

10074

Diagram No. 920

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-80-1-83
Office No. H-10074

LOCALITY

State Virgin Islands
General Locality Atlantic Ocean
Locality Offshore--Isla De Culebra
to Anegada
1983
CHIEF OF PARTY
CAPT. J. A. Yeager

LIBRARY & ARCHIVES

DATE December 28, 1984

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

10074

Alan E.
CHIT
25650 QUARTERS
25640 SIGN IN BOOK

HYDROGRAPHIC TITLE SHEET

H-10074

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 80-1-83

State U.S. Virgin Islands

General locality Atlantic Ocean

Locality OFFSHORE -- ISLA DE COLEBRA To ANEGADA
~~Offshore Culebra Island to Virgin Gorda~~

Scale 1:80,000 Date of survey 24 Feb 83 - 4 Mar 83

Instructions dated 01 December, 1982 Project No. OPR-II49-MI-83

Vessel NOAA Ship MT MITCHELL (VESNO 2220)

Chief of party J. Austin Yeager, Captain, NOAA

Surveyed by ship's officers (see "remarks")

Soundings taken by echo sounder, hand lead, pole Echo Sounder

Graphic record scaled by RW, EM, DH, JM, MS

Graphic record checked by RW, EM, DH, JM, MS

Protracted by N/A Automated plot by XYNETICS 1201 PLOTTER (AMC)
~~AMC Digital Plotter~~

Verification by M. W. Holloway

Soundings in fathoms feet at MLW MLLW fathoms at MLLW

REMARKS: CAPT J. Austin Yeager ^{A.} ENS John Miller

LCDR Lewis Lapine ^{A.} ENS Janet Hendrix ^{L.}

LT Roger Parsons ^{L.} ENS William Sites ^{E.}

LT Donald Rice ^{R.}

LTJG Garner Yates ^{R.} NOTES IN THE DESCRIPTIVE REPORT

LTJG Darryl Henegar ^{D.} WERE MADE IN RED DURING OFFICE

ENS Bobby Coakley ^{L.} PROCESSING.

ENS Craig McLean ^{N.} STANDARDS CK'D 1-2-85

ENS Donald Crews ^{I.} C. Loy

SP4-24-97

AWOIS - 2/20/85 [initials]
SURF - 2/20/85 [initials]

c

65° 00'

ATLANTIC OCEAN

NORTH OF U.S. VIRGIN ISLANDS

AREA SURVEYED FEBRUARY/MARCH 1983

JOINS H-10076

JOINS H-95.7

JOINS H-9604

18°
30'

18°
30'

