10045

Diagram No.s 1220-2 & 1221-3

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-20-3-82

Office No. H-10045

LOCALITY

State Virginia

General Locality Atlantic Ocean

Locality Wallops Island to Metompkin Islands

1982

CHIEF OF PARTY
CAPT. J.A.Yeager

LIBRARY & ARCHIVES

DATE February 11, 1985

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

10045

Area 2
Chts
12211
12210
12200

TO SIGN OUT
SEE "RECORD OF APPLICATION"

C&GS 537 | U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H- 10045

FIELD NO. MI 2ϕ-3-82

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State Virginia

General locality ~~Atlantic Ocean~~ Alongshore -- Islands Island

Locality ~~Inshore~~ Metompkin Is. to Wallops Is., Va.

Scale 1:20000 Date of survey 29 Aug- 09 Nov, 1982

Instructions dated 5 May 1982 Project No. OPR-D103-MI-82

Vessel NOAA Ship MT MITCHELL

Chief of party Capt. J. AUSTIN YEAGER

Surveyed by see remarks

Soundings taken by echo sounder, ~~xxxxxxxxxx~~ Ross Digital Echo Sounder

Graphic record scaled by UG,MS,BEM,BC,EM,RW.

Graphic record checked by UG,MS,BEM,BC,EM,RW.

Protracted by N/A Automated plot by AMC Digital Hydroplot System

Soundings penciled by

Soundings in ~~xxxxxx~~ feet at ~~XMW~~ MLLW

REMARKS: LT. E.S. VARNEY, LTJG F. ROSSMAN, LTJG PETERS, LTJG YATES, LTJG R.D. HENEGAR, ENS B. COAKLEY, ENS C.MCLEAN, ENS D. CREWS, ENS. J MILLER.

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

AWOIS/SURF MSM 11/17/86

Appd to Stds 2-13-85 RJV

USCOMM-DC 37009-P66

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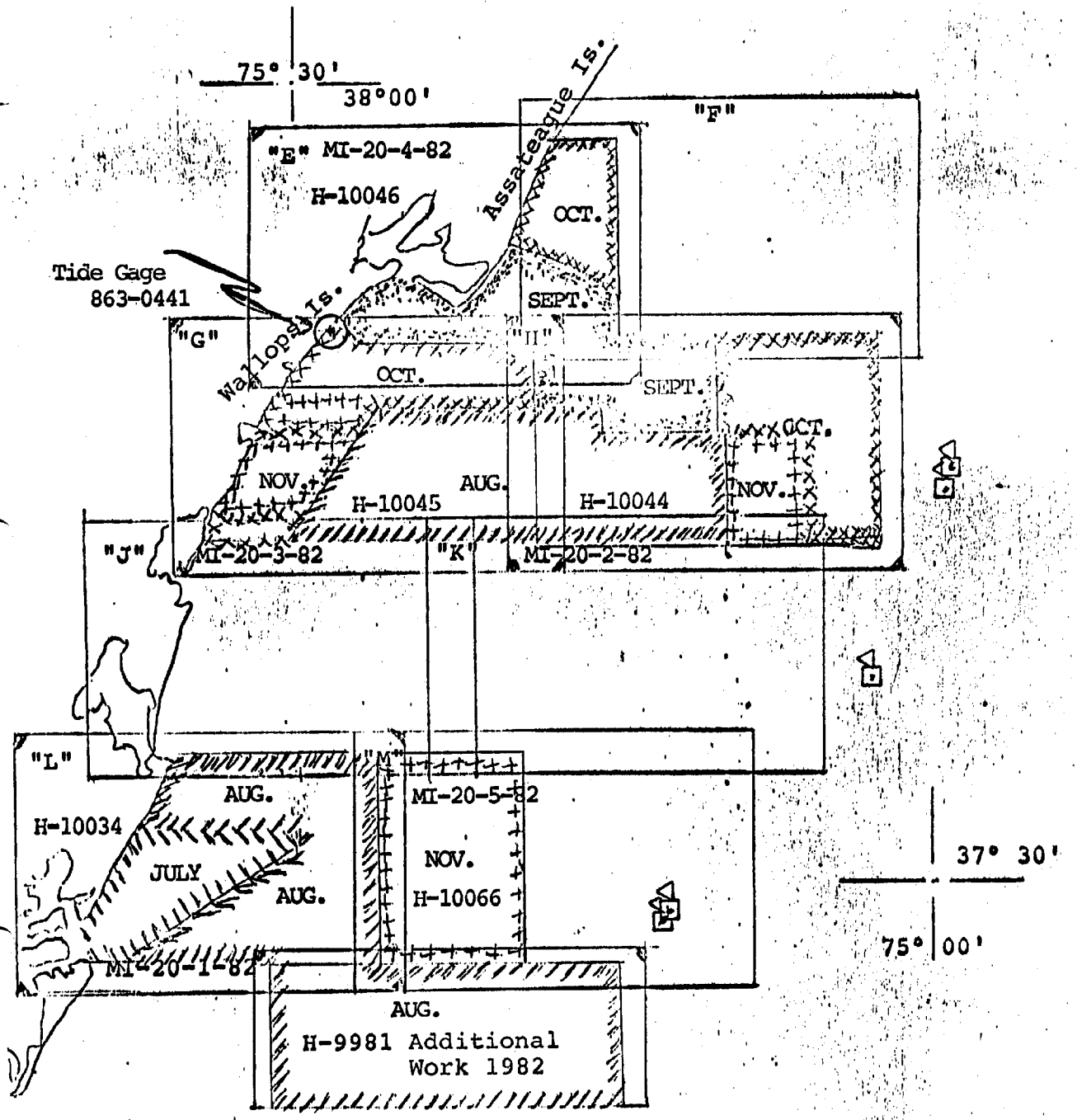
* Removed from Original Descriptive Report and filed with original survey data.



JULY	AUG.	SEPT.	OCT.	NOV.	
—	1856.3	525.0	467.8	725.2	LNM HYDRO (SHIP)
—	195.4	22.8	47.5	55.0	SNM HYDRO (SHIP)
269.6	587.6	265.1	563.8	222.7	LNM HYDRO (LAUNCH)
21	20	18	34.4	20.0	SNM HYDRO (LAUNCH)
54	47	36	53	21	BOTTOM SAMPLES
2	1	1	1	—	NANSEN CAST
—	784.7	241.9	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
[illegible] NOAA

DESCRIPTIVE REPORT
to accompany
Survey H-10045
(Field No. MI20-3-82)
Scale 1:20,000 Year 1982
CAPT J. Austin Yeager, NOAA
Commanding
NOOA Ship MT MITCHELL

A. PROJECT

This survey was conducted in accordance with Project Instructions OPR-D103-MI-82, Atlantic Seaboard Area Project (ASAP), DELMARVANC Phase, dated 5 May 1982, ammended by changes 1 and 2 dated 21 June 1982 and 7 September 1982.

B. AREA SURVEYED

The area surveyed is from the shore of Wallops Island, Assawoman Island, and the Metompkin Islands, to ten miles offshore the Atlantic Coast of Virginia.

The area of this survey is defined by the lines connecting the following positions:

Latitude	Longitude
37° 42' 47"N	75° 34' 16"W
~~37°41.6' N~~	~~75°36.0' W~~
37° 42' 51"N	75° 17' 57"W
~~37°51.3' N~~	~~75°36.0' W~~
37° 50' 50"N	75° 18' 00"W
~~37°51.3' N~~	~~75°17.0' W~~
37° 50 42"N	75° 28' 19"W
~~37°41.6' N~~	~~75°17.0' W~~

These waters are frequently traveled by mariners in their approach to Chincoteague Inlet, and are characterized by a gently sloping bottom reaching depths of approximately 70 feet at the Eastern edge of the survey. The Northeast corner of the survey area finds the Southerly limit of a shoal, Turner's Lump, and rises to a depth of eight feet.

As per project instructions, Gargathy Inlet and Assawoman Inlet were not surveyed, while all waters lying Eastward of the inlet entrance and approaches were thoroughly surveyed.

This survey commenced on Julian Date 241, August 29, 1982, and was completed on Julian Date 313, November 9, 1982.

Survey data was collected on the following dates:

Julian Dates	Calendar Dates
241-246	29 Aug - 3 Sep 82
272	29 Sep 82
278-282	5 Oct - 9 Oct 82
302-309	29 Oct - 5 Nov 82
313	9 Nov 82

C. SOUNDING VESSELS

Soundings for this survey were obtained by the NOAA Ship MT MITCHELL S-222 (VESNO 2220), Launch 1002 (VESNO 2224), and Launch 1008 (VESNO 2225).

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The following equipment was aboard the respective vessels during this survey:

Vesno	Equipment	Serial Number
2220	Ross 5000 Fineline Depth Recorder	1050
	Ross 6000 Digitizer	1050
2224	Ross 200A Fineline Depth Recorder	C537
	Ross 6000 Digitizer	1039
2225	Ross 5000 Fineline Depth Recorder	1083
	Ross 6000 Digitizer	

All survey records were scanned and checked by trained survey department personnel and checked by the Officer-in-Charge. Peaks and deeps considered significant were inserted between appropriate soundings on the electronic corrector tape. Any digitizing errors were corrected to agree with the graphic record, also applied through the corrector tape.

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

Velocity correctors were obtained from three Nansen casts obtained under the following schedule:

Cast No.	JD	Date	Location
3	237	25 Aug 1982	$37^{o}46.1'$ N $74^{o}58.7'$ W
4	264	21 Sep 1982	$37^{o}44.9'$ N $74^{o}59.2'$ W
5	303	30 Oct 1982	$37^{o}37.8'$ N $75^{o}02.7'$ W

Transducer depth of VESNO 2220 was determined by subtracting the measured distance of the water surface to the deck rail from the known distance of the transducer to the deck rail. Transducer draft for this vessel is 13.9 feet, and was applied on line to all survey data acquired by VESNO 2220.

A vertical cast was taken on 22 July, 1982 (JD 203) and comparisons were made between leadline measurements and echo sounding fathogram readings, verifying the accuracy of the fathometer (Ross 5000 Fineline Recorder s/n 1050) on VESNO 2220.

Transducer drafts of 1.6 feet were applied for soundings taken by VESNO 2223, 2224 and 2225. Settlement and squat correctors for the launches were determined on JD 204 and 207 (23 and 26 July) 1982 at the Naval Amphibious Base, Little Creek, VA. A copy of the field data and graphic settlement and squat correctors versus launch speed is included in the survey support data. Settlement and squat and instrument error correctors for all survey vessels are incorporated into TC/TI tapes, and a printout of this tape is included in Appendix D.

Typically, VESNO 2220 acquired soundings using the skeg mounted transducer fixed firmly to the centerline of the ship at 32 meters aft of the navigation antenna (ANDIST=32.0). The locational distance is provided for the online and offline programs RK 112 and RK 210 respectively.

Comparisons were made between the daily barchecks and Nansen Cast data. Differences between the two curves for each sounding vessel were applied as instrument error on the abstract of corrections to echo soundings.

The graphs showing the differences between barchecks and Nansen Cast data, as well as the Abstract of Corrections to Echo Soundings are in Appendix D of this report.

This survey was conducted using predicted tides based on daily predictions for Hampton Roads, Virginia, (863-8610). Predicted tides were generally applied during online operations using program RK 112. Predicted tides were applied offline during processing whenever online application was omitted. A copy of the predicted tide printout is included with the field records. Smooth tides were requested from the Chief, Tides and Water Levels Branch (OA/C23) on 19 November, 1982 for the period of this hydrographic survey.

