

10034

Diagram No. 1221-3

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-20-1-82
Registry No. H-10034

LOCALITY

State Virginia
General Locality Atlantic Ocean.....
Sublocality Parramore Banks

19 82

CHIEF OF PARTY
CAPT J.A. Yeager

LIBRARY & ARCHIVES

DATE October 9, 1987

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

10034

April
CHS Ref L 892(87)

12200M } TO SIGN OFF SUB
"RECORD OF APPLICATION"
13003-M

HYDROGRAPHIC TITLE SHEET

10034

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-20-1-82

State VIRGINIA

General locality ATLANTIC OCEAN

Locality ATLANTIC COAST OF VIRGINIA PARRAMORE BANKS

Scale 1:20,000 Date of survey July 82, 15 JULY 82, 8 NOV 1982

Instructions dated 5 MAY 82 Project No. OPR-D103 MI 20-1-82

Vessel NOAA SHIP MT MITCHELL VESNO-2220 & SURVEY LAUNCHES (2223, 2225, 2226)

Chief of party J. AUSTIN YEAGER, CAPT. NOAA

Surveyed by MT. MITCHELL SHIPS OFFICERS (SEE REMARKS)

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

Graphic record scaled by RW, EM, UG, BM, MS, CS, BC.

Graphic record checked by RW, EM, UG, RC, BM, MS, CS, BC.

Protracted by _____ Automated plot by XNETICS 1201, AMC ^{Plotter}

Verification by F. L. Saunders (AMC)

Soundings in ~~meters~~ feet at ~~MLW~~ MLLW FEET @ MLLW

REMARKS: BOBBY L. COAKLEY OIC

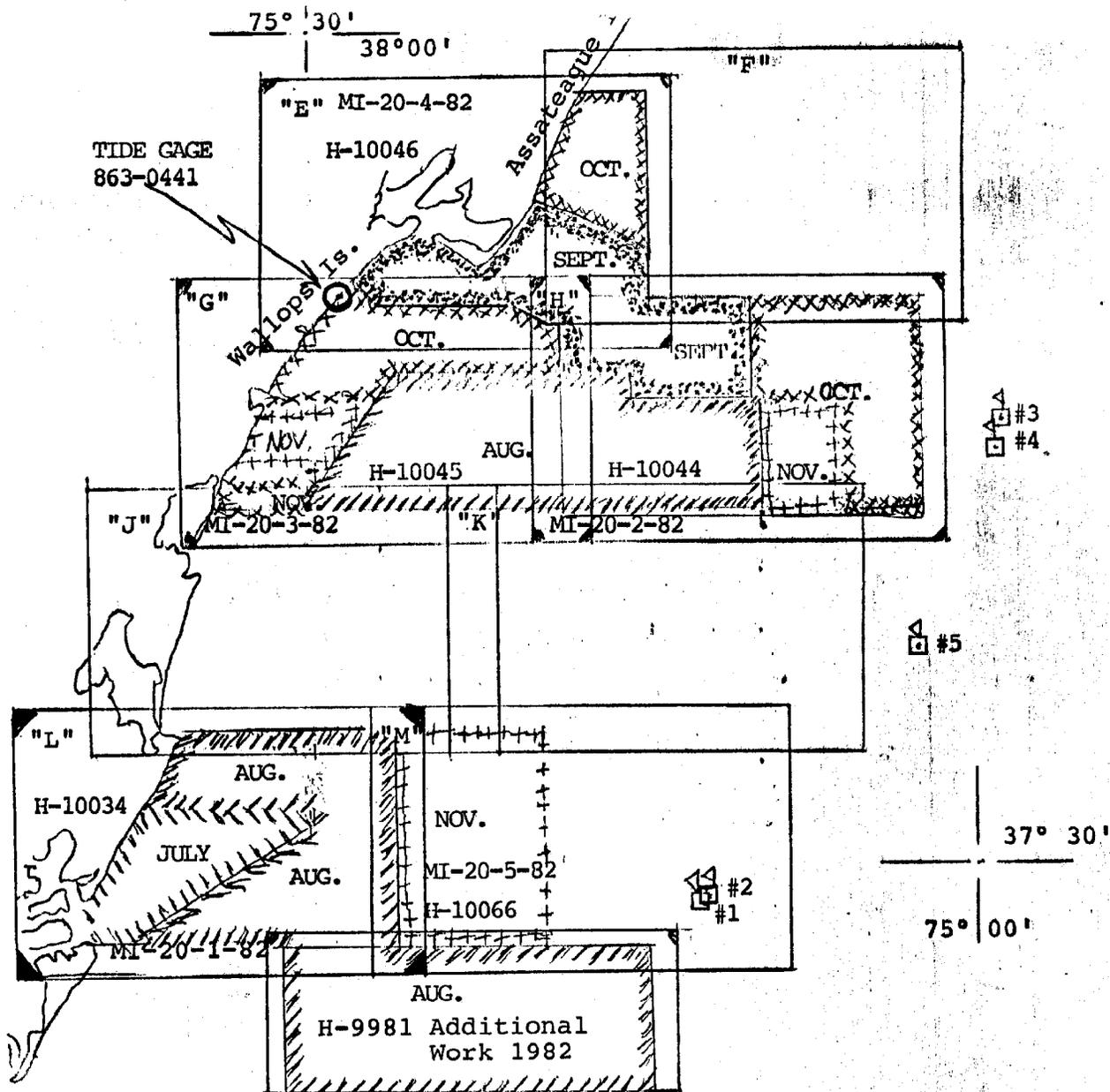
ENSIGNS, CREWS, HENEGAR, MCLEAN, MILLAR. LTJG's PETERS, ROSSMAN,

YATES. LT's VARNEY, THOMAS (RBN) LCDR LAPINE

CAPT. J. AUSTIN YEAGER, CHIEF OF PARTY

Notes in red were made during office processing.

SURF and AWOIS - 2/89 SOB



	JULY	AUG.	SEPT.	OCT.	NOV.	
-	1856.3	525.0	467.8	725.2		LNM HYDRO (SHIP)
-	195.4		22.8	47.5	55	SNM HYDRO (SHIP)
268.6	587.6	255.1	563.8	218		LNM HYDRO (LAUNCH)
21	20	18	34.4	20		SNM HYDRO (LAUNCH)
54	47	38	53	21		BOTTOM SAMPLES
2	1	1	1	-		NANSEN CAST
-	784.7	271.9	324.8	396.6		MISC., NM (SHIP)
199.6	348.4	220.6	263.0	227.6		MISC., NM (LAUNCH)

OPR-D103-MI-82, ASAP
 PROGRESS SKETCH
 HYDROGRAPHIC OPERATIONS
 NOAA SHIP MT. MITCHELL S-222
 J. Austin Yeager, Capt., NOAA
 COMMANDING OFFICER

SCALE OF CHART 12200

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** Filed with original field data*

DESCRIPTIVE REPORT

To Accompany

SURVEY H-10034
(FIELD NO. M120-1-82)

Scale 1:20,000, Year 1982

Capt. J. Austin Yeager, NOAA
Commanding,
NOAA Ship MT MITCHELL

A. PROJECT

This survey was conducted in accordance with Project Instructions OPR-D103-MI-82 issued 5 May 1982 and amended by changes (1) and (2) dated 21 June and 7 September 1982, and supplement dated 21 June 1982.

B. AREA SURVEYED

This survey was conducted along the Atlantic Coast of Virginia between Hog Island at the southerly end and Wachapreague Inlet at the northerly end. The survey limits can be described by connecting lines between the following geographic points.

