FE317

Diagram No. 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. RU-10-2-88

Registry No. FE-317SS

LOCALITY

State New York

General Locality Long Island Sound

Sublocality Mamaroneck Harbor to Matinecock Point

19 88

CHIEF OF PARTY
LCDR A.M. Snella

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DATE September 21, 1989

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

FE317

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.
FE-317-SS

FIELD NO.
RU-10-2-88

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

State: New York

General locality: ~~Western~~ Long Island Sound

Locality: Mamaroneck Harbor, ~~NY, and~~ to Matinecock Point, ~~Long Island, NY.~~

Scale: 1:10000

Date of survey: ~~September 1988~~ August 22 through September 14, 1988

Instructions dated:

Project No.: OPR-B660-RU/HE-88

Vessel: NOAA Ship RUDE

Chief of party: LCDR Andrew M. Snella

Surveyed by: LT Craig L. Bailey, LT(jg) Thomas R. Waddington, AST Mark A. Sramek

Soundings taken by echo sounder, ~~hand lead, pole~~ Raytheon DSF-6000N

Graphic record scaled by: C.L.B., T.R.W., M.A.S.

Graphic record checked by: C.L.B., T.R.W., M.A.S.

Protracted by:

Automated plot by: KYNETICS 1201 Plotter (Arma) Bruning-Nicolet ZETA 124 CS Plotter. (Field)

Verification by: Hydrographic Surveys Branch

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

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

AWOIS / SURF MAM 10/23/89

KWW 10/13/93

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

☆ U.S. G.P.O. 1972-769-565/519 REG.#6

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* filed with original field records.

DESCRIPTIVE REPORT

NOAA Ship RUDE (S590)
Lcdr. Andrew Snella
Commanding Officer

Survey FE-317-SS
RU-10-2-88
Scale 1:10,000

AWOIS Items: 1732 1735 1736 4406 4408 4409 4415

A. PROJECT DESCRIPTION

This survey was conducted in accordance with Hydrographic Project Instructions:

OPR-B660-RU/HE-88, dated May 26, 1988
Change No. 1, dated July 06, 1988
Southern New England Coast
Connecticut and New York

The purpose of this project was to verify or disprove the existence of charted submerged wrecks and obstructions in Western Long Island Sound and vicinity.

The survey involved Side Scan Sonar (SSS) investigations utilizing a slant range corrected towfish. Side Scan sonification was supplemented by echo-soundings that were obtained from the ship's echo-sounder. Least depths on targets that were found by diver investigation were taken with a pneumo depth gauge.

B. PROJECT OVERVIEW

This project responds to requests from the Northeast Marine Pilots, Inc., of Newport, Rhode Island, to disprove or verify and provide least depths of wrecks and obstructions in western Long Island Sound. The data from this project will supplement a basic hydrographic survey (OPR-B285) in this area which is scheduled for 1989-91.

The U.S. Navy, and 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.

Sewer outfalls adjacent to AWOIS items 4406 and 4409 prevented dive operations and least depths for these items were obtained through echosounder developments.

During the course of this project the RUDE continued to assist in the implementation and testing of the Hydrographic Data Acquisition and Processing System (HDAPS). Three versions of the software were received, tested, and used during this portion of the project.

C. AWOIS ITEMS SURVEYED

The area surveyed is approximately 4 miles of Western Long Island Sound between Manhasset Neck to Matinecock Point on the south shore, and Larchmont To Peningo Neck on the north shore. The RUDE and HECK were issued an AWOIS Listing dated 9/19/88 which is included in Appendix VI.* Seven items were selected by the RUDE for inclusion in this report. The survey requirements cited in the AWOIS listing are summarized below. Dates of survey include August 22, 1988 through September 14, 1988 (DOY 235-258).

AWOIS NO.	CHARTED LATITUDE	CHARTED LONGITUDE	SEARCH RADIUS	REQUIRED COVERAGE
1732	40° 53' 54" N	73° 40' 11" W	750 meters	200%
1735	40° 54' 28" N	73° 40' 35" W	75 meters	400%
1736	40° 54' 38" N	73° 38' 04" W	750 meters	200%
4406	40° 55' 22.7" N	73° 42' 20.5" W	75 meters	200%
4408	40° 56' 24.0" N	73° 41' 11.0" W	300 meters	200%
4409	40° 57' 08.0" N	73° 39' 55" W	75 meters	200%
4415	40° 54' 39.0" N	73° 43' 30.0" W	75 meters	200%

D. SURVEY SHEETS (FIELD)

Appendix V* contains the complete listing of survey plot sheets and their associated HDAPS parameters. Plot sheets were produced using the the following equipment and specifications:

HDAPS Computer
Bruning-Nicolet ZETA 824A CS Plotter
Modified Transverse Mercator Projection
Plot sheet scale 1:10,000

Each of the AWOIS items covered by this report has one or more of the following plots included:

on-line swath or track plot
post-processing track plot, 200% coverage
post-processing swath plot, 100% coverage
post-processing depth plot
contact plot

Larger scale sheets (1:1,000 and 1:2,500) were sometimes used when conducting echosounder developments in order to provide clarity of the plotted soundings. In addition, a 1:20,000 contact plot which displays all AWOIS items, targets investigated, and recommendations is included.

* Filed with original field records

E. SURVEY VESSELS

The following vessels were used during the project:

VESSEL	ELECTRONIC DATA PROCESSING NUMBER	PRIMARY FUNCTION
NOAA Ship RUDE (S590)	9040	Side Scan Operations
RUDE Launch (RU3)	1290	Diving Operations
RUDE Skiff (RU1)	----	Mini-Ranger Service and Diving Operations

F. DEPTH SOUNDING EQUIPMENT

Depth soundings were taken with the following equipment:

Raytheon DSF-6000N ~~Echo-Sounder~~ Fathometer (S/N 047)
Pneumo Depth Gauge (S/N 8705140N)

The echo-sounder was calibrated periodically using an Electronic Depth Simulator Instrument (EDSI).

Least depths from diver investigated contacts were determined using the pnuemo depth gauge. This device is described in Hydrographic Survey Guideline No. 55. Prior to each dive, a systems check was performed at the dive location to ensure the pneumo depth gauge worked properly. Corrector values for both the deep and shallow gauges are taken from calibrations performed on 17 February 1988 at Instruments East Labs of Norfolk, VA. The calibration and systems check data are provided in Appendix IX.*

G. SIDE SCAN SONAR EQUIPMENT

Side Scan coverage was accomplished using the following recorder and towfish:

EG&G Model 260 Slant Range Corrected
Side Scan Sonar (S/N 0010884)
Model 272, 100/500 KHZ Towfish (S/N 0010823)

Side scan sonar confidence checks consisted of periodic "rub tests" performed on the towfish transducers. Proper functioning of the SSS system was assured as the quality of the image displayed on the recorder was critically evaluated during all operations.

Periodically the fish was towed past a 100 kHz pinger as an additional confidence check. This Data Sonics pinger was moored approximately 2 meters off the bottom. The side scan trace produces

* filed with original field records

a pair of hyperbolic arcs as the tow fish nears the pinger. At the closest point of approach to the pinger the apex of the hyperbolic arc will be nearest the center line of the side scan trace.

The pinger was also placed on dive buoys when marking dive targets. This allowed us to tow past the site and check on the dive buoys location in relation to the target. This procedure eliminated many useless dives which would have resulted from improperly placed dive buoys.

Other confidence checks were conducted daily on the sonargram as the tow fish was towed past a known object. Two of the items investigated had underwater pipelines running through the search area. These pipelines provided a clear, graphic record that the side scan sonar was properly functioning over the full range.

H. CORRECTIONS TO ECHO SOUNDINGS

I. Velocity Corrections

Velocity correction data were obtained from MARTEK CTD (s/n 246) casts taken in the survey area. Correctors were calculated using the new computer program package VELOCITY. Sound velocity correctors were applied to data by the date of Martek cast. Survey data acquisition and plotting was conducted using the most recent Velocity Corrector Table preceeding the date of data acquisition. The MARTEK calibration, cast data, and VELOCITY program results are included in Appendix IX.* *filed with original field records*

Martek casts were taken on the following days at the following positions:

Date (DOY)	LATITUDE	LONGITUDE	Table No.
August 16 (229)	40° 54' 30" N	73° 39' 06" W	3
September 1 (245)	40° 56' 12" N	73° 41' 12" W	4
September 1 (245)	40° 54' 48" N	73° 38' 24" W	-

On DOY 245 two casts were taken, one on the north side and one on the south side of Long Island Sound. Because these two casts produced almost identical results, only a single corrector table was created.

II. Tide Corrections

The Southern New England Coast has an average tidal range of 8 feet. The operating standard tide station at Willets Point, New York was the primary reference station used for determining predicted tides for various sites within the project area. In HDAPS software, these predicted tide correctors were applied to the on-line sounding data collected. Tidal correctors were also applied to the least depths over obstructions taken with the pneumo depth gauge. Following is a list of HDAPS tide tables used in this survey for plotting AWOIS item investigation data.

HDAPS TIDE TABLE NUMBER / Zone	DOY FROM-TO	APPLICATION AWOIS ITEM - DOY
5 / Glen Cove	234-248	1732 - 235,236 1735 - 237 1736 - 246 4406 - 237,238,239, 243,244 4408 - 245 4409 - 244,245 4415 - 237
6 / Glen Cove	249-263	1736 - 250,251,252, 256,257 4408 - 252

It is recommended that smooth tide data be applied to all least depths taken on wrecks and obstructions during the course of this survey.

Smooth tides were applied during office processing at AHC.

III. Settlement and Squat Corrections

RUDE's settlement and squat (S&S) measurements were taken on March 17, 1988 (DOY 077) at Little Creek, VA. A level was set up on shore and used to sight readings on a staff located on the bridge wing. The ship was initially observed dead in the water, allowing the shore party to observe the static height. The RUDE was then run past the level at varying speeds and the heights recorded. Listed below are the settlement and squat correctors observed.

Shaft RPM	Knots	Meters/Second	S & S Corrector	
200	4.6	2.4	0.15 Ft.	0.04 M
300	7.0	3.6	0.48 Ft.	0.15 M
400	9.0	4.6	0.82 Ft.	0.25 M

Settlement and squat values are applied to the data through the HDAPS Offset Table. This table allows 5 data points to be entered for S&S values. The first and last data points in this table are entered for speeds slower and faster (respectively) than those at which the RUDE operates. These end values are only filler points in the table. S&S corrector values were only calculated for 3 data points, within the range of speeds at which the RUDE operates. Raw Settlement and Squat data can be found in Appendix IV.*

IV. Heave, Roll, and Pitch Corrections

Heave, roll and pitch were measured by the Datawell B.V. Sensor commonly known as the "Hippy". The HDAPS software applies Hippy data corrections to depths only when in the echosounding mode. All data gathered during on-line side scan operations does not have these corrections applied. All echosounding development was conducted in the echosounding mode and therefore the data has heave, roll, and pitch corrections applied to it.

V. Vessel Draft Corrections

Transducer draft marks were painted on the side of the RUDE during the 1988 winter inport dry dock period. These marks are located even with the 100 kHz transducer at frame 13.5. Each mark is 1 inch wide, with three inch spacing between marks. The mark corresponding to 7 feet above the transducer is denoted by pointed ends (this is the fourth mark from the top). Transducer draft can be read directly from these marks in calm weather by observation from small boat.

The transducer draft was also measured from the top of the bridge wing wooden rail. This distance is 19.1 feet and correspondes to frame number 13.5. To calculate the transducer draft using these values subtract the distance from the water to the wooden rail from 19.1 feet. This value is the actual draft of the transducer. Either of these methods can be used to measure transducer draft.

VI. Effective Transducer Draft

Effective transducer draft is determined by measuring from the wooden rail at frame 13.5 to the ocean bottom and subtracting 19.1 feet. This measurement yields the mean height of transducer off the bottom. The digital depth recorded at the time of the lead line readings is corrected for sound velocity and subtracted from the height of transducer off bottom yielding an instrument error. The effective transducer height is the sum of the instrument error and the physical transducer draft (as measured in the first paragraph

* filed with original field records

above). Ten readings using this method were averaged to obtain the value for effective transducer draft. *Appendix IV contains the computations from these measurements and the correctors are applied to the HDAPS data through the Offset Table.

I. HORIZONTAL POSITION CONTROL

See section 2.a. of the Evaluation Report

I. Elecronic Positioning Equipment

Positioning information for this survey was provided by the Motorola Mini-Ranger Falcon 484 microwave positioning system. Several control stations were established which provided good lines of position geometry throughout the survey. There were no significant positioning problems experienced in this survey.

II. Electronic Positioning Calibration

All of the Motorola Mini-Ranger Falcon 484 codes were calibrated with each of the two Receiver / Transmitter units and with each of the two Range Processing Units to assure the accuracy that was required for the survey. This calibration was conducted on July 6, 1988, at Fentress Air Station near Norfolk. *Appendix IX contains all baseline calibrations.

III. Multiple LOP Positioning

In some areas, classical phase cancellation interference was encountered causing the loss of one or more LOP's from the HDAPS Least Square solution. An algorithm incorporated in the HDAPS software selectively evaluated all four incoming LOPs along with the heading of the vessel, and used only that data which appeared to be accurate. The Minimum Accepted Signal Strengths (MASS) were predetermined from the baseline calibration. MASS values are supplied to the HDAPS Program in the C-O tables. Any LOP received by HDAPS which is below the programmed MASS would be disregarded and not applied in the positioning algorithm. This multiple LOP technique greatly reduced the effect of occasional "flyers" and their associated position busts.

IV. Positioning Quality

Position quality is checked daily through a unique feature which has been added to the HDAPS system menu. A graphic display on the screen shows the LOP's for all stations selected, the geometry of the stations in relation to the ship, angles of intersection between

* filed with the original field records

stations, and a 95% Error Circle Radius. The Error Circle Radius is an approximation of positional accuracy and is a function of LOP geometry and assumed standard errors. It is a theoretical value which is computed without any real-time range data. Station numbers and residual values are also displayed. Residuals are a measure of LOP accuracy. If a significant error exists in one or more of the LOP's, the problem will be reflected in one or more of the LOP's having a large residual value.

V. Critical System Check

Critical system checks were computed using the standard three point fix to four known visible geodetic stations in the survey area. The angles observed by sextant were then entered into the HDAPS Computer for computation and comparison to the ranges received by the Mini-Ranger system. In accordance with the project instructions, these checks were only made when at least one of the following conditions existed:

1) Once a month on a given electronic control network.
2) Each time the electronic control scheme changed.
3) When the maximum residual value consistently (5 minutes) exceeds the larger of the following two values:
   i) 0.5 mm at the scale of the survey
   ii) 3 Meters

A closing baseline calibration of the Mini-ranger transponders was not required by project instructions.

VI. Geodetic Positioning Control

The horizontal datum for this project was the North American Datum of 1983. Four control stations were used as Mini-ranger locatioins on this survey.

Listings of the available geodetic control stations for this project were provided to the RUDE by AMC's Coastal Surveys Branch (N/MOA2222) prior to the start of the project. This listing is from Job No. HC-8603 conducted by N/MOA2222 in support of project OPR-B660-86-RU/HE. The control station list is provided in *Appendix III along with a control station reference list that was generated to aid in the correlation of station names, numbers, and positions.

* Filed with the original field records.

J. AUTOMATED DATA PROCESSING

I. Overview

All data collected during this survey was processed using HDAPS. A general description of the steps involved in the data processing sequence is discussed below. In addition, we also present a data tape inventory, summarizing the AWOIS data stored on each tape.

