FE321

SIDE SCAN

Diagram 1213-4

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Side Scan Sonar

Field No. HE-10-6-88

Registery No. FE-321SS

LOCALITY

State New York

General Locality Long Island Sound

Sublocality Three Miles East of Georges Rock and Entrance to Huntington Bay

1988

CHIEF OF PARTY

LCDR C.B. Lawrence

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

FE321
SIDE SCAN

"GP"
CHT
12365
12369
12363 ©
12364 G
East 12

CHART06
SIGN OFF ON
FORM III BACK

NOAA FORM 77-28 (1-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

3
FE-221-SS

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.

HE-10-6-88

State New York and Connecticut

General locality Long Island Sound

Locality ~~Entrance to Huntington Bay and Three Miles East of Georges Rock~~ Three Miles East of Georges Rock and Entrance to Huntington Bay

Scale 1:10000 Date of survey October 19 - November 18, 1988

Instructions dated May 26, 1988 Project No. OPR-B660-RU/HE-88

Vessel NOAA Ship HECK S-591, EDPN 9140

Chief of party Christopher B. Lawrence, LCDR, NOAA, Commanding Officer HECK

Surveyed by Grady H. Tuell, LT; Andrew L. Beaver, LTJG; Walter R. Morris, ST

Soundings taken by echo sounder, hand lead, pole DSF6000 Echosounder, DUAL BEAM

Graphic record scaled by Automated HDAPS System

Graphic record checked by LT Tuell, LTJG Beaver, ST Morris

Protracted by _____ Automated plot by HDAPS
XYNETICS 1201 Plotter (AMC)

Verification by Atlantic Hydrographic Section Personnel

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

REMARKS: This survey addresses AWOIS items 1779, 1780, 2641, 6809, 6810, 6811, 6812, 6813, 6815, 6917, and the lobster dragger "HG SMITH".

Notes in the Descriptive Report were made in red during office processing

AWOIS/SURF MSM 4/27/90

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978-665-010-1174

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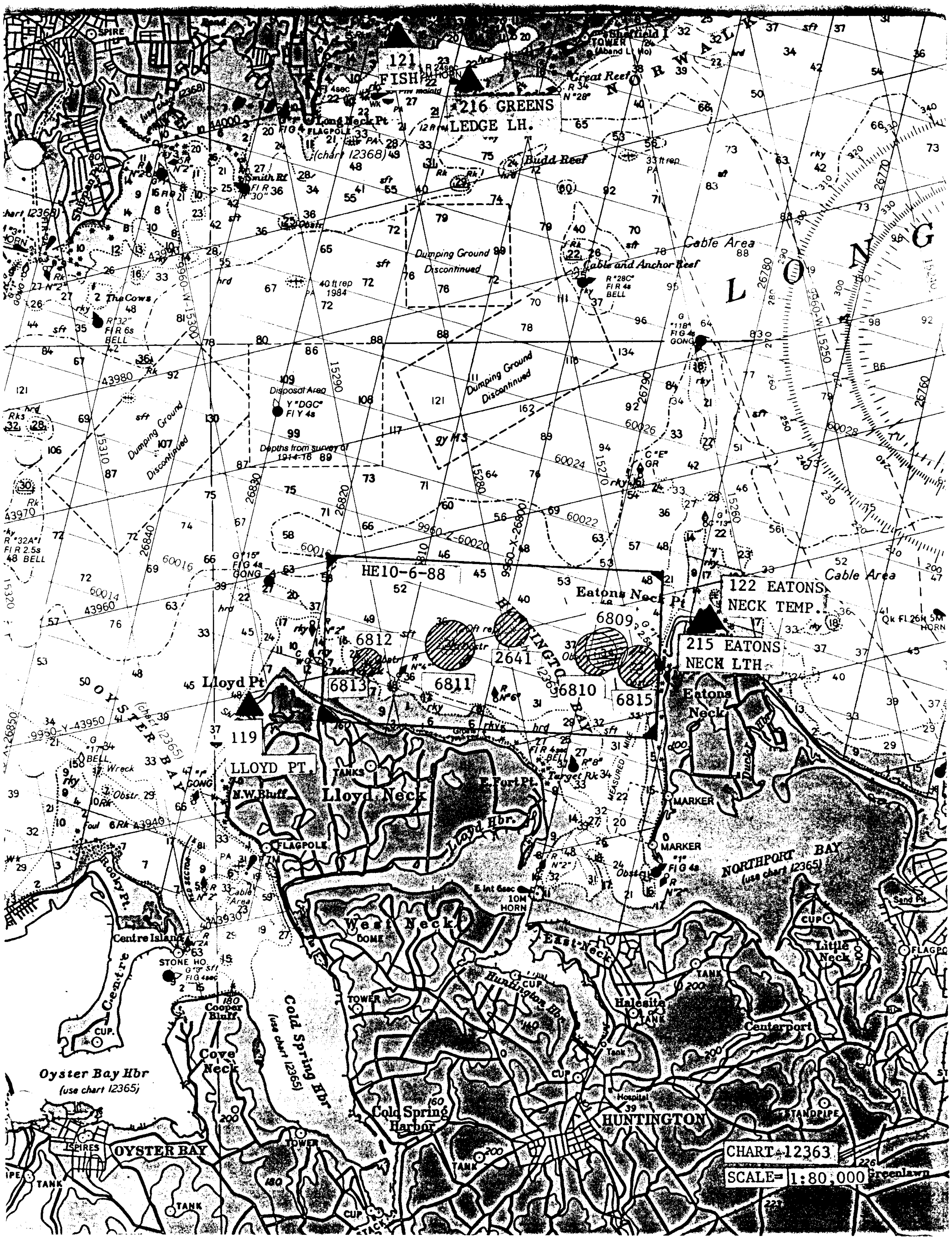
* Removed from the original Descriptive Report and filed with survey records.



121
FISH
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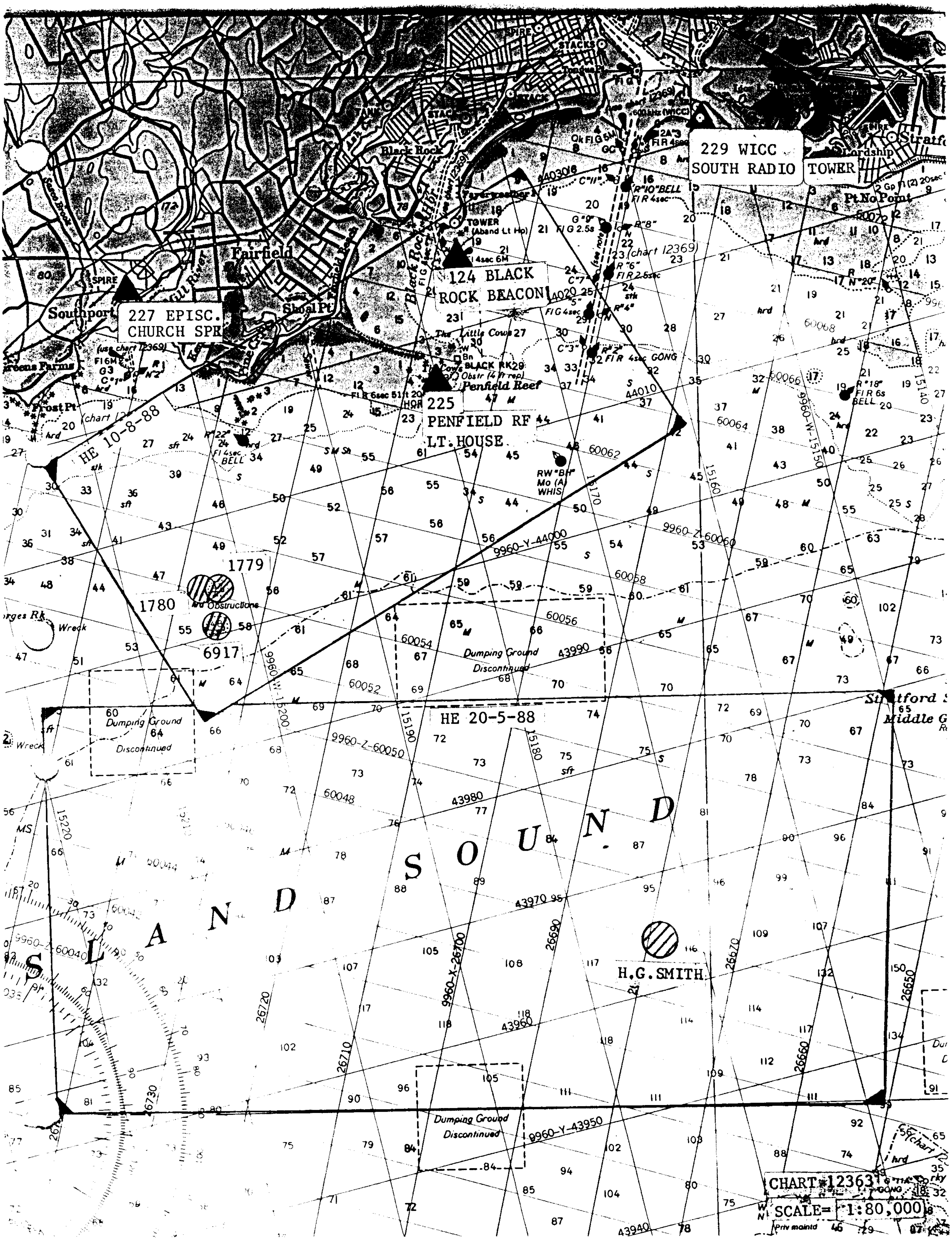
SCALE= 1:80,000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Pt No Point
Dumping Ground Discontinued
9960-Y-44000
9960-Z-60060
9960-Z-60050
9960-X-26700
9960-Y-43950
S O U N D

DESCRIPTIVE REPORT TO ACCOMPANY
SURVEY FE-221-SS
FIELD NUMBER HE-10-6-88
NEW YORK
LONG ISLAND SOUND
ENTRANCE TO HUNTINGTON BAY AND THREE MILES
EAST OF GEORGES ROCK
Scale 1:10000
NOAA SHIP HECK S-591
LCDR Christopher B. Lawrence, CMDG

A. PROJECT DESCRIPTION

A1. Project Authorization

This survey was conducted in accordance with Hydrographic Project Instructions OPR-B660-RU/HE, Southern New England Coast, Connecticut and New York, dated May 26, 1988; CHANGE NO. 1 dated July 6, 1988; CHANGE NO. 2 dated September 26, 1988; CHANGE NO. 3 dated November 22, 1988; and CHANGE NO. 4 dated December 8, 1988.

A2. Project Purpose

The project purpose was to respond to requests from the Northeast Marine Pilots Inc., of Newport, Rhode Island, to verify or disprove and determine least depths for certain wrecks and obstructions in western Long Island Sound. The data from this project will supplement a basic hydrographic survey (OPR-B285) which is scheduled for this area in 1990-1992. The U.S. Navy, as well as state and local governments, have requested updated bathymetric and hydrographic survey data for western Long Island Sound and vicinity to aid in proposed biological, chemical, environmental, and coastal zone management studies in this region.

B. PROJECT OVERVIEW

B1. General

Project Instructions for OPR-B660-RU/HE-88 assigned to the NOAA Ships RUDE and HECK a total of 63 AWOIS items. This report includes all work performed on the following ten AWOIS items: 1779, 1780, 2641, 6809, 6810, 6811, 6812, 6813, 6815, and 6917, and the F/V "H.G. SMITH".
Horizontal control recovery and installation of navigation units for these AWOIS items began on October 18, 1988.

Side scan sonar survey operations began on October 19, 1988, and concluded on November 18, 1988.

B2. METHODOLOGY

The general survey technique used for this project was to acquire 200% side scan sonar (SSS) imagery of a specified search area by running two sets of search lines oriented orthogonally to each other. For some items, 400% SSS coverage was achieved in a similar manner.

The survey requirements for each item were specified by the Hydrographic Surveys Branch (N/CG24) in a computer generated AWOIS listing. This listing was periodically updated throughout the field season. Each update was received aboard the ship as a change to the Project Instructions.

All SSS imagery was carefully analyzed both on-line and off-line in order to identify contacts requiring futher investigation. Each contact was evaluated for significance based on a number of factors: water depth, height of target as computed from its acoustic shadow, size and shape of contact, nature of the bottom, and proximity to other contacts. Additional reconnaissance SSS imagery was conducted on several contacts to assist in this evaluation process.

A team of scuba divers investigated each significant contact. A precise depth was measured over the highest point of the contact using a pneumofathometer. The divers affixed a marker buoy on the high point of the contact. The ship was then manuevered alongside this buoy and a multiple line of position fix was taken using the Motorola MiniRanger navigation system.

Survey data acquisition and processing were accomplished utilizing the HDAPS system and the latest version of the NAVITRONIC NAVISOFT 300 software provided to the ship by N/CG24. The specific survey instrumentation used is discussed in Sections F through H of this text.

C. AREA SURVEYED

This report covers all survey operations performed to resolve AWOIS items located in Long Island Sound near the mouth of Huntington Bay on Long Island, and near Georges Rock, on the Connecticut shore.

D. SURVEY VESSELS

All hydrographic and side scan sonar data were collected by the NOAA Ship HECK (EDPN 9140).

A 17 foot Boston Whaler skiff was used for installation and maintenence of MiniRanger shore stations and for general utility work.

A 23 foot SISU launch was used as a dive support boat. The pneumofathometer was mounted in this launch and all diver least depths were measured from the SISU.

E. SURVEY SHEETS (FIELD)

All survey sheets submitted in this report were generated using the Preplot Plotter Sheet utility of the Presurvey menu of the NAVISOFT 300 software on the HDAPS system. A Brunning 824 CS Plotter (S/N 15237) was used as the plotting device. All sheets are Modified Transverse Mercator projections and are plotted on the North American Datum of 1983 (NAD 83).

Four survey sheets are submitted in this survey. Each sheet is briefly described below. See APPENDIX V, PROJECT / PLOTTER SHEET PARAMETERS,* for the technical specifications on each sheet.

E1. HE-10-6-88

This 1:10000 scale sheet is oriented East/West and covers the entrance to Huntington Bay on Long Island. Six AWOIS items were surveyed on this sheet.

Nine copies of HE-10-6-88 are submitted:

1 mylar 1st 100% smooth SSS swathplot

1 mylar 2nd 100% smooth SSS swathplot

1 mylar 3rd 100% smooth SSS swathplot

1 mylar 4th 100% smooth SSS swathplot

1 mylar 1st 200% SSS smooth trackplot

1 mylar 2nd 200% SSS smooth trackplot

2 paper field SSS swathplots

1 paper contact plot

* Removed from the original Descriptive Report and filed with survey records.

E2. HE-10-8-88

This sheet is a 1:10000 plot oriented NORTHEAST/SOUTHWEST and is approximately centered on Penfield Reef, Connecticut. Three AWOIS items were surveyed on this sheet.

Eight copies of this sheet are submitted:

1 mylar 1st 100% smooth SSS swathplot

1 mylar 2nd 100% smooth SSS swathplot

1 mylar 200% smooth SSS trackplot

2 paper field SSS swathplots

1 paper field hydrographic sounding plot

1 mylar smooth hydrographic sounding plot

1 paper contact plot

E3. HE-20-5-88

This sheet is a 1:20000 plot oriented EAST/WEST and covers the central portion of Long Island Sound which lies immediately west of Stratford Shoal. The plot was generated to support the search for the missing lobster dragger, "HG SMITH".

Four copies of this sheet are submitted:

1 mylar SSS smooth swathplot

1 mylar SSS smooth trackplot

1 paper contact plot

1 paper SSS field swathplot

E4. HE-5-1-88

This sheet is a 1:5000 scale plot centered on AWOIS Items 6812 and 6813. The sheet was generated during data processing in order to examine hydrographic soundings acquired while conducting SSS operations. The data were originally surveyed on sheet HE-10-6-88. One copy is submitted:

1 mylar smooth depth plot.

F SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

F1. Raytheon DSF 6000N Echosounder

All hydrographic soundings for this survey were acquired using a Raytheon DSF echosounder (S/N A107). The system was calibrated daily with an Electronic Depth Simulator Instrument (EDSI) provided by AMC's EEB. The daily tests are included as part of each day's raw data records. Reference APPENDIX I.A, DAILY ABSTRACT OF DSF AND EG&G TESTS,* for dates on which the DSF check was performed.

The DSF 6000 worked well throughout the project. Both low and high frequency depths were digitized, but only the high frequency depths were used for survey operations. The gain function was set manually. The digitizing gate was set at 10 percent of depth.

F2. EG&G Model 260 Side Scan Sonar

Side scan sonar (SSS) operations were conducted utilizing an EGG Model 260 slant corrected Side Scan Sonar recorder (S/N 0011443) and a model 272 dual frequency towfish (S/N 0011591).

The towfish is led through a fairlead block over the stern and towed astern at speeds of 2 to 5 knots. Fish height over bottom is controlled by a combination of cable out and ship speed. During normal operations, the 100 meter range and 100 Khz frequency settings were used. The paper speed on the recorder was set manually. The operator made frequent checks of vessel speed and adjusted the paper speed as necessary. This procedure eliminated "speed jumps" and insured that targets were depicted in their correct size and shape.

Side scan operations were conducted in accordance with the Provisional Side Scan Sonar Manual dated April 25, 1986. Periodic confidence checks were performed by either towing the fish by a previously located contact, or by noting recognizable bottom characteristics at the edges of the sonar range scale in use. The SSS system worked very well for the duration of the survey.

F3. Pneumofathometers

All diver determined least depths were measured with a pneumofathometer. The HECK is equipped with two precision depth gauges, a 0-70 FSW depth gauge, and a 0-140 FSW gauge. The shallow gauge was most recently calibrated on July 9, 1988. The deep gauge was calibrated against the NOAA Ship RUDE's gauge on March 7, 1988. Copies of these calibrations are included in APPENDIX I.B, PNEUMOFATHOMETER CALIBRATIONS AND SYSTEMS CHECKS.*

* Removed from the original Descriptive Report and filed with survey records.

The HECK's pneumofathometer system is built and operated according to specifications set forth in HYDROGRAPHIC GUIDELINE NO. 55.

On October 12, 1988 (DOY 286), the shallow gauge was overpressurized beyond adjustment to the gauge scale. At this time, the gauge was deliberately set to read exactly 10 feet deeper than the actual reading. However, the error did not prove to be constant with depth. Therefore, after that date, all readings were taken from the deep gauge. As a check on the measured depths, divers compared their depth gauge readings against the pneumo gauge depths. The tenders also noted the shallow gauge measurements. The shallow gauge measurements were usually found to be about 0.5 foot shoaler than the deep gauge.

Several leadline comparisons were performed as systems checks on the pnumofathometer depths. The results of these checks are included in APPENDIX I.B.*

The system check values were not applied to the diver determined depths. Weather conditions were not calm enough to yield a corrector that HECK personnel thought was more accurate than the calibration of the gauge itself. This policy is a conservative approach in that application of these correctors would make diver determined least depths deeper than the depths submitted.

G CORRECTIONS TO SOUNDINGS

G1. Velocity Correctors

Velocity correction data for the Raytheon DSF 6000N echosounder were obtained by MARTEK (S/N 177) cast. A velocity cast was conducted on October 19, 1988 (DOY 293), at the following position:

LAT: 40° 59' 18"
LONG: 73° 28' 42"

The MARTEK data were reduced and velocity corrections calculated using program VELOCITY. The computed velocity correctors were then applied online to echosounder depths by entering the correction data into the HDAPS sound velocity table.

Reference APPENDIX I.C, VELOCITY CORRECTION DATA* for listings of the cast data and output from the VELOCITY software. HDAPS velocity table listings are shown in APPENDIX I.D.*

* Removed from the original Descriptive Report and filed with survey records

MARTEK units are calibrated by AMC personnel. A copy of the pre-deployment and post-deployment calibrations are included in APPENDIX I.E.

G2. Tide Corrections

The tidal datum for this project is mean lower low water. The operating tide stations at Willets Point, New York (851-6990), and Bridgeport, Connecticut (846-7150) will serve as control for datum determination. The Willets Point and Bridgeport stations were also used as the reference stations for predicted tides. No tide stations were established by the HECK in support of this survey.

All hydrographic and diver determined depths have been corrected for predicted tides. The tidal values were taken from "Tide Tables 1988 High and Low Water Predictions, East Coast of North and South America". Correctors for time and height were taken from the nearest listed geographic position on Long Island Sound.

Tidal correctors were applied online by entering the appropriate values into the HDAPS predicted tide tables. Three predicted tide tables were used. These tables are included in APPENDIX I.G, HDAPS PREDICTED TIDES TABLES.*

A Request for Approved Tides was mailed to Chief, Sea and Water Levels Branch, on January 13, 1989. A copy of this letter is enclosed in Appendix I.H.

