H10504

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC/ SIDE SCAN SONAR

Field No. WH-10-2-93

Registry No. H-10504

LOCALITY

State MASSACHUSETTS

General Locality NANTUCKET SOUND

Sublocality L'HOMMEDIEU SHOAL TO HARTHAVEN

19 93-94

CHIEF OF PARTY

CDR A. A. ARMSTRONG, III, NOAA

LIBRARY & ARCHIVES

DATE APR 2 3 1997

☆U.S. GOV. PRINTING OFFICE: 1987—756-980

DIAGRAM 1209-4

(C)

RE:- Bp 162798-800

PRODUCTS

13238 + INSET
13229C
13233
13237
12300NC
13200NC

NOAA FORM 77-28 (11-72) | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | REGISTER NOS.

HYDROGRAPHIC TITLE SHEET

H-10504

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

FIELD NO. WH-10-2-93

State: Massachusetts

General locality: Nantucket Sound

Locality: L'Hommedieu Shoal to Harthaven

Scale: 1:10,000 | Date of Survey: MAY 25 - JUN 20, 1994 Sept 22 - Nov 22, 1993

Instructions dated: May 6, 1993 | Project No.: OPR-B616-RU/WH-93

Vessel: NOAA Ship WHITING (2930), Launch 1015 (2931), Launch 1014 (2932)

Chief of party: Commander Andrew A. Armstrong III (1993); CDR. JOHN D. WILDER (1994)

Surveyed by: A.A. Armstrong, S.R. Barnum, J.S. Verlaque, J.G. Clayton, J.L. Riley, E.W. Berkowitz, N.O. Silverman, M.P. Zipperer, J.A. Seitz, F.R. Cruz, S.R. Parker, P.R. White, J.S. Gaskin

Soundings taken by echo sounder: DSF-6000

Graphic record scaled by: WHITING Survey Personnel

Graphic record checked by: WHITING Survey Personnel

Protracted by: N/A | Automated plot by: ENCAD NOVASET II PLOTTER (AHB) HP 7959B, Bruning (FIELD)

Verification by: ATLANTIC HYDROGRAPHIC BRANCH PERSONNEL

Soundings in MLLW: ~~Meters~~ FEET

REMARKS: Time zone used, 0 (UTC)

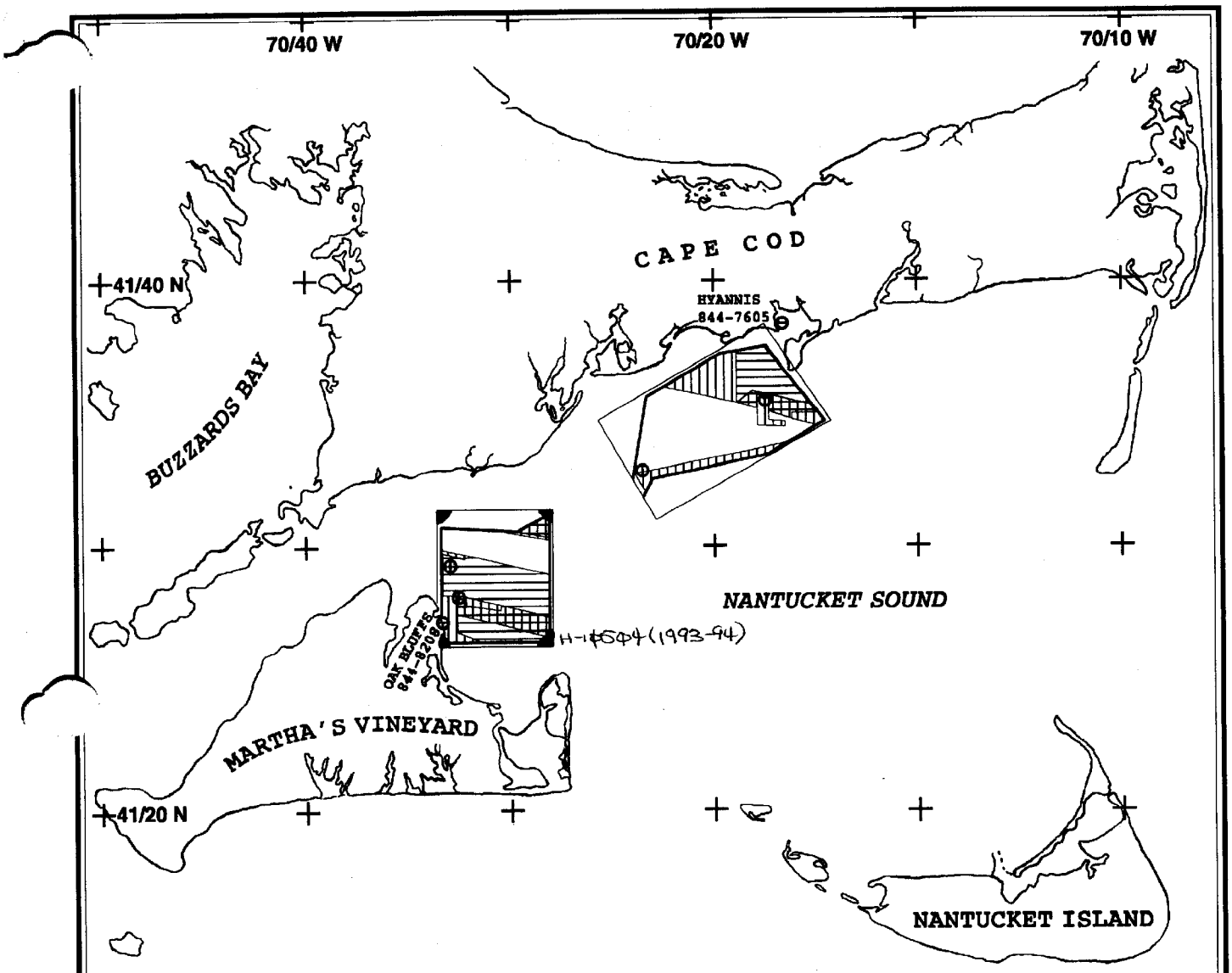
200% side scan sonar coverage

NOTES IN THE ORIGINAL DESCRIPTIVE REPORT WERE MADE IN RED DURING OFFICE PROCESSING.

MAY 7 1996

AWOIS and SURF Only ✓ PWD 4/97

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



AUG	SEPT	OCT	NOV
1.5	3.6	1.0	0.0
44	150	35	10
0.5	2.4	5.3	4.8
16	85	251	205
0	0	28	43
56	71	24	0
3	7	13	8
2	0	0	2
0	6	3	0
10	24	25	20

SQ NM SOUNDINGS
LNM SOUNDINGS
SQ NM SIDE SCAN SONAR
LNM SIDE SCAN SONAR
ITEM INVESTIGATIONS
BOTTOM SAMPLES
VELOCITY CASTS Φ
TIDE GAUGES REMOVED ⊖
WATER CLARITY OBS. O-
DAYS AT SEA
HYDROGRAPHY

PROGRESS SKETCH

OPR-B016-WH
HYDROGRAPHIC SURVEY
NANTUCKET SOUND, MA
SEPTEMBER 23 - NOVEMBER 22, 1993

NOAA SHIP WHITING

ANDREW A. ARMSTRONG III, CDR
COMMANDING

SCALE OF CHART 13200

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
OPR-B616-RU/WH
1993
WH-10-2-93
H-10504

NOAA SHIP WHITING
CDR Andrew A. Armstrong, III, NOAA
Commanding Officer

A. PROJECT

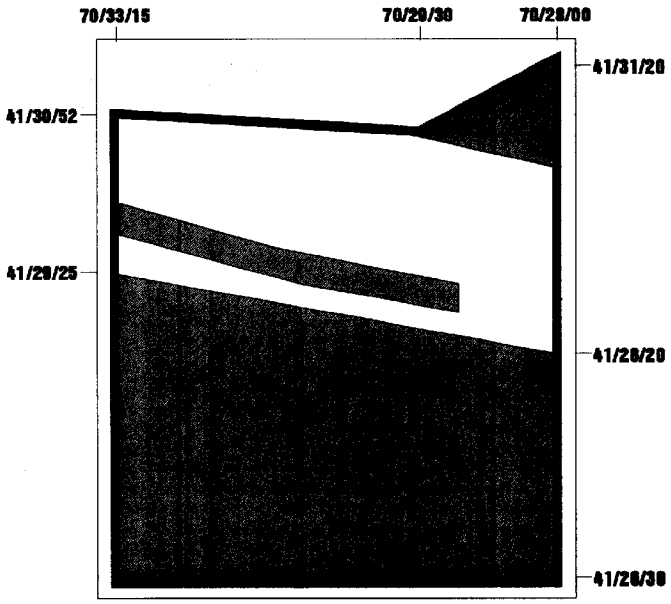
Project OPR-B616-RU/WH is a multi-year project encompassing Buzzards Bay and Nantucket Sound, including Nantucket Shoals and Vineyard Sound, Massachusetts. WHITING is conducting basic hydrographic surveys along a corridor in Nantucket and Vineyard Sounds, with 200 percent side scan sonar (SSS) bottom coverage to the five-meter depth curve and continued echosounder coverage to the two-meter depth curve.

Project OPR-B616-RU/WH is divided into thirteen survey sheets. The survey described in this report was designated "H" Sheet, L'Hommedieu Shoal to Harthaven, and assigned field sheet number WH-10-2-93 and registry number H-10504.

Survey operations were conducted in accordance with Hydrographic Project Instructions OPR-B616-RU/WH, Buzzards Bay, Nantucket and Vineyard Sounds, Massachusetts, dated May 3, 1993, Change NO. 1 dated July 23, 1993, and Change NO. 2 dated October 13, 1993. Survey H-10504 is registered as a 1:10,000 scale and all data acquired meet the accuracy requirements for a 1:10,000 scale survey.

B. AREA SURVEYED

Hydrographic survey H-10504 covers the area from L'Hommedieu Shoal southward through Hedge Fence and Squash Meadow Shoals, to the approaches to Oak Bluffs Harbor. The area surveyed within field sheet WH-10-2-93 is pictured on the top of the next page.



WH-10-2-93

H-10504 survey operations began on September 23, 1993 (DOY 266) and ended on November 22, 1993 (DOY 326). Data were acquired on the following days:

DOY	Date
266	23 September
271-273	28-30 September
280-282	7-9 October
295-299, 301	22-26, 28 October
306-311, 323-326	2-7, 19-22 November

C. SURVEY VESSEL

NOAA launch 1014 (vessel identification number 2932), launch 1015 (vessel identification number 2931), and NOAA Ship WHITING (vessel identification number 2930) were used for side scan sonar and sounding-data acquisition.

Launch 1015 was equipped with a custom-built bowsprit to tow the SSS towfish from the bow in shallow water. No other unusual vessel configurations were used.

D. AUTOMATED DATA ACQUISITION AND PROCESSING-SEE ALSO EVALUATION REPORT.

Survey data acquisition and processing were accomplished using the HDAPS system with the software listed on the next page:

Program	Version	Date
BACKUP	2.00	17-Jun-93
BASELINE	1.14	17-Jun-93
BIGABST	2.05	17-Jun-93
BIGAUTOST	1.00	16-Jul-93
BLKEDIT	2.02	17-Jun-93
CARTO	2.09	16-Jul-93
CONTACT	2.10	16-Sep-93
CONVERT	3.54	17-Jun-93
DAS_SURV	6.42	15-Jul-93
DIAGNOSE	3.03	17-Jun-93
CLASSIFY	1.00	15 Jul-93
DISC_UTIL	1.00	17-Jun-93
DP	2.14	17-Jun-93
EXCESS	4.11	17-Jun-93
FILESYS	3.10	15-Jul-93
GRAFEDIT	1.04	17-Jun-93
HIPSTICK	1.01	17-Jun-93
HPRAZ	1.26	17-Jun-93
INSTALL	4.02	17-Jun-93
INVERSE	2.01	17-Jun-93
LISTDATA	1.02	17-Jun-93
LOADNEW	2.05	15-Jul-93
LSTAWOIS	3.04	17-Jun-93
MAINMENU	1.10	15-Jul-93
MAN_DATA	2.01	17-Jun-93
NEWPOST	6.01	17-Jun-93
ONETIME	1.00	15-Jul-93
PLOTALL	2.12	17-Jun-93
POINT	2.10	17-Jun-93
PREDICT	2.01	17-Jun-93
PRESURV	7.04	15-Jul-93
PRINTOUT	4.03	17-Jun-93
QUICK	2.04	15-Jul-93
RAMSAVER	1.02	17-Jun-93
REAPPLY	2.03	17-Jun-93
RECOMP	2.02	17-Jun-93
SCANNER	1.00	17-Jun-93
SELPRINT	2.03	17-Jun-93
SHEETSPLIT	1.03	17-Jun-93
SYMBOLS	2.00	17-Jun-93
ZOOMEDIT	2.12	17-Jun-93

Correctors for settlement/squat and sound velocity were applied during postprocessing. Sound velocity corrections were determined using version 2.00 of program CAT and version 2.00 of program VELOCITY.

Field sheets were made on board WHITING, launch 1014, and launch 1015 with automated Bruning 936 plotters driven by the HDAPS system. No final field sheets were prepared. All field records

and supporting data were sent to AHS per the Processing Partnership Agreement. There were no irregularities in projection or scale during postprocessing of this survey.

E. SIDE SCAN SONAR EQUIPMENT

Side scan sonar (SSS) operations were conducted using an EG&G model 260 slant-range corrected SSS recorder and an EG&G 272-T dual-channel, single-frequency towfish. Both the electrostatic and the thermal paper model 260 SSS recorders were used. The towfish was operated on the 100-kHz frequency and was configured with a 20° beam depression. Serial numbers (S/N) for the side scan sonar equipment used throughout the survey are listed below:

Vessel	SSS Towfish S/N	260 Recorder S/N
WHITING (2930)	016835	011443
Launch 1014 (2932)	016835	016670
Launch 1015 (2931)	011902	016671

On launches 1014 and 1015, the towfish was deployed using a Superwinch Model W115 in conjunction with an adjustable davit arm on the stern of each launch. In shallow water, the towfish on launch 1015 was deployed using the Superwinch Model W115 in conjunction with the custom-built bowsprit. The SSS towfish was towed with vinyl-coated Kevlar cable and was connected to the recorder cabling from the Superwinch via a slip ring assembly. The SSS towfish was maintained at a height above the bottom between 8 to 20 percent of the SSS range scale, when conditions permitted. In depths less then 8 meters, the towfish height ranged from 3 to 8 percent of the SSS range scale. SSS operations were limited to a speed-over-ground of 4.5 knots on the 50-meter, 6 knots on the 75-meter, and 5 knots or slower on the 100-meter range scales. Offsets, laybacks, and heights for the stern-mounted davit arm on launches 1014 and 1015 were measured on July 28, 1993 using the 100 kHz (high frequency) transducer as the reference. Offset, layback, and height measurements for launch 1015's bowsprit were measured on October 10, 1993 using the 100 kHz transducer as a reference.

The engine on launch 1014 was replaced on September 19, 1993 (DOY 262) requiring a new offset table for different settlement and squat correctors; correctors from offset table 4 were applied to all data acquired from launch 1014 after DOY 262. Correctors from offset table 2 were applied to all data acquired from launch 1014 prior to DOY 262. Correctors from offset table 3 were applied to all data acquired from launch 1015 utilizing the bow mount; correctors from offset table 1 were applied to all other data acquired from launch 1015. All offset, layback and height data were applied as required by the HDAPS manual and are on file at AHS. - DATA FILED WITH FIELD RECORDS.

On WHITING, the towfish was deployed from a Reuland winch (model number 8377-XF5461A, S/N 814861A-1) in conjunction with an A-frame on the stern. The SSS towfish was towed with armored cable connected to the recorder cabling via a slip-ring assembly. The offset, layback, and height for WHITING's A-frame were measured on July 27, 1992 using the forward 100-kHz (high frequency) transducer as a reference. Correctors from offset table 9 were applied to all data acquired by WHITING.

Side scan sonar data were as collected utilizing the 50, 75 and 100-meter range scales. In order to acquire the required 200% SSS coverage, main-scheme lines were run at a spacing of 40, 60, and 75-meters. These lines were split or re-run in all areas where 200% coverage was questionable due to a degraded sonargram. Degraded sonargrams were usually caused by surface noise or propeller wash in shallow water areas.

Adequate coverage was determined by producing an 'A' and 'B' swath plot and ensuring 100% coverage on each plot.

Confidence checks were performed on a routine basis, primarily by noting changes in bottom texture on the outer edges of the sonargram. Confidence checks were also taken on buoys or buoy anchors when convenient.

F. SOUNDING EQUIPMENT

RAYTHEON Digital Survey Fathometer (DSF) 6000N echosounders were the only echo-sounding equipment used to measure depths during the survey. The DSF 6000N produced a graphic record of the high frequency (100 kHz) and low frequency (24 kHz) depths. Digital depths from the high-frequency and low-frequency beams were recorded by the HDAPS acquisition system. High-frequency depths were selected as the primary depths for sounding plot purposes. The following is a list of DSF 6000N fathometers used during this survey:

Vessel	S/N	DOY
WHITING	A105N	280-299
Launch 1014	B053N	266,271
	C076N	272
	B042N	273-324
Launch 1015	A106N	266-306
	B053N	307-308
	A105N	308-324

Echograms were carefully reviewed for significant features along the track line. Any features on the graphic record that were not

selected as primary soundings were manually inserted. Electronic technicians performed daily accuracy checks and preventive maintenance on the DSF-6000N. Bar checks were conducted on a weekly basis in accordance with the HDAPS Field Procedures Manual (FPM).

Diver determined least depths were measured with a prototype Diver Least Depth Gauge Module (MOD3). The MOD3 Gauge was used in accordance with documentation sent by the Nautical Charting Research and Development Laboratory, dated September 9, 1993. This documentation is on file at AHS.* The MOD3 gauge was calibrated before and after the period of hydrography. The calibrations showed that no changes had occurred over the period. Calibrations are on file at AHS.*

G. CORRECTIONS TO SOUNDINGS

Sound velocity profiles of the water column were determined using Seacat Conductivity, Temperature, and Depth (CTD) instruments (model SBE-19, S/N 286 and S/N 1060). The instruments were calibrated on December 16, 1992 during WHITING's winter inport period. Copies of the calibration reports are on file at AHS.*

The CTD was lowered by hand through the water column to obtain data for sound velocity corrections. Programs CAT and VELOCITY were used to process the data, select significant data points, and create a corrector table. The velocity correctors were manually entered into an HDAPS velocity table. The proper correctors were applied to both the high-frequency and low-frequency beams during either acquisition or postprocessing. Velocity profile data can be found on file at AHS.* A summary of sound velocity casts follows:

DOY	Vel.Table#	Latitude	Longitude	Depth
266	6	41°30'33"N	070°29'07"W	36.9
272	9	41°29'27"N	070°33'04"W	22.0
280	14&15	41°28'56"N	070°32'49"W	30.0
295	19&20	41°29'26"N	070°32'59"W	27.1
301	23	41°29'33"N	070°30'01"W	26.3
306	24	41°29'22"N	070°32'52"W	31.0
323	32	41°35'54"N	070°16'36"W	26.1

Data Quality Assurance (DQA) for the Seacat was performed by using a hydrometer and a thermometer to measure the density and temperature of a surface water sample taken during the CTD cast. Program CAT compared these values to the CTD surface values to confirm that the velocity probe was working properly.

The static draft for launches 1014 and 1015 is 0.55 meters, measured on July 28, 1993. The static draft for WHITING is 3.2 meters, a historical value confirmed by divers with a pneumatic

* DATA FILED WITH FIELD RECORDS.

depth gauge on May 20, 1993. A Transducer Depth Determination Report is on file at AHS.*

Settlement and squat measurements were conducted and correctors determined on August 15, 1993 for launch 1014 and on August 23, 1993 for launch 1015. The main engine in launch 1014 was replaced on September 19; settlement and squat observations were re-measured on September 20 for the launch. Settlement and squat measurements for WHITING were conducted on August 5, 1991. All sounding data was collected at a speed of less than 6 knots with WHITING. Settlement and squat measurements were conducted on November 10, 1993 to confirm the zero corrector for speeds less than 6 knots. All settlement and squat data are on file at AHS.*

All sounding corrections were applied on-line to both the narrow (100 kHz) and wide (24 kHz) DSF-6000N beams. The echosounder data from launches 1014 and 1015 is uncorrected for heave. All echosounder data acquired from WHITING is corrected for heave.

