

9961

Diagram No. 1222-4

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ... Hydrographic

Field No. MI-20-2-81

Registry No. H-9961

LOCALITY

State Virginia

General Locality .. Atlantic Ocean

Sublocality Little Inlet to Smith Island

1981

CHIEF OF PARTY

CAPT. R.A. Trauschke

LIBRARY & ARCHIVES

DATE November 16, 1982

★U.S. GOV. PRINTING OFFICE: 1985-566-054

9961

Area 1

CHT

12224

12222

12221

12220

CARTOG
SIGN OFF
ON RECORD OF
APPLICATIONS

HYDROGRAPHIC TITLE SHEET

H-9961

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--2-81

State VirginiaGeneral locality Atlantic Ocean off Coast of VirginiaLocality ~~Smith Island Inlet to Little Inlet~~ Little Inlet to Smith Island Inlet
Fisherman's Island, Virginia to Myrtle Island, VirginiaScale 1:20,000Date of survey 20 July 1981-10 August 1981Instructions dated 18 March 1981Project No. OPR-D-103-MI/PE 80Vessel NOAA Ship MT. MITCHELL, Launches (VESNO 2223.2225)Chief of party Captain Robert A. Trauschke, NOAASurveyed by Ship's Officers (see remarks)Soundings taken by echo sounder, hand lead, pole Echo ~~Sunder~~ SounderGraphic record scaled by JH, RW, FS, FM, JZ, RC, IIGGraphic record checked by JH, RW, FS, FM, JZ, RC, IIGProtracted by _____ Smooth Automated plot by Xynatics 1201 Plotter
(AMC)

Verification by _____

Soundings in fathoms feet at MLLW MLLW FEET MLLWREMARKS: LTJG John W. Humphrey, Jr.LTJG John ZabitchuckENS Fredick RossmannENS Robert HenegarAWOIS/SURF M&M 8/7/87ENS Amy OrrisENS Bobby Coakley (OIC)STANDARDS CK'D 9-12-87Mr. Bradley K. SmithE. LoyLT Kenneth W. Perrin (F00)6/12/96All Times are based on GMT.

A. PROJECT

This survey was carried out in accordance with Project Instructions OPR-D-103-MI/PE 81 issued 18 March and amended by changes 1 through 3 dated 27 April, 6 May, and 21 July 1981 respectively.

B. AREA SURVEYED

This survey was conducted off the coast of Virginia between Fisherman's Island and Myrtle Island, Virginia. The limits of the survey area are described by lines connecting the following points in a clockwise manner:

Latitude	Longitude
37° 04.9' N	75° 58.4' W
37° 11.0' N	75° 58.4' W
37° 11.0' N	75° 40.0' W
37° 01.9' N	75° 40.0' W
37° 02.0' N	75° 53.1' W
37° 05.2' N	75° 53.0' W

This survey was conducted between 20 July 1981 and 10 August 1981, Julian Dates 201 and 222 respectively.

C. SOUNDING VESSELS

Soundings for the survey were obtained by the NOAA Ship MT. MITCHELL S222 (VESNO 2220) and the following launches. Launch 1002 (2225) and 1004 (2223).

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The following equipment was used to obtain soundings for the survey:

Equipment	Serial Number
<u>VESNO 2220</u>	
Ross Model 5000 Fineline Depth Recorder	1089
Ross Model 4000 Transceiver	1050
Ross Model 6000 Digitizer	1050
<u>VESNO 2223</u>	
Ross Model 5000 Fineline Depth Recorder	1089
Ross Model 4000 Transceiver	1039
Ross Model 6000 Digitizer	1053
<u>VESNO 2225</u>	
Ross Model 5000 Fineline Depth Recorder	3780
Ross Model 4000 Transceiver	1053
Ross Model 6000 Digitizer	1039

D. continued

Soundings for the MT. MITCHELL were taken with a skeg mounted transducer (antenna distance 32.0 m). Antenna distance for all launches was zero. All survey records were scanned by trained survey department personnel and checked by the officer in charge. Peaks and deeps considered significant that occurred between soundings were inserted and digitizing errors corrected on the electronic corrector tape.

Phase checks were made at frequent intervals. Any necessary adjustments were made and noted in the sounding volumes and on the fathograms. Any departures of the trace from the calibrations due to phase differences were corrected during the scanning process.

Velocity correctors were obtained from 2 Nansen Cast on the following dates and at the following locations:

Cast Number	Date	Latitude	Longitude
1	8 July 1981	36° 55' 37"	75° 25' 54"
2	5 August 1981	36° 03' 20"	75° 25' 49"

Bar checks were taken by the launches during the survey. Bar check correctors and Nansen cast compared favorably to 25 ft. after which bar check data began to diverge from the Nansen cast. Since the Nansen cast velocity correctors were considered more accurate, those correctors were applied to the sounding data during off line processing. Correctors from cast number 1 were applied to the data for JD 204 thru JD 210. Correctors from cast number 2 were applied to the data for JD 215 thru JD 222. An explanation of how sound velocities were derived, along with all tables and printouts of velocity tapes is included in Appendix D.

A draft of 14.1 ft was applied to all soundings collected by the MT. MITCHELL during on line data collection. Settlement and squat correctors for the ship were determined on 26 July 1981, JD 207, at 8 miles off Cape Charles, Virginia. A draft of 1.4 ft was applied to all soundings taken by the launches during the online data collection. Changes in draft for the launches was insignificant. Settlement and squat correctors for the launches were determined on 15 July 1981, JD 196 at Pier number 5, Little Creek Harbor, Little Creek, Virginia. A copy of the field data and settlement and squat correctors versus launch RPM'S is included in the survey support data. The settlement and squat correctors will be applied during final processing of the data by CAM 3 Processing Division via the TC/TI Tape.

This survey was conducted using predicted tides based on daily predictions at Hampton Roads, Virginia from the Tide Table 1981, with tidal zoning applied as provided by OPR D-103-MI/PE 80 Project Instructions. The tide correctors were applied to Master Data during actual sounding operations with the exceptions of JD 203 positions 3109-3197 and JD 222 positions 4697-4725 and 4800-4845 for VESNO 2225 and JD 205 positions 001-055 for VESNO 2223 when these tides were applied during off line processing. Smooth Tides were requested from the Chief, Tides and Water Levels Branch, OA/C23 Rockville Tides Branch in a letter dated 17 August 1981.

E. HYDROGRAPHIC SHEETS

This survey was plotted on 4 mylar complot roll plotter sheets by the HYDROPLOT System onboard the MT. MITCHELL with a skew of 0,21,54. The survey was plotted off line using an electronic corrector tape and a velocity corrector tape. A predicted tide tape for JD 203, positions 3109-3197 and JD 222, positions 4692-4725 and 4800-4845 for VESNO 2225 and JD 205, positions 1-55 VESNO 2223 was used since no tides were applied on line during these times. Soundings on the field sheets are corrected for draft, predicted tides, initialized and digitized error, and sound velocity. They are not corrected for smooth tides or settlement and squat, these correctors will be applied on the final smooth sheet to be plotted by the Atlantic Marine Center, CAM 3, Processing Division, Norfolk, Virginia.

All field records and the following tapes have been forwarded to the Atlantic Marine Center:

- Master Range-Range Data Tapes (Raw and Edited)
- Electronic Corrector Tapes
- Velocity Corrector Tapes
- Parameter Tapes
- Signal Tapes
- TC/TI Tapes

F. HYDROTRAC ELECTRONIC CONTROL STATIONS USED FOR THIS SURVEY WERE:

100	Gravity 1965 (1980)	36° 40' 31.453	75° 54' 56.471
200	Fen 1960	37° 05' 36.243	75° 58' 17.556
300	Assateague H-8-VA-78	37° 51' 46.270	75° 22' 03.968

All control stations were established by a least third order, class one methods. (Station Gravity, 1965 was reestablished in 1980 by CAM 102, Norfolk, Virginia.) All control stations were recovered by MT. MITCHELL officers. HYDROTRAC stations were erected and maintained by ship's personnel.

G. HYDROGRAPHIC POSITION CONTROL See Verification Report

An Odom offshore HYDROTRAC System, operating at a frequency of 1718.59 KHz in the hyperbolic mode was used to provide positioning control for hydrography (VESSELS 2220, 2223, 2225) on this survey from 20 July 1981 JD 201 to 10 August 1981 JD 222. The equipment and serial numbers are as follows:

<u>VESSELS OR SHORE STATIONS</u>	<u>EQUIPMENT</u>	<u>SERIAL NUMBERS</u>
Gravity 1965	Slave Drive Unit	214
	Linear Amplifier	537
Fen 1960	Master Drive Unit	122
	Master Linear Amplifier	538
Assateague H-8-VA-78	Slave Drive Unit	226
	Linear Amplifier	

G. continued

<u>VESSELS OR SHORE STATIONS</u>	<u>EQUIPMENT</u>	<u>SERIAL NUMBERS</u>
MT. MITCHELL	Master Unit	122
	Linear Transmitter	539
	Receiver	327
	S 1 Antenna Coupler	131
	S 2 Antenna Coupler	130
VESNO 2223	Ship's Receiver	328
	Sawtooth Recorder	13
VESNO 2225	Ship's Receiver	326
	Sawtooth Recorder	A-175

Lane counts and partial lane correctors for the ship VESNO 2220 were determined by circle calibration around Chesapeake Light Tower at 36° 54' 16.158" N, 75° 42' 47.123" W. The circle calibration method is described on page 4-28 of the Hydrographic Manual.

A seaward calibration buoy was set by ship's personnel at 37° 05' 32.58" N, 75° 41' 57.25" W. Its position was established by the circle method. Several passes were made to verify rates at its position. This calibration buoy was used by the ship and occasionally the launches to verify the whole lane count periodically or whenever there was a question as to the accuracy of the lane count.

Three point sextant calibrations were used by the launches to calibrate initially, using RK 561, until a fixed calibration point could be established. A calibration buoy and stake were positioned by a three point sextant fix near shore. The buoy with very short scope located at 36° 06' 50.59" N, 75° 53' 36.82" W and the stake at 37° 06' 43.10" N, 75° 04' 03.88" W were used as positions that the launches could come alongside and stop, observe the rates, and determine correctors. Rates recorded could be averaged to remove any irregularities in the correctors.

