

9980

Diagrams 1221-2 & 1222-4

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. MI-20-6-81
Office No. H-9980

LOCALITY

State Virginia
General Locality Atlantic Ocean
Locality Cobb Island to Hog Island

1981

CHIEF OF PARTY
CAPT. R.A. Trauschke

LIBRARY & ARCHIVES

DATE September 24, 1984

9980

*Area 2
CH 751*

*12210
12224 } to sign off
12221 } Record of Application
12200
12220
13003*

HYDROGRAPHIC TITLE SHEET

H-9980

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-20-6-81

State VIRGINIA

General locality NORTH ATLANTIC OCEAN

Locality COBB ISLAND TO HOG ISLAND

Scale 1:20,000

Date of survey 28 September (JD 271) 1981

thru 28 October (JD 301) 1981

Instructions dated 31 MARCH 1981 *

Project No. OPR-D103-MI/PE-81

Vessel NOAA SHIP MT MITCHELL S-222 (VESNO 2220), Launches (VESNO 2223, 2225, 2226)

Chief of party CAPTAIN ROBERT A. TRAUSCHKE, NOAA, COMMANDING

Surveyed by (SEE REMARKS)

Soundings taken by echo sounder, ~~BEAM ECHO SOUNDER~~ ECHO SOUNDER

Graphic record scaled by RW, EM, FS, RC, UG, JZ

Graphic record checked by RW, EM, FS, FR

Protracted by N/A

Automated plot by SHIP'S COMPUT

Verification by _____

Soundings in ~~XXXXXX~~ feet at MLW ~~XXXXXX~~ FEET AT MLW

REMARKS: * CHANGES TO PROJECT INSTRUCTIONS ONE THRU FOUR DATED 27 APRIL, 06 MAY,

21 JULY, and 10 AUGUST 1981 RESPECTIVELY

SURVEYED BY: LT K.W. PERRIN - FOO

LT. E.S. VARNEY

LTJG J.W. HUMPHREY, JR.

LTJG J.A. ZABITCHUCK

ENS. K.P. PETERS

ENS. F.W. ROSSMANN

ENS. R.D. HENEGAR

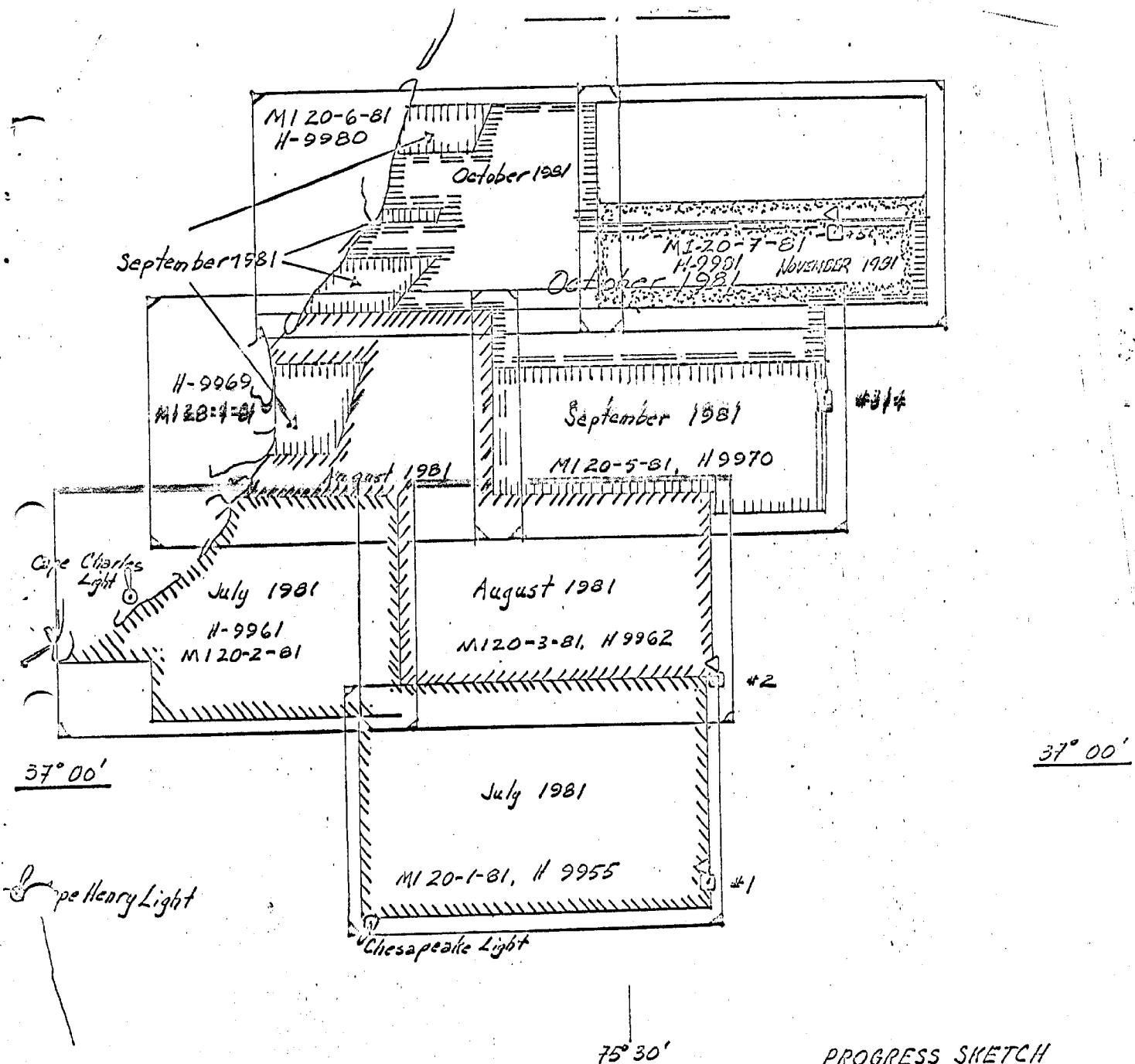
ENS. B.L. COAKLEY

ENS. A.E. ORRIS

STANDARDS CK'D

CLOY 10-3-84

✓ AWOIS and SURF 12/84 RWD



PROGRESS SKETCH
 HYDROGRAPHIC OPERATIONS
 NOAA SHIP MT. MITCHELL S-222
 ROBERT A. TRAUSSCHKE, CAPTAIN, NO.
 COMMANDING

July	August	Sept	October	November	
1530	1500	746	1426.7	520.4	LNM HYDRO (SHIP)
138	156	68	140	43	S/M HYDRO (SHIP)
509	331	414	387.6	=	LNM HYDRO (LAUNCH)
55	5	15	12	=	S/M HYDRO (LAUNCH)
12	205	29	186	=	BOTTOM SAMPLES
1	1	1	1	1	NANSEN CAST
392	785	270	813.3	175.5	MISC. NM SHIP
206	264	242	695.1		MISC. NM LAUNCH

SCALE OF CHART 12200

TABLE OF CONTENTS

HYDROGRAPHIC TITLE SHEET

PROGRESS SKETCH

	PAGE
A. PROJECT.....	1
B. AREA SURVEYED.....	1
C. SOUNDING VESSEL.....	1
D. SOUNDING EQUIPMENT & CORRECTIONS TO ECHO SOUNDINGS.....	1
E. HYDROGRAPHIC SHEETS.....	3
F. CONTROL STATIONS.....	4
G. HYDROGRAPHIC POSITION CONTROL.....	4
H. SHORELINE.....	5
I. CROSSLINES.....	6
J. JUNCTIONS.....	6
K. COMPARISON WITH PRIOR SURVEYS.....	6
L. COMPARISON WITH CHART.....	7
M. ADEQUACY OF THE SURVEY.....	8
N. AIDS TO NAVIGATION.....	8
O. STATISTICS.....	9
P. MISCELLANEOUS.....	9
Q. RECOMMENDATIONS.....	9
R. AUTOMATED DATA PROCESSING.....	9
S. REFERENCE TO REPORTS.....	9
APPENDICES.....	

