

10105

Diagrams 8554-3 & 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-40-4-83.....
Office No..... H-10105.....

LOCALITY

State Alaska.....
General Locality Cook Inlet.....
Locality North and West of Barren.....
Islands.....
1983

CHIEF OF PARTY
CDR J.P. Vandermuelen.....

LIBRARY & ARCHIVES

DATE August 14, 1984.....

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

Area 6

CHTS

✓16640 200

✓16606

16013

✓16645

✓16580

531'

500'

to sign off see
Record of Application

HYDROGRAPHIC TITLE SHEET

H-10105

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

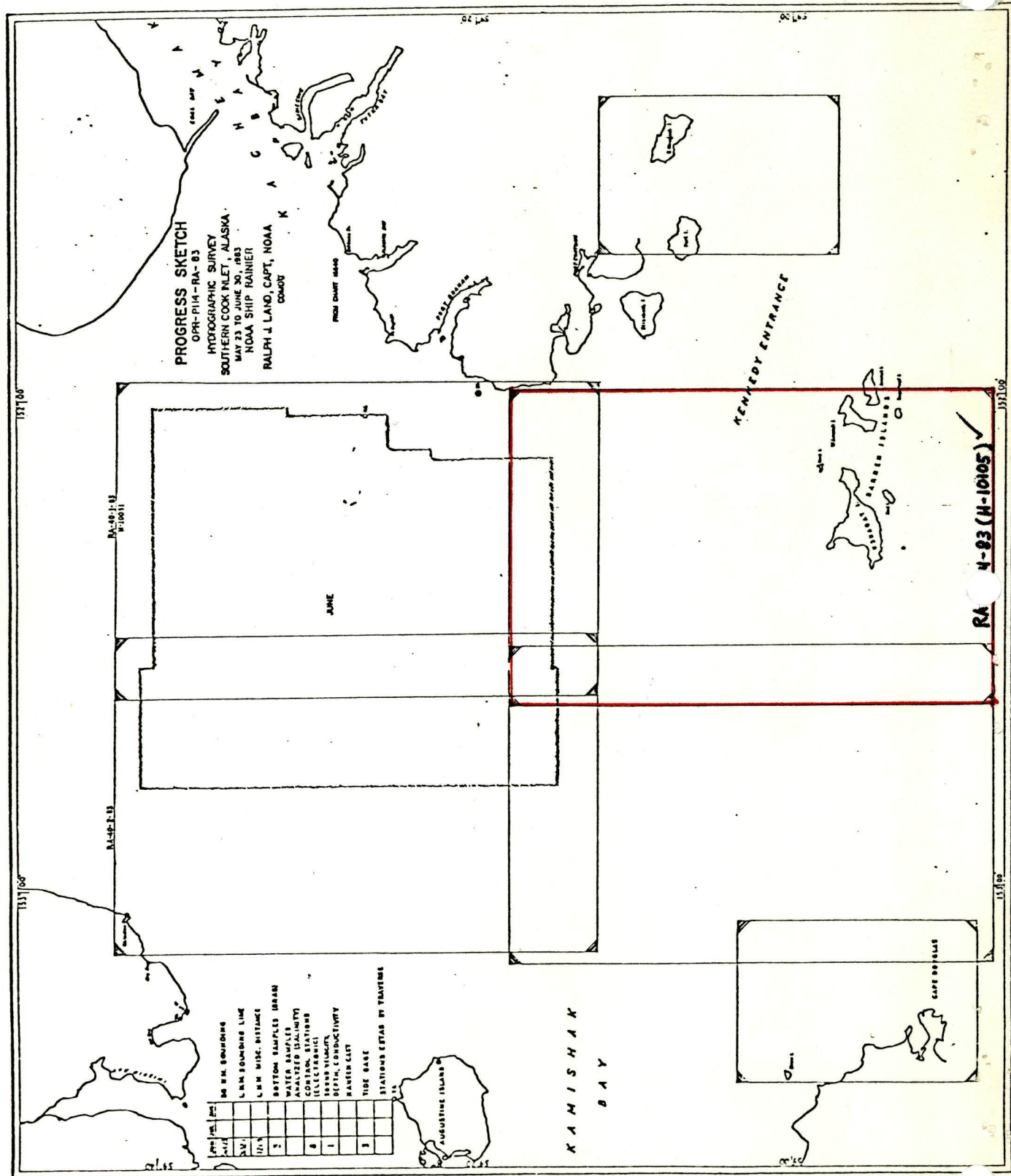
FIELD NO.