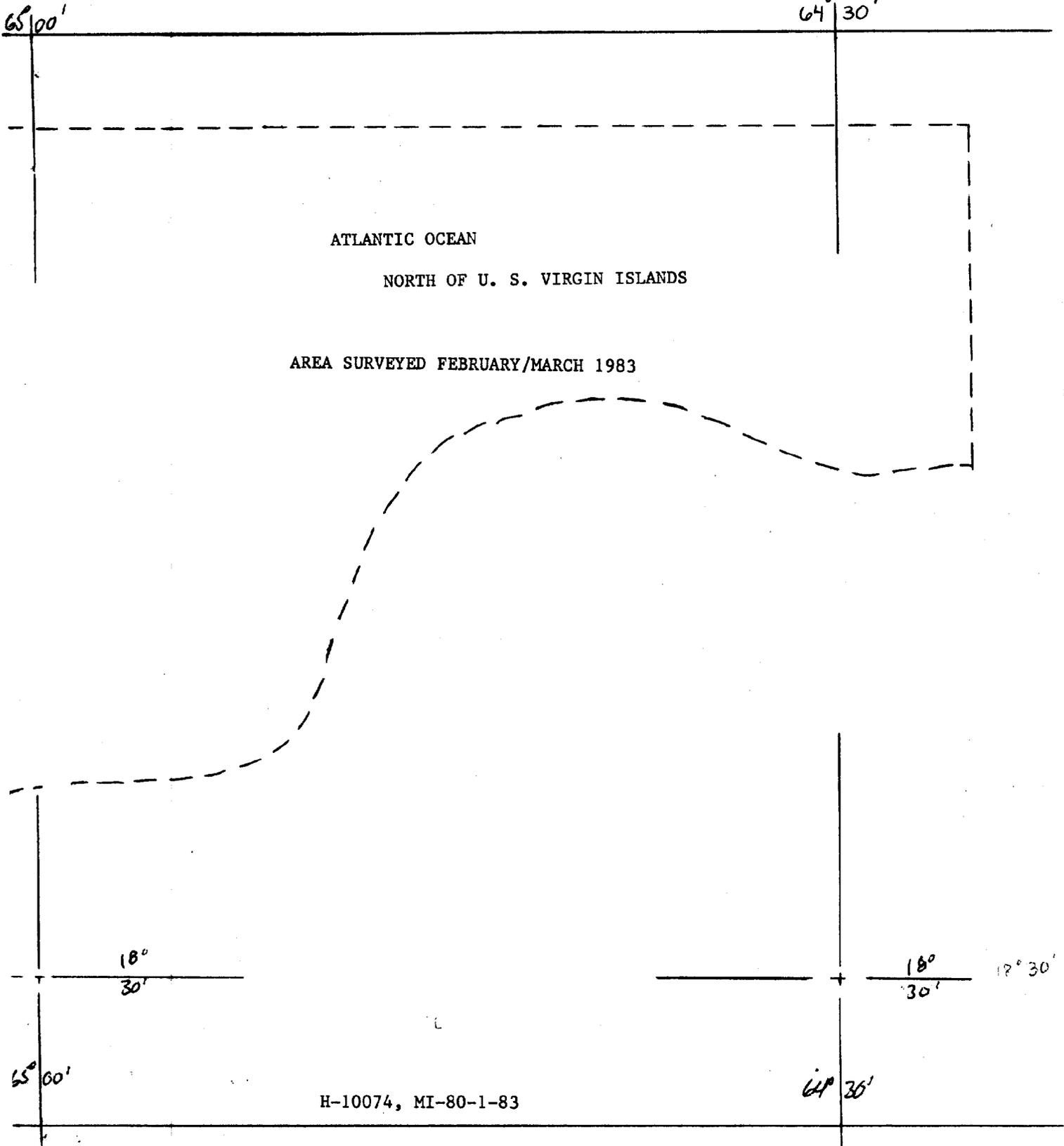
H-10074, MI-80-1-83

65° 00'

PROGRESS SKETCH HYDROGRAPHIC OPERATION OPR-I149-MI-83
NOAA SHIP MT. MITCHELL S-222, J. AUSTIN YEAGER, CAPT., NOAA

SCALE OF CHART 25640
SHEET 1 of 2

C



ATLANTIC OCEAN

NORTH OF U. S. VIRGIN ISLANDS

AREA SURVEYED FEBRUARY/MARCH 1983

18°
30'

18°
30'

18° 30'

65° 00'

H-10074, MI-80-1-83

64° 30'

PROGRESS SKETCH (CONTD)

SCALE OF CHART 25640
SHEET 2 of 2

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** FILED WITH ORIGINAL FIELD RECORDS*

DESCRIPTIVE REPORT
TO ACCOMPANY
SURVEY H-10074
(FIELD NO. MI-80-1-83)
NOAA SHIP MT MITCHELL S-222

CAPT J. AUSTIN YEAGER, NOAA
CHIEF OF PARTY

A. PROJECT

THIS SURVEY WAS CONDUCTED IN ACCORDANCE WITH PROJECT INSTRUCTIONS OPR I-149-MI-83, NORTH COAST OF PUERTO RICO, DATED 1 DECEMBER 1982. THESE INSTRUCTIONS WERE AMENDED BY CHANGE NUMBER ONE DATED 3 FEBRUARY 1983 AND CHANGE NUMBER TWO DATED 4 FEBRUARY 1983.

B. AREA SURVEYED

THE SURVEYED AREA IS BOUNDED ON THE NORTH BY LATITUDE $19^{\circ}01'00''N$ ~~$18^{\circ}48'00''N$~~ , ON THE WEST BY LONGITUDE $65^{\circ}15'00''W$, ON THE EAST BY LONGITUDE $64^{\circ}25'00''W$, AND ON THE SOUTH BY THE 100 FATHOM CURVE.

THE SURVEY COMMENCED ON JULIAN DAY 55, 24 FEBRUARY 1983 AND WAS COMPLETED ON JULIAN DAY 63, 4 MARCH 1983. SURVEY DATA WAS COLLECTED ON THE FOLLOWING DAYS:

JULIAN DATES

55-63

CALENDAR DATES

24 FEB 1983 - 4 MAR 1983

C. SOUNDING VESSEL

THE NOAA SHIP MT MITCHELL S-222 (VESNO 2220) WAS THE ONLY SOUNDING VESSEL USED FOR THIS SURVEY.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

THE FOLLOWING SOUNDING EQUIPMENT WAS UTILIZED DURING THIS SURVEY:

<u>JULIAN DAY</u>	<u>NAME/MODEL</u>	<u>SERIAL No.</u>
55 *	RAYTHEON UNIVERSAL GRAPHIC RECORDER	170
55-63	RAYTHEON UNIVERSAL GRAPHIC RECORDER	184
55 *	RAYTHEON PTR	008
55-63	RAYTHEON PTR	029
55-63	EDO WESTERN DIGITRAK MODEL 261C	227
55-63	ROSS MODEL 5000 FINELINE DEPTH RECORDER	1050
55-63	ROSS MODEL 4000 TRANSCEIVER	1104

