

9290

Original

Diag Cht. No. 1237

FORM C&GS-504	
U.S. DEPARTMENT OF COMMERCE ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION COAST AND GEODETIC SURVEY	
<b>DESCRIPTIVE REPORT</b>	
Type of Survey	Hydrographic
Field No.	MI-20-2-72
Office No.	H-9290
LOCALITY	
State	South Carolina
General locality	Long Bay <del>Inshore</del>
Locality	Lockwoods Folley Inlet to Windy Hill to Lakewood Myrtle Beach
19 72	
CHIEF OF PARTY	
E.K. McCaffrey	
LIBRARY & ARCHIVES	
DATE	2-15-74

Charts  
8355C, AYB  
1237  
1110

Descriptive Report  
To Accompany  
Hydrographic Survey MI-20-2-72  
Registry Number H-9290

OPR-437-MI-72  
Coast of North and South Carolina

1972 Field Season

NOAA Ship MT MITCHELL (MSS-22)

Edwin K. McCaffrey  
CAPT, NOAA  
Commanding Officer

*Applied to stats 3/11/74  
CAB.*

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## HYDROGRAPHIC TITLE SHEET

H-9290

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.

MI-20-2-72

State South Carolina

General locality Inshore Long Bay

Locality Lockwoods Folly Inlet to Myrtle Beach  
~~Windy Hill to Lakewood~~

Scale 1:20,000 Date of survey 7-27-72 to 9-22-72

Instructions dated May 2, 1972 Project No. OPR-437-MI-72

Vessel NOAA Ship MT MITCHELL (MSS-22) Launches MI-3, MI-4, MI-5, MI-6

Chief of party Edwin K. McCaffrey, CAPT, NOAA, Commanding Officer

Surveyed by Ship's Personnel (LTJG A.J. Pickrell, NOAA, Officer-in-Charge)

Soundings taken by echo sounder, hand lead, ~~pole~~

Graphic record scaled by Ship's Personnel

Graphic record checked by AMC

Protracted by Cal com plotter Automated plot by AMC - CALCOMP 618

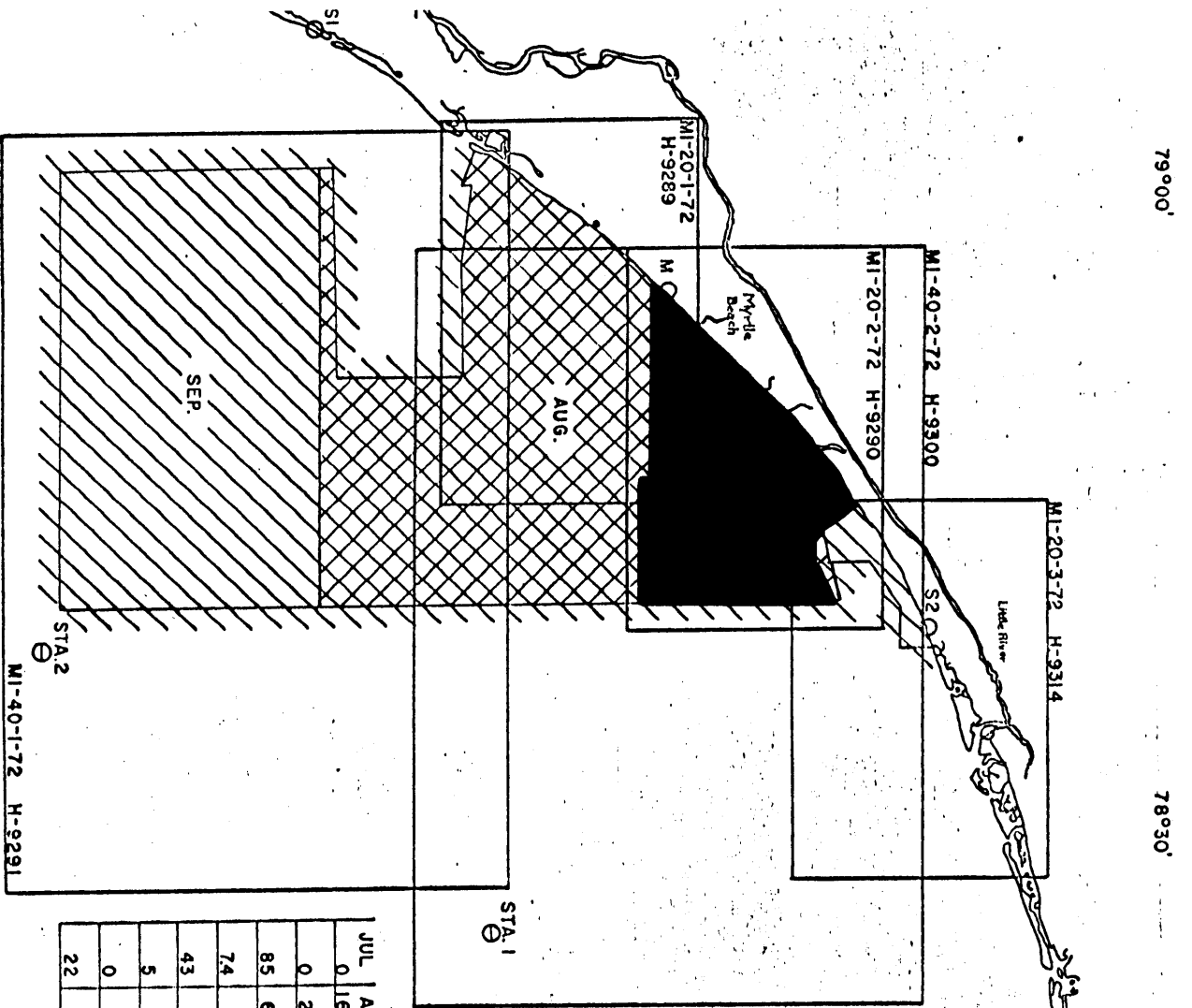
Soundings penciled by Cal com plotter

Soundings in ~~XXXXXX~~ feet at MLW ~~XXXXX~~

REMARKS: The boatsheet comprises two Roll Plotter (COMLOT) sheets  
annotated A of A, B and B of A, B. A mylar sheet showing  
the entire survey area surveyed contains the junction sound-  
ings, prior survey soundings and other data. This sheet  
also shows the entire shoreline available through the use  
of T-Sheets.

On Julian Days 211 and 238 (VESNO 2225) the printouts show  
an extra column. This was the test of Program AM 170X

"Hyperbolic/Range-Range HYDROLOG System with Wave Correction  
Routine". (See Page 11)



79°00'

78°30'

78°00'

**PROGRESS SKETCH**

OPR-437-MI-72

Coast of North South Carolina

Hydrographic Operations

July - Oct. 1972

NOAA Ship MT MITCHELL (MSS-22)

Edwin K. McCaffrey, CAPT, NOAA, Com'd'g.

Scale of CGGS Chart 1110.

33°30'

**LEGEND**

	JUL	AUG	SEP	OCT	
L.N.M. SOUNDING (SHIP)	0	1608	898		
S.N.M. SOUNDING (SHIP)	0	205	175		
L.N.M. SOUNDING (LAUNCHES)	85	644	264		
S.N.M. SOUNDING (LAUNCHES)	74	42	19		
HYDRO SIGNALS ERECTED	43	0	60		
TRI. STA. RECOVERED	5	0	27		
NANSEN CASTS	0	1	1		
BOTTOM SAMPLES (GRAB)	22	87	91		

Descriptive Report  
To Accompany  
Hydrographic Survey MI-20-2-72  
Registry Number H-9290

OPR-437-MI-72  
Coast of North and South Carolina

1972 Field Season

NOAA Ship MT MITCHELL (MSS-22)

Edwin K. McGaffrey  
CAPT, NOAA  
Commanding Officer

A. Project

This survey was accomplished as a part of OPR-437-MI-72, Coast of North and South Carolina, in accordance with project instructions dated May 2, 1972.

B. Area Surveyed

The survey was conducted off the coast of South Carolina, northeast of Myrtle Beach. Work began on July 27, 1972 and was completed on September 22, 1972. The limits of hydrography were bounded on the east by Longitude  $78^{\circ}39.9'W$ . and by the South Carolina coast on the west. The southern limit is defined by Latitude  $33^{\circ}39.3'N$ . from the shoreline to Longitude  $78^{\circ}46.0'W$ . and by Latitude  $33^{\circ}38.8'N$ . from Longitude  $78^{\circ}46.0'W$ . to Longitude  $78^{\circ}39.9'W$ . the northern limit is a line defined by the following points:

Latitude 33°46.5'N. Longitude 78°39.9'W.

Latitude 33°45.6'N. Longitude 78°42.0'W.

Latitude 33°45.6'N. Longitude 78°43.0'W.

Latitude 33°45.5'N. Longitude 78°43.2'W.

Latitude 33°47.1'N. Longitude 78°44.6'W.

Soundings were junctioned with contemporary surveys H-9289 (1:20,000) and H-9300 (1:40,000) on the south and H-9314 (1:20,000) on the north. On the east, soundings were junctioned with prior survey H-9230 (1:40,000) 1971, and on the north with prior survey H-9229 (1:20,000) 1971.

#### C. Sounding Vessel

Soundings were obtained by NOAA Ship MT MITCHELL and the ship's four survey launches. The ship and Launches MI-5 (Plastic Boat Industries) and MI-6 (Uniflite) are equipped with the HYDROLOG/HYDROPLOT system. Launches MI-3 and MI-4 (both Bertrams) were also used for non-automated, inshore hydrography.

#### D. Sounding Equipment

The sounding, recording, and navigation equipment used in each vessel is outlined below:

	Ship <u>Ser. No.</u>	MI-5 <u>Ser. No.</u>	MI-6 <u>Ser. No.</u>
Computer PDP-8/E	8E-412	387	8E-853
HYDROPLOT Controller	7605941-3	7605941	7605941-1
Ross Model 4000 Echo Sounder Transducer	1052	1049	201745
Ross Model 5000 Echo Sounder Recorder	1052	1049	201745
Ross Model 6000 Echo Sounder Digitizer	1052	1049	201745
Houston Instruments Model DP-3 Roll Plotter	3750-2	4680-1	4309-1
Hi-Fix Navigation Interface	5	11	6
Hi-Fix Receiver	A-358	A-273	A-264

Launches MI-3 and MI-4 were equipped as follows:

	<u>MI-3</u> <u>Ser. No.</u>	<u>MI-4</u> <u>Ser. No.</u>
Raytheon Survey Fathometer Model DE-723B	1281	1285
Hi-Fix Receiver	A-278	A-358

Leadline soundings were obtained only for bottom samples. However, the simultaneous echo soundings were recorded for plotting the bottom sample depths with the exception of three samples taken on Julian Day 211 when only leadline depths were recorded.

The initial was set at zero on all echo sounders. Any drift in the initial was corrected in the scanning process. Occasionally a second "initial" appears at 10 feet on the Ross records. This is the "blanking" function of the Ross system. When "blanking" is on, the digitizer will not accept any return less than the "blanking" value as valid. This helps eliminate many digitized errors, especially in rough weather. It may also be noted that calibrations on the Ross records from Launch MI-6 show a 0.3 - 0.4 foot error. This could not be corrected in the equipment, however corrections obtained from bar check data will correct for this error since a bar check is a comparison of a true depth and the recorded depth.

Draft corrections for all vessels are entered in the TRA correction on the master tapes. Observations of the ship's draft showed the draft to be a constant 14.0 feet throughout the two days the ship conducted hydrographic operations on this sheet. An abstract of ship's draft for the entire project is included in this report.

Settlement and squat corrections for all launches were determined by the leveling method and for the ship by the alternate echo sounder method. Abstracts of settlement and squat for launches and the ship are included in this report. Settlement and squat corrections are included in the TRA correction of the corrector tapes.

A vertical cast comparison with the Ross echo sounder on the ship was made on September 9, 1972 and the instrument error correction was determined to be -0.47 feet. This correction is also included in the TRA correction of the corrector tapes for the ship. An abstract of the vertical cast data is included in this report.



Velocity corrections applied to the soundings obtained by the ship were determined by two serial temperature casts made on August 17 and September 9, 1972. The serial temperature cast locations were (1) Latitude 33°35.0'N. Longitude 78°25.2'W. and (2) Latitude 33°16.0'N. Longitude 78°38.2'W. These corrections are applied by using the velocity corrections tape for the off-line plot of the survey. Velocity corrections and instrument errors for the launches are determined by bar checks. The corrections obtained by data from bar checks are applied in the velocity corrections tape. (Abstracts included in this report).

Predicted tide corrections were generated by Program AM 500 "Predicted Tides Generator". The automated surveys, on this project, used the predicted tide values while gathering on-line data. The master tapes, covering the on-line work, are marked to show that the predicted tide values were included in each day's work. In some instances, an automated survey did not employ predicted tides. A note on the master tape reflects this information. Predicted tide values were applied to the non-automated survey work (visual and hyper-visual) during off-line plot of each day's work. Final corrections for tide will be applied when compiling the smooth sheet. The tide corrections will be determined from data obtained by the pressure recording tide gage (bubbler) permanently installed at Myrtle Beach, South Carolina. (See Descriptive Tide Note included in this report).

The graphic records were scanned by trained personnel, spot checks for errors were made by the Officer-in-Charge of the particular launch used for the day's work, and the Officer-in-Charge of the sheet. These spot checks insured that the data were correctly interpreted in accordance with Paragraphs 1-34, 5-121, and 5-122 of the Hydrographic Manual (20-2). Insert soundings were added and erroneous soundings corrected by entering them on the corrector tapes.

