovered and leveled on July 21, 1983. The staff value of the zero line on the analog tide record is +6.5 feet. The gage operated well throughout the period of hydrography. Final levels for this gage were run on August 19, 1983. Comparison of initial and final levels indicated that no significant movement of the staff occurred during the survey period.

In addition to the two subordinate stations installed for this survey, there were three other tide stations operating concurrently for adjacent survey operations: Flat Island (945-5452), Oil Bay (945-6463), and Ushagat Island (945-5478).

The time meridian used for records annotation at all sites was 0° (UTC).

GEOGRAPHIC NAMES

H-10104

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
Alaska, Cook Inlet Offshore Augustine I. to Cape Douglas	ON CHART NO. 16640	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			
ALASKA (Title)											1
											2
Cook Inlet	X										3
											4
											5
											6
											7
											8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

VELOCITY TAPE LISTING
RA-40-3-83 (H-10104) ✓
RA-40-4-83 (H-10105)
RA-20-1-83 (H-10106)

TABLE NO. 4

000055 0 0000 0004 001 000000 000000
000124 0 0001
000203 0 0002
000277 0 0003
000366 0 0004
000455 0 0005
000549 0 0006
000653 0 0007
000762 0 0008
000886 0 0009
001025 0 0010
001189 0 0011
999999 0 0012

TC/TI TAPE LISTING
PA-40-3-83 (H-10104) ✓

VESSEL - 2120 (RAINIER)
FATHOMETER S/N 1070

101745 0 0026 0004 202 212000 000000
~~000300~~ 0 0026 0004 223 000000 000000
235959

ELECTRONIC CORRECTOR ABSTRACT ✓

VESSEL : 2120

SHEET : RA-40-3-83

LINE	DAY	PATTERN 1	PATTERN 2
101745	202	-000 ⁴ 20	+000 ⁴⁶ 27
105818	204	-00040	+00041
150529	204	-00040	+00041
032601	205	-00040	+00041
093314	205	-00040	+00041
184902	205	-00040	+00041
000257	206	-00040	+00041
041055	206	-00040	+00041
142204	206	-00040	+00041
000018	207	-00040	+00041
004454	207	-00040	+00041
100202	207	-00040	+00041
164338		-00834	-00358
204111	207	-00834	-00358
000007	208	-00834	-00358
053440	208	-00834	-00358
013829	209	-00028	-00035
022713	209	-00028	-00035
032231	214	-00004	+00040
034614	214	+00004	+00028
202543	214	+00004	+00028
000032	215	+00004	+00028
015014	215	+00011	+00015
021113	223	-000 ²² 16	-000 ⁶⁶ 47

MASTER STATION LIST
OPR-P114-RA-83
SOUTHERN COOK INLET, ALASKA ✓

FINAL VERSION

100	3	59	54	58131	152	42	28726	250	0036	329649	
/RED 1979 (GREEN RAYDIST)										FAIRWEATHER G.P.	
101	3	59	39	38888	151	39	46043	250 ⁴	0241	329649	
/BLUFF POINT 2 RM 5 1956 1983 (RED RAYDIST)										FIELD G.P.	
102	3	59	39	37645	151	39	44972	250	0244	000000	
/BLUFF POINT 2 1956										NGS LISTING	
103	3	59	41	46525	153	02	49788	250	0025	000000	
/CHIT 2 1967										NGS LISTING	
104	3	59	22	16846	153	21	10454	250	0107	000000	
/MOUND 1913										NGS LISTING	
105	3	59	19	53806	151	59	34030	250	0021	000000	
/FLAT ISLAND LIGHT 1956										NGS LISTING	
106	3	59	00	27638	153	22	26497	250	0011	000000	
/SHAW 1946										NGS LISTING	
107	3	58	52	30292	153	17	36091	250	0033	000000	
/SUKOI 1967										NGS LISTING	
200	3	59	46	11106	151	51	53280	139	0222	000000	
/ANCHOR POINT LIGHT 1975										NGS LISTING	
201	3	59	41	03434	151	38	12378	139	0343	000000	
/LOFGREN (USE) 1964										NGS LISTING	
202	3	59	33	03328	151	27	54887	139	0024	000000	
/COHEN ISLAND ROCK LIGHT 1975										NGS LISTING	
203	3	59	25	30165	151	53	05113	139	0031	000000	
/POINT POGIBSHI LIGHT 1975										NGS LISTING	

