

H10088

NOAA FORM 76-35A
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY
DESCRIPTIVE REPORT
Type of Survey . . . WIRE DRAG
Field No. R/H-5-2-80
Office No. H-10088WD
LOCALITY
State . . . MASSACHUSETTS
General Locality . . . MARTHA'S VINEYARD
Locality . . . APPROACH TO OAK BLUFFS HARBOR
19 80
CHIEF OF PARTY CDR M.C. GRUNTHAL
LIBRARY & ARCHIVES
DATE APR 17 1997

DIAGRAM 1209-4

This Survey has no Smooth Sheet

Charts

HYDROGRAPHIC TITLE SHEET

H-10088WD

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.

RH-5-2-80

State MassachusettsGeneral locality Martha's VineyardLocality Approach to Oak Bluffs HarborScale 1:5000Date of survey 11 Sep - 28 Oct 1980Instructions dated 20 Jun 1980Project No. S-B609-RU/HE-80Vessel NOAA Ships RUDE & HECKChief of party M. C. Grunthal, Cdr, NOAASurveyed by M. C. Grunthal, R.S. Moody, D.H. Peterson, P.M. ConnorsSoundings taken by echo sounder, ~~and lead, etc.~~, pneumatic depth gauge

Graphic record scaled by _____

Graphic record checked by _____

Protracted by P. M. Connors, D.H. Peterson

Automated plot by _____

Verification by _____

Soundings in fathoms feet at MLW MLLW _____

REMARKS: The Approved Tide Note and correspondence pertaining
to the status of this survey are appended to this report.

SC 4-17-97

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Approved Tide Note

Letter : Review of HDEG and other Historical Surveys

Letter : Processing of H-10088WD

Letter : Critical Features extracted from H-10088WD

Transmittal Letter

Descriptive Report
To Accompany
Project S-B609-RU/HE-80
East Coast Wire Drag Investigations
Oak Bluffs Harbor, Martha's Vineyard

A. AUTHORITY

This project was authorized and conducted under Hydrographic Project Instructions S-B609-RU/HE-80, Wire Drag, Oak Bluffs Harbor, Martha's Vineyard, dated 20 June 1980, and change No. 1, dated 2 February 1981.

B. CHARACTER AND LIMITS OF THE WORK

The purpose of this special project was to provide a clearance depth for the general approaches to Oak Bluffs Harbor on Martha's Vineyard in Massachusetts. More specifically, the project was to provide clearance depths into the Oak Bluffs terminal pier of the Woods Hole, Martha's Vineyard, and Nantucket Steamship Authority, by the execution of a wire drag clearance survey.

The project limits were established to define the approaches as an area covering approximately 0.36 Nm^2 . The northern limit was assigned as buoy N "2", marking Rhode Island Rock. The southern limit was assigned as buoy C "1", marking Lone Rock. From a line connecting these buoys, the project limits extended perpendicularly to seaward for approximately 0.4 Nm, forming a rectangle. The assigned effective depth for this area was 14 feet. A second area, joining the above mentioned buoys with the seaward end of the Steamship Authority pier, and triangular in shape, was assigned an effective depth of 12 feet.

The survey was electronically controlled and plotted at the scale of 1:5000.

C. CONTROL AND CALIBRATIONS

This survey was controlled using Del Norte electronic positioning equipment operating at a frequency of 9400 MHz. Two transponders were operated from the following sites:

- R1 Cape Poge Lighthouse eccentric, designated H-53-MA
Latitude $41^{\circ}25' 11.95479''\text{N}$
Longitude $70^{\circ}27' 05.92426''\text{W}$
X = 213262.69 Y = 153029.91
- R2 Edgartown Beach, designated H-54-MA
Latitude $41^{\circ}24' 27.65344''\text{N}$
Longitude $70^{\circ}32' 11.42562''\text{W}$
X = 189984.90 Y = 148544.41

Del Norte system calibrations were observed, prior to and immediately following survey operations, using the inverse computed from East Chop Lighthouse to West Chop Lighthouse as the measured baseline. The geodetic data and computed inverse are as follows:

East Chop Lighthouse
 Latitude $41^{\circ}28'12.54800''\text{N}$
 Longitude $70^{\circ}34'04.72400''\text{W}$

West Chop Lighthouse
 Latitude $41^{\circ}28'50.46600''\text{N}$
 Longitude $70^{\circ}36'01.10700''\text{W}$

Inverse distance - 2942.891 meters.

Daily opening and closing calibration checks were accomplished using a site located on the Steamship Authority pier where the Del Norte Master unit antennas aboard each launch could be placed within a meter of a known point. This point is designated "Oak Bluffs Calibration." The geodetic position data and inverses computed from the transponder sites are as follows:

Latitude $41^{\circ}27'29.66342''\text{N}$
 Longitude $70^{\circ}33'17.36881''\text{W}$
 X = 184971.45 Y = 166969.04

Inverse distance for R1: 9613.043 meters

Inverse distance for R2: 5820.036 meters

For survey operations using the RUDE and HECK, the Del Norte calibration checks were accomplished by observing a strong three-point sextant fix, with check angle, in the standard manner. The proper distance values were computed using an HP-65 and a program which converts sextant observations to inverses from known points. The geodetic data for the signals used in sextant calibrations are as follows:

Cape Poge Lighthouse
 Latitude $41^{\circ}25'11.943''\text{N}$
 Longitude $70^{\circ}27'05.858''\text{W}$
 X = 213267.73 Y = 153028.72

Edgartown Standpipe
 Latitude $41^{\circ}22'40.807''\text{N}$
 Longitude $70^{\circ}31'10.876''\text{W}$
 X = 194596.54 Y = 137728.62

East Chop Lighthouse
 Latitude $41^{\circ}28'12.548''\text{N}$
 Longitude $70^{\circ}34'04.724''\text{W}$
 X = 181369.02 Y = 171312.15

West Chop Lighthouse
 Latitude $41^{\circ}28'50.466''\text{N}$
 Longitude $70^{\circ}36'01.107''\text{W}$
 X = 172513.16 Y = 175158.62

D. DATES OF SURVEY

Wire drag survey operations on this project commenced on 11 September 1980 and were concluded on 28 October 1980.

E. TIDE REDUCERS

Tide control for this project was provided by the reference station at Boston, Massachusetts. Field reduction of each day's survey data was accomplished using predicted tides for the historical tide station, No. 844-8208, at Latitude $41^{\circ}27.5'N$, Longitude $70^{\circ}33.3'W$, at Oak Bluffs, Martha's Vineyard. The following correctors were applied:

High water: +30 min.
Low water: -14 min.
Height ratio: 0.18

A standard ADR tide station was installed and operated on the historical site for the duration of survey operations at Oak Bluffs. There were no breaks in the tide records during the project which exceeded the three day limitation.

F. JUNCTIONS

This survey did not junction with other wire drag surveys.

G. SPLITS

Within the area of the project limits which carried the highest priority, there were no splits apparent from inspection of the daily rough plots after incorporation into the A&D sheet. There were no areas of insufficient drag strip overlap detected.

After consultation with Steamship Authority officials and local marine interests, three minor splits in the extreme southern portion of the project limits were not covered. These splits were in areas of no consequence to deeper draft vessels and it was judged by this Command that further dedication of time and resources to operations to cover these areas could not be justified in light of the purpose of this project.

H. ABSTRACTS OF HANGS

"HANG"	DAY/ STRIP	GROUND DEPTH	LATITUDE	LONGITUDE	LEAST DEPTH	REMARKS
2	C-2	16.0'	$41^{\circ}27' 50.54374''$	$70^{\circ}33' 10.35729''$	15.0'	rock; diver
3	C-4	16.0'	$41^{\circ}27' 49.80813''$	$70^{\circ}33' 15.03830''$	15.9'	clam dredge; diver
4	E-2	16.5'	$41^{\circ}27' 45.80004''$	$70^{\circ}32' 56.23111''$	15.5'	rock; diver
5	E-3	13.0	$41^{\circ}27' 32.80476''$	$70^{\circ}33' 08.94624''$	13.0'	rock; diver
6	E-4	12.5'	$41^{\circ}27' 27.97332''$	$70^{\circ}33' 06.50478''$	12.5'	rock; diver
9	F-5	16.0'	$41^{\circ}27' 26.70709''$	$70^{\circ}32' 49.46539''$	14.9'	rock; diver
10	F-7	13.0'	$41^{\circ}27' 24.33046''$	$70^{\circ}33' 06.78085''$	10.6'	rock; diver

H. ABSTRACTS OF HANGS (CONT'D)

"HANG"	DAY/ STRIP	GROUND DEPTH	LATITUDE	LONGITUDE	LEAST DEPTH	REMARKS
11	G-1	11.5'	41°27' 26.09725"	70°33' 09.18222"	10.0'	rock; diver
12	G-3	12.5'	41°27' 29.52333"	70°33' 12.65161"	13.5'	rock; diver
13	G-4	14.0'	41°27' 25.67152"	70°32' 55.59450"	14.0'	rock; diver
14	G	---	41°27' 32.62419"	70°32' 59.15771"	14.5'	rock; diver
15	G	---	41°27' 29.89677"	70°32' 56.77881"	13.0'	rock; diver
16	G	---	41°27' 21.36992"	70°32' 55.03579"	15.0'	rock; diver
18	J-2	15.0'	41°27' 38.24645"	70°33' 04.59107"	10.4'	rock; diver
20	K-1	13.0'	41°27' 30.42994"	70°33' 04.94851"	12.4'	rock; diver
21	K-2	12.5'	41°27' 21.49248"	70°32' 59.94351"	11.4'	rock; diver
22	DIVER	SWEEP	41°27' 43.88413"	70°33' 13.51132"	11.8'	rock
23	DIVER	SWEEP	41°27' 44.99853"	70°33' 14.17175"	13.0'	rock
24	DIVER	SWEEP	41°27' 45.21870"	70°33' 14.05941"	14.0'	rock
26	DIVER	SWEEP	41°27' 36.17459"	70°33' 07.72633"	13.9'	rock
27	DIVER	SWEEP	41°27' 40.20952"	70°33' 09.79299"	14.5'	rock
28	DIVER	SWEEP	41°27' 42.36482"	70°33' 11.17822"	11.7'	rock
29	DIVER	SWEEP	41°27' 39.41459"	70°33' 08.01310"	11.5'	rock
30	DIVER	SWEEP	41°27' 37.36215"	70°33' 09.71822"	12.0'	rock
33	DIVER	SWEEP	41°27' 38.35870"	70°33' 10.86847"	11.2'	rock
34	DIVER	SWEEP	41°27' 40.91910"	70°33' 11.83013"	13.8'	rock
35	DIVER	SWEEP	41°27' 41.63313"	70°33' 14.15780"	13.9'	rock
36	DIVER	SWEEP	41°27' 39.45188"	70°33' 13.31658"	14.0'	rock
40	DIVER	SWEEP	41°27' 42.59760"	70°33' 13.80668"	14.0'	rock
41	S-1	12.0'	41°27' 28.77449"	70°32' 59.05566"	12.0'	rock

"HANG"	DAY/ STRIP	GROUND DEPTH	LATITUDE	LONGITUDE	CLEARED DEPTH	REMARKS
1	C	15.0'	NO FINAL POSITION DETERMINED		15.5'	
8	F-3	15.5'	NO FINAL POSITION DETERMINED		14.5'	

Both of these "hangs" were cleared to a depth greater than the depth required by the Project Instructions. The hang on C-day occurred after the same area had been cleared to a deeper depth on B-day. The grounded depth on C-day was only approximate. Further work on these hangs was felt to be unjustified.

I. CURRENTS AND WINDS

The tidal currents in the project area set in a NW/SE direction, roughly along the long axis of the project limits. Maximum strength was approximately 1.5-2.0 knots, however, fairly long periods of weak currents were experienced. In all cases, drag strips were planned to take advantage of a following current.

Since the project area was close inshore, winds only became a limiting factor when they were on-shore. Off-shore winds were seldom limiting due to the convenient lee created by the island and operations were carried out in winds up to 20 knots without noticeable effect on the reliability of the data.

J. COMPARISON WITH CHARTS AND OTHER SURVEYS

This survey affects NOS charts 13229, 13233, and 13238, as modified by DMA Notice to Mariners 32/80.(See Attachment X.) The latest hydrographic survey, H-8821 of 1964, was used exclusively for planning wire drag work and no time was devoted to make direct comparisons with the results of that survey. Cleared effective depths from this project did not detect any discrepancies in the 1964 soundings, but these depths were necessarily all shoaler.

The project limits of this project totally encompassed an area investigated by the Army Corps of Engineers earlier in 1980, which resulted in the Notice to Mariners advisory. There was substantial overall agreement between the Corps' investigation and this survey, however, some minor differences in positions and least depths were noted. These were ascribed to differences in the methods of position determination and least depth determination. The positions and least depths over obstructions, as determined by this project, are considered to be more precise.

K. EQUIPMENT AND TECHNIQUES

I. Survey Operations

The RUDE and HECK were used for only one drag during this project. Standard wire drag equipment and procedures were employed, with the RUDE acting as guide vessel. Two Bristol 20-foot launches were used as drag tenders. All bearings were observed from Sperry gyro-repeaters which were checked against the master gyro before the drag. Master gyro error was computed from a sun azimuth, and the results were applied to all observed bearings. Ranges were obtained using Decca RM 1226 marine radars. The "Vadnais" data acquisition system and telemetry link were used to document the drag data in addition to the wire drag volumes. All intermediate and end buoy uprights and the tester uprights were personally verified as correct by the Commanding Officer.

NOAA Launches 1274 and 1275 were used as towing vessels for all the remaining drags during this survey project. The technique used was a modification of the "drift sweep", adequately described in the Admiralty Manual of Hydrographic Surveying (1969), Volume II, Chapter 4, Part 3, and employs the concept of constant tension. The configuration of equipment necessary for this drag technique is illustrated in Figure I.

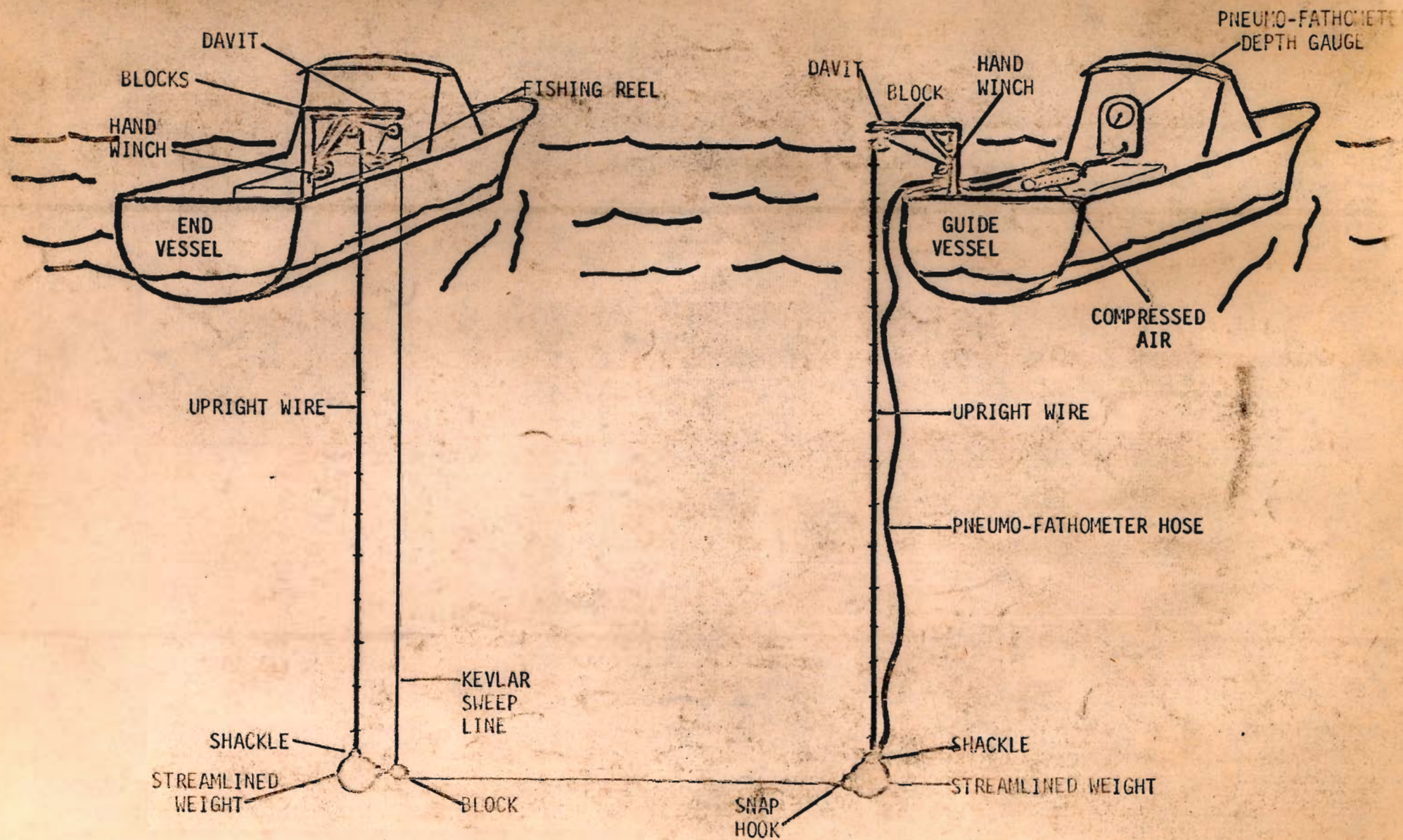


FIGURE 1

The chief difference between the Admiralty sweep and the constant-tension drag employed during this project is that the constant-tension is towed at slow speed through the water, with a following current, while the sweep is allowed to drift with the current. A testing program was devised (as described elsewhere) which allowed the lift induced by towing to be quantified and considered in the determination of worst case lift conditions. This technique, using pre-positioned range buoys to guide the launch coxswain, enabled the preplanned areas for investigation to be readily and more rapidly covered, and was generally effective in locating rocks and other obstructions.

2. Testing and Data Reduction for Constant-Tension Wire Drag

The nature of constant-tension wire drag makes it desirable to measure lift by two separate methods to determine the proper amount of lift to be applied during data reduction. The testing program was designed to measure lift at the end of the wire and at random points along the single section of the drag, as it progressed through the water. Using this two-measurement approach, it is reasonable to assume that the "worst case" lift condition has been detected and applied.

All constant-tension drags were run with a one-minute fix interval. At each fix, the depth of one end of the wire was measured using a Roylyn 3-D Precision depth gauge configured as a pneumatic depth gauge. The orifice of the pneumatic depth gauge was attached to the upright at the same point that the wire was attached. Lift was determined by subtracting the pneumatic depth gauge depth (PmD) from the length of the upright. The pneumatic depth gauge measurement was recorded in the drag volume.

Lift at random points along the wire was determined by use of a tester pole in the standard manner. The results of these lift tests were recorded on a rough tester sheet, were then reduced to actual wire depth, and entered into the drag volume. No smooth tester record was maintained for single-section constant-tension drags.

The worst case lift was evaluated by comparing the results and times of these lift tests, applying the greatest lift over the entire time period during which it was controlling. In most cases, the controlling lift was that measured by the pneumatic depth gauge. The lifts applied to the upright length were to the nearest rounded one-half foot increment as is the normal practice. The pneumatic depth gauge was compared to a measured leadline during this project and the results of this test comparison are entered into the field records. The manufacturers accuracy specifications for the Roylyn gage are $\pm 0.25\%$ of the full 230 FSW scale over the whole scale.

See Attachment VIII for definitions used in the testing program.

3. Diving Operations

Extensive underwater operations were carried out during this project. Divers were used to search a 640,000 square foot area covering the critical portion of the direct approach into the Oak Bluffs ferry pier. Divers were also used in obtaining least depths and strong detached positions for all obstructions.

The diver search technique developed to investigate the critical approach area combined the area coverage principles of wire sweep and the "Z" search technique described in the NOAA Diving Manual, First Edition, Section 7. The search area was laid out by establishing long axis boundaries as is done in a Z search. The termination

points of these boundaries were located by Del Norte positioning, after the anchors were carefully placed and set, and all the slack was removed from the boundary guide wires. With the boundary guide wires in place, the two sides were connected by a Kevlar sweep wire, and swimming in the direction of the extant current, divers towed the Kevlar along the guide wires while other divers tended the sweep wire as it progressed. The towing divers were in constant voice contact via wireless diver-to-diver communications equipment. Forward progress by the towing divers would stop whenever the sweep would foul on any obstruction. A "hang" would be indicated to the tending divers who would then locate and mark the obstruction before clearing the sweep. By using this technique a total of 14 significant rocks were located in the approach.

L. PERSONNEL

The officers participating in this survey were: CDR Melvyn C. Grunthal, LCDR Richard S. Moody, LCDR David W. Yeager (temporarily), LT David H. Peterson, LTJG Peter M. Connors, and LTJG Robert X. McCann (temporarily).

M. GENERAL NOTES

The continuing tendency of the gyros to wander should be considered in the computer processing of the drag data for B-Day. The "blank" option code is recommended. No automated data acquisition was possible in the field for any of the constant-tension drags.

Project instructions called for the areas most commonly used by deeper draft vessels to carry the highest priority. After consultation with personnel of the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority and the Captains of the ferries operating out of Oak Bluffs, it was determined that the ferries operated in an area northwest of a line bearing 030°T from the ferry slip. In addition, four boats drawing 7' to 8' operated in an area north of a line bearing approximately 100°T from the southern face of the ferry terminal pier. Therefore, it was felt necessary to cover the area north of the 100°T bearing thoroughly. This entire area was covered extensively by ship wire drags, launch constant tension drags and diver investigation. The area to the south was covered by launch constant-tension drags and diver investigation.

N. RECOMMENDATION

The results of this survey indicate the presence of a large number of singular rocks dispersed over the entire project area. Due to the number of rocks and the relatively limited size of the project area, a charting representation of all these rocks will be difficult and "messy" even at the largest scale of published charts of the area. The major navigation interest in this area is the Woods Hole, Martha's Vineyard, and Nantucket Steamship Authority. The prime concern of this user organization is the area north of a bearing of 100°T from the seaward terminus of their pier at Oak Bluffs. Since the ferries using this pier have drafts approaching 11.0 feet, it is recommended that only those rocks which have a least depth of 12.0 feet or less be charted and then only in the area of prime concern. A general note should be included on the charts to advise navigation interests that the bottom character is "foul with rocks" in the approach to Oak Bluffs Harbor.

O. APPROVAL

All shipboard records of this area survey, including the smooth plot, are hereby approved. The composite A&D sheet, showing the final effective depths, must await smooth tide reducers.

All field work was personally supervised by the undersigned. The boat sheet and field records were inspected daily. This survey is considered complete and adequate for charting.

R.S. Moody
For M.C. Grunthal
Commanding Officer
NOAA Ship RUDE/HECK

ABSTRACT OF DAILY CORRECTORS

Date	J.D.	R1	R2	R1	R2	R1	R2	R1	R2
9/12/80	256					-10	-6	-1	-5
9/17/80	261	-9	-3	-2	+1				
9/18/80	262	-9	-2	-1	+3				
		-2	-4	-1	+3				
9/19/80	263	+2	-1	-1	+2				
9/22/80	266	-2	+3	+3	+1				
9/23/80	267	-2	+2	+1	0				
9/26/80	270	-1	+1	+2	0				
10/02/80	276	+3	0	0	+1				
				-1	+1				
10/03/80	277	0	+1	+3	+1				
10/08/80	282			+1	+1				
10/10/80	284	+1	+1	+5	+3				
				+3	+2				
10/16/80	290			+9	+3				
				+1	0				
10/20/80	294			+2	+1				
10/21/80	295	+1	+2	+7	+2				
				+3	+3				
10/22/80	296	+2	-1	+8	0				
		+1	+1	+7	+1				
10/23/80	297	+7	-1	+1	0				

ABSTRACT OF DAILY CORRECTORS (CON'T)

Date	J.D.	R1	R2	R1	R2	R1	R2	R1	R2
10/24/80	298	+8	+3	+2	+2				
10/27/80	301	+1	+1	+6	+1				
10/28/80	302			+8	+1				
				+9	+2				

STATISTICS

DATE	LETTER	STRIP	POSITIONS	LNМ	SNМ
12 SEPT 80	B	1	12	.595	.49
17 SEPT 80	C	1 of 4	8	.25	.01
	C	2 of 4	7	.24	.01
	C	3 of 4	9	.26	.013
	C	4 of 4	9	.24	.012
18 SEPT 80	D	1 of 5	6	.225	.013
	D	2 of 5	7	.27	.009
	D	3 of 5	7	.29	.012
	D	4 of 5	17	.645	.03
	D	5 of 5	4	.12	.006
19 SEPT 80	E	1 of 4	8	.16	.007
	E	2 of 4	3	.093	.005
	E	3 of 4	2	.033	.0016
	E	4 of 4	2	.038	.0023
22 SEPT 80	F	1 of 8	13	.41	.02
	F	2 of 8	15	.55	.025
	F	3 of 8	3	.1	.0046
	F	4 of 8	12	.54	.027
	F	5 of 8	3	.09	.005
	F	6 of 8	8	.31	.016
	F	7 of 8	6	.21	.012
	F	8 of 8	4	.12	.0054
23 SEPT 80	G	1 of 5	14	.49	.025
	G	2 of 5	9	.21	.011
	G	3 of 5	5	.11	.0062
	G	4 of 5	3	.10	.005
	G	5 of 5	6	.23	.013
26 SEPT 80	J	1 of 2	5	.19	.0095
	J	2 of 2	2	.045	.002
2 OCT 80	K	1 of 2	2	.003	.0016
	K	2 of 2	4	.11	.0061
3 OCT 80	L	1 of 5	3	.09	.005
	L	2 of 5	6	.21	.011
	L	3 of 5	4	.14	.007
	L	4 of 5	9	.35	.018
	L	5 of 5	3	.09	.0045
10 OCT 80	N	1 of 2	11	.39	.018
	N	2 of 2	7	.25	.008
21 OCT 80	R	1 of 1	5	.16	.009
22 OCT 80	S	1 of 2	3	.094	.0047
	S	2 of 2	8	.26	.013
23 OCT 80	T	1 of 1	4	.12	.0054

Attachment II

STATISTICS (CON'T)

DATE	LETTER	STRIP	POSITIONS	LNМ	SNM
24 OCT 80	U	1 of 4	8	.30	.015
	U	2 of 4	8	.285	.0135
	U	3 of 4	3	.088	.004
	U	4 of 4	10	.295	.0148
27 OCT 80	V	1 of 3	5	.185	.0074
	V	2 of 3	9	.313	.0164
	V	3 of 3	7	.293	.0161
28 OCT 80	W	1 of 2	5	.163	.0081
	W	2 of 2	5	.173	.0086

INVERSE FROM:

EAST CHOP
LIGHTHOUSE

STNDPT LAT&LON:

LAT 41 DEG
28 MIN
12.84900 SEC
LON 70 DEG
34 MIN
5.10500 SEC

TO:

WEST CHOP
LIGHTHOUSE

FOREPT LAT&LON:

LAT 41 DEG
28 MIN
50.46600 SEC
LON 70 DEG
36 MIN
1.10700 SEC

DIST 2931.091M

2942.891

FWD AZ 113 DEG

205 MIN

25

4.226 SEC

52.144

BCK AZ 293 DEG

18 MIN

47.397 SEC

DATE 9/4/80NATIONAL DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

ATTACHMENT III

DEL NORTE CALIBRATION

(MASTERS) (REMOTES)

LOCATION WEST Chop → East Chop RANGE 2943 METERSOFFICER IN CHARGE CONNORS, P.M. LTJGDMU SERIAL NO. 188
MASTER SERIAL NO. 1068

TAKEN FROM LAUNCH _____

REMOTE SERIAL NO.	PRE-CAL RANGE READING	CAL RANGE SET TO
82 —	29	2943
84 1065	2930	2943
86 1134	2929	2943
88 1320	2930	2943

DMU SERIAL NO. 122
MASTER SERIAL NO. 1067

TAKEN FROM LAUNCH _____

REMOTE SERIAL NO.	PRE-CAL RANGE READING	CAL RANGE SET TO
82 —	2934	2943
84 1065	2935	2943
86 1134	2936	2943
88 1320	2934	2943

DMU SERIAL NO. 173
MASTER SERIAL NO. 1066

TAKEN FROM LAUNCH _____

REMOTE SERIAL NO.	PRE-CAL RANGE READING	CAL RANGE SET TO
82 —	2956	2943
84 1065	2994	2943
86 1134	2949	2943
88 1320	2976	2943

COMMENTS.



DATE 10 129 180



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY

DEL NORTE CALIBRATION

(MASTERS) (REMOTES)

LOCATION West Chop - East Chop RANGE 2943 METERS

OFFICER IN CHARGE CONNORS, P.M. LTJG.

DMU SERIAL NO. 173
MASTER SERIAL NO. 1066

TAKEN FROM LAUNCH _____

REMOTE SERIAL NO. PRE-CAL RANGE READING CAL RANGE SET TO

82	2934	
84	2939	
76		
78		

DMU SERIAL NO. 122
MASTER SERIAL NO. 1067

TAKEN FROM LAUNCH _____

REMOTE SERIAL NO. PRE-CAL RANGE READING CAL RANGE SET TO

82	2940	
84	2942	
76		
78		

DMU SERIAL NO. _____
MASTER SERIAL NO. _____

TAKEN FROM LAUNCH _____

REMOTE SERIAL NO. PRE-CAL RANGE READING CAL RANGE SET TO

72		
74		
76		
78		

COMMENTS:



ATTACHMENT IV

Project Number S-B609-RU/HE-80Requested by F.O.O.Field Number 5-2A-80Date Requested 1 August 1980Field Unit RUDE & HECKDate Required ASAP

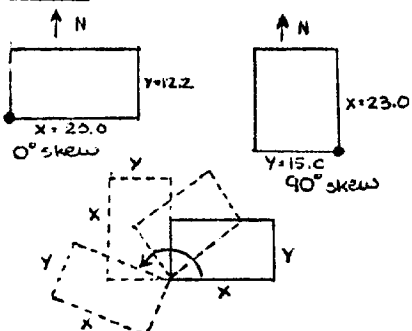
SHEET LAYOUT

Origin latitude 41- 26.5'*X distance 91.5 cmOrigin longitude 70- 31.0'*Y distance 91.5 cmCentral Meridian 70- 33.0'Skew 90 °Scale 1: 5000

*Note: Maximum sheet size is 91 cm x 152 cm

Use the following space to draw a diagram for clarification.
Show location of origin and sheet size.

EXAMPLES:



NOTE: Skew is expressed in degrees counterclockwise from East.

OUTPUT SPECIFICATIONS

Number of Copies 3Material Desired: Tracing Paper _____ Mylar XXXITEMS TO PLOT
(Check 1 or more)Projection grid only _____Electronic lattices XXX (fill out page 2) _____Control stations XXX (fill out page 2) _____

Junctional/prior surveys _____ (list registry numbers) _____

BASE SHEET REQUEST

If control stations, arcs, or lanes are to be plotted, attach this to Page 1.

Stations				Del Norte
<u>Station ID</u>	<u>Carto Code</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Frequency (Khz)</u>
H-53-MA		41-25' 11.95479"	70-27' 05.92426"	9400 MHz.
H-54-MA		41-24' 27.65344"	70-32' 11.42562"	9400 MHz.
Oak Bluff Pier		41-27' 29.66341"	70-33' 17.36881"	

ELECTRONIC LATTICES

If the lattice is hyperbolic, enter stations 1 and 2. Station 1 is the master and Station 2 is the slave. Three-station hyperbolic set-ups require two requests: One for the master and slave 1, and one for the master and slave 2.

If the lattice is range-range, leave Station 2 blank. List stations under Station 1.

<u>Station 1</u>	<u>Station 2</u>
H-53-MA	
H-54-MA	

WTET

INVERSE FROM:

EAST CHOP
LIGHTHOUSE 1904

STNDPT LAT&LON:

LAT 41 DEG
28 MIN
12.54800 SEC
LON 70 DEG
34 MIN
4.72400 SEC

TO:

WEST CHOP
LIGHTHOUSE

FOREPT LAT&LON:

LAT 41 DEG
28 MIN
50.46600 SEC
LON 70 DEG
36 MIN
1.10700 SEC

DIST 2942.891M

FWD/AZ 113 DEG
25 MIN
56.644 SEC
BCK AZ 293 DEG
24 MIN
39.564 SEC

INVERSE FROM:

H-53-MA

STNDPT LAT&LON:

LAT 41 DEG
25 MIN
11.95400 SEC
LON 70 DEG
27 MIN
5.92425 SEC

TO:

OAK BLUFFS
CALIBRATION

FOREPT LAT&LON:

LAT 41 DEG
27 MIN
29.66342 SEC
LON 70 DEG
33 MIN
17.36881 SEC

DIST 9613.043M

FWD AZ 116 DEG
15 MIN
41.528 SEC
BCK AZ 296 DEG
11 MIN
35.697 SEC

ATTACHMENT V

INVERSE FROM:

H-54-MA

STNDPT LAT&LON:

LAT 41 DEG
24 MIN
27.65344 SEC
LON 70 DEG
32 MIN
11.42501 SEC

TO:

OAK BLUFFS
CALIBRATION

FOREPT LAT&LON:

LAT 41 DEG
27 MIN
29.66342 SEC
LON 70 DEG
33 MIN
17.36881 SEC

DIST 5820.036M

FWD AZ 164 DEG
45 MIN
14.017 SEC
BCK AZ 344 DEG
44 MIN
38.379 SEC

STATION DESCRIPTION - SHORT FORM

10*SSN-334 DRC CODE-D 11*QUAD-N412703 QSN-1 12*SURF MK TYPE-D M-CODE-N 13*UNDERGROUND MK TYPE-1 M-CODE-1
14*STATION NAME-H-53-MA 15*STATE CODE/COUNTY-MA, DUKES
20*CODE/MONUMENT BY AGENCY-SLNOS 21*YEAR-1980 CHIEF OF PARTY-RH 22*MARKER TRANSP PACK TYPE-D CODE-X TIME-0 HRS, 05 MIN 23*HGT OF TELESCOPE-4.60 METERS
24*CODE/RECOVERY BY AGENCY-1 25*YEAR-1 CHIEF OF PARTY-1 26*CONDI- TRANSP PACK TION-1 CODE-1 TIME-1 HRS, 1 MIN 27*HGT OF TELESCOPE-1 METERS

M-CODE MARK TYPE	NAME OR DESCRIPTION OF REFERENCE OBJECT (edit and/or abbreviate as necessary)	COM- PASS HDNG	MEASURED DISTANCE		A if approx distance OTHER-THAN-MEASURED DISTANCE WITH UNITS	DIRECTION tenths of SEC		
			H-hor, S-slope, V-VG, N-not VG	IN FEET	IN METERS	DEG	MIN	SEC
30*	452 TSN = 331 EDGARTOWN STANDPIPE							
30*	413 TSN = 332 EDGARTOWN LIGHT							
30*	214 TSN = 335 H-54-MA							
30*	452 TSN = 333 LAGOON HEIGHTS WLT							
30*	800 TSN = 336 OAK BLOFFS CALIFICATION							

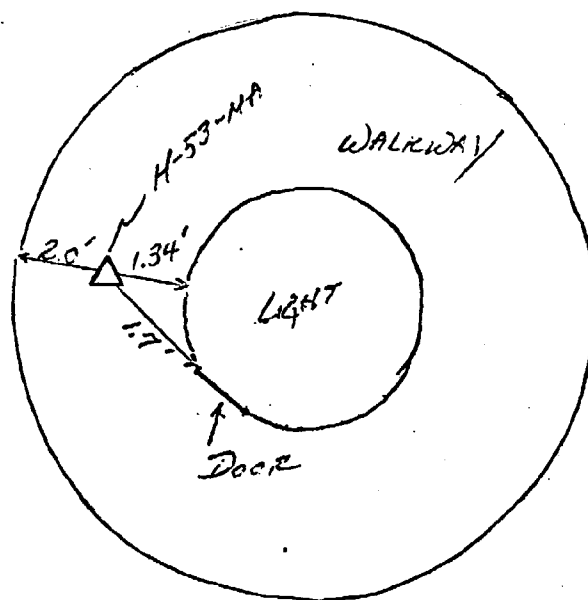
30*, S, S, - append 30*\$ to indicate end of reference data. NOTE - Use V (VG) or N (not VG) for objects to which measured distance is not given.

***** ORIGINAL OR RECOVERY DESCRIPTIVE TEXT *****

40* THE STATION IS LOCATED ON THE WEST SIDE OF THE WALKWAY AROUND
40* THE CAPE AGE LIGHTHOUSE ON THE NORTH END OF CHAPPAQUIDDICK ISLAND
40* ON MARTHA'S VINEYARD. KEY TO THE LIGHTHOUSE MAY BE OBTAINED FROM HARBOR MASTER IN EDGARTOWN
40* TO REACH - FROM EAST LANDINGS OF THE CHAPPAQUIDDICK FERRY, GO WEST ON
40* CHAPPAQUIDDICK ROAD FOR 2.3 MILES TO A FORK. BEAR LEFT ON THE DIRT ROAD
40* (DUKE ROAD) AND CONTINUE WEST FOR 0.2 MILE TO THE DUKE BRIDGE OVER AGUA ROAD
40* AFTER CROSSING THE BRIDGE TURN LEFT AND FOLLOW THE SAND YEEP TRAIL NORTH FOR
40* 3.2 MILES TO THE CAPE AGE LIGHTHOUSE AND THE STATION. A 4-WHEEL DRIVE
40* VEHICLE IS NECESSARY OR PREPARE YOURSELF FOR A LONG PACK.
40* THE STATION IS AN ~~ALUMINUM~~ ^{BRASS} NOS DISK STAMPED - - H-53-MA, 1980 - -
40* SECURED TO THE TOP OF A ~~WIDE ALUMINUM ROD~~ ^{WIDE ALUMINUM ROD} EMBEDDED IN CONCRETE
40* AND PROJECTING ~~INCHES~~ ^{INCHES}. IT IS EPOXYED TO THE FLOOR OF THE WALKWAY
40* IT IS ON THE WEST SIDE, 2 FEET (0.610 M) EAST OF THE EDGE OF THE WALKWAY
40* 17 FEET (0.518 M) NORTHWEST OF THE DOOR HINGES AND 1.34 FEET (0.408 M)
40* OUTSIDE OF THE WALL SURROUNDING THE LIGHT
40* S, S, - insert 40*\$ between paragraphs and append 40*\$ to indicate end of descriptive text. NOTE - Do not divide words between records.

 40
 40 *HEIGHT OF LIGHT SHOWN WAS 15 FT*
 40
 40 *DETERMINED BY PWD*
 40
 40
 40
 40
 40
 40
 40
 40
 40
 40
 40
 40

SKETCH:



STATION DESCRIPTION - SHORT FORM

10*SSN-335 DRC CODE-D 11*QUAD-N410102 QSN- 12*SURF MK TYPE-D14 M-CODE-M 13*UNDERGROUND MK TYPE- M-CODE- 14*STATION NAME-H-1-54-MA 15*STATE CODE/COUNTY-HAL, DUKES 20*CODE/MONUMENT BY AGENCY-ELNOS 21*YEAR-1980 CHIEF OF PARTY-RHH 22*MARKER TRANSP PACK TYPE-D CODE-D TIME-00, HRS, 00, MIN 23*HGT OF TELESCOPE-0.0 METERS 24*CODE/RECOVERY BY AGENCY-L 25*YEAR- CHIEF OF PARTY- 26*CONDI- TRANSP PACK TION- CODE- TIME- HRS, MIN 27*HGT OF TELESCOPE- METERS

M-CODE MARK TYPE	NAME OR DESCRIPTION OF REFERENCE OBJECT (edit and/or abbreviate as necessary)	COM- PASS HDNG	MEASURED DISTANCE		A if approx distance OTHER-THAN-MEASURED DISTANCE WITH UNITS	DIRECTION tenths of SEC	
			H-hor, S-slope, V-VG, N-not VG IN FEET	IN METERS		DEG MIN	SEC
30	TSN=						
30	TSN=						
30	TSN=						
30	TSN=						
30	TSN=						

30, \$, \$, - append *30*\$ to indicate end of reference data. NOTE - Use V (VG) or N (not VG) for objects to which measured distance is not given.

ORIGINAL OR RECOVERY DESCRIPTIVE TEXT

40 THE STATION IS LOCATED ONE MILE NORTHWEST OF EDGARTOWN;
 40 MARTHA'S VINEYARD ON THE SOUTH END OF EDGARTOWN BEACH.
 40 TO REACH FROM THE STEAM AUTHORITY TERMINAL IN OAK BLUFFS GO
 40 SOUTHEAST ON SEAVIEW ROAD FOR FOUR MILES PAST THE PUBLIC BEACHES
 40 TO THE SOUTH END OF EDGARTOWN PUBLIC BEACH ADD THE STATION
 40 ON THE SMALL SAND DUNE TO THE LEFT.
 40 THE STATION IS AN ALUMINUM NOS DISK STAMPED - H-54-MA, 1980
 40 SECURED TO THE TOP OF A 40 INCH ALUMINUM ROD EMBEDDED IN CONCRETE
 40 AND BRASS WITH THE GROUP IT IS 36 FEET (10.973 M) NORTH OF THE SOUTH
 40 CORNER OF A WOOD FENCE 19.8 FEET WEST OF A WOOD POST 1251 NORTH
 40 OF THE WOOD FENCE 16.5 FEET (5.069 M) WEST OF THE NORTH END OF THE
 40 WOOD FENCE AND 4 FEET (1.219 M) SOUTH OF A METAL WITNESS POST.
 40 \$, \$, - insert *40*\$ between paragraphs and append *40*\$ to indicate end of descriptive text. NOTE - Do not divide words between records.

40 HEIGHT OF LIGHT SHEDD WAS 15 METERS

40 DESCRIBED BY RHW

40

40

40

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40

40

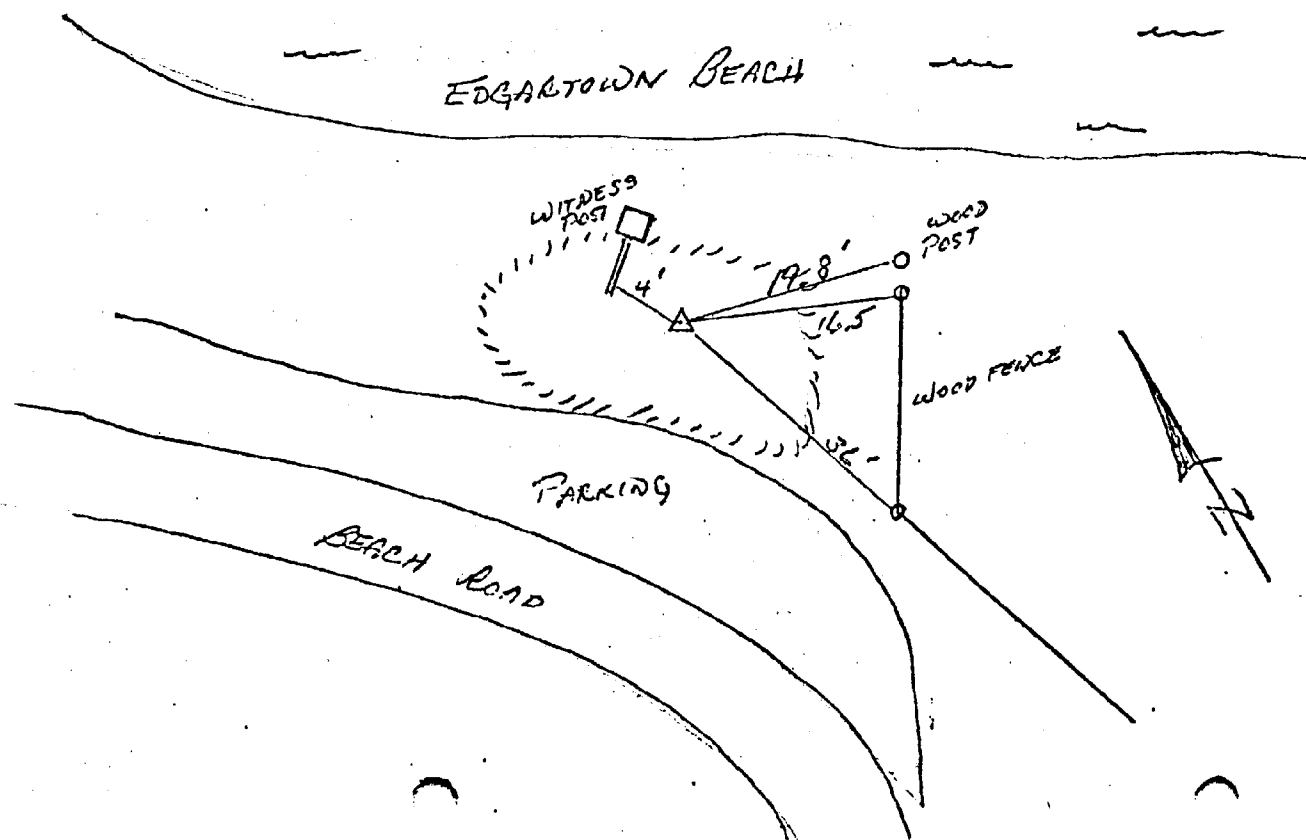
40

40

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SKETCH:



STATION DESCRIPTION - SHORT FORM

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

Vol = 7
*10*SSN-336, DRC CODE-D, *11*QUAD-N 10203, QSN-7, *12*SURF MK TYPE-D, M-CODE-N, *13*UNDERGROUND MK TYPE-T, M-CODE-T,
*14*STATION NAME-- HBL DUFFS CALIBRATION, *15*STATE CODE/COUNTY-- HBL DUFFS
*20*CODE/MONUMENT BY AGENCY-- SLNCS, *21*YEAR-- 1980, CHIEF OF PARTY-- RH H, *22*MARKER TRANSP PACK TYPE-D CODE-2 TIME-20, HRS, 00, MIN, *23*HGT OF TELESCOPE-- 0.0, METERS
*24*CODE/RECOVERY BY AGENCY-- L, *25*YEAR-- , CHIEF OF PARTY-- , *26*CONDI- TRANSP PACK TION-T, CODE-T, TIME-T, HRS, MIN, *27*HGT OF TELESCOPE-- , METERS

M-CODE MARK TYPE	NAME OR DESCRIPTION OF REFERENCE OBJECT (edit and/or abbreviate as necessary)	COM- PASS HDNG	MEASURED DISTANCE		A if approx distance OTHER-THAN-MEASURED DISTANCE WITH UNITS	DIRECTION tenths of SEC DEG MIN SEC	
			H-hor, S-slope, V-VG, N-not VG IN FEET	IN METERS			
30	TSN =						
30	TSN =						
30	TSN =						
30	TSN =						
30	TSN =						

30, \$, \$, - append *30*\$ to indicate end of reference data. NOTE - Use V (VG) or N (not VG) for objects to which measured distance is not given.

***** ORIGINAL OR RECOVERY DESCRIPTIVE TEXT *****

40 THE STATION IS LOCATED AT THE STEAMSHIP AUTHORITY FERRY PIER
40 IN OAK BLUFFS, MARTHA'S VINEYARD.
40
40 TO REACH FROM THE OAK BLUFFS FERRY TERMINAL GO EAST DOWN THE
40 ADJACENT SAND TOWARD THE FERRY SLIP ADD A CONCRETE SLAB ON
40 PILINGS AND THE STATION ON THE CENTER OF THE WOOD BUMPER PILINGS
40 ON THE SOUTH SIDE OF THE DOCK.
40
40
40 THE STATION IS AN ALUMINUM NGS DISK SHAPED H
40 SECURED TO THE TOP OF A 1/2 INCH ALUMINUM ROD EMBEDDED IN CONCRETE
40 AND PROJECTING 1/2 INCHES. IT IS A HALF INCH LAG BOOT IN THE TOP CENTER
40 OF THE WOOD BUMPER PILINGS. IT IS 12.3 FEET (3.749 M) SOUTHWEST OF THE
40 NORTHEAST EDGE OF THE WOOD BUMPER PARKING, 12.0 FEET (3.658 M)
40 WEST OF THE SOUTHWEST EDGE OF THE WOODEN BUMPER FACE, OVER
40 \$, \$, - insert *40*\$ between paragraphs and append *40*\$ to indicate end of descriptive text. NOTE - Do not divide words between records.

40 AND 9 FEET (2.743 M) SOUTHEAST OF A BOLLARD IN THE CONCRETE

40 E AB

40

40 HEIGHT OF LIGHT SHOWN WAS 9.14 METERS

40

40 DESCRIBED BY R.H.W

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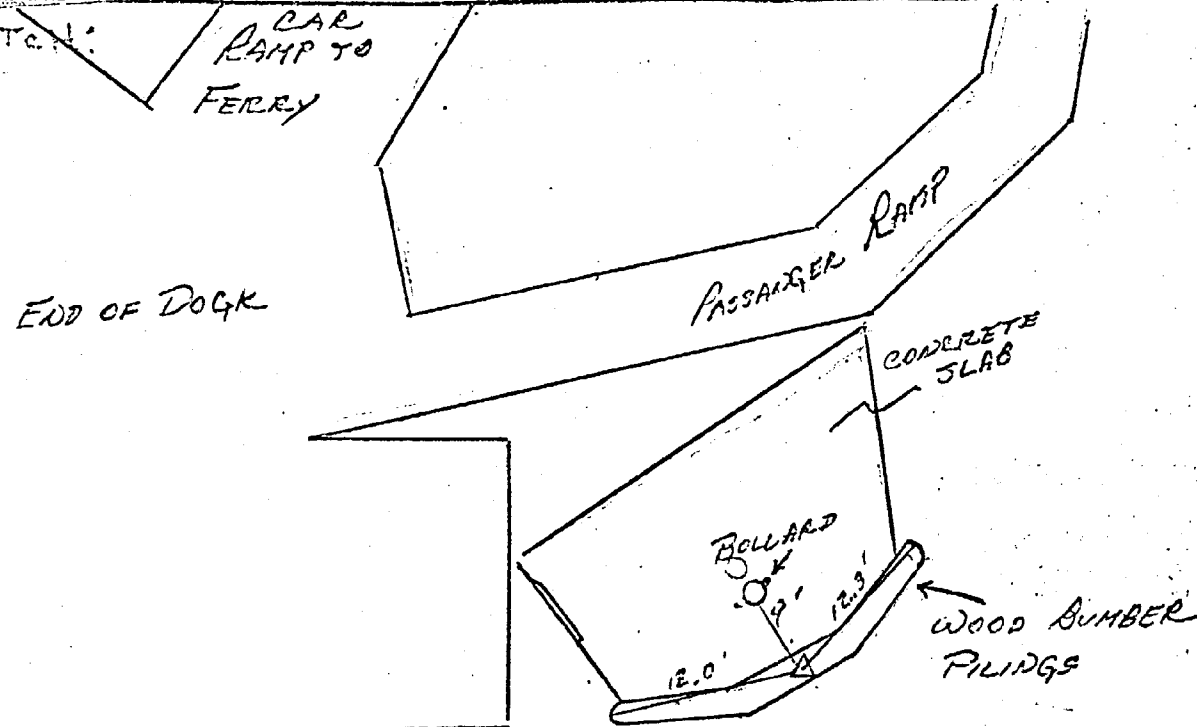
40

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40

40

SKETCH:



NATIONAL OCEAN SURVEY NATIONAL
NO ORIGINAL TEXT

by the
National Ocean Survey
NORTH AMERICAN 1927 DATUM

Q 410703 STATION 1146
MASS
LATITUDE 41 ° 00' TO 41 ° 30'
LONGITUDE 70 ° 30' TO 71 ° 00'
DIAGRAM NK 19-7 PROVIDENCE

WEST CHOP LIGHTHOUSE

WEST CHOP LIGHTHOUSE (Dukes County, Mass., 1904; I.R.R., 1956);
 --The station was recovered in good condition. The published description is adequate.

NAME OF STATION. WEST CHOP LIGHTHOUSE

YEAR: 1904

THIRD

-PAGE 4

GEODETIC LATITUDE:	41 28 50.466	ELEVATION:	10	METERS
GEODETIC LONGITUDE:	70 36 01.107	SCALED		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ HOR Δ θ ANGLE
MA 1S	2002	172,513.16	175,158.62	- 0 02 56
MA M	2001	846,545.01	176,460.87	+ 0 26 16

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ FOR Δ θ FORMULA NEGLECTING THE SECOND TERM

TO STATION OR OBJECT	MAGNETIC AZIMUTH (From south)	PLANE AZIMUTH * (From south)	CODE

46 519

NO ORIGINAL TEXT

by the
National Ocean Survey
NORTH AMERICAN 1927 DATUM

STATION 1039

MASS
LATITUDE 41° 00' TO 41° 30'
LONGITUDE 70° 30' TO 71° 00'
DIAGRAM NK 19-7 PROVIDENCE

NAME OF STATION: EAST CHOP LIGHTHOUSE

STATE: MASSACHUSETTS

YEAR: 1904

THIRD

SOURCE: G-01052

STATE COORDINATES (Feet)				
STATE & ZONE	COORD	X	Y	SIDE OF TRIANGLE
MA 15	2002	181,369.02	171,312.15	- 0 02 42
MA N	2001	855,445.69	172,718.18	+ 0 37 34

* PLANS AZIMUTH HAS BEEN COMPLETED IN THE FIELD

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\sin \theta \cos \Delta$ FORMULA NEGLECTING THE SECOND TERM

AZIMUTH HAS BEEN COMPUTED BY THE $\sin^2 \theta \cos \Delta \sin \delta$ FORMULA NEGLECTING THE SECOND TERM			
TO STATION OR OBJECT	GEODETTIC AZIMUTH (From north)	PLANE AZIMUTH θ (From north)	CODE

45 380

45 380

JAN 1977
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

NO ORIGINAL TEXT

HORIZONTAL CONTROL DATA

by the
National Ocean Survey
NORTH AMERICAN 1927 DATUM

QUAD 410703 STATION 1047
MASS
LATITUDE 41° 00' TO 41° 30'
LONGITUDE 70° 30' TO 71° 00'
DIAGRAM NK 19-7 PROVIDENCE

ADJUSTED HORIZONTAL CONTROL DATA

EDGARTOWN, STANDPIPE (Dukes County, Mass., M.H.R., 1932; E.R.M.C., 1949).
It is located on the highest hill approximately 3/4 mile SSW of Edgartown.

(11-2-25)

RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: Edgartown Standpipe
ESTABLISHED BY: M.H.R. YEAR: 1932 STATE: Massachusetts
RECOVERED BY: V.E.S. YEAR: 1961 COUNTY: Dukes

Detailed statement as to the status of the original description; including marks found, stampage, changes made, and other pertinent facts:
The station was recovered in good condition as described.
According to local authorities the structure is essentially the same as when built.

NAME OF STATION: EDGARTOWN STANDPIPE 1932

STATE: MASSACHUSETTS

YEAR: 1932

THIRD

-ORDER

SOURCE: C- 5985

NO OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE:	41 22 40.807	ELEVATION:	METERS
GEODETIC LONGITUDE:	70 31 10.876		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	SIDE ANGLE
MA IS	2002	194,596.54	137,728.62	- 0 00 47
MA M	2001	869,066.53	139,290.02	+ 0 39 31

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE SIDE ANGLE FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From mark)	PLANE AZIMUTH (From mark)	CODE

POSITION DETERMINED BY TRAVERSE FROM STATION MAT

47 031

JAN 1977
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
National Ocean Survey
NORTH AMERICAN 1927 DATUM

QUAD 410702 STATION 1009
MASS
LATITUDE 41° 00' TO 41° 30'
LONGITUDE 70° 00' TO 70° 30'
DIAGRAM NK 19-7 PROVIDENCE

ADJUSTED HORIZONTAL CONTROL DATA

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: Cape Poge Lighthouse STATE: Mass COUNTY: Dukes
CHIEF OF PARTY: J.K.W. YEAR: 1961 DESCRIBED BY: H.P.D.

NOTE	HEIGHT OF TELESCOPE ABOVE STATION MARK SURFACE-STATION MARK, UNDERGROUND-STATION MARK	METERS, 1	HEIGHT OF LIGHT ABOVE STATION MARK DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION	METERS	DISTANCE		DIRECTION
					FEET	METERS	
	Wasque, House Cupola	S			00	00	00.0
	Edgartown Standpipe	SW			39	36	18.9
	Lagoon Heights Water Tower	W			90	23	56.2

The station is located at Cape Poge on Marthas Vineyard, about 3 1/2 miles northeast of Edgartown. The station is the center of the 45 foot, gray, shingled lighthouse on the bluffs at the extreme northern tip of Cape Poge.

To reach from Edgartown, take the ferry to Chappaquiddick Island, and continue eastward along road from ferry (Chappaquiddick Road) for 2.9 miles to the bridge over Pocha Lagoon and the end of the road. At the east end of the bridge is a dirt trail leading northward. Go north on this trail to the northern extremity of Cape Poge and the station site. It is advisable to attempt travel over this trail only with a four wheel drive vehicle.

The platform around the top of the light was occupied eccentrically.

NAME OF STATION: CAPE POGE LIGHTHOUSE
STATE: MASSACHUSETTS YEAR: 1961

THIRD ORDER

SOURCE: G-12687

GEODETIC LATITUDE:	41 25 11.943	ELEVATION:	3 METERS
GEODETIC LONGITUDE:	70 27 05.858	SCALED	FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	S 100' Δ S1 ANGLE
MA IS	2002	213,267.73	153,028.72	+ 0° 01' 55"
MA H	2001	887,558.19	154,808.99	+ 0° 42' 15"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE S 100' Δ S1 FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH (From south)	CODE
WASQUE POINT HOUSE CUPOLA	11 06 12.4	11 04 17	2002
WASQUE POINT HOUSE CUPOLA	11 06 12.4	10 23 57	2001

CAM3-5
5-25-71

ATTACHMENT VI

TO: Director, Atlantic Marine Center DATE: 22 JULY 1980
ATTN: CAM3
FROM: RUDE & HECK F00
SUBJECT: Request for Predicted Tide Correctors

1. Enclosed is the logged tape of predicted highs and lows for the period JD 224 - JD 319 (from Tide Table 1) at Reference Station Boston, Mass (844-3970) Lat: 42 ° 21 ' Long: 71 ° 03 '
(place) (position)
2. Tidal differences and other constants from Tide Table 2 for Oak Bluffs, Martha's Vineyard Lat: 41 ° 27 ' Long: 70 ° 33 '
(place) (position)

TIME (Hour, Minute)		HEIGHT (Feet)		HEIGHT RATIO (If Applicable)	
High Water	Low Water	High Water	Low Water	High Water	Low Water
+30 min	-14 min			x 0.18	x 0.18

3. Tidal differences and other constants from Tide Table 2 for _____ Lat: _____ Long: _____
(place) (position)

TIME (Hour, Minute)		HEIGHT (Feet)		HEIGHT RATIO (If Applicable)	
High Water	Low Water	High Water	Low Water	High Water	Low Water

4. Please furnish corrections on _____ GMT
(Time Meridian)

in the following units: and in the following unit interval:
(check one) (check one)

☒ Feet

☐ .1

☒ .5

☐ Fathoms

☐ .2

☐ 1.0

☐ Meters



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA SHIPS RUDE & HECK
439 West York Street
Norfolk, VA 23510

ATTACHMENT VII

Date : 21 Jan 1981

Reply to Attn. of:

To : Chief, Tidal Requirements & Acquisitions Branch
ATTN: C231

From : Commanding Officer *David H. Peterson*
NOAA Ships RUDE & HECK

Subject: Request for Smooth Tide Correctors

Ref: Project Instructions S-B609-RU/HE-80

Smooth tide correctors are requested for the following survey times during S-B609-RU/HE-80, Oak Bluffs Harbor, Martha's Vineyard, MA:

<u>Julian Date</u>	<u>Times (Z)</u>
256	1500-2100
261	1300-2100
262	1100-2100
263	1530-2230
266	1200-2400
267	1100-2030
270	1030-1600
276	1430-2300
277	1030-1700
282	1230-1730
284	1200-1830
290	1730-2200
294	1700-2200
295	1030-2130
296	1100-2130
297	1630-2030
298	1030-1730
301	1700-2300
302	1130-1630

Tide reducers should be furnished from updated information collected by the operation of the following tide station:

#844-8208 Oak Bluffs, Martha's Vineyard

New data collected during the survey has been forwarded for processing under separate transmittals. All smooth tide correctors should be sent to Chief, Requirements Branch, C351.

Attachment VIII

Definitions in Testing

(1) Lift: The difference between the wire depth, or the pneumatic depth gauge depth, and the length of the upright when the wire depth is less than the length of the upright.

(2) Sag: The difference between the wire depth and the length of the upright when the wire depth is greater than the length of the upright.

(3) Miss: A test of the wire in which, for any reason, the tester pole fails to show evidence of being struck by the wire.

(4) Sag Miss: A test of the wire in which the tester pole fails to show evidence of being struck by the wire because the wire has, with certainty, passed beneath the tester pole.

(5) TOB: "Tester on Bottom." A test of the wire in which the tester rod shows signs of having touched the ocean floor. Such a test is rejected because of the uncertainty of the accuracy of the results of the tests.



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

CAMI CWF

FEB 2 1981

OA/C351:DJH

ATTACHMENT IX

TO: OA/CAM - Richard H. Houlder
FROM: OA/C3 - Roger F. Lanier *Roger F. Lanier*
SUBJECT: CHANGE NO. 1 to HYDROGRAPHIC PROJECT INSTRUCTIONS: S-B609-RU/HE-80,
Wire Drag, Oak Bluffs Harbor, Martha's Vineyard

Subject CHANGE is forwarded for signature and issuance to the Commanding Officer, NOAA Ships RUDE and HECK.

The copies required for distribution by this office have been retained.

Attachment

1ST ENDORSEMENT

February 4, 1981

TO: Commanding Officer
NOAA Ships RUDE and HECK

Forwarded for your compliance.

R H Houlder

Richard H. Houlder
Director, Atlantic Marine Center

CC:
CAM02
CAM102
CAM3
CAM5
CAM6, 4, XO



10TH ANNIVERSARY 1970-1980
National Oceanic and Atmospheric Administration
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4 FEB REC'D



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

FEB 2 1981

OA/C351:DJH

Hydrographic Project Instructions

Commanding Officer
NOAA Ships RUDE and HECK

S-B609-RU/HE-80, Wire Drag, Oak Bluffs Harbor, Martha's Vineyard, dated
June 20, 1980

CHANGE NO. 1: Amendment to Instructions

1. Section 7.10 of the hydrographic project instructions shall be amended to include the following information.

7.10. Processing: Field operations and field data processing shall be coordinated such that all project data will be submitted to AMC within 6 weeks of completion of field operations.

7.10.1. Field processing shall include all of the standard products of a wire-drag survey.

7.10.2. Data for this survey shall be registered in accordance with procedures for field examinations outlined in Hydrographic Guideline No. 7. Office processing shall include, as a minimum, depths for all hangs and groundings, and least depths on rocks and obstructions shall be smooth plotted, with final correctors applied, using standard symbology. The smooth sheet shall be plotted at a scale of 1:5,000. A note should be added to the plot that the survey was originally done at 1:10,000 scale.

Drag strips over features, on which divers have determined a least depth and a strong detached position, need not be smooth plotted. On other features, over which the least depth was not determined by divers, the minimum hang strip and the maximum clearance strip shall be smooth plotted. The remaining strips as plotted on the final field A&D sheet will be adequate, unless required to clarify or support the results of the survey.

Each feature located by the Corps of Engineers shall be addressed in the Verifier's Report, and compared with the findings of the

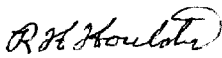


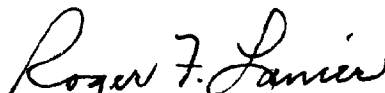
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present survey. If conflicting results are found between the two sources, an attempt should be made to explain the discrepancies, and to recommend the appropriate charting disposition for each.

A tabular listing of features including latitude and longitude versus corrected least depth shall be included in the Verifier's Report.

2. All other provisions of the basic instructions remain unchanged.
3. Receipt of this CHANGE shall be acknowledged.


Richard H. Houlder
Director
Atlantic Marine Center



Roger F. Lanier
Associate Director
Marine Surveys and Maps

R E C E I P T

TO: OA/C3 - Roger F. Lanier
ATTN: OA/C35

THRU: OA/CAM - Richard H. Houlder

Receipt of CHANGE NO. 1, dated FEB 2 1981, to Hydrographic
Project Instructions S-B609-RU/HE-80, Wire Drag, Oak Bluffs Harbor,
Martha's Vineyard, dated June 20, 1980, is acknowledged.



Commanding Officer
NOAA Ships RUDE and HECK

9 FEB 1981
Date



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

JUN 20 1980

OA/C351:DJH

ATTACHMENT IX

TO: OA/CAM - Richard H. Houlder
FROM: OA/C3 - Roger F. Lanier *Roger F. Lanier*
SUBJECT: HYDROGRAPHIC PROJECT INSTRUCTIONS: S-B609-RU/HE-80, Wire Drag, Oak Bluffs Harbor, Martha's Vineyard

Subject instructions are forwarded for signature and issuance to the Commanding Officer, NOAA Ships RUDE and HECK.

The copies required for distribution by this office have been retained.

Attachment

1ST ENDORSEMENT

June 25, 1980

TO: Commanding Officer
NOAA Ships RUDE and HECK

Forwarded for your compliance.

R H Houlder

Richard H. Houlder
Director, Atlantic Marine Center

CC:
CAM02
CAM103, 102
CAM3
CAM5
CAM6, 4, X0



10TH ANNIVERSARY 1970-1980

National Oceanic and Atmospheric Administration

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24 JUN REC'D



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

JUN 20 1980

OA/C351:DJH

Hydrographic Project Instructions

Commanding Officer
NOAA Ships RUDE and HECK

S-B609-RU/HE-80, Wire Drag, Oak Bluffs Harbor, Martha's Vineyard

1.0. GENERAL

1.1. Introduction: The purpose of this project is to provide clearance depth at the approach to Oak Bluffs Harbor, Massachusetts. The project was initiated due to the recent striking of an obstruction by the M/V ISLANDER and the potential for additional undetected hazards. Vessels with drafts of 11 feet are known to use the area.

1.2. Location: Operations should be confined to the approach of Oak Bluffs Harbor, but be of sufficient extent to cover the area defined on the attached copy of survey H-8821 (1964).

1.3. Time Frame: The survey is to be initiated and conducted at the discretion of the Commanding Officer during 1980.

1.4. Priority: Areas most commonly used by deeper draft vessels will carry the highest priority with the remaining areas to be completed at the discretion of the Commanding Officer.

1.5. Security Classification: National security is not involved in this project; however, the Commanding Officer must avoid revealing information on discovered objects that may serve to permit an individual to capitalize on salvage prior to the information being made public. Refer to NOS Director's memorandum, "Policy on Reporting Wrecks," dated September 13, 1971. Any preliminary survey data released for information must be annotated as "Advance information subject to office review."

1.6. Previous Instructions: Not applicable.

1.7. Charts Affected: Charts affected by these instructions are 13238, 13233, and 13237.

1.8. Scope: A wire-drag clearance survey is required for this project.

1.9. Quality: The ship is encouraged to determine a proposed progress plan; however, the Commanding Officer must remember that time schedules will be



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self-imposed. It is imperative to the overall charting effort of the NOS that, within reasonable limits, data quality be stressed in lieu of data quantity. The accuracy standards described in the Wire Drag Manual shall govern all wire-drag operations.

2.0. PARTICIPATION

The NOAA Ships RUDE and HECK will be the only units assigned to this project and will be solely responsible for its prosecution.

3.0. GEODESY

3.1. Site Selection: The vessels and AMC will coordinate selection of the sites of the hydrographic positioning control stations following the guidance of section 4.4.3.4 of the Hydrographic Manual.

3.2. Horizontal Control:

3.2.1. Geodetic control stations required for your operations will be searched for and recovery notes submitted in accordance with procedures in the Hydrographic Manual, AMC Manual, and AMC OPORDERS. Support will be provided by AMC.

3.2.2. Monumented control stations established during the survey within 150 meters of existing triangulation stations shall be named reference marks of the existing station.

3.2.3. Supplemental control stations established to support survey operations under these instructions shall be to Third-order, Class I positional accuracy standards (or better) except where lesser accuracy is permitted by section 1.3.1 of the Hydrographic Manual. All geodetic control survey procedures, techniques, and accuracy standards shall be in strict conformance with the specifications listed in the Manual of Geodetic Triangulation (C&GS SP 247) and the Classification, Standards of Accuracy, and General Specifications of Geodetic Control Surveys (NOAA-NOS), dated February 1974 (Reprint February 1977). Third-order observations shall be performed, reduced, and submitted to NGS in accordance with the requirements detailed in the NOAA/NGS memorandum "Policy of the National Ocean Survey with Regard to the Incorporation of Geodetic Data of Other Organizations into the National Geodetic Data Base." All geodetic data required by section 3.1.2.1.9 of the Hydrographic Manual shall be submitted to OA/CAM102.

3.3. Vertical Control: Not applicable.

4.0. TOPOGRAPHY: Not applicable.

5.0. TIDES

5.1. Purpose: All tide requirements in these instructions are in direct support of wire-drag operations.

5.2. Responsibility: It is the responsibility of the Commanding Officer to ascertain that proper field monitoring of all tide gages in support of this project is carried out. A line of communication must be established between the ships and any contract observer to ensure prompt notification of gage

malfunctions or changes in the staff/gage relationship. Breaks or invalid tide data from any gage in excess of 3 continuous days cannot be interpolated. This might result in a loss of tide control to the extent that a resurvey of the area would be required.

5.3. Bench Mark Requirements:

5.3.1. A minimum of five bench marks are to be connected by levels to the tide staff on installation and removal of all tide gages. In the numbering of new bench marks, attention is directed to section 2.5 of the User's Guide for the Establishment of Tidal Bench Marks and Leveling Requirements for Tide Stations (User's Guide).

5.3.2. Tidal bench mark data, sketches of historical sites, and installation reports will be provided where available. Every effort must be made to recover and level to all existing bench marks in the vicinity of the tide stations so that tectonic changes in the area may be determined through the correlation of historical data relative to more recent observations.

5.4. Type of Gages:

5.4.1. All stations should be equipped with ADR (analog to digital recorder) gages whenever possible. However, a bubbler gage is acceptable for this survey.

5.4.2. Due to problems in the processing of bubbler tide gage marigrams, certain precautionary measures must be taken by field personnel in the installation and monitoring of bubbler tide gages. When installing a bubbler tide gage, the dampening microvalve should not be adjusted so that the stylus line of the marigram is perfectly smooth (i.e., free of noise from higher frequency waves). A record with a small, but noticeable amount of noise (e.g., a band width of 0.2 to 0.4 foot on a 0- to 20-foot marigram scale under moderate weather conditions) indicates that the gage is not overdamped. During the first day of gage operation, the gage/staff values should be read and recorded every 12 minutes over a 3-hour period. The gage/staff differences should remain fairly constant from one reading to the next and gage time should correspond to watch time. This will indicate that the bubbler gage is functioning correctly at the time of installation. In accordance with the Hydrographic Manual and the AMC Manual, the logging of hourly heights is required for all bubbler tide gage marigrams for the times of hydrography.

5.5. Descriptions and Reports: The following shall be provided for each station: photographs of the general area as well as the tide gage and staff installations; a section of the large-scale nautical chart of the area or other large-scale map section (e.g., 7.5 min USGS Quad) indicating the location of the tide station; and a description and sketch of the location of bench marks, tide gage, and tide staff. In addition, NOAA form 77-12 shall be submitted on installation, removal, and inspection or servicing of all tide stations. Please note that the latitude and longitude lines must be labeled on the large-scale chartlet indicating the location of the tide station. This must be done so that the actual position as stated on NOAA form 77-12 may be verified in the Rockville Office. All original records shall be submitted in individual envelopes for each tide station, in accordance with the AMC Manual.

5.6. Data Reduction: All tide work shall be accomplished in accordance with the Manual of Tide Observations (Special Publication 30-1) and the User's Guide. The particular time zone used for each tide station shall be noted on the marigrams. When tide records are forwarded to OA/C23 at the beginning of each month, a listing of times of hydrography, area surveyed, and controlling gages shall be included. This will decrease the time for obtaining final correctors and allow OA/C23 to determine that all hydrography had proper tide control.

5.7. Datum: Boston, Massachusetts, will serve as the reference station for predicted tides. The existing control stations at Woods Hole, Massachusetts (844-7930), and Boston, Massachusetts (844-3970), will be used as control for datum determination at all subordinate stations. The latest tide station information with the tide observer's name and phone number have been provided.

5.8. Locations: The following historical tide station location has been selected to provide updated information on tidal datums (tide reducers) and harmonic constants and time and range of tide information for predictions. This station shall be installed and operated for a minimum duration of 30 days of observations and from 3 hours before to 3 hours after the periods of hydrography or wire drag.

<u>Station Number</u>	<u>Station Name</u>	<u>Lat. (N)</u>	<u>Long. (W)</u>
844-8208	Oak Bluffs, Martha's Vineyard	41°27.5'	70°33.3'

The Commanding Officer shall be responsible for establishing this station at the beginning of the survey, running installation level connections from the tide staff to a minimum of five bench marks, and ensuring proper gage operation during the survey. It is projected at least two new bench marks will have to be established. If the survey work is expected to be accomplished in less than 30 days, a tide observer shall be hired and trained to continue operation of the tide station before the ship leaves the survey area. OA/C231 will coordinate the removal of the gage and running the removal levels at the end of the 30-day period if ship operations have already been completed. The tide staff shall be installed in such a manner as to ensure stability, permanency, and readability, as it will be left in place after the survey for use by the Steamship Authority. Historical tide station information is provided.

6.0. HYDROGRAPHY: Not applicable.

7.0. BOTTOM INVESTIGATIONS

7.1. References: Investigatory work shall be in accordance with the Wire Drag Manual, except as modified by these instructions.

7.2. Responsibility: The Commanding Officer has the responsibility and the authority to review the assignment after onsite inspection and judge the advisability of actually conducting the investigation. If the Commanding Officer decides the investigation cannot be justified or should be revised from specifications contained in these instructions, that decision shall be explained in the Descriptive Report. In such cases, the Requirements Branch (OA/C351) should be informed before departing the project area.

7.3. Contacts: An effort should be made to contact local marine interests in order to gain further information on the area. Their information and assistance could prove valuable in expediting the assignment as well as revealing the presence of uncharted hazards. Specific contacts may include:

Mr. John J. McCue
General Manager
Woods Hole, Martha's Vineyard
and Nantucket Steamship Authority
P.O. Box 284
Woods Hole, Massachusetts 02543

Phone: 617-548-5011

The Steamship Authority operates the damaged vessel, M/V ISLANDER.

Mr. V. L. Andreliunas
Chief, Operations Division
New England Division
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02154

Phone: 617-894-2400

Mr. Andreliunas is responsible for the investigation which located numerous uncharted rocks in the area.

7.4. Positioning Control: Control shall be by electronic and/or visual methods, whichever is most effective and commensurate with accuracy requirements. Calibration procedures and recording shall be in accordance with sections 4.4.3.3 and 5.3.4 (paragraph G) of the Hydrographic Manual and the AMC OPORDERS.

7.5. Survey Scale: The survey shall be plotted at a scale not smaller than 1:10,000. A larger scale may be employed at the discretion of the Commanding Officer.

7.6. List of Items: Not applicable.

7.7. Investigation Extent: The minimum extent of investigation is indicated on the attached copy of H-8821 (1964). Revisions to the limits are possible after contacting local marine interests and should be addressed as indicated in section 7.2.

7.8. Prior Surveys: The following prior survey is considered applicable and will be furnished for use in planning wire-drag operations:

<u>Registry No.</u>	<u>Scale</u>	<u>Year</u>
H-8821	1:10,000	1964

7.9. Dangers to Navigation: All uncharted shoals, rocks, wrecks, and other dangers to navigation discovered during the course of the survey shall be reported to the U.S. Coast Guard in accordance with sections 1.6.4 and 5.9 of the Hydrographic Manual. Negative reports shall be indicated in the Descriptive Report for each field sheet.

7.10. Processing: Field operations and field data processing shall be coordinated such that all project data will be submitted to AMC within 6 weeks of completion of field operations. For wire-drag investigations, only the maximum clearing strip and the minimum hang strip need to be smooth plotted. The remaining strips need only be rough plotted. For wire-drag area plots, the entire survey must be smooth plotted.

7.11. Wire Drag: Wire-drag work shall be in accordance with the Wire Drag Manual, except as modified by these instructions.

7.11.1. Overlap: Overlap of adjacent strips shall be adequate to ensure complete coverage of an area. Splits shall be cleared as work progresses in accordance with section 4-10 of the Wire Drag Manual.

7.11.2. Bottom Clearances: The drag shall be set to a clearance depth of 14 feet in the offshore section and 12 feet in the inshore section as defined on the attached copy of H-8821 (1964).

7.11.3. Hangs and Temporary Groundings: Drag strips in one direction are considered adequate for establishing effective cleared depths when no hangs are encountered. However, all hangs and temporary groundings shall be cleared by subsequent drag strips. In accordance with section 3-20 of the Wire Drag Manual, obstructions in harbors and channels are to be cleared by not more than 2 feet; in other areas of general depths of 60 feet or less, a clearance of 3 feet should be obtained; in areas of depths greater than 60 feet, clearances of 5 feet are acceptable. During normal ship operations, when expected temporary groundings are encountered in areas of irregular bottom (verified by reconnaissance lines), a clearing by subsequent drag strips is not required. All hangs, other than temporary grounds or anticipated groundings in shoal water at the beginnings and ends of drag strips, shall be investigated by divers, if practicable, before attempting to clear with subsequent drag strips. A lead line, the Bryson Gage, and/or the Farallon digital depth gage are appropriate for least depth determination, if properly tested and of accuracy compatible with other survey data. When wreckage is suspected or is found by divers, hangs shall be cleared by two drag strips from opposite directions in accordance with section 4-19 of the Wire Drag Manual. An exception to this requirement exists when underwater visibility is good, divers can identify the object hung as being the item sought with no surrounding wreckage, and can obtain a least depth accompanied by a strong detached position. In such cases, no subsequent clearing strips over the item are required.

Grounding should be anticipated at the following locations:

<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>MLW Depth</u>
41°27'39"	70°33'12"	13.2
41°27'43"	70°33'19"	12.4
41°27'39"	70°33'09"	12.2
41°27'39"	70°33'06"	13.2
41°27'38"	70°33'05"	12.5
41°27'42.5"	70°33'05.0"	11.0
41°27'37.5"	70°33'03.8"	9.0
41°27'32.0"	70°33'08.0"	11.0

7.11.4. Navigation Buoys: All navigation buoys within the project limits shall be hung from opposite directions to ensure that no unknown obstruction exists in their vicinity.

7.12. Side Scan Sonar: Should a side scan sonar unit become available to the vessel, it shall be operated in accordance with the manufacturer's recommendations to locate submerged obstructions; however, a side scan sonar survey is not considered to be adequate to disprove the existence of an obstruction.

7.13. Diving: All diving in conjunction with this project shall be in accordance with the NOAA Diving Manual. That manual describes a number of search techniques in section 7. Any investigation used by the unit should either be referenced to the appropriate technique described in the NOAA Diving Manual or described in detail in the Descriptive Report.

8.0. ANCILLARY TASKS

8.1. Bottom Samples: Not applicable.

8.2. Currents (Circulatory Studies): Not applicable.

8.3. Water Characteristics: Not applicable.

8.4. Verification of Floating Aids to Navigation: The floating aids to navigation within the project area shall be located and described in accordance with section 4.5.13.2 of the Hydrographic Manual. Fixed and floating aids listings will be provided by OA/C351 only upon request by the field unit. The request indicating the chart number and edition should be made through OA/CAM1.

8.5. Magnetics: Not applicable.

8.6. Coast Pilot:

8.6.1. Review and Supplement Text: The Coast Pilot description of the project area shall be carefully reviewed and a special report submitted in accordance with section 6.6 (source documentation) and 9, Coast Pilot Manual, Third (1969) Edition, and section 5.8 of the Hydrographic Manual.

8.6.2. Coastal Navigation Photography: Photographs as described in Change No. 1, May 4, 1979, Coast Pilot Manual, Third (1969) Edition, should be obtained and forwarded to the Rockville Office, Attention: OA/C324.

9.0. REPORTS

9.1. Reports shall be submitted in accordance with chapter 5 of the Hydrographic Manual.

9.2. Progress sketches indicating the sheet layout and assigned field number shall be submitted monthly to OA/CAM1 at the scale of chart 13238.

9.3. Accomplishments shall be reported on NOAA form 12-8b (rev. 12-76) with the guidance of the "Instructions for Completing Monthly Ship Accomplishment Report," NOAA Form 12-12 (1-77).

9.4. Each chart or field sheet should have an accompanying letter or report explaining the methods used, the result of each investigation, and final recommendations for charting or deleting each item. Fathograms used in fathometer calibrating and in locating obstructions shall be submitted with other records.

10.0. MISCELLANEOUS

10.1. Timely notification of planned hydrographic survey operations shall be made to the U.S. Coast Guard for inclusion in the Local Notice to Mariners.

10.2. Responsive public service requires that every reasonable effort be made to keep the public aware of NOS activities. Contact shall be made with the NOS Public Affairs Officer (PAC), telephone 301-443-8708, to report newsworthy accomplishments.

10.3. Tide gage float well or orifice locations are to be plotted on the final field sheets to facilitate processing.

10.4. Support Data: The following survey support data will be transmitted by the Rockville Office as indicated.

<u>Data Type</u>	<u>Project Instruction Reference</u>	<u>Source</u>	<u>Copies</u>	<u>Users*</u>	<u>Transmittal Date</u>
Prior Surveys	7.8	OA/C353	2	RU/HE, OA/CAM3	June 13, 1980
Chart Blowups**	N.A.	OA/C351	1	RU/HE	2 weeks***
FFAID Listing**	8.4	OA/C351	2	RU/HE, OA/CAM3	1 week***

* All data will be transmitted to OA/CAM1 with a distribution listing included on the transmitting letter.

** Supplied only upon request.

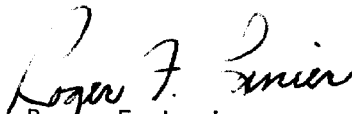
*** Date refers to time elapsing from receipt of request to transmission of data.

10.5. Submit recommendations through OA/CAM1 to OA/C351 if it appears advisable to amend these instructions.

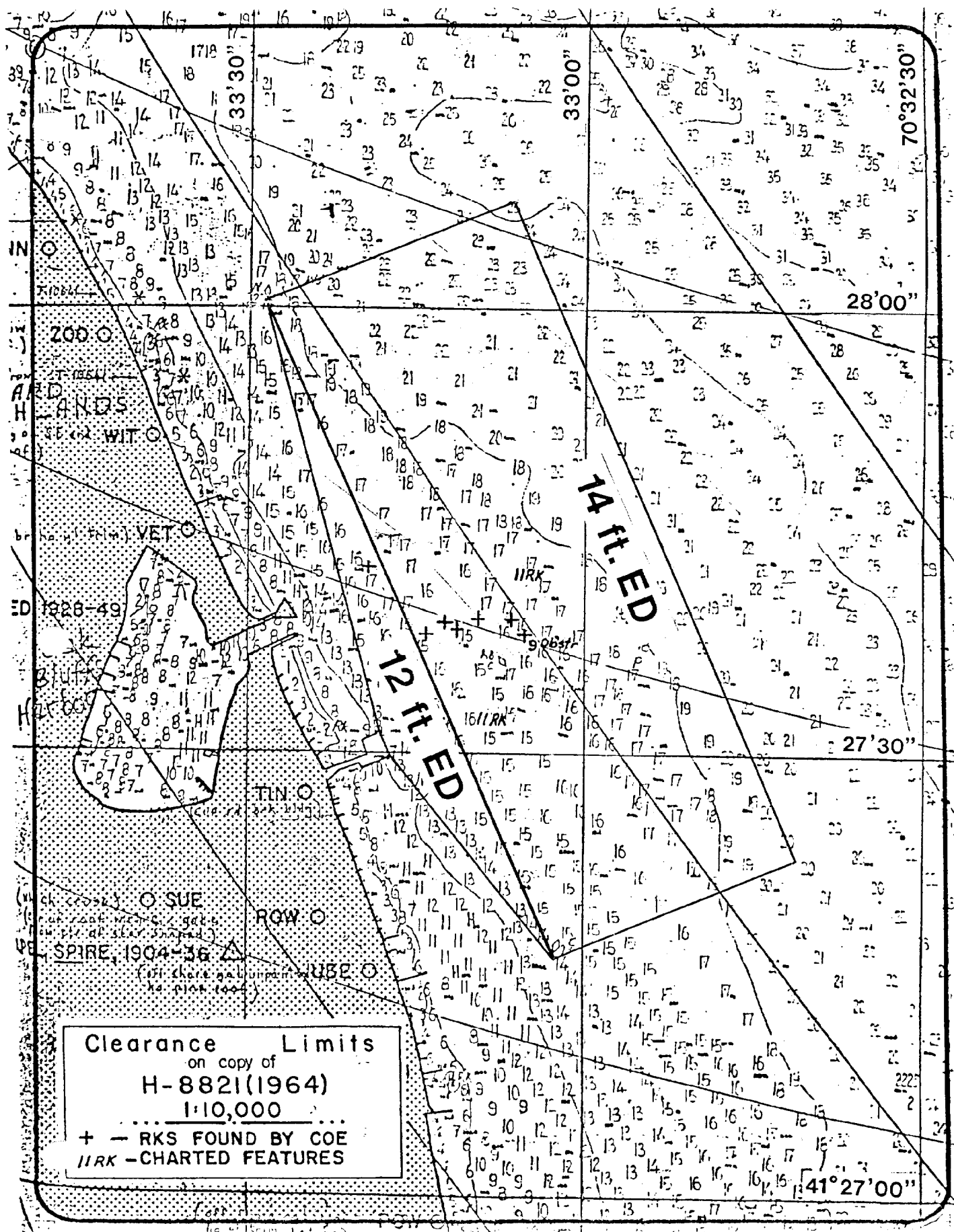
10.6. Receipt of these instructions shall be acknowledged.



Richard H. Houlder
Director
Atlantic Marine Center



Roger F. Lanier
Associate Director
Marine Surveys and Maps



September 13, 1971

C O P Y

Policy on Reporting Wrecks

Director, Atlantic Marine Center

It has been determined that the National Ocean Survey does have some obligation to report the finding of certain wrecks to the Federal Government. The National Park Service and General Services Administration have responsibility for many wrecks of historical value, prizes of war, and vessels on Federally owned or controlled property. Title to all U.S. warships remains in the U.S. Government, and all articles removed from them are the property of the United States. The Naval Historical Display Center has expressed interest in the recovery of items from old naval vessels.

Additionally, many State governments have adopted legislation governing salvage rights within state territorial waters. A copy of the Rules and Regulations of the Texas Antiquities Committee has been furnished you by memorandum, C353, of March 13, 1970.

NOS must avoid revealing information on discovered objects that may serve to permit an individual to capitalize on salvage prior to the information being made public.

An official legal opinion on NOS responsibility beyond charting obstructions to navigation has not yet been handed down. In the interim, the following policy is established:

Commanding Officers may report preliminary positions, least depths over obstructions, and other information for use as concerns the safety of navigation only. However, all publicity concerning the nature of the obstruction, the identity or cargo of a sunken vessel, or other discoveries that may be of monetary, historical, or legal interest to the Federal Government will originate from the Director, NOS. Reporting of this nature shall be made to the nearest Marine Center, or directly to the Office of Fleet Operations which will assume responsibility for directing the information to the proper authority.

(S) Don A. Jones

Don A. Jones
Director
National Ocean Survey

844-8308

REPORT - TIDE STATION

Station Oak Bluffs, Massachusetts Lat. 41 27.30
~~Established~~ Removed Long. 70 33.20 Time Mer. 75 W
~~Inspected~~ by William L. Outlaw Date 6/7/72
Wharf - Name and location* Woods Hole, Martha's Vineyard & Nantuckett Steamship Pier
Owner and arrangements for maintaining station Oak Bluffs, Massachusetts
Manager N. W. Debettencourt
Tide Observer - Name, address and telephone No. John M. Edwards Harbormaster
Pine St. ; Edgartown, Mass. 02537
Business address and telephone No. _____
Tide House - Size and brief description NA

Tide Staff - Portable or fixed Fixed Date of installation { Staff support 10 August '71
Limits of graduations 0-9 Hinged? No Fixed staff _____
Scale graduation corresponding to stop 9 ft. Is staff support sheathed with copper? No
Method of securing staff and support in place and remarks scale secured to 2 x 4 board and
nailed to wharf

Type of Gage ADR Date of installation 10 August 1971
C. & G. Survey No. _____ Scale _____
Float, size 3 1/2 in.; weight _____ lb. Counterpoise _____ lb. Tension weight _____ lb.
Remarks _____

Float Well - Material PVC Pipe Date of installation 10 August '71
Length, top to intake 14 ft. Inside diameter 4 in. Size and position of intake 1/2 in.
Construction, installation, and remarks PVC pipe U-bolted to 2 x 10 plank and nailed in
two places to pier supports.

*A section of chart showing location should accompany this report.

(Use reverse side of form for additional information)

Measurements - Referred to wharf floor unless otherwise indicated. Negative sign to be used when point is above wharf floor.

(Automatic gage) (Tape gage)

Top of staff support 1 1/2 ft. Top of float well - 2 1/2 ft. ft.

Zero of tide staff 10 1/2 ft. Intake to well 14 ft. ft. ft.

Harbor bottom at staff 10 1/2 ft. Harbor bottom at well 9 ft. 9 ft.

Bench Marks - Date of levels to tide staff 6/7/72 Number of marks connected 3

Number of new marks established None Number of old marks recovered 3

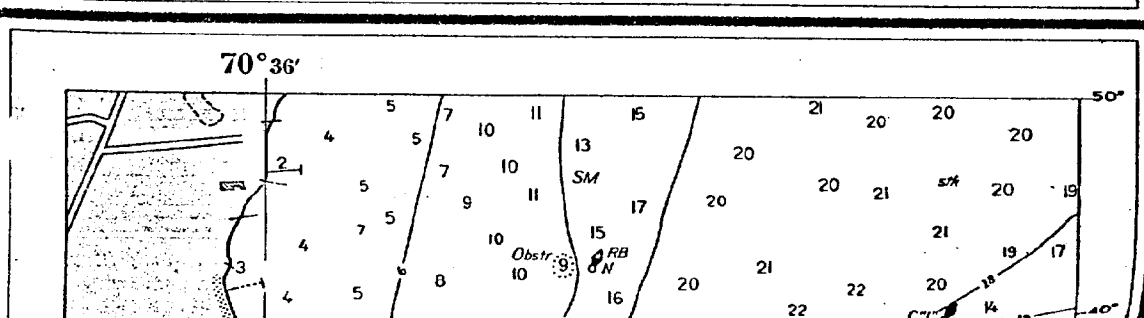
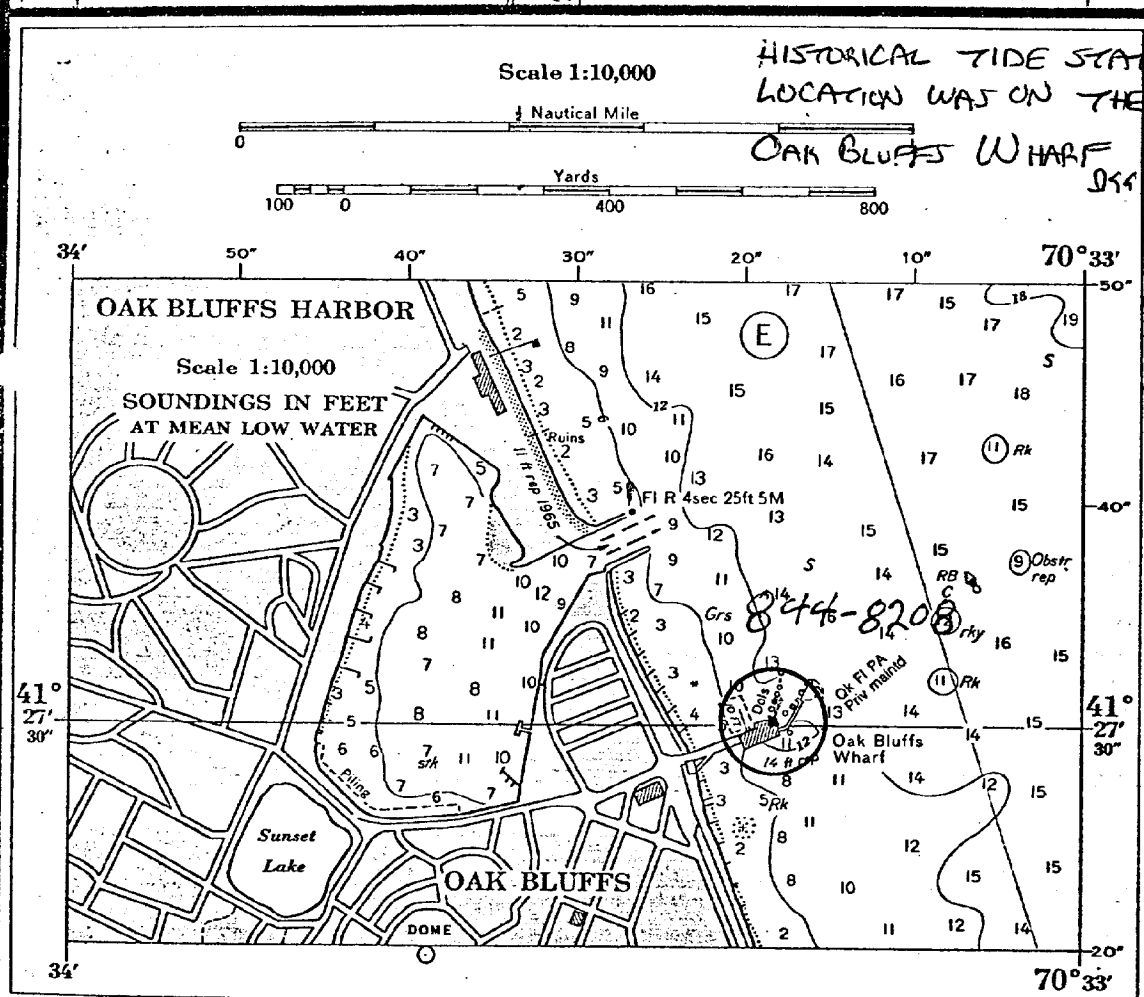
(Complete descriptions of bench marks must accompany leveling record)

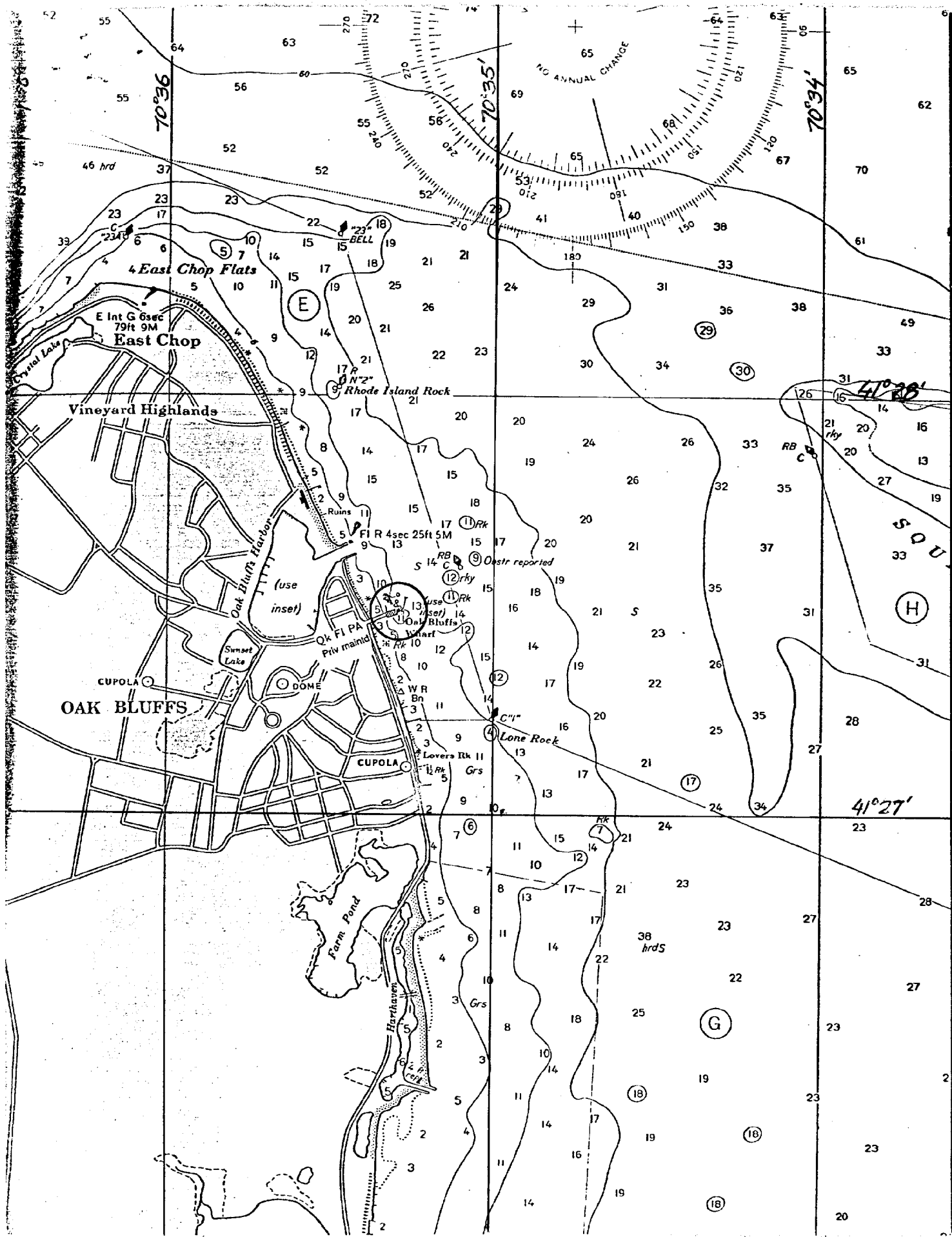
Inventory of Instruments: _____

Additional Information: _____

Recommendations: _____

Note - This form being designed both for the establishment and an inspection of a tide station, questions not pertinent to the work at hand may be omitted; but at the time of an inspection it is desirable that the depth of water and such other information as can be conveniently obtained should be entered in the form in order that any changes since the previous inspection may be detected.





1/13/69

MASSACHUSETTS - 102

U. S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

TIDAL BENCH MARKS

Oak Bluffs, Martha's Vineyard
Lat. $41^{\circ}27'.5$; Long. $70^{\circ}33'.3$

BENCH MARK 1 (1928) is a standard disk, stamped "NO 1 1928", set on top of outcropping rock in Ocean View Park, near south curb of Lake Avenue, between Ocean and Sea View Avenues. Rock is 3 feet from curb of Lake Avenue, 40 feet from Ocean Avenue and 112 feet from Sea View Avenue. Elevation: 15.25 feet above mean low water.

BENCH MARK 3 (1928) is a standard disk, stamped "NO 3 1928", set on concrete sea wall extending northward from steamboat wharf to south jetty of entrance to Lake Anthony. It is about 150 feet south of south jetty and 100 feet east of curve of Circuit and Sea View Avenues. There is a break in elevation of top of wall about 2 feet north of beach mark. Elevation: 9.33 feet above mean low water.

BENCH MARK 4 (1953) is a standard disk, stamped "NO 4 1953", set in concrete edge of steps leading from Sea View Avenue down to sea wall. It is at top of steps, about 300 feet north of steamboat wharf, and about 25 feet east of centerline of Sea View Avenue. Elevation: 22.92 feet above mean low water.

Mean low water at Oak Bluffs, Martha's Vineyard is based on 4 months of records, August - November 1934, reduced to mean values. Elevations of other tide planes referred to this datum are as follows:

	<u>Feet</u>
Highest tide (September 14-15, 1944)	8.2
Mean high water	1.70
Mean tide level	0.85
Mean low water	0.00

The estimated lowest water level to the nearest half foot is $2\frac{1}{2}$ feet below mean low water.

Red
11/24/79
TR

NOAA FORM 77-12 (6-77)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		STATION NAME		STATION NUMBER	
TIDE STATION REPORT				Woods Hole MA.		844-7930	
<small>NOTE: This form is designed for both the establishment and inspection of a tide station. Questions not pertinent to the work at hand may be omitted; but at the time of an inspection it is desirable that the water depth, and other such data that can be conveniently obtained, should be entered on the form so that any changes since the previous inspection may be detected.</small>				LATITUDE		LONGITUDE	
				41°31.5' N		70°40.3' W	
				TIME MER.		75W	
				TYPE OF STATION			
				<input checked="" type="checkbox"/> PRIMARY		<input type="checkbox"/> SECONDARY	
				<input type="checkbox"/> TERTIARY			
WHARF				NAME Woods Hole Oceanographic Institution		PROJECT	
				OWNER'S NAME		<input type="checkbox"/> BOUNDARY <input type="checkbox"/> HYDROGRAPHIC	
BUSINESS ADDRESS				WOODS HOLE MA.		<input checked="" type="checkbox"/> CONTROL <input type="checkbox"/> CIRCULATORY <input type="checkbox"/> OTHER	
				<input type="checkbox"/> ESTABLISHED <input checked="" type="checkbox"/> INSPECTED <input type="checkbox"/> REMOVED		DATE	
				BY: ECTP 754		10-24-79	
				APPROVED BY		DATE	
TIDE OBSERVER				NAME Ms. Dorothy Rogers		TELEPHONE NO.	
				HOME ADDRESS 15 Ludlam St. Falmouth, MA, 02540		HOME (617) 548-4416	
TIDE HOUSE				SIZE AND BRIEF DESCRIPTION		BUSINESS	
				TIDE STATION IS HOUSED IN SALT WATER PUMP ROOM IN SOUTH WEST CORNER OF MAIN SHOP AREA.			
TIDE STAFF AND ROD STOP				<input checked="" type="checkbox"/> PORTABLE <input type="checkbox"/> ELECTRIC <input checked="" type="checkbox"/> FIBERGLASS <input type="checkbox"/> OTHER		HINGED	
				<input type="checkbox"/> FIXED <input type="checkbox"/> VITRIFIED		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
				LIMITS OF GRADUATIONS (L.G.) 0-9'		DATE OF INSTALLATION 8-15-77	
				TOTAL MEASURED LENGTH OVER L.G. 9.000		STAFF GRADUATION CORRESPONDING TO STOP (MEASURED) 8.992 FT. INITIALS J.N.	
				PRECISE LOCATION, METHOD OF SECURING STAFF, TYPE AND CONDITION OF ROD STOP, AND ADDITIONAL REMARKS.			
				4" X 6" WOODEN STAFF SUPPORT IS TAPPED TO A PILING ON THE WEST SIDE OF ENTRANCE TO SMALL BOAT ENCLOSURE ON SOUTH SIDE OF PIER			
GAGE				TYPE AND MANUFACTURER FISCHER & PORTER 1551		SERIAL NUMBER 7006A5833M2	
				POWER SOURCE <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> SOLAR <input checked="" type="checkbox"/> BATTERY <input type="checkbox"/> OTHER		FLOAT DIAMETER 8 1/2 INS.	
				SCALE 0-9999		<input checked="" type="checkbox"/> NEGATOR SPRING <input type="checkbox"/> COUNTERWEIGHT	
				<input type="checkbox"/> MORE THAN ONE GAGE (Details on reverse.)			
REMARKS				NEW GAUGE THIS INSPECTION			
FLOAT WELL				MATERIAL Fiberglass		INTAKE CLEANED	
				LENGTH 16.0 FT. INSIDE DIAMETER 12 INS. INTAKE SIZE 1 1/2 INS. INTAKE POSITION bottom center of cone.		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
				DATE OF INSTALLATION July 1968			
				CONSTRUCTION, INSTALLATION, AND REMARKS			
				Float well is cemented in floor and secured with three stainless steel collars at the high water mark.			

MEASURE- MENTS	STAFF	FLOAT WELL	BUBBLER	
	WHARF FLOOR ABOVE ZERO OF TIDE STAFF <i>10.0</i> FT.	INTAKE BELOW WHARF FLOOR <i>14.4</i> FT.	ORIFICE BELOW CHART DATUM (Use tide table predictions.) FT.	
ZERO OF TIDE STAFF ABOVE HARBOR BOTTOM <i>54.0</i> FT.	INTAKE ABOVE HARBOR BOTTOM <i>10.0</i> FT.	ORIFICE ABOVE OCEAN BOTTOM FT.		
LATEST LEVELS	DATE OF LEVELS TO TIDE STAFF <i>10-24-79</i>	NO. OF MARKS CONNECTED <i>10</i>	NO. OF MARKS ESTABLISHED <i>0</i>	NO. OF MARKS RECOVERED <i>10</i>
REMARKS <i>FIELD ELEVATIONS</i> NO. 6 10.417' NO. 7 14.590 NO. 15 8.558 NO. 13 10.973' NO. 14 11.165 NO. 16 11.177 NO. 11 11.000' Fish 10.228 NO. 10 10.502 NO. 12 11.842 <i>All BM's RECOVERED AS DESCRIBED</i>				
NOTE: In addition to this report, a chartlet, bench mark sketch, leveling record, and complete bench mark descriptions must be submitted in package form at the time of installation. At other times, submit this form with the leveling record and any other items that need updating.				
INVENTORY OF EQUIPMENT AND SUPPLIES 1 Thermograph 2099 property of WHOI, 1 Telemeter 63A6768 " " " 1 brass water sampler 1 water jar, 1 water therm. 2 Hydro #2000 & T-65-345				
ADDITIONAL INFORMATION, SKETCH, AND/OR RECOMMENDATIONS <i>Vitrified scales added to staff this inspection.</i>				

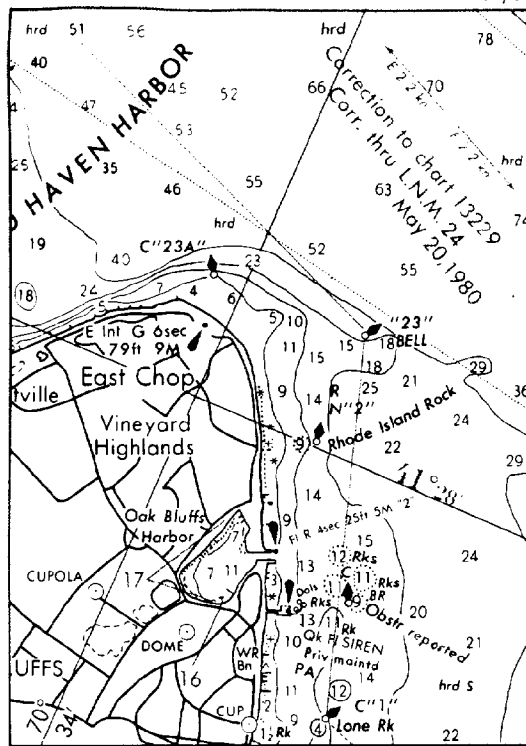
NOAA FORM 77-12 (6-77)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		STATION NAME		STATION NUMBER	
TIDE STATION REPORT				Boston, MA		844-3970	
<small>NOTE: This form is designed for both the establishment and inspection of a tide station. Questions not pertinent to the work at hand may be omitted; but at the time of an inspection it is desirable that the water depth, and other such data that can be conveniently obtained, should be entered on the form so that any changes since the previous inspection may be detected.</small>				LATITUDE		LONGITUDE	
				42 21.3'N		71 03.0'W	
				TIME MER.		75W	
				TYPE OF STATION			
				<input checked="" type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY			
WHARF NAME Appraisers Stores Wharf OWNER'S NAME U.S. Govt Property BUSINESS ADDRESS Atlantic & Northern Ave. Boston, MA.				PROJECT			
				<input checked="" type="checkbox"/> CONTROL <input type="checkbox"/> BOUNDARY <input type="checkbox"/> HYDROGRAPHIC <input type="checkbox"/> CIRCULATORY <input type="checkbox"/> OTHER			
				ESTABLISHED		INSPECTED	
				BY:		DATE	
				ECTP 754		10-22-79	
				APPROVED BY		DATE	
TIDE OBSERVER NAME Fred Wiley HOME ADDRESS 14 Ballum Road - Avon, MA 02322				TELEPHONE NO.		HOME BUSINESS	
				617-587-2742			
TIDE HOUSE SIZE AND BRIEF DESCRIPTION 7x8x8 FRAME HOUSE with (GRAY) UYNAL SIDING				<input type="checkbox"/> Continued on reverse.			
TIDE STAFF AND ROD STOP <input checked="" type="checkbox"/> PORTABLE <input type="checkbox"/> ELECTRIC <input checked="" type="checkbox"/> FIBERGLASS <input type="checkbox"/> OTHER <input type="checkbox"/> FIXED <input type="checkbox"/> VITRIFIED				HINGED		DATE OF INSTALLATION	
				<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		2/63	
LIMITS OF GRADUATIONS (L.G.) 0-18.000				TOTAL MEASURED LENGTH OVER L.G. 18.000		STAFF GRADUATION CORRESPONDING TO STOP (MEASURED) 18.000 T.	
PRECISE LOCATION, METHOD OF SECURING STAFF, TYPE AND CONDITION OF ROD STOP, AND ADDITIONAL REMARKS. STAFF support is LAS bolted to a piling on the EAST SIDE OF TIDE HOUSE STAFF MEASURED 17.99 VITRIFIED SCALES bolted to staff this inspection				<input type="checkbox"/> Continued on reverse.			
GAGE TYPE AND MANUFACTURER L & S				SERIAL NUMBER 74292-76		DATE OF INSTALLATION 8-79	
POWER SOURCE <input checked="" type="checkbox"/> COMMERCIAL <input type="checkbox"/> BATTERY <input type="checkbox"/> SOLAR <input checked="" type="checkbox"/> OTHER				FLOAT DIAMETER 8 1/2 INS.		SCALE 0-99.99	
<input type="checkbox"/> MORE THAN ONE GAGE (Details on reverse.)						<input checked="" type="checkbox"/> NEGATOR SPRING <input type="checkbox"/> COUNTERWEIGHT	
REMARKS L & S hooked to Bristol telemeter & also hooked to telemetering system to Rockville MO.				<input type="checkbox"/> Continued on reverse.			
FLOAT WELL MATERIAL Fiberglass				INTAKE CLEANED <input type="checkbox"/> YES <input type="checkbox"/> NO		DATE OF INSTALLATION 10-19-71	
LENGTH 23.6 FT.		INSIDE DIAMETER 12 INS.		INTAKE SIZE 1 INS.		INTAKE POSITION CONE, bottom center	
CONSTRUCTION, INSTALLATION, AND REMARKS FIBERGLASS WELL IS SECURED TO THE WHARF WITH A STEEL COLLAR WHICH IS LAS bolted TO A TIMBER, THE WELL IS SECURED AT TWO OTHER LEVELS WITH STEEL BRACKETS WHICH ARE EMBEDDED INTO WHARF WALL							
<input type="checkbox"/> Continued on reverse.							

MEASURE- M ² 3	STAFF	FLOAT WELL	BUBBLER	
	WHARF FLOOR ABOVE ZERO OF TIDE STAFF 21.4 FT.	INTAKE BELOW WHARF FLOOR 23.6 FT.	ORIFICE BELOW CHART DATUM (Use tide table predictions.) FT.	
ZERO OF TIDE STAFF ABOVE HARBOR BOTTOM 4.4 FT.	INTAKE ABOVE HARBOR BOTTOM 2.2 FT.	ORIFICE ABOVE OCEAN BOTTOM FT.		
LATEST LEVELS	DATE OF LEVELS TO TIDE STAFF 10-19-79	NO. OF MARKS CONNECTED 10	NO. OF MARKS ESTABLISHED 0	NO. OF MARKS RECOVERED 10
REMARKS FIELD ELEVATIONS ALL MARKS RECOVERED AS DESCRIBED				
TIDAL 13 21.545' K 12 24.371' FED 2 30.235				
NO. 16 21.595' NO. 17 26.510 NO. 15 22.007				
TIDAL 14 25.821' NO. 18 29.256				
132 K 25.643' NO. 19 24.896				
NOTE: In addition to this report, a chartlet, bench mark sketch, leveling record, and complete bench mark descriptions must be submitted in package form at the time of installation. At other times, submit this form with the leveling record and any other items that need updating.				
INVENTORY OF EQUIPMENT AND SUPPLIES				
Hydros T-913 58 311 Hy 1063 251 3588 1 WATER JARS 1 OUTDOOR AIR therm 2 SEA WATER therm 1 BRASS SAMPLE JAR 1 CLEANING TOOL 1 heater 1 clock 1 BRISTOL METAMETER 63A6769 1 TAYLOR THERMOGRAPH 76JM7591				
ADDITIONAL INFORMATION, SKETCH, AND/OR RECOMMENDATIONS				
Key to SATE AND HOUSE ARE AT FRONT OFFICE OF APPRAISERS STONE building OR AT NWS AT LOSAN Airport.				

NM 32/80

Chart 13229

NM 32/80



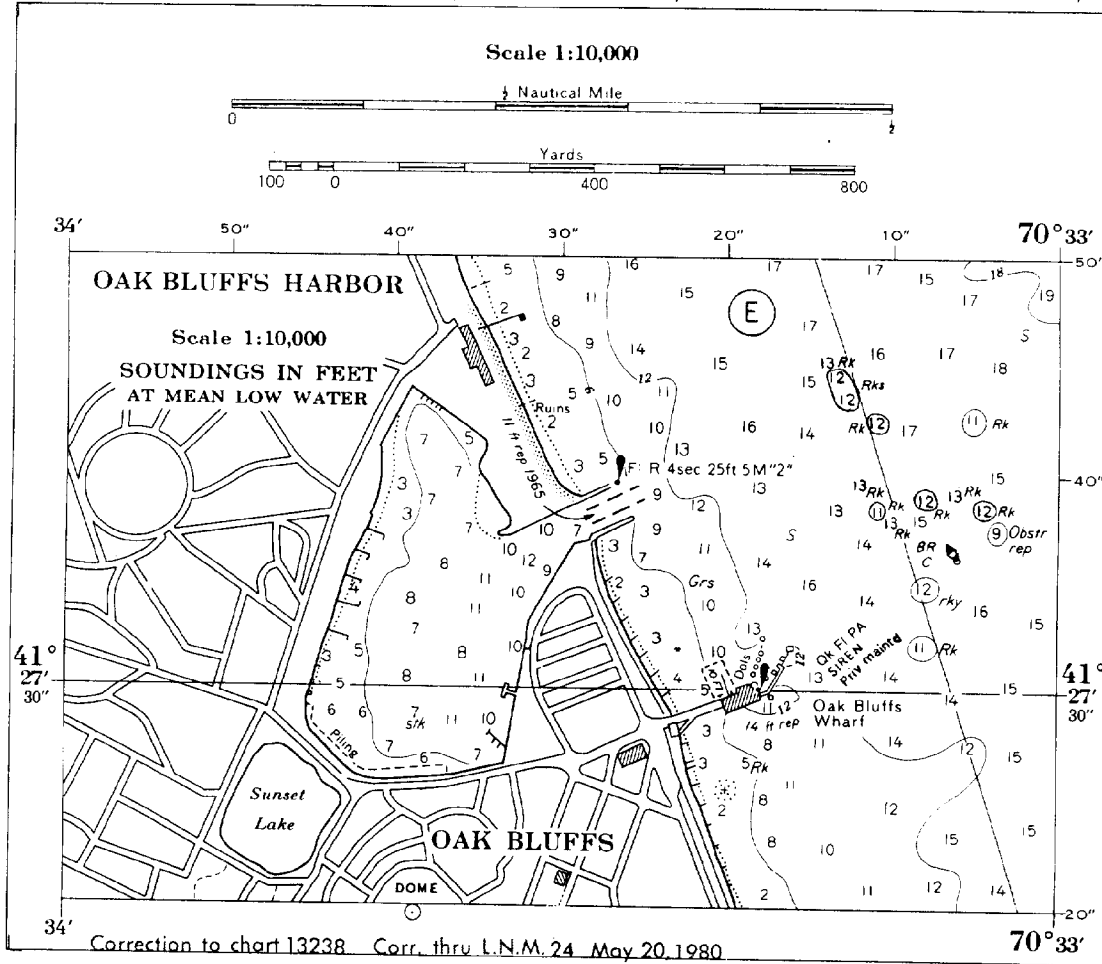
SECTION I

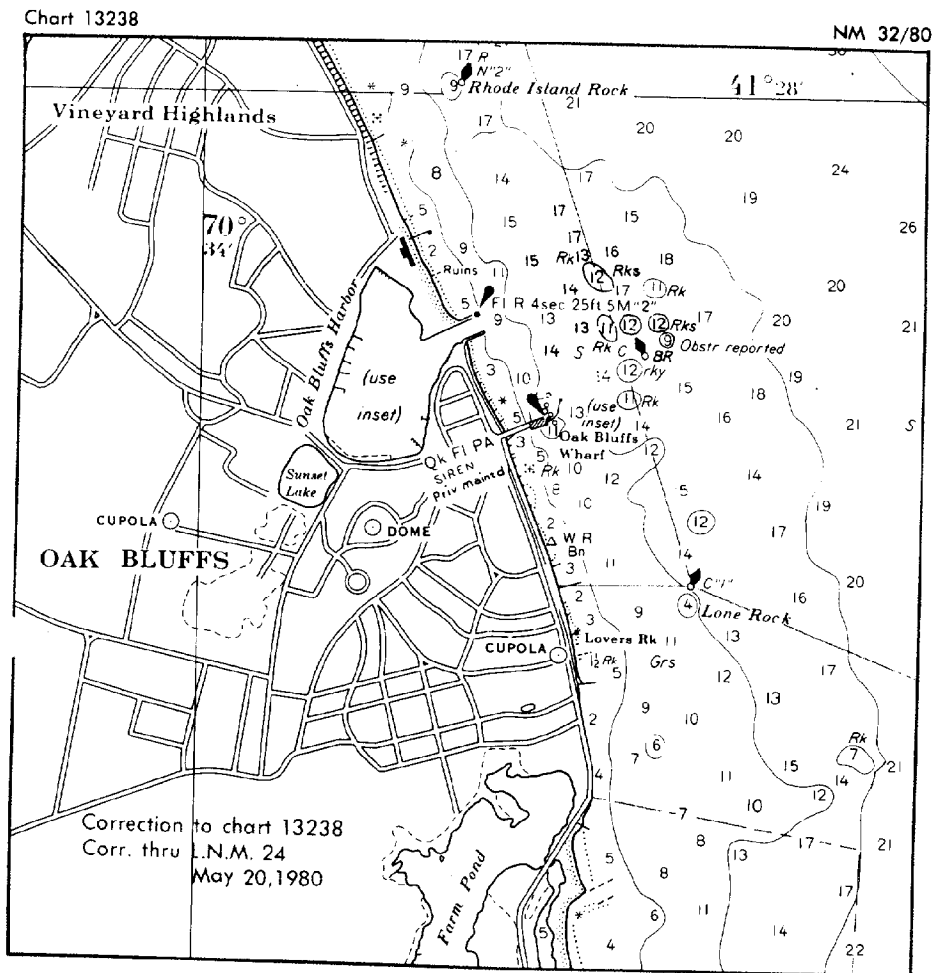
NM 32/80

Chart 13238

(Inset Oak Bluffs Harbor)

NM 32/80



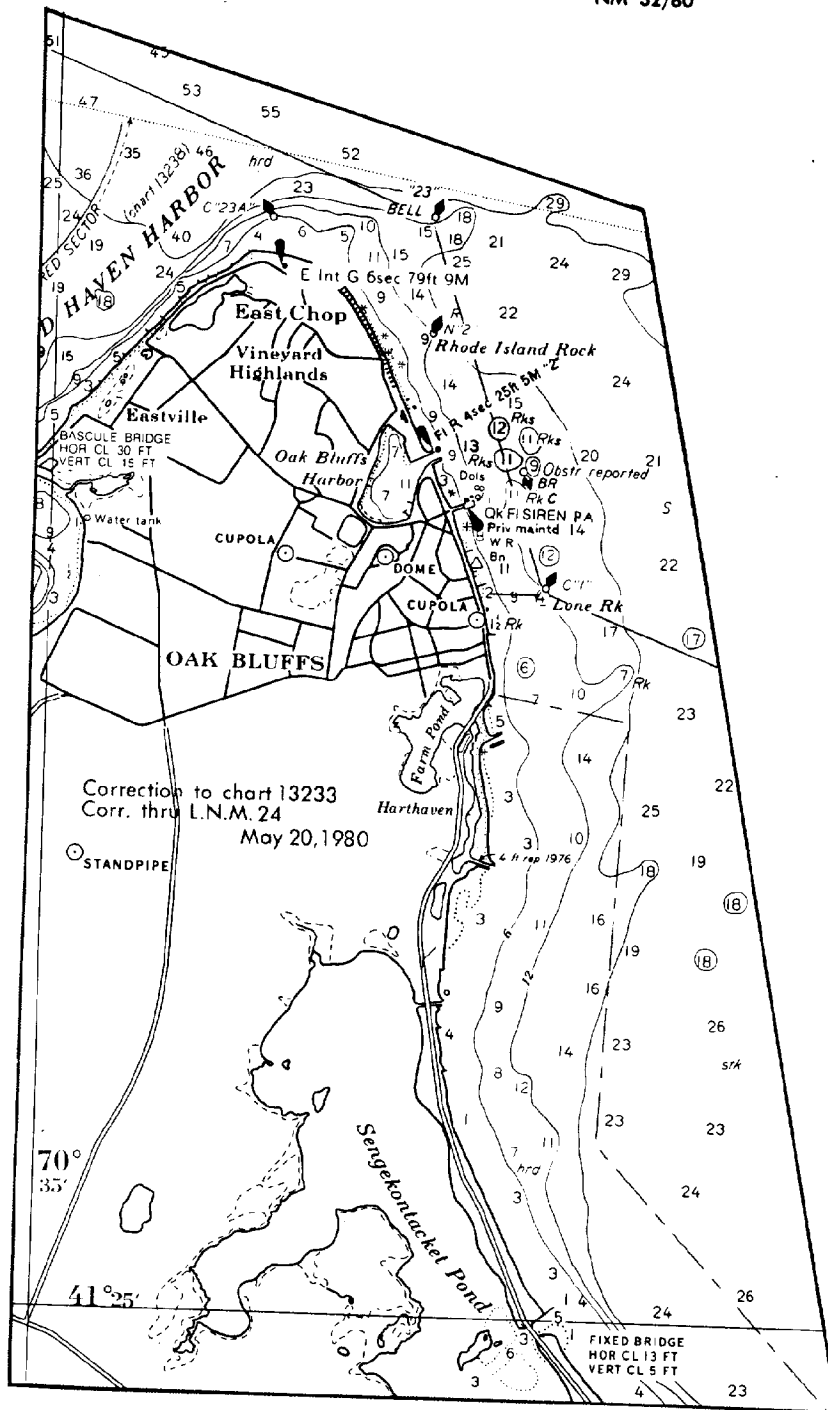


SECTION I

NM 32/80

Chart 13233

NM 32/80



RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD	M.C. Grunthal, Cdr, NOAA	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED <i>scaled from chart or from horizontal control data</i>	M.C. Grunthal, Cdr, NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'
(Consult Photogrammetric Instructions No. 64.)

<p>OFFICE</p> <p>I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75</p> <p>FIELD</p> <p>I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field P - Photogrammetric L - Located Vis - Visually V - Verified 1 - Triangulation 5 - Field identified 2 - Traverse 6 - Theodolite 3 - Intersection 7 - Planetable 4 - Resection 8 - Sextant</p> <p>A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75</p> <p>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</p>	<p>FIELD (Cont'd)</p> <p>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. EXAMPLE: P-8-V 8-12-75 74L(C)2982</p> <p>II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75</p> <p>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75</p> <p>**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</p>
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[illegible]

RESPONSIBLE PERSONNEL										
TYPE OF ACTION	NAME	ORIGINATOR								
OBJECTS INSPECTED FROM SEAWARD	M. C. Grunthal, Cdr, NOAA	<input checked="" type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)								
POSITIONS DETERMINED AND/OR VERIFIED <i>scaled from chart or from horizontal control data</i>	M. C. Grunthal, Cdr, NOAA	FIELD ACTIVITY REPRESENTATIVE								
		OFFICE ACTIVITY REPRESENTATIVE								
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE								
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' (Consult Photogrammetric Instructions No. 64.)										
<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>OFFICE</p> <p>I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75</p> <p>FIELD</p> <p>I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field P - Photogrammetric L - Located Vis - Visually V - Verified</p> <table style="width: 100%;"> <tr> <td>1 - Triangulation</td> <td>5 - Field identified</td> </tr> <tr> <td>2 - Traverse</td> <td>6 - Theodolite</td> </tr> <tr> <td>3 - Intersection</td> <td>7 - Planetable</td> </tr> <tr> <td>4 - Resection</td> <td>8 - Sextant</td> </tr> </table> <p>A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75</p> <p>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</p> </div> <div style="width: 48%;"> <p>FIELD (Cont'd)</p> <p>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. EXAMPLE: P-8-V 8-12-75 74L(C)2982</p> <p>II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75</p> <p>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75</p> <p>**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</p> </div> </div>			1 - Triangulation	5 - Field identified	2 - Traverse	6 - Theodolite	3 - Intersection	7 - Planetable	4 - Resection	8 - Sextant
1 - Triangulation	5 - Field identified									
2 - Traverse	6 - Theodolite									
3 - Intersection	7 - Planetable									
4 - Resection	8 - Sextant									

ATTACHMENT XIII

Verification of Floating Aids to Navigation

The following unlighted aids, as described in CG-158, Vol. 1, pages 104 and 111, were located by electronic means and the positions reduced by a trilateration program from Geodetic Package No. 1 for the HP-9815A calculator:

(1) East Chop Flats Bell Buoy "23"	Lat. 41°28'23.24177"N Long. 70°33'29.75771"W
(2) Rhode Island Rock Buoy "2"	Lat. 41°28'02.48611"N Long. 70°33'28.17894"W
(3) Lone Rock Buoy "1"	Lat. 41°27'15.57222"N Long. 70°33'00.66901"W
(4) Oak Bluffs Approach Obstruction Buoy	Lat. 41°27'36.87777"N Long. 70°33'06.49801"W

The following aid, established by the Corps of Engineers, and maintained by the town of Oak Bluffs, was also located:

Danger Buoy ("Rock")	Lat. 41°27'38.45175"N Long. 70°33'11.09552"W
----------------------	---

All the aids were located on 24 Oct. 1980.

ATTACHMENT XIV

BOUNDARIES OF DIVER SEARCH AREAS

I.	41°27'49.77862" 70°33'17.58519"	41°27'51.04176" 70°33'15.59269"
	41°27'42.65712" 70°33'12.73338"	41°27'43.77945" 70°33'10.88275"
II.	41°27'43.18697" 70°33'12.93793"	41°27'44.00843" 70°33'10.32056"
	41°27'34.87273" 70°33'07.76101"	41°27'36.22289" 70°33'05.83884"
III.	41°27'42.07212" 70°33'15.75231"	41°27'43.09228" 70°33'12.90854"
	41°27'33.78454" 70°33'10.55321"	41°27'34.80662" 70°33'08.14751"
	41°27'50.30000" 70°33'20.65582"	41°27'51.51098" 70°33'17.96469"
	41°27'42.04443" 70°33'15.18475"	41°27'43.07215" 70°33'13.02135"



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA SHIPS RUDE & HECK
439 West York Street
Norfolk, VA 23510

Date: 28 November 1980

ATTACHMENT XV

To: Director, National Ocean Survey
ATTN: C3

From: CDR M. C. Grunthal
FOR Commanding Officer

Richard S. Moody

Subj: Danger to Navigation Report

A dangerous rock covered by 15.5 feet of water at Mean Low Water (based on predicted tides) has been discovered in 19 feet of water at Latitude 41°27.82'N, Longitude 70°32.90'W, bearing 069°T at 0.43 nautical miles from Oak Bluffs North Breakwater Light 2 (LLN 597). This obstruction was discovered during project S-B609-RU/HE-80 and by diver investigation was found to be a large rock.

Charts 13233, 13237 and 13238 are affected.

S-B609-RU/HE-80

cc:
AMC/CAM1
Capt. James Smith -
Aids to Nav. Branch
USCG Third Dist.



May 5, 1981 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): 844-8208, Oaks Bluff, Massachusetts

Period: September 12 - October 28, 1980

WIRE DRAG:

~~HYDROGRAPHIC SHEET:~~

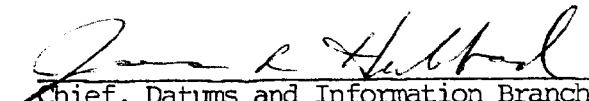
OPR: S-B609 RU/HE-80

Locality: Oaks Bluff, Massachusetts

Plane of reference (mean ~~lower~~ low water): 4.00 ft.*

Height of Mean High Water above Plane of Reference is 1.80 ft.

REMARKS: Zone Direct


Chief, Datums and Information Branch



NATIONAL OCEAN SERVICE
Coast and Geodetic Survey
Norfolk, Virginia 23510-1114

February 3, 1993

MEMORANDUM FOR: Captain Dean R. Seidel, NOAA
Chief, Hydrographic Surveys Branch

FROM: *Christopher B. Lawrence*
Commander Christopher B. Lawrence, NOAA
Chief, Atlantic Hydrographic Section

SUBJECT: Review of HDEG and other historical Surveys for
Processability

By memorandum dated April 2, 1992, (copy attached), Mr. Rudy Sanocki recommended that the Atlantic Hydrographic Section continue processing of six historical and HDEG surveys, and recommended no further processing on six additional surveys. Since the April 1992 decision considerable time has been expended in processing these surveys. Due to the significant amount of additional man hours required to fully process these surveys, further review of the wisdom of continued processing is warranted.

In Mr. Sanocki's recommendation for continued processing, he stressed that required processing manhours would be high without the use of interactive processing systems. AHS has found this to be the case. The surveys in question are large, generally visually controlled problem surveys conducted between 1949 and 1980. Following is a summary discussion of each of the historical and HDEG surveys currently carried on the AHS inventory and a recommendation for further action:

a. H-7722 - This is a very large, sextant fix controlled basic survey accomplished in the Chesapeake Bay in 1949 by the COWIE. During position verification, totaling 216 hours, many positional control errors were detected and resolved. An additional 530 man hours are estimated for completion. Due to the age of this survey, requirement for manual processing, and the high rate of cultural and bathymetric change in the Chesapeake Bay, it is recommended that processing of this survey be suspended and the survey be returned to archives.

b. H-8460WD and WA/HI-1456-WD - This is a large wire drag survey off the Maine coast. The survey was accomplished in 1956-57 and was completely processed in 1959. All smooth plotted hang and grounding data was applied to the chart; however, Rockville verification and review was not completed. Mr. Maurice Hickson has examined this survey (comments attached), and estimates 500+ hours to complete verification. Because of the man hours required for full verification, requirement for manual processing and problems with the data, it is recommended that processing of this survey be



suspended and the survey be returned to archives.

c. H-1088WD, R/H-5-2-80 - This is a 1980 RUDE and HECK wire drag survey in Martha's Vinyard, MA. A thorough discussion of the nature of this survey has been prepared by Mr. Maurice Hickson (attached). It is his recommendation that further processing of this survey be restricted to extraction of those features which were field investigated and have detached positions and least depths. A chart letter depicting chartable features will be submitted.

d. H-8744 - This survey lacks geographic positions of electronic control stations and cannot be processed. Data for this survey will be returned to Rockville for archiving.

e. H-8874 - This is a large, visually controlled sextant fix survey conducted in the Severn River, MD by the Hydrographic Field Party in 1965. This survey contains many errors and is still in the preliminary position verification stage. A total of 240 hours have been expended to date and 770 additional hours are estimated to complete processing. Due to the age, data problems and dynamic nature of the bottom in the area of this survey, it is recommended that processing of this survey be suspended and the survey be returned to archives.

f. H-9087 - This is a 1:20000 scale electronically controlled basic survey of a north shore area of Long Island conducted by NOAA Ship WHITING launches in 1969. This survey contained many errors and a total of 508 hours have been expended to date. The survey is currently in the smooth sheet stage of processing and an additional 200 hours processing time is estimated for completion. Considering the time expended to date and the recent hydrographic survey effort in this area by AHP, it is recommended that this survey be processed to completion.

g. H-9147 - This is a large visually controlled basic survey in Estero Bay, FLA conducted by the Hydrographic Field Party in 1970. To this date 430 hours have been expended on this survey through the position verification stage of processing. Completion of processing will be labor intensive; an additional 500 hours are estimated for completion. It is recommended that this survey remain at AHS at a low processing priority for the time being and that its processing status be reconsidered upon full implementation of "team processing" and implementation of PC-HDAPS capability.

h. H-9325 ADWK and H-9326 - The memorandum dated April 2, 1992 concerning processing of these surveys recommended no further processing of these surveys. Records for this survey are in the NOS archives.

Unless directed otherwise, AHS will handle the above referenced surveys as recommended.

Attachments

February 2, 1993

TO: CDR C. B. Lawrence, NOAA
Chief, Atlantic Hydrographic Section

FROM: M. B. Hickson

SUBJECT: Processing of survey H-10088WD, R/H-5-2-80, OPR-S-B609,
Massachusetts, Martha's Vineyard, Approaches to Oak Bluffs Harbor

Present Status

This survey consists of one standard wire drag strip, 50 constant tension wire drag strips, and an undetermined number (at this time) of controlled diver drags or sweeps. 676 vessel positions were recorded for the 51 wire drag strips (exclusive of any detached positions). Over 100 positions were recorded controlling the diver drag work. The records indicate that at least 32 individual features were hung, some were hung multiple times. 41 of the 50 CTWD strips and 4 diver drags were "automated" and position plots exist for these strips. Smooth tides are with the survey records.

Processing Requirements

This survey would require manual processing. The automated position plots that exist will aid in processing if they have been correctly plotted. The one standard wire drag strip, the 9 remaining CTWD strips, and any remaining diver drags and detached positions would have to be hand plotted (odessey protractor on an overlay with control arcs). All reduction of data and the subdivision of the strips for effective depth determination would be by hand. The compilation of any survey graphics would be by hand.

Comments and Recommendations

To process this survey for any meaningful wire drag results would be quite labor intensive (all hand processing). No automated systems (primarily the software requirements) remain that would be of benefit and also no automated files are evident, meaning that hand logging would be necessary if the computer resources were available. Personally, I have not processed this type of data for approximately five years. My feeling is that it would take from two to four months of dedicated time to process this survey. It could take longer if problems in the data are difficult to resolve. To extract the only hangs and their clearance depths would not really save time since most of the strips would have to be plotted, the data reduced, and subdivided to obtain hang position, effective depth of hang, and valid clearance depth over the hangs. Few if any strips were without a hang. The features which have a diver least depth and a detached position (it appears that most, if not all, of these hangs were resolved by divers) could be simply tabulated and forwarded as a chart letter. The depths would be "reported" depths as the PDG was not operated or calibrated in 1980 in accordance with our present requirements.

If this survey were fully processed the results would be valid and valuable for charting. Full processing, in my opinion, would not be the best use of time. As previously stated, it would take from two to four months of dedicated time. It is my recommendation to extract only the features which were investigated and have detached positions and least depths and present them for charting in a chart letter format. This approach would take an estimated 2 to 4 days of processing time. Any additional processing or any comparisons beyond a very simple chart comparison (current edition) is not recommended.



February 9, 1993

MEMORANDUM FOR: Captain Dean R. Seidel, NOAA
Chief, Hydrographic Surveys Branch

FROM: *Christopher B. Lawrence*
Commander Christopher B. Lawrence, NOAA
Chief, Atlantic Hydrographic Section

SUBJECT: Critical features extracted from survey H-10088WD,
R/H-5-2-80, OPR-S-B609, Massachusetts, Martha's
Vineyard, Approaches to Oak Bluffs Harbor

REFERENCE: Memorandum dated February 3, 1993; Subject: Review
of HDEG and other Historical Surveys for
Processability

The subject survey has been examined for critical features. The critical features found are tabulated below.

The following features were diver investigated and identified. The geographic positions listed have been adjusted to NAD 83. The depths are diver obtained PDG depths that have been corrected for smooth tides. The PDG was not operated in 1980 in accordance with current NOS standards and the depths noted are thus reported depths. All of these investigated features except hangs 24 & 38 and 40 are currently charted (chart 13238, 13th Ed., June 27, 1992). Hangs 24 & 38 are not charted due to its proximity to hangs 23 & 37. It is recommended that the chart be updated to reflect the review of these data.

"Hang"	Feature	Latitude	Longitude	Depth (ft/m)	Presently Charted
2	Rock	41° 27' 50.95"N	70° 33' 08.46"W	14.0 / 4.3	15 Rk
3 & 25	Obstr	41° 27' 50.21"N	70° 33' 13.14"W	15.4 / 4.7	16 Obstr (clam dredge bucket)
4	Rock	41° 27' 49.52"N	70° 32' 51.75"W	14.5 / 4.4	15 Rk
5	Rock	41° 27' 33.21"N	70° 33' 07.05"W	12.5 / 3.8	13 Rk
6	Rock	41° 27' 28.38"N	70° 33' 04.60"W	11.5 / 3.5	12 Rk
9	Rock	41° 27' 27.17"N	70° 32' 47.56"W	14.9 / 4.5	15 Rk
10	Rock	41° 27' 24.73"N	70° 33' 04.88"W	10.1 / 3.1	10 Rk
11	Rock	41° 27' 26.50"N	70° 33' 07.28"W	9.5 / 2.9	10 Rk
12	Rock	41° 27' 29.93"N	70° 33' 10.75"W	12.5 / 3.8	13 Rk
13	Rock	41° 27' 26.08"N	70° 32' 53.69"W	13.0 / 4.0	14 Rk
14 & 19	Rock	41° 27' 33.03"N	70° 32' 57.26"W	13.5 / 4.1	14 Rk
15	Rock	41° 27' 30.30"N	70° 32' 54.88"W	12.0 / 3.7	13 Rk



16	Rock	41°27'21.77"N	70°32'53.14"W	14.0 / 4.3	15 Rk
18	Rock	41°27'38.65"N	70°33'02.69"W	9.9 / 3.0	10 Rk
20	Rock	41°27'30.83"N	70°33'03.05"W	11.9 / 3.6	12 Rk
21	Rock	41°27'21.90"N	70°32'58.04"W	10.9 / 3.3	11 Rk
22 & 39	Rock	41°27'44.29"N	70°33'11.61"W	11.3 / 3.4	12 Rk
23 & 37	Rock	41°27'45.40"N	70°33'12.27"W	12.5 / 3.8	13 Rk
24 & 38	Rock	41°27'45.62"N	70°33'12.16"W	13.5 / 4.1	
26	Rock	41°27'36.58"N	70°33'05.83"W	13.4 / 4.1	14 Rk
27	Rock	41°27'40.61"N	70°33'07.89"W	14.0 / 4.3	14 Rk
28	Rock	41°27'42.77"N	70°33'09.28"W	10.7 / 3.3	11 Rk
29	Rock	41°27'39.82"N	70°33'06.11"W	10.5 / 3.2	11 Rk
30 & 32	Rock	41°27'37.77"N	70°33'07.82"W	11.0 / 3.4	12 Rk
33	Rock	41°27'38.76"N	70°33'08.97"W	10.7 / 3.3	11 Rk
34	Rock	41°27'41.32"N	70°33'09.93"W	13.3 / 4.1	14 Rk
35	Rock	41°27'42.04"N	70°33'12.26"W	13.4 / 4.1	14 Rk
36	Rock	41°27'39.86"N	70°33'11.42"W	13.5 / 4.1	14 Rk
40	Rock	41°27'43.00"N	70°33'11.91"W	13.5 / 4.1	
41	Rock	41°27'29.18"N	70°32'57.16"W	12.0 / 3.7	12 Rk

The following are hangs that occurred during this survey but were not investigated and are unresolved. The positions of these hangs are approximate and have been adjusted to NAD 83. None of these hangs are currently charted. It is recommended that these hangs be charted as dangerous submerged obstructions, PA.

"Hang"	Latitude	Longitude
1	41°27'50.17"N	70°33'03.98"W
7	41°27'45.68"N	70°32'49.50"W
8	41°27'27.30"N	70°32'45.95"W
17	41°27'15.65"N	70°32'48.43"W
31	41°27'37.90"N	70°33'03.35"W