#### E. Smooth Sheet

The smooth sheet will be produced by the Atlantic Marine Center, Norfolk, Virginia. The following tapes, with print-outs, were furnished for this purpose:

- (a) Hyperbolic Master Tapes
- (b) Hyper-Visual Master Tapes

- (c) Visual Master Tapes  
(Bottom Samples only)
- (d) Hyperbolic Corrector Tapes
- (e) Hyper-Visual Corrector Tapes
- (f) Visual Corrector Tapes  
(Bottom Samples only)
- (g) Velocity Corrector Tapes  
(for each vessel)
- \*\*\* (h) TRA Correction/Table Indicator  
(TC/TI) Tape
- (i) ASCII Signal Tape
- \*\* (j) Binary Signal Tape
- \* (k) Computer Parameter Tapes

\*\*\*This tape contains the data for all sounding units  
 \*\* There is no printout for this tape  
 \* There is a Computer Parameter Tape for each of the  
 two COMPLIT sheets

All corrections listed in Section D of this report have been applied to the plotted soundings shown on the boat-sheet (two COMPLIT sheets) with the exception of actual tide values.

#### F. Control

Hi-Fix, operating at a frequency of 1618.650 KHz, was used in the hyperbolic mode for position control of all offshore hydrography. The inshore limit of hyperbolic control was determined by the plotting accuracy requirements for hyperbolic lane spacing (700 meters between lanes was the maximum) and the fact that it was not desirable to run the automated launches into shallow water and near the surf line.

Inshore, hyper-visual control was used. A hyper-visual fix consisted of one electronic lane value (Pattern II) and one sextant angle between two objects which straddle that particular hyperbolic lane. A three point sextant fix was obtained at the offshore end of each hyper-visual sounding line to verify the lane identification. However, this fix was still plotted hyper-visually by the computer during the off-line plot of the day's work. In such cases the single angle and two objects used for the hyper-visual fix were indicated in the sounding volume. This hyper-visual fix

was then included with the other hyper-visual fixes on the sounding line when transcribing the data from the sounding volume to punch tape.

At times, when the Hi-Fix was inoperative, straight visual control was used to position bottom samples.

The Hi-Fix shore installations were located as follows:

Master	BOURBON R.M. 5, 1972	Latitude 33°39'33.20"N. Longitude 78°55'00.95"W.
Slave 1	OKEEFE, 1972	Latitude 33°24'28.72"N. Longitude 79°08'03.35"W.
Slave 2	CABANA, 1969	Latitude 33°49'33.00"N. Longitude 78°38'57.79"W.

These are third-order, recoverable topographic stations.

Hi-Fix was normally calibrated before and after a day's survey operations, plus a few times in between if conditions permitted. Program AM 560 "H/R Calibration Program", was used to compute the Hi-Fix correctors. Normally the mean of the correctors from all valid calibrations was used for that day's off-line plot unless Hi-Fix was inoperative or reception disturbed in the course of a day's work. In cases where the Hi-Fix failed or reception became poor, the correctors were averaged and meaned from the time of last good calibration to the time of failure or poor reception. Different correctors, averaged and meaned, may have been applied from the time Hi-Fix became operational (another calibration) to the time of calibration at the end of the day's work.

The Hi-Fix calibration data is recorded in the "Hydrographic Operations Log" for each sounding unit and calibration work sheets completed. The calibration data for the hyper-visual survey work is recorded in the sounding volumes and work sheets were completed reflecting the information. The work sheets were forwarded with the records for the project.

An abstract of Hi-Fix lane correctors is included in this report.

A list of signals used for calibration and for hyper-visual and visual control is included in this report. Included in the list is the signal number and method of position determination. The list includes triangulation intersection stations and a short description of the object is included.

#### G. Shoreline

The Photogrammetry Section, Atlantic Marine Center, furnished the following T-Sheets to be used as the source of the shoreline. All of the sheets carry the same identification information: Dates of Photography - Dec. 1969, Apr. 1970, Dec. 1970 and Date of Revision - Feb. 1972.

T-12292	(2)	Singleton Swash
T-12293	(2)	Crescent Beach
T-12296	(2)	Myrtle Beach
T-12297	(2)	Ocean Forest

The sheets are labeled "Second Edition" and are Scale 1:20,000.

The shoreline, as transferred to the boatsheet, was not completely verified. However, the photo support party (Photo Party #62), assigned to the project, was continuing work on verification when the ship left the project area.

The low water line is not accurately defined by the soundings due to surf conditions and the many swimmers along the beach. However, a line was run parallel to the beach at high tide and as close to the beach as possible without endangering swimmers or the launch. This inshore sounding line shows the general location of the low water line.

#### H. Crosslines

A total of 68.5 linear nautical miles of crosslines were run covering an area of 682.4 linear nautical miles of regular sounding lines. This is a percentage of 10%.

All crosslines agree well with the regular system of sounding lines (within 1 foot) with the exception of two areas. The work accomplished by Launch MI-4, on Julian Day 255, Position Numbers 1501 through 1598, along the coast between Longitude 78°47.4'W. and Longitude 78°47.7'W is consistently

deeper than the crossline run by Launch MI-5 through that area on Julian Day 258, Position Numbers 3604 through 3610. This is probably because Launch MI-4 was used only on two days. The second day she broke down after running 1 mile. Therefore, bar check data is extremely scanty and the corrections questionable at the depths where the disagreement is found. Abnormal tides for that day could also be a factor. The other area is near the southern limit of the survey between Longitude 78°48.6'W. and Longitude 78°53.5'W. where Launch MI-6 picked up some splits between sounding lines run by Launch MI-5. Launch MI-6 accomplished this work on Julian Day 266, Position Numbers 0182 through 0203. Launch MI-5 did the surrounding work on Julian Day 209. The work by Launch MI-6 is consistently deeper and the only probable reason for it would be abnormal tides on one of these days. The smooth plot of these areas should be re-inspected after application of actual tides. If discrepancies still exist it is suggested that data from Launch MI-4 (Day 255) and MI-6 (Day 266) be re-evaluated and removed where differences with basic surveys exist.

#### I. Junctions

On the east the soundings of this survey are consistently 2 to 3 feet deeper than those of prior survey H-9230, Scale 1:40,000, 1971. This discrepancy may be because velocity corrections have been applied to this survey whereas the soundings from H-9230 probably are not corrected for sound velocity.

This survey junctions well with prior survey H-9229, Scale 1:20,000, 1971 on the north.

#### J. Comparison with Prior Surveys

One prior survey, H-4615, Scale 1:20,000, 1925-1926 covers the area of this survey. In most cases offshore the soundings agree within 1-2 feet, and never differ more than 3 feet. However, the soundings close to the beach show that the low water line has shifted in an offshore direction somewhat.

#### K. Comparison with the Chart

The largest scale chart covering the area of the survey is

C&GS Chart 1237, Scale 1:80,000, 5th Edition dated Feb 26, 1972. The soundings agree generally within 1 foot.

C&GS Small Craft Chart 835 SC, Scale 1:40,000, 9th Edition dated March 11, 1972 also covers a small portion of the survey off the beach at Myrtle Beach. Again the soundings agree to within 1 foot. However, the 18 foot curve is more irregular on the chart than on this survey.

L. Adequacy of the Survey

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

M. Aids to Navigation

There are no floating aids to navigation within the limits of this survey.

Verification of old landmarks and determination of the positions of new landmarks was accomplished by the photo support party assigned to this project.

There are two private aids to navigation within the limits of this survey. The aids are listed in U.S. Coast Guard Light List, Volume II (CG-160), Atlantic and Gulf Coast, 1972.

Second Avenue Pier Obstruction Lights (on end of the pier) Light List No. 9 (Page 1)  
2 Fixed Red Lights  
Latitude 33°40.9'N. Longitude 78°53.1'W.

Ocean Plaza Pier Lights (on end of the pier) Light List No. 8 (Page 1)  
2 Fixed Red Lights  
Latitude 33°41.6'N. Longitude 78°52.4'W.

N. Statistics

Linear Nautical Miles, Sounding Line, Launch MI-3	80.2
Linear Nautical Miles, Sounding Line, Launch MI-4	21.7
Linear Nautical Miles, Sounding Line, Launch MI-5	256.2
Linear Nautical Miles, Sounding Line, Launch MI-6	62.7
Linear Nautical Miles, Sounding Line, Ship	330.1
Total Linear Nautical Miles, Sounding Line	<u>750.9</u>

Square Nautical Miles, Area Surveyed -----	63.0
Crossline Percentage -----	10
Bottom Samples (obtained with snapper sampler) ---	82
Number of Positions -----	2051
Number of Positions Rejected -----	171
Number of Position Numbers Duplicated(1572 & 6228)	2
Inserted Artificial Positions -----	1

#### O. Miscellaneous

All times recorded in this survey are Greenwich Mean Time.

In areas paralleling the beach (mostly in depths of 15-20 feet) several substantial stray soundings appear on the fathograms. Some of the strays seem to be connected to the bottom and some do not. The most substantial of these were investigated at later dates and none were found again. The same type of strays were encountered while conducting survey operations on the adjoining contemporary surveys H-9289 on the south, and H-9314 on the north. (Refer to the descriptive reports for each of these surveys). The strays were proven to be large, dense schools of small fish migrating parallel to the beach.

Bottom samples were obtained using a small snapper type sampler imbedded in a sounding lead. The spacing of the samples was in accordance with the Hydrographic Manual. The bottom samples were forwarded to: Dr. J. W. Pierce, Department of Sedimentology, Smithsonian Institute, Washington, D.C. 20560 in accordance with standing instructions. Form 733M "Oceanographic Log Sheet M" was completed and a copy forwarded with the samples. The original forms are included in this report and included with the other pertinent data is the position number of each sample. A total of 82 samples were obtained.

Due to the fact that the roll plotter used in the HYDROPLOT system is 22" wide and the boatsheet is 36" wide, the survey was done in two sections labeled "A" (the southern half) and "B" (the northern half). Hence, the survey records are annotated "A" of "A, B" or "B" of "A, B". Copies of the parameter tape printouts for COMPLOT Sheet "A" and Sheet "B" are included in this report and have been forwarded with the survey records.

The Launch MI-5 master tape printouts for Julian Days 211 and 238 contain what seems to be an extra column adjacent to the column of soundings. Program AM 170X "Hyperbolic/Range-Range HYDROLOG System with Wave Correction Routine" was used on these days and this column is a correction for wave action. However, these figures appear only on the printout and are not punched on the master tape. The wave correction routine did not perform well (See Report on Wave Correction Routine in Program AM 170X, NOAA Ship MT MITCHELL 1972).

P. Recommendations

None.

Q. Reference to Reports

The 1972 Field Season reports, listed below, should be used as reference for a complete evaluation of this survey.

Report on Calibration of Hi-Fix

Report on Corrections to Echo Soundings

Report on Wave Correction Routine in Program AM 170X

Respectfully Submitted:

*Alan J. Pickrell*

Alan J. Pickrell  
LTJG, NOAA

Approved and Forwarded:

*Edwin K. McCaffrey*  
Edwin K. McCaffrey, CAPT, NOAA  
Commanding Officer



ATLANTIC MARINE CENTER

PROJECTION PARAMETERS

POLYCONIC OR MODIFIED TRANSVERSE MERCATOR

1. Project No. OPR-437-MI-724 4. Requested by LCDR J.G. Carlen  
2. Registry No. H-9290 5. NOAA Ship MT MITCHELL (MSS-22)  
3. Field No. MI-20-2-72 6. Date Required ASAP, 1972

7. Polyconic  Modified Transverse Mercator

8. Central Meridian of Projection 78° 48' 00" W.

9. Survey Scale: 1: 20,000

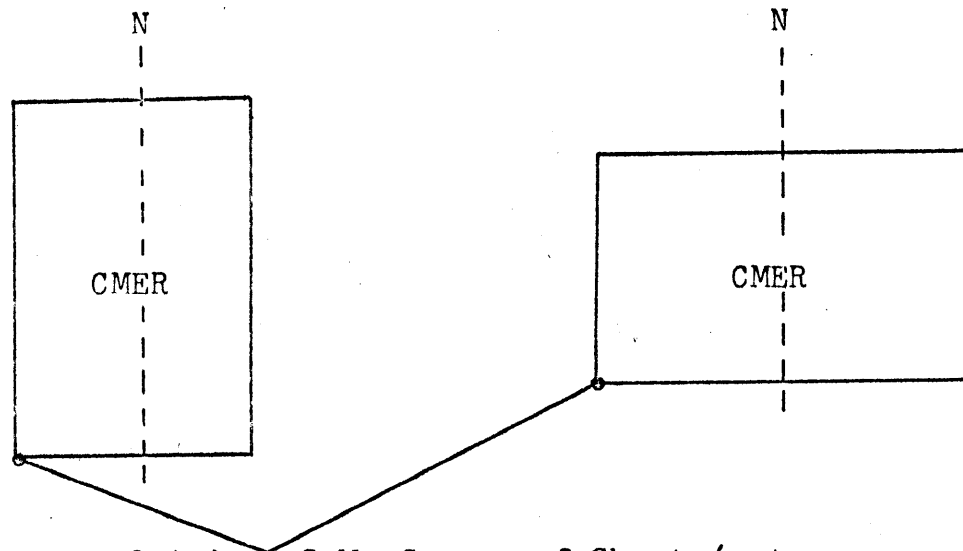
10. Size of Sheet (check one)

36 x 54  36 x 60  Other  Specify \_\_\_\_\_

11. Sheet Orientation (check one)

NYX = 1

NYX =  $\emptyset$



12. Plotter Origin: S.W. Corner of Sheet (not necessarily a grid intersection)

Latitude 33° 38' 00" N.

