

# 10002

Diagram No. 905-2

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-10-1-82  
Office No..... H-10002

### LOCALITY

State ..... U.S. Virgin Islands  
General Locality .. St. Croix  
Locality ..... Off East Coast

1982

CHIEF OF PARTY  
CAPT J.A. Yeager

### LIBRARY & ARCHIVES

DATE ..... April 23, 1986

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

10002

ACPG  
CHTS

25641  
25634  
25636  
25640

TO SIGN OFF SEE  
"RECORD OF APPLICATION"

HYDROGRAPHIC TITLE SHEET

H-10002

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-10-1-82

State U.S. VIRGIN ISLANDS

General locality ST. CROIX

Locality OFF EAST POINT

Scale 1:10,000

Date of survey 28 MAR -14 APR 1981  
22 FEB - 3 APR 1982

Instructions dated 27 NOVEMBER 1982 \* Project No. OPR-T149-MI/PE-82

Vessel NOAA SHIP MT. MITCHELL LAUNCHES VV ESNO 2223, 2225, 2226

Chief of party CAPT. J. AUSTIN YEAGER, NOAA

Surveyed by SHIP'S OFFICERS (SEE REMARKS)

Soundings taken by echo sounder, ~~hand lead, etc.~~ ECHO SOUNDER (Ross 5000 Fmc line)

Graphic record scaled by RW, RC, CS, UG, DH, JZ, FS, BM, AO, EM

Graphic record checked by RW, RC, CS, UG, DH, JZ, FS, BM, AO, EM

Protracted by \_\_\_\_\_ Automated plot by SHIP'S HYDROPLOT (AmC)  
*Synetics 1201 Plotter*

Verification by F.L. Saunders

Soundings in ~~fathoms~~ ~~YBMK~~ ~~at~~ ~~YBMK~~ MLLW FATHOMS AT MLLW  
*and tenths*

REMARKS: \* SUPPLEMENTED BY CHANGES NO. 1 thru 4 AND SUPPLEMENT TO PROJECT

INSTRUCTIONS DATED 18 NOVEMBER 1981.

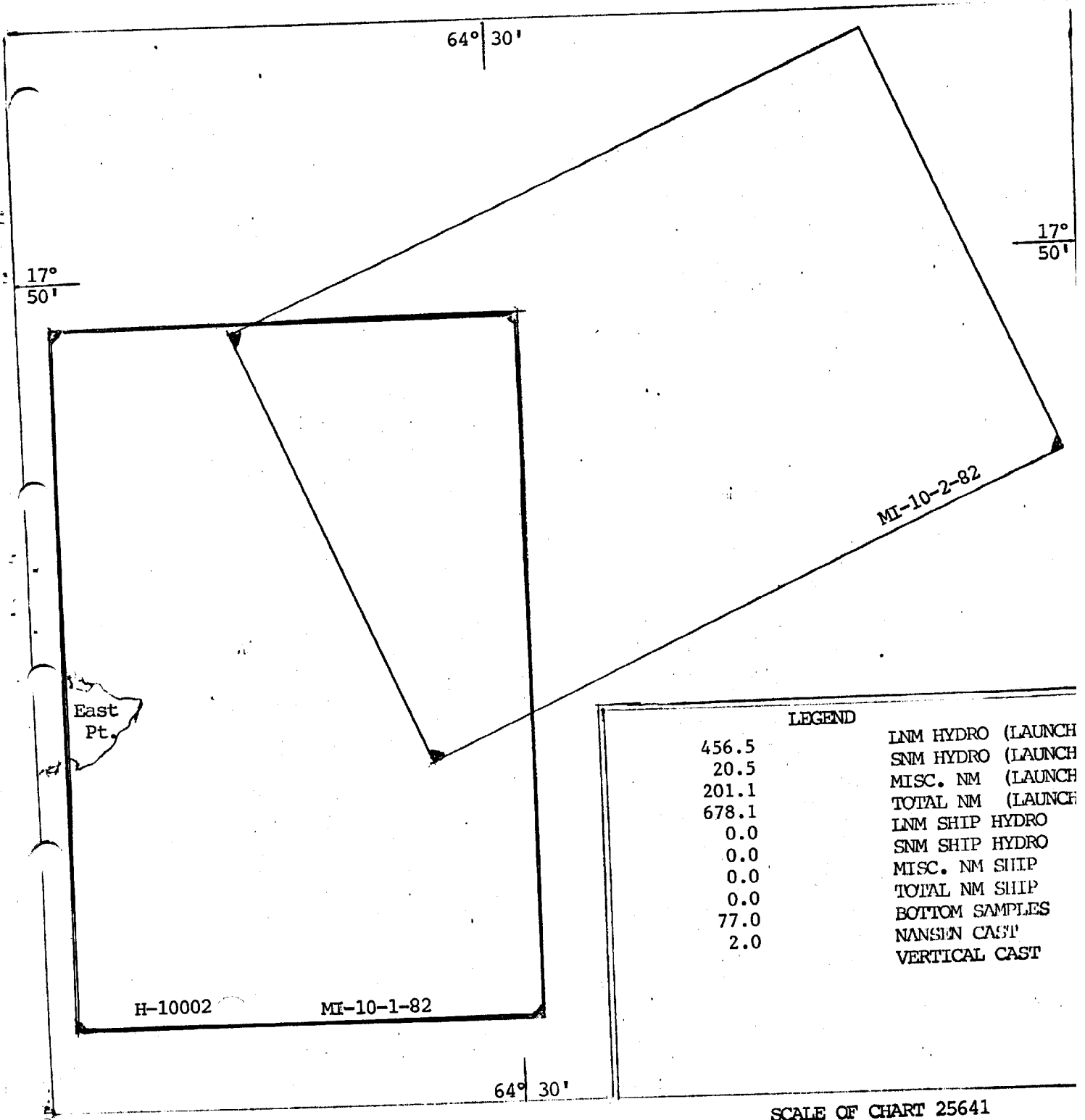
LCDR L. LAPINE, LT. K.W. PERRIN, LT. E.S. VARNEY, ENS PETERS, ENS ROSSMANN,