<u>Latitude (N)</u>	<u>Longitude (W)</u>
37°26.6'	75°39.8'
37°28.6'	75°39.8'
37°35.0'	75°35.2'
37°35.0'	75°25.6'
37°26.6'	75°25.6'

Quinby Inlet and Wachapreague Inlet are at the western end of the survey limits. The approaches to both inlets were surveyed up to the limits described in the Project Instructions, Section 1.2. This survey was conducted between 15 July 1982 and 8 Nov 1982, JD 196 thru 313².

C. SOUNDING VESSELS

Soundings for the survey were obtained by NOAA Ship MT MITCHELL S-222 and it's survey launches. There were no unusual problems with the sounding vessels.

<u>Hull Number</u>	<u>VESNO</u>
MT MITCHELL S-222	2220
Launch 1004	2223
Launch 1008	2225
Launch 1012	2226

For any further references to vessels the VESNO will be used.

D. SOUNDING EQUIPMENT AND CORRECTION TO ECHO SOUNDINGS

The sounding equipment used on the respective vessels during the survey follows:

	<u>Equipment</u>	<u>Serial Number</u>
VESNO 2220		
	Ross Model 5000	Fineline Depth Recorder 1050
	4000	Transceiver 1050
	6000	Digitizer 1050
	Kline	Side Scan Sonar Towfish 417M
		Side Scan Recorder 249
VESNO 2223		
	Ross Model 5000	Fineline Depth Recorder 1039
	4000	Transceiver 1039
	6000	Digitizer 1053
VESNO 2225		
	Ross Model 5000 200A	Fineline Depth Recorder 1039
	4000	Transceiver 1053
	6000	Digitizer 1039
VESNO 2226		
	Raytheon DE723	Echo Sounder <i>Fathometer</i> 1278
		Digitizer 1055

Soundings for the MT MITCHELL were taken with a skeg mounted transducer. The antenna distance for the ship is 32.0 meters and 0.0 for all launches. All programs used in processing have provisions to account for antenna distance. All survey records were scanned by trained Survey Department personnel and checked by the Officer-in-Charge. Peaks and deeps that occurred between soundings were inserted into the digitized record. Digitizing errors were corrected on the electronic corrector tape. Phase checks were made at frequent intervals. Any necessary adjustments to initial trace were made and noted in the sounding volumes and on the fathogram. Any departures of the trace from the calibration due to phase differences were corrected during the scanning process.

A Raytheon DE723 ~~Echo Sounder~~ *Fathometer* was used on VESNO 2226, primarily in depths less than 50 ft. on the A scale, because other scales, having no initial trace, might yield undetectable shifts in soundings. Digitized depths were used primarily for all survey work gathered with DE723. Erratic operation of the sounder between JD 196-213 made comparison of digitized depths difficult, if not impossible. Final adjustments on the DE723 to bring the analog trace in line with the digitized depths were made on JD 213. The digitized depths were used throughout the survey regardless

*See section I.a.
of the Evaluation
Report*

of the sounding equipment because of better agreement with barchecks. "Generally digitized soundings are inherently more accurate than those extracted from a graphic record because digitized depths are free of scaling and mechanically induced errors; therefore, digital soundings are considered as primary data that are supplemented by analog record for these purposes", as stated in the Hydrographic Manual. Analog and digital depths differed up to 1.5 ft. Analog depths were therefore corrected when inserted into records.

Five Nansen Casts were taken for this survey on the following dates and location:

<u>Cast #</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Date</u>
{1	37/28/36	75/12/30	15 July 1982 (I.D. 196)
{2	37/29/00	75/12/06	27 July 1982 (I.D. 208)
3	37/46/05	74/58/40	25 August 1982 (I.D. 237)
4	37/49/54	74/59/12	21 September 1982 (I.D. 264)
5	37/38/48	75/02/42	30 October 1982 (I.D. 303)

The correctors derived from the first cast were used from JD 199 thru 218 (14 July-06 August) because changes in velocity corrections between the first two casts were insignificant. Correctors from the third cast were used from JD 263 thru 287 (20 September-14 October). Correctors from the fifth cast were used from JD 302 thru 313 (20 October-09 November). A chart of correctors used appears in Appendix D. Forty barchecks were taken during the survey. Comparison between barcheck data and velocity correctors was made. Barcheck and Nansen Cast correctors were similar. Nansen Cast velocities were used for computing the velocity correctors; any differences between barchecks and Nansen Cast data are included on the TC/TI tape as instrument error. A copy of the barcheck/Nansen Cast comparisons is with the survey support data. The tables and printouts of velocity tapes are included in Appendix D. *see also section 4. e. of the Evaluation Report, also section 4. j.*

A draft of 13.9 ft. was applied to all soundings taken by the MT MITCHELL during online data gathering. This draft was determined by measuring the distance from the water to the rail, subtracting this value from the established rail to transducer height. This same formula was used in determining a draft of 1.6 ft. for the launches. Settlement and squat correctors for the ship were determined on 26 July 1981 off Cape Charles, Va. A copy of that report along with other support data appears with the survey support data. Settlement and Squat for the launches was determined on 23 July 1982, JD 204, at Pier Number 16, Little Creek Harbor, Little Creek, Va. A copy of the field data and settlement and squat correctors versus launch RPM is included in the survey support data. The settlement and squat correctors will be applied during final processing of the data by CAM3 Processing Division and the TC/TI Tape. *see also section 4. f. of the Evaluation Report.*

This survey was conducted using predicted tides based on daily predictions at Hampton Roads, Va. from the 1982 Tide Tables. Predicted tide correctors were generally applied online during actual sounding operations for Launches 2225 and 2226, and applied offline for Launch 2223, JD 214 thru 230, and when necessary for other vessels. *Smooth tides applied during office processing.*

E. HYDROGRAPHIC SHEETS (*field*)

This survey was plotted on 5 mylar complot roll plotter sheets by the Hydroplot System onboard the MT MITCHELL, four of which had a skew of 0,21,54 and one, a 1:10,000 enlargement of Quinby Inlet, with a skew of 0,21,20. The survey was plotted offline using the master data tapes, electronic corrector tapes and velocity correction tapes. Soundings on the field sheets are corrected for draft, predicted tides, digitized errors and sound velocity. Soundings are not corrected for smooth tides, instrument error, or settlement and squat; these correctors will be applied on the final Smooth Sheet to be plotted by CAM3 Processing Division. All field records and following tapes have been forwarded to the Atlantic Mairne Center for verification and smooth plotting.

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

F. CONTROL STATIONS *see section 2.e. of the Evaluation Report.*

The following stations were used for electronic control:

Number	Name and Date	Latitude	Longitude
T00	GRAVITY 1965 , 1980	36°40'31.453"	75°54'56.471"
132	LITTLE ECC 1982	37°27'12.013"	75°40'30.565"
200	BIRD 1989 RM5, 1982	37°44'17.414"	75°35'11.904"
300	JONES 1981	37°53'16.699"	75°20'31.186"

All control stations are monumented and were established by at least Third Order Class One methods. Station GRAVITY 1965 was re-established in 1980 by CAM102, Norfolk Va. All control stations were located or recovered by MT MITCHELL perosnnel in July 1982. Hydrotrac stations were erected and maintained by ship's personnel.

G. HYDROGRAPHIC POSITION CONTROL *see sections 2.a. and 4.g. of the Evaluation Report.*

An ODUM offshore Hydrotrac System operating at a frequency of 1718.59KHz in the Hyperbolic Mode was used to provide position control for most of this survey. On JD 210 the use of a Wild T-2 Theodolite and one set of rates provided for Hyper-Visual launch work. Launch 2223 used the Del-Norte Ranging System and a Wild T-2 Theodolite for Range-Azimuth position control.