E. HYDROGRAPHIC SHEETS

This survey was plotted on six (6) Mylar plotter sheets by the MT MITCHELL HYDROPLOT System. Four of the sheets have a skew of 0,21,54: two sheets containing the mainscheme and two sheets containing the crosslines, developments, and bottom samples; two sheets with a skew of 46,21,30 representing the Wire Drag for PSR Item 40. All soundings on the field sheets are corrected for sounding vessel draft, predicted tides, digitized errors, and sound velocity variation. Field sheets submitted have not been corrected with smooth tides, settlement and squat, or instrument error; these additional corrections are to be applied on the final smooth sheet prepared by the Atlantic Marine Center (OA/CAM3) Processing Division, Norfolk, Virginia.

All field sheets and the following tapes have been forwarded to the Atlantic Marine Center, Processing Division for verification and smooth plotting:

Hyperbolic Master Tapes (raw and edited)

Range-Range Master Tapes (raw and edited)

Electronic Corrector Tapes

Velocity Corrector Tapes

Parameter Tapes

Signal Tapes

TC/TI Tapes

F. CONTROL STATIONS

Electronic Control Stations used for this survey are as follows:

Station Number	Station Signal Name	Latitude (° N)	Longitude (° W)
100	GRAVITY ~~1965~~, 1980	36°40'31.454"	75°54'56.471"
200	BIRD ~~1909~~, RM5, 1982	37°44'17.414"	75°35'11.904"
280	EASY WALLOPS BEACH COAST GUARD 3 NEW TOWER, 1949 ~~WALLOPS CG 3 TOWER, 1949~~	37°52'34.534"	75°26'38.652"
291	ASSATEAGUE BEACH CG Lot Ecc 1982	37°51'48.913" ~~37°51'48.700"~~	75°22'06.593" ~~75°22'06.500"~~
300	JONES 1981	37°53'16.699"	75°20'31.186"

All stations were established using Third Order Class I survey methods by personnel from the NOAA Ship MT MITCHELL or the Operations Division, Atlantic Marine Center. All stations are monumented except Station 291, Assateague Beach CG Lot ECC 1982.

A complete listing of stations used for the project and their geographic positions are included in Appendix F of this report.

G. HYDROGRAPHIC POSITION CONTROL

Position control for most of this survey was accomplished using a medium range HYDROTRAC System manufactured by Odom Offshore Surveys, Inc. This HYDROTRAC System was used in the hyperbolic mode for all data acquired by the MT MITCHELL (VESNO 2220), Launch 1002 (VESNO 1224), and part of the work from Launch 1008 (2225). The balance of the launch data was obtained using a short range system operating in Range-Range mode, the Del Norte Trisponder System. Equipment used in this survey is as follows:

Hydrotrac Components

	Equipment	Serial Number
Slave 1	Slave Drive Unit	226
(Station 100)	Linear Power Amplifier	536
	Coupler	130
	Power Supply	754
Master	Master Unit	131* exchanged for 122 on JD 276
(Station 200)	Coupler	131
	Linear Power Amplifier	540
	Power Supply	102
Slave 2	Slave Drive Unit	215* replaced with 214 on JD 282
(Station 300)	Linear Power Amplifier	539
	Coupler	133*
	Power Supply	752

Note: During survey operations at Station JONES 1981, an antenna connection wire was broken at the insulator upon re-erection of the antenna. The mast had been lowered to facilitate occupation of Station 300. The result was a change in equipment so marked "" on 3 October 1982 (JD 276). Additionally, the slave drive unit at Station 300 went off frequency on 9 October (JD 282) and was changed to unit serial number 214.

Hydrotrac Components

VESNO	Equipment	Serial Number
2220	Hydrotrac Receiver	327
	Hydrotrac Power Amplifier	538
	Sawtooth Recorder	8501
2224	Hydrotrac Receiver	326
	Sawtooth Recorder	A-175
2225	Hydrotrac Receiver	328
	Sawtooth Recorder	1914

Del Norte Equipment

VESNO	DMV	Master	Dates
2225	429	250	JD 278 - 282

The location of the various Del Norte remote units used for this survey were:

Station	Remote Unit	Dates
280	78 (s/n 253)	JD 278 - 282
291	74 (s/n 189)	JD 278 - 282

Ship calibrations in hyperbolic function were determined using program RK 561 taking three point sextant fixes of signals having known geodetic position verifying whole lane values and establishing partial correctors. The calibration area was 2 to 3 miles offshore of Wallops Island, Virginia. Range of visibility allowed calibrations to be made from within the area of the survey.

A sawtooth recorder was used to maintain an accurate count of whole lanes measured, and the graphic representation was annotated by hand when comparisons were made with the digital values displayed on the Hydrotrac Receiver.

A complete list of all electronic correctors is contained in Appendix E.

The Del Norte DMV/Master pair was calibrated with each remote over a measured baseline distance over water before and after use on this survey. A Hewlett Packard 3810-B was used to measure the distance, and baselines were established at the South end of Assateague Island near the abandoned US Coast Guard pier, and in the vicinity of the Fort Story Officer's Club, Fort Story, Virginia, on 4 October and 18 October 1982 respectively.

Daily calibrations were made to establish correctors for Range-Range Del Norte and hyperbolic Hydrotrac Systems. Two methods were used: three point sextant fixes using program RK 561, and the Range-Angle method described on page 4-27 of the Hydrographic Manual. For the Range-Angle method, a range between stations of Third-Order accuracy was steered. The angle to a third station (again, Third-Order accuracy) was observed. Electronic control rates were computed beforehand for predetermined angles. The electronic control rates were observed at the instant the launch reached the predetermined angle. The precomputed rates were compared with observed values and correctors derived. This method proved successful and increased the number of calibrations for this survey, despite the limited visibility observed.

Daily correctors were used in reparing the Range-Range work of this survey, as their measured values appeared more reliable than the interpreted values estimated from baseline calibration differences.

All visual calibrations were weather-dependent and were attempted twice daily for all launchwork, and every 24 to 36 hours for shipwork.

H. SHORELINE

Sounding lines were run parallel to the shore at the limit of safe navigation for the sounding vessels. Additional lines were run parallel to the shore to junction with mainscheme lines and to allow safe turning room.

Shoreline details were transferred in black ink from digitized data provided by CAM3 and these details were evaluated from the launch during hydrographic operations. The agreement was excellent except as noted below.

Groins on Wallops Island from 37°49.3' N to the northerly sheet limits were verified for existence and correct position accuracy during operations of JD 305 (VESNO 2225) while running survey lines paralleling the shoreline. The online verification showed no discrepancies. - See also sections 4.k and 7.a.7 of the Evaluation Report.

A shoreline discontinuity was observed on the digitized shoreline at 37°45.0' N 75°32.8' W. The correct existing shoreline is indicated on the final field sheet submitted and is marked in red.

Additionally, the small inlet appearing between the Metompkin Islands has closed, due to the deposition of sediments along the shoreline. A dashed red line on the field sheet indicates the approximate shoreline observed from the launch. Observations were made on JD 309 (VESNO 2224) during shoreline acquisition and JD 307 (VESNO 2224) during mainscheme hydrographic operations.

I. CROSSLINES

This survey ran 97.4 linear nautical miles of crosslines, representing 10.7% of the mainscheme mileage for this survey. When comparing crosslines and mainscheme soundings, 96% of those compared agreed within 1 foot. The rest of the comparisons agreed within 3 feet, when comparisons were made using 1-1/2mm at scale of survey for allowable horizontal displacement.

Positions 001 through 010 crossline running North-South along Longitude 75°19.1' W showed several 2-foot variations. These differences may be attributed to the application of predicted vice smooth tide data.

In general, there was excellent agreement between mainscheme soundings and crosslines run. Any differences may be caused by sand waves creating an irregular bottom texture in this dynamic, sandy area or the application of predicted vice smooth tides.

J. JUNCTIONS

This survey junctions to the North with Survey H-10046, to the East with Survey H-10044, to the West lie Wallops, Assawoman, and Metompkin Islands, and the area to the South was not surveyed during this project.

Survey	Field Number	VESNO	Junction Area
H-10046	MI-20-4-82	2224, 2225	North
H-10044	MI-20-2-82	2220	East

Comparison with Survey H-10046 yields a 99% agreement of all soundings within one foot, using the allowable horizontal displacement of 1-1/2mm at the scale of the survey. Neither survey recorded consistently deeper depths at junction. Significant overlap was observed between surveys.

Comparison with Survey H-10044 yields a 93% agreement with the current survey within one foot, using the allowable horizontal displayment of 1-1/2mm at the scale of the survey. Discrepancies of 2 feet occur at the junction along Longitude $75^{o}18.0'$ W between Latitudes $37^{o}45.9'$ N and $37^{o}45.^{o}$ N. It is believed that these minor differences may be attributed to application of predicted vice smooth tidal data. One possible discrepancy exists at $37^{o}45.8'$ N, $75^{o}18.0'$ W. A 53-foot sounding (Position 18+3) from this survey is about 100 meters from a 63-foot sounding from Survey H-10044 (position 728). These two soundings are part of two bottom features delineated by other soundings from this survey and are included for this reason. They appear to represent an irregular bottom feature, rather than a disagreement in sounding data.

THIS SURVEY DEPTH	DEPTH	LOCATION	
H-10045	H-10044		
53' (pos. 18^{+3}) ✓	63' (pos. 728)	$37^{o}45.8'$ N	$75^{o}18.0'$ W
~~58'~~ 59 (pos. 25^{+2})	55' (pos. 696)	$37^{o}45.6'$ N	$75^{o}18.0'$ W
~~60'~~ 59 (pos. 27^{+2})	58' (pos. 661)	$37^{o}45.5'$ N	$75^{o}18.0'$ W
~~60'~~ 59 (pos. 37)	58' (pos. 660)	$37^{o}45.4'$ N	$75^{o}18.1'$ W

K. COMPARISONS WITH PRIOR SURVEYS - See also section 6 of the Evaluation Report

Comparisons were made with the following prior surveys:

Survey	Scale	Date of Survey
H-5703	1:20,000	Aug-Oct 1934
H-5715	1:40,000	July-Oct 1934
H-9504	1:20,000	1962

This survey involves areas previously surveyed and charted in Surveys H-5703, H-6341 WD, H-9504, and H-5715. Three Prior Survey Review Items were included for investigation on this sheet.

Comparison with Survey H-6341 WD was not possible, as a copy of this survey was not available for operational areas.

Comparison made with Survey 5703, Chincoteague to Wachapreague Inlets dated August - October, 1934 showed many interesting comparisons. Survey 5703 shows a shoaling area of a 30-foot sounding at 37°50.0' N, 075°24.0' W in surrounding 32 to 34 foot water. Current data suggests the occurence of shoaling and sediment buildup as this area commonly has 30-foot soundings.