G3. Settlement and Squat Correctors

Settlement and squat correctors for the HECK were determined on March 22, 1988 (DOY 82), at Little Creek Naval Amphibious Base in Norfolk, Virginia. An observer was put ashore with a level instrument, and changes in relative height were measured as the ship passed by the observer while running at various speeds. (Reference APPENDIX I.H, SETTLEMENT AND SQUAT DATA)*

Settlement and squat values were applied online to hydrographic soundings by entering the observed values into the HDAPS offset table. A copy of this table is included in APPENDIX I.I, HDAPS OFFSET TABLE.*

G4. Heave, Roll, Pitch Sensor and Correctors

Heave is measured by a Datawell B.V. (S/N 19110-C) heave, roll, and pitch sensor (HIPPY) located midships near the transducer. The sensor gathers online data which is applied to the soundings in near real time.

* Removed from the original Descriptive Report and filed with survey records.

All data acquired in the echosounder mode has been corrected by applying HIPPY correctors. Hydrography collected in the side scan mode was manually corrected only if the hydrography was smooth plotted.

G5. Vessel Draft Corrector

During a recent (February 1988) drydock period, an exact measurement of 19.0 feet was taken from the DSF transducers to a fixed point on each bridge wing of the ship. After refloating the ship, the height above the waterline was determined for this point. The ships static draft was calculated to be exactly 6.9 feet (2.10 meters).

This draft was applied online to hydrographic soundings by entering the value of 2.1 meters as the high frequency transducer height in the HDAPS offset table. See APPENDIX I.J, HDAPS OFFSET TABLE.*

H. HORIZONTAL CONTROL - See also sections 2.a. and 2.b. of the Evaluation Report.

H1. Survey Navigation

Vessel survey navigation was accomplished by the range-range method, utilizing the Motorola MiniRanger Falcon 484 system. RPU S/N H0375 and RT S/N G6346 were used as the shipboard components for the duration of operations covered by this report.

This RPU/RT combination was originally issued as the backup installation for the NOAA Ship RUDE. It was installed aboard the HECK on August 3, 1988 (DOY 216), when problems developed with both RPU/RT combinations which had been issued to the HECK .

The MiniRanger system is interfaced to the HDAPS system in such a way that only the ranges and signal strengths are recorded; the position computation capability of the Falcon system is not utilized. Vessel position is computed by a least squares predictor/corrector algorithm within the NAVITRONIC NAVISOFT 300 software.

The hydrographer must specify each of three interactive parameters which "tune" the positioning algorithm. The following parameters were entered into the Offset Table (See APPENDIX I.I, HDAPS OFFSET TABLE)*:

1) acceleration limit ..... 0.2 meters second $^{-2}$

2) angle limit ..... 0.3 degrees second $^{-1}$

3) crabbing limit ..... 0.4 degrees

* Removed from the original Descriptive Report and filed with survey records.

The algorithm simultaneously uses up to four electronic lines of position (LOP's). Additionally, the ship's gyro heading and speed are used to predict a position. Whenever more than two acceptable LOP's are measured, the position computation is mathematically overdetermined. In order to utilize all available information, a least squares adjusted position is computed.

Three measures of the quality of this adjusted position are: the magnitude of the residuals on each range; the size and orientation of the error ellipse; and the radius of the 95% error circle. HDAPS provides the hydrographer with a continuous graphic display of these data as well as a rough graphic of survey geometry.

The HECK routinely conducted surveying operations using four MiniRanger LOP's, although occassionally one or more ranges were automatically rejected from the solution due to poor signal strength. At no time during this project did the maximum residual consistently exceed 0.5 mm at the survey scale (5 meters). The 95% confidence error circle radius very rarely exceeded 1.5 mm at the survey scale (15 meters).

A pre-project baseline calibration of the MiniRanger system was conducted at Fentress Airforce Base in conjunction with the NOAA Ship Rude on July 6, 1988 (DOY 188). During this calibration, the range correctors were determined for each combination of transponder and shipboard R/T and RPU. A minimum acceptable signal strength (MASS) of 15 was found to be required for each transponder. Reference APPENDIX II.D, MINIRANGER BASELINE CALIBRATION DATA,* for the data records on the calibration.

The range corrector and MASS for each MiniRanger code was entered into the HDAPS system using the Pre-Survey C-O Table Utility. This table provides the mechanism by which HDAPS automatically applies the proper range corrector and removes from the position computation those LOP's with signal strengths below MASS. A new C-O Table was generated each time changes were made to the navigation configuration. Reference APPENDIX II.E, HDAPS C-O TABLES,* for the C-O tables used during this survey.

Acceptable MiniRanger navigation system performance was verified by comparing individual range-range fixes to simultaneous sextant three-point-fixes. These critical systems checks were conducted monthly or whenever the survey configuration was altered. Non-critical navigation system checks were performed daily to insure that the instrumentation was functioning within specifications. All systems check data are included in the raw data printouts for the day on which they were obtained. The results of the various systems checks are tabulated in APPENDIX II.G, ELECTRONIC CORRECTOR ABSTRACT.*

*Removed from the original Descriptive Report and filed with survey records.

MiniRanger shore station installations were placed either over, or directly on, geodetic stations. Control station positions were entered into the HDAPS Control Station Tables using the Pre-Survey menu. (See APPENDIX II.A, LIST OF HORIZONTAL CONTROL STATIONS). The appropriate MiniRanger codes were attatched to the station number on this table. Each time the survey navigation configuration was altered, the control station table was modified so that it reflected the correct MiniRanger code placement. APPENDIX II.F, ABSTRACT OF POSITIONS,* correlates control stations, MiniRanger codes, position numbers and dates of use.

H2. GEODETIC CONTROL

The horizontal datum for this project is the North American Datum of 1983 (NAD 83). The coordinates for all existing stations were taken from the NGS publication: Geodetic Control Data, NAD 83 coordinates for New York and Connecticut.

Recovery notes for these stations are included in Appendix II.B.* All stations utilized were recovered by HECK personnel with the exception of stations FISH and EATONS NECK LIGHTHOUSE, which were recovered by personnel from the NOAA Ship RUDE (Reference Descriptive Report, Appendix X, for survey FE-320-SS).

Two new stations were established: EATONS NECK TEMP and COCKENOES ISLAND 2 RM 3. EATONS NECK TEMP was positioned by personnel from the NOAA Ship RUDE (Reference Descriptive Report, Appendix X, for survey FE-320-SS). COCKENOES ISLAND 2 RM 3 was positioned by HECK personnel. Computations and supporting abstracts are submitted in Appendix II.C* of this text.

I. AUTOMATED DATA PROCESSING

Hydrographic and side scan sonar data acquisition and processing was accomplished using the HDAPS hardware and the most recent version of the Navitronic NAVISOFT 300 software provided to the ship. This software is still under development and some problems do exist:

1) The positioning algorithm occassionally generates a "flyer" which causes the plotter sheet to scroll in an unpredictable manner. HECK personnel tried unsuccessfully to edit these "flyers" in the nightly processing. Therefore, the plotter continued to scroll even in the offline data processing mode.

* Removed from the original Descriptive Report and filed with survey data.

2) Coordinates for control stations are altered by the software after they have been entered. This problem is most likely caused by rounding errors in the GP > MTM > GP conversion process. The potential errors are quite small (decimeter). However, the reader must be aware that the error is introduced by the software and that the coordinates were originally entered correctly.

3) Another problem with the NAVITRONIC software is that once a new raw data tape has been created, any data subsequently logged onto a previous tape is tagged with the latest data tape number. This "glitch" is significant in that the HECK sometimes works on two or more survey sheets in a single day; each survey is logged onto its own raw data tape.

MARTEK velocity cast data was processed on the ship's IBM-PC XT using program VELOCITY.

Geodetic computations were performed on the ship's IBM-PC XT using the MTEN ENHANCEMENTS routines which were obtained from the National Geodetic Survey.

J. COMPARISON WITH CHARTS AND PRIOR SURVEYS - See also sections 6. and 7. of the Evaluation Report.

Hydrographic soundings from this survey were compared with the largest scale chart for the area covered by each survey sheet.

J1. Comparison With Chart 12363

Hydrographic soundings from sheet HE-20-5-88 were compared to the 32 edition, dated October 18, 1986. Sounding comparison was accomplished by generating a 1:80000 overlay which contained soundings for only the fixes from two of the four survey lines. All charted depths agreed within two feet of the survey depths. The overlay sheet is submitted as part of the survey records.

J2. Comparison With Chart 12365

Hydrographic soundings from HE-10-8-88 were compared to the 20th edition, dated March 2, 1985. Sounding comparison was accomplished by generating a 1:20000 overlay which contained soundings for only the fixes from the first 100% SSS coverage. All charted depths agree within one foot with the survey depths. The overlay sheet is submitted as part of the survey records.

J3. Comparison With Chart 12369

Hydrographic soundings from HE-10-6-88 were compared to the 19th edition, dated March 10, 1984. Sounding comparison was accomplished by generating a 1:20000 overlay containing soundings for only the fixes from the first 100% SSS coverage. All charted depths agree within two feet with the survey depths. The overlay sheet is submitted as part of the survey records.

J4. Comparison With Survey H-1732

The 1:20000 scale plot of soundings from sheet HE-10-6-88 was also compared with the 1:20000 survey H-1732. This prior survey was conducted by the steamer GEDNEY in 1886. All survey depths compared agreed within two feet.

K. AWOIS ITEM INVESTIGATION REPORTS

Ten AWOIS items were investigated on the sheets covered by this report. Each item is discussed individually in the remaining text. Multiple contacts were sometimes investigated within the search radius of an item. If more than one contact was investigated, each is discussed separately as a subsection of the appropriate AWOIS item.

SSS imagery covering each contact is abstracted on the TARGET ABSTRACT (See APPENDIX IV)*. Reconnaissance SSS imagery using the 50 meter range scale was often acquired of a target before diving. These reconnaissance lines were not smooth plotted. However, the TARGET ABSTRACT correlates the reconnaissance images to the targets by fix numbers.

* Removed from the original Descriptive Report and filed with survey records.

The following table summarizes the results of the investigations.

AWOIS ITEM	STATUS
1779	~~DISPROVED~~ See section 6.b. of the Evaluation Report
1780	RESOLVED ✓
2641	RESOLVED ✓
6809	DISPROVED ✓
6810	DISPROVED ✓
6811	RESOLVED ✓ See also section 6.b. of the Evaluation Report.
6812	RESOLVED ✓
6813	RESOLVED ✓
6815	DISPROVED ✓
6917	RESOLVED ✓
"HG SMITH"	RESOLVED ✓

K 1. INVESTIGATION REPORT FOR AWOIS ITEM 1779

AWOIS HISTORY : H5219/32WD--37 FT LD on wreckage, cleared to 35 feet. Three contacts found by RUDE and HECK in this area on unverified survey 10/26/82 (FE241):

1)	LAT	41°	05' 05"	LONG	073°	16' 12"	WD clear to 47 feet
2)		41°	05' 03"		073°	16' 08"	WD clear to 47 feet
3)		41°	04' 43"		073°	16' 13"	WD clear to 48 feet

SURVEY REQUIREMENTS : Conduct 200% SSS search, 100 meter radius. If conditions permit, perform diver investigation to determine nature of obstruction and least depth.

METHOD OF INVESTIGATION : The specified search radius was investigated by Side Scan Sonar; the 100 meter range scale and the 100 khz frequency settings were used for the first 100% coverage. The second 100% coverage was run at an orthogonal angle to the first using the 50 meter range scale and 100 khz frequency settings.

RESULTS OF INVESTIGATION : A total of seven SSS lines were run over the specified search area. No significant targets were visible on either the sonar imagery or the fathometer records.

No diver investigation was conducted.

The SSS coverage for this AWOIS item is shown on field sheets HE-10-6-88.

RECOMMENDATIONS : This AWOIS item is not charted on NOS Chart 12363, 32 Edition, Oct. 18, 1986, or on NOS Chart 12369, 20th Edition, Mar. 2, 1985.

Because no significant SSS contacts were found in the search area, the HECK recommends that the AWOIS item be removed from the system.

AWOIS item 1779 is considered DISPROVED. - Do not concur - See sections 4. and 6.b. of the Evaluation Report and the discussion of AWOIS Item #6917 in this report. See also sheet 1 of 7.

K 2. INVESTIGATION REPORT FOR AWOIS ITEM 1780

AWOIS HISTORY : H5219/32WD-- Hang at 40 feet, cleared to 35 feet. 40 foot LL LD on wreckage. Unverified survey FE241 completed by the RUDE and HECK on 10/26/82 indicated a contact at LAT 41° 05' 03" LONG 073° 16' 08" which was cleared by wire drag to an effective depth of 47 feet.

SURVEY REQUIREMENTS : Conduct 200% SSS search, 200 meter radius. If conditions permit, perform diver investigation to determine nature of obstruction and least depth.

METHOD OF INVESTIGATION : The specified search radius was investigated by Side Scan Sonar using both the 100 meter and 50 meter range scales, and the 100 khz frequency setting.

This AWOIS item was difficult to complete due to the large number of lobster pots within the specified search radius. Several of these pots were hooked by the SSS fish, requiring that the survey line be broken and then restarted after cheking the SSS fish for damage. These pots also required that the ship be manuevered left and right of the desired trackline, which necessitated many additional lines to cover the resulting "holidays".

RESULTS OF INVESTIGATION : A single contact was found within the search radius; it lies very close to the reported position of the AWOIS item. The contact appears to be wreckage, however, several sonar images of this wreckage, as well as fathometer records, indicate that the contact lies within a current scour and does not rise above the surrounding bottom. The contact is labled as targets 16 and 19 in the SSS Target Abstract.

Although specified in the AWOIS listing, a diver investigation was not conducted because the contact was decided to be insignif-icant.

The SSS coverage for this AWOIS item is shown on field sheets HE-10-6-88.

RECOMMENDATIONS : AWOIS item 1780 is charted on NOS Chart 12363, 32 Edition, Oct. 18, 1986, and on NOS Chart 12369, 20th Edition, Mar. 2, 1985, as an obstruction cleared by wire drag to a depth of 47 feet.

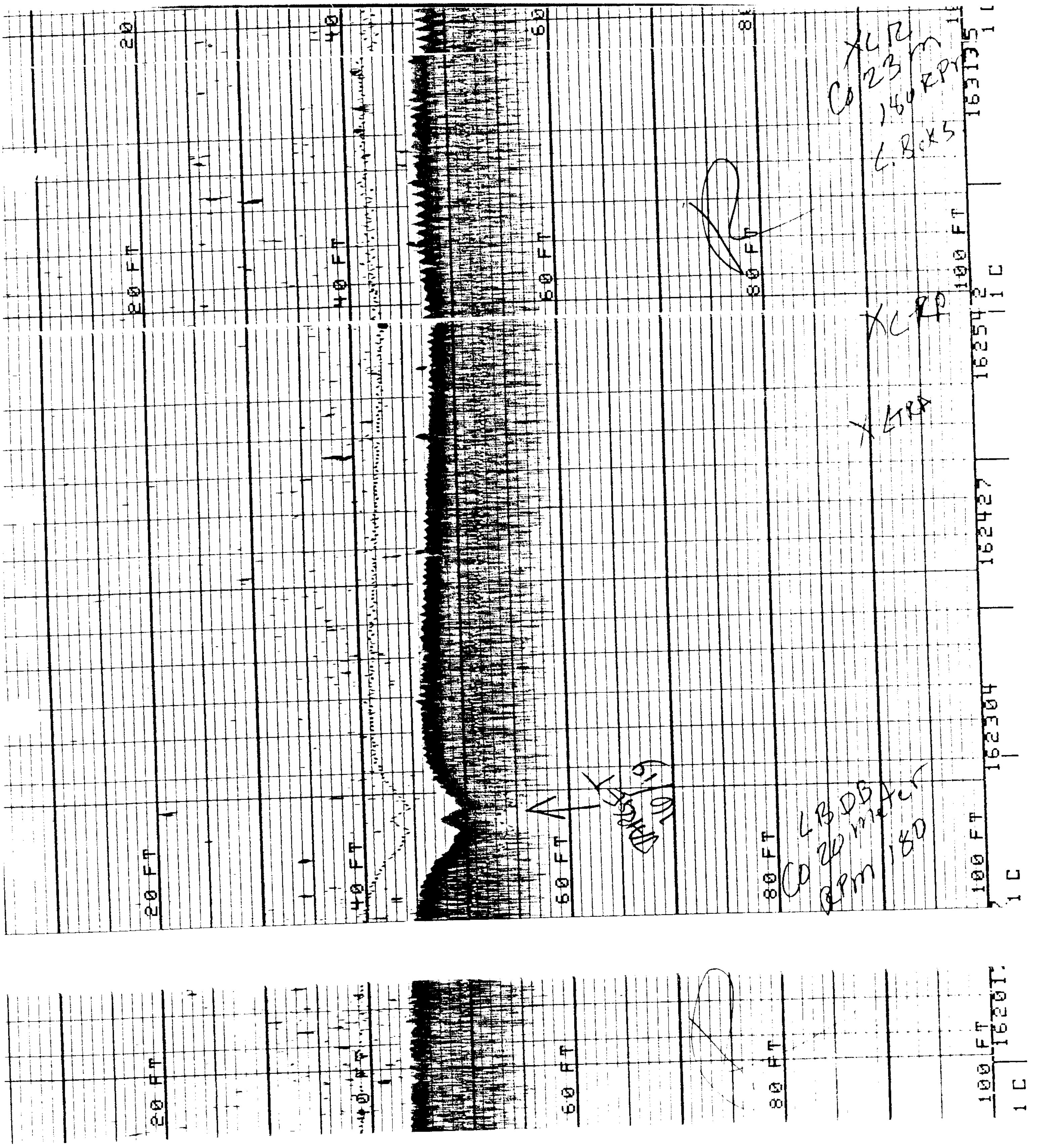
This survey verifies the presence of wreckage at this position. The wreck seems to have sunk into the muddy bottom and continues to sink further due to the pronounced current scour. Computation of height of target on the sonar images gives a maximum height of two feet above the bottom of the scour. Fathometer records show that the depth of the scour is about five feet. There is no evidence of protrusions above the general trend of the surrounding

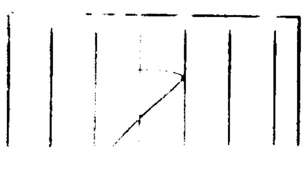
bottom. However, because a diver investigation was not conducted, the 47 foot charted depth could not be disproved with 100% certainty.

The HECK recommends that the charted symbol be changed to show wreckage, not dangerous to surface navigation, cleared to a wire drag depth of 47 feet. - Do not concur. Shown as 51 Obstr (A)(wreckage) on the smooth plot.

AWOIS item 1780 is considered RESOLVED. - See section 6.b. of the Evaluation Report. See also sheet 1 of 7.

AWOIS ITEM 1780
CONTACT NUMBER 19





K 3. INVESTIGATION REPORT FOR AWOIS ITEM 2641

AWOIS HISTORY : CL723/63--CGS/COE; Tug Gwendoline Steers sank 12/30/62 at entrance to Huntington Bay and abandoned by Steers Sand and Gravel Corp. LAT 40° 57' 14.80" ; LONG 073° 26' 05.00".

SURVEY REQUIREMENTS : Full, verify or disprove through 200% side scan sonar coverage, 500 meter radius. Least depth and position required if found.

METHOD OF INVESTIGATION : The specified search radius was investigated by Side Scan Sonar; the 100 meter range scale and the 100 khz frequency settings were used.

RESULTS OF INVESTIGATION : The wreck was located on the first SSS line run through the specified search radius. The contact is labled as contact 3 in the SSS Target Abstract. Additional sonar imagery was acquired using the 50 meter range and 500 khz frequency settings. These contacts are labled as targets 4 and 5 in the SSS Target Abstract. The wreck was found very close to the reported position.

The SSS coverage for this AWOIS item is shown on field sheets HE-10-6-88.

K 3.1 CONTACT INVESTIGATION REPORT TARGET NUMBER 3

DETERMINATION OF DIVE SITE : The HECK was maneuvered into the vicinity of SSS contact number 3. When evidence of the wreck showed on the fathometer, a dive buoy was deployed.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and found that the weight had missed the wreck. A tagline was attached to the buoy weight and a 30 meter circle search was performed in order to locate the wreck. The divers eventually swam into the port quarter of the wreck. The stack was easily located, and the dive bouy was moved to this point. A 20 meter circle search was conducted to locate the highest point. The flying bridge was found to be higher than the stack, therefore, the bouy was moved to the flying bridge and a 15 meter circle search was conducted to find the high point. The highest point on the wreck was found to be what appeared to have been a mounting bracket for a search light.