* DENOTES CHANGE OF EQUIPMENT

ALL SURVEY RECORDS WERE SCANNED BY SURVEY DEPARTMENT PERSONNEL AND CHECKED BY THE OFFICER-IN-CHARGE. PEAKS AND DEEPS CONSIDERED SIGNIFICANT THAT OCCURRED BETWEEN SOUNDINGS WERE INSERTED ON THE ELECTRONIC CORRECTOR TAPES. DIGITIZING ERRORS WERE CORRECTED TO AGREE WITH THE GRAPHIC RECORD VIA THE ELECTRONIC CORRECTOR TAPES.

FREQUENT COMPARISONS BETWEEN THE UGR AND THE DIGITIZED DEPTHS ON THE DIGITRAK WERE MADE ONLINE. IN DEPTHS OF LESS THAN 100 FATHOMS, THE ROSS MODEL 5000 FINELINE DEPTH RECORDER WAS SWITCHED ON FOR COMPARISON WITH THE UGR. THE GRAPHIC RECORD FROM THE ROSS IS ALSO INCLUDED IN THE RECORDS OF THIS SURVEY.

VELOCITY CORRECTORS WERE OBTAINED FROM ONE NANSEN CAST. THE DATE AND LOCATION OF THE CAST WERE AS FOLLOWS:

<u>JULIAN DAY</u>	<u>CALENDAR DATE</u>	<u>LOCATION</u>
57	26 FEBRUARY 1983	18°58.5 N 65°07.5 W

VELOCITY CORRECTORS WERE COMPUTED TO A DEPTH OF 1530 FATHOMS USING RK 530. VELOCITY TABLE I WAS PREPARED USING THESE CORRECTORS AND INTERPOLATED TO A MAXIMUM DEPTH OF 2200 FATHOMS FOR USE ON ADJACENT SURVEYS.

A TRANSDUCER DRAFT DETERMINATION WAS MADE ON 15 FEBRUARY 83 IN SAN JUAN HARBOR, PUERTO RICO. A TRANSDUCER DRAFT OF 2.25 FATHOMS FOR SOUND ROOM TWO WAS DETERMINED BY MEASURING THE DISTANCE FROM THE SHIP'S RAIL TO THE WATERLINE AND SUBTRACTING THAT DISTANCE FROM THE KNOWN DISTANCE TO THE TRANSDUCER.

ALL SOUNDINGS WERE TAKEN WITH SOUND ROOM TWO'S TRANSDUCER. ANTENNA DISTANCE FOR THIS TRANSDUCER IS SIX METERS. ANTENNA DISTANCE (ANDIST) WAS APPLIED TO THE ONLINE AND OFFLINE PROGRAMS VIA THE PARAMETER TAPE.

PREDICTED TIDES WERE BASED ON DAILY PREDICTIONS FOR SAN JUAN, PUERTO RICO (STATION NUMBER 975-5371). PREDICTED TIDES WERE APPLIED DURING SOUNDING OPERATIONS USING RK 112. SMOOTH TIDES WERE REQUESTED FROM THE CHIEF, TIDES AND WATER LEVELS BRANCH (N/OMS12) IN A LETTER DATED 15 MARCH 1983 FOR THE PERIOD OF HYDROGRAPHY.

A TC/TI TAPE WAS PREPARED FROM SETTLEMENT AND SQUAT DATA OBTAINED ON 26 JULY 1981, EIGHT MILES OFF CAPE CHARLES, VIRGINIA. SETTLEMENT AND SQUAT CORRECTIONS WERE UNDER 0.1 FATHOM FOR ALL OF THE SURVEY.

E. HYDROGRAPHIC SHEETS

THIS SURVEY WAS PLOTTED ON MYLAR FIELD SHEETS PREPARED ON THE MT MITCHELL'S HYDROPLOT SYSTEM.

<u>NUMBER OF SHEETS</u>	<u>TYPE</u>	<u>SKEW</u>
2	MAINScheme	0,21,54
2	CROSSLINE AND BOTTOM SAMPLES	0,21,54

SOUNDINGS ON THE FIELD SHEETS ARE CORRECTED FOR DRAFT, PREDICTED TIDES, DIGITIZING ERRORS, AND SOUND VELOCITY. SHEETS ARE NOT CORRECTED FOR SMOOTH TIDES OR SETTLEMENT AND SQUAT; THESE CORRECTIONS WILL BE APPLIED ON THE FINAL SMOOTH SHEET PREPARED BY THE ATLANTIC MARINE CENTER, ~~PROCESSING DIVISION~~
Hydrographic Surveys Branch (MOA232), NORFOLK, VIRGINIA.

