9286

Diag. Cht. No. 8102-3.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. FA-10-2-72 Office No. H-9286

LOCALITY

State Alaska

General locality Ernest Sound
~~Southeast Alaska~~

Locality Petersburg I to Brownson I
~~Ernest Sound~~

1972

CHIEF OF PARTY

CAPT R.H. Houlder, Comdg.,

LIBRARY & ARCHIVES

DATE 10-21-74

USCOMM-DC 37022-P66

9286

FORM C&GS-537 (5-66)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REGISTER NO.
H-9286

FIELD NO.
FA 10-2-72

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

State Alaska

General locality ~~Southeast Alaska~~ Ernest Sound

Locality Ernest Sound Petersen I to Brownson I

Scale 1:10000 Date of survey 23 March - 21 April 1972

Instructions dated 28 February 1972 Project No. OPR-465

Vessel NOAA Ship FAIRWEATHER (MSS20) Launches AR-1 and FA-5

Chief of party Captain R. H. Houlder

Surveyed by LT. M. C. Grunthal LTJG D. B. McLean
LT. A. N. Bodnar, Jr. LTJG K. H. Underwood ENS R. J. Schmidl

Soundings taken by echo sounder, hand lead, pole Echo Sounder

Graphic record scaled by Ship's Personnel; PDP-8/E

Graphic record checked by Ship's Personnel

Protracted by Not applicable Automated plot by ~~PDP-8/E~~ PMC - Gerber Digital Plotter

Soundings penciled by PDP-8/E

Soundings in fathoms feet at MLW MLLW fathoms at MLLW

REMARKS:

USCOMM-DC 37009-P66

COMPUTER BOAT SHEET LAYOUT

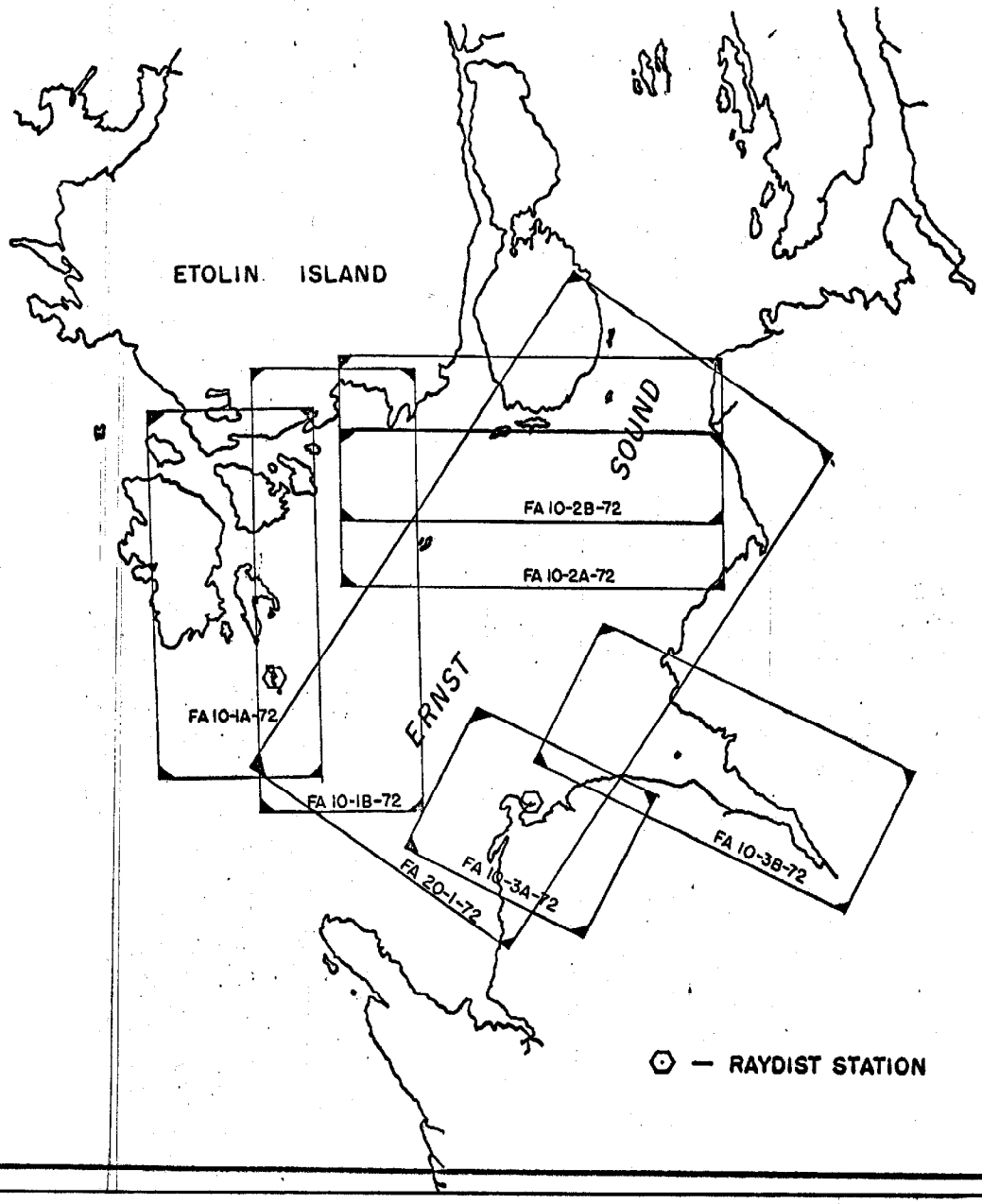
OPR-465

ERNEST SOUND, S.E. ALASKA

NOAA SHIP FAIRWEATHER

CAPT. R. H. HOULDER CMDG

SCALE OF C&GS CHART 8102



DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY FA 10-2-72 (H-9286, 1:10,000)
(COMPUTER BOATSHEETS FA 10-2A-72 AND FA 10-2B-72)

A. PROJECT

This project, OPR 465, is a continuation of previous work by NOAA ships in Ernest Sound, Alaska. The survey was accomplished in accordance with Project Instructions, OPR 465, FA-72, Clarence Strait and Ernest Sound, Southeast Alaska, dated 28 February 1972 and with the Pacific Marine Center OPORDER.

B. AREA SURVEYED

The area surveyed is an irregularly shaped figure south of Brownson Island and including Petersen and Westerly Islands in Ernest Sound. The approximate co-ordinates of the area surveyed are (1) 55°52'20"N, 132°16'30"W; (2) 55°53'45"N, 132°08'30"W; (3) 55°53'30"N, 132°07'00"W; (4) 55°56'00"N, 132°07'00"W, and (5) 55°56'00"N, 132°16'30"W. All field work was accomplished between 23 March 1972 and 21 April 1972. Junctions were made with contemporary surveys FA 20-1-72 and FA 10-1-72. The only detailed prior survey of the area is H-4271, 1922 at a scale of 1:20,000.

C. SOUNDING VESSELS

Two FAIRWEATHER launches were used to accomplish the hydrography. No color differentiation is made in plotting as all data was plotted by the onboard PDP/8E computer. The position numbers used by each launch follow:

AR-1 (Hydrolog launch)	2001-3738; 3800-3808
FA-5	6001-6466

D. SOUNDING EQUIPMENT

Launch AR-1 used a Ross Model 5000 fathometer, serial number 1046. Launch FA-5 used a Raytheon DE-723, serial number 558. Depths to 210 fathoms were measured by the Ross fathometer and to 80 fathoms by the Raytheon.

When running hydrography at sounding speeds (8.5-10.5 knots), launch AR-1 assumes an estimated list of 5°-8° because of equipment layout and drive torque. The effect of this list on sounding accuracy is as yet undetermined. See the Hardware and Software Status Report for the Hydroplot/Hydrolog System, OPR 465, NOAA Ship FAIRWEATHER, 1972.

The echo sounding velocity corrections were determined by two Nansen casts taken in the deepest portion of Ernest Sound. The results of these casts showed the velocity corrections to be minimal. Bar checks were taken daily to determine transducer corrections and instrument error. See the Fathometer and Velocity Correction Report, OPR 465, NOAA Ship FAIRWEATHER, 1972. An abstract of these corrections has been included in this report.

E. SMOOTH SHEET

All data was plotted by the onboard Hydroplot System, discrepancies found and resolved and the data re-plotted. All data has been logged and converted to the Hydroplot/Hydrolog Master Tape Format for smooth sheet processing by the electronic data processing facilities at either PMC or AMC.
See verifiers report on boatsheet.

F. CONTROL

The Hastings-Raydist DRS System was used exclusively for control. The red raydist station (rate #1), signal 098, which was installed on Union Point, was located by third order triangulation methods. The green raydist station (rate #2), signal 099, was installed on a small island south of Onslow Island over station SLOW 1966. See the Horizontal Control Report, OPR 465, NOAA Ship FAIRWEATHER, 1972 and the appended Raydist Note. Calibration of Raydist Navigators was accomplished by 3-point sextant fixes or by calibration at a known point. The 3-point sextant fixes were converted to Raydist lane counts by the PDP/8E computer using Program AM 560. Calibrations were made prior to beginning hydrography and at the day's end. Calibrations were also made during the work day as deemed necessary.

G. SHORELINE

Shoreline details were transferred to the boatsheet from T-sheets T-11977, T-11978 and T-12368. Photographs used were 5020, 5021, 5027, 5028, 5029, 5038, 5039, 5111 and 5112. Also used were a series of U. S. Forest Service photographs of Petersen Islands. The Forest Service photographs were used to check the horizontal control on Petersen Islands. For development of shoreline details refer to the Field Edit Report for T-sheets T-11978 and T-12368, OPR 465, NOAA Ship FAIRWEATHER, 1972.