Most differences appear on the shoreline and associated shallow water soundings. Survey 5703 extends from the beach seaward for approximately one mile. Generally, a 65% agreement exists comparing Survey 5703 to current data. Nearly all soundings beyond the 18-foot contour are accurate on 5703, but major changes have occurred inshore of this line. At the northern limit of the survey, along the shoreline at Latitutde 37°50.5' N. The shoreline bends inland up to 37°49.2' N, 75°29.9' W where the North

face of Assawoman Inlet used to be. This entire area has been deepened to current depths of 13 to 15 feet where 5703 reports 4-12 foot soundings. The mouth of Assawoman Inlet has moved Southwest 300m and the Southern end of Wallops Island has extended Southwest by the same distance. The warning of "breakers" on 5703 at 37°49.0' N, 75°29.8' W, and the surrounding 3 to 4 foot soundings are now in 12 to 13 feet of water. Assawoman Island has lost approximately 250-300 meters of beach from the North to South end. Additionally, Gargathy Inlet has migrated North from 37°45.75' N, 75°32.2' W on Survey 5703 to the present location of Gargathy Inlet of 37°46.7' N, 75°31.9' W. This movement and excavation of sediment has erroded much beach face, moved Gargathy Inlet North and inland by 1600 meters, and has deepened all waters inshore of the 18-foot contour on Survey 5703. The D.P.'s locating the two exposed pilings, positions 3494 and 3496 at 37°45.8' N, 75°32.4' W are where Survey 5703 locates Gargathy Inlet. South of this position, soundings have deepened and the shoreline has retreated 250-300 meters with all soundings in agreement offshore of the 24-foot contour at Latitude 37°44.5' N. The shoal at 37°44.2' N, 75°32.2' W with a least depth reported of 17 feet on Survey 5703 is now 21-23 feet deep. From this point South to the survey limits, the erosion of shoreline has increased such that the old unverified shoreline of 5703 at 37°34.0' N, 75°33.7' W is now under 13 feet of water, and the shoreline has moved West by 800 meters at this latitude. Much of what used to be Metompkin Island is now under water and major erosion has occurred from Latitude 37°44.2' N extending South. In this area, soundings agree beyond and including the 24-foot contour. The 18-foot sounding from 5703 is now 21 to 25 feet at 37°43.6', 75°32.4' W. From this line to the shoreline, there is no agreement of soundings due to the extensive erosion and sediment transport from this area.

Comparison was made with Survey No. 5715, North of Paramore Banks, dated July - October 1934. This survey extends East from Survey 5703 limits, and shows excellent agreement with the present data. Approximately 95% of the soundings agree between surveys between surveys within two feet comparing at 1-1/2mm at the scale of the survey. (Comparisons were made between this survey at 1:20,000 scale Survey 5715 at 1:40,000 scale). This agreement includes both the location and least depth of 34 feet at the shoal located at 36°42.9' N, 75°23.0' W. The shoal and surrounding waters are characterized by a very slight and gentle slope to the bottom, extending to depths of 70 feet at the Southeastern limit of this survey. This character was reflected in comparison with survey 5715.

Comparison with Survey H-9504 finds a 95% agreement of soundings from the 20-foot contour line to the limits of Survey H-9504 in deeper water. In water shoaler than 20 feet, the present survey indicates depths greater than the prior survey, as the shoreline has retreated by 75-100 meters from Latitude 37°44.0' to Latitude 37°45.5'. The old shoreline is now covered by 3-5 feet of water, and the inlet at 37°45.8' N 75°32.4' W is now closed and there is no communication of bay water with the sea at this point. Detached Positions 3494 and 3496 are at this location and represent pilings extending above MLW. They may be the remains of a structure built at the old inlet.

Gargathy Inlet, located at 37°46.7' N, 75°31.9' W has maintained it's location, while the southern shore of this inlet has migrated North by 200m, constricting the mouth of the inlet, and erroding the shoreline from Latitude 37°46.0' N

to 37°46.4' N. Water depth has increased between these Latitudes out to the 20-foot contour line. Areas of 8 and 9 feet now are covered by 15 to 16 feet. Depths 6 to 8 feet now cover areas formerly too shallow to sound to the South of the inlet within the given latitudes. The inlets on Assawoman Island at 37°47.8' N, 75°31.3' W are now closed and do not communicate with the sea, and soundings along Assawoman Island shoreline have deepened. The shoreline of Assawoman and Wallops Island has been stable and does not show the serious erosion indicated to the South. Between Latitudes 37°47.0' N and 37°50.5' N, soundings are deeper than the prior survey from the seaward limit to the 12-foot contour. Within the 12-foot contour, soundings are deeper by 4 to 6 feet along the 10-foot contour, and by 5 to 6 feet along the 6 foot contour.

Assawoman Inlet, located at 37°49.1' N, 75°30.2' W has maintained it's location, while erosion of beachfront has occurred at 37°49.2' N, 75°30.0' W, and the northern bank of the inlet has migrated southerly by 25-50 meters.

Soundings North of this inlet are in agreement beyond the old 12-foot contour of H-9504. Inshore, water depths now 10 to 13 feet were formerly 5-10 feet.

Prior Survey Reveiew Items:

ITEM #40: Source of this item is not available from PSR Listing, and investigation was conducted treating this obstruction as a charted item investigation. This item is addressed in Sections L, M, P, Q, and S.

ITEM #994: A reported cargo vessel of 565 gross tons, the E.R. SMITH, sunk 25 Jan 43 and plotted with a 1 to 3 mile position accuracy at 37°49'00" N, 75°22'00" W.

This wreck was searched for with sounding lines spaced 100m apart over a circular area of one nautical mile in diameter, centered at the plotted position of the wreck. Close examination of sounding records and fathograms gave no indication of the wreck. This item should be continued on the chart as a P.A. item.

ITEM #996 is a reported tug boat, the P.J. HOOPER, sunk 26 March ~~1982~~ 1941, and charted within one mile position accuracy at 37°50'12" N, 75°20'25" W. Again, 100m spacing between lines was run and no evidence of an obstruction was found. The wreck symbol should be charted as P.A. to indicate the uncertainty of location.

L. COMPARISON WITH THE CHART - ~~See also section 7 of the Evaluation Report.~~

Comparison of current survey data with the existing charts (no. 12210, 26th Edition, 31 Oct 1981), shows an 85% agreement within 1-2 feet of current survey data and shows many changes in this dynamic area. Most charted depths agree with current survey depths. Differences between charted and survey depths should be changed to represent current survey depths.

Assawoman Inlet, located at 37°49.0' N, 75°~~29~~30.0' W, has deeper waters in its' approach since the printing of the chart. The 4 and 10-foot soundings to the South of the inlet are now each 13 and 15 feet; the 5-foot sounding immediately North of the inlet is now 13 feet, and the 12-foot sounding East of the inlet is now 15 feet.

The 30-foot charted shoal was not found at 37°49.5' N, 75°24.75' W, and current survey shows a continuous 32-foot bottom. Shoaling has occurred at 37°47.0' N,

75°24.0' W with the 42 and 45-foot charted soundings now showing 41 and 40-foot depths. The Northeast area of the survey contains Turner's Lump and the Southwest reach of Chincoteague Shoals, which rise from the 30-50-foot surrounding bottom. In general, the area has changed since the last survey; the discrepencies are noted in the following paragraphs.

Surface aids to navigation in this area of survey are buoys R"2TL", BW"CI", and RN"2". Buoy "CI" showing a Mo A light and equipped with a bell is charted in agreement with its' current position at 37°50.25' N, 75°24.9' W. Buoy R"2TL" with a bell and Fl 4 sec light characteristic is charted at 37°48.9' N, 75°22.5' W, while current survey finds this buoy at 37°49.75' N, 75°22.6' W. Buoy N"2", an unlighted red nun, is charted at 37°48.9' N, 75°19.5' W. The current survey position was obtained exceeding the control limits of Del Norte Range-Range mode, but position accuracy is believed accurate for location of this buoy at position number 6375, less than 50m South of charted position. Current survey shows location of 37°48.89' N, 75°19.4' W. Mooring Buoy "PB" charted at 37°46.6' N, 75°20.7' W was not found and should be removed from the chart. Danger Buoy C"WR1" is charted 50m East of its' true position at Gargathy Inlet at 37°46.2' N, 75°31.7' W. It is recommended that current survey positions be used, updating locations of the existing chart.

Examining Turner's Lump from West to East, the following discrepancies were noted. Two 17-foot charted soundings at 37°50.4', 75°22.4' W, are now 20' depths, finding the Westward edge of that shoal migrating to the South now showing 8 and 9-foot depths at 37°49.7' N, 75°22.3' W in 24 to 25' charted depths. The charted 30-foot rise at 37°49.6' N, 75°20.0' W was not found, and currently is 41 feet deep.

The two 28 and one 29-foot charted depths in the vicinity of Buoy N"2" were not found, but are in 34 feet (at position 37°50.0' N, 75°19.5' W), 45 feet (at 37°48.9', 75°20.0') and 46 feet (at 37°49.4' N, 75°19.2' W). The charted 11 and 15-foot soundings on the Easterly edge of Turner's Lump are now in 20 feet of water at 37°50.4' N, 75°19.7' W. This area is apparently very dynamic and the movement of sediments has been significant since the last survey. It is recommended that current soundings and contours be used in the preparation of the new chart, as much of this area has changed. Twenty-seven (27) and twenty-nine (29) foot depths were found adjacent to buoy N "2" in Latitude 37°47.85'N, Longitude 75°19.55'W

The 52-foot charted sounding is in ~~44~~ 43 to ~~47~~ 51 feet based on the current survey at 37°47.7' N, 75°18.4' W.

The piling located by position number 5618 of this survey is located at 37°50.~~4~~ 27.57" N, 75°28.~~65~~ 37.04' W and extends ~~6~~ 1 ~~6~~ 0 ~~8~~ feet above the water surface at MLW. The charted position is 37°50.5' N, 75°28.6' W and is labeled as a Tide Gauge. Position number 5618 defines a piling used previously and also for this survey to support the installation of a tide gage. The gage is not in place when survey work is not being conducted. The piling should be charted as such, not a Tide Gage.

The central part of this survey appears to have changed due to deposition of sediment. Current depths in the area of 75°26.0 W between 37°46.0' N and 37°48.0' N show a 2-foot difference, with charted depths greater than the shoaler current survey depths.

Several pilings were observed along the shoreline of the Metompkin Islands, and are not currently charted. Positions 3494 and 3496 mark two pilings extending above the surface at MLW lying 30m West of the Detached Positions. These pilings are located at 37°45.8' N , 75°32.3' W and are just seaward of the intertidal zone. Position 3008 marks an exposed piling at MLW but awash at higher tide levels. This piling is not charted and is located at 37°45.0' N, 75°32.7' W. These pilings should be charted at said locations.

The charted 6-foot depth contour line along the Metompkin Islands has moved approximately 200m toward the beach. Current survey data shows 16 to 10-foot soundings lying within the charted 6-foot line. Depths charted of 3, 4, and 5 feet off Metompkin Islands at Latitude 37°43.0' N, 37°43.5' N, 37°43.9 and Longitude 75°33.4' W are presently 14, 15, and 15 feet respectively. The 6-foot contour should be repositioned up to its' limits at Gargathy Inlet. The 1-foot sounding and the caution for breakers as charted, no longer exist at 37°45.8' N, 75°32.0' W and currently have depths of 15 feet in that area. Breakers are still there along the beach West of this position and should be labeled. Progressing seaward, additional changes are recommended for the profile of the 18 and 30-foot depth contours. The trend is for this area to have gotten deeper with sediment transport to another area and a seaward migration of contour lines near the inlet. The charted 17 and 18-foot soundings at 37°34.7' N, 75°32.6' W are now in 22 feet of water and the 18-foot contour should be moved toward the shore at this point. Additionally, the 17-foot and two adjacent 19-foot charted soundings at 37°44.2' N, 75°32.1' W are in 21 feet of water and may readjust the 18-foot contour.

