

# FE240

FE240

Diagram No. 8201-4

NOAA FORM 76-35A

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

## DESCRIPTIVE REPORT

Type of Survey .. Field Examination.....  
Field No. .... DA-10-6-82.....  
Office No..... FE-240.....

### LOCALITY

State ..... Alaska.....  
General Locality .. Frederick Sound.....  
Locality ..... The Brothers.....

1982

CHIEF OF PARTY  
CDR J.M. Wintermyre

### LIBRARY & ARCHIVES

DATE ..... October 28, 1983.....

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

AREA 6  
Ref L-645(83)  
CHT: 17360

**HYDROGRAPHIC TITLE SHEET**

FE-240

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.

DA-10-6-82

State Alaska

General locality Frederick Sound

Locality The Brothers

*Field sheet only*

Scale 1:10,000 (1:5,000 Enlargement) Date of survey October 28 - November 4, 1982

Instructions dated October 13, 1982 Project No. S-P106-DA-82

Vessel NOAA Ship DAVIDSON Launches 3131, 3132

Chief of party CDR James M. Wintermyre

Surveyed by LT D. Dreves, LTJG N. Boque

Soundings taken by echo sounder, hand lead, pole Ross Fathometer Model 5000

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Verification

~~checked~~ by R. Shipley and R. Davies

Automated plot by PMC Xynetics Plotter

Evaluation

~~checked~~ by Bruce Alan Olmstead

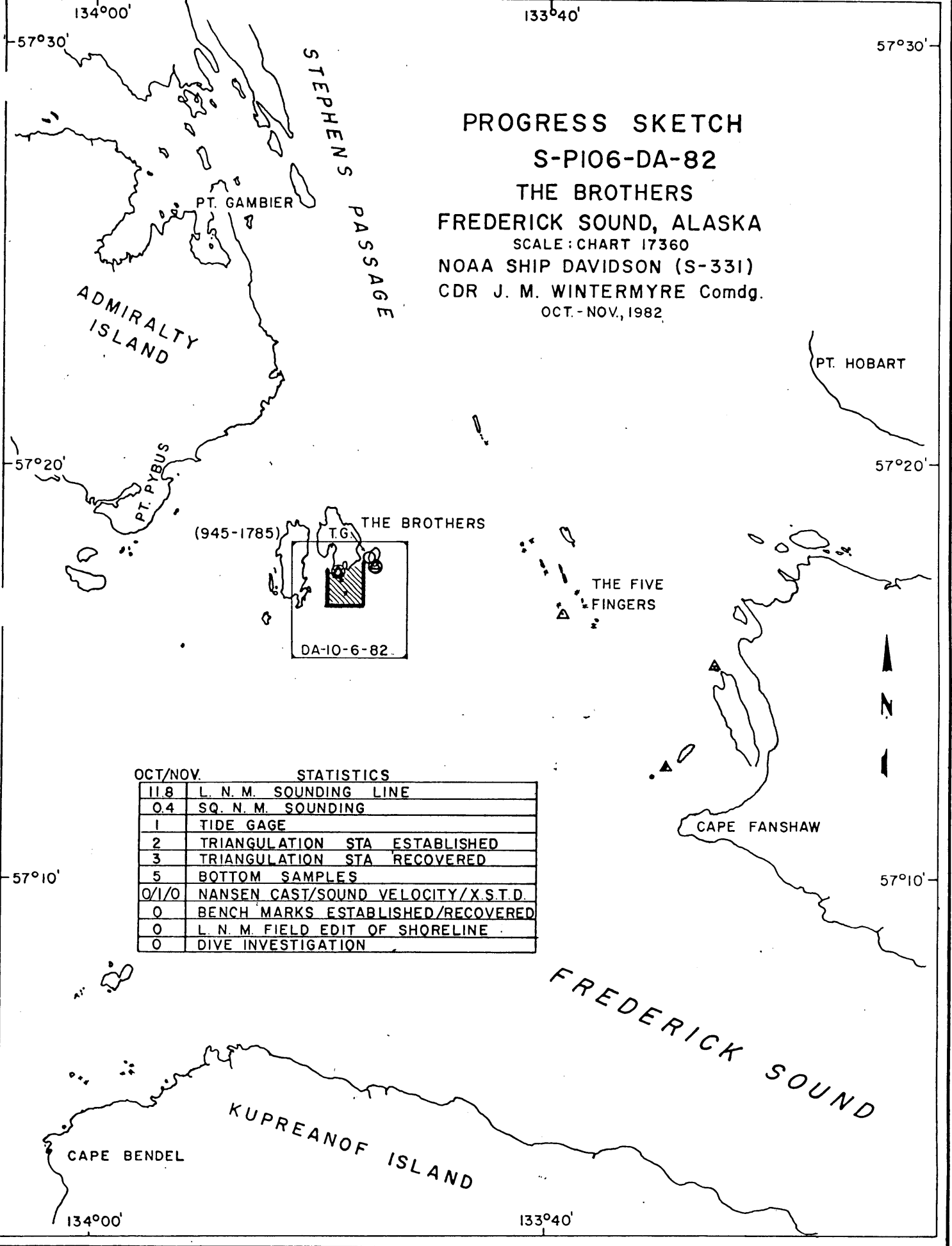
Soundings in fathoms ~~xxxx~~ at MLW MLLW and tenths of fathoms

REMARKS: Time Zone: GMT

*STANDARDS C/K'D 11-4-82*

*Clay*

*Summ. checked 11/14/82 SW*



**PROGRESS SKETCH**  
**S-PI06-DA-82**  
**THE BROTHERS**  
**FREDERICK SOUND, ALASKA**  
 SCALE: CHART 17360  
 NOAA SHIP DAVIDSON (S-331)  
 CDR J. M. WINTERMYRE Comdg.  
 OCT.-NOV., 1982

(945-1785) THE BROTHERS  
 T.G.  
 DA-10-6-82

OCT/NOV.	STATISTICS
11.8	L. N. M. SOUNDING LINE
0.4	SQ. N. M. SOUNDING
1	TIDE GAGE
2	TRIANGULATION STA ESTABLISHED
3	TRIANGULATION STA RECOVERED
5	BOTTOM SAMPLES
0/1/0	NANSEN CAST/SOUND VELOCITY/X.S.T.D.
0	BENCH MARKS ESTABLISHED/RECOVERED
0	L. N. M. FIELD EDIT OF SHORELINE
0	DIVE INVESTIGATION

DESCRIPTIVE REPORT  
THE BROTHERS  
S-P106-DA-82

A. PROJECT

A field examination in the vicinity of two charted rocks (Chart 17360) off the southern shore of East Brother Island, Frederick Sound, Alaska, was conducted in accordance with Hydrographic Project Instructions S-P106-DA-82\*. The project was conducted as a consequence of the reported grounding of the M/V MAJESTIC EXPLORER in the vicinity of East Brother Island. The scale of the survey is 1:10,000. ✓

\* Dated October 13, 1982.

B. AREA SURVEYED

The field examination limits are delineated by the following positions:

Northeast: 57/17/18 N. Lat. 133/48/15 W Long.  
Southeast: 57/16/42 N. Lat. 133/48/15 W Long.  
Southwest: 57/16/42 N. Lat. 133/49/37 W Long.  
Northwest: 57/17/18 N. Lat. 133/49/37 W Long.

See  
Verification  
Report  
Section 1

Field work occurred between October 19 and November 4, 1982.

C. SOUNDING VESSEL

The sounding vessels were survey launches DA-1 (3131) and DA-2 (3132). For ease of identification, raw data records were annotated in red ink for DA-1; blue ink was used for DA-2 records. ✓

D. SOUNDING EQUIPMENT

Sounding and recording equipment used aboard the launches consist of the following:

<u>Launch</u>	<u>Fathometer</u>	<u>Digitizer</u>	<u>Transceiver</u>	<u>Julian Day</u>
DA-1	S/N 1077	S/N 1081	S/N 1081	301, 307
DA-2	S/N 1080	S/N 1048	S/N 1036	301, 308

 ✓

Fathometers used were Ross model 5000 Fineline echo sounders. Depths ranged from 0.5 to 109 fathoms. Fathometer traces were good. Belt tension checks were made each day, and adjusted when necessary. Phase calibration checks were made each morning and after every fathometer paper change. Phase checks for DA-1 were made from 0-250 fathoms in 50 fathom intervals. Phase checks for DA-2 were made from 0-100 fathoms in 10 fathom intervals. The fathometer initial was maintained at zero in both launches. ✓

Weather and sea conditions permitting, bar checks were made twice daily to determine TRA corrections, which are 0.3 fathoms for both launches. ✓



Predicted tides were computed from daily predicted tides for Juneau, AK, with the following correctors applied:

<u>Time Correctors</u>		
<u>High Water</u>	<u>Low Water</u>	<u>Height Ratio</u>
-10 min	-3 min	x 0.90

✓

These correctors were obtained from the project instructions. Heights of tide were computed at 0.1 fathom intervals.

On 4 November 1982 the high points on the reef being investigated were bare one hour before the time of predicted low water. At the time of the predicted low tide one of the peaks was awash, suggesting an error may exist in the tide predictions, or in the correctors prescribed by the project instructions.