RA-40-4-83

State AlaskaGeneral locality Cook InletLocality North and West of Barren IslandsScale 1:40,000 Date of survey July 28 - August 11, 1983Instructions dated February 18, 1983 Project No. OPR-P114-RA-83Vessel NOAA Ship RAINIER (2120)Chief of party CDR J. P. Vandermuelen, 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 W. Logue, ENS K. Barton, SST R. Hastings
Soundings taken by echo sounder, hand lead, pole Ross Fineline Fathometer System

Graphic record scaled by Ship's PersonnelGraphic record checked by Ship's PersonnelVerification Extracted by A. A. Luceno Automated plot by PMC Xynetics PlotterEvaluation XXXXXXXXX by C. R. DaviesSoundings in fathoms feet at MLW MLLWREMARKS: All times are in UTC.Annotations in black made during evaluation.STANDARDS CK'D 8-16-84C. LoyAWOISV RUD 9/19/84SC 5-6-97XW/W 3/9/92



A. PROJECT

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

B. AREA SURVEYED

This survey was conducted in southern Cook Inlet. The western survey limit
was 152° 34.0'W and the eastern limit was 152° 02.0'W. The northern and
southern limits were defined by latitudes 59° 15'N and 58° 50'N, respectively.
The inclusive dates of this survey were from July 28 to August 1, 1983.

C. SOUNDING VESSEL

The NOAA Ship RAINIER (2120) was the only vessel used in conducting this sur- ✓
vey. 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
and 1040-6), a model 5000 analog trace recorder (S/N 1070), a model 6000 digi-
tizer (S/N 1040 and 1080), 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° 51.0'N 152° 32.7'W
July 27, 1983 (JD) 208	58° 54.3'N 153° 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 correc-
tions 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 Velocity 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 OPORDER, 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-40-4W-83 and RA-40-4E-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 to 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 August 5, 1983 (JD 217), Position 1635, a lane jump occurred, when the foghorn sounded. Later, the same day, Position 1708, both patterns were lost for 5 hours due to weather.

Mini-Ranger systems worked well.

H. SHORELINE

Shoreline on this survey is for orientation only. Shoreline was transferred ✓
from an enlargement of Chart 16640.

I. CROSSLINES

Crosslines were run at 10% of the mainscheme sounding lines. Agreement of ✓
crossings was within 1 fm.

J. JUNCTIONS

Junctions were made with the following surveys:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Location of Junction</u>
H-9879	1980	1:20,000	East
H-9890	1980	1:20,000	East
H-10091	1983	1:40,000	North
H-10104	1983	1:40,000	West
H-10094	1983	1:40,000	Northwest

The junctions with surveys H-9879 and H-9890 were good, soundings agreed within 1 fm. The junction with H-10091 and H-10104 does not overlap because they were accomplished by the same vessel during the same year. ✓
The depth curves were continuous between these surveys except in the area between 59° 00.0'N and 58° 56.0'N along 152° 34.0'W where a seabed slope exists between the two adjacent sounding lines.

