9288

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 20-1-72 Office No. H-9288

LOCALITY

State: Alaska

General locality: Ernest Sound ~~Southeast Alaska~~

Locality: Union Pt to Brownson I ~~Ernest Sound~~

1972

CHIEF OF PARTY

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

LIBRARY & ARCHIVES

DATE: March - May 1972

9-12-74

USCOMM-DC 37022-P66

Charts 8102
8161
8201

9288

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-9288

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. FA 20-1-72

State: Alaska

General locality: ~~Southeast Alaska, Cleveland Peninsula~~ Ernest Sound

Locality: ~~Ernest Sound~~ Union Pt to Brownson I

Scale: 1:20,000 Date of survey: 20 March-21 April 1972

Instructions dated: 28 February 1972 Project No.: OPR 465 - FA-72

Vessel: FAIRWEATHER & FA-4

Chief of party: CAPTAIN R. H. Houlder

Surveyed by: Reviewer fill in

Soundings taken by echo sounder, XXXXXXXXXXXX

Graphic record scaled by: FAIRWEATHER personnel

Graphic record checked by: " "

Protracted by:

Automated plot by: ~~FAIRWEATHER personnel~~ PMC - Gerber Digital Plotter

Soundings penciled by:

Soundings in fathoms XXX at XXXX MLLW

REMARKS:

Applied to stds 11-25-74
CAB

USCOMM-DC 37009-P66

COMPUTER BOAT SHEET LAYOUT

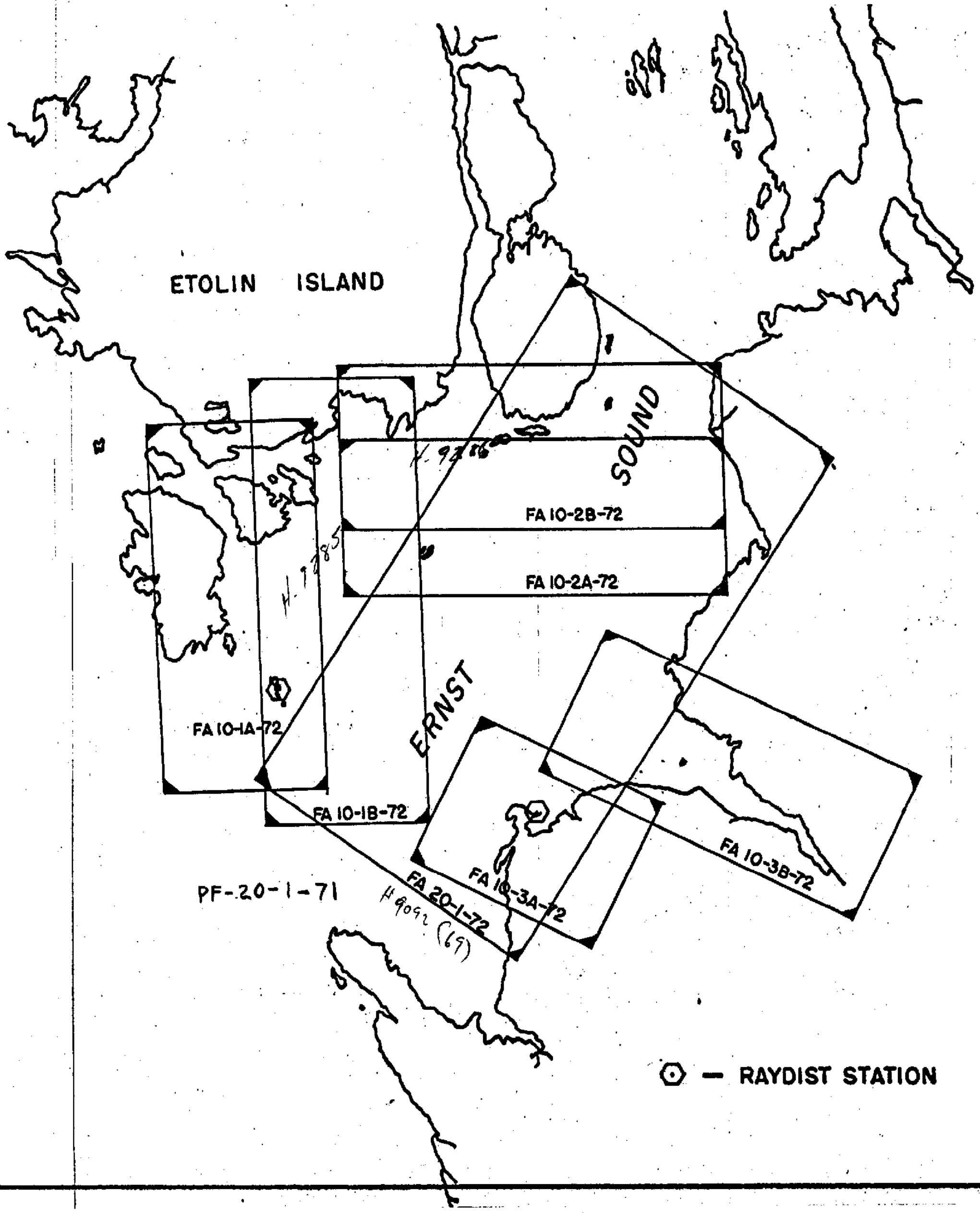
OPR-465

ERNEST SOUND, S.E. ALASKA

NOAA SHIP FAIRWEATHER

CAPT. R. H. HOULDER CMDG

SCALE OF C&GS CHART 8102



DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SHEET H-9288 (FA 20-1-72)
ERNEST SOUND, ALASKA
SCALE 1:20,000
NOAA SHIP FAIRWEATHER
CAPT R. H. HOULDER, COMMANDING

A. PROJECT

This survey was accomplished in accordance with PMC OPORDER and Project Instructions OPR 465-FA-72, Clarence Strait and Ernest Sound, Southeast Alaska, dated 28 February 1972.