LEAST DEPTH DATA : The pneumofathometer airline was lowered down the buoy line to the divers. The orifice of the airline was held over the highest point. ST Morris and CB Mickle manned the pneumofathometer in the ship's SISU launch.

The dive was completed on **October 24, 1988 (DOY 298)**. Three readings were taken on the 0 -140 foot pneumofathometer (S/N 8704986):

1) TIME (UTC) :	1950	RAW LEAST DEPTH READING (FT) :		23.2
2)	1950			23.2
3)	1950			23.2
		AVG LEAST DEPTH READING (FT) :		23.2

MEASURED DEPTH : 23.2 FEET
TIDAL CORRECTOR : ~~-1.0~~
Pneumatic Depth Gauge Corr. 0.0
LEAST DEPTH : ~~23.2~~ FEET
22.2

GENERAL STATEMENT OF POSITION QUALITY : The HECK was maneuvered into close proximity to the dive buoy. When evidence of the wreck was visible on the fathometer, FIX **384** was taken. The position was determined using the HDAPS system and three MiniRanger LOP's. The maximum residual on the computed position was 1.0 meter and the error circle radius was 5.4 meters.

The HDAPS utility package was used to convert the MTM survey coordinates to geographic position.

POSITION OF CONTACT: LAT: 40° 57' 15.311" N
LONG: 073° 26' 02.780" W

LORAN CHAIN : 9960 RATES: W - 15278.5 ; X - 26798.6
Y - 43951.4 ; Z - 60018.7

ITEM DESCRIPTION : Divers found the wreck of a 80 foot steel tug boat resting upright on a muddy bottom in about 41 feet of water. The wreck is intact and rises about 18 feet above the bottom.

The tug appears to have been an ocean-going tug. There is a davit or some similar structure on the port quarter. There is a raised superstructure which supports a high smoke stack, and immediately forward, a raised pilot house. The pilot house could be easily entered, however, the HECK's divers did not do so. There is a walkway with guard rails which permitted the vessels crew to walk from one side of the ship to the other by passing in front of the pilot house. The highest point of the wreck was found to be one of numerous protrusions atop the pilot house.

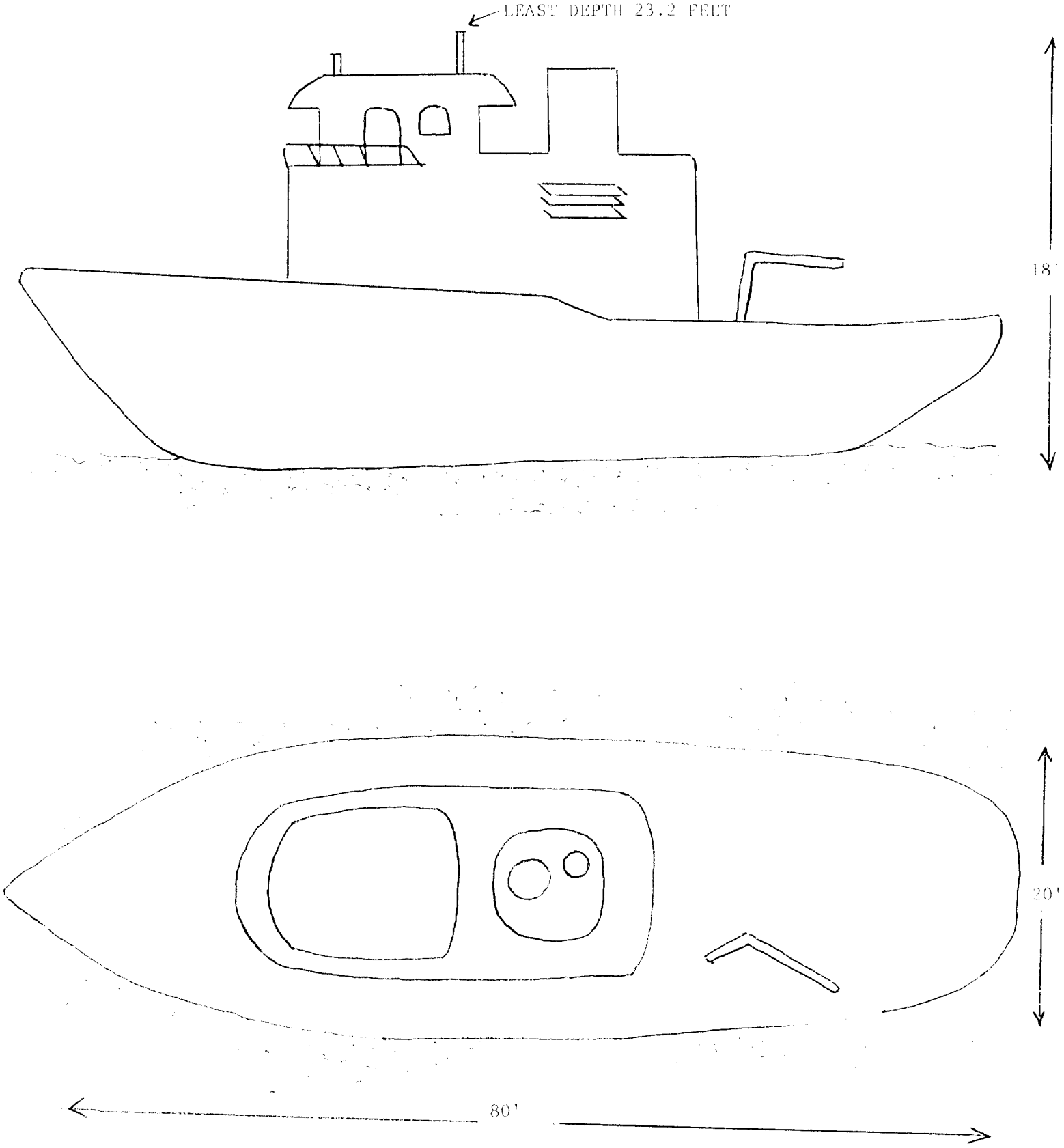
RECOMMENDATIONS : This wreck is presently charted on NOS Chart 12363, 32nd Edition, Oct. 18, 1986, and on NOS Chart 12355. 19th Edition, Mar. 10, 1984, as a dangerous submerged wreck, position approximate, with a reported depth of 20 feet.

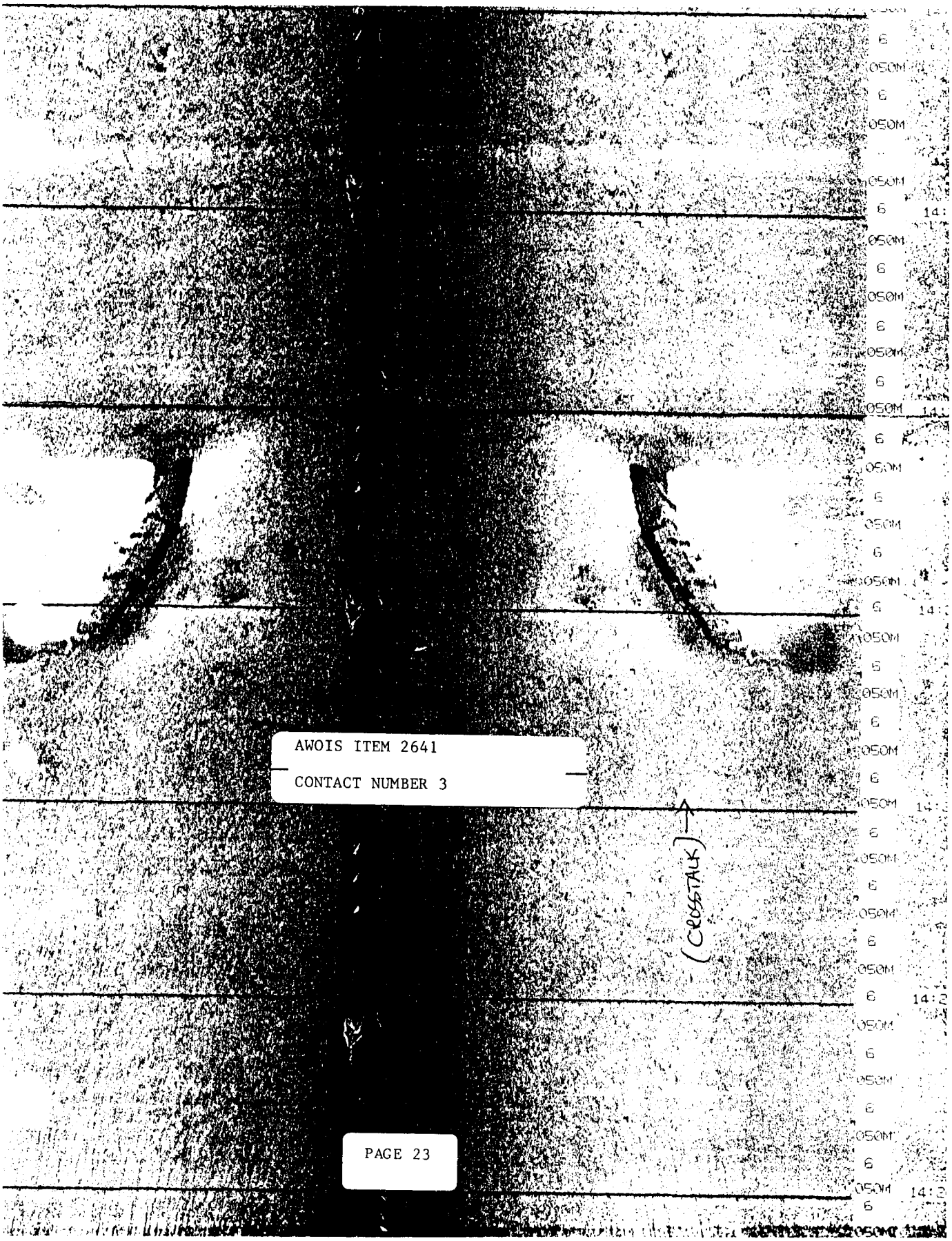
The LORAN rates acquired over the wreck match exactly with those given to the HECK by Mr. Richard Taracka, a diver with the Greenwich, Ct., Marine Police. Mr. Taracka stated that the wreck was a popular dive site and was known locally as the "Gwendoline Steers".

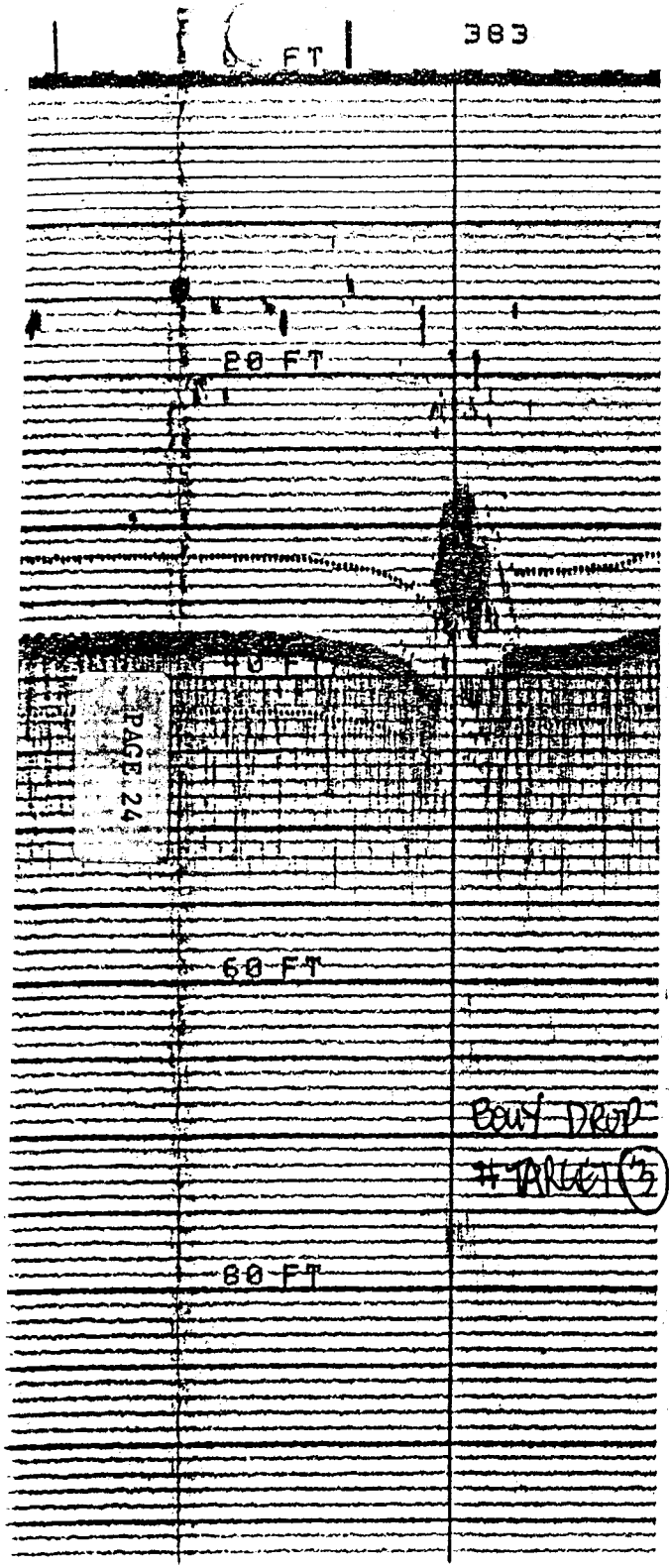
The HECK recommends that the wreck be charted at the position determined by this survey as a ~~submerged~~ sunken wreck, dangerous to navigation, with a known depth of ~~23~~ 22 feet. Concur. See sheet 2 of 7.

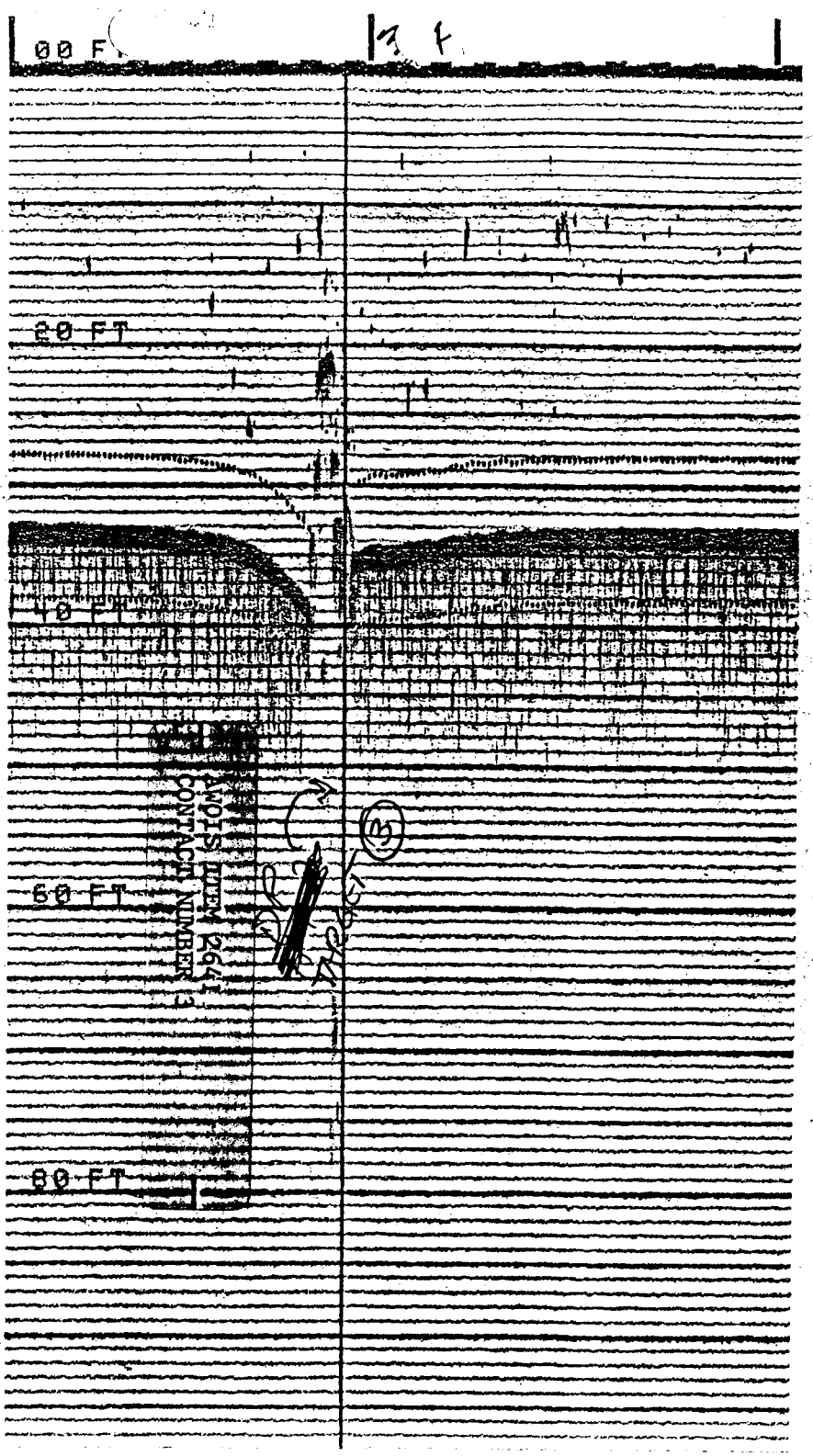
AWOIS item 2641 is considered RESOLVED.

CONTACT NUMBER 3




AWOIS ITEM 2641
CONTACT NUMBER 3
(CROSSTALK)


383
0 FT
20 FT
40 FT
60 FT
80 FT
PAGE 24
Bowl Drop
#TARGET 2


00 F
20 FT
40 FT
60 FT
80 FT
TWO'S RUEN 2641
CONTACT NUMBER 3

E ing.....: 119579.7
Northing.....: 22708.1

Latitude.....: 040:57:15.311
Longtitude.....: 073:26:02.780

User 1 Caps Running

HELP Dump Alpha Dump Graphics

L	Time	Tide	Corr.	Units	FEET
298	19:00	-1.4			
298	19:06	-1.2			
298	19:12	-1.0			
298	19:18	-.8			
298	19:24	-.6			
298	19:30	-.4			
298	19:36	-.2			
298	19:42	-.1			
298	19:48	.1			
298	19:54	.2			
298	20:00	.4			
298	20:06	.5			
298	20:12	.6			
298	20:18	.8			
298	20:24	.9			
298	20:30	1.0			
298	20:36	1.0			
298	20:42	1.1			
298	20:48	1.2			
298	20:54	1.2			
298	21:00	1.3			
298	21:06	1.3			
298	21:12	1.3			
298	21:18	1.3			
298	21:24	1.3			
298	21:30	1.3			
298	21:36	1.2			
298	21:42	1.2			
298	21:48	1.1			
298	21:54	1.1			
298	22:00	1.0			
298	22:06				

K 4. INVESTIGATION REPORT FOR AWOIS ITEM 6809

AWOIS HISTORY : H5142/31WD--34 Ft wire drag grounding, cleared by 34 feet. LAT 40° 56' 59.5" ; LONG 073° 24' 48.0" .

SURVEY REQUIREMENTS : Full, verify or disprove through 400% SSS coverage. Position and least depth required if found.

METHOD OF INVESTIGATION : The specified search radius was investigated by Side Scan Sonar using the 50 meter range scale and the 100 khz frequency settings. Four hundred percent coverage was achieved by running four sets of survey lines at two orthogonal courses. Sets run at the same heading were offset by 40 meters to insure coverage at a different aspect.

RESULTS OF INVESTIGATION : No significant SSS contacts were found within the search radius. The fathometer records indicate that the bottom is relatively flat and free of obstructions.

The SSS coverage for this AWOIS item is shown on field sheets HE-10-6-88.

RECOMMENDATIONS : This AWOIS item is charted on NOS Chart 12363, 32nd Edition, Oct. 18, 1986, and on NOS Chart 12365, 19th Edition, Mar. 10, 1984, as an obstruction, cleared by wire drag to a depth of 34 feet. Surrounding charted bottom depths range from 36 to 40 feet.

This survey provided extensive good quality SSS imagery of the area. No evidence of any protrusions above the general trend of the bottom was found. The HECK recommends that the obstruction symbol be removed from the charts. Concur.

AWOIS item 6809 is considered DISPROVED. Concur. See sheet 3 of 7.

K 5. INVESTIGATION REPORT FOR AWOIS ITEM 6810

AWOIS HISTORY : H5142/31WD--34 Ft wire drag grounding, cleared by 34 feet. LAT 40° 56' 57.4" ; LONG 073° 24' 56.7" .