The tidal datum for this project is Mean Lower Low Water. Gauge operation was checked throughout the project duration to ensure proper operation. Local observers for each station were hired by WHITING to make tide observations.

The operating tide station at Nantucket, Massachusetts (844-9130) served as the reference station for predicted tides. Time and height correctors for the project were as follows:

	Time Correction	Height Ratio
High Water:	-0 hr 15 min	x0.65
Low Water:	-0 hr 15 min	x0.65

Tidal data used during data acquisition were taken from table 2 of the East Coast of North and South America Tide Tables and were applied to the digital data during acquisition by HDAPS. Digital tidal data were received on floppy disk from N/CG24, Hydrographic Surveys Branch.

WHITING installed and leveled two ADR tide gauges for datum control: one at the Hyannis Port Pier, Hyannis Port, MA (844-7605) and one at the Steamship Authority Pier, Oak Bluffs, MA (844-8208). Opening levels were run on the tide stations at Hyannis Port and Oak Bluffs on August 25 and 26, 1993, respectively. Levels were re-run when next generation (NEXGEN) gauges were installed at the Hyannis and Oak Bluffs gauges on October 1, 1993 and September 29, 1993, respectively. These level runs tied in the NEXGEN sensors with the corresponding tide staffs. Closing levels were run on the tide stations at Hyannis Port and Oak Bluffs on November 12, 1993 and November 19, 1993, respectively. The levels confirmed that the tide staff and marks were undisturbed. The tide note is on file at AHS.*

* DATA FILED WITH FIELD RECORDS.

The request for smooth tides was submitted to the Product and Services Branch, N/OES231, Datums Section, on November 29, 1993. APPROVED TIDES AND ZONING WERE APPLIED DURING OFFICE PROCESSING.

H. CONTROL STATIONS - SEE ALSO EVALUATION REPORT.

The horizontal datum for this project is the North American Datum of 1983 (NAD 83). Two B-order horizontal control stations were used as DGPS reference stations for this survey: Montauk Point, New York and Portsmouth Harbor, New Hampshire. The adjusted NAD 83 positions, computed by GPS methods, were provided by Lieutenant Commander John Wilder of the Hydrographic Surveys Branch, N/CG24, on August 23, 1993. The positions are as follows:

	Latitude	Longitude	Frequency
Montauk Point	41°04'02.088"N	071°51'38.484"W	293 kHz
Portsmouth Harbor	43°04'15.066"N	070°42'36.804"W	288 kHz

I. HYDROGRAPHIC POSITION CONTROL

A Differential Global Positioning System (DGPS) was used as the primary navigation system for this survey. Survey H-10504 operations utilized two U.S. Coast Guard DGPS beacons: Montauk Point, New York and Portsmouth Harbor, New Hampshire. WHITING (vessel number 2930) used two Ashtech Sensor GPS receivers for GPS navigation with two Magnavox MX50R receivers supplying differential correctors to the Ashtech receivers. Launches 1014 and 1015 each were equipped with one Ashtech Sensor and one Magnavox MX50R for DGPS positioning. The MX50R and Ashtech receivers were initialized using HDAPS, with only the primary receiver sending navigational output to HDAPS aboard WHITING.

	Device	Serial Number
WHITING (Primary)	Ashtech Sensor	700417B1055
	Magnavox MX50R	168
WHITING (Secondary)	Ashtech Sensor	700417B1129
	Magnavox MX50R	169
Launch 1014	Ashtech Sensor	700417B1203
	Magnavox MX50R	036
Launch 1015	Ashtech Sensor	700417B1191
	Magnavox MX50R	219

DGPS positioning was accomplished in accordance with the FPM, section 3.4. When the beacon signal was lost for more than 30 seconds, the survey line was broken and the line was rerun where

control had been unacceptable.

Performance checks for the positioning systems on the launches were accomplished with the launches secured in the davits. An instantaneous HDAPS position of each launch's system was compared to WHITING's HDAPS system position; an offset in distance and azimuth between the two systems was then calculated. Performance checks for WHITING were conducted using program SHIPDIM. SHIPDIM uses the two reference station method described in the FPM, section 3.4.5. All performance checks used the Montauk Point beacon as the primary reference station and the Portsmouth Harbor beacon as the check station. Performance checks were conducted on a weekly basis. All DGPS performance checks confirmed that the DGPS positioning systems were operating properly and accurately. A summary of performance checks for WHITING, launch 1014, and launch 1015 are on file at AHS.*

Satellite coverage during this survey period allowed WHITING, launch 1014, and launch 1015 to operate in the non-altitude constrain mode continuously.

Horizontal Dilution of Precision (HDOP) limits were computed for each station as required in section 3.4.2 of the FPM. The HDOP limits for a 1:10,000-scale survey for the Montauk Point and Portsmouth Harbor beacons were 3.4 and 2.6, respectively. No data were acquired at HDOP values exceeding the 1:10,000 thresholds.

WHITING's (vessel number 2930) DGPS antenna offsets and laybacks were measured on March 19, 1993. Offsets and laybacks were measured using the forward 100-kHz (high frequency) echosounder transducer as the reference. Antenna heights were measured from the waterline on the same date. Offsets and laybacks were applied by HDAPS on line. All offset, layback and height data were applied as required by the HDAPS manual and are on file at AHS.*

DGPS antenna offsets and laybacks for launches 1014 and 1015 were measured on July 28, 1993 using the 100 kHz (high frequency) echosounder transducer as the reference. Antenna heights were also measured from the transducer on the same date. All offset, layback and height data were applied as required by the HDAPS manual and are on file at AHS.*

J. SHORELINE - SEE ALSO EVALUATION REPORT.

WHITING surveyed to the 2-meter depth curve. The shoreline was not examined.

* DATA FILED WITH FIELD RECORDS.

K. CROSSLINES

A total of 36 nautical miles of crosslines were run on H-10504. This amounted to 10 percent of the total linear nautical miles of main-scheme lines needed for the 100 percent coverage.

Crosslines and main-scheme agreement was adequate. The average difference showed crossline soundings 0.2 meters deeper than main-scheme soundings. The maximum difference between main-scheme and crossline soundings was 0.6 meters.

L. JUNCTIONS - SEE ALSO EVALUATION REPORT.

Survey H-10504 does not junction with any contemporary surveys.

M. COMPARISONS WITH PRIOR SURVEYS - SEE ALSO EVALUATION REPORT.

Survey H-10504 soundings were compared with prior surveys H-6350 and H-8821. Both prior surveys were referenced to NAD 27, therefore a datum shift was applied to H-10504 in accordance with section 7.4 of the FPM (NADCON, version 1.01 January 9, 1989). Specifically, NAD 27 tick marks were plotted on the NAD 83 sounding plots for overlay and comparison of the prior survey plots. Comparisons were made between survey H-10504 soundings plotted at predicted MLLW and both prior survey sounding sheets plotted at MLW.

The northern half of H-10504, from Hedge Fence Shoal to the northern survey limits, was covered by H-6350 (1938 & 1942, 1:20,000, MLW). Hedge Fence Shoal was surveyed with 50-meter echosounder mainscheme lines, supplemented with 10-meter linespacing where development was needed. The general outline of the shoal has remained the same, but depths within its irregularly contoured boundary have changed. Shoal depths were acquired in some of the deep regions shown on the prior survey and vice versa. There was good agreement between the areas surveyed north of Hedge Fence Shoal and the soundings from prior survey H-6350; soundings from H-10504 were generally 0.6 meters deeper their H-6350 counterparts. WHITING recommends survey H-10504 soundings supersede all hydrography from prior survey H-6350 in the common area.

The southern half of H-10504, from south of Hedge Fence Shoal, through Squash Meadow Shoal and to the southern survey limit, was covered by H-8821 (1964, 1:10,000, MLW). Squash Meadow Shoal was surveyed during H-10504 with 200 percent SSS coverage at 40 and 60 meter linespacing (50 and 75 meter SSS range scales, respectively) and split where needed. Additionally, echosounder development was performed over areas needing further development. As with Hedge Fence Shoal, the contours within the shoal area

have changed slightly; shoal depths were acquired in some of the deep regions shown on the prior survey and vice versa. Soundings differed up to a maximum of 1.5 meters within the shoal; greater differences exist on the outermost contour, defining the extent of the shoal. Shoal areas located northeast of Vineyard Highlands and at the extreme southeast corner of H-10504 have changed slightly. On average, depths from survey H-10504 are 0.6 meters deeper than corresponding depths from prior survey H-8821. WHITING recommends survey H-10504 soundings supersede all hydrography from prior survey H-8821 in the common area.

N. ITEM INVESTIGATIONS

Summary of item investigations:

ITEM/CONTACT NO.	SECTION
H22&39 (6549.07P)	N1
H23&37 (6520.25P)	N2
H24&38 (6520.25P)	N3
H40	N4
H35	N5
H33	N6
H30&32 (6599.00S)	N7
H26	N8
H36	N9
H34	N10
H3&25	N11
H28	N12
H4 (6703.52P)	N13
H2 (6510.48P)	N14
H5	N15
H12	N16
H20 (6606.20P)	N17
H27	N18
H29	N19
H18 (6599.22P)	N20
H14&19 (6577.50S)	N21
H13 (6625.34P)	N22
H9	N23
H15 (6595.19P)	N24
H41	N25
H6	N26
H11	N27
H10	N28
H21	N29
H16	N30
6648.45P (HANG 17)	N31
6616.15S (HANG 8)	N32
6616.21S	N33
6616.29S	N34
6593.17P	N35

ITEM/CONTACT NO.	SECTION (con't)
6527.03S	N36
6527.23P (HANG 7)	N37
6599.16P (HANG 31)	N38
6523.25S	N39
6511.22P (HANG 1)	N40
6512.07S	N41
6705.25P	N42
6548.02P	N43
6600.27P	N44
6559.51S	N45
6574.46P	N46
6608.27S	N47
6734.37S	N48
6726.58S	N49
6728.03S	N50
6566.41P	N51
6566.34P	N52
6553.42P	N53
6704.45P	N54
6726.52P	N55
AWOIS 6859	N56
~~AWOIS 7840~~ NEW WRECK #9821	N57

N1. Contact #H22&39

Reported Latitude:	41°27'44.29" N
Reported Longitude:	070°33'11.61" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.4 m (charted as 12 *Rk*)

Contact #H22&39 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current National Ocean Service (NOS) standards. The prior survey least depth for H22&39 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #478, DN 280) were determined during dive operations. Contact #6549.07P (H-10504) is located less than one meter from the reported position for contact #H22&39; 200 percent SSS coverage of the area reveals nothing more significant nearby.

Divers located a rock 2.8 meters long by 1.8 meters wide at latitude 41°27'44.3" N, longitude 070°33'11.4" W with a least depth of 3.5 meters (MOD 3, corrected to ~~predicted~~ approved MLLW). The rock projects 1.8 meters off the bottom.

WHITING recommends that the 12 *Rks* charted at the reported position be deleted from all affected charts. A rock with a known least depth of 3.5 meters should be charted at latitude 41°27'44.3" N, longitude 070°33'11.4" W on charts 13229, 13233, 13237, and 13238.

N2. Contact #H23&37

Reported Latitude:	41°27'45.40" N
Reported Longitude:	070°33'12.27" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.8 m (charted as 13 *Rk*)

Contact #H23&37 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H23&37 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #4772, DN 280) were determined during dive operations. Contact #6520.25P (H-10504) is located approximately two meters from the reported position for contact #H23&37; 200 percent SSS coverage of the area reveals nothing more significant nearby.

Divers located two rocks approximately 4 meters apart laying along a north-south axis at latitude 41°27'45.5" N, longitude 070°33'12.3" W. The southern rock measured 1.8 meters long by 1.8 meters wide with a least depth of 4.2 meters (MOD 3, corrected to ~~predicted~~ MLLW). The northern rock measured 1.2 meters long by 1.5 meters wide with a least depth of ~~3.9~~ meters (MOD 3, corrected to ~~predicted~~ MLLW). WHITING identifies the southern rock as the charted (13 *Rk*) contact #H23&37 and the northern rock as the uncharted contact #H24&38 (see section **N3**).

WHITING recommends that the 13 *Rk* charted at the reported position be deleted from all affected charts. Rocks with a known least depth of 3.9 meters should be charted at latitude 41°27'45.5" N, longitude 070°33'12.3" W on charts 13229, 13233, 13237, and 13238. ~~DO NOT CONCUR - DO NOT CHART SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~

N3. Contact #H24&38

Reported Latitude:	41°27'45.62" N
Reported Longitude:	070°33'12.16" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.1 m (uncharted)

Contact #H24&38 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H24&38 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #4768, DN 280) were determined during dive operations. Contact #6520.25P (H-10504) is located approximately two meters from the reported position for contact #H24&38; 200 percent SSS coverage of the area reveals nothing more significant nearby.

Divers located two rocks approximately 4 meters apart laying in a north-south line at latitude 41°27'45.5" N, longitude 070°33'12.3" W. The southern rock measured 1.8 meters long by 1.8 meters wide with a least depth of 4.2 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The northern rock measured 1.2 meters long by 1.5 meters wide with a least depth of 3.9 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). WHITING identifies the southern rock as the charted (13 *Rk*) contact #H23&37 (see section **N2**) and the northern rock as the uncharted contact #H24&38.

Due to the close proximity to contact #H23&37 (see section **N2**), WHITING recommends that this rock not be charted separately. CONCUR **

N4. Contact #H40

Reported Latitude:	41°27'43.00" N
Reported Longitude:	070°33'11.91" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.1 m (uncharted)

Contact #H40 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H40 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #480, DN 280) were determined during dive operations.

Divers located two rocks measuring 1 meter by 0.5 meter each, approximately 1 meter apart laying in a north-south line at latitude 41°27'43.0" N, longitude 070°33'11.8" W with a least depth of 4.2 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rocks project 1 meter off the bottom.

WHITING recommends that rocks with a known least depth of 4.2 meters (HARD) be charted at latitude 41°27'43.0" N, longitude 070°33'11.8" W on charts 13229, 13233, 13237, and 13238.*

N5. Contact #H35

Reported Latitude:	41°27'42.04" N
Reported Longitude:	070°33'12.26" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.1 m (charted as 14 *Rk*)

Contact #H35 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H35 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #987, DN 295) were determined during dive operations.

Divers located a rock 1.8 meters long by 1.2 meters wide at latitude 41°27'42.01" N, longitude 070°33'12.47" W with a least depth of ~~3.8~~ 4.2 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.6 meters off the bottom.

WHITING recommends that the 14 *Rk* charted at the reported position be deleted from all affected charts. A rock with a known least depth of ~~3.8~~ 4.2 meters (HARD) should be charted at latitude 41°27'42.01" N, longitude 070°33'12.47" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 14RK

*DO NOT CONCUR – DO NOT CHART – SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

N6. Contact #H33

Reported Latitude:	41°27'38.76" N
Reported Longitude:	070°33'08.97" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.3 m (charted as 11 *Rk*)

Contact #H33 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H33 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #988, DN 295) were determined during dive operations.

Divers located a group of rocks in a 3 meter by 3 meter area, with the shoalest depth at the southeast part, a rock 0.6 meters long by 0.3 meters wide at latitude 41°27'38.49" N, longitude 070°33'08.83" W with a least depth of 3.~~6~~9 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.6 meters off the bottom.

WHITING recommends that the 11 *Rk* charted at the reported position be deleted from all affected charts. CONCUR Rocks with a known least depth of 3.~~6~~9 meters (13 FT) should be charted at latitude 41°27'38.49" N, longitude 070°33'08.83" W on charts 13229, 13233, 13237, and 13238. ~~DO NOT CONCUR — DO NOT CHART SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY CHART 13RK~~ DO NOT CHART

N7. Contact #H30&32

Reported Latitude:	41°27'37.77" N
Reported Longitude:	070°33'07.82" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.4 m (charted as 12 *Rk*)

Contact #H30&32 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H30&32 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #989, DN 295) were determined

during dive operations. Contact #6599.00S (H-10504) is located approximately 10 meters to the east of #H30&32; 200 percent SSS coverage of the area reveals nothing more significant nearby.

Divers located a rock 2.4 meters long by 1.5 meters wide at latitude 41°27'37.31" N, longitude 070°33'07.93" W with a least depth of 3.9' meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.9 meters off the bottom.

WHITING recommends that the 12 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 3.9' (12 FT) meters should be charted at latitude 41°27'37.31" N, longitude 070°33'07.93" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 12 RK

N8. Contact #H26

Reported Latitude:	41°27'36.58" N
Reported Longitude:	070°33'05.83" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.1 m (charted as 14 *Rk*)

Contact #H26 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H26 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #990, DN 295) were determined during dive operations.

Divers located a rock 1.8 meters long by 1.2 meters wide at latitude 41°27'36.62" N, longitude 070°33'05.83" W with a least depth of 4.2' meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.9 meters off the bottom.

WHITING recommends that the 14 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 4.2' (13 FT) meters should be charted at latitude 41°27'36.62" N, longitude 070°33'05.83" W on charts 13229, 13233, 13237, and 13238. ~~CONCUR~~ ~~CHART 13RK~~ DO NOT CHART USE NOTE MKY.

~~* DO NOT CONCUR = DO NOT CHART = SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~

N9. Contact #H36

Reported Latitude:	41°27'39.86" N
Reported Longitude:	070°33'11.42" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.1 m (charted as 14 *Rk*)

Contact #H36 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H36 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #991, DN 295) were determined during dive operations.

Divers located a rock 0.6 meters long by 0.9 meters wide at latitude 41°27'39.80" N, longitude 070°33'11.52" W with a least depth of 4.4 meters (MOD 3, corrected to ~~predicted~~ MLLW). The rock projects 0.6 meters off the bottom. APPROVED

WHITING recommends that the 14 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 4.4 meters (4.7 m) should be charted at latitude 41°27'39.80" N, longitude 070°33'11.52" W on charts 13229, 13233, 13237, and 13238. ~~DO NOT CONCUR – DO NOT CHART SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~ ~~CHART 14 RK~~ DO NOT CHART USE NOTE RK4

N10. Contact #H34

Reported Latitude:	41°27'41.32" N
Reported Longitude:	070°33'09.93" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.1 m (charted as 14 *Rk*)

Contact #H34 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H34 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #992, DN 295) were determined during dive operations.

Divers located a rock 1.8 meters long by 1.2 meters wide at latitude 41°27'41.38" N, longitude 070°33'10.14" W with a least depth of 4.2' meters (MOD 3, corrected to ~~predicted~~ MLLW). The rock projects 0.9 meters off the bottom. APPROVED

WHITING recommends that the 14 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 4.2' (13FT) meters should be charted at latitude 41°27'41.38" N, longitude 070°33'10.14" W on charts 13229, 13233, 13237, and 13238. ~~CONCUR CHART 13RK~~ DO NOT CHART IN ROCK FIELD

N11. Contact #H3&25

Reported Latitude:	41°27'50.21" N
Reported Longitude:	070°33'13.14" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.7 m (charted as 16 *Obstr*)

Contact #H3&25 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H3&25 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #6534, DN 297) were determined during dive operations.

Divers located a metal obstruction 1.1 meters long by 0.2 meters wide at latitude 41°27'50.34" N, longitude 070°33'12.95" W with a least depth of ~~5.1~~ 4.9 meters (MOD 3, corrected to ~~predicted~~ MLLW). The rock projects 0.5 meters off the bottom. APPROVED

WHITING recommends that the 16 *Obstr* charted at the reported position be deleted from all affected charts. CONCUR An obstruction with a known least depth of ~~5.1~~ 4.9 meters (16FT) should be charted at latitude 41°27'50.34" N, longitude 070°33'12.95" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 16OBSTN

~~* DO NOT CONCUR DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~

N12. Contact #H28

Reported Latitude:	41°27'42.77" N
Reported Longitude:	070°33'09.28" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.3 m (charted as 11 *Rk*)

Contact #H28 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H28 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #6535, DN 297) were determined during dive operations.