The shoreline of Westerly Island, which was transferred to the boatsheet from T-sheet T-11978, was found to be displaced approximately 75 meters to the west. That is, the T-sheet showed the shoreline approximately 75 meters west of where it actually is.

H. CROSSLINES

Approximately 11% or 32.5 n.m. of the hydrography on sheet FA 10-2-72 was crosslines. The crosslines in general agreed with the main scheme of hydrography, but were sometimes at variance because of the irregular submarine relief.

I. JUNCTIONS

Junctions with surveys FA 10-1-72 and FA 20-1-72 at times showed disagreement in depths because of the irregular bottom configuration. In addition, junctions with the FAIRWEATHER's work on sheet FA 20-1-72 were complicated by the fact that the ship's skeg-mounted transducer used by the Ross Model 5000 fathometer is approximately 35 meters aft of the Raydist antenna. This displacement of soundings on a steeply sloping bottom can result in large discrepancies. Nearly all soundings agreed within 0 to 4 fathoms at depth from 20-210 fathoms with a very few exceptions of up to 15 fathoms. The latter junctions were with the ship's work on FA 20-1-72. Junctions with sheet FA 10-1-72 agreed within 0 to 2 fathoms and depth curve comparisons were good. In general the disagreements at junctions were no more pronounced than the disagreement between the main scheme of hydrography and the crosslines.

J. COMPARISON WITH PRIOR SURVEY

The only detailed prior survey of the area is H-4271, 1922, at a scale of 1:20,000. The following items were taken from this survey and were noted on the pre-survey review as soundings considered to be either doubtful, unsupported, or undeveloped. All data was adjusted for the datum shift of 1927 before comparisons between H-4271 and FA 10-2-71 were made.

PRE-SURVEY REVIEW ITEMS			THIS SURVEY	
Item	Depth	Position	Depth	Position
1	15	55°55'34" 132°07'57"	~~12~~ 11	Same
			10.9	55°55'36" 132°07'58"
2	36	55°54'30" 132°08'15"	14	55°54'30" 132°08'23"
3	35	55°53'56" 132°09'51"	29	Same
4	15	55°55'30" 132°08'48"	19	Same
			~~17~~ 17	55°55'30" 132°08'59"
5	10	55°55'09" 132°10'30"	~~10.2~~ 10.3	Same
			9.1	55°55'11" 132°10'35"
6	25	55°54'12" 132°10'30"	26	Same
			24	55°54'15" 132°10'30"

PRE-SURVEY REVIEW ITEMS			THIS SURVEY	
Item	Depth	Position	Depth	Position
7	17	55°54'~~30~~22" 132°11'12"	18	Same
			12	55°54'46" ✓ 132°11'14"
8	7-1/2	55°54'48" 132°11'38"	19	Same ✓
			5.~~8~~5	55°54'44" ✓ 132°11'41"
9	15	55°54'22" 132°11'18"	15	Same ✓
			12	55°54'23" ✓ 132°11'18"
10	30	55°53'58" 132°11'24"	27	Same ✓ (See explanation)
11	48	55°54'37" 132°12'39"	40	55°54'39" ✓ 132°12'42"
12	54	55°54'12" 132°12'46"	81	Same ✓
13	13	55°53'36" 132°12'45"	24	Same ✓
			16	55°53'35" ✓ 132°12'47"
14	17	55°53'17" 132°12'38"	24	Same ✓
			~~17~~16	55°53'13" ✓ 132°12'58"
15	47	55°53'38" 132°13'38"	47	Same ✓ (See explanation)
			43	55°53'38" ✓ 132°13'41"
16	7-1/2	55°54'18" 132°13'18"	~~5.6~~4.9	Same ✓
			2.3	55°54'13" ✓ 132°13'25"
17	16	55°54'28" 132°13'34"	No indication ✓	
			13	55°54'24" ✓ 132°13'36"

PRE-SURVEY REVIEW ITEMS			THIS SURVEY	
Item	Depth	Position	Depth	Position
18	42	55°53'02" 132°16'18"	44 40	Same to the east
19	17	55°55'33" 132°15'18"	5.8	55°55'34" 132°15'31"

Explanations:

#10-directly north at 55°54'01.5" and 132°11'24" a depth of 13 fathoms was found. Further shoaling was found bearing 332° from the ~~13~~ 14 fathoms to a minimum depth of 2.1 fathoms at 55°54'10.5" and 132°11'33".

#15-the depth at 55°53'38" and 132°13'38" appears to be 47 fathoms by interpolation.

Numerous other comparisons were made between boatsheet FA 10-2-72 and H-4271. In general, agreement was good considering the irregular bottom configuration. Agreement in most cases was 2-3 fathoms with a few discrepancies of up to 5 fathoms and infrequent disagreement of up to 10 fathoms particularly in areas of poor visual control.

The following are soundings of particular interest because they are shoal and because they were not discovered during survey H-4271:

	DEPTH	POSITION
1.	9.~~6~~ 8	55°52'49" 132°13'25"
2.	4.~~1~~ 9	55°54'29" 132°11'52"
3.	11	55°54'19.5" 132°07'44"
4.	12	55°53'58" 132°07'44"
5.	6.4	55°54'58.5" 132°11'52"
6.	9.9	55°54'51" 132°11'30"
7.	10.~~8~~ 3	55°54'56" 132°10'29"
8.	7.~~8~~ 0	55°55'01" 132°11'31.5"

K. COMPARISON WITH CHART

The largest scale chart of the area is 8161, 1:80,000 scale, 5th Ed., 12 June, 1971, corrected to Dec. 18, 1971. All comparisons which could have been made with the chart were previously noted in Section J, Comparison with Prior Surveys.

Dangers to Navigation:

(1) A 2 5/8 fathom shoal at 55°54'13" and 132°13'25".
(2) A 4.7 fathom shoal at 55°54'29" and 132°11'52".
(3) A 6.4 fathom shoal at 55°54'58.5" and 132°11'52".
(4) A 5.8 fathom shoal at 55°55'34" and 132°15'21".
(5) A 2 3/8 fathom shoal at 55°54'10.5" and 132°11'33" instead of the 2-3/4 fathom sounding shown on the chart.

L. ADEQUACY OF SURVEY

This survey is considered complete and adequate for charting.

M. AIDS TO NAVIGATION

No aids to navigation were located within the limits of this survey.
See verifier's report.

N. STATISTICS

	AR-1	FA-5
Position numbers:	2001-3738	6001-6466
Miles of soundings:	266.4	28.5
Total area surveyed:	16.1 s.n.m.	
Total number of bottom samples:	87	

O. MISCELLANEOUS

A discrepancy was discovered between the soundings from position 2090 to 2091 on day 083 and position 3622 and 3623 on day 110. The discrepancy ranged between 10 and 15 fathoms. Both lines were run by launch AR-1. The fathograms for these positions both show strong indications of side echos and the presence of a nearly vertical 10-15 fathom cliff in the area is suspected. See Notes to reviewer.

P. RECOMMENDATIONS

None.

Q. REFERENCE TO REPORTS

1. Fathometer and Velocity Correction Report, OPR 465, Ship FAIRWEATHER, 1972.
2. Field Edit Report, OPR 465, Ship FAIRWEATHER, 1972.

3. Hydrolog/Hydroplot System Status Report, OPR 465, Ship FAIRWEATHER, 1972.
4. Tide Gage Report, OPR 465, Ship FAIRWEATHER, 1972.
5. Horizontal Control Report, OPR 465, Ship FAIRWEATHER, 1972.

Respectfully submitted,

D.E. Northrup

for M. C. Grunthal
LT, NOAA

TIDE NOTE

Predicted tides for Union Bay, taken from the tide tables, were used for the field sounding reductions. Two Bristol Bubbler Tide Gages were installed in the project area and one in Union Bay.

A complete report has been prepared detailing the tidal observations for this project. Refer to Tide Gage Report, OPR 465, Ship FAIRWEATHER, 1972.

GEOGRAPHIC NAMES

Survey No.

H-9286, 1972

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
BROWNSON ISLAND										1
ETOLIN ISLAND										2
ERNEST SOUND										3
PETERSEN ISLAND										4
WESTERLY ISLAND										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
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										20
										21
										22
										23
										24
										25
										26

VELOCITY CORRECTIONS

Velocity corrections to be applied to the soundings of sheet FA 10-2-72 (H-9286) are as follows:

Sounding Depths (Fms.)	Correction (Fms.)
0.0 - 139	0.0
140 - 235	+1

For substantiation and details see Fathometer and Velocity Correction Report, OPR 465, Ship FAIRWEATHER, 1972.