SURVEY REQUIREMENTS : Full, verify or disprove through 400% SSS coverage. Position and least depth required if found.

METHOD OF INVESTIGATION : The specified search radius was investigated by Side Scan Sonar using the 50 meter range scale and the 100 khz frequency settings. Four hundred percent coverage was achieved by running four sets of survey lines at two orthogonal courses. Sets run at the same heading were offset by 40 meters to insure coverage at a different aspect.

RESULTS OF INVESTIGATION : No significant SSS contacts were found within the search radius. The fathometer records indicate that the bottom is relatively flat and free of obstructions.

The SSS coverage for this AWOIS item is shown on field sheets HE-10-6-88.

RECOMMENDATIONS : This AWOIS item is charted on NOS Chart 12363, 32nd Edition, Oct. 18, 1986, and on NOS Chart 12365, 19th Edition, Mar. 10, 1984, as an obstruction, cleared by wire drag to a depth of 34 feet. Surrounding charted depths range from 36 to 40 feet.

This survey provided extensive, good quality SSS imagery of the area. No evidence of protrusions above the general trend of the bottom was found. The HECK recommends that the obstruction symbol be removed from the charts. Concur.

AWOIS item 6810 is considered DISPROVED. Concur.

K 6. INVESTIGATION REPORT FOR AWOIS ITEM 6811

AWOIS HISTORY : H5142/31WD -- Wire drag grounding cleared by 34 feet. LAT 40° 57' 04.8" ; LONG 073° 26' 58.0".

SURVEY REQUIREMENTS : Full, verify or disprove through 400% side scan sonar coverage, 200 meter radius. Least depth and position required if found.

METHOD OF INVESTIGATION : The specified search radius was investigated by Side Scan Sonar; the 50 meter range scale and the 100 khz frequency settings were used.

RESULTS OF INVESTIGATION : The required 400% SSS coverage was acquired over the specified search radius by running four sets of survey lines at two orthogonal angles. Sets of imagery run at the same courses were offset by 40 meters to provide a second aspect.

A single significant contact was found in the search area. This contact was visible on several SSS images. The contact is listed as targets 1, 2, 7, and 8 in the SSS Target Abstract.

SSS imagery of this AWOIS item is shown on field sheet HE-10-6-88.

K 6.1 CONTACT INVESTIGATION REPORT TARGET NUMBER 1

DETERMINATION OF DIVE SITE : The HECK was maneuvered into the vicinity of SSS contact number 1. When evidence of the wreck showed on the fathometer, a dive buoy was deployed.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line in very poor visibility. A 30 meter circle search was conducted to find the contact. The divers found the wreckage and moved the dive bouy to the wreck. A 10 meter circle search was performed around the wreckage to find the highest point.

Due to the very poor visibility, divers swam the length of the wreckage several times to find the highest point.

LEAST DEPTH DATA : The pneumofathometer airline was lowered down the buoy line to the divers. The orifice of the airline was held over the highest point. ST Morris and CB Mickle manned the pneumofathometer in the ship's SISU launch.

The dive was completed on **October 24, 1988 (DOY 298)**. Three readings were taken on the 0-70 foot pneumofathometer (S/N 8607004 N) and 0 -140 foot pneumofathometer (S/N 8704986):

1) TIME (UTC)	: 2102	RAW LEAST DEPTH READING (FT)	:	34.0
2)	2102			34.0
3)	2102			34.0
		AVG LEAST DEPTH READING (FT)	:	34.0

MEASURED DEPTH : 34.0 FEET
TIDAL CORRECTOR : + ~~1.3~~ 0.2
Pneumatic Depth Gauge Corr: 0.0
LEAST DEPTH : ~~35.3~~ FEET
34.2

GENERAL STATEMENT OF POSITION QUALITY : The HECK was maneuvered into close proximity to the dive buoy. When evidence of the wreck was visible on the fathometer, FIX **386** was taken. The position was determined using the HDAPS system and four MiniRanger LOP's. The maximum residual on the computed position was 2.6 meters and the error circle radius was 4.7 meters.

The HDAPS utility package was used to convert the MTM survey coordinates to geographic position.

POSITION OF CONTACT: LAT: 40° 57' 01.337" N
LONG: 073° 27' 05.195" W

LORAN CHAIN : 9960 RATES: W - 15285.4 ; X - 26806.8
Y - 43951.1 ; Z - 60017.0

ITEM DESCRIPTION : Divers found cylindrical metal wreckage which rises about 5 feet above the surrounding bottom. The wreckage was entangled with fishing nets on one end. Due to the poor visibility and presence of the nets, divers could not positively identify the nature of the wreckage. The highest point was found to be on the top of the cylinder near what had been a hatch or door in the wreckage.

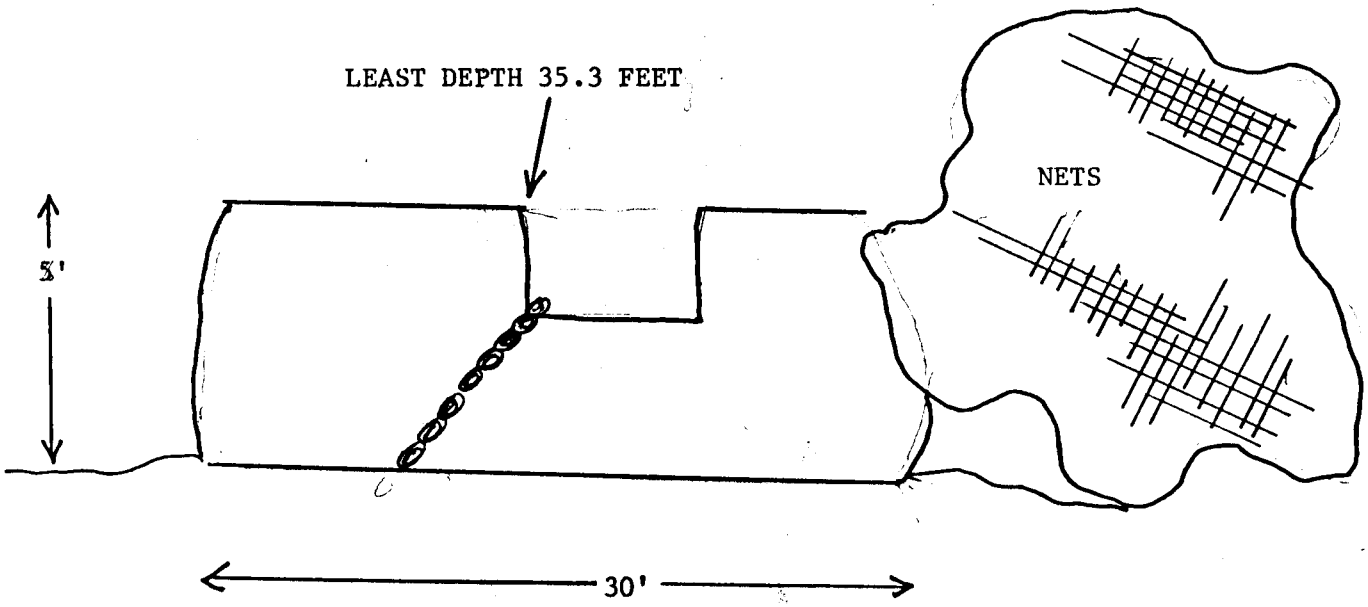
RECOMMENDATIONS : This wreck is presently charted on NOS Chart 12363, 32nd Edition, Oct. 18, 1986, and on NOS Chart 12365, 19th Edition, Mar. 10, 1984, as an obstruction, cleared by wire drag to a depth of 34 feet.

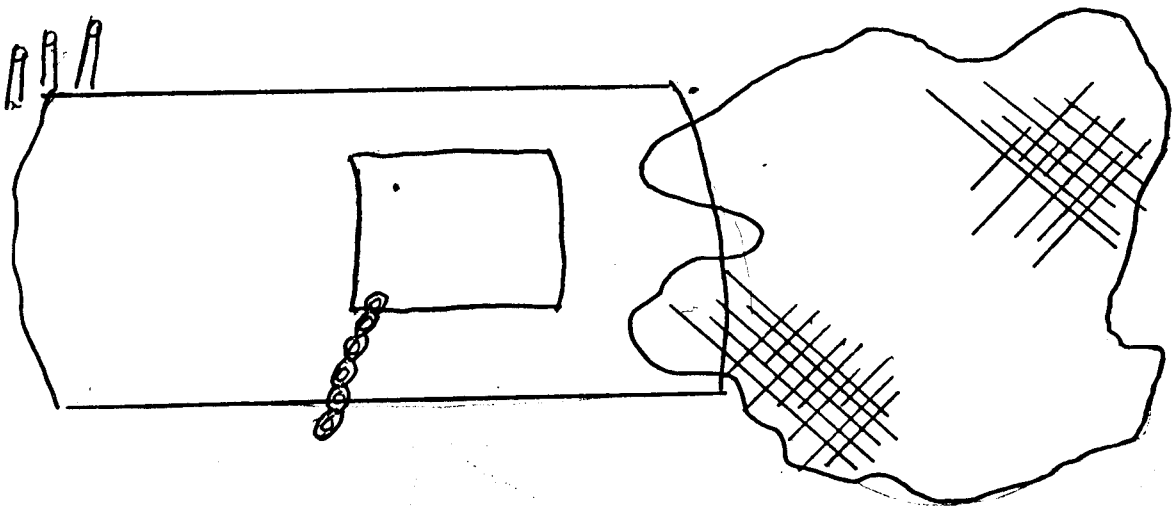
This wreckage was found approximately ~~200~~ 237 meters WSW from the reported position of the wire drag grounding. This is the only SSS contact found in the search area and is believed to be the wreckage which caused the wire to ground. Concur.

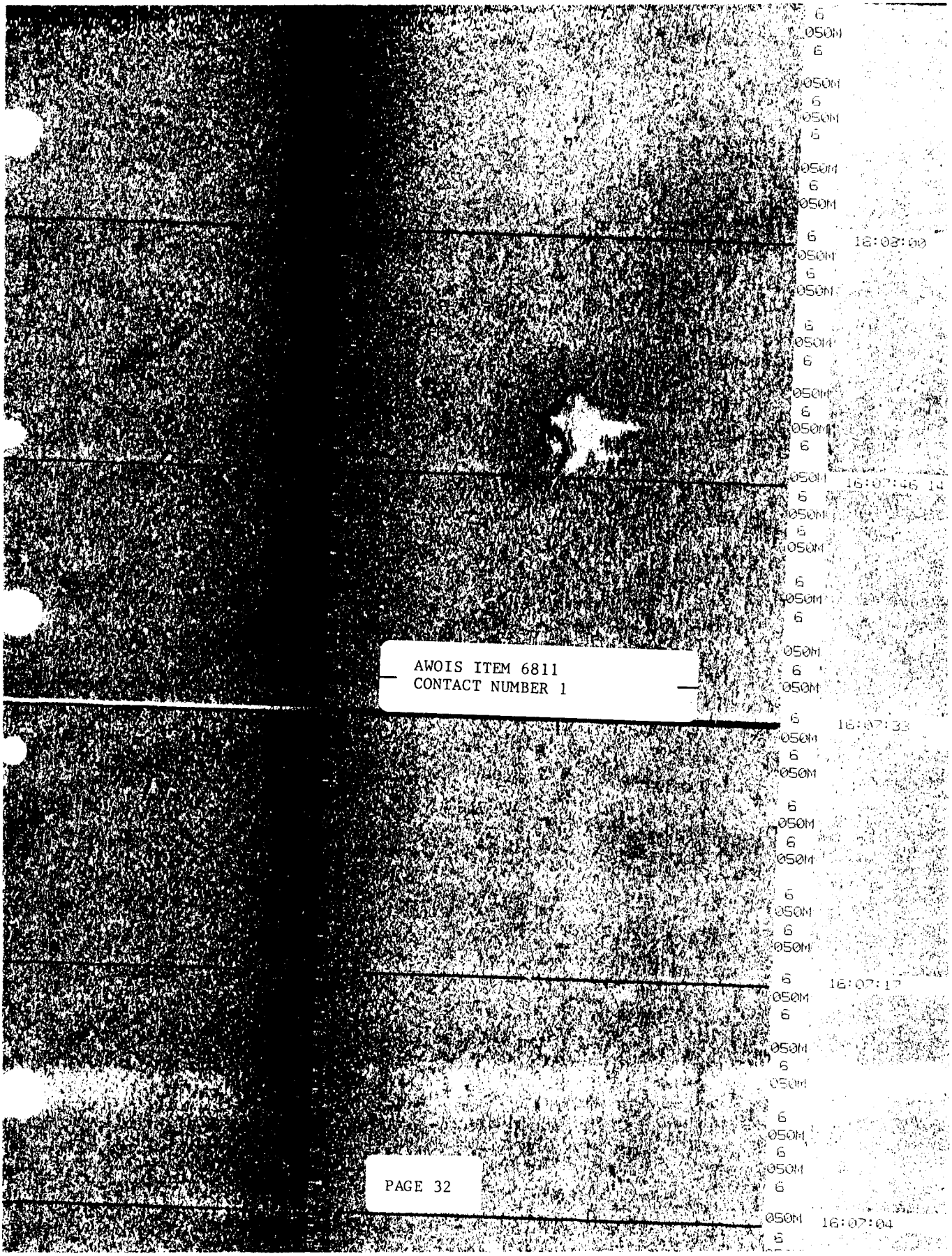
The HECK recommends that the charted symbol be changed to depict wreckage and that it be placed at the position determined by this survey. The symbol should show a known depth of ~~35~~ 34 feet on a dangerous submerged obstruction.
AWOIS item 6811 is considered RESOLVED. See also sheet 4 of 7 and section 6.b. of the Evaluation Report.

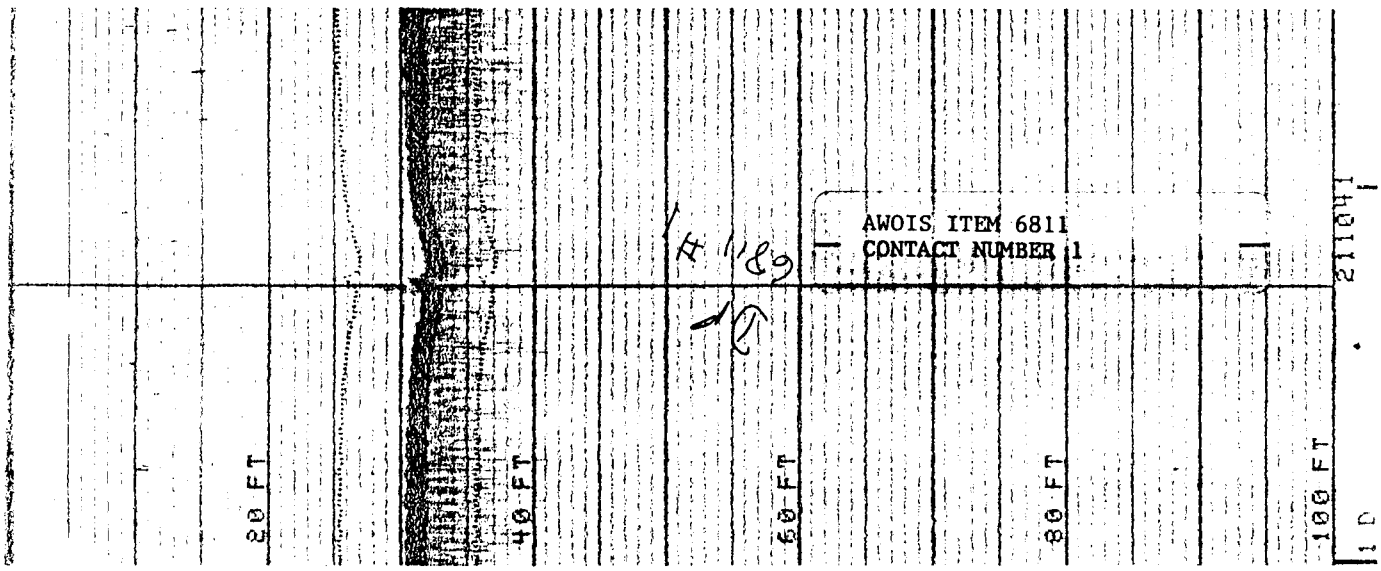
AWOIS ITEM 6811

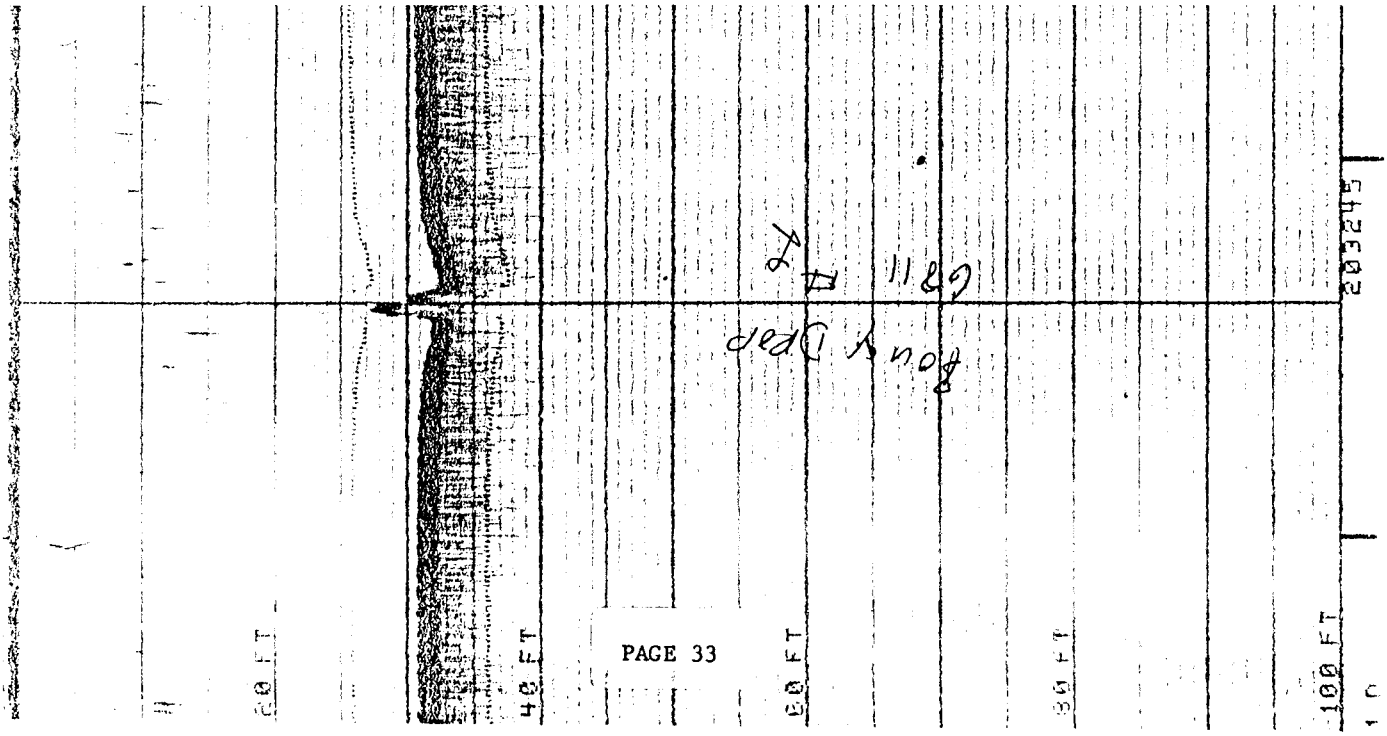
CONTACT NUMBER 1






AWOIS ITEM 6811
CONTACT NUMBER 1


AWOIS ITEM 6811
CONTACT NUMBER 1
20 FT
40 FT
60 FT
80 FT
100 FT


20 FT
40 FT
60 FT
80 FT
100 FT

NAVISOFT 300 VER 2.31EX-SURVEY: UTILITIES: MTM -> LAT/LON 25
04 15:27:52

Easting.....: 118121.1
Northing.....: 22273.3

Latitude.....: 040:57:01.337
Longtitude.....: 073:27:05.195

User 1 Caps Running

HELP Dump Alpha Dump Graphics

D.	Time	Tide	Corr.	Units	FEET
298	20:00	.4			
298	20:06	.5			
298	20:12	.6			
298	20:18	.8			
298	20:24	.9			
2	20:30	1.0			
2	20:36	1.0			
298	20:42	1.1			
298	20:48	1.2			
298	20:54	1.2			
298	21:00	1.3			
298	21:06	1.3			
298	21:12	1.3			
298	21:18	1.3			
298	21:24	1.3			
298	21:30	1.3			
298	21:36	1.2			
298	21:42	1.2			
298	21:48	1.1			
298	21:54	1.1			
298	22:00	1.0			
298	22:06	.9			
2	22:12	.8			
2	22:18	.7			
2	22:24	.6			
298	22:30	.5			
298	22:36	.3			
298	22:42	.2			
298	22:48	0.0			
298	22:54				

7. INVESTIGATION REPORT FOR AWOIS ITEM 6812

AWOIS HISTORY : H5142/31WD -- 18 foot sounding on obstruction identified as wreckage; LAT 40° 56' 52.9" ; LONG 73° 27' 57.6".