While using the HYDROTRAC System, the whole lane count was constantly monitored by comparing the navigation interference readout with a running count on the sawtooth recorder. The sawtooth recorder was annotated by hand with the whole lane count during the monitoring.

H. SHORELINES *See Verification Report*

Sounding lines were run parallel to the shoreline at the inshore limits of the safe navigation of the sounding vessel. Also a line was run offshore of this to allow a safe turning margin for launches running mainscheme lines toward the shore. Shoreline was transferred in blue from:

Shoreline Movement Study Smith Island, Virginia
1980 NOS Compilation for Digital Data
Map # 229 Scale 1:20,000 Mercator Projection
Sheet R OPR-D-103-MI/PE-81

H. Shorelines continued

Subject map received from CAM-103 Shoreline was not verified by field edit to the inshore limits for safe navigation of the launch, except for red inked shoreline which shows that the charted inlets (Charts 12221 and 12224) have been closed as depicted by Map #229. The mean lower low water line was not established. *The red inked shoreline on the field sheet substantiated the shoreline shown on the Shoreline Movement Study maps.*

I. CROSSLINES

Crosslines were run at least 45° to the mainscheme sounding lines. Crossline mileage amounted to about 6% of the regular sound lines VESNO 2220. A part of one crossline had a 2 to 3 ft discrepancy with the mainscheme. This section was ~~re-run~~ and agreed to within ± 1 ft with the mainscheme. It is believed the previous discrepancy was due to the use of predicted tides. Crossline soundings generally agree to within ± 1 ft of the regular lines. Crossline mileage for VESNO 2223 amounted to 12% of regular lines, these soundings generally agree to ± 1 ft of the regular lines. Crossline mileage for VESNO 2225 amounted to 11% of regular sounding lines, soundings generally agreed to within ± 1 ft of regular lines.

J. JUNCTIONS *See Verification Report, section 5.*

This survey junctions with the following surveys

Registry Number	Scale	Date
H 9919	1:20,000	1980
H 9693	1:10,000	1977

Comparison of the soundings from this and prior survey were, in general agreement with 81% agreement within ± 2 ft. with the remainder agreeing to ± 4 ft. The general trend appears to be deepening.

K. COMPARISON WITH PRIOR SURVEYS *See Verification Report, section 6.*

The following prior surveys were within the survey area.

H - 8218	1:25,000	1954
H - 4193	1:40,000	1921
H - 8217	1:10,000	1954
H - 5989	1:40,000	1935

Soundings taken from prior surveys and compared with soundings of this survey were in general agreement. 80% agreement to within ± 3 ft, 19% agreement to within ± 5 ft and 1% agreement to within ± 6 ft. The general trend is deeper.

L. COMPARISON WITH THE CHART

This area is covered by the following charts: *See Verification Report, Section 7a*

Chart Number	Edition	Date	Scale
12221	48th	April 1980	1:80,000
12224	15th	May 1980	1:40,000

Charted depths generally agree with the survey with 60% agreement within ± 7 ft. with 33% of that within ± 1 foot. The remaining 40% agree to within ± 8 ft. to 10 ft. with a 26% agreement to within ± 3 ft. It has been verified that Bungalow Inlet and an inlet at $37^{\circ} 07.6' N$, $75^{\circ} 53.3' W$ charted as closed are in fact closed. The general trend of the area appears to be deepening. Soundings indicate some deeper depths however these depths may be caused by tides or more accurate measuring equipment. A charted depth of 21 ft at Latitude $37^{\circ} 05' 30''$ and $75^{\circ} 45' 24''$ was developed in an area of $37^{\circ} 05' 06'' N$ $37^{\circ} 05' 58'' N$, $75^{\circ} 45' 15'' W$ to $37^{\circ} 05' 58'' N$, $75^{\circ} 45' 58'' W$. The ^{uncorrected} least depth found was 23 ft. The general trend around the shoal is deeper depths.

An unnumbered shoal depth of 2.0 ft reported at Latitude $37^{\circ} 10' 43'' N$ and Longitude $75^{\circ} 49' 18'' W$ was reported on printout by vessel number 2225 on JD 216. Shoal is ⁵⁴South of inlet. It appears to be a sand bar with deeper depths leading around it. Since this shoal was in an area where it will not be a danger to safe navigation no further investigations is recommended.

Six Pre-Survey Review Items were developed during the survey using reduced line spacing and bracketing ^x the center with crosslines at different radii of its charted position.

PSR Item 65

Listed as a dangerous sunken wreck at Latitude $37^{\circ} 08' 00'' N$, Longitude $75^{\circ} 51' 48''$ was developed. No indication of any obstruction was found at this position on the fathogram or upon visual inspection while developing this area. Item developed with reduced line spacing of its mainscheme and with seven crossline to a radius of 1000 meters of the charted position. Recommend that this item be deleted from the chart. *Do not concur*

PSR Item 66

Listed as a possible wreck at Latitude $37^{\circ} 10' 08'' N$, Longitude $75^{\circ} 50' 00'' W$ was developed. From visual inspection, this item appears to be the ruins of an old pier which is exposed at low tide. Recommend that it be charted as such. *concur*

PSR Item 67

Listed as a dangerous wreck at Latitude $37^{\circ} 10' 12'' N$, Longitude $75^{\circ} 49' 12'' W$ was developed. No indication of any obstruction was found either on the fathogram or from visual inspection. This item was developed using reduced line spacing on mainscheme lines with 10 crosslines bracketing the center up to a 1000 meter radius. It is recommended this item be deleted from the chart. *(MIM 10. 78)* *Do Not Concur*

PSR Item 68

Listed as a submerged obstruction, Latitude 37° 07' 06" N, Longitude 75° 43' 06" W was developed. No indication of any obstruction was found either by visual inspection or on the fathogram. This item was developed using reduced line spacing on mainscheme lines with seven crosslines bracketing the center up to a 1000 meter radius. It is recommended that this item be deleted from the chart. *Do not concur*

PSR Item 71

Listed as a dangerous wreck at Latitude 37° 05' 00" N, Longitude 75° 56' 36" W was developed. No obstruction or indication of any was found either on the fathogram or upon visual inspection. Only four mainscheme lines were run in this development as would safe navigation permit. Considering the nature and location of this item and after reviewing the 1977 survey conducted by NOAA Ship PEIRCE and considering the extensive shoreline change observed it is concluded that any additional work on the item would be non-productive as well as inefficient use of valuable vessel time. Also it is very unlikely that a barge of this size would go unsalvaged in an area as accessible as this. Atlantic Marine Center Processing Division agrees with these opinions. Therefore, recommendations are that this wreck be deleted from future charts. *Do not concur. See Verifiers Report.*

PSR Item 72 * See H-9904 Diver's Report & H-9693 Verification Report.

Listed as a dangerous wreck at Latitude 37° 03' 24.6" N, Longitude 75° 54' 00" W with a least depth of seven feet was developed. No indications of any obstruction existence was found either on the fathogram or by visual inspection. Item was developed using reduced line spacing on mainscheme lines using 50 meter line spacing. No evidence of a wreck was seen, however a hole appears several times on the fathogram that may indicate scour. Limited diving operations were conducted over the area, nothing was found. Recommend that controlled wire drag of the area be done. *CONCULT*

M. ADEQUACY OF SURVEY

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

N. AIDS TO NAVIGATION

There is one floating aid to navigation within the survey area. There were no fixed aids. The following floating aids are within the area:

Aid	Characteristics	Latitude	Longitude
Buoy R 14	H 2.5 sec Bell	37°07'21.98"N	75°40'57.11"W

A comparison of the position of the aid both on the survey sheet as well as a charted position along with the data in the Coast Guard's Light List the position adequately serves its apparent purpose.

O. STATISTICS

	Ship	Launches	Total
Linear nautical miles of hydrography	267.5	545.3	812.8
Linear nautical miles of crosslines	17.5	62.6	80.1
Linear nautical miles of development	0	95.42	95.42
Total linear miles of hydrography	285.0	703.32	988.32
Total miscellaneous miles	152.4	561.8	714.2
Total miles run	437.4	1265.12	1702.52
Square miles of hydrography	---	----	75
Total number of positions	770	2646	3416
Nansen Casts	2	0	2
Bottom Samples	39	38	77

P. MISCELLANEOUS

RK 110 Hyperbolic Real Time Plot was used by the ship, VESNO 2220 and RK 112 Range-Range Hyperbolic HYDROLOT was used by launches 2223 and 2225 for data acquisition. It is now ship's policy that the fathometer on the bridge, with its wider beam width, run concurrently with the survey fathometer to aid in detecting possible shoals or obstructions while running ship hydrography. However, these records are not part of the survey records.

Q. RECOMMENDATIONS - See Verification Report

Recommendations are that this survey supersede all prior surveys. Since PSR items 65, 67, 68, and 71 show no evidence of their existence they should be deleted from future charts. PSR item 72 could not be found either visually or on fathogram, although the fathogram indicated a hole; this item should be wire dragged. Charts indicate that Bungalow Inlet has closed and that an inlet at 37° 07.7' N, 75° 53.2' W is also closed; therefore, it is recommended that the charted shoreline be revised using Shoreline Movement Study Smith Island, Virginia 1980 NOS Compilation for Digital Data Map #229, scale 1:20,000, Mercator Projection Sheet R OPR-D-103-MI/PE 81 until a photogram-metric shoreline coverage is undertaken.

R. AUTOMATED DATA PROCESSING

The following HYDROLOT Programs were used to acquire and process the survey data:

Program Name	Version Version
RK 110 Hyperbolic Real Time Plot	1-30-76
RK 112 Range-Range Real Time Hyperbolic Plot	3-19-81
RK 201 Grid, Signals and Lattice Plot	4-18-75
RK 211 Range-Range Non-Real Time Plot	11-15-76

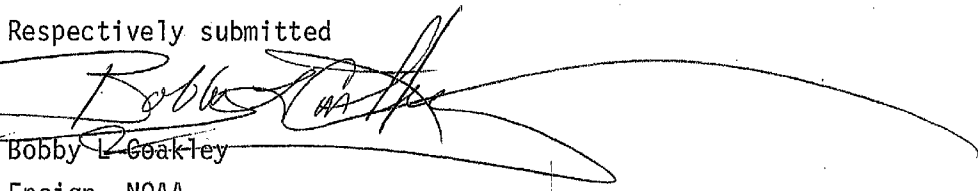
R. continued

Program Name	Version
RK 300 Utility Computations	10-21-80
RK 330 Data Reformat and Check	5- 4-76
PM 360 Electronic Corrector Tape Abstract	2-21-76
RK 530 Velocity Corrections Computations	5-10-76
RK 561 H/R Geodetic Calibrations	2-19-75
RK 602 Extended Line Oriented Editor	5-12-75

S. REFERENCE TO REPORTS

Settlement and Squat Report 1981 NOAA Ship MT. MITCHELL Settlement and Squat Report 1981 Launches 2223 and 2224.