Divers located a rock 2.6 meters in diameter at latitude 41°27'~~45.5~~ 42.6" N, longitude 070°33'~~12.3~~ 09.1" W with a least depth of 3.~~5~~ 4 meters (MOD 3, corrected to ~~predicted~~ MLLW). The rock projects 1.5 meters off the bottom. APPROVED #5

WHITING recommends that the 11 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 3.~~5~~ 4 meters (MLLW) should be charted at latitude 41°27'~~45.5~~ 42.6" N, longitude 070°33'~~12.3~~ 09.1" W on charts 13229, 13233, 13237, and 13238. ~~DO NOT~~ CONCUR - ~~DO NOT CHART SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~ CHART 11RK

N13. Contact #H4

Reported Latitude:	41°27'49.52" N
Reported Longitude:	070°32'51.75" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.4 m (charted as 15 *Rk*)

Contact #H4 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H4 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #6532, DN 297) were determined during dive operations. Contact #6703.52P (H-10504) is located approximately 11 meters south-southeast of #H4; 200 percent SSS

coverage of the area reveals nothing more significant nearby.

Divers located a rock 1.8 meters long by 1.5 meters wide at latitude 41°27'50.10" N, longitude 070°32'51.81" W with a least depth of 4.6 4 meters (MOD 3, corrected to ~~predicted~~ MLLW). The rock projects 2.4 meters off the bottom. APPROVED

WHITING recommends that the 15 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 4.6 4 meters (14 FT) should be charted at latitude 41°27'50.10" N, longitude 070°32'51.81" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 14 RK

N14. Contact #H2

Reported Latitude:	41°27'50.95" N
Reported Longitude:	070°33'08.46" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.3 m (charted as 15 *Rk*)

Contact #H2 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H2 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #6540, DN 297) were determined during dive operations. Contact #6510.48P (H-10504) is located approximately 11 meters northeast of #H2; 200 percent SSS coverage of the area reveals nothing else nearby.

Divers located a rock 1.8 meters in diameter at latitude 41°27'50.89" N, longitude 070°33'08.79" W with a least depth of 4.6 7 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.8 meters off the bottom.

WHITING recommends that the 15 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 4.6 7 meters (15 FT) should be charted at latitude 41°27'~~45.5~~ 50.9" N, longitude 070°33'~~12.3~~ 08.8" W on charts 13229, 13233, 13237, and 13238. ~~DO NOT CONCUR - DO NOT CHART - SHOALER FEATURE AND/OR SOUNDINGS IN VICINITY~~ CHART 15 RK

N15. Contact #H5

Reported Latitude:	41°27'33.21" N
Reported Longitude:	070°33'07.05" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.8 m (charted as 13 *Rk*)

Contact #H5 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H5 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #6543, DN 297) were determined during dive operations.

Divers located a rock 1.8 meters long by 1.2 meters wide at latitude 41°27'33.23" N, longitude 070°33'07.23" W with a least depth of 3.6 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.9 meters off the bottom.

AWOIS #9763

WHITING recommends that the ~~13~~ 11 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 3.6 meters, REVISED should be charted at latitude 41°27'33.23" N, longitude 070°33'07.23" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART WORK

SEE ALSO SECTION M.1.b OF THE EVALUATION REPORT.

N16. Contact #H12

Reported Latitude:	41°27'29.93" N
Reported Longitude:	070°33'10.75" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.8 m (charted as 13 *Rk*)

Contact #H12 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H12 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #6544, DN 297) were determined during dive operations.

Divers located two rocks laying side by side at latitude 41°27'30.07" N, longitude 070°33'10.68" W with a least depth of 4.0 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). One rock measured 1.2 meters long by 0.9 meters wide and projected 0.9 meters off the bottom; the other rock was smaller and extended 0.3 meters off the bottom. Another smaller rock projecting 0.3 meters off the bottom was located 6 meters northwest of the least depth rock. Patches of kelp surrounded the area.

WHITING recommends that the 13 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 4.0 meters (13 FT) should be charted at latitude 41°27'30.07" N, longitude 070°33'10.68" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 12 RK

N17. Contact #H20

Reported Latitude:	41°27'30.83" N
Reported Longitude:	070°33'03.05" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.6 m (charted as 12 *Rk*)

Contact #H20 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H20 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #6545, DN 297) were determined during dive operations. Contact #6606.20P (H-10504) is located approximately 8 meters northeast of #H20; 200 percent SSS coverage of the area reveals that nothing more significant is closer to H20.

Divers located a rock 1.2 meters long by 0.9 meters wide at latitude 41°27'30.67" N, longitude 070°33'03.25" W with a least depth of 3.~~7~~9 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.9 meters off the bottom and has kelp growing on it. Large patches of kelp standing 1.2 meters high surround the rock and smaller rocks standing 0.1 meters high are scattered about.

WHITING recommends that the 12 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 3.~~7~~9 meters (12 FT) should be charted at latitude 41°27'30.67" N, longitude 070°33'03.25" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 12 RK

~~* DO NOT CONCUR - DO NOT CHART SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~

N18. Contact #H27

Reported Latitude:	41°27'40.61" N
Reported Longitude:	070°33'07.89" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.3 m (14 *Rk*)

Contact #H27 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H27 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1098, DN 298) were determined during dive operations.

Divers located a rock 1.2 meters in diameter at latitude 41°27'41.01" N, longitude 070°33'07.85" W with a least depth of 4.2 meters (MOD 3, corrected to ~~predicted~~ approved MLLW). The rock projects 0.6 meters off the bottom.

WHITING recommends that the 14 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 4.2 (13 ft) meters should be charted at 41°27'41.01" N, longitude 070°33'07.85" W on charts 13229, 13233, 13237, and 13238. ~~DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~ CONCUR CHART 13RK

N19. Contact #H29

Reported Latitude:	41°27'39.82" N
Reported Longitude:	070°33'09.28" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.2 m (charted as 11 *Rk*)

Contact #H29 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H29 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1090, DN 298) were determined during dive operations.

REFERENCE AWOIS # 9760

Divers located a rock 0.9 meters long by 0.6 meters wide at latitude 41°27'40.07" N, longitude 070°33'08.69" W with a least depth of ~~4.2~~ 3 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.6 meters off the bottom. Large patches of kelp standing 1.1 meters high and smaller rocks standing 0.3 meters high are surround the rock.

WHITING recommends that the 11 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of ~~4.2~~ 3 meters (14 FEET) should be charted at latitude 41°27'40.07" N, longitude 070°33'08.69" W on charts 13229, 13233, 13237, and 13238. DO NOT CONCUR

SEE SECTIONS M.5.b. AND WIRE DRAG OF THE EVALUATION REPORT FOR CHARTING RECOMMENDATIONS.

N20. Contact #H18

Reported Latitude:	41°27'38.65" N
Reported Longitude:	070°33'02.69" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.0 m (charted as 10 *Rk*)

Contact #H18 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H18 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1091, DN 298) were determined during dive operations. Contact #6599.22P (H-10504) is located approximately 4 meters northwest of #H18; 200 percent SSS coverage of the area reveals nothing more significant nearby, other than contact #6599.16P (HANG 31, see section **N38**). OK

Divers located a rock 4.6 meters long by 2.4 meters wide at latitude 41°27'38.60" N, longitude 070°33'02.62" W with a least depth of ~~2.8~~ 3.0 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 2.1 meters off the bottom.

WHITING recommends that the 10 *Rk* charted at the reported position be deleted from all affected charts. A rock with a known least depth of ~~2.8~~ 3.0 meters (10 FEET) should be charted at latitude 41°27'38.60" N, longitude 070°33'02.62" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 10 RK

SEE ALSO SECTION D.1) OF THE EVALUATION REPORT

REFERENCE AWOIS # 9759

N21. Contact #H14&19

Reported Latitude:	41°27'33.03" N
Reported Longitude:	070°32'57.26" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.1 m (charted as 14 *Rk*)

Contact #H14&19 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H14&19 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1092, DN 298) were determined during dive operations. Contact #6577.50S (H-10504) is located approximately 6 meters northwest of #H14&19; 200 percent SSS coverage of the area reveals nothing more significant nearby.

Divers located a rock 1.2 meters long by 1.8 meters wide at latitude 41°27'33.02" N, longitude 070°32'56.98" W with a least depth of ~~3.8~~ 4.0 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.2 meters off the bottom.

WHITING recommends that the 14 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of ~~3.8~~ 4.0 meters (13230) should be charted at latitude 41°27'33.02" N, longitude 070°32'56.98" W on charts 13229, 13233, 13237, and 13238. ~~DO NOT CONCUR DO NOT CHART SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~ CONCUR CHART 13RK

N22. Contact #H13

Reported Latitude:	41°27'26.08" N
Reported Longitude:	070°32'53.69" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.0 m (charted as 14 *Rk*)

Contact #H13 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H13 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1101, DN 298) were determined

during dive operations. Contact #6625.34P (H-10504) is located approximately 5 meters northeast of #H13; 200 percent SSS coverage of the area reveals nothing more significant nearby (two smaller rocks confirmed by dive).

Divers located a rock 1.5 meters in diameter at latitude 41°27'26.08" N, longitude 070°32'53.62" W with a least depth of 3.8 (7) meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.2 meters off the bottom. Two smaller rocks extending 0.3 meters high are located approximately 3 meters to the south and 3 meters to the west of the least depth rock. Kelp standing 0.5 meters high surrounds the area.

WHITING recommends that the 14 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 3.8 (12 FT) meters should be charted at 41°27'26.08" N, longitude 070°32'53.62" W on charts 13229, 13233, 13237, and 13238. ~~DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS ED DEPICTED~~ CONCUR CHART 12 RK

N23. Contact #H9

Reported Latitude:	41°27'27.17" N
Reported Longitude:	070°32'47.56" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.5 m (charted as 15 *Rk*)

Contact #H9 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H9 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #6623, DN 298) were determined during dive operations.

Divers located a rock 1.2 meters in diameter at latitude 41°27'27.26" N, longitude 070°32'47.59" W with a least depth of 4.3 (6) meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.6 meters off the bottom with kelp growth extending 0.6 meters high. Small rocks and patches of kelp growing 0.3 meters off the bottom were within a 4.5-meter radius of the least depth rock.

WHITING recommends that the 15 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 4.3 (6) meters (15 FT) should be charted at 41°27'27.26"

N, longitude 070°32'47.59" W on charts 13229, 13233, 13237, and 13238.*

N24. Contact #H15

Reported Latitude:	41°27'30.30" N
Reported Longitude:	070°32'54.88" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.7 m (charted as 13 *Rk*)

Contact #H15 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H15 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #6624, DN 298) were determined during dive operations. Contact #6595.19P (H-10504) is located approximately 2 meters northwest of #H15; 200 percent SSS coverage of the area reveals nothing more significant nearby (two smaller rocks confirmed by dive).

Divers located a rock 1.8 meters in diameter at latitude 41°27'30.26" N, longitude 070°32'54.56" W with a least depth of 3.6 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.5 meters off the bottom. A smaller rock, 1.2 meters long by 0.9 meters wide by 0.6 meters high, was located 3.0 meters south of the least depth rock.

WHITING recommends that the 13 *Rk* charted at the reported position be deleted from all affected charts. A rock with a known least depth of 3.6 meters (12 FEET) should be charted at 41°27'30.26" N, longitude 070°32'54.56" W on charts 13229, 13233, 13237, and 13238.*

N25. Contact #H41

Reported Latitude:	41°27'29.18" N
Reported Longitude:	070°32'57.16" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.7 m (charted as 12 *Rk*)

Contact #H41 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least

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depth for H41 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1173, DN ~~301~~ 298) were determined during dive operations.

Divers located a rock 1.5 meters long by 1.2 meters wide at latitude 41°27'29.06" N, longitude 070°32'57.11" W with a least depth of 3.~~3~~2 meters (MOD 3, corrected to ~~predicted~~ Approved MLLW). The rock projects 1.2 meters off the bottom. Another rock, 1.8 meters long by 1.2 meters wide by 0.4 meters high, was located 3.0 meters south of the least depth rock.

WHITING recommends that the 12 *Rk* charted at the reported position be deleted from all affected charts. A rock with a known least depth of 3.~~3~~2 meters (10 FT) should be charted at latitude 41°27'29.06" N, longitude 070°32'57.11" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART WORK

N26. Contact #H6

Reported Latitude:	41°27'28.38" N
Reported Longitude:	070°33'04.60" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.5 m (charted as 12 *Rk*)

Contact #H6 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H6 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1174, DN 301) were determined during dive operations.

Divers located a rock 2.4 meters long by 1.5 meters wide at latitude 41°27'28.41" N, longitude 070°33'04.34" W with a least depth of 3.5 meters (MOD 3, corrected to ~~predicted~~ Approved MLLW). The rock projects 1.2 meters off the bottom and patches of kelp surround the area.

WHITING recommends that the 12 *Rk* charted at the reported position be deleted from all affected charts. A rock with a known least depth of 3.5 meters (11 FT) should be charted at latitude

41°27'28.41" N, longitude 070°33'04.34" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 11 RK

N27. Contact #H11

Reported Latitude:	41°27'26.50" N
Reported Longitude:	070°33'07.28" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	2.9 m (charted as 10 *Rk*)

Contact #H11 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H11 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1175, DN 301) were determined during dive operations.

Divers located a rock 3.6 meters long by 2.4 meters wide at latitude 41°27'26.42" N, longitude 070°33'07.42" W with a least depth of 3.1 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.5 meters off the bottom. The surrounding area consisted of patches of kelp 0.9 meters high.

WHITING recommends that the 10 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 3.1 meters (10ft) should be charted at latitude 41°27'26.42" N, longitude 070°33'07.42" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 10RK

N28. Contact #H10

Reported Latitude:	41°27'24.73" N
Reported Longitude:	070°33'04.88" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.1 m (charted as 10 *Rk*)

Contact #H10 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H10 is considered "reported" and the item was reinvestigated as part of survey H-10504.

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Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1177, DN 301) were determined during dive operations.

Divers located a rock 2.4 meters long by 1.8 meters wide at latitude 41°27'24.64" N, longitude 070°33'04.88" W with a least depth of 3.2 meters (MOD 3, corrected to ~~predicted~~ MLLW). The rock projects 1.5 meters off the bottom. APPROVED

WHITING recommends that the 10 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 3.2 meters (MOD) should be charted at latitude 41°27'24.64" N, longitude 070°33'04.88" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 10 RK

N29. Contact #H21

Reported Latitude:	41°27'21.90" N
Reported Longitude:	070°32'58.04" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	3.3 m (charted as 11 *Rk*)

Contact #H21 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H21 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1178, DN 301) were determined during dive operations.

Divers located a rock 2.4 meters long by 1.8 meters wide at latitude 41°27'21.78" N, longitude 070°32'57.97" W with a least depth of 3.5 meters (MOD 3, corrected to ~~predicted~~ MLLW). The rock projects 1.2 meters off the bottom. APPROVED

WHITING recommends that the 11 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 3.5 meters (MOD) should be charted at latitude 41°27'21.78" N, longitude 070°32'57.97" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 11 RK

N30. Contact #H16

Reported Latitude:	41°27'21.77" N
Reported Longitude:	070°32'53.14" W
Source:	H-10088WD-R/H-5-2-80 (1980)
Datum:	NAD 83
Reported Depth:	4.3 m (charted as 15 *Rk*)

Contact #H16 was found on prior survey H-10088WD-R/H-5-2-80; however, the diver pneumatic depth gauge was not operated in accordance with current NOS standards. The prior survey least depth for H16 is considered "reported" and the item was reinvestigated as part of survey H-10504.

Utilizing the reported position from prior survey H-10088WD-R/H-5-2-80, echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1179, DN 301) were determined during dive operations.

Divers located a rock 1.8 meters long by 1.2 meters wide at latitude 41°27'21.67" N, longitude 070°32'53.08" W with a least depth of 4.3 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.9 meters off the bottom. Patches of kelp standing 0.9 meters high surrounded the area.

WHITING recommends that the 15 *Rk* charted at the reported position be deleted from all affected charts. CONCUR A rock with a known least depth of 4.3 meters (14FT) should be charted at latitude 41°27'21.67" N, longitude 070°32'53.08" W on charts 13229, 13233, 13237, and 13238. ~~DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~ CHART 14 RK

N31. Contact #6648.45P

Contact #6648.45P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1475, DN 308) were determined during dive operations. The reported position for HANG 17 (uncharted) from prior survey H-10088WD-R/H-5-2-80 is located approximately 3 meters to the southwest of contact #6648.45P; 200 percent SSS coverage of the area reveals nothing more significant nearby. WHITING considers contact #6648.45P and HANG 17 to be the same object. OK

Divers located a rock 2.7 meters long by 1.2 meters wide at latitude 41°27'15.92" N, longitude 070°32'48.43" W with a least depth of 3.~~8~~5 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The

rock projects 1.2 meters off the bottom. The surrounding area consisted of patches of kelp standing 0.9 meters off the bottom.

WHITING recommends that a rock with a known least depth of 3.8 meters be charted at latitude 41°27'15.92" N, longitude 070°32'48.43" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART // RK

N32. Contact #6616.15S

Contact #6616.15S was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1476, DN 308) were determined during dive operations. The reported position for HANG 8 (uncharted) from prior survey H-10088WD-R/H-5-2-80 is located approximately 9 meters to the west of contact #6616.15S; 200 percent SSS coverage of the area reveals nothing more significant nearby. WHITING considers contact #6616.15S and HANG 8 to be the same object.

Divers located a rock 2.1 meters long by 0.9 meters wide at latitude 41°27'27.24" N, longitude 070°32'46.02" W with a least depth of 5.3 meters (MOD 3, corrected to ~~predicted~~ Approved MLLW). The rock projects 0.9 meters off the bottom. The surrounding area consisted of patches of kelp standing 0.9 meters off the bottom.

WHITING recommends that a rock with a known least depth of 5.3 meters be charted at latitude 41°27'27.24" N, longitude 070°32'46.02" W on charts 13229, 13233, 13237, and 13238. DO NOT CONCUR DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

N33. Contact #6616.21S

Contact #6616.21S was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1477, DN 308) were determined during dive operations.

Divers located a rock 1.8 meters long by 1.2 meters wide at latitude 41°27'27.28" N, longitude 070°32'47.81" W with a least depth of 4.9 meters (MOD 3, corrected to ~~predicted~~ Approved MLLW). The rock projects 0.9 meters off the bottom. The surrounding area consisted of patches of kelp standing 0.9 meters off the bottom.

WHITING recommends that a rock with a known least depth of 4.~~9~~6 meters (15 FT) be charted at latitude 41°27'27.28" N, longitude 070°32'47.81" W on charts 13229, 13233, 13237, and 13238.*

N34. Contact #6616.29S

Contact #6616.29S was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1479, DN 308) were determined during dive operations.

Divers located a rock 1.2 meters long by 1.2 meters wide at latitude 41°27'27.60" N, longitude 070°32'49.15" W with a least depth of 4.~~8~~5 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.6 meters off the bottom. The surrounding area consisted of kelp standing 0.9 meters off the bottom.

WHITING recommends that a rock with a known least depth of 4.~~8~~5 meters (16 FT) be charted at latitude 41°27'27.60" N, longitude 070°32'49.15" W on charts 13229, 13233, 13237, and 13238.*

N35. Contact #6593.17P

Contact #6593.17P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1481, DN 308) were determined during dive operations.

Divers located a rock 2.4 meters long by 1.2 meters wide at latitude 41°27'28.24" N, longitude 070°32'48.14" W with a least depth of 4.~~6~~3 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.2 meters off the bottom. The surrounding area consisted of kelp standing 0.9 meters off the bottom.

WHITING recommends that a rock with a known least depth of 4.~~6~~3 meters (14 FT) be charted at latitude 41°27'28.24" N, longitude 070°32'48.14" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 14 RK

* DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

N36. Contact #6527.03S

Contact #6527.03S was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1482, DN 308) were determined during dive operations.

Divers located a rock 3.0 meters long by 3.0 meters wide at latitude 41°27'46.14" N, longitude 070°32'52.91" W with a least depth of 4.4 meters (MOD 3, corrected to ~~predicted~~ Approved MLLW). The rock projects 1.5 meters off the bottom. The surrounding area consisted of kelp standing 0.6 meters off the bottom. 44

WHITING recommends that a rock with a known least depth of 4.4 meters (UNFT) be charted at latitude 41°27'46.14" N, longitude 070°32'52.91" W on charts 13229, 13233, 13237, and 13238.
CONCUR CHART 14 RKS

N37. Contact #6527.23P

Contact #6527.23P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1483, DN 308) were determined during dive operations. The reported position for HANG 7 (uncharted) from prior survey H-10088WD-R/H-5-2-80 is located approximately 7 meters to the southeast of contact #6527.23P; 200 percent SSS coverage of the area reveals a less significant contact approximately 10 meters to the northwest of contact #6527.23P. WHITING considers contact #6527.23P and HANG 7 to be the same object.