~~204 3 59 41 25349 153 03 09872 139 0029 000000~~
/BLUFF 1913 NGS LISTING

~~205 3 59 39 23836 153 09 16363 139 0024 000000~~
/DRY 1913 NGS LISTING

~~206 3 59 38 01532 153 14 47033 250 0013 000000~~
/OIL 1913 NGS LISTING

~~208 3 59 25 06941 153 25 13025 139 0016 000000~~
/BURR 1913 NGS LISTING

209 3 59 27 09908 151 43 08218 139 0020 000000
/GRAY CLIFF LIGHT CENTER 1956 NGS LISTING

~~211 3 59 41 02323 151 37 41274 139 0139 000000~~
/KGTI TOWER 1981 RA-81 POSITION

215 3 58 55 06741 153 19 32648 139 0050 000000
/DOUGLAS 1964 NGS LISTING

216 3 58 50 49113 153 17 48111 139 0060 000000
/SOUTH DOUGLAS 1908 NGS LISTING

ABSTRACT OF POSITIONS

H-10104

RA-40-3-83

<u>Day</u>	<u>Positions</u>	<u>CTRL</u>	<u>S1 M S2</u>	<u>Remarks</u>
202	1000-1004	04	100-101	Bottom Samples
204	1005-1042	04	100-101	Mainscheme Lines
204	1043-1059	04	100-101	Crosslines
204/207	1060-1641	04	100-101	Mainscheme Lines
207	1642-1689	04	100-101	Crosslines
207	1690-1748	04	100-101	Mainscheme Lines
207	1749-1762	04	100-101	Crossline
207/208	1763-2018	04	100-101	Mainscheme Lines
209	2019-2037	04	100-101	Crosslines
214	2038-2040	04	100-101	Crossline
214	2041-2146	04	100-101	Mainscheme Lines
214	2147-2154	04	100-101	Crossline
214	2155-2175	04	100-101	Mainscheme Lines
214	2176-2184	04	100-101	Crosslines
214/215	2185-2199	04	100-101	Mainscheme Line
215	2200-2226	04	100-101	Crosslines
223	2227-2236	04	100-101	Bottom Samples

Vesno = (2120) RAINIER
 Andist = +32.2 Meters
 Rejected Positions: 1469, 2123-2124