The following equipment was used:

<u>Vessels or Shore Station</u>	<u>Equipment</u>	<u>Model Number</u>	<u>Serial Number</u>
100 GRAVITY 1965 , 1980	Slave Drive Unit		220
	Linear Amplifier	74187	536
200 BIRD 1969 RM5, 1982	Master Drive Unit		121
	Master Linear Amplifier	74187	540
300 Jones 1981	Slave Drive Unit		215
	Linear Amplifier	74187	539
132 LITTLE ECC 1982	Remote TZ Unit	R03C	1062
	Wild T-2 Theodolite		19293
VESNO 2220	Receiver	700	326
	Sawtooth Recorder	8082/IDN	8501
	Antenna Coupler		134
VESNO 2223	Distance Measuring Unit	R03C	432
	Master Unit	R03C	1068
VESNO 2225	Receiver	700	326
	Sawtooth Recorder	8082/IDN	A-175
VESNO 2226	Receiver	700	328
	Sawtooth Recorder	8082/IDN	013

Whole lane values and partial lane correctors for the Hydrotrac System were determined by three point sextant fixes and check fixes using Program RK 561. This type of calibration was also used to verify the whole lane count. Hydrotrac rates were determined for Quinby Inlet Lighted Buoy Q and Parramore Banks Lighted Buoy R10 by bringing one of the launches alongside the buoy and reading the rates. These buoys were used for lane count checks whenever sextant fixes could not be determined. A calibration buoy was dropped by the MT MITCHELL. Several passes were made to determine Hydrotrac rates for it. This buoy was used by Launch 2226 as a lane count check before it was removed, possibly by local fishermen. Range-Range Azimuth calibration using Hewlet-Packard 3810B Electronic Measuring Device and two-three-prism clusters were used on days when sextant calibrations could not be attained to set whole lanes on the Hydrotrac System. It was also used as a daily check for the Del-Norte Unit. Daily Calibrations for the Del-Norte are described in OPR-ORDER 79, Section III.

The whole lane count was constantly monitored by comparing the navigational interface readout with the annotated running count on the sawtooth recorder. Electronic correctors were obtained by taking the average of partials from sextant fixes. Lane counts were generally established to the nearest whole lane so that the absolute value of the partial correctors were less than 0.5 lanes. The range of partial correctors follow:

<u>VESNO</u>	<u>P1</u>	<u>P2</u>
2220	.09 to .29	-.13 to -.37
2225	.05 to .35	-.23 to -.43
2226	.08 to .93	-.26 to .67

There were four lane jumps during the survey. These jumps were usually detected either with alarms or differences in the interface readout and sawtooth lane count. The jumps usually occurred at days end or prior to evening calibrations. Calibrations were taken to reverify whole lanes and correctors.

Launch 2223 used Range-Azimuth position control in the approaches to Quinby Inlet. The Del-Norte Ranging System along with a Wild T-2 Theodolite was used. Range-Azimuth control was used to meet the positional accuracy requirements for this survey which were not attainable in that area using Hydrotrac control. The Del-Norte system was calibrated over a base line that extended across the western limit of Quinby Inlet, between a staked point on Hog Island to a staked point on Parramore Island. Calibrations were made before and after the baseline hydrography on JD's 266 and 274.

Visual stations used for calibration were as follows:

<u>NUMBER</u>	<u>NAME</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>
120	HOG ISLAND COAST GUARD LOOKOUT TOWER 1959	37°23'39.409"	75° ⁴ 2'31.434"
131	LITTLE MACHINGPONGO INLET COAST GUARD LOOKOUT TOWER 1959	37°27'11.947"	75°40'30.639"
135	HOG 1933	37°27'39.565"	75°40'15.726"
140	REVEL 1959	37°29'31.700"	75°39'48.219"
142	TARR 1962	37°32'11.100"	75°37'24.750"
270	WALLOPS ISLAND <i>N.A.S.A. NEW WATER TANK, 1975</i> (NEW NASA TANK) 1975	37°50'32.204"	75°28'48.887"
280	EASY WALLOPS BEACH COAST GUARD LOT #133 NEW TANK TOWER, 1949	37°52'34.534"	75°26'38.652"
290	ASSATEAGUE BEACH COAST GUARD C.G. LOT #150, 1959	37°51'48.970"	75°22'06.649"
310	ASSATEAGUE LIGHT HOUSE 1909	37°54'39.797"	75°21'22.991"

H. SHORELINES *See section 2.6. of the Evaluation Report.*

Shoreline details, the mean high water line, on the field sheets were transferred in black from 1980 digitized data provided by CAM3. Field Edit was not performed as per project instructions. Station TARR 1962 was located between the mean high water line and the mean low water line. Soundings were run parallel to the shoreline at the inshore limit of safe navigation of the sounding vessel. Agreement between this line and the digitized data was excellent. Shoreline soundings generally agree within 1 foot of sounding lines ~~can~~ across them. Shoreline in blue at the southern end of the survey sheet along Hog Island was transferred from Survey H-9980. That shoreline was not part of this survey and was not verified.

I. CROSSLINES *See section 3. a. of the Evaluation Report.*

Crosslines were run at least 45° to the mainscheme lines. Crossline mileage totaled 89 miles and amounted to 8% of the regular sound lines. The agreement was good with 100% of the crossings agreeing within 3 feet; with 83% of those to 1 foot, and 92% to 2 feet. Those soundings differing up to three feet were probably due to the application of predicted tides vice smooth tides.

J. JUNCTIONS *See section 5. of the Evaluation Report.*

This survey junctions with the following surveys:

<u>Area of Junction</u>	<u>Field No.</u>	<u>Registry No.</u>	<u>Scale</u>	<u>Date</u>	<u>VESNO</u>
East	MI 20-5-82	H-10066	1:20,000	1982	2220
Southeast	MI 20-7-81	H-9981	1:20,000	1981-1982	2220
South	MI 20-6-81	H-9980	1:20,000	1981	Not Known

This survey has excellent junction with Survey H-9981 (MI 20-7-81) with 92% of the soundings agreeing within 1 foot and 100% within 2 feet. There was no shift in contours.

The junction between this survey and H-10066 (MI 20-5-82), with 85% of the soundings agreeing to within 1 foot and 100% of them within 2 feet, was excellent. There were no shifts in contours. All soundings in junctioning area for H-9981 and H-10066 were made by the same VESNO, 2220.

The junction of this survey and H-9980, (MI 20-6-81) was excellent, with 71% within 1 foot, 23% within 2 feet, and 100% within 3 feet.

K. COMPARISON WITH PRIOR SURVEY *See section 6. a. and b. of the Evaluation Report.*

The following prior surveys were used within the survey area for comparison

<u>Survey</u>	<u>Scale</u>	<u>Date</u>
H-5674	1:40,000	1934
H-5770	1:40,000	1934

Comparison of the present survey with H-5674 indicates a shoreline recession of up to 3/4 of a mile along the southern shore of Parramore Island. Although the recession is less pronounced at the northern part of the island near Wachapreague Inlet, there is a trend toward deepening up to 10 feet along the entire length of the island. The present survey soundings are generally deeper from the inshore limit of safe navigation out to 19 feet. Survey H-5674 covered a 1 (one) mile band from the shoreline out to a line connecting the following points, 37°28'00"N - 75°38'30"W and 37°35'00"N - 75°34'12"W in a direction of 030° true. This is approximately the 23 ft curve. Comparison at depths greater than 19 feet compare to within 1 foot.

Comparison with H-5770 was excellent. 100% of the soundings agree within 1 foot.