Most of the steps involved in the data processing sequence apply only to those items which are disprovals and therefore require accurate post-processing coverage plots. AWOIS items which are investigated and positively identified require only an accurate determination of their detached position and least depth. In conjunction with the AWOIS investigations, we also gathered depth information which allowed us to make general comparisons with prior surveys conducted in these areas.

II. Data Tape Numbering

When conducting survey operations on-line, all HDAPS data is recorded on a raw data tape. The HDAPS tape number is a five digit number assigned according to day of year the tape was first loaded, the tape number for that particular day, and whether it is a raw (0) or smooth tape (1). For instance, the second raw tape loaded on DOY 147 would have the tape number 14720.

III. Daily Data Abstracts

Concurrently with HDAPS data collection, we also acquire side-scan and echosounder traces, an on-line plot of the data, and a raw data listing of all selected soundings by survey line. At the completion of a day's work, we scan all side-scan and echosounder traces identifying potential targets and noting any coverage deficiencies. We manually summarize the data collected in a Daily and Post Processing Data Abstract and a Side Scan Sonar Target Abstract. These abstracts are included in Appendix VIII.*

The Daily and Post Processing Abstracts are grouped by AWOIS item and are a line by line summary of the survey run for that item. For all lines run, this abstract includes the day of year, the raw tape number, the fix numbers for that line, and the sidescan range which was run. In addition, for all data which was smooth plotted this abstract will list the smooth tape number and the effective sidescan range. Finally, any pertinent comments are entered in the far right column of the abstract. The Side Scan Sonar Target Abstracts are

* filed with the original field records

also grouped by AWOIS item and are used to account for any potential targets identified on either the sidescan or echosounder traces.

IV. Data Transfer - Tape to Disk

In order to begin post-processing the raw data, we had to transfer the data from the raw data tape onto hard disk. Although we supposedly had the ability to transfer and access data by fix number, we found that this method allowed only single line transfers (which is time consuming when dumping a tape onto hard disk), and also resulted in missing data. For this reason, we still used the Data Set Number (DSN) when transferring and accessing data.

V. Data Editing

After transferring data to hard disk, we then obtained a hard disk catalog which listed all the data currently stored on the hard disk along with the renumbered DSNs. HDAPS still does not store detached positions on tape, so all detached position data is on the raw data printout only. Any necessary editing was performed. This consists mainly of our ability to hard smooth any positioning busts and inserting echosounder peaks. Basically, a hard smooth consists of dead-reckoning between two good fixes over any major positioning busts. These edits were noted on the hard disk catalog and the raw data printouts by bracketing the fixes which were hard smoothed.

VI. Smooth Sonar Coverage Plots

After editing, we then smooth plotted the data as required. In order to illustrate our side-scan coverage, we produced multiple 100% swathplots for all areas surveyed. Using an HDAPS feature, we were able to vary the effective swath range within plots. For each line that was smooth plotted, we have listed the effective swath range for that line in the Daily and Post Processing Abstract. We derived this effective swath range by examining the side-scan traces and determining the minimum swath range for each line. The multiple swathplots, when viewed collectively, provide an accurate picture of the side-scan coverage obtained around each AWOIS item.

VII. Smooth Depth Plots

In addition to the coverage plots, we also plotted several echo-sounding lines using the HDAPS Depthplot function. These depthplots were used to make comparisons with prior surveys. Because all AWOIS data was gathered in the sidescan mode, we were unable to collect heave, roll, and pitch data. (Currently, heave

data can be collected only when HDAPS is in the Echosounder mode.) In cases where heave appeared to be significant, we manually corrected the depth using the HDAPS Edit Depth function.

VIII. Edited Data Tape

After the data on hard disk was edited and plotted, it was then transferred back to a tape which became the edited data tape. Because only one tape file could be stored on the hard disk at a time, it was necessary to perform multiple iterations of the data transfer process when raw data for an AWOIS item was stored on multiple tapes. Finally, we loaded the entire edited tape onto the hard disk and obtained a hard disk catalog of this information. This provided a line by line summary of all the data stored on the edited tape, and can be found in Appendix VIII.*

IX. Data Tape Inventory

The following table lists the raw and edited tape numbers where the AWOIS item survey data may be found.

AWOIS Item	RAW Data Tapes	EDITED Data Tapes
1732	23510	23511
1735	23510	23511
1736	24610	23511
4406	23710	23811
4408	24410, 24510	27911
4409	23710, 24410	27811
4415	23710	23811

X. Data Disposition

All data records and tapes have been forwarded to the Hydrographic Surveys Branch at the Atlantic Marine Center in Norfolk, Virginia. Hourly heights of actual recorded water level data (tides) for times of survey have been requested from the Sea and Lake Levels Branch in Rockville, Maryland to be sent to the Hydrographic Surveys Branch.

* Filed with the original field records

AWOIS ITEMS: 1732 1735 1736 4406 4408 4409 4415

K. COMPARISONS WITH PRIOR SURVEYS

See section 6.a. of the Evaluation Report.

Sounding data from each AWOIS item was plotted at a scale of 1:10,000 and compared with the prior surveys as listed in the table below.

Survey No.	Date	Scale	AWOIS No.
H-1732a	1914	1:20,000	1732 1735 1736
H-5413a	1933	1:10,000	4406 4408 4409 4415
H-5544	1934	1:10,000	1736

In general, this survey agreed closely with the prior surveys. Because the required search areas for the items on the north side of the Sound (4406, 4408, 4409, and 4415) were only 75 meters, the comparisons with H-5413a were limited. In the SE corner of the AWOIS 1736 search area, survey soundings were two feet shoaler than H-5544. In addition, many rocks were identified in this area which were not detected in the earlier survey. Specific recommendations for all targets investigated are included in the individual AWOIS write-ups.

L. MISCELLANEOUS

The side scan sonar and HDAPS system software represents a substantial deviation from our old way of "doing business". Numerous advances have been made, the most important of which is the use of multiple lines of position. Current guidelines for Hydrography do not adequately describe how field work should be done with this system during an "Item Investigation Survey".

It will most likely take some time to revise survey guidelines, OPORDERS, and instructions to reflect the use of this new system. Because those guidelines are not yet revised, we have in the name of efficient and practical operations, changed some procedures during the course of this project. The most significant change is the form and content of the descriptive report. We have attempted to include all of the information necessary to adequately review the survey and forward critical information for charting.

M. AWOIS ITEM 1732 INVESTIGATION

I. Area of Investigation

AWOIS Item:	1732
State:	New York
County:	Nassau
Locality:	Matinecock Point
Latitude:	40° 53' 54.0" N (charted position)
Longitude:	73° 40' 11.0" W (charted position)
Depth:	Unknown (wreck)

II. AWOIS Item Description

AWOIS item 1732 was first investigated during Survey CL1561 in 1964 and was published in the Notice to Mariners in volume 32/64. It is described as a sailboat, 21 feet in length, sunk in 40 feet of water with a mast 20 feet above deck. Present survey requirements are for 200% sidescan coverage to a 750m radius for disproval or diver investigation and least depth if found.

III. Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item:	1732
Positioning:	Falcon Mini-Ranger
Sonar Search:	22 August 1988 (DOY 235)
	23 August 1988 (DOY 236)
Diving:	30 August 1988 (DOY 243)
Echo Sounding:	No echo sounding development
Sonification:	200% total SSS coverage
	100% @ N/S line scheme, 75 & 50 meter range
	100% @ E/W line scheme, 50 meter range
Targets:	One significant target, 1732A

Initial side scan survey lines were run using a 75 meter range setting, but water column interference (large schools of small fish) appeared to limit the effective coverage range to 50 meters. After running the first several lines, we reduced to a 50 meter range and completed the survey at this setting, obtaining 100% coverage along a N/S orientation and 100% coverage along an E/W orientation.

Survey line holidays created by our initial attempts at the 75 meter range setting were filled in during the second day of coverage. Periodic holidays also occur on the on-line SSS plot because of an

HDAPS feature which automatically compresses the plotted swath coverage when the fish height falls below 8% of the sidescan range. In most cases, this occured because the sidescan tracked a false bottom such as a school of fish in the water column. In these instances, the sidescan trace is useable for the full range.

Sporadic position flyers were encountered during this survey but they were short in duration and we were able to smooth over them in post-processing. Several contacts were identified during this survey, however additional sidescan reconnaissance revealed only one of these to be possibly significant.

IV. Target 1732A Investigation

(a) Target Dive Summary

Target 1732A was diver investigated on August 30, 1988. A marker buoy was deployed and divers descended down this line to a depth of approximately 50 feet. Divers conducted a 10 meter radius circle search about the buoy anchor and quickly discovered a partially buried wreck. A search was conducted about the wreck in order to locate its high point and determine its extent. The buoy anchor was moved to the high point and a 10m radius constant depth circle search was conducted about this point. No shoaler obstructions were encountered. A least depth was obtained on the high point by the pneumo depth gauge.

(b) Target Description

Target 1732A was found to be an old wooden wreck approximately 25 feet long and 8 feet wide resting upright on a muddy bottom. There was no house, mast, or other prominent projection on the wreckage and the high point was consistent from bow to stern. The wreck was covered with marine growth and the stern section was broken up. No identifying marks were visible and the vessel type could not be distinguished.

(c) Target Least Depth Determination

Least depth was taken by divers by pneumo depth gauge.

Target:	1732A
Date:	August 30, 1988 (DOY 243)
Time:	1810 Z
Average Pneumo Depth:	53.0 Ft.
Pneumo Gauge Corrector:	+0.2
~~PREDICTED~~ Tidal Zone Cor:	-8.6
Actual Least Depth:	44.6 Ft.

(d) Target Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Target:			1732A	
HDAPS Position Numbers:			2465-2467	
Average Easting:			100795.8 E	
Average Northing:			16523.1 N	
Computed Latitude:			40° 53' 55.6~~49~~5" N	
Computed Longitude:			73° 39' 26.000" W	
Loran C Rates:	9960-W	9960-X	9960-Y	9960-Z
Average Loran:	15367.7	26901.5	43941.5	59993.0

1732

(e) Target Recommendation

The following data has been collected for this target.

Target:	1732A
Description:	Sounding over a wreck, no danger circle
Latitude:	40° 53' 55.6~~49~~5" N
Longitude:	73° 39' 26.000" W
Least Depth:	44.6 Feet
Surrounding Chart Depth:	~~38~~ 44-51 Feet

This charted wreck is an old deteriorating wreck which poses no threat to navigation. It is reccomended that that target 1732A be charted as symbol 16 from section "O" (Dangers), page 13 of Nautical Chart Number 1. Do Not Concur

V. AWOIS Item 1732 Recommendation

AWOIS item 1732, as origionaly charted, is considered disproved by 200% side scan coverage. Given the age and size of the listed AWOIS item, it is unlikely that it still poses a hazard to navigation.

The only significant contact investigated during this search, target 1732A, may have been the listed item, but positive identification was not possible. Target 1732A poses no hazard to navigation and should be charted ~~as reccomended above~~. Concur. See also section 7.a.3) of the Evaluation Report.

N. AWOIS ITEM 1735 INVESTIGATION

I. Area of Investigation

AWOIS Item:	1735
State:	New York
County:	Nassau
Locality:	Matinecock Point
Latitude:	40° 54' 28" N
Longitude:	73° 40' 35" W
Depth:	40.0 Feet, obstruction

II. AWOIS Item Description

AWOIS item 1735 was first discovered by Survey H5078, ND in 1930, Project Number 64. It was reported as a hang on an obstruction at 40 feet. Present survey requirements are for 400% sidescan sonar coverage at 75 meter radius and diver investigation if found.

III. Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item:	1735
Positioning:	Falcon Mini-Ranger
Sonar Search:	24 August 1988 (DOY 237)
Diving:	None
Echo Sounding:	No echo sounding development
Sonification:	400% total SSS coverage
	200% @ E/W line scheme, 50 meter range
	200% @ N/S line scheme, 50 meter range
Targets:	No significant targets

There were no problems encountered with either the positioning equipment or side scan sonar.

IV. AWOIS Item 1735 Recommendation

AWOIS Item 1735 is considered disproved by 400% side scan coverage with no significant contacts identified in the required search area. The "Obstr" symbol representing AWOIS item 1735 should be removed from the chart. Concur. See also sheet 2 of 4, (1 and 2) appended to the Evaluation Report showing the area of side scan sonar investigation by the field unit.

O. AWOIS ITEM 1736 INVESTIGATION

I. Area of Investigation

AWOIS Item:	1736
State:	New York
County:	Nassau
Locality:	0.5 nm north of Matinecock Point
Latitude:	40° 54' 38" N (reported position)
Longitude:	73° 38' 04" W (reported position)
Depth:	Unknown (wreck)

II. AWOIS Item Description

AWOIS item 1736 was first reported in the 3rd USCG District Local Notice to Mariners, volume 36/74, dated September 14, 1974. It is described as cabin cruiser 33 feet in length reported sunk in 40 feet of water. Present survey requirements are for 200% sidescan coverage to a 750m radius for disproval or diver investigation and least depth if found.

III. Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item:	1736
Positioning:	Falcon Mini-Ranger
Sonar Search:	6-7 September 1988 (DOY 250-251)
Diving:	7-9 September 1988 (DOY 251-253)
	12 September 1988 (DOY 256)
	15 September 1988 (DOY 259)
Echo Sounding:	No echo sounding development
Sonification:	200% total SSS coverage
	100% @ E/W line scheme, 50 meter range
	100% @ contour of shoal, 50 meter range
Targets:	Six significant targets, 1736A-1736F

Except for periodic interference from large schools of small fish, side scan coverage was good throughout. The 1st 100% coverage was obtained along an E/W orientation and the 2nd 100% was oriented along the contour of the shoal at the southern end of the survey area. All lines were run at a 50 meter range setting.

Position quality was strong during this survey and no significant control problems were encountered.

Because of the large number of contacts identified during this search, a separate HDAPS contact file was created for this item. This plot enabled us to select the most significant contacts for further investigation. The investigations for the six selected targets are summarized below.

IV. Target 1736A Investigation

(a) Target Dive Summary

Target 1736A was investigated by divers on September 7, 1988 (DOY 251). Divers descended down the dive buoy line to the anchor and found a rock nearby. The buoy anchor was moved to the highest point on this rock and a 10-meter radius constant depth circle search was conducted about this point. Although numerous rocks were seen during the search, none were as shoal as the initial rock found. Divers obtained a least depth for this rock.

(b) Target Description

Target 1736A was found to be a rock approximately 7 feet tall and 8 feet in diameter. The rock had an abundance of sea-life and was surrounded by numerous smaller rocks of greater depth.

(c) Least Depth Determination

Least depth of target 1736A was taken by divers with a pneumo depth gauge.

Target:	1736A
Date:	September 7, 1988 (DOY 251)
Time:	1857 Z
Average Pneumo Depth:	24.7 Ft.
Pneumo Gauge Corrector:	+0.1
~~PREDICTED~~ Tidal Zone Cor:	-0.8 ~~-1.5~~
Actual Least Depth:	24.0 ~~23.3~~ Ft.

(d) Target Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Target:	1736A
HDAPS Position Numbers:	3078-3080
Average Easting:	102883.8 E
Average Northing:	17585.1 N
Computed Latitude:	40° 54' 30.~~060~~056" N
Computed Longitude:	73° 37' 56.775" W

Loran-C Rates:	9960-W	9960-X	9960-Y	9960-Z
Average Loran:	15357.6	26890.8	43944.7	59996.8

(e) Target Recommendation

The following data has been collected for this target.