TRANSDUCER & INITIAL CORRECTORS

BOATSHEET FA 10-2-72 LAUNCH AR-1

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	TRA CORR.	INITIAL CORR.	TOTAL CORR.
083	FA10-2A-72	095216	2001	+0,4	0,0	+0,4
083	"	122136	2057	+0,3	0,0	+0,3
084	"	131748	2152	+0,3	0,0	+0,3
088	"	101338	2187	+0,3	0,0	+0,3
089	"	092135	2388	+0,3	0,0	+0,3
090	"	103629	2478	+0,3	0,0	+0,3
091	"	093521	2632	+0,3	0,0	+0,3
094	"	143511	2707	+0,3	0,0	+0,3
095	"	100736	2789	+0,3	0,0	+0,3
096	"	091202	2980	+0,3	0,0	+0,3
096	FA 10-2B-72	110220	3010	+0,3	0,0	+0,3
097	"	124238	3049	+0,3	0,0	+0,3
098	"	121101	3143	+0,3	0,0	+0,3
101	FA 10-2A-72	122351	3194	+0,3	0,0	+0,3
102	"	102014	3233	+0,3	0,0	+0,3
102	FA10-2B-72	122755	3260	+0,3	0,0	+0,3
103	"	144052	3367	+0,3	0,0	+0,3
105	"	110101	3416	+0,4	0,0	+0,4
108	"	113220	3438	+0,4	0,0	+0,4
110	"	085223	3504	+0,4	0,0	+0,4
112	"	084223	3667	+0,3	0,0	

TRANSDUCER & INITIAL CORRECTORS

BOATSHEET FA 10-2-72 LAUNCH FA-5

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	TRA CORR.	INITIAL CORR.	TOTAL CORR.
108	FA 10-2B-72	123530	6001	+0.0	0.0	+0.0
110	"	102600	6277	+0.2	0.0	+0.3

RAYDIST NOTE

Raydist electronic positioning equipment, operating in range-range mode, was used to control hydrography on all of sheets FA-20-1-72 and FA-10-2-72 and a portion of FA-10-1-72. The "green" base station was located over triangulation station "Slow 1966" at latitude 55° 50' 22.96" N, longitude 132° 18' 33.54" W. The "red" base station was situated on Union Point and located by third order triangulation at latitude 55° 48' 08.09" N, longitude 132° 09' 49.61" W.

Base station antennas consisted of 3 sections of 10' triangular aluminum tower sections and a telescoping 30' whip. Ground planes were twelve 50' sections of 24" wide 1' mesh "chicken wire" with copper wire connectors radiating from the antenna base plate. Power to the base stations was provided by eight 12 volt batteries connected in series-parallel to yield 24 volt supply. Remote on-off switches were utilized to prolong battery life. Batteries were recharged aboard ship and base station batteries replaced after approximately 10 days of operation.

Launches were equipped with Raydist transmitters, navigators, 12' fiberglass whip antennas, and stripchart recorders. Strip chart records were annotated at all times between beginning and end of day calibrations.

Calibration of Raydist navigators was accomplished by three-point fixes with check angle. All calibration signals were situated over triangulation stations or located by third order triangulation. Sextant fix positions were converted to Raydist lane count by PDP-8E computer using program AM-560. A calibration buoy was established off Vixen Inlet to facilitate calibration and allow whole lane calibration in periods of restricted visibility. Lane counts were also established on several natural objects in the survey area to expedite calibration.

Raydist rate calibration was generally made such that the corrector would be less than 0.10 lane. Daily correctors were determined by averaging the beginning and end of day calibrations. Occasional phase shifts did occur that could neither be explained nor accurately defined with respect to time or amount. Such shifts produced abnormally high correctors when using the averaging methods. All lane jumps were detected and proper correctors applied.

Performance of the Raydist system during this project was very good, virtually no hydro time was lost due to Raydist failure. Both base stations were installed and operable in less than one day each and removed in less than 1/2 day each. Hydro was begun on the 5th working day after the ship's arrival in the working area. Maximum range of control utilized during the survey was 8 nm. It was necessary to detune the Raydist transmitter aboard Launch AR-1 to prevent interference with the onboard computer. (See Hydrolog/Hydroplot System Status Report, OPR-465, 1972)

Base Stations - Model AA-60

Unit:	Green	Red
S/N:	15	14
Frequency:	1653.425 Khz	1653.015 Khz

Mobile Transmitters - Model TA-96

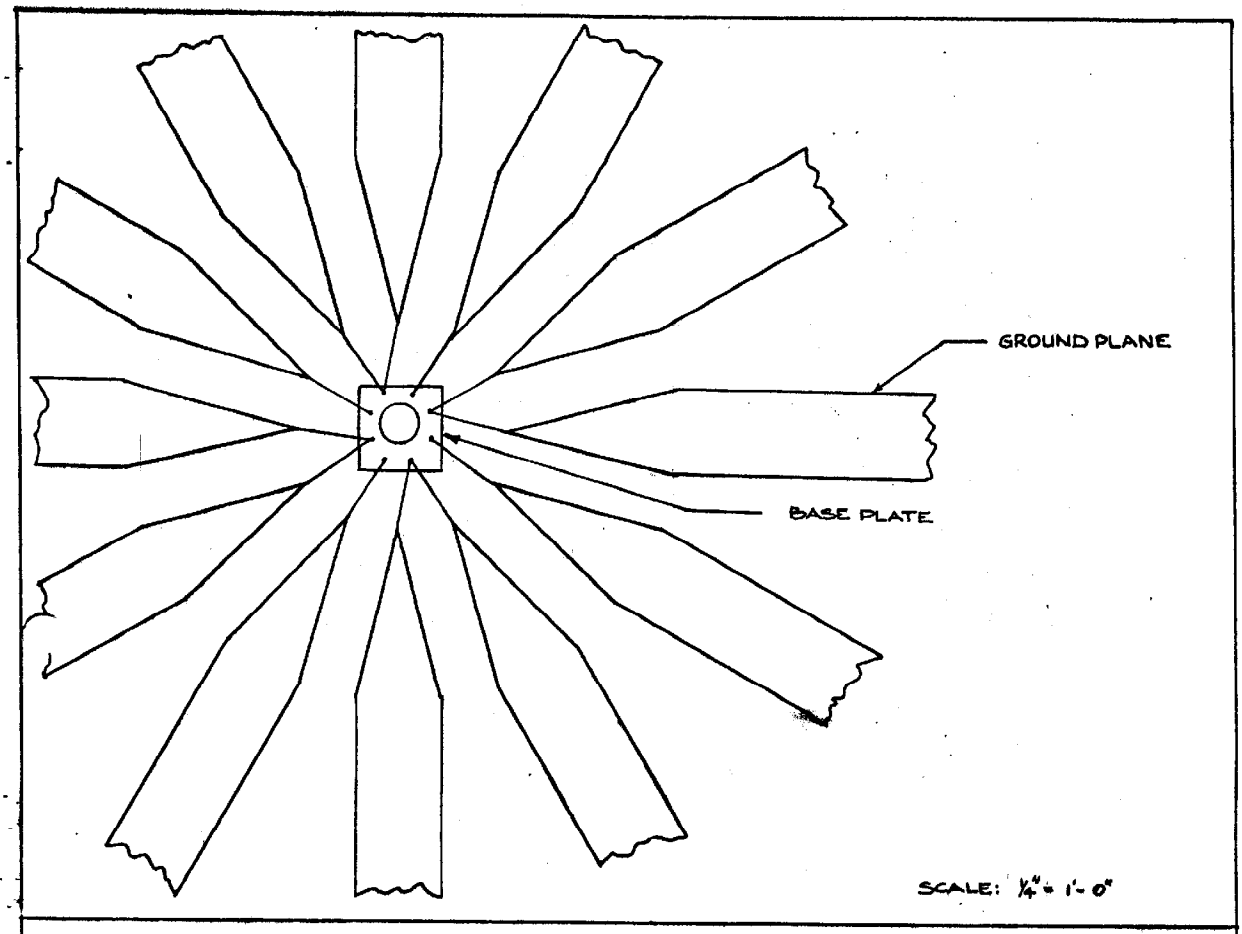
Launch:	AR-1	FA-4	FA-5
S/N:	22	34	20
Frequency:	3306.500 Khz	3306.400 Khz	3306.465 Khz

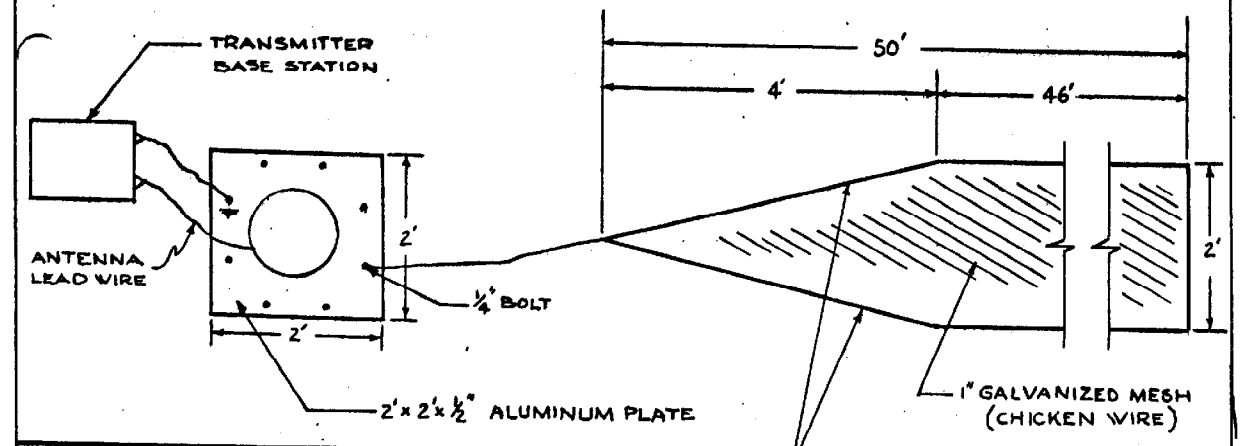
Mobile Navigators - Model ZA-67A

Launch:	AR-1	FA-4	FA-5
S/N:	47	54	26
Freq. Filter Red:	470 Hz	370 Hz	435 Hz
Freq. Filter Green:	350 Hz	450 Hz	385 Hz

Lane Width - 45.315 meters

An abstract of daily Raydist rate correctors is included herewith. On any day, when the corrector on either rate for any portion of the day exceeded 0.4 lanes, a calibration record is included and the strip chart for that day is also included in the submitted field data.