Longitude 78° 57' 00" W.

13. G.P.'s of triangulation and/or signals attached.

14. Material Desired: Tracing Paper  Mylar

Smooth Sheet  Other  Specify \_\_\_\_\_

15. Remarks: \_\_\_\_\_

ATLANTIC MARINE CENTER  
ELECTRONIC CONTROL PARAMETERS

1. Project # OPR-437    2. Reg. # H-9290    3. Field # MI-20-2-72  
 4. Type of Control Hi-Fix (Hi-Fix, Raydist, EPI, etc.)  
 5. Frequency 1618.650 KHz (for conversion of electronic lanes to meters)  
 6. Mode of Operation (check one):

Range-Range

Range One (R<sub>1</sub>)  
 Station I.D. \_\_\_\_\_  
 Range Two (R<sub>2</sub>)  
 Station I.D. \_\_\_\_\_

Range-Visual

Lat. \_\_\_\_\_° \_\_\_\_\_' \_\_\_\_\_"  
 Long. \_\_\_\_\_° \_\_\_\_\_' \_\_\_\_\_"  
 Lat. \_\_\_\_\_° \_\_\_\_\_' \_\_\_\_\_"  
 Long. \_\_\_\_\_° \_\_\_\_\_' \_\_\_\_\_"

Hyperbolic (3-station)

Slave One  
 Station I.D. OKEEFE 1972  
 Master  
 Station I.D. BOURBON R.M. 5 1972  
 Slave Two  
 Station I.D. CABANA 1969

Hyper-Visual

Lat.	<u>33°</u>	<u>24'</u>	<u>28.72"</u>
Long.	<u>79°</u>	<u>08'</u>	<u>03.35"</u>
Lat.	<u>33°</u>	<u>39'</u>	<u>33.20"</u>
Long.	<u>78°</u>	<u>55'</u>	<u>00.95"</u>
Lat.	<u>33°</u>	<u>49'</u>	<u>33.00"</u>
Long.	<u>78°</u>	<u>38'</u>	<u>57.79"</u>

7. Location of Survey:

Range-Range

Imagine an observer is standing at R<sub>1</sub> Station and looking directly at R<sub>2</sub> (check one):

Survey area is to observer's Right  A=β

Survey area is to observer's Left  A=1

Hyperbolic

Looking from survey area toward Master Station:

Slave One must be to observer's Left.

Slave Two must be to observer's Right.

8.  This form is submitted as an aid in preparing a boat sheet.

This form applies to all data on this survey.

This form applies to part of the data on this survey.

Vessel	From	To	Position Numbers
EDP #	Time	Time	(inclusive)
	Day	Day	
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____

9. Remarks: \_\_\_\_\_

Boatsheet MI-20-2-72

H-9290

Computer Sheet Parameters

Sheet A of A, B

FEST = 25000  
CLAT = 3674000  
CMER = 78/55/30  
GRID = 01/00  
PLSCL = 20000  
PLAT = 33/37/45  
PLON = 78/56/15  
MLAT = 33/39/33.20  
MLON = 78/55/00.95  
SLAT = 33/24/28.72  
SLON = 79/08/03.35  
S2LAT = 33/49/33.00  
S2LON = 78/38/57.79  
Q = 1618.65  
VESNO = 2220  
YR = 72

Boatsheet MI-20-2-72

H-9290

Computer Sheet Parameters

Sheet B of A, B

FEST = 25000  
CLAT = 3674000  
CMER = 78/55/30  
GRID = 01/00  
PLSCL = 20000  
PLAT = 33/41/55  
PLON = 78/53/15  
MLAT = 33/39/33.20  
MLON = 78/55/00.95  
S1LAT = 33/24/28.72  
S1LON = 79/08/03.35  
S2LAT = 33/49/33.00  
S2LON = 78/38/57.79  
Q = 1618.65  
VESNO = 2220  
YR = 72

Descriptive Tide Note

OPR-437-MI-72

Coast of North and South Carolina

The tide gage used for this project was a pressure recording tide gage (supervised by the Tides Section, Atlantic Marine Center, Norfolk, Virginia) at Myrtle Beach, South Carolina (Latitude  $33^{\circ}41.0'N$ . Longitude  $78^{\circ}53.1'W$ .).

This gage operated using +5 ( $75^{\circ}W$ .) Zone Time. The tide gage was not inspected by the ship. However, in accordance with Project Instructions the tide observer was contacted regularly and reported continuous gage operation for the duration of the project.

Hourly heights for the project are to be furnished by Tides Section, National Ocean Survey, Rockville, Maryland.

ATLANTIC MARINE CENTER

TIDE NOTE

1. Project No: OPR-437      2. Vessel/~~Rockville~~ NOAA Ship MT MITCHELL
3. Year: 1972      4. Meridian Time Zone: (GMT) 75°W.
5. Tide Station Name: Myrtle Beach, South Carolina
6. Position: Lat. 33° 41.0' N. Long. 78° 53.1' W.
7. Plane of Reference:  MLW,  MLLW corresponds to 4.53  
feet on the tide staff for the period 7-26-72 to 9-24-72
8. Hourly Heights:  <sup>Pressure Recording</sup>  
<sup>Tide Gage</sup>~~Standard Gauge~~, furnished from Rockville.
- Scaled and logged from field marigrams.
9. Tidal Zoning:  Not applicable.
- By two or more gauges automatically zoned.
- By applying tidal differences and constants  
for the area(s): a. \_\_\_\_\_

TIME (Hour, Minute)		HEIGHT (Feet)		HEIGHT RATIO (IF Applicable)	
High Water	Low Water	High Water	Low Water	High Water	Low Water

b. \_\_\_\_\_

TIME (Hour, Minute)		HEIGHT (Feet)		HEIGHT RATIO (If Applicable)	
High Water	Low Water	High Water	Low Water	High Water	Low Water

c. Include additional areas on separate sheet(s)

10. Remarks: Tide observers at Charleston, S.C. and at Myrtle Beach, S.C. were contacted by telephone on 7-17-72. The tide observer at Myrtle Beach was also contacted on 9-28-72 (by phone).



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

Date: July 27, 1972

Reply to  
Actn of: C3312-233-NOAAD

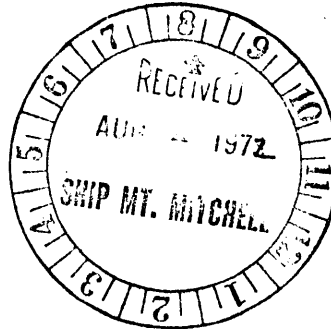
Subject: Myrtle Beach

To: Commanding Officer  
NOAA Ship MT. MITCHELL

Mean low water on the staff of January 27, 1972 at Myrtle  
Beach, South Carolina is 4.53 feet.

*Saul C. Berkman*

Saul C. Berkman  
Chief, Processing Section  
Tides Branch  
Oceanographic Division





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

Date: October 11, 1972

Reply to  
Attn of: Commanding Officer  
NOAA Ship MT MITCHELL

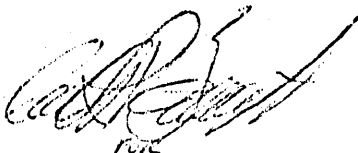
Subject: OPR-437-MI-72 - Coast of North & South Carolina  
Tide Data

To: Director, National Ocean Survey

Ref: (a) CO MT MITCHELL memorandum to Director, National Ocean  
Survey, Attn: C3312 dated September 29, 1972

The second paragraph of reference (a) requests that the  
tide data for the project listed above be forwarded to  
this ship.

Please send the requested data to: Director, Atlantic  
Marine Center, Attn: CAM22.



Edwin K. McCaffrey





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

Date: September 29, 1972

Reply to  
Attention: Commanding Officer  
NOAA Ship MT MITCHELL

Subject: Descriptive Report Tide Data  
OPR-437, Coast of North and South Carolina

To: Director, National Ocean Survey

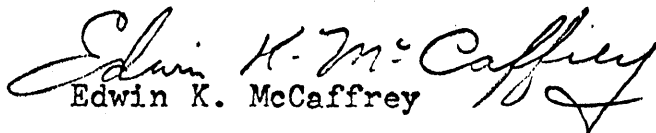
Attn: C3312

Encl: (1) C3312-233-NOAAD memorandum dated July 27, 1972

This ship has just completed Project OPR-437-MI-72, Coast of North and South Carolina. The reference tide gage is the pressure recording tide gage at Myrtle Beach, South Carolina.

It is requested that Tides: Hourly Heights data for the period July 26, 1972 to September 24, 1972, using Greenwich Mean Time, be forwarded to this ship. This data is required to complete Descriptive Reports on five surveys.

The enclosure is forwarded for possible use in computing the requested data.

  
Edwin K. McCaffrey

## Boatsheet MI-20-2-72

H-9290

## Actual Times of Hydrography

Launch MI-3

<u>Date</u> <u>(1972)</u>	<u>Julian</u> <u>Day</u>	<u>Start Time</u> <u>(GMT)</u>	<u>End Time</u> <u>(GMT)</u>
Jul. 29	211	144800	192630
Jul. 30	212	125230	154800
Aug. 1	214	125100	192620
Sep. 10	254	165700	194530
Sep. 11	255	130200	164030
Sep. 13	257	162700	195400
Sep. 14	258	125200	185700
Sep. 21	265	135200	173730

Launch MI-4

Sep. 11	255	135500	193420
Sep. 13	257	133000	134200

Launch MI-5

Jul. 27	209	141108	195025
Jul. 28	210	145356	181500
Jul. 29	211	140131	194000
Jul. 30	212	132927	161500
Jul. 31	213	180307	181737
Aug. 1	214	140042	195746
Aug. 2	215	124934	200144
Aug. 25	238	130242	193810
Aug. 26	239	125518	193413
Sep. 13	257	140030	200400
Sep. 14	258	125330	170930

Launch MI-6

Jul. 28	210	131031	155320
Jul. 31	213	194817	200842
Aug. 2	215	130538	191123
Sep. 10	254	171101	193058
Sep. 22	266	192138	202358

Boatsheet MI-20-2-72

H-9290

Actual Times of Hydrography

NOAA Ship MT MITCHELL (MSS-22)

<u>Date</u> (1972)	<u>Julian</u> <u>Day</u>	<u>Start Time</u> (GMT)	<u>End Time</u> (GMT)
Aug. 25	238	052738	235808
Aug. 26	239	001146	203830

South Carolina 1972

<u>Signal Number</u>	<u>N-Latitude Deg-Min-Sec</u>	<u>W-Longitude Deg-Min-Sec</u>	<u>Method of Location</u>	<u>Temporary or Recoverable</u>	<u>Additional Designation (Official or Unofficial)</u>
268	33 38 4904	078 55 3814	Traverse	Temp.	
280	33 39 1974	078 55 1364	"	"	
284	33 39 2567	078 55 0708	"	"	
300	33 39 4051	078 54 5149	"	"	
304	33 41 3854	078 52 2925	"	"	
308	33 43 4287	078 50 0281	"	"	
312	33 43 5193	078 49 5002	"	"	
316	33 44 0101	078 49 3719	"	"	
320	33 44 1021	078 49 2512	"	"	
324	33 44 1670	078 49 1659	"	"	
328	33 44 2398	078 49 0592	"	"	
332	33 44 3464	078 48 5030	"	"	
336	33 44 4297	078 48 3718	"	"	
340	33 44 5045	078 48 2614	"	"	
344	33 44 5781	078 48 1530	"	"	
348	33 45 0582	078 48 0350	"	"	
352	33 45 1380	078 47 5175	"	"	
354	33 45 2443	078 47 3503	"	"	
360	33 45 3288	078 47 2175	"	"	
364	33 45 4045	078 47 1006	"	"	
372	33 45 5876	078 46 4204	"	"	
376	33 46 0542	078 46 2915	"	"	
378	33 46 1585	078 46 1110	"	"	
384	33 46 2238	078 45 5898	"	"	
388	33 46 2878	078 45 4728	"	"	
392	33 46 3565	078 45 3510	"	"	
396	33 46 4245	078 45 2305	"	"	
400	33 46 4992	078 45 0982	"	"	
404	33 46 5678	078 44 5769	"	"	