Target:	1736A (Rock)
Description:	Shoal sounding in a group of rocks
Latitude:	40° 54' 30.060" N
Longitude:	73° 37' 56.7~~75~~8" W
Least Depth:	23.3 Feet
Surrounding Chart Depth:	21 Feet

Target 1736A is a rock which is part of a foul area. This target should help define the limits of the foul area surrounding target 1736F which is the shoalest rock in the group. Chart as a rock with a depth of 24 feet (24 Rk) in the position determine by the present survey. See paragraph (e).

V. Target 1736B Investigation

(a) Target Dive Summary

Target 1736B was investigated on September 8, 1988 (DOY 252). Divers descended down the dive buoy line to a depth of nearly 60 feet and discovered scattered wreckage. Divers then swam the extent of the wreckage checking for least depth and also attempting to identify the debris. After defining the limits of the wreckage and locating the high point, divers obtained a least depth.

(b) Target Description

Target 1736B was found to be plate steel entangled and rusted , interspersed with both iron and copper tubing. The item appeared to be wreckage but postive identification was not possible. The item covered an area approximately 15 feet by 10 feet, and no masts or other prominent structures were present. The high point identified by divers was a large piece of metal, projecting approximately six feet off the bottom. The bottom is composed of packed gravel and small rocks, none of which approach the least depth of the wreckage.

(c) Target Least Depth Determination

Least depth was determined by divers using a pneumo depth gauge.

Target:	1736B
Date:	September 8, 199 (DOY 252)
Time:	1940 Z
Average Pneumo Depth:	47.5 Ft.
Pneumo Gauge Corrector:	+0.2
~~PREDICTED~~ Tidal Zone Cor:	-1.5
Actual Least Depth:	46.2 Ft.

(d) Target Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Target:	1736B
HDAPS Position Numbers:	3110-3112
Average Easting:	101879.6 E
Average Northing:	18037.4 N
Computed Latitude:	40° 54' 44.733" N
Computed Longitude:	73° 38' 39.678" W

Loran-C Rates:	9960-W	9960-X	9960-Y	9960-Z
Average Loran:	15361.7	26897.3	43948.0	59997.0

7516

(e) Target Recommendation

The following data has been collected for this target.

Target: 1736B (Wreck)
Description: Wreck over which depth is known
Latitude: 40° 54' 44.738" N
Longitude: 73° 38' 39.678" W
Least Depth: 46.2 feet
Surrounding Chart Depth: 50 Feet

7516

This is a wreck of known depth. It is recommended that Target 1736B be charted as symbol 15 in section "O" (Dangers), page 13 of Nautical Chart Number 1. Chart as a dangerous sunken wreck with a depth of 46 feet (46 Wk) in the position determined by the present survey. See paragraph (e)

VI. Target 1736C Investigation

(a) Target Dive Summary

Target 1736C was investigated on September 9, 1988 (DOY 253). Divers descended down the dive buoy line to a depth of nearly 50 feet. Divers conducted a 10m radius circle search around this point and discovered a large rock. The buoy anchor was moved to this rock and a 10m radius constant depth circle search was then conducted about this point. No shoaler obstructions were encountered and a least depth was obtained for this rock.

(b) Target Description

Target 1736C was found to be a rock, approximately 12 feet long by 10 feet wide, which rose nearly 7 feet off the surrounding bottom. It was surrounded by many smaller rocks and rested on a firm gravel bottom.

(c) Target Least Depth Determination

Least depth was determined by divers using a pneumo depth gauge.

Target:	1736C
Date:	September 9, 1988 (DOY 253)
Time:	1412 Z
Average Pneumo Depth:	40.4 Ft.
Pneumo Gauge Corrector:	+0.2
~~PREDICTED~~ Tidal Zone Cor:	~~-6.7~~ -7.4
Actual Least Depth:	33.92 Ft.

(d) Target Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Target:	1736C
HDAPS Position Numbers:	3116-3118
Average Easting:	103052.0 E
Average Northing:	17722.1 N
Computed Latitude:	40° 54' 34.~~499~~50" N
Computed Longitude:	73° 37' 49.5~~85~~9" W

Loran-C Rates:	9960-W	9960-X	9960-Y	9960-Z
Average Loran:	-------	NO LORAN RATES TAKEN		-------

(e) Target Recommendation

The following data has been collected for this target.

Target:	1736C (Rock)
Description:	Shoal sounding in a group of rocks
Latitude:	40° 54' 34.499" N
Longitude:	73° 37' 49.585" W
Least Depth:	33.92
Surrounding Chart Depth:	~~21 Feet~~

Target 1736C is a rock which is part of a foul area. This target should help define the limits of the foul area surrounding target 1736F which is the shoalest rock in the group. Chart as a rock with a depth of 33 feet (33 Rk) in the position determined by the present survey. See paragraph (e)

VII. Target 1736D Investigation

(a) Target Dive Summary

Target 1736D was investigated on September 9, 1988 (DOY 253). Divers descended down the dive buoy line to a depth of nearly 50 feet. Divers conducted a 10m radius circle search about this point and discovered a large rock. The buoy weight was moved to the pinnacle of this rock and a 10m constant depth circle search was conducted about this point. No shoaler obstructions were encountered and a least depth was obtained for this rock.

(b) Target Description

Target 1736D was found to be a large rock, approximately 8 feet in diameter, which projected nearly 6 feet off the bottom. It was surrounded by smaller rocks and rested on a firm gravel bottom.

(c) Target Least Depth Determination

Least depth was taken by divers using a pneumo depth gauge.

Target:	1736D
Date:	September 9, 1988 (DOY 253)
Time:	1447 Z
Average Pneumo Depth:	39.9 Ft.
Pneumo Gauge Corrector:	+0.2
~~PREDICTED~~ Tidal Zone Cor:	-7.3
Actual Least Depth:	32.8 Ft.

(d) Target Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Target:	1736D
HDAPS Position Numbers:	3113-3115
Average Easting:	102777.2 E
Average Northing:	17687.6 N
Computed Latitude:	40° 54' 33.384" N
Computed Longitude:	73° 38' 01.328" W

Loran-C Rates:	9960-W	9960-X	9960-Y	9960-Z
Average Loran:	15358.1	26891.5	43945.3	59997.0

(e) Target Recommendation

The following data has been collected for this target.

Target:	1736D (Rock)
Description:	Shoal sounding in a group of rocks
Latitude:	40° 54' 33.384" N
Longitude:	73° 38' 01.328" W
Least Depth:	32.8 Feet
Surrounding Chart Depth:	~~21 Feet~~

Target 1736D is a rock which is part of a foul area. This target should help define the limits of the foul area surrounding target 1736F which is the shoalest rock in the group. Chart as a rock with a depth of 32 feet (32 Rk) in the position determined by the present survey. See paragraph (e).

VIII. Target 1736E Investigation

(a) Target Dive Summary

Target 1736E was investigated on September 15, 1988 (DOY 259). Divers descended down the dive buoy line to a depth of 30 feet. Divers conducted a 10m radius circle search and discovered a large rock. The marker buoy was moved to the pinnacle of this rock and divers then conducted a 10m radius constant depth circle search about this point. No shoaler obstructions were encountered and divers obtained a least depth for this rock.

(b) Target Description

Target 1736E was found to be a rock, approximately 5 feet in diameter, which projected nearly 6 feet off the bottom. The rock had a shape similar to that of a large cylindrical item such as a drum. The rock rested on a firm, gravel bottom and was surrounded by many smaller rocks.

(c) Target Least Depth Determination

Least depth was taken by divers using pneumo depth gauge.

Target:	1736E
Date:	September 15, 1988 (DOY 259)
Time:	1310 Z
Average Pneumo Depth:	21.4 Ft.
Pneumo Gauge Corrector:	+0.1
~~PREDICTED~~ Tidal Zone Cor:	-0.6 ~~-1.1~~
Actual Least Depth:	20.~~4~~8 Ft.

(d) Target Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Target:	1736E
HDAPS Position Numbers:	3206-3208
Average Easting:	102714.8 E
Average Northing:	17482.1 N
Computed Latitude:	40° 54' 26.723" N
Computed Longitude:	73° 38' 03.~~998~~ 4.00" W

Loran-C Rates:	9960-W	9960-X	9960-Y	9960-Z
Average Loran:	15358.4	26891.5	43944.3	59996.5

(e) Target Recommendation

The following data has been collected for this target.

Target:	1736E (Rock)
Description:	Shoal sounding in a group of rocks
Latitude:	40° 54' 26.723" N
Longitude:	73° 38' ~~03.898~~ 03.88" W
Least Depth:	20.~~4~~ 8 Feet
Surrounding Chart Depth:	~~21 Feet~~

Target 1736E is a rock which is part of a foul area. This target should help define the limits of the foul area surrounding target 1736F which is the shoalest rock in the group. CHART AS A rock WITH A depth OF 21 Feet (21 RR) IN THE POSITION DETERMINED BY THE PRESENT SURVEY SEE PARAGRAPH (e).

IX. Target 1736F Investigation

(a) Target Dive Summary

Target 1736F was investigated on September 12, 1988 (DOY 256). Divers descended down the dive buoy line to a depth of nearly 30 feet. Divers found a large rock near the buoy weight and moved the weight to the highest point on the rock. Divers then conducted a 10m constant-depth circle search about this point. No shoaler obstructions were encountered and divers obtained a least depth for this rock.

(b) Target Description

Target 1736F was found to be a large rock, approximately 20 feet in diameter, which projected 9 feet above a firm, gravel bottom. The rock was by far the most prominent in an area of many rocks and had an abundance of sealife both attached to it as well as near it.

(c) Target Least Depth Determination

Least depth of target was determined by divers using a pneumo depth gauge.

Target:		1736F
Date:		September 12, 1988 (DOY 256)
Time:		1816 Z
Average Pneumo Depth:		20.1 Ft.
Pneumo Gauge Corrector:		+0.1
~~PREDICTED~~ Tidal Zone Cor:	-7.2	~~-6.6~~
Actual Least Depth:		~~13.6~~ Ft. 12.9

(d) Target Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Target:			1736F	
HDAPS Position Numbers:			3123-3125	
Average Easting:			102891.4 E	
Average Northing:			17404.8 N	
Computed Latitude:		40° 54' 24.21~~8~~" N		
Computed Longitude:		73° 37' 56.45~~8~~" W		
Loran-C Rates:	9960-W	9960-X	9960-Y	9960-Z
Average Loran:	15357.7	26890.4	43943.7	59996.4

(e) Target Recommendation

The following data has been collected for this target.

Target:	1736F (Rock)
Description:	Shoalest sounding on a group of rocks
Latitude:	40° 54' 24.21~~8~~" N
Longitude:	73° 37' 56.45~~8~~" W
Least Depth:	~~13.6~~ 12.9 Feet
Surrounding Chart Depth:	~~21 Feet~~

Target 1736F is the shoalest rock amongst many rocks. It is recommended that this target be charted as symbol 5 in section "O" (Dangers), page 12 of Nautical Chart Number 1. Chart as a rock with a depth of 13 feet (13 Rk) in the position determined by the present survey see paragraph (e).

X. AWOIS Item 1736 Recommendation

AWOIS item 1736, as reported, is considered disproved through 200% sidescan coverage to a 750m radius with subsequent diver investigations on significant contacts. Many contacts were identified during this search, primarily submerged rocks which extended seaward from the rocky Matinecock Point. Divers investigated those rocks which appeared to be most significant. Because of the close proximity of all of these investigated rocks (1736A, 1736C, 1736D, 1736E, and 1736F), it is recommended that they be charted as a shoal sounding on a group of rocks, with only the shoalest depth (1736F) reported. The only wreck-like target investigated (1736B) does not fit the description of the AWOIS item. Concur

The following summary of target information for AWOIS Item 1736 is presented for comparison:

Target	Description	Depth (FT)	Easting	Northing
1736 A	Rock	~~23.3~~ 24.0	102,883.8	17,585.1
1736 B	Wreck	46.2	101,879.6	18,037.4
1736 C	Rock	33.9	103,052.0	17,722.1
1736 D	Rock	32.8	102,777.2	17,687.6
1736 E	Rock	~~20.4~~ 21.0	102,714.8	17,482.1
1736 F	Rock	13.6	102,891.4	17,404.8

See also section 7.a.4) of the Evaluation Report

P. AWOIS ITEM 4406 INVESTIGATION

I. Area of Investigation

AWOIS Item:	4406
State:	New York
County:	Westchester
Locality:	Mammaroneck Harbor
Latitude:	40° 55' 22.7" N (charted position)
Longitude:	73° 42' 20.5" W (charted position)
Depth:	12 Feet, wire drag hang

II. AWOIS Item Description

AWOIS item 4406 was first discovered by Survey H5078, WD in 1930, Project Number 64. It was reported as a hang on an obstruction (boulder) at 12 feet. Present survey requirements are for 200% sidescan sonar coverage at 75 meter radius and diver investigation if found.

III. Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item:	4406
Positioning:	Falcon Mini-Ranger
Sonar Search:	24 August 1988 (DOY 237)
	26 August 1988 (DOY 239)
	30-31 August 1988 (DOY 243-244)
Diving:	None
Echo Sounding:	25-26 August 1988 (DOY 238-239)
Sonification:	200% SSS coverage, 500 meter radius
	200% SSS coverage, 75 meter radius
Targets:	Many significant contacts

There were no problems encountered with either the positioning or side scan sonar equipment.

During the initial side scan coverage many contacts were identified. Because of the large number of contacts found, a separate HDAPS contact file was created for this item. The positions of all contacts from the various sheets were plotted together, allowing better evaluation of their significance.

Among the contacts identified was a pipeline which ran through the center of the survey area and discharged just outside the search radius. Westchester County Health officials identified this

pipeline as a primary effluent sewage outfall. Because of the proximity of this outfall, diving operations were not conducted in this area.

Because dive investigations were not possible, we spent August 25 and 26, 1988 (DOY 238-239) running echosounder development lines, spaced three meters apart, over significant contacts identified during the initial side scan coverage. These developments were run at slow speeds on a 1:1,000 scale sheet in order to permit very tight spacing of plotted soundings. The shoalest depth encountered during these echosounder developments was ~~30~~ 27 feet.

Since none of these depths approached the charted 12 foot sounding, we began an expanded 500 meter sidescan search on 26 August 88 (DOY 239). We continued this search on 30 August 88 (DOY 243) and 31 August 88 (DOY 244), eventually obtaining 200% sidescan coverage along an E/W orientation. Again, numerous contacts were identified, but none appeared to approach the 12 foot sounding. The shoalest contacts identified were several rocky shoals located well north of the AWOIS item and in the vicinity of presently charted shoals.

IV. AWOIS Item 4406 Recommendation

See section 6.b. of the Evaluation Report.

An initial 200% 75-meter radius side scan search with subsequent echosounder developments of significant contacts, and an additional 200% 500-meter radius sidescan search failed to locate the charted 12 foot sounding. Although the AWOIS listing describes the item as a boulder, a review of the 1930 wire drag survey which generated the listing shows the item only as an uninvestigated hang.