The 30-foot contour is in need of movement as well. The 37-foot charted sounding at 37°43.7' N, 75°30.6' W is in 42 feet of water and will move the 30-foot contour Westward. The chart shows no 39-foot sounding at 37°44.1' N, 75°30.6' W where one was found to exist. This area is in need of evaluation for changes to depth contours and representative soundings. The offshore areas are generally in agreement with the current survey noting only slight differences in depth at 37°44.1' N, 75°24.2' W, where a charted 49-foot depth compares with a current 46-foot depth (position 522^{+2}), location 37°43.9' N, 75°22.3' W, with a charted 42-foot depth in current 47-foot depth (position 392^{+6}), and 37°44.9' N, 75°21.6' W shows a charted depth of 55 feet, while current survey (position 257) shows a 51-foot depth.

Offshore areas generally show excellent agreement with the existing chart.

A wire drag survey was conducted on JD 313 in an attempt to locate the reported boiler resting on the bottom near Buoy C"WRI" at 37°46.2' N, 75°31.7' W. No such obstruction was located. The chart lists this as a PA item and may be carried as Existence Doubtful. A complete report on this wire drag survey is included in the appendix of this report. The obstruction was not found and should be charted PA, ED. Listed in Project Instructions as PSR Item #40, no information on this obstruction was included in PSR File and information was obtained for location from USCG Station Chincateague. With no source known for this reported obstruction, it is difficult to evaluate the fate of the reported boiler. Since location and existence are not confirmed, it may still exist in an adjacent area. This item was treated as a charted item to be investigated.

No dangers to navigation were reported to USCG.

M. ADEQUACY OF SURVEY

This survey is complete and deemed accurate to supercede prior surveys.

The location of Buoy N"2" at position number 6375, 37°48~~.89~~ 52.84" N, 75°19.~~40~~ 25.96" W was taken 600m beyond the recommended control range of the Del Norte Range-Range control, but is believed accurate for the location of this buoy.

Thorough investigations were made of all PSR Items, Turner's Lump, shorelines, and shoals. PSR Item #40 was labeled on the PSR chart copy, but was not included in the text or listing of PSR items. As such, only an approximate area of search was determined from conversation with USCG Station Chincoteague. The source and exact location of the reported obstruction are unknown. Knowledge of this might offer a more clear alternative to the charted information defining this item.

N. AIDS TO NAVIGATION

The following five aids to navigation are referenced to the area of this survey by Chart Number 12210 and the USCG Light List Vol. I, Atlantic Coast, Publication No. CG-158 dated 1982:

Turner's Lump Lighted Bell Buoy 2TL

A red nun buoy with bell and a flashing white light, 4 sec period.
This buoy is deployed to mark the Southerly limit of Turner's Lump
and is positioned on Chart 12210 at 37°48'54.80" N, 75°22'29.30" W.
Current survey finds R"2TL" located at 37°~~49.75~~ 48' 51.83" N, 75°22.~~8~~ 32.03" W.

Lighted Bell Buoy CI

A black can with vertical stripes, with a white light showing character Morse A. This buoy marks the entrance to Chincoteague Inlet Channel, and is positioned on Chart 12210 at 37°50'15.8" N, 75°24'52.5" W. Current survey locates at 37°50'15.69" N, 75°24'57.21" W.

Turner's Lump Buoy 2

An unlighted red nun buoy marking the Southeastern extension of Turner's Lump. Chart 12210 positions it at 37°48'55.00" N, 75°19'26.30" W and current survey positions it at 37°48'52.86" N, 75°19'25.96" W.

Buoys R"2TL", BW"CI", and RN"2" are positioned to serve their designated purpose, but should be relocated on existing charts to accurately reflect their true position. These are maintained year round by USCG Station Chincoteague.

Discrepancies were noted with the following 2 buoys listed and charted as follows:

Mooring Buoy "PB"

A mooring buoy charted on 12210 at 37°46'28.90" N, 75°20'35.40" W.

This buoy was not found in the area and does not exist anywhere in the survey area. An inquiry was sent to the Fifth Coast Guard District Office regarding the disposition of this buoy and its continuance on the chart.

Gargathy Inlet Buoy

A black can, "WR1" unlighted, marking an obstruction visible at MLW.

Located on Chart 12210 at 37°46'15.70" N, 75°31'43.20" W.

This buoy is charted within 50 meters of its' actual location determined in this survey at 37°46'15.97" N, 75°31'45.34" W. The obstruction is PSR Item #40 and is discussed in Section K, the Wire Drag Report, and Dive Report included in the appendix and section P of this report. Charted and listed as an unlighted black can, a change is to be made, as investigation found this buoy to be a white can with an orange diamond outlined on it as a danger caution. The chart should be updated to reflect the correct color of this buoy. The Coast Guard Fifth District Office stated that a local Notice to Mariners had been issued prior to MT MITCHELL's inquiry.

Other than the two noted differences above, all other buoys appear to exist as described by the Light List (CG-158) and locations should be updated to current locations.

O. STATISTICS

All linear miles are nautical miles.

VESNO:	2220	2224	2225	Total
Miles of Mainscheme Soundings	468.7	158.6	415.4	1042.7
Miles of Crosslines	31.3	16.3	49.8	97.4
Total Miles	629.2	278.9	616.3	1524.4
Bottom Samples	25	12	22	59
Tide Stations				1
Vertical (Casts Velocity)				3
Number of Positions	1431	736	1551	3718
Square Miles Surveyed	39.7	24.5	23.8	88.0

P. MISCELLANEOUS

No information about currents was obtained with this survey.

PSR Item #40:

Dive Report Dive Date 9 Nov 82

I. Area of Investigation

A. Location: Gargathy Inlet, Virginia
B. Position: 37°46.'2 N 75°31.8' W
C. Survey Sheet: H-10045, MI-20-3-82

II. Purpose

Sweep For Sunken Boiler - Notified by Local Coast Guard Group.

III. Survey Procedures

The launch's Hydrotrac System was calibrated. The dive site was established at Buoy "C" at Gargathy Inlet after the wire drag failed to snag. Dives deployed a center buoy and conducted a circle search around Buoy "C" using approximately 100 feet of line. Dive terminated when divers ran out of air.

IV. Dive Data

Divers: Rossmann, Watson
Time: 35 min
Depth: 18'
Current: 1/2 Knot
Visibility: 3-8 feet

V. Results

Nothing snagged during the circle sweep.

VI. Recommendations: With the diving sweep and wire drag of the area, recommend that the obstruction be labeled PA, ED. Dynamic sediment movement may have covered former obstruction or it has been removed.

Q. RECOMMENDATIONS

It is suggested that further office research into PSR Item #40 at Gargathy Inlet be made to determine the origin of the report of this obstruction. With an accurate position lacking in available survey literature, the inability to locate this reportedly significant obstruction (a 10-foot structure in 18 feet of water) does not disprove its' existence. Current soundings in the reported area 50m West of Buoy "WR1" are 15 to 16' (10 to 12 feet) and should not obscure such an object formerly lying in 18 feet of water. It is recommended that the obstruction be charted as PA, ED.

Additionally, it is suggested that comparison of this survey be made with Wire Drag Survey 6341 date May, 1938. The copy of 6341 WD made available for comparison extended South to Latitude 38°12.0' N while the Northern limits of this survey are to Latitude 37°51.3' N. The Wire Drag Survey is entitled Ocean City to Chincoteague Inlet and should contain useful information for comparison with this survey.

R. AUTOMATED DATA PROCESSING

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

RK	112	Hyperbolic, R/R Hydroplot	03/19/81
RK	201	Grid, Signal, and Lattice Plot	04/18/75
RK	210	Hyperbolic Non-Real Time Plot	02/02/81
RK	211	Range-Range Non-real Time Plot	02/02/81
RK	300	Utility Computations	10/21/80
RK	330	Data Reformat & Check	05/04/75
PM	360	Electronic Corrector Abstract	02/02/76
AM	500	Predicted Tide Generator	11/10/72
RK	561	H/R Geodetic Calibration	02/19/76
RK	530	Velocity Corrections Computations	05/10/76
RK	602	Extended Line Oriented Editor	05/20/75

S. REFERENCE TO REPORTS

1. Coast Pilot Report OPRD103-MI-82
2. Horizontal Control Report OPRD103-MI-82

Respectfully submitted,

Craig N. McLean
Ensign NOAA

APPENDIX F

LIST OF STATIONS

OPR B103-MI-82
MASTER SIGNAL TAPE LISTING - NAMES
DATED 9/25/82

001 100= GRAVITY
002 110= CHESAPEAKE LIGHT TOWER
003 120= HOG ISLAND COAST GUARD LOOKOUT TOWER
004 125= HOWARD (MARK IS ON 78 FT. CATWALK AROUND TOWER) (1962)
005 130= LITTLE (1959)
006 131= LITTLE MACHIPONGO INLET COAST GUARD LOT
007 132= LITTLE ECC. (1982)
008 135= HOG (1933)
009 140= REVEL (1959)
010 142= TARR (1962)
011 145= TULL (1962)
012 146= PARRAMORE BEACH COAST GUARD TOWER
013 150= BRAD (1962)
014 155= HAMMOCK VFC (1933)
015 160= BURTON VFC
016 165= TOMPKINS (1962)
017 167= METOMPKIN INLET COAST GUARD LOT # 152
018 170= TERN (1962)
019 175= JOYNES-2-(1934)
020 180= BIRD (1909)
021 200= BIRD (RM. 5)
022 210= SUTTON (1949)
023 270= WALLOPS ISLAND (NEW NASA TANK)
024 273= WALLOPS ISLAND NASA METMAST W80
025 280= EASY WALLOPS BEACH COAST GUARD LOT # 3 (NEW TANK) TOWER
026 288= H 8 VA 1978
027 290= ASSATEAGUE BEACH COAST GUARD LOOKOUT TOWER # 150 (1959)
028 291= ASSATEAGUE BEACH CG LOT ECC
029 299= ASSATEAGUE NPS DOME
030 300= JONES
031 310= ASSATEAGUE LIGHTHOUSE (1909)
032 319= STEEL RM2
033 320= STEEL (1962)
034 321= STEEL RM1
035 324= H 7 VA 1978
036 327= H 6 VA 1978
037 330= H 5 VA 1978
038 340= H 4 VA 1978

OFR 2103 MI 88
MASTER SIGNAL TAPE LISTING NAMES
DATED 9/25/82

001 100= GRAVITY
002 110= CHESAPEAKE LIGHT TOWER
003 120= HOG ISLAND COAST GUARD LOOKOUT TOWER
004 125= HOWARD (MARK IS ON 75 FT. CATWALK AROUND TOWER) (1962)
005 130= LITTLE (1959)
006 131= LITTLE MACHIPONGO INLET COAST GUARD LOT
007 132= LITTLE ECC. (1982)
008 135= HOG (1933)
009 140= REVEL (1959)
010 142= TARR (1962)
011 145= TULL (1962)
012 146= FARRAMORE BEACH COAST GUARD TOWER
013 150= BRAD (1962)
014 155= HAMMOCK VFC (1933)
015 160= BURTON VFC
016 165= TOMPKINS (1962)
017 167= METOMPKIN INLET COAST GUARD LOT # 152
018 170= TERN (1962)
019 175= JOYNES-2-(1934)
020 180= BIRD (1909)
021 200= BIRD (RM. 5)
022 210= SUTTON (1942)
023 270= WALLOPS ISLAND (NEW NASA TANK)
024 273= WALLOPS ISLAND NASA METMAST W80
025 280= EASY WALLOPS BEACH COAST GUARD LOT # 3 (NEW TANK) TOWER
026 288= H 6 VA 1978
027 290= ASSATEAGUE BEACH COAST GUARD LOOKOUT TOWER # 150 (1959)
028 291= ASSATEAGUE BEACH CG LOT ECC
029 299= ASSATEAGUE NPS DOME
030 300= JONES
031 310= ASSATEAGUE LIGHTHOUSE (1907)
032 317= STEEL RM2
033 320= STEEL (1962)
034 321= STEEL RM1
035 324= H 7 VA 1978
036 327= H 4 VA 1978
037 330= H 5 VA 1978
038 340= H 4 VA 1978