<u>Signal Number</u>	<u>N-Latitude Deg-Min-Sec</u>	<u>W-Longitude Deg-Min-Sec</u>	<u>Method of Location</u>	<u>Temporary or Recoverable</u>	<u>Additional Designation (Official or Unofficial)</u>
408	33 47 0280	078 44 4722	Traverse	Temp.	
412	33 47 0778	078 44 3858	"	"	
416	33 47 1546	078 44 2646	"	"	
420	33 47 1865	078 43 5878	"	"	
800	33 31 2009	078 53 1689	Intersection	Recv.	White Spire with Black Bottom (unoff)
802	33 41 3189	078 52 5811	"	"	Space Needle (unoff)
804	33 42 1011	078 52 3944	"	"	Eliptical Water Tank (unoff)
806	33 42 1307	078 52 3623	Photo-Pos.	"	Micro-Wave Mast (unoff)
808	33 43 0272	078 51 3591	"	"	Water Tank (unoff)
904	33 39 2571	078 56 4250	3rd Ord. Tri.	"	Myrtle Beach AFB Water Tank No. 1160 (off)
(2906 4)	33 40 0725	078 56 2038	"	"	Airport Beacon, Myrtle Beach AFB (off)
908	33 40 0725	078 56 2039	"	"	Myrtle Beach AFB Water Tank No. 224 (off)
910	33 40 4268	078 54 0964	"	"	Myrtle Beach South Municipal Water Tank (off)
914	33 41 4752	078 53 0364	"	"	Myrtle Beach Center Municipal Water Tank (off)
916	33 42 3238	078 51 5956	"	"	Myrtle Beach North Municipal Water Tank (off)
918	33 42 3865	078 52 0501	"	"	Myrtle Beach Radio Station WYMB (off)
920	33 43 0156	078 52 3754	"	"	Myrtle Beach T.V. Cable Co. Mast (off)
922	33 43 3594	078 50 3159	"	"	Myrtle Beach Hotel Water Tank (off)
924	33 43 4387	078 50 0627	"	"	Ocean Forest Hotel Beacon (off)
926	33 46 1253	078 47 1951	Intersection	"	Singleton Swash Tank (unoff)

<u>Signal Number</u>	<u>N-Latitude Deg-Min-Sec</u>	<u>W-Longitude Deg-Min-Sec</u>	<u>Method of Location</u>	<u>Temporary or Recoverable</u>	<u>Additional Designation (Official or Unofficial)</u>
928	33 48 3344	078 42 1802	3rd Ord.Tri.	Recv.	Crescent Beach Municipal Water Tank (off)
930	33 49 1707	078 40 2184	" "	"	Ocean Drive Beach Municipal Water Tank (off)
932	33 36 4852	078 58 4219	Intersection	"	Surfside Beach Tank (unoff)
934	33 40 2294	078 54 0338	"	"	Yellow Construction Elev., South (unoff)
936	33 40 4620	078 53 3454	"	"	Holiday Motel,Northerly Offshore Corner (unoff)
938	33 41 0157	078 53 1063	"	"	Small Light House on Southerly Pier in Myrtle Beach (unoff)
940	33 41 5623	078 53 0998	"	"	General Telephone Co. Micro-Wave Tower (unoff)
942	33 41 4813	078 52 4140	"	"	White Church Spire (unoff)
944	33 41 2279	078 52 5371	"	"	Offshore Gabeled End of Dormered Bldg. (unoff)
946	33 41 2880	078 52 4721	"	"	Offshore Edge of Pavillion Sign (unoff)
948	33 41 3753	078 52 3919	"	"	Elevator Shaft on Motel (unoff)
950	33 42 0798	078 52 0528	"	"	Yellow Construction Elev., North (unoff)
952	33 47 5907	078 43 4298	"	"	Windy Hill Tank (unoff)
954	33 49 5788	078 38 1650	"	"	Cherry Grove Tank (unoff)
998	33 39 3320	078 55 0095	3rd Order Traverse	"	Hi-Fix Station, Slave # 2 Antenna (unoff)







OPR-437

Position Data Sheet

Launch MI-5	BOATSHEET MI-20-2-72										REGISTRY NO. H-9290		
1972 Jul Day	Pos No	Time (GMT)	Pos No	Time (GMT)	Detached Position Shoreline	Detached Position Pole	Detached Position Hand Lead	REJECTED POSITIONS	DUPLICATE POSITIONS	OMITTED POSITIONS	Bottom Sample		
209	3000	141108	3066	195025				3000, 3016-3017 3037-3039 3067-3082					
210	3067	145356	3086	181500			Echo Sndg. 3083-3086				4		
211	3087	140131	3121	194000			Echo Sndg. 3119-3121	3118			3		
212	3122	132927	3138	161500			Echo Sndg. 3127-3138				12		
213	3139	180307	3142	181737				3142					
214	3143	140042	3200	195746				3162, 3168-3169					
215	3201	124934	3292	200144									
238	3293	130242	3379	193810									
239	3380	125518	3426	193413			Echo Sndg. 3406-3426				21		
257	3427	140030	3554	200400									
258	3555	125330	3636	170930									





NOAA Ship MT MITCHELL (MSS-22)

Boatsheet MI-20-2-72		TRA Correction Abstract				Registry Number H-9290				
Jul Day	Date 1972	Boat No.	Vol No.	To		Velocity Table	Instr. Corr.	Initial Squat Corr.	Settlement & Squat Corr.	TRA Corr.
				Time GMT	Time GMT					
		2223					+1.8	0.0	0.0	+1.8
		Corrections apply to entire survey								
		2224					+1.8	0.0	+0.3	+2.1
		Corrections apply to entire survey								
		2225					+2.0	0.0	+0.6**	+2.6
		Corrections apply to entire survey								
		**At the end of Days 210-211-212-239 Bottom Samples were taken and Settlement & Squat Correction is 0.								
210	7-28	2226	2	131031	135219	06	+2.6	0.0	+0.1	+2.7
(S)		2226	2	143043	155320	06	+2.6	0.0	+0.6	+3.2
213	7-31	2226	2	194817	200842	06	+2.6	0.0	+0.3	+2.9
215	8-2	2226	2	130538	191123	06	+2.6	0.0	+0.5	+3.1
254	9-10	2226	2	171101	193058	06	+2.6	0.0	0.000	+2.6
		Bottom Samples all day								
266	9-22	2226	2	192138	202358	06	+2.6	0.0	+0.2	+2.8
		Corrections apply to entire survey								
		2220					-0.5 +14.0	0.0	+0.8	+14.3
		Corrections apply to entire survey								

## Boatsheet MI-20-2-72

H-9290

Abstract of Hi-Fix Lane CorrectorsNOAA Ship MT MITCHELL (MSS-22)

<u>Julian Day</u>	<u>Time (GMT)</u>		<u>P1 Corr.</u>	<u>P2 Corr.</u>
	<u>From</u>	<u>To</u>		
238	052738	125821	-0.07	-0.28
	125822	235959	-0.11	-0.18
239	000000	202649	-0.11	-0.18
	202650	235959	-0.13	-1.48
<u>Hyper-Visual</u>		<u>Launch MI-3</u>		
211	144800	235959	-----	+0.70
212	125230	235959	-----	-0.17
214	125100	235959	-----	-0.01
254	165700	235959	-----	+0.65
255	130200	235959	-----	-0.34
257	162700	235959	-----	+0.62
258	125200	160330	-----	-0.29
<u>Hyperbolic</u>				
258	171000	235959	-0.12	-0.30
<u>Hyper-Visual</u>				
265	135200	235959	-----	+0.14
<u>Hyper-Visual</u>		<u>Launch MI-4</u>		
255	135500	235959	-----	-0.43
257	133000	235959	-----	-0.32
<u>Hyperbolic</u>				
209	141108	170202	-0.63	+2.00
	170203	182718	-0.63	+4.00
	182719	235959	-0.63	+8.00

## Boatsheet MI-20-2-72 H-9290

## Abstract of Hi-Fix Lane Correctors (continued)

Launch MI-5 (Hyperbolic)

<u>Julian Day</u>	<u>Time (GMT)</u>		<u>P1 Corr.</u>	<u>P2 Corr.</u>
	<u>From</u>	<u>To</u>		
211	140131	180318	-0.64	-0.15
	180319	235959	+0.29	-0.34
212	132927	235959	+0.36	-0.06
213	180307	235959	+0.34	+0.85
214	140042	152450	+0.35	+0.03
	152451	181517	-0.65	+0.03
	181518	235959	+0.35	+1.03
215	124934	235959	+0.33	-0.01
238	130242	235959	-0.16	-0.35
239	125518	150528	-0.16	-0.25
	150529	235959	-0.13	-0.42

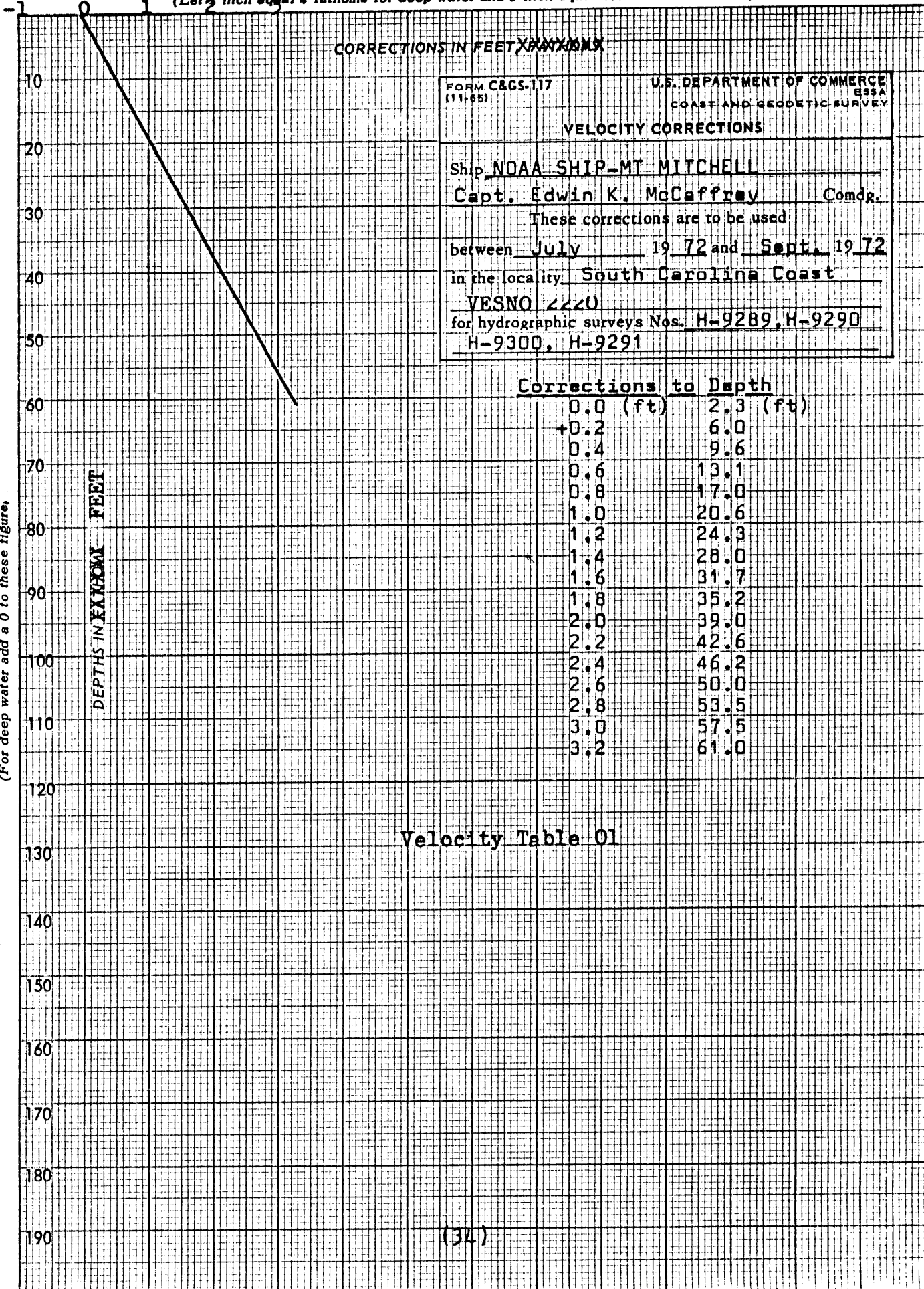
Hyper-Visual

257	140030	235959	-----	-0.36
258	125330	235959	-----	-0.32

Launch MI-6Hyperbolic

210	131031	133312	+0.25	+0.16
	133313	235959	+1.25	+0.16
213	194817	235959	-0.36	-0.64
215	130538	153131	+0.36	+0.10
	153132	235959	+0.32	+0.02
254	171101	235959	-0.26	-0.23
2656	192128	235959	+0.32	+0.61

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



CORRECTIONS IN FEET

FORM C&GS-117 (11-65) U.S. DEPARTMENT OF COMMERCE ESSA COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship NOAA SHIP-MT MITCHELL  
 Capt. Edwin K. McCaffray Comdr.  
 These corrections are to be used  
 between July 19 72 and Sept. 19 72  
 in the locality South Carolina Coast  
VESNO 2220  
 for hydrographic surveys Nos. H-9289, H-9290  
H-9300, H-9291

Corrections to Depth

0.0 (ft)	2.3 (ft)
+0.2	6.0
0.4	9.6
0.6	13.1
0.8	17.0
1.0	20.6
1.2	24.3
1.4	28.0
1.6	31.7
1.8	35.2
2.0	39.0
2.2	42.6
2.4	46.2
2.6	50.0
2.8	53.5
3.0	57.5
3.2	61.0

(For deep water add a 0 to these figures.)