PSR Item 42 (AWOIS #2429)

This item was described as a 21-foot beached and broken cabin cruiser in Local Notice to Mariners 38/72 at 37°30'00"N - 75°38'48"W. This information item was not found. The area was viewed during hydrography and no beached wreck was sighted. There was no indication of the wreck on the fathogram. The least depth in the development area is ⁸10 feet, which is 200 meters from the high water line. This least depth is located at 37°30'00"N - 75°38'42"W Position 1996. Lines were run at 100 meter spacing in eleven feet of water, covering an area 600 meters North and South and 600 meters East and West. In view of the shoreline recession, and the surge and wave action along the beach this item has probably broken up and has been dispersed. The search confirms the shoreline recession. It is recommended that this item be removed from the chart. See Section 7.a.1) of the Evaluation Report.

PSR Item 44 (AWOIS #2427)

This item was described as a salvage vessel in Local Notice to Mariners number 37/71, 38/71, 28/74 at 37°27'00"N - 75°37'42"W. This limited review item was not found. Depth of the water in the area averages 25 feet, with the least depth being 10 feet at 37°27'00"N - 75°38'00"W position number 3082. Local mariners state this item can no longer be found. Lines were run at 100 meter spacing East and West covering an area 1400 meters North and South and 3400 meters East and West. It is recommended for the above reasons that this item be removed from the chart. See section 7.a.2) of the Evaluation Report. ← Lat. updated to 37°

PSR Item 984 (AWOIS #984)

This item was listed on the PSR Review printout listed as a barge at 37°31'36"N - 75°13'49"W. That position is outside the survey area. However, the indicated position of the item on the chart reproduction supplied with and locating each PSR item is 37°31'42"N - 75°26'36"W. Lines were run on the second position at 100 meter line spacing in an area 1000 meters North and South, 1600 meters East and West. There was no indication on the fathogram or visually of a wreck. Least depth found at 37°31'30"N - 75°26'24"W of 476.05 26'24.59"W

feet, Position ^{8866^T2} ~~2267+5~~. If the second position is accepted, it is recommended that this item be removed from the chart. If the first position is accepted then a thorough wire drag or sidescan sonar search can be conducted. It is recommended that the position of this PSR item be verified.

See Section 7.a.3) of the Evaluation Report.

✓ PSR Item 986 (AWOIS # 986)

³ This item, described as a party boat in 44 feet of water at ⁷ ~~34~~³⁴ 32'03"N - 75° 33'22"W, was not found. The item was reported hung by a trawl fisherman, no date was given. Sounding lines were run at 100 meter spacing around the area. There was no indication of the wreck on the fathograms. The least depth at ~~37° 31'57"N - 75° 33'36"W~~ ⁶⁸²⁹⁺² is 25 feet at position ~~6975+2~~. The area covered was 600 meters North and South and 1200 meters East and West. The item's location was reported using Loran C rates of 27127.5 and 41734.8. It is recommended this item be retained as charted. *Do not Concur. See Section 7.a.4) of the Evaluation Report.*

PSR Item 43 (AWOIS # 2429)

This item is a charted wreck from the chart reproduction supplied with the PSR items ^{AWOIS} but does not appear in the Generated Automated Files listing PSR items. No development was done in the area. It is recommended that this item be retained on the chart. *Concur. See Section 7.a.5) of the Evaluation Report.*

L. COMPARISON WITH THE CHART *See Section 7. of the Evaluation Report.*

The survey area is covered entirely by the following charts:

<u>Chart No.'s</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>
12200	84th	01/16/82	1:416,944
12210	26th	10/31/81	1:80,000

The comparison between the chart and the survey was good. Sixty percent of the soundings agree to within one foot, and 74% within two feet. Fifteen percent of the depths compared differed 3 feet or more in offshore areas of shoaling. Depths close to shore showed varying differences as much as six feet in depths out to 19 feet. The general trend of the present survey shows that near shore soundings are deeper than the charts as indicated in prior survey comparisons.

Local Mariners, Earl Parker and Jim Wallace of Wachapreague, Virginia, reported they had snagged what they believed to be a barge at 37° 29'30"N - 75° 35'00"W. It is recommended this item be charted and a future wire drag search be made. *Concur. See Section 7.a.7) of the Evaluation Report.*

A charted fish-haven at 37° 32'30"N - 75° 25'42"W was developed. Sounding lines were run in an east-west, northeast-southwest direction using 200m line spacing. North-south lines were run at 300 meter spacing using the side scan sonar unit. The use of the side scan unit showed evidence of an object, possibly a wreck, within the charted area. The existence of the object on the fathogram was not apparent on the fathogram, a least depth of 47 feet is at 37° 32'21".52"N - 75° 26'39" position ~~2439+1~~.

^{28.03"W} 2439+2

See Section 7.a.8) of the Evaluation Report.

M. ADEQUACY OF SURVEY

This survey is considered complete and adequate to supercede prior surveys for charting in every respect. *Concur.*

N. AIDS TO NAVIGATION *See Section 7.6. of the Evaluation Report.*

There are six floating aids and one non-floating aid to navigation within the survey area:

<u>Fix No.</u>	<u>Quinby Inlet</u>	<u>Characteristics</u>	<u>Latitude</u>	<u>Longitude</u>
3087	Lighted Buoy 2	FI R 2.5 seconds	37° ^{28'31"} 30'32"	75°37'18" ⁶
3089	Lighted Buoy 6	FI R 6 seconds	37°27'02" ³¹	75°41'53" 38'45"
3088	Buoy 4 Nun		37°27'48"	75°25'48" 38'10"
3090	Buoy 7 Can		37°26'58" 27'45"	75°40'05" 39'37"
3091 <i>Quinby</i>	<i>INLET</i> Entrance Light	FI W 4 seconds	37°27'48"	75°40'10" 12"
3086	Lighted Buoy Q Parramore Banks	Mo (A) W	37°28'08" ⁷	75°40'40" 36'11"
2466	Lighted Whistle Buoy R10	FI W 4 seconds	37°32'01"	75°25'48"

A comparison of the positions of the most permanent aids, Quinby Inlet Entrance Light, and Lighted Buoy Q on the survey sheet as well as their positions on the charts, with data contained in the Coast Guard Light List, agree. The positions of the other buoys are frequently shifted with the changing conditions. During the time of this survey, the positions of the aids adequately serve their apparent purpose of providing safe passage into Quinby Inlet.

O. STATISTICS

	<u>Ship</u>	<u>Launch</u>	<u>Total</u>
Lineal Nautical miles of: Mainscheme	393.0	531.1	924.1
Crosslines	35.0	54.0	89.0
Developments	29.2	148.9	178.1
Total Linear Nautical Miles	457.2	734.0	1191.2
Total Miscellaneous Miles	248.7	522.4	771.1
Total Miles Run	705.9	1256.4	1962.3
Total Square Miles of Hydrography			96
Total Number of Positions	1189	1713	2902
Bottom Samples	29	52	81
Nansen Casts	5		5
Tide Stations			2

P. MISCELLANEOUS

RK 112 Range-Range Hyperbolic Hydroplot was used by both the launches and the ship in the acquisition of the data. Due to changes in the area around Quinby Inlet, the buoys in the area are frequently shifted as necessary for safe

navigation. Local Mariners reported snagging a barge at $37^{\circ}29'30''$ - $75^{\circ}35'00''$. This wreck was not listed as a PSR Item. In this depth it does not pose an immediate danger to navigation but it is recommended this item be charted. There was neither any other reported danger to navigation nor information about currents found either by this survey or from local mariners. A Tide Gage was installed at Assateague Island, Va., Station Number 863-0409 on 29 June 1982 in support of Hydrographic Operations. The gage was relocated to Wallops Island, Va., Station Number 863-0441 on 30 July 1982. Three bottom sample positions were attempted using Hyper-Visual method. Some difficulties with plotting the positions arose during offline plotting, so the positions were plotted using observed Hydrotrac rates. All non-floating fixed aids were verified during the survey. See section for Non-floating Aids Appendix I.