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

VESSEL	SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (Fathoms)	WEIGHT OF SAM- PLER	AP- PROX. PRE- TRA- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, denuded cutter, strat. no., type of bottom relief i.e., slope, plain, deposition, etc.)	OBS. INIT.
			LATITUDE	LONGITUDE								
2120			PROJ. NO. 0PR-P114-RA-83		YEAR 1983	SOUTHERN COOK INLET, ALASKA		CHECKED BY R.C. GIVENS		DATE CHECKED 18 AUG 83		
✓	1000	21 JUL 83	59°N	152°W	66.8	85#			br.	S. M.		✓ EB
✓	1001	"	06'15.30"	56'07.33"	76.1	"			br.	S. M.		✓ EB
✓	1002	"	01'55.81"	56'04.23"	80.4	"			br.	S. M.		✓ EB
✓	1003	"	58°N	"	86.3	"			br.	S. M.		✓ EB
✓	1004	"	55'28.84"	01'48.40"	85.6	"			gn.	Silt		✓ RCG
✓	2227	11 AUG 83	56'56.03"	48'10.50"	95.9	"			gn.	M, fine S.	snails, worm tubes.	✓ RLH
✓	2228	"	54'58.25"	41'38.29"	84.7	"			gn.	fine S., M.	worm tubes	✓ RLH
✓	2229	"	59'06.03"	39'22.16"	78.1	"			gn.	fine S., M.	worm tubes	✓ RLH
✓	2230	"	59°N	"	86.7	"			gn.	sft. M., fine S.	worm tubes	✓ RLH
✓	2231	"	01'29.31"	45'50.46"	86.7	"			gn.	fine S., med. P., Sh.	worm tubes	✓ RLH
✓	2232	"	04'17.57"	39'07.15"	75.0	"			gn.	fine S., med. P., Sh.	worm tubes	✓ RLH
✓	2233	"	06'25.85"	43'19.71"	78.8	"			gn.	sft. M., fine S., med. P., Sh.		✓ RLH
✓	2234	"	08'06.32"	48'18.68"	75.0	"			gn.	sft. M., fine S., brk. Sh., cas. P.		✓ RLH
✓	2235	"	12'59.52"	48'58.13"	62.9	"			gn.	sft. M., fine S.		✓ RLH
✓	2236	"	11'34.41"	41'46.01"	63.0	"			gn.	fine S., brk. Sh.		✓ RLH
✓	2236	"	13'17.76"	38'22.51"	41.6	"			gn.	fine S., brk. Sh.		✓ RLH

Use more than one line per sample if necessary.

* U.S. GOVERNMENT PRINTING OFFICE: 1978-018/1064

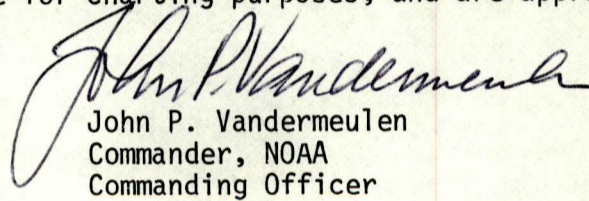
APPROVAL SHEET
DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY

H-10104

RA-40-3-83

In producing this sheet, standard procedures were observed in accordance with the Hydrographic Manual, PMC OORDER, Hydrographic Survey Guidelines, and the 1983 Data Requirements Letter. 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 Officer

U.S. DEPARTMENT OF COMMERCE
HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER
H-10104

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		2
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		2
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDIAN FILES					
ENVELOPES					
VOLUMES					
CAHIERS	1				
BOXES					

SHORELINE DATA					
SHORELINE MAPS(List):					
PHOTOBATHYMETRIC MAPS(List):					
NOTES TO THE HYDROGRAPHER(List):					
SPECIAL REPORTS(List):					
NAUTICAL CHARTS(List):					

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNT'S		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			1224
POSITIONS REVISED	2		2
SOUNDINGS REVISED	35		35
CONTROL STATIONS REVISED			
	TIME - HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION	2		2
VERIFICATION OF CONTROL	1	1	2
VERIFICATION OF POSITIONS	28	5	33
VERIFICATION OF SOUNDINGS	30	5	35
VERIFICATION OF JUNCTIONS	2	2	4
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	9	2	11
COMPARISON WITH PRIOR SURVEYS AND CHARTS	1	5	6
EVALUATION OF SIDESCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT	1	5	6
OTHER			
Digitization	2		2
TOTALS	76	25	101

Pre-processing Examination by	Beginning Date	Ending Date
Verification of Field Data by	xxxxxxx Beginning	Ending Date
I. A. Almacen	1/25/84	5/11/84
xxxxxxx Checks by	Time(Hours)	Ending Date
S. H. Otsubo, J. S. Green	30	7/10/84
Evaluation and Analysis by	Time(Hours)	Ending Date
C. R. Davies	25	6/7/84
Inspection by	Time(Hours)	Ending Date
D. Hill	1	7-18-84

PACIFIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO: H-10104

FIELD NO: RA-40-3-83

Alaska, Cook Inlet, Offshore Augustine Island to Cape Douglas

SURVEYED: July 21, 1983 to August 11, 1983

SCALE: 1:40,000

PROJECT NO: OPR-P114-RA-83

SOUNDINGS: Ross Fineline Fathometer

CONTROL: Range/Range
Hastings Raydist

Chief of Party.....CDR J. P. Vanderveulen, NOAA

Surveyed by.....LCDR D. Yeager
LT S. Iwamoto
LT S. Ludwig
LTJG M. Mathwig
LTJG R. Koehler
ENS B. Postle
ENS J. Judson
ENS J. Logue
ENS K. Barton
SST^R Hastings

Automated Plot by.....PMC Xynetics Plotter

Verified by.....S. H. Otsubo, I.A. Almacen

Evaluated by.....C. R. Davies

1. INTRODUCTION

H-10104 is a basic hydrographic survey conducted in accordance with the following:

Project Instructions, OPR-P114-RA-83 dated February 18, 1983 and Change 1 dated March 18, 1983.

H-10104 is part of a continuing project to resurvey southern Cook Inlet. Hydrographic operations encompassed the main channel between Augustine Island and Cape Douglas.

One temporary bubbler-tide gage, Cape Douglas (945-6477), was installed and operated concurrently with field operations. The Cape Douglas tide gage was utilized to zone the survey for reduction of sounding data on the smooth sheet. Soundings on the final field sheet were reduced on the basis of predicted tides from Seldovia (945-5500). Further information is available in the Field Tide Note.

During verification the following data was changed:

- a. Projection parameters were changed to center the hydrography on the smooth sheet and to change the projection to polyconic.
- b. Tide level values are from observed tides, see form 712.
- c. Velocity correctors were changed to reflect a corrected velocity in accordance with MOP letter of February 28, 1984 (copy attached).
- d. The electronic correctors were revised during verification to reflect the mean of the base line correctors.

Numerous abstracts and supplements not relevant to the user of the processed data have been removed from the Descriptive Report and filed with the field records.

2. CONTROL AND SHORELINE

Positions of the horizontal control stations used during survey operations are published geodetic positions and field positions based on the North American Datum of 1927. The smooth sheet was plotted using published NGS and field coordinates. Hydrographic positioning was conducted primarily using Hastings Raydist. All remaining information affecting the positioning and station control of the survey is listed in paragraphs F and G of the Descriptive Report, the Horizontal Control Report and the Electronic Report for OPR-P114-RA-83.

H-10104 is an offshore survey and no shoreline is shown on the smooth sheet.

3. HYDROGRAPHY

Crossline soundings are in good agreement. The depth curves could be adequately drawn. Hydrography within the limits of H-10104 was adequate to determine the bottom configuration and least depths.

4. CONDITION OF SURVEY

The hydrographic records and report are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change 3.

5. JUNCTIONS

H-10104 is bordered by three contemporary surveys:

H-10099 (1983)	1:40,000	- Joins
H-10105 (1983)	1:40,000	- Joins
H-10106 (1983)	1:20,000	- Joins

Adequate agreement was made with all standard depth curves and the junctional notes are inked accordingly.

H-10104 is bordered by three adjoining surveys:

H-8843 (1965) 1:40,000 - Adjoins
 H-9209 (1971) 1:40,000 - Adjoins
 H-9378 (1973) 1:40,000 - Adjoins

The "Adjoins" condition exists because the above mentioned surveys are unavailable.

Adequate agreement was made with all standard depth curves and the junctional notes are inked accordingly.

6. COMPARISON WITH PRIOR SURVEYS

H-2980 (1908-1909) 1:200,000
 H-3805 (1915) 1:120,000
 H-5194 (1931) 1:120,000

H-2980 compares well to H-10104; however, there is a slight deepening throughout the survey area, generally within 3 fathoms. H-10104 is adequate to supersede the prior survey information within the common area.