"APPENDICES"

- *A. HYDROGRAPHIC SHEET PROJECTION AND ELECTRONIC CONTROL PARAMETERS
- B. FIELD TIDE NOTE
- *C. GEOGRAPHIC NAMES LIST
- *D. ABSTRACT OF CORRECTIONS TO ECHO SOUNDINGS
- *E. ABSTRACT OF CORRECTIONS TO ELECTRONIC POSITION CONTROL
- F. LIST OF STATIONS
- G. ABSTRACT OF POSITIONS
- *H. BOTTOM SAMPLES
- I. LANDMARKS FOR CHARTS
- J. APPROVAL SHEET

* Removed from the Descriptive Report and filed with survey data.

A. PROJECT:

This survey was conducted in accordance with Project Instructions OPR-D103-MI/PE 81 dated 31 March 1981, amended by Changes 1 through 4 dated 27 April, 06 May, 21 July and 10 August 1981 respectively.

B. AREA SURVEYED:

This survey was conducted in the Atlantic Ocean off of Virginia's eastern peninsula and includes the eastern shoreline off Cobb Island and Hog Island. The shoreline is characterized by low gradually sloping beach front with marsh area adjacent to the west. The charted shoreline shows one inlet, which is navigable. Moving offshore the bottom slopes gradually reaching the 30 foot contour 2.5 nautical miles offshore. The bottom continues to slope gradually from the 30 foot contour to an average depth of 60 feet at the eastern survey limit. One isolated shoal is located at the northern inshore corner of the survey. The limits of the survey are roughly defined by lines connecting the following points in a clockwise manner:

<u>Latitude</u>	<u>Longitude</u>
37° 17.5' N 37° 18.5' N	75° 48.4' W 75° 46.5' W
37° 27.4' N 37° 26.6' N	75° 48.4' W 75° 39.7' W
37° 27.4' N 37° 26.6' N	75° 30.0' W 75° 34.8' W
37° 17.5' N 37° 18.5' N	75° 30.0' W 75° 34.8' W

The survey was conducted between 28 September (Julian Date 271) and 28 October 1981 (Julian Date 301).

C. SOUNDING VESSELS:

Sounding for this survey was obtained by NOAA Ship MT MITCHELL S-222 (VESNO 2220), Launch 1002 (VESNO 2225), Launch 1004 (VESNO 2223) and Launch 1008 (VESNO 2226).

Launch 1002 had an onboard fire on 28 September. The launch was left at the Atlantic Marine Center on 01 October. All electronic equipment from Launch 1002 was transferred to Launch 1008 at the Marine Center. Launch 1008 was used in lieu of Launch 1002 for the remainder of the survey.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS:

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

<u>Equipment</u>	<u>Serial Number</u>
<u>VESNO 2220</u>	
Ross Model 5000 Fineline Depth Recorder	1050
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

D. continued

<u>Equipment</u>	<u>Serial Number</u>
<u>VESNO 2225/2226</u>	
Ross Model 5000 Fineline Depth Recorder	3780
Ross Model 4000 Transceiver	1053
Ross Model 6000 Digitizer	1039

Soundings obtained by the MT MITCHELL were taken with a skeg mounted transducer (Antenna Distance 32.0 meters forward of transducer). Antenna distance for all launches is 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 calibration checks were made during hydrographic operations. Necessary adjustments were made and noted in the sounding volume and on the fathogram. Any departure of the trace from the calibration due to phase differences was corrected during the scanning process.

The bridge recording echo sounder was run in conjunction with hydrographic operation. The wider beam width of this echo sounder aids in the detection of shoals or obstruction while conducting hydrography. The graphic recorders were not retained and are not a part of the survey data.

Velocity correctors were obtained from two Nansen casts:

<u>Cast Number</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Date</u>
3	37° 14.5' N	75° 20.3' W	26 September 1981
4	37° 15.5' N	75° 19.4' W	21 October 1981

Correctors derived from cast number 3 were applied to all hydrography from Julian Date 271 to Julian Date 282. Correctors derived from cast number 4 were applied to all hydrography from Julian Date 285 to Julian Date 301. Bar checks taken by the launches for comparison with the Nansen cast data. Bar check correctors compare favorably with the Nansen cast data for Launch 1008 (VESNO 2226). The data from Launch 1004 (VESNO 2223) is slightly higher (0.3 ft.) than the Nansen cast data (Nansen cast velocity correctors were applied to all offline processing in lieu of bar check data because it is considered more accurate). All velocity tables and tape printouts may be found in Appendix D of this report.

A draft of 14.1 feet was applied to all soundings collected by the MT MITCHELL (VESNO 2220) during on-line data collection. Settlement and squat correctors for the ship were determined on 26 July 1981, Julian Date 207, eight miles east of Cape Charles, Virginia. A draft of 1.4 feet was applied to all soundings taken by Launches 2223 and 2225 during on-line data collection. A draft of 1.5 feet was applied to all soundings taken by Launch 2226. Settlement and squat corrections for Launches 2223 and 2225 were determined on 15 July 1981 (Julian Date 196) at Pier 5, Little Creek Naval Amphibious Base, Little Creek, Virginia.

D. continued

Settlement and squat corrections for Launch 2226 were determined on 05 October 1981 (Julian Date 278) at Pier 14, Little Creek Naval Amphibious Base, Little Creek, Virginia. A copy of the field data and settlement and squat correctors versus RPMs for the launches and the ship are included in the survey support data found in Appendix D. The settlement and squat correctors will be applied during final processing of the data by OA/CAM3, Processing Division, via the TC/TI tape.

This survey was conducted using predicted tides based on daily predictions at Hampton Roads (Sewells Point), Virginia from the Tide Table 1981, with tidal zoning applied as provided by OPR-D103-MI/PE^{al} 80 Project Instructions. Tide correctors were applied during on-line sounding with the following exceptions:

	<u>JULIAN DATE</u>	<u>POSITIONS</u>
VESNO 2226	280	6027-6038
	283	6148-6233
	295	6280-6378

Tidal corrections for these exceptions were applied during off-line processing. Smooth tide were requested from the Chief, Tides and Water Levels Branch (OA/C23) dated 06 November 1981 for the period of hydrography.

E. HYDROGRAPHIC SHEETS:

This survey was plotted on five mylar field sheets prepared by the MT MITCHELL's hydroplot system.

<u>Number of Sheets</u>	<u>Type</u>	<u>Skew</u>
2	Main Scheme	0, 21, 54
3	Crosslines, Shoreline	0, 21, 54
	Bottom Samples, Detached	
	Position and Developments	

Soundings on the field sheet are corrected for draft, predicted tides, digitizing errors and sound velocity. Sheets are not corrected for smooth tides or settlement and squat; these corrections will be applied on the final smooth sheet prepared by the Atlantic Marine Center (OA/CAM3) Processing Division, Norfolk, Virginia.

All field records and the following tapes have been forwarded to the Atlantic Marine Center, Processing Division.

- Hyperbolic Master Tapes
- Electronic Corrector Tapes
- Velocity Corrector Tapes
- Parameter Tapes
- Signal Tapes
- Predicted Tide Tapes (ASCII)
- TC/TI Tapes

F. ELECTRONIC CONTROL STATIONS:

The following control stations were used for this survey:

<u>Station Number</u>	<u>Station Name</u>	<u>Latitude</u>	<u>Longitude</u>
100	Gravity, 1965 (1980)	36°40'31.453"N	075°54'56.471"W
200	Fen, 1960	37°05'36.243"N	075°58'17.556"W
300	H-8-VA-78, 1980	37°51'46.270"N	075°22'03.968"W

All stations were established using Third Order Class I survey methods. Stations were erected-recovered in June/July 1981 by MT MITCHELL officers. A complete list of stations used for the project and their geographic positions are included in Appendix F of this report.