OPR M103-MI-82

MASTER SIGNAL TAPE LISTING

DATE: 9/25/82

001	100	4	36	40	31454	075	54	56471	250	0000	171859
002	110	4	36	54	16158	075	42	47123	139	0000	000000
003	120	4	37	23	39409	075	42	31434	139	0000	000000
004	125	4	37	23	39453	075	42	31515	139	0000	000000
005	130	0	37	27	12013	075	40	30714	139	0013	000000
006	131	6	37	27	11947	075	40	30639	139	0015	000000
007	132	2	37	27	12019	075	40	30565	250	0013	000000
008	135	4	37	27	39565	075	40	15726	139	0000	000000
009	140	4	37	29	31700	075	38	48219	139	0000	000000
010	142	4	37	32	11100	075	37	24750	139	0000	000000
011	145	4	37	34	33483	075	36	01191	139	0000	000000
012	146	4	37	34	23559	075	37	03467	139	0000	000000
013	150	4	37	35	21197	075	36	57542	139	0000	000000
014	155	4	37	36	21103	075	36	45132	139	0000	000000
015	160	4	37	37	12105	075	38	52930	139	0000	000000
016	165	4	37	38	05988	075	35	53860	139	0000	000000
017	167	4	37	40	21070	075	35	40852	139	0000	000000
018	170	4	37	41	41887	075	35	11562	139	0000	000000
019	175	4	37	41	49767	075	36	50225	139	0000	000000
020	180	4	37	44	14818	075	35	09494	139	0000	000000
021	200	4	37	44	17414	075	35	11904	250	0000	171859
022	210	4	37	46	25444	075	33	44864	139	0000	000000
023	270	4	37	50	32204	075	28	48887	139	0000	000000
024	273	4	37	51	08099	075	28	16909	139	0000	000000
025	280	4	37	52	34534	075	26	38652	139	0000	000000
026	288	7	37	51	46270	075	22	03968	250	0004	000000
027	290	0	37	51	48970	075	22	06649	139	0000	000000
028	291	7	37	51	48913	075	22	06592	250	0006	000000
029	299	5	37	53	15578	075	20	31626	139	0007	000000
030	300	0	37	53	16699	075	20	31186	250	0000	171859
031	310	4	37	54	39797	075	21	22991	139	0000	000000
032	319	6	37	55	09071	075	19	21586	139	0000	000000
033	320	4	37	55	09698	075	19	22183	139	0000	000000
034	321	2	37	55	10324	075	19	22052	250	0006	000000
035	324	3	37	55	50303	075	18	57172	250	0000	000000
036	327	3	37	56	40422	075	18	33276	250	0000	000000
037	330	3	37	57	27186	075	17	56400	250	0000	000000
038	340	3	37	58	20864	075	17	15574	250	0000	000000

APPENDIX J

WIRE DRAG REPORT

LAUNCH WIRE DRAG REPORT

SURVEY H-10045

NOAA SHIP MT MITCHELL

CAPT J. AUSTIN YEAGER, CHIEF OF PARTY

DATE OF DRAG: 9 November 1982

Julian Day 313

LOCALITY: Gargathy Inlet, Assawoman Island, Virginia

OBJECT SOUGHT: Ship's boiler reported as obstruction near mouth of Gargathy Inlet.

REFERENCE: The equipment, field procedures, and processing techniques used in this launch wire drag were adopted from the Wire Drag Manual and the September 1, 1979 Special Launch Wire Drag Report of the NOAA Ship WHITING.

EQUIPMENT: Sixty-one meters (200 feet) of steel cable (approximately ¼" diameter) were attached at each end to 65 pounds of weight. Each weight was attached to a large spherical buoy by 3.7 meters (12 feet) of line. Each weight was also attached to 21 meters (69 feet) of towline. Fastened to the wire by 3.7 meter (12 feet) of line equal distances apart between the end buoys were two floatation marking buoys and 30 pounds of weight (see figure). Two Jensen launches towed the wire drag apparatus with the towlines attached to bits on each stern). One MonArk skiff was used as the testing vessel. A lead-line with a metered pipe attached to it was sprayed with zinc-chromate in order to determine the depth of the cable.

PERSONNEL: Four people were used in each Jensen and three people in the MonArk.

FIELD PROCEDURES:

1. Determining Drag Depth: Depths from previous surveys were checked to determine the shoalest bottom depths in the drag areas. Predicted tides were obtained from the Tide Tables. It was decided that one depth setting would be sufficient for the small change of depths and tide in the area that was dragged. This drag depth was 3.7 meters (12 feet) and was set by adjusting the upright lines from the weights to the end buoys and from the wire to the marking buoys.

2. Path of the Drag: The direction of the drag was chosen so as to be parallel to the shoreline, which was running NE to SW. The path of the drag therefore was either 038°T or 218°T. The width of the drag depended upon the length of the cable, which was 61 meters (200 feet). Two 1:2000 field sheets of the area were made with color-coded lines of direction drawn on it for each Jensen. On-line control was hyperbolic using each Jensen's Hydrotrac Navigation and Hydroplot System.

3. Setting out the Drag: The crews of each launch programmed the computers and synchronized the computer clocks. To help keep the data understandable, especially when plotted on the smooth sheet, launch 2224 started with position number 5701. The drag was placed in the water and each towline attached to the stern bits.

4. Touring the Drag: An abstract of position numbers, times, angles, sounding intervals, and engine speeds for both launches is included. At the beginning of the first drag each vessel towed at 1000 rpms, but this was determined to be too fast, so speed was dropped to 800 rpms. A total of three paths were swept; two to the west (inshore) of the the marking buoy and one to the east (offshore) of the buoy. The two paths to the west were swept in two directions (038°T and 218°T), while the east or offshore path was swept only once (038°T).

5. Towing the Drag: The personnel in the MonArk skiff traveled along the wire (its position shown by the marking buoys) as the drag progressed, measuring the depth between pairs of buoys, and radioing the measurements to the launches. The measurements were taken by means of a pipe coated with zinc-chromate attached to a leadline. The pipe was dropped in a vertical position in front of the wire. The wire would strike the pipe and leave a mark in the zinc-chromate on the pipe. An abstract of wire depths in included.

6. Positoning the Drag: For each posiiton number a sextant angle between the nearest end buoy, to the launch and the opposite launches antennae was observed. See sketch. By knowing the position of both launches at a given position number and the length of towline 21 meters + 4 meters distance from antennae to bit on stern = 25 meters) and using a three-arm protractor the positions of the end buoys were later plotted on the smooth sheet. A flexible surve scaled to the length of wire was laid down between the plotted positions of the end buoys and the curve of the wire drawn in.

7. Problems: There were two major problems encountered in undertaking this wire drag. First, launch 2224 did not have the use of a steering needle, thus the junior officer had to verballly advise the coxswain from inisde the cabin when the launch was off the drawn-in track on the field sheet (as determined by the pen in the auto-plotter). Second, due to personnel inexperience with wire drag operations launch 2225 allowed the towline to be caught in its screw, ending the day. A third smaller problem is that the tides were not read correctly on launch 2224's computer, thus a tide tape has to be applied to soundings plotted off-line.

8. Conclusions: No obstruction was found within the paths of the drag. It should be noted that there was a gap between the inshore path and the offshore path (see smooth sheet). The effective depth of the drag was determined by the following relationship: effective depth = drag depth - height of tide above MLW. See abstract. This report only claims an effective depth swept to the average effective depth measured for the wire, which is 7.2 feet.

APPENDIX I

LANDMARKS FOR CHARTS

(There were no landmarks in this survey area)

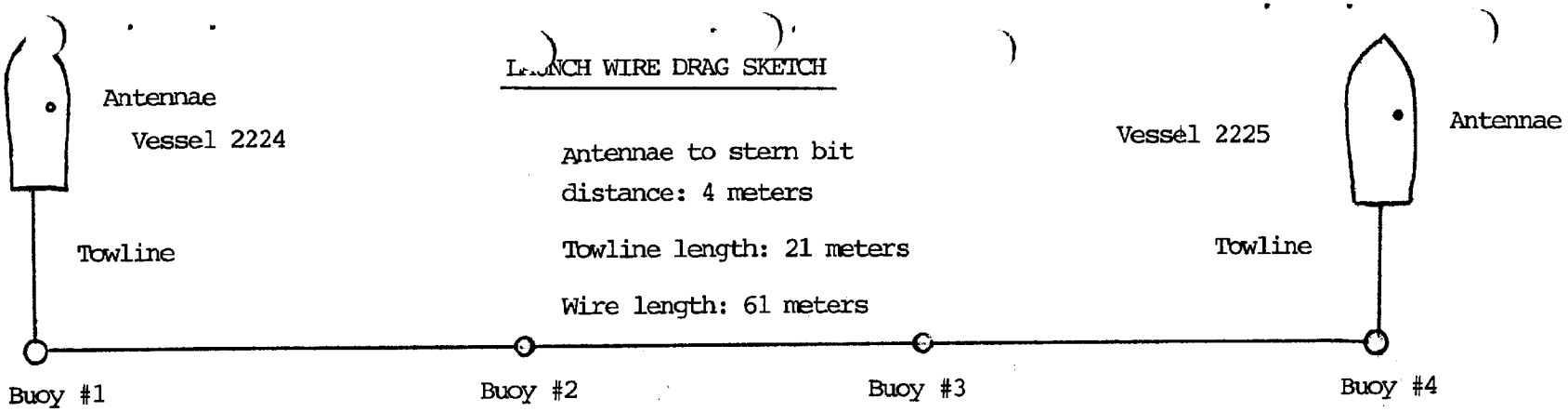
All charted landmarks were located and verified.