Respectively submitted


Bobby L. Coakley

Ensign NOAA

GEOGRAPHIC SIGNAL LISTING

001	100	4	36	40	31453	075	54	56471	250	0004	171859
002	129	3	36	54	16158	075	42	47123	139	0039	000000
003	130	3	36	53	35785	075	59	18153	139	0033	000000
004	131	3	36	46	13694	075	57	51981	139	0040	000000
005	132	3	36	50	31980	075	59	23523	139	0040	000000
006	133	6	36	55	32330	076	00	30516	139	0000	000000
007	134	6	36	52	08381	075	59	02012	139	0000	000000
008	135	4	36	55	34302	076	00	27323	139	0050	000000
009	136	3	36	55	34335	076	00	27216	139	0050	000000
010	200	7	37	05	36243	075	58	17556	250	0004	171859
011	201	3	37	06	04124	075	58	43436	139	0000	000000
012	202	3	37	05	57891	075	58	45131	139	0000	000000
013	204	3	37	05	51122	075	58	45459	139	0000	000000
014	210	3	37	07	22007	075	54	24576	139	0000	000000
015	212	4	37	07	57096	075	57	14854	139	0000	000000
016	213	3	37	08	03976	075	57	04192	139	0000	000000
017	214	3	37	08	02246	075	57	04202	139	0000	000000
018	215	4	37	07	19792	075	54	22064	139	0000	000000
019	216	4	37	07	19730	075	54	23296	139	0000	000000
020	217	4	37	07	19170	075	54	24248	139	0000	000000
021	218	4	37	10	52446	075	49	45128	139	0000	000000
022	219	4	37	11	54088	075	54	19060	139	0000	000000
023	220	4	37	12	29159	075	48	38976	139	0040	000000
024	221	4	37	12	48739	075	49	15776	139	0000	000000
025	222	4	37	17	40884	075	47	55438	139	0000	000000
026	223	4	37	18	14815	075	46	35441	139	0000	000000
027	224	4	37	19	23903	075	45	03809	139	0000	000000
028	225	4	37	16	08039	075	47	41820	139	0000	000000
029	300	4	37	51	46270	075	22	03968	250	0004	171859

GEOGRAPHIC NAMES AND SIGNAL NUMBERS

001	SIGNAL NAME	TAPE
002		
003	STA.#	NAME
004		
005	100	SANDBRIDGE HYDROTRAC SITE
006	129	CHESAPEAKE LIGHT TOWER (CALIBRATION PT.)
007	130	PARCEL C TOWER A (LOOKOUT TOWER)
008	131	DAM NECK MILLS NAVY TANK G-10217
009	132	VIRGINIA BEACH MUNICIPAL TANK G-10217
010	133	CAPE HENRY LIGHTHOUSE, OLD
011	134	CAVALIER HOTEL CUPOLA
012	135	CAPE HENRY LIGHTHOUSE ECC. SW (DEL NORTE STA.)
013	136	CAPE HENRY LIGHTHOUSE 1887
014	200	FEN, 1960 (HYDROTRAC SITE)
015	201	FISH ISLAND TANK
016	202	FISH ISLAND TOWER
017	204	FISH ISLAND SHORAN
018	210	CAPE CHARLES LIGHT
019	212	" " 771ST TWR RED/WHITE
020	213	" " 771ST AN/FPS N
021	214	" " " " S
022	215	SMITH ISLAND TOWER A
023	216	" " " " B
024	217	" " " " C
025	218	BOWDEN
026	219	MOCKHORN
027	220	CAROL
028	221	GOOD
029	222	SANDERLIN
030	223	COBB ISLAND COAST GUARD LOT
031	224	FIG
032	225	LIPHAM
033	300	ASSATEAGUE HYDROTRAC SITE

[illegible]

[illegible]

Replaces C&GS Form 567.

☐ TO BE CHARTED
☒ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT *Field Party Ship*

NOAA Ship Mt. Mitchell
(Field Party, Ship of Chance)

STATE

Virginia

LOCALITY

Eastern Shore

DATE

10/29/81

LANDMARKS FOR CHARTS

U.S. DEPARTMENT OF COMMERCE
BUREAU OF ECONOMIC ADMINISTRATION

ORIGINATING ACTIVITY

- ☒ HYDROGRAPHIC PARTY
☐ GEODETIC PARTY
☐ PHOTO FIELD PARTY
☐ COMPILATION ACTIVITY
☐ FINAL REVIEWER
☐ QUALITY CONTROL & RE
☐ COAST PILOT BRANCH

☐ See reverse for responsible person.

	Determine their value as landmarks.
-	

The following objects
OPR PROJECT NO.
OPR-D103-MT-81

HAVE <input checked="" type="checkbox"/>	HAVE NOT <input type="checkbox"/>
--	-----------------------------------

DATE	JOB NUMBER
11-1-99	H-9955, -9961, -99
11-1-99	-9969 -9970, -99

DATUM
NAD

-9969 -9970 -99

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

DESCRIPTION
Record reason for deletion of landmark or aid to navigation.

Show triangulation station names, where appropriate.

(Mink Island Bay Shack 5) Not on 12224

Not on 12221.
(Mink Island Bay S Shack E Gab)

(Cobb Island Coast Guard Cupola)

(Cobb Island Coast Guard Lot)

Shack 12221, should be shack ruins.
Bed Drum Drain Shack Ruins

Not on 12221.

Mockhorn S Look Tr

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

☐ TO BE CHARTED
☒ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT
(Field Party, Ship or Office)
NOAA Ship Mt. Mitchell

STATE
Virginia

LOCALITY
Eastern Shore

DATE
10/29/81

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

RECORD OF DELETION OF LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
☒ HYDROGRAPHIC PARTY
☐ GEODETIC PARTY
☐ PHOTO FIELD PARTY
☐ COMPILATION ACTIVITY
☐ FINAL REVIEWER
☐ QUALITY CONTROL & REVIEW
☐ COAST PILOT BRANCH

(See reverse for responsible personnel)

The following objects HAVE ☒ BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