See  
Verification  
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Section 1

A Bristol bubbler-type gage was installed on the west side of the unnamed island east of East Brother Island. Station number 945-1785 was assigned by the project instructions. Because of the apparent error in tide predictions cited above, recorded tide information should be used for sounding reduction. For additional information, see Field Tide Note.

✓

A sound velocity cast was made on 26 October 1982 at 57°19.2'N and 133°48.8'W to determine velocity corrections. A Grundy sound velocity sensor (S/N 3444 unit, S/N 228 sensor), and a Bisset-Berman depth sensor (S/N 2275) were used. Observations were made at 5 and 10 meter depth intervals. Velocity corrections were applied to soundings on the final field sheet. (Additional information may be obtained in the appended Corrections to Echo Soundings Report).

✓

Settlement and squat correctors were not applied to soundings because they were less than 0.1 fathom for all speeds.

✓

#### E. HYDROGRAPHIC SHEETS

Field sheets were prepared using the Hydroplot system and standard NOS software. The field sheets were drawn at 1:10,000 scale using a Modified Transverse Mercator (MTM) projection. A supplemental sounding plot was prepared at 1:5,000 scale to relieve sounding congestion.

✓

All field records will be sent to CPM3 for verification. A packet of advance information, including a 1:10,000 preliminary field sheet, aerial reconnaissance photographs of the reef south of East Brother Island and a proposal for the Local Notice to Mariners was sent to the Director, PMC on 31 October 1982. An error on the preliminary sheet was discovered subsequent to mailing. A 1.2 fathom sounding north-northwest of the offshore peak should be 2.2 fathoms. The correction was made to the final field sheet, and an appropriate entry made on the corrector tape. A least depth of 1.7 fathoms and a detached position for the least depth were determined subsequent to mailing the preliminary field sheet.

See  
Verification  
Report  
Section 4

## F. CONTROL STATIONS

Two, new horizontal control stations, KARA and MOZOV, were established to support hydrography using third order, Class I procedures. The stations are monumented by standard NOS survey disks. Preliminary field positions are based on the North American Datum of 1927. (Additional information is contained in the appended Horizontal Control Report).

See  
Verification  
Report  
Section 2

## G. HYDROGRAPHIC POSITION CONTROL

The Motorola Miniranger III microwave positioning system was used in the range-range and range-azimuth modes for hydrographic position control. Wild T-2 theodolites were used with the Miniranger equipment for the range-azimuth operations. The Miniranger equipment employed was:

See  
Verification  
Report  
Section 2

<u>Vessel</u>	<u>Console</u>	<u>RT Unit</u>	<u>JD</u>	<u>Survey Mode</u>
3131	713166	1545	301, 307	R/R
3132	707	SM 314	301, 308	R/AZ

Only two shore stations (transponders) were used. Code 5 (S/N B1413) was on station KARA and code 7 (S/N B1215) was on station MOZOV. System checks of both Miniranger codes were performed twice daily using the baseline crossing method. ✓

Miniranger baseline correctors were determined from the calibrations conducted in Juneau, AK on 11 October 1982 (JD 284) and in the Bay of Pillars, AK on 2 November 1982 (JD 306). A baseline corrector abstract follows: ✓

<u>JD</u>	<u>Console/RT Unit</u>	<u>Code</u>	<u>Baseline Corrector</u>
301	707/SM 314	5	-2
		7	+10
308		5	-2
		7	0
301, 308	713166/1545	5	-3
		7	+4

A 90 meter arc was steered around station KARA, in violation of the Hydrographic Manual, in order to complete the inshore hydrography. The quality of position data appears to be consistent with position accuracy requirements. ✓

An Electronic Control Report is appended.

## H. SHORELINE

Suitable shoreline information was not available, and shoreline is not indicated on the final field sheet. The charted shoreline appears reasonable. The small scale of Chart 17360 makes specific comparison difficult.

See  
Verification  
Report  
Section 2

## I. CROSSLINES

Crossline mileage equals 19.2% of mainscheme sounding lines. Agreement between crossline and mainscheme soundings is good. The following statements indicate the quality of the comparisons: 50% of the crossings have exact agreement, 36% ✓

agree within 1 fathom, and 14% agree within 3 fathoms. The three fathom discrepancy is due to the steeply sloping bottom close to the 40 fathom contour near 57°17'00"N and 133°48'33"W.

J. JUNCTIONS

There were no junction surveys.

See  
Verification  
Report  
Section 5

K. COMPARISON WITH PRIOR SURVEY

The prior survey has not been received. A comparison has not been made.

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Verification  
Report  
Section 6

L. COMPARISON WITH CHART

Comparison was made with Chart 17360 (24th Ed., Nov. 14, 1982, 1:217,828) by scaling off depths and two charted rocks and transferring their positions onto a boatsheet. Only two depths from the chart are in the survey area and agreement is excellent. The shoreline appears adequate. An extensive reef with three peaks was identified by the examination. Two of three peaks are adequately depicted on the chart. The chart does not indicate the presence of the third, middle, peak. The chart should be amended to depict all three peaks, and the area declared foul.

See  
Verification  
Report  
Section 7

M. ADEQUACY OF THE SURVEY

The survey is complete and adequate within the area of the investigation for revision of Chart 17360.

See  
Verification  
Report  
Section 7

N. AIDS TO NAVIGATION

There were no aids to navigation in the survey area.

It was discovered in the course of horizontal control operations that Five Fingers Light was rebuilt in 1937, and the 1917 position no longer applies. A new position was not determined. The file position appears adequate for charting at the scale of Chart 17360.

See  
Verification  
Report  
Section 7

O. STATISTICS

	<u>DA-1</u>	<u>DA-2</u>	<u>Total</u>
Number of Positions	<u>152</u> 140	<u>39</u> 62	<u>191</u> 202
Nautical miles of Sounding Lines	11.8	1.5	13.3
Square miles of Hydrography			0.4
Bottom Samples	5		5
Tide Stations			1
Velocity Casts			1

✓

P. MISCELLANEOUS

Reconnaissance photography (color and black and white) was taken on 9 October 1982 (JD 282) by DAVIDSON personnel. Some photos were submitted with the preliminary field sheet to CPM; the remainder are to be submitted in the survey cahier.

The positions for the three peaks of the reef and one shoal that was investigated are as follows:

<u>Position</u>	<u>JD</u>	<u>Depth</u>	<u>Pos. No.</u>
57/17/14.32 N 133/49/00.14 W	301	13.9 ft. (Predicted) <sup>Uncovers</sup> <del>(bares)</del>	4230
57/17/06.15 N 133/48/58.91 W	308	4.8 ft. (Predicted) <sup>Uncovers</sup> <del>(bares)</del>	4275
57/16/54.53 N 133/48/49.83 W	308	1.8 ft. (Predicted) <sup>Uncovers</sup> <del>(bares)</del>	4274
57/16/57.09 N 133/48/56.08 W	308	1.7 fm (shoal) <sup>(1.4 Corrected for predicted tides)</sup> <del>(shoal)</del> <sup>Lead line sounding</sup>	4276

See  
Verification  
Report  
Section 4  
Section 6

Q. RECOMMENDATIONS

Chart 17360 should be modified to show three peaks on the reef south of East Brother Island, and the area declared foul.

See  
Verification  
Report  
Section 6 & 7

R. AUTOMATED DATA PROCESSING

The following standard NOS programs were used to support data acquisition and data processing:

<u>Program</u>	<u>Version</u>
RK 112 Hyperbolic, Range-Range Hydroplot	8/04/81
RK 201 Grid, Signal and Lattice Plot	4/18/81
RK 211 Range-Range Non-Real Time Plot	2/02/81
RK 212 Visual Station Table Load	4/01/74
RK 216 Range-Azimuth Non-Real Time Plot	2/9/81
RK 300 Utility Computations	10/21/80
RK 330 Reformat and Data Check	5/04/76
RK 500 Predicted Tide Generator	11/10/72
AM 602 ELINORE	5/20/75

✓

S. REFERENCE TO REPORTS

- Correction to Echo Soundings Report
- Electronic Control Report
- Field Tide Note
- Horizontal Control Report

Respectfully Submitted,

*Donald A. Dwyer*  
for James W. Duggan  
ENS., NOAA

Approved and forwarded,

*James M. Wintermyre*  
James M. Wintermyre, CDR, NOAA  
Commanding Officer  
NOAA Ship DAVIDSON

✓  
FIELD TIDE NOTE  
S-P106-DA-82  
THE BROTHERS, AK

Tidal observations were conducted in the vicinity of The Brothers in Frederick Sound, Alaska, in accordance with Project Instructions S-P106-DA-82, dated October 13, 1982. A field examination was accomplished to investigate a reef south of East Brother Island, the site of the grounding of the M/V MAJESTIC EXPLORER.

Tide corrections applied to soundings on the final field sheet were derived from tabulated predicted extrema at the reference station, Juneau, AK (945-2210), corrected as specified in the project instructions. Correctors were computed at 0.1 fathom intervals using DAVIDSON's PDP 8/e computer and program AM500.