SURVEY REQUIREMENTS : Full, verify or disprove through 200% SSS coverage 75 meter radius. Position and least depth required if found.

METHOD OF INVESTIGATION : The specified search radius was investigated by Side Scan Sonar using the 50 meter range scale and the 100 khz frequency settings. Two hundred percent coverage was achieved by running a single set of survey lines using 40 meter line spacing. This procedure was necessitated by the danger imposed to both the ship and SSS equipment by running in rocky shallow water.

RESULTS OF INVESTIGATION : SSS investigation of the specified search radius revealed that the bottom topography of the area is relatively flat and shallow, with hundreds of boulders rising 5 to 10 feet off the bottom. No specific SSS contact could be identified as the 18 foot wire drag hang of 1931. However, numerous boulders visible on the sonar images have calculated heights of only slightly deeper depths. No contact could be identified as wreckage.

The shoalest contacts found are visible on the fathometer records. These soundings lie outside of the search radius about 100 meters northwest of the reported position:

POSITION	361+1	LAT	40°	56'	57.~~057~~ 04"	DEPTH	21 feet
		LONG	73°	28'	00.~~583~~ 52"		
POSITION	364+5	LAT	40°	56'	55.~~507~~ 31"	DEPTH	21 feet
		LONG	73°	~~28~~ 27'	~~00.420~~ 59.94"		

No diver investigation was conducted.

The SSS coverage for this AWOIS item is shown on field sheets HE-10-6-88. The hydrographic soundings were smooth plotted on field sheet HE-5-1-88.

RECOMMENDATIONS : This AWOIS item is charted on NOS Chart 12363, 32nd Edition, Oct. 18, 1986, and on NOS Chart 12365, 19th Edition, Mar. 10, 1984, as an obstruction, with a known depth of 18 feet.

The area is clearly dangerous for navigation by larger vessels. This obstruction lies inside of the line formed by red bouys "2" and "4" off the east shore of Lloyd Point. The 18 foot depth was

not specifically verified by this survey, but because of the large number of boulders found in the area, the 18 foot charted depth is justified.

Because ~~20~~ 21 foot depths were found approximately 75-150 ~~100 to 150~~ meters ~~northwest~~ of the reported position, HECK recommends that the charted symbol be changed to show a submerged rock with a known depth of 18 feet. ~~and that a 20 foot charted depth be placed immediately northwest of the depicted 18 foot curve.~~

AWOIS item 6812 is considered RESOLVED. Do not concur; retain as charted - not considered disproved. See sheet 5 of 7. Echosounder development recommended to verify or disprove on a future survey of the area.

K 8. INVESTIGATION REPORT FOR AWOIS ITEM 6813

AWOIS HISTORY : H5142/31WD -- 14 foot sounding on obstruction identified as wreckage; LAT 40° 56' 51.9" ; LONG 73° 28' 01.1".

SURVEY REQUIREMENTS : Full, verify or disprove through 200% SSS coverage 75 meter radius. Position and least depth required if found.

METHOD OF INVESTIGATION : The specified search radius was investigated by Side Scan Sonar using the 50 meter range scale and the 100 khz frequency settings. Two hundred percent coverage was achieved by running a single set of survey lines using 40 meter line spacing. This procedure was necessitated by the danger imposed to both the ship and SSS equipment by running in rocky shallow water.

RESULTS OF INVESTIGATION : Examination of the sonar imagery shows that the entire specified search radius is crowded with large boulders rising five to eight feet off the bottom. SSS target 9 rises 9 feet in depths of about 25 feet (corrected for tide and draft). This 16 foot depth is about 40 meters southwest of the reported position and is probably the 14 foot obstruction located in the 1931 survey. The contact appears to be a rock, rather than a wreck. A hydrographic sounding of 18.5 feet was made about 60 meters south of the reported position (see position 380 41). However, due to the large number of boulders in the immediate area, a diver investigation was considered to be unproductive.

The SSS coverage for this AWOIS item is shown on field sheets HE-10-6-88. Hydrographic soundings are smooth plotted on sheet HE-5-1-88.

RECOMMENDATIONS : This AWOIS item is charted on NOS Chart 12363, 32nd Edition, Oct. 18, 1986, and on NOS Chart 12365, 19th Edition, Mar. 10, 1984, as an obstruction, with a known depth of 14 feet.

The area is clearly dangerous for navigation by larger vessels. This obstruction lies inside of the line formed by red bouys "2" and "4" off the east shore of Lloyd Point. The 14 foot depth was not specifically verified by this survey, but because of the large number of boulders found in the area, the 14 foot charted depth is justified. Concur.

HECK recommends that the charted symbol be changed to show a submerged rock with a known depth of 14 feet.

AWOIS item 6813 is considered RESOLVED. Present survey depths range from 24 to 32 feet in the area investigated. The contact discussed is west of a line connecting buoys "2" and "4" and poses no hazard to navigation. See sheet 5 of 7.

K 9. INVESTIGATION REPORT FOR AWOIS ITEM 6815

AWOIS HISTORY : CL64/32--CGS; List of critical shoals from H5142WD and H5143WD; Piling located at LAT 40° 56' 50.57" ; LONG 073° 24' 33.77". 23 foot sounding in surrounding depths of 38 feet.

SURVEY REQUIREMENTS : Full, verify or disprove through 400% SSS coverage 100 meter radius. Position and least depth required if found.

METHOD OF INVESTIGATION : The specified search radius was investigated by Side Scan Sonar using the 50 meter range scale and the 100 khz frequency settings. Four hundred percent coverage was achieved by running four sets of survey lines at two orthogonal courses. Sets run at the same heading were offset by 40 meters to insure coverage at a different aspect.

RESULTS OF INVESTIGATION : The only contact found within the search radius was insignificant and did not justify further development. This contact is listed as target 6 in the SSS Target Abstract.

A group of linear features lying on the bottom was located approximately 200 meters from the reported position (see position 174 + 4s). One of these could possibly be the piling in question. No other contacts resembling a piling were identified.

The SSS coverage for this AWOIS item is shown on field sheets HE-10-6-88.

RECOMMENDATIONS : This AWOIS item is charted on NOS Chart 12363, 32nd Edition, Oct. 18, 1986, and on NOS Chart 12365, 19th Edition, Mar. 10, 1984, as an obstruction, ~~cleared by wire drag~~ with ~~to~~ a depth of 23 feet.

This survey provided extensive high quality SSS imagery of the area. No evidence of a piling or any other obstruction rising above the bottom was found. The HECK recommends that the obstruction symbol be removed from the charts. Concur.

AWOIS item 6815 is considered DISPROVED. Concur.

See sheet 3 of 7.

K 10. INVESTIGATION REPORT FOR AWOIS ITEM 6917

AWOIS HISTORY : FE241/82--OPR-B660-RU/HE-82; unverified data; while investigating item 1779, a contact was noted at LAT 41° 04' 43.0" ; LONG 073° 16' 13.0".

SURVEY REQUIREMENTS : Full, verify or disprove through 200% SSS coverage, 100 meter radius. If conditions permit, conduct diver investigation to identify obstruction and determine least depth.

METHOD OF INVESTIGATION : The specified search radius was investigated by Side Scan Sonar; the 100 meter range scale and the 100 khz frequency settings were used.

RESULTS OF INVESTIGATION : A single contact was found within the search radius and is listed as target 17 in the SSS Target Abstract. Although the wreck appeared to be insignificant on the SSS image, two hydrographic sounding lines were run over the target to further evaluate its significance (see position 510 + 1). A diver investigation was conducted as specified in the AWOIS listing and the least depth was determined.

A second contact was found nearby, but outside of the search radius. This contact was decided to be insignificant and did not warrant further investigation. This target is listed as target 18 in the SSS Target Abstract.

The SSS coverage for this AWOIS item is shown on field sheets HE-10-8-88.

K 10.1 CONTACT INVESTIGATION REPORT TARGET NUMBER 17

DETERMINATION OF DIVE SITE : A hydrographic sounding line was run over the SSS coordinated for contact 17. When evidence of the wreck showed on the fathometer, a dive buoy was deployed.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and found that the weight had missed the wreck. The divers conducted a 20 meter circle search to locate the wreck. Divers then moved the bouy to the wreck and conducted a second circle search to find the high point.

LEAST DEPTH DATA : The pneumofathometer airline was lowered down the buoy line to the divers. The orifice of the airline was held over the highest point. ST Morris and CB Mickle manned the pneumofathometer in the ship's SISU launch.

The dive was completed on **November 11, 1988 (DOY 323)**. Three readings were taken on the 0-70 foot pneumofathometer (S/N 8607004 N) and 0 -140 foot pneumofathometer (S/N 8704986):

1) TIME (UTC) :	1908	RAW LEAST DEPTH READING (FT)	:	54.4
2)	1908			54.4
3)	1908			54.4
		AVG LEAST DEPTH READING (FT)	:	54.4

MEASURED DEPTH : 54.4 FEET
TIDAL CORRECTOR : - 1.~~5~~0
PDG* Corrector 0.0
LEAST DEPTH : ~~52.9~~ FEET
53.4

GENERAL STATEMENT OF POSITION QUALITY : The HECK was manuevered into close proximity to the bouy. When the wreck was visible on the fathometer, **Fix 514** was taken. The position was determined using the HDAPS system and three MiniRanger LOP'S. The maximum residual on the computed position was 2.1 meters and the 95% confidence error circle radius was 5.8 meters.

The HDAPS utility package was used to convert the MTM survey coordinates to geographic position.

POSITION OF CONTACT: LAT: 41° 04' 41.744" N
LONG: 073° 16' 09.712" W

LORAN CHAIN : 9960 RATES: W - 15202.5 ; X - 26734.9
Y - 44001.2 ; Z - 60054.2

ITEM DESCRIPTION : Divers found the very deteriorated remains of a 90 foot wooden wreck resting in a current scour in a muddy bottom. The exact nature of the wreckage could not be determined. The divers found several large timbers surrounding a strewn pile of large stone blocks which could have been either ballast blocks or cargo. The highest point of the wreckage was on the pile of blocks. This depth did not rise significantly above the surrounding bottom outside of the current scour.

* PDG - Pneumatic Depth Gauge

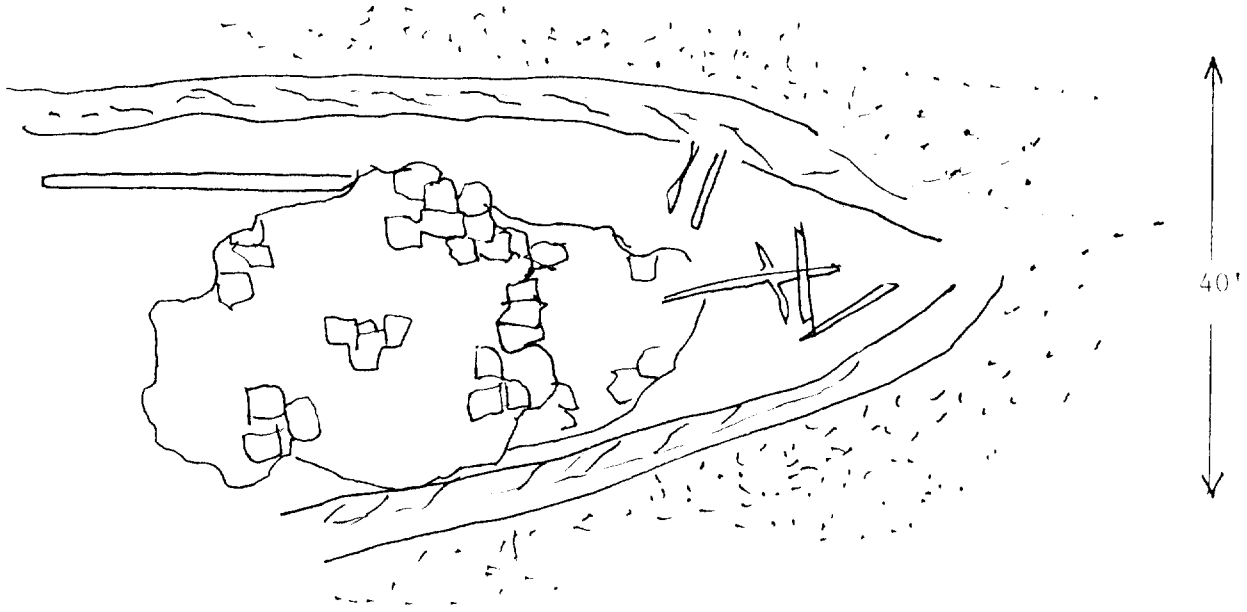
RECOMMENDATIONS : This wreck is presently charted on NOS Chart 12363, 32nd Edition, Oct. 18, 1986, and on NOS Chart 12369, 20th Edition, Mar. 2, 1985, as an obstruction, cleared by wire drag to a depth of 48 feet.

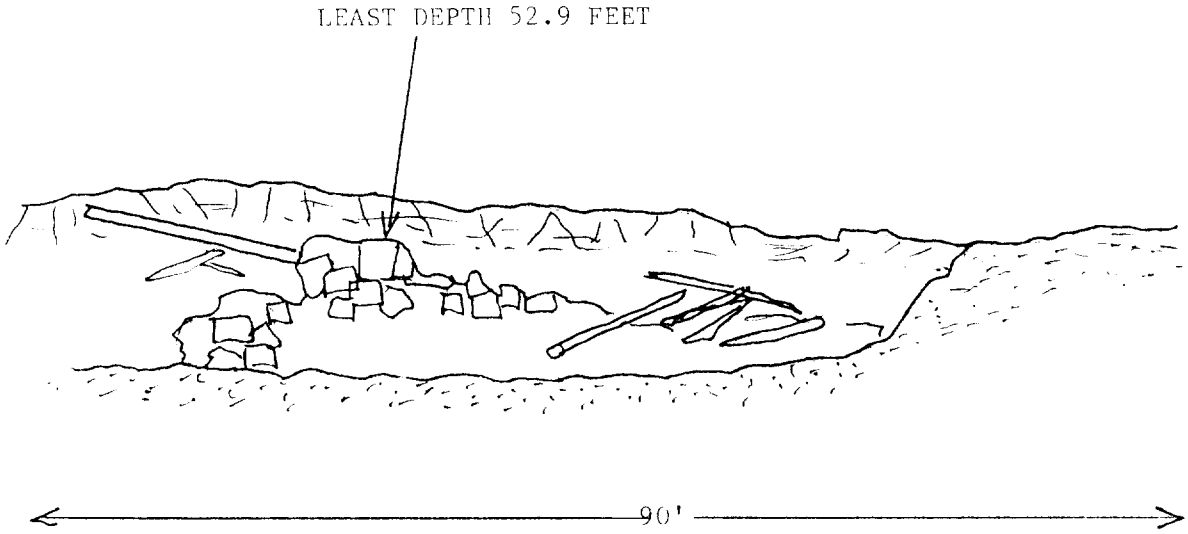
Because the wreckage was found in a current scour and the highest point was approximately the same depth as the surrounding bottom, the HECK recommends that the charted symbol be changed to depict submerged wreckage, not dangerous to surface navigation, with a known depth of 52 feet. Do not concur.

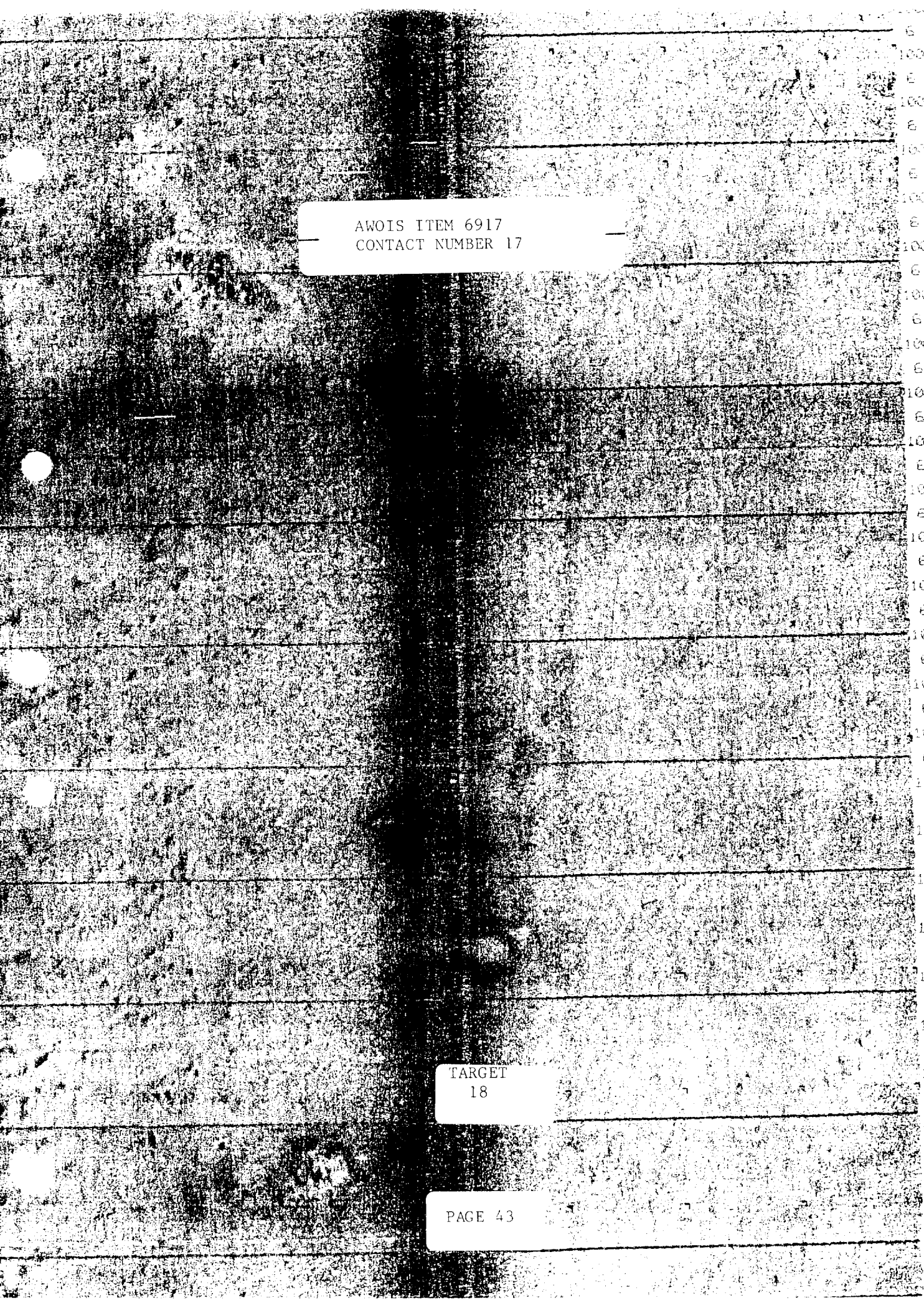
AWOIS item 6917 is considered RESOLVED. - See section 6.b. of the Evaluation Report and the discussion of AWOIS Item #1779 in this report. See plot 1 of 7.