ALL FIELD RECORDS AND THE FOLLOWING TAPES HAVE BEEN FORWARDED TO THE ATLANTIC MARINE CENTER, ~~PROCESSING DIVISION~~
Hydrographic Surveys Branch

RANGE/RANGE MASTER TAPES
ELECTRONIC CORRECTOR TAPES
VELOCITY CORRECTOR TAPES
PARAMETER TAPES
SIGNAL TAPES
TC/TI TAPE

F. ELECTRONIC CONTROL STATIONS

THE FOLLOWING ELECTRONIC CONTROL STATIONS WERE USED FOR THIS SURVEY:

<u>STATION #</u>	<u>STATION NAME</u>	<u>YEAR EST.</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>
10	CADAstral 97 BENNER HILL	1982	18°19'49.515"N	64°51'34.401"W
20	LIGHT HOUSE RM3	1983	18°23'01.332"N	65°37'07.586"W

CADASTRAL 97

~~BENNER HILL~~ WAS ESTABLISHED BY NGS IN 1982 AS A DOPPLER STATION. THE STATION DESCRIPTION WRITTEN IN 1982 BY NGS LISTS "CADASTRAL 97" AS THE NAME OF THE STATION, BUT THIS STATION IS AT THE SAME LOCATION AS ~~BENNER HILL~~ WHICH WAS ESTABLISHED IN 1918.

CADASTRAL 97

BOTH LIGHT HOUSE RM3 AND ~~BENNER HILL~~ ARE MONUMENTED AND WERE ESTABLISHED USING AT LEAST THIRD-ORDER CLASS I SURVEY METHODS. STATIONS WERE RECOVERED BY PERSONNEL FROM THE MT MITCHELL AND FROM THE OPERATIONS DIVISION, ATLANTIC MARINE CENTER.

A COMPLETE LIST OF STATIONS USED FOR THIS PROJECT AND THEIR GEOGRAPHIC POSITIONS ARE INCLUDED IN APPENDIX F OF THIS REPORT.

G. HYDROGRAPHIC POSITION CONTROL

SOUNDING LINE POSITION CONTROL FOR THIS SURVEY WAS OBTAINED USING A MEDIUM RANGE SYSTEM, HYDROTRAC, MANUFACTURED BY ODOM OFFSHORE SURVEYS, INC. THE SYSTEM WAS UTILIZED IN THE RANGE/RANGE MODE. THE FOLLOWING POSITIONING EQUIPMENT WAS UTILIZED DURING THIS SURVEY:

<u>JULIAN DAYS</u>	<u>LOCATION</u>	<u>EQUIPMENT NAME</u>	<u>MODEL</u>	<u>SERIAL No.</u>
55 *	SHIP	HYDROTRAC RECEIVER	703	327
55-63	"	HYDROTRAC RECEIVER	703	328
55-63	"	HYDROTRAC POWER AMPLIFIER	74-87	538
55-63	"	HYDROTRAC MASTER		122
55-63	CADASTRAL 97	SAWTOOTH RECORDER		8501
55-63	BENNER HILL (#10)	SLAVE DRIVE UNIT	702	215
55-63	" " "	AMPLIFIER	74-87	536
55-63	" " "	POWER SUPPLY		751
55-63	" " "	COUPLER		722
55-63	LIGHT HOUSE RM3 (#20)	SLAVE DRIVE UNIT	702	226
55-63	" " "	AMPLIFIER	74-87	540
55-63	" " "	POWER SUPPLY		620
55-63	" " "	COUPLER		131

THE "*" DENOTES A CHANGE IN EQUIPMENT. THE HYDROTRAC RECEIVER, SERIAL NUMBER 327 MALFUNCTIONED ON THE FIRST DAY OF HYDROGRAPHY AND WAS REPLACED WITH ANOTHER UNIT, SERIAL NUMBER 328.

WHOLE LANE CHECKS WERE CONDUCTED BY RUNNING THE RANGE FORMED BY SIGNAL 012 AND 014 WITH AN INTERSECTING SEXTANT ANGLE TO SIGNAL 015 OR BY RUNNING THE RANGE FORMED BY SIGNALS 025 AND 014 WITH AN INTERSECTING SEXTANT ANGLE TO SIGNAL 027.

PARTIAL LANE CORRECTORS WERE DETERMINED BY THE RANGE/AZIMUTH METHOD UTILIZING AN H-P 3810B EDM (s/n 1929A00340). THE EDM WAS LOCATED AT SIGNAL 012 AND INITIALIZED ON SIGNAL 014.