ENS. R.D. HENEGAR, LT(jg) J. ZABITCHUCK, LCDR A. FLOIR, ENS. B. COAKLEY,

ENS. D.I. CREWS, AND ENS. A. ORRIS (OFFICER IN CHARGE)

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

*AWOIS - SURF 4/29/86 STANDARDS CP'D 4-25-86  
mcr*



OPR-I149-MI/PE-82, St. Croix, USVI

SCALE OF CHART 25641

PROGRESS SKETCH  
 HYDROGRAPHIC OPERATIONS  
 NOAA SHIP MT. MITCHELL S-222  
 J. A. YEAGER CAPT, NOAA  
 COMMANDING OFFICER

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*A, E, G, H, and I deleted and placed with sdg. records.*

H-10002  
MI-10-1-82

A. PROJECT

This survey was performed in accordance with Project Instructions OPR-1149-MI/PE-82, St. Croix, Virgin Islands, dated 27 November 1981. Amendments 1, 2, 3, and 4 were dated 21 December 1981, 11 January 1982, 25 January 1982, and 2 March 1982, respectively. A supplement to the project instructions was issued 18 November 1981.

B. AREA SURVEYED

This survey was conducted off the easternmost tip of St. Croix, called East Point and extending 3.5 nautical miles seaward. The area immediately surrounding the point is a hazard to navigation with large rocky patches and depth of 1 - 5 fathoms within the 400 meter radius of land. The majority of this survey is fairly level at depths of 12 - 13 fathoms, and a bottom of coarse sand with an occasional coral patch. Limits for the deeper sections of the area surveyed were determined by the ability to obtain a fathogram trace on the Ross 5000 Depth Recorder. A sudden drop of the shelf was founded from the level portion of 12 fathoms to depths in excess of 150 fathoms. This area was determined to extend in along the 17°48'30" latitude line on the north end and between 17°42'30" to 17°45'30" latitudes on the south end of the survey. East-west limits extend from 64°34'00" to 64°30'00" longitude. Small shoaler areas of 7 to 9 fathoms appear just before the sharp shelf drop-off on both the north and south ends.

The overall limits of the survey are roughly described by lines connecting the following points in a clockwise manner.

<u>Latitude</u>	<u>Longitude</u>	<i>Latitude</i>	<i>Longitude</i>
<del>17°42'03"N</del>	<del>64°19'47"W</del>	17°48'29"	64°34'11"
<del>17°42'03"N</del>	<del>64°34'55"W</del>	17°48'55"	64°32'11"
<del>17°49'27"N</del>	<del>64°34'55"W</del>	17°45'31"	64°30'15"
<del>17°49'27"N</del>	<del>64°29'47"W</del>	17°42'31"	64°34'31"

The survey MI-10-1-82 was conducted from 22 February 1982 (Julian Day 053) to 3 April 1982 (Julian Day 093). Some soundings on the northernmost section of the west sheet were obtained from the previous year 1981, and made a part of this survey. These data were collected between ~~27~~<sup>8</sup> March 1981 (Julian Day 087) through 14 April 1981 (Julian Day 104). All information necessary to interpret the 1981 data is included in this report.

C. SOUNDING VESSELS

Soundings for this survey were obtained by Launch 1004 (2223), Launch 1002 (2225), and Launch 1008 (2226).

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The following equipment was aboard the vessels during this survey:

<u>EQUIPMENT, VESNO 2223</u>	<u>SERIAL NUMBER</u>
Ross Model 5000 Fineline Depth Recorder	1089
Ross Model 4000 Transceiver	1039
Ross Model 6000 Digitizer	1053
Ross Model 2000 Inverter	1039

<u>EQUIPMENT, VESNO 2225</u>	<u>SERIAL NUMBER</u>
Ross Model 5000 Fineline Depth Recorder	3780
Ross Model 4000 Transceiver	1053
Ross Model 6000 Digitizer	1039
Ross Model 2000 Inverter	1050

<u>EQUIPMENT, VESNO 2226</u>	<u>SERIAL NUMBER</u>
Ross Model 5000 Fineline Depth Recorder	1083
Ross Model 4000 Transceiver	1055
Ross Model 6000 Digitizer	1055
Ross Model 2000 Inverter	1055

All survey records were scanned and checked by trained survey personnel and the officer-in-charge. Peaks and deeps were inserted whenever they were considered significant. Problems obtaining a good digitized depth occurred frequently in depths greater than 50 fathoms. Inserts and digitized errors were corrected using electronic corrector tapes. Depths greater than 150 fathoms were rarely obtained.



Phase calibration checks were at frequent intervals throughout the day of hydrography. Any necessary adjustments were made and noted on the fathogram record and on the master printout. Any departure of the trace from the calibration due to phase differences were corrected during the scanning process and applied on the corrector tapes when necessary.

Velocity correctors for all data obtained in 1982 were derived from two Nansen Casts at the following locations:

<u>Cast No.</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Date</u>
1	17°52'12"N	64°49'24"W	20 Feb 82
2	17°53'54"N	64°41'18"W	25 Mar 82

Data obtained in 1981 used velocity correctors based on two Nansen Cast as follows:

<u>Cast No.</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Date</u>
1	17°48'04"N	64°40'00"W	19 Feb 81
2	17°49'12"N	64°41'35"W	19 Mar 81

Since the comparison of the two Nansen Casts obtained in 1982 showed excellent agreement with each other, as well as the ones taken in 1981, only Cast Number 1 was used in both cases for their respective time periods to determine the velocity correctors. Bar checks were taken twice daily as weather permitted, for each survey day. Bar check correctors and Nansen Cast data compared favorably, resulting in very small instrument error. Launch 2223 showed +0.2 fm instrument error. Launches

2225 and 2226 showed no error. (Velocity tables, velocity corrections, and Nansen Cast information can be found in Appendix D).