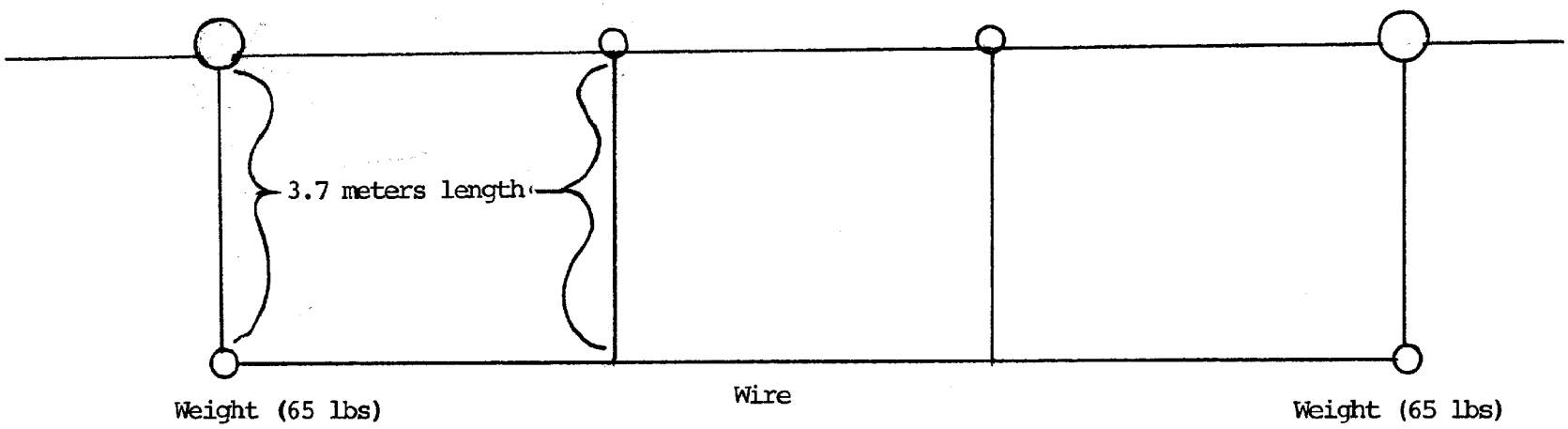
VESSEL 2224

Position	Time	Angle (Between other vessels' Ant. and Float of 2225	Sounding Interval 1 per minute	RPMS Speed
3701	171740	86°00'	20 sec/6	1000
3702	172000	Missed	20 sec/6	1000
3703	172020	86°00'	20 sec/6	1000
3704	172240	88°00'	20 sec/6	1000
3705	172500	82°00'	20 sec/6	1000
3706	172600	88°00'	20 sec/6	1000
3707	173318	90°30'	20 sec/6	1000
3708	173538	78°00'	20 sec/6	1000
3709	173758	59°00'	20 sec/6	800
3710	173938	46°30'	20 sec/6	800
3711	174434	92°00'	20 sec/6	800
3712	174654	92°00'	20 sec/6	800
3713	174914	102°00'	20 sec/6	800
3714	175134	74°00'	20 sec/6	800
3715	175354	64°30'	20 sec/6	800
3716	180135	112°00'	20 sec/6	800
3717	180355	80°30'	20 sec/6	800
3718	180615	75°30'	20 sec/6	800
3719	180835	85°00'	20 sec/6	800
3720	181658	84°00'	20 sec/6	800
3721	181918	82°00'	20 sec/6	800
3722	182138	74°00'	20 sec/6	800
3723	182358	80°00'	20 sec/6	800
3724	182618	83°00'	20 sec/6	800
3725	182838	89°00'	20 sec/6	800
3726	182858	89°00'	20 sec/6	800

VESSEL 2225

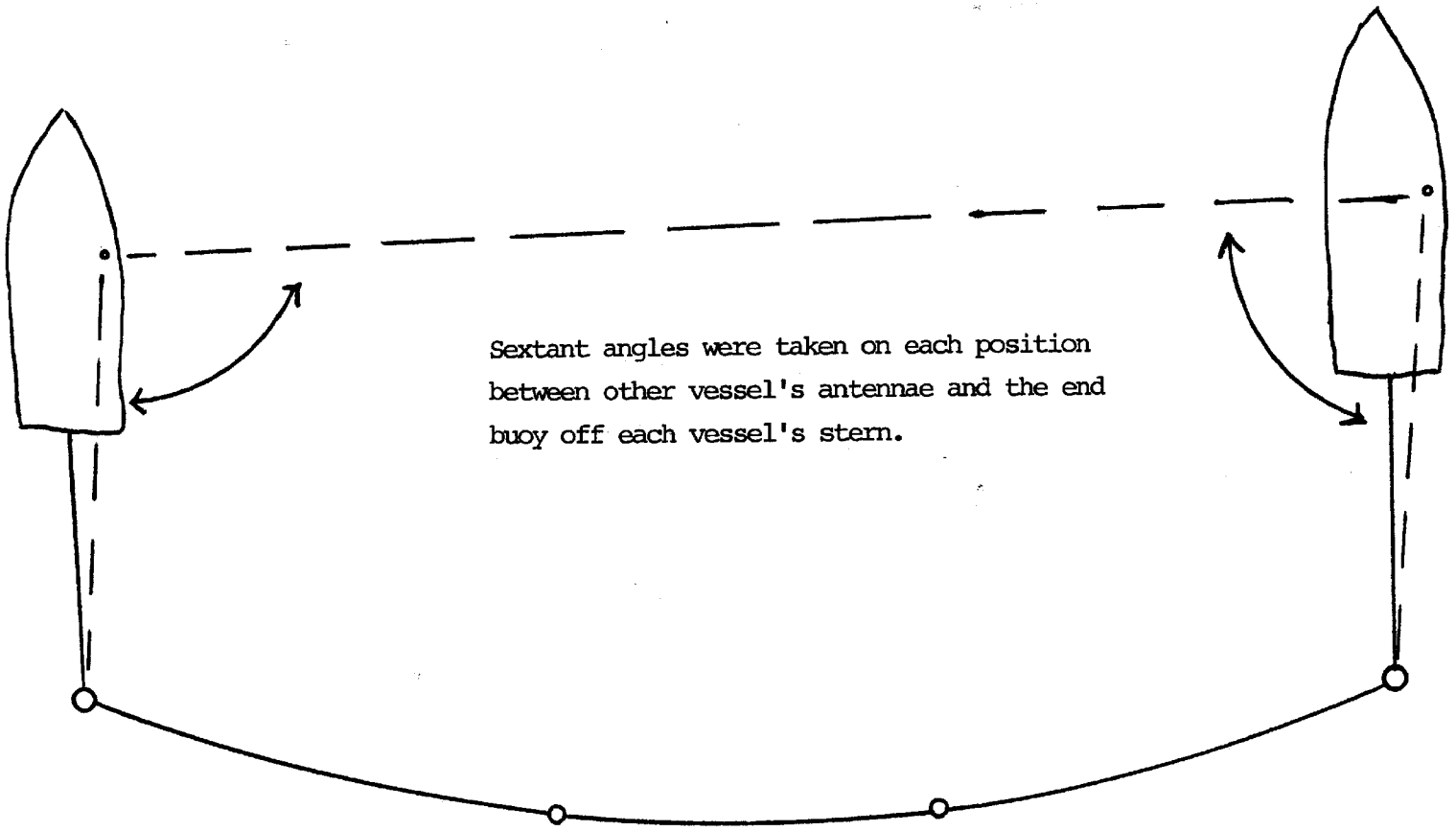
Position	Time	Angle (Between other vessels' Ant. and Float of 2225	Sounding Interval 1 per minute	RPMS Speed
5701	171837	83°21'	20 sec/6	1000
5702	172037	Missed	20 sec/6	1000
5703	172114	69°33'	20 sec/6	1000
5704	172334	68°36'	20 sec/6	1000
5705	172554	68°36	20 sec/6	1000
5706	172654	71°25'	20 sec/6	1000
5707	173416	64°50'	20 sec/6	1000
5708	173636	67°35'	20 sec/6	1000
5709	173856	75°40'	20 sec/6	800
5710	174036	57°25'	20 sec/6	800
5711	174532	78°54'	20 sec/6	800
5712	174752	74°47'	20 sec/6	800
5713	175012	69°00'	20 sec/6	800
5714	175232	76°50'	20 sec/6	800
5715	175452	68°45'	20 sec/6	800
5716	180232	84°45'	20 sec/6	800
5717	180452	74°53'	20 sec/6	800
5718	180712	85°15'	20 sec/6	800
5719	180932	78°52'	20 sec/6	800
5720	181756	96°47'	20 sec/6	800
5721	182016	95°47'	20 sec/6	800
5722	182236	76°12'	20 sec/6	800
5723	182456	81°03'	20 sec/6	800
5724	182716	82°45'	20 sec/6	800
5725	182936	84°47'	20 sec/6	800
5726	182956	87°53'	20 sec/6	800


LAUNCH WIRE DRAG SKETCH
Antennae
Vessel 2224
Towline
Antennae to stern bit
distance: 4 meters
Towline length: 21 meters
Wire length: 61 meters
Vessel 2225
Antennae
Towline
Buoy #1
Buoy #2
Buoy #3
Buoy #4


3.7 meters length
Weight (65 lbs)
Wire
Weight (65 lbs)

LAUNCH WIRE DRAG SKETCH

ANGLE MEASUREMENTS



Sextant angles were taken on each position between other vessel's antennae and the end buoy off each vessel's stern.

VESSEL 2225

Position	Time	Angle (Between other vessels' Ant. and Float of 2225	Sounding Interval	RPMS Speed
5701	171837	83°21'	20 sec/6	1000
5702	172037	Missed	20 sec/6	1000
5703	172114	69°33'	20 sec/6	1000
5704	172334	68°36'	20 sec/6	1000
5705	172554	68°36	20 sec/6	1000
5706	172654	71°25'	20 sec/6	1000
5707	173416	64°50'	20 sec/6	1000
5708	173636	67°35'	20 sec/6	1000
5709	173856	75°40'	20 sec/6	800
5710	174036	57°25'	20 sec/6	800
5711	174532	78°54'	20 sec/6	800
5712	174752	74°47'	20 sec/6	800
5713	175012	69°00'	20 sec/6	800
5714	175232	76°50'	20 sec/6	800
5715	175452	68°45'	20 sec/6	800
5716	180232	84°45'	20 sec/6	800
5717	180452	74°53'	20 sec/6	800
5718	180712	85°15'	20 sec/6	800
5719	180932	78°52'	20 sec/6	800
5720	181756	96°47'	20 sec/6	800
5721	182016	95°47'	20 sec/6	800
5722	182236	76°12'	20 sec/6	800
5723	182456	81°03'	20 sec/6	800
5724	182716	82°45'	20 sec/6	800
5725	182936	84°47'	20 sec/6	800
5726	182956	87°53'	20 sec/6	800

VESSEL 2224

Position	Time	Angle (Between other vessels' Ant. and Float of 2225	Sounding Interval	RPMS Speed
3701	171740	86°00'	20 sec/6	1000
3702	172000	Missed	20 sec/6	1000
3703	172020	86°00'	20 sec/6	1000
3704	172240	88°00'	20 sec/6	1000
3705	172500	82°00'	20 sec/6	1000
3706	172600	88°00'	20 sec/6	1000
3707	173318	90°30'	20 sec/6	1000
3708	173538	78°00'	20 sec/6	1000
3709	173758	59°00'	20 sec/6	800
3710	173938	46°30'	20 sec/6	800
3711	174434	92°00'	20 sec/6	800
3712	174654	92°00'	20 sec/6	800
3713	174914	102°00'	20 sec/6	800
3714	175134	74°00'	20 sec/6	800
3715	175354	64°30'	20 sec/6	800
3716	180135	112°00'	20 sec/6	800
3717	180355	80°30'	20 sec/6	800
3718	180615	75°30'	20 sec/6	800
3719	180835	85°00'	20 sec/6	800
3720	181658	84°00'	20 sec/6	800
3721	181918	82°00'	20 sec/6	800
3722	182138	74°00'	20 sec/6	800
3723	182358	80°00'	20 sec/6	800
3724	182618	83°00'	20 sec/6	800
3725	182838	89°00'	20 sec/6	800
3726	182858	89°00'	20 sec/6	800

WIRE DRAG DEPTHS

SWEEP	POSITION	TIME	DEPTHS MEASURED BY MONARK	BETWEEN BUOYS	TIDE	CORRECTED WIRE DEPTH (DRAG DEPTH - TIDE)	AVG. RECORDED SOUNDING FOR SWEEP (FROM BOTH LAUNCHES)	DEPTH BELOW WIRE (AVG. RECORDED SOUNDING FOR SWEEP - DEPTH OF WIRE)°
1st	01							
"	02							
"	03							
"	04							
"	05							
"	06							
2nd	07	173416	12.0'	2&3	+3.8'	8.2'	14.8'	2.8'
"	08							
"	09							
"	10	173938	11.5'	2&3	+3.8'	7.7'	14.8'	3.3'
3rd	11	174532	11.5'	2&3	+3.8'	7.7'	13.3'	1.8'
"	12	174752	9.5'	*	+3.8'	5.7'	13.3'	3.8'
"	13	175012	9.5'	2&3	+3.8'	5.7'	13.3'	3.8'
"	14							
"	15	175452	10.0'	1&2	+3.8'	6.2'	13.3'	3.3'
4th	16							
"	17	180452	10.0'	1&2	+3.8'	6.2'	13.4'	3.4'
"	18	180712	11.0'	2&3	+3.8'	7.2'	13.4'	2.4'
"	19	180932	11.0'	3&4	+3.8'	7.2'	13.4'	2.4'
"	19	180932	10.0'	1&2	+3.8'	6.2'	13.4'	3.4'
5th	20	181756	12.0'	3&4	+3.9'	8.1'	16.4'	4.4'
"	21	182016	11.0'	2&3	+3.9'	7.1'	16.4'	5.4'
"	22	182236	11.0'	1&2	+3.9'	7.1'	16.4'	5.4'
"	23							
"	24	182716	11.0'	1&2	+3.9'	7.1'	16.4'	5.4'
"	25	182936	13.0'	2&3	+3.9'	9.1'	16.4'	3.4'
"	26							

* Not recorded.

° Average recorded sounding for sweep is used due to little change of soundings over the whole sweep. Depth of wire is figure measured by Monark before tide correction.

APPENDIX K

APPROVAL SHEET

Approval Sheet

Date

Survey H-10045

Field No. MI20-3-82

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.

J. Austin Yeager

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

DATE: 7/8/83

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): 863-0441 Wallops Island, VA

Period: August 29 - November 9, 1982

HYDROGRAPHIC SHEET: H - 10045

OPR: D103

Locality: Offshore Wallops Island, Virginia

Plane of reference (mean lower low water): 3.01ft.

Height of Mean High Water above Plane of Reference is 4.0ft.

REMARKS: Recommended Zoning

1. West of longitude 75°20.0' Zone Direct
2. East of 75°20'0 apply x0.94 Range Ratio.

James R. Hubbard
Chief, Tidal Datums Section, Tides & Water Levels Branch

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10045

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
ASSAWOMAN ISLAND										1
ASSAWOMAN INLET										2
ATLANTIC OCEAN (title)										3
GARGATHY INLET										4
METOMPKIN ISLANDS										5
TURNERS LUMP										6
VIRGINIA (title)										7
WALLOPS ISLAND										8
CHINCOTEAGUE SHOALS										9
PORPOISE BANKS										10
										11
										12
										13
										14
										15
										16
										17
					Approved:					18
										19
					Charles E. Harrington					20
					Chief Geographer - N/CG2x5					21
					NOV 27 1984					22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NO.: H-10045

Number of positions	3354
Number of soundings	21325
Number of control stations	7

	TIME-HOURS	DATE COMPLETED
Preprocessing Examination	12	25 FEB 1983
Verification of Field Data	508	18 OCT 1984
Quality Control Checks	54	
Evaluation and Analysis	76	12 DEC 1984
Final Inspection	12	11 DEC 1984
TOTAL TIME	662	
Marine Center Approval		12 DEC 1984

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

REGISTRY NO.: H-10045 FIELD NO.: MI-20-3-82

Virginia, Atlantic Ocean, Alongshore--Metompkin Islands to Wallops Island

SURVEYED: 29 August through 9 November 1982

SCALE: 1:20,000 PROJECT NO.: OPR-D103-MI-82

SOUNDINGS: Ross Digital Echo Sounder CONTROL: Odom Offshore HYDROTRAC (Hyperbolic), Del Norte (Range/Range)

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

Surveyed by.....E. S. Varney
.....F. W. Rossman
.....R. D. Henegar
.....K. P. Peters
.....G. R. Yates
.....B. L. Coakley
.....D. I. Crews
.....C. N. McLean
.....J. A. Miller

1. INTRODUCTION

a. No unusual problems were encountered during office processing.

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

2. CONTROL AND SHORELINE

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

b. Shoreline originates with NOAA-CERC Cooperative Shoreline Study Maps 221, 222, and 223. Dashed red shoreline delineation found on the smooth sheet originates with the smooth field sheet.

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 adequately drawn. The zero (0) curve was not completely delineated by the hydrographer; however, this was probably not done because of breakers alongshore and safety considerations.

c. Development of the bottom configuration and determination of least depths is considered adequate.

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. The survey data was not submitted to the Marine Center within the time frame required in section 6.13 of the Project Instructions. The data was received at the Marine Center three (3) weeks late.

b. The TC/TI tapes and listings submitted by the field unit were in error for vessel numbers 2224 and 2225. The wrong algebraic sign was applied to the settlement and squat correctors. This was corrected during office processing.

c. The electronic corrector tapes and abstracts were not correct. The correctors were checked and corrected during office processing.

d. The dive report submitted in the Descriptive Report, pages 27-28, states, "The dive site was established at buoy "C"..."; no geographic position was given at the time of the dive. This makes it extremely difficult to ascertain whether or not the proper area was searched by the divers.

e. The hydrographer did not compare the present survey with FE-80WD (1949), H-6341WD (1938), H-5702 (1934) or H-8764 (1962). The hydrographer stated in section K of the Descriptive Report, page 15, that a comparison was not made with H-6341WD (1938), "..., as a copy of this survey was not available for operational areas." In the past, personnel from the MT. MITCHELL have obtained copies of prior surveys from the Marine Center. It is incumbent upon the hydrographer to obtain the necessary materials using all possible avenues available.

f. The hydrographer's method of obtaining the charted location of Presurvey Review Item #40 is inadequate. The Marine Center should have been contacted for copies of the necessary Presurvey Review material.

g. The hydrographer's appendix I of the Descriptive Report, page 67 and 67a, contradict each other. Page 67 states, "There were no landmarks in this survey area." Page 68 states, "All landmarks were located and verified." NOAA Forms 76-40 were not submitted with the Descriptive Report as required by sections 4.5.13.1 and 5.5 of the Hydrographic Manual as stated in section 4.2.2 of the Project Instructions.

h. The hydrographer did not comply with section 5.3.5c of the Hydrographic Manual which was superseded by Hydrographic Survey

Guideline No. 10, dated 27 June 1980. Guideline No. 10 states that the geographic names submitted on NOAA Form 76-155 "GEOGRAPHIC NAMES" shall be in alphabetical order. The approved NOAA Form 76-155 has been alphabetized and inserted in the Descriptive Report during office processing.

i. The hydrographer failed to achieve the one hundred (100) meter line spacing coverage for the one (1) mile diameter circle claimed for AWOIS Items 994 and 996.

j. The hydrographer did an excellent job making comparison with the present survey, the prior surveys on hand, and the nautical chart.

k. Charted groins on Wallops Island were probably not located because of breakers and vessel safety; however, the hydrographer failed to reference these groins in his survey records.

l. Section N of the Descriptive Report addresses the absence of a mooring buoy "PB" charted in Latitude 37°46'28.90"N, Longitude 75°20'35.40"W. Apparently, the Fifth Coast Guard District was queried about the buoy, its disposition and future continuance. The hydrographer failed to relate any pertinent information concerning this buoy received from the Fifth Coast Guard District. A telephone conversation with BM2 Merritt with the Aids to Navigation Team (ANT), Chincoteague, Virginia, (804) 336-6511 - ext. 230, confirmed that the buoy no longer exists.

m. The hydrographer did not take twice daily bar checks as required by section 1.5.2 of the Hydrographic Manual. A vessel-by-vessel breakdown shows that for launch 2224, eight (8) out of fourteen (14) possible bar checks were taken; and for launch 2225, sixteen (16) out of twenty-six (26) possible bar checks were taken. No bar checks were completed after day-of-the-year 307; five (5) launch days of hydrography were run subsequent to day-of-the-year 307.

5. JUNCTIONS

H-10044 (1982) to the east
H-10046 (1982) to the north

Excellent junctions were made with the surveys listed above.

There are no contemporary surveys to the south. The present survey and the charted hydrography are in harmony in the junctional area seaward of the eighteen (18) foot depth curve. Inside of the eighteen (18) foot depth curve the bottom configuration has changed considerably because of bottom composition and alongshore currents.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

1) H-5702 (1934) 1:40,000
H-5703 (1934) 1:20,000
H-5714 (1934) 1:20,000
H-5715 (1934) 1:40,000

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

H-5702 (1934) compares very favorably with the present survey except in the vicinity of the lower portion of Chincoteague Shoal and Turners Lump. Generally the present survey depths are plus or minus (+/-) two (2) feet different than prior survey depths. In the vicinity of Chincoteague Shoal and Turners Lump depths vary from one (1) to twelve (12) feet. The twelve (12) foot difference occurs in Latitude 37°50'00"N, Longitude 75°19'20"W, where present survey depths are thirty-eight (38) to forty-one (41) feet. These changes may be attributed to the sandy bottom and currents in the shoal area.

H-5703 (1934) - Shoreline on the present survey has receded from approximately 950 meters in Latitude 37°43'21"N, Longitude 75°33'30"W to approximately forty (40) meters in Latitude 37°50'30"N, Longitude 75°28'30"W. The shoreline recession is gradual from south to north. Gargathy Inlet is now approximately 1800 meters north of its previous location and Assawoman Inlet has shifted 400 meters south of its present location.

Inside the eighteen (18) foot depth curve present survey depths are from one (1) to seven (7) feet deeper than prior survey depths. The seven (7) foot difference is in approximate Latitude 37°43'35"N, Longitude 75°32'15"W. East of the eighteen (18) foot curve present survey depths are generally zero (0) to two (2) feet shoaler than the prior survey depths.

H-5714 (1934) is considered to be superseded by H-8764 (1962) and its comparison is discussed below in this report.

H-5715 (1934) agrees very well with the present survey.

Present survey depths are plus or minus (+/-) one (1) to three (3) feet different than prior survey depths.

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

2) H-8764 (1962) 1:20,000 (unverified)
H-9504 (1962) 1:20,000 (Boatsheet-unverified)

H-8764 (1962) covers the area of Chincoteague Shoals and Turners Lump. This area has undergone significant change. Chincoteague Shoals have migrated to the south to approximate Latitude 37°48'32"N.. Turners Lump has migrated to the south and its ends have receded to make the shoal more compact. Turners Lump is now centered in Latitude

37°49'48"N, Longitude 75°21'12"W with a least depth of seven (7) feet and has a northeast-southwest axis. The differences can be attributed to currents and the transportable sandy bottom.

H-9504 (1962) has some extensive shoreline change south of Latitude 37°48'. Three (3) inlets shown on H-9504 (1962) are not shown on the present survey. They are located in Latitude 37°47'36"N, Longitude 75°31'18"W, Latitude 37°45'48"N, Longitude 75°32'18"W, and Latitude 37°43'18"N, Longitude 75°48'N. Shoreline north of Latitude 37°48'N agrees well with the prior survey; however, south of this point the shoreline has receded up to six hundred (600) meters at Latitude 37°43'N on Metompkin Islands.