PRISMS WERE MOUNTED IN ALUMINUM BOARDS AND SECURED TO THE FOREMAST OF THE MT MITCHELL WITH CORRECTIONS FOR DISTANCE FROM THE ANTENNA APPLIED TO THE COMPUTATIONS. THE GEODETIC UTILITY PACKAGE RANGE/AZIMUTH PROGRAM FOR THE HP CALCULATOR WAS USED DURING THIS CALIBRATION. HYDROTRAC RATES WERE RECORDED AT THE SAME TIME AS THE RANGE/AZIMUTH FROM THE HP 3810. RATES WERE COMPARED AND CORRECTIONS DERIVED FOR THE SURVEY.

COMPUTATIONS FOR WHOLE LANE CHECKS WERE MADE WITH RK 300, UTILITY COMPUTATIONS, FUNCTION 7. A COMPLETE LIST OF ELECTRONIC CORRECTORS IS INCLUDED IN APPENDIX E.

A SAWTOOTH RECORDER WAS USED TO MONITOR THE WHOLE LANE COUNT. THE WHOLE LANE COUNT WAS ANNOTATED BY HAND AND CHECKED AGAINST THE DIGITAL READOUT ON THE HYDROTRAC RECEIVER.

ON 26 FEBRUARY 1983 (JD 57), INDICATIONS WERE EVIDENT THAT A WEAK SIGNAL WAS BEING RECEIVED FROM THE ~~BENNER HILL~~ STATION (STATION #10). THE MT MITCHELL PROCEEDED TO PICARA POINT ON THE NORTH COAST OF ST. THOMAS TO CONDUCT A CALIBRATION OF THE HYDROTRAC SYSTEM ON JD 58. A SYSTEM CALIBRATION USING THE HP 3810B RANGE/AZIMUTH METHOD FROM STATION PIC RESULTED IN THE DISCOVERY OF A FIVE LANE GAIN FROM THE ~~BENNER HILL~~ STATION AND A TWO LANE GAIN FROM THE LIGHT HOUSE RM3 (STATION #20). *CADASTRAL 97*

(CADASTRAL 97) SUBSEQUENT INSPECTION OF PREVIOUS SAWTOOTH RECORDS FOR THIS SURVEY SHOWED THAT A ONE LANE GAIN OCCURRED ON PATTERN I (~~BENNER HILL~~) DURING A TURN FOLLOWING POSITION 186 ON JD 56. FURTHER INSPECTION OF SAWTOOTH RECORDS DETERMINED THAT FOUR MORE LANES WERE GAINED ON PATTERN I AND TWO LANES WERE GAINED ON PATTERN 2 (LIGHT HOUSE RM3) WHILE LAYING TO DURING A NANSEN CAST ON JD 57. THE LANE GAINS ON JD 57 OCCURRED BETWEEN POSITIONS 345 AND 346. *CADASTRAL 97*

APPROPRIATE ELECTRONIC CORRECTORS WERE APPLIED TO CORRECTOR TAPES ON JD 56, 57 AND 58 TO CORRECT FOR THESE LANE ERRORS.

H. SHORELINE

THERE IS NO SHORELINE IN THE SURVEY AREA.

I. CROSSLINES

A TOTAL OF 116.3 MILES OF CROSSLINES WERE SURVEYED AND REPRESENTS 9% OF THE TOTAL MAINSCHEME. CROSSLINES WERE RUN BETWEEN 45° AND 90° TO THE NORTH-SOUTH MAINSCHEME.

A TOTAL OF 110 CROSSLINE SOUNDINGS WERE COMPARED. THE RESULTS OF THE COMPARISONS ARE:

EXACT AGREEMENT	10%
± 0 TO 4 FATHOMS	68%
± 0 TO 6 FATHOMS	100%

ALL CROSSLINE SOUNDINGS SHOWED GOOD AGREEMENT WITH THE MAINSCHEME SOUNDINGS. ANY DISCREPANCIES BETWEEN CROSSLINE SOUNDINGS AND MAINSCHEME CONTOURS CAN BE ATTRIBUTED TO THE STEEP SLOPES WITHIN THE SURVEY AREA. *SEE SECTION 8.C. OF THE EVALUATION REPORT.*

J. JUNCTIONS *SEE SECTION 5 OF THE EVALUATION REPORT.*

THIS SURVEY JUNCTIONS WITH THE FOLLOWING SURVEYS:

<u>AREA OF JUNCTION</u>	<u>FIELD #</u>	<u>REG. #</u>	<u>SCALE</u>	<u>DATE</u>	<u>VESSEL</u>
WESTERN END	MI 80-2-83	H-10076	1:80,000	1983	2220

THE JUNCTIONS BETWEEN THIS SURVEY AND H-10076 WAS CONDUCTED USING THE SAME VESSEL AND EQUIPMENT, RESULTING IN EXCELLENT AGREEMENT OF SOUNDINGS AND CONTOUR LINES.