BASE PLATE FOR RAYDIST STATION
USED BY NOAA SHIP FAIRWEATHER

SCALE: ½" = 1'-0"

ELECTRONIC CORRECTORS

BOATSHEET FA 10-2-72 LAUNCH AR-1

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	PATTERN I CORRECTOR	PATTERN II CORRECTOR
083	FA 10-2A-72	095216	2001	-0.08	-0.11
084	"	131748	2157	-0.04	-0.04
088	"	101338	2187	-0.03	+0.02
089	"	092135	2388	+0.04	+0.04
089	"	123433	2463	-0.02	-0.01
090	"	103629	2478	-0.02	+0.01
091	"	093521	2632	+0.03	+0.08
094	"	143511	2707	-0.10	-0.02
095	"	100736	2789	+0.12	+0.11
095	"	140135	2889	-0.17	-0.12
096	"	091202	2980	-0.08	-0.05
096	FA 10-2B-72	110220	3010	-0.08	-0.05
096	"	143033	3040	-0.14	-0.10
097	"	124238	3049	-0.12	-0.07
098	"	121101	3143	-0.06	+0.01
101	FA 10-2A-72	122351	3194	-0.16	-0.22
102	"	102014	3233	-0.18	-0.10
102	FA 10-2B-72	122755	3260	-0.18	-0.10
103	"	144052	3367	-0.01	+0.05
105	"	110101	3416	-0.01	-0.06
108	"	113220	3438	-0.08	-0.13
110	"	085223	3504	-0.12	-0.20
112	"	084723	3667	-0.02	-0.22

ELECTRONIC CORRECTORS

BOATSHEET FA 10-2-72 LAUNCH FA-5

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	PATTERN I CORRECTOR	PATTERN II CORRECTOR
108	FA 10-2B-72	123530	6001	+0.02	-0.02
110	"	102600	6277	-0.07	-0.12
112	"	084223	3667	-0.02	-0.22

COMPUTER SHEET PARAMETER TAPE
FA 10-2-72
OPR 465

FA 10-2A-72

FEST = 20000
CLAT = 6178000
CMER = 132/12/00
GRID = 30
PLSCL = 10000
PLAT = 55/52/12
PLON = 132/16/35
SILAT = 55/48/08.09
SILON = 132/09/49.61
S2LAT = 55/20/22.96
S2LON = 132/18/33.54
Q = 3306.45
VESNO = 2021
YR = 72

FA 10-2B-72

FEST = 20000
CLAT = 6178000
CMER = 132/12/00
GRID = 30
PLSCL = 10000
PLAT = 55/53/42
PLON = 132/16/35
SILAT = 55/48/08.09
SILON = 132/09/49.61
S2LAT = 55/50/22.96
S2LON = 132/18/33.54
Q = 3306.45
VESNO = 2025
YR = 72

FORM C&GS-733M (6-66) FA 10-2A-72

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

U.S. DEPARTMENT OF COMME
COAST AND GEODETIC SUR

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
AR-1	OPR-465	1972		B.V.	8-20-72

SERIAL NO.	DATE	SAMPLE POSITION LATITUDE	SAMPLE POSITION LONGITUDE	DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)
3800	10 MAY '72	55°54'28"	132°16'02"	42.8				bk	Rk, Ms	SAMPLE TAKEN WITH MUD SAMPLER

Use more than one line per sample if necessary.

USCOMM-DC 37

FORM C&GS-733M (6-66) FA 10-2B-72

U.S. DEPARTMENT OF COMM
COAST AND GEODETIC S

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE SHIP
AR-1	OPR-465	1972		B.W	8-2

SERIAL NO.	DATE	SAMPLE POSITION LATITUDE	SAMPLE POSITION LONGITUDE	DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dente cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)
3801	18 MAY '72	55°55'12"	132°14'55"	34.0				dk	gn P	ALL SAMPLES TAKEN WITH MUD SAMPLER.
3802	"	55°55'09"	132°14'19"	37.5					hrd bottom	
3803	"	55°55'37"	132°15'41"	35.0				gn	M	
3804	24 MAY '72	55°54'27"	132°09'06"	14.9				lt gn	S, Rky	
3805	"	55°55'31"	132°10'52"	17.5				lt gn	S, Rk	
3806	"	55°55'03"	132°10'45"	17.3				lt gn	S, Sh	
3807	"	55°55'12"	132°14'38"	13.6				bk	Rk	
3808	"	55°55'47"	132°15'52"	17.0				bk	M	

Use more than one line per sample if necessary.

USCOMM-DC

SINGLE INDICATOR
TRA CORRECTOR (TC/TI) PRINTOUT
FA 10-2A-72 LAUNCH AR-1
DAYS: 083, 084, 088-091, 094-096, 101, 102

085216	1	0004	0001	083	000000	000000
132136	1	0003				
131748	1	0003	0001	084	000000	000000
101338	1	0003	0001	088	000000	000000
092135	1	0003	0001	089	000000	000000
103629	1	0003	0001	090	000000	000000
093521	1	0003	0001	091	000000	000000
143511	1	0003	0001	094	000000	000000
100736	1	0003	0001	095	000000	000000
091202	1	0003	0001	096	000000	000000
122351	1	0003	0001	101	000000	000000
102014	1	0003	0001	102	000000	000000

SINGLE INDICATOR
TRA CORRECTOR (TC/TI) PRINTOUT
FA 10-28-72 LAUNCH AR-1
DAYS: 096-098; 102, 103, 105, 108, 110, 112

```
110220  1  0003  0001  096  000000  000000
124238  1  0003  0001  097  000000  000000
121101  1  0003  0001  098  000000  000000
122755  1  0003  0001  102  000000  000000
144052  1  0003  0001  103  000000  000000
110101  1  0004  0001  105  000000  000000
113220  1  0004  0001  108  000000  000000
085223  1  0004  0001  110  000000  000000
134223  1  0003  0001  112  000000  000000
```

SINGLE INDICATOR
TRA CORRECTOR (TC/TI) PRINTOUT
FA 10-2B-72 LAUNCH FA-5
DAYS: 108, 110

123530 1 0000 0001 108 000000 000000
102600 1 000/20001 110 000000 000000

ASCII Signal Tape P.O.

FA 10-2-72

4 TF

001 55 50 2160 132 05 3367
002 55 50 4462 132 05 3436
003 55 50 3469 132 05 1103
004 55 50 1503 132 05 2350
005 55 50 0527 132 05 1775
006 55 49 5042 132 05 0000
031 55 48 4291 132 06 3674
032 55 48 4287 132 07 1205
069 55 48 1112 132 11 0390
098 55 48 0808 132 09 4959
099 55 50 2296 132 18 3349
101 55 53 1691 132 02 3917
102 55 53 1934 132 02 1599
103 55 53 0938 132 02 2123
104 55 53 3844 132 02 3739
175 55 46 0297 132 16 5219
176 55 50 2296 132 18 3354
177 55 51 5886 132 17 2150
178 55 52 5908 132 13 3118

ASCII Signal Tape P.O.

FA 10-2-72

L-72

001	55	50	2160	132	05	3367
002	55	50	4462	132	05	3436
003	55	50	3469	132	05	1103
004	55	50	1503	132	05	2350
005	55	50	0527	132	05	1775
006	55	49	5042	132	05	0000
031	55	48	4291	132	06	3674
032	55	48	4287	132	07	1205
069	55	48	1112	132	11	0396
098	55	48	0808	132	09	4959
099	55	50	2296	132	18	3349
101	55	53	1691	132	02	3917
102	55	53	1934	132	02	1599
103	55	53	0938	132	02	2123
104	55	53	3844	132	02	3739
175	55	46	0207	132	16	5219
176	55	50	2296	132	18	3354
177	55	51	5486	132	17	2159
178	55	52	5908	132	13	3118

VELOCITY CORRECTOR PRINTOUT
FOR

H-9286

001390 C 0000 0001 001 202000 002836
002350 C 0010

TRANSMITTAL SHEET

The field work was examined daily under the supervision of this command. The boat sheet was inspected daily for completeness and no additional work is considered necessary.

R. H. Houlder
CAPT, NOAA
Comdg., Ship FAIRWEATHER

NOAA FORM 77-27
(9-72)
(PRESC. BY HYDROGRAPHIC MANUAL 20-2, 6-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9286

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET & PNO	1	BOAT SHEETS	2
DESCRIPTIVE REPORT	1	OVERLAYS 1:5,000	2 & 6

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES			1			
CAHIERS	1 fathograms					
VOLUMES	1 D.P's					
BOXES			1-Bundle			

T-SHEET PRINTS (*List*)

SPECIAL REPORTS (*List*) Fathometer and velocity corrections Report OPR465-FA-72
Field edit OPR 465, Hydroplot/Hydrolog system status OPR 465-FA-72

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				
POSITIONS CHECKED		2105		
POSITIONS REVISED		2000		
DEPTH SOUNDINGS REVISED		500		
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
Verification of Control		2		
Verification of Positions		93		
Verification of Soundings		251		
Smooth Sheet Compilation		80		
ALL OTHER WORK				
TOTALS		426		

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY Mr. James Green		
VERIFICATION BY James L. Stringham	3/1/74	10/1/74
REVIEW BY		

* U.S. G.P.O. 1972-769-562/439 REG.#6

FORM C&GS-946A
(REV. 11-65)
(PRES. BY HYDROGRAPHIC MANUAL, 6-94)

U.S. DEPARTMENT OF COMMERCE
ESSA
COAST AND GEODETIC SURVEY

VERIFIER'S REPORT

HYDROGRAPHIC SURVEY, H 9286

INSTRUCTIONS - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

CL - Check List Items: should be checked as having been completed during the verification processes.