G. HYDROGRAPHIC POSITION CONTROL:

An ~~Odom offshore hydrotrac~~ ^{Odom Offshore HYDROTRAC} system, operating in the hyperbolic mode at 1718.590 kHz, provided the positioning control for the survey period, 28 September 1981 (JD 271) to 21 October 1981 (JD 301). The equipment used, location and serial numbers are as follows:

<u>Location</u>	<u>Equipment</u>	<u>Model</u>	<u>Serial No.</u>
VESNO 2220	Hydrotrac Receiver	703	327
	Hydrotrac Power Amplifier	74-87	539
	Sawtooth Recorder		1914
Station 100 (Slave 1)	Receiver/Slave Drive Unit		214
	Linear Power Amplifier	74-78	537
	Coupler		131
Station 200 (Master)	Master Drive Unit		122
	Linear Power Amplifier	74-87	538
Station 300 (Slave 2)	Receiver/Slave Drive Unit		226
	Linear Power Amplifier	74-87	536
	Coupler		130
VESNO 2223	Hydrotrac Receiver	700	328
	Sawtooth Recorder	RB-15	13
VESNO 2225/2226	Hydrotrac Receiver	700	326
	Sawtooth Recorder		A-175

Lane counts and partial correctors for the Ship (VESNO 2220) were determined by circle calibration around Chesapeake Light Tower (third order triangulation station) located at 36° 54'16.158"N, 075° 42'47.123"W. The circle calibration method is described on page 4-28 of the Hydrographic Manual.

G. continued

Calibration buoys were deployed by the MT MITCHELL at the following locations:

<u>Buoy</u>	<u>Latitude</u>	<u>Longitude</u>
Calibration Buoy # 2	37°14'00.94" N	75°40'23.56" W
Calibration Buoy # 3	37°17'36.06" N	75°38'21.73" W

Positions for the calibration buoys were determined by using the circle calibration method. Several passes were made to verify the rates of each buoy position. The buoys were used to check whole lanes by the ship with an alongside pass during each day of operation or whenever there was a question about the validity of the whole lane count.

Static point calibrations for the launches (VESNO 2223, 2225, and 2226) were obtained laying along ~~the~~ Sand Shoal Inlet Mike Sand Beacon, located at 37°17'56.547"N, 75°48'14.311"W. Rates were recorded and averaged out to remove any discrepancies in the correctors. Whole lane counts were checked at the deployed calibration buoy at the end of each days' launch work.

The Hydrotrac whole lane count was constantly monitored by comparing the navigation interface readout with a running count on the sawtooth recorder. The sawtooth recorder was annotated by hand during survey operations.

Upon calibrating at Chesapeake Light Tower with VESNO 2220 on JD 299 it was found that the partials from both stations had changed by 0.08 lanes. This change was applied linearly to the electronic corrector tape from JD 294 to JD 299 at a rate of 0.016 per day. No other changes to the partial rates were noted during calibration for this survey.

H. SHORELINE: *See also section 2.6 of the Evaluation Report*

Sounding lines were run parallel to the shoreline at the inshore limits of safe navigation.

Shoreline was transferred from:

Shoreline Movement Study - Hog Island Virginia
1980 NOS Compilation for Digital Data
Map # 226, Scale 1:20,000, Mercator Projection
Sheet N - OPR-D-103 MI/PE-81

No field edit was done to verify the shoreline (transferred in blue ink). Minor discrepancies on the northern end of Cobb Island are noted by dashed red line. Mapped openings have been closed by sand.

It is recommended that the charted shoreline be revised using Map # 226 ~~and~~ including the noted minor discrepancies until a photogrammetric shoreline study is undertaken.

I. CROSSLINES: See also section 3.2 of the Evaluation Report

Crosslines were run at an angle of at least 45 degrees to the main scheme sounding lines. The percentage of crosslines to main scheme per vessel and comparative statistics are:

<u>VESNO</u>	<u>Crossline/Main Scheme</u>
2220	7%
2223	11%
2225/2226	11%

<u>VESNO</u>	<u>Comparison Percentage</u>
2220	92% <u>+1</u>
2223	79% <u>+1</u>
2226	88% <u>+1</u>

Unusually high tides on JD 271 and JD 283 may have affected the crossline comparison for VESNO 2223. A recon survey done at the end of the survey shows a slight difference (1 to 2 feet) in depths in the northwest portion of VESNO 2223 field sheet. It is recommended that this northwest portion of the survey be reviewed once smooth tides have been applied. The remaining vessels (VESNO 2220 and 2226) have good agreement between main scheme and crosslines.

J. JUNCTIONS See also section 5 of the Evaluation Report

This survey junctions with the following contemporary surveys:

<u>Area of Junction</u>	<u>Field No.</u>	<u>Reg. No.</u>	<u>Scale</u>	<u>Date</u>	<u>VESNO</u>
South	MI-20-4-81	H-9969	1:20,000	1981	2220/2223
South	MI-20-5-81	H-9970	1:20,000	1981	2220
East	MI-20-7-81	H-9981	1:20,000	1981	2220

The southern junctions have no overlap because consecutive sounding lines were run with the same vessels in the same year. The general depth trend is in excellent agreement when comparing ^{the present survey} MI-20-6-81 with MI-20-4-81 or MI-20-5-81. The eastern junction with MI-20-7-81 displays excellent agreement with the majority of the soundings being either exact or within 1 foot.

K. COMPARISON WITH PRIOR SURVEYS: See also section 6 of the Evaluation Report.

The following prior surveys were within the survey area:

<u>Registry No.</u>	<u>Scale</u>	<u>Date</u>
H-5704	1:20,000	October 1934
H-5770	1:40,000	October 1934

K. continued

The comparison with H-5704, which contains the shorelines of Cobb and Hog Islands, shows a considerable amount of change in the bottom ^{configuration} contour. No general trend can be noted; soundings vary from exact agreement to differences of +5 feet. The northeastern coastline of Cobb Island and southeast coastline of Hog Island have been eroded roughly 0.3 n.m. westward. The eastern end of Great Machipone^{ed} Inlet is now shallower. The North Channel has shifted westward by 0.3 n.m. The breakers between 37°25.5'N and 37°26.5'N have shifted northwest slightly. H-5770 is the offshore survey and general agreement is within +5 feet when compared with this survey.

The following ^{prior survey} charted features are non-existent:

Buoy "N"	37°20.2' N	75°40.5' W
Buoy "C"	37°20.0' N	75°39.9' W
Buoy "Bell"	37°19.0' N	75°39.3' W

Fish traps enclosed in the following area:

37°22' N/ 75°36' W; 37°24' N/ 75°40' W; 37°26' N/ 75°38' W and
37°27' N/ 75°36' W

The overall change of the bottom ^{configuration} contour is probably due to the sandy nature of the bottom, weather conditions and time.

L. CHART COMPARISON: See also section 7.2 of the Evaluation Report

This area is covered by the following charts:

<u>Chart Number</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>
12224	16th	23 May 1981	1:40,000
12210	25th	18 Oct 1980	1:80,000
12221	50th	18 July 1981	1:80,000

Numerous changes in the bottom ^{configuration} contour are noted (see section K). Areas where shoaling ^{was} noted were developed at reduced line spacing. The small island ^{north} of Cobb Island on Chart 12221 is now part of Cobb Island (see section H). Chart 12210 should have the following shoal areas deleted:

<u>Latitude</u>	<u>Longitude</u>	<u>Charted Less Depth (Feet)</u>	<u>Present Survey Depth</u>
37°23.3' N	75°34.4' W	29	41-43 Ft
37°23.5' N	75°37.2' W	30	40-42 Ft
37°23.0' N	75°37.3' W	27	31-36 Ft

A shoal at Latitude 37°22.6' N, Longitude 75°38.0' W should be applied to the chart with a radius of 0.2 n.m. with ^{east} a depth of 25 feet. Echo sounder least depth of 25 feet in latitude 37°-22'-39.51"N, longitude 75°-37'-55.89"W.

L. continued

There are five Presurvey Review Items on this survey:

PSR # 45 (Charts 12210 & 12221) Visible ruins, Latitude 37°23'46" N, Longitude 75°42'01" W: An attempt was made to investigate this item, however, the water is too shallow and the launch ran aground 100 meters east of the position given for the ruins. Visual inspection from seaward at low tide showed no existence of these ruins. Recommend this item be deleted from the chart. - Source T-11619 (1959-61) - See Section 7.2 of the Evaluation Report for recommendation.