K. COMPARISON WITH PRIOR SURVEYS

Comparison was made with the following prior surveys:

<u>Survey</u>	<u>Year</u>	<u>Scale</u>
H-3805	1915	1:200,000
H-5194	1931	1:120,000
H-5192	1931	1:40,000
H-5193	1931	1:40,000

Comparisons with H-3805 were generally poor. Discrepancies up to 10 fm exist, with present survey generally deeper. An unnumbered, dashed-circle, PSR item, a 32 fm sounding at 59° 14'N, 152° 33'W does not exist, depths in the area are 39-40 fm on the present survey. *Concur*

Comparison with prior surveys H-5192, H-5193 and H-5194 were good, depths ✓
agreed within 2 fm.

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, and Chart 16606, Seventeenth Edition, ✓
October 1979, however, enlargements were not made. Deepening has occurred throughout most of the survey area. These charts were 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 chart-
ing purposes. ✓ *correct*

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)	880.4	333.41	1201 1190

Bottom Samples: 12
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. ✓

No anomalous currents were reported or observed. ✓

Sand wave features, 1-4 fm high, exist in the survey area north of 59° 11'N. ✓

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 OPORTER, 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 cor-
responding corrector tapes which include the TRA, electronic calibration
correctors for Raydist and all depth corrections. Velocity tapes were gen-
erated 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

<u>Number</u>	<u>Description</u>	<u>Version</u>
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
AM 603	Binary Tape Consolidator	10/10/72
RK 606	Tape Duplicator	8/22/74
AM 607	Self-Starting Binary Loader	8/10/80
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

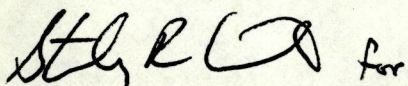
The HP-9815 and HP-97 calculators were used to compute geographic positions of electronic control stations and velocity of sound corrections for the plotting of smooth field sheets. ✓

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,

 for
William G. Logue, ENS, NOAA

PARAMETER TAPE LISTING
RA-40-4-83 (H-10105)

RA-40-4W-83
SKEW:90,22,54
FEST=76000
CLAT=6514000
CMER=152/30/0
GRID=2/0
PLSCL=40000
PLAT=58/47/12
PLON=152/14/45
VESNO=2120
YR=83
ANDIST=32.2

RA-40-4E-83
SKEW:90,20,40
FEST=76000
CLAT=6514000
CMER=152/30/0
GRID=2/0
PLSCL=40000
PLAT=58/56/00
PLON=151/59/15
VESNO=2120
YR=83
ANDIST=32.2

FIELD TIDE NOTE
RA-40-4-83

Field tide reduction of soundings for survey H-10105 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-10105.

A bubbler tide gage was installed on May 24, 1983 at the historical gage site on Flat Island (945-5452), $59^{\circ} 19' 8'' \text{N}$, $151^{\circ} 59' 3'' \text{W}$. Five permanent benchmarks were recovered and leveled to on May 25, 1983. The staff value of the zeroline on the analog tide record is +4.25 feet. The gage operated well throughout the period of hydrography. Final levels for this gage were run on August 11, 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 23, 1983 at the historical site on Ushagat Island (945-5478), $58^{\circ} 56' 8'' \text{N}$, $152^{\circ} 14' 5'' \text{W}$. Five permanent benchmarks were leveled to on July 23, 1983 (Three benchmarks were recovered; two were established). The staff value of the zeroline on the analog tide record is +6.0 feet. The gage operated well throughout the period of hydrography. Final levels for this gage were run on August 20, 1983. At this gage site a staff was not installed. For tide staff observations, levels were run to the waters edge using a benchmark as a reference point. All levels run at this gage site indicated that no significant movement of the orifice 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: Oil Bay (945-6463), Augustine Island (945-6537), and Sukoi Bay (945-6477).