Soundings from all launches were taken with a hull-mounted transducer. A transducer draft of  $0.\overset{3}{7}$  fathom was applied to all soundings. Settlement and Squat correctors were not applied due to the insignificant values obtained when sounding in fathoms. This value never exceeded  $0.\overset{04}{057}$  fathom. A copy of the field data, and the Settlement and Squat correctors versus launch revolutions per minute are included in the survey support data. These correctors were included into the TC/TI tapes (See Appendix D).

All final field sheets were plotted with predicted tide tapes based on daily predictions at Charlotte Amalie, St. Thomas, U.S. V.I. (975 - 1639) with Galveston Channel, Texas (3277) as a reference station. Tide correctors were applied either to on-line data using Binary predicted tide tapes or to off-line data using ASCII predicted tide tapes. No smooth tides were applied to the final field sheets.

#### E. HYDROGRAPHIC SHEETS

All soundings were plotted on 6 mylar field sheets prepared on the MT. MITCHELL hydroplot system by the survey department.

<u>No. of Sheet</u>	<u>Type</u>	<u>Skew</u>
2	Mainscheme R/R	90, 21, 54
2	Mainscheme R/AZ	90, 21, 54
2	BS, Split, develop, XL	90, 21, 54

All data were corrected for predicted tides, sound velocity, draft, and digitizing errors. Sheets were not corrected for instrument error, smooth tides, or settlement and squat. The final smooth sheets will be plotted at AMC, Norfolk, Virginia after verification.

The following tapes will be forwarded to AMC:

Master Range-Range Tapes  
 Master Range-Azimuth Tapes  
 Edited Master Range-Range Tapes  
 Edited Master Range-Azimuth Tapes  
 Electronic Corrector Tapes  
 Velocity Corrector Tapes  
 TC/TI Tapes  
 Parameter Tapes

F. CONTROL STATIONS

The following control stations were used for this survey:

<u>Signal Number</u>	<u>Name</u>	<u>Date</u> Established	<u>Latitude</u>	<u>Longitude</u>
100	East Point	1980	17°45'28.995"N	64°34'02.450 <sup>42"</sup> W
200	Buck Island Light	1980	17°47'19.9 <sup>87"</sup> 77"N	64°37'10.185 <sup>75"</sup> W
610	Dall	1980	17°45'12.673 <sup>69"</sup> 11"N	64°34'06.765 <sup>00"</sup> W
700	Fancy 1919	1919	17°43'30.094"N	64°38'24.757"W

All stations were recovered or located by Operations Division, Atlantic Marine Center and the NOAA Ship MT. MITCHELL personnel. Each station is of Third Order, Class I accuracy. For further information on these control stations refer to the Horizontal Control Report for OPR-1149-MI/PE-81 and OPR-1149-MI/PE-82, St. Croix, U.S. V.I.

G. HYDROGRAPHIC POSITION CONTROL

All hydrography was controlled by range-range or range-azimuth positioning using Del Norte equipment. The majority of the survey was conducted using range-range position. Julian Days 053, 061, 076, and 077 were the only days range-azimuth was required. This was obtained using a Wild T-2 Theodolite stationed on East Point Station 100, and initialed on Buck Island Light Station 200. The following equipment was used:

VESNO 2223 Serial Number

DMU/MASTER	189/912
Remote (72) Unit	1065
Wild T-2 Theodolite	19293

VESNO 2225

DMU/MASTER	172/1068
Remote (72) Unit	1065
(74) Unit	262
(76) Unit	1062
(78) Unit	264
Wild T-2 Theodolite	19293

VESNO 2226

DMU/MASTER	190/162
Remote (72) Unit	1065
(74) Unit	262
(76) Unit	1062
(78) Unit	264
Wild T-2 Theodolite	19293

Baseline calibrations were conducted approximately every two weeks between each cruise. The HP-3810 was used to determine the baseline tripod to tripod distance from the DMU/MASTER pairs to each of the remote units. This known distance obtained with the H-3810 was compared directly with rates received by the MASTER units. Values were recorded and the DMU units were adjusted to read the proper rates. (See Accordion folder for baseline calibration abstracts. Electronic correctors applied to data are in Appendix E.)

Daily calibrations were made at the beginning and close of each survey day by each launch using a range-azimuth calibration method. The HP-3810 unit was focused on a geodetic mirror set displayed next to the launch antenna. The HP-3810 was set up at Station 100, East Point. A direct comparison of the HP-3810 values to the rates on the DMU off Station 100 were made. All other rates were calibrated using the HP-3810 and turning an azimuth from another known point to the launch. The observed rates on the DMU were compared with the rates determined by using the RK 300 utility program or by using a range-azimuth program written by Lt. (jg) Zabitchuck for the HP-9815 calculator, which computed the theoretical rates from each station to the launch.

The daily correctors and the baseline calibration correctors were compared at the end of each cruise. The final correctors were determined by the Field Operations Officer based on both calibrations obtained. These correctors were entered on the electronic corrector tape (See Electronic Corrector Abstract, Appendix E). The antenna distances applied for the launches were 0.0 meters.

For all areas of poor signal intersection, the range-range control was changed utilizing a different set of 2 stations out of the 4 stations available. If no suitable range-range Del Norte control could be established, range-azimuth was performed. The Wild T-2 Theodolite was set up on Station 100, East Point, and an azimuth was turned from a known pt. to the launch. Values on the DMU were recorded for Station 100 and the location could be determined.