R - Report Item: This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT Note: The verifier should first read the Descriptive Report for general information and problems.	CL	R
1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. Remarks Required: -- None	X	
2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: -- None	X	
3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None	X	
Part II - SHORELINE AND SIGNALS		
4. Source of shoreline signals Remarks Required: -- List all surveys		
a. Give earliest and latest dates of photographs		
b. Field inspection date		
c. Field Edit date		
Reviewed-Unreviewed		X
5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.		X
6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Remarks Required: -- None	X	
7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required: -- List those signals still unidentified.	X	
Part III - JUNCTIONS Note: Make a cursory comparison preliminary to inking soundings in area of overlap.		
8. All junctions of contemporary or overlapping sheets were transferred in colored ink and overlapping curves were made identical. Remarks Required: -- None		X
9. The notation in slanted lettering "JOINS H----(19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None	X	

Part III - JUNCTIONS (Continued)	CL	R
10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of **Butt** junctions and areas which are **SUPERSEDED.**		X
Part IV - VOLUMES		
11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. Remarks Required: -- None		X
12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following:		
(a) rocks		X
(b) line turns	X	
(c) position values of beginning and ending of lines	X	
	X	
(d) bar check or velocity correctors	X	
(e) time recording	X	
(f) notes or markings on fathograms	X	
(g) was reduction of soundings accurately done?	X	
(h) was scanning accurate?		X
(i) were peaks at uneven intervals missed?		X
(j) were stamps completed?	X	
(k) references to adjacent features	X	
Part V - PROTRACTING		
13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None	A U	
14. The protracting and plotting of all unsatisfactory crossings were verified. Remarks Required: -- None	T O	
15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None	M A T E D	

Part V - PROTRACTING (Continued)	CL	R
16. The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.	AUT	
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.	OMAT	
Part VI - SOUNDINGS	ED	
18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None		
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.		X
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None	X	
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	X	
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.	X	
Part VII - CURVES		
23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected.		X
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area not sounded in black dashed Remarks Required: -- None		X
25. Depth curves were satisfactory except as follows: (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.		X

Part VIII - AIDS TO NAVIGATION	CL	R
26. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey. Remarks Required: -- Conflicts of any nature listed.		X
27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification. Remarks Required: -- None	NONE	
Part IX - BOATSHEET		
28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information. Remarks Required: -- None		X
29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.		X
Part X - GENERAL		
30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None	X	
31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None	X	
32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet. Remarks Required: -- None	X	
33. The bottom characteristics are adequately shown. Remarks Required: -- None		X
Part XI - NOTES TO THE REVIEWER		
34. Unresolved discrepancies and questionable soundings.		X
35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.		
36. Supplemental information.		

Verified by James L. Stringham

Date 10-1-74

Notes per R H Carstens:

Problems on H-9286

The electronic control used on survey H-9286 Ernest Sound may be faulty. Whether faulty data also occurs on adjoining sheets was not determined.

In the passage between Brownson I and the small islands south of it, SD & lines appear to be shifted northward, clearing the shore of the small island and overlapping the ledge on Brownson I. The survey position of the reef at lat 55° 54.35' long 132° 12.35' is northeast of the topo position. The topo. uncovering reef at lat 55° 55.17' long 132° 09.90' and lat. 55° 55.7' long. 132° 09.37' are crossed by sdg lines with depths of 2, 3, 5, 9 fms. The hydro. reef at lat. 55° 54.17' long 132° 14.14' is east of the reef and signal shown on H-4271. The center of the present hydro. located reef in lat. 55° 56.05' long 132° 07.55' is displaced northeastward of a reef located by a triangulation station on H-4271.

It is probable that behind islands the land effect on electronic signals has displaced some lines. The calibration of the electronic control equipment may also be in error.

(The calibration report is not available at this time) It would appear that a southwestward shift of about 30 meters would resolve many of the disagreements. This would entail corrections to data from both stations which would be excessive for normal range calibration corrections.

The location of the red sector station at Union Point is indicated by the sketch in D.R. of H-9257 as being a no-check intersection station by triangulation which is not in accordance with good practice.

The practical approach during review of this survey would be to make adjustments to sections of sounding lines in conflict with present topographic information or prior survey H-4271. Changes could be made only near reef or shore features where we wish shoal depths to be correct. In deeper depths we would accept the error in the positions of the soundings as not being important.

VERIFIER'S REPORT

H-9286, 1972 FA-1Ø-2-72

This sheet was constructed and plotted at Pacific Marine Center, Seattle, Washington. Information relating to this sheet will be noted under the heading by the number and letter as on the Verifier's Report, C&GS Form 946A.

PART I DESCRIPTIVE REPORT

2. Paragraph K, Chart Comparison, of the Descriptive Report is supplemented as follows:

Agreement between chart 8161 6th Edition June 1973 Scale 1:8Ø,ØØØ is good. A few soundings listed below scaled from H-9286, 1972 are believed to be significant changes.

H-9286, 1972 Sounding, Fathoms	Chart 8161 Sounding, Fathoms	Latitude	Longitude
86	156	55°53'Ø1"	132°1Ø'3Ø"
19	3Ø	55°53'53"	132°11'2Ø"
14	36	55°54'29"	132°Ø8'22"
39	48	55°54'4Ø"	132°12'41"
41	-	55°54'52"	132°15'1Ø"

PART VII SHORELINE

4. The shoreline was transferred in ink from advanced manuscripts T-11977, 11978 and 12368. Date of photography: July 1963 and July 1965. Date of field edit: April and May 1972. Date of final compilation: April 1974.

5. See Article 34, Notes to the Reviewer.

PART VII JUNCTIONS

8. H-9286, 1972 joins H-9285, 1972 to the west. After a comparison of curves and soundings between H-9286 and H-9285, the junction can be termed as acceptable. The agreement in soundings is as the ships report states, Ø to 2 fathoms. However, there are 2.Ø fathom disagreements at junction area depth curves. H-9286, 1972 joins H-9288, 1972 to the east and south. The junction is poor with disagreements as stated in the ship's report, Ø to 4 fathoms. Exceptions are 15 to 2Ø fathom disagreements in 149 fathoms of water in the area of Lat. 55°53'ØØ"N and Long. 132°Ø7'3Ø"W. Soundings on H-9286, 1972 were changed because of listing stated to exist on launch. All depth curves were left in pencil.

1Ø. See Item 34, Note to the Reviewer.

PART IV VOLUMES

11. Detached positions on rocks were taken without check angles. Many rocks contained no height information at the time of survey. No accompanying sketches or description of reefs or rocks were forwarded with positions 2777, 2749, 275Ø, 3Ø39, 3Ø4Ø, 3559 and 356Ø.

Peaks and deeps weren't scanned. The fathogram differs from digitized depth in many areas by 3 to 4 fathoms. This could probably be attributed to operational problems in the Ross system.

PART VI SOUNDINGS

19. Most crosslines on H-9286 are good. However, because of the very rough bottom and poor fathometer operation, it is very difficult to assess the accuracy of the crosslines.

PART VII CURVES

23. The depth curves were inspected by Mr. Arnold E. Eichelberger, Cartographic Technician.

24. A very small area at approximate 55°56'ØØ"N 132°16'ØØ"W was developed with hydrographic soundings to permit drawing the zero depth curves. In areas where the hydrographic soundings on H-9286, 1972 are not in agreement with the approximate MLLW line on advanced manuscripts T-11977, T-11978 and T-12368, the dotted lines were left in pencil.

25. See Item 34, Notes to Reviewer.

PART VIII AIDS TO NAVIGATION

26. One aid to navigation is located on H-9286, 1972. This is Brownson Island Rocks Daybeacon. The ship's report did not list any aids to navigation.

PART IX BOATSHEET

28. The boatsheet was reviewed constantly but was of very little assistance in solving the problems associated with H-9286, 1972 survey.

The incomplete manuscripts were overlayed on FA-1Ø-2-72, (FA-1Ø-2B-72) boatsheet and the following items were noted:

At the approximate latitude and longitude listed below disagreements are found at each location between boatsheet 2B and incomplete manuscript T-11978.

1. At 55°56'ØØ"N and 132°Ø7'3Ø"W: Island appearing on boatsheet is offset to the NNE by approximately 6Ø to 7Ø meters.

2. At 55°56'ØØ"N 132°Ø7'Ø3"W: Boatsheet reveals an island instead of a reef symbol. Again, the island on boatsheet is displaced to the NNE 2Ø to 3Ø meters. Detached position 3454 thru 3457, day 1Ø8, reflects a height of 17 feet at MLLW. This height requires a reef symbol which is in agreement with the incomplete manuscript.

3. At 55°55'42"N 132°Ø8'52"W: The incomplete manuscript displays a islet and rather large ledge symbol. The boatsheet reveals a 2 fathom sounding with no mention of the islet.

4. At 55°55'1Ø"N 132°Ø9'3Ø"W: No reefs, rocks or ledges are shown on the boatsheet. Disagreement exists between incomplete manuscript and hydrographic soundings in this area. Reef symbols that disagree with soundings were left in pencil on smooth sheet H-9286, 1972.

5. See Item G, Shoreline Ships Report. At 55°54'15"N 132°Ø9'13"W: Westerly Island was transferred to the boatsheet directly from incomplete manuscript T-11978. The report mentions a 75 meter disagreement. Westerly Island generally agrees with error found throughout the whole sheet.

Incomplete manuscript T-11977 was overlayed over boatsheet (FA-1Ø-2B-72):

At approximate latitude and longitude listed below disagreements are found between hydrography and the incomplete manuscript T-11977.

1. At 55°55'25"N 132°13'5Ø"W: A great many ledges, reefs and island symbols were not transferred to the boatsheet. Disagreement between the hydrography and the ledges and small island was considered excessive and the soundings were destroyed from the survey, but positions were kept with thesurvey.

2. At 55°55'38"N 132°13'44"W: A small reef is displayed on the incomplete manuscript T-11977. The boatsheet reveals a 2 3/4 fathom sounding on the reef.