DEPTH IN FEET

Velocity Table 01

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

CORRECTIONS IN FEET, ~~XXXXXX~~

FORM C&GS-117 (11-65)	U.S. DEPARTMENT OF COMMERCE ESSA COAST AND GEODETIC SURVEY
VELOCITY CORRECTIONS	
Ship <u>NOAA SHIP - MT MITCHELL</u>	
Capt. <u>Edwin K. McCaffrey</u> Comdg.	
These corrections are to be used	
between <u>July</u> 19 <u>72</u> and <u>Sept.</u> 19 <u>72</u>	
in the locality <u>South Carolina Coast</u>	
<u>Launch MI-2223</u>	
for hydrographic surveys Nos. <u>H-9289, H-9290</u>	
<u>H-9314</u>	

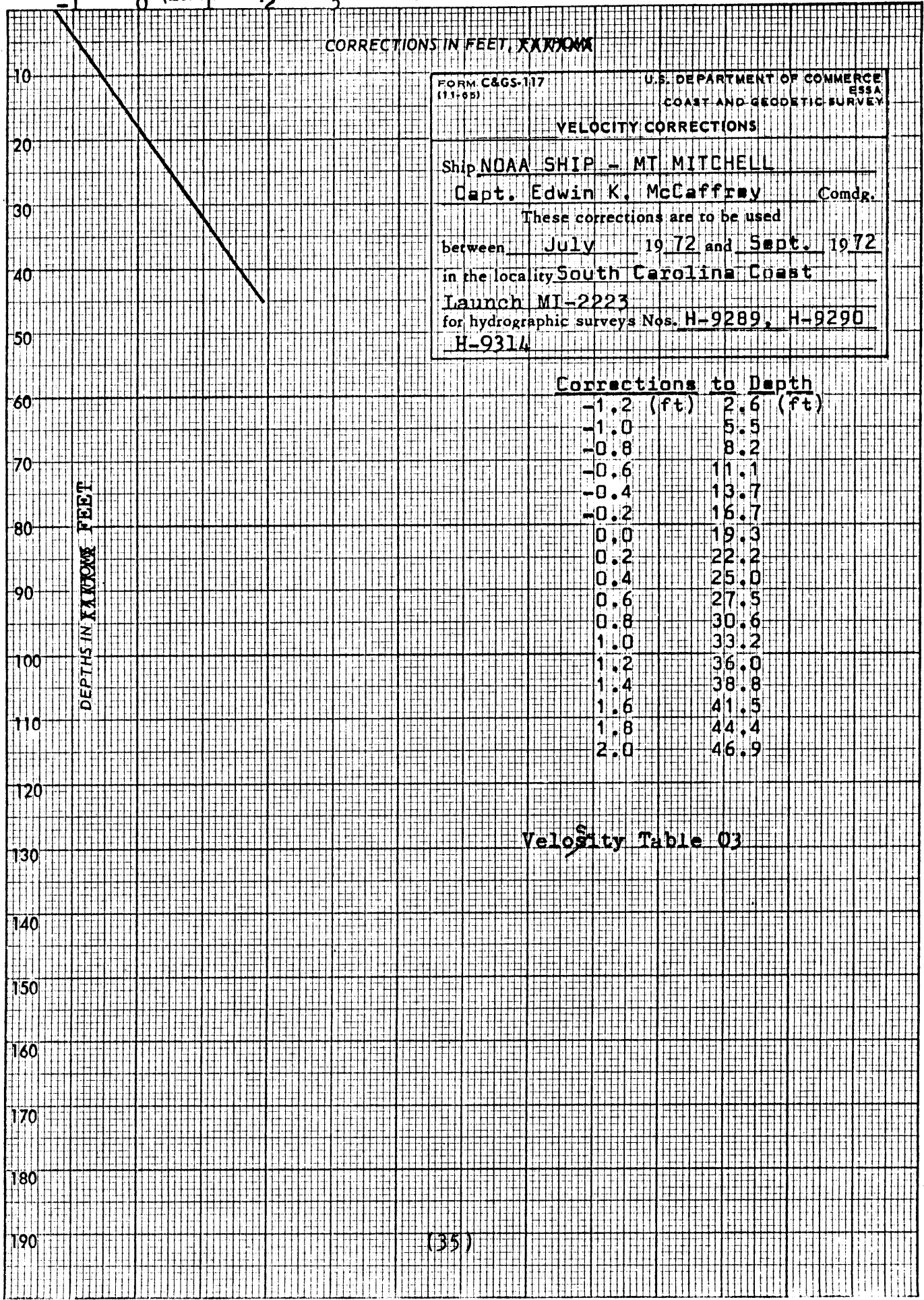
Corrections to Depth

-1.2 (ft)	2.6 (ft)
-1.0	5.5
-0.8	8.2
-0.6	11.1
-0.4	13.7
-0.2	16.7
0.0	19.3
0.2	22.2
0.4	25.0
0.6	27.5
0.8	30.6
1.0	33.2
1.2	36.0
1.4	38.8
1.6	41.5
1.8	44.4
2.0	46.9

Velocity Table 03

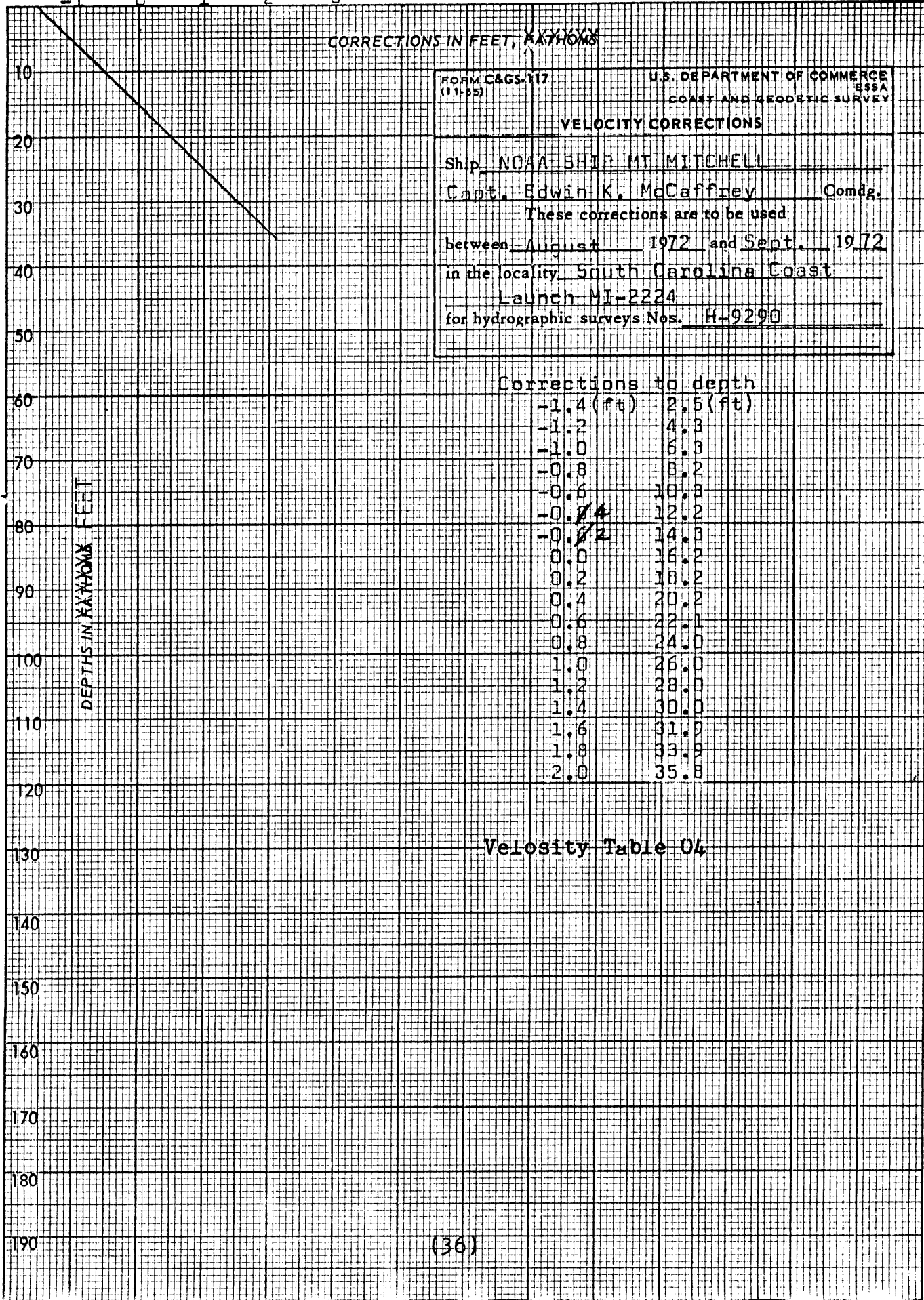
(For deep water add a 0 to these figures)

DEPTHS IN ~~XXXXXX~~ FEET





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



(For deep water add a 0 to these figures.)

DEPTHS IN FATHOMS FEET

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

CORRECTIONS IN FEET, XXXXXX

(For deep water add a 0 to these figure

DEPTHS IN XXXXXX FEET

FORM C&GS-117 (11-65)	U.S. DEPARTMENT OF COMMERCE ESSA COAST AND GEODETIC SURVEY
<b>VELOCITY CORRECTIONS</b>	
Ship <u>NOAA SHIP MT MITCHELL</u>	
Capt. <u>Edwin K. McCaffrey</u> Comdg.	
These corrections are to be used	
between <u>July</u> 19 <u>72</u> and <u>Sept.</u> 19 <u>72</u>	
in the locality <u>South Carolina Coast</u>	
Launch <u>2225</u>	
for hydrographic surveys Nos. <u>H-9289, H-9290</u>	
<u>H-9314</u>	

Corrections to depth

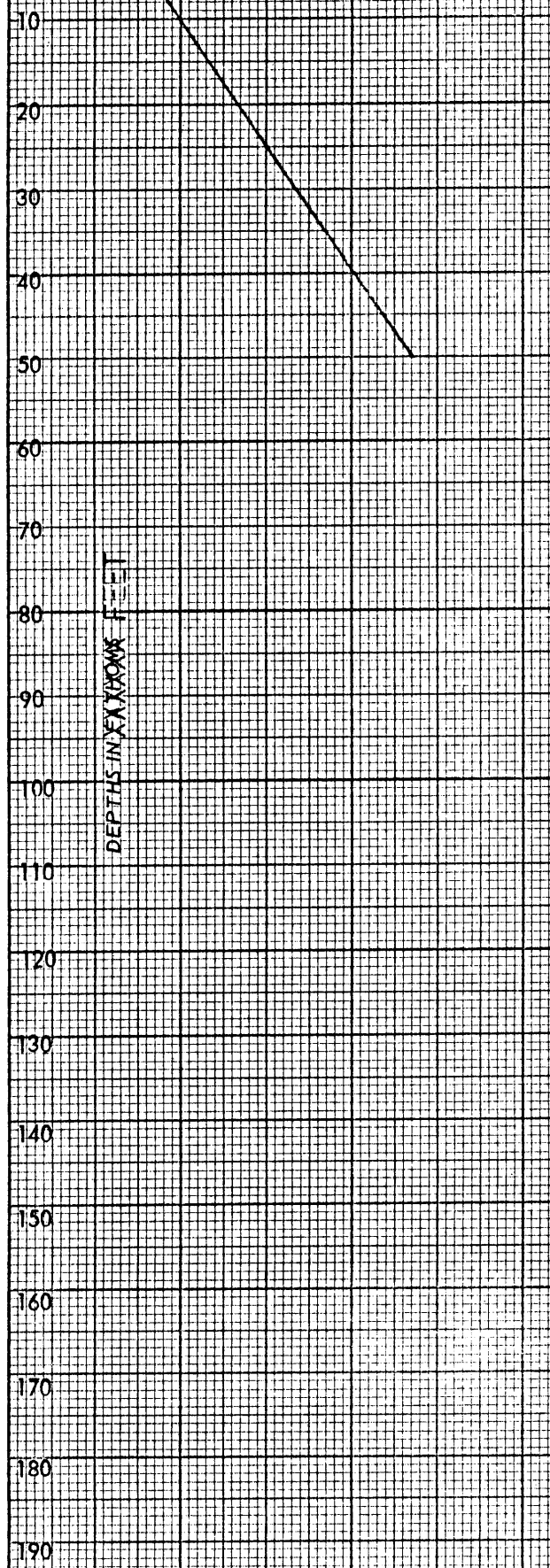
-0.6(ft)	1.9(ft)
-0.4	4.4
-0.2	7.2
0.0	9.7
0.2	12.3
0.4	14.9
0.6	17.5
0.8	20.1
1.0	22.8
1.2	25.4
1.4	28.0
1.6	30.5
1.8	33.3
2.0	36.0
2.2	38.5
2.4	41.3
2.6	44.0
2.8	46.7
3.0	49.0

Velocity Table 05

KEUFFEL & ESSER CO.