PSR # 46 (Charts 12224 & 12221) Visible wreck, Latitude 37°21'30" N, Longitude 75°43'30" W: 55 foot schooner partially sunk in four feet of water (Rates 34.73/428.03) observed visual. The wreck is partially sub-merged at 37°21'35.03" N, 75°42'42.50" W and should be charted as such. *Concur*

PSR # 57 (Chart 12221) Dangerous sunken wreck, PA. Latitude 37°20'30" N, Longitude 75°42'42" W: Limited investigation was conducted as per project instructions at reduced line spacing (100 meters). No evidence of wreck was found. It is recommend this item be charted as existence doubtful (ED). *Concur*

PSR # 58 (Chart 12221) Non-dangerous sunken wreck, Latitude 37°19'40" N, Longitude 75°40'50" W. Limited investigation was conducted as per project instructions at reduced line spacing (100 meters); no evidence of wreck was found. It is recommended this item be charted as existence doubtful (ED). *Concur*

PSR # 59 (Chart 12221) Non-dangerous sunken wreck, Latitude 37°18'52" N, Longitude 75°36'30" W. Limited investigation was conducted as per project instructions at reduced line spacing. No evidence of wreck was found; however, the least depth in the area is now 39 feet and some shoaling in this area is noted. Recommend this wreck be charted as existence doubtful (ED) and the shoal be charted as such. *Concur*

M. ADEQUACY OF THE SURVEY:

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

N. AIDS TO NAVIGATION:

Included within the limits of this survey are two floating aids to navigation:

<u>Navigation Aid</u>	<u>Characteristics</u>	<u>Latitude</u>	<u>Longitude</u>
Buoy "A"	Bell, Bl., W. Vertical Stripe	37°23'26.33"N	75°40'23.10"W
Buoy "B"	Mo(A), Bl., W. Vertical Stripe	37°22'45.25"N	75°42'03.50"W

The comparison of the position for Bell Buoy "A" with U.S. Coast Guard Light *list* Volume 1 (CG-158) is in agreement. Buoy "B" has no position in the light *list*, but marks the entrance of the North Channel.

* Because of line spacing (100 meters) and transducer beam width in the water depth it is *not* felt that these items should remain as charted.

RWD
12/3/84

O. STATISTICS:

	Ship VESNO: 2220	L a u n c h e s 2223	2225	2226	Total
Positions	1,550	1,011	95	378	3,034
Linear Nautical Miles of Hydrography	483.9	141.9	55.7	65.8	747.3
Linear Nautical Miles of Crosslines	35.4	15.3	0	13.0	63.7
Linear Nautical Miles of Development	48.9	109.9	0	26.4	185.2
Total Linear Miles of Hydrography	568.2	267.1	55.7	105.2	996.2
Square Miles of Hydrography	48.7	20.2	2.0	18.1	89.0
Bar Checks	0	1.0	0	1.0	2.0
Nansen Casts	2.0	0	0	0	2.0
Bottom Samples	46.0	13.0	0	15.0	74.0

P. MISCELLANEOUS:

Abnormally high tides were noted during the period for Julian Date 271 and Julian Date 283. Records from the Cobb Island tide gauge were checked and verified this fact. This fact accounts for the discrepancies between soundings obtained later during the survey.

Q. RECOMMENDATIONS:

It is recommended that this survey supersede all prior surveys for charting.

R. AUTOMATED DATA PROCESSING:

<u>Program Name</u>	<u>Version</u>
RK110 Hyperbolic Real Time Plot	01-30-76
RK201 Grid; Signals and Lattice	04-18-75
RK210 Hyperbolic Non Real Time Plot	07-25-80
RK300 Utility Computations	10-21-81
RK330 Data, Reformat and Check	05-04-76
PM360 Electronic Corrector Tape Abstract	02-21-76
AM500 Predicted Tide Generator	11-10-72
RK530 Velocity Corrections Computations	05-10-76
AM602 Extended Line Oriented Editor	05-12-75

S. REFERENCE TO REPORTS:

Coast Pilot Report - NOAA Ship MT MITCHELL Eastern Shore Virginia, OPR-D103-MI/PE-81.


Respectfully submitted:

Frederick W. Rossmann

Frederick W. Rossmann
ENS., NOAA

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.


Robert A. Trauschke
CAPTAIN, NOAA
Commanding

APPENDIX F

LIST OF STATIONS

SIGNAL TYPE--NAMES

SURVEY W-9980, FIELD NUMBER MT 20-6-81

STA.#	NAME
100	SANDBRIDGE HYDROTRAC SITE (GRAVITY, 1965 (1980))
105	SHREVEAKE LIGHT TOWER (CALIBRATION ST.)
106	PARCEL C TOWER A (LORNGIT TOWER)
107	RAN NECK KILLS NAUX TANK C 10217
108	VIRGINIA BEACH MUNICIPAL TANK B 10217
109	CAPE HENRY LIGHTHOUSE, DLE
134	CAVALIER HOTEL SUPOLA
135	CAPE HENRY LIGHTHOUSE EGG, ON (DEL MURFE STA.)
136	CAPE HENRY LIGHTHOUSE 1897
200	FISHERMANS I. HYDROTRAC SITE (FEN, 1960)
201	FISH ISLAND TANK
202	FISH ISLAND TOWER
204	FISH ISLAND GUERAN
210	CAPE CHARLES LIGHT
212	771ST TWR RED/WHITE
213	771ST AN/PPG N
214	0
215	SMITH ISLAND TOWER A
216	0
217	0
218	GOLDEN
219	ROCKHORN
220	CAROL
221	BOBB
222	CANDYLIH
223	FISH ISLAND COAST GUARD LG
224	FIG
225	LIPHAM
300	ASSATEAGUE I. HYDROTRAC SITE (H-B-0A-78)

SIGNAL LIST

H-9980 MI-20-6-81

100	4	36	40	31453	075	54	56471	030	0004	171859
129	3	36	54	16156	075	42	47123	139	0032	000000
130	3	36	53	35755	075	49	16150	139	0033	000000
151	3	36	46	13674	075	37	51991	139	0040	000000
132	3	36	50	31900	075	59	03523	139	0040	000000
133	6	36	55	32330	074	00	30514	139	0000	000000
134	6	36	52	09391	075	50	02012	139	0000	000000
135	4	36	55	34302	076	00	07303	139	0070	000000
136	3	36	55	34335	074	00	07216	139	0050	000000
200	7	37	05	36243	075	58	12556	250	0050	171859
201	3	37	06	04124	075	50	43436	139	0000	000000
202	7	37	05	57091	075	58	45131	139	0000	000000
204	3	37	05	51122	075	49	45459	139	0000	000000
210	3	37	07	22007	075	34	26526	139	0000	000000
212	4	37	07	57096	075	37	14654	139	0000	000000
213	3	37	00	03026	075	37	04192	139	0000	000000
214	3	37	00	02240	075	37	04262	139	0000	000000
215	4	37	07	10202	075	54	22021	139	0000	000000
216	4	37	07	19730	075	54	23294	139	0000	000000
217	4	37	07	10170	075	54	24242	139	0000	000000
218	4	37	10	52446	075	49	45128	139	0000	000000
219	4	37	11	54000	075	45	10000	139	0000	000000
220	4	37	12	29159	075	46	30074	139	0040	000000
221	4	37	12	43730	075	49	15724	139	0000	000000
222	4	37	17	40804	075	47	05438	139	0000	000000
223	4	37	18	14615	075	46	26441	139	0000	000000
224	4	37	19	23903	075	45	03809	139	0000	000000
225	4	37	16	08959	075	47	41000	139	0000	000000
300	4	37	51	46270	075	22	03948	250	0004	171859