3. Many rocks, reefs or ledges transferred from manuscript T-11977 were in disagreement with the hydrography.

The displacement error found in incomplete manuscript T-12368, is consistent with T-11977 and T-11978. Reefs and ledges displaying excessive displacements were not transferred to the boatsheet.

Boatsheet plots A and B are plotted with the morning calibration correctors. Electronic corrector tape was made on the ship but never applied to position data. The correctors appearing in the descriptive report and on corrector tape were used by PMC to plot the H-9286, 1972 smooth sheet. The electronic correctors used to plot boatsheet FA-1Ø-2-72 were, of course, different from the PMC correctors.

29. Elevations of rocks at the following locations were transferred from the manuscript without confirmation in the hydrographic records:

Latitude	Longitude
55°55'42"	132°Ø8'52"
55°55'Ø9"	132°Ø9'4Ø"
55°55'12"	132°Ø9'24"
55°55'19"	132°Ø9'19"
55°55'23"	132°Ø9'2Ø"
55°55'25"	132°Ø9'2Ø"
55°54'Ø6"	132°Ø9'Ø8"
55°55'14"	132°1Ø'4Ø"
55°54'Ø9"	132°Ø9'11"
55°55'39"	132°1Ø'12"
55°55'58"	132°Ø7'35"
55°55'12"	132°11'Ø7"
55°55'13"	132°1Ø'Ø1"
55°55'24"	132°1Ø'44"
55°55'5Ø"	132°1Ø'35"
55°55'37"	132°13'44"
55°55'34"	132°13'57"
55°55'31"	132°13'57"
55°55'14"	132°1Ø'41"
55°55'2Ø"	132°14'15"
55°55'12"	132°11'32"
55°55'34"	132°15'Ø2"
55°56'Ø5"	132°15'37"

All rocks and reefs between Latitude 55°55'Ø6" - 55°56'1Ø"
and Longitude 132°11'12" - 132°11'23"

Rocks and reefs transferred from manuscripts with no heights or description are not listed above. Heights that appear on ledges are not confirmed by hydrography.

PART X GENERAL

33. The bottom characteristics were developed by the launch on day 139 and 145 using topographic objects for control.

Only seven bottom samples were taken on the boatsheet. Large areas appear on H-9286, 1972 with no bottom sample information. No samples were taken deeper than 4Ø fathoms nor in the areas around Peterson and Westerly Islands.

PART XI NOTES TO THE REVIEWER

34. H-9286, 1972 smooth sheet soundings and detached positions do not agree well with the advanced manuscripts T-11977, T-11978 and T-12368.

The error was found on the first PSO. The ship's correctors were checked and found to be in error. Electronic corrector tapes had only the morning calibration correctors on it. Correctors found in the descriptive report was used on this survey. All correctors were insignificant (less than three tenths of a lane).

A new PPO and PSO were plotted. The junctions were checked with H-9288, 1972 in the area of Lat. 55°53'ØØ"N - Long. 132°Ø7'3Ø"W. There was poor agreement involving the position soundings 27Ø7 to 2712 on H-9286, 1972. Sheet H-9286, 1972 showed ten to twenty fathoms deeper than soundings recorded on H-9288, 1972. It is believed that the reported starboard list of 5 to 8 degrees when launch was under full power along with the fact of the Ross fathometer's very narrow beam transducer, it can be concluded that the lighter trace above the heavy returns was the true bottom. Upon junctional verification with H-9288, 1972, soundings the launch's "listing" and the noise levels were taken into consideration during the revising of some soundings for better junction. Please refer to Hydroplot/Hydrolog system status report OPR 465-FA-72 for more information.

At approximate latitude 55°56'ØØ"N, longitude 132°Ø7'25"W (in the area of the island) both the island and the reef displacement between H-9286, 1972 and H-9288, 1972 is very poor. Agreement between H-9286 and H-9288 and the advanced manuscript T-11978 is very poor. Both sheets have soundings displaced on the islands and reefs which are in excess.

Another poor agreement between H-9286 and H-9288 is found at approximate latitude 55°53'47"N and longitude 132°Ø8'Ø1"W. This refers to the 48 fathom sounding where a displacement of approximately 12Ø meters exist.

The ship Fairweather did not furnish the following survey raw data information: (1) Raydist strip charts, (2) Calibration information, (3) Calibration signal G.P. location.

It is believed that the displacement problems arose because the calibration stations were not properly located, with the launch calibrating in the same area around a buoy or some other way to maintain the same G.P. for calibration each day. Other sources were: (1) the effects of land mass on the signal while calibrating or during hydro operation, (2) defective equipment aboard the launch.

The Chief of Coastal Mapping Section AMC was contacted to check manuscripts T-11977, T-11978 and T-12368 as well as other manuscripts in connection with the OPR-465 project for a possible datum error. The Chief of Coastal Mapping Section assured Verification Branch no datum error existed and the manuscripts are accurate.

Considering this accuracy confirmation of the T-sheets for H-9286, 1972, data was consistently plotting 5Ø to 75 meters and Ø2Ø to Ø75 degrees from true position. This comparison was made from detached positions on rocks and reefs, from hydrographic soundings near the islands and other topo information shown on the T-sheets.

Many depth curves on H-9286, 1972 appear erratic and not in good agreement with surrounding soundings. It is believed that the excessive noise levels that appear on the fathograms and the reported "list" for launch AR-1 contribute to these discrepencies.

Position soundings 2159 thru 2186 Day Ø84 (shoreline on Peterson Island) was run with "blanking" operating at ten fathom depth. These position soundings on the

shoreline are questionable. The penciled shoreline on the northeast side of Peterson Island was compiled from launch positions adjoining shore position 2632 thru 2651 Day Ø91.

Due to the many problems pointed out for this sheet, it is suggested that a reconnaissance survey be scheduled to verify or correct important disagreements between this survey and the T-sheets. It is suggested that the soundings listed below be checked.

Sounding	Latitude	Longitude
14	55°54'29"	132°Ø8'22"
86	55°53'Ø1"	132°1Ø'3Ø"
19	55°53'53"	132°11'2Ø"

Respectfully Submitted,

James L. Stringham

James L. Stringham
Cartographic Technician

FORM # 1

PARAMETERS FOR DIGITAL COMPUTING

...LYCONIC PROJECTION

(1) Project No. OPR 165

(2) H No. H 9276

(3) Field No. FP-10-72

(4) Requested by _____

(5) Ship or Office _____

(6) Data Required _____

(7) Visual ☐ Pt.(0) or Fathoms (1) ☐ (8) Electronic ☒ (fill out form #3)

(10) XKN (SP 5) Distance from CMER to East Edge (NYX = 1) or West Edge (NYX = 0). (Origin) 5240.02 Meters

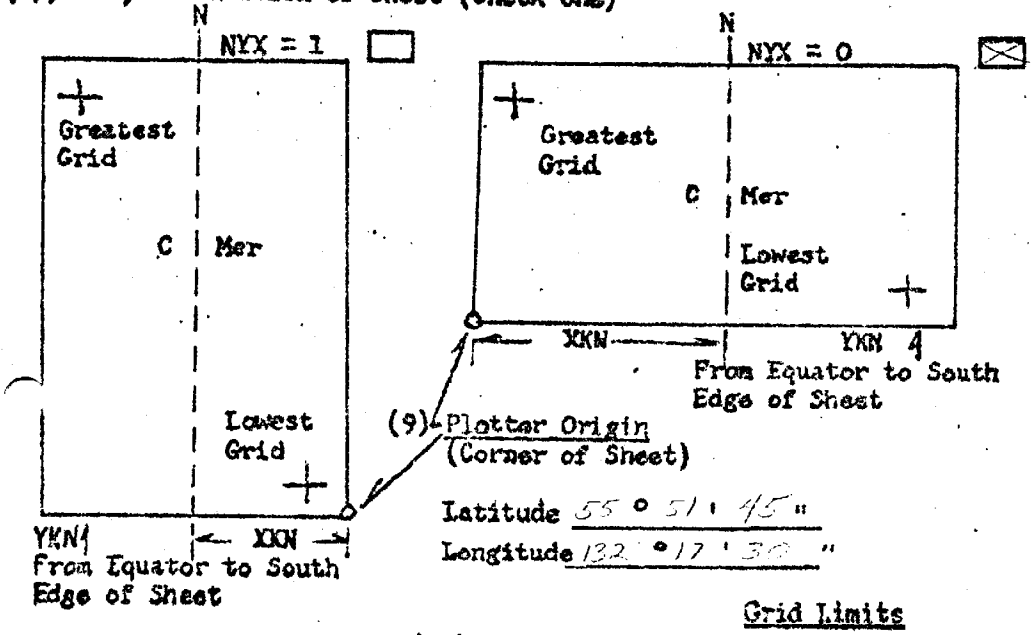
(11) YKN (SP 241) Distance from Equator to South Edge of Sheet. (Origin) 6[illegible]29.44 Meters

(12) Central Meridian 132° 12' 22"

(13) Survey Scale 1:10[illegible]

(14) Size of Sheet (Check one) 36x60 ☒ 42x60 ☐

(15) NYX, Orientation of sheet (Check one)



(9) Plotter Origin (Corner of Sheet)

Latitude 55° 51' 45"

Longitude 132° 17' 30"

Grid Limits

(16) Greatest Latitude 55° [illegible]

(17) Lowest Latitude [illegible]

(18) Difference [illegible]

(19) [illegible]

(20) [illegible] YSN

(21) Greatest Longitude [illegible]

(22) Lowest Longitude [illegible]

(23) Difference [illegible]

(24) [illegible]

(25) [illegible] XSN

(Projection Line Interval Page 4 Hydro Manual)

H-9206

H

Field No.