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

CORRECTIONS IN FEET, FATHOMS



FORM C&GS-117 (11-65) U.S. DEPARTMENT OF COMMERCE ESSA COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship NOAA SHIP MT MITCHELL  
 Capt. Edwin K. McCaffrey Comdg.  
 These corrections are to be used  
 between July 19 72 and Sept. 1972  
 in the locality South Carolina Coast  
 Launch MI-2226  
 for hydrographic surveys Nos. H-9289, H-9290  
H-9291, H-9300

Corrections to depth

-0.6 (ft)	2.9 (ft)
-0.4	3.9
-0.2	6.7
0.0	11.7
0.2	14.6
0.4	17.4
0.6	20.6
0.8	23.4
1.0	26.4
1.2	29.3
1.4	32.3
1.6	35.1
1.8	38.0
2.0	41.0
2.2	44.0
2.4	47.0

(For deep water add a 0 to these figs)

Velocity Table 06

Boatsheet MI-20-2-72

H-9290

TC/II Tape

All Vessels

052738	0	0000	0001	238	222000	009290
235959	0	0000	0001	239	222000	009290
144800	0	0000	0003	211	222300	009290
185800	0	0000	0000	211	222300	009290
125230	0	0000	0003	212	222300	009290
235959	0	0000	0003	265	222300	009290
135500	0	0000	0004	255	222400	009290
235959	0	0000	0004	257	222400	009290
141108	0	0000	0005	209	222500	009290
235959	0	0000	0005	258	222500	009290
131031	0	0000	0006	210	222600	009290
235959	0	0000	0006	266	222600	009290

Settlement and Squat Abstract

Launch MI-3

Both Engines

July 25, 1972

Transducer Draft = 1.8 feet

Rod Readings (corrected for tide)

<u>RPMS</u>	<u>Pass#1</u>	<u>Pass#2</u>	<u>Pass#3</u>	<u>Mean</u>	<u>Corr.</u>
*DIW	8.38	8.41	8.35	8.38	0.0
1500	8.48	8.50	----	8.49	+0.1
2000	8.52	8.54	----	8.53	+0.1
2500	8.52	8.49	----	8.51	+0.1
3000	8.43	8.40	8.42	8.42	0.0

Launch MI-4

Both Engines

September 18, 1972

Transducer Draft = 1.8 feet

*DIW	6.37	6.36	6.36	6.36	0.0
1500	6.51	6.48	----	6.50	+0.1
2000	6.53	6.64	----	6.58	+0.2
2300	6.68	6.66	----	6.67	+0.3

Launch MI-6

One Engine

September 18, 1972

Transducer Draft = 2.6 feet

*DIW	5.48	5.45	5.44	5.46	0.0
1200	5.83	5.68	----	5.75	+0.3
1500	5.92	5.87	----	5.89	+0.4
1800	6.24	6.16	----	6.20	+0.7
2000	6.07	6.07	----	6.07	+0.6
**Full	6.12	6.21	----	6.16	+0.7

\*\*2650 (starboard)

Launch MI-6

Both Engines

February 9, 1972

Transducer Draft = 2.6 feet

*DIW	7.30	7.30	7.30	7.30	0.0
1000	7.45	7.50	7.40	7.45	+0.1
1500	7.60	7.75	7.60	7.65	+0.3
1800	7.80	7.80	7.80	7.80	+0.5
2000	7.85	7.80	7.80	7.80	+0.5
2500	7.45	7.40	7.40	7.40	+0.1
**Full	7.15	7.15	7.00	7.15	-0.1
**3000 (port)					
2600 (starboard)					

\*Dead in Water

(40)

Settlement and Squat Abstract

Launch MI-5 (single engine boat)

February 14, 1972

Transducer Draft = 2.0 feet

Rod Readings (corrected for tide)

<u>RPMS</u>	<u>Pass#1</u>	<u>Pass#2</u>	<u>Pass#3</u>	<u>Mean</u>	<u>Corr.</u>
*DIW	6.05	6.00	6.05	6.05	0.0
1000	6.15	6.15	6.10	6.15	+0.1
1500	6.30	6.27	6.30	6.30	+0.2
2000	6.65	6.65	6.60	6.65	+0.6

\*DIW = Dead in Water



Settlement and Squat Abstract

NOAA Ship MT MITCHELL (MSS-22)

Excerpt from Commanding Officer, MT MITCHELL memorandum dated October 29, 1969, "Skeg Transducer Performance".

Another item of interest was the settlement and squat determination. This was run in 52 feet of water, calm with only a slight swell and the data is well within the limits of  $\frac{1}{2}$  foot accuracy. We had a full load of fuel and the draft was 13.8 feet stern, 14.0 feet midships at dockside just before the determination.

Results were:

	<u>Standard Speed</u> 175 RPM	<u>Half Speed</u> 105 RPM
Skeg Transducer	0.8 feet	0.1 feet
Mid-ships Transducer	1.4 feet	0.6 feet

This bears out the past eyeball observations that the MT MITCHELL goes down by the bow considerably when underway. Fuel is always used from the forward tanks first to combat this situation.

Linear Interpolation Graph Abstract

<u>Mid-ships Transducer</u>					
<u>RPM</u>	<u>Correction</u>	<u>RPM</u>	<u>Correction</u>	<u>RPM</u>	<u>Correction</u>
105	----- +0.6	130	----- +0.9	155	----- +1.2
110	----- +0.6	135	----- +0.9	160	----- +1.2
115	----- +0.7	140	----- +1.0	165	----- +1.3
120	----- +0.8	145	----- +1.1	170	----- +1.3
125	----- +0.8	150	----- +1.1	175	----- +1.4

Skeg Transducer

105	----- +0.1	130	----- +0.3	155	----- +0.6
110	----- +0.1	135	----- +0.4	160	----- +0.6
115	----- +0.2	140	----- +0.4	165	----- +0.7
120	----- +0.2	145	----- +0.5	170	----- +0.7
125	----- +0.3	150	----- +0.5	175	----- +0.8

NOAA Ship MT MITCHELL (MSS-22)  
Anchored off Crescent Beach, South Carolina  
September 19, 1972

Ship's Draft=14.1'(aft)

Ross Echo Sounder  
Serial Number 1052  
(Skeg Transducer)

Vertical Cast

Cast No.	Leadline Depth	Digital Depth	Graphic Depth	
1	35.0	17.6	18.5	Reject
2	33.0	17.9	18.5	
3	33.2	18.1	18.5	
4	33.2	18.2	18.3	
5	33.4	17.9	18.4	
6	33.2	18.3	18.4	
7	33.0	18.1	18.5	
8	33.0	18.2	18.5	
9	33.2	18.3	18.5	
10	33.4	17.7	18.5	Reject
11	33.2	18.3	18.5	
Total = 298.4		Total = 163.3	Total = 166.1	
Mean = 33.15		Mean = 18.14	Mean = 18.45	

Tape - Leadline Comparison

Tape	LL	Tape	LL	Mean Leadline Depth	Graphic Depth
5.0	5.00	35.0	34.85	= 33.15'	
10.0	9.97	40.0	39.85	Leadline Corr. = - 0.15'	
15.0	14.95	45.0	44.80	Corr. Leadline Depth = 33.00'	
20.0	19.90	50.0	49.80		
25.0	24.90	55.0	54.75		
30.0	29.85	60.0	59.75		

18.14' = Mean Digital Depth  
+ 0.92' = Velocity Correction for 18.45'  
19.06' = Corrected Digital Depth  
14.10' = Transducer Depth  
33.16' = Corrected Mean Digital Depth to Waterline  
33.00' = Corrected Mean Leadline Depth  
- 0.16' = Instrument Error for Digitizer

18.45' = Mean Graphic Depth  
+ 0.92' = Velocity Correction for 18.45'  
19.37' = Corrected Graphic Depth  
14.10' = Transducer Depth  
33.47' = Corrected Mean Graphic Depth to Waterline  
33.00' = Corrected Mean Leadline Depth  
- 0.47' = Instrument Error for Ross Echo Sounder #1052



NOAA Ship MT MITCHELL (MSS-22)

Abstract of Ship MT MITCHELL Draft (from linear interpolation)

<u>Date</u> <u>(1972)</u>	<u>Draft</u> <u>(Ft&amp;In)</u>
8-28-72 -----	14'00"
8-29-72 -----	13'10"
8-30-72 -----	13'08"
8-31-72 -----	13'05"
9- 1-72 -----	13'03"
9- 6-72 -----	13'00"
9- 7-72 -----	13'02"
9- 8-72 -----	13'03"
9- 9-72 -----	13'05"
9-10-72 -----	13'06"
9-11-72 -----	13'08"
9-12-72 -----	13'09"
9-13-72 -----	13'08"
9-14-72 -----	13'07"
9-15-72 -----	13'06"
9-19-72 -----	14'04"
9-20-72 -----	14'02"
9-21-72 -----	14'00"
9-22-72 -----	13'11"
9-23-72 -----	13'09"

FORM C&GS-733M (6-66) U.S. DEPARTMENT OF COMMERCE  
 OCEANOGRAPHIC LOG SHEET - M COAST AND GEODETIC SURVEY  
 BOTTOM SEDIMENT DATA Boatsheet MI-20-2-72 H-9290

SERIAL NO.	DATE (1972)	SAMPLE POSITION		DEPTH (feet)	WEIGHT OF SAM- PLER	AP- PROX. PENE- TRA- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	REMARKS  (Unusual conditions, cohesiveness, dented cutler, stat. no., type of bottom relief, etc.)	OBS. INIT.
		North Longitude	West Latitude								
VESSEL <b>NOAA Ship MT MITCHELL</b> PROJ. NO. <b>OPR-437</b> YEAR <b>1972</b> <b>Coast of North and South Carolina</b> CHECKED BY <b>T. McConnell, CST</b> DATE CHECKED <b>date obtained</b>											
1	July 28	39.8'	53.9'	27	14	NA	NA	brown	ers br S brk Sh	Pos. No. 3083	FL
2	28	40.6'	52.9'	25				brown	ers br S brk Sh	Pos. No. 3084	FL
3	28	42.2'	51.1'	27				gray	fne gy S Sh	Pos. No. 3085	FL
4	28	43.2'	49.6'	27					Sh	Pos. No. 3086	FL
5	29	42.5'	48.8'	29				brown	fne dk br S brk Sh	Pos. No. 3119	FL
6	29	42.9'	47.9'	29				----	brk Sh	Pos. No. 3120	FL
(45) 7	29	41.8'	48.2'	31				----	brk Sh	Pos. No. 3121	EM
8	29	42.6'	50.8'	24				brown	fne dk br S brk Sh	Pos. No. 6043	EM
9	29	42.6'	49.5'	29				----	brk Sh	Pos. No. 6044	EM
10	29	41.3'	50.8'	26				brown	ers br S brk Sh	Pos. No. 6045	EM
11	30	40.6'	50.3'	32				brown	fne dk br S brk Sh	Pos. No. 3127	EM
12	30	39.7'	50.3'	34				brown	ers br S brk Sh	Pos. No. 3128	EM
13	30	39.6'	51.2'	31				brown	fne dk br S brk Sh	Pos. No. 3129	FL
14	30	39.6'	52.2'	31				brown	fne dk br S brk Sh	Pos. No. 3130	FL
15	30	39.7'	52.9'	30				brown	ers br S brk Sh St	Pos. No. 3131	FL
16	30	40.3'	53.4'	26				brown	ers br S brk Sh St	Pos. No. 3132	FL
17	30	40.4	52.1	31				brown	fne dk br S brk Sh	Pos. No. 3133	FL

FORM C&GS-733M (6-66)		OCEANOGRAPHIC LOG SHEET - M BOTTOM SEDIMENT DATA										U.S. DEPARTMENT OF COMMERCE ESSA COAST AND GEODETIC SURVEY	
VESSEL NOAA Ship MT MITCHELL		PROJECT NO. OPR-437-MI-72		YEAR 1972		LOCATION Coast of North & South Carolina		CHECKED BY T.J. McConnell		BOAT SHEET MI-20-2-72		H-9290	
SERIAL NO.	DATE (1972)	SAMPLE POSITION		DEPTH feet	WEIGHT OF SAM- PLER	AP. PROX. PEN- TRA- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	REMARKS  (Unusual conditions, cohesiveness, deformed cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.	DATE CHECKED	
		North Lat 33	West Long 78									date obtained	
18	July 30	40.4'	51.2'	32.0	14.1b	NA	NA	brown	fne lt br S Sh St	Pos. No. 3134			FL
19	30	40.5'	49.6'	34.0				brown	fne dk br S brk Sh	Pos. No. 3135			FL
20	30	40.4'	48.5'	36.0				----	Sh St	Pos. No. 3136			FL
21	30	41.2'	48.7'	32.0				brown	fne lt br S brk Sh	Pos. No. 3137			FL
22	30	41.5'	49.5'	34.0				----	Sh	Pos. No. 3138			FL
23	August 26	41.4'	52.0	27.8				green	crs gn S Sh	Pos. No. 3406			PS
24	26	41.0'	51.2'	29.8				----	Sh	Pos. No. 3407			PS
25	26	39.7'	49.4'	35.6				green	fne gn S Sh	Pos. No. 3408			PS
26	26	39.7'	48.4'	36.8				green	crs gn S Sh	Pos. No. 3409			PS
27	26	39.8'	47.5'	35.0				green	fne gn S Sh	Pos. No. 3410			PS
28	26	40.5'	47.6'	32.9				green	fne gn S brk Sh	Pos. No. 3411			PS
29	26	41.4'	47.5'	30.6				green	fne gn S brk Sh	Pos. No. 3412			PS
30	26	42.3'	47.4'	31.9				green	crs gn S Sh	Pos. No. 3413			PS
31	26	43.5'	48.5'	28.1				green	crs gn S Sh	Pos. No. 3414			PS
32	26	43.4'	47.6'	30.0				----	Spg Sh	Pos. No. 3415			PS
33	26	43.4'	46.5'	28.8				green	fne gn S Sh	Pos. No. 3416			PS
34	26	42.5'	46.6'	26.9				green	fne gn S Sh	Pos. No. 3417			PS

Use more than one line per sample if necessary.