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

NOAA FORM 76-155 (11-72)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION						SURVEY NUMBER H-10105	
GEOGRAPHIC NAMES									
Name on Survey	<div> <div>A</div> <div>B</div> <div>C</div> <div>D</div> <div>E</div> <div>F</div> <div>G</div> <div>H</div> <div>K</div> </div> <div> <div>ON CHART NO.</div> <div>ON PREVIOUS SURVEY NO.</div> <div>ON U.S. QUADRANGLE MAPS</div> <div>FROM LOCAL INFORMATION</div> <div>ON LOCAL MAPS</div> <div>P.O. GUIDE OR MAP</div> <div>RAND McNALLY ATLAS</div> <div>U.S. LIGHT LIST</div> </div>								
Alaska (Title)									1
Cook Inlet	x								2
									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 ✓
RA-40-4-83 (H-10105)

VESSEL - 2120 (RAINIER)
FATHOMETER S/N 1070,1071

051659 0 0026 0004 209 212000 000000
~~143200~~ 0 0026 0004 223 000000 000000
235959

ELECTRONIC CORRECTOR ABSTRACT ✓

VESSEL : 2120

SHEET : RA-40-4-83

TIME	DAY	PATTERN 1	PATTERN 2
051659	209	-00041	-00042
230915	213	+00004	+00028
000015	214	+00004	+00028
030917	215	+00023	+00016
135542	215	+00023	+00016
000011	216	+00023	+00016
012226	216	+00023	+00016
085044	216	+00023	+00016
183915	216	+00023	+00016
000035	217	+00023	+00016
031315	217	+00023	+00016
062443	217	+00011	+00015
075018		+00111	+00015
224230	217	+00058	-00078
003126	218	+00058	-00078
074302	218	+00058	-00078
144618	218	+00058	-00078
204108	218	+00025	-00078
013642	222	-00008	-00058
104242	222	-00008	-00058
194326	222	-00008	-00058
142121	223	-00022	-00066
090322	223	-00022	-00066

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	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	49766	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	53282	139	0022	000000	
/ANCHOR POINT LIGHT 1975 NGS LISTING											
201	3	59	41	03434	151	38	12376	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 35349 153 03 09672 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 13325 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-10105

RA-40-4-83

<u>Day</u>	<u>Positions</u>	<u>CTRL</u>	<u>S1 M S2</u>	<u>Remarks</u>
209	1000-1018	04	100-101	Mainscheme Line
213/214	1019-1037	04	100-101	Mainscheme Line
215/218	1038-1887	04	100-101	Mainscheme Lines
218	1888-1916	04	100-101	Crosslines
218	1917-1945	04	100-101	Mainscheme Lines
218	1946-1948	04	100-101	Crossline
222	1949-1957	04	100-101	Mainscheme Lines
222	1958	04	100-101	Bottom Sample
222	1959-1981	04	100-101	Mainscheme Lines
222	1982-1987	04	100-101	Crossline
222	1988-1994	04	100-101	Mainscheme Lines
222	1996	04	100-101	Bottom Sample
222	1997-2006	04	100-101	Crosslines
222	2009	04	100-101	Bottom Sample
222	2010-2029	04	100-101	Crosslines
222	2030-2044	04	100-101	Mainscheme Lines
222	2045-2053	04	100-101	Crossline
222	2054	04	100-101	Bottom Sample
222	2055-2058	04	100-101	Crossline
222	2059-2065	04	100-101	Mainscheme Lines
222	2066	04	100-101	Bottom Sample
222	2067-2074	04	100-101	Crossline
222	2075	04	100-101	Bottom Sample
222	2076-2082	04	100-101	Mainscheme Line
222	2083	04	100-101	Bottom Sample
222	2084-2122	04	100-101	Mainscheme Lines
222	2123-2128	04	100-101	Crossline
222	2129	04	100-101	Bottom Sample
222	2130-2136	04	100-101	Mainscheme Line
222	2137	04	100-101	Bottom Sample
222	2138-2143	04	100-101	Mainscheme Line
222	2144	04	100-101	Bottom Sample
222	2145-2157	04	100-101	Crossline
223	2158-2198	04	100-101	Mainscheme Lines
223	2199-2200	04	100-101	Bottom Samples

Vesno = (2120) RAINIER

Andist = +32.2 Meters

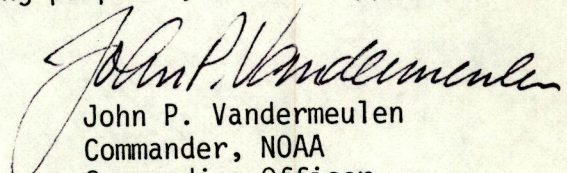
Rejected Positions: 1637-1640, 1991, 1995, 2007-2008, 2172-2174

Use more than one line per sample if necessary.