OPR PROJECT NO.
OPR-D103-MI-81

JOB NUMBER
H-9955, 9961,
-9962, -9969, -9970
-99

SURVEY NUMBER
MI-20-(1-6)-81

DATUM
NAD

POSITION

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

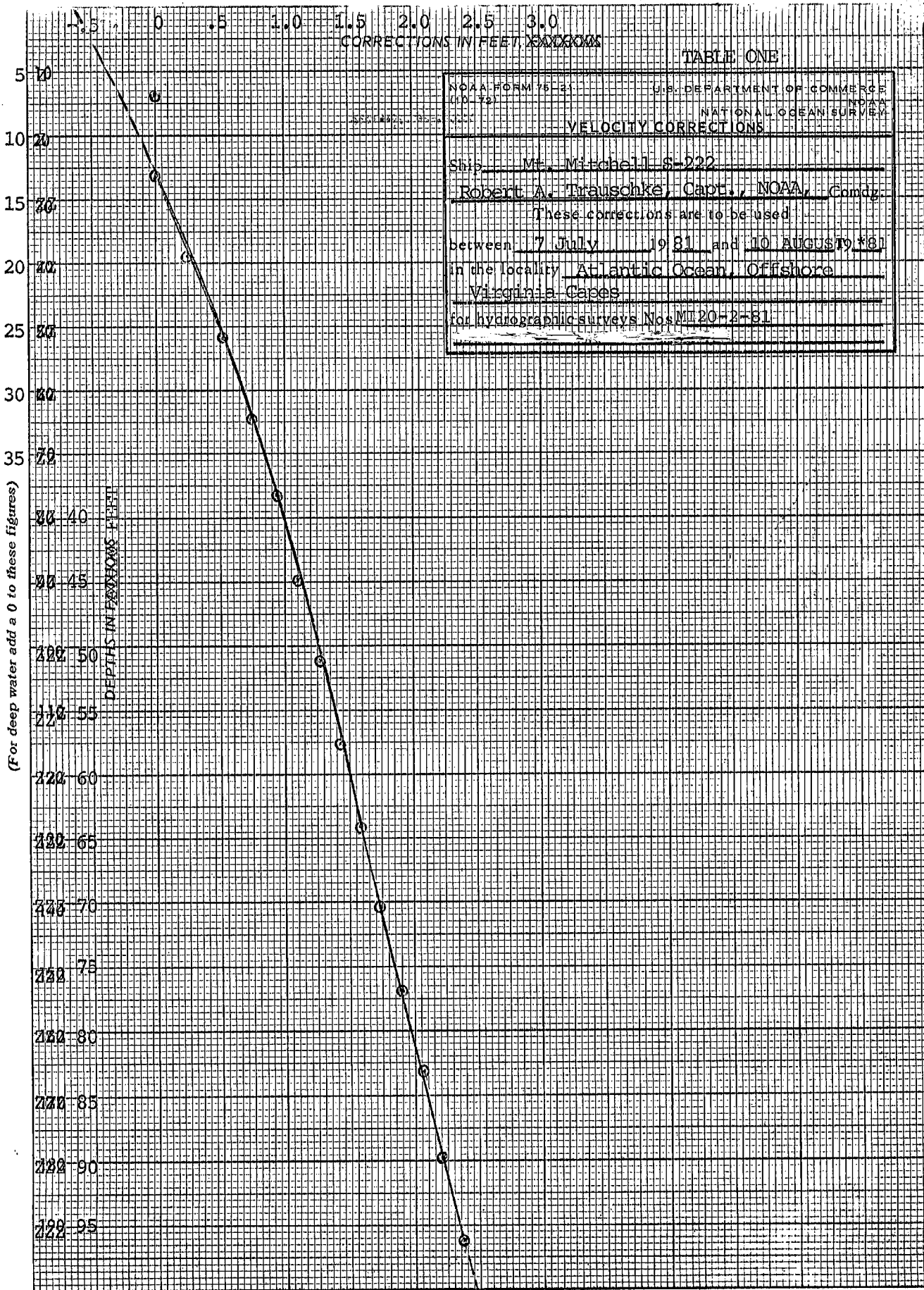
CHARTS
AFFECTED

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	LATITUDE			LONGITUDE			OFFICE	FIELD	CHARTS AFFECTED
		°	'	"	°	'	"			
Radar Dome	(Cape Charles 771st AN/FPS N TR)	37	08		03.97664	75	57	H-9961	F-Vis-5 7/24/81	12221 12224
Radar Dome	(Cape Charles 771st AN/FPS S TR)	37	08		02.24636	75	57	H-9961	F-Vis-5 7/24/81	12221 12224
HO.	(Old House Creek House 1)	37	12		12.02200	75	52	H-9961	F-Vis-5 9/15/81	12221 12224
House	(Red Drum Drain Shack 2)	37	14		25.95000	75	49	H-9961	F-Vis-5 9/15/81	12221 12224
HO.	(Red Drum Drain Shack 3)	37	13		59.86700	75	49	H-9961	F-Vis-5 9/15/81	12221 12224
Tank	(Fisherman Island Navy Tank)	37	06		04.12400	75	58		F-Vis-5 7/24/81	12221 12224
Tr	(Fisherman Island Navy Tower)	37	05		57.89100	75	58		F-Vis-5 7/24/81	12221
N Look Tr	(Mockhorn Use 1939)	37	11		54.08800	75	54	H-9961	F-Vis-5 7/24/81	12221 12224
Tr	(Cape Charles 771st Twr Red/White)	37	07		57.09678	75	57	H-9961	F-Vis-5 7/24/81	12221 12224
Look Tr	(Hog Island Coast Guard Lot)	37	23		39.40935	75	42		F-Vis-5 10/22/81	12221 12210

001
002
003
004

VELOCITY TAPE PRINTOUT
VESNO 2220
TABLE 1
JD 201-212

001	000025	1	0004	0001	000	222000	020281
002	000062	1	0004				
003	000103	1	0002				
004	000153	0	0000				
005	000206	0	0002				
006	000255	0	0004				
007	000305	0	0006				
008	000370	0	0008				
009	000440	0	0010				
010	000550	0	0012				
011	000605	0	0014				
012	000686	0	0016				
013	000770	0	0018				
014	000855	0	0020				
015	000925	0	0022				
016	001010	0	0024				
017	001085	0	0026				
018	001160	0	0028				
019	999999	0	0000				



CORRECTIONS IN FEET, FATHOMS

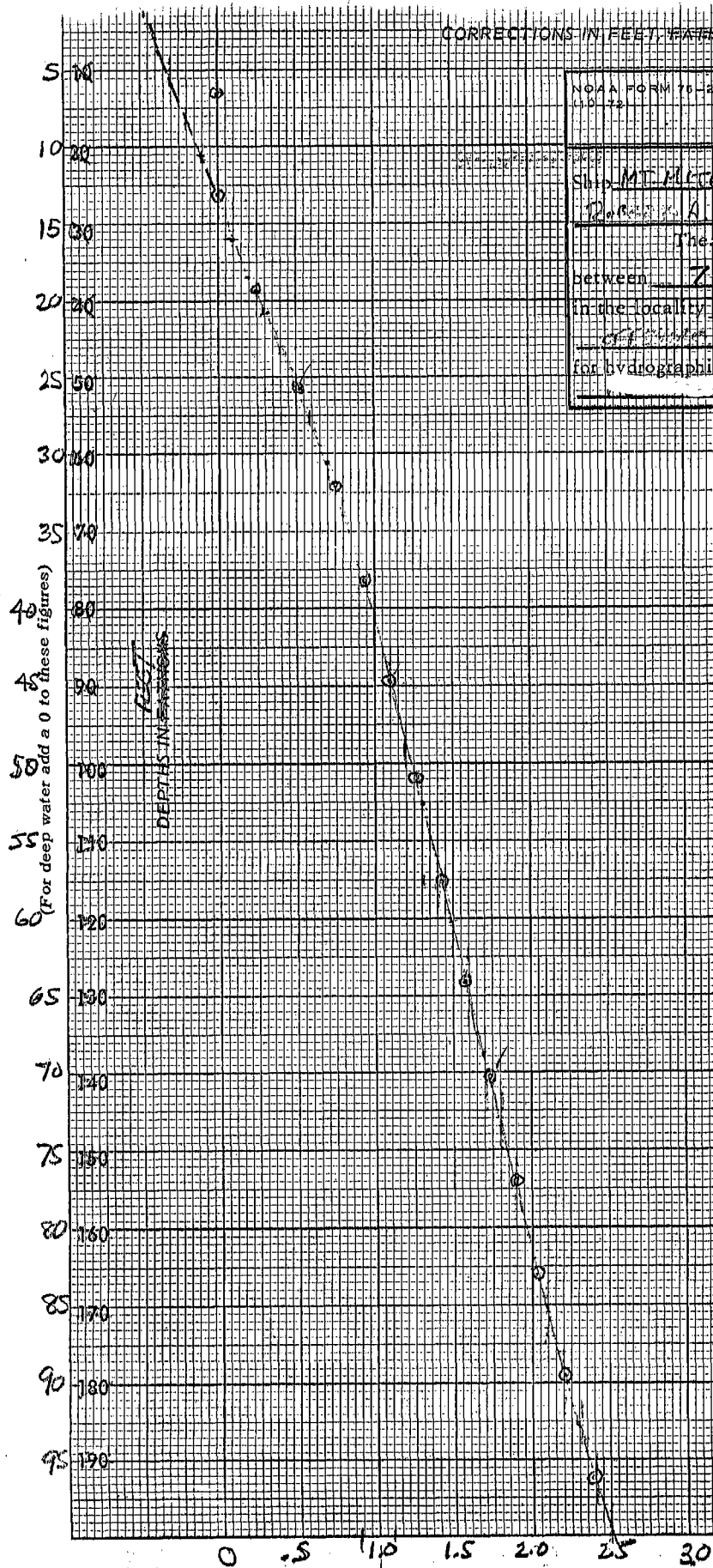
TABLE 1 SHIP

NOAA FORM 75-21
11-0-72U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEAN SURVEY

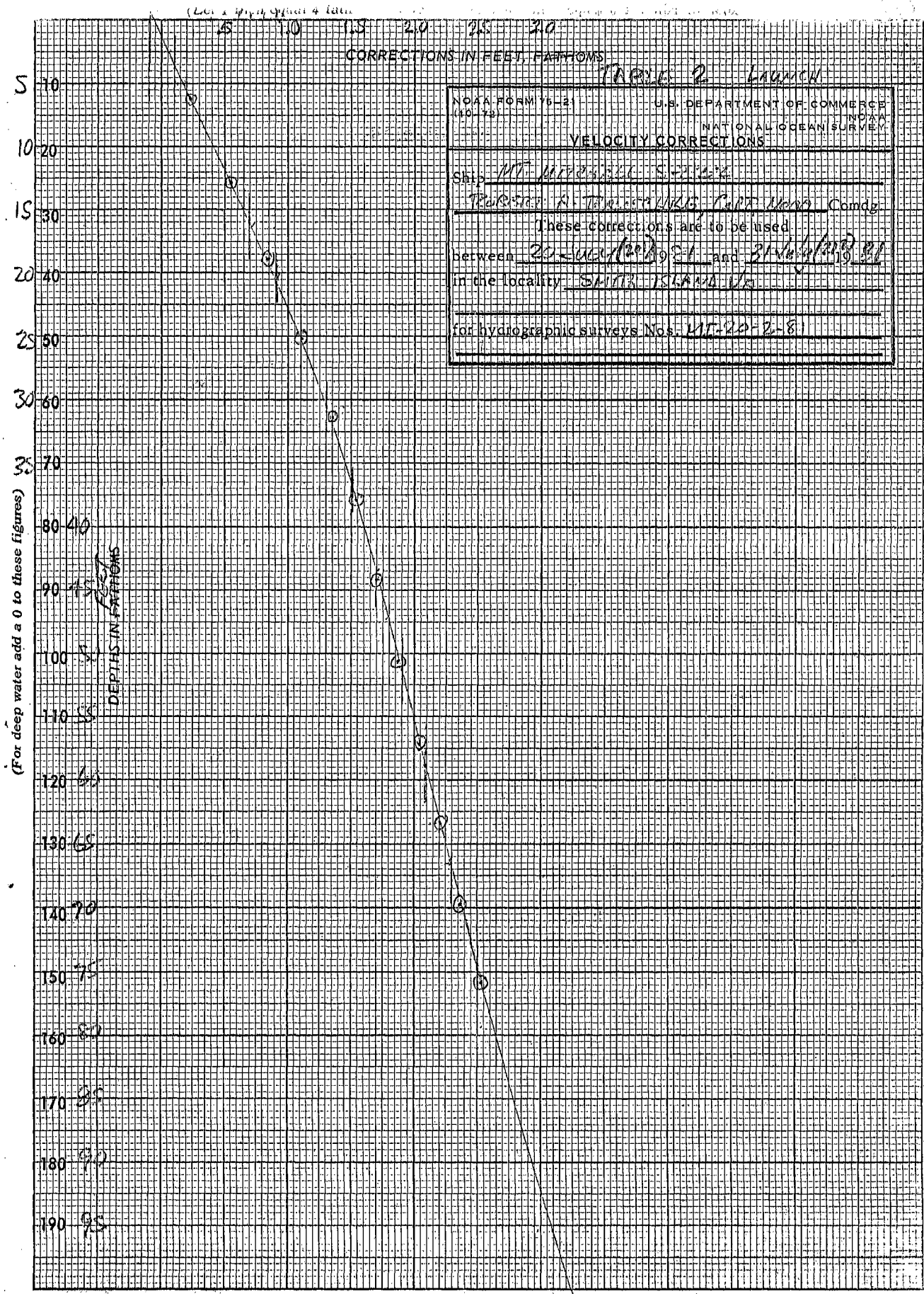
VELOCITY CORRECTIONS

Ship MT. MITCHELL S-222Dredge A TRALL-SWAGE CPT. NOAA Comdg.