APPENDIX G

ABSTRACT OF POSITIONS

ABSTRACT OF POSITIONS

VESNO: 2220

FIELD # MI 20-6-81

REG. # H-9980

DAY	POSITIONS	CTRL	S1	M	S2	REMARKS
287	7001-7046	05	100	200	300	BOTTOM SAMPLES
294	7047-7080	05	100	200	300	MAIN SCHEME
295	7081-7095	05	100	200	300	MAIN SCHEME
	7096-7138	05	100	200	300	X-LINES
	7139-7421	05	100	200	300	MAIN SCHEME
296	7422-7844	05	100	200	300	MAIN SCHEME
297	7845-8197	05	100	200	300	MAIN SCHEME
298	8198-8348	05	100	200	300	MAIN SCHEME
	8349-8378	05	100	200	300	X-LINES
	*8378-8426	05	100	200	300	DEVELOPMENT PSR#59
	8427-8458	05	100	200	300	DEVELOPMENT X-LINES
	8459-8474	05	100	200	300	X-LINES
	8475-8496	05	100	200	300	DEVELOPMENT X-LINES
	8497-8546	05	100	200	300	DEVELOPMENT SPLITS
	8547-8550	05	100	200	300	DEVELOPMENT X-LINES
299	8551-8571	05	100	200	300	DEVELOPMENT SPLITS
	8572-8575	05	100	200	300	DEVELOPMENT X-LINES
	8576-8590	05	100	200	300	DEVELOPMENT SPLITS

* DUPLICATED POS. #8378

CTRL CODES

- 01 - VISUAL, 03 - THEODOLITE, 04 - RANGE-RANGE,
- 05 - HYPERBOLIC, 08 - HYPERVISUAL, 09 - RANGE-VISUAL

ABSTRACT OF POSITIONS

VESNO: 2220

FIELD # MI 20-6-81

REG. # H-9980

DAY	POSITIONS	CTRL	S1	M	S2	REMARKS
299	8591-8599	05	100	200	300	DEVELOPMENT X-LINES
	8600-8659	05	100	200	300	DEVELOPMENT SPLITS
300*	8661-8741	05	100	200	300	DEVELOPMENT SPLITS
	8742-8758	05	100	200	300	DEVELOPMENT X-LINES
	8759-8769	05	100	200	300	DEVELOPMENT SPLITS
	8770-8773	05	100	200	300	DEVELOPMENT X-LINES
	8774-8788	05	100	200	300	DEVELOPMENT SPLITS
	8789-8794	05	100	200	300	DEVELOPMENT X-LINES
	8795-8858	05	100	200	300	DEVELOPMENT SPLITS
	8859-8861	05	100	200	300	DEVELOPMENT X-LINES
	8862-8882	05	100	200	300	DEVELOPMENT SPLITS

* Pos. # 8660 NOT USED
 CTRL CODES

- 01 - VISUAL, 03 - THEODOLITE, 04 - RANGE-RANGE,
- 05 - HYPERBOLIC, 08 - HYPERVISUAL, 09 - RANGE-VISUAL

ABSTRACT OF POSITIONS

VESNO: 2223

FIELD # MI 20-6-81

REG. # H9980

DAY	POSITIONS	CTRL	S1	M	S2	REMARKS
271	001-065	05	100	200	300	SHORELINE
	066-225	05	100	200	300	MAIN SCHEME
282	226-372	05	100	200	300	MAIN SCHEME
283	373-427	05	100	200	300	X-LINE
	428-557	05	100	200	300	MAIN SCHEME
284	558-565	05	100	200	300	BOTTOM SAMPLES
293	566	05	100	200	300	DETACHED POSITION
	567-620	05	100	200	300	DEVELOPMENT SPLITS
294	* 623-689	05	100	200	300	DEVELOPMENT SPLITS
	690-691	05	100	200	300	REJECTED
	692-696	05	100	200	300	BOTTOM SAMPLES
295	697-818	05	100	200	300	DEVELOPMENT SPLITS
	819-850	05	100	200	300	DEVELOPMENT X-LINE
	851-856	05	100	200	300	REJECTED
	857-868	05	100	200	300	DEVELOPMENT X-LINE
	869-873	05	100	200	300	REJECTED
296	874-878	05	100	200	300	DEVELOPMENT X-LINE
	879-882	05	100	200	300	REJECTED

* Pos. # 621-622 NOT USED

CTRL CODES

01 - VISUAL, 03 - THEODOLITE, 04 - RANGE-RANGE,
 05 - HYPERBOLIC, 08 - HYPERVISUAL, 09 - RANGE-VISUAL

ABSTRACT OF POSITIONS

VESNO: 2226

FIELD # MI 20-6-81

REG. # 9980

DAY	POSITIONS	CTRL	S1	M	S2	REMARKS
279	6001-6002	05	100	200	300	MAIN SCHEME
	6003-6004	05	100	200	300	REJECTED
	6005-6025	05	100	200	300	MAIN SCHEME
280	6026-	05	100	200	300	DP ON WRECK
	6027-6038	05	100	200	300	MAIN SCHEME
282	6039-6069	05	100	200	300	X-LINE
	6070-6071	05	100	200	300	REJECTED
	6072-6147	05	100	200	300	MAIN SCHEME
283	6148-6233	05	100	200	300	MAIN SCHEME
	6234	05	100	200	300	REJECTED
	6235-6246	05	100	200	300	BOTTOM SAMPLES
284	6247-6251	05	100	200	300	BOTTOM SAMPLES
293	6252-6274	05	100	200	300	MAIN SCHEME
	6275-6279	05	100	200	300	REJECTED
295	6280-6324	05	100	200	300	MAIN SCHEME
	6325-6332	05	100	200	300	X-LINE
	6333-6372	05	100	200	300	DEVELOPMENT SPLITS
	6373-6376	05	100	200	300	DEVELOPMENT XLINE

CTRL CODES

01 - VISUAL, 03 - THEODOLITE, 04 - RANGE-RANGE,
 05 - HYPERBOLIC, 08 - HYPERVISUAL, 09 - RANGE-VISUAL

APPENDIX I

LANDMARKS FOR CHARTS

LANDMARKS FOR CHART

See Coast Pilot Report, NOAA Ship MT. MITCHELL, Eastern Shore, Virginia,
1981, OPR-D103-MI/PE-81.

APPENDIX "I"

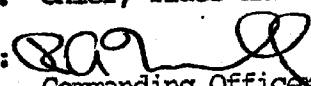
APPENDIX B

FIELD TIDE NOTE



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

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

Date : 06 NOV 1981
To : Chief, Tides and Water Levels Branch, OA/C23
From : 
Commanding Officer
NOAA Ship Mt. Mitchell S-222
Subj. : Tidal Data for OPR-D103-MI-81, "DELMARVANC"
Hydrographic Survey H-9980 (MI-20-6-81)

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
Sand Shoal Inlet (Cobb Island, VA.)	863-1542	37°18.1'N	75°46.7'W
Ocean City, MD.	857-0280	38°19.8'N	75°05.2'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°17.5'N, 37°27.4'N
LONGITUDE 75°30.0'W, 75°48.4'W

This information is requested for the following Times and Dates:

0000GMT JD 271 28 SEPT. '81 til 2359GMT JD 271 28 SEPT. '81
0000GMT JD 279 06 OCT., '81 til 2359GMT JD 280 07 OCT., '81
0000GMT JD 282 09 OCT., '81 til 2359GMT JD 284 11 OCT., '81
0000GMT JD 287 14 OCT., '81 til 2359GMT JD 287 14 OCT., '81
0000GMT JD 293 20 OCT., '81 til 2359GMT JD 301 28 OCT., '81

APPENDIX "B"



FIELD TIDE NOTE

Field tide reduction of soundings were based on Predicted Tides from Hampton Roads (Sewells Pt.) VA, and were corrected for predetermined tidal zone values from to OPR-D103-MI, PE-80, utilizing a PDP8/E Computer and Program RK500. All times of both Predicted and Recorded Tides are Universal Coordinated Time (GMT).

The number and type of Tide Gages installed, their geographic locations, dates of installation/removal, Leveling, Plane of Reference and period of operation are appended to this note, along with a copy of a letter to OA/C23 requesting verified hourly heights of tides from gages listed in this report.