Divers located a rock 1.2 meters long by 0.6 meters wide at latitude 41°27'46.32" N, longitude 070°32'49.56" W with a least depth of ~~6.2~~ 5.7 meters (MOD 3, corrected to ~~predicted~~ Approved MLLW). The rock projects 0.6 meters off the bottom. The surrounding area consisted of kelp standing 0.9 meters off the bottom.

WHITING recommends that a rock with a known least depth of ~~6.2~~ 5.7 meters (UNFT) be charted at latitude 41°27'46.32" N, longitude 070°32'49.56" W on charts 13229, 13233, 13237, and 13238.
ROCK COMBINED WITH N36 (UNFT) ROCKS ~~TO~~ CHART 14 RKS

* ~~DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~

N38. Contact #6599.16P - ~~SEE ALSO SECTION O. OF THE EVALUATION REPORT.~~

Contact #6599.16P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1485, DN 308) were determined during dive operations. The reported position for HANG 31 (uncharted) from prior survey H-10088WD-R/H-5-2-80 is located approximately 17 meters to the east-southeast of contact #6599.16P; 200 percent SSS coverage of the area reveals nothing more significant nearby, other than contact #6599.22P (HANG 18, see section **N20**). WHITING considers contact #6599.16P and HANG 31 to be the same object. JJ

Divers located a rock 3.7 meters long by 1.8 meters wide at latitude 41°27'37.80" N, longitude 070°33'03.94" W with a least depth of 3.5 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.8 meters off the bottom. The surrounding area consisted of kelp standing 0.9 meters off the bottom.

WHITING recommends that a rock with a known least depth of 3.5 meters (LOFI) be charted at latitude 41°27'37.80" N, longitude 070°33'03.94" W on charts 13229, 13233, 13237, and 13238. ~~DO NOT CONCUR~~ ~~DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~ CONCUR CHART 10RK

N39. Contact #6523.25S

Contact #6523.25S was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1486, DN 308) were determined during dive operations.

Divers located a rock 3.0 meters long by 1.8 meters wide at latitude 41°27'47.80" N, longitude 070°33'04.90" W with a least depth of 4.7 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.2 meters off the bottom. The surrounding area consisted of kelp standing 0.9 meters off the bottom. OK JJ

WHITING recommends that a rock with a known least depth of 4.7 meters (UNFI) be charted at latitude 41°27'47.80" N, longitude 070°33'04.90" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 14RK

N40. Contact #6511.22P

Contact #6511.22P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1488, DN 308) were determined during dive operations. The reported position for HANG 1 (uncharted) from prior survey H-10088WD-R/H-5-2-80 is located approximately 50 meters to the west-southwest (WSW) of contact #6511.22P. 200 percent SSS coverage of the area reveals some insignificant contacts approximately 50 meters to the WSW of contact #6511.22P; due to the close proximity of the contacts, WHITING investigated contact #6511.22P exclusively.

Divers located a rock 2.1 meters long by 2.1 meters wide at latitude 41°27′~~21.77~~50.48" N, longitude 070°32′~~53.14~~01.94" W with a least depth of 4.~~9~~6 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.9 meters off the bottom. Patches of kelp standing 0.9 meters off the bottom were in the surrounding area. A small rock outcrop (1.5 x 0.9 meters) was located 1.5 meters north of the least depth rock. JJ

WHITING recommends that a rock with a known least depth of 4.~~9~~6 meters (15FT) be charted at latitude 41°27′~~21.77~~50.48" N, longitude 070°~~32′53.14~~33′01.94" W on charts 13229, 13233, 13237, and 13238... CONCUR

CHART 15RK

N41. Contact #6512.07S

Contact #6512.07S was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1490, DN 308) were determined during dive operations.

Divers located a rock 4.6 meters long by 4.6 meters wide at latitude 41°27′47.02" N, longitude 070°32′55.70" W with a least depth of 4.~~7~~4 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.5 meters off the bottom. Patches of kelp standing 0.6 meters off the bottom were in the surrounding area. JJ

WHITING recommends that a rock with a known least depth of 4.~~7~~4 meters (14FT) be charted at latitude 41°27′47.02" N, longitude 070°32′55.70" W on charts 13229, 13233, 13237, and 13238.

ROCK COMBINED WITH N36, PAGE 35, ROCKS ~~TO CHART~~ (J3J)

CHART 14RKS

~~* DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY~~

N42. Contact #6705.25P

Contact #6705.25P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1494, DN 308) were determined during dive operations.

Divers located a rock 3.7 meters long by 4.6 meters wide at latitude 41°27'46.68" N, longitude 070°32'28.33" W with a least depth of ~~7.1~~ 6.8 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 2.1 meters off the bottom. Two small rocks (3 meters apart) were located 6 meters north of the least depth rock.

WHITING recommends that a rock with a known least depth of ~~7.1~~ 6.8 meters (22 FT) be charted at latitude 41°27'46.68" N, longitude 070°32'28.33" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 22 RK

N43. Contact #6548.02P

Contact #6548.02P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1526, DN 310) were determined during dive operations.

Divers located a rock 1.5 meters long by 2.1 meters wide at latitude 41°27'40.17" N, longitude 070°32'54.96" W with a least depth of ~~5.1~~ 4.8 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.5 meters off the bottom. Patches of kelp standing 0.6 meters off the bottom were in the surrounding area.

WHITING recommends that a rock with a known least depth of ~~5.1~~ 4.8 meters (15 FT) be charted at latitude 41°27'40.17" N, longitude 070°32'54.96" W on charts 13229, 13233, 13237, and 13238. DO NOT CONCUR DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

N44. Contact #6600.27P

Contact #6600.27P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1528, DN 310) were determined during dive operations.

Divers located a rock 2.4 meters long by 3.7 meters wide at latitude 41°27'35.68" N, longitude 070°32'49.70" W with a least depth of 4.9 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.5 meters off the bottom. Patches of kelp standing 0.6 meters off the bottom were in the surrounding area.

WHITING recommends that a rock with a known least depth of 4.9 meters (USED) be charted at latitude 41°27'35.68" N, longitude 070°32'49.70" W on charts 13229, 13233, 13237, and 13238. ~~DO NOT CONCUR~~ DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

N45. Contact #6559.51S

Contact #6559.51S was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1529, DN 310) were determined during dive operations.

Divers located a rock 2.1 meters wide by 3.7 meters long at latitude 41°27'39.56" N, longitude 070°32'48.11" W with a least depth of 4.8 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.8 meters off the bottom. Patches of kelp standing 0.6 meters off the bottom were in the surrounding area.

WHITING recommends that a rock with a known least depth of 4.8 meters (USED) be charted at latitude 41°27'39.56" N, longitude 070°32'48.11" W on charts 13229, 13233, 13237, and 13238. CONCUR CHART 15 RK

N46. Contact #6574.46P

Contact #6574.46P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1530, DN 310) were determined during dive operations.

Divers located a rock 2.1 meters wide by 3.7 meters long at latitude 41°27'42.33" N, longitude 070°33'15.52" W with a least depth of 4.4 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.2 meters off the bottom with kelp standing 0.3

meters high on top. Patches of kelp standing 0.6 meters off the bottom were in the surrounding area.

WHITING recommends that a rock with a known least depth of 4.4 meters (4.4 FD) be charted at latitude 41°27'42.33" N, longitude 070°33'15.52" W on charts 13229, 13233, 13237, and 13238. CHART 14 RK

N47. Contact #6608.27S

Contact #6608.27S was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1534, DN 310) were determined during dive operations.

Divers located a rock 2.4 meters long by 2.4 meters wide at latitude 41°27'35.55" N, longitude 070°33'04.79" W with a least depth of 3.8 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.5 meters off the bottom. Patches of kelp standing 0.6 meters off the bottom were in the surrounding area.

WHITING recommends that a rock with a known least depth of 3.8 meters (2 FD) be charted at latitude 41°27'35.55" N, longitude 070°33'04.79" W on charts 13229, 13233, 13237, and 13238. CONCUR
SEE ALSO SECTION M.2.c. OF THE EVALUATION REPORT CHART 12 RK

N48. Contact #6734.37S

Contact #6734.37S was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1642, DN 311) were determined during dive operations.

Divers located a rock 2.4 meters long by 3.1 meters wide at latitude 41°27'49.11" N, longitude 070°32'27.12" W with a least depth of 8.5 ~~3~~ meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.2 meters off the bottom. Patches of kelp standing 0.6 meters off the bottom were in the surrounding area.

WHITING recommends that a rock with a known least depth of 8.5 ~~3~~ meters (2.7 FD) be charted at latitude 41°27'49.11" N, longitude 070°32'27.12" W on charts 13229, 13233, 13237, and 13238.*

* DO NOT CONCUR — DO NOT CHART — SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

N49. Contact #6726.58S

Contact #6726.58S was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1643, DN 311) were determined during dive operations.

Divers located a rock 2.4 meters long by 4.6 meters wide at latitude 41°27'49.82" N, longitude 070°32'42.46" W with a least depth of 5.7 5 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.8 meters off the bottom. Patches of kelp standing 0.8 meters off the bottom were in the surrounding area. JJ

WHITING recommends that a rock with a known least depth of 5.7 5 meters (18FT) be charted at latitude 41°27'49.82" N, longitude 070°32'42.46" W on charts 13229, 13233, 13237, and 13238. DO NOT CONTOUR ~~CHART 18 PKL SOUNDING~~ CHART 18 SOUNDING

N50. Contact #6728.03S

Contact #6728.03S was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1644, DN 311) were determined during dive operations.

Divers located a rock 1.8 meters long by 5.5 meters wide at latitude 41°27'53.49" N, longitude 070°32'55.85" W with a least depth of 5.8 5 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.9 meters off the bottom. Patches of kelp standing 0.6 meters off the bottom were in the surrounding area. OK JJ

WHITING recommends that a rock with a known least depth of 5.8 5 meters (18FT) be charted at latitude 41°27'53.49" N, longitude 070°32'55.85" W on charts 13229, 13233, 13237, and 13238. DO NOT CONTOUR DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

N51. Contact #6566.41P

Contact #6566.41P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1645, DN 311) were determined during dive operations.

Divers located a rock 2.4 meters long by 3.1 meters wide at latitude 41°27'42.38" N, longitude 070°32'36.17" W with a least depth of 6.1 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.2 meters off the bottom. Patches of kelp standing 0.6 meters off the bottom were in the surrounding area.

WHITING recommends that a rock with a known least depth of ~~6.1~~ 5.9 meters (19 FT) be charted at latitude 41°27'42.38" N, longitude 070°32'36.17" W on charts 13229, 13233, 13237, and 13238.*

N52. Contact #6566.34P

Contact #6566.34P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1646, DN 311) were determined during dive operations.

Divers located a rock 3.1 meters long by 3.7 meters wide at latitude 41°27'42.19" N, longitude 070°32'~~36.17~~ 37.87" W with a least depth of 5.9 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 1.2 meters off the bottom. Patches of kelp standing 0.6 meters off the bottom were in the surrounding area.

WHITING recommends that a rock with a known least depth of 5.9 meters (18 FT) be charted at latitude 41°27'42.19" N, longitude 070°32'~~36.17~~ 37.87" W on charts 13229, 13233, 13237, and 13238.*

N53. Contact #6553.42P

Contact #6553.42P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1648, DN 311) were determined during dive operations.

Divers located a rock 2.4 meters long by 3.1 meters wide at latitude 41°27'41.87" N, longitude 070°32'42.35" W with a least depth of 5.9 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.9 meters off the bottom.

* DO NOT CONCUR – DO NOT CHART – SHOALER FEATURES IN VICINITY

WHITING recommends that a rock with a known least depth of 5.9 meters (18 FT) be charted at latitude 41°27'41.87" N, longitude 070°32'42.35" W on charts 13229, 13233, 13237, and 13238.*

N54. Contact #6704.45P

Contact #6704.45P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1649, DN 311) were determined during dive operations.

Divers located a rock 1.2 meters long by 3.1 meters wide at latitude 41°27'47.26" N, longitude 070°32'38.48" W with a least depth of 5.9 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.9 meters off the bottom. A second rock (0.9 x 1.5 x 0.6 meters high) was located 5 meters to the southeast of the least depth rock. Patches of kelp standing 0.6 meters off the bottom were in the surrounding area.

WHITING recommends that a rock with a known least depth of 5.8 meters (19 FT) be charted at latitude 41°27'47.26" N, longitude 070°32'38.48" W on charts 13229, 13233, 13237, and 13238.*

N55. Contact #6726.52P

Contact #6726.52P was found by side scan sonar during the 200 percent main scheme survey of H-10504. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted.

Echosounding was used to pinpoint the divers drop position on the contact. Once the item was located, a position and least depth (fix #1650, DN 311) were determined during dive operations.

Divers located a rock 1.2 meters long by 1.8 meters wide at latitude 41°27'50.54" N, longitude 070°32'50.47" W with a least depth of 6.0 meters (MOD 3, corrected to ~~predicted~~ APPROVED MLLW). The rock projects 0.6 meters off the bottom. Patches of kelp standing 0.6 meters off the bottom surrounded the rock.

WHITING recommends that a rock with a known least depth of 6.0 meters (19 FT) be charted at latitude 41°27'50.54" N, longitude 070°32'50.47" W on charts 13229, 13233, 13237, and 13238.*

* DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES IN VICINITY

N56. AWOIS ITEM 6859

Reported Latitude:	41°28'18.40" N
Reported Longitude:	070°29'04.09" W
Source:	H-8821/64;NM 26/68
Name:	Mustache (28 ft ketch)
Datum:	NAD 83
Reported Depth:	45 ft (*Wk PA*)

AWOIS item 6859 is described (28 April 1993 AWOIS list) as a 28 ft ketch that sunk in 52 feet of water with 45 ft over the hull. Prior survey H-8821/64 was unable to verify the existence of the wreck, reporting that 52 ft depths existed in the vicinity.

WHITING covered the area of AWOIS item 6859 with 200 percent side scan sonar. There was no indication of an existing obstruction within 250 meters of the reported position, other than a sunken buoy and anchor (contact #9135.32P). 200 percent main scheme hydrography in the general area, outside of 250 meters from the reported position, showed no evidence of a wreck. No additional investigation was necessary. VH

WHITING recommends that the *Wk PA (45 ft rep)* charted at the reported position be deleted from all affected charts. CONCUR

N57. ~~AWOIS ITEM 7840~~ NEW LOCATED WRECK (SEE PAGE 17 OF 1994 WORK FOR AWOIS ITEM 7840)

Reported Latitude:	~~41°28'45.69" N~~
Reported Longitude:	~~070°31'57.01" W~~
Source:	H-8821/64 (unverified)
Name:	Kershaw (282 ft steamer)
Datum:	NAD 83
~~Reported~~ Depth:	None

AWOIS item 7840 is described (28 April 1993 AWOIS ~~list)~~ as a demolished 282 ft steamer that sunk in 65 ~~feet of~~ water with 45 ft over the hull. The reported ~~wreck is~~ presently not charted. The dynamited remains are ~~reported~~ to be twisted metal plates. Prior survey H-~~6821/64~~ was unable to verify the existence of the wreck, ~~reporting~~ 66-68 ft depths in the vicinity. The reported ~~position~~ was converted from old Loran C time differences.

WHITING covered the area of AWOIS item 7840 with 200 percent ~~side~~ scan sonar. There was no indication of an ~~existing obstruction~~ within 500 meters of the reported ~~position.~~ No feature should be charted in this location. ~~During~~ the course of 200 percent main scheme hydrography ~~on H-10504~~, WHITING discovered a wreck fitting the ~~description~~ of AWOIS item 7840 approximately 1400 meters to ~~the west of the AWOIS reported position. The~~ An uncharted wreck was located with side scan sonar (SSS) (DOY 295, contact #9500.33P) (AWOIS #9821) and later developed with 5-meter echosounder line spacing (DOY

325; fix #2004-#2038) to meet the required 6-meter line spacing outlined in the FPM. The wreck has approximate SSS dimensions of 60 meters by 20 meters and appears to be a large demolished vessel. A 17.6 meter echosounder least depth (corrected to ~~predicted~~ APPROVED MLLW) was acquired at latitude 41°28'41.362" N, longitude 070°32'58.205" W. A danger to navigation was submitted on November 29, 1993; a copy of the report can be found in APPENDIX I.* WHITING recommends that a wreck with a known least depth of 17.6 meters be charted at latitude 41°28'41.362" N, longitude 070°32'58.205" W. CONCUR CHART 58 WK

* DATA APPENDED TO THE DESCRIPTIVE REPORT.
SEE ALSO SECTION N. 3Ø) PAGE 17 OF THE 1994 DESCRIPTIVE REPORT FOR DISCUSSION AND CHARTING RECOMMENDATION FOR AWOIS ITEM 7840.

O. COMPARISON WITH THE CHART - SEE ALSO EVALUATION REPORT

Chart#	Scale	Edition #	Date
13233	1:40,000	14	November 28, 1992
13238	1:20,000	13	June 27, 1992

There is good agreement between survey H-10504 soundings and the charted soundings, contours, and features, except where discussed in Section M. Charted soundings originate from the prior surveys, discussed in Section **M.** No other changes were affected by the Notice to Mariners.

P. ADEQUACY OF SURVEY - SEE ALSO EVALUATION REPORT

This survey is not complete. The data acquired is adequate to supersede all prior surveys of the common area. The survey is scheduled for completion in 1994.

Q. AIDS TO NAVIGATION

There are six charted floating aids to navigation in the survey area: Lone Rock green can buoy "1", Oak Bluffs Approach green can buoy, Squash Meadow West End buoy, Squash Meadow East End bell buoy, East Chop Shoal buoy "23", and Hedge Fence lighted gong buoy "22". Detached positions were taken with launch 1015 for each aid. All charted aids (from charts 13233 and 13238) agree well with the surveyed positions.

Three fixed aids to navigation were located with launch 1015 in the survey limits, Oak Bluffs North Breakwater Light "2", Oak Bluffs North Ferry Pier Lighted Red, and a pole painted white with red striping on the end of a submerged groin. These aids were positioned by launch 1015.

The physical characteristics for each aid were observed and compared to the light list description. Light characteristics were observed from WHITING on clear nights when the ship was anchored near the working grounds. The light characteristics for

each non-floating and floating aid are consistent with their Light List characteristics. The floating aid and non-floating aid positions are compared with charts 13233 and 13238; no positional discrepancies are noted.

The table shown below is a list of published and surveyed positions for each of the aids to navigation within the survey area.

Light List	Charted Position	Surveyed GP
15450	41° 27.2′ 070° 33.1′	41° 27.2′ 070° 33.1′
15440	41° 27.3′ 070° 33.0′	41° 27.3′ 070° 32.9′
15460	41° 27.7′ 070° 33.4′	41° 27.7′ 070° 16.9′
15455	41° 27.6′ 070° 33.1′	41° 27.6′ 070° 33.1′
13735	41° 28.4′ 070° 33.4′	41° 28.4′ 070°33.4′
13730	41° 27.9′ 070° 32.0′	41° 27.9′ 070° 32.0′
13725	41° 27.3′ 070° 30.1′	41° 27.3′ 070° 30.1′
13720	41° 28.3′ 070° 29.0′	41° 28.3′ 070° 29.0′
15445	41° 27.5′ 070° 33.3′	41° 27.5′ 070°33.3′

R. STATISTICS

Number of Positions.....4470
Main-scheme Sounding Lines (Nautical Miles).....360
Crosslines (Nautical Miles).....36
Square Nautical Miles Surveyed.....11
Days of Production.....41
Detached Positions.....48
Bottom Samples.....66
Tide Stations Installed.....2
Current Stations.....0
Number of CTD Casts.....18
Magnetic Stations.....0

S. MISCELLANEOUS – SEE ALSO EVALUATION REPORT

A total of sixty-six bottom samples were taken during survey H-10504. As required in the Project Instructions, the samples were taken on an approximate grid spacing of 1000 meters square. Oceanographic log sheets are included in the separates submitted with the survey data. Bottom samples were not submitted to the Smithsonian Institution.

No anomalies in either tide or current and/or unusual magnetic variations were encountered in the survey area.

T. RECOMMENDATIONS – SEE ALSO SECTION P. OF THE EVALUATION REPORT

Recommendations concerning specific items are located in section **N** of this report.