The Juneau, AK tide station (945-2210) was connected to three tidal bench marks by third-order, Class I levels on October 8, 1982. Differences of elevation between the reading mark on the Electric Tape Gage (ETG) and Bench Mark 22 and between Bench Marks 22 and 19 agreed well with historic data provided by Pacific Tides Party. The difference of elevation between Bench Marks 19 and 8 continues to increase; the October 8, 1982 result was 0.005 meters greater than the June, 1982 PTP result, and about 0.04 meters greater than 1975 leveling results.

One tide station was established at The Brothers (945-1785), at latitude  $57^{\circ}17.7'N$ , longitude  $133^{\circ}47.8'W$ . A Bristol Bubbler tide gage, S/N 64A11032, was installed at the site on 19 October 1982. Observations were made at twelve-minute intervals for two hours, twenty-four minutes on 19 October 1982, and for one hour, twelve minutes on 20 October 1982; the gage operated normally. The chart drive appeared to have jumped sprocket holes between 1949 UCT, 20 October 1982, and 1743 UCT, 21 October 1982. The gage functioned well until the chart drive paper supply was exhausted at 1812 UCT, 04 November 1982. The gage was removed immediately thereafter.

Twenty-seven staff-to-gage comparisons were made. The mean staff-to-gage difference was 5.343 feet ( $\sigma = 0.11$  ft); the staff zero is equivalent to 5.33 feet on the marigram.

The tide staff was connected to three temporary bench marks by third-order, Class I leveling upon installation and prior to removal of the staff. The results agreed well. No staff movement was detected. Coordinated universal time (UTC; time meridian  $000^{\circ}$ ) was used for all acquisition and annotation of tidal data.

On 4 November 1982, high points on the reef being investigated were bare one hour before predicted low water, and awash at the time of predicted low water. Therefore, the tide predictions may be in error. Tidal data from The Brothers (945-1785) should be used to compute final tide correctors for soundings on this field examination.

See  
Verification  
Report  
Section 1

Respectfully submitted,  
*Neil M. Bogue*  
Neil M. Bogue, LTJG, NOAA

Approved and forwarded,  
*J. M. Wintermyre*  
J. M. Wintermyre, CDR, NOAA  
Commanding Officer  
NOAA Ship DAVIDSON

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, FATHOMS

NOAA FORM 75-21  
110-721

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEAN SURVEY  
NOAA

**VELOCITY-CORRECTIONS**

Ship DAVIDSON 6-881

J. M. WINTERMYRE, CDR, NOAA Comdg.

These corrections are to be used

between OCT. 19 82 and NOV. 19 82

in the locality FREDERICK SOUND, THE  
BROTHERS F., ALASKA

for hydrographic surveys Nos. DA-10-6-82

(For deep water add a 0 to these figures)

DEPTHS IN FATHOMS

INCREMENT	CORRECTOR	DEPTH (FM)	
0.00-0.05	0.00	10.0'	
0.05-0.15	0.10	25.0'	
0.15-0.25	0.20	39.5'	
0.25-0.35	0.30	52.5'	
0.35-0.45	0.40	(65.5)	67.5
0.45-0.55	0.50	(79.5)	81.5
0.55-0.65	0.60	(92.5)	95.0
0.65-0.75	0.70	(107.5)	107.5
0.75-0.85	0.80	(122.5)	120.5
0.85-0.95	0.90	(137.5)	

WAW  
JCS

( ) scaled from extended curve.

46 1240

20 X 20 TO THE INCH • 7 X 10 INCHES  
KLUFFEL & ESSER CO. MADE IN U.S.A.  
K•W

S-P106-PA-82

DA-10-6-82

VELOCITY TAP E PRINTOUT

000100	0	0000	0001	001	000000	010682
000250	0	0001				
000395	0	0002				
000525	0	0003				
000 <del>625</del>	0	0004				
000 <del>815</del>	0	0005				
000 <del>850</del>	0	0006				
000 <del>1075</del>	0	0007				
000 <del>1205</del>	0	0008				
001325	0	0009				

GEOGRAPHIC NAMES

FE-240

Name on Survey

A ON CHART NO. 17360  
 B ON PREVIOUS SURVEY NO. H-1996  
 C ON U.S. QUADRANGLE MAPS SUMDUM(B-6)  
 D FROM LOCAL INFORMATION  
 E ON LOCAL MAPS  
 F P.O. GUIDE OR MAP  
 G RAND McNALLY ATLAS  
 H U.S. LIGHT LIST  
 K

Name on Survey	A	B	C	D	E	F	G	H	K
FREDERICK SOUND	X	X	X						1
EAST BROTHER	X		X						2
ALASKA (title)									3
									4
									5
									6
									7
									8
									9
									10
									11
									12
									13
									14
									15
									16
									17
						Approved:			18
									19
						<i>Charles E. Harrington</i>			20
						Chief Geographer	N/CG2x5		21
						29 July 1983			22
									23
									24
									25



S-P106-DA-82  
DA-10-6-82  
TC/TI TAPE PRINTOUT

LAUNCH DA-1 (3131)

170344 0 0003 0001 301 313100 000000  
002514 0 0003 0001 308 313100 000000  
003000 0 0003

LAUNCH DA-2 (3132)

170638 0 0003 0001 301 313200 000000  
174123 0 0000 0002 301 313200 000000  
175200 0 0003 0001 301 313200 000000  
172856 0 0000 0001 308 313200 000000  
175006 0 0003  
183000 0 0003

ABSTRACT OF BAR CHECK RESULTS  
WORKSHEET

DA-1

DEPTH IN FATHOMS

3131

JD	1.0	2.0	3.0	4.0	5.0	6.0	7.0	TIME	REMARKS
301	0.3	0.3	0.3	0.3	0.3	0.3	0.2	AM	GOOD
	0.3	0.3	0.3	0.2	0.3	0.2	0.2		
	0.3	0.3	0.3	0.2	0.4	0.3	0.2	PM	FAIR
	0.2	0.3	0.2	0.3	0.3	0.3	0.3		
307/308	0.3	0.3	0.3	0.3	0.3	0.3	0.3	AM	FAIR
	0.3	0.3	0.3	0.4	0.2	0.3	0.3		
	0.3	0.3	0.2	0.3	0.3	0.3		PM	FAIR
	0.3	0.3	0.3	0.3	0.3	0.3			
AVG.	0.29	0.30	0.28	0.29	0.30	0.29	0.25		
			TRA = 0.3 fm						

U.S. DEPARTMENT OF COMMERCE  
ABSTRACT OF BAR CHECK RESULTS  
WORKSHEET

DA-2

DEPTH IN FATHOMS

3132

JD	1.0	2.0	3.0	4.0	5.0	6.0	7.0	TIME	REMARKS
	TRA	TRA	TRA	TRA	TRA	TRA	TRA		
299	0.3	0.3	0.3	0.3	0.3	0.4	0.3	AM	GOOD
	0.3	0.3	0.3	0.3	0.3	0.3	0.4		
	0.4	0.3	0.3	0.3	0.3	0.3		PM	FAIR
	0.4	0.3	0.3	0.4	0.4	0.4			
301	0.3	0.3	0.3	0.3	0.3	0.3	0.3	AM	GOOD
	0.3	0.3	0.3	0.3	0.3	0.3	0.3		AM ONLY
	0.3	0.3	0.3	0.3	0.3	0.3	0.3	AM	GOOD
	0.3	0.3	0.3	0.3	0.3	0.3	0.3		
AVG.	0.32	0.30	0.30	0.31	0.31	0.32	0.32		
				TRA = 0.3 fm					





✓  
ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 3131

SHEET : DA-10-6-82

TIME	DAY	PATTERN 1	PATTERN 2
170344	301	-00003	+00004
002514	308	-00003	+00004

✓  
RANGE- AZIMUTH CORRECTOR ABSTRACT

VESSEL : 3132

SHEET : DA-10-6-82

TIME	DAY	PATTERN 1	PATTEPN 2
170638	301	-00002	NO CORRECTION

✓  
ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 3132

SHEET : DA-10-6-82

TIME	DAY	PATTERN 1	PATTERN 2
172856	308	-00002	+00000



OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

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

VESSEL		PROJ. NO.		YEAR	BROTHERS ISLANDS - ALASKA		CHECKED BY		DATE CHECKED		
DAVIDSON		DA-1(3131)		1982	BROTHERS ISLANDS - ALASKA						
SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (Fathoms)	WEIGHT OF SAMPLER	AP. PROX. TRA. TION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dotted cliter, etc.; type of bottom relief, etc.)	OBS. INIT.
		LATITUDE	LONGITUDE								
2155	4-NOV-82 10 308	5717/09 N	133/49/13 W	30	10	2cm	-	-	brk sh, p		
2156	"	5716/50 N	133/49/16 W	15	"	"	-	-	p		
2157	"	5716/53 N	133/48/53 W	9	"	"	-	-	brk sh	SEAWARD REEF	
2158	"	5717/06 N	133/29/00 W	11	"	"	-	-	hrd	MIDDLE REEF	
2159	"	5717/16 N	133/48/44 W	42	"	"	-	-	brk sh		

Use more than one line per sample if necessary.