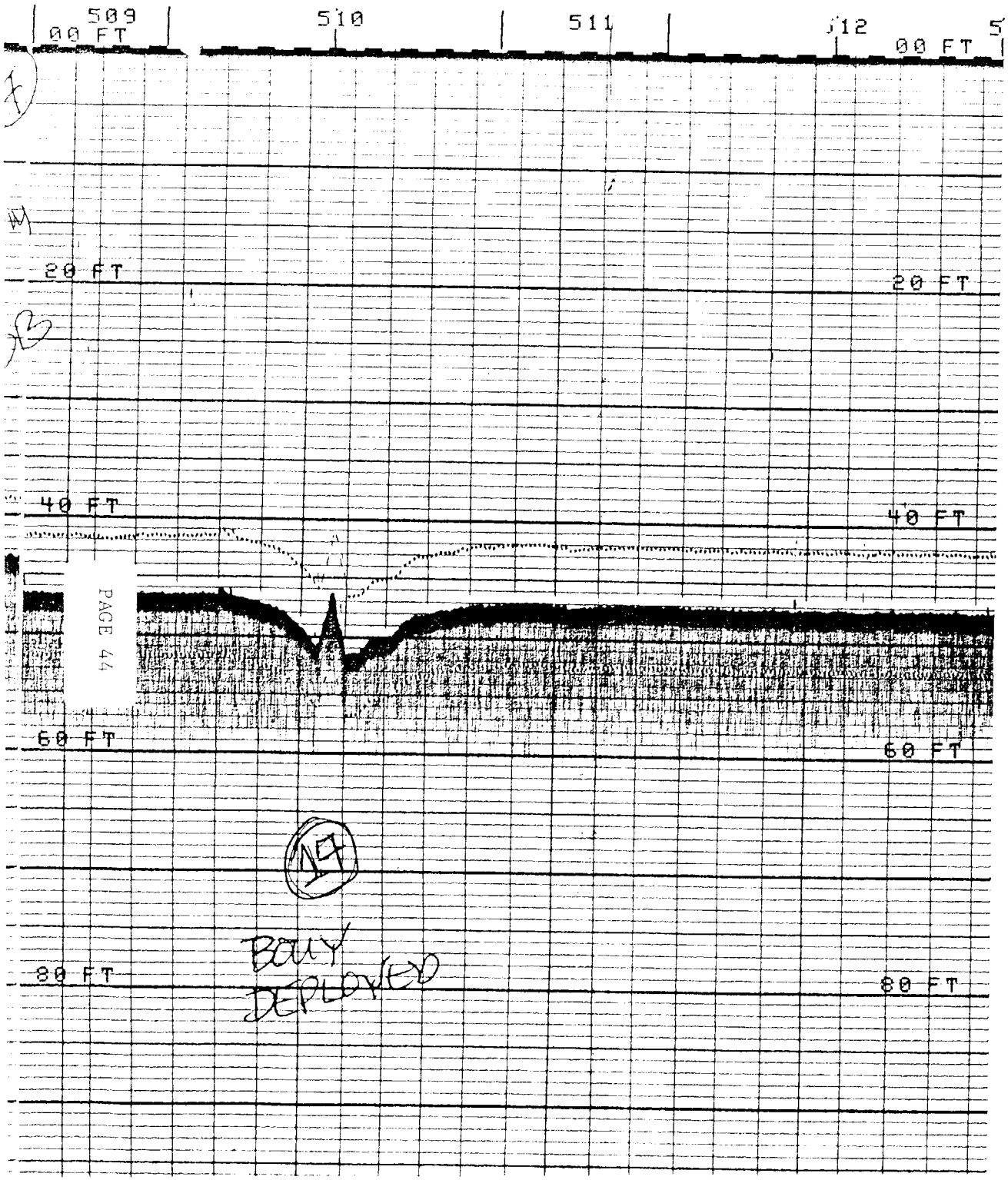
AWOIS ITEM 6917

CONTACT NUMBER 17






AWOIS ITEM 6917
CONTACT NUMBER 17
TARGET
18
PAGE 43


509
00 FT
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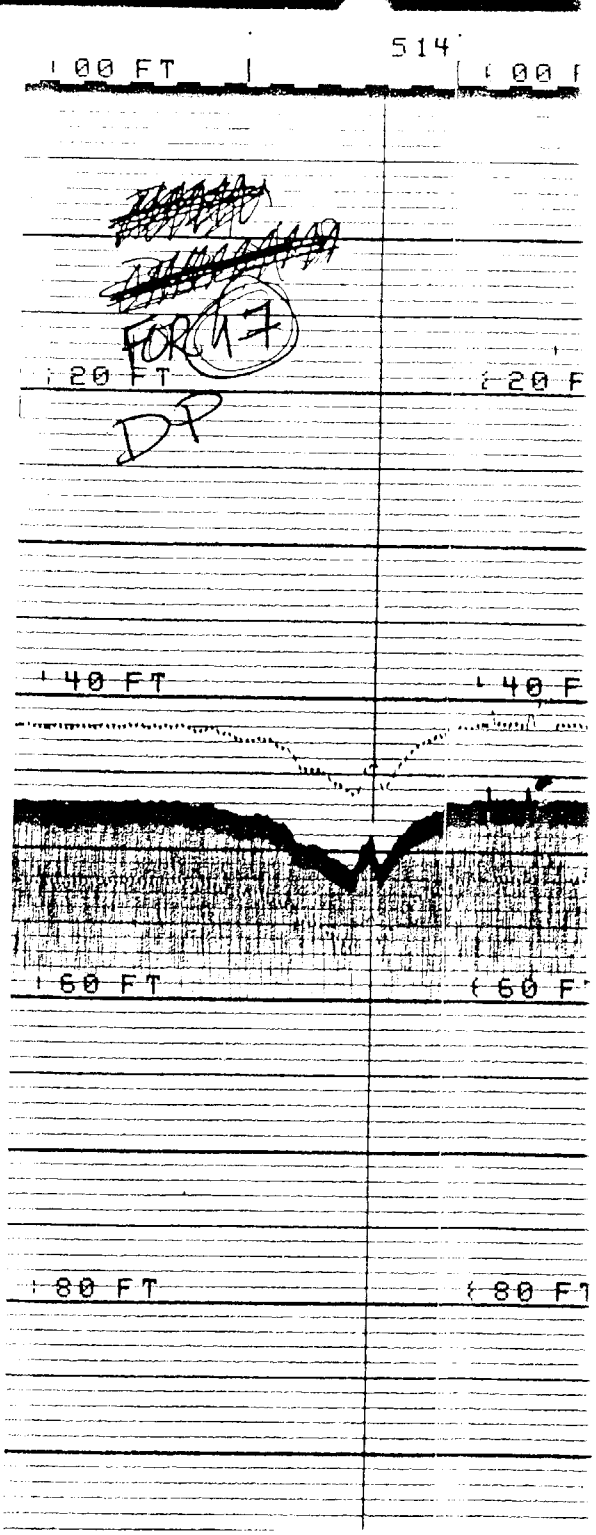
17
BUOY
DEPLOYED


00 FT
514
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FOR 17
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DP
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40 F
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60 F
80 FT
80 F

NAVISOFT 300 2.35+ PRE-SURVEY: UTILITIES: MTM -> LAT/LON 22 Dec 17:08:46

```
E    ng.........:        133386.9_
Northing.......:          36529.6

Latitude.......:     041:04:41.744
Longtitude.....:     073:16:09.712
```