#### H. SHORELINE

No shoreline lines along East Point were obtained. The point consists of large rocky cliffs with boulders extending into the sea causing heavy surf. action. Lines were run as close as sea conditions permitted with safety considerations. Efforts to run sounding lines to assure overlap with the 18-foot curve of photobathymetry was attempted.

Shoreline on the field sheets was transferred from corresponding shoreline manuscripts sheet (TP-00005) in blue since the shoreline was not verified. Visual inspection of the shoreline and adjoining reef information indicated no significant

change from the manuscript and that the photobathymetry appears to be very accurate. No disagreement occurred. No field edit was performed for this survey.

### I. CROSSLINE

Crosslines accounted for approximately 12.8% of total sounding line mileage.

Comparison of crossline w/MS sounding yields the following information:

0 - 5 Fm	100% agree w/in 0.2 Fm
5 - 11 Fm	95% agree w/in 0.5 Fm 3% agree w/in 1.0 Fm 2% agree w/in 2.0 Fm
11 - 55 Fm	99.3% agree w/in 1.5 Fm 0.5% agree w/in +2.0 Fm 0.2% agree w/in 4.0 Fm
55 - 111 Fm	99% agree w/in 3% of depths

The crosslines showed no areas of major discrepancy but appears to show very good agreement in all ranges of depths for this survey. The only incidents of disagreement appears in scattered places along the slope where the bottom depths change rapidly. This discrepancy can be related to the Ross 5000 depth recorder's inability to obtain precise depths at such steep angles of slope.

J. JUNCTION

This survey junctions with the following contemporary surveys:

<u>Area of Junction</u>	<u>Field No.</u>	<u>Registry No.</u>	<u>Scale</u>	<u>Date</u>	<u>Ship</u>
East	MI-10-2-82	H-10003	1:10,000	1982	MT. MITCHELL
West (Southern half)	MI-10-3-82	H-10006	1:10,000	1982	MT. MITCHELL
North & South	MI-80-1-82	H-10004	1:80,000	1982	MT. MITCHELL
West (Northern half)	MI-10-2-81	H-9936	1:10,000	1981	MT. MITCHELL

A comparison of this survey MI-10-1-82 (H-10002) with MI-10-2-82 (H-10003) shows the following data:

*See Eval. Report*

<u>Range</u>	<u>Agreement</u>
0 - 5 Fathom	100% within 0.2 Fathoms
5 - 11 Fathom	95% within 0.5 Fathoms 5% within 1 - 2 Fathoms
11 - 20 Fathoms	96% within 1.5 Fathoms 4% within 2 Fathoms



The comparison shows good agreement from 0 - 20 fathoms which encompasses over 97% of the survey. Only at area  $17^{\circ}45'30''$  and  $64^{\circ}30'30''$ , and in area  $17^{\circ}40'45''$  and  $64^{\circ}32'15''$  is the significant discrepancy for depth greater than 20 fathoms. This is due to the sudden drop of the shelf and the differences in angles of approach of the mainscheme line of each survey at this slope. At depths greater than 50 fathoms, the Ross 5000 depth recorder's accuracy was often limited due to the steepness of the bottom. The contours of each survey junction very well with each other except in the very deep areas.

The survey MI-10-3-82 (H-10006), shows almost 99% agreement with all sounding to the exact same depth. The only discrepancies appear at depths greater than 100 fathoms in the approximate area of  $17^{\circ}42'30''$  to  $17^{\circ}42'00''$  and  $64^{\circ}35'00''$  to  $64^{\circ}34'30''$ . This area is the shelf drop-off. The reasons for differences are the same as for MI-10-2-82 (H-10003), due to the steepness of the slope. The contours of each survey matches with the next. Other than in the area mentioned, the surveys show excellent agreement.

This survey compares excellently with MI-80-1-82 (H-10004). There are no discrepancies at the scale of the survey. Due to the difference in the scales, there are considerably less soundings that overlapped between the two surveys. The surveys show 100% agreement within 1.5 fathoms of all depths. No depths shallower than 5 fathoms existed in the comparison of the two. The scale difference made contour comparison difficult since the two surveys junction at the slope drop-off. However, both surveys appear to show agreement in general trends of the contours.

The survey MI-10-2-81 (H-9936), was performed in 1981. A portion of this data was separated from MI-10-2-81 and incorporated in this survey MI-10-1-82

(H-10002). This section used with the 1982 data is a continuation of MI-10-2-81, using the same vessel and run during the same year; and therefore no overlap exists between the two surveys. Both surveys appear to junction excellently based on the crosslines and contours form with both 1981 and 1982 data.

K. COMPARISON WITH PRIOR SURVEYS

*See Eval. Report*

The following prior survey was concluded in the area of this survey:

<u>Survey</u>	<u>Scale</u>	<u>Date</u>
H-4652a	1:20,000	1924 - 1926
H-4652b (wire drag)	1:20,000	1924 - 1925

A comparison with MI-10-1-82 and these prior surveys yields the following information:

<u>Range</u>	<u>Agreement</u>
0 - 5 fathoms	100% within 0.2 fathoms
5 - 11 fathoms	87% within 0.5 fathoms
	10% within 1.0 fathoms
	3% within 2.0 fathoms
11 - 55 fathoms	97% within 1.5 fathoms
	2% within 2.0 fathoms
	1% within 3.0 fathoms

This survey shows good agreement with the majority of the prior survey. The only areas of disagreement occur on the sudden very steep shelf drop-off. Differences in these values can be attributed to the Ross 5000 Recorder's inability to pick up an adequate trace after 50 fathoms in the sharp slope zone. The fathogram was scanned and depths deeper than 50 fathoms were obtained whenever possible. Features such as the shoaler 7 - 9 fathom areas discussed in section B also appear in the same approximate areas. The general depths of both show good agreement.