APPROVAL SHEET
DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
H-10105
RA-40-4-83

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

HYDROGRAPHIC SURVEY STATISTICS

H-10105

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		3
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					1
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES					

SHORELINE DATA

SHORELINE MAPS(List):

PHOTOBATHYMETRIC MAPS(List):

NOTES TO THE HYDROGRAPHER(List):

SPECIAL REPORTS(List):

NAUTICAL CHARTS(List): 16640, 18th Ed. April 83 and 16605

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			1190
POSITIONS REVISED	87		87
SOUNDINGS REVISED	97		97
CONTROL STATIONS REVISED			
	TIME - HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL	3	1	4
VERIFICATION OF POSITIONS	43	2	45
VERIFICATION OF SOUNDINGS	70	3	73
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Pre-processing Examination by

Beginning Date

Ending Date

Verification of Field Data by

Beginning

Ending Date

A. A. Luceno

12/2/83

5/18/84

S. H. Otsubo, J. S. Green

Time(Hours)

Ending Date

Evaluation and Analysis by

Time(Hours)

Ending Date

C. R. Davies

Time(Hours)

Ending Date

Inspection by

Time(Hours)

Ending Date

D. Hill

2

7-19-84

PACIFIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO: H-10105

FIELD NO: RA-40-4-83

Alaska, Cook Inlet, North and West of Barren Islands

SURVEYED: July 28, 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. Vandermeulen
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.....A. A. Luceno

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

1. INTRODUCTION

H-10105 is a basic hydrographic survey conducted by the NOAA Ship Rainier in accordance with the following:

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

The survey is part of a continuing project to update hydrography in Southern Cook Inlet. H-10105 is an offshore survey extending from Point Adams south to Ushagat Island.

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 the final soundings are computed from approved hourly heights zoned from three temporary bubbler tide gages, Flat Island, Ushagat Island, and Cape Douglas.

During verification, the following was changed:

- a. Projection parameters were changed to center the hydrography on the smooth sheet and to change the projections to polyconic.
- b. Tide level values are from observed tides, see form 712.
- c. Velocity correctors were changed to reflect a corrected velocity determination in accordance with MOP letter dated February 28, 1984, (copy attached).

2. CONTROL AND SHORELINE

Hydrographic control and hydrographic positioning are adequately discussed in Descriptive Report paragraphs F and G, and Horizontal and Electronics Control Report for OPR-P114-RA-83.

The smooth sheet was plotted using published and field geodetic positions, based on the North American Datum 1927.

No shoreline is shown on H-10105 as it is an offshore survey.

3. HYDROGRAPHY

Crossline soundings are in good agreement except in areas of sand waves. The hydrography within the limits of H-10105 was adequate to determine the bottom configuration and least depths. Standard depth curves were adequately drawn.

4. CONDITION OF SURVEY

The hydrographic records and report are adequate and conform to the requirements of the Hydrographic Manual.

5. JUNCTIONS

Survey	Year	Scale	Note	Color	Junctions on
H-9879	1980	1:20,000	Adjoins	Violet	Northeast
H-9890	1980	1:20,000	Adjoins	Red	East
H-10091	1983	1:40,000	Joins	Brown	North
H-10099	1983	1:40,000	Joins	Violet	Northwest
H-10104	1983	1:40,000	Joins	Red	West

Soundings and depth curves are in agreement. The "Adjoins" condition exists because the above mentioned surveys are unavailable.