If the 1930 wire drag hang had been a mast or other projecting debris, it probably would have deteriorated and broken down over time. We did note two small wreck-like features within the original survey area but neither rose significantly off the bottom. Had the hang been a large boulder, as reported, it should still be intact and clearly visible on the side scan trace; this was not the case. *Concur*

Shortly after completing this search, a Local Notice to Mariners bulletin (No. 38, Vol. 2, First Coast Guard District, 9/21/88) was issued which described an upcoming pipelaying operation to be conducted in Mammaroneck Harbor by Weeks Marine, Inc. (see enclosed notice). According to the proposed engineering plans, which we obtained from the Westchester County Environmental Services Division, this pipeline will run through our survey area, very close to the existing pipeline. We have included a copy of the engineering plans for this pipeline with the descriptive report. Because this operation will entail both blasting and dredging this area may need to be resurveyed after the construction is complete.

MASSACHUSETTS - BUZZARDS BAY - POCASSET HARBOR - A rock has been reported in Pocasset Harbor north channel approximately 100 feet south of Pocasset Harbor Buoy 9 in five feet of water at low tide.
Charts: 13229, 13230
Reference: LNM 38/88 (CG1)

MASSACHUSETTS - BUZZARDS BAY - Two orange balls with 200 feet of polypropylene line attached have been reported in approximate position 41 33N 70 47.5W. Mariners are advised to use caution when transitting the area.
Charts: 13233, 13230, 13229
Reference: LNM 38/88 (CG1)

RHODE ISLAND - NARRAGANSETT BAY - WEST PASSAGE- A No Wake zone has been established by the United States Coast Guard Marine Safety Office, Providence, Rhode Island, 1000 yards North and 1000 yards South of the Jamestown Bridge due to barge and crane operations during the construction of the New Jamestown Bridge. Mariners are advised to use extreme caution transitting the area of the Jamestown Bridge.
Chart: 13221
Reference: LNM 43/87 (CG1)

NEW YORK - LONG ISLAND - FIRE ISLAND INLET - Shoaling exists between Fire Island Inlet Lighted Buoy 2A and Lighted Buoy 4. Shoaling extends approximately 15 to 20 yards into, and 20 to 30 yards down, the channel with a mean low water depth of 6 to 8 feet.
Chart: 12352
Reference: LNM 37/88 (CG1)

NEW YORK - EAST RIVER - MAMARONECK HARBOR - A safety zone will be established from 2:00 PM to 6:00 PM Monday thru Friday commencing on 12 September and terminating on 27 November 1988. The Captain of The Port New York has declared the waters within a 500 yard radius of Mamaroneck Harbor commencing from a point approximately 450 yards south of Orienta Point, thence southeast to Black Tom Island, thence south-southeast for approximately 1750 yards a safety zone. This zone is being established and enforced by representatives of the Captain of The Port New York due to the hazards associated with blasting operation. No vessel may enter this zone without permission of the Captain of The Port of New York.
Charts: 12368, 12364
Reference: LNM 37/88 (CG1)

NEW YORK - EAST RIVER - MAMARONECK HARBOR - Weeks Marine Inc. advises that they will be constructing a 60" dia. outfall pipe from the beach at Orienta Point to approximately 7000 feet offshore. The work, which will consist of blasting, dredging, pile driving and backfilling, will continue through December 31, 1989. During this peroid, anchor buoys, barges, moorings, dredges and floating derricks will be located in the area. Mariners are advised to use caution when transitting the area.
Charts: 12368, 12364
Reference: LNM 38/88 (CG1)

NEW JERSEY - TOMS RIVER TO ORTLEY BEACH - Dive Masters Co. reports work has begun to inspect the Ciba-Geigy pipeline approximately 1 mile north of Mathis Bridge and 1500 feet west of the Intracoastal Waterway. Two floating rigs with cranes, marked with QY lights, will be in the area. Work is expected to finish on or about October 30, 1988. Mariners are advised to use caution when transitting the area.
Charts: 12323, 12324
Reference: LNM 38/88 (CG1)

SUMMARY OF GENERAL ARTICLES STILL IN EFFECT

The following is a summary of all general articles still in effect for the First Coast Guard District. Mariners are advised that the information will be published once upon receipt and again in LNM 13A of each year if still applicable. To obtain the information refer to the reference local that is indicated next to the item.

LOCATION	OPERATION	COMPLETION	CHART(S)	LNM
NY/Raritan Bay/Newark Bay	Biological sampling	01/31/89	12327	07/88
NY/CT/Long Island Sound	Current studies	10/10/88	12354,12377	14/88
NJ/ Passaic Channel	Pipeline const.	09/30/88	12337	26/88
NY/Hudson River/Rondout Creek	Dike Rehab.	further notice	12347	24/88
NY/Long Island Sound	NOAA instruments	12/15/88	12354	33/88

MARINE EVENTS

LOCATION	DATE(S)/TIME(S)	EVENT	SPONSOR	CHART(S)
Hempstead Hbr	24 Sep 1988	Moonlighter Race	Sea Cliff Yacht Club	12366
South of Stamford to Buoy 32A	25 Sep 1988 0930 to 1630	Stamford - Denmark Friendship Race	Stamford - Denmark Race Committee	12364
Western Long Island Sound	24-25 Sep 1988	Multi-Hull Championship	Roton Point Sailing Assoc.	12363
N. River to Craven Shore	24 Sep 1988	15th Annual NY Governors Cup Regatta	NY Governors Cup Regatta GYRA	12353
Hudson River Albany, NY	24 Sep 1988	Head of the Hudson Regatta	OARS Rowing Club	12363

Q. AWOIS ITEM 4408 INVESTIGATION

I. Area of Investigation

AWOIS Item:	4408
State:	New York
County:	Westchester
Locality:	0.6 nm NE of Execution Rocks Lighthouse
Latitude:	40° 56' 24.0" N (charted position)
Longitude:	73° 41' 11.0" W (charted position)
Depth:	Unknown wreck in 42 feet of water

II. AWOIS Item Description

AWOIS item 4408 was first reported in Local Notice to Mariners volume 43/73, dated October 11, 1973, as a dangerous submerged wreck, 25 feet long, sunk in 42 feet of water. Present survey requirements are for 200% sidescan sonar coverage at 300 meter radius and diver investigation if found. The AWOIS listing also states that if not found additional requirements will be assigned to OPR-B285.

III. Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item:	4408
Positioning:	Falcon Mini-Ranger
Sonar Search:	1 September 1988 (DOY 245)
Diving:	8 September 1988 (DOY 252)
Echo Sounding:	No echo sounding development
Sonification:	Only partial sonar coverage
Targets:	One significant target, 4408A

There were no significant problems encountered with either the positioning or side scan sonar equipment.

The side scan search area for AWOIS Item 4408 is located near shore along the rock strewn coastline of Peningo Neck. Four lines of side scan sonar data were collected on September 1, 1988 (DOY 245). The remainder of the search area is too foul with rocks to safely navigate with the RUDE. One significant contact was identified from the sonargrams. This contact was investigated by divers and a least depth was obtained.

IV. Target 4408A Investigation

(a) Target Dive Summary

Target 4408A was investigated on September 8, 1988 (DOY 252). Divers descended down a marker buoy line to a prominent rock pile. After placing the buoy weight on the high point of this rock pile divers conducted a 10 meter radius constant depth search. No shoaler obstructions were located and divers obtained a least depth for this rock.

(b) Target Description

Target 4408A was found to be a rock pile, projecting 8 feet off the bottom. This rock pile is approximately 12 feet in diameter.

(c) Target least Depth Determination

Least depth was taken by divers with a pneumo depth gauge.

Target:	4408A
Date:	September 8, 1988 (DOY 252)
Time:	1502 Z
Average Pneumo Depth:	41.1 Ft.
Pneumo Gauge Corrector:	+0.2
~~PREDICTED~~ Tidal Zone Cor:	-7.~~4~~ 2
Actual Least Depth:	~~33.9~~ 34.1 Ft.

(d) Target Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Target:			4408A	
HDAPS Position Numbers:			3087-3089	
Average Easting:			98381.2 E	
Average Northing:			20834.0 N	
Computed Latitude:		40° 56' 15.39~~8~~" N		
Computed Longitude:		73° 41' 09.20~~2~~" W		
Loran C Rates:	9960-W	9960-X	9960-Y	9960-Z
Average Loran:	15375.3	26922.2	43965.7	60000.6

(e) Target Recommendation

It is recommended that target 4408A remain uncharted as the chart depicts shoaler soundings in the immediate vicinity. Concur. The 34-ft. sounding on a rock is in the immediate area of a charted 25-ft sounding See also Section 7.a.5) of the Evaluation Report.

V. AWOIS Item 4408 Recommendation

Side scan coverage was completed for 30% of the assigned search area of AWOIS Item 4408. Due to the area being foul with rocks the remaining area could not be surveyed safely by the RUDE.

One dive was made on target 4408A and a least depth determined. Target 4408A is not the item described in the AWOIS listing. Further investigation should be conducted during the next basic hydrographic survey of the area. Concur. AWOIS item #4408 was not found or disproved. Retain as charted.

R. AWOIS ITEM 4409 INVESTIGATION

I. Area of Investigation

AWOIS Item:	4409
State:	New York
County:	Westchester
Locality:	0.8 nm East of Peningo Neck
Latitude:	40° 57' 08.0" N (charted position)
Longitude:	73° 39' 55.0" W (charted position)
Depth:	29 Feet, cleared by wire drag

II. AWOIS Item Description

AWOIS item 4409 was first reported in project number H5142/31WD, a 1931 wire drag survey as wreckage with a least depth of 29 feet. The AWOIS listing also states that a private diver, Mr. Lada Simek had reported in 1986 that this item is a large rock 60x20x8 feet. Present survey requirements are to determine if this feature is a rock or a wreck and measure least depth if found, or disproval through 200% side scan coverage at a 75 meter search radius.

III. Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item:	4409
Positioning:	Falcon Mini-Ranger
Sonar Search:	31 August 1988 (DOY 244)
Diving:	None, polluted water
Echo Sounding:	1 September 1988 (DOY 245)
Sonification:	200% coverage, 75 meter radius
Targets:	Two significant targets

There were no problems encountered with either the positioning or side scan sonar equipment.

200% side scan coverage was obtained with two significant targets identified and investigated by echosounder. Polluted water prevented diving operations on these contacts. A sewer outfall is located within 1/4 mile of the search area. Least depths were obtained by scanning the fathograms from the 100% echosounder development of the bottom in the vicinity of each target.

IV. Target 4409A Investigation

(a) Target Echo Sounding Summary

Target 4409A was first identified at the following locations during the initial side scan search.

DOY	Fatho Contact	Sonar Contact
244	2653.09F	-
244	-	2653.14P
244	-	2642.22P

Echo sounding lines were run to provide 100% coverage over the target area and also determine the extent of shoaling or fouling. Echo sounding development is summarized below.

DOY	No. of Lines	Position Numbers
245	06	2665 - 2703

Five meter spacing echosounding lines were run over this area. The feature is seen on 4 lines.

(b) Target Description

Target 4409A was found to be an irregular rocky feature. The item appears to be a rocky shoal rising 7 feet off the bottom.

(c) Target Least Depth Determination

Least depth was detremined using echosounding methods.

Target:		4409A
Date:		September 1, 1988 (DOY 245)
Time:		1417 Z
Position:		2671.80F
Least Depth Reading:	23.1	~~23.0~~ Ft.
Velocity Corrector:	1.0	~~+0.8~~
Effective Draft Cor:	7.8	~~+7.5~~
~~PREDICTED~~ Tidal Zone Cor:	- 0.4	~~+0.1~~
Actual Least Depth:		31.45 Ft.

(d) Target Positioning

This target's position was determined by scanning the fathograms for the least depth recorded over this area and selecting the following shoalest sounding.

Target:	4409A
HDAPS Position Number:	2671.80
Easting:	100147.3 E
Northing:	22483.7 N
Computed Latitude:	40° 57' 08.8~~81~~" N
Computed Longitude:	73° 39' 53.~~702~~" W

9

53

(e) Target Recommendation

It is recommended that target 4409A be charted as a sounding over a rock, using symbol 5, section "O" (Dangers), of Nautical Chart No. 1. Concur. Chart as a rock with a depth of 31 feet (31 RK) in the position determined by the present survey. See paragraph (d). See also sheet 6 of 7 appended to this Report.

V. Target 4409B Investigation

(a) Target Echo Sounding Summary

Target 4409B was first identified at the following location during the initial side scan search.

DOY	Fatho Contact	Sonar Contact
244	-	2646.27P

Echo sounding lines were run to provide 100% coverage over the target area and also determine the extent of shoaling or fouling. Echo sounding development is summarized below.

DOY	No. of Lines	Position Numbers
245	5	2704 - 2736

Five meter spaced echosounding lines were run over this area. The feature is seen on 4 lines. The fathograms were scanned for peaks and correctors were applied to obtain least depth.

(b) Target Description

Target 4409B was found to be an irregular rocky feature. The item appears to be a rocky shoal rising 5 feet off the bottom.

(c) Target Least Depth Determination

Least depth was determined using echosounding methods.

Target:		4409B
Date:		September 1, 1988 (DOY 245)
Time:		1516 Z
Position:		2710.80F
Least Depth Reading:	24.7	~~25.2~~ Ft.
Velocity Corrector:	1.0	~~+0.8~~
Effective Draft Cor:	7.8	~~+7.5~~
~~PREDICTED~~ Tidal Zone Cor:	-0.6	~~-0.5~~
Actual Least Depth:		~~33.0~~ 32.9 Ft.

(d) Target Positioning

This target's position was determined by scanning the fathograms for the least depth recorded over this area and selecting the following shoalest sounding.

Target:		4409B
HDAPS Position Number:		2710.80
Easting:		99998.2 E
Northing:		22496.1 N
Computed Latitude:	40°	57' 09.2~~83~~" N
Computed Longitude:	73°	~~40' 00.077~~" W 39' 59.99

(e) Target Recommendation

It is recommended that target 4409B be charted as a sounding over a rock, using symbol No. 5, section "O" (Dangers), from Nautical Chart No. 1. Concur. Chart as a rock with a depth of 38 feet (33 Rk) in the position determined by the present survey. See paragraph (d) See also sheet 6 of 7 appended to this report.

VI. AWOIS Item 4409 Recommendation

Mr. Lada Simek, the private diver referenced in the AWOIS listing for this item, was aboard the RUDE to observe operations as we conducted the 200% side scan sonar search. Mr. Simek confirmed that the area we surveyed was indeed the site that he had dove on when reporting the 20x60x8 foot boulder described in the AWOIS listing.

The fathograms from the echosounding coverage of this area confirm the object to be a boulder with the dimensions reported. Because polluted water prevented diving operations, no visual inspection of the bottom was made. The question of wreckage existing at this site is unresolved. No wreck-like features were present on the side scan traces. Concur. It is believed target 4409A is AWOIS item #4409. Recommend the wreck with a depth of 29 feet (29. Wk) be removed from the chart.

S. AWOIS ITEM 4415 INVESTIGATION

I. Area of Investigation

AWOIS Item:	4415
State:	New York
County:	Westchester
Locality:	2.3 nm SW of Peningo Neck
Latitude:	40° 54' 39.0" N (charted position)
Longitude:	73° 43' 30.0" W (charted position)
Depth:	29 Feet, cleared by wire drag

II. AWOIS Item Description

AWOIS item 4415 was first reported in project number H5078/30WD, a 1930 wire drag survey, as a 31 foot obstruction cleared to a depth of 29 feet by wire drag. Present survey requirements are for 200% sidescan sonar coverage at 75 meter search radius for disproval or diver investigation if found.

III. Survey Procedures

The following data summary reflects survey procedures used for investigating this item:

AWOIS Item:	4415
Positioning:	Falcon Mini-Ranger
Sonar Search:	24 August 1988 (DOY 237)
Diving:	30 August 1988 (DOY 243)
Echo Sounding:	No echo sounding development
Sonification:	200% coverage, 75 meter radius
Targets:	One significant target, 4415A

There were no problems encountered with either the positioning or side scan sonar equipment. One significant target was identified from the sonargrams. This contact was investigated by divers and a least depth was obtained.

IV. Target 4415A Investigation

(a) Target Dive Summary

Target 4415A was diver investigated on August 30, 1988 (DOY 243). Divers descended down a marker buoy line and swam into a small buried wreck. They conducted a 10m radius circle search about the wreck, attempting to identify it and to determine its least depth. Divers then obtained a pneumo depth gauge least depth from the high point.

(b) Target Description

Target 4415A was found to be a deterioating wooden hull of a small pleasure craft. The majority of the hull is buried in the mud, the highest point projects 4 feet off the surrounding bottom. The dimensions are approximately 20x6 feet. A least depth was obtained on the top of the cabin. No masts or spars were found by divers during the search of the wreck and surrounding area.

(c) Target Least Depth Determination

Least depth was taken by divers with a pneumo depth gauge.

Target:	4415A
Date:	August 30, 1988 (DOY 243)
Time:	1528 Z
Average Pneumo Depth:	39.2 Ft.
Pneumo Gauge Corrector:	+0.2
~~PREDICTED~~ Tidal Zone Cor:	~~-4.1~~ -5.2
Actual Least Depth:	~~35.3~~ 34.2 Ft.

(d) Target Positioning

Three detached positions were taken as the ship drifted over the target that was marked by the dive buoy.

Target:			4415A	
HDAPS Position Numbers:			2461-2463	
Average Easting:			95034.7 E	
Average Northing:			17729.1 N	
Computed Latitude:		40° 54'	34.69~~3~~ 4 OK" N	
Computed Longitude:		73° 43'	32.17~~1~~" W	
Loran C Rates:	9960-W	9960-X	9960-Y	9960-Z
Average Loran:	15392.5	26937.2	43953.7	59991.5

4415

(e) Target Recommendation

The following data has been collected for this target.

Target:	4415A (Wreck)
Description:	Wreck over which depth is known
Latitude:	40° 54' 34.698" N
Longitude:	73° 43' 32.171" W
Least Depth:	34.2 ~~35.3~~ Feet
Surrounding Chart Depth:	37 Feet

This target is a wreck of known depth. It is recommended that Target 4415A be chart as symbol 15 from section "O" (Dangers), page 13 of Nautical Chart Number 1.

V. AWOIS Item 4415 Recommendation

200% side scan coverage was completed on AWOIS Item 4415. One significient contact was identified and investigated by divers. The reported hang should be changed to wreck over which the depth is known, as recommended above. Concur. See also section 6.b. of the Evaluation Report.

T. AUTHORS

The preceeding descriptive report has been prepared and reviewed aboard the NOAA Ship RUDE. It is submitted to the Commanding Officer for final review, signature, and submission.

Lt. Craig L. Bailey
Executive Officer
NOAA Ship RUDE

LTjg. Thomas R. Waddington
3rd Officer
NOAA Ship RUDE

U. LETTER of APPROVAL

FIELD NO. RU-10-2-88

REGISTRY NO. FE-317-SS

OPR-B660-88-RU/HE-88

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

Andrew Snella

Andrew Snella, LCDR, NOAA
Commanding Officer
NOAA Ship RUDE

CONTROL STATION REFERENCE LIST

STATION NAME	STATION NUMBER	GEOGRAPHIC POSITION
Kingspoint 1932	102	Lat. 040° 50' 04.550" N Long. 073° 45' 24.637" W
Sands Point Beacon	104	Lat. 040° 52' 01.269" N Long. 073° 43' 57.460" W
Larchmont Harbor Light	107	Lat. 040° 55' 05.071" N Long. 073° 43' 52.470" W
Glen Cove Light	109	Lat. 040° 51' 43.217" N Long. 073° 39' 37.151" W
Kalpakjian 1986	110	Lat. 040° 54' 09.444" N Long. 073° 37' 59.010" W
Rye (Flagpole)	116	Lat. 040° 56' 24.121" N Long. 073° 41' 50.859" W
Hart Island Prison Power Plant Chimney	200	Lat. 040° 51' 03.685" N Long. 073° 46' 09.152" W
Execution Rocks Lighthouse	206	Lat. 040° 52' 40.994" N Long. 073° 44' 15.736" W

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

NOAA Ship RUDE
439 West York St.
Norfolk, VA 23510

14 September, 1988

Commander, First Coast Guard District
Aids to Navigation Office
408 Atlantic Avenue
Boston, Massachusetts, 02210-2209

The NOAA Ship RUDE has discovered a rock with a least depth of 13.6 feet (corrected for predicted tides) on chart 12367. This depth was determined by divers. The rock is located at position 40° 54' 24.215" North, 73° 37' 56.453" West. It bears 009° true at a distance of .28 nm from Matinecock Point. Charted depths in the vicinity of this rock are 21 feet. This position is on the North American datum of 1983. Charts 12364, 12366 and 12363 are also affected. Please include this information in the next Local Notice to Mariners.

For reference purposes this survey is being conducted under project instructions OPR-B660-RU/HE-88. If you have any further questions concerning this item contact the ship on cellular phone at (203) 964-7767.

Sincerly,

Alan D. Anderson

Alan D. Anderson
Commanding Officer
NOAA Ship RUDE

cc: N/MOA23x1
N/CG222
DMAHTC

SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER B660 AWOIS No. 1732 SHEET No.

	DOY	REF. LINE	PRECEEDING FIX No.	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N	REMARKS
1	235	+260A	1648.31S	14:24:09	1.5'	44'	100030.0 / 16788.0	INS
2	235	-290A	1720.00S	16:37:30	?	34'	99415.0 / 15573.0	INS - see recon on DOY-236
3	236	+1100C	1820.30S	12:38:53	3.0'	44'	100037.0 / 16783.7	S-1648.31S ; INS
4	236	+840C	1889.35S	14:47:11	2.0'	49'	100797.0 / 16523.5	1732A
5	236	+820C	1964.14S	16:55:30	-	46'	100805.8 / 16528.1	S-1889.35S
6	236	+325A	2009.02P	18:29:53	1.0'	45'	100031.5 / 16783.7	S-1648.31S ; INS
7	236	-300A	2040.00P	19:38:07	-	36'	99412.0 / 15590.0	S-1720.00S ; INS
8	236	+1064A	2043.04P	19:53:18	1.5'	47'	100795.3 / 16529.0	S-1889.35S
9	236	+1034A	2046.19P	20:01:31	3.9'	48'	100796.2 / 16525.6	S-1889.35S
10							/	
11							/	
12							/	
13							/	
14							/	
15							/	

REMARKS COLUMN LEGEND:

INS - INSIGNIFICANT, S - SAME AS (PAGE # & LINE), SIG - INVESTIGATE FURTHER
D - DOVE ON (DATE/DIVE #)

SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER B660 RUDE-88 AWOIS No. 1736 SHEET No.

	DOY	REF. LINE	CONTACT ~~PRECEEDING FIX No.~~ NO.	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N E / N	REMARKS
1	246	750 XL	2755.19 P	12 34 33	~4'	48'	103092.6 / 17797.9	ROCKS INS F1
2	246	750 XL	2755.22 P	12 34 42	~6'	48'	103072.8 / 17823.5	ROCKS INS F2
3	246	750 XL	2756.13 S	12 35 42	~8'	44'	102938.0 / 17840.6	ROCKS INS F3
4	246	830 XL	2768.33 S	12 54 17	~8'	47'	102921.8 / 17873.5	ROCKS INS F4
5	246	910 XL	2776.22 P	13 08 41	25'	47'	102902.9 / 17960.1/0	Isolated INS F5
6	246	990 XL	2782.00 S	13 19 24	~7'	51'	101874.5 / 18034.2	Isolated 1736'B' DIVE 9/8/88 F6
7	246	990 XL	2785.02 P	13 22 26	~4'	49'	102354.3 / 18111.0	ROCKS INS F7
8	246	1310 XL	2821.30 S	14 56 51	~4'	53'	102300.3 / 18375.4	INS S 2980.25S F8
9	246	670 XL	2843.01 S	15 45 22	~5'	42'	103055.2 / 17751.2	ROCKS- INS F9
10	246	590 XL	2854.26 P	16 05 07	~6'	40'	102650.6 IZ / 17671.0	ROCKS -INS F10
11	246	590 XL	2855.09 P	16 05 48	~8'	37'	102756.8 / 17698.6	1736'D' DIVE 9/9/88 F11
12	246	590 XL	2856.09 P	16 07 14	~5'	40'	102975.5 / 17661.2	INS, F12
13	246	590 XL	2856.27 S	16 07 49	~10'	41'	103061.8 / 17704.0	ROCKS INS. NOT INVESTIGATED F13
14	246	590 XL	2857.04 P	16 08 24	~5'	42'	103144.5 / 17643.4	INS. F14
15	246	670 XL	2862.03 S	16 17 08	~5'	43'	103102.3 / 17770.3	INS. F15

REMARKS COLUMN LEGEND:

INS - INSIGNIFICANT, S - SAME AS (PAGE # & LINE), SIG - INVESTIGATE FURTHER
D - DOVE ON (DATE/DIVE #)

SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER B660 - RU/HE 88 AWOIS No. 1736 SHEET No.

	DOY	REF. LINE	CONTACT PRECEEDING ~~FIX No.~~ NO.	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N E / N	REMARKS
1	246	670 XL	2862.18P	16 17 24	~9'	42'	103061.0 / 17727.9	1736 C DIVE 9/9/88 F16
2	246	510 XL	2872.27S	16 33 48	~7'	38'	102638.7 / 17587.0	INS. F17
3	246	510 XL	2874.16P	16 36 05	~5'	35'	102958.9 / 17616.5	S 3002.18P F18
4	246	430 XL	2881.22S	16 46 40	6'	38'	102951.1 / 17514.5	INS. F19
5	246	430 XL	2881.26S	16 46 49	~6'	38'	102927.6 / 17523.7	INS. F20
6	246	430 XL	2882.09S	16 47 34	~8'	37'	102749.2 / 17506.3	INS. F21
7	246	430 XL	2882.37S	16 48 08	~6'	39'	102714.2 / 17526.1	1736E F22
8	246	350 XL	2892.32S	17 10 58	~5'	26'	102931.4 / ~~138~~ 17438.8	WATER COLUMN DIVE 9/12 F23 INTERFERENCE ~~IS~~ DISTORTED SLANT RANGE
9	246	750 XL	2755.29F	12 34 54	~5'	45'	103013.6 / 17834.1	INS. F24
10	246	1150 XL	2805.25F	13 52 46	~2'	54'	102742.4 / 18228.9	INS. F25
11	246	1230 XL	2817.33F	14 50 06	2'	52'	102213.9 / 18308.0	INS. F26
12	246	1390 XL	2833.05F	15 15 37	2'	53'	102208.2 / 18453.6	INS. F27
13	246	670 XL	2843.05F	15 45 30	~5'	44'	103055.0 / 17751.2	S 2862.08 F F28
14	246	670 XL	2862.08F	16 17 11	~5'	44'	103050.4 / 17750.0	SAME AS "2843.05 F"
15	246	510 XL	2872.22F	16 32 59	~5'	32'	102546.8 / 17588.0	INS. F29

REMARKS COLUMN LEGEND:

INS - INSIGNIFICANT, S - SAME AS (PAGE # & LINE), SIG - INVESTIGATE FURTHER
D - DOVE ON (DATE/DIVE #)

SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER B&GO RV/HE-88 AWOIS No. 1736 SHEET No.

	DOY	REF. LINE	CONTACT ~~PRECEEDING FIX No.~~ NO.	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N E / N	REMARKS
1	246	510 XL	2873.32 F	16 35 05	≈6'	32'	102834.4 / 17587.1	INS F30
2	250	0 A	2911.09 P	16 56 12	~3'	44'	102740.6 / 17825.4	INS. F31
3	250	0 A	2911.19 S	16 56 32	~9'	43'	102690.5 / 17801.8	INS. F32
4	250	OFF LINE	2917.00 P	17 04 23	~7'	38'	102200.7 ~~10200~~ / 16917.6	INS. F33
5	250	-160 A	2925.25 P	17 15 21	~6'	47'	102807.9 / 18414.6	INS. F34
6	250	-160 A	2925.33 S	17 15 33	3'	47'	102852.2 / 18428.0	INS. F35
7	250	-240 A	2940.06 P	17 38 12	≈3'	39'	102204.0 / 16861.7	INS. F36
8	250	-400 A	2955.01 S	18 10 12	≈3'	47'	102341.7 / 18040.6	INS. F37
9	250	-400 A	2958.04 S	18 14 19	<1'	48'	/	INS F38
10	250	-480 A	2965.26 P	18 27 24	≈5'	55'	102473.5 / 18487.5	INS. F39
11	250	-560 A	2970.03 S	18 35 50	~4'	52'	102285.9 / 18310.2	INS. F39
12	250	-640 A	2976.18 S	18 47 21	—	38'	101938.7 / 17606.0	NO SHADOW APPARENT;
13	250	-640 A	2980.25 S	18 52 53	~2'	52'	102301.2 / 18375.7	S: 2821.30 S F40
14	250	-640 A	2981.14 P	18 53 53	~3'	53	102365.5 / 18519.8	INS. F41
15	250	-720 A		19 00 06	~2'	53'	102225.8 / 18484.4	INS. F42

REMARKS COLUMN LEGEND:

INS - INSIGNIFICANT, S - SAME AS (PAGE # & LINE), SIG - INVESTIGATE FURTHER
D - DOVE ON (DATE/DIVE #)

SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER AWOIS No. 1736 SHEET No.

	DOY	REF. LINE	CONTACT ~~PRECEEDING FIX No.~~ NUMBER	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N E / N	REMARKS
1	250	-800A	2991.19S	19 10 49	~9'	51'	101964.9 / 18070.2	INS. F48
2	250	0 XL	2994.25S	19 29 30	~5'	44'	102684.3 / 17797.4	INS. F44
3	250	0 XL	2995.06P	19 30 09	~5'	41'	102845.4 / 17760.6	INS. F46
4	250	0 XL	2995.11P	19 30 20	6'	39'	102807.3 / 17754.3	INS. F48
5	250	0 XL	2995.27S	19 30 53	~8'	41'	102938.7 / 17731.2	INS. F47
6	250	0 XL	2996.23S	19 32 12	~12'	41'	103079.0 / 17645.3	SHADOW MAY BE COMBINATION OF MULTIPLE TARGET SHADOWS. F48
7	250	0 XL	2996.29P	19 32 18	~4'	41'	103096.6 / 17642.0	INS. F49
8	250	-80 XL	3001.34S	19 41 24	8'5	37'	103086.3 / 17579.7	INS. F50
9	250	-80 XL	3002.01S	19 41 37	~6'	37'	103065.4 / 17609.8	INS. F52
10	250	-80 XL	3002.18P	19 42 14	~4'	39'	102970.0 / 17613.2	S 2874.16P F52
11	250	-80 XL	3003.22P	19 43 39	~7'	39'	102798.6 / 17724.3	INS F53
12	250	-160 XL	3006.18S	19 49 18	~5'	34'	102692.5 / 17686.3	INS F54
13	250	-160 XL	3006.22P	19 49 24	3'	36'	102707.0 / 17674.7	INS F55
14	250	-160 XL	3007.18P	19 50 36	~15'	31'	102869.8 / 17588.3	1736A DIVE 9/7/88 F56
15	250	-160 XL	3007.29S	19 50 59	~5'	31'	102932.4 / 17584.6	INS. F57

REMARKS COLUMN LEGEND:

INS - INSIGNIFICANT, S - SAME AS (PAGE # & LINE), SIG - INVESTIGATE FURTHER
D - DOVE ON (DATE/DIVE #)

SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER AWOIS No. 1736 SHEET No.

	DOY	REF. LINE	CONTACT PRECEEDING ~~FIX No.~~ NO.	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N	REMARKS
1	250	-160 XL	3007.34S	19 51 09	3.4'	32'	102957.3 / 17575.5	INS. F58
2	250	80 XL	3014.00P	20 01 40	~3'	44'	103154.0 / 17694.8	INS. F59
3	250	80 XL	3014.10P	20 02 02	~2'	44'	103106.3 / 17714.8	INS. F60
4	250	80 XL	3014.29P	20 02 22	~8'	43'	103057.6 / 17722.4	SAME 2862.12 P 1736'C' DIVE 9/9/88 F61
5	250	80 XL	3015.02S	20 03 02	~6'	43'	102979.4 / 17781.2	INS. F62
6	250	80 XL	3015.12S	20 03 22	~6'	43'	102948.6 / 17829.1	S 2768.33S F63
7	250	-720 A	2983.18F	19 00 09	~2'	54'	102205.2 / 18449.1	INS
8	250	0 XL	2994.28F	19 29 35	~4'	42'	102695.7 / 17847.1	INS F64
9	250	0 XL	2994.35F	19 29 49	~4'	42'	102777.1 / 17790.5	INS F65
10	250	-80 XL	3002.26F	19 42 28	~4'	38'	102913.4 / 17651.7	INS. F66
11	250	80 XL	3014.19F	20 02 19	3'	44'	103047.1 / 17764.9	INS. F67
12	251	-240 XL	3019.19F	14 36 44	~4'	32'	102882.2 / 17490.3	INS. F68
13	251	-240 XL	3026.20F	14 50 21	~3	51'	103010.4 / 17871.5	INS
14	251	-240 XL	3019.05S	14 36 16	~7'	33' 26	102787.7 / 17523.9 IZ	INS. F69
15	251	-240 XL	3019.29P	14 37 05	~4'	32'	102893.9 / 17462.3	INS. F70

REMARKS COLUMN LEGEND:

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SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER B660-RU/HE-88 AWOIS No. 1736 SHEET No.

	DOY	REF. LINE	PRECEEDING FIX No.	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N (E / N)	REMARKS
1	251	-240 XL	3020.28 S	14 38 02	~4'	33'	103039.4 / 17433.8	INS. F71
2	251	160 XL	3025.32 P	14 50 04	~4'	50'	103067.9 / 17824.5	S 2755.22 P F72
3	251	160 XL	3026.04 P	14 50 24	~5'	51'	103018.0 / 17831.1	S 2755.29 F F73
4	251	160 XL	3026.30 S	14 51 21	~7'	52'	102905.9 / 17931.2	INS. F74
5	251	640 XL	3061.25 S	15 56 09	~1'	60'	103018.2 / 18444.9	"BOAT LIKE" F76
6	251	720 XL	3063.12 S	16 01 25	~1'	60'	103003.7 / 18450.0	SAME 3061.25S F76
7	251	700 XL	3069.10 P	16 15 57	~2'	60'	103012.9 / 18447.0	(RECON LINE) SAME AS 3061.25S
8	253	335 XL	3120.06 P	17 02 04	~9'		102890.0 / 17407.0	DIVE 9/12/88 1736F-S-2892.32S
9							/	
10							/	
11							/	
12							/	
13							/	
14							/	
15							/	

REMARKS COLUMN LEGEND:

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SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP PROJECT NUMBER AWOIS No. 4406 SHEET No.

	DOY	REF. LINE	PRECEEDING FIX No.	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N	REMARKS	PLOTTED AS:
1	237	+75 C A	2109.19S	16 47 04	~5.6'	~40'	96757.4 / 19192.8	DEVELOPED DOY 238 Boat-like ES	D01
2	237	+0 A	2116.12P	17 43 27	~3.0'	~40'	96733.6 / 19036.5	INS	
3	237	-0 A	2116.35S	17 43 45	~1.6'	39'	96708.1 / 19079.5	INS	
4	237	0 A	2117.07P	17 44 36	~1.8'	39'	96747.3 / 19203.1	INS	
5	237	-70 A	2126.38P	18 17 52	~4.2	38'	96630.0 / 19232.9	DEVELOPED DOY 238 Boat-like ES	D02
6	237	75 C	2108.20F	16 46 46	~3.0'	41'	96778.3 / 19212.2	DEVELOPED DOY 238 ES	D03
7	237	-5 C	2111.35F	17 17 30	25.0'	340'	96650.6 / 19131.6	ES DEVELOPED DOY 238	D04
8	237	155 C	2114.23F	17 22 15	~4.0'	39'	96724.7 / 19289.1	ES DEVELOPED DOY 238	D05
9	237	0 A	2116.28F	16 43 37	~3.0'	39	96718.6 / 19089.2	ES DEVELOPED DOY 238	D06
10	237	0 A	2117.22F	17 45 05	~4.0'	39'	96718.3 / 19282.1	ES S: 2114.23F DEVELOPED DOY 238	D07
11	237	0 A	2117.36F	17 45 33	~3.0'	337'	96718.6 / 19369.5	DEVELOPED DOY 238 ~~INS~~. ES	D08
12	237	-70 A	2126.09F	18 16 54	~5.0'	35'	96651.7 / 19093.0	ES DEVELOPED DOY 238	D09
13	237	-70 A	2127.32F	18 19 00	~2.0'	35'	96634.8 / 19414.2	DEVELOPED DOY 238 INS ES	D13
14							/		
15							/		

REMARKS COLUMN LEGEND:

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D - DOVE ON (DATE/DIVE #) ES = ECHOSOUNDER

8/25/88

SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER OPR-B660-RB AWOIS No. 4406 SHEET No.

	DOY	REF. LINE	~~PRECEEDING~~ Contact No ~~FIX No.~~	TIME	HT. OF TARGET	SURND DEPTH	POSTITION ~~L/L OR~~ E/N	REMARKS
							near 5 / near	Contact Plot no.
1	237	~~250~~ off ? line	2106.04P	16 23 33	~4'	40'	96773.4 / 19211.2	INS. ESD D10
2	237	75	2108.14S	16 46 33	~3'	42'	96824.0 / 19237.6	INS.
3	237	\	\	\	~9'		Pipe line discharge /	INS.
4	237	-5	2111.00S	17 16 34	~4'	37'	96792.2 / 19148.0	INS.
5	237	-5	2111.25S	17 17 10	~7'	40'	96714.1 / 19138.0	INS
6	237	+155	2114.20P	17 22 08	~7'	39'	96684.9 / 19314.8	INS.
7	237	+155	2116.00P	17 23 26	~8'	30'	96890.1 / 19313.5	INS S: 2114.20P
8	237	0	2116.22S	17 43 25	~10'	37'	96723.4 / 19086.3	INS
9	237	0	2117.38P	17 45 37	~7'	~~B~~40'	96678.4 / 19~~3~~58.7	INS
10	237	-70	-2122	\	~8'	?	96689.4 / 19311.1	SAME 2114.20 P
11	239	+515C	2445.35	16 22 23	~32'	45'	97109.8 / 19648.0	appears to be fish in H_2O column WATER COLUMN INTER.
12	239	+515C	2446.24P	16 23 22	~5'	40'	96967.3 / ~~194~~ 19645.5	INS. ESD D11
13	239	+515C	2447.23P	16 24 39	~4'	28'	96776.8 / 19650.5	INS. D12
14	239	+515C	2449.18S	16 27 09	~5'	30'	96405.0 / 19665.1	INS. ESD D13
15	239	+435C	2456.04S	16 37 04	~10	42'	96946.5 / 19566.0	NOT INVESTIGATED D14

REMARKS COLUMN LEGEND:

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ESD - ECHOSOUNDER DEVELOPMENT

SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER B660-RU/HE-88 AWOIS No. 4406 SHEET No.

	DOY	REF. LINE	~~PRECEEDING FIX No.~~ CONTACT NUMBER	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N E	N	REMARKS
1	239	+435c	2456.07P	16 37 11	~4'	40'	96932.3	19567.1	INS. ESD D15
2	239	+515C	2445.22F	16 21 57	~5'	40'	97182.8	19649.2	ESD D16
3	239	+515C	2445.29F	16 22 12	~5'	40'	97137.8	19649.1	ESD D17
4	239	+515C	2446.29F	16 23 31	~4'	40'	96943.9	19645.7	S: 2446.24P INS. ESD DOY 238 D18
5	239	+515C	2447.19F	16 24 31	~10'	30'	96797.2	19650.0	ESD S: 2447.23P DOY 238 D19
6	243	+355c	2471.22S	19 40 47	~7'	48'	97173.6	19498.6	INS. ESD D20
7	243	+355xL	2472.29P	19 42 20	~6'	33'	96945.6	19477.8	INS. ESD D21
8	243	+255xL	2482.29P	20 05 29	~5'	42'	96815.8	19370.2	INS. ESD D22
9	243	+255xL	2482.22S	20 05 17	~3'	40'	96846.0	19407.7	INS. ESD D23
10	243	+95xL	2489.28P	20 17 02	1'	40'	96631.7	19243.0	~~INS~~ S: 2126.38P Boat-like ESD D24
11	243	+95xL	2494.02S	20 20 52	5'	52'	97224.1	19240.3	Boat-like D25
12	243	+95xL	2494.05P	20 20 59	-	52'	97242.1	19207.7	INS -
13	243	+175xL	2498.07P	20 27 46	4'	44'	96973.4	19292.8	INS. D26
14	243	+15xL	2507.38S	20 41 38	-		96976.2	19140.9	INS -
15	243	-185xL	2565.05F	13 54 37	~4'	44'	96960.2	18951.3	INS. D27

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SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP PROJECT NUMBER AWOIS No. 4406 SHEET No.

	DOY	REF. LINE	CONTACT ~~PRECEEDING FIX No.~~ NUMBER	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N E / N	REMARKS	
1	244	Z 135	2604.13	15 39 46	27'	39'	96654.6 / 19235.7	S: 2126.38 P INS. ESD	D28
2	244	295	2612.07	15 52 55	~8'	39'	~~155255.~~ 96836.5 / 19444.8	NOT INVESTIGATED	D29
3	244	295	2612.14	15 53 06	~3'	40'	96857.7 / 19452.0	INS.	D30
4	244	295	2615.01	15 56 20	~4'	48'	97266.0 / 19451.3	INS.	D31
5	244	375	2616.05	16 01 06	~5'	44'	97211.0 / 19479.9	NOT INVESTIGATED	D32
6	244	375	2616.13	16 01 15	~13'	44'	97183.5 / 19511.7	NOT INVESTIGATED	D33
7	244	375	2617.08	16 02 25	~8'	43'	96979.9 / 19520.9	NOT INVESTIGATED	D34
8	244	535	2622.34	16 12 12	~41	30'	96418.5 / 19706.8	INS.	D35
9	244	535	2627.00	16 17 52	~9'	42'	97135.0 / 16975.5	SEEN AFTER LINIE ENDS	D36
10	244	455	2628.00	16 22 00	~14'	42'	97156.4 / 19575.2	SEEN PRIOR TO LINIE	D37
11	244	375	2638.09	16 37 56	~8'	42'	96956.2 / 19490.2	NOT INVESTIGATED	D38
12	244	375	2639.15	16 39 34	~7'	46'	97167.9 / 19498.4	S: 2471.22 S ESD	D39
13	239	435XL	2455.04R	16 35 46	~13	47'	96765.0 / 19593.0	NOT INVESTIGATED	D40
14							/		
15							/		

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SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER B660 AWOIS No. 4406 SHEET No.

	DOY	REF. LINE	PRECEEDING FIX No.	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N	REMARKS
1	243	+15 XL	2507.04F	20 40 30	4'	44'	96823.0 / 19148.8	INS. D41
2	243	-225XL	2522.30F	21 02 24	5'	42'	96532.0 / 18911.9	INS. D42
3	243	-305XL	2535.15F	21 23 56	5'	42'	96535.0 / 18830.0	NOT INVESTIGATED D43
4	243	355XL	2472.30F	19 42 20	9'	42'	96920.0 / 19490.0	NOT INVESTIGATED D44
5	243	255XL	2481.13F	20 03 42	6'	47'	97055.0 / 19386.0	NOT INVESTIGATED D45
6	243	255XL	2482.18F	20 05 08	9'	42'	96838.0 / 19389.0	NOT INVESTIGATED D46
7	243	175 XL	2498.15F	20 28 03	10'	44'	96950.0 / 19312.6	ESD D47
8							/	
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12							/	
13							/	
14							/	
15							/	

REMARKS COLUMN LEGEND:

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ESD: ECHOSOUNDER DEVELOPMENT

SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER 8660-RU/HE-88 AWOIS No. 4406 SHEET No.

	DOY	REF. LINE	CONTACT PRECEEDING ~~FIX No.~~ NO:	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N E / N	REMARKS
1	244	-25 xL	2571.38F	14 03 50	~3'	30'	96305.3 / 19106.4	INS. ESD. D48
2	244	+135 xL	2603.23F	15 38 52	~3'	36'	96741.2 / 19266.6	INS. D49
3	244	+375 xL	2618.00F	16 03 30	~10'	38'	96756.3 / 19508.0	NOT INVESTIGATED D50
4	244	+455	2628.27F	16 22 54	~5'	41'	96988.4 / 19592.5	ESD D51
5	244	+375	2635.72F	16 36 05	~9'	31'	96704.7 / 19509.1	NOT INVESTIGATED D52
6	244	—	2552.00P	—	~4'	45'	97178.1 / 18803.6	SEEN OFFLINE - FIX TAKEN. OBJECT - "BOAT LIKE" D53
7	244	-265	2560.00S	13 43 29	6'	37'	96519.9 / 18854.1	NOT INVESTIGATED D54
8	244	-265	2560.17P	13 44 07	3'	34'	96617.7 / 18890.5	INS
9	244	-265	2561.12S	13 45 13	~6'	35'	96794.2 / 18851.8	NOT INVESTIGATED D55
10	244	-185	2566.11	13 56 09	~7'	33'	96761.0 / 18952.8	NOT INVESTIGATED D56
11	244	-185	2567.12P	13 57 33	~3'	36'	96551.7 / 18935.7	INS
12	244	-25	2576.14P	14 20 26	~3'	38'	96801.8 / 19088.5	INS. ESD D57
13	244	-105	2584.20	14 39 28	~3'	42'	96986.4 / 18994.8	INS. D58
14	244	+55	2587.21	15 13 53	~5'	43'	97095.8 / 19199.7	INS. D59
15	244	+55	2588.19	15 15 11	~3'	41'	96877.3 / 19168.3	INS

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SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER B660 AWOIS No. 4408 SHEET No.

	DOY	REF. LINE	CONTACT ~~PRECEEDING FIX~~ No.	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N	REMARKS
1	245	-320	2737.37F	16 57 57	9'	47'	98643.0 / 20968.0	Shoal
2	245	-200	2747.09F	17 48 46	4'	44'	98377.0 / 20832.0	4408A (DOVE 9/8)
3	245	-320	2738.60P	16 58 04	4'	45'	98651.6 / 20978.7	S-2737.37F
4	245	-240	2744.02S	17 15 09	4'	41'	98387.9 / 20834.3	S-2747.09F
5	245	-220	2750.28S	18 02 30	6'	43'	98374.2 / 20845.1	S-2747.09F
6							/	
7							/	
8							/	
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13							/	
14							/	
15							/	

REMARKS COLUMN LEGEND:

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SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER OPR-B660-RU-88 AWOIS No. 4409 SHEET No.

	DOY	REF. LINE	CONTACT NO. PRECEEDING ~~FIX No.~~	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N (E / N)	REMARKS	Contact plot no.
1	244	+40	2653.09F	18 ~~54~~ ~~55~~ 18	~3'	39	100155.1 / 22483.9	Shoal 4409 'A'	G01
2	244	0	2643.14S	18 25 48	~1'	39	100072.4 / 22319.7	INS	
3	244	-80	2645.28S	18 30 44	~1'	39	10054.7 / 22282.2	INS	
4	244	-80	2645.34S	18 30 56	~1'	39	99999.2 / 22313.7	INS - S-2643.14S	
5	244	80	2649.39S	18 37 20	~5'	40	1002336 / 22495.5	INS	G02
6	244	40	2653.14P	18 54 53	~4	39	100137.1 / 22479.3	S-2653.09F	G03
7	244	-40	2655.22P	19 06 58	~1'	39	100101.1 / 22286.8	INS S-2645.28S	
8	244	-40	2655.27P	19 07 10	~1'	39	100089.2 / 22316.7	INS (SAME AS 2643.14S)	
9	244	0	2641.15P	18 23 07	3'	37	100143.0 / 22715.0	Shoal Ins	G04
10	244	0	2642.22P	18 24 41	4'	40	100123.0 / 22480.0	S-2653.09F	G05
11	244	-80	2646.27P	18 32 03	3'	39	100000.0 / 22490.0	4409 'B'	G06
12							/		
13							/		
14							/		
15							/		

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SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER B660 AWOIS No. 4415 SHEET No.

	DOY	REF. LINE	Contact No. ~~PRECEEDING FIX~~ No.	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N		REMARKS
1	237	-35A	2091.28P	15 19 47	5.7	40	95030.7	/ 17727.5	4415A DOVE DOY ≥43
2	237	-30C	2104.15P	15 46 48	3.5	36	95031.7	/ 17730.6	S - 2091.28P
3								/	
4								/	
5								/	
6								/	
7								/	
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9								/	
10								/	
11								/	
12								/	
13								/	
14								/	
15								/	

REMARKS COLUMN LEGEND:

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SIDE SCAN SONAR TARGET ABSTRACT

NOAA SHIP RUDE PROJECT NUMBER B660 AWOIS No. 1735 SHEET No.

	DOY	REF. LINE	PRECEEDING FIX No.	TIME	HT. OF TARGET	SURND DEPTH	POSTITION L/L OR E/N	REMARKS
1	237	+125C	2069.25S	13:43:55	2.0'	50'	99288.1 / 17580.5	INS
2	237	+110C	2082.08P	14:08:32	-	50'	99290.1 / 17578.2	S-2069.25S - INS
3							/	
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13							/	
14							/	
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U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMPOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: January 19, 1989

MARINE CENTER: Atlantic

OPR: B660

HYDROGRAPHIC SHEET: FE-317-SS (RU-10-2-88)

LOCALITY: Western Long Island Sound

TIME PERIOD: August 22 - September 14, 1988

TIDE STATION(S) USED: 851-6990 Willets Point, NY

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 5.00 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 7.4 ft.

REMARKS: RECOMMENDED ZONING

1. For AWOIS Items 1732, 1735, 1736, 4406, 4408, 4409, 4415, zone direct.

Chief Tidal Datum
Quality Assurance Section

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

FE-317SS

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	
LONG ISLAND SOUND										1
MAMARONECK HARBOR										2
MATINECOCK POINT										3
NEW YORK										4
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										21
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										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

08/30/89

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-317SS

NUMBER OF CONTROL STATIONS	8
NUMBER OF POSITIONS	1350
NUMBER OF SOUNDINGS	4528

	TIME-HOURS	DATE COMPLETED
* PREPROCESSING EXAMINATION	69	01/24/89
VERIFICATION OF FIELD DATA	129	04/14/89
QUALITY CONTROL CHECKS	25	
EVALUATION AND ANALYSIS	151	08/24/89
FINAL INSPECTION	10	08/10/89
TOTAL TIME	315	

MARINE CENTER APPROVAL 08/31/89

*Preprocessing time is not considered as part of total survey time.

ATLANTIC MARINE CENTER
EVALUATION REPORT

SURVEY NO.: FE-317SS FIELD NO.: RU-10-2-88

New York, Long Island Sound, Mamaroneck Harbor to Matinecock Point

SURVEYED: 22 August through 14 September 1988

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

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

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

Chief of Party.....A. M. Snella

Surveyed by.....C. L. Bailey
.....T. R. Waddington
.....M. A. Sramek

Automated Plot by.....XYNETICS 1201 Plotter (AMC)

1. INTRODUCTION

a. This is primarily a side scan sonar survey. A Raytheon DSF-6000N fathometer was operated concurrently with the side scan sonar. Fathometer developments were conducted to search for items and to determine the least depth when dive operations could not be conducted because of the proximity of sewer outfalls. The hydrography is considered reconnaissance hydrography and is not to be charted except for the shoalest soundings and least depths determined. Pneumatic depth gauges were used to determine least depths in areas where diving was conducted. No wire drag was accomplished during this survey.

b. Five (5) 1:10,000 scale and two (2) 1:2,500 scale page size plots were generated during office processing and are attached to this report. These plots are considered the final plots or smooth sheets for this survey.

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 I. 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 sheets have 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, sheets 1, 2, 3, 5, and 7, on the NAD27 datum, move the projection lines 0.330 seconds (10.2 meters or 1.02 mm at the scale of the survey) north in latitude, and 1.547 seconds (35.6 meters or 3.56 mm at the scale of the survey) east in longitude.

To place the 1:2,500 scale plot, sheets 4 and 6, on the NAD27 datum, move the projection lines 0.330 seconds (10.2 meters or 4.08 mm at the scale of the survey) north in latitude, and 1.547 seconds (35.6 meters or 14.24 mm at the scale of the survey) east in longitude.

All geographic positions listed from other sources are on the North American Datum of 1927.

3. HYDROGRAPHY

The hydrographic data collected on this survey during side scan sonar operations is of reconnaissance value only and was not verified. Hydrography run and shown on the smooth plots included in this report to determine least depths has had all correctors applied, and may be used to supplement the present charted hydrography in the common area.

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 SIDE SCAN SONAR MANUAL with the following exceptions:

a. Not all the prior surveys listed in section 7.8. of the Project Instructions were compared with as required. Prior surveys H-5078WD (1930) and H-5142WD (1931), which are source documents for 4 of the 7 items investigated, were not compared with the present survey by the hydrographer. See section 6.b. of this report.

b. Annotations on the side scan sonargrams are, in general, very good. During fathometer development, the fathograms were not clearly cross referenced with the contacts noted on the sonargrams. As a result additional time was required to process the survey.

c. A comparison of the present survey with the chart was not done as required by section 7.9. of the Project Instructions.

d. Floating aids to navigation in the immediate vicinity of an AWOIS items #1736, #4406, and #4404 were not located by the hydrographer as required by section 4.2.2. of the Project Instructions.

5. JUNCTIONS

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

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H-1732a (1914) 1:20,000
H-5413a (1933) 1:10,000
H-5544 (1934) 1:10,000

The prior surveys listed above are common to the entire present survey. Comparisons between present and prior hydrography were not made since present hydrography except, hydrography run and shown on the smooth plots included in this report, is considered reconnaissance hydrography. Hydrography shown on the present surveys is in good agreement with the prior surveys. Adequate comparisons between the reconnaissance hydrography and the prior surveys have been made by the hydrographer in section K. of the Descriptive Report. Attention is directed to the following:

A charted 29-ft sounding in Latitude 40°55'27.2"N, Longitude 73°42'23.6"W originates with prior survey H-5413a (1933). The 29-ft sounding is in the vicinity of AWOIS item #4406. The area was developed and a depth of 27 feet was found in Latitude 40°55'27.43"N, Longitude 73°42'21.34"W approximately 19 meters to the east of the charted sounding. It is recommended that the 27-ft sounding be charted in the position determined by the present survey, and that the 29-ft sounding be removed from the chart. See sheet 4 of 7.

b. Wire Drag

H-5078WD (1930) 1:20,000
H-5142WD (1931) 1:10,000

AWOIS items #1735, #4406, and #4415 originate with the prior wire drag survey H-5078WD (1930).

A discussion and charting recommendation for AWOIS item #1735 is found in section N., page 17 of the Descriptive Report.

AWOIS item #4406 is a charted dangerous submerged obstruction with a depth of 12 feet originating with the prior survey in Latitude 40°55'22.7"N, Longitude 73°42,20.5"W. This item was investigated using side scan sonar (200% coverage) and a fathometer development. No significant contacts or indications of a 12 foot shoal were found. Fathometer development of the area shows 36 to 38 foot depths on the present survey. Two wreck-like contacts were seen on the side scan sonargrams in the vicinity of the AWOIS item. A fathometer development located one of the contacts which rises two to three feet above the bottom in Latitude 40°55'23.55"N, Longitude 73°42'23.53"W, approximately 75 meters northwest of the AWOIS position. A shoal depth of 35 feet was located using a fathometer in present survey depths of 37 to 38 feet. The second wreck-like contact was not found during fathometer development and is not considered significant. The second contact is not shown on the present survey. As discussed by the hydrographer on page 31 of the Descriptive Report, if the hang on the wire drag survey was a mast or other debris from a wreck it would have deteriorated or could have been removed during construction of the charted pipeline. Since dive operations were not conducted to determine if the obstruction was a wreck, it is recommended that a submerged obstruction with a depth of 35 feet be charted in the position determined by the present survey. It is also recommended the dangerous submerged obstruction with a depth of 12 feet (AWOIS item #4406) be deleted from the chart. See sheet 4 of 7.

#7517

AWOIS item #4415 is a charted dangerous submerged obstruction with a wire drag clearance depth of 29 feet in Latitude 40°54'39.0"N, Longitude 73°43'30.0"W, originating with the prior survey as an uninvestigated hang at 31 feet. The item was investigated using a side scan sonar search (200% coverage). A sunken wreck, 20 feet long by 6 feet wide, was located by the hydrographer in Latitude 40°54'34.69"N, Longitude 73°43'32.17"W with a pneumatic depth gauge least depth of 34 feet. Since the wreck located by the hydrographer is within the search area of the assigned AWOIS item (approximately 142 meters southwest of the charted position), it is considered to be AWOIS item #4415. It is recommended that this wreck be charted in the position determined by the present survey as a dangerous sunken wreck with a least depth of 34 feet (34 Wk). The presently charted dangerous submerged obstruction with a wire drag clearance depth of 29 feet should be deleted from the chart. See sheet 7 of 7.

AWOIS item #4409 originates with prior wire drag survey H-5142WD (1931). A discussion and charting recommendations are found in section R., pages 35 through 39 of the Descriptive Report. See sheet 6 of 7.

7. COMPARISON WITH CHART 12367 (17th Ed., Nov. 1/86)

a. Hydrography

The charted hydrography originates with the previously discussed prior survey and sources not readily ascertainable. The previously discussed prior surveys require no further consideration. Attention is directed to the following.

1) During fathometer development of AWOIS item #4406, a depth of 31 feet on an uncharted obstruction was found in Latitude 40°55'20.18"N, Longitude 73°42'23.18"W. Present survey depths range from 36 to 37 feet. The obstruction was identified as a rock during office processing from side scan sonargrams. It is recommended that a rock with a depth of 31 feet (31 Rk) be charted in the position determined by the present survey. See sheet 4 of 7.

2) The pipeline discussed by the hydrographer section P., pages 30 and 31, of the Descriptive Report is shown on the present survey. The pipeline was positioned during office processing from fathogram positions and side scan sonar. Since the scale of the survey shows just a small section of the pipeline, and future construction of another pipeline nearby is anticipated by the hydrographer, no change in charting status is recommended. Limits of the pipeline are adequately shown on the present chart. See sheet 4 of 7.

3) AWOIS item #1732 is a charted dangerous sunken wreck, PA in Latitude 40°53'54.0"N, Longitude 73°40'11.0"W, originating with Chart Letter 1561 of 1964 (CL 1561/64) and Notice to Mariners No. 32 of 1964 (NTM 32/64). A sunken wreck was located by the hydrographer outside the required 750 meter search radius in Latitude 40°53'55.65"N, Longitude 73°39'26.00"W with a pneumatic depth gauge least depth of 44 feet. The wreck is 1045 meters east of the charted AWOIS position and is not considered to be a hazard to navigation. The wreck found by the field unit is considered to be AWOIS item #1732. It is recommended that this wreck be charted in the position determined by the present survey as a sunken wreck with a least depth of 44 feet (44 Wk). The presently charted dangerous sunken wreck, PA should be deleted from the chart. See sheet 1 of 7.

4) AWOIS item #1736 is a charted dangerous sunken wreck, PA in Latitude 40°54'38.0"N, Longitude 73°38'35.0"W, originating with Local Notice to Mariners No. 36 of 1974 LNM 36/74. This item was investigated using side scan sonar and fathometer with no indication of any wreck-like contacts. The presently charted dangerous sunken wreck, PA (AWOIS item #1736) is considered disproved and should be deleted from the chart. During the investigation of the AWOIS item six (6) contacts lettered 1736A, B, C, D, E, and F were located by the hydrographer. Discussions and charting recommendations for these contacts can be found on pages 19 through 28 of the Descriptive Report. See sheet 3 of 7. Attention is also directed to the following.

Target 1736B is an uncharted submerged wreck found outside the 750 meter search radius in Latitude 40°54'44.73"N, Longitude 73°38'39.68"W. A pneumatic depth gauge least depth of 46 feet was obtained on the wreck. The wreck is 860 meters northwest of the charted AWOIS position, and is not considered to be AWOIS item #1736 It is recommended that this wreck be charted in the position determined by the present survey as a dangerous sunken wreck with a least depth of 46 feet (46 Wk). See sheet 3 of 7.

Two (2) additional contacts noted by hydrographer, examined during office processing, are considered significant and are shown on the present survey.

Contact	Latitude (N)	Longitude (W)	Estimated Depth	Prior Depth
Rock	40°54'32.84"	73°38'06.74"	29ft	35ft
Rock	40°54'37.08"	73°38'05.03"	32ft	40ft

Both contacts were scaled from the side scan sonar records and a height off the bottom was computed. The computed depths of the rocks should be considered a reported depth. The rock with a computed depth of 32 feet is 702 meters east of AWOIS item #1736. It is recommended that these rocks be charted in the position determined by the present survey. See sheet 3 of 7.

The present survey results were used to determine the limits of a boulder field within the area surveyed, and a limit line was drawn on the smooth sheet during office processing. The entire boulder field was not covered by present hydrographic or side scan sonar coverage and is not completely defined on the present survey. It is recommended these limits be charted as shown on the present survey. See sheet 3 of 7.