The respective gages reportedly operated properly/improperly during this Project, with any exceptions noted under "REMARKS" on the appended Tide Gage Sheets.

APPENDIX "B"

FIELD TIDE NOTE

TIDE GAGE REPORT

NOS TIDE TABLE NUMBER: 2353 TIME MERIDIAN 075° W

GEOGRAPHIC LOCALE: Hampton Roads (Sewells Pt.) VA

NAME: Pier #2 Naval Operations Base STATION NUMBER 863-8610

LATITUDE: 36° 56.8'N, LONGITUDE: 76° 19.9'W

TYPE OF GAGE: XX ADR, BUBBLER, OTHER ()

PLANE OF REFERENCE: XXMLW, MLLW, GCLWD, OTHER, CORRESPONDS

TO FEET ON THE TIDE STAFF FOR THE PERIOD

DATED INSTALLED: 8/15/72 BY: ECTP 754

DATE REMOVED: BY:

DATE LEVELED: 4 APRIL 1981 BY: ECTP

REMARKS:

FIELD TIDE NOTE

TIDE GAGE REPORT

NOS TIDE TABLE NUMBER: 1943 TIME MERIDIAN 075° W

GEOGRAPHIC LOCALE: Cobb Island, Virginia (West side)

NAME: Cobb Island Coast Guard Sta. (abandoned) STATION NUMBER: 863-1542

LATITUDE: 37° 18' N, LONGITUDE: 075° 46.8' W

TYPE OF GAGE: XX ADR, BUBBLER, OTHER (Electric Tape Gage)

PLANE OF REFERENCE: XX MLW, MLLW, GCLWD, OTHER, CORRESPONDS
TO FEET ON THE TIDE STAFF FOR THE PERIOD TO

DATED INSTALLED: BY:

DATE REMOVED: 9 November 1981 BY: MT. MITCHELL

DATE LEVELED: 10 August 1981 BY: MT. MITCHELL (Check levels)

REMARKS:

FIELD TIDE NOTE
TIDE GAGE REPORT

NOS TIDE TABLE NUMBER: _____ TIME MERIDIAN 075 ° W

GEOGRAPHIC LOCALE: Virginia Beach, VA

NAME: Sandbridge Pumping Pier STATION NUMBER: 863-9428

LATITUDE: 36° 41.5' N, LONGITUDE: 75° 55.2' W

TYPE OF GAGE: XX ADR, ___ BUBBLER, ___ OTHER (_____)

PLANE OF REFERENCE: XX MLW, ___ MLLW, ___ GCLWD, ___ OTHER, CORRESPONDS
TO _____ FEET ON THE TIDE STAFF FOR THE PERIOD.

DATED INSTALLED: 6/11/81 BY: NOAA Ship "Pierce"

DATE REMOVED: _____ BY: _____

DATE LEVELED: 6/11/81 BY: NOAA Ship "Pierce"

REMARKS: _____

FIELD TIDE NOTE
TIDE GAGE REPORT

NOS TIDE TABLE NUMBER: 1909 TIME MERIDIAN 075 ° W

GEOGRAPHIC LOCALE: Ocean City, Maryland Outer Coast

NAME: Ocean City Fishing Pier STATION NUMBER: 857-0280

LATITUDE: 38° 19.7' N, LONGITUDE: 072° 0.5' W

TYPE OF GAGE: XX ADR, BUBBLER, OTHER ()

PLANE OF REFERENCE: XX MLW, MLLW, GCLWD, OTHER, CORRESPONDS

TO FEET ON THE TIDE STAFF FOR THE PERIOD JD 271 TO JD 301

DATED INSTALLED: 5 Oct 1980 BY: ECTP

DATE REMOVED: N/A BY:

DATE LEVELED: 30 July 1981 BY: NOAA Ship MT. MITCHELL

9 Nov 1981 NOAA Ship MT. MITCHELL

REMARKS:

DATE: February 12, 1982

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): 863-1542 Sand Shoal Inlet, VA

Period: September 28 - October 28, 1981

HYDROGRAPHIC SHEET: H-9980

OPR: D103

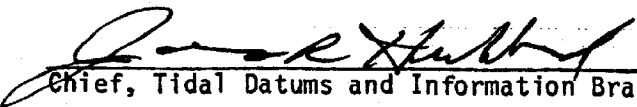
Locality: Delmarvance - Offshore of Hog Island, VA

Plane of reference (mean lower low water): 13.38 Ft.

Height of Mean High Water above Plane of Reference is 4.22 Ft.

REMARKS: Recommended Zoning

1. From Latitude $37^{\circ}27.5'$ South to $37^{\circ}19.3'$
 - a. East of $75^{\circ}37'$ apply -15 minute time correction and x0.87 range ratio.
 - b. West of $75^{\circ}37'$ apply x0.87 range ratio.
2. From $37^{\circ}19.3'$ south to $37^{\circ}17.5'$
 - a. East of $75^{\circ}37'$ apply -15 minute time correction and x0.87 range ratio.
 - b. West of $75^{\circ}37'$ to $75^{\circ}45'$ apply x0.87 range ratio.
 - c. West of $75^{\circ}45'$ apply x0.94 range ratio.


Chief, Tidal Datums and Information Branch

H-9980

GEOGRAPHIC NAMES

Name on Survey	Source of Name											
	A	B	C	D	E	F	G	H	K			
ATLANTIC OCEAN (TITLE)	12221											1
COBB ISLAND	12221											2
GREAT MACHIPONGO												3
INLET	12221											4
HOG ISLAND	12221											5
VIRGINIA (TITLE)	12221											6
NORTH CHANNEL												7
												8
												9
												10
												11
												12
												13
												14
												15
												16
												17
												18
												19
												20
												21
												22
												23
												24
												25

Approved:

Chas. E. Harrington
Chief Geographer - N/C6225

21 MARCH 1983

HYDROGRAPHIC SURVEY STATISTICS

H-9986

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		3
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		8
DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDIAN FILES	1				
ENVELOPES					1
VOLUMES					4
CANERS				2	
BOXES					

SHORELINE DATA

SHORELINE MAPS(List):

PHOTOBATHYMETRIC MAPS(List):

NOTES TO THE HYDROGRAPHER(List):

SPECIAL REPORTS(List):

NAUTICAL CHARTS(List):

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			3634
POSITIONS REVISED	34		34
SOUNDINGS REVISED	452		452
CONTROL STATIONS REVISED			
	TIME - HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION	29		29
VERIFICATION OF CONTROL	6		6
VERIFICATION OF POSITIONS	167		167
VERIFICATION OF SOUNDINGS	164		164
VERIFICATION OF JUNCTIONS		4	4
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	136	23	153
COMPARISON WITH PRIOR SURVEYS AND CHARTS		22	22
EVALUATION OF SIDESCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		46	
OTHER		4	
DIGITIZING	6		
TOTALS	442	93	535
Pre-processing Examination by R. H. Whitfield, G. F. Trefethen	Beginning Date 23 DEC 81	Ending Date 31 DEC 81	
Verification of Field Data by M. J. Stewart, R. H. Whitfield, J. S. Bradford, I. K. Perkins	Time(Hours) 442	Ending Date 22 APR 84	
Verification Check by L. G. Cram, H. R. Smith, G. F. Trefethen, R. G. Roberson	Time(Hours) 48	Ending Date 24 APR 84	
Evaluation and Analysis by L. G. Cram, R. G. Roberson	Time(Hours) 93	Ending Date 1 JUN 84	
Inspection by C. D. Meador	Time(Hours) 8	Ending Date 31 MAY 84	

ATLANTIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO.: H-9980

FIELD NO.: MI-10-6-81

Virginia, Atlantic Ocean, Cobb Island to Hog Island

SURVEYED: September 28 through October 28, 1981

SCALE: 1:20,000

PROJECT NO.: OPR-D103-MI/PE-81

SOUNDINGS: Ross Digital Echo Sounder

CONTROL: Odom Offshore HYDROTRAC
(Hyperbolic)

Chief of Party.....R. A. Trauschke

Surveyed by.....K. W. Perrin
.....E. S. Varney
.....J. W. Humphrey, Jr.
.....J. A. Zabitchuck
.....K. P. Peters
.....F. W. Rossmann
.....R. D. Henegar
.....B. L. Coakley
.....A. E. Orris

Automated Plot by.....Xynetics 1201 Plotter (AMC)

1. INTRODUCTION

- a. There were no unusual problems encountered on this survey.
- b. Changes in the Descriptive Report were made in red during verification.