These corrections are to be used

between 7 MAY 1981 and 7 AUG 1981in the locality ATLANTIC OCEANOFFSHORE VIRGINIA CAPESfor hydrographic surveys Nos. MT 20-2-81

20 X 20 TO THE INCHES
K&E KEUFFEL & ESSER CO. NEW YORK



VELOCITY TABLE 2

MI 23-2-81

VESNO 2225

000035	0	0000	0002	000	222500	020281
000077	0	0002				
000123	0	0004				
000160	0	0006				
000205	0	0008				
000252	0	0010				
000305	0	0012				
000365	0	0014				
000433	0	0016				
000512	0	0018				
000587	0	0020				
000665	0	0022				
000743	0	0024				
999999	0	0000				

Velocity Table 3

MI 20-2-81

VESNO 2223

000035 0 0000 0003 000 222300 020281

000077 0 0002

000123 0 0004

000160 0 0006

000205 0 0008

000252 0 0010

000305 0 0012

000365 0 0014

000433 0 0016

000512 0 0018

000587 0 0020

000665 0 0022

000743 0 0024

999999 0 0000

VELOCITY TABLE 4

MI 20-3-81

VESNO 2220

000160 0 0000 0004 0000 222000 020381

000198 0 0002

000243 0 0004

000282 0 0006

000322 0 0008

000362 0 0010

000402 0 0012

000447 0 0014

000494 0 0016

000557 0 0018

000628 0 0020

000705 0 0022

000776 0 0024

000844 0 0026

000918 0 0030

000989 0 0030

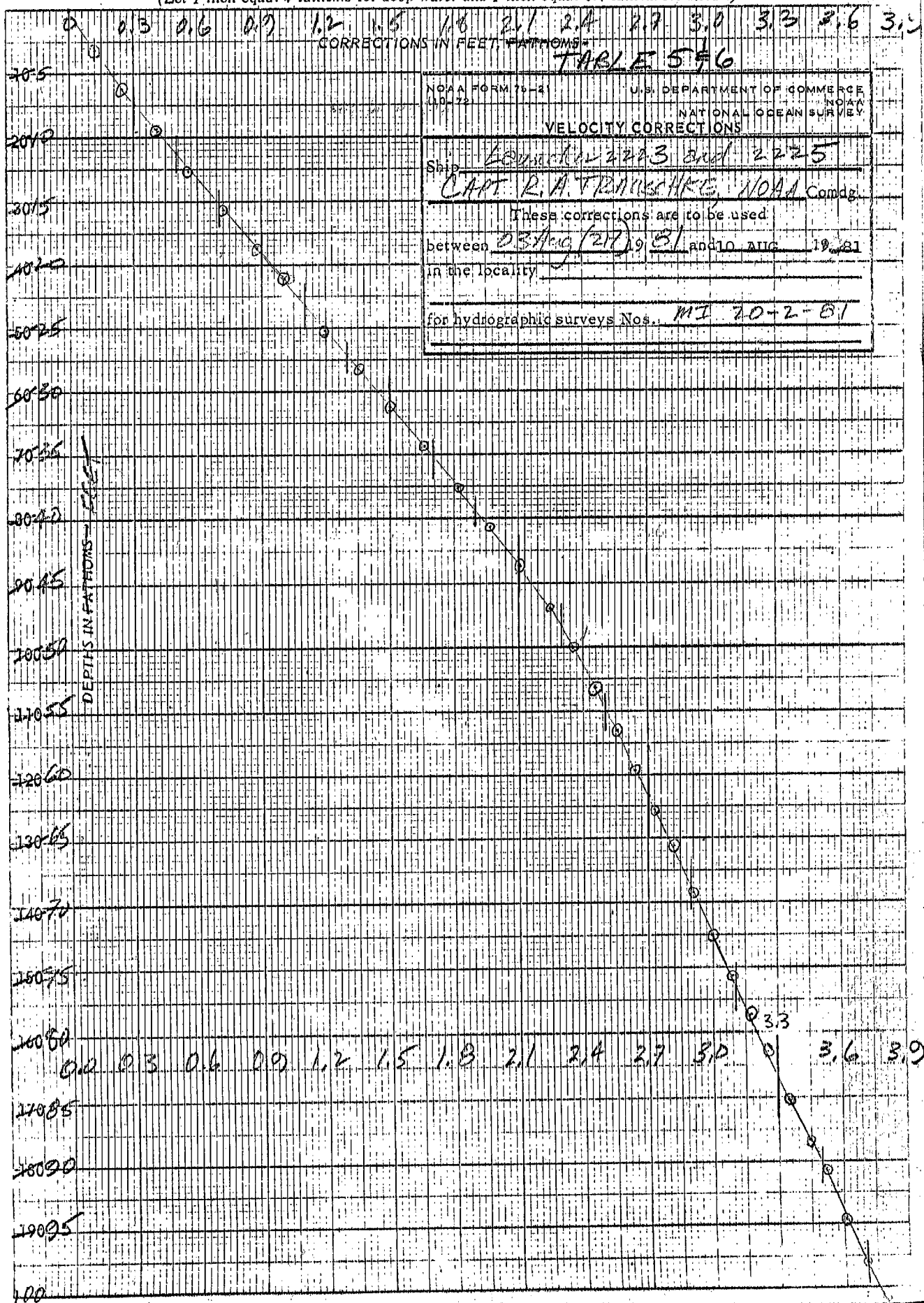
001067 0 0032

001144 0 0034

001218 0 0036

999999 0 0000

(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)

Velocity Table #5
MI 20-2-81
VESNO 2223

000032 0 0000 0005 000 222300 020281

000074 0 0002

000114 0 0004

000153 0 0006

000192 0 0008

000233 0 0010

000272 0 0012

000312 0 0014

000351 0 0016

000394 0 0018

000434 0 0020

000484 0 0022

000548 0 0024

000616 0 0026

000687 0 0028

000770 0 0030

000835 0 0032

999999 0 0000

VELOCITY TABLE #6
MI 20-2-81
VESNO 2225

000032 0 0000 0006 000 222500 020281

000074 0 0002

000114 0 0004

000153 0 0006

000192 0 0008

000233 0 0010

000272 0 0012

000312 0 0014

000351 0 0016

000394 0 0018

000434 0 0020

000484 0 0022

000548 0 0024

000616 0 0026

000687 0 0028

000770 0 0030

000835 0 0032

999999 0 0000

NOAA Ship MT MITCHELL S 222

Settlement and Squat Test

26 July 1981

A settlement and squat test was run for NOAA Ship MT MITCHELL on 26 July 1981, 8 miles off of Cape Charles, Virginia to validate settlement and squat correctors derived on 12 June 1978 at Galveston, Texas. The test consisted of comparisons of depths taken when passing a calibration buoy set in 40 feet of water on a flat-bottom area by MT MITCHELL for OPR D103-MI-81.

The ship made several passes at various speeds on approximate headings of 160° and 340°, and with the ship dead in the water; each time the ship was west of the buoy. Depth measurements were made when the buoy was 10 meters east of the after transducer, i.e. the only transducer to be used during the 1981 field season. Initial depth readings were made with the ship dead in the water immediately before and after any passes were made; initial readings were subsequently adjusted for tidal change. Each difference between the initial reading and the average depth of those taken during the two passes at a given speed were used to construct a graph of correctors. That new graph was compared with the graph of 12 June 1978 for validation. The corrector for standard speed (11 knots) was validated, but the test indicates that a different curve is necessary for lesser speeds. The new curve is recommended for the 1981 field season.

The ship carried a full load of fuel and a Jensen launch in davit #3. This is the typical configuration when the ship is conducting hydrography during this field season. A transducer draft of 14.1 feet was determined before the test by direct comparisons of leadline casts and echo soundings. The test was conducted with both engines at 160 RPM with pitches of 0 foot, 3 feet, 6 feet, and full pitch ahead for the various passes. During the test, the seas were 0 to 1 foot from the south, with the wind also southerly at 5 knots. Lateral stability of the buoy was assured by the short scope of its anchor line and checked by noting the Hydrotrac rates at the buoy.

A new settlement and squat corrector curve and a table of correctors is appended. A graph of the ship's speed curves is included.

Respectfully submitted,

E. Scott Varney

E. Scott Varney
Lieutenant, NOAA

NOAA Ship MT MITCHELL S 222
Settlement and Squat Correctors
Speed vs. Corrector

<u>Speed</u>	<u>Corrector</u>
0.0	0.0
1.0	+0.1
2.0	+0.2
3.0	+0.2
4.0	+0.2
5.0	+0.3
6.0	+0.3
7.0	+0.3
8.0	+0.3
9.0	+0.3
10.0	+0.3
11.0	+0.3
12.0	+0.4
13.0	+0.4

These correctors are derived from the settlement and squat curve dated 26 July 1981. The speed in knots is that taken from the graph of the ship's speed curves and may not necessarily be the speed over the ground. The correctors are in feet, rounded to the nearest tenth; see the graph of correctors if rounding to the nearest even tenth, i.e. to the nearest two tenths, is needed.

NOAA Ship MT MITCHELL
Settlement and Squat Correctors
26 July 1981

Speed (Knots)

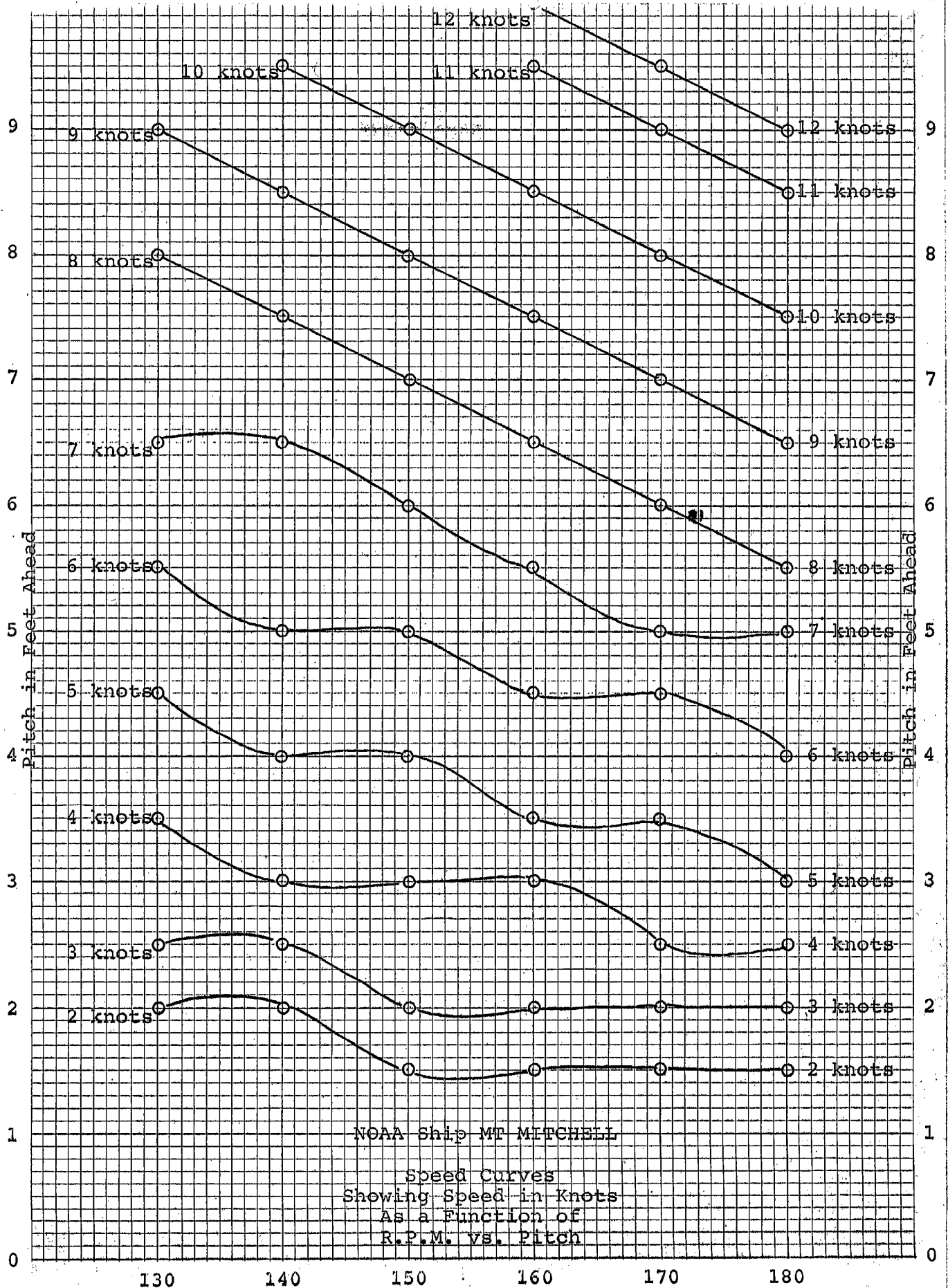
Table of graph points

Speed	Corrector
0.0	0.0
4.0	+0.25
7.5	+0.30
11.0	+0.35

0.0 +0.1 +0.2 +0.3 +0.4 +0.5

Corrector (feet)

PR-41-10 X 10 1/2 INCH
BOTH LINE HEAVY



SETTLEMENT AND SQUAT

NOAA Ship Mt. Mitchell 1981 Field Season

Settlement and squat tests were run for NOAA Ship Mt. Mitchell launches 1002 and 1004 (vessel #2225 and 2223 respectively) on 15 July 1981 from pier number 5 at Little Creek Harbor, Little Creek, Virginia. Corrections were determined using a Zeiss self-leveling level (serial number 142639) positioned on the north end of the pier and a portable tide staff positioned directly above the transducer on the launches.

A pair of ten staff readings were recorded for each launch at various speeds, and the average reading of each set was then calculated. The final corrector was determined by taking the mean of the averages and comparing that mean at each speed with a baseline corrector value (the mean of each launch at 0 rpms).

Readings from the tide staff were taken as each vessel ran in a southerly direction towards the pier at 800, 1200, 1600, 1800, 2000, 2200, 2400 rpms. Measurements were also made with each vessel laying to (before and after the tests). Both vessels carried a crew of three, full fuel tanks, and all hydrographic survey equipment normally used on each vessel. Corrections were made for changes in the tide level which occurred while the tests were being conducted.

A check was also made at each of the above rpms with each vessel running in an easterly direction (perpendicular as opposed to running towards the observer). The check agreed most favorably with the readings taken with the vessels running in a southerly direction (to ± 0.03 feet).

Attached is an abstract of the data obtained including a graph of each vessel's draft corrections (feet) versus speed (rpms).

Respectfully submitted,

John Zabitchuck

John Zabitchuck
Ensign, NOAA

SETTLEMENT AND SQUAT

Vessel's Correctors at Various Speeds

Engine rpms	Jensen 1002 VESNO 2225	Jensen 1004 VESNO 2223
0	0.0	0.0
800	+0.01	+0.05
900	+0.07	+0.09
1000	+0.12 ✓	+0.12 ✓
1100	+0.16	+0.15
1200	+0.21	+0.18
1300	+0.24	+0.20
1400	+0.27	+0.22
1500	+0.29 ✓	+0.24 ✓
1600	+0.31	+0.27
1700	+0.33	+0.28
1800	+0.33	+0.29
1900	+0.28	+0.27
2000	+0.24	+0.21 ✓
2100	+0.19	+0.11
2200	+0.14	+0.05
2300	+0.05	+0.01
2400	-0.04 ✓	-0.03

CORRECTIONS IN FEET FATHOMS

NOAA FORM 78-81 U.S. DEPARTMENT OF COMMERCE
10-22 Settlement & Squat Corrections NOAA
XXXXXXXXXXXXXXXXXXXX

Ship MT. Mitchell Launch No. 2225

Robert A. Traaschke, CAPT., NOAA Comd.

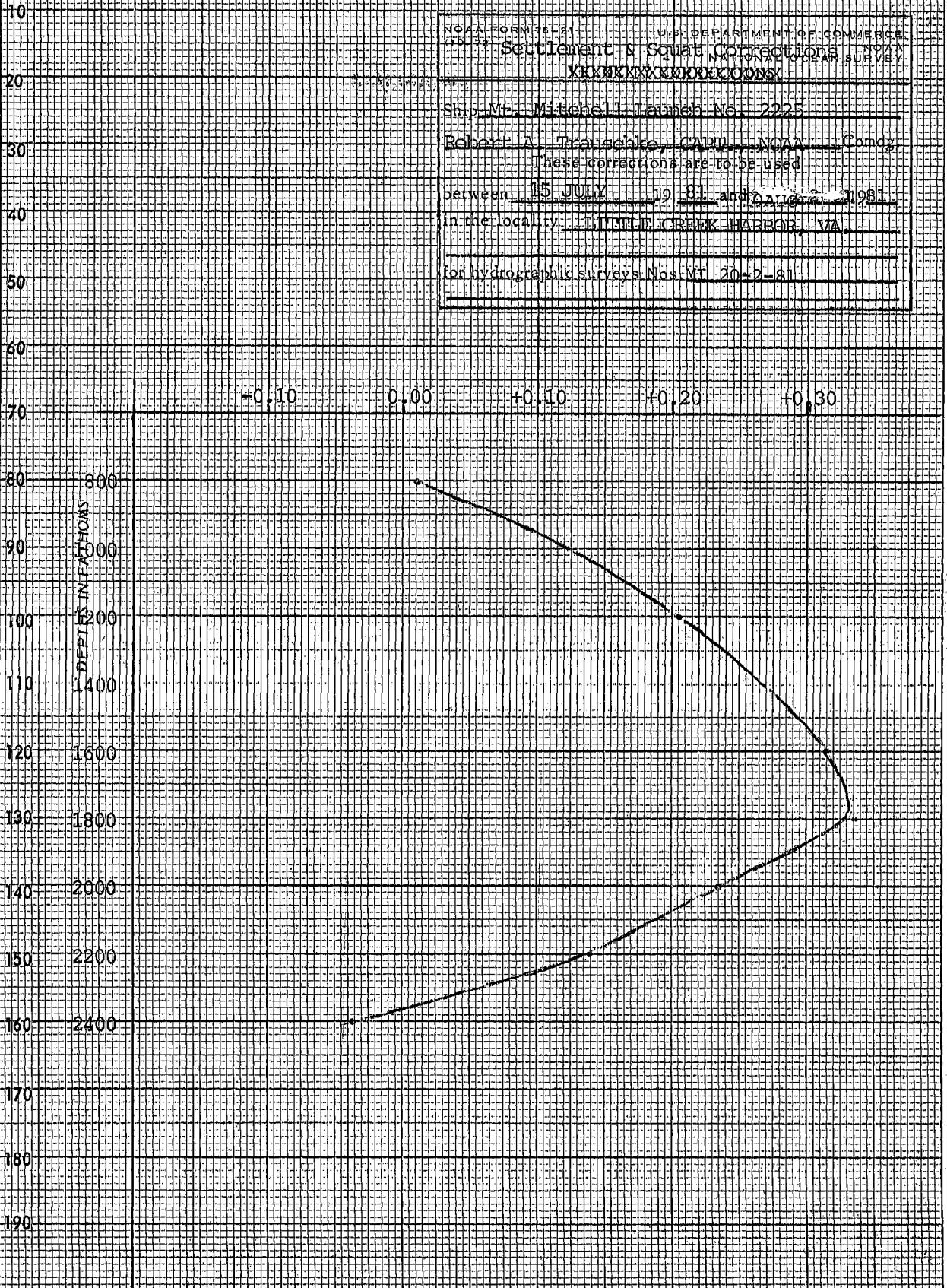
These corrections are to be used

between 15 JULY 1981 and 2 AUG 1981

in the locality LITTLE CREEK HARBOR, VA.

for hydrographic surveys Nos. MT 20-2-81

(For deep water add a 0 to these figures)



CORRECTIONS IN FEET, FATHOMS

NOAA FORM 18-21 U.S. DEPARTMENT OF COMMERCE
110022 Settlement & Squat Corrections NOAA
XXXXXXXXXXXXXXXXXXXX

Ship Mt. Mitchell Launch No. 2223

Robert A. Trauschke, CAPT., NOAA Comdg.