Q. RECOMMENDATIONS

No recommendations to be made at this time as to future surveying of the inlets as per Project Instructions OPR-D103-MI-82, Section 1.2. It is recommended that this survey be used for charting.

R. AUTOMATED DATA PROCESSING

<u>Program</u>	<u>Name</u>	<u>Version</u>
RK 112	Hyperbolic Range-Range Real Time Hydroplot	08/04/81
RK 200	G-P Plot	11/05/80
RK 201	Grid and Lattice Plot	04/18/75
RK 210	Hyperbolic Sounding Plot Non-Real Time	07/25/80
RK 212	Visual Station Table Load and Plot	04/01/74
RK 216	Range-Azimuth Non-Real Time Plot	02/09/81
RK 300	Utility Computation Package	10/21/80
RK 330	Data Reformat and Check	05/04/76
PM 360	Electronic Corrector Abstract	02/02/76
RK 400	Geodetic Utility Package	04/01/73
AM 500	Predicted Tide Generator	11/10/72
RK 530	Velocity Correction Computation	05/10/76
RK 561	Geodetic H/R Calibration	02/19/75
AM 602	Extended Line Oriented Editor	05/21/75

S. REFERENCES

Horizontal Control Report for OPR-D103-MI-82
Side Scan Sonar Report for Survey H-10044

Respectfully submitted,


Bobby L. Cookley
Ensign NOAA

Approval Sheet

Date Jan. 20, 1983

Survey H-10034

Field No. MI 20-1-82

The field work for this survey was conducted under my daily review and supervision. I have reviewed this report with the final field sheet and approve them and the accompanying records. Together they represent a complete survey adequate to supercede all prior surveys for charting purposes, with exceptions noted in the body of this report.


Captain J. Austin Yeager, NOAA
Commanding,
NOAA SHIP MT MITCHEL

Station Numbers

001	100	4	36	40	31454	075	54	56471	250	0000	171859
002	120	4	37	23	39409	075	42	31434	139	0000	000000
003	131	6	37	27	11947	075	40	30639	139	0015	000000
004	135	4	37	27	39565	075	40	15726	139	0000	000000
005	140	4	37	29	31700	075	39	48219	139	0000	000000
006	142	0	37	32	11100	075	37	24750	139	0000	000000
007	200	2	37	44	17414	075	35	11904	250	0000	171859
008	270	3	37	50	32204	075	28	48887	139	0000	000000
009	250	7	37	49	48629	075	31	22808	139	0000	000000
010	290	0	37	51	48970	075	22	06649	139	0000	000000
011	300	0	37	53	16699	075	20	31186	250	0000	171859
012	310	4	37	54	39797	075	21	22991	139	0000	000000

~~001 OPR-B103-MI-82~~

002 SIGNAL NAMES

~~003~~

004 100= GRAVITY,1980 PUBLISHED BY NGS

005 120= HOG ISLAND CG LOT,1959 370753 1119

006 131= LITTLE MACHIPONGO INLET CG LOT,1959 370753 1121

007 135= HOG,1933 370753 1037

008 140= REVEL,1959 370753 1061

009 142= TARR,1962 370754 1134

010 200= BIRD,1909, RM 5 FIELD POSITION

011 270= WALLEPS ISLAND NEW NASA TANK,1975 370751 1082

012 250= BARNES,1909 370754 1008

013 290= ASSATEAGUE BEACH CG LOT #150,1959 370751 1071

014 300= JONES,1981 PUBLISHED BY NGS

015 310= ASSATEAGUE LIGHTHOUSE,1909 370751 1073

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	ORIGINATOR <input type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	FIELD ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	OFFICE ACTIVITY REPRESENTATIVE <input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' (Consult Photogrammetric Instructions No. 64.)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75 FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75 *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	FIELD (Cont'd) B. Photogrammetric field positions** require date of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982 II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-V's.' and date. EXAMPLE: V-V's. 8-12-75 **PHOTOGAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

DATE: February 17, 1983

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, Virginia

Period: July 15-November 9, 1982

HYDROGRAPHIC SHEET: H-10034

OPR: D103

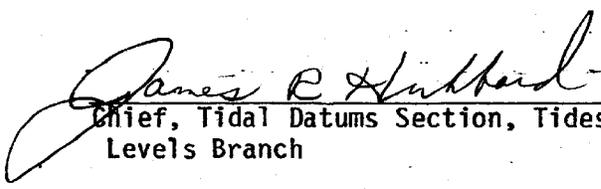
Locality: Offshore Parramore Island, Virginia

Plane of reference (mean lower low water): 24.84 ft.

Height of Mean High Water above Plane of Reference is 2.7 ft.

REMARKS: Recommended Zoning:

Apply -30 minute time correction and xi.38 feet range ratio.


Chief, Tidal Datums Section, Tides & Water
Levels Branch

GEOGRAPHIC NAMES

H-10034

Name on Survey	<div style="display: flex; justify-content: space-between;"> <div style="width: 20%;">ON CHART NO. 12210</div> <div style="width: 20%;">ON PREVIOUS SURVEY NO.</div> <div style="width: 20%;">ON U.S. QUADRANGLE MAPS</div> <div style="width: 20%;">FROM LOCAL INFORMATION</div> <div style="width: 20%;">ON LOCAL MAPS</div> <div style="width: 20%;">P.O. GUIDE OR MAP</div> <div style="width: 20%;">GRAND McNALLY ATLAS</div> <div style="width: 20%;">U.S. LIGHT LIST</div> </div>											
	A	B	C	D	E	F	G	H	K			
ATLANTIC OCEAN (title)												1
CEDAR ISLAND												2
HOG ISLAND												3
PARRAMORE BANKS												4
PARRAMORE BEACH												5
PARRAMORE ISLAND												6
QUINBY INLET												7
VIRGINIA (title)												8
WACHAPREAGUE INLET												9
												10
												11
												12
												13
												14
												15
												16
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												22
												23
												24
												25

Approved

Charles E. Harrington
Chief Geographer - N/CG 2x5

MAY 26 1987

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NO.: H-10034

Number of positions

4,021

Number of soundings

24,217

Number of control stations

6

	<u>TIME-HOURS</u>	<u>DATE COMPLETED</u>
Preprocessing Examination	<u>48</u>	<u>03/15/83</u>
Verification of Field Data	<u>831</u>	<u>04/30/87</u>
Quality Control Checks	<u>136</u>	
Evaluation and Analysis	<u>106</u>	<u>7/28/87</u>
Final Inspection	<u>23</u>	<u>07/02/87</u>
TOTAL TIME	<u>1144</u>	
Marine Center Approval		<u>07/28/87</u>

Transmittal letter of survey and survey records will be included in the Descriptive Report to identify the records accompanying the survey.