ABSTRACT OF POSITIONS  
DA-10-6-82

DA-1 (3131)

<u>DAY</u>	<u>POSITIONS</u>	<u>CODE</u>	<u>S1</u>	<u>M</u>	<u>S2</u>	<u>REMARKS</u>
301	2001-2080	042	001	---	002	Mainscheme
301	2081-2087	042	001	---	002	Crossline
301	2088-2097	042	001	---	002	Splits
301	2100-2105	042	001	---	002	Splits
301	2112-2129	042	001	---	002	Crossline
301	2130-2132	042	001	---	002	Split
308	2136-2148	042	001	---	002	Development
308	2149-2154	042	001	---	002	Mainscheme
308	2155-2159	042	001	---	002	Bottom Samples

ABSTRACT OF POSITIONS  
DA-10-6-82

DA-2 (3132)

<u>DAY</u>	<u>POSITIONS</u>	<u>CODE</u>	<u>S1</u>	<u>M</u>	<u>S2</u>	<u>REMARKS</u>
301	4205-4219	112	001	---	R/A	Mainscheme
301	4223-4229	112	001	---	R/A	Mainscheme
301	4230	112	001	---	R/A	Detached Position
301	4232-4235	112	001	---	R/A	Mainscheme
301	4237-4240	112	001	---	R/A	Mainscheme
301	4253-4257	112	002	---	R/A	Shoreline
308	4274-4276	042	001	---	002	Detached Positions

RECEIVED

NOV 21 1982

PACIFIC MARINE CENTER



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SURVEY  
Rockville, Md. 20852

NOV 18 1982

C35:GRS

TO: CPM - Charles K. Townsend

FROM: *for* C3 - C. William Hayes *Davidson*

SUBJECT: Hydrographic Survey Processing of The Brothers Project Data

*CPM 3*  
*copy to CPM33T*  
*done*  
*net*

Legal actions associated with the grounding of the cruise ship MAJESTIC EXPLORER near East Brother Island, Alaska, will likely include the participation of one or more offices of NOS. To provide contemporary information in the area of the grounding, the processing of the survey data (acquired under Project Instruction S-P106-DA-82) should be completed by early January 1983. Please advise DAVIDSON and Marine Surveys Division of this requirement.

Questions, comments, or problems which may affect the completion of this survey should be directed to the Hydrographic Surveys Division, C35.

cc:  
C2  
C32

NOV 29 1982

TO: ✓ CPM32 - James S. Green  
CPM3X2 - William A. Wert

FROM: CPM3 - Ned C. Austin *NCA*

We should try to meet this. Overtime would be justified to get it done. Let me know if you foresee any problems. Requests for tides, etc., should be documented. Show priority in Card B, Monthly Activities, etc.





**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SURVEY  
Rockville, Md. 20852

RECEIVED  
DEC 21 1982

DEC 14 1982

N/OMS123:JRH

PACIFIC MARINE CENTER

*Wesley V. Hull*  
21

TO: N/MOP - Charles K. Townsend *CK*  
FROM: N/OMS - Wesley V. Hull *Wesley V. Hull*  
SUBJECT: Tide Note for FE-240, The Brothers, Frederick Sound, Alaska  
(S-P106-DA-82)

This is in response to your memorandum of November 30, 1982, requesting tide information on Project FE-240, The Brothers, Frederick Sound, Alaska, (S-P106-DA-82) by December 10, 1982. Tide data required for this project were received by the Tidal Requirements Section on December 7, 1982, and are being processed. By December 17, 1982, the following information will be transmitted to N/MOP21, Pacific Marine Center:

1. An approved tide note for hydrography sheet (Form 712) with tide stations to be used, tidal zoning, and datums reference.
2. Approved hourly heights for all hydrography and field edit, on hard copy and magnetic tape.

To ensure timely action, further inquiries concerning data availability may be directed by your staff to the Tidal Datums Section, N/OMS123, FTS 443-8467.

cc:  
N/MO-R. Munson





**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SURVEY

DEC 9 1982  
PACIFIC MARINE CENTER

NOAA Ship DAVIDSON S331  
1801 Fairview Avenue East  
Seattle, Washington 98102

Ref: S331/101-3A  
Ser 12-13

DATE : 9 December 1982

TO : MOP - Charles K. Townsend  
Director, Pacific Marine Center *CKT*

FROM : *James M. Wintermyer*  
S331 - James M. Wintermyer  
Commanding Officer, NOAA Ship DAVIDSON

SUBJECT: Piece of Metal Found During Field Investigation of The Brothers  
Frederick Sound, Alaska

*MOP 2 HWJ*  
*MOP 21*

The attached memo from Lt. Dreves details the circumstances surrounding the piece of metal found during the field work. The metal is in the custody of MOP 12, Mr. Henry Shek.

cc: N/CG2





**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SURVEY  
Pacific Marine Center  
1801 Fairview Avenue East  
Seattle, Washington 98102

November 26, 1982

*DAW 11/27/82*

TO: Commanding Officer  
NOAA Ship DAVIDSON

*Donald A. Dreves*  
FROM: Donald A. Dreves

SUBJECT: Reef Investigation South of East Brother Island

During the field investigation of the reef south of East Brother Island, Frederick Sound, Alaska, a curved piece of metal approximately 1"x1"x6" in size was recovered on November 4, 1982 from the middle of three peaks located during survey operations. The piece of metal was found while examining the bare portion of the peak for indications of vessel grounding. No other indications of grounding, such as crushed barnacles, sheared off rock, broken stalks of kelp, or paint deposits were observed. The piece of metal may or may not be from the MAJESTIC EXPLORER, but the condition of the metal - rough edges and absence of deep rust - suggests that it was recently deposited on the reef. Only a metallurgical analysis could make a positive connection to the MAJESTIC EXPLORER.

The piece of metal was turned over to the Director, Pacific Marine Center, on November 22, 1982.





S-P106-DA-82

DA-10-6-82

PREDICTED TIDES CORRECTOR TAPE

JUNEAU, ALASKA

FREDERICK SOUND

57 10 133 49 -0.10 -0.03 0.0 0.0 0.90 0.90

000

FM

0.1

S-P106-DA-82  
DA-10-6-82  
PARAMETER AND SIGNAL TAPE PRINTOUT

PARAMETER:  
FEST=11000  
CLAT=6338000  
CMER=133/49/00  
GPID=30  
PLSCL=10000  
PLAT=57/15/25  
PLON=133/51/12  
VESNO=3131  
YR=82  
ANDIST=00.0

SKEW: 0,20,20

FEST=11000  
CLAT=6338000  
CMER=133/49/00  
GPID=15  
PLSCL=5000  
PLAT=57/16/25  
PLON=133/50/00  
VESNO=3131  
YR=82  
ANDIST=00.0

SKEW: 0,20,20

SIGNAL TAPE:

001 1 57 17 18269 133 49 08699 250 0010 000000 KAPA 1982  
002 1 57 17 29566 133 47 32986 250 0008 000000 MOZOV 1982

SURVEY APPROVAL SHEET

- A. Amount and degree of personal supervision of field work and frequency of record and sheet inspection:

Field work was directly under the supervision of the Field Operations Officer. I inspected the sheet on a daily basis and made a random inspection of the records.

- B. State whether the survey is complete and adequate, or if additional field work is recommended:

The survey is complete and adequate for the area required to be surveyed. No additional work is required.

- C. Cite additional information or references that may be of assistance for verifying and reviewing the survey:

- D. Signed statement of approval of the field sheet and all accompanying records:

Date: 11/19/82

Approved and forwarded by:



J. M. Wintermyre  
CDR, NOAA  
Commanding Officer

**HYDROGRAPHIC SURVEY STATISTICS**

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS & PRELIMINARY OVERLAYS		8 ea.	
DESCRIPTIVE REPORT		1	SMOOTH OVERLAYS: POS. ARC, EXCESS		5 ea.	
DESCRIP-TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	1 - Autho.					
VOLUMES						
BOXES			1 - Smooth Plo			

T-SHEET PRINTS (List) SUMDUM (B-6) Quadrangle 1:63,360 and 1:10,000 Enlargement  
 SPECIAL REPORTS (List) Cahier (Project reports, Project Instructions & Info letters)

**OFFICE PROCESSING ACTIVITIES**

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

PROCESSING ACTIVITY	AMOUNTS		
	PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			191
POSITIONS CHECKED		191	191
POSITIONS REVISED		00	00
SOUNDINGS REVISED		41	41
SOUNDINGS ERRONEOUSLY SPACED		--	--
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		--	--
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	4	* (VER)/(EVAL)	
VERIFICATION OF CONTROL		11/01	12
VERIFICATION OF POSITIONS		22/02	24
VERIFICATION OF SOUNDINGS		12/06	18
COMPILATION OF SMOOTH SHEET		16/02	18
APPLICATION OF TOPOGRAPHY		NA	NA
APPLICATION OF PHOTOBATHYMETRY		NA	NA
JUNCTIONS		NA	NA
COMPARISON WITH PRIOR SURVEYS & CHARTS		00/01	01
VERIFIER'S REPORT		02/10	12
OTHER Familiarization		00/04	04
<b>TOTALS</b>		<b>63/26</b>	<b>89</b>
Pre-Verification by <b>James S. Green</b>	Beginning Date <b>11/30/82</b>	Ending Date <b>11/30/82</b>	
Verification by <b>Richard A. Shipley and Charles R. Davies</b>	Beginning Date <b>12/3/82</b>	Ending Date <b>1/3/83</b>	
Verification Check by <b>James L. Stringham, J. S. Green</b>	Time (Hours) <b>12</b>	Date <b>1/10/83</b>	
Marine Center Inspection by	Time (Hours)	Date	
Quality Control Inspection by	Time (Hours)	Date	
Requirements Evaluation by	Time (Hours)	Date	