H-3805 compares poorly to H-10104, which is attributable to a general deepening throughout the survey area, up to 30 fathoms in places. H-3805 contains isolated shoal soundings unsupported by adjoining data, and not confirmed by the present survey. For example:

Charted Depth	H-10104 Depth	Latitude	Longitude
40	70	59° 10' 30" N ✓	152° 37' 00" W ✓
41	57	59° 12' 12" N ✓	152° 38' 36" W ✓
49	72	59° 11' 12" N ✓	152° 48' 48" W ✓
49	72	59° 10' 50" N ✓	152° 46' 40" W ✓
55	80	59° 03' 12" N ✓	152° 57' 48" W ✓

It was determined that H-3805 was surveyed utilizing Bassnett tubes as the sounding instrument, and that the hydrographer considered it unreliable at the time of the survey (see attached excerpt from H-3805 Descriptive Report). Therefore, H-3805, including the above listed shoal soundings, is superseded for the area of common coverage.

H-5194 compares very well to H-10104, generally within a fathom. H-10104 is adequate to supersede the prior survey information within the common area.

There were no PSR items within the limits of the present survey.

7. COMPARISON WITH CHART

16640, 19th Edition, April 23, 1983.

a. Hydrography -- Charted information originates with the prior surveys previously discussed in Section 6. H-10104 is adequate to supersede the charted information over the common area.

b. Controlling Depths -- There are no controlling depths within the limits of the present survey.

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

8. COMPLIANCE WITH INSTRUCTIONS

H-10104 adequately complies with the project instructions and changes listed in section 1 of this report.

9. ADDITIONAL FIELD WORK

H-10104 is a good basic hydrographic survey. No additional field work is required.

Respectfully submitted,

Charles R. Davies

Charles R. Davies
Cartographic Technician
July 10, 1984

This survey has been verified and evaluated. I have examined this survey and it meets Charting and Geodetic Services survey standards and requirements for use in nautical charting except as noted in the Evaluation Report. This survey is recommended for approval.

J S Green
James S. Green
Supervisory Cartographer

DATE: 2/21/84

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-10104

Locality: Southern Cook Inlet, Alaska

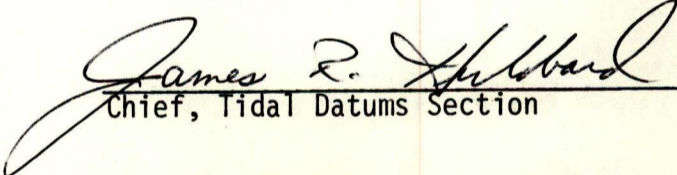
Time Period: July 21-August 11, 1983

Tide Station Used: 945-6477 Cape Douglas, Alaska

Plane of Reference (Mean Lower Low Water): 16.37 ft.

Height of Mean High Water Above Plane of Reference: 12.5 ft.

Remarks: Recommended Zoning: (See Page 2)


Chief, Tidal Datums Section

February 21, 1984

2

H-10104

A. West of longitude 153°05.0'

1. North of latitude 58°57.0' zone on 954-6477 and apply x1.03 range ratio.
2. South of 58°57.0' zone direct on 945-6477.

B. East of longitude 153°05.0'

1. North of latitude 59°07.0' zone on 945-6477 and apply x1.03 range ratio.
2. South of 59°07.0' to 58°58.0' zone on 945-6477, apply - 10 minute time correction and x1.03 range ratio.
3. South of 58°58.0' zone on 945-6477, apply a -10 minute time correction and x0.98 range ratio.

National Ocean Service
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

FEB 28 1984

N/MOP:MRK

TO: Commanding Officer
NOAA Ship RAINIER

FROM: N/MOP - Charles K. Townsend

SUBJECT: Sound Velocity Corrections

It has been determined that the velocity tables were calculated incorrectly for all projects in which the new Sound Velocity/Depth Measuring System (SV/D) was used. Projects included are OPR-P114-RA-83, OPR-0168-RA-83, and S-0908-RA-83. Project S-0907-RA-83 used tables from OPR-0168-RA-83.