6. COMPARISON WITH PRIOR SURVEYS

H-3805 (1915) 1:200,000. Present survey data compares poorly with this prior survey, generally shoaler from one to eight fathoms. H-10105 is adequate to supersede H-3805 over their common area.

H-5192 (1931) 1:40,000, H-5193 (1931) 1:40,000, H-5194 (1931) 1:120,000. Present survey data compares well with these prior surveys, generally within two fathoms. H-10105 is adequate to supersede H-5192, H-5193, H-5194 over their common areas.

There are three dashed-circle PSR items which fall within the survey area:

a. A 32 fathom sounding at latitude 59°14'00"N longitude 152°33'00"W originates from H-3805. It was investigated at 200 meter spacing and a minimum depth of 39 fathoms found. The 32 fathom sounding on H-3805 is on-line, and seven fathoms shoaler than other soundings in the vicinity, which agrees with the present survey. It is like several shoal soundings on H-3805, which were not confirmed by the other surveys during this project (4 surveys). It was determined that H-3805 was surveyed utilizing Bassnett tubes as the sounding instrument, and the hydrographer considered that system as unreliable (see attached excerpt from H-3805 Descriptive Report). Accordingly, the 32 fathom sounding is superseded by data from this survey.

b. A 49 fathom sounding at latitude 59°12'30"N, longitude 152°34'00"W, also originating from H-3805, is superseded by a 40 fathom sounding found on the present survey. This area should be charted according to H-10105.

c. A 47 fathom sounding at latitude 59°11'45"N, longitude 152°30'00"W, originating from H-3805, is superseded by a 43 fathom sounding found in the same vicinity. This area should be charted according to H-10105.

7. COMPARISON WITH CHART

H-10105 was compared to the following:

Chart number	Scale	Edition	Date
16640	1:200,000	19th	April 23, 1983

a. Hydrography. Present charted soundings originate with the prior surveys discussed in Section 6. There are no dangers to navigation identified or reports submitted by the ship or PMC processing for the survey. H-10105 is adequate to supersede charted hydrography within the common area.

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

c. Aids to Navigation. There are no aids to navigation within the limit of the survey.

8. COMPLIANCE WITH INSTRUCTIONS

H-10105 adequately complies with the project instructions and the change as amended and noted in section 1 of this report.

9. ADDITIONAL FIELD WORK

This is a good basic hydrographic survey. No additional field work is required.

Respectfully submitted,

Charles R. Davies

Charles R. Davies
Cartographic Technician
July 15, 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.

James S. Green

James S. Green
Supervisory Cartographer

February 21, 1984

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-10105

Locality: Southern Cook Inlet, Alaska

Time Period: July 28-August 11, 1983

Tide Station Used:

945-5452 Flat Island, Alaska
945-5478 Ushagat Island, Alaska
945-6477 Cape Douglas, Alaska

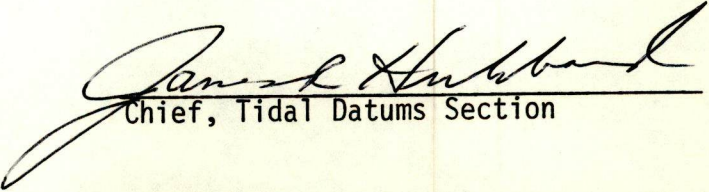
Plane of Reference (Mean Lower Low Water):

945-5452 = 13.38 ft.
945-5478 = 9.72 ft.
945-6477 = 16.37 ft.

Height of Mean High Water Above Plane of Reference:

945-5452 = 15.3 ft.
945-5478 = 12.6 ft.
945-6477 = 12.5 ft.

Remarks: Recommended Zoning: (See page 2)


Chief, Tidal Datums Section

February 21, 1984

2

H-10105

A. West of longitude 152°30.0'

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 -10 minute time correction and x0.98 range ratio.