SERIAL NO.	DATE (1972)	SAMPLE POSITION		DEPTH (feet)	WEIGHT OF SAM- PLER	AP- PROX. PEN- ETRA- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	REMARKS  (Unusual conditions, coherent veneers, denuded cutter, stat. no., type of bottom, relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
		North Latitude 33	West Longitude 78								
35	August 26	41.5	45.4	34.6				brown	crs br S Sh	Pos. No. 3418	PS
36	26	41.4	46.5	32.5				green	crs gn S Sh	Pos. No. 3419	PS
37	26	40.4	46.5	32.9				green	crs gn S Sh	Pos. No. 3420	PS
38	26	39.6	46.6	37.7				brown	fne br S Sh	Pos. No. 3421	PS
39	26	39.5	45.4	38.0				green	crs gn S Sh	Pos. No. 3422	PS
40	26	40.5	45.5	35.8				brown	fne br S Sh	Pos. No. 3423	PS
(47)	26	40.4	44.5	36.0				brown	fne br S Sh	Pos. No. 3424	PS
42	26	41.4	44.4	35.8				green	fne gn S Sh	Pos. No. 3425	PS
43	26	42.5	44.5	34.8				green	fne gn S Sh	Pos. No. 3426	PS
44	Sept. 10	39.4	44.5	41.8				green	fne gn S Sh	Pos. No. 0164	FL
45	10	39.4	43.5	42.0				-----	Sh St	Pos. No. 0167	FL
46	10	39.5	42.4	42.5				green	fne gn S Sh	Pos. No. 0168	FL
47	10	39.5	41.5	44.3				brown	fne br S Sh	Pos. No. 0170	FL
48	10	39.5	40.6	44.8				green	fne gn S Sh	Pos. No. 0171	FL
49	10	40.5	40.4	45.0				-----	Sh	Pos. No. 0172	FL
50	10	41.4	40.4	43.5				brown	fne br S Sh	Pos. No. 0173	FL
51	10	41.5	41.4	44.5				green	fne gn S Sh	Pos. No. 0174	FL

FORM C&GS-733M  
(6-66)

obtained using a snapper  
type sampler imbedded in  
a sounding lead

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

Boatsheet MI-20-2-72 H-9290

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

SERIAL NO.	DATE (1972)	SAMPLE POSITION		DEPTH ( <del>33.0</del> )	WEIGHT OF SAM- PLER	AP. PROX. PENE- TRATION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	REMARKS  (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
		North LATITUDE 33°	West LONGITUDE 78°								
	Sept. 10	40.51'	41.41'	44.8				brown	fne br S Sh	Pos. No. 0175	FL
52	10	40.41'	42.41'	42.8				brown	fne br S Sh	Pos. No. 0176	FL
53	10	41.41'	42.51'	38.8				brown	fne lt br S Sh	Pos. No. 0177	FL
54	10	42.41'	42.51'	41.8				green	fne gn S Sh	Pos. No. 0178	FL
55	10	42.41'	43.51'	36.8				brown	crs br S Sh	Pos. No. 0179	FL
56	10	41.51'	43.51'	38.8				brown	fne br S Sh	Pos. No. 0180	FL
57	10	40.41'	43.51'	42.3				brown	crs br S Sh	Pos. No. 0181	FL
58	10	45.61'	46.31'	30.2				green	dk gn M Sh	Pos. No. 6355	FL
59	13	44.71'	47.71'	29.2				-----	Sh	Pos. No. 6356	FL
60	13	44.61'	46.61'	35.8				green	fne gn S Sh	Pos. No. 6357	FL
61	13	44.41'	45.41'	35.2				green	fne gn S Sh	Pos. No. 6358	FL
62	13	43.61'	45.41'	36.2				green	fne gn S Sh	Pos. No. 6359	FL
63	13	42.41'	45.41'	35.3				brown	fne br S Sh	Pos. No. 6360	FL
64	13	43.61'	44.51'	36.5				green	fne gn S Sh	Pos. No. 6361	FL
65	13	44.61'	44.61'	33.2				green	fne gn S Sh	Pos. No. 6362	FL
66	13	45.51'	45.51'	32.5				green	fne gn S Sh	Pos. No. 6363	FL
67	13	46.51'	45.01'	24.5				green	dk gn gty M Sh	Pos. No. 6364 traces of oil	FL
68	13										FL

Use more than one line per sample if necessary.

USCOMM-DC 37019-P66

CHECKED BY  
T.J. McConnell

Coast of North & South Carolina

YEAR  
1972

DATE OBTAINED

using a snapper type  
sampler imbedded in  
a sounding lead

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

SERIAL NO.	DATE (1972)	SAMPLE POSITION		DEPTH feet	WEIGHT OF SAMPLER	AP- PROX. PENETRA- TION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS  (Unusual conditions, cohesiveness, deformed cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
		North LATITUDE 33°	West LONGITUDE 78°								
69	Sept. 13	45.8'	44.4'	32.7	14 lb	NA	NA	-----	Sh	Pos. No. 6365	FL
70	14	43.5'	43.5'	37.8				brown	fne br S Sh	Pos. No. 6433	JM
71	14	43.5'	42.5'	41.8				-----	Sh St	Pos. No. 6434	JM
72	14	43.5'	41.5'	43.8				gray	fne gy S Sh	Pos. No. 6435	JM
73	14	42.5'	41.5'	46.0				brown	fne br S Sh	Pos. No. 6436	JM
74	14	42.5'	40.5'	47.8				-----	Sh	Pos. No. 6437	JM
75	14	43.5'	40.5'	42.0				-----	Sh	Pos. No. 6438	JM
76	14	44.5'	40.5'	40.8				brown	fne br S Sh	Pos. No. 6439	JM
77	14	44.6'	41.6'	41.5				green	fne gn S Sh	Pos. No. 6440	JM
78	14	44.5'	42.6'	39.8				green	fne gn S Sh	Pos. No. 6441	JM
79	14	44.5'	43.5'	38.8				green	fne gn S Sh	Pos. No. 6442	JM
80	14	45.3'	43.0'	39.8				green	fne gn S Sh	Pos. No. 6443	JM
81	14	45.4'	41.5'	40.0				green	fne gn S Sh	Pos. No. 6444	JM
82	14	45.5'	40.5'	40.8				-----	Sh St	Pos. No. 6445	JM

CHECKED BY  
T.J. McConnell

DATE CHECKED  
date obtained

Coast of North & South Carolina

PRJ. NO.  
OPR-437-MI-72

YEAR  
1972

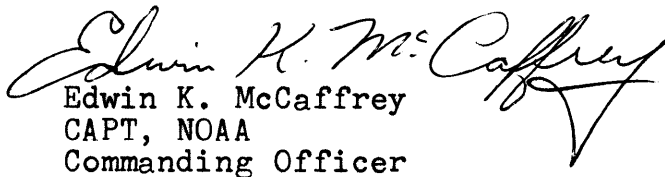
Approval Sheet

Field Number MI-20-2-72

Registry Number H-9290

The field work and processing of data from this hydrographic survey was under my immediate daily supervision. The boat sheet and all records have been reviewed and are approved by me.

This survey is complete, within the limits of the hydrography, and adequate to supersede all prior surveys of the area.

  
Edwin K. McCaffrey  
CAPT, NOAA  
Commanding Officer

7/17/73

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center

Hourly heights are approved for Long Beach, N.C.

Tide Station Used (NOAA form 77-12): Myrtle Beach, S.C.  
Year 1972

Period: March 28-May 4, 1971

HYDROGRAPHIC SHEET: H-9229 . H-9230 H-9260 H-9289 H-9290

OPR: 437

Locality: Coast of South Carolina

Plane of reference (mean ~~lower~~ low water): Long Beach 4.0 ft.  
Myrtle Beach ~~4.6~~ ft.

Height of Mean High Water above Plane of Reference is  
Long Beach 4.8 ft.  
Myrtle Beach 5.1 ft.

*8.4 - tele conv 8/10/73  
with Hubbard. WFT*

Remarks: Zoning

For year 1972 apply Myrtle Beach direct.

Recommend use of multiple gage zoning between Long Beach and Myrtle Beach during the period March 28-May 4, 1971.

*Myrtle Beach  
subtract from hourly heights*

*1970 4.6  
1971 8.4  
1972 7.6*

*Per instructions with Hubbard 8/10/73. A memo  
will follow. WFT*

*Robert A. Cummings*  
Chief, Tides Branch





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

Date: November 6, 1973

Reply to  
Attn of: C3311-89-SIP

Subject: Form 712 corrections to plane of reference

To: Director, Atlantic Marine Center, CAM221

Completed tidal summaries for Myrtle Beach, South Carolina indicate tabulations for 1971-1972 should be corrected to mean low water by subtracting 8.4 feet from 1971 hourly heights and 7.6 feet from 1972 values.

The corrections to plane of reference should be applied to Form 712, Hydrographic sheets H-9229, H-9230, H-9260, H-9289 and H-9290.

*C. I. Thurlow*

C. I. Thurlow  
Chief, Tidal Datum Planes Section  
Tides Branch  
Oceanographic Division

ATLANTIC MARINE CENTER  
 VERIFICATION OF SMOOTH TIDES

SURVEY H- 9290

PLANE OF REFERENCE MLW OR ~~MELW~~  
 TIME MERIDIAN GMT  
 HEIGHT DATUM ON STAFFS 1. 7.6 2. \_\_\_\_\_ 3. \_\_\_\_\_

TIDE STATIONS	POSITION	TYPE GAGE	TIME CORR.		HEIGHT CORR. *	
			H.W.	L.W.	H.W.	L.W.
1. Myrtle Beach S.CAR.	Ø Y	330 41.0 78° 53.1	0.0	0.0	0.0	0.0
2.	Ø Y					
3.	Ø Y					

HOURLY HRIGHTS  FROM ROCKVILLE OFFICE  
 FROM FIELD MARIGRAMS

VERIFIED BY: Rockville

TIDE ZONING  NOT APPLICABLE  
 BY COMPUTER  
 FROM TWO OR MORE GAGES

LIMITS AND DESCRIPTION OF ZONING METHODS

TIDE CORRECTIONS COMPILED  BY COMPUTER  
 MANUALLY

VERIFIED BY: GFT  
 VERIFIED BY: \_\_\_\_\_

HEIGHT OF MHW ABOVE PLANE OF REFERENCE 5.1

TIDE CORRECTIONS VERIFIED ON SOUNDING PRINTOUT BY: GFT

DATE OF VERIFICATION 12/3/73

\*OR RATIO

EXAMINED & APPROVED

*W. Jones*

Verifier:.. B.J.Stephenson

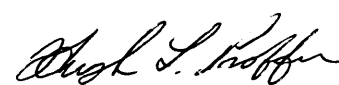
Norfolk, Va.  
Nov.10,1972

VERIFICATION BRANCH  
PLOTTER NOTE TO EDP.AMC.

SURVEY H-9290  
(MI-20-2-72) OPR 437

Prior to plotting this Branch checked the fathograms and printouts for this survey.  
The quality of the field scanning is considered excellent and no changes are necessary at this time.

WLJ



Hugh L. Proffitt  
Chief, Ver. Br. AMC

Verifier: E.J. Fields

July 3, 1973

VERIFICATION BRANCH  
PLOTTER NOTE TO EDP (AMC)  
SURVEY H-9290 (MI-20-2-72) OPR 437

This branch has completed the verification of the control overlay. There are nine signals that should be changed to triangulation stations. The cards for these changes have been punched and accompany this note.

After these changes are made please furnish this office with a position overlay.

*William L. Jonns*  
William L. Jonns  
Chief Ver. Br. (Acting)

Norfolk, Virginia  
October 29, 1973

Verifier Note to EDP (AMC)  
Survey - H-9290 (MI-20-2-72), OPR -437  
Verifier: F. L. Saunders

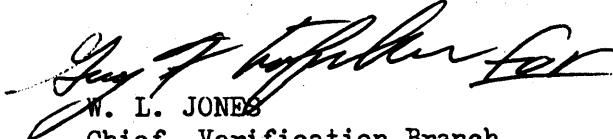
This branch has completed the verification of the preliminary position overlay for this survey. The corrections are in red on preliminary position printout and position overlay.

There were 13 positions that were deleted, due to unstable Hi-Fix or errors due to the operators.

There were 6 positions changed due to unstable Hi-Fix, or operators errors.

Cards have been punched to correct the above.

After these changes are made, please furnish this office with a sounding printout to check corrector.

  
W. L. JONES  
Chief, Verification Branch

NOTE TO EDP  
SURVEY - 9290  
OPR-437

Verifier G.F.Trefethen

12/4/73

This office has completed the verification of the preliminary print out made to check the Sdg,s corrector.

- 1 Tide correction checked ok.
- 2 Velocity corrections checked ok.
- 3 The TRA corrections are in Error from record no. 9073-11474 cards have been punched for these corrections.

After these corrections have been applied please furnish this branch with sdg,s O/L .



W.L. Johns  
CH. Ver. Br.

Verifier: Billy J. Stephenson

Norfolk, Virginia  
December 19, 1973

Verification Note to AMC-EDP  
Survey H-9290 (MI 20-2-72)

The personnel of this office have completed the verification of the sounding overlay for this survey. Correction cards have been punched and will accompany the printout. When the changes have been entered to the I&R files for this survey please furnish this office with the following:

1. Smooth Sheet with blue ball point projection lines and black tick marks liquid ink 10 MM long. Signal numbers moved as indicated:

904E 908E 910W 914W 916W 918W 920W 922W 924W 946W & 308N

2. Final position overlay with electronic arcs.

3. Revised excess overlay.

There were approximately 650 <sup>sounding & excess</sup> minor changes to this overlay.