A "Data Reduction Program" was written by the ship for the HP-97 that incorrectly calculates a velocity correction factor based on the depth (determined from pressure readings) and sound velocity at that depth. Since sound velocity in most cases varies with depth, the water column must be considered in layers with a velocity correction factor determined for each layer. The corrections computed are then summed to arrive at total velocity corrections applicable to given depths. The velocity correction factors must be redone using the "summation of layers" method for all projects.

Another factor not considered in the HP-97 program is the vessel's draft. Velocity tables are tabulated so that the entering argument is the observed depth plus the draft. Using the SV/D, the first layer includes the water column from the surface to the transducer. This fact necessitates a corresponding shift in layer thickness when calculating the first layer correction unless the draft effect is negligible.

For projects OPR-0168-RA-83 and S-0908-RA-83 the incorrect pressure coefficients were entered into the "Coefficient Input Program". Sound velocity and depth values should be recomputed for these projects.

The results of these corrective actions should be submitted as addenda to the appropriate Corrections to Echo Sounding Reports (enclosed) and forwarded to the Nautical Chart Branch, N/MOP21 prior to departure in mid-February. The addendum should include a brief explanation, HP-97 program results (if applicable), layer correction worksheets, graphs, and velocity tables. Refer to the Hydrographic Manual, section 4.9.5.2, for instructions on layering and determining corrections.

Questions regarding this matter should be referred to Dennis Hill, N/MOP211, telephone 527-6853.

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10104

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.

David W. Yeager 7/19/84
Chief, Nautical Chart Branch (Date)

CLEARANCE:

N/MOP2:LWMordock

SIGNATURE AND DATE:

L. W. Mordock 7/24/84

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.

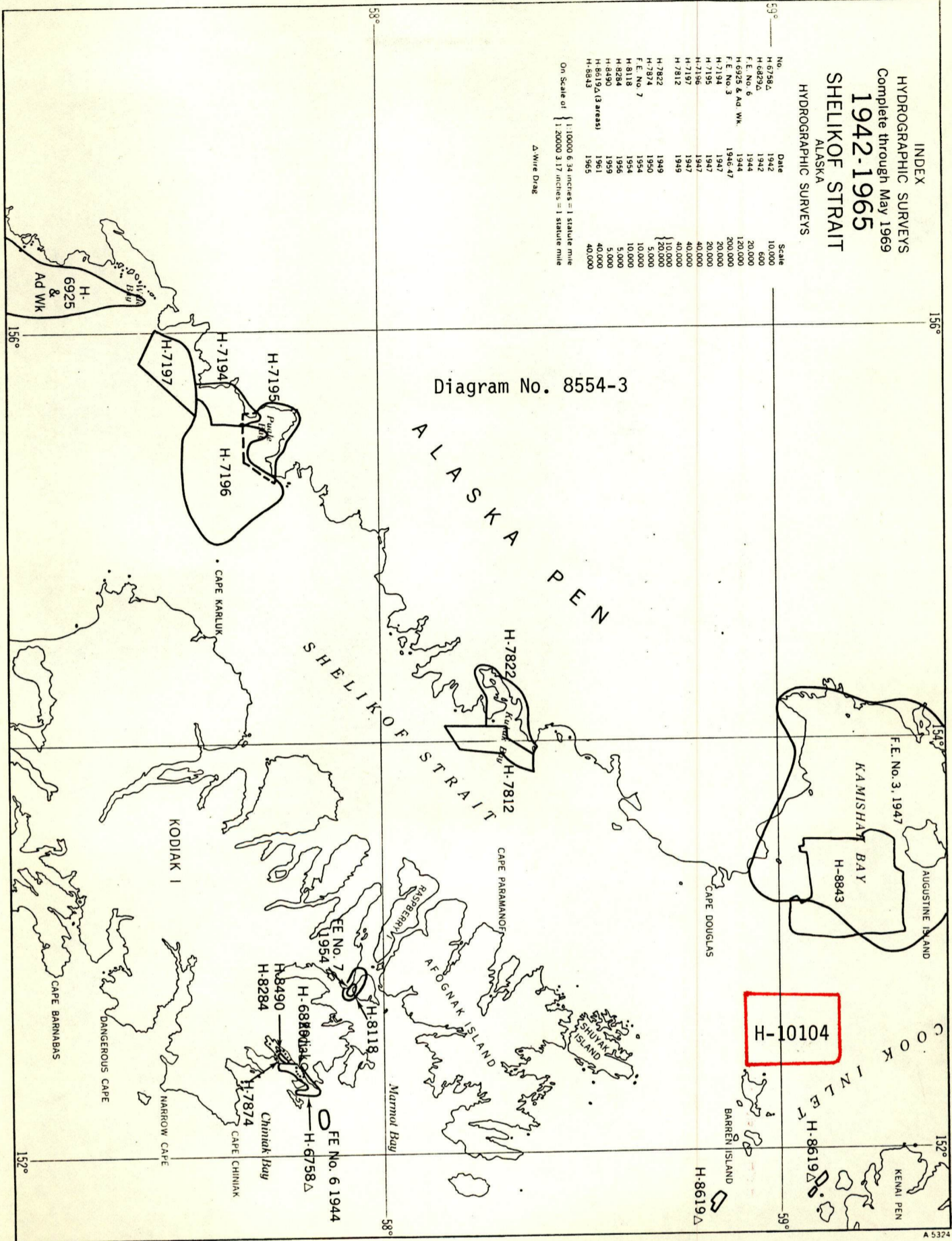
Robert L. Jensen 7/25/84
Director, Pacific Marine Center (Date)