B. East of longitude 152°30.0'

1. South of latitude 59°02.5' zone on 945-5478 and apply x0.99 range ratio.
2. North of 59°02.5' to 59°12.0' zone on 945-5478 and apply x1.03 range ratio.
3. North of 59°12.0' a zone bordered at the corners by the following points:
:

- | | | |
|----|-----------|----------|
| a. | 152°30.0' | 59°17.0' |
| b. | 152°23.0' | 59°17.0' |
| c. | 152°00.0' | 59°12.0' |
| d. | 152°30.0' | 59°12.0' |

Zone on 945-5452 and apply x0.84 range ratio.

4. Northeast of the previous zone, to a zone bordered at the corners by the following points:

- | | | |
|----|-----------|----------|
| a. | 152°23.0' | 59°17.0' |
| b. | 152°05.5' | 59°17.0' |
| c. | 151°59.0' | 59°14.0' |
| d. | 152°00.0' | 59°12.0' |

Zone on 945-5452 and apply x0.87 range ratio.

5. Northeast of the previous zone, zone on 945-5452 and apply x0.91 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-10105

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. Jager 7/19/84
Chief, Nautical Chart Branch (Date)

CLEARANCE:

N/MOP2:LWMordock

SIGNATURE AND DATE:

Larry D. 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 K. Townsend 7/25/84
Director, Pacific Marine Center (Date)