B. AREA SURVEYED

This survey covers the southern part of Ernest Sound that is north of Union Point, south of Eaton Point, and southeast of a line between Onslow Point and the southern end of Brownson Island, exclusive of Vixen Inlet. Ernest Sound is 40 miles north of Ketchikan, Alaska.

The coast in this area is backed by steep slopes that are heavily forested to the water's edge with a thick undergrowth and tall coniferous trees. The forest gradually gives way, at higher elevations, to 4000 ft. bare-topped mountains. The shoreline though is somewhat different in the various areas. In the southeast corner of the survey area a gently sloping shoal extends approximately 1/4 mile out from the treeline. This shoal is spotted with large boulders. From Vixen Pt. to Emerald Bay the shoreline is rugged with many rocks and small reefs near the beach. North of Emerald Bay to Eaton Point there is no beach. The precipitous slopes here continue to fall to 200 fathom depths immediately offshore. The rest of the shoreline around Ernest Sound is discussed in the boat sheet report for the 1:10,000 sheet covering the respective area.

This survey was conducted between 20 March and 21 April 1972.

This area was covered by leadline surveys H-4271 (1:20,000) and H-4253 done in 1922.

This survey junctions with the following contemporary surveys:

DESIGNATION	AREA OF JUNCTION
PF 20-1-71	South
FA 10-3A-72	Union Point
FA 10-3B-72	Vixen Inlet
FA 10-2A-72	Northwest
FA 10-1B-72	Onslow Point

C. SOUNDING VESSEL

The central part of this survey, roughly defined by the 100 fathom curve, was surveyed by the FAIRWEATHER. All other hydrography was accomplished by Launch FA-4. The soundings, plotted by the ship's PDP/8E Hydroplot System, are not color identified. Positions 0001 to 0394 were surveyed by the FAIRWEATHER. Positions 4001 to 5483 and 8001 to 8074 were surveyed by FA-4. Positions 395-407 represent bottom samples taken by the ship.

D. SOUNDING EQUIPMENT

Launch FA-4 used Ross Fineline Fathometer Model 400-A exclusively. It was used in depths from 0 to 280 fathoms. In the steeply sloped Northeastern area of the survey, the fathometer would not record a trace when headed into deeper water. To obtain soundings it was necessary to head into the slope at slow speeds.

The FAIRWEATHER used Ross Fineline Fathometer 5000, S/N 1047, on line with the PDP/8E plotting system. This system was used in depths from 20 to 230 fathoms. The internal time keeping system of the fathometer failed at times to keep proper time, but this has been rectified on computer tapes and the final plot.

Fathometer corrections are handled extensively in the Fathometer and Velocity Corrections Report, OPR 465-FA-72. Summarizing this report - Fathometers were internally adjusted as necessary to keep the initial at zero. Bar checks were made once or twice a day to determine the TRA correction for the launch. Velocity corrections were determined by 2 Nansen casts in the center of the survey area. An abstract of the transducer draft corrections for both the ship and Launch 4 is appended to this report.

E. SMOOTH SHEET

The shipboard final plot was made by the onboard PDP/8E Hydroplot System. The final smooth sheet will be plotted by AMC or PMC. A computer plot of each day's work was made each night after the punch tape had been edited for errors. The following day the hydrographer inspected this initial plot and noted any necessary corrections. These corrections were then incorporated into the ship's final plot. All positions have been adjusted for the partial lane corrections resulting from twice a day calibrations of the Raydist.

F. CONTROL

Horizontal control was principally provided by Raydist stations located on an islet in Vixen Harbor (Red rate or Pattern I) and at Onslow Point (Green rate or Pattern II). See the included Raydist Note for a more thorough explanation.

The Raydist null area between Onslow Point and Union Point (Positions 5185-5483, exclusive of positions 5238-5244) was surveyed by Raydist assisted visual methods. The Raydist was used to stay on line and for line spacing. Visual 3-point sextant fixes were taken on signals located either by triangulation or over old triangulation marks. A list of the signals used is appended.

Emerald Bay, in the northeast corner of the area surveyed, was surveyed by visual methods as well as Raydist since the Raydist fixes near the southern shore were distorting. (The signals had to cross over a small densely forested peninsula). The signals used for the visual survey were located by photogrammetric methods and transferred to a large scale plotting sheet from incomplete manuscript T-11979. The positions for both, the Raydist controlled hydro (5005-5022) and the visual hydro (5023-5033), were plotted on separate 1:10,000 insets. The visual fixes in this area were plotted by the following method: By using the angles the computer solved for the Raydist rates. These rates were then used to plot the position.