Date

HYDRO II AND III PARAMETER CARDS

PARAMETER CARD II

			1	2	3	4	5	6	7	8	9	10
Semi major axis of the earth	6,378,206.4	RDA	6	3	7	8	2	0	6	4	0	7
X Constant- Distance from central meridian to origin of plotter SP 5	meters	XKN	5	7	4	0						1
Y Constant - Distance from equator to origin of plotter SP 24	meters	YKN	6	1	2	3	0	3	7	4	0	1
Central Meridian of Projection		CMR		7								6
Plotter Scale/Survey Scale	1:20496.6876 1: 10000	SCA	1	0	4	9	7	6	7	7	0	1
North/south axis of sheet - to correspond to (Y axis - 0) (X axis - 1) of plotter		NXY										0
Feet/Fathom indicator	0 - feet 1 - fathom	FOT										1
H Identification No.		JN						0	7			
		JB									7	2

FOF - 1

PARAMETER CARD III

			1	2	3	4	5	6	7	8	9	10
Lowest Lat. Intersection	55 52	YST	2	0	1	1	2	0	0	0	0	6
Lowest Long. Intersection	132 06	XST	4	7	5	5	7	0	0	0	0	6
Difference between Grid	30	DXY	3	0	0	0	0	0	0	0	0	2
Interval (Long)		XSN									2	0
Interval (Lat)		YSN									0	9

Computed

Punched

Checkdd

Date

FORM #3

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE - RANGE)

(1) Project No. OPR-465 (2) H. No. H-9286 (3) Field No. FA 10-2-72

(4) Type of Control: ___ SHORAN, _X_ RAYDIST, ___ HI-FIX, ___ RADAR
Frequency (for conversion of RAYDIST or HI-FIX lanes to meters) 3306.4

(5) RANGE ONE (R1) Red
Station Name UNION 098
Latitude 55° 48' 08.09" N
Longitude 132° 09' 49.61" W

(6) RANGE TWO (R2) Green
Station Name SLOW 1966 099
Latitude 55° 50' 22.96" N
Longitude 132° 18' 33.54" W

(7) Azimuth from R1 to R2 114° 37' 54.74"

(8) Baseline Length in Meters 10031.056 M.

(9) Location of survey with respect to Electronic Baseline: CHECK ONE
(To determine: imagine an observer standing at R1 and looking directly at R2 --- if the survey area is to the observer's LEFT then A is negative; if the survey area is to the observer's RIGHT then A is positive.)

_____ -A (minus) _X_ +A (plus)

(10) if SHORAN corrections are applied by the equation, K(X) + C = D, where X is SHORAN distance and D is true distance, enter the Constant Coefficients of the equations here:

K(R1) _____, C(R1) _____, K(R2) _____, C(R2) _____.

(11) Number of Velocity Tables to be used:

___None, _X_ One, ___ More than one.

(12) _____ This form is submitted only as an aid in preparing a boat sheet projection.

_X_ This form applies to all data on this survey.

_____ This form applies to part of the data on this survey -

Time and Date limitations: From 23 Mar 0952 To 21 Apr 1125

Position Number Limitations: From 2001 6001 To 3738 6466

This is Form #3 Sheet # 1 of 1 Sheets for this survey.

(13) Other Remarks:

H.S. H-9266

Field No.

Date

HYDRO I PARAMETER CARDS

Computer G.P.'s from Electronic Controlled Baseline

Parameter Card I		Deg. Min. Seconds	Type Codes	1	2	3	4	5	6	7	8	9	10
Station R1 Hydro Name	Lat.	55 48 09.9	RPD	2	0	0	2	2	7	0	7	0	6
	Long.	132 09 49.1	RPD	11	12	13	14	15	16	17	18	19	20
				4	7	5	7	2	9	6	1	0	6
Survey R2 Hydro Name	Lat.	55 50 22.86		Not Used									
	Long.	132 18 35.41		Not Used									
Azimuth R1 to R2		114 37 54.14	RAD	21	22	23	24	25	26	27	28	29	30
				4	1	2	6	1	4	7	4	0	6
			.	Not Used									
Baseline Distance in Meters			SMP	31	32	33	34	35	36	37	38	39	40
				1	0	0	3	1	0	6	0	0	5
Velocity Code 0 - No Vel. 1 - 1 Vel. Table 2 - 2 Vel.-(E - W) 3 - 2 Vel.-(N - S)			IVL										41
Conversion factor for electronic distance to Meters.		Stat. MI = Loran = 3306.4 or	CNV	42	43	44	45	46	47	48	49	50	51
				4	5	3	1	6	6	5	7	0	2
H-Identification Number			JH						52	53	54	55	56
									5	7	—	8	—
Location of survey with respect to electronic baseline		- <Δ = 1 + <Δ = 0	AAA										57 0
Velocity Boundary IVL = 2 IVL = 3		Long = o " " Lat =	VLE		58	59	60	61	62	63	64	65	66
			YR								67	68	69
											0	7	2
If Shoran calibration correction is applied by equation (use Shoran card) punch 1 in column 80				70	71	72	73	74	75	76	77	78	79 80

Shoran Card Format (when calibration correction is applied by a line K x + C)
(flag 5, 11, 17, or 23 if resp. constant is negative)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
R1K					R1C						R2K					R2C							

1/30/74

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center

Hourly heights are approved for Form 362

Tide Station Used (NOAA Form 77-12): Eagle Island
Vixen Pt.

Period: 5 April - 24 May 1972

HYDROGRAPHIC SHEET: H-9286

OPR: 465

Locality: Ernest Sound, Alaska

Plane of reference (mean lower low water): Eagle Is. 6.4 ft.
Vixen Pt. 3.9 ft.

Height of Mean High Water above Plane of Reference is 14.9 ft.

Remarks: Zone: Apply heights direct from Eagle Island.
Note: Vixen Pt. heights may be used when hourly values are missing.

Chief, Tides Branch

4113

FEB 28 1972

Commanding Officer
NOAA Ship FAIRWEATHER
Through: Director, Pacific Marine Center

PROJECT INSTRUCTIONS: OPR-465-FA-72, Clarence Strait and Ernest Sound, Southeast Alaska

GENERAL

1. This project is a continuation of previous years work by NOAA ships. All previous OPR-465 Instructions are superseded by these Instructions.

2. This project conforms to the Nautical Charting Plan for survey requirements in support of new chart construction and maintenance of existing charts. Field operations are planned to begin in early March and continue to late May . Supplemental Instructions will be issued for work scheduled in the Fall.

3. First priority is Ernest Sound, the area northward from junctions with the 1971 PATHFINDER surveys to latitude 56°00'00"N. On completion of work in this area, operations will shift into Clarence Strait to the area northward from junctions with the 1971 work.

4. All work on this project shall be in accordance with the PMC OPORDER and as modified by these Instructions.

PHOTOGRAMMETRY

5. Photo-hydro support data is available only for Ernest Sound to 56°00' 00"N. Control for work in Clarence Strait and on 1:5,000 scale boat sheets T and S must be by ground survey mothods.

6. Photo-hydro support data have been furnished for the following map manuscripts:

Map	Scale
PH-6303	
T-12367	1:10,000; 1:20,000 reduction
T-12368	1:10,000
T-12370	1:10,000; 1:20,000 reduction
T-12371	1:10,000
T-12374	1:10,000
T-11977	1:10,000; 1:20,000 reduction
T-11978	1:10,000; 1:20,000 reduction
T-11979	1:10,000; 1:20,000 reduction
T-11980	1:10,000; 1:20,000 reduction
T-11981	1:10,000; 1:20,000 reduction
T-11982	1:10,000; 1:20,000 reduction
T-13237	1:10,000
T-13238	1:10,000
T-13239	1:10,000

T-12402	1:10,000; 1:5,000 enlargement
T-12403	1:10,000; 1:5,000 enlargement
T-12404	1:10,000; 1:5,000 enlargement
T-13096	1:10,000; 1:20,000 reduction
T-12310	1:10,000
T-12313	1:10,000

The 1:5,000 scale enlargements are provided for shoreline on boat sheets only and must not be used for control.

7. Cronaflex copies used for locating signals, and cronaflexes needed for processing smooth sheets shall be made a part of the hydrographic records.

8. Field edit has been completed on Maps T-12367, T-12370, T-12374, T-12402, T-12310, and T-12313. Field edit is required on all other sheets, as work progresses. Field edit operations shall remain approximately current with hydrography to avoid application of obsolete data for smooth sheet use. Agreement between the boat sheet and the field edit data is required when the two surveys cover common details. All discrepancies must be resolved before field edit data is shipped.

9. All field edit and/or photo-hydro support data shall be transmitted to Pacific Marine Center for forwarding to Chief, Photogrammetric Division, AMC, Attention CAM 521. PMC will send a copy of the transmitting letter to Chief, Coastal Mapping Division, Attention C 3415.

Pre-Marking

10. Aerial photography is scheduled in the vicinity of Zarembo Island for 1972. Flight lines are required along Clarence, Sumner, Stikine and Zimovia Straits. Nineteen horizontal control stations are to be recovered or established, and premarked for 1:60,000 scale photography.

11. Project diagram CM-7206, with the horizontal control requirements indicated, will be furnished. Notify Chief, Surveys Planning Branch, through Director, Pacific Marine Center, if horizontal control plotted in the areas indicated on the job diagram cannot be recovered. If possible, alternatives will be furnished to avoid establishing new control.

12. All panels must be in place and ready for photography by 1 June 1972. Notify Director, Pacific Marine Center, immediately upon completion of premarking.

13. Panel Array No. 1 in PMC OPORDER Illustration 3.2-1 is to be used and may be modified as necessary to conform with local terrain conditions. The distance given for dimension C may be increased, but not decreased.