ATLANTIC MARINE CENTER
EVALUATION REPORT

SURVEY NO.: H-10034

FIELD NO.: MI-20-1-82

Virginia, Atlantic Ocean, Parramore Banks

SURVEYED: 15 July through 8 November 1982

SCALE: 1:20,000

PROJECT NO.: OPR-D103-MI-82

SOUNDINGS: ROSS Digital Echo Sounder, and RAYTHEON DE-723
Fathometer

CONTROL: ODUM Offshore Hydrotrac (Hyperbolic), DEL NORTE and
WILD T-2 Theodolite (Range/Azimuth)

Chief of Party.....J. A. Yeager

Surveyed by.....L. A. Lapine
.....E. S. Varney
.....P. M. Thomas (RN)
.....G. R. Yates
.....K. P. Peters
.....F. W. Rossman
.....R. D. Henegar
.....C. N. McLean
.....D. I. Crews
.....J. A. Miller

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

1. INTRODUCTION

a. During office processing a fathometer stylus problem became apparent with the fathometer used on vessel number 2226. Subsequently a correction was derived and applied to sounding data acquired on day numbers (DN) 200, 202, 203, 211, 226, and 227.

b. No other problems were encountered during office processing.

c. Notes in red were made in the Descriptive Report during office processing.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections F., G., and S. of the Descriptive Report.

b. Shoreline in black originates with digitized 1:20,000 scale, NOS-CERC, Cooperative Shoreline Movement Mapping, Maps 225 and 226. Brown Shoreline was added from a 1:20,000 scale

enlargement of 1:80,000 scale NOS chart 12210 (26th Ed., Oct. 31/81) and is for orientation only.

Shoreline revisions in the vicinities of Latitude 37°34'14"N, Longitude 75°35'43"W and Latitude 37°34'16"N, Longitude 75°35'32"W were made during office processing and are shown as dashed red lines on the present survey. The shoreline revision in the vicinity of Latitude 37°26'26"N, Longitude 75°39'54"W was brought forward from junctional survey H-9980 (1981) during office processing.

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 are adequately delineated except for portions of the 6-foot curve and the supplemental 3-foot depth curve because of their proximity to shore and shoal areas. Portions of the supplemental 24-foot depth curve, the supplemental 36-foot depth curve, brown curves, and some dashed depth curves were added to better show the bottom relief.

c. Development of the bottom configuration and determination of least depth is considered well done with the following exceptions:

1) Lines of hydrography run normal to the depth curves should have been extended further inshore in the vicinity of Latitude 37°31'13"N, Longitude 75°38'00"W in order to provide a better delineation the the 6-foot depth curve along the shore. The existing parallel lines of hydrography along the shore do not always provide sufficient data for th accurate delineation of depth curves.

2) Additional lines of hydrography perpendicular to the channel axis, should have been run to better delineate the bottom configuration and the channel entrance to Wachapreague Inlet in the vicinity of Latitude 37°34'48"N, Longitude 75°36'00"W, and the channel entrance to Quinby Inlet in the vicinity of Latitude 37°27'52"N, Longitude 75°39'31"W.

3) Additional lines of hydrography should have been conducted in the vicinity of Latitude 37°28'03"N, Longitude 75°38'22"W where a holiday exists on the present survey.

4) Additional lines of hydrography should have been run in the vicinities of Latitude 37°28'17"N, Longitude 75°40'00"W and Latitude 37°28'06"N, Longitude 75°39'36"W to further develop the indications of two 7-foot natural channels.

5) Reduced line spacing would have been desirable to better delineate the standard 30-foot and supplemental 36-foot curves in the vicinity of Latitude 37°33'00"N, Longitude 75°29'30"W.

6) Additional hydrography would have been desirable to better delineate bottom configuration to enable an adequate junction with H-9980 (1981) in the vicinity of Latitude 37°26'30"N, Longitude 75°39'20"W.

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. Bottom samples were not taken on numerous shoal features as required by section 8.1. of the Project Instructions and section 4.5.9.2. of the HYDROGRAPHIC MANUAL.

b. The hydrographer did not make a comparison with prior surveys H-5704 (1934), H-5715 (1934), and FE-70 WD (1948).

c. Change No.1 to the Project Instructions dated 21 June 1982, section 7.12.4., titled Discretionary Use, was followed when the side scan sonar was used to investigate the fish haven in the survey area. The preceding section of the Project Instructions, section 7.12.3., indicates that the data should be forwarded to the marine center for evaluation. These data were not included with the survey records. A side scan sonar search was performed as outlined in section L. of the Descriptive Report.

d. Section 4.2.3. of the Project Instructions requires all fixed aids to navigation to be located by Third Order, Class I (or better) methods or an office-compiled photogrammetric position. Since neither of these were available for Quinby Inlet Entrance Light, the hydrographer should have located the fixed aid or explained why this was not done.

e. Three separate sets of velocity tables have been made for this survey. The original set of tables was made by the field unit in 1982. These tables were not correctly constructed and a second set was recomputed during office processing in 1984. The third set was recomputed during office processing in 1986 using Program PC530, Velocity Table Calculations. The 1986 velocity correctors were applied to this survey.

f. Settlement and squat data list TRA as 14.1 feet for Vessel 2220 (Mt Mitchell) in Appendix D., page 28 of the Descriptive Report. TRA for vessel 2220 is listed as 13.9

feet for the present survey in section D., page 3 of the Descriptive Report. No information was provided by the hydrographer for the difference in the TRA. A TRA of 13.9 feet was used for the present survey.

g. Twenty-two days of electronic calibration data were submitted for forty-one days of hydrography. Of the twenty-two days submitted, two were for another survey sheet and eight did not have any vessel number for correlation with the survey data.

h. Direct comparison logs for vessel number 2225 list a ROSS Model 5000 (S/N 1039) Echo Sounder. The Descriptive Report lists a ROSS Model 200A (S/N 1039) Echo Sounder as the instrument used for vessel 2225. It was determined during office processing that the correct instrument used for vessel number 2225 is a ROSS Model 5000 (S/N 1083).

i. A comparison of echo sounder depth with vertical casts for determination of instrument error was not done for vessel 2220 as required by section 4.9.5.1.2. of the HYDROGRAPHIC MANUAL.

j. Nansen casts for the present survey were not taken within the survey area.

k. It is imperative that all charted items within the present survey area, whether listed or not, be investigated. See sections 7.a.5), 7.a.6), and 7.a.7) of this report.

5. JUNCTIONS

H-9980 (1981) to the south
H-9981 (1981-82) to the southeast
H-10066 (1982) to the east

The smooth sheets for H-9980 (1981), H-9981 (1981-82), and H-10066 (1982) are archived at headquarters in Rockville, Maryland, and a standard junction could not be made with these surveys. In these cases, the note "ADJOINS" has been shown on the present survey smooth sheet for each of the junctional surveys. Any adjustments to the depth curves within the junctional areas will have to be made on the nautical charts during chart compilation.

A butt junction has been effected between the present survey and H-9980 (1981) in the vicinity of Latitude 37°26'30"N, Longitude 75°39'20"W. A copy of the butt junction is appended to this report.

There are no contemporary surveys to the north of the present survey. The charted depths and present survey depths are in harmony to the north.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic Surveys

H-5674 (1934) 1:20,000
H-5704 (1934) 1:20,000
H-5715 (1934) 1:40,000
H-5770 (1934) 1:40,000

The above surveys taken together cover the entire present survey area.

Little Machipongo Inlet, shown on prior surveys H-5674 (1934), H-5704 (1934), H-5770 (1934), is now referred to as Quinby Inlet on the present survey and the charts.

H-5674 (1934) covers the inshore area of the present survey. Shoreline is not shown on the prior survey, however, control stations shown on the prior survey indicate that the shoreline has receded as much as 400 meters at the south end of Parramore Island with recession of the shoreline gradually decreasing to approximately 200 meters accretion on the northeast end of Parramore Island. Depths north of Quinby Inlet (Little Machipongo Inlet) are in general agreement and vary from plus or minus (+/-) one (1) to four (4) feet. Along Parramore Island, no reasonable comparison can be made because of the accretion and recession in of the shoreline out to depths greater than 18 feet. In depths greater than 18 feet, the present survey depths vary from one (1) to four (4) feet. The channel in Wachapreague Inlet extends further eastward with depths one (1) to five (5) feet deeper than the prior survey.

H-5704 (1934) covers the area of Quinby Inlet (Little Machipongo Inlet) in the southwest area of the present survey. Dramatic bottom change has occurred due to swift currents and sandy bottom. A general shoaling trend can be seen in the common area. The shoal area in the vicinity of Latitude 37°28'00"N, Longitude 75°39'10"W has remained relatively stable. Shoreline on the north end of Hog Island has receded up to 200 meters. The eastern end of Hog Island has accreted up to 400 meters.

H-5715 (1934) covers the northeast corner of the present survey. A general deepening trend can be seen in the common area. Depths on the prior survey are generally within plus or minus one (1) to six (6) feet of the present survey depths. The general bottom configuration of the present survey is consistent with the prior survey.

H-5770 (1934) covers the offshore area of the present survey. Depths are generally within plus or minus one (1) to seven (7) feet. Scattered depths are up to twenty-two (22) feet shoaler than the present survey. The general bottom

configuration of the present and prior surveys are consistent with a slight migration to the southwest in most areas.

The numerous fish traps shown in the western portion of the prior survey are not charted. Present survey hydrography shows no indication that these fish traps exist. No change in charting status is recommended.

The differences in the comparisons of the present and prior surveys may be attributed to sand transport by alongshore currents and in restricted inlets, and technological advancements in the field of hydrographic surveying.

The present survey is adequate to supersede these prior surveys in the common area.

b. Wire Drag Survey

FE-70WD (1948)

A comparison of the present and prior survey shows one (1) hang in the common area.

The charted wreck of the tug "MENOMINEE" was hung at 41 feet in Latitude $37^{\circ}32'00''N$, Longitude $75^{\circ}26'05''W$ and cleared to a depth of forty (40) feet. The wreck was brought forward from the wire drag survey to supplement the present survey. No change in charting status is recommended.

There are no conflicts between the present survey depths and the wire drag effective depths.

7. COMPARISON WITH CHART 12210 (26th Ed., Oct 31/81)

a. Hydrography

The charted hydrography originates with previously discussed prior surveys and needs no further discussion.

In addition, the following information is directed to the attention of the chart compiler on items not adequately addressed by the hydrographer:

1) Presurvey Review Item 42 (AWOIS Item #2429) is a visible wreck, PA charted in Latitude $37^{\circ}30'00''N$, Longitude $75^{\circ}38'48''W$ that originates with Local Notice to Mariners 33/72. The wreck was visually searched for by the hydrographer with negative results. An inadequate amount of hydrography was run in the area to verify or disprove the wreck. It is recommended that the charted visible wreck, PA be revised as a dangerous sunken wreck, ED.

2) Presurvey Review Item 44 (AWOIS Item #2427) is a dangerous sunken wreck, PD charted in Latitude 37°27'00"N, Longitude 75°37'42"W originating with Local Notice to Mariners 37/71. The item was searched for by the hydrographer with negative results. It is recommended that the item be retained as charted and additional wire drag/ side scan sonar work be done to verify or disprove the wreck's existence.

3) AWOIS Item #984 is not within the limits of the present survey. The indicated position of the item on the Presurvey Review chart supplied to the hydrographer is in error. The position given in the AWOIS listing for Item #984 is correct.

4) AWOIS Item #986 is an uncharted sunken wreck reportedly hung by a trawl fisherman in Latitude 37°32'03.76"N, Longitude 75°33'22.54"W. The item was searched for by the hydrographer with negative results. It is recommended that the item not be charted unless other information indicates otherwise. It should be noted that a later edition (29th Ed., Nov. 24/84) of chart 12210 shows the item within the limits of a Fish Haven.

5) Presurvey Review Item 43 (AWOIS Item #2428) is a charted dangerous sunken wreck, PA in Latitude 37°28'12"N, Longitude 75°39'24"W originating with Local Notice to Mariners 43/72. The item was not developed, verified or disproved by the hydrographer. It is recommended that the dangerous sunken wreck, PA be retained as charted.

6) An uncharted obstruction was located by the hydrographer with a fathometer least depth of 58 feet in Latitude 37°32'01.69"N, Longitude 75°26'23.73"W. The hydrographer states in the sounding volume (vol 1, page 41) that the obstruction is a wreck; however, no further development was conducted to determine the nature of the obstruction. The obstruction is approximately 500 meters west of a charted wreck cleared to 40 feet (see section 6.b. of this report). Since the charted wreck was not verified or disproved by the hydrographer, it cannot be determined if the charted wreck or the obstruction are the same object. It is recommended that an obstruction with a depth of 58 feet (58 obstr) be charted as shown on the present survey.

7) The hydrographer states that local mariners reportedly snagged what they believed to be a sunken barge in Latitude 37°29'30"N, Longitude 75°35'00"W. Since the item was not found or verified as a barge, it is recommended that an obstruction be charted in the position listed and future wire drag or side scan sonar searches be conducted unless other information indicates otherwise.

8) The charted Fish Haven (auth min 44 ft) in the vicinity of Latitude 37°32'42"N, Longitude 75°26'24"W was developed by the hydrographer. A least depth of 45 feet is found in Latitude 37°32'21.52"N, Longitude 75°26'08.03"W. No change in charting status is recommended.

The present survey except as noted above is adequate to supersede the charted hydrography in the common area.

b. Aids to Navigation

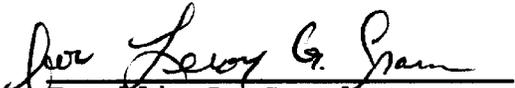
The aids to navigation on the present survey appear adequate to serve their intended purpose.

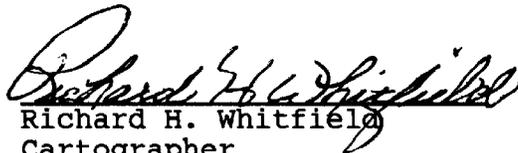
8. COMPLIANCE WITH INSTRUCTIONS

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

9. ADDITIONAL FIELD WORK

This is an adequate basic survey. Additional field work may be necessary at an opportune time to completely verify or disprove all questionable items addressed in section 7.a. of this report.


Franklin L. Saunders
Cartographic Technician
Verification of Field Data


Richard H. Whitfield
Cartographer
Evaluation and Analysis


Robert R. Hill
Senior Cartographic Technician
Verification of Field Data

ADDENDUM TO ACCOMPANY SURVEY H-10034

The average values for shifting surveyed NAD 1927 positions to NAD 1983 positions for this survey are as follows:

Position shifts (NAD 1983 minus NAD 1927):

Average latitude shift = 0.619 seconds = 19.1 meters

Average longitude shift = -1.386 seconds = -34.7 meters

INSPECTION REPORT
H-10034

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disapproval 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



R. G. Roberson
Chief, Evaluation and Analysis
Group
Hydrographic Surveys Branch



R. D. Sanocki
Acting Chief, Hydrographic Surveys
Branch

Approved: 28 July 1987



Ray E. Moses, RADM, NOAA
Director, Atlantic Marine Center

75° 41'

75° 40'

75° 39'