K. COMPARISON WITH PRIOR SURVEYS *SEE SECTION 6 OF THE EVALUATION REPORT.*

COMPARISONS WERE MADE WITH THE FOLLOWING SURVEYS:

<u>SURVEY</u>	<u>SCALE</u>	<u>YEAR</u>
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H-9517	1:20,000	1975	<i>THESE SURVEYS ARE JUNCTION SURVEYS AND NOT PRIOR SURVEYS</i>
H-9604	1:20,000	1976	
H-9516	1:20,000	1975	

PRIOR SURVEY H-9517 IS A 1:20,000 SCALE SURVEY THAT JOINS WITH THE SOUTH EDGE OF THIS SURVEY (H-10074). OF THE THIRTY-THREE SOUNDINGS COMPARED, GOOD AGREEMENT WAS SHOWN BETWEEN DEPTHS AND CONTOURS ON BOTH SURVEYS.

PRIOR SURVEY H-9604 IS A 1:20,000 SCALE SURVEY THAT JOINS WITH THE SOUTH EDGE OF THIS SURVEY (H-10074). GOOD AGREEMENT WAS SHOWN BETWEEN DEPTHS AND CONTOURS ON BOTH SURVEYS.

L. COMPARISON WITH THE CHART *ALSO SEE SECTION 7.D. OF THE EVALUATION REPORT. (29TH ED, AUG 22/81)*

THIS SURVEY WAS COMPARED WITH CHART 25640, PUERTO RICO AND VIRGIN ISLANDS (1:326,856). SURVEY H-10074 SHOWS A GENERAL AGREEMENT IN THE TREND OF SOUNDINGS FROM THE 100 FATHOM CURVE OUT TO THE NORTHERN LIMITS OF CHART 25640. THE MAJORITY OF THE SOUNDINGS FROM THE CHART WERE DEEPER THAN THIS SURVEY WITH THE DIFFERENCES GREATER THE FARTHER AWAY FROM THE 100 FATHOM CURVE. THE 100 FATHOM CURVE COMPARED FAVORABLY ON BOTH THIS SURVEY AND THE CHART, HOWEVER.

OF A TOTAL OF 43 SOUNDINGS FROM CHART 25640 THAT WERE COMPARED TO THIS SURVEY, 25 WERE OFF BY 100 FATHOMS OR MORE (ALMOST ALL WERE DEEPER), AND 18 WERE WITHIN 50 FATHOMS (ALMOST ALL WERE DEEPER).

DEPTH DISCREPANCIES BETWEEN CHART 25640 AND SURVEY H-10074, BEYOND THE 100 FATHOM CURVE, ARE PROBABLY DUE TO THE FACT THAT THE CHARTED DEPTHS ARE TAKEN FROM BRITISH AND DUTCH SURVEYS OF THE MID 19TH CENTURY. THE INHERENT ERROR IN DEPTH DETERMINATION DURING THAT PERIOD IS THE PROBABLE CAUSE FOR SUCH DIFFERENCES IN DEPTH.

M. ADEQUACY OF SURVEY

THIS SURVEY IS CONSIDERED COMPLETE AND ADEQUATE TO SUPERSEDE PRIOR SURVEYS FOR CHARTING.

N. AIDS TO NAVIGATION

THERE WERE NO ^{FIXED OR FLOATING} AIDS TO NAVIGATION IN THE SURVEY AREA.

O. STATISTICS

LINEAR NAUTICAL MILES OF MAINSCHEME HYDROGRAPHY	1150.9
LINEAR NAUTICAL MILES OF CROSSLINES	116.3
LINEAR NAUTICAL MILES OF DEVELOPMENT	0
TOTAL MISCELLANEOUS NAUTICAL MILES	397.5
TOTAL NAUTICAL MILES RUN	1664
SQUARE NAUTICAL MILES OF HYDROGRAPHY	1050
TOTAL NUMBER OF POSITIONS	1047
NANSEN CASTS	1
BOTTOM SAMPLES	3

P. MISCELLANEOUS

AN EFFORT WAS MADE TO TAKE NUMEROUS BOTTOM SAMPLES BEYOND THE 100 FATHOM CURVE, BUT DUE TO THE DEPTHS AND STEEP SLOPES, ONLY THREE ATTEMPTS WERE SUCCESSFUL.

Q. RECOMMENDATION

IT IS RECOMMENDED THAT THIS SURVEY SUPERSEDE ALL PRIOR SURVEYS.