Minimum depths from H-4652 were confirmed. No new areas were discovered that may present a hazard to navigation.

The PSR items for MI-10-1-82 are listed below:

<u>PSR Item #</u>	<u>Description</u>	<u>Latitude</u>	<u>Longitude</u>
21	Buoy above MLW	17°45'53.60"	64°34'13.43"
22	Buoy above MLW	17°44'58.60"	64°34'23.97"

Both PSR items in this survey were searched for, but not recovered. The launch went to both positions using the Del Norte and performed a visual inspection of the area surrounding the PSR item locations. No buoy or any other type item was seen at either location. The Photobathymetry Branch in Rockville stated that the PSR item labeled as buoy at MLW appears to be the size and shape of fish or lobster floats and of a temporary nature. It was concluded from the investigation of the PSR's that this was more than likely the case, considering the large number of such buoys in other areas. It is recommended that these objects be deleted from the current

*CONCUR*

shoreline manuscript (TP-00005) for this survey and not be charted.

L. COMPARISON WITH THE CHART

<u>Chart No.</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<i>See Eval. Report</i>
25641	18th ED.	28 Nov 81	1:100,000	

The comparison between Chart 25641 and this survey shows 99% agreement within 1.0 fathom for depths between 11 - 55 fathoms. It shows excellent agreement for shoaler depth of 0 - 11 fathoms. The only exceptions to this agreement occurred in the area outlined by  $64^{\circ}33'30''$  to  $64^{\circ}32'45''$ , and  $17^{\circ}47'30''$  to  $17^{\circ}48'00''$ , in a shoal area outside Lang Bank. At this section the chart appears shoaler by approximately 3 fathoms. The chart shows values of 5.5 - 7.5 fathoms and the current survey shows depths of 8.5 - 11 fathoms. These shoaler depths may be isolated coral heads. It is recommended that the shoaler wire drag values from the prior surveys be brought forward onto this survey.

M. ADEQUACY OF SURVEY

This survey is considered sufficiently complete and adequate to supercede prior surveys with the exception of the area mentioned in section L outlined by  $64^{\circ}33'30''$  to  $64^{\circ}32'45''$ , and  $17^{\circ}47'30''$  to  $17^{\circ}48'00''$ . In this area it is recommended that the shoaler depths obtain from the wire drag survey be forwarded to the new chart.

*Concur. Wire-drag soundings and groundings carried forward to present survey.*

N. AIDS TO NAVIGATION

None.

O. STATISTICS

Position Number	=	3337
Nautical Mile of Mainscheme Hydrography	=	368.5 N. Miles
Nautical Mile of Crossline Hydrography	=	58.6 N. Miles
Nautical Mile of Development Hydrography	=	29.4 N. Miles
Nautical Mile of Total Hydrography	=	456.5 N. Miles
Square Mile of Hydrography	=	20.5 N. Miles
Bottom Samples	=	77
Tide Stations	=	2
Nansen Cast	=	2

P. MISCELLANEOUS

The steepness of the slope on the shelf drop-off frequently affected the ability of the Ross 5000 Depth Recorder to receive accurate soundings deeper than 50 fathoms whenever possible soundings deeper than 50 fathoms were obtained.

The photobathymetry T-Sheet (TP-00005) was very helpful in both delineating the shoreline and in providing the OIC of the launch valuable assistance in navigating dangerous shoal areas. A comparison of the photobathymetry with the field sheet is as follows for depth from 0 - 3 fathoms:

63% are within 0.2 fathoms

26% are within 0.3 fathoms

4% are within 0.4 fathoms

7% are within 1.0 fathoms

The depths around 3 fathoms or deeper show the largest disagreement. Depths of less than 2 fathoms show excellent agreement.

Q. RECOMMENDATIONS

None.

R. AUTOMATED DATA PROCESSING

		<u>Date</u>
RK 111	Range-range Real Time Hydroplot	01/30/76
RK 112	Hyperbolic Range-Range Real Time Hydroplot	08/04/81
RK 116	Range-Azimuth Real Time Hydroplot	08/24/81
FA 181	Range-Azimuth Hydrolog	02/23/78
RK 201	Grid, Signal & Lattice Plot	04/18/75
RK 211	Range-Range Off Line Plot	01/15/76
RK 212	Visual Station Table Load	02/27/81
RK 216	Range-Azimuth Non Real Time Plot	02/09/81
RK 300	Utility Computations	10/21/80
RK 330	Data Reformat and Check	05/04/76
PM 360	Electronic Corrector Abstract	02/02/76
AM 500	Predicted Tide Generator	11/10/72
RK 530	Velocity Correction Computation	05/10/76

AM 602	Extended Line Oriented Editor	05/21/75
RK 612	High Speed Printout	03/23/78

S. REFERENCES TO REPORTS

Horizontal Control Report OPR-II49-MI/PE-81/82

Coast Pilot Report OPR-II49-MI/PE-82

Range/Azimuth Calibration Program Documentation for HP 9815 A/S

Respectively submitted,

*Kenneth W. Sevin, LT. NOAA*

*for*  
Amy E. Orris

ENS, NOAA

APPENDIX F

LIST OF STATIONS



SIGNAL NAMES/NUMBER LISTING

Source AMC OPS OA/CAM101 OPR-1149-MI/PE-82

		<u>Field Comp.</u>	<u>Source Quad #</u>	<u>STA #</u>	<u>Recovered</u>
100	East Point	1980			MI 82
200	Buck Island Light	*			MI 82
610	DALL	*			MI 82
700	FANCY 1919	1982	170644	1043	MI 82
<i>300</i>	<i>BAET</i>	<i>1919</i>			

SIGNAL TAPE LIST

MI-10-1-82 (H-10002)

100-4-17-45-28995-064-34-0244<sup>50</sup>~~3~~-250-0067-000000

200-4-17-47-1998<sup>77</sup>~~7~~-064-37-101<sup>115</sup>~~73~~-250-0110-000000

610-4-17-45-1267<sup>3</sup>~~9~~-064-34-0670<sup>5</sup>~~7~~-250-0014-000000

700-4-17-43-30094-064-38-24757-250-0000-000000

**300 17 45 29320 064 34 3205 139 0067**

APPENDIX I

LANDMARKS FOR CHARTS

NOAA FORM 76-40  
(8-74)

Replaces C&GS Form 567.