14. Any deviation of panel and spacing dimensions shall be indicated on the large scale sketch required on the C. S. I. card for Substitute Station A.

HYDROGRAPHY

15. Pre-Survey Review: The pre-survey review previously updated to 28 September 1970 is updated to 1 December 1971 with the inclusion of the following shoal soundings:

A.	14 fathoms	55°56.8' N	132°07.0' W
B.	12 fathoms	55°57.10'	132°02.67'
C.	30 fathoms	55°58.21'	132°02.30'
D.	17 fathoms	55°58.26'	132°01.09'
E.	17 fathoms	55°58.38'	131°59.93'
F.	4 fathoms	55°57.95'	131°58.27'

The above listed soundings are from the 1922 surveys, H-4272 and H-4276, and each shall be treated as dashed-circle items on the pre-survey review.

16. Reported Chart Deficiency: The following reported chart deficiency item shall be included in the pre-survey review.

Two rocks covered by less than one fathom at low water in charted depths of 7 and 8 fathoms are reported to exist in the narrow channel between the east side of Brownson Island near the south end, and a small unnamed island. The rocks are charted on Chart 8161 at 55°56.9'N, 132° 07.6'W. This report must be verified or disproved.

17. Line Spacing: Line spacing shall be as follows:

50 meters - over dredged and natural channels, maximum spacing on 1:5,000 scale sheets

100 meters - less than 30 fathoms

200 meters - maximum spacing on 1:10,000 scale sheets, 30 to 110 fathoms on 1:20,000 scale sheets.

400 meters - over 110 fathoms.

18. Junctions: A prior survey index and copies of prior surveys will be furnished. Satisfactory junctions shall be made with the following surveys:

PF-10-1-71	H-8945 (LJ-10-1-67)
PF-10-2-71	H-8946 (LJ-10-2-67)
PF-20-1-71	H-8621 (LJ-10-1-61)

19. Visual control for the 1:5,000 scale sheets (S and T) shall be established by ground survey methods.

TIDES

20. The primary tide station at Ketchikan will serve as the reference station.

21. Portable tide gages shall be installed and maintained at the following locations to control hydrography.

A. Union Bay
B. Santa Anna Inlet
C. Canoe Passage
D. Dewey Anchorage
E. Vixen Entrance
F. Vicinity of Stones Island

Tidal bench mark data will be furnished for A and B.

CURRENTS

22. Currents are to be observed for periods of six days at each of the following locations:

Station	Latitude	Longitude
1	55° 50.5'N	132° 12.5'W
2	55° 53.0'	132°08.5'
3	55° 56.0'	132° 05.0'
4	55° 59.0'	132° 05.5'

23. Three geodyne meters are to be used at each station and set at depths of 10 feet, 30 feet, and 5/6 of the charted depth. The lower meter must be set so as not to touch bottom at low water.

24. Comparison observations, both speed and direction, are required at ten minute intervals for a period of one hour at the beginning and at the end of each station.

25. Each station occupied must be accurately located by sextant fix or other accepted method at the beginning and again at the end of each station.

26. If necessary, slight changes in station locations may be made by the Commanding Officer. Major changes must be referred to Chief, Oceanography Division through Director, Pacific Marine Center for approval.

MAGNETICS

27. Magnetic observations are required at four stations. Approximate station locations are indicated on a section of Chart 8102 by large black circles. Existing horizontal control stations are indicated by small red circles, and existing magnetic stations by small blue circles.

MISCELLANEOUS

28. Monthly progress sketches shall be submitted at the scale of chart 8201.

29. Monthly accomplishment shall be reported under Work Identification Code 0132050 (Hydrographic Surveys).

R. C. Darling
Associate Director
Office of Marine Surveys and Maps

R E C E I P T

TO: C3, Associate Director, Office of Marine Surveys and Maps

THROUGH: CPM, Director, Pacific Marine Center

Receipt of Project Instructions, OPR-465-FA-72, Clarence Strait and Ernest Sound, Southeast Alaska dated 28 February 1972, is acknowledged.

Commanding Officer
NOAA Ship FAIRWEATHER

Date

APPROVAL SHEET

The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report)

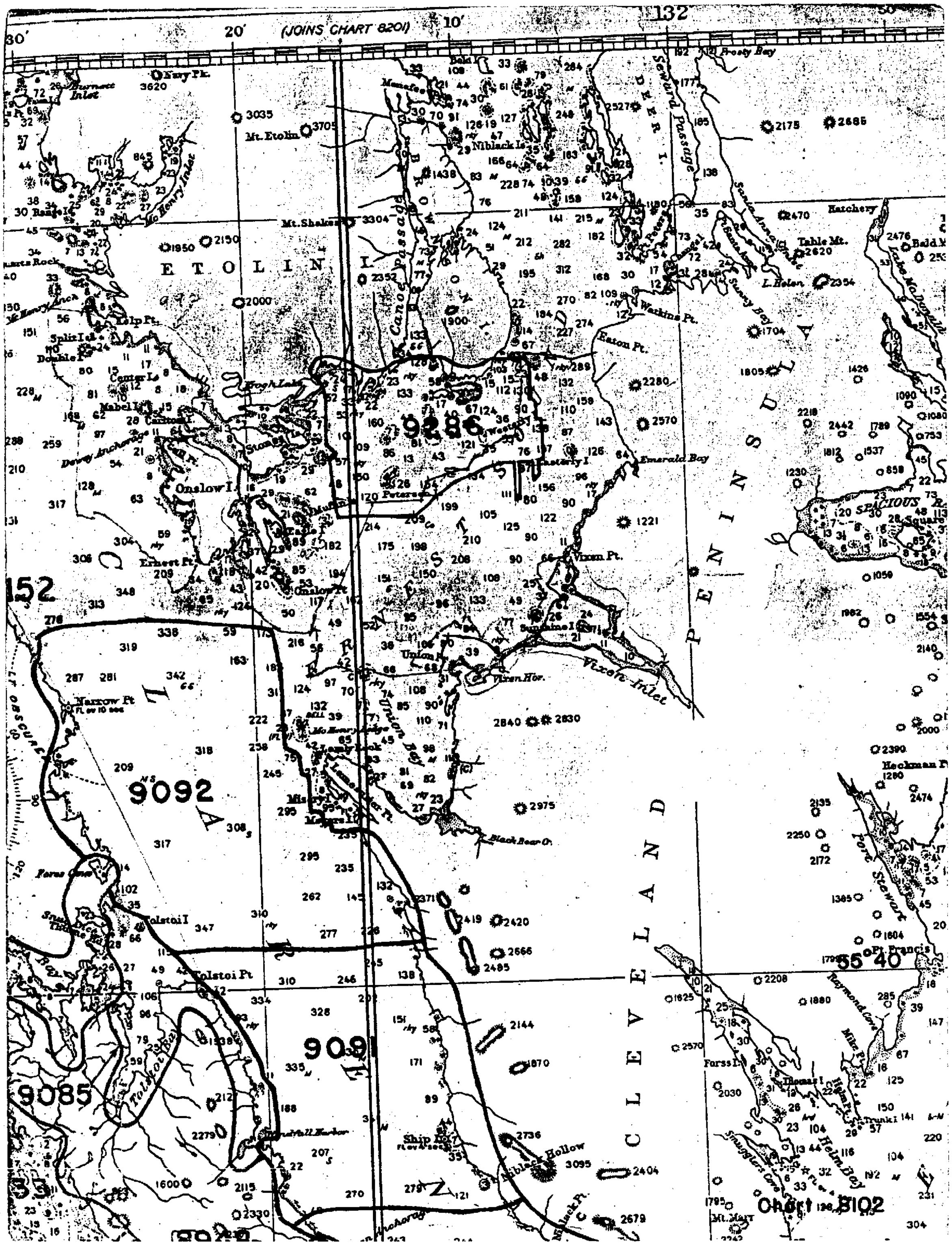
Examined and approved,

James S. Green
Supervisory Cartographic Technician

Approved and forwarded,

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

Note:
This sheet should be carefully reviewed for adequacy due to shoreline conflicts and use of electronic control.
WF


(JOINS CHART 8201)
30'
20'
10'
132
Snow Pk.
Burnett Inlet
McHenry Inlet
Mt. Etolin
Mt. Shakes
Niblack Is
Frosty Bay
Seward Passage
Canoe Passage
ETOLIN I.
Hatchery
Table Mt.
L. Helen
Watkins Pt.
Eaton Pt.
Kelp Pt.
Split I.
Double I.
Center I.
Mabel I.
Carlton I.
Frog Lake
9286
Dewey Anchorage
Onslow I.
Emerald Bay
Easterly I.
Peterson
PENINSULA
SPACIOUS B.
Ernest Pt.
Onslow Pt.
Vixen Pt.
152
Sunshine I.
Union Pt.
Vixen Hbr.
Vixen Inlet
Narrow Pt.
Union Bay
9092
Misery I.
Meyers I.
Black Bear Cr.
Heckman Pt.
CLEVELAND
Port Stewart
Tolstoi I
Tolstoi Pt.
Pt. Francis
55 40
Raymond Cove
9091
9085
Forss I.
Thomas I.
Helm Bay
Ship I.
Niblack Hollow
Smugglers Cove
Mt. Marr
Chart 8102

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9286

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
			~~Full Part Before After Verification Review Inspection Signed Via~~
			~~Drawing No.~~
	7/22/81	NOTE ⟶	PREVIOUS APPLICATIONS CAN BE FOUND ON THE INSIDE BACK COVER OF THIS DR
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
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			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

RECORD OF APPLICATION TO CHARTS

8207	11/75	Raitor	part after verification
8161	9/13/77	Raitor	" " " to proof
8107	1/18/80	Raitor	" " " thru 8201
Dwg 30			