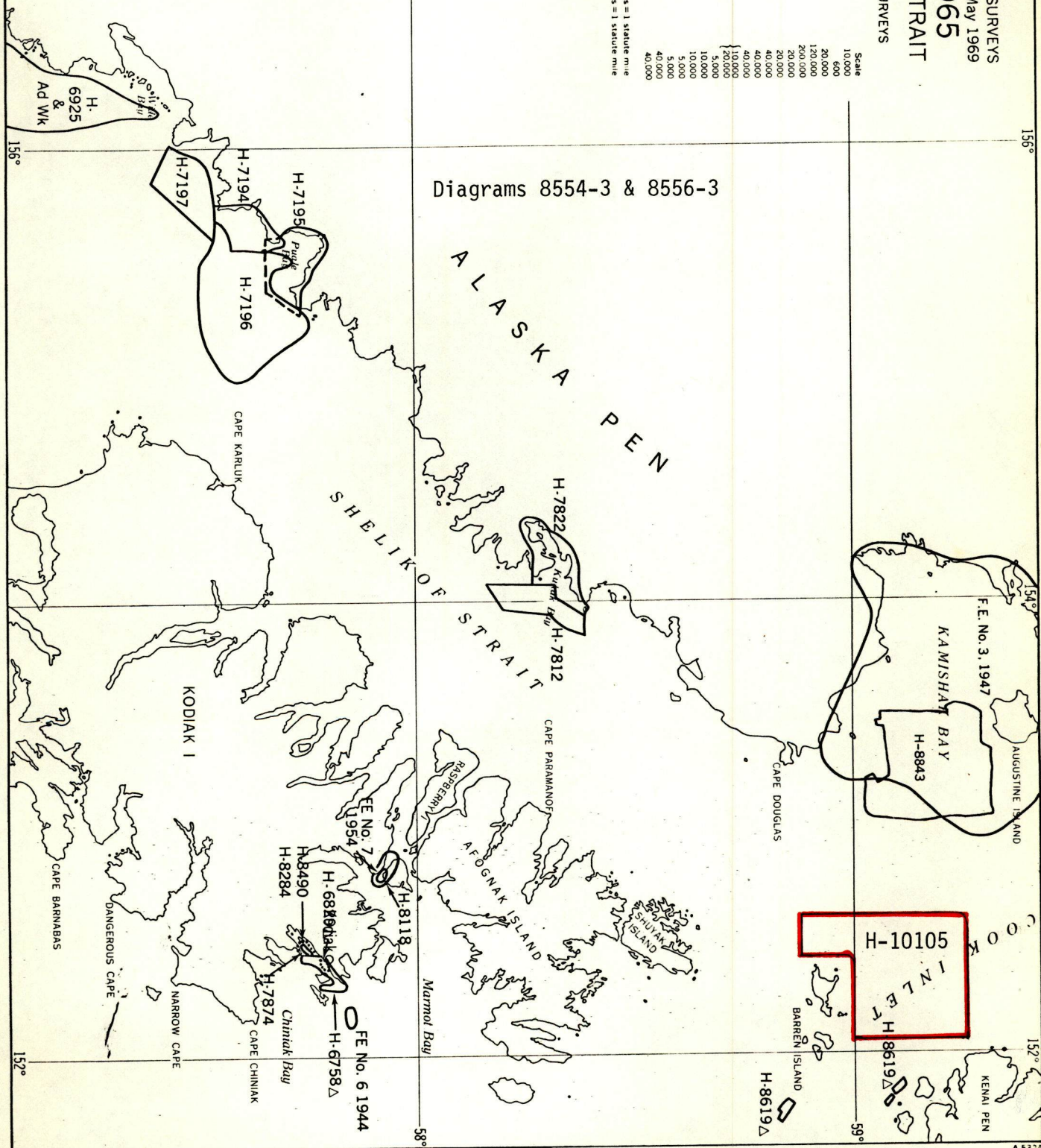
HYDROGRAPHIC SURVEYS

No.	Date	Scale
M 6158, L	1942	10,000
M 6279, L	1942	600
F E No 6	1944	20,000
F 3523, Ad MN.	1946-47	200,000
F 3154	1947	20,000
M 7195	1947	20,000
M 7196	1947	40,000
M 7197	1947	40,000
M 7812	1949	20,000
M 7822	1949	20,000
M 7874	1950	5,000
F E No 7	1954	10,000
M 8118	1954	10,000
M 8240	1956	5,000
M 8242	1959	5,000
M 8530 (3 areas)	1959	40,000
M 8543	1965	40,000

On Scale of $\left\{ \begin{array}{l} 1:10000 \text{ 34 inches} = 1 \text{ statute mile} \\ 1:20000 \text{ 17 inches} = 1 \text{ statute mile} \end{array} \right.$

3000 3.17 inches = 1 statute mile

Diagrams 8554-3 & 8556-3



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10105

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	10/29/84	H.G. Grawski	Full Part Before After Verification Review Inspection Signed Via Drawing No. #10 Fully appld hydro in area common with chart
16013	11/27/84	B. Fernandes	Full Part Before After Verification Review Inspection Signed Via Drawing No. 27 Exam. for critical corr., no critical corr
500	5/24/85	R.S. House	Full Part Before After Verification Review Inspection Signed Via Drawing No. 5 Fully appld
16646	10/85	J.M. O'Connor	Full Part Before After Verification Review Inspection Signed Via Drawing No. 22 Applied, Hold for new cht 16647 sched for 1986
16580	9/3/87	R. Kirkfield	Full Part Before After Verification Review Inspection Signed Via Drawing No. #20 FULLY APPL'D
16645	10/3/88	Cartier	Full Part Before After Verification Review Inspection Signed Via Drawing No. 17 in Full (agrees with 16640)
16640	6-22-89	Patrice Hunt	Full Part Before After Verification Review Inspection Signed Via Drawing No. 23 20 th Ed.
16013	4/2/91	ALMACEN	Full Part Before After Verification Review Inspection Signed Via Drawing No. Fully applied sndgs. from SS thru 16640.
531	4/15/91	ALMACEN	Full Part Before After Verification Review Inspection Signed Via H- Drawing No. Fully applied sndgs. from SS thru 16013.
500	4/18/91	ALMACEN	Full Part Before After Verification Review Inspection Signed Via Drawing No. Applied 71 & 78 m. sndgs. from SS thru 531.
531	7-13-95 7-28-95	R.E. Elliott S. Sharpine	FULL DRG #21 APPL'D THRU 16013 (#30)