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

The following objects HAVE  HAVE NOT  been inspected from seaward to determine their value as landmarks.  
OPR PROJECT NO. \_\_\_\_\_

JOB NUMBER \_\_\_\_\_

SURVEY NUMBER \_\_\_\_\_

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

### NONFLOATING AIDS OR LANDMARKS FOR CHARTS

DATE \_\_\_\_\_

LOCALITY \_\_\_\_\_

STATE \_\_\_\_\_

**ORIGINATING ACTIVITY**

- HYDROGRAPHIC PARTY
  - GEODETIC PARTY
  - PHOTO FIELD PARTY
  - COMPILATION ACTIVITY
  - FINAL REVIEWER
  - QUALITY CONTROL & REVIEW GRP.
  - COAST PILOT BRANCH
- (See reverse for responsible personnel)

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

OFFICE \_\_\_\_\_

FIELD \_\_\_\_\_

CHARTS  
AFFECTED \_\_\_\_\_

**POSITION**

LATITUDE \_\_\_\_\_ LONGITUDE \_\_\_\_\_  
D.M. Meters      D.P. Meters

**DESCRIPTION**  
(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses)

NO AIDS OR LANDMARKS OCCUR

IN THE SURVEY AREA.

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	
POSITIONS DETERMINED AND/OR VERIFIED	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64)	
<b>OFFICE</b> <b>I. OFFICE IDENTIFIED AND LOCATED OBJECTS</b> Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	<b>FIELD (Cont'd)</b> <b>B. Photogrammetric field positions* require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.</b> EXAMPLE: P-8-V 8-12-75 74L(C)2982
<b>FIELD</b> <b>I. NEW POSITION DETERMINED OR VERIFIED</b> Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection P - Photogrammetric Vis - Visually 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant	<b>II. TRIANGULATION STATION RECOVERED</b> When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75
<b>A. Field positions* require entry of method of location and date of field work.</b> EXAMPLE: F-2-6-L 8-12-75	<b>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH</b> **PHOTOGAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	

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.

*J. Austin Yeager*

J. AUSTIN YEAGER

CAPTAIN, NOAA

Commanding Officer

JULY 9, 1982

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

*TIDE IN HP9935 folder*

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: ATLANTIC Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 975-1364 CHRISTIANSTED, V.I.  
975-1401 LIMETREE BAY, V.I.

Period: FEBRUARY 22-APRIL 3, 1982

HYDROGRAPHIC SHEET: H-10002

OPR: I-149

Locality: EAST COAST OF ST. CROIX, V.I.

Plane of reference (mean lower low water): 975-1364 = 3.65 FT  
975-1401 = 2.27 FT

Height of Mean High Water above Plane of Reference is 975-1364 = 0.81 FT  
975-1401 = 0.72 FT

REMARKS:

RECOMMENDED ZONING:

- 1) NORTH OF 17°45.5' ZONE DIRECT ON 975-1364 CHRISTIANSTED, V.I.
- 2) SOUTH OF 17°45.5' ZONE DIRECT ON 975-1401 LIMETREE BAY, V.I.

*James R. Hubbard*  
Chief, Datums and Information Branch



GEOGRAPHIC NAMES

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND McNALLY ATLAS	U.S. LIGHT LIST			
CARIBBEAN SEA										1	
EAST END BAY										2	
EAST POINT										3	
ISAAC BAY										4	
ISAAC POINT										5	
LANG BANK										6	
POINT CUDEJARRE										7	
SAINT CROIX										8	
U.S. VIRGIN ISLANDS (title)										9	
										10	
										11	
										12	
										13	
										14	
										15	
										16	
										17	
										18	
										19	
										20	
										21	
										22	
										23	
										24	
										25	

Approved:

*Charles E. Huntington*  
Chief Geographer

DEC 17 1985

LETTER TRANSMITTING DATA

MOA 23-38-86

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/CGO  
NATIONAL OCEAN SERVICE, NOAA  
ROCKVILLE, MD 20852

DATE FORWARDED

10 APRIL 86

NUMBER OF PACKAGES

(2) 1 TUBE, 1 BOX

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-10002, (OPR I 149), MI-10-1-82, US VIRGIN ISLANDS

PKG #1 (TUBE)

- 1 Smooth SHEET
- 1 Smooth POSITION OVERLAY
- 2 EXCESS OVERLAYS
- 1 ORIGINAL DESCRIPTIVE REPORT

PKG #2 (BOX)

- 1 CARRIER CONTAINING FINAL POSITION PRINTOUT
- 1 CARRIER CONTAINING FINAL SOUNDING PRINTOUT + L-FILE PRINTOUT
- 1 ENVELOPE WITH SUPPLEMENTAL DATA FROM DESCRIPTIVE REPORT
- 1 ENVELOPE WITH SUPPLEMENTAL DATA FROM PRINTOUT

FROM: (Signature) D. a. Wise

FOR CDR, DAVID B. MACFARLAND, NOAA

Return receipted copy to:

ATLANTIC MARINE CENTER  
HYDROGRAPHIC SURVEYS BRANCH (N/MOA23)  
439 W. YORK STREET  
NORFOLK, VIRGINIA 23510

RECEIVED THE ABOVE  
(Name, Division, Date)

Dwayne S. Clark  
April 23, 1986  
N/CG243

HYDROGRAPHIC SURVEY STATISTICS  
REGISTRY NO.: H-10002

Number of positions	3147
Number of soundings	15963
Number of control stations	5

	<u>TIME-HOURS</u>	<u>DATE COMPLETED</u>
Preprocessing Examination	43	16 JUN 82
Verification of Field Data	458	15 NOV 85
Quality Control Checks	75	
Evaluation and Analysis	22	13 JAN 86
Final Inspection		24 JAN 86
TOTAL TIME	604	
Marine Center Approval		5 FEB 86

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

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ATLANTIC MARINE CENTER  
EVALUATION REPORT

REGISTRY NO.: H-10002

FIELD NO.: MI-10-1-82

U.S. Virgin Islands, St. Croix, Off East Point

SURVEYED: March 28 through April 14, 1981  
February 22 through April 3, 1982

SCALE: 1:10,000

PROJECT NO.: OPR-I149-MI/PE/82

SOUNDINGS: Ross Model 5000  
Fineline Echo Sounder

CONTROL: Range/Azimuth -  
Del Norte/Theodolite  
Range/Range -  
Del Norte

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

Surveyed by ..... L. A. LaPine  
..... K. W. Perrin  
..... E. S. Varney  
..... K. P. Peters  
..... F. W. Rossmann  
..... R. D. Henegar  
..... J. Zabitchuck  
..... A. N. Flior  
..... D. I. Crews  
..... A. E. Orris  
..... B. L. Coakley

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

1. INTRODUCTION

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

2. CONTROL AND SHORELINE

- a. The source of control is adequately described in the Descriptive Report.
- b. Shoreline originates with Class III registered shoreline/photo-bathymetry map TP-00005 of 1977. The map consists of two parts, the shoreline map and a photobathymetric overlay.

c. Inshore soundings in red were determined by photobathymetric methods using photographs of 1977. These soundings were transferred from the map overlay and provide supplemental information for areas not covered by the hydrographic survey.

### 3. HYDROGRAPHY

a. Depths at crossings are in good agreement.

b. In some areas, supplemental brown depth curves and a dashed depth curve were added to more adequately define the bottom configuration. Depth curves inshore of 5-fathom depths were transferred from the photobathymetric overlay.

c. The development of the bottom configuration and the determination of least depths are considered adequate, except in the vicinities of latitude  $17^{\circ}44.1'N$ , longitude  $64^{\circ}33.1'W$  and latitude  $17^{\circ}48.05'N$ , longitude  $64^{\circ}33.05'W$  where least depths on some shoal features are still uncertain.

### 4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records, and reports are adequate and conform with the requirements of the Hydrographic Manual. However, it was necessary for the verifier to rescan some areas and select additional soundings to provide a more complete portrayal of the bottom configuration.

### 5. JUNCTIONS

An adequate junction was effected with H-9936 (1981) and H-10006 (1982) on the west, with H-10003 (1982) on the east, and with H-10004 (1982) on the north and south during the evaluation of those surveys.

### 6. COMPARISON WITH PRIOR SURVEYS

#### a. H-4652a (1924-1926) 1:20,000

This prior survey covers the entire area of the present survey. A detailed comparison between prior and present depths reveals differences of less than 1 fathom in random areas throughout the survey. The differences are attributed largely to the methods of surveying.

Significant differences in the portrayal of the shoreline and fringing reef are noted between the prior and present surveys. The delineation of these features as depicted on the present survey discredit the prior information.

The present survey is more comprehensive and portrays the irregular bottom in much greater detail. The present survey is adequate to supersede the prior survey within the common area.

b. H-4652b (1924-1925) 1:20,000

A portion of this wire-drag survey covers the area of the present survey. No conflicts between present depths and effective wire-drag depths were found.

Some soundings and groundings have been brought forward to supplement present hydrography.

7. COMPARISON WITH CHART 25641 (18th Edition, November 28, 1981)a. Hydrography

The charted hydrography primarily originates with the previously discussed surveys which need no further consideration, supplemented by some depths from miscellaneous sources.

The 7½-fathom sounding charted at latitude 17°47.6'N, longitude 64°33.5'W from a miscellaneous source falls in present depths of 10.5 to 11 fathoms. Although a specific investigation of this sounding was not made, the general depths in this area discredit the possibility of a feature at this position. An effective drag depth of 58 feet (9.9 fathoms) cleared this area on the prior wire-drag survey.

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

b. Aids to Navigation

There are no charted aids to navigation in the area of the present survey.

8. COMPLIANCE WITH INSTRUCTIONS


This survey adequately complies with the project instructions, except as noted in sections 3 and 4 of this report.

9. ADDITIONAL FIELD WORK

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



F. L. Saunders  
Cartographic Technician  
Verification of Field Data



George K. Myers  
Chief, Standards Section (N/CG242)  
Hydrographic Surveys Branch




Leroy B. Cram  
Supervisory Cartographic Technician  
Verification Check

Certification of Digital Data  
H-10002

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, sounding and digitized data printouts of the survey have been made.

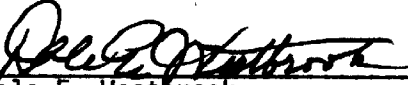
Certified: 9 April 1986

  
\_\_\_\_\_  
Robert G. Roberson  
Chief, Evaluation and Analysis Group


Inspection Report  
H-10002

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 survey complies with National Ocean Service (NOS) requirements except as noted in the Evaluation Report. The survey records comply with NOS requirements except where noted in the Evaluation Report.