2. CONTROL AND SHORELINE

a. The source of control is adequately described in sections F and G of the Descriptive Report and is supplemented by a horizontal control report for OPR-D103-MI/PE-81.

b. Shoreline for this survey originates with NOAA/NOS-CERC COOPERATIVE SHORELINE MOVEMENT STUDY MAPS 226, 227 and 228. The shoreline was applied to the smooth sheet by the Xynetics 1201 Plotter using digital information provided to the Marine Center by Headquarters.

3. HYDROGRAPHY

a. Soundings at crossings agree within the criteria stated in sections 4.6.1 and 6.3.4.3 of the Hydrographic Manual and section 6.6 of the Project Instructions.

b. The standard depth curves could be drawn in their entirety. The zero (0) curve was not delineated because it was outside the limit of safe navigation. The charted supplemental thirty-six (36) foot curve was drawn on the smooth sheet. Additional dashed and brown curves were drawn to better show the bottom relief.

c. The development of the bottom configuration and determination of least depths is considered adequate except as noted in section 7.a of this report and as follows:

Several holidays exist in the vicinity of Latitude 37°20'N, Longitude 75°43.5'W, where lines of hydrography were not run to meet the limits of safe navigation. The largest of these holidays is approximately 200 meters by 600 meters. Another holiday is found in approximate Latitude 37°19'N, Longitude 75°45'W.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports comply with the requirements of the Hydrographic Manual with the exceptions listed below:

a. The evaluation of landmarks for charting reported on NOAA Form 76-40, "NON-FLOATING AIDS OR LANDMARKS FOR CHARTS", submitted by the hydrographer was apparently for the entire project area for the 1981 season. Charted and uncharted landmarks should be evaluated from seaward in the survey area and only those landmarks useful for navigation from the surveyed area should be considered and reported. The Coast Guard Lookout Tower on Hog Island in Latitude 37°23'39.40935"N, Longitude 75°42'31.43436" was not evaluated as a landmark in the survey area.

b. The Descriptive Report did not contain a negative report on dangers to navigation as required by section 6.12 of the Project Instructions. No dangers to navigation were found in the survey area.

c. Sounding lines run on a line from Latitude 37°21'30"N, Longitude 75°39'40"W to Latitude 37°18'45"N, Longitude 75°40'15"W, were run parallel to the thirty-six (36) foot curve.

d. Twice daily bar checks for the launches were not taken as required by section 1.5.2 of the Hydrographic Manual. Two (2) bar checks out of a possible forty (40) were taken. Bar checks, for determination of instrument error, were not taken in accordance with section 4.9.5.11 of the Hydrographic Manual. Launch 2225 did not take any bar checks; therefore, no check for instrument error could be done for Launch 2225. The other Launches, 2223 and 2226, took only one (1) bar check each. A single bar check does not provide sufficient data points for the determination of instrument error.

e. A vertical cast comparison with the echo sounder for the MT. MITCHELL was not performed by the hydrographer to determine instrument error as required by section 4.9.5.1.2 of the Hydrographic Manual.

f. The hydrographer failed to locate on the final field sheet the breakers mentioned in section K, p. 7 of the Descriptive Report.

g. The hydrographer did not attempt to contact the last known owner of Presurvey Review Item 57 or the U.S. Army Corps of Engineers to ascertain whether the vessel in question had been salvaged.

h. The static calibration point used for the survey launches, Sand Shoal Inlet Mikes Sand Beacon, listed in the 1981 Light List (CG-158), Light List number 2664, indicates that this aid was rebuilt in 1970. The hydrographer did not adequately check the location of the fixed aid to determine if the aid had been relocated or if the published geodetic location was correct. The failure to adequately check the location of the point casts doubt on the validity of the correctors used. The position of the calibration point used by the hydrographer is the published 1933 location. There are no apparent problems in the areas where ship and launch hydrography join.

5. JUNCTIONS

H-9969 (1981) to the southwest
H-9970 (1981) to the southeast
H-9981 (1981) to the east
H-10034 (1982) to the north

Adequate junctions were effected between the present survey and surveys H-9970 (1981), H-9981 (1981), and H-10034 (1982).

The smooth sheet for survey H-9969 (1981) is archived at Headquarters and a standard junction was not made. A comparison between a stable base copy of survey H-9969 (1981) shows excellent agreement in the junctional area and the junctional curves can be completed.

6. COMPARISON WITH PRIOR SURVEYS

H-4194 (1921) 1:40,000
H-5704 (1934) 1:20,000
H-5770 (1934) 1:40,000

The above surveys taken together cover the present survey in its entirety.

H-4194 (1921) is in good agreement with the present survey. The present survey is from three (3) feet shoaler to six (6) feet deeper than the prior survey.

H-5704 (1934) covers the inshore area of the present survey. Depths vary with the present survey from plus or minus (+/-) twelve (12) feet in the vicinity of Great Machipongo Inlet to excellent agreement to the eighteen (18) foot curve. There are extensive shoreline changes between the present and prior survey.

H-5770 (1934) shows from nine (9) feet shoaler to excellent agreement with the present survey.

Considering the bottom composition, the time elapsed between completion of present and prior surveys, and the use of improved hydrographic surveying technology, the present survey is adequate to supersede the prior surveys in the common area.

7. COMPARISON WITH CHART #12210 (25th Edition, October 18, 1980)
#12221 (50th Edition, July 18, 1981)
#12224 (16th Edition, May 23, 1981)

a. Hydrography

The charted hydrography (98%) originates with the previously discussed prior surveys and needs no further discussion. The remaining soundings from unascertainable sources agree with the present survey from 1 to 4 feet with the charted soundings being shoaler. These differences are in the range of change that could be expected for this area. There have been shoreline changes at the north end of Cobb Island, for further information see the smooth sheet and section H of the Descriptive Report.

The item discussed below is directed to the attention of the chart compiler:

#212b Presurvey Review Item Number 45, visible ruins charted (chart numbers 12210 and 12221) in Latitude 37°23'46", Longitude 75°42'01", originates with T-11619 (1959-61); a copy of this T-Sheet was not on hand during Evaluation and Analysis. This item is believed to be the remains of Hog Island Lighthouse; the location given on the ruins is the same as the location of the lighthouse on prior survey H-5704 (1934). The field unit did not locate the ruins either by visual inspection or by two lines of hydrography (one on either side of the ruins). The shoreline as shown on prior survey H-5704 (1934) has eroded approximately 500 meters in this area. It is recommended that the ruins remain as charted with the notation submerged. It is recommended that the ruins be located at an opportune time.

Except as indicated above the present survey is considered adequate to supersede the charted hydrography in the common area.

b. Aids to Navigation

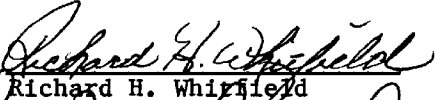
The field unit located two (2) floating aids to navigation in the survey area and they adequately mark the intended features. The field submitted nonfloating aids and landmarks for charts (form 76-40) which contained a fixed aid described as Great Machipongo Inlet Black Daybeacon-Flashing 4 sec, 19 ft. 5M, "3". They did not locate this item by any other means than a visual inspection. The fixed and floating aids field for this project list this item as Great Machipongo Inlet Light 3 and this is how this item is charted. A call was made to the U.S. Coast Guard 5th District office and they stated that Great Machipongo Inlet Black Daybeacon was destroyed and that Great Machipongo Inlet Light 3 is a private aid.

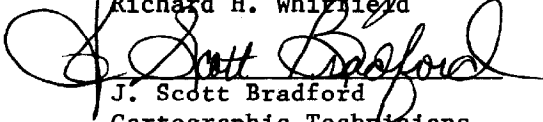
8. COMPLIANCE WITH INSTRUCTIONS

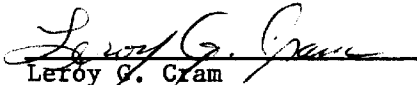
This survey adequately complies with the Project Instructions except as noted elsewhere in this report.


9. ADDITIONAL FIELD WORK

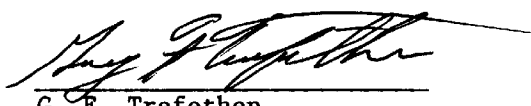
This is a good basic survey. No additional field work is recommended on this survey.


Richard H. Whirfield


J. Scott Bradford
Cartographic Technicians
Verification of Field Data


Leroy G. Cram

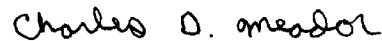

Robert G. Roberson
Cartographers
Evaluation and Analysis


G. F. Trefethen
Senior Cartographer Technician
Verification Check

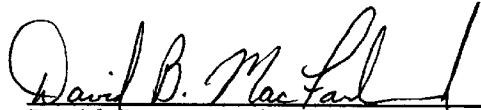
INSPECTION REPORT
H-9980

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts of the survey have been made. The survey complies with National Ocean Service requirements except as noted in the Evaluation Report. The survey records comply with NOS requirements except where noted in the Evaluation Report.

Inspected

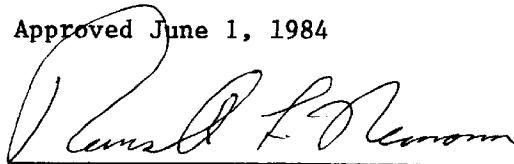


Charles D. Meador
Chief, Evaluation and Analysis Group



David B. MacFarland, Jr., LCDR, NOAA
Chief, Hydrographic Surveys Branch

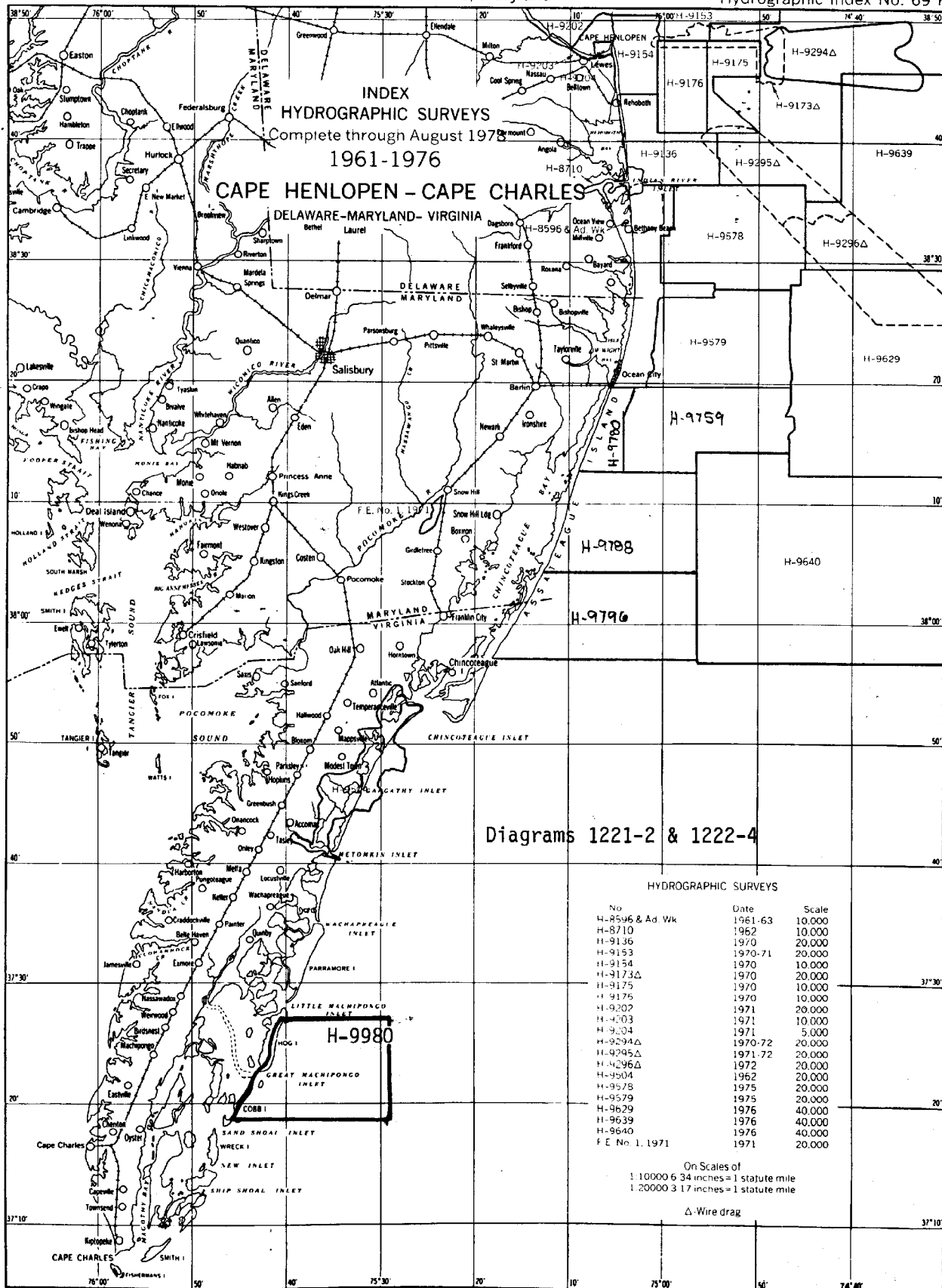
Approved June 1, 1984



Wesley V. Hull, RADM, NOAA *FOR*
Director, Atlantic Marine Center

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

Hydrographic Index No. 69 K



Diagrams 1221-2 & 1222-4

HYDROGRAPHIC SURVEYS

No	Date	Scale
H-8596 & Ad Wk	1961-63	10,000
H-8710	1962	10,000
H-9136	1970	20,000
H-9153	1970-71	20,000
H-9154	1970	10,000
H-9173Δ	1970	20,000
H-9175	1970	10,000
H-9207	1971	20,000
H-4503	1971	10,000
H-9504	1971	5,000
H-9294Δ	1970-72	20,000
H-9295Δ	1971-72	20,000
H-9296Δ	1972	20,000
H-9504	1962	20,000
H-9578	1975	20,000
H-9579	1975	20,000
H-9629	1976	40,000
H-9639	1976	40,000
H-9640	1976	40,000
F.E. No. 1, 1971	1971	20,000

On Scales of
1:10000 6 34 inches = 1 statute mile
1:20000 3 17 inches = 1 statute mile

Δ - Wire drag

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9980

INSTRUCTIONS

- A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
- 1. Letter all information.
- 2. In "Remarks" column cross out words that do not apply.
- 3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
12224	6-4-85	H. Radde	Full Part Before After Verification Review Inspection Signed Via Drawing No. 19 Revised Hydrography
12221	6-18-85	H. Radde	Full Part Before After Verification Review Inspection Signed Via Drawing No. 82 Revised Hydrography
12221 Prototype	10-1-85	J. Graham	Full Part Before After Verification Review Inspection Signed Via Drawing No.
12210	2-19-86	R. Ecker	Full Part Before After Verification Review Inspection Signed Via Drawing No. 51 FULLY APPLIED
12220	3-17-86	R. Ecker	Full Part Before After Verification Review Inspection Signed Via Drawing No. 52 FULLY APPLIED
12200	3-18-86	R. Ecker	Full Part Before After Verification Review Inspection Signed Via Drawing No. 50 FULLY APPLIED
13003	5-25-86 5-12-86	Barker-Loretz	Full Part Before After Verification Review Inspection Signed Via Drawing No. #60 Exam NO Correction thru 12200 #50
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.