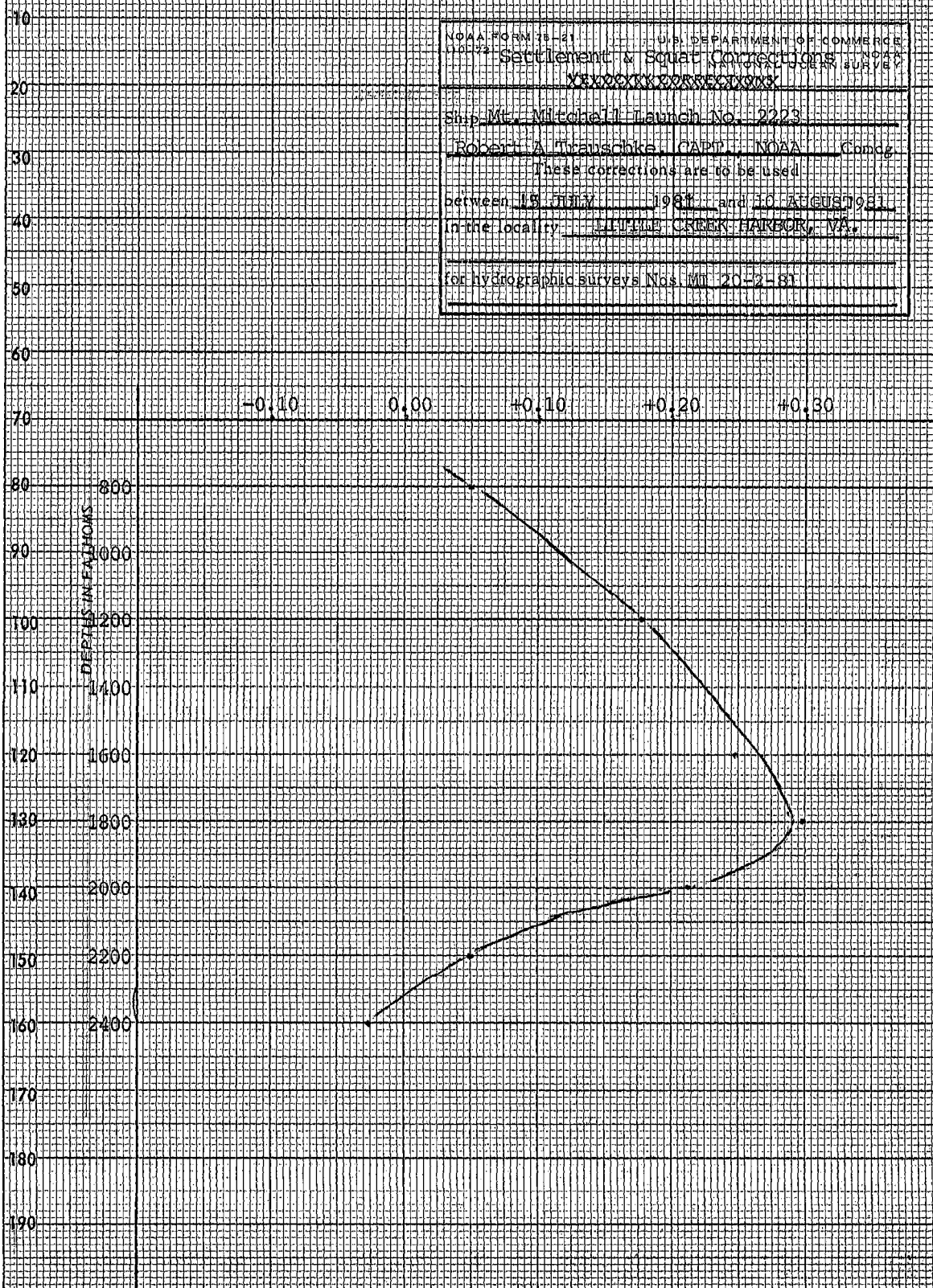
These corrections are to be used

between 13 JULY 1981 and 10 AUGUST 1981

in the locality LITTLE CREEK HARBOR, VA.

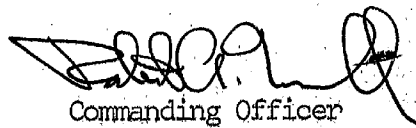
for hydrographic surveys Nos. MT 20-2-81

(For deep water add a 0 to these figures)



APPROVAL SHEET

The field work on this Hydrographic Survey was under my daily supervision. The boat sheet and records have been reviewed and approved by me.



Commanding Officer
CAPT. NOAA

November 20, 1981

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

Tide Station Used (NOAA Form 77-12): 863-8863 Chesapeake Bay Bridge Tunnel, VA

Period: July 20 - August 10, 1981

HYDROGRAPHIC SHEET: H-9961

OPR: D103

Locality: Chesapeake Bay Entrance, Virginia

Plane of reference (mean lower low water): 24.83 ft.

Height of Mean High Water above Plane of Reference is 2.74 ft.

REMARKS: Recommended Zoning:

1. From longitude $75^{\circ}58.5'$ east to $75^{\circ}55.5'$ apply -15 minute time correction and x1.19 range ratio.
2. From $75^{\circ}55.5'$ east to $75^{\circ}43.5'$ apply -25 minute time correction and x1.30 range ratio.
3. East of $75^{\circ}43.5'$ apply -35 minute time correction and x1.38 range ratio.

for Brian K. Conley
Chief, Datums and Information Branch



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

NOAA SHIP MT. MITCHELL S-222
439 WEST YORK STREET
NORFOLK, VIRGINIA 23510

Date : 31 AUG 1981

To : Chief, Tides and Water Levels Branch, OA/C23

From : *[Signature]*
Commanding Officer
NOAA Ship Mt. Mitchell S-222

Subj. : Tidal Data for OPR-D103-MI-81, "DELMARVANC"
Hydrographic Survey H-9961, (MI-20-2-81)

It is requested that verified hourly heights of Tides, using Greenwich Mean Time, from the operating tide gages listed below be forwarded to the Processing Division (CAM3), Atlantic Marine Center, Norfolk, VA. 23510

<u>GAGE NAME</u>	<u>NUMBER</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>
HAMPTON RDS (Pier 2, NOB)	863-8610	36°56.8'N	76°19.9'W
SANDBRIDGE, VA.	863-9428	36°41.5'N	75°55.2'W
DUCK, NC.	865-1370	36°10.9'N	75°45.0'W

It is requested that the Time and Height Correctors for each gage be zoned as per Project Instructions for the area described within the following points:

LATITUDE 37°01.9'N - 37°11.8'N
LONGITUDE 75°40.0'W - 75°58.4'W

This information is requested for the following Dates and Times:

JD 201 (20 July 1981) 0000GMT til JD 211 (30 July 1981) 2400GMT,
JD 215 (03 Aug. 1981) 0000GMT til JD 222 (10 Aug. 1981) 2400GMT



GEOGRAPHIC NAMES

H-9961

Name on Survey	A ON CHART NO. 1221 E 12224 B ON PREVIOUS SURVEY NO. C ON U.S. QUADRANGLE MAPS D FROM LOCAL INFORMATION E ON LOCAL MAPS F P.O. GUIDE OR MAP G RAND MCNALLY ATLAS H U.S. LIGHT LIST K										
	A	B	C	D	E	F	G	H	K		
Adams Island	X									1	
Atlantic Ocean (title)	X									2	
Fishermans Island	X									3	
Little Inlet	X									4	
Myrtle Island	X									5	
Smith Island	X									6	
Smith Island Inlet	X									7	
Smith Island Shoal	X									8	
Virginia (title)	X									9	
Smith Island Beach										10	
										11	
										12	
										13	
										14	
										15	
										16	
										17	
										18	
										19	
										20	
										21	
										22	
										23	
										24	
										25	

Approved:

Charles E. Harrison
Chief Geographer - N/CQ2x5

6 Sept. 1983

H-9961

HYDROGRAPHIC SURVEY STATISTICS

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

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS & PRELIMINARY OVERLAYS		9	
DESCRIPTIVE REPORT		1	SMOOTH OVERLAYS: POS ¹ ARC ² EXCESS		3	
DESCRIP- TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	X		2 - Raw Plo, Fathograms, Misc.			
VOLUMES						2
BOXES			2 - Smooth Plo, 3 sand vd. misc			

T-SHEET PRINTS (List)

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	PRE- VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			3367
POSITIONS CHECKED		3367	3367
POSITIONS REVISED		3367	3367
SOUNDINGS REVISED	47	799	846
SOUNDINGS ERRONEOUSLY SPACED			
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED			
TIME - HOURS			
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	20		20
VERIFICATION OF CONTROL		16	16
VERIFICATION OF POSITIONS		138	138
VERIFICATION OF SOUNDINGS		395	395
COMPILATION OF SMOOTH SHEET		128	128
APPLICATION OF TOPOGRAPHY			
APPLICATION OF PHOTOBATHYMETRY			
JUNCTIONS		8	8
COMPARISON WITH PRIOR SURVEYS & CHARTS		26	26
VERIFIER'S REPORT		33	33
OTHER		9	9
TOTALS	20	753	773
Pre-Verification by J. B. Wilson	Beginning Date 9/10/81	Ending Date 9/15/81	
Verification by M. Stewart, M. Holloway, R. Hill, Roberson	Beginning Date 10/13/81	Ending Date 9/14/82	
Verification Check by G. F. Trefethen	Time (Hours) 62	Date 8/24/82	
Marine Center Inspection by H.I.T.	Time (Hours) 16	Date 9/14/82	
Quality Control Inspection by L. Quinlan	Time (Hours) 80	Date 3/15/83	
Requirements Evaluation by	Time (Hours)	Date	

G. Myers 7/19/83 5 hrs.

REGISTRY NO. H-9961

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

ATLANTIC MARINE CENTER
VERIFICATION REPORT

REGISTRY NO.: H-9961

FIELD NO.: MI-20-2-81

Virginia, Atlantic Ocean, ~~Smith Island Inlet to Little Inlet~~
Little Inlet to Smith Island Inlet

SURVEYED: July 20 through August 10, 1981

SCALE: 1:20,000

PROJECT: OPR-D103

SOUNDINGS: Ross Digital Echo Sounder
Divers

CONTROL: HYDROTRAC (Hyperbolic Mode)

Chief of Party R. A. Trauschke

Surveyed by K. W. Perrin
..... J. W. Humphrey
..... J. Zabitchuck
..... F. W. Rossman
..... R. D. Henegar
..... A. E. Orris
..... B. L. Coakley
..... B. K. Smith

Automated Plot by Xynetics 1201 Plotter (AMC)

1. INTRODUCTION

a. During verification of this survey procedural problems were discovered that resulted in errors in the electronic correctors. These problems are outlined in section 4 of this report. After a thorough examination of calibration data submitted by the field, the conclusion not to change the correctors was made. This decision was influenced by the minimal amount of change that would have resulted from the changes at the scale of the survey. ✓

b. Notes in the Descriptive Report were made in red during verification.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections F and G of the Descriptive Report except as noted in section 4 of this report. ✓

b. Shoreline originates with Shoreline Movement Study Maps 229, 230, and 231 from a 1980 compilation. Red shoreline on the field sheet coincides with the shoreline on the smooth sheet. The inlets mentioned by the hydrographer are shown closed on the shoreline maps and subsequent chart editions. *unobtainable during Q.C.* ✓

3. HYDROGRAPHY

a. Soundings at crossings are in excellent agreement. Depths vary plus or minus one (1) foot. ✓

b. The standard depth curves could be drawn in their entirety. The three (3) ✓ and thirty-six (36) foot supplemental depth curves were added. The thirty-six (36) foot curve was added to conform with the chart. Brown curves were added to accent additional features.

c. Development~~at~~ of the bottom configuration and ^{the} determination of least depths ✓ is considered adequate with the following exception:

The development run for Presurvey Review item 72 was run with all lines oriented ✓ east-west. Lines perpendicular to the east-west lines would have provided not only additional coverage of the area but may have shown additional pertinent data. One of the lines may have followed the axis of the scour found in approximate Latitude 37° 03' 26.01" N, Longitude 75° 53' 59.34" W. This scour is approximately 115 meters long and is oriented in a near north-south direction. *concur*

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual ✓ with the following exceptions:

a. Twice daily bar checks were not taken as per section 1.5.2 of the Hydro-
graphic Manual. Twenty (20) days of launch hydrography were run and only eight ✓ (8) bar checks were taken. Although Nansen casts were used for velocity correctors, the bar checks are also used to detect any instrument error.

b. No NOAA Form 76-40 was submitted for fixed aids or landmarks in the ✓ survey area. Several landmarks and one fixed aid fall on the shore within the sheet limits. None were evaluated as required by sections 4.5.13 and 5.5.1 of the Hydro-
graphic Manual. Forms 76-40 were submitted for the entire project area not by survey. A xerographic copy of the forms 76-40 will be included with the Descriptive Report.

c. Pencil marks found on the analog record in the actual bottom trace tend ✓ to smudge and prevent accurate interpretation of the analog data that may be required during verification.

d. Elevations of control stations used to control hydrographic^y were not checked. ✓ Station FEN, 1960 had an elevation of fifty (50) meters listed. The elevation is 3.34 meters. The elevation was changed to zero (0) during verification and positions were recomputed. The elevation change had minimal effect considering survey scale.

e. Calibrations should be performed in or near the survey area. Ship hydrography ✓ was run using Chesapeake Light Tower for a calibration point. Chesapeake Light Tower is at the closest point ten (10) miles from the survey area and most distant point is twenty (20) miles.

f. Sections 1.3.3.2.2 and 4.4.3.3 of the Hydrographic Manual place particular emphasis on calibration of medium range positioning systems when used on inshore surveys. Considering the suggested, "...daily or twice daily calibrations are, again, minimal..." more calibrations should have been performed by vessel 2220 (MT MITCHELL). ✓

g. The inshore calibration buoy and calibration stake used by the launches (2223 and 2225) were positioned using three (3) point sextant fixes (section G. of the Descriptive Report). No data was forwarded with the survey records to substantiate their locations. A calibration point (station) should be located to third order Class I standard or better. Considering survey scale there is probably a minimal negative effect on survey results. ✓

h. The hydrographer's search for Presurvey Review item number 66 revealed a pier ruin; however, nowhere in the data submitted can there be found a note or notes to support this conclusion. *✓ Ruins shown on smooth sheet based on Descriptive Report comments.*

5. JUNCTIONS

Adequate junctions were effected with the following surveys: ✓

H-9919 (1980) to the south

H-9955 (1981) to the southeast

H-9962 (1981) to the east ✓

H-9969 (1981) to the north

H-~~996~~⁹⁴⁹³ (1977) to the Northwest.

6. COMPARISON WITH PRIOR SURVEYS

H-4193 (1921) 1:40,000

H-4194 (1921) 1:40,000

H-5989 (1935) 1:40,000

H-8218 (1954) 1:25,000

The above prior surveys taken together cover the survey area in its entirety. ✓

H-4193 (1921) - generally agreement is good; however in the inshore area there are differences up to ten (10) feet with the present survey being deeper. This can be attributed to the recession of the shoreline of the barrier islands and deepening of previously shallow areas. In depths greater than twenty-five (25) feet the present survey is generally one (1) to two (2) feet shoaler. ✓

H-4194 (1921) - a general comparison shows good agreement except along the shoreline where present depths are as much as ten (10) feet deeper where the shoreline has receded. In depths between twenty (20) and thirty (30) feet the present survey depths vary from plus or minus one (1) to three (3) feet. In present depths of forty (40) feet or greater the present survey is generally one (1) to two (2) feet shoaler than the prior survey. ✓

H-5989 (1935) - generally the present survey is one (1) to three (3) feet shoaler than the prior survey except along the axis of Smith Island Shoal from Latitude 37° 07' 12" N, Longitude 75° 43' 00" W, to Latitude 37° 05' 18" N, Longitude 75° 46' 00" where the present survey is three (3) to fifteen (15) feet deeper. Smith Island Shoal appears to be migrating to the south and west. ✓

6) A charted dangerous wreck (7-ft rep), Presurvey Review item 72, in Latitude 37° 03' 24.6" N, Longitude 75° 54' 00" W was searched for and an indication of an extensive scour found. This scour was approximately 115 meters in length and oriented in a north-south direction. This item has been searched for in 1939, 1977, and 1980. In 1939 the area was wire dragged H-6438 WD (1939) and an object located. The object was subsequently cleared by eleven (11) feet. In 1977 a seven (7) foot indication was found on H-9693 (1977) and subsequently charted in Latitude 37° 03' 24" N, Longitude 75° 54' 00" W. In 1980 a sixteen (16) foot leadline least depth was obtained on H-9904 (1980) by divers on approximately half of a sunken wreck in Latitude 37° 03' 22", Longitude 75° 53' 58" W. The last two (2) positions are approximately sixty-four (64) meters apart. The sixteen (16) foot and the seven (7) foot sounding are being brought forward to the present survey. Since the 1980 search found only a portion of a wreck and the seven (7) foot sounding appeared to be an indication of a wreck, it is recommended that these both be charted and that a thorough wire drag survey and/or side scan sonar search be conducted to determine the location of all wreckage in this particular area. *If reported considered, invalid 14' from H-6438 (1939) was cleared by 11' and the 16' sounding from H-9904 should be considered valid and the most current information.* *Answer #933*

A charted shoal in Latitude 37° 30' 00" N, Longitude 76° 53' 36" W was not investigated by the hydrographer. It is recommended that the shoal remain as charted unless subsequent data indicate otherwise. *Outside survey limits.*

The present survey is adequate to supersede the charted hydrography within the common area except as noted in this and other sections of this report.

b. Aids to Navigation

There is one floating aid to navigation within the survey area, and it is adequate to serve its intended purpose.

8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the Project Instructions except as noted in section 4 of this report.

9. ADDITIONAL FIELD WORK

This is a good basic survey; additional field work (wire drag/side scan sonar) has been recommended in section 7.a.4 and 7.a.6 of this report.

for * *George R. Myers*
Robert R. Hill
Cartographic Technician
Verification of Data

Robert G. Roberson
Robert G. Roberson
Cartographer
Evaluation and Analysis

for * *George R. Myers*
Guy F. Trefethen
Senior Cartographic Technician
Verification Check

** per telegram May 31, 1983*

APPROVAL SHEET
FOR
SURVEY H-9961

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

Date: September, 1982


for George K. Myers
Chief, Verification Branch
per Telecom May 31, 1983

INSPECTION REPORT
H-9961

The completed survey has been inspected by the Hydrographic Inspection Team with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The Verification Report has presented the facts accurately and properly, the procedures used were appropriate, and the recommendations are logical and justifiable. The survey complies with National Ocean Survey requirements except as noted in the Verification Report. The survey records comply with NOS requirements except where noted in the Verification Report. The Hydrographic Inspection Team concurs with the verifier's findings, actions, and recommendations.

Examined and Approved
Hydrographic Inspection Team


Karl Wm. Kieninger, CDR, NOAA
Chief, Processing Division


R. D. Sanocki
Chief, Verification Branch
Processing Division

Approved/Forwarded
September 15, 1982


Richard H. Houlder, RADM, NOAA
Director, Atlantic Marine Center



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

N/CG242:LQ

July 10, 1984

TO: Roy K. Matsushige
Chief, Hydrographic Surveys Branch

THRU: Chief, Standards Section *gmm*

FROM: Lisa Quinlan *Lisa Quinlan*
Quality Evaluator

SUBJECT: Quality Control Report for Survey H-9961 (1981), Virginia, Atlantic Ocean, Little Inlet to Smith Island Inlet

A quality control inspection of survey H-9961 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, smooth plotting, shoreline transfer, decisions made and actions taken by the verifier, and the cartographic presentation of data. Revisions and additions to the smooth sheet, plus helpful comments made to the verifier, are identified on a one-half scale copy of the survey to be furnished the verifier. In general, the survey was found to conform to National Ocean Service standards and requirements except as stated in the Verifier's Report.

The following supplements the Verifier's Report:

The charted ruins (chart 12224) in the vicinity of latitude 37°07'10"N, longitude 75°53'28"W originating with a miscellaneous source was not addressed by the hydrographer or the verifier and is deferred to the compiler for disposition. The low water feature currently depicted on chart 12224 is in conflict with the present survey hydrography and, if retained on the chart, should be changed to submerged ruins.

CC:
N/CG241



DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 69 K