Calibration of the Raydist was performed at least twice a day and average lane correctors determined. This was done by three methods: 3-point sextant fixes, a calibration buoy on a shoal off Vixen Inlet (Lat. 55°49' 27", Long. 132°07'11"), and at fixed natural objects in the area. A list of the average lane correctors used each day and a thorough discussion of the Raydist is appended. A list of the signals used for visual calibration is also appended.

G. SHORELINE

The shoreline was traced directly from 1:20,000, T sheets 11977-11981. The shoreline on these sheets was un-verified when traced on the boat sheet, but since then has been verified by a field edit party from the FAIRWEATHER. Full information on the verification of these T sheets can be found in the report entitled Field Edit Report, OPR 465-FA-72. The low-water line is defined as well as is possible. The shoreline between Vixen Point and Emerald Bay was very rugged with a number of rocks and offshore reefs which made it impossible to trace the zero fathom curve. From Emerald Bay to Eaton Point it was impossible to get the launch near enough to the nearly vertical bluffs to obtain a continuous zero fathom curve.

H. CROSSLINES

The miles of crosslines are approximately 10% of the miles of regular lines. All crossings agree well. The large differences that sometimes occur can be attributed to the extreme ruggedness and steepness of the bottom.

I. JUNCTIONS

All junctions with contemporary surveys are good. Most agree within 5 fms. However, because of the extreme ruggedness and steepness of the bottom topography, isolated crossings sometimes disagree by as much as 20 fms. This occurs at what appears to be fault lines and underwater cliffs.

The following soundings from the junction with PF 20-1-71 did not agree and could not be explained:

PF 20-1-71 DEPTH	FA 20-1-72 DEPTH	POSITION
128	103	55°49'30" 132°17'15"
50	30	55°48'48" 132°15'60"
49	60	55°48'27" 132°11'48"
9-3/10	24	55°48'26" 132°11'21"

J. COMPARISON WITH PRIOR SURVEYS

This survey was compared with prior surveys of the area H-4271 and H-4253.Both are 1:20,000 leadline surveys done in 1922. Both of these surveys agreed favorably with this survey. However, many of the deeper depths disagree by as much as 20 fathoms and the positions of some of the older depths are displaced by as much as 150 meters. This could also be due to the rugged bottom topography.

The prior survey did miss two shoal areas found by this survey. Their positions and least depths are listed below:

55°49.87')
132°12.58'(1.9 m. NW of Union Pt.) 24 fathoms

55°49.38')
132°16.22'(1.7 m. SE of Onslow Pt.) 27 fathoms

The earlier surveys did an adequate job of finding all dangers to navigation and generally portraying the bottom topography. However, it is recommended that this survey entirely supersede the earlier surveys.

Each item shown on the Pre-Survey Review was checked on the new survey. The following list, in tabular form, shows the results:

PRE-SURVEY REVIEW

	FROM CHART 8102		FROM FA 20-1-72	
	Depth	Position	Depth	Position
1.	76	55°53.63' 132°07.26'	76	55°53.59' 132°07.18'
2.	87	55°53.30' 132°07.36'	88	Same

	FROM CHART 8102		FROM FA 20-1-72	
	Depth	Position	Depth	Position
3.	80	55°52.46' 132°07.28'	51	Same
4.	40	55°53.55' 132°05.90'	38	Same
5.	33	55°52.75' 132°04.20'	48	Same
			34	55°52.75' 132°04.07'
6.	3-3/4	55°51.82' 132°05.20'	4.0	Same
7.	9	55°51.59' 132°05.49'	23	Same
			8-1/10	55°51.56' 132°05.47'
8.	11	55°51.30' 132°05.73'	11	Same
			8-1/10	55°51.32' 132°05.78'
9.	25	55°50.25' 132°07.41'	26	Same
			24	55°50.35' 132°07.57'
10.	3/4	55°49.37' 132°07.20'	1-2/10	55°49.41' 132°07.11'
11.	36	55°48.88' 132°13.97'	43	Same
			36	55°48.88' 132°14.09'
12.	49	55°49.18' 132°16.20'	36	Same

K. COMPARISON WITH THE CHART

This survey compares favorably with the largest scale chart of the area, C&GS 8161, 5th Edition, 12 June 1971. A number of the charted depths in the very rugged and steep areas though, disagree by as much as 30 fathoms, with those found on this survey. All of these are sufficiently deep so that no danger to navigation is present. Two new shoals, which were mentioned in paragraph J, were found.

Several of the charted shoals along the shore between Vixen Pt. and Emerald Bay were found to have at least depths 2-3 fathoms less than shown on the chart. The chart in the index has been annotated with red pencil to indicate the changes discovered by this survey.

L. ADEQUACY OF THE SURVEY

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

M. AIDS TO NAVIGATION

There are only two aids to navigation in the survey area. They are Easterly Island Light and Brownson Is. Rocks Day Marker. Both are shown on the chart and listed in the Light List correctly. Both serve their purpose adequately.

N. STATISTICS

POSITIONS			NAUTICAL MILES
*4001-5483	FA-4		292.1
0001-0399	FAIRWEATHER		148.5
		Total	440.6
DEVELOPMENT OF SHOAL ON SEPARATE OVERLAY Lat. 55°49.41'N Long.132°07.11'W	8001-8074 (POSITIONS)	FA-4	11.2 n.m.

Miles of crosslines: 36 9%

Total area surveyed: 34.7 s.n.m.

*5023-5033 - Visual hydro Emerald Bay on separate overlay.

5185-5238 & 5244-5451 - Visual hydro in Null Area.

5452-5483 1/4 lane development to disprove shoal sounding @ 2nd out of #5394 (Lat. 59°49.44'N, Long. 132°16.54'W). Not plotted.

10 bottom samples.

O. MISCELLANEOUS

1) A possible fault line extends from the small stream at the head of Emerald Bay north-northeastward along the shoreline to Eaton Point. The bottom drops precipitously to depths of over 150 fathoms immediately offshore. At Eaton Point it drops to almost 300 fathoms. At the head on Emerald Bay this line is evident as a 10 fathom deep immediately next to zero fathom soundings.

2) The shoal area at Lat. 55°49.41'N, Long. 132°07.11'W, was surveyed by a 1-lane spaced, 1:10,000 development. This is included with the regular boat sheet.

3) In the null area near Onslow Point at the 2nd sounding out of position #5394 (Lat. 55°49.44', Long. 132°16.54') a shoal sounding was indicated. The adjustments on the fathometer were being changed at the time this area was crossed and a stray pulse was recorded. No such sounding exists. To insure this a 1/4 lane spaced development (Positions 5452-5483) was run over the area. Since no shoal sounding was found this development has not been plotted.

4) Two 1:5,000 insets have been included to clarify the hydrography around Brownson Is. Rocks (Lat. 55°56.0', Long. 132°06.8') and Easterly Is. (Lat. 55°53.7', Long. 132°05.3'). They were both surveyed using the 1:20,000 mylar boat sheet. These are only blow-ups of the hydro.

P. RECOMMENDATIONS

1) Emerald Bay was surveyed both visually and with Raydist control. The Raydist positions along the southern shore of Emerald Bay are displaced due to signal distortion. The fixes in the center and along the northern shore are undistorted. Since speed and course were held constant on each line and each line either began or ended approximately 10 meters from the southern shore, these fixes could be adjusted to fit. If this is done the Raydist and visual surveys should agree closely.

2) The visual fixes in the Raydist null area can be adjusted, if necessary, to correspond to the lane being driven at the time, since this was also recorded.

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,

C. Nicholas Bohner, Jr.

for T. Ballentine
LT (jg), 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.

VELOCITY CORRECTIONS

Velocity corrections to be applied to the soundings of sheet FA 20-1-72 (H-9288) 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 20-1-72 LAUNCH FA-4

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	TRA CORR.	INITIAL CORR.	TOTAL CORR.
080	FA 20-1-72	1402	4001	+0.3	0.0	+0.3
081	"	1042	4080	+0.3	0.0	+0.3
082	"	0905	4213	+0.3	0.0	+0.3
83	"	0845	4362	+0.4	0.0	+0.4
084	"	101330	4516	+0.4	0.0	+0.4
089	"	0905	4532	+0.4	0.0	+0.4
089	"	115930	4575	+0.4	+0.2	+0.6
089	"	121930	4587	+0.4	0.0	+0.4
090	"	095430	4666	+0.3	0.0	+0.3
091	"	0906	4762	+0.3	0.0	+0.3
094	"	1131	4837	+0.3	0.0	+0.3
95	"	092430	4901	+0.4	0.0	+0.4
096	Shoal Development	0953	8001	+0.3	0.0	+0.3
096	"	1353	5005	+0.3	0.0	+0.3
097	"	114815	5073	+0.3	0.0	+0.3
098	"	0850	5145	+0.3	0.0	+0.3
101	"	120130	5211	+0.4	0.0	+0.4
102	"	0923	5220	+0.4	0.0	+0.4
103	"	091430	5322	+0.4	0.0	+0.4
112	"	0953	5447	+0.4	0.0	+0.4

TRANSDUCER & INITIAL CORRECTORS

BOATSHEET FA 20-1-72   LAUNCH FAIRWEATHER

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	TRA CORR.	INITIAL CORR.	TOTAL CORR.
102	FA 20-1-72	104157	0001	+2.6	0.0	+2.6
103	"	095612	0113	+2.6	0.0	+2.6
104	"	100303	0317	+2.6	0.0	+2.6
[illegible]5	"	092331	0382	+2.6	0.0	+2.6

ELECTRONIC CORRECTORS

BOATSHEET FA 20-1-72 LAUNCH FA-4

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	PATTERN I CORRECTOR	PATTERN II CORRECTOR
080	FA 20-1-72	140200	4001	+0.05	+0.03
081	"	104200	4080	-0.06	+0.08
082	"	090500	4213	-0.01	+0.10
083	"	084500	4362	+0.06	+0.20
084	"	101330	4516	+0.02	-0.04
089	"	090530	4532	+0.03	-0.04
089	"	112330	4551	-0.03	+0.06
090	"	095430	4666	0.00	0.00
091	"	090600	4762	-0.10	0.00
094	"	113100	4837	+0.19	+0.12
095	"	092430	4901	-0.05	+0.12
096	"	135300	5005	-0.13	+0.10
096	" Shoal Development	095300	8001	-0.04	+0.09
097	FA 20-1-72	114815	5073	-0.14	-0.09
098	"	085000	5145	-0.05	+0.03
102	"	111300	5220	-0.16	+0.01
112	"	095300	5447	-0.05	+0.04

ELECTRONIC CORRECTORS

BOATSHEET FA 20-1-72 LAUNCH FAIRWEATHER

DAY #	COMPUTER SHEET #	BEGINNING TIME	BEGINNING POS. #	PATTERN I CORRECTOR	PATTERN II CORRECTOR
102	FA 20-1-72	104157	0001	-0.04	+0.13
103	"	095612	0113	+0.20	-0.91
104	"	100303	0317	-0.01	+0.02
104	"	134411	0339	+0.09	+0.13
105	"	092331	0382	+0.20	+0.07

LIST OF SIGNALS
FA 20-L-72

001	55	50	2160	132	05	3367	TRIANGULATION ~~3RD~~ 4th ORDER
002	55	50	4462	132	05	3436	PHOTO-HYDRO T-11980
003	55	50	3469	132	05	1103	" " "
004	55	50	1503	132	05	2350	" " "
005	55	50	0527	132	05	1775	" " "
006	55	49	5642	132	05	0000	" " "
031	55	48	4291	132	06	3674	" " T-11981
032	55	48	4287	132	07	1205	TRIANGULATION STATION CHAR 1966
069	55	48	1112	132	11	0396	TRIANGULATION STATION UNION 1916
098	55	48	0808	132	09	4959	TRIANGULATION ~~3RD~~ 4th ORDER RED RAYDIST
099	55	50	2296	132	18	3349	TRIANGULATION SLOW 1966 GREEN RAYDIST
101	55	53	1691	132	02	3917	PHOTO-HYDRO T-11979
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	TRIANGULATION STATION LEM 1916
176	55	50	2296	132	18	3354	TRIANGULATION STATION SLOW 1966
177	55	51	5X86	132	17	2159	TRIANGULATION STATION MUFFIN 1916
178	55	52	5908	132	13	3118	TRIANGULATION STATION WOOD 1916

EMERALD BAY SIGNALS

101	55	53	1691	132	02	3917	PHOTO-HYDRO T-11979
102	55	53	1934	132	02	1599	" " "
103	55	53	0938	132	02	2123	" " "
104	55	53	3844	132	02	3739	" " "

?

COMPUTER SHEET PARAMETER TAPE
FA 20-1-72
OPR 465

FEST = 20000
CLAT = 6178000
CMER = 132/12/00
GRID = 60
PLSCL = 20000
PLAT = 55/45/33
PLON = 132/10/48
S1LAT = 55/48/08.09
S1LON = 132/09/49.61
S2LAT = 55/50/22.96
S2LON = 132/18/33.54
Q = 3306.45
VESNO = 2020
YR = 72

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

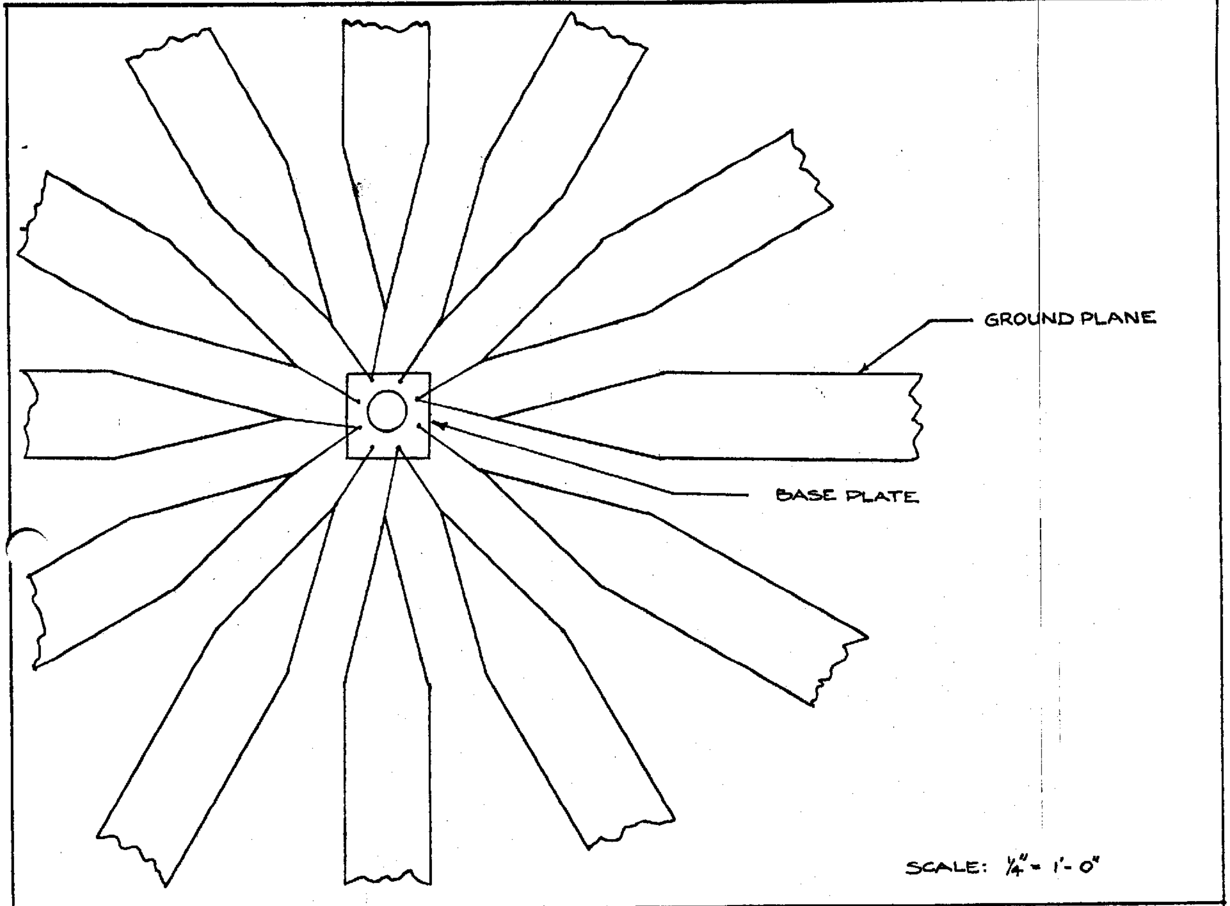
Launch:	AR-1	FA-4	FA-5
S/N:	22	34	20
Frequency:	3306.500 Khz	3306.400 Khz	3306.465 Khz

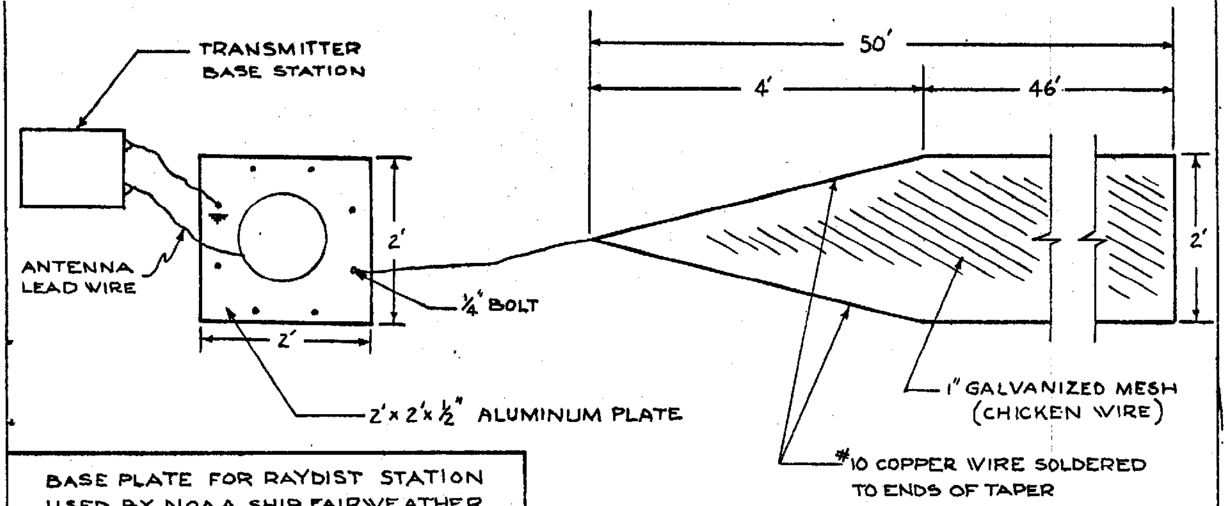
Mobile Navigators - Model ZA-67A

Launch:	AR-1	FA-4	FA-5
S/N:	47	54	26
Freq. Filter Red:	470Hz	370 Hz	435 Hz
Freq. Filter Green:	350Hz	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: 1/2" = 1'-0"

Category II
no priority

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): Vixen Point
Union Bay

Period: 16 March - 26 April 1972

HYDROGRAPHIC SHEET: H-9288

OPR: 465

Locality: Ernest Sound, Alaska

Plane of reference (mean lower low water): Vixen Pt., 3.9 ft.
Union Bay, 6.0 ft.

Height of Mean High Water above Plane of Reference is 15.0 ft.

Remarks: Zone: Apply heights direct from Vixen Pt. to entire sheet.

Note: Union Bay heights may be used when hourly values are missing.

[illegible]
Chief, Tides Branch

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

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

GEOGRAPHIC NAMES
Survey No.
H-9288

Name on Survey	A On Chart No.	B On previous sur... No	C On U.S quadra... Maps	D From local information	E On local Maps	F P.O. Guide or Ma...	G Rand McNally A...	H U.S. Light List	K	
CLEVELAND PENINSULA										1
EASTERLY ISLAND	✓									2
EMERALD BAY	✓									3
ERNEST SOUND	✓									4
SUNSHINE ISLAND	✓									5
VIXEN HARBOR	✓									6
VIXEN INLET	✓									7
VIXEN POINT	✓									8
WESTERLY ISLAND	✓									9
BRAWNSON ISLAND	✓									10
EATON POINT	✓									11
UNION POINT	✓									12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26

Approved
Chas. E. Harrington
Staff Geographer
31 Jan. 1975

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-9288

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET & PNO	1	BOAT SHEETS	1
DESCRIPTIVE REPORT	1	OVERLAYS & Inserts	4

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	[illegible]					
CAHIERS	1					
VOLUMES	8					
BOXES			1			

T-SHEET PRINTS *(List)*
T-11977, T-11978, T-11979, T-11980 and T-11981

SPECIAL REPORTS *(List)*

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		1967		
POSITIONS REVISED		16		
DEPTH SOUNDINGS REVISED		47		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		--		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		--		
	TIME (MANHOURS)			
Verification of Control		2		
Verification of Positions		76		
Verification of Soundings		20		
Smooth Sheet Compilation		121		
ALL OTHER WORK		2		
TOTALS		221		

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY		
VERIFICATION BY Stanley H. [illegible]	Jan 11, 1974	Aug. 14, 1974
REVIEW BY		

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 9288

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	CL	R
Note: The verifier should first read the Descriptive Report for general information and problems.		
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 d. 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	
(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	X	
14. The protracting and plotting of all unsatisfactory crossings were verified. Remarks Required: -- None	X	
15. All detached positions locating **critical** soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None	X	

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.	X	
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.	X	
Part VI - SOUNDINGS		
18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None	X	
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	X	
b. From soundings in orange	X	
c. Approximate position of sketched curve is dashed orange	X	
d. Approximate position of shoal area not sounded in black dashed	X	
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	X	
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.	X	
36. Supplemental information.		X

Verified by	Date
Stanley H. Hubbs	Aug. 15, 1974

VERIFIER'S REPORT

H-9288 OPR-465 FA-20-1-72

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

PART II SHORELINE AND SIGNALS

4. Class 1 Manuscripts T-11978, T-11979, T-11980 and T-11981 were used to transfer smooth sheet shoreline. Date of final completion April, 1974.

PART III JUNCTIONS

10. Junctional verification between H-9287 (1972) was accomplished with good agreement with 10 fathoms to 50 fathoms curve, inshore curve from 0 fathoms to 5 fathoms require adjustments due to electronic control distortions inshore.

Junctional verification between H-9286 (1972) was not accomplished due to processing phase difference.

PART VII CURVES

23. The depth curves were inspected by Vince Flor, Cartographic Technician.

PART IX BOATSHEET

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

Lat.	Long.
55°48'03.2"	132°09'41.9"
55°48'54.1"	132°07'05.9"
55°50'04.1"	132°05'29.0"
55°50'06.0"	132°05'29.1"
55°50'07.9"	132°05'40.0"
55°50'09.0"	132°05'26.0"
55°50'10.2"	132°05'40.1"
55°50"15.5"	132°05'30.6"
55°50'53.0"	132°05'47.0"
55°51'15.0"	132°05'26.3"
55°51'58.1"	132°05'44.0"
55°52'18.0"	132°04'12.0"
55°52'20.5"	132°04'11.2"
55°52'51.3"	132°03'23.0"
55°53'00.5"	132°03'02.3"
55°53'01.4"	132°02'59.5"
55°54'08.7"	132°09'12.0"

PART XI NOTES TO THE REVIEWER

34. The Descriptive Report, Item F Control, notes that Raydist values on the northeast section of the sheet were distorting. These distortions appear close to the shore all along this area and the outlying island. Strip recordings were not included in the hydrographic records. Because of the precipitous slope of the coast in this area, Raydist values close to shore are suspect and questionable soundings have been placed in excess. Try to remove some of these on a logical basis if possible RHC

36. Electronic control lattices are plotted on a separate overlay. The arcs and the overlay were plotted by the new PMC Xynetics Plotter.

The smooth sheet paper, due to being of poor and porous quality, is almost impossible to reink on after erasures have been made.

Respectfully Submitted,

Stanley H. Otsubo
Cartographic Technician

SIGNAL TAPE

FA-20-1-72 LAUNCH #4

L

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	5642	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	0297	132	16	5219
176	55	50	2296	132	18	3354
177	55	51	5886	132	17	2159
178	55	52	5908	132	13	3118

COMMAND?