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 211	RANGE/RANGE NON-REAL TIME PLOT	02/02/81
RK 300	UTILITY COMPUTATIONS	10/21/80
RK 330	DATA REFORMAT AND CHECK	05/04/75
RK 561	H/P GEODETIC CALIBRATION	02/19/76
RK 530	VELOCITY CORRECTIONS COMPUTATIONS	5/10/76
RK 602	EXTENDED LINE ORIENTED EDITOR	05/20/75
PM 360	ELECTRONIC CORRECTOR ABSTRACT	02/02/76
AM 500	PREDICTED TIDE GENERATOR	11/10/72

IN ADDITION TO THE ABOVE PROGRAMS, THE H/P GEODETIC PACKAGE PROGRAM (No. 811101) AND THE H/P 3810 RANGE/AZIMUTH CALIBRATION PROGRAM (VERSION 2/22/81) WERE USED.

S. REFERENCE TO REPORTS

HORIZONTAL CONTROL REPORT
HUMPBACK WHALE SURVEY REPORT
COAST PILOT REPORT

RESPECTFULLY SUBMITTED,

John A. Miller

JOHN A. MILLER
ENSIGN, NOAA

APPENDIX F
LIST OF STATIONS

SIGNAL NAMES

OPR-I-149-MI-83

- 010 ~~BENNER HILL~~ ⁸ CADASTRAL 97, 1982
- 012 PIC 1910
- 013 OUTER BRASS, 1918
- 014 WBMB TV ^{MAST} TWR, 1983
- 015 OUT, 1918
- 020 LIGHTHOUSE RM 3, 1983
- 025 PIC ECC, 1983
- 027 OUT ECC, 1983

MASTER SIGNAL TAPE PRINTOUT
OPR-I-149-MI-83

010	4	18	19	49515	064	51	34401	250	0168	171859
012	4	18	23	05986	064	56	29449	139	0008	000000
013	4	18	23	47069	064	58	16931	139	0001	000000
014	4	18	21	2303X	064	56	42885	139	0450	000000
015	4	18	24	12690	064	58	32081	139	0000	000000
020	4	18	23	01332	065	37	07586	250	0000	171859
025	4	18	23	05962	064	56	29478	252	0008	000000
027	4	18	24	12708	064	58	31863	139	0000	000000

252

APPENDIX I
LANDMARKS FOR CHARTS
(There were no landmarks in this survey area)

APPENDIX J
APPROVAL SHEET

APPROVAL SHEET

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

N. Gustafson
Commanding Officer

5/2/83

DATE: July 8, 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): 863-0441 Wallops Island, VA

Period: August 30 - November 5, 1982

HYDROGRAPHIC SHEET: H-10046

OPR: D103

Locality: Offshore Wallops and Assaseague Island, Virginia

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

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

REMARKS: Recommended Zoning:

1. West of longitude $75^{\circ}20.0'$ zone direct.
2. East of $75^{\circ}20.0'$ apply x0.94 range ratio.

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

GEOGRAPHIC NAMES

H-10074

Name on Survey	A ON CHART NO. 25640		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 GRAND MCNALLY ATLAS		H U.S. LIGHT LIST		K	
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ANEGADA (BRITISH VIRGIN ISLANDS)																			1
ATLANTIC OCEAN (title)																			2
ISLA DE CULEBRA (title)																			3
VIRGIN ISLANDS (title)																			4
																			5
																			6
																			7
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																			25

Approved:

Charles E. Harrington
Chief Geographer - N/C275

SEP 24 1984

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NO.: H-10074

Number of positions	<u>1047</u>
Number of soundings	<u>5335</u>
Number of control stations	<u>7</u>

	<u>TIME-HOURS</u>	<u>DATE COMPLETED</u>
Preprocessing Examination	<u>19</u>	<u>6/2/83</u>
Verification of Field Data	<u>200</u>	<u>9/14/84</u>
Quality Control Checks	<u>51</u>	
Evaluation and Analysis	<u>32</u>	<u>10/20/84</u>
Final Inspection	<u>4</u>	<u>10/26/84</u>
TOTAL TIME	<u>302</u>	
Marine Center Approval		<u>10/30/84</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-10074

FIELD NO.: MI-80-1-83

Virgin Islands, Atlantic Ocean, Offshore--Isla De Culebra to Anegada

SURVEYED: 24 February through 4 March 1983

SCALE: 1:80,000

PROJECT NO.: OPR-I149-MI-83

SOUNDINGS: Raytheon UGR and
Ross Digital Echosounder

CONTROL: Hydrotrac (Range/Range)

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

Surveyed by.....L. A. Lapine
.....R. L. Parsons
.....D. R. Rice
.....G. R. Yates
.....D. D. Henegar
.....B. L. Coakley
.....C. N. McLean
.....D. I. Crews
.....J. A. Miller
.....J. L. Hendrix
.....W. E. Sites

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

1. INTRODUCTION

- a. No unusual problems were encountered during verification.
- b. Notes in red were made in the Descriptive Report during office processing at AMC.

2. CONTROL AND SHORELINE

- a. The control is adequately discussed in sections F, G and S of the Descriptive Report.
- b. There is no shoreline within the area surveyed.