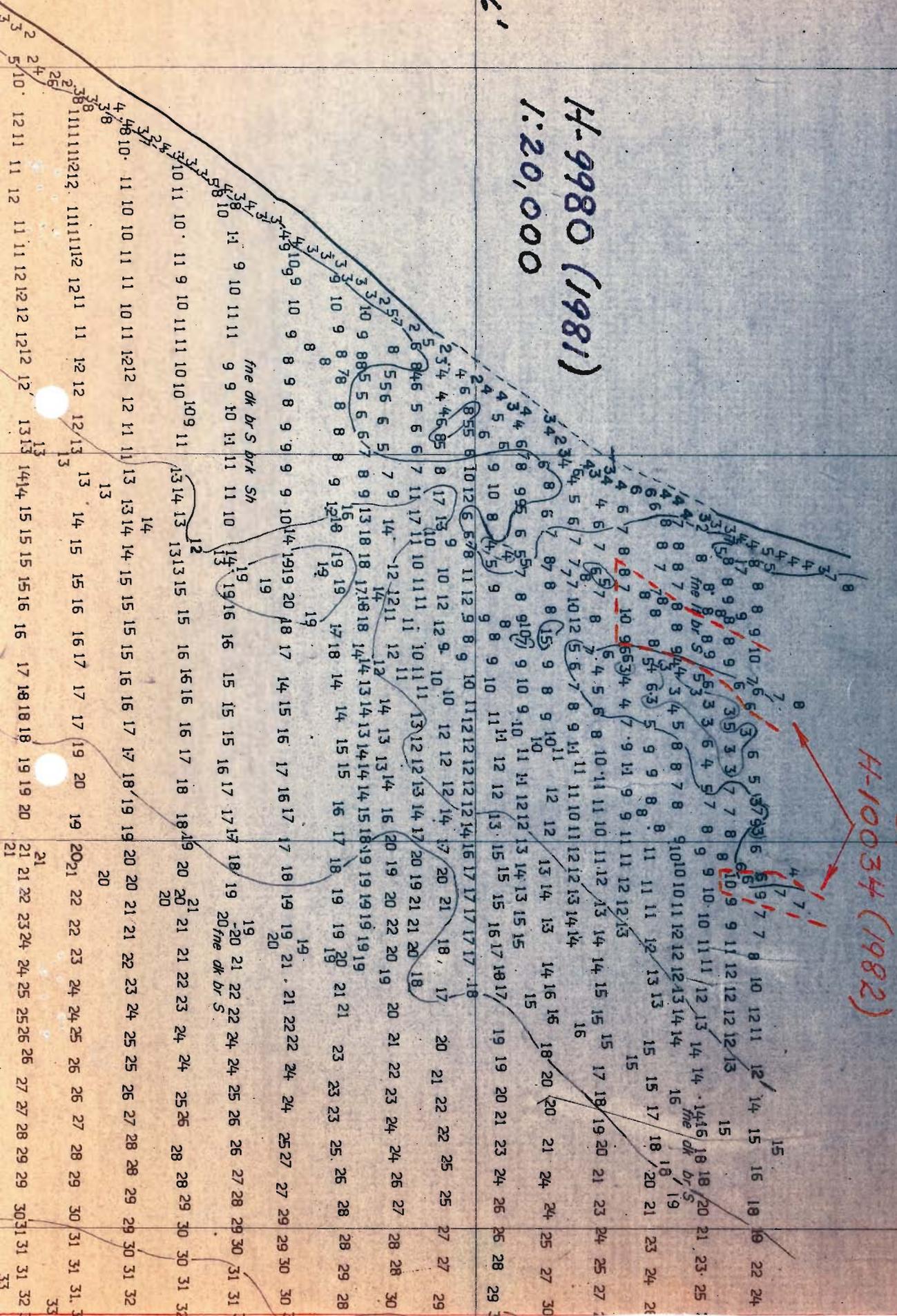
75° 38'

37° 29'

37° 26'

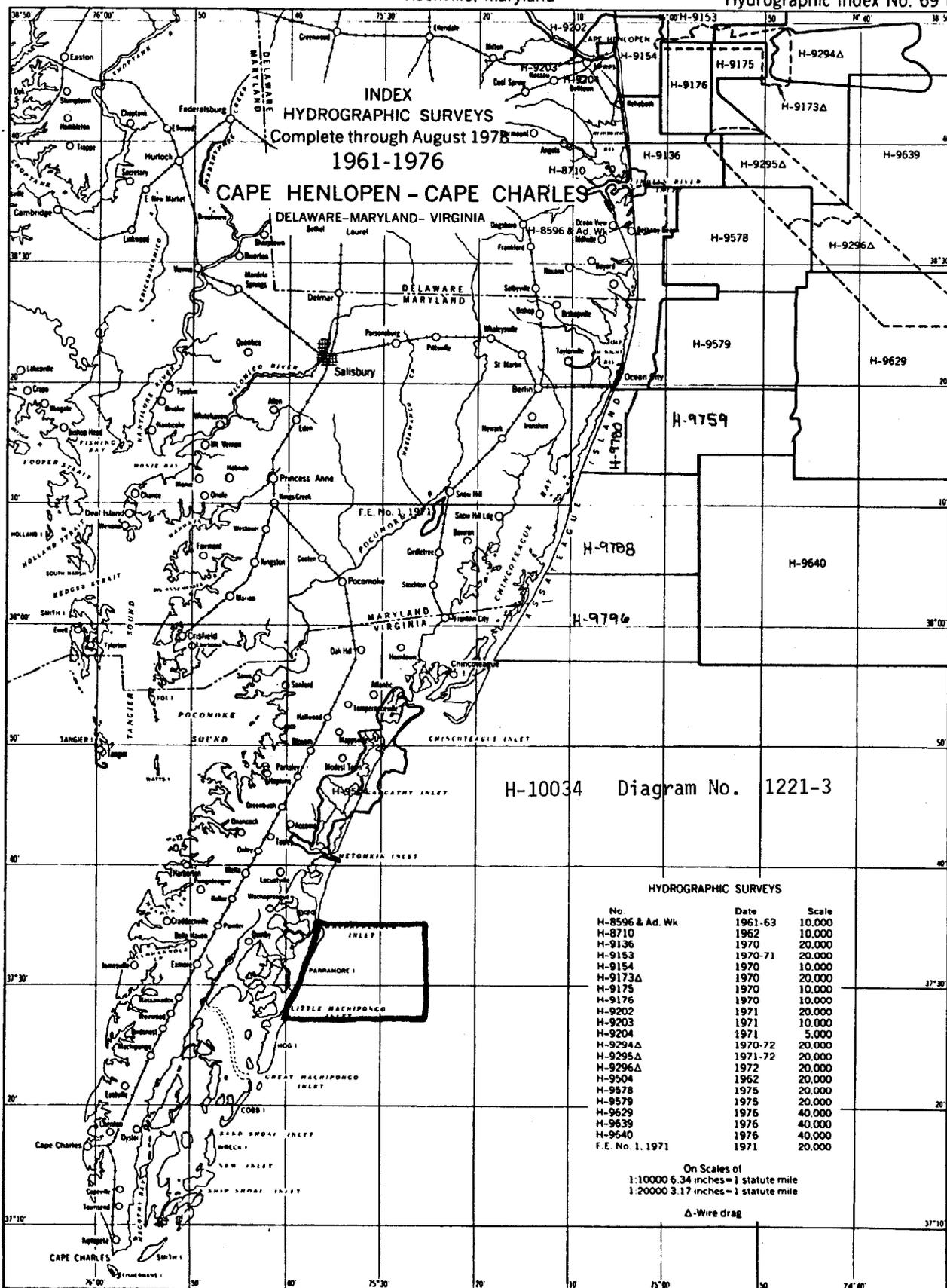
H-9980 (1981)
1:20,000

SUPERSEDED BY
H-10034 (1982)



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

Hydrographic Index No. 69 K



INDEX
HYDROGRAPHIC SURVEYS
Complete through August 1978
1961-1976
CAPE HENLOPEN - CAPE CHARLES
DELAWARE-MARYLAND-VIRGINIA

H-10034 Diagram No. 1221-3

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-9176	1970	10,000
H-9202	1971	20,000
H-9203	1971	10,000
H-9204	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