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Dav    Time    Tide Corr.    Units  FEET
323   17:00     -.3
323   17:06     -.3
323   17:12     -.3
323   17:18     -.3                                  User 1   Caps   Running
323   17:24   Dump3     Dump
323   17:30   Alpha     Graphics                                          ■
3     17:36     -.3
3.    17:42     -.4
323   17:48     -.4
323   17:54     -.4
323   18:00     -.5
323   18:06     -.6
323   18:12     -.6
3     18:18     -.7
3..   19:24     -.8
323   18:30     -.9
323   18:36    -1.0
323   18:42    -1.1
323   18:48    -1.2
323   18:54    -1.3
323   19:00    -1.4
323   19:06    -1.5  <--
323   19:12    -1.6
323   19:18    -1.8
323   19:24    -1.9
323   19:30    -2.0
323   19:36    -2.2
323   19:42    -2.3
323   19:48    -2.4
323   19:54    -2.6
323   20:00    -2.7
3     20:06    -2.9
3     20:12    -3.0
323   20:18    -3.2
323   20:24    -
```

K 11. INVESTIGATION REPORT FISHING BOAT "HG SMITH"

AWOIS HISTORY : This wreck was not assigned as an AWOIS item. During the last week of October 1988, the HECK was contacted by the Deputy Director, AMC (MOAXO), and directed to temporarily suspend project operations and to begin a search for a missing lobster boat which had been reported sunk in the project area.

The Commanding Officer of the HECK contacted the brother of the "skipper" of the missing vessel, Mr. Greg Bowers of Bridgeport, Ct. Mr Bowers advised the HECK as to the characteristics of the lobster dragger "HG SMITH", and to the most likely areas in which the vessel might have gone down.

Mr. Bowers stated that the lobster draggers of this area normally operated east-west along certain LORAN lines, and that the "HG SMITH" had probably been working along TD 43977.7 or 43968.5 between TD's 26730 and 26680. He further advised the HECK that on the day on which she sank, the weather and sea conditions were quite strong and out of the northwest. Wreckage from the vessel had recently washed ashore onto the beach at Old Field Point, on Long Island.

The "HG SMITH" was described as a 29.5 foot, dark green lobster boat with a white pilot house. The name was painted in white letters on the bow. The boat had a "A" frame on the stern.

SURVEY REQUIREMENTS : The HECK was directed to locate the vessel and to conduct a diver investigation to determine if either of the two missing bodies was still in the wreck.

METHOD OF INVESTIGATION : A 1:20000 survey sheet was generated which was centered on the two probable LORAN lines. The HECK conducted SSS operations parallel to these lines. The 100 meter range scale and the 100 khz frequency settings were used.

RESULTS OF INVESTIGATION : Four significant contacts were located in the search area: targets 11, 12, 13, and 20 on the SSS Target Abstract. Due to the deep water in this area, 90 to 110 feet, dive operations were conducted only on target 13, which seemed to be about the right size to be the "HG SMITH".

K 11.1 CONTACT INVESTIGATION REPORT TARGET NUMBER 13

#7698

DETERMINATION OF DIVE SITE : The HECK was manuevered over the SSS coordinates of the contact. When evidence of the wreck was visible on the fathometer, a bouy was deployed. The 100 khz pinger was attached to this bouy. The HECK was again manuevered by the contact to obtain a reconnaissance SSS image. This image indicated that the pinger was very close to the wreck.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and found that the weight landed directly on the bow of the wreck.

LEAST DEPTH DATA : A precise depth was not measured over the wreck. Divers reported that the wreck rises about eight feet off the bottom.

GENERAL STATEMENT OF POSITION QUALITY : The HECK was manuevered into close proximity to the bouy. When the wreck was visible on the fathometer, **Fix 644** was taken. The position was determined using the HDAPS system and four MiniRanger LOP'S. The maximum residual on the computed position was 2.1 meters and the 95% confidence error circle radius was 5.0 meters.

The HDAPS utility package was used to convert the MTM survey coordinates to geographic position.

POSITION OF CONTACT: LAT: 41° 01' 45.09[illegible]"
LONG: 73° 10' 26.53[illegible]"

LORAN CHAIN : 9960 RATES: W - 15171.6 ; X - 26677.9
Y - 43966.2 ; Z - 60047.8

ITEM DESCRIPTION : Divers made a positive identification of the "HG SMITH". The vessel is nearly overturned, lying on her port side, and is supported only by her "A" frame. Should this "A" frame break or work its way into the muddy bottom, the wreck will be fully keel up. The fishing gear is partially aboard but trails astern. The vessel seems to be in good condition. The only visible damage was that the starboard windows of the pilot house were broken out.

The bodies were not aboard the wreck.

RECOMMENDATIONS : This wreck is not presently charted on NOS Chart 12363, 32nd Edition, Oct. 18, 1986.

A second dive was made in order to attach a recovery line to the wreck. Mr. Bowers stated that he intended to salvage the boat as soon as possible. However, on January 13, 1989, the Executive Officer of the HECK contacted Mrs. Barbara Bowers, widow of the "skipper", who stated that the vessel had not yet been recovered.

LT. Bob Honorato, USCG, was also contacted on the same date. LT. Honorato is the officer in charge of investigating the sinking. LT. Honorato also stated that the vessel had not been salvaged.

The HECK recommends that the wreck be charted as a ~~submerged~~ sunken wreck, not dangerous to surface navigation. - See sheets 6 of 7 and 7 of 7. The echosounder least depth on the F/V "H.G. SMITH" is 101 feet.

K 11.2 CONTACT INVESTIGATION REPORT TARGET NUMBER 11 #7699

While searching for the "HG SMITH", the HECK located a 45 foot wreck in about 110 feet of water. This wreck did not fit the characteristics of the "HG SMITH", and because it did not pose a threat to navigation, no further investigation was conducted. The wreck is listed as SSS target number 11 in the Target Abstract.

The position and depth of the wreck were computed from the SSS imagery. The HECK believes that the accuracy of this position is about 40 meters, or one half millimeter at the scale of NOS Chart 12363.

LAT 41° 01' ~~22.914~~ 23.63" N
LONG 73° 11' ~~09.140~~ 08.73" W

Converts to LORAN C
9960-X 26685.49
9960-Y 43964.80

This wreck is not presently charted on NOS Chart 12363, 32nd Edition, Oct. 18, 1986. The HECK recommends that this contact be charted as a wreck, not dangerous to surface navigation. ~~The estimated depth over the wreck is 110 feet.~~ This feature has an estimated least depth of 101 feet and is shown as an obstruction on(A) on sheets 6 of 7 and 7 of 7. See also section 7.a. of the Evaluation Report.

K 11.3 CONTACT INVESTIGATION REPORT TARGET NUMBER 12 #7700

Approximately 200 meters northeast of the "HG SMITH", the HECK found the remains of an unidentified wreck of about 70 feet in length. This contact was too large to be the lobster boat, therefore, no further investigation was conducted.

Discussions with another local lobster dragger, the "SEAGULL", revealed that the "HG SMITH" had hung her nets on the bottom in this general area about a month before she sank. Examination of the SSS records suggests that this might have reoccurred. The scour marks from the otter boards on the trawls are clearly visible in the SSS imagery. Due to the orientation of the two wrecks, the HECK believes that the "HG SMITH" may have hung her nets on the wreckage listed as target 12 in the SSS Target Abstract, swamped, and then sank.

The position and depth of the wreck were computed from the SSS imagery. The HECK believes that the accuracy of this position is within 40 meters, or one half millimeter of the scale of NOS Chart 12363.

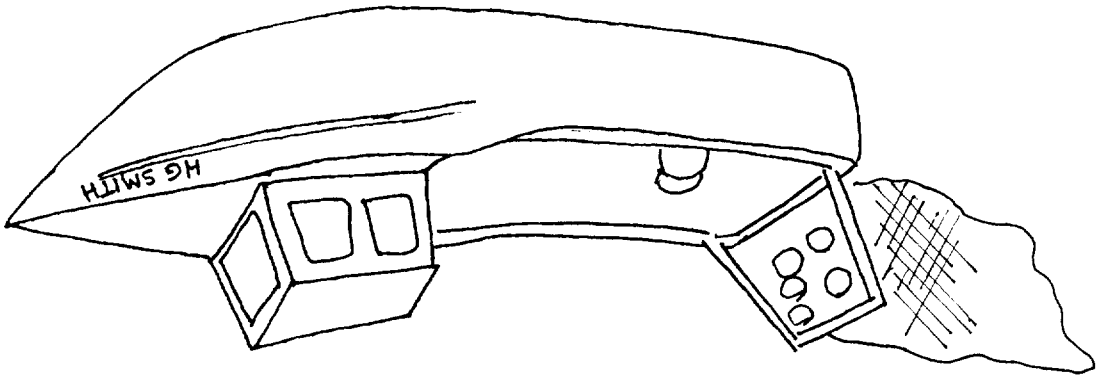
LAT 41° 01' 47.~~476~~ 32" N
LONG 73° 10' 17.~~005~~ 56" W

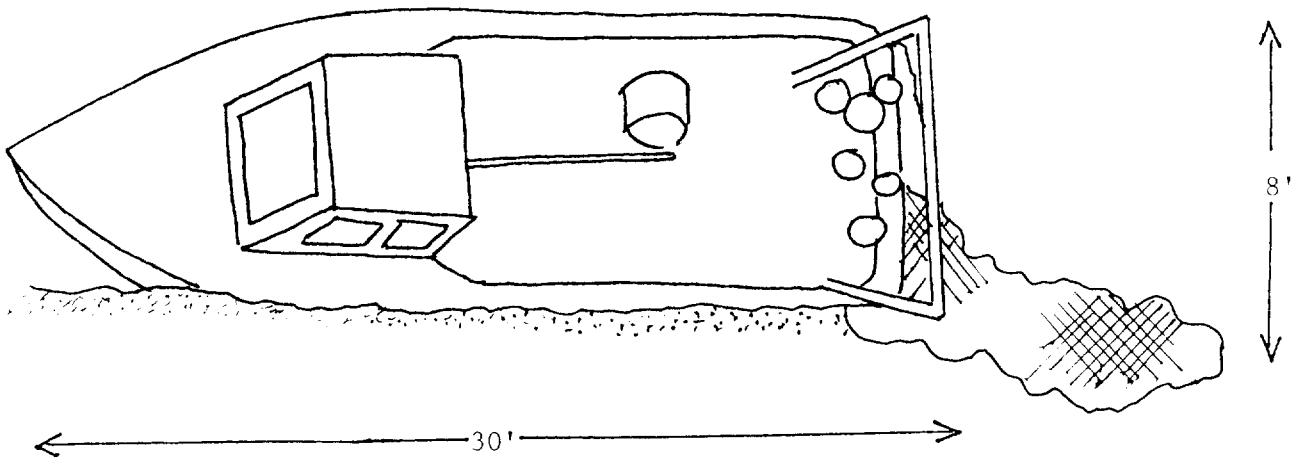
Converts to LORAN C
9960-X 26679.25
9960-Y 43966.98

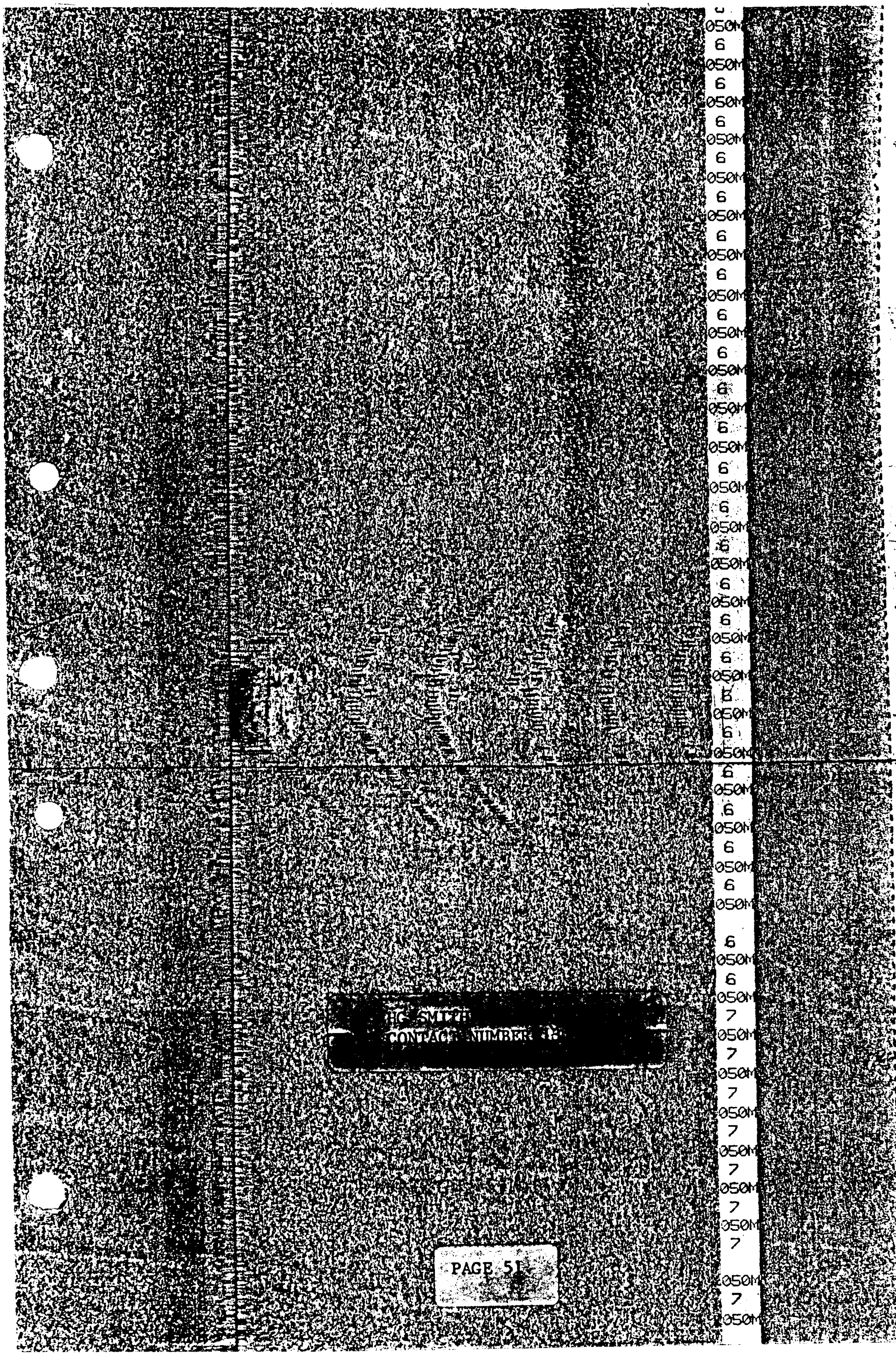
This wreck is not presently charted on NOS Chart 12363, 32nd Edition, Oct. 18, 1986. The HECK recommends that this contact be charted as a wreck, not dangerous to surface navigation. ~~The estimated depth over the wreck is 100 feet.~~ This feature has an estimated least depth of 99 feet and is shown as an obstruction (A) on sheets 6 of 7. and 7 of 7. See also section 7.a. of the Evaluation Report.

LOBSTER BOAT "HG SMITH"

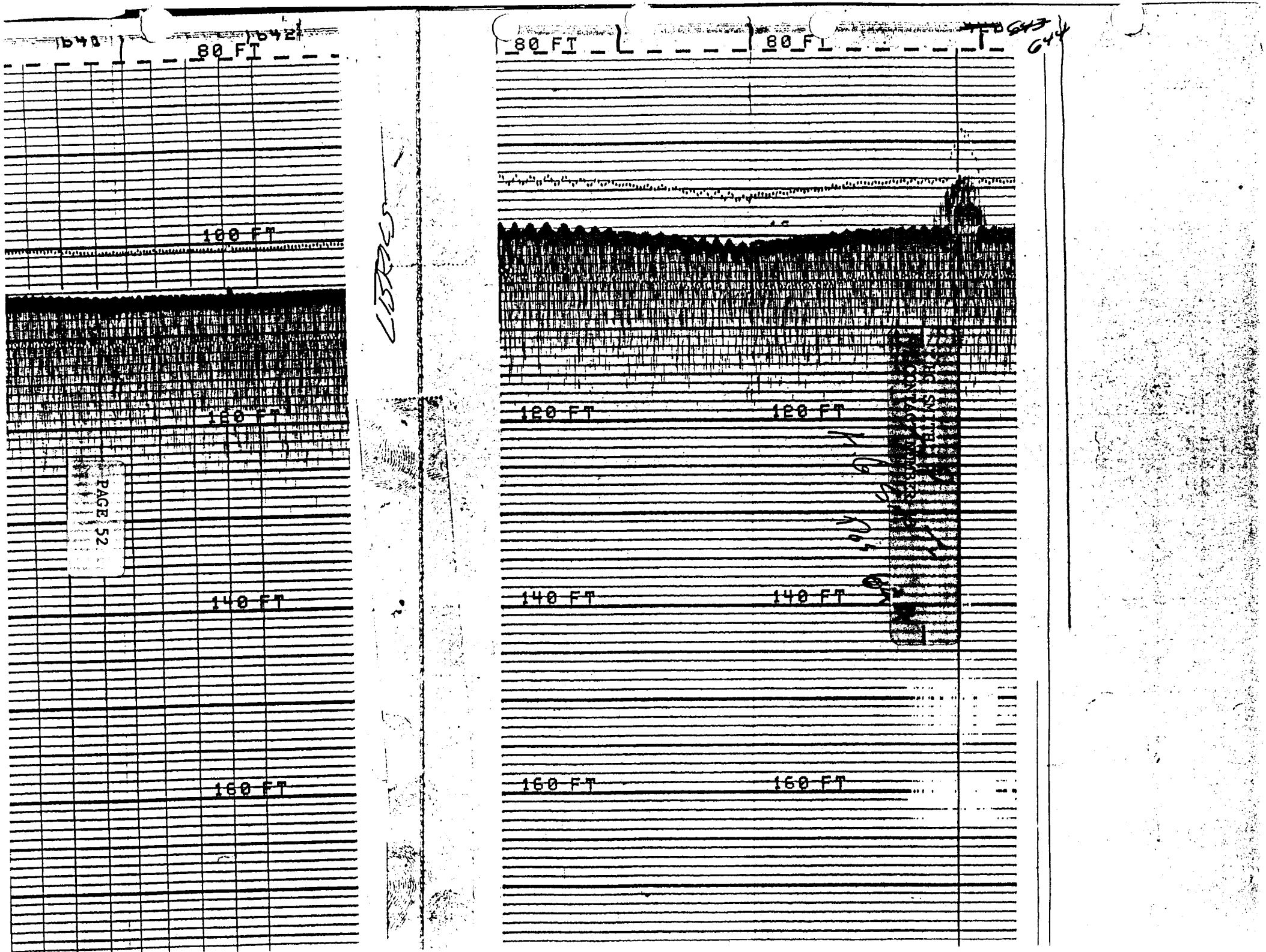
CONTACT NUMBER 13







"THE 100 KHZ PINGER
RESTING ON THE 'H.G. SMITH'"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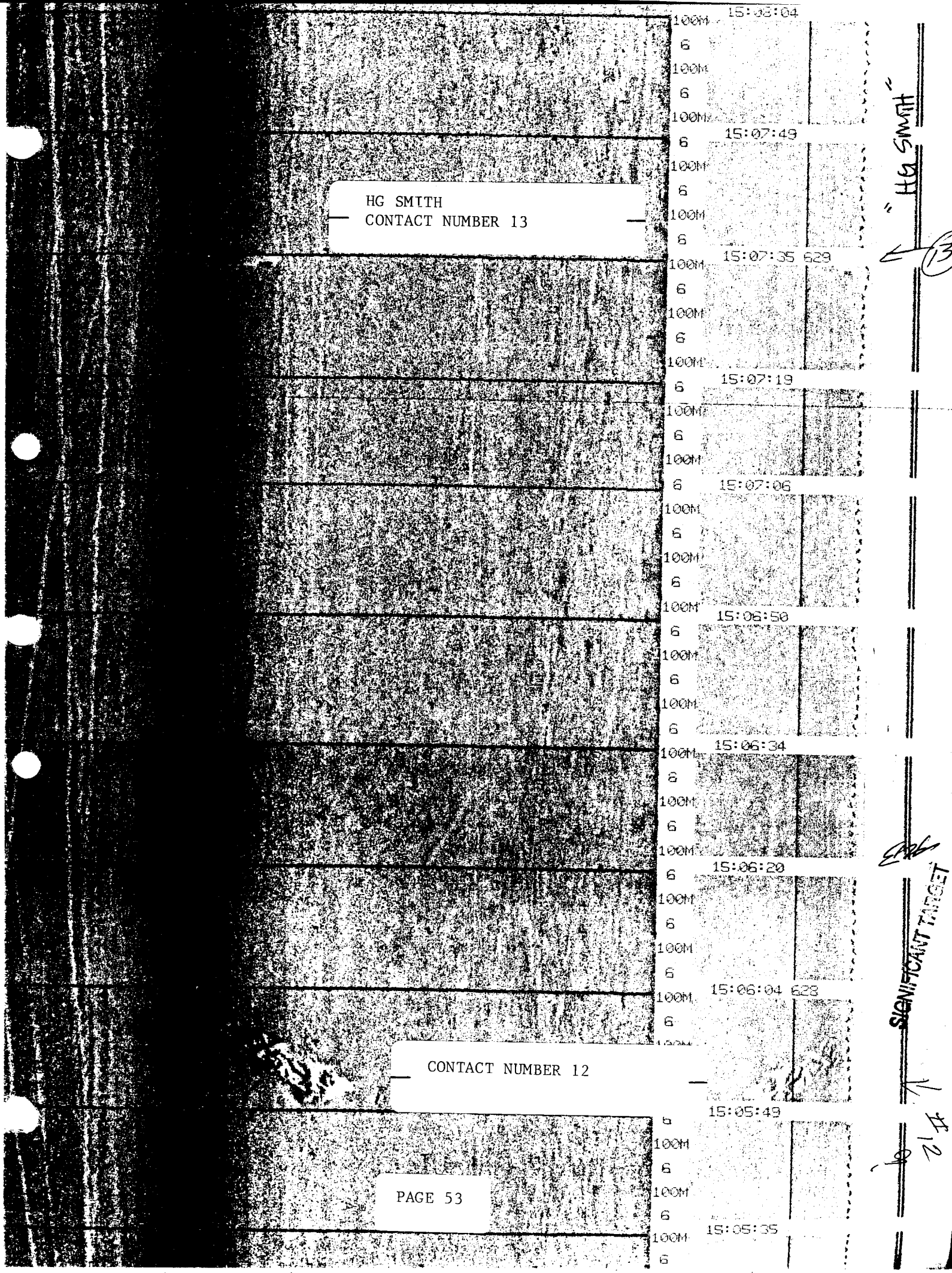

PAGE 53

HG SMITH #13

SIGNIFICANT TARGET #12

SIGNIFICANT TARG
CONFIDENCE CHECK

SIGNIFICANT TARGET

CONTACT NUMBER 11

Submitted By,

Grady H. Tuell

Grady H. Tuell, LT., NOAA
Executive Officer
NOAA Ship HECK

L. LETTER OF APPROVAL

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

Christopher B. Lawrence

Christopher B. Lawrence, LCDR, NOAA
Commanding Officer
NOAA Ship HECK

LIST OF HORIZONTAL CONTROL STATIONS

NUMBER	NAME	POSITION
113	GREAT CAPTAIN IS LH 1882 Not used	40° 58' 57.04399" 73° 37' 24.95527"
117	CAPTAIN 1967	40° 58' 57.54871" 73° 37' 22.02261"
119	LLOYD POINT 1882	40° 56' 41.57231" 73° 29' 14.42905"
120	STAMFORD HARBOR LIGHTHOUSE	41° 00' 49.14787" 73° 32' 33.27840"
121	FISH 1932	41° 02' 53.82734" 73° 27' 27.36379"
122	EATONS NECK TEMP	40° 57' 13.07019" 73° 23' 50.09740"
123	OLD FIELD POINT BEACON	40° 58' 37.19911" 73° 07' 06.81994"
124	BLACK ROCK HARBOR BEACON 1	41° 08' 13.53627" 73° 13' 02.05538"
125	COCKENOES ISLAND 2 RM 3	41° 05' 01.40164" 73° 21' 19.~~54904~~ 65904"
213	BAYVILLE MUNICIPAL TANK **	40° 54' 22.76237" 73° 34' 00.33951"
215	EATONS NECK LIGHTHOUSE **	40° 57' 14.34479" 73° 23' 43.78071"
216	GREENS LEDGE LIGHTHOUSE **	41° 02' 29.93649" 73° 26' 37.87241"
220	TWIN A 1930 **	40° 55' 54.80294" 73° 27' 57.84622"
225	PENFIELD REEF LIGHTHOUSE **	41° 07' 01.51228" 73° 13' 19.52621"
226	PECKS LEDGE LIGHTHOUSE **	41° 04' 38.39376" 73° 22' 11.28969"
227	SOUTHPORT EPIS CHURCH SPIRE **	41° 08' 00.19506" 73° 17' 15.35859"

** Not used and not in survey area.

228	SAUGATUCK RR BRDGE S TRANSM TR	41° 07' 10.36406" 73° 22' 02.05553"
229	WICC SOUTH RADIO TOWER	41° 09' 33.14657" 73° 09' 50.37084"

NOAA FORM 61-29
(12-71)

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

REFERENCE NO.
N/CG244-24-90

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
NOAA/National Ocean Service
Room 151, WSC-1
Rockville, MD 20852

DATE FORWARDED
18 April 1990

NUMBER OF PACKAGES
three (3)

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-321SS
(HE-10-6-88) OPR-B660
Connecticut--New York, Long Island Sound

Pkg #1 (envelope): Original Descriptive Report with 7 page size plots appended

Pkg #2 (box): 1 envelope containg "Material Removed From Original Descriptive Report
1 envelope containing position and excess overlays for smooth plots
1 envelope labeled "Sounding Correctors FE-321SS"
1 envelope containing Control Corrector Data
1 envelope containing calibration data for DOY 319
13 envelopes containing sonargrams, echograms, and printouts for the following DOY's: 293, 294, 295, 298, 308, 309, 313, 314, 315, 321, 323
Final Position Printout
Final Sounding Printout

FROM: *(Signature)*
Robert G. Roberson
Robert G. Roberson

RECEIVED THE ABOVE
(Name, Division, Date)
D. S. Clark
April 24, 1990

Return receipted copy to:

Atlantic Hydrographic Section, N/CG244
439 W. York Street
Norfolk, VA 23510-1114

NOAA FORM 61-29 SUPERSEDES FORM C&GS 413 WHICH MAY BE USED.

☆U.S.GPO:1983-0-664-006/1192

NOAA FORM 61-29
(12-71)

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

LETTER TRANSMITTING DATA

REFERENCE NO.

N/CG244-24-90

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
NOAA/National Ocean Service
Room 151, WSC-1
Rockville, MD 20852

DATE FORWARDED

18 April 1990

NUMBER OF PACKAGES

three (3)

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-321SS
(HE-10-6-88) OPR-B660
Connecticut--New York, Long Island Sound

Pkg #3 (tube): 12 mylar smooth field plots (track, swath, sounding)

FROM: *(Signature)*

Robert G. Roberson

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Atlantic Hydrographic Section, N/CG244
439 W. York Street
Norfolk, VA 23510-1114

NOAA FORM 61-29 SUPERSEDES FORM C&GS 413 WHICH MAY BE USED.

☆U.S.GPO:1983-0-664-006/1192

02/13/90

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-321SS

NUMBER OF CONTROL STATIONS	8
NUMBER OF POSITIONS	963
NUMBER OF SOUNDINGS	5116

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	35	03/23/89
VERIFICATION OF FIELD DATA	103	07/21/89
QUALITY CONTROL CHECKS	22	
EVALUATION AND ANALYSIS	129	01/04/90
FINAL INSPECTION	6	12/22/89
TOTAL TIME	295	

MARINE CENTER APPROVAL 01/05/90

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

FE-321SS

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
Connecticut	X									1
Georges Rock	X									2
Huntington Bay	X									3
Long Island Sound	X									4
New York	X									5
										6
										7
										8
										9
										10
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										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: February 22, 1989

MARINE CENTER: Atlantic

OPR: B660

HYDROGRAPHIC SHEET: FE-321-SS (HE-10-6-88)

LOCALITY: Southern New England Coast

TIME PERIOD: October 19 - November 18, 1988

TIDE STATION(S) USED: 846-7150 Bridgeport, CT

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 1.81 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 7.0 ft.

REMARKS: RECOMMENDED ZONING

1. For AWOIS items 1779, 1780, 6809, 6810, 6811, and 6917 zone direct.

James R Hubbard

CHIEF, TIDAL DATUM
QUALITY ASSURANCE SECTION

OFFICE OF CHARTING AND GEODETIC SERVICES
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT

SURVEY NO.: FE-321SS FIELD NO.: HE-10-6-88

Connecticut--New York, Long Island Sound, Three Miles East of Georges Rock and Entrance to Huntington Bay

SURVEYED: 19 October through 18 November 1988

SCALE: 1:10,000 PROJECT NO.: OPR-B660-RU/HE-88

SOUNDINGS: RAYTHEON DSF-6000N Fathometer, EG&G Model 260 Side Scan Sonar, Pneumatic Depth Gauge

CONTROL: MOTOROLA Falcon 484 Mini-Ranger (Range-Range)

Chief of Party.....C. B. Lawrence

Surveyed by.....G. H. Tuell
.....A. L. Beaver
.....W. R. Morris
Automated Plot by.....XYNETICS 1201 Plotter (AHS)

1. INTRODUCTION

a. This is a side scan sonar survey. A RAYTHEON DSF-6000N fathometer was operated concurrently with the side scan sonar; however, the soundings are of reconnaissance value only. No wire drag was accomplished during this survey.

b. This survey is made up of seven (7) 1:10,000 scale page size plots. These plots were generated during office processing and have been inserted in the Descriptive Report.

c. No unusual problems were encountered during office processing.

d. Notes in the Descriptive Report were made in red during office processing.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in section H. of the Descriptive Report.

b. There is no shoreline within the limits of this survey.

c. Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83). 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 survey datum and the North American Datum of 1927 (NAD27).

To place the 1:10,000 scale plots on the NAD27 datum, move the projection lines 0.349 seconds (10.4 meters or 1.04 mm at the scale of the survey) north in latitude, and 1.590 seconds (36.2 meters or 3.62 mm at the scale of the survey) east in longitude.

d. AWOIS item geographic positions (GP's) listed in the Descriptive Report and the Evaluation Report are referenced to NAD27. Geographic positions of AWOIS items are converted to the present survey datum, NAD83, before inverse distance computations are made during office processing.

3. HYDROGRAPHY

The hydrography collected on this survey during side scan sonar operations is of reconnaissance value only and was not verified. This does not pertain to the depths shown on the smooth plots included in this report.

The development of the bottom configuration and determination of least depths of items found and shown on the smooth plots is considered adequate.

4. CONDITION OF SURVEY

The smooth sheets and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the HYDROGRAPHIC MANUAL and the PROVISIONAL SIDE SCAN SONAR MANUAL.

The hydrographer compared the results of the present survey with only one (1) prior survey. The survey compared with was not the most recent prior survey conducted. The project instructions listed 24 prior surveys, 11 of which fell in the areas common to the present survey. The prior survey used by the hydrographer for comparison was the oldest prior survey that is listed in the instructions.