The contacts in the following table meet the criteria for potential significance described in the FPM. However, WHITING recommends only those marked with an asterisk (*) for further investigation.* Those not marked with an * are just slightly over 1 meter high in depths ranging from 10 to 20 meters or are slightly higher than 10% of the depth in depths less than 10 meters or in depths greater than 20 meters. The sheer number of these rocks makes it impractical to fully investigate all of them or to portray all of them on the nautical chart. These items are not considered as potential hazards to navigation. WHITING does recommend a note on all affected charts to advise mariners that many boulders projecting 1-2 meters off the bottom are scattered throughout the survey area. CONCUR

* DO NOT CONCUR

Contact#	Table,Item	Contact#	Table,Item	Contact#	Table,Item
6149.53S	3,5	6526.36S	7,4	6635.11P	13,17
6167.32S**	3,8	6526.55S	7,8	6635.37S	13,19
6348.07S**	3,9	6548.33P	7,22	6626.42P	13,21
6407.58P	3,10	6564.48S	7,27	6627.19P	13,23
6176.51S	3,12	6553.13S	7,28	6648.08P	13,25
6176.58P	3,13	6554.05P	9,5	6703.31S	13,29
6176.41S	3,14	6559.57P	9,7	6727.31P	15,5
6209.39P	3,15	6586.55P	9,15	6705.01P	15,11
6363.55P	3,17	6608.20S	9,19	6733.31P	15,18
6443.25S	3,22	6611.39S	9,23	6733.52S	15,19
6443.31S	3,23	6611.40S	9,25	6733.59P	15,20
6443.32P	3,24	6595.32S	11,5	6762.57P	17,6
6477.42S	3,26	6596.04S	11,7	7139.55S	17,9 **
6704.18S*	5,11	6600.31P	11,12	6764.11S	17,10 **
6518.03S	5,14	6606.16S	11,20	7138.52S	17,13
6547.12S	5,17	6595.52P	11,23	6766.05P	17,14 **
6553.23S	5,20	6606.27S	11,26	6766.15P	17,16
6519.25P	5,24	6600.37S	13,6	7129.08P	17,19 **
6519.28S	5,26	6634.23S	13,15	7137.11S	17,22

** DATA EVALUATED DURING OFFICE PROCESSING AND DETERMINED SIGNIFICANT. ALL OTHER CONTACTS INSIGNIFICANT

(* items continued)

Contact#	Table,Item	Contact#	Table,Item
7137.40S	17,24	1371.08P	4,20
6929.29S	17,28	1371.55S	4,23
6635.00S	19,4	1405.37P	4,26
6932.57S	19,7	1517.00S	6,8 **
6934.51P	19,9	1624.05S	6,11 **
6975.58P	19,16	9000.55S	30,2
6966.18S	19,17	9001.01S	30,3
6966.25S	19,19	9003.01S	30,5
6975.36S	19,22	9135.32P	30,7
6975.17S*	19,24	9197.50P	30,11 **
6966.29P	19,25	9199.48S	30,13 **
6966.52P	19,28	9245.17P	30,15 **
6974.24S	21,1	9254.57P	30,17**
6967.59S	21,2	9327.52S	30,25
6973.58S	21,5	9390.33S	30,28
6968.20S	21,6	9390.47S	30,29
6968.28P	21,8	9435.38P	31,1
6968.53P	21,10	9436.07P	31,4
6968.52S	21,12	9436.19P	31,5
6969.09S	21,13	9495.38P	31,8
6945.19P	21,21	9495.46P	31,9
7046.44S*	21,25	9495.51S	31,10
6061.12S	21,30	9495.58S	31,11
7071.47P*	23,3	9495.59P	31,12
7087.13P	23,5	9496.09S	31,13
7072.23P	23,6	9496.15S	31,14
7072.26S	23,7	9496.22S	31,16
7081.33S	23,12	9496.30P	31,17
7086.35S	23,15	9496.44S	31,18
7086.28S	23,17	9496.54S	31,19**
7137.12P	23,19	9497.06P	31,20**
7087.42S	23,21	9509.45P	32,4
7088.08S	23,23	9510.03S	32,5
7096.22P	23,25	9539.06S	32,20
7107.26P	23,28	9540.45P	32,21
7097.54S	23,29	9541.00S	32,22
7130.44S*	25,3	9541.06S	32,23**
7290.56S	25,4	9541.31S	32,24
7302.54S	25,8	9541.37S	32,25
7544.03S	27,15	9542.09S	32,26
1003.36P	4,1	9579.21P	32,27
1063.23P	4,3	9580.29P	33,5
1236.47P	4,6	9592.38S	33,8
1237.22S	4,8	9593.08P	33,10
1255.37S	4,10	9643.11S	33,13
1262.23P	4,11	9647.54S	33,14
1289.58P	4,16	9685.31P	33,16**
1343.24S	4,17	9689.54P	33,18
1325.42S	4,19	9690.07S	33,19**

** DATA EVALUATED DURING OFFICE PROCESSING AND DETERMINED SIGNIFICANT. ALL OTHER CONTACTS INSIGNIFICANT.

U. REFERRAL TO OTHER REPORTS

The following reports have been submitted to N/CG244 and will be forwarded to N/CG243 as part of OPR-B616-WH-93:

Coast Pilot Report
Chart Inspection Report
User Evaluation Report
Diver Least Depth Module (MOD 3) Documentation

Submitted By:

Jack L. Riley

Jack L. Riley
Lieutenant (Junior Grade), NOAA

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
OPR-B616-RU/WH
WH-10-2-93
1994
H-10504

NOAA SHIP WHITING
CDR John D. Wilder, NOAA
Commanding Officer

A. PROJECT

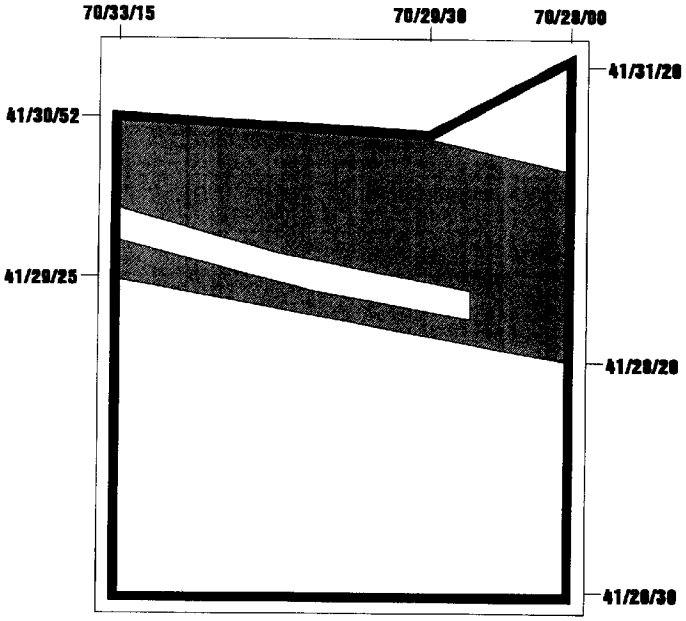
Project OPR-B616-RU/WH is a multi-year project encompassing Buzzards Bay and Nantucket Sound, including Nantucket Shoals and Vineyard Sound, Massachusetts. WHITING is conducting basic hydrographic surveys along a corridor in Nantucket and Vineyard Sounds, with 200 percent side scan sonar (SSS) bottom coverage to the five-meter depth curve and continued echosounder coverage to the two-meter depth curve.

Project OPR-B616-RU/WH is divided into thirteen survey sheets. The survey described in this report was designated "H" Sheet, L'Hommedieu Shoal to Harthaven, and assigned field sheet number WH-10-2-93 and registry number H-10504. This survey is a continuation of H-10504, WH-10-2-93, which commenced in the Fall of 1993. A separate descriptive report was completed for the areas surveyed during 1993.

Survey operations were conducted in accordance with Hydrographic Project Instructions OPR-B616-RU/WH, Buzzards Bay, Nantucket and Vineyard Sounds, Massachusetts, dated February 23, 1994, Change NO. 1 dated March 9, 1994. Survey H-10504 is registered as a 1:10,000 scale and all data acquired meet the accuracy requirements for a 1:10,000 scale survey.

B. AREA SURVEYED

Hydrographic survey H-10504 covers the area from L'Hommedieu Shoal southward through Hedge Fence and Squash Meadow Shoals, to the approaches to Oak Bluffs Harbor. The area surveyed within field sheet WH-10-2-93 during 1994 is pictured on the top of the next page. This area constitutes the remainder of the sheet unsurveyed during 1993.



WH-10-2-93 (addendum)

Survey operations began on May 25, 1994 (DOY 145) and ended on June 20, 1994 (DOY 171). Data were acquired on the following days:

DOY	Date
145-146	May 25-26, 1994
151-154	May 31-June 3, 1994
157-158	June 6-7, 1994
161	June 10, 1994
166-167	June 15-16, 1994
169-171	June 18-20, 1994

C. SURVEY VESSEL

NOAA launch 1014 (VESNO 2932), launch 1015 (VESNO 2931), and NOAA Ship WHITING (VESNO 2930) were used for side scan sonar and sounding-data acquisition.

Launch 1015 was equipped with a custom-built bowsprit to tow the SSS towfish in shallow water. No other unusual vessel configurations were used.

D. AUTOMATED DATA ACQUISITION AND PROCESSING - See Also Evaluation Report

Survey data acquisition and processing were accomplished using the HDAPS system with the software listed on the next page:

Program	Version	HDAPS Date
BACKUP	*2.00*	*27-Oct-93*
BASELINE	*1.14*	*07-Apr-93*
BIGABST	*2.07*	*01-Oct-93*
BIGAUTOST	*3.01*	*01-Feb-93*
BLKEDIT	*2.02*	*11-Mar-93*
CARTO	*2.13*	*29-Mar-94*
CLASSIFY	*1.05*	*22-Nov-93*
CONTACT	*2.34*	*29-Mar-94*
CONVERT	*3.62*	*09-Dec-93*
DAS_SURV	*6.70*	*01-Apr-94*
DIAGNOSE	*3.04*	*16-Mar-94*
DISC_UTIL	*1.00*	*01-Feb-93*
DP	*2.14*	*07-Apr-93*
DPCONVERT	*1.01*	*07-Jun-94*
EXCESS	*4.21*	*03-Feb-94*
FILESYS	*3.24*	*01-Apr-94*
GRAFEDIT	*1.06*	*16-Nov-93*
HIPSTIC	*1.01*	*28-Jul-93*
HPRAZ	*1.26*	*22-May-93*
INVERSE	*2.01*	*07-Apr-93*
LISTDATA	*1.02*	*19-Apr-93*
LOADNEW	*2.10*	*18-Feb-94*
LSTAWOIS	*3.07*	*29-Mar-94*
MAINMENU	*1.20*	*02-Nov-93*
MAN_DATA	*2.01*	*07-Apr-93*
NEWPOST	*6.01*	*07-Apr-93*
PLOTALL	*2.27*	*29-Mar-94*
POINT	*2.10*	*24-Sep-93*
PREDICT	*2.01*	*07-Apr-93*
PRESURV	*7.08*	*29-Mar-94*
PRINTOUT	*4.03*	*19-Apr-93*
QUICK	*2.05*	*01-Apr-94*
RAMSAVER	*1.02*	*07-Apr-93*
REAPPLY	*2.10*	*12-Oct-93*
RECOMP	*1.02*	*01-Feb-93*
SCANNER	*1.00*	*10-Jul-93*
SELPRINT	*2.04*	*12-Oct-93*
SYMBOLS		*01-Feb-93*
VERSIONS	*1.00*	*24-Nov-93*
ZOOMEDIT	*2.24*	*04-Apr-94*

Program *SHIPDIM* (version 1.2) was used for DGPS performance checks. Sound velocity corrections were determined using programs *CAT* (version 2.00) and *VELOCITY* (version 2.10).

There were no nonstandard automated acquisition or processing methods used.

E. SIDE SCAN SONAR EQUIPMENT

Side scan sonar (SSS) operations were conducted using an EG&G model 260 slant-range corrected SSS recorder and an EG&G 272-T dual-channel, single-frequency towfish. The towfish was operated on the 100-kHz frequency and was configured with a 20° beam depression. Serial numbers (S/N) for the side scan sonar equipment used throughout the survey are listed below:

Vessel	SSS Towfish S/N	260 Recorder S/N
WHITING (2930)	016699	016670
Launch 1014 (2932)	016630	016671
Launch 1015 (2931)	016835	016942

On WHITING, the SSS towfish was deployed from a Reuland winch (model number 8377-XF5461A, S/N 814861A-1) using armored cabling in conjunction with an A-frame on the stern. The armored cable was connected to the SSS recorder via a slip-ring assembly.

On launches 1014 and 1015, the SSS towfish was deployed using a Superwinch Model W115 in conjunction with an adjustable davit arm on the stern of each launch. In shallow water, the towfish was deployed from launch 1015 using the Superwinch Model W115 in conjunction with a custom-built bowsprit. The SSS towfish was towed with vinyl-coated Kevlar cable and was connected to the recorder via a slip ring assembly.

Side scan sonar data were collected utilizing the 50, 75 and 100-meter range scales. In order to acquire the required 200% SSS coverage, main-scheme lines were run at a spacing of 40, 60, and 75-meters. Adequate coverage was determined by producing an 'A' and 'B' swath plot and ensuring 100% coverage on each plot. Main scheme lines were split or re-run in all areas where 200% coverage was questionable due to a degraded sonargram. Degraded sonargrams were usually caused by surface noise or propeller wash in shallow water areas.

The SSS towfish was maintained at a height off the bottom of 8 to 20 percent of the range scale in use. SSS operations were limited to a speed-over-ground of 4.5 knots on the 50-meter and 5.5 knots on the 75 and 100-meter range scales.

Confidence checks were performed on a routine basis, primarily by noting changes in bottom texture on the outer edges of the sonargram. Confidence checks were also taken on buoys or contacts when convenient.

All significant contacts were measured off the sonargrams and entered into an HDAPS contact table. WHITING hydrographers determined contact heights, positions, and cross-reference correlations using the HDAPS Contact Utility Program. The items

were then further examined by diver or echosounder investigation. Refer to Section **N.** and Separate **V*** for more information. * DATA FILED WITH FIELD RECORDS.

F. SOUNDING EQUIPMENT

Raytheon Digital Survey Fathometer (DSF) 6000N echo sounders were used to measure bottom depths during the survey. The DSF 6000N produced a graphic record of the high frequency (100 kHz) and low frequency (24 kHz) bottom depths. Digital depths from the high frequency and low frequency beams were recorded by the HDAPS acquisition system. High frequency depths were selected as the primary depths and are shown on the sounding plots. Echograms were carefully reviewed for significant features along the track line. Any features on the graphic record that were not selected as primary soundings were manually inserted.

Electronic technicians performed accuracy checks and preventive maintenance on all of the DSF-6000N echosounders used. As a result, the echosounder on WHITING (S/N A112N), launch 1014 (S/N C076), and launch 1015 (S/N A105N) operated throughout the survey period without any major problems.

Diver determined least depths were measured with a pneumatic depth gauge (S/N 138921-30). The annual calibration for pneumatic gauge 138921-30 was performed on November 29, 1993. The pneumogauge was used in accordance with Hydrographic Guideline No. 55 and a system check was performed on each dive day to ensure the gauge was working properly.

G. CORRECTIONS TO SOUNDINGS

Sound velocity profiles of the water column were determined using a Seacat Conductivity, Temperature and Depth (CTD) profiler (model SBE-19, S/N 286). The CTD's annual calibration was performed on December 17, 1993.

A Data Quality Assurance (DQA) test was performed during each CTD cast by using a hydrometer and a thermometer to measure the density and temperature of a surface water sample. Program *CAT* compared these values to the Seacat's surface values to confirm that the velocity probe was working properly. There were no variations in instrument initials.

After each CTD cast, programs *CAT* (version 2.00) and *VELOCITY* (version 2.10) were used to process the data, to select significant data points, and to create a corrector table for each vessel. The velocity correctors were manually entered into each HDAPS velocity table. Velocity profile data are in the Separates submitted with this survey. Three velocity casts were conducted for H-10504 in 1994 (next page):

DOY	Vel.Table#	Latitude	Longitude	Depth
145	2,3	41°28'54"N	070°31'36"W	26.4 m
152	4,5	41°30'27"N	070°29'35"W	34.2 m
165	9	41°30'18"N	070°23'42"W	30.2 m

All sounding corrections were applied to both the narrow (100 kHZ) and wide (24 kHZ) DSF-6000N beams.

Bar checks were performed on launch 1014 and launch 1015 in accordance with the requirements stated in the Field Procedures Manual (FPM). No corrections to soundings were applied based on bar check data.

Leadlines were made on April 10, 1993. Calibrations were performed on March 17, 1994 and the leadline error was negligible. A leadline/DSF-6000N comparison was performed on WHITING on May 11, 1994 (DN 131) and on June 18, 1994 (DN 169). On average, the leadline reading was less than 0.1 meters deeper than the high frequency digitized reading and less than 0.2 meters shoaler than the low frequency digitized reading. No corrections for the differences were applied to the survey data. All leadline/DSF-6000N comparisons performed during H-10504 are on file at AHS.*

The correction for the static draft for launches 1014 and 1015 is 0.55 meters, as measured on July 28, 1993. The correction for WHITING's static draft is 3.2 meters, a historical value that WHITING divers confirmed by pneumatic depth gauge on May 20, 1993.

Settlement and squat measurements for launch 1014 (Offset Table 2) and launch 1015 (Offset Tables 1 & 3) were conducted and correctors determined on April 4, 1994. The correctors were applied in real time throughout the survey. Settlement and squat measurements for WHITING (Offset Table 9) were conducted and correctors determined on November 10, 1993. The settlement and squat correctors were applied to the sounding data in real time on each survey platform. Settlement and squat corrector tables are in Separate **IV**.*

For data acquired by WHITING, the HDAPS data acquisition computer logged heave data from a Datawell b/v heave, roll, and pitch sensor (HIPPY, S/N 19109-C). Heave correctors were applied in post-processing. Heave correctors were applied during post processing for launches 1014 and 1015 by manually scanning the echograms.

The tidal datum for this project is Mean Lower Low Water. The operating tide station at Nantucket, Massachusetts (844-9130) served as the reference station for predicted tides. Time and height correctors for the project were as follows (next page):

* DATA FILED WITH FIELD RECORDS.

	Time Correction	Height Ratio
High Water:	-0 hr 15 min	x0.65
Low Water:	-0 hr 15 min	x0.65

Tidal data used during data acquisition were taken from table 2 of the East Coast of North and South America Tide Tables and were applied to the digital data during acquisition by HDAPS. Digital tidal data were received on floppy disk from N/CG24, Hydrographic Surveys Branch.

WHITING installed and leveled two ADR tide gauges for datum control on H-10504: one at the Hyannis Port Pier, Hyannis Port, MA (844-7605) and one at the Steamship Authority Pier, Oak Bluffs, MA (844-8208). Opening levels were run on the tide station at Hyannis Port on May 17, 1994. Opening levels were run on the tide station at Oak Bluffs on May 19, 1994. These level runs also tied in the NEXGEN sensors with the corresponding tide staffs. The tide note is on file at AHS.* The request for smooth tides was submitted to the Product and Services Branch, N/OES231, Datums Section, on July 15, 1994. APPROVED TIDES AND ZONING WERE APPLIED DURING OFFICE PROCESSING.

H. CONTROL STATIONS - SEE ALSO EVALUATION REPORT.

The horizontal datum for this project is the North American Datum of 1983 (NAD 83). Two B-order horizontal control stations were used as DGPS reference stations for this survey: Montauk Point, New York and Portsmouth Harbor, New Hampshire. The adjusted NAD 83 positions, computed by GPS methods are as follows:

	Latitude	Longitude	Frequency
Montauk Point	41°04'02.088"N	071°51'38.484"W	293 kHz
Portsmouth Harbor	43°04'15.066"N	070°42'36.804"W	288 kHz

I. HYDROGRAPHIC POSITION CONTROL

A Differential Global Positioning System (DGPS) was used as the navigation system for this survey. WHITING used two Ashtech Sensor GPS receivers with two Communications Systems International, Inc. (CSI) model MBX1 differential radio receivers supplying correctors for DGPS navigation. Launches 1014 and 1015 used a similar system, but with only one Ashtech/CSI set each. Ashtech receivers were initialized by HDAPS and CSI receivers were initialized with CSI firmware via controls on the front of each unit. On board WHITING, only one DGPS receiver drawer sent navigational output to HDAPS; the secondary drawer was used in conjunction with the primary drawer for DGPS performance checks.

DGPS positioning was accomplished in accordance with the FPM, section 3.4. Horizontal Dilution of Precision (HDOP) limits were computed as required in section 3.4.2 of the FPM. The HDOP

* DATA FILED WITH FIELD RECORDS.

limits for a 1:10,000 scale survey for the Montauk Point and Portsmouth Harbor beacons were 3.4 and 2.6, respectively.

The serial numbers of the Ashtech Sensor and MBX1 receivers used are as follows:

	Device	Serial Number
WHITING (Primary)	Ashtech Sensor CSI MBX1	700417B1193 1081
WHITING (Secondary)	Ashtech Sensor CSI MBX1	700417B1194 1079
Launch 1014	Ashtech Sensor CSI MBX1	700417B1203 1078
Launch 1015	Ashtech Sensor CSI MBX1	700417B1191 1080

DGPS performance checks for WHITING were conducted using the program *SHIPDIM*. *SHIPDIM* uses the two reference station method as described in the FPM, section 3.4.5. All DGPS performance checks confirmed that WHITING's DGPS positioning systems were operating properly. Performance checks for each launch's DGPS positioning system were conducted with each launch securely housed in WHITING's davits. Simultaneous HDAPS positions were compared between WHITING and each launch; an offset in distance and azimuth was then calculated between the ship and each launch system. A summary of the DGPS performance checks are in Separate **III.** DATA FILED WITH FIELD RECORDS.

DGPS antenna offsets and laybacks were measured on March 19, 1993 for WHITING, and on July 28, 1993 for launches 1014 and 1015. Offsets and laybacks were measured using the 100 kHz (high frequency) echosounder transducer as the reference. Antenna heights were also measured on the same respective dates shown above, using the water line as the reference. The offsets and laybacks were applied by HDAPS on-line. A minimum of four satellites were used during survey H-10504 (1:10,000), providing altitude unconstrained positioning.

Offsets and laybacks for WHITING's SSS towfish A-frame were measured on July 27, 1992 using the forward 100 kHz (high frequency) transducer as the reference. The A-frame height was measured from the water line on the same date.

Offset, layback, and height corrections for each launch's SSS aft towing boom were measured on July 28, 1993, and verified on April 5, 1994. The corrections for launch 1015's SSS bowsprit were measured on June 18, 1994.

All offset, layback, and height data were applied by HDAPS on-line. These data are on file at AHS.* Correctors from offset table 1 were applied to all data acquired using launch 1015's stern mount. Correctors from offset table 2 were applied to all data acquired using launch 1014's stern mount. Correctors from offset table 3 were applied to all data acquired using launch 1015's bow mount. Correctors from offset table 9 were applied to all data acquired using WHITING. * DATA FILED WITH FIELD RECORDS.

J. SHORELINE – SEE ALSO EVALUATION REPORT

WHITING surveyed to the 2-meter depth curve. The shoreline was not examined.

K. CROSSLINES

A total of 36 nautical miles of crosslines were run on H-10504 during survey operations in 1993. This amounted to 10 percent of the total linear nautical miles of main-scheme lines needed for 100 percent coverage.

Crosslines and main-scheme agreement, with predicted tides applied, was adequate. Most soundings agreed to within 0.2 meters with no errors greater than 0.5 meters.

L. JUNCTIONS – SEE ALSO EVALUATION REPORT

Survey H-10504 (WH-10-2-93) junctions with the areas surveyed on the field sheet during 1993 on the north and south. The junction agreement between the field sections surveyed in 1993 and 1994 was excellent.

M. COMPARISONS WITH PRIOR SURVEYS – SEE ALSO EVALUATION REPORT

Survey H-10504 (1994) soundings were compared with prior survey H-6350 (1938 & 1942, 1:20,000, MLW). H-6350 covers the northern half of H-10504, from Hedge Fence Shoal to the northern survey limits; this comprises the entire area on H-10504 that was surveyed in 1994. Prior survey H-6350 was referenced to NAD 27, therefore a datum shift was applied to H-10504 in accordance with section 7.4 of the FPM (*NADCON*, version 1.01, January 9, 1989).

In 1993, Hedge Fence Shoal was surveyed with 50-meter spaced echosounder main scheme lines run perpendicular to the depth contours and supplemented with 10-meter development where needed. In 1994, 50-meter spaced SSS main scheme lines were run to the 5-meter contour surrounding the shoal. As with the depths within its irregular boundary, the shoal has shifted in position; shoal

soundings were acquired in some of the deeper regions shown on the prior survey and vice versa. However, most of the charted H-6350 depths agreed to within 1.0 meter of H-10504 soundings acquired less than 150 meters away. The area immediately surrounding the shoal was covered with 200% SSS and no rocks or obstructions were located nearby, except for AWOIS #2613 (see section **N.31**). Since the last NOAA survey of the area, strong currents have reshaped the steep and irregular sandwaves in and around Hedge Fence Shoal. WHITING recommends survey H-10504 soundings supersede all hydrography from survey H-6350 in the common area.

There was good agreement between the area surveyed north of Hedge Fence Shoal and the charted soundings from prior survey H-6350. On average, depths from survey H-10504 were 0.3 meters deeper than their H-6350 counterparts, with only a few of the H-10504 soundings deeper by 1.5 meters. One exception is a 12.2 meter (40 feet) H-6350 depth charted at 41°29'42.13"N, 070°28'31.89"W. H-10504 soundings in this vicinity are over 5.0 meters deeper. The area was surveyed with 200 percent SSS coverage at 75 meter line spacing. The most significant object found near the charted sounding was an 18.7 meter (~~predicted~~ (WHAPPROVED tides) least depth rock (DP# 3320, DN 170), located approximately 170 meters to the north. Echosounder development lines were run over the charted sounding, revealing sandwaves with a bottom depth ranging from about 16.5 to 21.5 meters. WHITING recommends that the soundings from survey H-10504 supersede all hydrography from prior survey H-6350 in the common area. CONCUR

N. ITEM INVESTIGATIONS– SEE ALSO SECTION O. OF THE EVALUATION REPORT

Items **N.1** through **N.30** are further investigation (FIN) contacts assigned by the Atlantic Hydrographic Section after reviewing all of the contacts located by WHITING during the 1993 H-10504 survey operations (see DESCRIPTIVE REPORT TO ACCOMPANY H-10504, 1993, Section **N.**, for additional item investigations on WH-10-2-93).

SECTION	NAME	STATUS
N.1	7129.08P	Diver least depth acquired
N.2	6766.05P	Diver least depth acquired
N.3	7086.28S	Diver least depth acquired
N.4	6966.29P	Diver least depth acquired
N.5	7130.44S	Diver least depth acquired
N.6	6764.11S	Diver least depth acquired
N.7	7139.55S	Diver least depth acquired
N.8	6974.24S	Diver least depth acquired
N.9	6513.46S	Diver least depth acquired
N.10	6932.57S	Diver least depth acquired
N.11	6934.51P	Diver least depth acquired
N.12	6167.32S	Diver least depth acquired
N.13	7302.54S	Diver least depth acquired

SECTION	NAME	STATUS (continued)
N.14	1624.05S	Diver least depth acquired
N.15	1460.53P	Diver least depth acquired
N.16	7304.27S	Diver least depth acquired
N.17	1371.08P	Diver least depth acquired
N.18	6348.07S	Diver least depth acquired
N.19	9697.44S	Diver least depth acquired
N.20	9685.31P	Diver least depth acquired
N.21	9197.50P	Echosounder least depth acquired
N.22	9249.15S	Echosounder least depth acquired
N.23	9199.45P	Echosounder least depth acquired
N.24	9497.06P	Echosounder least depth acquired
N.25	9496.25S	Echosounder least depth acquired
N.26	1517.00S	Echosounder least depth acquired
N.27	9690.07S	Echosounder least depth acquired
N.28	1237.22S	Echosounder least depth acquired
N.29	9579.36P	Echosounder least depth acquired
N.30	9245.17P (AWOIS 7840)	Echosounder least depth acquired

Items **N.31** through **N.57** are contacts located during the 1994 H-10504 survey operations. These SSS contacts represent the most significant item found within a 200-meter grid overlay of the survey area and were further investigated by WHITING:

N.31	AWOIS 2613	Diver least depth acquired
N.32	8335.04P	Echosounder least depth acquired
N.33	8467.46S	Echosounder least depth acquired
N.34	8505.12P	Echosounder least depth acquired
N.35	8332.42S	Echosounder least depth acquired
N.36	8298.06S	Echosounder least depth acquired
N.37	8197.44P	Echosounder least depth acquired
N.38	8150.24S	Echosounder least depth acquired
N.39	8098.26S	Echosounder least depth acquired
N.40	8180.35S	Echosounder least depth acquired
N.41	8066.56P	Echosounder least depth acquired
N.42	8620.08P	Echosounder least depth acquired
N.43	8015.00P	Echosounder least depth acquired
N.44	8087.32P	Echosounder least depth acquired
N.45	8119.01P	Echosounder least depth acquired
N.46	8070.10S	Echosounder least depth acquired
N.47	8574.18S	Echosounder least depth acquired
N.48	8558.35P	Echosounder least depth acquired
N.49	4261.32P	Echosounder least depth acquired
N.50	8634.32P	Echosounder least depth acquired
N.51	8019.01S	Echosounder least depth acquired
N.52	8615.33S	Echosounder least depth acquired
N.53	8084.57S	Echosounder least depth acquired
N.54	8186.32S	Echosounder least depth acquired
N.55	8225.23P	Echosounder least depth acquired
N.56	8278.33P	Echosounder least depth acquired
N.57	8311.04P	Echosounder least depth acquired

ITEMS **N.1 - N.20** (1993)

These items were found during H-10504 200% main scheme side scan sonar operations in 1993. Each contact represents the most significant item within a 200-meter grid overlay of the survey area, per AHS review. WHITING conducted a diver investigation on each item; all of the contacts are rocks. Echosounding was used to pinpoint the divers drop position on each rock and a pneumatic depth gauge (S/N 138921 30) was used for each least depth measurement. Except for item **N.20**, WHITING recommends that each contact be charted as a rock at the position listed, with the final reduced depth applied.

N.1 Contact #7129.08P (1993) *

Latitude:	41° 27′ 59.713" N
Longitude:	070° 32′ 13.358" W
Cross Reference:	6766.37P
Least Depth:	8.~~7m~~ 8 (~~predicted~~ APPROVED tides, DP 3253, DN 157) (29FT)
Description:	*Rk*: 18ft long, 7ft wide, 9ft high

N.2 Contact #6766.05P (1993) *

Latitude:	41° 28′ 02.286" N
Longitude:	070° 32′ 19.355" W
Cross Reference:	7129.41P
Least Depth:	9.~~1m~~ 2 (~~predicted~~ APPROVED tides, DP 3254, DN 157) (30FT)
Description:	*Rk*: 13ft diameter, 6ft high

N.3 Contact #7086.28S (1993)

Latitude:	41° 27′ 55.863" N
Longitude:	070° 32′ 22.048" W
Cross Reference:	7081.59S
Least Depth:	7.~~6m~~ 7 (~~predicted~~ APPROVED tides, DP 3255, DN 157) (25FT)
Description:	*Rk*: 10ft long, 6ft wide, 6ft high CONCUR CHART 25 RK

N.4 Contact #6966.29P (1993) *

Latitude:	41° 27′ 50.537" N
Longitude:	070° 32′ 27.517" W
Cross Reference:	6734.32P
Least Depth:	7.~~8m~~ 9 (~~predicted~~ APPROVED tides, DP 3256, DN 157) (26FT)
Description:	*Rk*: 15ft long, 6ft wide, 6ft high

* DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

N.5 Contact #7130.44S (1993)*

Latitude: 41° 28′ 06.595" N
Longitude: 070° 32′ 32.226" W
Cross Reference: 7122.43P
Least Depth: 9.1~~m~~ 2 (~~predicted~~ APPROVED tides, DP 3257, DN 157) (30FT)
Description: *Rk*: 22ft long, 12ft wide, 9ft high

N.6 Contact #6764.11S (1993)

Latitude: 41° 28′ 05.104" N
Longitude: 070° 32′ 43.222" W
Cross Reference: 7139.17S
Least Depth: 8.~~1m~~ 0 (~~predicted~~ APPROVED tides, DP 3259, DN 157) (26FT)
Description: *Rk*: 7ft long, 6ft wide, 5ft high DO NOT CONCUR
CHART 26 RK SOUNDING

N.7 Contact #7139.55S (1993)

Latitude: 41° 28′ 06.710" N
Longitude: 070° 32′ 53.161" W
Cross Reference: 6763.33S
Least Depth: 6.4~~m~~ 2 (~~predicted~~ APPROVED tides, DP 3260, DN 157) (20FT)
Description: *Rk*: 7ft long, 4ft wide, 4ft high CONCUR
CHART 20 RK

N.8 Contact #6974.24S (1993)*

Latitude: 41° 27′ 55.770" N
Longitude: 070° 32′ 42.859" W
Cross Reference: 6967.45S
Least Depth: 6.2~~m~~ 1 (~~predicted~~ APPROVED tides, DP 3261, DN 157) (20FT)
Description: *Rk*: 9ft long, 7ft wide, 5ft high

N.9 Contact #6513.46S (1993)*

Latitude: 41° 27′ 43.838" N
Longitude: 070° 32′ 39.511" W
Cross Reference: 6528.32P
Least Depth: 5.9~~m~~ 6 (~~predicted~~ APPROVED tides, DP 3262, DN 157) (19FT)
Description: *Rk*: 5ft diameter, 4ft high

N.10 Contact #6932.57S (1993)

Latitude: 41° 27′ 14.817" N
Longitude: 070° 32′ 40.234" W
Cross References: 6648.04P, 6947.51P, 7044.59S
Least Depth: 4.9 5.0m (~~predicted~~ APPROVED tides, DP 3263, DN 157) (16FT)
Description: *Rk*: 12ft long, 6ft wide, 3ft high DO NOT CONCUR
CHART 16 RK SOUNDING

* DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

N.11 Contact #6934.51P (1993)

Latitude: 41° 26′ 58.544" N
Longitude: 070° 32′ 39.240" W
Cross References: 6213.19S, 6330.40S, 7046.57S
Least Depth: 2.9m (~~predicted~~ APPROVED tides, DP 3264, DN 157) (9FT)
Description: *Rk*: 7ft long, 4ft wide, 4ft high CONCUR
CHART 9RK

N.12 Contact #6167.32S (1993)

Latitude: 41° 26′ 32.586" N
Longitude: 070° 31′ 30.327" W
Cross Reference: 6171.38P
Least Depth: 8.8m (~~predicted~~ APPROVED tides, DP 3265, DN 158) (29FT)
Description: *Rk*: 7ft long, 5ft wide, 4ft high DO NOT CONCUR
CHART 29 SOUNDING

N.13 Contact #7302.54S (1993)

Latitude: 41° 27′ 02.673" N
Longitude: 070° 29′ 25.066" W
Cross Reference: 7317.15S, 7629.55S
Least Depth: 11.~~2~~1m (~~predicted~~ APPROVED tides, DP 3266, DN 158) (36FT)
Description: *Rk*: 12ft diameter, 5ft high DO NOT CONCUR
CHART 36 SOUNDING

N.14 Contact #1624.05S (1993)

Latitude: 41° 26′ 59.730" N
Longitude: 070° 29′ 28.597" W
Cross References: 1622.32S, 1593.42S
Least Depth: 10911.0m (~~predicted~~ APPROVED tides, DP 3267, DN 158)
Description: *Rk*: 8ft long, 6ft wide, 3ft wide DO NOT CONCUR
DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

N.15 Contact #1460.53P (1993)

Latitude: 41° 26′ 50.672" N
Longitude: 070° 29′ 24.715" W
Cross References: 1424.58S, 1515.24S
Least Depth: 8.~~6~~5m (~~predicted~~ APPROVED tides, DP 3269, DN 158) (28FT)
Description: *Rk*: 12ft long, 8ft wide, 4ft high DO NOT CONCUR
CHART 28~~RK~~ SOUNDING

N.16 Contact #7304.27S (1993)

Latitude: 41° 26′ 58.804" N
Longitude: 070° 29′ 04.233" W
Cross References: 7315.48S, 7628.36S
Least Depth: 11.~~4~~5m (~~predicted~~ APPROVED tides, DP 3270, DN 158) (37FT)
Description: *Rk*: 7ft long, 5ft wide, 4ft high DO NOT CONCUR
CHART 37~~RK~~ SOUNDING

N.17 Contact #1371.08P (1993)

Latitude: 41° 26′ 41.968" N
Longitude: 070° 29′ 03.461" W
Cross References: 1472.09S, 1407.44S
Least Depth: 8.5~~m~~ (APPROVED ~~predicted~~ tides, DP 3271, DN 158) (28FT)
Description: *Rk*: 10ft long, 8ft wide, 4ft high
CHART 28RK SOUNDING

N.18 Contact #6348.07S (1993)

Latitude: 41° 26′ 31.511" N
Longitude: 070° 29′ 13.980" W
Cross Reference: 6407.48P
Least Depth: 7.0~~6.9m~~ (APPROVED ~~predicted~~ tides, DP 3272, DN 158) (23FT)
Description: *Rk*: 10ft long, 6ft wide, 4ft high
CHART 23RK

N.19 Contact #9697.44S (1993)

Latitude: 41° 28′ 14.113" N
Longitude: 070° 31′ 57.306" W
Cross Reference: 1063.23P
Least Depth: 11.~~4m~~ (APPROVED ~~predicted~~ tides, DP 3274, DN 158) (36FT)
Description: *Rk*: 7ft long, 5ft wide, 4ft high DO NOT CONCUR
DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

N.20 Contact #9685.31P (1993)

Latitude: 41° 28′ 19.040" N
Longitude: 070° 32′ 12.853" W
Cross Reference: NONE
Least Depth: 10.7~~11.0m~~ (APPROVED ~~predicted~~ tides, DP 3277, DN 158) (35FT)
Description: *Rk*: 6ft long, 4ft wide, 3ft high

WHITING recommends that nothing be charted for contact #9685.31P. The rock is situated in a sand trough, surrounded by 6-foot high sand waves; the sandwave peakes are shoaler than the rock's least depth measurement. CONCUR

ITEMS **N.21 - N.29** (1993)

These items were found during H-10504 200% main scheme side scan sonar operations in 1993. Each contact represents the most significant item within a 200-meter grid overlay of the survey area, per AHS review. Each item was further investigated by running echosounder investigation lines centered over each contact's average SSS position. WHITING believes that all of these contacts are rocks. The lines were run at a speed of 2.5 knots or slower, often times with the launch at idle, adrift over the rock. The table below summarizes the results of the investigations. Least depths are corrected for ~~predicted~~ APPROVED tides. Contacts marked with an * are not recommended for charting due to the close proximity (≤ 100m) of shoaler bottom depths. All of the other contacts should be charted as a rock at the position listed, with the final reduced depth applied.

	Contact#	Cross Reference	Position	Least Depth	Bottom Depth	DP	DN
N.21	9197.50P~~**~~	9001.05S	41°29'03.711"N 070°33'08.368"W	21.~~0~~1m	22.0m (69FT)	3310	166
N.22	9249.15S~~**~~	9199.48S	41°28'56.347"N 070°32'44.618"W	22.~~0~~1m	24.0m (72FT)	3311	166
N.23	9199.45P~~**~~	9003.01S 9249.21S	41°28'58.921"N 070°32'44.608"W	22.~~7~~8m	23.5m (75FT)	3314	166
N.24	9497.06P*	7527.09S	41°28'33.497"N 070°32'15.148"W	22.1m	23.0m (72FT)	3315	166
N.25	9496.25S*	9533.14P	41°28'32.947"N 070°32'06.299"W	18.7m	22.0m (61FT)	3316	166
N.26	1517.00S*	1549.03S	41°26'48.138"N 070°29'06.676"W	10.~~4~~6m	11.0m (33FT)	3383	166
N.27	9690.07S~~**~~	NONE	41°28'33.902"N 070°33'18.735"W	15.9m	17.0m (52FT)	4448	158
N.28	1237.22S*	1249.30P	41°30'39.307"N 070°28'11.822"W	16.0m	16.7m (53FT)	4792	169
N.29	9579.36P*	9593.08P	41°28'23.746"N 070°31'54.226"W	18.~~4~~1m	20.0m (59FT)	4945	169

* WHITING recommends not charting these features because of nearby shoaler bottom depths.

** DO NOT CONCUR – DO NOT CHART – SHOALER FEATURES AND/OR SOUNDING IN VICINITY

ITEMS **N.30 - N.31**

N.30 Contact #9245.17P (AWOIS 7840)

Reported Latitude:	41° 28′ 45.69" N
Reported Longitude:	070° 31′ 57.01" W
Source:	H8821/64
Name:	Kershaw (282 ft Steamer)
Datum:	NAD 83
Reported Depth:	UNCHARTED

AWOIS item 7840 is described (14 February 1994 AWOIS list) as a demolished 282 ft steamer that sunk in 65 feet of water with 45 ft over the hull. The wreck is presently not charted. The dynamited remains are reported to be twisted metal plates. Prior survey H-8821/64 was unable to verify the existence of the wreck, reporting 66-68 ft depths in the vicinity. The reported position was converted from old Loran C time differences.

WHITING covered the search area of AWOIS item 7840 with 200 percent side scan sonar and a wreck was found fitting the description given. The uncharted wreck was developed with 5-meter echosounder line spacing as specified in the FPM and a 18.5-meter least depth was acquired (DP# 4953, DN 169). A report on the uncharted submerged wreck was submitted on August 10, 1994 and a copy of the report can be found in APPENDIX I. DATA APPENDED TO THE DESCRIPTIVE REPORT 44

WHITING recommends that a wreck with a least depth known be charted at 41° 28′ 46.583" N, 070° 32′ 01.288" W. CONCUR (18.3m), 60FT / CHART 60WK

~~NO CHANGE IN CHARTING OF AWOIS #7840~~

N.31 AWOIS #2613

Reported Latitude:	41° 29′ 50.06" N
Reported Longitude:	070° 33′ 14.61" W
Source:	H6350/38
Name:	Port Hunter
Datum:	NAD 83
Reported Depth:	10ft (*Wk*)

AWOIS item 2613 is described (14 February 1994 AWOIS list) as a 380 ft British freighter that sank to the bottom of the sound on Hedge Fence Shoal off West Chop on Martha's Vineyard. Her bow is reported to be approximately 25 ft down, while the stern is in approximately 70 ft of water. The COE investigated a wreck believed to be the S.S. Port Hunter on 12/20/49; wire drag sweepings found that the highest part of the wreck is a section of the mast cleared by 10 feet at MLW.

WHITING covered the area of AWOIS item 2613 with 200 percent side scan sonar and a wreck was found. Echosounding was used to pinpoint a drop position for WHITING divers.

Divers located a wreck laying on its port side, oriented 060°/240° PMC. The bow of the wreck was situated on the east-northeast end of Hedge Fence Shoal. A ~~5.9~~ 6.0 meter least depth was located near the center of the wreck (DP #3304, DN 161) on the starboard gunnel. WHITING divers found no evidence of a mast on the wreck.

WHITING recommends that the 10 ft *Wk* charted at 41° 29′ 50.06" N, 070° 33′ 14.61" W be deleted from all affected charts. A wreck with a least depth known (6m (19FT)) should be charted at latitude 41° 29′ 46.988" N, longitude 070° 33′ 12.474" W. CONCUR CHART 19WK

ITEMS **N.32 - N.57** (1994)

These items were found during H-10504 200% main scheme side scan sonar operations in 1994. Each contact represents the most significant item within a 200-meter grid overlay of the survey area, per WHITING review. Each item was further investigated by running echosounder investigation lines centered over each contact's average SSS position. WHITING believes that all of these contacts are rocks. The lines were run at a speed of 2.5 knots or slower, often times with the launch at idle, adrift over the rock. The table below summarizes the results of these investigations. Each contact should be charted as a rock at the position listed, with the final reduced depth applied.

	Contact#	Cross Reference	Position	Least Depth	Bottom Depth	DP	DN
N.32	8335.04P *	8296.36P	41°29′46.725"N 070°27′59.037"W	17.4m → 5m (57FT)	19.3m	3317	170
N.33	8467.46S *	8491.51S	41°29′23.037"N 070°28′26.319"W	20.8m → 9m (68FT)	21.5m	3318	170
N.34	8505.12P	8515.14P	41°29′31.988"N 070°28′53.516"W	19.2m → 3m (63FT)	21.1m	3319	170
						CHART 63 SOUNDING	
N.35	8332.42S *	8340.08S	41°29′47.022"N 070°28′34.953"W	18.7m (61FT)	20.0m	3320	170
N.36	8298.06S *	8292.51S 8333.32P	41°29′50.014"N 070°28′21.976"W	17.1m (56FT)	18.5m	3323	170
N.37	8197.44P *	8240.44P	41°29′59.319"N 070°28′26.417"W	15.4m → 5m (51FT)	16.5m	3327	170
N.38	8150.24S *	8173.52S	41°30′03.443"N 070°28′34.230"W	~~14.9~~ 15.0m (49FT)	15.5m	3328	170

* DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

	Contact#	Cross Reference	Position	Least Depth	Bottom Depth	DP	DN	
N.39	8098.26S	8058.04P 8107.52S	41°30'10.335"N 070°28'51.718"W	~~14.6m~~ 16 (46FT)	16.0m	3329	170	DO NOT CONCUR CHART 46 SOUNDING
N.40	8180.35S *	8142.44S 8207.28S	41°30'08.735"N 070°30'29.160"W	~~18.9m~~ 19.0 (62FT)	20.7m	3330	170	
N.41	8066.56P *	8089.52P	41°30'19.098"N 070°30'51.902"W	~~19.0m~~ 19.1 (62FT)	20.1m	3331	170	
N.42	8620.08P *	8598.35P	41°30'28.083"N 070°30'54.808"W	~~16.1m~~ 16.2 (53FT)	18.0m	3333	170	
N.43	8015.00P *	8033.36P 8618.32S	41°30'25.103"N 070°31'18.690"W	~~18.5m~~ 18.6 (61FT)	20.5m	3335	170	
N.44	8087.32P *	8068.57P	41°30'19.004"N 070°31'22.031"W	~~21.1m~~ 21.2 (69FT)	22.0m	3337	170	
N.45	8119.01P *	8135.42P	41°30'17.054"N 070°31'36.741"W	~~16.8m~~ 16.9 (55FT)	18.0m	3339	170	
N.46	8070.10S	8032.07S	41°30'22.956"N 070°31'40.306"W	~~15.5m~~ 15.6 (51FT)	16.5m	3344	170	DO NOT CONCUR CHART 51 ~~RK~~ SOUNDING
N.47	8574.18S	8601.17S	41°30'31.398"N 070°31'32.226"W	~~15.6m~~ 15.7 (51FT)	17.0m	3346	170	DO NOT CONCUR CHART 51 ~~RK~~ SOUNDING
N.48	8558.35P *	8573.06P	41°30'35.723"N 070°31'49.947"W	~~15.8m~~ 15.9 (52FT)	17.0m	3347	170	
N.49	4261.32P *	4281.54S	41°30'45.386"N 070°32'08.466"W	~~13.2m~~ 13.3 (43FT)	14.5m	3351	170	
N.50	8634.32P *	8561.06P 8604.54S	41°30'36.240"N 070°32'22.065"W	~~11.2m~~ 11.3 (37FT)	12.8m	3353	170	
N.51	8019.01S *	8638.01P	41°30'29.232"N 070°32'12.729"W	12.0m (39FT)	14.0m	3354	170	
N.52	8615.33S *	8018.02S 8637.05P	41°30'29.069"N 070°31'59.345"W	16.8m (55FT)	19.0m	3359	170	
N.53	8084.57S *	8120.17S	41°30'19.783"N 070°31'55.749"W	17.4m (57FT)	19.0m	3360	170	
N.54	8186.32S	8133.59P 8120.38P	41°30'16.101"N 070°32'01.136"W	~~18.5m~~ 17.1 (56FT)	20.7m	3361	170	DO NOT CONCUR CHART 56 SOUNDING

* DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES AND/OR SOUNDING IN VICINITY

	Contact#	Cross Reference	Position	Least Depth	Bottom Depth	DP	DN
N.55	8225.23P	8215.10P	41°30'10.455"N 070°32'12.014"W	14.4m (47FT)	15.5m	3362	170 CONCUR ✓ CHART 47RR
N.56	8278.33P *	8312.35S	41°30'03.378"N 070°31'49.473"W	19.6m (64FT)	20.0m	3367	170
N.57	8311.04P *	8321.00P	41°29'58.173"N 070°31'27.514"W	19.6m (64FT)	21.0m	3369	170

* DO NOT CONCUR - DO NOT CHART - SHOALER FEATURES AND/OR SOUNDINGS IN VICINITY

O. COMPARISON WITH THE CHART - SEE ALSO EVALUATION REPORT

Chart#	Scale	Edition #	Date
13233	1:40,000	14	November 28, 1992
13238	1:20,000	13	June 27, 1992

There is good agreement between survey H-10504 soundings and the charted soundings, contours, and features. Charted soundings originate from the prior surveys, discussed in Section **M.** Except where discussed in Section **M.**, 95% of the comparisions agreed to within 1 meter, with the current survey being deeper than the prior survey. No other changes were affected by the Notice to Mariners.

P. ADEQUACY OF SURVEY - SEE ALSO EVALUATION REPORT

This survey completes H-10504, which commenced in the Fall of 1993. A separate descriptive report was completed for the areas surveyed during 1993. This survey is considered complete, and the data acquired are adequate to supersede all prior surveys of the common area.

Q. AIDS TO NAVIGATION

The aids to navigation located within survey area H-10504 were observed during survey operations in 1993. All charted aids agree well with the surveyed observations.* ALL AIDS TO NAVIGATION APPEAR ADEQUATE TO SERVE THEIR INTENDED PURPOSES.

* SEE ALSO SECTION O. OF THE EVALUATION REPORT.

R. STATISTICS

Number of Positions	1960
Main-scheme Sounding Lines (Nautical Miles)	260
Crosslines (Nautical Miles)	0
Square Nautical Miles Surveyed	6.8
Days of Production	27
Detached Positions	57
Bottom Samples	0
Tide Stations Installed	2
Current Stations	0
Number of CTD Casts	3
Magnetic Stations	0

S. MISCELLANEOUS – SEE ALSO EVALUATION REPORT

Bottom samples for the survey area were acquired during 1993. As specified in the Project Instructions, the samples were taken on an approximate grid spacing of 1000 meters square. Oceanographic log sheets for H-10504 are on file at AHS.* Bottom samples were not submitted to the Smithsonian Institution.* DATA FILED WITH FIELD RECORDS.

No anomalies in either tide or current and/or unusual magnetic variations were encountered in the survey area.

T. RECOMMENDATIONS – SEE ALSO SECTION P. OF THE EVALUATION REPORT

Recommendations concerning specific items are located in section **N** of this report.

U. REFERRAL TO OTHER REPORTS

A separate descriptive report was completed for the H-10504 areas surveyed during 1993. Additionally, the following reports will be submitted to N/CG244 and forwarded to N/CG243 as part of OPR-B616-WH-94:

Coast Pilot Report
Chart Inspection Report
User Evaluation Report

Submitted By:

Jack L. Riley

Jack L. Riley
Lieutenant (Junior Grade), NOAA

Station No ?

No	Type	Lat	Lon	H	Cart	Freq	Vel Code	MM/DD/YY	Station N
1		041:04:02.088	071:51:36.484	0	0	293.0	0	08/29/93	MONTAUK, NY
		043:04:15.066	070:42:35.804	0	0	288.0	0	08/29/93	PORTSMOUTH HARBOR,N
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship WHITING S-329
439 W. York Street
Norfolk, VA 23510-1114

November 29, 1993

ADVANCE INFORMATION

Commander, First Coast Guard District
Aids to Navigation Branch
408 Atlantic Avenue
Boston, MA 02110-3350

Dear Sir:

While conducting hydrographic survey operations in Nantucket Sound, an uncharted wreck was discovered with side scan sonar (SSS). The wreck is approximately 0.8 nautical miles northeast of East Chop, Martha's Vineyard, MA. Attached are a Danger to Navigation Report and a chartlet indicating the location of the wreck.

Differential GPS and SSS were used to determine the wreck's position.

A copy of this letter and attachments have been forwarded to the following offices:

Chief, Nautical Charting Division, NOAA
Director, Operations Division, NOAA
Director, Defense Mapping Agency
Hydrographic/Topographic Center

Sincerely,

Andrew A. Armstrong III
Commander, NOAA
Commanding Officer

Attachments

cc: AMC1
N/CG2
N/CG244
DMAHTC

ADVANCE INFORMATION

REPORT OF DANGER TO NAVIGATION

Hydrographic Survey Registry Number: H-10504

State: Massachusetts

General Locality: Nantucket Sound

Sublocality: L'Hommedieu Shoal to Harthaven

Project Number: OPR-B616-WH

The following item was found during hydrographic survey operations by the NOAA Ship WHITING. This item is a potential danger to navigation.

Object Discovered:

An uncharted wreck having approximate dimensions 60 by 20 meters was found with side scan sonar.

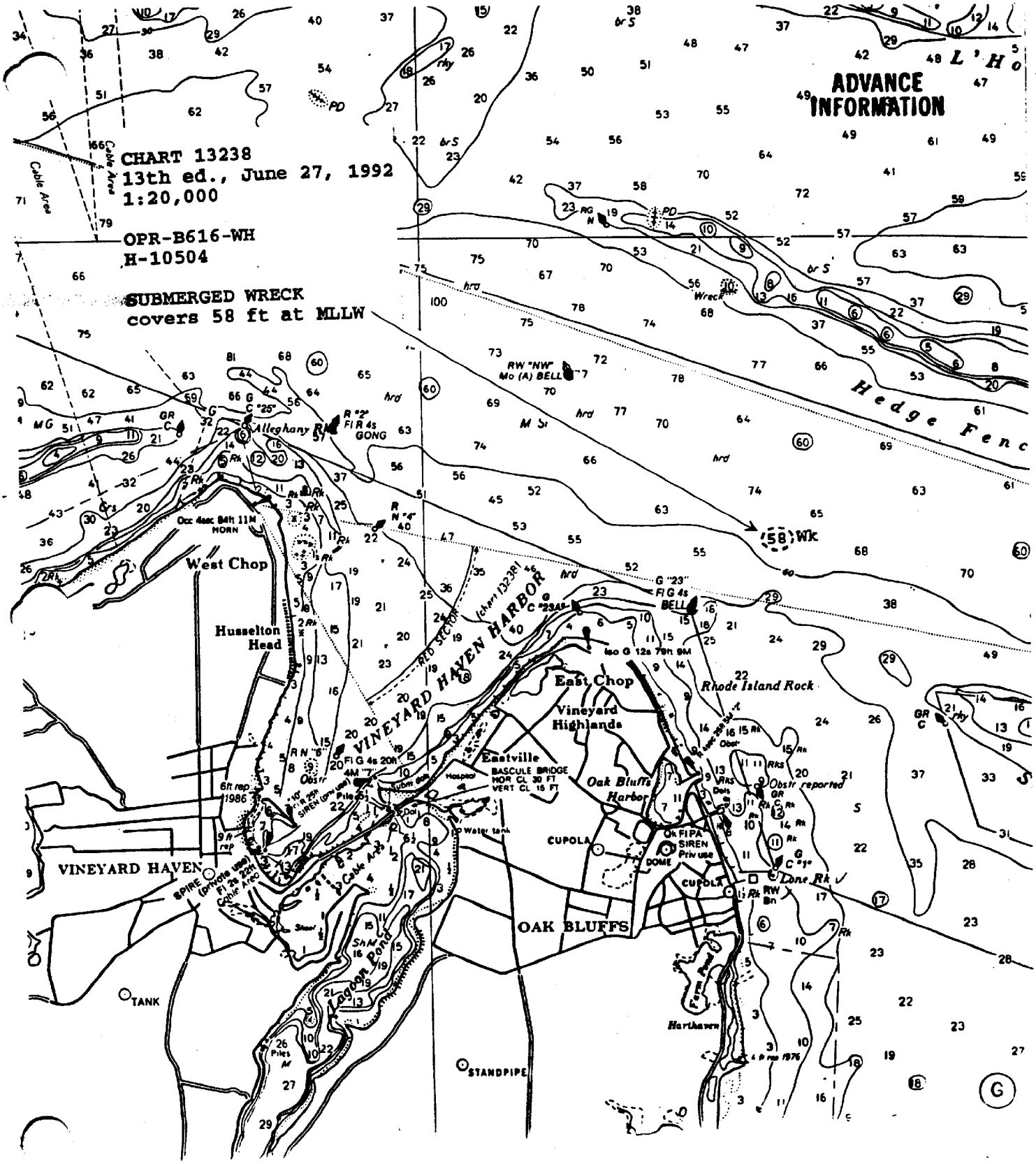
Covers/~~Uncovers~~/~~Bares~~:

Echosounding development conducted at a 5-meter line spacing interval revealed a least depth of 17.6 meters (58 feet) corrected to MLLW using predicted tide correctors.

Affected Nautical Charts:

Chart Number	Edition No.	Reported Date	Reported Depth	Chart Datum	Geographic Position Latitude	Geographic Position Longitude
13238	13	6/27/92	58 ft	NAD 83	41°28'41.362"N	070°32'58.205"W
13233	14	11/28/92	same	same	same	
13237	34	10/26/91	same	same	same	

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.


ADVANCE INFORMATION
CHART 13238
13th ed., June 27, 1992
1:20,000
OPR-B616-WH
H-10504
SUBMERGED WRECK
covers 58 ft at MLLW
West Chop
Husselton Head
VINEYARD HAVEN HARBOR
East Chop
Vineyard Highlands
Rhode Island Rock
Eastville
Oak Bluffs Harbor
VINEYARD HAVEN
OAK BLUFFS
Lagoon Pond
Hedge Fenc
58 Wk
TANK
STANDPIPE
CUPOLA
Hartshorn
G

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship WHITING S-329
439 W. York Street
Norfolk, VA 23510-1114

August 10, 1994

ADVANCE INFORMATION

Commander, Fifth Coast Guard District
Attention: OAN
431 Crawford Street
Portsmouth, VA 23704

Dear Sir:

While conducting hydrographic survey operations in Nantucket Sound, MA, an uncharted obstruction was discovered. Attached is a report on the feature and a chartlet indicating its location.

Feature	Latitude	Longitude	Depth (ft)
Obstruction	41°28'46.583"N	070°32'01.288"W	60

Differential GPS was used to determine the item's position. The position is referenced to NAD-83 and the depth is referenced to MLLW using predicted tides. Chart 13233 (14th Ed. Nov 28, 1992) is the largest scale chart affected (1:40,000)

A copy of this letter and attachments have been forwarded to the following offices:

Chief, Nautical Charting Division, NOAA
Chief, AMC Operations Division, NOAA
Chief, Atlantic Hydrographic Section, NOAA
Director, Defense Mapping Agency
Hydrographic/Topographic Center

Sincerely,

John D. Wilder
Commander, NOAA
Commanding Officer

Attachments
cc: AMC1
N/CG2
N/CG244
DMAHTC

REPORT OF UNCHARTED SUBMERGED FEATURE

Hydrographic Survey Registry Number: H-10504

ADVANCE INFORMATION

State: Massachusetts

General Locality: Nantucket Sound, MA

Sublocality: L'Hommedieu Shoal to Harthaven

Project Number: OPR-B616-RU/WH

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

Object Discovered:

A wreck was found with side scan sonar (SSS) measuring approximately 60 meters by 80 meters. Five-meter spaced echosounder lines were run centered over the SSS position.

Covers:

An echosounder least depth of 18.5 meters (60 feet), corrected to MLLW with predicted tide correctors, was discovered. The average water depth immediately surrounding the area was 20.4 meters.

Affected Nautical Charts:

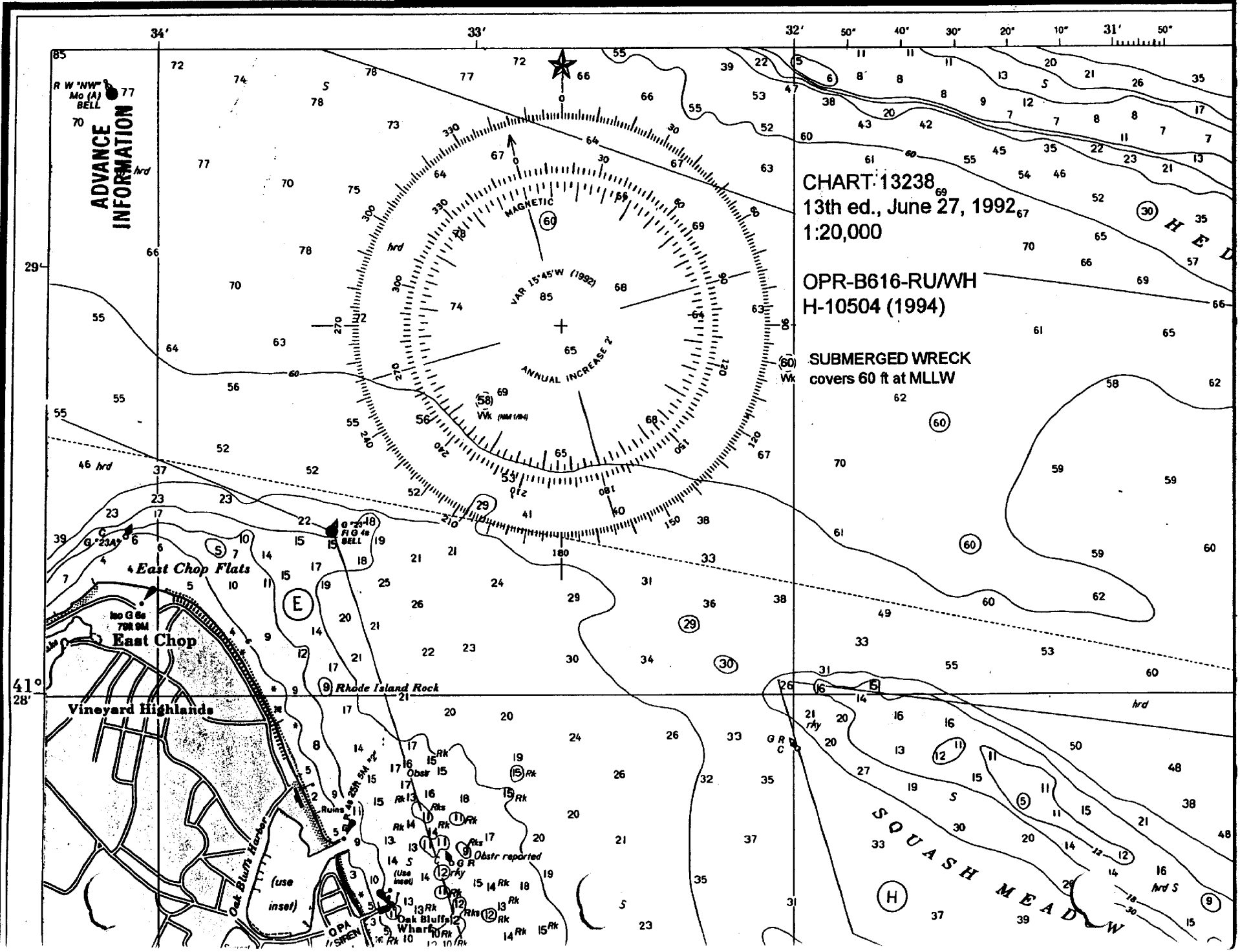
Chart Number	Edition No.	Edition Date	Reported Depth	Chart Datum	Geographic Location Latitude	Geographic Location Longitude
13233	14	11/28/92	60 ft	NAD83	41°28'46.583"N	070°32'01.288"W
13237	34	10/26/91	same	same	same	
13238	13	06/27/92	same	same	same	

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

SOUNDINGS IN FEET

Formerly C&GS 261, 1st Ed., July 1963

13238



APPROVAL SHEET
FIELD EXAMINATION SURVEY
OPR-B616-WH
1993
WH-10-1-93
H-10504

The data for this survey were acquired and checked under my daily supervision. Position and sounding accuracy meet the requirements specified in the Hydrographic Manual, the Hydrographic Survey Guidelines, and the Field Procedures Manual for Hydrographic Surveying. This survey is adequate, in the areas fully surveyed, for the intended purpose of delineating bottom topography and determining depths and identifying all potential dangers to navigation. Significant portions of the sheet remain incomplete.

Approved By:

Andrew A. Armstrong, III
Commander, NOAA
Commanding Officer

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: April 18, 1994

MARINE CENTER: Atlantic

HYDROGRAPHIC PROJECT: OPR-B616

HYDROGRAPHIC SHEET: H-10504

LOCALITY: Massachusetts, Nantucket Sound, L'Hommedieu Shoal to Harthaven

TIME PERIOD: September 23 - November 22 1993

TIDE STATION USED: 844-8208 Oak Bluffs, Martha's Vineyard, Ma.
Lat. 41° 27.5'N Lon. 70° 33.3'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 10.81 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.1 ft.

REMARKS: RECOMMENDED ZONING

1. West of 70° 30.0'W times and heights are direct on Oak Bluffs, Martha's Vineyard, Ma. (844-8208).

2. East of 70° 30.0'W, times are direct and apply a X1.08 range ratio to all heights using Oak Bluffs, Martha's Vineyard, Ma. (844-8208).

Note: Times are tabulated in Eastern Standard Time.

William M. Furlow
CHIEF, DATUMS SECTION

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 3, 1995

HYDROGRAPHIC SECTION: Atlantic

HYDROGRAPHIC PROJECT: OPR-B616

HYDROGRAPHIC SHEET: H-10504

LOCALITY: Massachusetts, Nantucket Sound, L'Hommedieu Shoal to Harthaven

TIME PERIOD: May 25 - June 20 1994

TIDE STATION USED: 844-8208 Oak Bluffs, Martha's Vineyard, Ma.
Lat. 41° 27.5'N Lon. 70° 33.2'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 10.87 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.1 ft.

REMARKS: RECOMMENDED ZONING

1. West of 70° 30.0'W times and heights are direct on Oak Bluffs, Martha's Vineyard, Ma. (844-8208).

2. East of 70° 30.0'W, times are direct and apply a X1.08 range ratio to all heights using Oak Bluffs, Martha's Vineyard, Ma. (844-8208).

Note: Times are tabulated in Greenwich Mean Time.

William M. Stoney

CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10504

Name on Survey	A ON CHART NO. 13229, 13238, 13237, 13233	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
HARTHAVEN	X		X							1
HEDGE FENCE (bar)	X		X							2
L'HOMMEDIEU SHOAL	X		X							3
MARTHA'S VINEYARD	X		X							4
MASSACHUSETTS (title)	X		X							5
NANTUCKET SOUND	X		X							6
OAK BLUFFS (ppl)	X		X							7
OAK BLUFFS HARBOR	X		X							8
SQUASH MEADOW (bar)	X		X							9
VINEYARD HIGHLANDS (ppl)	X		X							10
LONE ROCK	X									11
										12
										13
										14
										15
										16
										17
										18
					Approved:					19
										20
					Curtis C. Lay					21
					Chief Geographer					22
					NOV 27 1995					23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

08/22/96

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10504

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	6430
NUMBER OF SOUNDINGS	32922

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	304	11/04/94
VERIFICATION OF FIELD DATA	286	01/12/96
QUALITY CONTROL CHECKS	32	
EVALUATION AND ANALYSIS	65	
FINAL INSPECTION	6	12/30/95
COMPILATION	200	08/19/96
TOTAL TIME	893	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 01/04/96

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10504 (1993-94)

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

The following software was used to process data at the Atlantic Hydrographic Branch:

Hydrographic Processing System
NADCON, version 2.10
AutoCAD, Release 12
QUICKSURF, version 5.1
MicroStation, version 5.0
I/RAS B, version 5.01

The smooth sheet was plotted using an ENCAD NovaJet III plotter.

H. CONTROL STATIONS

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). Office processing of this survey is based on these values. The smooth sheet has been annotated with ticks showing the computed mean shift between the NAD 83 and the North American Datum of 1927 (NAD 27).

To place this survey on the NAD 27, move the projection lines 0.405 seconds (12.493 meters or 1.25 mm at the scale of the survey) north in latitude, and 1.902 seconds (44.121 meters or 4.41 mm at the scale of the survey) east in longitude.

J. SHORELINE

Shoreline manuscripts were not available for this project. Brown shoreline shown on the smooth sheet originates with National Ocean Service (NOS) chart 13238 (13th Edition, June 27/92) and is for orientation purposes only.

L. JUNCTIONS

H-10547 (1994) to the east
H-10556 (1994) to the west

Standard junctions were effected between the present survey and surveys H-10547 (1994) and H-10556 (1994).

There are no junctional surveys to the north or south. Present survey depths are in harmony with the charted hydrography to the north and south.

M. COMPARISON WITH PRIOR SURVEYS

Hydrographic

H-1106	(1871)	
H-1829	(1887-88)	
H-4898	(1928)	
H-6350	(1938-42)	
H-8821	(1964)	unverified
BP110609	(1980)	Corps of Engineers

A comparison with prior surveys was not done during office processing in accordance with section 4. of the memorandum titled "Changes to Hydrographic Survey Processing", dated May 24, 1995. However, a comparison with the following prior surveys were done because side scan sonar operations could not be conducted in these areas.

1. Depths on prior surveys H-1106 (1871) and H-1829 (1887-88) are too sparsely sounded for a comprehensive comparison, however, the following should be noted:

a. Automated Wreck and Obstruction Information System (AWOIS) Item #9762, a charted rock with a depth of 11 feet, (3^4 m), in Latitude 41°27'43.0"N, Longitude 70°33'03.5"W, originates with prior survey H-1106 (1871). The area was investigated using side scan sonar with negative results. Surrounding depths range from 17 to 18 feet (5^2 to 5^5 m). It is recommended that the charted rock be deleted, and the area be charted as shown on the present survey.

b. AWOIS Item #9763, a charted rock with a depth of 11 feet (3^3 m), in Latitude 41°27'33.21"N, Longitude 70°33'07.05"W, originates with prior survey H-1829 (1887-88). The area was investigated using side scan sonar. A rock with a depth of 11 feet (3^3 m), in Latitude 41°27'33.23"N, Longitude 70°33'07.23"W, was located. It is recommended that the charted rock be deleted. See section N.15., p. 22, of the Descriptive Report for discussion and charting recommendation for rock with a depth of 11 feet (3^3 m).

c. A charted rock (LONE ROCK) with a depth of 4 feet (1^2 m), in Latitude 41°27'14.24"N, Longitude 70°32'58.66"W, originates with prior survey H-1829 (1887-88). The rock was

neither verified nor disproved by the present survey. The rock was brought forward from the prior survey to supplement the present survey. No change in charting status is recommended.

2. Depths on prior survey H-4898 (1928) compare favorably and show a general trend of being 1 to 3 ft (0^3 to 0^9 m) shoaler than present survey depths. The following should be noted:

a. A charted rock ~~(LONE ROCK)~~ with a depth of 5 feet (1^5 m), in Latitude 41°27'27.04"N, Longitude 70°33'16.01 originating with the prior survey was neither verified nor disproved by the present survey. The rock was brought forward from the prior survey to supplement the present survey. No change in charting status is recommended.

b. A charted rock awash, in Latitude 41°27'26.04"N, Longitude 70°33'18.01 originating with the prior survey was neither verified nor disproved by the present survey. The rock awash has been brought forward from the prior survey to supplement the present survey. It is recommended that the rock awash be retained as charted.

c. A charted 12-ft depth, in Latitude 41°27'35.4"N, Longitude 70°33'06.4"W, originating with the prior survey was located by the present survey. This is a submerged rock. See section N47., p. 40, of the Descriptive Report for discussion and charting recommendation for submerged rock.

3. Depths on prior survey H-6350 (1938-42) compare favorably and show a general trend of being 1 to 2 ft (0^3 to 0^6 m) shoaler than present survey depths in the vicinity of Hedge Fence Shoal. The shoal has migrated to the south 20 to 50 meters. It is recommended that the area be charted as shown on the present survey.

4. Depths on prior survey H-8821 (1964) compare favorably and show a general trend of being 1 to 2 ft (0^3 to 0^6 m) deeper than present survey depths. The following should be noted:

a. A charted rock awash, in Latitude 41°27'32.25"N, Longitude 70°33'21.0"W, originates with unverified prior survey as a rock covered 2 feet (0^6 m) MLLW. The charted rock was neither verified nor disproved by the present survey. The rock covered 2 feet (0^6 m) has been brought forward from the prior survey to supplement the present survey. It is recommended that the rock awash be deleted and a 2 Rk be charted.

b. A charted rock covered 1.5 ft (0^5 m) MLLW, in Latitude 41°27'08.4"N, Longitude 70°33'10.0, originating with unverified prior survey was neither verified nor disproved by the present survey. The rock covered 1.5 ft (0^5 m) MLLW has been brought forward from the prior survey to supplement the present survey. It is recommended that the feature be charted as a rock awash.

5. Several rocks were located by the U.S. Army Corps of Engineers (COE) Blueprint #BP110609 1980. The following should noted:

a. The following charted rocks were located during present survey operations:

Rock (ft/m)	Latitude (N)	Longitude (W)	Descriptive Report Section
$12/3^6$	41°27'44.4"	70°33'11.5"	N1. p. 12-13
13/4	41°27'45.5"	70°33'12.2"	N2. p. 13
$11/3^4$	41°27'38.6"	70°33'08.9"	N6. p. 16
$12/3^6$	41°27'38.4"	70°33'08.3"	N7. p. 16-17

Discussions and charting recommendations are in the sections listed in the preceding table.

b. AWOIS Item #9760, a charted rock with a depth of 13 feet (3^7 m), in Latitude 41°27'39.8"N, Longitude 70°33'09.9"W, originates with the COE survey. The area was investigated using side scan sonar. A rock with a depth of 14 feet (4^3 m), in Latitude 41°27'40.07"N, Longitude 70°33'08.69"W, was located. It is recommended that the charted 13 Rk be deleted and a notation rky be added.

c. AWOIS Item #9761, a charted rock with a depth of 13 feet (4 m), in Latitude 41°27'39.6"N, Longitude 70°33'04.4"W originating with the COE survey was investigated with 200% side scan during present survey operations. No indication of the rock was seen on the sonargrams. Surrounding depths from the present survey range from 13 to 16 feet (4 to 4^9 m). It is recommended that the charted rock be deleted.

d. The following uncharted rocks were investigated using side scan sonar during present survey operations. No indication of the rocks were seen on the sonargrams.

Rock (ft/m)	Latitude(N)	Longitude(W)	Surrounding Depths (ft/m)
13/4	41°27'38.8"	70°33'11.5"	$14-15/4^{3}-4^{6}$
$12/3^{6}$	41°27'39.3"	70°33'06.0"	$14-16/4^{3}-4^{9}$
$12/3^{6}$	41°27'38.9"	70°33'02.7"	$10-16/3-4^{9}$
$12/3^{6}$	41°27'42.8"	70°33'09.1"	$17-18/5^{2}-5^{5}$
$12/3^{6}$	41°27'44.0"	70°33'11.0"	$12-15/3^{7}-4^{6}$
$12/3^{6}$	41°27'42.7"	70°33'03.7"	$17-18/4^{3}-5^{3}$

No change in charting status is recommended.

Except as noted above the present survey is adequate to supersede the prior surveys within the common area.

Wire Drag

H-10088WD (1980)

Thirty-five (35) hangs and grounding were investigated by the prior survey. All items were investigated by the present survey and are adequately discussed in the Descriptive Report and below.

A charted rock with a depth of 11 feet (3^{3} m), in Latitude 41°27'39.82"N, Longitude 70°33'09.28"W, originates with the wire drag survey. The rock was discussed in section N19., pages 24-25 of the Descriptive Report. However, the position of the investigation discussed in section N19. was in error. A charting recommendation for the rock discussed in section N19. can be found in section M.5)b. of this report. The charted rock with a depth of 11 ft in Latitude 41°27'39.82"N, Longitude 70°33'06.11"W, was investigated using side scan sonar with negative results. Present survey depths range from 14-16 feet (4^{3} to 4^{9} m). It is recommended that the charted rock with a depth of 11 ft be deleted, and the area be charted as shown on the present survey.

The differences between the prior survey and the present survey are attributed to natural and cultural changes, and/or improved hydrographic surveying methods and equipment.

O. COMPARISON WITH CHARTS 13229 (24th Edition, Oct 5/91)
13233 (14th Edition, Nov 28/92)
13237 (34th Edition, Oct 26/91)
13238 (13th Edition, Jun 27/92)

Hydrography

The hydrographer makes adequate chart comparisons in sections N. and O. of the Descriptive Report. The following should be noted:

1) AWOIS Item #9759, a charted dangerous submerged obstruction with a depth of 9 feet, (2^{7} m), in Latitude 41°27'40.4"N, Longitude 70°32'58.1"W, originates with Chart Letter 247 of 1937 (CL247/37). No indication of an obstruction was seen on the sonargrams. A rock with a depth of 10 feet (3 m), in Latitude 41°27'38.60"N, Longitude 70°33'02.62"W was located. It is recommended that the charted dangerous submerged obstruction be deleted. See section N.20., p. 25, of the Descriptive Report for discussion and charting recommendation for rock with a depth of 10 feet (3 m).

2) A charted 14 ft rep notation, in Latitude 41°27'28.5"N, Longitude 70°33'15.5"W, originates with an unknown source. The 14 ft rep is considered disproved by the present survey. Present survey depths range from 9-12 feet (2^{7} to 3^{6} m) in the vicinity. It is recommended that the charted 14 ft rep be deleted, and the area be charted as shown on the present survey.

3) A charted note 10 FT and limit line, in the vicinity of Latitude 41°27'31"N, Longitude 70°33'19"W, originate with an unknown source. A depth of 6 feet (1^{8} m) was located in Latitude 41°27'31.50"N, Longitude 70°33'19.25"W. This 6 foot depth falls inside the charted limit line. It is recommended that the charted note and limit line be deleted, and the area be charted as shown on the present survey unless subsequent information indicates otherwise.

4) Lovers Rock charted in Latitude 41°27'11"N, Longitude 70°33'12"W, is presently at or above the high water line. It is recommended that the geographic name be deleted from the chart.

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

Danger to Navigation

Two Danger to Navigation reports were submitted to Commander (oan), First Coast Guard District, Boston, Massachusetts, for inclusion in the Local Notice to Mariners, and to the Marine Chart Division, N/CS3x1, Silver Spring, Maryland. Copies of the reports are appended to the Descriptive Report.

Aids to Navigation

Oak Bluffs Ferry Slip Light was located on a dolphin in Latitude 41°27'30"N, Longitude 70°33'18"W. This position is approximately 70 meters from charted position. The light is presently shown on a pier, on Chart 13233 (15th Edition, Oct. 19/96), which is the correct position. No change in charting status is recommended.

Oak Bluffs Daybeacon in Latitude 41°27'11.3"N, Longitude 70°33'06.5"W was located by the present survey approximately 40 meters from charted position. The light is presently shown on Chart 13233 (15th Edition, Oct. 19/96) in it's correct position. No change in charting status is recommended.

P. ADEQUACY OF SURVEY

This is an adequate hydrographic/side scan sonar survey. No additional work is recommended.

S. MISCELLANEOUS

Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland.

APPROVAL SHEET
H-10504

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. A final sounding printouts of the survey has been made. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Robert G. Roberson Date: JANUARY 4, 1996
Robert G. Roberson
Cartographer
Atlantic Hydrographic Branch

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Nicholas E. Perugini Date: January 4, 1996.
Nicholas E. Perugini
Commander, NOAA
Chief, Atlantic Hydrographic Branch

****

Final Approval:

Approved: Andrew A. Armstrong Date: Sept 5, 1997
Andrew A. Armstrong, III
Captain, NOAA
Chief, Hydrographic Surveys Division

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10504

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
13238	7/11/97	[signature]	Full ~~Part Before~~ After Marine Center Approval Signed Via FULL APPLICATION
		NORRIS A. WIKE	Drawing No. OF SOUNDINGS FROM SMOOTH SHEET
13229	7/11/97	[signature]	Full ~~Part Before~~ After Marine Center Approval Signed Via FULL APPLICATION
		NORRIS A. WIKE	Drawing No. OF SOUNDINGS THRU 13238
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.