WLJ/Bjs

*William L. Jonns*  
William L. Jonns  
Chief, Verification Branch

ATLANTIC MARINE CENTER  
APPROVAL SHEET  
FOR  
AUTOMATED SURVEY H- 9290

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ been made.

Date: February 6, 1974

Signed: *William L. Johns*  
William L. Johns  
Title: Chief, Verification Branch

- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic and AMC Manuals. Exceptions are listed in the verifier's report.

Date: February 6, 1974

Signed: *C. Dale North, Jr.*  
C. Dale North, Jr. LCDR, NOAA  
Title: Chief, Processing Division



VERIFICATION NOTES  
SURVEY H-9290

GENERAL

This appears to be an excellent basic survey. Soundings are in good agreement at crossings and the depth curves adequately delineate the features of the area. The few minor problems experienced during verification are listed in the enclosed "Plotter Notes".

Norfolk, Va.  
February 6, 1974

*William L. Jonns*  
William L. Jonns  
Chief, Verification Branch, AM

H-9290

GEOGRAPHIC NAMES

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND McNALLY ATLAS	U.S. LIGHT LIST			
LONG BAY										1	
MYRTLE BEACH										2	
OCEAN DRIVE										3	
										4	
										5	
										6	
										7	
										8	
										9	
										10	
										11	
										12	
										13	
										14	
										15	
										16	
										17	
										18	
										19	
										20	
										21	
										22	
										23	
										24	
										25	

Approved by:  
*C. E. Harrington*  
 Staff Geographer  
 3-27-1974

HYDROGRAPHIC SURVEY STATISTICS  
HYDROGRAPHIC SURVEY NO. H-9290

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET <b>Q PND</b>	1	BOAT SHEETS	1
DESCRIPTIVE REPORT	1	OVERLAYS	4

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
Accordian ENVELOPES	X					<del>5 folders</del>
CANIERS	1		X			
VOLUMES	12					
BOXES			3			1 bundle <del>8 folders</del>

T-SHEET PRINTS (List) **None**

SPECIAL REPORTS (List) **None**

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			TOTALS
	PRE-VERIFICATION	VERIFICATION	REVIEW	
POSITIONS ON SHEET				2051
POSITIONS CHECKED		200		
POSITIONS REVISED		20		
DEPTH SOUNDINGS REVISED		650		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		0		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		8		
JUNCTIONS		8		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		20		
SPECIAL ADJUSTMENTS: <b>Key punch</b>		12		
ALL OTHER WORK		64		
TOTALS		112		

PRE-VERIFICATION BY <b>E.J.Fields, F.L.Saunders, B.J.Stephenson</b>	BEGINNING DATE <b>July 3, 1973</b>	ENDING DATE <b>Dec. 19, 1973</b>
VERIFICATION BY <b>B.J.Stephenson,</b>	BEGINNING DATE <b>Jan. 21, 1974</b>	ENDING DATE <b>Jan. 28, 1974</b>
REVIEW BY	BEGINNING DATE	ENDING DATE

Fig. 20.

FORM C&G-946A (REV. 11-65) (PRES. BY HYDROGRAPHIC MANUAL, 6-64)		U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY				
VERIFIER'S REPORT HYDROGRAPHIC SURVEY, H <u>9290</u>						
<p><b>INSTRUCTIONS</b> - 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.</p> <p><b>CL - Check List Items:</b> should be checked as having been completed during the verification processes.</p> <p><b>R - Report Item:</b> This column refers to those items reported to the reviewer and is used to indicate the items discussed.</p>						
Part I - DESCRIPTIVE REPORT		CL	R	Part III - JUNCTIONS (Continued)		
<p><b>Note:</b> The verifier should first read the Descriptive Report for general information and problems.</p> <p>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</p>		✓		<p>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.</p>		✓
<p>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</p>		✓		<p><b>Part IV - VOLUMES</b> 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</p>		✓
<p>3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None</p>		✓		<p>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 (b) line turns (c) position values of beginning and ending of lines (d) bar check or velocity correctors (e) time recording (f) notes or markings on fathograms (g) was reduction of soundings accurately done? (h) was scanning accurate? (i) were peaks at uneven intervals missed? (j) were stamps completed? (k) references to adjacent features</p>		✓
Part II - SHORELINE AND SIGNALS				Part V - PROTRACTING		
<p>4. Source of shoreline signals Remarks Required: -- List all surveys a. Give earliest and latest dates of photographs <b>Shore line penciled</b> b. Field inspection date: <b>from incomplete</b> c. Field Edit date: <b>complete manuscripts</b> d. Reviewed-Unreviewed</p>				<p>13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None</p>		✓
<p>5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.</p>		✓		<p>14. The protracting and plotting of all unsatisfactory crossings were verified. Remarks Required: -- None</p>		✓
<p>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</p>		✓		<p>15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None</p>		✓
<p>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.</p>		✓				
Part III - JUNCTIONS						
<p><b>Note:</b> Make a cursory comparison preliminary to inking soundings in area of overlap.</p> <p>8. All junctions of contemporary or overlapping sheets were transferred in colored ink and overlapping curves were made identical. Remarks Required: -- None</p>		✓				
<p>9. The notation in slanted lettering "JOINS II--- (19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None</p>		✓				

Fig. 20 (Cont'd.)  
Form 946A (back of form)

Part V - PROTRACTING (Continued)		CL	R	Part VIII - AIDS TO NAVIGATION		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.		✓		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.		N	A
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.		✓		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		✓	
Part VI - SOUNDINGS 18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None		✓		Part IX - BOAT SHEET 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		✓	
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.		✓		29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.		N	A
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None		✓		Part X - GENERAL 30. All information on the sheet is shown in accordance with figures B2 and B3 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None		✓	
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None		✓		31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None		✓	
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.		✓		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		✓	
Part VII - CURVES 23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected. <u>WLS</u>		✓		33. The bottom characteristics are adequately shown. Remarks Required: -- None		✓	
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				Part XI - NOTES TO THE REVIEWER 34. Unresolved discrepancies and questionable soundings.		✓	
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.		✓		35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.		✓	
				36. Supplemental information.		✓	
Verified by <b>B. J. Stephenson</b>						Date <b>Jan. 28, 1974</b>	

FIG. 18.

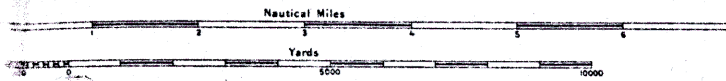
DESCRIPTIVE REPORT DATA RECORD		
PART I SMOOTH SHEET PREPARATION		
	PREPARED BY/OPERATOR	DATE
A. PLOTTER OPERATOR		
B. DISTORTION MARKS PLOTTED		
C. PROJECTION INTERSECTIONS PLOTTED		
D. POINTS OF ELECTRONIC CONTROL ARCS PLOTTED		
E. OVERLAYS PREPARED BY		
1. POSITION NUMBER		
2. EXCESS SOUNDINGS		
3. PRELIMINARY SMOOTH PLOT		
4. LIST OTHERS		
A.		
B.		
F. SOUNDING SELECTION BY		
G. PLOTTER INPUT	PREPARED	
H.	CHECKED	
I. DESCRIPTIVE REPORT ADDENDUMS	W.L.Jonns	Feb. 6, 1974
PART II SMOOTH SHEET COMPLETION	B.J. Stephenson	Jan. 28, 1974
	CARTOGRAPHER	DATE
A. DISTORTION SCALE TICKS IDENTIFIED BY NOTE		
B. PROJECTION INTERSECTIONS VERIFIED BY	B.J. Stephenson Plotter	1/21/74
C. PROJECTION LINES RULED BY		
D. ELECTRONIC CONTROL ARCS RULED AND LOCATION VERIFIED	Ruled by EDP B.J. Stephenson	1/21/74 1/21/74
E. OVERLAYS COMPLETED BY	AMC Verification Br.	12/19/73
1. POSITION NUMBER LEADERS ADDED		
2. EXCESS SOUNDING OVERLAY COMPARED	B.J. Stephenson	12/20/73
3. PRELIMINARY SMOOTH PLOTS COMPARED	B.J. Stephenson	12/23/73
4. OTHERS UTILIZED		
A.		
B.		
F. DESCRIPTIVE REPORT ADDENDUM	W.L.Jonns	2/6/74
G. CONTROL STATIONS VERIFIED	E.J. Fields	7/3/73
H. POSITIONS MANUALLY PLOTTED		
I. MANUAL PLOT VERIFIED		
J. SHORELINE APPLIED		
K. BOTTOM CHARACTERISTICS ADDED	B.J. Stephenson	1/19/74
L. HOLES AND DEPTH CURVES ADDED	B.J. Stephenson	1/19/74

UNITED STATES - EAST COAST  
SOUTH CAROLINA

# LITTLE RIVER INLET TO WINYAH BAY ENTRANCE

Scale  $\frac{1}{50000}$

SOUNDINGS IN FEET  
AT MEAN LOW WATER



**RADIOBEACON SIGNALS**  
For schedule of operations see Light List and for changes see Notice to Mariners.  
Stations Signals  
Georgetown Lighthouse ..... Gp 2 dots, 1 dash and 1 dot for 60 sec., silent 120 sec.

*This chart is the property of the U.S. Coast and Geodetic Survey and is loaned to you for use only. It is not to be resold, copied, or otherwise disposed of without the express permission of the Chief of the Survey. Strangers should not enter before obtaining local information as to conditions. The buoys at Little River Inlet are not charted because they are frequently shifted in position.*

**Intracoastal Waterway**  
Use charts Nos. 833 and 836. Neither the channel markings nor the available depths are shown on this chart.

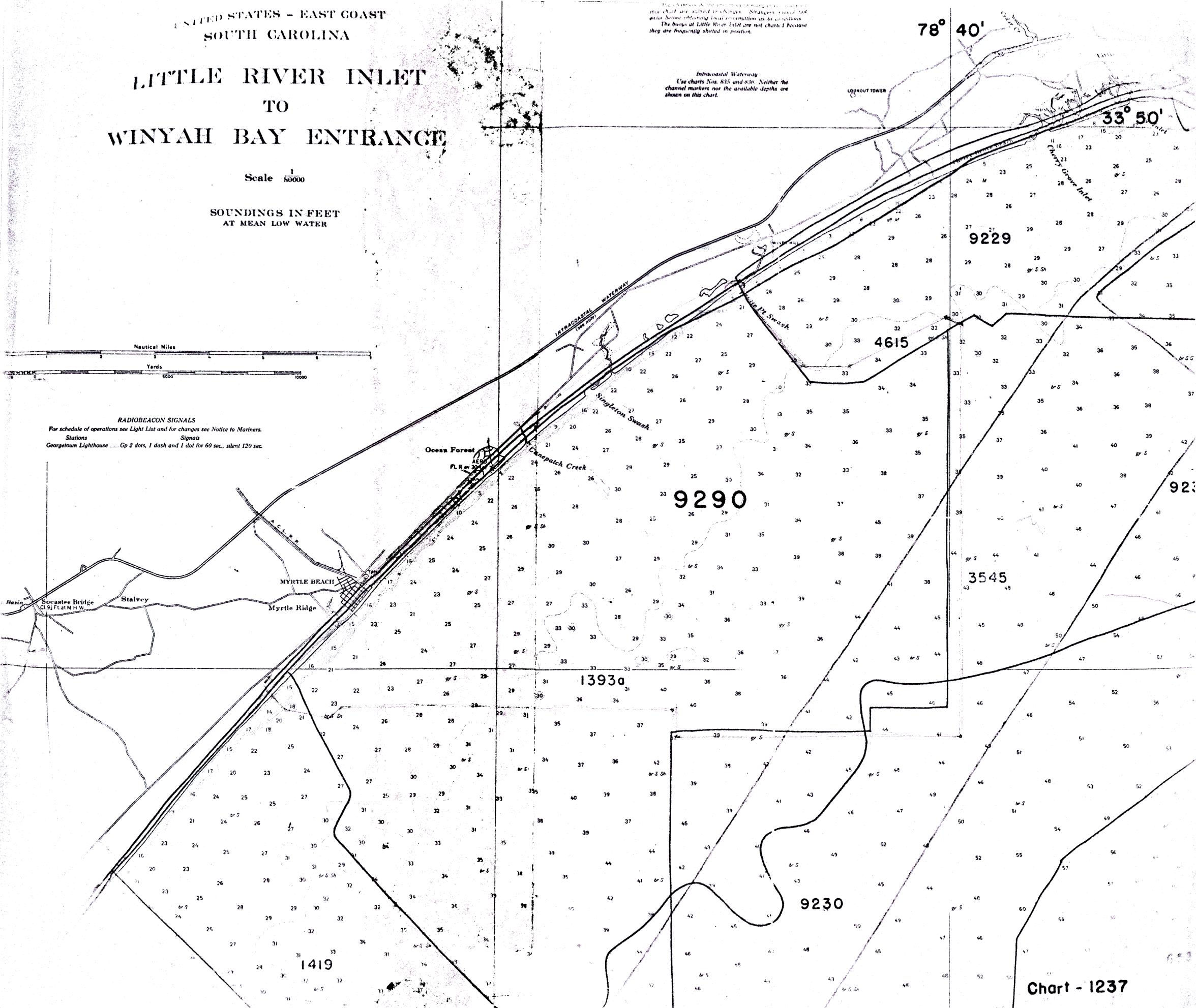


Chart - 1237