\* Time in this column is for Verification (VER) & Evaluation (EVAL)

PACIFIC MARINE CENTER  
VERIFICATION/EVALUATION REPORT

REGISTRY NO: FE-240

FIELD NO: DA-10-6-82

Alaska, Frederick Sound, The Brothers

SURVEYED: October 28 - November 4, 1982

SCALE: 1:10,000

PROJECT NO: S-P106-DA-82

SOUNDINGS: Ross Finline  
(Fathoms)

CONTROL: Mini-Ranger  
Range/Azimuth  
Range/Range

Chief of Party.....CDR J. M. Wintermyre

Surveyed by.....LT D. A. Dreves  
LTJG N. M. Bogue

Automated Plot by.....PMC Xynetics Plotter

Verified by.....Mr. R. Shipley  
Mr. R. Davies

Evaluated by.....Mr. B. A. Olmstead

1. INTRODUCTION

FE-240 (DA-10-6-82) is a Field Examination conducted under the current National Ocean Service methods of planning, executing and processing a hydrographic survey as defined in the Hydrographic Manual, 4th Edition. The PMC OORDER and the Hydrographic Survey Guidelines further define field procedures. Project Instructions S-P106-DA-82, The Brothers, Frederick Sound, Alaska dated October 13, 1982 were generated to supplement the Hydrographic Manual. There are no supplements to instructions. The purpose of this project is to investigate an area near East Brother Island in the vicinity of the reported grounding of the M/V MAJESTIC EXPLORER.

FE-240 (DA-10-6-82) lies offshore approximately 5.5 miles southeast of Admiralty Island in Frederick Sound. Hydrographic operations encompass that area south of East Brother Island from 100-1200 meters offshore. Specifically, from latitude 57°16'39"N to latitude 57°17'18"N, longitude 133°48'15"W to longitude 133°49'37"W. Depths of water centered in the area of investigation generally range from the mean lower low water line to 18 fathoms. However, depths of 20 fathoms to 109 fathoms exist on the extremities of the survey. The most prominent geographic features are the several large islands known as The Brothers and the three rocks awash marking the high points of individual offshore reefs. These three isolated rock features are the critical items

involving the grounding of the M/V MAJESTIC EXPLORER. One additional item of significant importance concerns a least depth of 1.3 fathoms, latitude 57°16'57.09"N, longitude 133°48'56.08"W. This shoal sounding was discovered during present hydrographic work. Offshore and along-shore characteristics are composed primarily of isolated rocks, detached rocky reefs, and ledges. Bottom characteristics are composed primarily of broken shells, pebbles and rock.

One temporary tide gage (Bubbler) was installed and operating during this field examination. The gage was geographically located on the unnamed island east of East Brother Island. The tidal data generated by this gage was employed to zone the survey for office reduction of sounding data. Field tide reduction of soundings was based on predictions from Seldovia, Alaska, with time and range ratios. Agreement between predicted and approved tides was within .2 of a fathom. The hydrographer commented in the field tide note that predicted tides may be in error. This conclusion was based on the reef baring one hour before predicted low water and awash at the time of predicted low water. This discrepancy is probably due to the change over from Daylight Savings to Standard time. The ship was keeping +8 hours and the reference station at Juneau, Alaska is on +9 after October 30.

Sounding differences between the final field sheet and smooth sheet are attributed to the application of approved tidal zoning, application of final velocity correctors and the rescanning of fathograms during verification.

The projection parameters, signal list and velocity correctors were amended during the verification process. All corrected data is listed in the smooth printouts to accompany the final PMC plot.

## 2. CONTROL AND SHORELINE

Two Third Order, Class I triangulation stations were used to control the entire hydrographic survey. Motorola Mini-Ranger III electronic positioning equipment was employed for interrogation in determining positional data during launch operations. Both range-range and range-azimuth (Wild T-2) operations were conducted during the survey. Baseline correctors were applied to all positional data. Daily systems checks utilized the baseline crossing method to validate the proper operation of the equipment. All remaining information affecting the positioning and station control of this survey is listed in Parts F and G of the ship's descriptive report.

The smooth sheet was plotted using preliminary adjusted field positions.

There were no Class III or Class I shoreline manuscripts. However, a U.S. Geological Survey Quadrangle (1:63,360), SUMDUM (B-6), Alaska, compiled from 1948 photography was available. The ship did not have this map during survey operations. Shoreline is not shown on the smooth sheet because of the excessive scale differences.

### 3. HYDROGRAPHY

Depths at crossings are in good agreement.

The bottom configuration was adequately developed. Generally, all standard depth curves are complete and adequately defined. However, parts of the zero fathom and one fathom depth curves, on the middle and northernmost rocky reefs were not well delineated. The determination of least depths was satisfactory with the exception of the following:

- a. 3 fathom sounding latitude 57°17'03"N, longitude 133°48'55"W
- b. 2.8 fathom sounding latitude 57°16'52"N, longitude 133°48'54"W
- c. 9.5 fathom sounding latitude 57°16'50"N, longitude 133°49'07"W
- d. Rock awash latitude 57°17'14"N, longitude 133°49'00"W
- e. Rock awash latitude 57°17'06"N, longitude 133°48'59"W

The two rocks awash (items d, e) are portrayed solely as isolated rocks, while actually marking the high points of much larger features. The USGS Quadrangle, SUMDUM (B-6), Alaska, clearly depicts these larger features. Additionally, photographs taken by the ship support this information. However, the hydrographer did not provide data to define these limits.

### 4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements as stated in the Hydrographic Manual, PMC OORDER and the Hydrographic Survey Guidelines with the exception of:

a. Annotation for detached position #4276 on a shoal conflicts with the least depth plotted on the final field sheet. The leadline depth of 1.7 fathoms should have been edited onto the master tape in lieu of the 2.7 fathom depth determined by echo sounder. As a result, the plotted depth of 2.7 fathoms is incorrect and the reduced least depth should have been 1.4 fathoms. Additionally, Sections E and P of the ship's descriptive report reference this least depth of 1.7 fathoms but did not reduce this sounding for predicted tides. A bottom characteristic should have been determined on this feature. The verifier and evaluator could not make a determination from the raw data as to whether this shoal depth is actually a sunken rock. It is shown on the smooth sheet as a 1.3 fathom reduced sounding.

b. Annotation for detached positions taken on two of the three rocks should have included size information. See Hydrographic Manual 4.5.9.2, Development and Examination of Shoals. The smooth sheet is lacking pertinent limit data on these two rocky reefs. See section 3, Hydrography, for deficiencies concerning developments over least depths.

c. The velocity correctors used for plotting the final field sheet were mis-scanned by the ship. Verification re-scanned the velocity curve and determined more accurate break points for application to sounding data. A new velocity table was compiled and the smooth sheet reflects this change.

## 5. JUNCTIONS

No contemporary surveys have been conducted in this area of Frederick Sound. Project instructions stated that junctions were not applicable.

## 6. COMPARISON WITH PRIOR SURVEYS

H-1996(1889) 1:80,000

Depths since this prior hydrographic survey reveal that this area in Frederick Sound has remained relatively unchanged. The shoreline appears to be generally stable.

The -5 Rk on prior survey H-1996 (1889) at latitude 57°17'06"N, longitude 133°48'59"W appears to have been missed during compilation of chart 17360. The present survey found a rock uncovered six feet at MLLW near this prior survey feature.

The -2 Rk on the prior survey H-1996 (1889) at latitude 57°16'54"N, longitude 133°48'50"W was confirmed by the present survey (uncovers 3 feet at MLLW).

The rock awash charted at latitude 57°17'14"N, longitude 133°49'00"W originates as an islet on the prior survey. This rock was confirmed on the present survey (uncovers 13 feet at MLLW).

FE-240 (1982) is adequate to supersede the prior information within the common area.

## 7. COMPARISON WITH CHART

a. Hydrography - A comparison was made with chart 17360, 24th Edition, November 14, 1981. In addition, USGS Quadrangle, SUMDUM (B-6), Alaska dated 1948 was available. The charted information originates with the previously discussed prior survey and has been discussed in the previous section.

Chart 17360, 24th Ed., November 14, 1981 does not show the -5 Rk from prior survey H-1996 (1889) (Latitude 57°17'06"N, longitude 133°48'59"W). This feature is confirmed as a rocky reef on USGS Quadrangle, SUMDUM (B-6), Alaska, and a rock uncovered six feet at MLLW on the present survey.

The present survey is adequate to supersede the charted hydrography within the common area.

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

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



## 8. COMPLIANCE WITH INSTRUCTIONS

FE-240 (DA-10-6-82) adequately complies with the project instructions except as noted in section 4, Condition of Survey. It should be noted that the project instructions stated a chart blow-up and prior survey were transmitted to CPM3 on October 8, 1982. The ship did not receive either of these products. Additionally, the USGS Quadrangle SUMDUM (B-6), Alaska dated 1948 was not available during the survey.