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

No.	Date	Scale
H-6758, 2	1942	10,000
H-6827, 5	1944	20,000
H-6925, Ad Wk	1944	20,000
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-7812	1949	40,000
H-7822	1949	20,000
H-7874	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-8519, (3 areas)	1961	40,000
H-8843	1965	40,000

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

Diagram No. 8554-3



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10104

INSTRUCTIONS

- A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
 2. In "Remarks" column cross out words that do not apply.
 3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
16606	10/22/84	H.J. Gorawski	Full Part Before After Verification Review Inspection Signed Via Drawing No. #10 Fully app'd hydro in the area <i>common with 16606</i>
16608	11/26/84	H.J. Gorawski	Full Part Before After Verification Review Inspection Signed Via Drawing No. Fully app'd thru 16606 in common area, app'd directly to 16608 outside of common area.
16013	11/27/84	B. Fernandes	Full Part Before After Verification Review Inspection Signed Via Drawing No. 27 <i>Exam, for critical corr., no corr.</i>
16648	11/27/84	H.J. Gorawski	Full Part Before After Verification Review Inspection Signed Via Drawing No. Fully app'd thru 16608 in the common area, app'd directly outside of overlap area.
16640	10/85	JMO Connor	Full Part Before After Verification Review Inspection Signed Via Drawing No. 22 Applied
16580	9/3/87	R. Huxfield	Full Part Before After Verification Review Inspection Signed Via Drawing No. #20 FULLY APP'D
16013	4/1/91	ALMACEN	Full Part Before After Verification Review Inspection Signed Via Drawing No. Fully applied snags. from SS thru 16640.
531	4/15/91	ALMACEN	Full Part Before After Verification Review Inspection Signed Via H- Drawing No. Fully applied snags. from SS thru 16013.
580	4/18/91	ALMACEN	Full Part Before After Verification Review Inspection Signed Via Drawing No. Applied 124, 147, 159 & 159 m. snags. from SS thru 531.
531	7-13-85 7-25-88	P. Elliott L. Hargrove	Full Part Before After Verification Review Inspection Signed Via Drawing No. 21 APPL'D THRU ¹⁶⁰¹³ DRG #30