The most dramatic differences between the present and prior survey depths have occurred inside the eighteen (18) foot curve on the present survey. The shoreline erosion and subsequent deepening in alongshore areas, except north of Assawoman Inlet where the groins on Wallops Island have apparently reduced the erosion, is a result of sand transported by alongshore currents and storms. East of the eighteen (18) foot depth curve the present and prior survey compare well. Present and prior survey depths vary plus or minus (+/-) three (3) feet in areas of gradually sloping bottom and plus or minus (+/-) five (5) to seven (7) feet south of Latitude 37°45' where the bottom is extremely irregular inside the thirty (30) foot depth curve.

The present survey is adequate to supersede the above prior unverified surveys within the common area.

b. Wire Drag

H-6341WD (1938) 1:40,000
FE-80WD (1949) 1:40,000

There are no hangs or groundings on H-6341WD (1938) in the common area. There were areas on FE-80WD where the wire was dragging the bottom at the time of the prior survey. The areas of grounding are consistent with the findings of the present survey.

There are no conflicts between present survey soundings and wire drag effective depths on the prior surveys.

7. COMPARISON WITH CHART 12210 (26th Edition, OCT 31/81)

a. Hydrography

The charted hydrography originates with the previously discussed surveys and miscellaneous sources. Attention is directed to the following:

1) Presurvey Review Item #40 (AWOIS #02446), submerged obstruction reported, PA, charted in Latitude 37°46'16"N, Longitude 75°31'43"W, approximate, was searched for by the hydrographer with negative results. It is recommended that the obstruction be charted as a subm obstr, ED, with a danger curve in the charted position and

AWOIS ✓ MSM 11/17/86

additional side scan sonar/wire drag or diver investigation be done to verify or disprove its existence.

2) AWOIS item #994, a dangerous sunken wreck, PA, "E. R. SMITH," charted in Latitude 37°49'N, Longitude 75°22'W, originates with the Navy Wreck List of 1957. The wreck was searched for with negative results. It is recommended that the wreck remain as charted and additional side scan sonar/wire drag investigation be done to verify or disprove its existence at an opportune time.

3) AWOIS item #996, a dangerous sunken wreck, PA, "P. J. HOOPER," charted at an opportune time in Latitude 37°50'12"N, Longitude 75°20'25"W, originates with the Navy Wreck List of 1957. The wreck was searched for with negative results. It is recommended that the wreck remain as charted and additional side scan sonar/wire drag investigation be done to verify or disprove its existence at an opportune time.

4) A small inlet on Metompkin Islands in approximate Latitude 37°44'12"N, Longitude 75°33'42"W, has closed. Dashed red shoreline on the survey smooth sheet portrays the existing shoreline.

5) An uncharted pile, baring two (2) feet at Mean Lower Low Water was located in Latitude 37°45'01.28"N, Longitude 75°32'41.52"W and should be charted on future chart editions.

6) Two (2) uncharted piles were located in Latitude 37°45'44.93"N, Longitude 75°32'17.67"W, and Latitude 37°45'44.93"N, Longitude 75°32'19.62"W. The hydrographer stated that the piles extend "above the surface at Mean Low Water", at the time of his observation. The piles should be charted on future chart editions as shown on the present survey.

7) The charted groins on Wallops Island are still in existence; however, a telephone conversation with Mr. Paul Bowen, U. S. Army Corps of Engineers, Norfolk District, (804) 441-3667, established that these groins are in a serious state of deterioration.

8) The artificial seaweed, charted in Latitude 37°50'00"N, Longitude 75°28'54"W, originates with CL1632/68, was not found by the hydrographer. A thorough examination of the echograms did not show any indication of the artificial seaweed. A telephone conversation with Mr. Buzz Jones, NASA, Wallops Island Facility, FTS 928-5257, established that the artificial seaweed was put in place and was destroyed shortly afterwards by strong "nor'easters." The seaweed was deployed on metal racks, and Mr. Jones stated that to his knowledge the racks have not been removed. It is recommended that the notation artificial seaweed be deleted from the chart and that the limit lines remain with the notation submerged obstructions added to future chart editions. It is also recommended that side scan sonar/wire drag be done at an opportune time to verify or disprove the existence of these metal racks.

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

b. Aids to Navigation

Four (4) floating aids to navigation were located by the hydrographer in the survey area. They appear adequate to serve their intended purpose.

8. COMPLIANCE WITH PROJECT INSTRUCTIONS

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

9. ADDITIONAL FIELD WORK

This is a good basic survey; additional work recommendations are found in section 7.a of this report.

Franklin L. Saunders
Cartographic Technician
Verification of Field Data

Robert G. Roberson
Senior Cartographer
Evaluation and Analysis

Harry R. Smith
Senior Cartographic Technician
Verification Check

Inspection Report
H-10045

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

R. D. Sanocki
Chief, Hydrographic Surveys
Processing Section
Hydrographic Surveys Branch

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

Approved December 12, 1984

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

NOAA FORM 61-29 (12-71)

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

REFERENCE NO.
MOA23-09-85

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY *(Check)*:

☐ ORDINARY MAIL ☐ AIR MAIL

☒ REGISTERED MAIL ☐ EXPRESS

☐ GBL *(Give number)* _____

TO:

CHIEF, DATA CONTROL SECTION
HYDROGRAPHIC SURVEYS BRANCH, N/CG243
NATIONAL OCEAN SERVICE, NOAA
ROCKVILLE, MD 20852

DATE FORWARDED
2/4/85

NUMBER OF PACKAGES
one tube; two boxes

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

H-10045, OPR-D103-MI-82, FIeld No. MI-20-3-82, Virginia, Atlantic Ocean, Metompkin Islands to Wallops Island

Package 1 of 3 (tube)

✓One smooth sheet
✓One smooth position overlay
✓Two smooth excess overlays
✓One original Descriptive Report
✓Two final field sheets
✓Two final field sheet overlays
✓Twelve preliminary field sheets

Package 2 of 3 (box)

✓Echograms and printouts for the following vessels:
Vessel No. 2220 Days 241, 242, 243, 244, 245, 246, 272
Vessel No. 2224 Days 304, 305, 306, 307, 308, 309
Vessel No. 2225 Days 278, 279, 280, 281, 282, 302, 303, 305, 306, 307, & 309
✓Three sounding volumes
✓One envelope with position calibration records
✓One envelope with velocity correction records
✓One envelope with data removed from Descriptive Report

Package 3 of 3 (box)

✓One cahier with: final control printout; final position printout
✓One cahier with: final sounding printout; L-File (Z-Record) printout

FROM: *(Signature)*
for D. B. MACFARLAND, JR., LCDR, CHIEF, HYDRO SURVEYS BR

RECEIVED THE ABOVE
(Name, Division, Date)
Dwayne S. Clark
February 11, 1985
N/CG243

Return receipted copy to:

HYDROGRAPHIC SURVEYS BRANCH, N/MOA221
ATLANTIC MARINE CENTER
NOAA – NATIONAL OCEAN SERVICE
439 WEST YORK STREET
NORFOLK, VA 23510

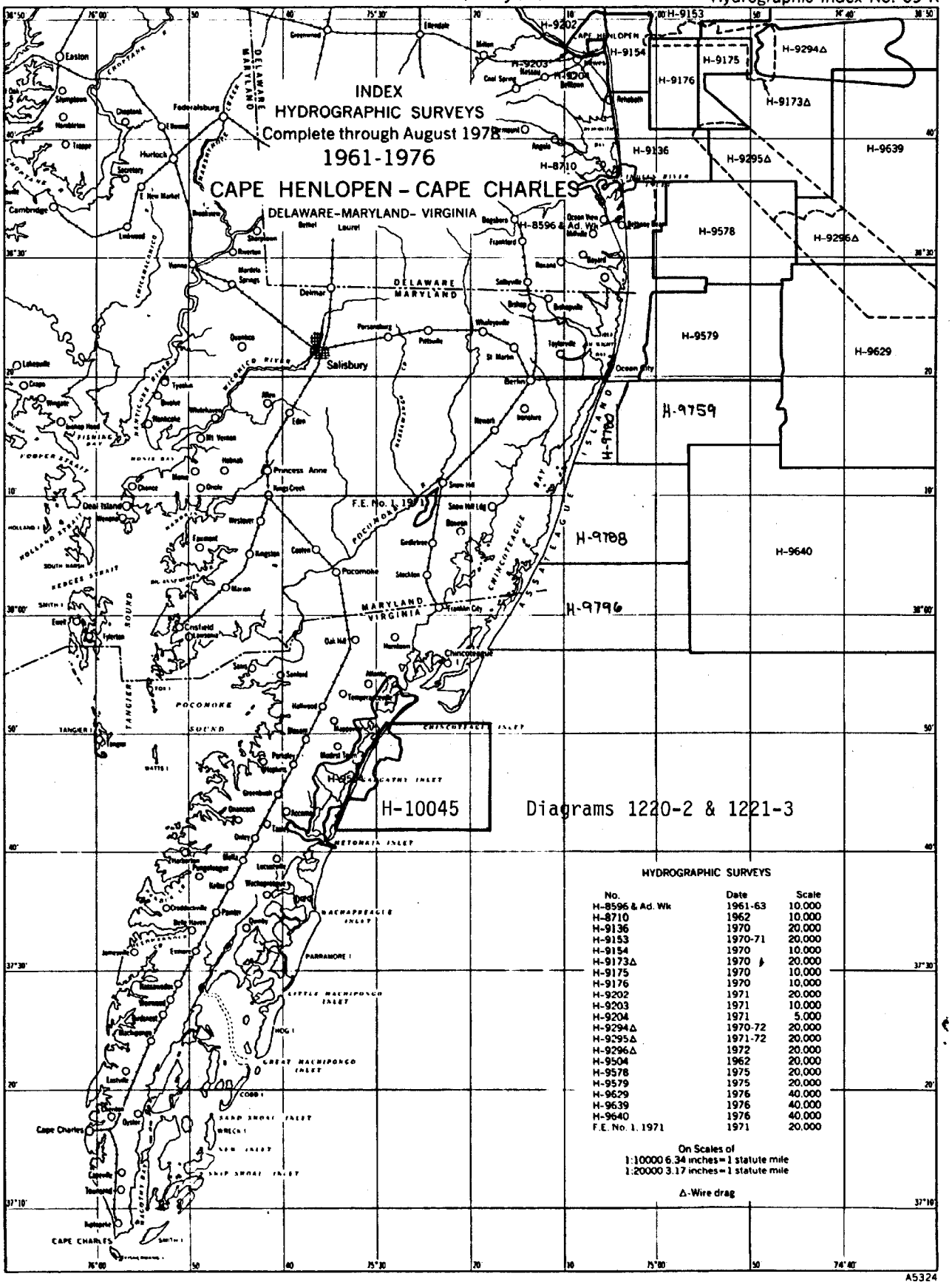
ATTN: THERESA HIGH

NOAA FORM 61-29 SUPERSEDES FORM C&GS 413 WHICH MAY BE USED.

☆U.S. GOVERNMENT PRINTING OFFICE: 1980—765-012/1121

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

Hydrographic Index No. 69 K



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

A5324

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10045

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
12210	2-6-86	R. Sabo	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 57 Fully applied
12211	2-6-86	R. Sabo	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 45 Fully applied
12200	3-14-86	R. Sabo	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 50 FULL APPLICATION
			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.
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			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8558-P63