## 9. ADDITIONAL FIELD WORK

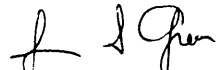
This is an adequate field examination. No additional field work is required.

Respectfully submitted



Bruce Alan Olmstead  
Evaluator

Examined and Approved



James S. Green  
Supervisor, Evaluation Group

DATE: December 13, 1982

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

Tide Station Used (NOAA Form 77-12): 945-1785 The Brothers, Frederick Sound, AK

Period: October 28 - November 4, 1982

HYDROGRAPHIC SHEET: FE-240

OPR: S-P106-DA-82

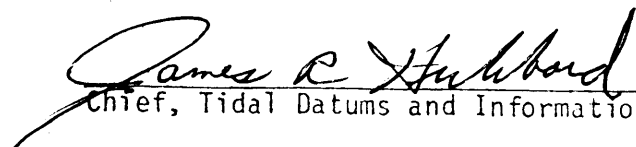
Locality: The Brothers, Frederick Sound, Alaska

Plane of reference (mean lower low water): 2.26 ft.

Height of Mean High Water above Plane of Reference is 13.9 ft.

REMARKS: Recommended Zoning:

Zone Direct

  
Chief, Tidal Datums and Information Branch

APPROVAL SHEET  
FOR  
FIELD EXAMINATION FE-240

- A. This field examination has been verified, evaluated and inspected. It meets the requirements of the Hydrographic Manual except as noted in the Verification/Evaluation Report. The automated data file has been updated to reflect the data presented on the smoothsheet.

Date: 1/13/83

Signed: William Q. West

Title: Chief, Hydrographic Section

- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verification/Evaluation Report.

Date: 1/13/83

Signed: Larry W. Moulton

Title: Chief, Nautical Chart Branch



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
National Ocean Service  
Pacific Marine Center  
1801 Fairview Avenue East  
Seattle, Washington 98102

January 13, 1983

TO: N/CG2 - C. William Hayes

FROM: N/MOP -  Charles K. Townsend

SUBJECT: Administrative Approval of FE-240, The Brothers, Frederick Sound,  
Alaska

The smooth sheet and reports of this survey have been examined and the survey is adequate for charting and to supersede common areas of prior surveys.

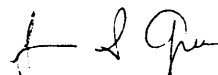


ADDENDUM TO EVALUATION REPORT FOR FE-240

The Evaluation Report for this survey is supplemented by the following statement:

The digital records for this survey have been updated to include categories of information required to comply with N/CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983. Certain descriptive information, however, may not be included in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete information.

Respectfully submitted,



James S. Green  
Supervisory Cartographer  
October 13, 1983

APPROVED:

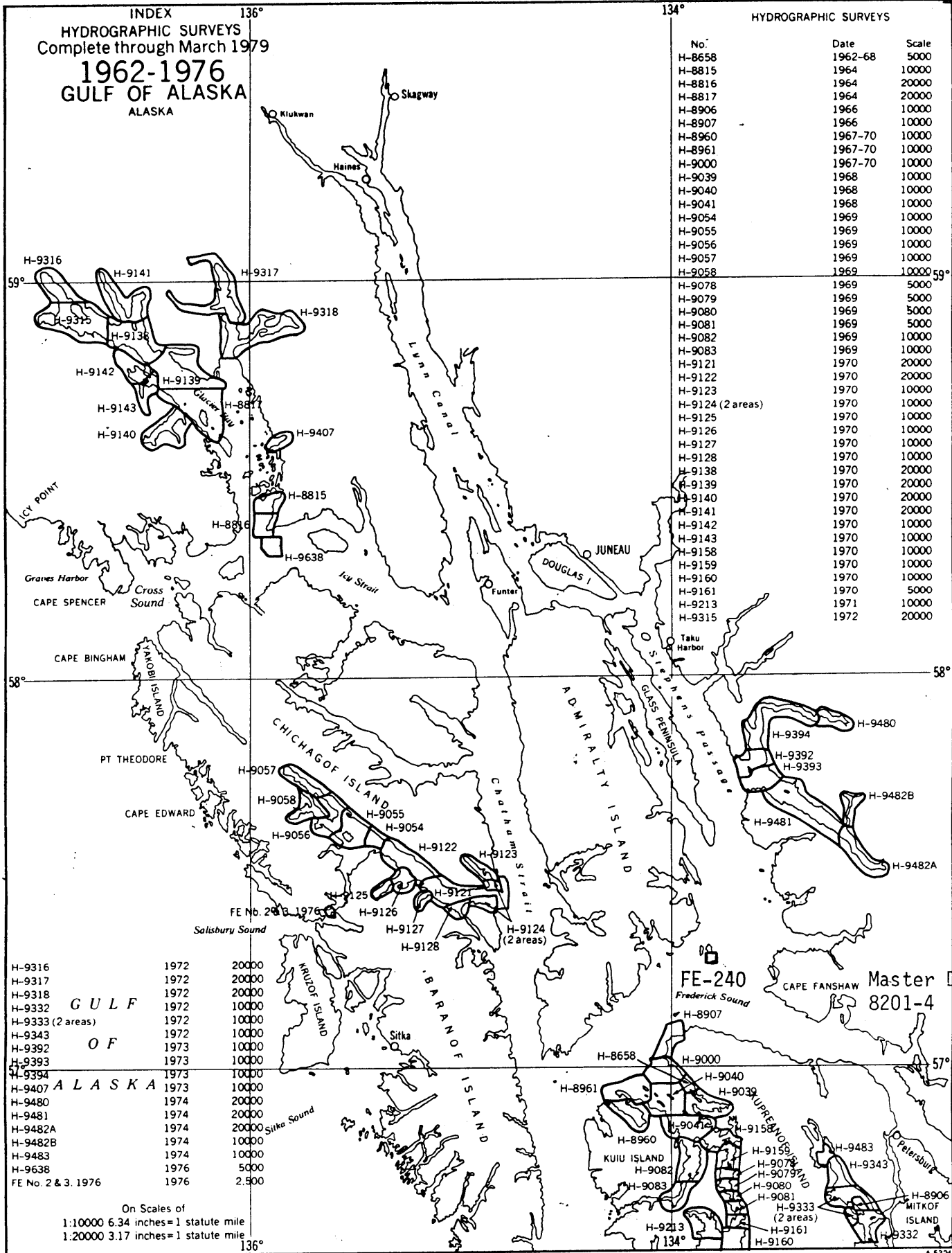


*Ned C. Austin*, For:

Ned C. Austin  
Chief, Nautical Chart Branch

DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Ocean Survey  
Washington, D.C.

Hydrographic Index No. 111E



No.	Date	Scale
H-8658	1962-68	5000
H-8815	1964	10000
H-8816	1964	20000
H-8817	1964	20000
H-8906	1966	10000
H-8907	1966	10000
H-8960	1967-70	10000
H-8961	1967-70	10000
H-9000	1967-70	10000
H-9039	1968	10000
H-9040	1968	10000
H-9041	1968	10000
H-9054	1969	10000
H-9055	1969	10000
H-9056	1969	10000
H-9057	1969	10000
H-9058	1969	10000
H-9078	1969	5000
H-9079	1969	5000
H-9080	1969	5000
H-9081	1969	5000
H-9082	1969	10000
H-9083	1969	10000
H-9121	1970	20000
H-9122	1970	20000
H-9123	1970	10000
H-9124 (2 areas)	1970	10000
H-9125	1970	10000
H-9126	1970	10000
H-9127	1970	10000
H-9128	1970	10000
H-9138	1970	20000
H-9139	1970	20000
H-9140	1970	20000
H-9141	1970	20000
H-9142	1970	10000
H-9143	1970	10000
H-9158	1970	10000
H-9159	1970	10000
H-9160	1970	10000
H-9161	1970	5000
H-9213	1971	10000
H-9315	1972	20000

H-9316	1972	20000
H-9317	1972	20000
H-9318	1972	20000
H-9332	1972	10000
H-9333 (2 areas)	1972	10000
H-9343	1972	10000
H-9392	1973	10000
H-9393	1973	10000
H-9394	1973	10000
H-9407	1973	10000
H-9480	1974	20000
H-9481	1974	20000
H-9482A	1974	20000
H-9482B	1974	10000
H-9483	1974	10000
H-9638	1976	5000
FE No. 2 & 3 1976	1976	2,500

H-9394	1970	10000
H-9480	1970	10000
H-9392	1970	10000
H-9393	1970	10000
H-9481	1970	10000
H-9482B	1970	10000
H-9482A	1970	10000
H-8907	1966	10000
H-9000	1967-70	10000
H-9040	1968	10000
H-9039	1968	10000
H-9041	1968	10000
H-9082	1969	10000
H-9083	1969	10000
H-9158	1970	10000
H-9159	1970	10000
H-9078	1969	5000
H-9079	1969	5000
H-9081	1969	5000
H-9082	1969	10000
H-9083	1969	10000
H-9081	1969	10000
H-9333 (2 areas)	1972	10000
H-9161	1970	5000
H-9160	1970	10000
H-9483	1974	10000
H-9343	1972	10000
H-8906	1966	10000
H-9332	1972	10000

On Scales of  
1:10000 6.34 inches=1 statute mile  
1:20000 3.17 inches=1 statute mile

FE-240 Frederick Sound Master Diagram 8201-4

133° 48' 00"

133° 48' 30"

133° 49' 00"

133° 49' 30"

57° 17' 30"

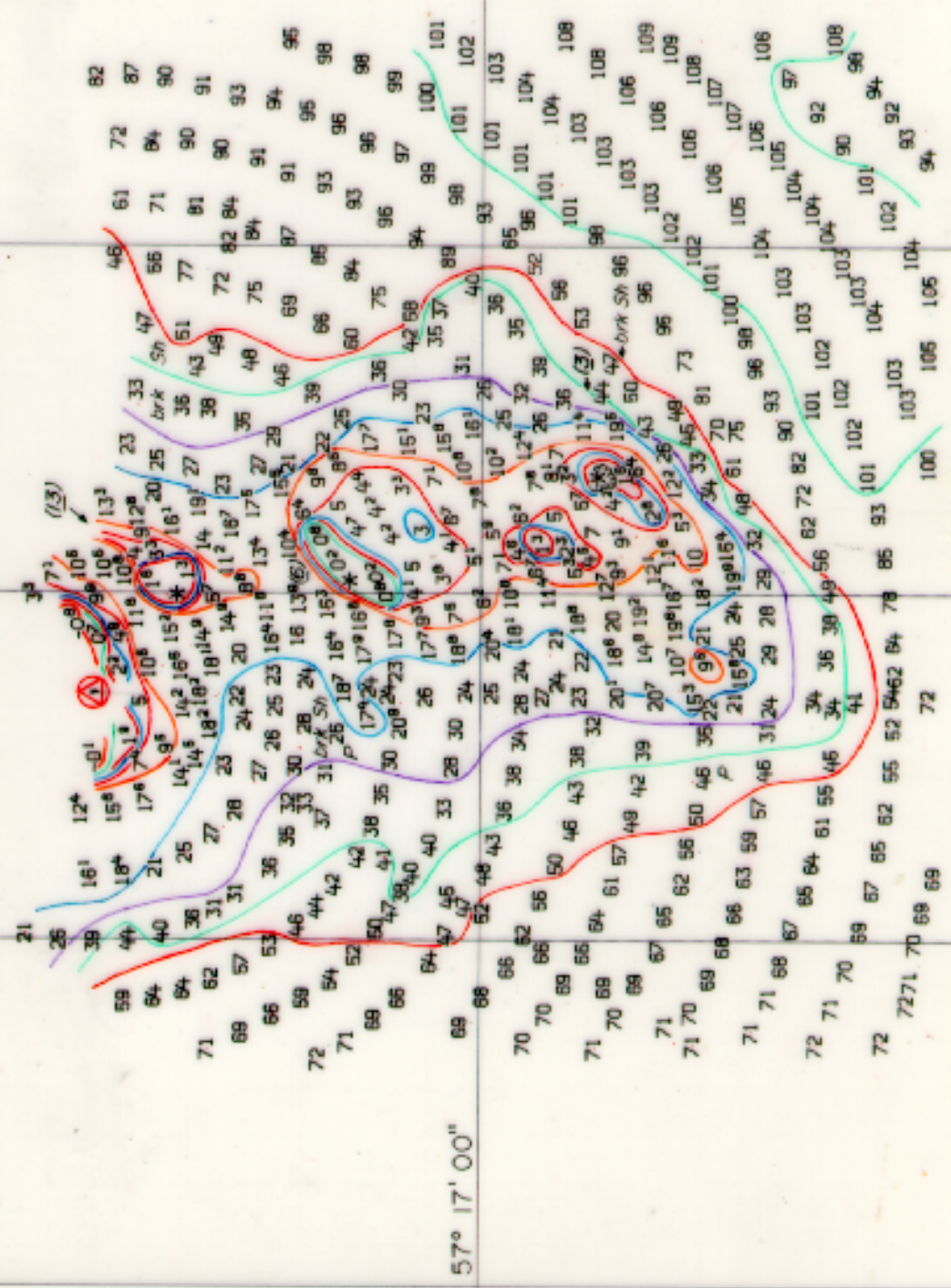
# EAST BROTHER

J KARR, 1982

ALASKA  
FREDERICK SOUND  
THE BROTHERS  
FINAL SMOOTH SHEET  
FE-240  
S-PI06-DA-82  
SCALE 1:10,000

SURVEYED OCT-NOV 1982  
SOUNDINGS IN FATHOMS AND TENTHS  
REDUCED TO MLLW DATUM

12-28-82



# FREDERICK SOUND



2 MZOV, 1982

133° 48' 00"

133° 48' 30"

133° 49' 00"

133° 49' 30"

57° 17' 30"



1 KARA, 1982

1000  
(11)

1000  
(2)



1000  
(11)

1000  
(2)



FE - 240 12-28-82  
POSITION OVERLAY A  
SCALE 1:10,000  
SHEET 1 OF 2

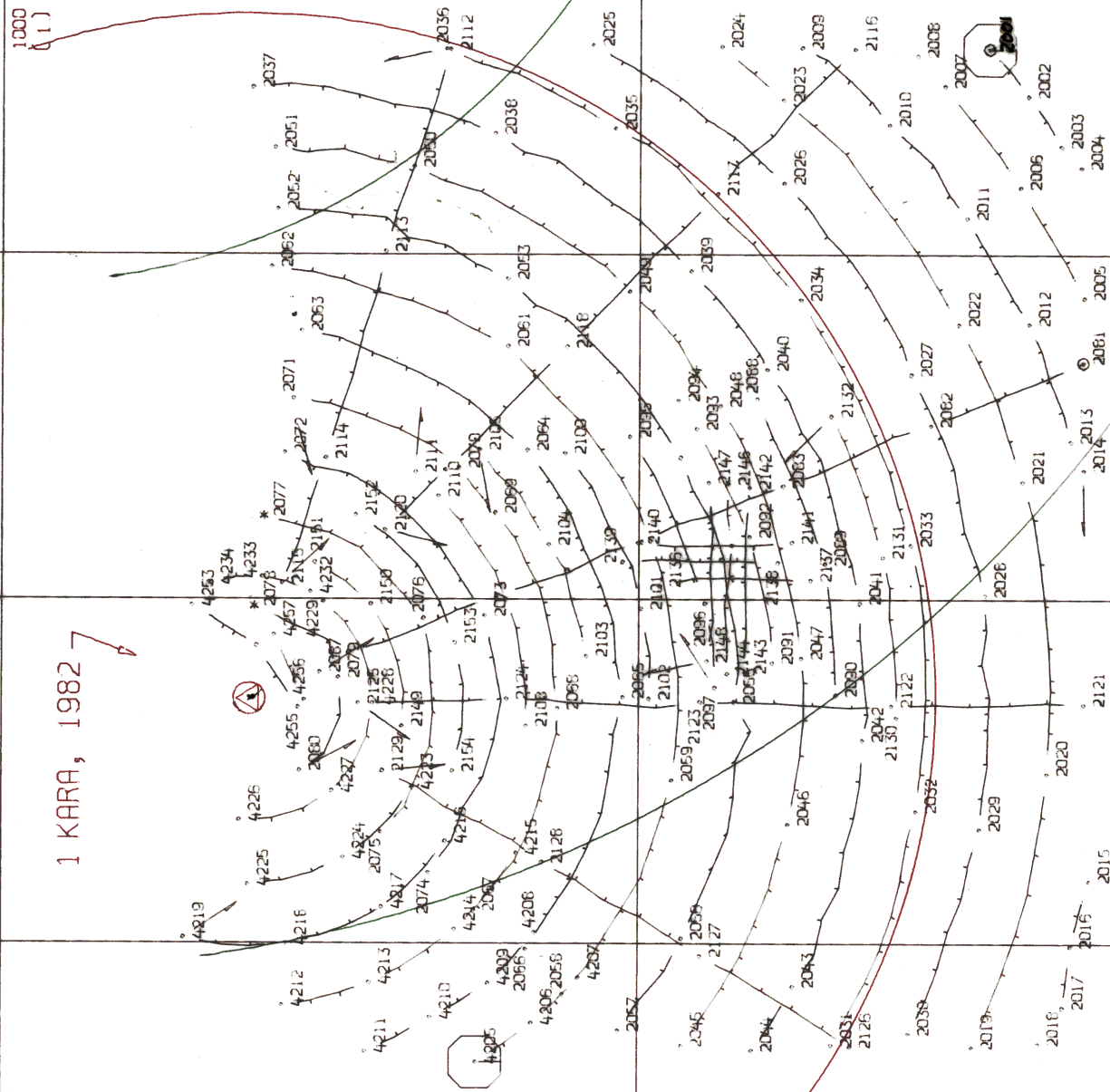
133° 48' 00"

133° 48' 30"

133° 49' 00"

133° 49' 30"

57° 16' 30"





2 MOZOV, 1982



133° 48' 00"

133° 48' 30"

133° 49' 00"

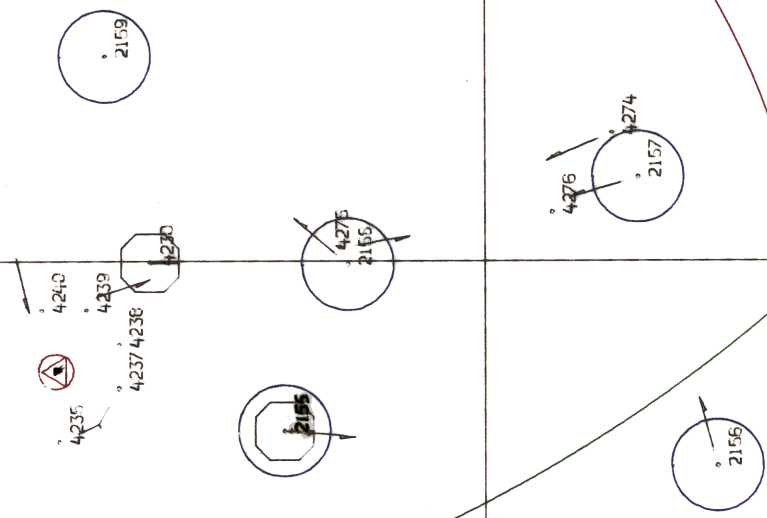
133° 49' 30"

57° 17' 30"

1 KARA, 1982

1000  
(1)

1000  
(2)



FE - 240 12-28-82

POSITION OVERLAY B

SCALE 1:10,000

SHEET 2 OF 2

133° 48' 00"

133° 48' 30"

133° 49' 00"

133° 49' 30"

57° 16' 30"

2 MOZOV, 1982



133° 48' 00"

133° 48' 30"

133° 49' 00"

133° 49' 30"

133° 17' 30"

1 KARA, 1982



-60'

5<sup>s</sup> 5<sup>1</sup>

6<sup>4</sup> 13<sup>3</sup>

16<sup>5</sup> 9<sup>2</sup>

17

19<sup>3</sup> 18<sup>3</sup>

12<sup>3</sup> 12<sup>2</sup>

19<sup>6</sup> 25

0<sup>2</sup> 26<sup>4</sup>

5 4<sup>3</sup> 4<sup>7</sup>

9<sup>1</sup> 26<sup>4</sup>

4<sup>3</sup> 5<sup>1</sup>

27

8<sup>4</sup> 7<sup>1</sup> 6<sup>3</sup>

4<sup>1</sup> 1<sup>5</sup> 5<sup>1</sup>

23 15<sup>6</sup> 9<sup>5</sup> 5<sup>3</sup> 5<sup>3</sup> 3<sup>4</sup>

24 22 19<sup>4</sup> 8<sup>2</sup> 8<sup>2</sup> 5<sup>1</sup> 1<sup>4</sup>

9<sup>7</sup> 9<sup>7</sup> 3<sup>4</sup> 15<sup>7</sup>

29 15<sup>6</sup> 14<sup>4</sup> 18<sup>4</sup>

10<sup>1</sup> 22

23 25

36 36

56

10<sup>5</sup>

11<sup>6</sup> 29 40

51 72

17

19<sup>3</sup> 18<sup>3</sup>

12<sup>3</sup> 19<sup>6</sup> 25

30

6<sup>8</sup> 38

5 4<sup>3</sup> 4<sup>7</sup>

40

50

85

40

50

104

103

106

107

110

109

96

102

104D4

102

102

104D4

102

102

57° 17' 00"

63

68

71

71

FE - 240 12-28-82

EXCESS SOUNDING OVERLAY

SCALE 1:10,000

EXCESS LEVEL 1 OF 3

57° 16' 30"

133° 49' 30"

133° 49' 00"

133° 48' 30"

133° 48' 00"

57° 17' 30"

133° 49' 30"

133° 49' 00"

133° 48' 30"

133° 48' 00"

2 M0Z0V, 1982



1 KARA, 1982 ↗



67

28

13<sup>4</sup>

40

5<sup>5</sup>

57° 17' 00"

6<sup>3</sup>

4<sup>9</sup>

3<sup>6</sup>

3<sup>3</sup>

14<sup>5</sup>

0

10<sup>3</sup>

61

FE-240

12-28-82

EXCESS SOUNDING OVERLAY

SCALE 1:10,000

EXCESS LEVEL 2 OF 3

57° 16' 30"

133° 49' 30"

133° 49' 00"

133° 48' 30"

133° 48' 00"

57° 17' 30"

133° 49' 30"

133° 49' 00"

133° 48' 30"

133° 48' 00"

2 MIZOV, 1982



1 KARA, 1982



74

57° 17' 00"

7<sup>2</sup> 5<sup>4</sup>  
3<sup>2</sup>

FE-240 12-28-82

EXCESS SOUNDING OVERLAY

SCALE 1:10,000

EXCESS LEVEL 3 OF 3

57° 16' 30"

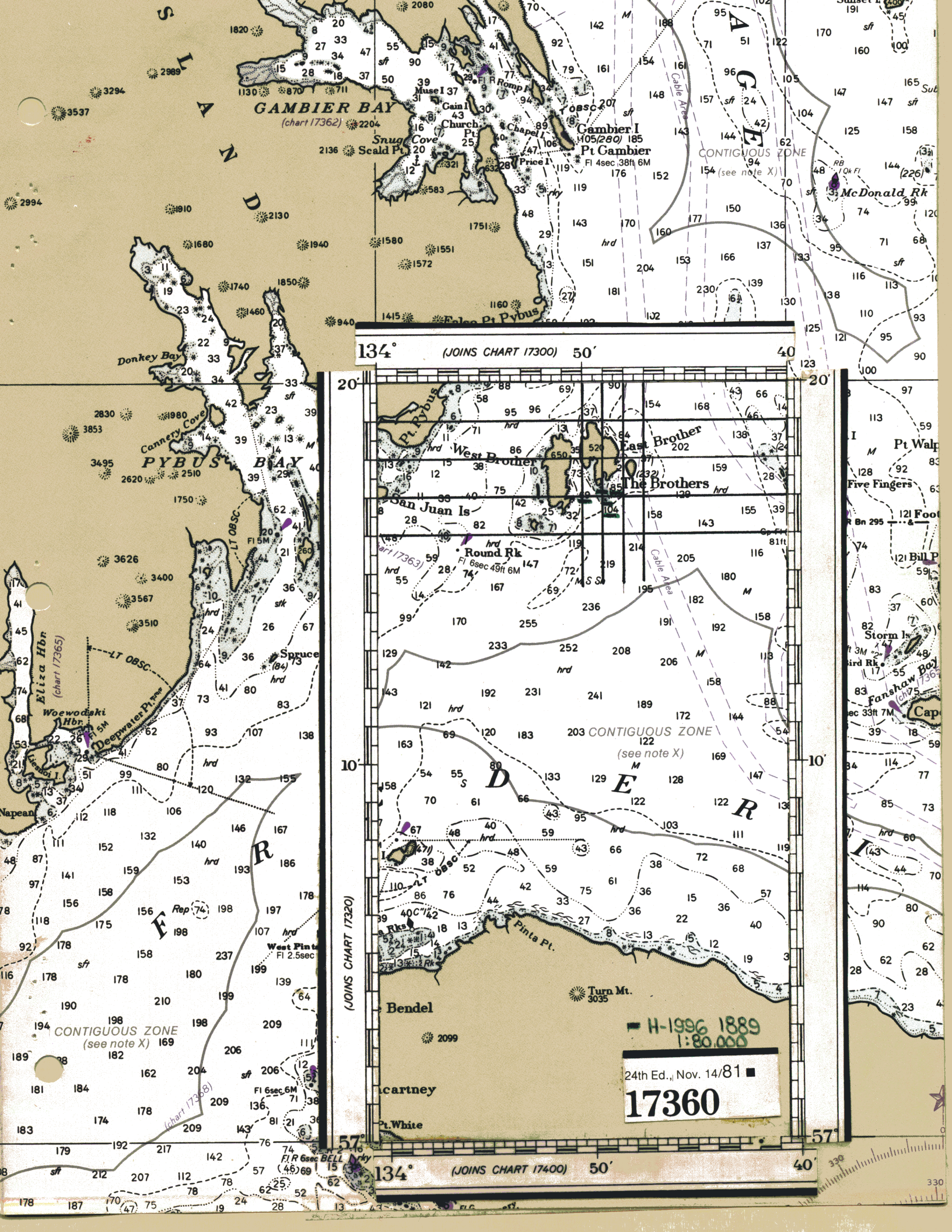
133° 49' 30"

133° 49' 00"

133° 48' 30"

133° 48' 00"





**GAMBIER BAY**  
(chart 17362)

**PYBUS BAY**

**Gambier I**  
105(280) 185  
**Pt Gambier**  
Fl 4sec 38ft 6M

134° (JOINS CHART 17300) 50'

(JOINS CHART 17320)

H-1996 1889  
1:80,000  
24th Ed., Nov. 14/81  
**17360**

134° (JOINS CHART 17400) 50'

CONTIGUOUS ZONE  
(see note X)

203 CONTIGUOUS ZONE  
(see note X)