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. Except in the junctional area where only segments of the 30 and 40 fathom curves could be drawn, the standard curves were drawn in their entirety.

c. Development of the bottom configuration and determination of least depths is considered adequate. For the purpose of bathymetric mapping, additional development and reduced line spacing would have been desirable for ridges and troughs. Also, some sounding lines normal to the canyons would have been appropriate.

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. A negative Dangers to Navigation report was not included in the Descriptive Report as required by section 6.12 of the Project Instructions. No dangers to navigation were discovered during the course of this survey.

b. Sufficient bottom samples were not taken as required by sections 1.6.3 and 4.7.1 of the Hydrographic Manual and section 8.1 of the Project Instructions. However, see section P. of the hydrographer's Descriptive Report.

c. The survey was not submitted within six (6) weeks after completion of the survey as required by section 6.13 of the Project Instructions. The survey arrived at the Marine Center three (3) weeks late.

d. The edition and date for Chart 25640 used for comparison was not mentioned in section L of the Descriptive Report.

e. The field printout states that a 32 meter ANDIST corrector be used for positions 1 to 60 and the Descriptive Report states that an ANDIST of 6.0 meters be used for all soundings. The hydrographer confirmed that a 6.0 meter corrector is to be used for all soundings.

f. No original graphs of velocity correction data and no sounding corrector abstract were submitted.

g. The control station CADASTRAL 97, 1982, was called BENNER HILL, 1982, on the field's signal list.

h. The hydrographer failed to make junction with surveys H-9516 (1975), H-9517 (1975) and H-9604 (1976) as required by section 6.9 of the Project Instructions. However, surveys H-9517 (1975) and H-9604 (1973) were addressed in section K Comparison with Prior Surveys in the Descriptive Report.

5. JUNCTIONS

H-9516 (1975) to the south
H-9517 (1975) to the southwest
H-9604 (1976) to the southwest
H-10076 (1983) to the west

An excellent junction was made between H-9516 (1975) and the present survey. The 40 fathom curve was incorrectly drawn on H-9516 (1975) at Latitude 18°37'10"N, Longitude 64°52'50"W, and Latitude 18°38'10"N, Longitude 64°50'40"W.

An excellent junction was made between surveys H-9517 (1975), H-9604 (1976) and the present survey. However, on the junction between H-9517 (1975) and H-9604 (1976) there are two (2) soundings, 62 fathoms and 92 fathoms from H-9604 (1976), on the deep side of the 100 fathom curve from H-9517 (1975) at Latitude 18°35'00"N, Longitude 65°06'00"W. The present survey is unable to prove or disprove these soundings as they plot between two lines of hydrography.

An excellent junction was made between the present survey and survey H-10076 (1983).

There were no contemporary surveys to the north, east or southeast of the present survey. There are no National Ocean Service charts to the north and east. The charted depths and the present survey depths are in harmony to the southeast.

6. COMPARISON WITH PRIOR SURVEYS

There are no prior National Ocean Service surveys available within the area of the present survey; see section 7.a. of this report.

7. COMPARISON WITH CHART 25640 (29th Edition, Aug 22/81)

a. Hydrography

None of the charted hydrography originates with any available prior surveys. The charted hydrography probably originates with British Admiralty and Defense Mapping Agency charted data.

From 100 fathoms to the deepest depths, the comparison with a small number of charted soundings show good agreement with the present survey depths. The majority of the charted soundings show differences from 550 fathoms shoaler to 350 fathoms deeper. These differences are attributable to inadequate prior survey data in the common area.

The present survey is adequate to supersede the charted hydrography in the common area.

b. Aids to Navigation

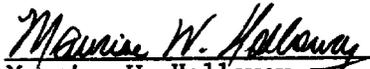
There are no fixed or floating aids to navigation within the area covered by the present survey.

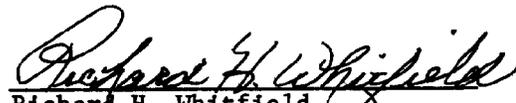
8. COMPLIANCE WITH INSTRUCTIONS

Except as listed elsewhere in this report, this survey adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is a good basic survey and no additional field work is recommended.


Maurice W. Holloway
Cartographic Technician
Verification of Field Data


Richard H. Whitfield
Cartographic Technician
Evaluation and Analysis


Leroy G. Cram
Supervisory Cartographic Technician
Verification Check

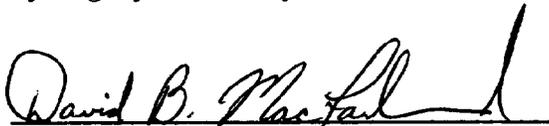
Inspection Report
H-10074

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproof 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 October 30, 1984



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

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Washington, D.C.

Hydrographic Index No. 180C