The hydrographer did not recognize that the third wire drag hang and subsequent clearance depth listed for AWOIS Item #1779 is the same position listed for AWOIS Item #6917. This resulted in conflicting recommendations for side scan sonar contact #17 found by the field unit. The recommendation for AWOIS Item #1779 was to delete the charted AWOIS item and the recommendation for AWOIS Item #6917 was to chart the item as shown on the present survey. It is imperative that the hydrographer examine the data thoroughly to ensure that the recommendations for AWOIS items with the same geographic position are dealt with in a consistent manner. See also section 6.b. of this report.

5. JUNCTIONS

There are no contemporary junctional surveys. There are no junctional requirements listed in the Project Instructions.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H-1732 (1886-1903)	1:20,000
H-3944 (1916)	1:10,000
H-3945 (1916)	1:10,000
H-5134 (1931)	1:20,000
H-6125 (1934)	1:20,000
H-8952 (1967)	1:20,000

The above prior surveys taken together cover the present survey areas in their entirety. The AWOIS items investigated during survey operations originate with prior wire drag surveys and are addressed in the hydrographer's report or section 6.b. of this report. In general reconnaissance hydrography compared well with prior survey soundings.

Present survey depths are adequate to supplement the prior surveys in the common areas.

b. Wire Drag

FE-241WD (1982-84)	1:20,000
H-5142WD (1931)	1:20,000
H-5143WD (1931)	1:20,000
H-5216WD (1932)	1:20,000
H-5219WD (1932)	1:20,000

FE-241WD (1982-83) has three (3) AWOIS items that were investigated by the present survey. The evaluator of FE-241WD (1982-84) deferred any charting recommendations until the results of the present survey were evaluated. Present survey depths and prior survey effective depths were not addressed because wire drag clearances were not computed during modified processing of prior survey FE-241WD (1982-84). The following should be noted:

AWOIS Item #1779, a charted dangerous sunken wreck with a wire drag clearance of 35 feet, in Latitude 41°05'00"N, Longitude 73°16'17"W, originates with prior survey H-5219WD (1932). The prior survey was processed by the Atlantic Hydrographic Section using a modified processing technique. The "ADDENDUM TO THE DESCRIPTIVE REPORT" for FE-241WD (1982-84) does not address wire

drag operations in the discussion of this item. The source of the wire drag clearances shown in the Descriptive Report for the present survey originate with SECTION III, SUMMARY of the RESULTS, OPR-B660-RU/HE-82. Wire drag strips were not processed during office processing of this item. The present survey covered the area with the required 200% side scan sonar coverage. A thorough examination of side scan sonar records and subsequent computations yielded the following information. The contact labeled "CONTACT 16" on the side scan sonargram for day of the year (DOY) 314 is 25 meters east of the mean geographic position for the unverified hangs 1 and 2 found by FE-241WD (1982-84). Two other contacts were located on DOY 314. Both contacts are insignificant; however, contacts 17 and 18 are 76 meters SSE and 268 meters SSW, respectively, from unverified hang 3 found by FE-241WD (1982). General depths in the vicinity of two (2) of the three (3) contacts range from 50 to 53 feet. AWOIS Item #6917 corresponds with one (1) of the three (3) wire drag hangs found by FE-241WD (1982-84). The hang is in Latitude 41°04'43"N, Longitude 73°16'13"W and was cleared by 48 feet (unverified). The present survey located wreckage with a least depth of 53 feet in Latitude 41°04'41.74"N, Longitude 73°16'09.71"W or 11 meters SSE from the position computed for "CONTACT #17". The wreckage located by the present survey is 66 meters southeast of the charted AWOIS Item #6917. This report concurs with the hydrographer's conclusion that AWOIS items #1779 and #6917 should be removed from the chart. With consideration given to the bottom composition, the current scour surrounding the contact, and the height that the contact protrudes above the bottom, it is recommended that the contact found by the present survey not be charted. See plot 1 of 7.

AWOIS Item #1780, a charted dangerous sunken wreck with a wire drag clearance of 47-ft, in Latitude 41°05'03"N, Longitude 73°16'08"W, originates with prior survey H-5219WD (1932). The field unit investigated the AWOIS item and noted two (2) insignificant contacts on the sonargrams. Positions for these contacts were computed during office processing. An inverse distance was computed between the two (2) contacts. The contacts were 15 meters apart and were deemed to be a single contact during evaluation and analysis. A mean position was determined for the contact. The mean position is Latitude 41°05'04.57"N, Longitude 73°16'07.12"W. Office computations determined that the contact protrudes approximately 1.3 feet above the surrounding bottom. The field unit stated that the obstruction protruded no more than 2 feet above the surrounding bottom. The contact is shown on the present survey smooth plot as an obstruction (wreckage) with an estimated depth of 51 feet, 51 Obstr (Wreckage) (A). It is recommended that AWOIS Item #1780 be removed from the chart. With consideration given to the bottom composition, the current scour surrounding the contact, and the height that the contact protrudes above the bottom, it is recommended that the contact found by the present survey not be

charted. See plot 1 of 7.

H-5142WD (1931) has three (3) wire drag sounding that are common to the present survey. The groundings are assigned as AWOIS Items #6809, #6810, and #6811. The field unit investigated the three (3) items. The following should be noted:

AWOIS Item #6811 is an obstruction with a wire drag clearance depth of 34 feet in Latitude 40°57'04.80"N, Longitude 73°26'58.00"W. The field unit located sunken wreckage with a pneumatic depth gauge least depth of 34 feet in Latitude 40°57'01.34"N, Longitude 73°27'05.20"W. The wreckage found by the field unit is 237 meters WSW of the charted AWOIS Item. Present survey depths in the area range from 37 to 40 feet. It is recommended that the charted AWOIS Item be removed from the chart and a dangerous obstruction (wreckage) with a pneumatic depth gauge least depth of 34 feet, 34 Obstr (wreckage), be charted in the position determined by the present survey. See sheet 4 of 7.

H-5142WD (1931) has four (4) AWOIS Items that were investigated by the field unit during survey operations. AWOIS Items #6809 and #6810 are charted dangerous submerged obstructions with a wire drag clearance of 34 feet in Latitude 40°56'59.50"N, Longitude 73°24'48.00"W and Latitude 40°56'57.40"N, Longitude 73°24'56.70"W, respectively. AWOIS Items #6812 and #6813 are charted dangerous submerged obstructions with depths of 18 and 14 feet, respectively. The AWOIS items are located in Latitude 40°56'52.9"N, Longitude 73°27'57.6"W and Latitude 40°56'51.9"N, Longitude 73°28'01.1"W, respectively. The 18-ft and 14-ft soundings were brought forward from prior survey H-5142WD (1931) to supplement the present survey. It is recommended that AWOIS Items #6812 and #6813 be retained as charted; it is also recommended that the items be re-investigated at an opportune time. A discussion of the investigations and charting recommendations are on pages 26, 27, 35, 36, and 37 of the hydrographer's report. See sheet 5 of 7.

H-5143WD (1931) has one (1) AWOIS Item that was investigated by the field unit. AWOIS Item #6815 is a dangerous submerged obstruction with a depth of 23 feet in Latitude 40°56'50.57"N, Longitude 73°24'33.77"W. This item was investigated by the field unit during survey operations. A discussion of the investigation and charting recommendation are on page 38 of the hydrographer's report. See sheet 3 of 7.

AWOIS Items #1779 and #6917 originate with prior survey H-5219WD (1932). A discussion of these two (2) items is in this report in the section that addresses prior survey FE-241WD (1982-84). See sheet 1 of 7.

There are no conflicts between present survey depths and prior

survey effective depths.

The present survey is adequate to supplement the prior surveys in the common areas.

7. COMPARISON WITH CHARTS 12363 (32nd Edition, Oct. 18/86)
12365 (20th Edition, Mar. 2/85)
12369 (19th Edition, Mar. 10/86)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and miscellaneous sources. The following should be noted:

The field unit was instructed to suspend field operations and to locate a recent marine casualty , the fishing vessel (F/V) "H. G. SMITH". The field unit located the F/V "H. G. SMITH" in Latitude 41°01'45.09"N, Longitude 73°10'26.53"W. An fathometer least depth of 101 feet was obtained on the "H. G. SMITH". During office processing an attempt was made to determine whether or not the vessel was salvaged as discussed in the Descriptive Report. After talking to the U. S. Coast Guard, and local authorities in Norwalk and Bridgeport, Connecticut no determination could made. The former captain of the NOAA Ship HECK related that the buoy left to mark the position of the sunken vessel was not on station in the spring of 1989, and that it was doubtful that the wreck could be found for salvage without the use of side scan sonar. The wreck located by the field unit is not considered a hazard to surface navigation. It is recommended that a non-dangerous sunken wreck with a depth of 101 feet (101 Wk) be charted in the location determined by the present survey. See sheet 6 of 7.

Two (2) additional significant contacts were located by the field unit during the search for the F/V "H. G. SMITH". Dive operations were not conducted on these two (2) contacts because they did not fit the description of the F/V "H. G. SMITH". The field positions were compared with the positions computed during office processing. Comparisons showed good agreement between the computed positions; the inverse distance between the positions for contacts #11 and #12 are 20 and 28 meters, respectively. The positions for these contacts are an average between the positions computed by the field unit and the positions computed during office processing. The first contact, number 11, was located by the field unit using side scan sonar in Latitude 41°01'23.026"N, Longitude 73°10'08.729"W. Surrounding depths are 119 feet. The contact protrudes above the bottom approximately 18 feet. The second contact, number 12, was located by the field unit using side scan sonar in Latitude 41°01'47.321"N, Longitude 73°10'17.564"W. The

contact protrudes above the bottom approximately 8 feet. Surrounding depths are 107 feet. Contact #11 is 798 meters SSE of the H. G. SMITH. Contact #12 is 220 meters ENE of the F/V "H. G. SMITH". It is recommended that the two (2) contacts be charted in the locations given in this report. These contacts are not considered a hazard to surface navigation. Contact #11 should be charted as a non-dangerous submerged obstruction (wreckage) with an approximate depth of 101 feet, 101 Obstr (Wreckage) (A). Contact #12 should also be charted as non-dangerous submerged obstruction (wreckage) with an approximate depth of 99 feet, 99 Obstr (Wreckage) (A). See sheet 6 of 7.

The present survey is adequate to supersede the charted features and/or hydrography in the common areas.

b. Aids to Navigation

There were no fixed or floating aids to navigation located in the areas surveyed by the field unit.

8. COMPLIANCE WITH INSTRUCTIONS

This is a good side scan sonar survey. The survey complies with the Project Instructions and the changes and supplements to the Project Instructions except as may be noted in this report.

Deborah A. Bland
Cartographic Technician
Verification of Field Data

Robert G. Roberson
Supervisory Cartographer
Evaluation and Analysis

for Robert R. Hill
Leroy G. Cram
Supervisory Cartographic
Technician
Verification Check

INSPECTION REPORT
FE-321SS

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. Final control, position, and sounding printouts of the survey have been made. The survey complies with National Ocean Service requirements except as noted in the Evaluation Report. The survey records comply with NOS requirements except where noted in the Evaluation Report.

Inspected

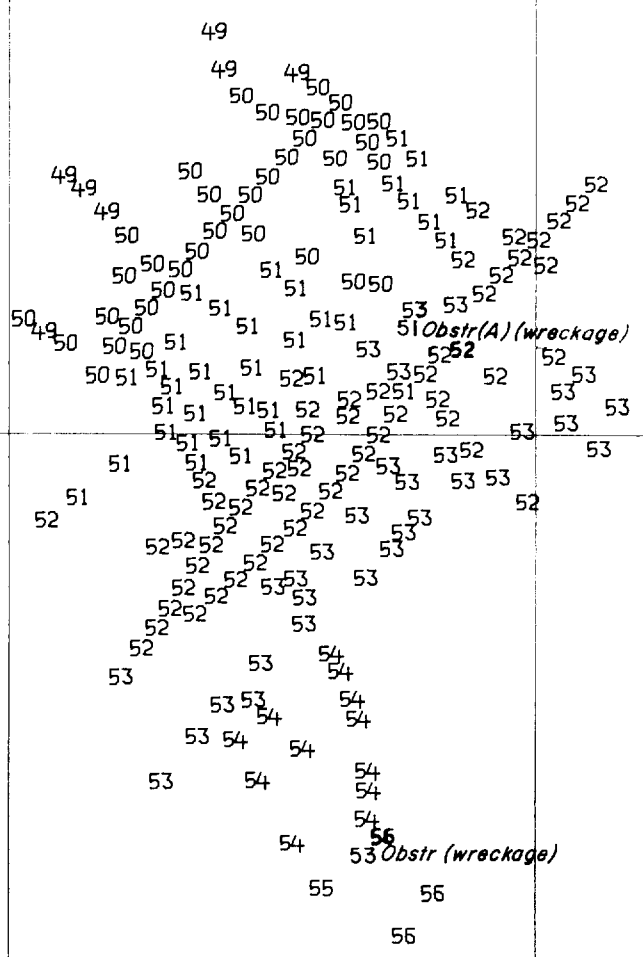
R. D. Sanocki
Chief, Hydrographic Processing Unit
Atlantic Hydrographic Section

Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic Section

Approved: 12 January 1990

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

4/25/90
Wesley V. Hull, RADM, NOAA
Director, Office of Charting and
Geodetic Services



41°05'00"

41°04'30"

73° 16' 00"

NAD 27 41° 04' 30"

XYNETICS 1201

73°16'30"

73°16'00"

FE-32ISS
AWOIS ITEMS #1779, #1780, & #6917
SCALE: 1:10,000
SOUNDING IN FEET AT MLLW
NAD 83 DATUM
SHEET I OF 7

(A) Depths on these obstructions were estimated by scaling heights off the bottom from side scan sonar records. Positions were determined by computing offsets from the vessel's track.

22 Wk tug "GWENDOLINE STEERS"

40° 57′ 00″

73° 25′ 30″

NAD 27 40° 56′ 30″ 40° 56′ 30″

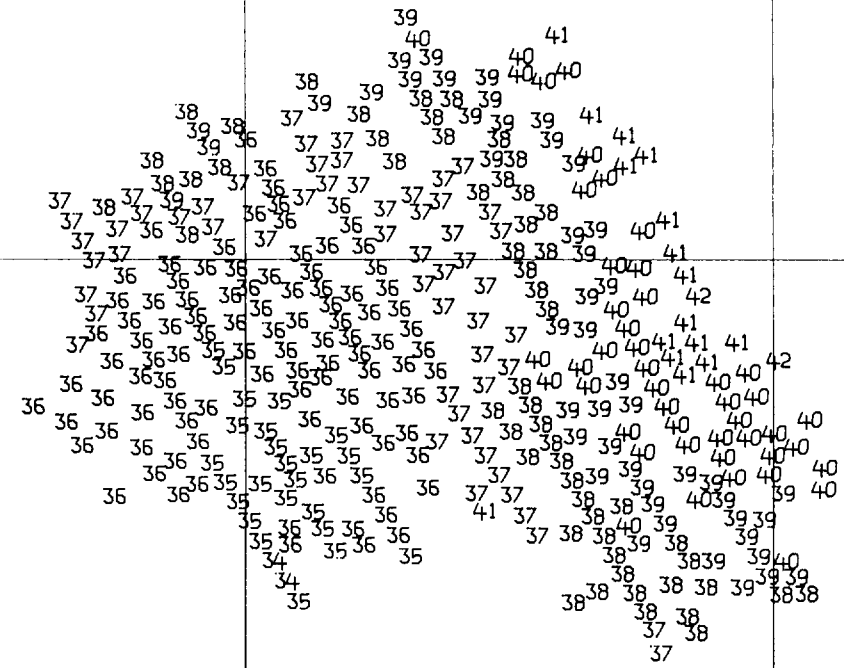
XYNETICS 1201

✓DAB 6-6-89

FE-321 SS
CONNECTICUT-- NEW YORK
LONG ISLAND SOUND
THREE MILES EAST OF GEORGES ROCK
AND ENTRANCE TO HUNTINGTON BAY
NOV 9-16, 1988
SCALE: 1:10,000
SOUNDINGS IN FEET AT MLLW
SHEET 2 OF 7
AWOIS ITEM NUMBER 2641

73° 26′ 00″

73° 25′ 30″



40°57'00"

73° 24' 30"

NAD 27 40° 56' 30"

XYNETICS 1201

40°56'30"

FE-321SS
AWOIS ITEMS # 6809, # 6810, & # 6815
SCALE: 1:10,000
SOUNDINGS IN FEET AT MLLW
NAD83 DATUM
SHEET 3 OF 7

73° 25'00"

73° 24'30"

34Obstr (wreckage)

40° 57′ 00″

73° 26′ 30″

NAD 27 40° 56′ 30″ 40° 56′ 30″

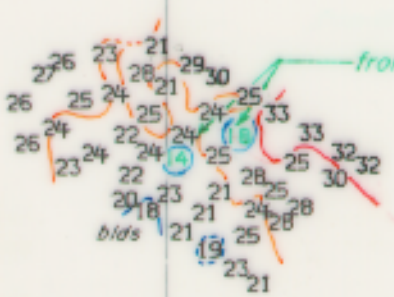
XYNETICS 1201

✓DAB 6-6-89

FE-321 SS
CONNECTICUT -- NEW YORK
LONG ISLAND SOUND
THREE MILES EAST OF GEORGES ROCK
AND ENTRANCE TO HUNTINGTON BAY
NOV 9-16, 1988
SCALE: 1:10,000
HORIZONTAL DATUM: NAD 1983
SHEET 4 OF 7
AWOIS ITEM NUMBER 6811
SOUNDING IN FEET AT MLLW

73° 27′ 00″ 73° 26′ 30″

40° 57' 00"



73° 27' 30"

NAD 27

40° 56' 30"

40° 56'30"

XYNETICS 1201

LOC 7-6-89

FE-321 SS
CONNECTICUT--NEW YORK
LONG ISLAND SOUND
THREE MILES EAST OF GEORGES ROCK
AND ENTRANCE TO HUNTINGTON BAY
NOV 9-16, 1988
SCALE: 1:10,000
HORIZONTAL DATUM: NAD 1983
SHEET 5 OF 7
AWOIS ITEM NUMBERS 6812 AND 6813
SOUNDINGS IN FEET AT MLLW

73° 28' 00"

73° 27' 30"

40° 56' 00"

(A) Depths on these obstructions were estimated by scaling heights off the bottom from side scan sonar records. Positions were determined by computing offsets from the vessel's track.

41° 02' 00"

99 *Obstr (A)*

101 *Wk "HG SMITH"*

73° 10' 00"

NAD 27 41° 01' 30" 41° 01' 30"

XYNETICS 1201
✓DAB 6-8-89

101 *Obstr (A)*

FE-321 SS
CONNECTICUT -- NEW YORK
LONG ISLAND SOUND
THREE MILES EAST OF GEORGES ROCK
AND ENTRANCE TO HUNTINGTON BAY
NOV 9-16, 1988
SCALE: 1:10,000
HORIZONTAL DATUM: NAD 1983
SHEET 6 OF 7
ITEM: FISHING BOAT "HG SMITH"
SOUNDINGS IN FEET AT MLLW

73° 10' 30" 73° 10' 00"

73° 18'

73° 16'

73° 14'

73° 12'

73° 10'

41° 04'

41° 02'

Wk "H. G. SMITH"
Obstr(A)

Obstr (A)

(A) Depths on these obstructions were estimated by scaling heights off the bottom from side scan sonar records. Positions were determined by computing offsets from the vessel's track.

73° 10' 00"

41° 00' 00"

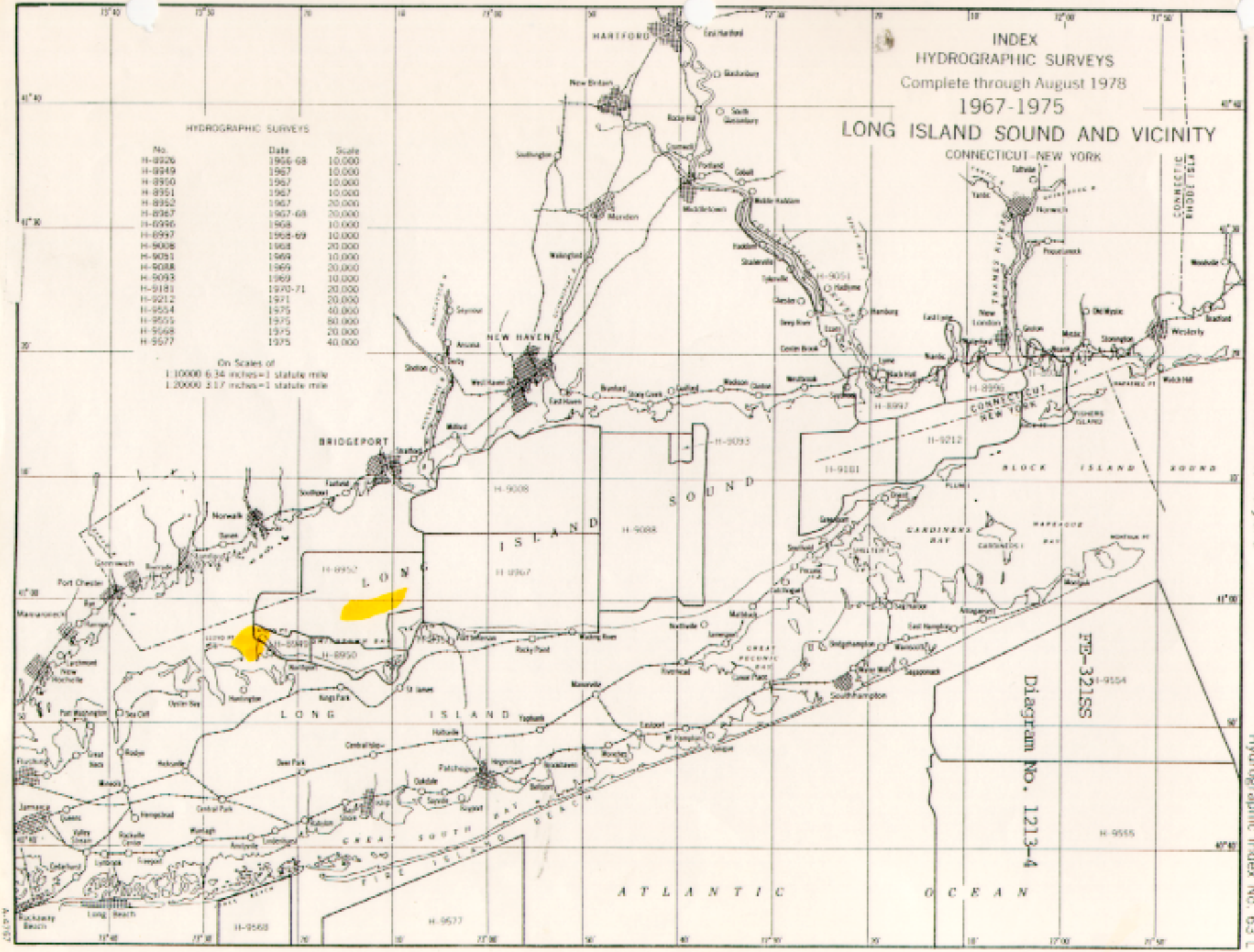
41° 00'

NAD 27

XYNETICS 1201

✓ LGC 7/21/89

FE-321 SS
CONNECTICUT -- NEW YORK
LONG ISLAND SOUND
THREE MILES EAST OF GEORGES ROCK
AND ENTRANCE TO HUNTINGTON BAY
NOV 18, 1988
SCALE: 1:40,000
HORIZONTAL DATUM: NAD 1983
SHEET 7 OF 7
ITEM: FISHING BOAT "H G SMITH"
SOUNDINGS IN FEET AT MLLW



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

Hydrographic Index No. 63 L

A-4767

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. FE-321SS

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
12369	12-7-90	John Pierce	Full ~~Part Before After~~ Marine Center Approval Signed Via
			Drawing No. 32
12363	1-29-91	John Pierce	~~Full Part Before~~ Full After Marine Center Approval Signed Via
			Drawing No. 51
12364	4-11-91	John Pierce	Full ~~Part Before~~ After Marine Center Approval Signed Via
/			Drawing No. 27
12365	3-18-92	Teresa Bedell	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 34
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED