

# FE322

## WIRE DRAG

Diagram No. 1212-2

NOAA FORM 76-35A

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

### DESCRIPTIVE REPORT

Type of Survey Wire Drag  
Field No. R/H-20-12-83  
Registry No. FE-322WD

#### LOCALITY

State New York  
General Locality Long Island Sound  
Sublocality Offshore--Horton Point to  
Jacobs Point

1983-84

CHIEF OF PARTY  
LCDR D.D. Winter & LCDR R.K. Norris

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DATE May 11, 1989

☆U.S. GOV. PRINTING OFFICE: 1985-566-054

FE322  
WIRE DRAG

CH's  
12358  
12354



## HYDROGRAPHIC TITLE SHEET

FE-322 WD

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

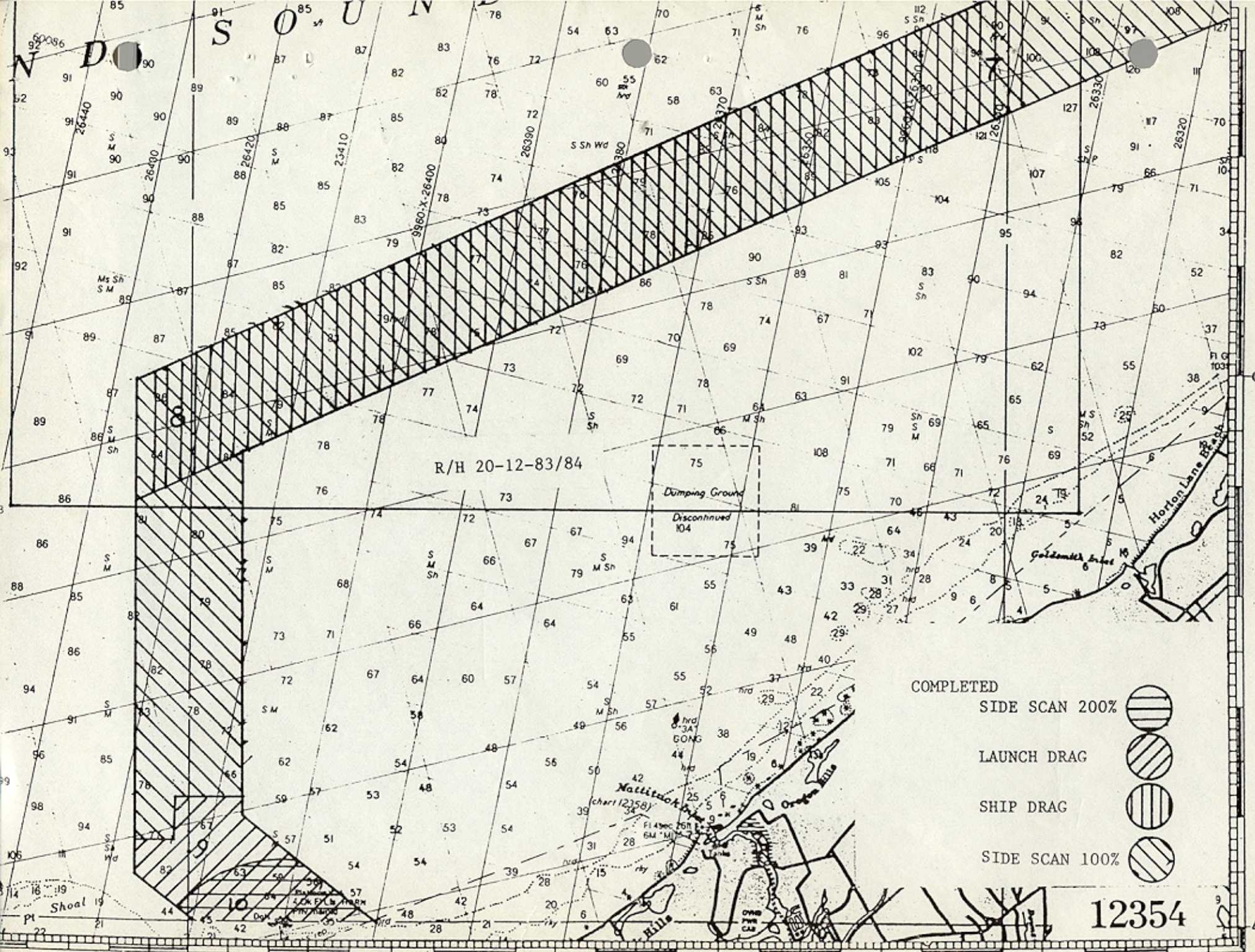
FIELD NO. R/H 20-12A-83/84  
R/H 20-12B-83State NEW YORKGeneral locality LONG ISLAND SOUNDLocality Offshore -- Horton Point to Jacobs Point  
OFFSHORE JACOB'S POINTScale 1:20,000 Date of survey 25 AUG, 1983 - 14 JUNE, 1984Instructions dated 22 JULY 1983 & 12 APRIL 1984 Project No. OPR-B660<sup>6</sup>-RU/HE- 83/84Vessel NOAA SHIPS RUDE (9040) and HECK (9140)Chief of party LCDR D.D. Winter & LCDR ROBERT K. NORRISSurveyed by LCDR D.D. WINTER, LCDR R.K. NORRIS, LT N.G. MILLETT, LT E.M. CLARK,  
ENS T.G. CALLAHANSoundings taken by echo sounder, hand lead, pole RAYTHEON DE-719BGraphic record scaled by T.G.C., G.L.A., N.G.M.Graphic record checked by D.D.W., R.K.N., E.M.C.Protracted by N/A Automated plot by N/AVerification by Limited Evaluation and Analysis Group, Hydrographic Surveys Branch, A.M.C.Soundings in Verified fathoms feet at MLW MLLW -FOR PREDICTED TIDES.

REMARKS: All time recorded in UTC. This report covers field work performed in 1983,  
under project instructions for OPR-B660-RU/HE-83, and in 1984 by project instructions  
OPR-B660-RU/HE-84. Field sheets R/H 20-12A-83/84 and R/H 20-12B-83 are the only  
sheets of this survey containing work done in 1983 and 1984.

Registry # H-10162 WD received & FE-322 WD issued  
per telephone conversation between R.D. Sanocki, (N/NOA 232)  
G.H. Mastrogianis (N/CG-243) on 17 April 1989





AW015/SURF SMM 5/22/89





R/H 20-12-83/84

Dumping Ground  
Discontinued  
104

- COMPLETED
- SIDE SCAN 200% 
  - LAUNCH DRAG 
  - SHIP DRAG 
  - SIDE SCAN 100% 

12354

40'

35'

77.20'



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\* = Data removed from the Descriptive Report and filed with the field records.



DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SURVEY  
FE-322WD N (FIELD NO. R/H 20-12-83/84)  
SCALE 1:20,000  
1983 & 1984  
NOAA SHIPS RUDE AND HECK  
LCDR. ROBERT K. NORRIS COMDG.

