9618

Diag. Cht. No. 904-2

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

(HYDROGRAPHIC)

Type of Survey HYDROGRAPHIC

Field No. WH-20-3-76

Office No. H-9618

LOCALITY

State U.S. VIRGIN ISLANDS

General Locality VIRGIN PASSAGE

Locality BAJOS GRAMPUS AND VICINITY

1976

CHIEF OF PARTY
R.A. Trauschke

LIBRARY & ARCHIVES

DATE 9/12/77

☆ U.S. GOV. PRINTING OFFICE: 1975—668-353

9618

Charts 25650

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-9618

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.

WH-20-3-76

State U.S. VIRGIN ISLANDS

General locality VIRGIN PASSAGE

Locality BAJOS GRAMPUS AND VICINITY ~~East of Culebra Island~~

Scale 1:20,000 Date of survey JD 080 091 20 March to 31 March 19 76

Instructions dated October 16, 1975 Project No. OPR-423-WH-76

Vessel NOAA Ship WHITING; Launches 2930 and 2931

Chief of party CDR. R. A. Trauschke

Surveyed by R.A. Trauschke, J.W. DeCoste, D.W. Yeager, P.R. Chelgren, J.G. Gofus, G.M. Barone, V.E. Newell, D.M. Goodrich

Soundings taken by echo sounder, ~~hand lead, pole~~

Graphic record scaled by WHITING Personnel

Graphic record checked by WHITING Personnel Verification Branch (AMC)

Protracted by N/A Automated plot by FOP(HOIC) CALCOMP 618 Hydroplot System

Verification by L.G. Cram

Soundings in ~~fathoms~~ feet at MLW ~~MLLW~~

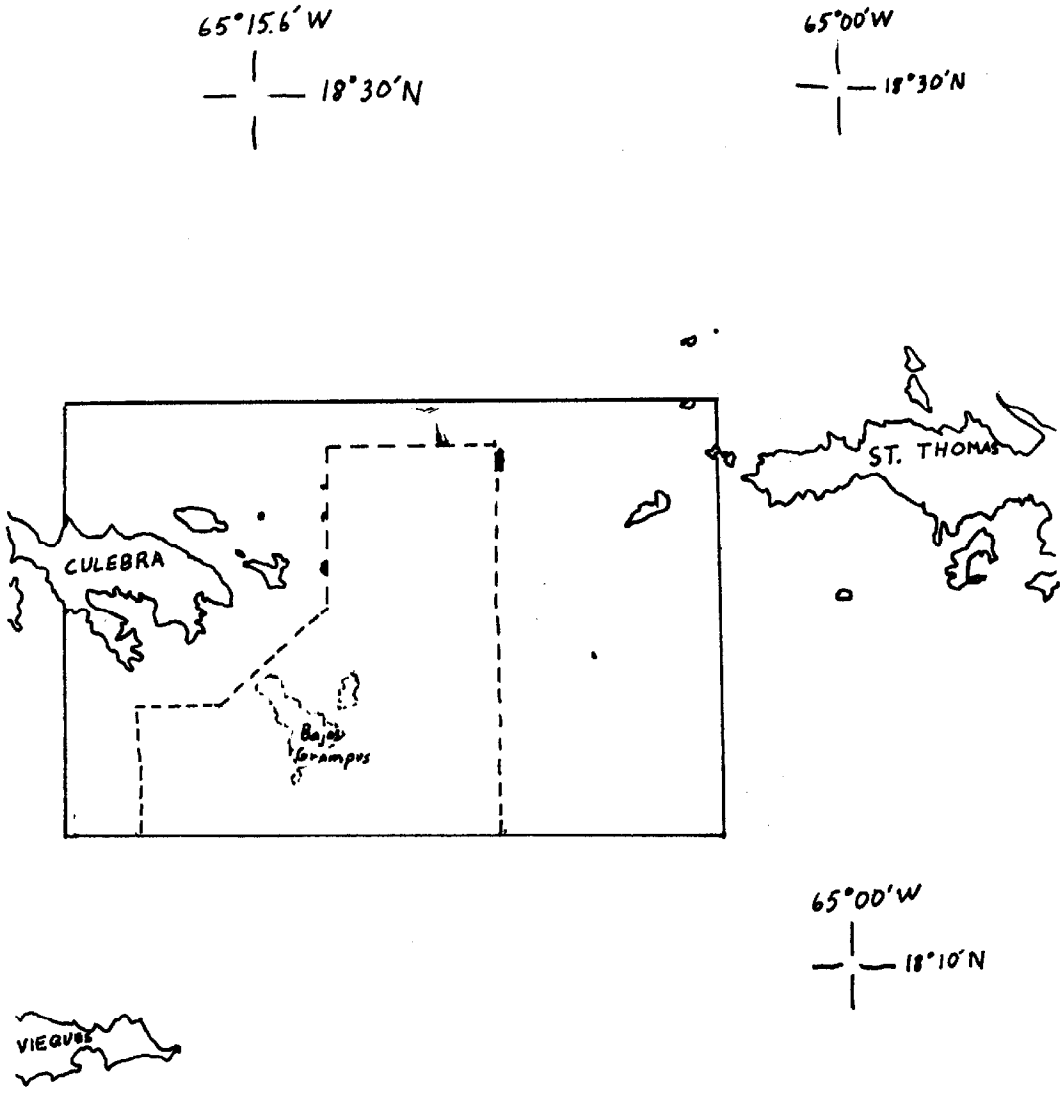
REMARKS: All times are GMT (0° time meridian)

All changes in red by L.G. Cram at time of verification

Appvd to standards
3-20-78
WST

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U.S. GPO: 1974-0-765-081/1207



WH-20-3-76

SHEET LIMITS

From Chart 25650
as reduced in Project Instructions

Descriptive Report to Accompany
Hydrographic Survey H-9618
Field No. WH-20-3-76

A. PROJECT

This survey was conducted in accordance with Project Instructions OPR-423-WH-76, Virgin Islands, dated October 16, 1975, as supplemented by Change No. 1 dated January 20, 1976.

B. AREA SURVEYED

The area surveyed is approximately 3 miles South and East of Culebra Island, with the nearest adjacent shoreline being Culebra and Culebrita Islands. The area includes the region of coral reefs known as the Bajos Grampus.

Morphology of the bottom is generally flat in the Northern section, becoming shoaler and highly irregular in the Southern area in and around the Bajos Grampus.

The sheet overall has the following boundaries:

Latitude (North)	18° 13.0'	- 18° 23.0'
Longitude (West)	65° 03.0'	- 65° 18.5'

The survey was conducted from March 20, 1976 (Julian Day 080) to March 31, 1976 (J.D. 091). Main scheme line spacing was 400 meters except in areas of less than 125 feet, where 200 meters spacing was used. The Bajos Grampus area was done entirely with 200 meter spacing with most regions split to 100 meters and extensive development of shoal areas.

C. SOUNDING VESSEL

The NOAA Ship WHITING CSS 29, performed all survey operations outside of the Bajos Grampus. In the reef area, the survey was conducted by WHITING Launch 1. EDP numbers of the ship and the Launch were 2930 and 2931 respectively.

Soundings were plotted on-line by the WHITING while Launch operated in non-automated mode. Output from the Launch was in Digital Control Unit (DCU) format.

D. SOUNDING EQUIPMENT

The depth recorder used by the WHITING was a Ross Model 5000, serial neumber 1049; the digitizer a Ross Model 6000, S/N 1055; and the transmitter a Ross Model 4000, S/N 1055. Calibrations were taken frequently during the operations; any initial error was taken into account during scanning of the fathograms. Squat and settlement corrections for the WHITING were obtained from October 1973 trials of the same ship. phase line (initial) was noted to vary greatly! See day #184, 85, 86 fathograms.

Two leadline comparisons with this fathometer were taken in shallow (70 feet) water. After applying velocity corrections and correcting for transducer draft, differences between leadline casts and fathometer readings were negligible (less than 1 %).

The recorder used by the Launch was a Raytheon Model 723 D echo sounder, S/N 37018. Frequent A-F scale checks were performed and initial was closely monitored. Squat and settlement data was taken from trials run in May 1976. It should be noted that a transducer draft of 2.0 feet for the Launch was

erroneously inserted on all corrector tapes. The true draft is 1.5 feet and a correction has been inserted on the TC/TI tape.

A bar check was performed on Julian Day 086 which showed negligible instrument error. Bar check results for this Launch are included in appendix to this report under "Abstract of Corrections to Echo Soundings".

Velocity corrections are based on three Nansen casts and a TDC cast taken at the following dates and locations:

Nansen casts :	March 8, 1976	18° 32.6' N 65° 16.8' W
	March 12, 1976	18° 08.0' N 65° 10.1' W
	March 26, 1976	18° 09.0' N 65° 11.0' W
TDC cast :	March 4, 1976	18° 19.9' N 65° 01.1' W

Corrections produced from these casts are essentially identical. Data from the casts was used to compute sound velocity at depth by means of program RK 530 with curve fit option. Transducer draft was

taken into account. This output information was then graphed and depth intervals for which particular corrections were to be applied were scaled off (ref. Provisional Hydorgraphic Manual). Intervals and their corrections were then made up into a velocity correction tape which was used in final plots.

E. HYDROGRAPHIC SHEETS

The smooth (boat) sheets were prepared by WHITING personnel using two Houston Instruments Roll Plotter, a Model DP-3-5, S/N 5557-6 and a Model DP-3, S/N 4680-3.

The survey area was divided into two plotter sheets at 18° 17' 54". An additional 1:10,000 inset of the developments in the Bajos Grampus area is enclosed. There is no redundancy between any of the three sheets.

Velocity corrections and static draft corrections have been applied to the soundings. Electronic position corrections have been applied during the plotting.

The sheets will be sent to Atlantic Marine

Center, Norfolk, Virginia for verification and smooth plotting.

F. CONTROL STATIONS

The following were used as electronic control stations:

Name	EDP Number	Locations
EL VIGIA USE, 1966 △	148	Culebra Is.
OLD LADY, 1972 ⊙	150	St. Thomas Is.
SOLDADO 2, 1926 △	152	Culebra Is.
EAST END, 1900 △	158	Vieques Is.

All stations are monumented, recoverable and conform to 3rd order standards. Puerto Rico datum is used throughout.

G. HYDROGRAPHIC POSITION CONTROL

Position control was accomplished using the

Del Norte system, a range-range configuration. Stations were selected so that intersection of Del Norte ranges was at no time less than 30 degrees.

At times during the course of the survey, erroneous readings were obtained; however, at no time were these errors frequent enough to seriously degrade the accuracy of the survey. These errors were noted on line and later corrected on a time and course basis. Probable causes for these readings were system malfunction or foremast interference. The former would include DMU, Remote, or Master malfunction. Foremast interference refers to the fact that on certain headings the foremast passed between the remote and master units causing occasional erroneous readings.

Calibration of the system in the field was accomplished using three point fixes on the signals listed in the appendix. Pattern correctors were computed from visual and electronic fix using RK 561. Inverse distance between fixes and check fixes were compared and daily pattern correctors computed as follows:

> Fixes with inverse distances of 20 meters or less were counted once; 10-15 meter inverses, twice; 5-10 meter inverses, 3 times; and inverses of less than 5 meters were counted 4 times in averaging.

In this manner the effects of bad visual fixes were minimized. In addition, every two weeks, the system, was calibrated along a baseline of known length. In this configuration, each DMU and Master was calibrated in accordance with procedures described in the Del Norte manual.

The equipment used were as follows:

Remote Units

EDP No.	Location	Serial No.	Dates
148	El Vigia	"A" 251	Throughout Survey
150	Old Lady	"C" 218	" "
152	Soldado 2	"B" 220	" "
158	East End	"D" 222	" "

Master & DMU Units

Location	Master S/N	DMU S/N	Dates
Whiting	250	181	Throughout survey
Launch 1	278	172	Through March 20
	185	180	After March 20

All field and baseline calibrations are included in the report "Field Records for Determination of Electronic Position Correctors".

For the most part, this electronic position control was stable and consistent during the course of this survey.

H. SHORELINE

There was no shoreline covered on this survey.

I. CROSSLINES

The percentage of crosslines run on this survey was 9.4 %. Agreement with main scheme lines is excellent in the Northern area of flat bottom and good in the Southern areas in and around the Bajos Grampus. In the reef areas, the bottom is highly irregular, with depths varying considerably in the space of a few meters, thus, making perfect agreement difficult. Note: Cross lines in some areas (southeast) of the boatsheet are in serious disagreement. This is believed to be the result of a very irregular bottom. (coral)

J. JUNCTIONS

This survey junctions with contemporary surveys WH-20-1-76 (North) (H-9604); WH-20-2-76 (South) (H-9605); WH-10-4-76 (Southeast) (H-9616); WH-10-5-76 (Northeast) (H-9617) and prior survey WH-20-1-66 (Southwest) (H-8880). Junctions with surveys WH-10-4-76 and WH-10-5-76 were excellent usually 0-1 feet except, in areas of irregular relief. Soundings of WH-20-1-76 miss overlapping by approximately 100 meters, and no overlap is required (i.e. same vessel, same year). This is in an area of flat bottom and the closest soundings from WH-20-1-76 (#9604) show excellent agreement with this survey, also depth curves are continuous across sheet boundaries. Junction with WH-20-2-76 (H-9605) ~~are~~ is very good usually 0-1 feet except in areas of irregular relief. Junction soundings of WH-20-1-66 (H-8880) are consistently 4-5ft. shoaler than those of WH-20-2-76 (H-9618); this is explained by the fact that velocity corrections were not applied to the 1966 data, when velocity corrections from this year (1976) are applied to this prior survey, agreement was very good. Differences where present were no greater than 2 feet in irregular bottom.

K. COMPARISON WITH PRIOR SURVEY

The only prior survey available for comparison is H-2634 (1903) and covers the area immediately West of the Bajos Grampus. Agreement is excellent, 0-1 foot in almost every case. Comparison was made with H-2491 (1900), H-2679 (1904), H-4651a (1923), H-4590 (1925-26) wire drag, H-4231 (1922-26) W.D. and H-4793 (1922-23) W.D. during verification. See HIT Report for detailed information

One Pre-survey Review Item is contained within the limits of the sheet, an 11 fathom sounding at 18°15'21" N, 65°09'30" W. Origin; 69 ft from H-4590 WD (1925-26) A sounding of ~~66~~ 82 feet was recorded approximately 150 meters Southwest of the charted position. The 150 meters may be accounted for by error in the process of transferring the sounding from the 1:100,000 scale of the chart to the 1:20,000 scale of the survey. It is recommended that the sounding be retained on the chart ~~with its position charted as determined by this survey~~ in its charted position. During Verification it was determined that there are ~~50~~ about 20 pre-survey review items in the survey area. See HIT Report for more information.

L. COMPARISON WITH THE CHART

The survey was compared with Chart 25650 (904) & C&GS 914 7th Ed. Aug. 9/73 Virgin Passage and Sonda de Vieques, dated August 9, 1975; soundings in fathoms. Overall agreement with the chart was

good. In cases of disagreement it should be noted that a source of error exist in the process of transferring soundings from a 1:100,000 scale chart to the 1:20,000 sheets and 1:10,000 Bajos Grampus overlay. Irregular relief areas in and around the Bajos Grampus could also produce error. However, in cases of clear disagreement, it is recommended that the survey data supercede charted soundings except as noted. See Verifier's Report and Quality Control Report.

Agreement in areas of ship work outside of the Bajos Grampus was quite good except for the soundings which follow; all of which are in the vicinity of the reef:

No.	Charted(ft.)	Sheet	Latitude	Longitude	
1	~~48~~ 52	H-4293 WD 5~~4~~7	18° 15.0'	65° 13.6'	Retain charted sdgs.
2	~~78~~ 81	H-2491 8~~8~~7	18° 15.84'	65° 15.~~4~~ 35'	Disregard; bottom change
3	~~54~~ 56	H-4293 WD 87	18° 14.83'	65° 14.~~8~~ 18'	Retain charted sdg.

Sounding No. 1 was the object of several short splits and a crossline. Least depth found was 5~~4~~7 feet. Due to the possibility that this is a very small feature, it is recommended that the sounding be retained. Examination of the fathograms showed no evidence found of either sounding 2 or 3 on a 200 meter main scheme spacing; however, retention is recommended since the features could have been

Pos. 5135-5136 day 080 Rec. No. 00074

disregard; see above

between lines.

Special procedures were used in the Bajos Grampus. Along with normal 200 meter spacing with frequent splits to 100 meter spacing, additional investigations of shoal soundings in this area were undertaken; these are shown on the 1:10,000 overlay. The following are the results of these developments: In all cases where charted soundings are shoaler, it is recommended that the charted depths be retained in this area.

Charted (ft.)	Least Depth Found	Latitude approx.	Longitude approx.	Remarks
PSR ~~28.5~~ 29 H-4291 WD Retain	~~32~~ 38	18°14.8'	65°13.1'	Pos # 213-214 Special development; 32 [38] sounding found on main scheme
PSR ~~22.5~~ 23 H-4291 WD Retain	~~31~~ 31	18°15.2'	65°13.3'	Pos # 654 Special development; produced least depth
PSR ~~22.5~~ 23 H-2491	~~32~~ 21	18°15.5'	65°13.5'	Pos # 397-398 From main scheme
21 H-2491	~~22~~ 20	18°15.8'	65°13.5'	Pos # 382-383 Special development 21' sounding from main scheme
18 H-2491	~~18~~ 18	18°15.9'	65°14.0'	Pos # 703-704 Special development
PSR ~~28.5~~ 26 H-4291 WD Retain	~~50~~ 50	18°16.2'	65°~~14.0~~ 13.86'	Pos # 43-44 Indication of shoal on main scheme spacing
PSR ~~22.5~~ 23 H-4291 WD Retain	25	18°16.5'	65°13.8'	Pos # 725-726 Special development
PSR ~~25~~ 26 Retain H-4293 WD	31	18°16.7'	65°13.2'	Pos # 731-732 Special development
PSR 28.5 Retain H-4291 WD	32	18°16.5'	65°11.9'	Pos # 357-358 Special development
PSR ~~19.5~~ 20 H-4291 WD Retain	23	18°15.7'	65°12.~~8~~ 13'	Pos # 640-641 Special development
PSR* ~~22.5~~ 23 H-4291 WD	~~33~~ 53	18°15.4'	65°12.~~8~~ 16'	~~Pos # 329-330~~ From main Scheme
PSR ~~22.5~~ 23 H-4291 WD	24	18°14.9'	65°12.7'	Pos # 627-628 Special development

* Repositioned approx. 200 meters N.E. on prior survey H-4291, and carried forward. Located on known shoal.

Some evidence of all charted features in the Bajos Grampus was generated and in most cases a depth close to the charted depth was produced. Recommendation to retain charted depths where shoaler in this area is based on the fact that only wire drag is positive proof or disproof of thier existence.

Several methods were employed to try and obtain least depths over this area, among them were: reducing line spacing to as little as 25 meters, visually searching the area for indications of peaks on calm days and trying to position the launch over the peaks for D.P's, drifting back and forth over the area to try and obtain the positions of peaks, and snorkeling about over the reef searching for the peaks in this manner. All these methods were used to some degrees of sucess, however the only way to obtain a positive disposition is by wire drag.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supercede all prior surveys of the area for charting. See Quality Control Report, para 2.

N. AIDS TO NAVIGATION

Two buoys are located in the survey area; Bajos Grampus North Buoy "1", a black can and Bajos Grampus South Lighted Buoy "2", a red structure. Buoy "1" delineates the Southeast limit of a channel between Arrecife Culebrita and the Bajos Grampus with minimum depth of 9 fathoms. Buoy "2" indicates the Southern limits of the Bajos Grampus.

Detached position taken on Julian Days 84, 85 and 91 showed both buoys in their charted positions.

O. STATISTICS

Miles, WHITING (2930)	338.7
Miles, Launch 1 (2931)	110.5
Total Miles run (Hydro)	449.2
Square Miles, WHITING	28.35
Square Miles, Launch 1	4.94
Square Miles Total (Hydro)	33.29
Percentage of Crosslines	9.4 %
Number of Positions, WHITNG	1323
Number of Positions, Launch 1	593
Total Number of Positions	1916
Bottom Samples	22

P. MISCELLANEOUS

The central meridian listed in the Projection Parameters form is the central meridian of the sheet and not of the project.

Q. RECOMMENDATIONS

None

R. AUTOMATED DATA PROCESSING

Data from ship work was plotted on-line using RK 111, Range-Range Real-Time Hydroplot, version 1/30/76. Range-Range data from the Launch was converted from Digital Control Unit format to Master format using RK 330, Data Reformat and Check, version 3/12/76. Visual calibrations of Del Norte Units were obtained through RK 561, Hyperbolic and Range-Range Geodetic Calibrations, version 2/19/75.

Plotting sheets were constructed using AM 201, Grid and H/R Lattice Plot, version 4/18/75. All tapes were edited using AM 602, Extended Line-Oriented Editor (ELINORE), version 3/10/72.

S. REFERENCES TO REPORTS

The reports "Field Records for Determination of Electronic Position Correctors" and "Field Records for Determination of Corrections to Echo Soundings" will be forwarded to Atlantic Marine Center, Norfolk, Virginia, shortly after this report.

APPROVAL SHEET

Submitted by

David M. Goodrich

David M. Goodrich
Ensign, NOAA

Supervision of field and office work on this hydrographic survey was continuous on a day to day basis to ensure completeness of the survey and that all work was done in accordance with the instructions.

Approved/Forwarded

Robert A. Trauschke

Robert A. Trauschke
Cdr., NOAA
Commanding Officer, NOAA Ship WHITING

SIGNAL LIST (Entire project)

100	6	18	08	00643	065	19	03653	139	0137	000000 MATIAS
102	6	18	19	31166	065	17	26931	139	0198	000000 RESACA
104	6	18	17	05800	065	06	04150	243	0038	000000 SAIL ROCK
106	6	18	18	56478	065	13	40143	139	0092	000000 CULEBRITA LT.
108	6	18	20	21780	065	05	00170	139	0082	000000 SAVANA LT.
110	6	18	21	58232	065	03	06773	139	0000	000000 SALT
112	6	18	22	54180	065	03	44572	139	0084	000000 DUTCH
114	6	18	24	21287	065	03	38744	139	0046	000000 ROACH
116	6	18	24	37760	065	02	59352	139	0017	000000 CRICKET
118	6	18	21	43478	065	02	02519	139	0000	000000 POINT
120	6	18	21	50082	065	01	26642	139	0000	000000 BAD
122	6	18	22	12395	065	00	25273	139	0000	000000 STUMP
124	6	18	22	28585	064	59	30713	139	0000	000000 PROM
126	6	18	23	17494	064	58	35000	139	0000	000000 IN
128	6	18	24	12623	064	58	32012	139	0000	000000 OUT
130	6	18	21	16383	065	00	20020	139	0274	000000 T-95
132	6	18	22	28920	064	58	28520	139	0000	000000 GOOD
134	6	18	18	23117	065	00	07842	139	0061	000000 SABA
136	6	18	22	34096	064	55	43099	250	0100	000000 MICRO
138	6	18	21	28008	065	01	29778	250	0212	000000 VOR
140	6	18	21	51843	065	03	14300	254	0063	000000 SALT OFFSET
142	6	18	21	18009	064	55	38923	250	0244	000000 DRAKES SEAT
144	6	18	21	17132	064	55	38875	250	0244	000000 T-35 CADASTRAL
146	6	18	21	22973	064	56	42805	254	0466	000000 T-41 OFF-SET

```
148 6  18 19 31266 065 17 26979  250 0198 000000  EL VIGIA
150 6  18 20 36910 065 01 35220  254 0049 000000  OLD LADY
152 6  18 16 48190 065 17 14627  254 0020 000000 SOLDADO 2
154 6  18 18 05451 065 15 09525  254 0000 000000 BATTLE CAY
156 6  18 17 39045 065 17 01227  254 0019 000000 MARK,1966 RMI
158 6  18 08 11263 065 16 21014  250 0050 000000 EAST END
160 6  18 21 17110 065 02 31080  139 0000 000000 BLUFF,1918
```

VELOCITY TAPE LISTING

```
0001 40  0  0005  0001  000  293000  009618
000235  0  0010
000325  0  0015
000420  0  0020
000510  0  0025
000605  0  0030
000700  0  0035
000790  0  0040
000885  0  0045
000975  0  0050
001070  0  0055
001160  0  0060
001255  0  0065
001350  0  0070
001440  0  0075
001535  0  0080
001625  0  0085
001720  0  0090
001815  0  0095
001910  0  0100
002000  0  0105
002100  0  0110
002300  0  0120
002470  0  0130
002670  0  0140
002850  0  0150
```

003050 0 0160

003250 0 0170

003800 0 0200

004000 0 0210

004180 0 0220

004370 0 0230

004550 0 0240

004750 0 0250

004950 0 0260

005150 0 0270

005360 0 0280

005630 0 0290

005800 0 0300

006000 0 0310

006200 0 0320

006450 0 0330

006650 0 0340

006850 0 0350

007100 0 0360

007300 0 0370

007550 0 0380

007750 0 0390

008000 0 0400

008200 0 0410

008450 0 0420

```
008700 0 0430
008950 0 0440
009200 0 0450
009400 0 0460
999999 0 0460
```

CORRECTIONS IN FEET, FATHOMS

FORM C&GS-117 (11-68)

U.S. DEPARTMENT OF COMMERCE
ESSA
COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship WHITING CSS-29

CDR. ROBERT A. TRAUSCHKE Comdg.

These corrections are to be used

between 040 Day 19 76 and 110 Day 19 76

in the locality Virgin Passage & Coast of Virgin Islands,

for hydrographic surveys Nos. H-9601, 9602, 9603 9604, 9605, 9616, 9617, 9618

Note: These correctors are tabulated on the velocity correction table as corrections to depth, accompanying this graph.

Sheet 1 of 2

0 to 200 feet

● NANSEN CAST 12 MAR. 1976

○ NANSEN CAST 8 MAR. 1976

+ NANSEN CAST 26 MAR. 1976

(For deep water add a 0 to these figures)

DEPTHS IN ~~FATHOMS~~ FEET FROM TRANSDUCER

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0

VELOCITY CORRECTION, (FEET)

USCOMM-DC 3

CORRECTIONS IN FEET, FATHOMS

FORM C&GS-117 (11-68)

U.S. DEPARTMENT OF COMMERCE
ESSA
COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship WHITING CSS-29

CDR. ROBERT A. TRAUSCHKE Comdg.

These corrections are to be used

between 040 Day 19 76 and 110 Day 19 76

in the locality Virgin Islands,

for hydrographic surveys Nos. All OPR-423-WH-76

200 feet to 940 feet

SHeet 2 of 2

(For deep water add a 0 to these figures)

DEPTHS IN ~~FATHOMS~~ FEET FROM TRANSDUCER

200
300
400
500
600
700
800
900
1000

● NANSEN CAST 12 MAR. 1976

○ NANSEN CAST 8 MAR. 1976

+ NANSEN CAST 26 MAR. 1976

0.0 10.0 20.0 30.0 40.0 50.0

VELOCITY CORRECTION (FEET)

USCOMM-DC 31

CORRECTIONS IN FEET, FATHOMS

NOS FORM 117 (1-71)

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship WHITING CSS-29

ROBERT A. TRAUSCHKE, CDR. Comdg.

These corrections are to be used

between 040 DAY 1976 and 110 DAY 1976

in the locality VIRGIN PASSAGE

for hydrographic surveys Nos. H-96

1. THESE CORRECTIONS TAKE DRAFT OF VESSEL INTO CONSIDERATION AND APPLY TO FATHOMETER DEPTHS

2. SEE SHEET B FOR CORRECTIONS GREATER THAN 100 Fms.

(For deep water add a 0 to these figures)

DEPTHS IN FATHOMS FROM TRANSDUCER

CORR'N	TO DEPTH
.2	5.5
.4	9.5
.6	13.2
.8	16.7
1.0	20.2
1.2	24.2
1.4	29.7
1.6	31.9
1.8	35.5
2.0	39.2
2.2	43.0
2.4	46.5
2.6	50.5
2.8	54.2
3.0	58.0
3.2	61.7
3.4	65.5
3.6	69.2
3.8	73.0
4.0	76.5
4.2	80.5
4.4	84.0
4.6	88.0
4.8	91.0
5.0	95.5
5.2	99.5

NOTE - THIS TABLE IN FATHOMS

LEGEND

• NANSEN CAST 8 MARCH 1976

⊙ NANSEN CAST 12 MARCH 1976

-•- NANSEN CAST 26 MARCH 1976

SHEET A

CORRECTIONS, IN FATHOMS

CORRECTIONS IN FEET, FATHOMS

NOS FORM 117 (1-71)

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship WHITING CSS 29

ROBERT A. TRAUSCHKE Comdg.

These corrections are to be used

between _____ 1976 and _____ 1976

in the locality _____

for hydrographic surveys Nos. _____

SEE NOTES 1 & 2 ON SHEET "A".

(For deep water add a 0 to these figures)

DEPTHS IN FATHOMS

100
110
120
130
140
150
160
170

CORR'N	TO DEPTH
5.5	112.0
6.0	122.5
6.5	134.0
7.0	145.0
7.5	157.5
8.0	170.0

-·- NANSEN CAST
26 MARCH 1976
90-160 Fms.

SHEET B

5.0 6.0 7.0 8.0

CORRECTIONS — FATHOMS

DIRECT COMPARISON LOG (PROVISIONAL)

BAR CHECK X VERTICAL CAST _____

VESSEL ID NO. 2931 JUL. DATE 086 TIME _____

WIND _____ SEA _____ DEPTH UNITS _____ DRAFT 1.5' INITIAL SETTING 0.0

INSTRUMENT _____ RECORDER SERIAL NO. 37018 LATITUDE _____ LONGITUDE _____

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(P)	(Q)
				Analog Instrument Depth						Digital Instrument Depth					
Line Depth	Line Corr.	True Depth	Gain	Scale	Down	Up	Mean	Mean + Draft	Corr. (C-I)	Down	Up	Mean	Mean + Draft	Corr. (C-N)	Analog to Digital Corr. (J-P)
5		5		(A)	3.6	3.6	3.6	5.1	-0.1	3.8	3.4	3.6	5.1	-0.1	0
10		10		(0-50)	8.4	8.4	8.4	9.9	+0.1	8.2	8.2	8.2	9.7	+0.3	-.2
15		15			13.1	13.1	13.1	14.6	+0.4	12.9	13.1	13.0	14.5	+0.5	-.1
20		20			17.8	17.8	17.8	19.3	+0.7	17.5	17.9	17.7	19.2	+0.8	-.1
25		25			22.7	22.7	22.7	24.2	+0.8	22.4	21.8	22.1	23.6	+1.4	-.6
30		30			27.8	27.8	27.8	29.3	+0.7	26.8	27.3	27.0	28.6	+1.4	-.7
35		35			32.4	32.4	32.4	33.9	+1.1	31.8	32.0	31.9	33.5	+1.5	-.4
40		40			37.5	37.2	37.3	38.8	+1.2	36.8	37.3	37.1	38.6	+1.4	-.2
45		45			42.0	42.0	42.0	43.5	+1.5	41.7	41.6	41.7	43.2	+1.8	-.3

Note: (*) Corrections include velocity correction; velocity corrections are applied via velocity

M3-12
22-74

OPR 423 \

TRA CORRECTION ABSTRACT

VESSEL 2930 SHEET WH-20-3-76 REGISTRY NO. H- 9618

Jul. Day	GMT From Time	GMT To Time	Velocity Table ft/~~kts~~	Draft	Instrument Error Corr.	Initial Corr.	S&S Corr.	TRA Corr. ft/~~kts~~	Remarks
80	131808		0001	10.5	0	0	0.7	0.7	
85		135432							
85	135432	145756	0001	10.5	0	0	0.2	0.2	Reduced Speed
85	145756		0001	10.5	0	0	0.7	0.7	
91		023322							
		Note: Draft of 10.5 has already been entered on all corrector tapes.							

TRA CORRECTION ABSTRACT

VESSEL 2931 SHEET WH-20-3-76 REGISTRY NO. H-9618

Vol.	Jul. Day	GMT From Time	GMT To Time	Velocity Table ft/~~fms~~	Draft	Instrument Error Corr.	Initial Corr.	S&S Corr.	TRA Corr. ft/~~fms~~	Remarks
	82	152720		0001	2.0	0	-0.5*	0.7	0.2	
	91		174600	0001						
		* Note:	A draft of 2.0 feet has been erroneously entered on all corrector							
			tapes. Since the true draft is 1.5 feet, a correction of -0.5 feet							
			has been entered on the TC/TI tape.							

Field Tide Note

No field tides were applied to this survey as tide ranges were very small. However, the following tide gages were installed in support of the project.

Name	Latitude	Longitude	Dates of Operations (1976)
Botany Bay St. Thomas	18°21.2' N	65°02.0' W	Jan. 3 - Feb. 1 Feb. 9 - Apr. 17
Fortuna Bay St. Thomas	18°20.8' N	65°01.0' W	Feb. 8-9 Feb. 13 - Mar. 5 Mar. 8 - Apr. 12
Stumpy Bay St. Thomas	18°21.9' N	65°00.8' W	Feb. 8 - Feb. 23 Feb. 26 - Mar. 12 Mar. 15 - Apr. 17
Culebrita Is. Puerto Rico	18°18.9' N	65°13.9' W	Feb. 25 - Apr. 3 Apr. 4 - Apr. 7
Vieques Is.	18°08.8' N	65°18.5' W	Mar. 8 - Apr. 6

Marigrams and levelling records have been forwarded to Oceanographic Division C331. Smooth tides and zoning have been requested from Rockville, to be sent to processing division, Atlantic Marine Center for application to smooth sheets.

8/30/76

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 Form 362

Tide Station Used (NOAA Form 77-12): Fortuna Bay, St. Thomas

Period: March 20 - 31, 1976

HYDROGRAPHIC SHEET: H-9618

OPR: 423

Locality: Virgin Passage, off Culebra Island

Plane of reference (mean ~~lower~~ diurnal low water): 0.0 ft.

Height of Mean High Water above Plane of Reference is 1.0 ft.

Remarks: Zone direct.

James R Hubbard
for Chief, Tides Branch

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-9618

GEOGRAPHIC NAMES

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	
BAJOS GRAMPUS										1
CAYO NORTE										2
CAYOS GENIQUÍ										3
ISLA CULEBRITA										4
ISLA DE CULEBRA										5
VIRGIN PASSAGE										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
					APPROVED					17
					Chas. E. Harrington					18
					STAFF GEOGRAPHER - C51x2					19
					4 Nov 1977					20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

☆ U.S. G.P.O. 1972-769-565/516 REG.#6

APPROVAL SHEET
FOR
SURVEY H- 9618

A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ been made.

B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Provisional Hydrographic Manual. Exceptions are listed in the Verifier's Report.

Date: August 9, 1977

Signed: William L Downs

Title: Chief, Verification Branch

NOAA FORM 77-27
(9-72)
(PRESC. BY HYDROGRAPHIC MANUAL 20-2, 6-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9618

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS 3 B/S overlays (2 parts)	1
DESCRIPTIVE REPORT	1	OVERLAYS (preliminary)	73

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	2		1-smooth			1 -misc.data
CAHIERS	1		1 -with depth records			
VOLUMES	2					
BOXES						

T-SHEET PRINTS (*List*) NONE — 2-chart markups

SPECIAL REPORTS (*List*) NONE

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				1916
POSITIONS CHECKED		192	19	
POSITIONS REVISED		20	2	
DEPTH SOUNDINGS REVISED		200	20	
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS			4	
JUNCTIONS		44	2	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		88	2	
SPECIAL ADJUSTMENTS				
ALL OTHER WORK			12	
TOTALS		132	20	

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY F. Saunders	06/24/76	06/30/76
VERIFICATION BY M. Hickson, C. Meekins, L. Cram	10/04/76	05/10/77
REVIEW BY L. G. Cram Hydrographic Inspection Team, AMC	06/06/77 06/29/77	06/10/77 07/01/77

Q.C. R.W. Derkazarian 77 hrs Nov 2, 1977 + 4 hrs

Critique 8 hrs 3-3-78 DMH

U. S. GOVERNMENT PRINTING OFFICE: 1974--655072/1008 REGION NO. 6

Reg. No. H-9618

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey the following shall be completed:

CARDS CORRECTED

DATE _____ TIME REQ'D _____ INITIALS _____

REMARKS: pos.

35	175	701
43	315	745
99	339	5211
103	365	5368
104	382	
106	644	
140	654	
149	655	

Reg. No. _____

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE 6-16-82 TIME REQ'D. _____ INITIALS JAC

REMARKS:

H-9618

Information for Future Presurvey Reviews

Future surveys should expect little change in the area of this hard and rocky bottom survey.

Position Index		Bottom Change Index	Use Index	Resurvey Cycle
Lat.	Long.			
181	651	1	2	50 years
181	652	2	2	50 years
182	651	2	1	50 years
182	652	2	1	50 years

ATLANTIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO. H-9618 FIELD NO. WH-20-3-76

Virgin Islands, Virgin Passage, East of Culebra Island

SURVEYED: March 20 through March 31, 1976

SCALE: 1:20,000 PROJECT NO.: OPR-423

SOUNDINGS: Ross Fineline Recorder and Raytheon 723D CONTROL: Del-Norte (Range-Range)

Chief of Party ..... R. A. Trauschke
Surveyed by ..... R. A. Trauschke
..... J. W. DeCoste
..... D. W. Yeager
..... P. R. Chelgren
..... J. G. Gofus
..... G. W. Barone
..... V. E. Newell
..... D. M. Goodrich
Automated Plot by ..... Calcomp Plotter #618 (AMC)
Verified and Inked by ..... L. G. Cram
July 14, 1977

1. Introduction

a. No unusual problems were encountered during verification, except as noted within the Descriptive Report.

b. The projection parameters were changed at the time of verification.

2. Control and Shoreline

a. The source of the control is adequately described in the Descriptive Report.

b. Shoreline was transferred to this survey, in brown, from Chart #914.

3. Hydrography

a. Soundings at crossings were generally within the one to two foot range. There is an area, however, where crossings vary by greater amounts. In the southeast section of the sheet, P.A., latitude 18° 15' to 18° 17' and longitude 65° 09' to 65° 11', there appears to be an area where

sharp coral formations occur. There are as many as four deeps and four peaks from seven to eleven feet every 16 seconds. The crosslines in this area sometimes vary by this amount.

b. The depth curves were completed without problems.

c. In the area of the feature known as "Bajos Grampus", the field split half of the 200 meter line spacing to 100 meters. Additional lines would have been desirable to delineate the 60 foot curve with 100 meter line spacing; however, the coral heads which make up Bajos Grampus were diligently searched for.

Individual items will be discussed under the "Comparison with Prior Surveys" and "Comparison with Charts" sections of this report. See the Quality Control Report, para 3.

Except for the above mentioned items the area appears adequate in the development of least depths and bottom configuration.

4. Condition of Survey

The smooth sheet and accompanying overlays, hydrographic records, and reports are adequate to conform to the requirements of the Provisional Hydrographic Manual, with the following exceptions:

a. The gain on the DE-723 fathometer used by the WHITING launch was too high. This fathometer (s/n 37018) did not function properly during its use on this survey. There are torn sprocket holes, bad paper alignment, and stylus problems on the fathograms.

It was determined that these problems did not appreciatively effect the quality of the survey; therefore, no corrections were applied.

b. The Descriptive Report lists only one Pre-survey Review Item, when in fact there are 20 or more; however, most of these were properly disposed of in accordance with the Provisional Hydrographic Manual (Chapter 4, page 4-25, Section 4.2.8.) This was discussed with the Operations Officer of the vessel which did the survey, as to the other PSR Items. The PSR was originally dated 1961 and updated last in 1976. For some reason this one page of the PSR was neglected, lost, or misplaced.

5. Junctions

This survey junctions with:

H-9604 (1976) to the north
H-9617 (1976) to the northeast
H-9616 (1976) to the southeast
H-9605 (1976) to the south
H-8880 (1966) to the southwest

All junctions were completed and curves brought into coincidence.

6. Comparison With Prior Surveys

H-2490 (1900) 1:40,000
H-2672 (1904) 1:40,000

a. H-2491 (1900) 1:10,000
H-2634 (1903) 1:20,000
H-2674 (1904) 1:20,000
H-4651a (1923-26) 1:20,000
H-4598 (1924) 1:40,000

Comparison between the prior surveys and the present survey indicates that the current survey is deeper in several areas by one to five feet within the common area. This can be attributed to natural changes and could be accounted for by the increased accuracy of control on the present survey, as well as the datum adjustments prior to 1902.

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

b. H-4291WD (1922-26) 1:40,000
H-4293WD (1922-23) 1:20,000
H-4590WD (1925-26) 1:40,000
H-4561bWD (1923-26) 1:20,000

See Quality Control Report, para 3.

There were 2/3 wire drag hangs and groundings which were added to the present survey from these ~~three~~ wire drag surveys. They appear shoaler than any sounding found on the present survey.

The following is a partial list of wire drag soundings carried forward:

(1) 56', P.A., latitude 18° 14.83' and longitude 65° 14.21'/18; least depth on regular hydro line is 89' H-4293WD

(2) 46', P.A., latitude 18° 16.45' and longitude 62 65° 14.32'; least depth on regular hydro line is 67' H-4293WD

PSR (3) 26', P.A., latitude 18° 16.7' and longitude 65° 13.21'; least depth on regular hydro line is 56' 31' (not shown) H-4293WD

PSR (4) Two 68', P.A., latitude 18° 17.0' and longitude 65° 12.0'; least depth on regular hydro line is 76' H-4590 WD

(5) 75', P.A., latitude 18° 18.93' and longitude 65° 09.23'; least depth on regular hydro line is 79' H-4590WD

(6) 69', P.A., latitude 18° 15.4' 35 and longitude 65° 09.8' 47; least depth on regular hydro line is 75' H-4590 WD

(7) 84', P.A., latitude 18° 17.2' 1 and longitude 65° 10.4' 38; least depth on regular hydro line is 89' H-4590 WD

(8) 82', P.A., latitude 18° 14.77' and longitude 65° 09.67'; least depth on regular hydro line is 96' H-4590 WD

It is felt that these items and on some of the wire drag charted depths, the differences can be attributed to the natural bottom changes and the more accurate control methods used on this survey, as well as datum shifts. However, some of these wire drag soundings (numbers 1, 2, 3, 4, and 8 above) should be closely examined before recharting of the wire drag depths. This para superseded.

7. Comparison With Charts 914, 7th Edition, August 4, 1973 and 25650 (C&GS 904), 20th Edition, August 9, 1975

a. Hydrography

Most of the charted information comes from the prior surveys previously discussed, which require no further consideration. There appears to be an area, P.A., latitude 18° 14.0' to 18° 22' and longitude 65° 09' 30" to 65° 11' 30", where no prior surveys exist, from this office, but probably originate from British Admiralty charts.

~~Soundings for which no source could be found are listed as follows:~~

Attention is directed to the following:

PSR (1) 47' from Chart 914, P.A., latitude 18° 15.X' 05' H-4291 WD and longitude 65° 15.6'; the present survey has 51' 55 Carried forward to present survey, retain as charted

(2) 56' from Chart 914, P.A., latitude 18° 16 57' H-2674 and longitude 65° 13.8'; the present survey has 58' 22 Carried forward to present survey, retain as charted.

(3) 72' from Chart 914, P.A., latitude 18° 17.01' and longitude 65° 12.8'; the present survey has 79' 26 72 foot sdg located 100 meters north.

~~(4) A 23 foot charted sounding in lat 18° 15.5' long 65° 12.1' originates with H-2491 (1900) as 32 feet and is not charted. Present depths indicate 32 feet. (PSR item) on a 20 ft. shoal.~~ chart present sounding

Recommend that these soundings be disposed of by Headquarters. ✓ completed

This survey is adequate to supersede the charted information, with the disposition by Headquarters of the above soundings and the retention of the charted wire drag soundings as shown on the smooth sheet.

b. Aids to Navigation

There were two floating aids in the survey area, each marking its intended feature.

8. Compliance With Instructions

This survey adequately complies with the Project Instructions.

9. Additional Field Work

This is an adequate basic survey and no additional work is recommended. See Quality Control Report, para 2.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Atlantic Marine Center
439 West York Street
Norfolk, Virginia 23510

File No: D6-5
Ser. No: 77-72

July 14, 1977

CAM3/RAT

TO: RADM Robert C. Munson
Director, Atlantic Marine Center

FROM: CDR Robert A. Trauschke
Chief, Processing Division

SUBJECT: Hydrographic Inspection Team Report, H-9618

This basic survey was accomplished by the NOAA Ship WHITING in general compliance with Project Instructions, OPR-423-WH-76, dated October 16, 1975. This 1976 work completed one phase of OPR-423 which was begun in 1962, by the C&GS Ship EXPLORER.

FIELD WORK

In some areas within the limits of this sheet the bottom is extremely irregular. Possibly some of the shoaler soundings could have been further developed. More importantly, what happened to the Pre-survey Review? It is very fortunate that the field investigated many of the items. There is no explanation why the unit did not have all the PSR information. The PSR was 15 years old (1961), but was updated as necessary. In the future whenever a PSR is updated the entire package should be copied and transmitted to the Marine Center.

VERIFICATION

It is the Hydrographic Inspection Team's contention that the questionable wire drag soundings, as discussed in the Verifier's Report [Paragraph 6, "Comparison with Prior Surveys", b. (1), (2), (3), (4), and (8)] should not have been brought forward. By bringing these soundings through they obtain an additional degree of credibility, and may bias the chart compiler's decision.

The HIT Team devoted approximately 15 hours to this survey.

Survey H-9618

H-9618 (1976)

Examined and Approved:
Hydrographic Inspection Team
Date: June 29,1977

CDR Robert A. Trauschke, NOAA
Chief, Processing Division

CDR Jeffrey G. Carlen, NOAA *
Chief, Coastal Mapping Division

. Douglas Mason, LT, NOAA
Chief, EDP Branch

William L. Jonns
Chief, Verification Branch

Guy F. Trefethen
Verification Branch

* Absent

Approved/ Forwarded

Robert C. Munson
RADM, NOAA
Director, Atlantic Marine Center

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

C352

November 2, 1977

TO: A. J. Patrick
Chief, Marine Surveys Division

THRU: Chief, Quality Control Branch

FROM: R. W. DerKazarian
Quality Evaluator

SUBJECT: Quality Control Report for H-9618 (1976) Bajos Grampus and Vicinity, Virgin Passage, U.S. Virgin Islands

Survey H-9618 was inspected to evaluate the accuracy and adequacy of the survey with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, smooth plotting, decisions and actions taken by the verifier, and the cartographic presentation of data. In general, the survey was found to conform to the National Ocean Survey's standards and requirements except as follows:

1. It was necessary to add two station names to the position-arc overlay during the quality evaluation.

2. Recourse to prior hydrographic surveys was necessary to accurately show the bottom. Numerous soundings on the hard and rocky bottom have not been satisfactorily verified or disproven by the present survey, although there was extensive development of several features. For the most part these soundings were circled presurvey review items and other shoal soundings originating from the prior surveys. In the Descriptive Report, paragraph L, it states that several methods were employed to obtain least depths on the features and recommends that only a wire-drag survey will obtain a positive disposition of these items. This is a valid recommendation.

3. The following additional information should be noted under "Comparison with Prior Surveys."

a. Prior surveys H-2490 (1900) and H-2672 (1904), partially fall within the limits of the present survey. These surveys are of a reconnaissance type and the sparse soundings permit only general information.

A comparison with prior survey H-2674 (1904) indicates that present depths are 1-5 feet deeper; in particular in lat. 18°17.4', long. 65°12.7'. These differences are attributed to inaccuracies of the prior sounding methods and equipment. A circled presurvey review item a 52-foot sounding in lat. 18°16.83', long. 85°12.78' has not been disproven and has been carried forward.

A comparison between prior survey H-2491 (1900) and the present survey indicates them to be in fair agreement. Two soundings appearing on this prior survey originate from a British Admiralty chart (No. 2677) and appear presently as a circled presurvey review item. These soundings, a 30-ft. and 21-ft. in approximate lat. 18°15.73', long. 65°12.15', have been carried forward.

With these additional soundings and numerous bottom characteristics from prior surveys H-4651a (1923-26), and H-2634 (1903) carried forward, the present survey is adequate to supersede these prior surveys in the common area.

b. No major conflicts exist between the present survey and the prior wire-drag depths, although three present shoaler depths are in areas of prior cleared deeper depths. The apparent conflicts arise from uncertainties in plotting, particularly the bights of drags, and do not indicate invalid depths.

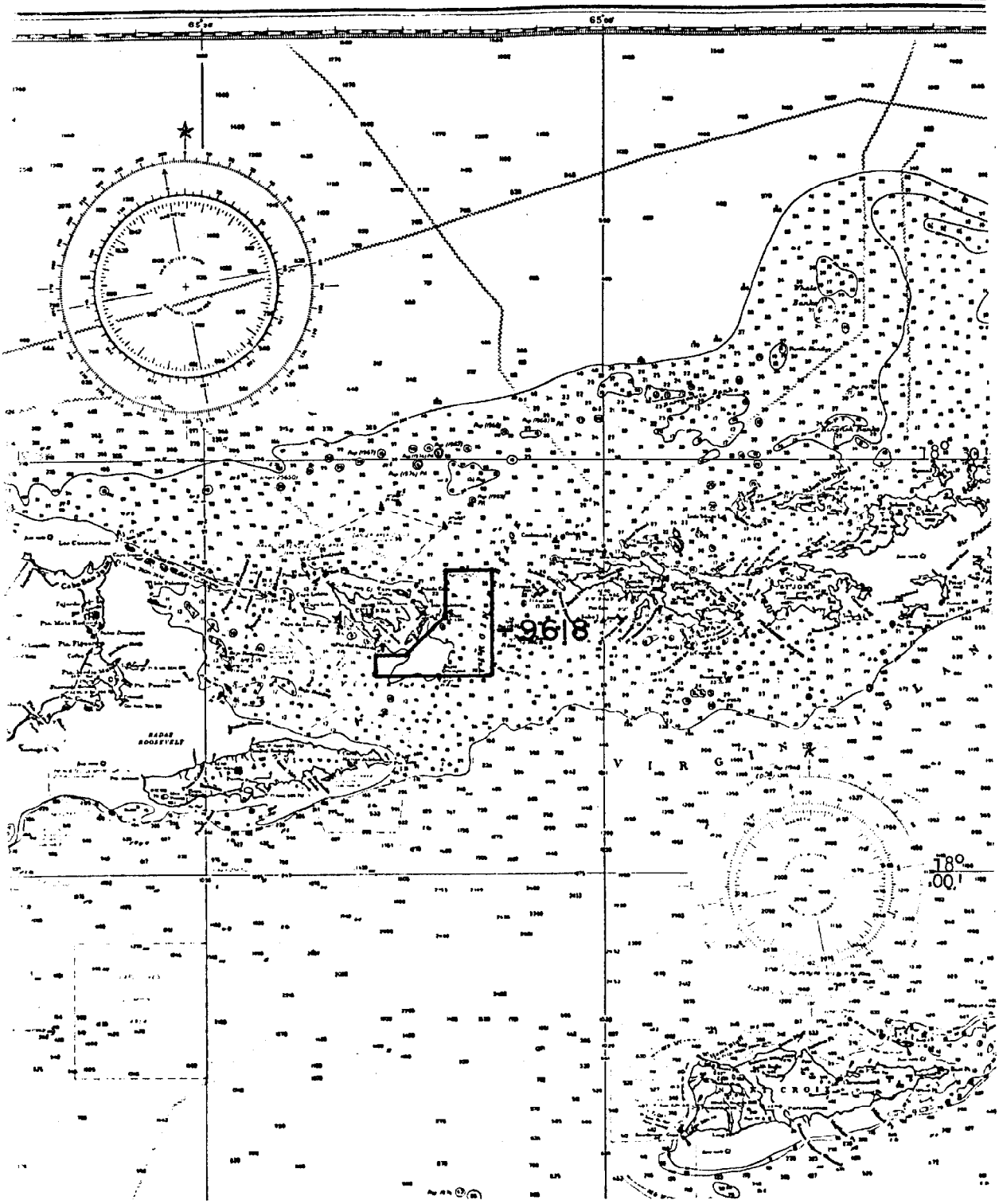
A 69-foot sounding charted from prior survey, H-4590WD, in lat. 18°18.65', long. 65°12.86' has been revised in position approximately 200 meters north, and coincides with a present 68-foot depth.

Several wire-drag soundings discussed in the Descriptive Report, paragraphs K and L, and the Verifier's Report, paragraphs 6 and 7, have been carried forward to supplement present survey depths.

4. Whenever possible when carrying prior soundings forward, it is desirable to indicate the shoalest prior and present depths on the smooth sheet. If it is necessary to excess the shoalest present depth, a note "Least depth ____ (unit) from present survey" is to be added to the smooth sheet. Two such notes were added during the quality evaluation. See Provisional Hydrographic Manual, section 6.3.7.3.

5. On several days sounding lines were run in 2 to 5 ft. swells and some soundings could well be in error by 2 to 3 ft.

Chart 920



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

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9618

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
25653	1-17-80	James R. Myers	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. Quality Control
25650	3-10-83	E.L. Bodenmiller	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 31 overlapping portion applied through
			chart 25653
25640	8/18/83	B. Fernandez	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 34 QC
			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.
			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.

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

USCOMM-DC 8555-P63