POSITION NUMBER LIMITATIONS

FROM	TO
0001	0399
4001	5022
5034	5183
5238	5244
8001	8074

H 7211
[illegible]

GEODETIC INVERSE COMPUTATION

PROGRAM NO. 700-002

STATION A: Unga[illegible] TO STATION B: [illegible]

LATITUDE	LONGITUDE		AZIMUTH	DISTANCE
55 48 8.09000	132 9 49.61000	F	114 37 54.73717	10031.0556
55 50 22.96000	132 18 33.54000	B	294 30 41.29694	

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)

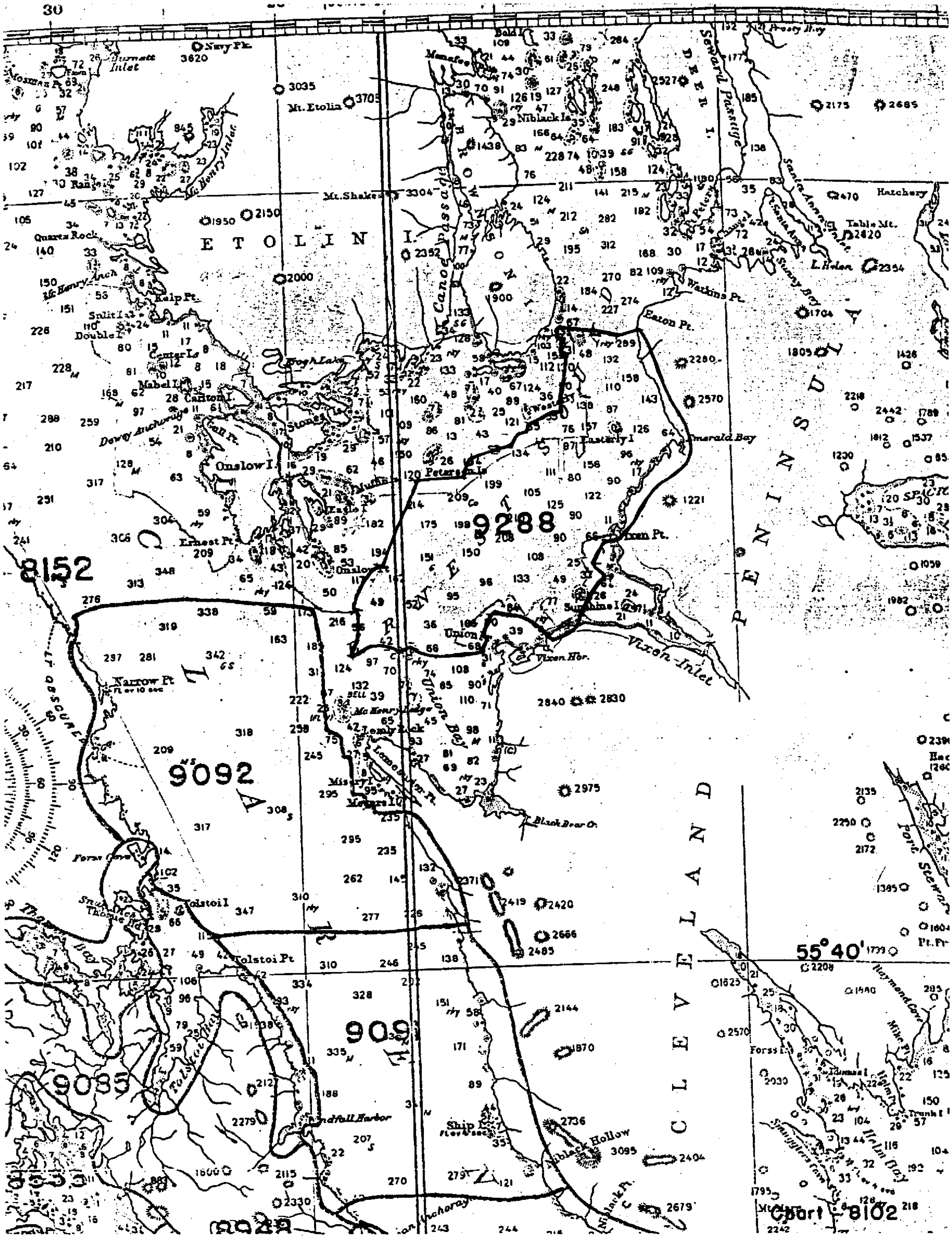
Examined and approved,

James S. Green
Supervisory Cartographic Technician

Approved and forwarded,

for

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



ETOLIN I.
Mt. Etolin
Mt. Shakes
Navy Pk.
Burnett Inlet
McHenry Inlet
Quartz Rock
McHenry Anch.
Kelp Pt.
Split I.
Double I.
Center Is
Mabel I.
Carlton I.
Dewey Anchorage
Onslow I.
Ernest Pt.
Frog Lake
Peterson Is
Onslow Pt.
Bald I.
Menefee
Niblack Is
Canoe Passage
DEER I.
Seward Passage
Santa Anna Inlet
Table Mt.
L. Helen
Hatchery
Frosty Bay
Watkins Pt.
Eaton Pt.
Emerald Bay
Easterly I
Vixen Pt.
Sunshine I
Union Pt.
Vixen Hbr.
Vixen Inlet
Union Bay
McHenry Ledge
Lemly Rock
Misery I
Meyers I
Black Bear Cr.
Narrow Pt
Tolstoi I
Tolstoi Pt
Ship I.
Niblack Hollow
Niblack Pt.
Forss I.
CLEVELAND
PENINSULA
55°40'
8152
9288
9092
9085
909
Chart 8102

H-9288

Chl-8161 12-10-79 ~~[illegible]~~ H.J. Borowski Opp'd min. corrections before review

17360
8201 11/11/75 Raitor Part after verification thru 8161 and 8102

17385 (8161) 7/24/79 Raitor Full a category I survey