A. Project Authority

This project was conducted in accordance with Hydrographic Project Instructions OPR-B660-RU/HE-84, and OPR-B660-RU/HE-83, for the Southern New England Coast. The 1984 instructions are dated April 12, 1984, with one amendment to these instructions, change No. 1, dated May 21, 1984. The 1984 instructions supplement the project instructions for OPR-B660-RU/HE-83 dated 17 June, 1983, with two changes to those instructions, dated 22 July and 8 December, 1983. The purpose of this project is to verify or disprove certain reported submerged wrecks along the south coast of New England, to provide clearance depths over selected wreck sites, and to provide wire-drag clearance of the Northville Industries Corporation oil tanker route.

B. Characteristics and Limits of Survey

This report completes that area of the one mile wide tanker route from Point 7, latitude 41-07-53N, longitude 072-30-00W, to Point 8, latitude 41-04-36N, longitude 072-40-00N. The survey work involved ship drag and side scan sonar coverage of the area.

C. Survey Vessels

The NOAA Ships RUDE, Vesno 9040, and HECK, Vesno 9140 were the only two vessels assigned to this survey, and conducted the ship wire drag and the side scan sonar coverage for this survey.

D. Hydrographic Sheets

The hydrographic sheets used in this survey were made of mylar and were constructed with the Digital PDP 11/34 computer and the Houston Instruments roll-bed plotter aboard the Ship RUDE.

Field sheet R/H 20-12A-83 was plotted at a scale of 1:20,000 and contains the 1983 ship drag clearance of the area. Field sheet R/H 20-12B-83 was also plotted at a scale of 1:20,000 and covers the same area as R/H 20-12A-83 but contains all the side scan sonar coverage of the area.

The drag strips for JD's 165 and 166 of 1984 are plotted on a scale of 1:20,000. The 1984 drag strips were overlaid and hand plotted to produce the A & D (Area and Depth) sheet R/H 20-



12A-83/84. THE A & D sheet R/H 20-12A-83/84 was plotted at a scale of 1:20,000 and contains all the ship dras clearance of the area from 1984, and the adjacent dras strips from 1983 represented by dashed lines.

#### E. Equipment and Techniques

The ship dras work was performed using standard wire dras equipment and techniques. The dras were tested often from the ships' Sisu launches.

All side scan sonar coverage was accomplished with the Klein systems provided by AMC. These systems consisted of a Model 521 recorder, a 100KHz towfish, a K-Wing depressor, and a towcable. The Model 521 recorder used aboard the HECK, serial number 223, had initial and maximum gain control with numerical settings. This allowed for the annotating of the sonargram with a value for the initial and maximum gain settings at the start of the day and annotation of any change in the settings that occurred during the day. The recorder aboard the RUDE, serial number 088, did not have numerical settings on the gain control knobs. The sonargrams from this recorder were only annotated with the relative changes that were made to the gain settings during the day's operations.

The recorder 088 also did not have as many paper take-up rollers as did recorder 223. This caused the sonargram record produced by recorder 088 to contain numerous paper pull stretch marks. These stretch marks appeared as diagonal traces from the outer edge of the paper towards the center, as the paper came off the helix drum. All the sonargrams from this recorder were annotated as to this fact to avoid confusing these stretch marks with sand waves.

Del Norte rates obtained on fixes were recorded with the Eaton Model 7000+ serial printers during this survey. These printers worked fairly well considering the fact that they were not designed to be operated in a marine environment. The printers would often print out a line of meaningless characters or rates from the previous fix before the current fix was recorded. The printer records were annotated such that these meaningless characters and extraneous rates were lined out leaving the correct fix rates clearly displayed.

Only two Eaton printers were supplied to the RUDE and HECK for this survey. This did not provide the ships with any spare printers or allow for three vessels to survey with printers at the same time. Printer break-downs did occur and there were days when the launches were using the printers during dras operations while ship side scan sonar operations were also being carried out. Therefore there were a few instances when the Del Norte rates for a vessel were recorded from the DMU in the appropriate volume with no accompanying printer record.

The first two days of side scan sonar were run along the centerline axis and the center of the two quarter sections at a range scale of 400m according to the 1983 Project Instructions, Section 7.12.1.1. Upon examination of the sonargrams from this method of coverage it was determined by the Command that adequate and complete coverage of the corridor was not being achieved.



In accordance with 1983 Project Instructions Change No. 2, a method was developed and utilized to run splits along the length of the corridor at the 200m range scale. A total of four split lines were run at distances of 200m and 400m either side of the centerline axis. This method provided complete coverage of at least 100%, and adequate coverage of the corridor when combined with the data collected at the 400m scale.

A Raytheon model DE-719B echo sounder was operated and annotated concurrently during all side scan sonar operations. The echo sounder recordings were reviewed daily to ensure that no large objects located directly under the sonar towfish may have been undetected.

Although it is not anticipated that these soundings records will be used for charting purposes, the settlement and squat data for the RUDE and HECK, obtained in Norfolk Harbor on 25 January 1983, is included in this report. No velocity corrections or settlement and squat determinations were actually conducted within or during this project.

Two Raytheon model DSF 6000N echo sounders, S/N B051N onboard the Ship RUDE and S/N A116N installed on the Ship HECK, were operated and annotated during all wire drags operations in 1984. The gain control settings for the high and low frequencies were set on "MANUAL" during all operations. The echo sounders were operated at depths up to 97 feet on the 0-100 foot range scale throughout all operations. This procedure eliminated any rebounding of the high frequency from small objects and fish in the water column. It is recommended that the gain controls of this echo sounding system be manually tuned and operated at a paper speed of 30mm/min, during operations in water shallower than 100 feet, for optimum results. *Manual tuning of echo sounder gain may affect depth accuracy.*

The draft of the vessels' transducers are 7.0 feet for both ship systems described above.

#### F. Control Stations

Two electronic control stations were used for this section of the survey. Station 01 was HORTON POINT LIGHT, (1939) at latitude 41-05-07.028N and longitude 072-26-45.981W with an elevation of 31.0m. Station 02 was TANK 8, (1982) located at 40-58-47.362N and 072-38-49.172W with an elevation of 55.0m. Station HORTON POINT LIGHT was located by NGS and station TANK 8 was established by resection by ships' personnel in 1982 and is documented in H-10075WD. All stations are of Third-order, Class I control accuracy or better. The station positions are based on the North American Datum of 1927. *Note: The Horizontal Control for this survey has not been verified.*

#### G. Calibration and Position Control

*Calibrations and position correctors have not been verified.*

Vessel positionings for all work was accomplished with the Del Norte 520 series electronic positioning equipment operated at a frequency of 9400 MHz in the range-range mode. A listing of DMU and master units used by the vessels during this survey are listed by Julian day in Appendix A. Remote unit, code 72, serial number 2897 was installed at station 01 in 1983 and unit, code 74, serial number 3003 was installed at station 01 in 1984.



Remote unit 78, serial number 2986, was installed at Station 02 in 1983 and 1984.

A total of six (6) baseline calibrations were performed during this survey. All six (6) baseline calibrations were conducted in the immediate work area and entirely over water in accordance with AMC ORDER 79. Baseline calibration distances were determined by the HF 3800A electronic distance measuring instrument, serial number 0987A00157. The following is a list of the baseline calibrations, as measured by the HF 3800A:

27 July, 1983 JD 208	Belle Terre Beach to Port Jefferson W. Jetty Lt.	2601.1m
27 August, 1983 JD 239	Belle Terre Beach to Port Jefferson W. Jetty Lt.	2601.1m
30 October, 1983 JD 303	Pier 4-S, NUSC, New London, CT to S. Groton Jetty	2312.0m
15 November, 1983 JD 319	Pier 4-S, NUSC, New London, CT to S. Groton Jetty	2312.0m
09 June, 1984 JD 161	Belle Terre Beach to Port Jefferson W. Jetty Lt.	2601.1m
16 June, 1984 JD 168	Belle Terre Beach to Port Jefferson W. Jetty Lt.	2601.1m

Daily calibrations were carried out using the fixed point calibration method. The Northville East Dolphin was the fixed point used during this survey. The position of the dolphin was determined by traverse methods by ship's personnel in 1982, during ~~H-10075WB~~ <sup>FE-241WD</sup>. The ships calibrated by pulling as close alongside the dolphin as was safely possible and rates were recorded on the Eaton printers or read off the DMU display. Offsets were applied to these rates taking into consideration the position of the ship's antenna relative to the East Dolphin and the shore stations.

All daily calibrations correctors were within accuracy tolerances for a survey of this scale. Therefore only the baseline calibration data should be applied to the raw position data during final processing. See Appendix A. for baseline calibration data.

#### H. Dates of Survey

The survey period for 1983 was from 25 August to 9 November, 1983 and in 1984 the survey began on 13 June and was completed on 14 June, 1984.

#### I. Reduction and Processing of Data

Data collected during ship drag operations was manually entered in the wire drag volumes while on line. The position data was also entered in the Digital PDP 11/34 computer while on line.

*If a 3rd order position, it should have been handled  
in W. sect. 3.2.2. of the Project Instr.*



The programs used were the R/H Double Precision Wire Drag programs. The drag strips were then smooth plotted with the Houston Instruments roll-bed plotter. Effective depths from the reduced data were then drawn on the drag strips in colored pencil, each strip being done in the same color. Each day's strips were applied to the A&D sheet of the area in that day's color.

Test data was applied to the drags in a manner which differs slightly from the Wire-Drag Manual. This method has been used aboard the drag boats for the past several years and is a more conservative method. When an upright was lowered, the deeper drag depth was not claimed until the time of the first test at that depth. When an upright was raised, the drag depth from the first test after the raising of the upright was applied to the time when the upright was raised. If the amount of lift increased during a drag when uprights remained unchanged, this decreased drag depth was applied back to a time halfway between the time of the earlier test with less lift and time of the later test with the greater lift. *The strips verified were reduced using lifts computed in accordance with the Wire Drag Manual. Smooth tides were applied to the verified strips.*

Predicted tide correctors were then applied to the drag depths obtained. These predicted tide correctors were generated onboard with the ship's Digital PDP 11/34 computer and predicted tide tapes for 1983 and 1984. These tide tapes were supplied to the ships by MOA 231. Hardcopy printouts of the predicted tide correctors used during this survey are included in the data file.

The changes in effective depth that occurred during a drag were applied at the exact time of change. Fix interval for the drag work was five minutes, therefore some changes in effective depth occurred between fixes. When this occurred the time was interpolated and drawn in appropriately. *Verified strips were reduced in accordance with the Wire Drag Manual.*

All side scan sonar data was initially recorded in NOAA Form 77-44, Soundings Volumes. All header data, position numbers, time, and position control data were recorded in the appropriate columns in the volumes. The remarks column was used to record all line information, vessel rms, length of towcable, measured from the waterline to the towfish, vessel headings, and any other unusual or noteworthy remarks. The towfish layback was computed by adding the amount of towcable from the waterline to the towfish plus the stern to antenna distance.

Position data from the side scan sonar was entered in the Digital PDP 11/34 computer with a modified version of the R/H Double Precision Wire-Drag program. Rates for just one vessel were entered in this program and a single vessel position plot was generated with the Houston Instruments roll-bed plotter. All side scan sonar coverage was computed and listed on the Side Scan Sonar Coverage Abstract. The required 100% side scan sonar coverage was obtained in the corridor during the 1983 field season, with the exception of six areas listed in section J, Junctions and Splits.

The sonargrams from the side scan sonar work were examined while on line and then again at the end of the day. All notable contacts were flagged during each examination. These flagged contacts were then logged in the Side Scan Sonar Target Abstract for the field sheet. The Target Abstract was then completed and the contacts were plotted on the smooth field sheet



containing the vessel position plots. The towfish layback was computed by adding the amount of towcable out plus the stern to antenna distance (21.3m). The layback and range to target values from this abstract were the distances used to plot the contact positions. All values of towcable length on the sonagrams and in the sounding volumes refer only to the amount of cable from the waterline to the towfish. The Side Scan Sonar Target Lists were then compiled from the Target Abstracts and from the contact plots. The Del Norte rates of the contact positions were determined using a grid and arc overlay. These rates were then used to determine the latitude and longitude of the contact with the HP 9815 computer and the Geodetic Package program.

J. Junctions and Splits *No junctions were effected during the Modified & Limited*

\* = FE-322WD

Field sheet R/H 20-12A-83\*, the wire drags work for 1983, was junctioned with the ship drags from H-10075WD (1982). The wire drags work for survey R/H 20-12-84\* are junctioned with the ship drags from hydrographic survey R/H 20-12A-83\*. All these junctions contained overlap which exceeded the 400 feet required for a survey at a scale of 1:20,000.

The wire drag strips 01 and 02 of JD 165 for 1984 completed the section of the Northville corridor between longitudes 072-37-00W and 072-34-00W, which had not been completed during the 1983 field season. This area was very difficult to drag due to the sand waves and the erratic bottom currents caused by these sand waves, that were present in 1983. There were also numerous lobster pots in the area at the end of the 1983 field season which hampered wire drag operations. These factors plus the high winds associated with the New England area in the fall prevented this section of the corridor from being cleared by wire drags in 1983.

The side scan sonar coverage of field sheet R/H 20-12B-83 junctioned with R/H 20-10-83 in the vicinity of Point 8 and with R/H 20-13-83 in the vicinity of Point 7.

Side scan sonar coverage of 100% was accomplished during the survey in 1983 with the exception of the following areas:

No.	Position	Search Track Number	Split Width
1	41-05-00N 072-39-42W	1086-1081 ; 400-405	27 meters
2	41-05-42N 072-37-36W	1081-1073 ; 405-411	11 meters
3	41-07-34N 072-32-00W	1060-1057 ; 423-426	11 meters
4	41-05-04N 072-38-00W	635-638 ; 606-609	22 meters
5	41-04-30N 072-39-18W	600-605 ; 1000-1003	12 meters



In the areas listed, with less than 100% side scan sonar coverage, the split widths ranged from 11 to 27 meters. It should be understood that on splits 1, 2, 3, 5 and 6, the effective range was assumed to be 200 meters, when the actual effective range was probably greater. The same was true for split 4, since the effective range was computed, using a conservative estimating equation. In all cases, the side scan sonar survey was utilized to augment the wire drag survey. Instead of using the additional time required to cover the splits in the side scan tracks, that time was employed to complete additional wire drag operations in 1983.

The combined wire drag operations of 1983 and 1984 fully covered the area described in 1983. Instead of dedicating additional time to the splits in the side scan sonar tracks already covered by wire drag, the time was employed to complete higher priority requirements of OPR-B660-RU/HE-84.

#### K. Comparison with Prior Survey

Soundings used on the survey in 1983 were taken from the peaks of sand waves on the fathograms obtained during side scan sonar operations. These soundings were then corrected for predicted tides, settlement and squat, and applied to field sheet R/H 20-12A-83. A listing of these soundings appears in Appendix O, Soundings Applied to the Field Sheet. These soundings were then compared to prior surveys H-9088(1969) and H-9089(1969). The comparison of the soundings from the 1983 survey and H-9089 (1969), taken from the area of the largest sand waves, were all 2-5 feet shallower than those from the prior survey. Compared with H-9088, in the area of fewer and smaller sand waves, the soundings were all 1-3 feet shallower than those from the prior survey. The shallowest reduced sounding obtained in survey R/H 20-12-83<sup>FE-322UD</sup> occurred at latitude 41-05-33.0N and longitude 072-35-51.0W. This sounding was 69 feet with surrounding depths of 72 feet. A Notice to Mariners was submitted in 1983 on the sand wave shoaling to 69 feet and included in Appendix H. *See also the Addendum*

The shallower soundings obtained by this survey may be due, in part, to differences between actual and predicted tide correctors. There is also the possibility that some shoaling has occurred in the area of the sand waves since sand wave bottom topography is very dynamic in nature and changes with each storm cycle.

#### L. Comparison with the Charts

*See also the Addendum*

The charts that covered the work area were NGS charts 12354, 25th Ed., July 31, 1982 and 12358, 14th Ed., July 10, 1982. When comparing soundings found on the above charts with prior survey H9088 and H9089, two soundings were charted which did not agree with the prior survey. These two charted soundings were:



Prior Survey	Latitude	Longitude	Survey Depth	Charted Depth
H 9088	41-04-41.00N	072-38-54.52W	82 feet	79 feet
H 9089	41-06-38.66N	072-33-24.26W	78 feet	76 feet

The first of the two charted soundings, the 79 foot one, could not be identified with any special sounding on the prior survey. Surrounding soundings at that position indicate 82 foot depths. It is recommended that the prior survey be researched to find out why the 79 foot charted sounding was depicted on the chart.

The second charted sounding, 76 feet, appears to be an error in reading the prior survey. The sounding on the prior survey was nearly illegible and could have been read as a 76 rather than the correct 78 feet. ~~It is recommended that the charted sounding be corrected to agree with the prior survey depth of 78 feet.~~ *It is recommended that the source of this sounding be identified? and the appropriate action taken.*

During the course of the 1983 survey, one contact suspected to be a wreck was observed on the side scan sonar sonargram. On JD 312 of 1983 a further side scan sonar survey was conducted and the suspected wreck was located using not only the side scan sonar but also the DE-719B fathometer. The position of this obstruction, taken from the line run over the obstruction on JD 312, 1983 was latitude 41-06-45.4<sup>8</sup>N, longitude 072-32-18.5<sup>8</sup>W. The reduced depth over the obstruction, as recorded by the DE-719B and corrected for the ~~predicted~~<sup>smooth</sup> tides, was ~~41.3~~<sup>80.9</sup> feet. *This contact was later cleared to 72 feet in two directions by a wire drag survey. See section R, General Notes for charting recommendations.*

Two buoys were in the vicinity of, but not contained on, this field sheet. Six Mile Reef Lighted Whistle Buoy "8C" and Twenty-Eight Foot Shoal Lighted Bell Buoy "TE" were positioned on station and are accurately charted.

No other changes or additional landmarks and aids to navigation were noted during this survey.

#### M. Adequacy of Survey

The survey is considered complete and adequate for charting.

#### N. Incomplete Items

The gap in the corridor from 1983 described in section J, from longitudes 072-37-00W to 072-34-00W was cleared to an effective depth of 69 feet in the 1984 survey. There are no incomplete items contained in this survey.

#### O. Hanks and Groundings

The drag strips 01 and 02 of JD 165 1984 include the position, at latitude 41-05-2<sup>4</sup>N, longitude 072-35-4<sup>2</sup>W, which

was the haul from JD 291 of 1983. This position was cleared to an effective depth of ~~67~~<sup>70</sup> feet in ~~two~~<sup>one</sup> directions on JD 166 of 1984.

#### P. Currents and Winds

Tidal currents were closely monitored during the course of this survey, since ship drag operations had to be run with the predominate current flow to result in satisfactory lift data. Comparisons were made with the Tidal Current Tables, 1983 and 1984, Atlantic Coast of North America for station 2676. In general, the times and strengths of maximum flood and ebb and times of slack water at the surface agreed with the predicted times and strengths under normal conditions. However, at depth the currents generally reversed and would flow in a contrary direction approximately one hour prior to the time of surface slack water.

In general, the surface and bottom tidal currents appeared to exhibit the same general characteristics and trends as the nearshore areas. A complete description of these conditions is available in the Descriptive Report for survey (R/H 05-01-83/84, R/H 05-03-83, and R/H 10-02-83.) - FE-241WD

#### Q. Personnel

The officers participating in this survey were LCDR Donald D. Winter, LCDR Robert K. Norris, LT Neal G. Millett, LT Edward M. Clark, and ENS Thomas G. Callahan.

#### R. General Notes

A suspicious contact was observed during side scan operations for this survey in 1983. This contact was flassed and listed as contact 1 in the Side Scan Sonar Target List and Abstract sheets. The approximate position of this contact, from the initial side scan detection, was latitude 41-06-43.50N, longitude 072-32-12.92W. This position was approximate and not used for final plotting. Reconnaissance side scan sonar of this contact were obtained on JD 312 to confirm and more accurately position this contact. Contact 1 was a suspected wreck and a ~~1200~~<sup>shoalest sounding</sup> depth was obtained by DE-719B fathometer on JD 312 and corrected for draft, settlement and squat, and ~~predicted~~<sup>smooth</sup> tides to be 81.2 feet. The position charted, as located on JD 312, was latitude 41-06-45.4<sup>5</sup>N, longitude 072-32-10.7<sup>10</sup>W. It was determined that this contact required clearance by wire drag in two directions because it was located in the tanker corridor. This contact had been cleared by wire drag survey to an effective depth corrected for predicted tides of 72 feet in a west to east direction on JD 237, strip 01. This contact was then cleared by wire drag survey in an east to west direction, again to an effective depth of 72 feet, on JD 313, strip 02. This second clearing strip was also drawn on the A&D sheet. Additional information on this contact is contained in Appendix H, Notice to Mariners, and section K, Comparison with Prior Survey.

~~Recommendation: Chart a non dangerous wreck cleared to 72 feet by wire drag, corrected for predicted tides, at latitude~~



~~41-06 45.44N, Longitude 072-32-10.92W. See section 2. of the Addendum.~~

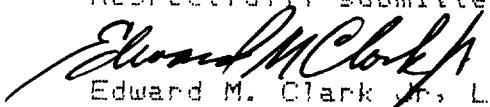
After briefing Mr. Dudley and other Northville Industries Personnel at the end of the 1983 field season, the Command was thanked for conducting the survey. During the briefing, a general comment on the extent and size of the sand waves between points 7 and 8 was made. Mr. Dudley then asked if there was any information available, besides the Tidal Current Chart for Long Island Sound, on the velocity, direction, and duration of bottom currents in that area. The Command could not answer the question and referred Mr. Dudley to the Chief, Tides and Water Levels Branch. Should the information not be available from N/OMS12, it is recommended that an "at depth" tidal current survey of the entire corridor be conducted since currents at depth greatly affect a 64 foot draft tanker.

See the Coast Pilot Report and Loran-C comparisons for OPR-B660-RU/HE-83 and the Descriptive Report for OPR-B660-RU/HE-82 for additional information on this survey.

Both Klein sonar systems were completely overhauled and serviced during the winter of 1983-1984, as recommended, but it is still advised that neither system be operated at the 400 meter range scale for this survey. In addition, at the 10 degree beam depression and the 40 degree vertical beam width, the towfish must be at least 40 meters off the bottom in order to achieve an effective scanning range of 400 meters. Therefore, even with a properly operating unit, the 400 meter range scale should not be attempted in depths less than 130 feet. There are no areas within R/H 20-12-83 ~~84~~ <sup>3,250</sup> with suitable depths for the 400 meter scale operations.

The format of this report is a composite of the Descriptive Report formats contained in the Wire Drag and Hydrographic Manuals. This format is the optimum composite of the pertinent sections of the two reports and is more applicable to the surveys currently being conducted by the RUDE and HECK.

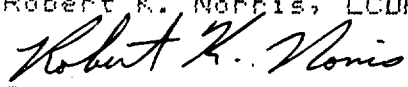
Respectfully submitted

  
Edward M. Clark Jr., LT, NOAA

S. Approval Sheet

Field operations contributing to the accomplishment of this survey were conducted under my supervision with frequent personal checks of progress and adequacy. This report and field sheets have been closely reviewed and are considered complete and adequate for charting.

Robert K. Norris, LCDR, NOAA

  
Commanding Officer  
NOAA Ships RUDE and HECK

### C. HORIZONTAL CONTROL

No new stations were established for this survey. See Appendix D., Signal List for a complete listing of all stations used on this survey.



D. SIGNAL LIST

Not Verified

PROJECT:

B660-Ru/He-83

SIGNALS/STATIONS

~~Horton Point Lt.~~

~~Station 01~~

~~ID NBR 1  
LAT 418587.828  
LON 722645.981  
ELEV'N 31.00 M~~

~~FILE 1~~

~~Tank 8~~

~~Station 02~~

~~ID NBR 2  
LAT 405847.362  
LON 723849.172  
ELEV'N 55.00 M~~

~~FILE 2~~

~~Northville Oil~~

~~Terminal, E. Dolphin~~

~~ID NBR 3  
LAT 410802.898  
LON 723844.971~~

~~FILE 3~~

~~New Haven Lthse.~~

~~Old Tower~~

~~ID NBR 4  
LAT 411455.931  
LON 725415.233  
ELEV'N 26.50 M~~

~~FILE 4~~

~~Falkner Is. Lt.~~

~~ID NBR 5  
LAT 411242.701  
LON 723914.608  
ELEV'N 23.60 M~~

~~FILE 5~~

~~New Haven West Brkw  
West End Light~~

~~ID NBR 6  
LAT 411331.939  
LON 725723.754~~

~~FILE 6~~

~~New Haven Lt.~~

~~ID NBR 7  
LAT 411315.430  
LON 725633.422~~

~~FILE 7~~

~~New Haven Middle Brkw  
East End Lt.~~

~~ID NBR 8  
LAT 411352.659  
LON 725524.882~~

~~FILE 8~~

~~New Haven Middle Brkw  
West End Lt.~~

~~ID NBR 9  
LAT 411327.229  
LON 725611.308~~

~~FILE 9~~

~~Southwest Ledge Lt.~~

~~ID NBR 10  
LAT 411403.681  
LON 725445.178~~

~~FILE 10~~

~~Saybrook Brkw Lthse.~~

~~ID NBR 11  
LAT 411547.185  
LON 722335.611  
ELEV'N 17.70 M~~

~~FILE 11~~

~~Duck Is.~~

~~North Brkw Lt.~~

~~ID NBR 12  
LAT 411536.441  
LON 722831.536~~

~~FILE 12~~

~~Duck Is.~~

~~West Brkw Lt.~~

~~ID NBR 13  
LAT 411522.266  
LON 722908.296~~

~~FILE 13~~

~~Kelsey Point Brkw  
Light~~

~~ID NBR 14  
LAT 411436.323  
LON 723030.849~~

~~FILE 14~~



F. DIVING REPORTS

NEGATIVE REPORT

H. LOCAL NOTICE TO MARINERS REPORT





**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NOAA SHIPS RUDE & HECK  
439 West York St.  
Norfolk, VA 23510

December 5, 1983

To: Commander, Third Coast Guard District  
Governors Island  
New York, NY 10004  
✓  
From: *Donald D. Winter*  
LCDR Donald D. Winter  
Commanding Officer

Subj: Notice to Mariners

Recent survey operations by the NOAA Ships RUDE and HECK in Eastern Long Island Sound have identified a shoaling area of sand waves at latitude  $41^{\circ}05'33.5N$ , Longitude  $072^{\circ}35'51.3"W$ . Least depth over this shoal area is 69.7 feet, using predicted tides.

cc: N/MOAl  
N/CG241

*See section 2. of the Addendum  
to the Descriptive Report.*





**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NOAA Ships RUDE & HECK  
439 West York St.  
Norfolk, VA 23510

January 19, 1984

To: Commander, Third Coast Guard District  
Governors Island  
New York, NY 10004

From: *Donald D. Winter*  
LCDR Donald D. Winter  
Commanding Officer

Subj: Notice to Mariners

In 1983, while conducting hydrographic survey operations in eastern Long Island Sound, one wreck was located and positioned by the NOAA Ships RUDE and HECK. The wreck is located at latitude 41-06-45.44N, longitude 72-32-10.92W, and has been cleared by a wire drag hydrographic survey to 72 feet, based on predicted tides.

It is recommended that a non-dangerous wreck symbol, cleared to 72 feet, be charted at the above position.

*See section 2. of the Addendum  
to the Descriptive Report.*



J. DANGERS TO NAVIGATIONS REPORT

SEE APPENDIX H. NOTICE TO MARINERS



L. SIDE SCAN SONAR COVERAGE ABSTRACT - TARGET ABSTRACT - TARGET LIST

Sonar Coverage Abstract

OPR-B660-Ru/Ha-83

Track No. RIH 20- B-83

Search Track Number	Range Scale (m)	Minimum Towfish Height (m)	Minimum Effective Scanning Range (m)	Search Track Number	Range Scale (m)	Minimum Towfish Height (m)	Minimum Effective Scanning Range (m)	Maximum Track Spacing (m)	Coverage Analysis
1086-1081	400m	-	200m approx	400-405	200m	15	148	375m	< 100%
1081-1073	400	-	"	405-411	200	14	139	350	< 100%
1073-1069	400	-	"	411-415	200	13	129	225	100%
1069-1060	400	-	"	415-423	200	13	129	325	100%
1060-1052	400	-	"	423-431	200	14	139	350	< 100%
400-406	200	15	148	362-370	200	15	148	275	100%
406-431	200	13	129	370-399	200	15	148	270	100%
362-399	200	15	148	329-361	400	-	200 approx.	280	100%
329-361	400	-	200 approx	628-658	200	10	99	295	100%
628-630				600-601	Covered on RIH 20-10-83				100%
630-635	200	12	119	601-606	200	15	148	206	100%
635-638	200	12	119	606-609	200	14	139	270	< 100%
638-648	200	12	119	609-618	200	13	129	225	100%
648-658	200	12	119	618-627	200	12	119	235	100%









March 26, 1984

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Atlantic

OPR: B660

HYDROGRAPHIC SHEET: R/H-20-12-83

Locality: Long Island Sound

Time Period: August 25 - November 9, 1983

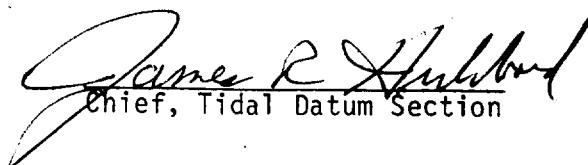
Tide Station Used: 846-7150 Bridgeport, Connecticut

Plane Of Reference (Mean Lower Low Water): 2.05 Ft.

Height Of Mean High Water Above Plane Of Reference: 6.8 Ft.

Remarks: Recommended Zoning:

1. West of longitude  $72^{\circ}35.0'$  apply x0.80 range ratio.
2. East of longitude  $72^{\circ}35.0'$  to  $72^{\circ}32.0'$  apply -10 minute time correction and x0.74 range ratio.
3. East of longitude  $72^{\circ}32.0'$  apply -20 minute time correction and x0.68 range ratio.

  
Chief, Tidal Datum Section



DATE: 10/02/84

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Atlantic

OPR: B660

Hydrographic Sheet: R/H-20-12-83/84

Locality: Long Island Sound

Time Period: June 13 - 14, 1984

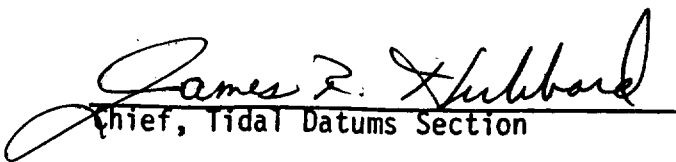
Tide Station Used: 846-7150, Bridgeport, Connecticut

Plane of Reference (Mean Lower Low Water): 2.05 ft.

Height of Mean High Water Above Plane of Reference: 6.8 ft.

Remarks: Recommended Zoning:

1. West of longitude  $72^{\circ}35.0'$  apply  $\times 0.80$  range ratio.
2. East of longitude  $72^{\circ}35.0'$  to  $72^{\circ}32.0'$  apply -10 minute time correction and  $\times 0.74$  range ratio.
3. East of longitude  $72^{\circ}32.0'$  apply -20 minute time correction and  $\times 0.68$  range ratio.

  
Chief, Tidal Datums Section

04/19/89

HYDROGRAPHIC SURVEY STATISTICS  
REGISTRY NUMBER: FE-322

NUMBER OF CONTROL STATIONS	3
NUMBER OF POSITIONS	1
NUMBER OF SOUNDINGS	1

	TIME-HOURS	DATE COMPLETED
* PREPROCESSING EXAMINATION	0	/ /
VERIFICATION OF FIELD DATA	46	03/31/89
QUALITY CONTROL CHECKS	0	
EVALUATION AND ANALYSIS	35	04/19/89
FINAL INSPECTION	3	04/14/89
TOTAL TIME	84	
MARINE CENTER APPROVAL		04/19/89

\* Preverification time is not considered as part of total survey time.

REFERENCE NO.

MOA23-55-89

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY (Check):

- ORDINARY MAIL
- AIR MAIL
- REGISTERED MAIL
- EXPRESS
- GBL (Give number) \_\_\_\_\_

TO:

Chief, Data Control Branch, N/CG243  
 Room 151, WSC-1  
 Hydrographic Surveys Branch  
 National Ocean Service  
 Rockville, MD 20852

DATE FORWARDED

27 April 1989

NUMBER OF PACKAGES

two (2)

**NOTE:** A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

FE-322WD (R/H-20-12-83)  
OPR-B660, NEW YORK, LONG ISLAND SOUND

Pkg. 1: (Box)

- Envelope containing Side Scan Sonagrams for (1983) Year Days 251, 256, 279, and 312.
- Wire Drag Volumes (4 for Year 1983 and 2 for Year 1984).
- Sounding Volumes (1983).
- Accordion Folder containing original field records (echograms, printouts, tender tester records, and strip data) for (1984) Year Days 165 and 166.

DO NOT DISCARD ANY OF THIS DATA.

Page #1 of 2.

FROM: (Signature)

*Maurice B. Hickson III*  
 Maurice B. Hickson, III

RECEIVED THE ABOVE  
(Name, Division, Date)

Return receipted copy to:

Chief, Hydrographic Surveys Branch,  
 N/MOA23  
 Atlantic Marine Center  
 439 W. York Street  
 Norfolk, VA 23510-1114

*Dwayne L. Clark*  
 May 12, 1989

MOA23-55-89

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY (Check):

- ORDINARY MAIL
- AIR MAIL
- REGISTERED MAIL
- EXPRESS
- GBL (Give number) \_\_\_\_\_

TO:

Chief, Data Control Branch, N/CG243  
 Room 151, WSC-1  
 Hydrographic Surveys Branch  
 National Ocean Service  
 Rockville, MD 20852

DATE FORWARDED

27 April 1989

NUMBER OF PACKAGES  
two (2)

**NOTE:** A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

FE-322WD (R/H-20-12-83)  
OPR-B660, NEW YORK, LONG ISLAND SOUND

Pkg. 1: (Box) - continued

Accordion Folder containing original field records (echograms, printouts, tender tester records, and strip data) for (1983) Year Days 237, 251, 256, 270, 279, 290, 291, 307, 312, and 313. Also the field Side Scan Sonar Track and Contact Plot (1983), the field Wire Drag A&D Sheets(1983 & 84), the field Wire Drag Strips (1983 & 84), the Smooth Tides (1983 & 84), the Data (position, sounding, and control) Listings for the wreck found, the P-File and TCTI Listings, and the miscellaneous data removed from the Original Descriptive Report.

Pkg. 2: (Envelope)

Original Descriptive Report containing one (1) Smooth Sheet.

DO NOT DISCARD ANY OF THIS DATA.

Page #2 of 2.

FROM: (Signature)

*Maurice B. Hickson, III*  
 Maurice B. Hickson, III

RECEIVED THE ABOVE  
 (Name, Division, Date)

Return receipted copy to:

Chief, Hydrographic Surveys Branch,  
 N/MOA23  
 Atlantic Marine Center  
 439 W. York Street  
 Norfolk, VA 23510-1114



## ADDENDUM TO ACCOMPANY SURVEY FE-322WD

### 1. INTRODUCTION

In accordance with the memorandum from CDR Russell C. Arnold, Chief, Hydrographic Surveys Branch, N/CG24, dated December 27, 1988, a modified approach to marine center processing of this survey was undertaken. Processing was limited to the following:

a. The verification of the shoalest sounding obtained by echo sounder and the position determined on the sunken wreck found by side scan sonar on this survey.

b. The examination of the sonar records to ensure that within the area covered by this survey, no significant contacts exist other than the wreck found by this survey.

c. Charting recommendations based upon findings from the limited survey processing and a comparison with the latest largest scale chart of the area.

d. Only the wire drag strips that contain the hang and the clearance over the hang and the clearances over the wreck found by side scan sonar were processed and are addressed in this addendum. No other wire drag data has been processed.

### 2. CHARTING RECOMMENDATIONS FOR CHART 12354, 28th ED., OCT. 4, 1986

The area covered by this survey has only two remarkable features; the large sand waves that cover approximately three-fourths of the area surveyed and the one wreck found by side scan sonar.

The sand waves common to this area are not depicted on the chart. There are indications that the depths on the crests of the sand waves may be shoaler than the charted depths within the common area. A 69-foot shoal is presently charted (in Latitude 41°05'33"N, Longitude 72°35'51"W) which apparently originates from advance information from the present survey (see section K. of the Descriptive Report). This sounding was not verified since insufficient sounding correctors were determined for echo soundings. The hydrography obtained by this survey was obtained coincidental to side scan sonar and wire drag operations and is considered only as reconnaissance hydrography.

A hang on a sand wave occurred in Latitude 41°05'24"N, Longitude 72°35'42"W at 72 feet. This hang was subsequently cleared by 70 feet. This hang is not recommended to be charted. The charted 69-foot shoal is recommended to be deleted from the chart and the pictorial sand waves symbol

be added to the chart in the vicinity of the present survey hang. The areas of sand waves covered by the present survey are portrayed on the smooth sheet by limit lines and pictorial sand wave symbols and notes. AW015  
# 3342

A wreck was found by side scan sonar in Latitude 41°06'45.45"N, Longitude 72°32'11.01"W. This wreck was not diver investigated and is unidentified. An echo sounder development was run over this wreck which yielded a good position and a shoalest sounding of 81 feet (corrected for draft, settlement and squat, and tides but not for velocity or instrument error). This wreck was cleared by wire drag in opposing directions by 71 feet. This wreck is not considered to be a hazard to surface navigation. This wreck is presently charted as a nondangerous wreck cleared to 72 feet from advance information from the present survey. It is recommended that the charting of this wreck be changed to the 71-foot clearance depth with a wire drag symbol below the depth and the label "Wk". The charted position is recommended to be revised to agree with the position determined by this survey. AW015  
# 3341

### 3. RECOMMENDATIONS FOR ADDITIONAL WORK

The areas defined by the present survey as sand wave areas are not well represented on the present chart. It is recommended that a basic survey be conducted to provide source hydrography for charting of this area. It is also recommended that the areas surrounding this survey be investigated to determine the extent of these sand wave areas. No additional field work is recommended on the wreck found by this survey.

Verification and  
Recommendations by,

Checked by,

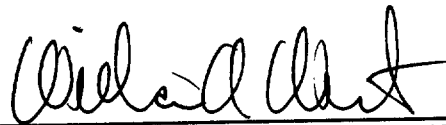
Maurice B. Hickson III  
Maurice B. Hickson, III  
Cartographer  
Evaluation & Analysis Group

R. D. Sanocki  
R. D. Sanocki  
Chief, Hydrographic  
Survey Processing Section

INSPECTION REPORT  
FE-322WD

The completed wire drag survey has been examined with regards to presentation of survey results. The survey complies with National Ocean Service requirements except as noted in the Addendum to the Descriptive Report. This survey is not to be considered a basic hydrographic survey and is not approved as such. Only the data that has been verified, smooth plotted, and addressed in the Addendum to the Descriptive Report is approved for charting.

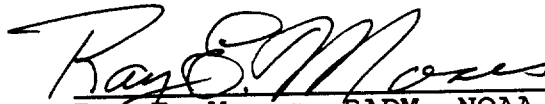
Inspected



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William A. Wert, LCDR, NOAA  
Chief, Hydrographic Surveys Branch

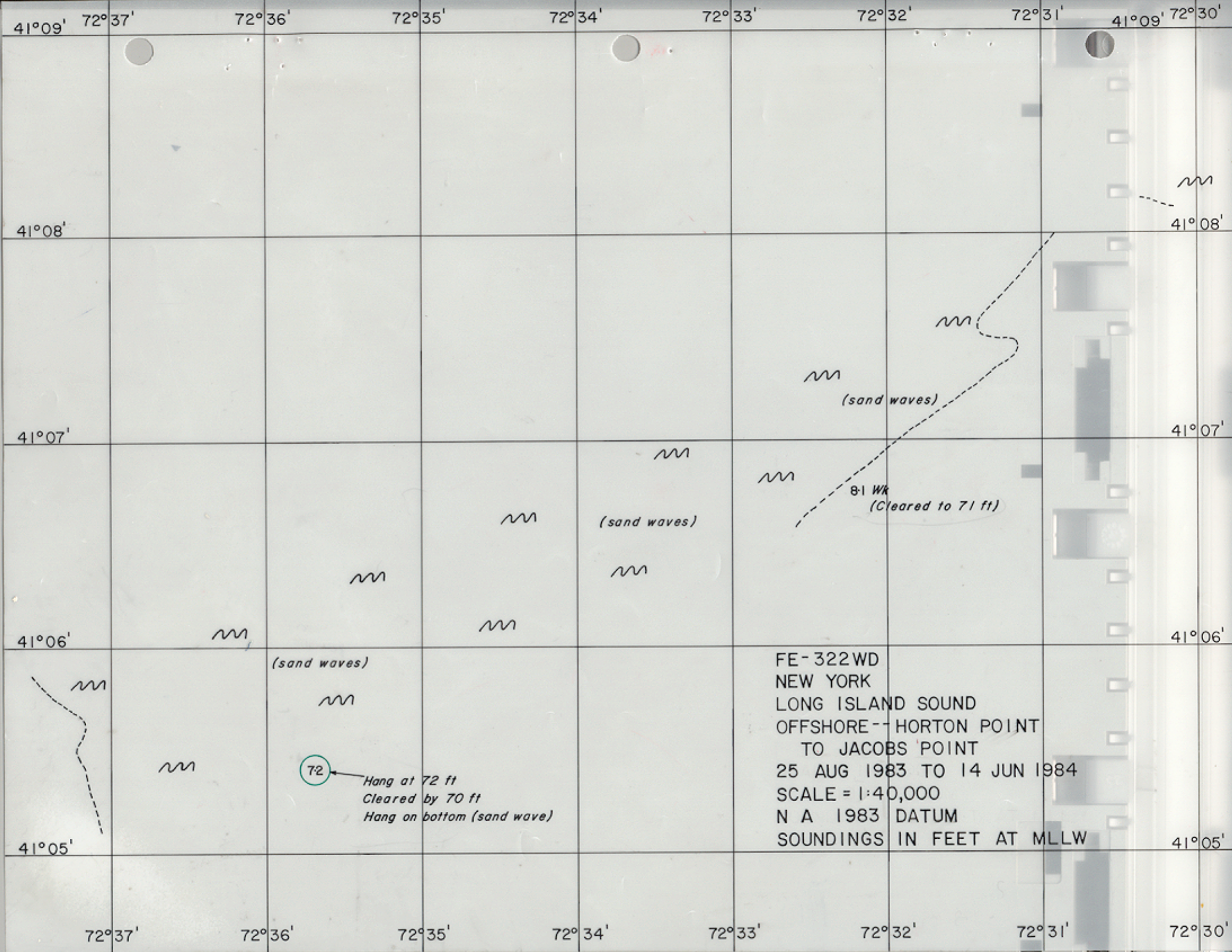
Approved April 19, 1989



---

Ray E. Moses, RADM, NOAA  
Director, Atlantic Marine Center





41°09' 72°37'

72°36'

72°35'

72°34'

72°33'

72°32'

72°31'

41°09' 72°30'

41°08'

41°08'

41°07'

41°07'

41°06'

41°06'

41°05'

41°05'

72°37'

72°36'

72°35'

72°34'

72°33'

72°32'

72°31'

72°30'

FE-322WD  
 NEW YORK  
 LONG ISLAND SOUND  
 OFFSHORE--HORTON POINT  
 TO JACOBS POINT  
 25 AUG 1983 TO 14 JUN 1984  
 SCALE = 1:40,000  
 N A 1983 DATUM  
 SOUNDINGS IN FEET AT MLLW

(sand waves)

(sand waves)

(sand waves)

8-1 WK  
 (Cleared to 71 ft)

72  
 Hang at 72 ft  
 Cleared by 70 ft  
 Hang on bottom (sand wave)



DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Ocean Survey  
Rockville, Maryland

Hydrographic Index No. 63 L

INDEX  
HYDROGRAPHIC SURVEYS  
Complete through August 1978  
1967-1975

LONG ISLAND SOUND AND VICINITY

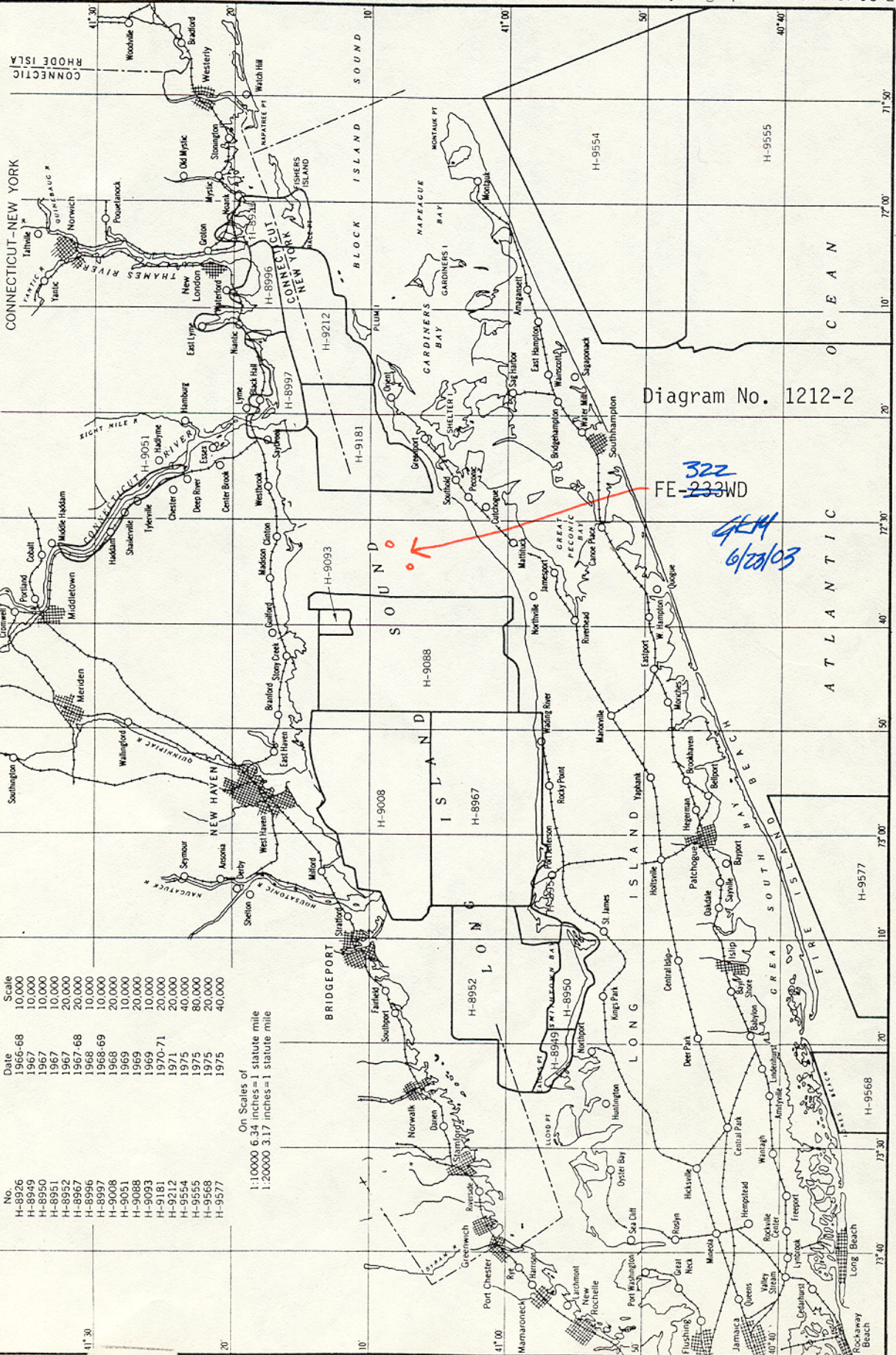


Diagram No. 1212-2

322  
FE-233WD

*6/28/03*