Inspected

  
\_\_\_\_\_  
Dale E. Westbrook  
Deputy Chief, Hydrographic Surveys  
Branch (N/CG24x1)

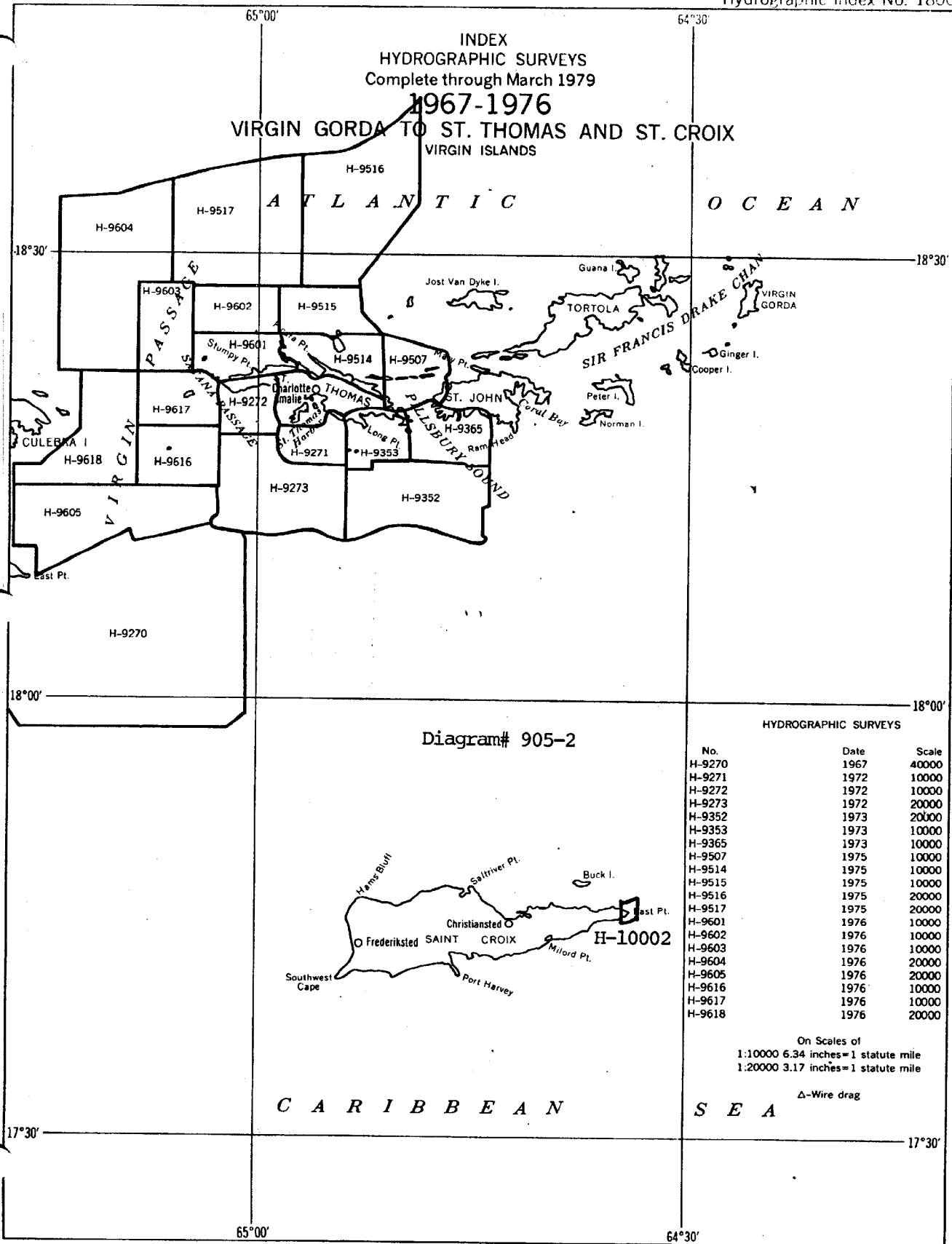
Approved

  
\_\_\_\_\_  
Wesley V. Hull, RADM, NOAA *For*  
Director, Atlantic Marine Center



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

Hydrographic Index No. 180C



INDEX  
HYDROGRAPHIC SURVEYS  
Complete through March 1979  
**1967-1976**  
VIRGIN GORDA TO ST. THOMAS AND ST. CROIX  
VIRGIN ISLANDS

Diagram# 905-2

HYDROGRAPHIC SURVEYS

No.	Date	Scale
H-9270	1967	40000
H-9271	1972	10000
H-9272	1972	10000
H-9273	1972	20000
H-9352	1973	201000
H-9353	1973	10000
H-9365	1973	10000
H-9507	1975	10000
H-9514	1975	10000
H-9515	1975	10000
H-9516	1975	20000
H-9517	1975	20000
H-9601	1976	10000
H-9602	1976	10000
H-9603	1976	10000
H-9604	1976	20000
H-9605	1976	20000
H-9616	1976	10000
H-9617	1976	10000
H-9618	1976	20000

On Scales of  
1:10000 6.34 inches = 1 statute mile  
1:20000 3.17 inches = 1 statute mile

Δ-Wire drag

MARINE CHART BRANCH  
**RECORD OF APPLICATION TO CHARTS**

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10002

**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
25636	6-11-86	Ken Rauscher	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. 1
25634	6-12-86	Ken Rauscher	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. 1
25641	6-12-86	J. Sherman	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. 31
25640	6-12-86	J. Sherman	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. 35
25641	5-10-90	Ed Martin	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. 31 <del>Recap</del>
25640 <del>25641</del>	6-27-90	Ed Martin	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. 35 thru 25641 dng 31
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.