5) AWOIS item #4408 is adequately discussed in the Descriptive Report and needs no further discussion. See sheet 5 of 7.

b. Dangers to Navigation

The hydrographer identified one danger to navigation and submitted information for inclusion in a local Notice to Mariners to the Commander, First Coast Guard District, Boston Massachusetts and to N/CG222, Chart Information Section. The danger found by the field unit has been checked during office processing and found to be correct.

c. Aids to Navigation

There are no fixed or floating aids to navigation within the limits of this survey.

8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the Project Instructions except as noted in this report.

9. ADDITIONAL FIELD WORK

This is a good side scan survey. Additional work is requested for AWOIS item #4408 as discussed in section Q., page 34, of the Descriptive Report.

Franklin L. Saunders
Cartographic Technician
Verification of Field Data

Richard H. Whitfield
Cartographer
Evaluation and Analysis

Leroy G. Cram
Supervisory Cartographic Technician
Verification Check

INSPECTION REPORT
FE-317SS

The data that make up this Side Scan Sonar survey have been inspected to gain insight into its overall completeness regarding survey coverage, presentation of survey results, and the verification or disproval of charted data. This survey, except as noted in the Evaluation Report, is considered complete and adequate to meet National Ocean Service standards. Processing is considered complete. The survey records comply with NOS requirements except as noted in the Evaluation Report.

Inspected

Robert G. Roberson
Chief, Evaluation and Analysis Team
Hydrographic Processing Unit

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

Approved: 31 August 1989

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

73°40'00" 73°39'00" 73°39'00"

40°54'00" 40°54'00"

44 Wk (25ft long by 8ft wide)

40 53 54 "
70 39 26

73° 39' 00"
NAD 27 40° 53' 30"
XYNETICS 1201
F.S 3/31/1989

40°53'00" 40°53'30"

FE-317 SS
NEW YORK
LONG ISLAND SOUND
MAMARONECK HARBOR TO MATINECOCK POINT
DATE OF SURVEY: 22-30 AUGUST 1988
SCALE: 1:10,000
SOUNDINGS IN FEET AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 1 OF 7
AWOIS ITEM NO. 1732

40°53'00" 12367 40°53'00"

73°40'00" 73°39'30" 73°39'00"

73°41'00"

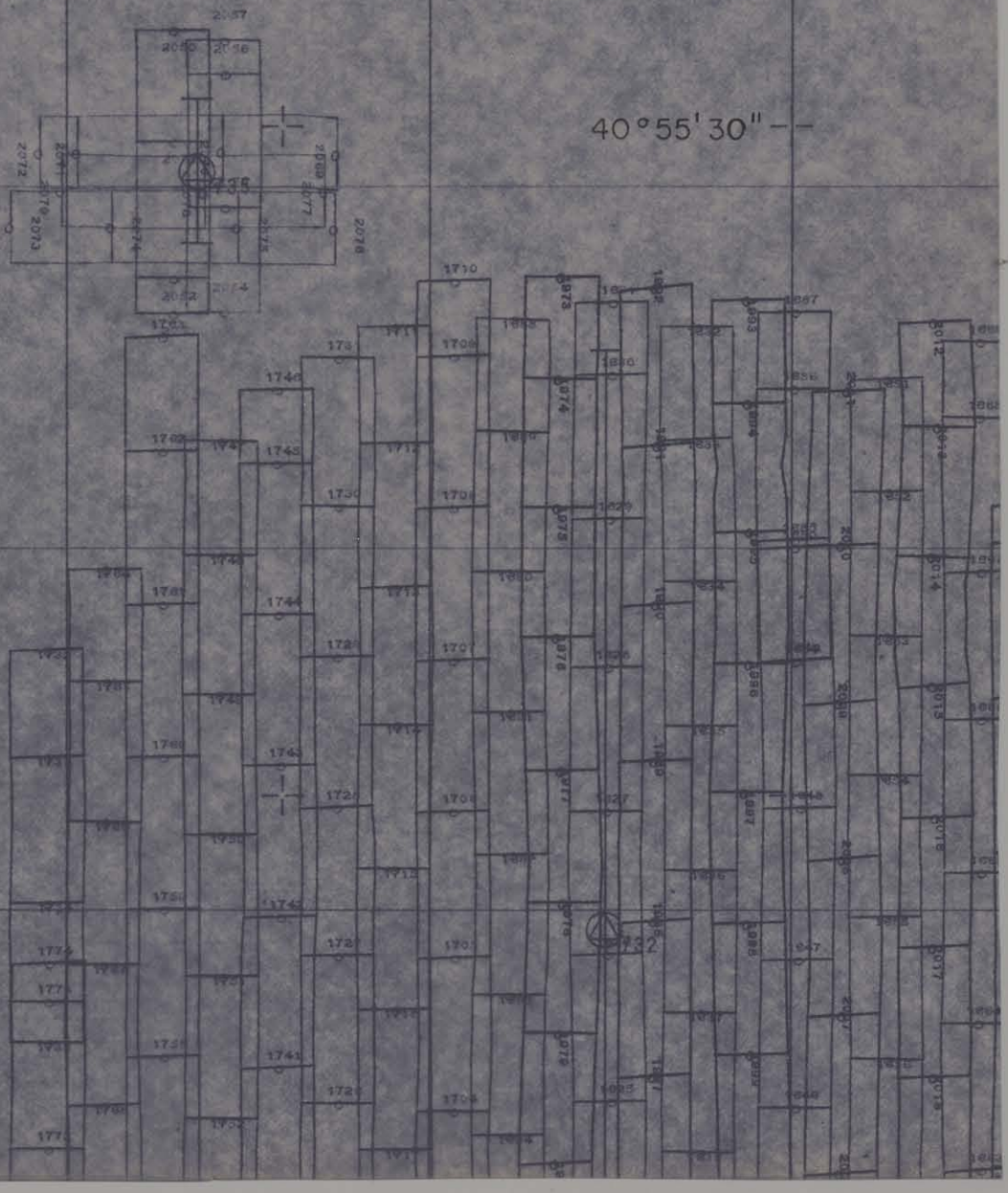
73°40'30"

73°40'00"

40°56'00"

FE-317 SS
NEW YORK
LONG ISLAND SOUND
MAMARONECK HARBOR TO MATINECOCK POINT
DATE OF SURVEY: 24 AUGUST 1988
SCALE: 1:10,000
SIDE SCAN SONAR OVERLAY
NAD 1983
SHEET 2 OF 7 (1)
AWOIS ITEM NO 1735

40°55'30"



40°55'00"

73° 41' 00"

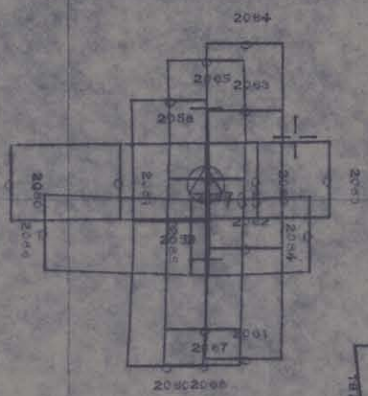
73° 40' 30"

73° 40' 00"

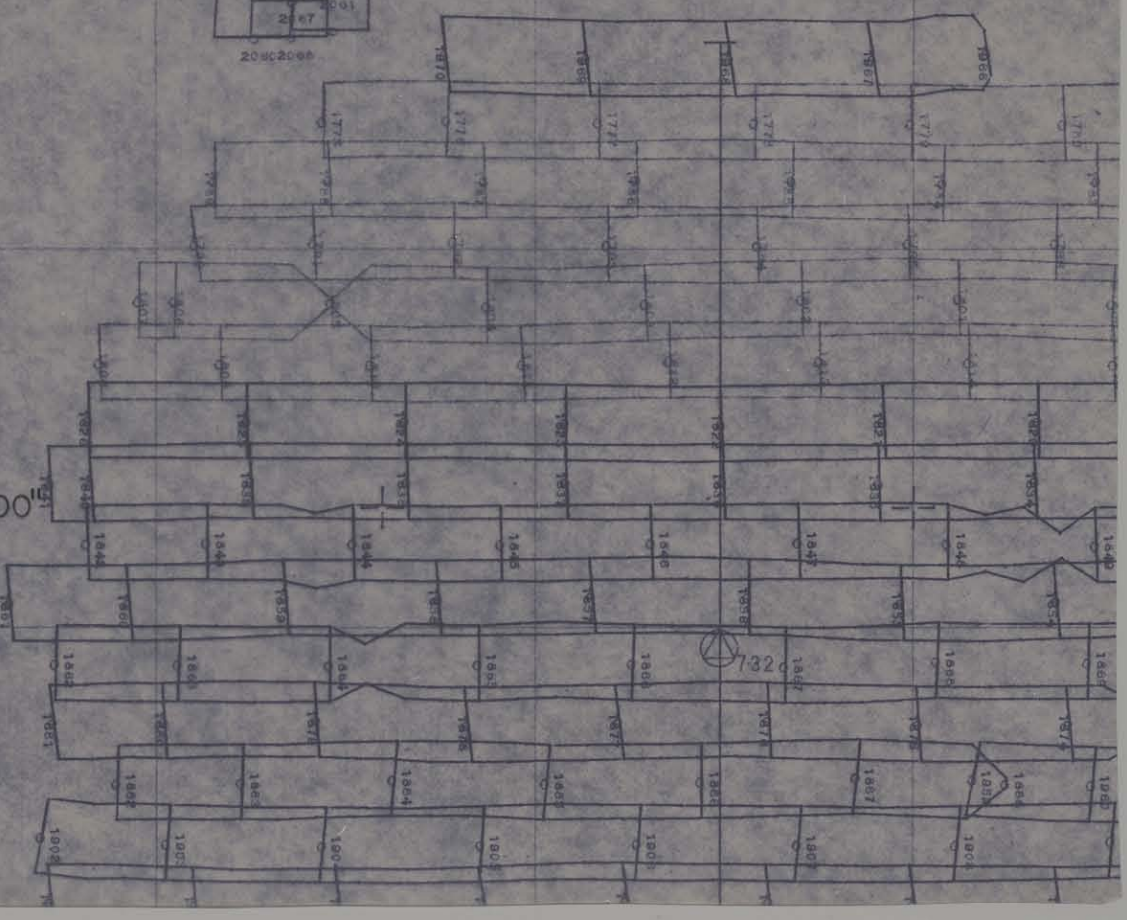
40° 56' 00"

FE-317SS
SIDE SCAN SONAR OVERLAY
SHEET 2 OF 7 (2)
NAD 1983
AWOIS NO. 1735

40° 55' 30"



40° 55' 00"



73° 38' 30" 73° 38' 00" 73° 37' 30"

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

40° 55' 00" 40° 55' 00"

46 Wk

10

32 Rk(A)

15

33 Rk

29 Rk(A) 32 Rk

40° 54' 30" 40° 54' 30"

24 Rk

rocky

21 Rk

13 Rk

FE-317 SS
NEW YORK
LONG ISLAND SOUND
MAMARONECK HARBOR TO MATINECOCK POINT
DATE OF SURVEY: SEPT. 7 TO 15, 1988
SCALE: 1:10,000
SOUNDINGS IN FEET AT MLLW
HORIZONTAL DATUM : NAD 1983
SHEET 3 OF 7
AWOIS ITEM NO. 1736

2

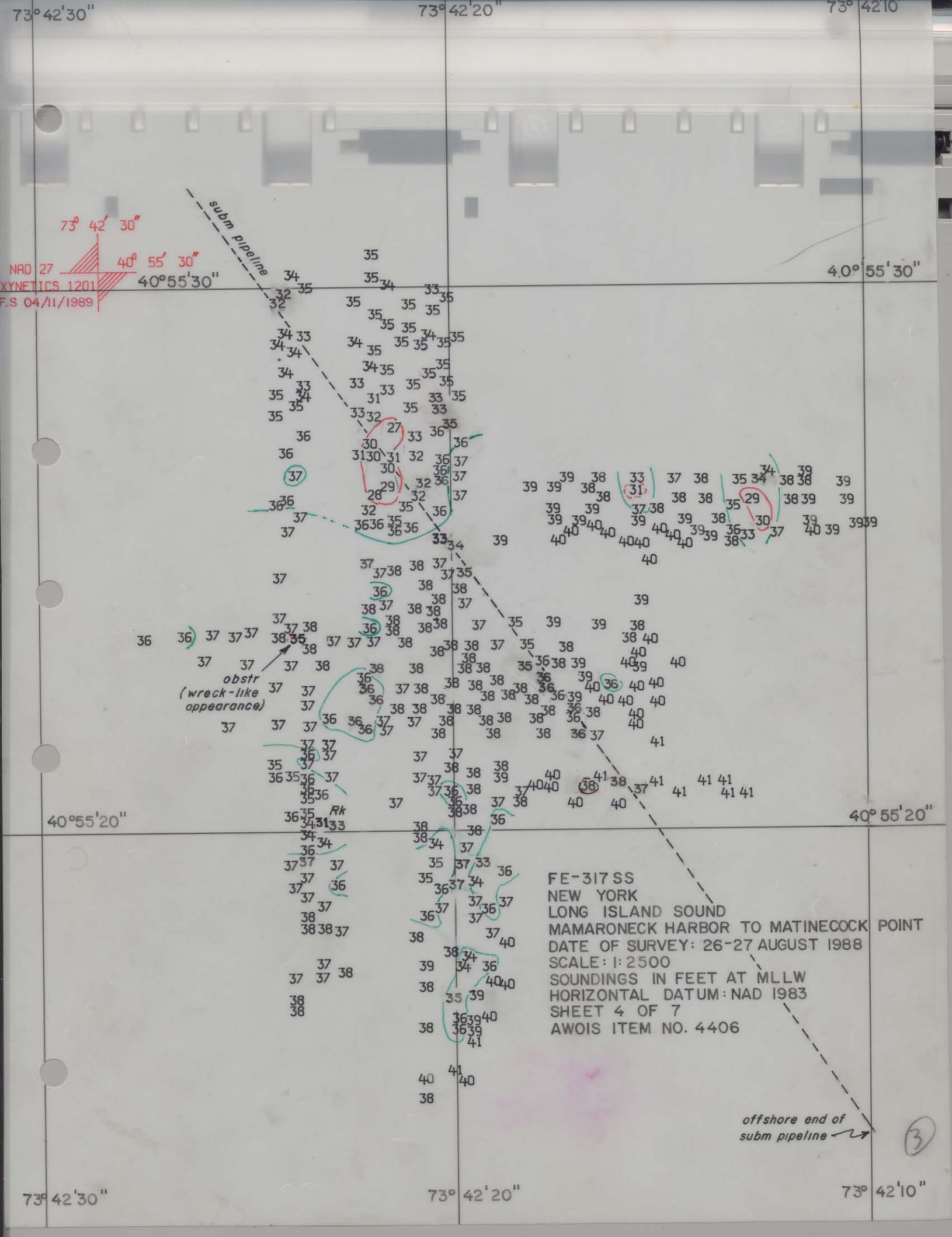
73° 38' 00"
NAD 27 40° 54' 00"
XYNETICS 1201
FS 4/03/1989

40° 54' 00 40° 54' 00"

12367

73° 38' 30" 73° 38' 00" 73° 37' 00"

30


73° 42' 30"
73° 42' 20"
73° 42' 10"
40° 55' 30"
40° 55' 20"
NAD 27
XYNETICS 1201
F.S 04/11/1989
subm pipeline
obstr
(wreck-like
appearance)
Rk
offshore end of
subm pipeline
FE-317 SS
NEW YORK
LONG ISLAND SOUND
MAMARONECK HARBOR TO MATINECOCK POINT
DATE OF SURVEY: 26-27 AUGUST 1988
SCALE: 1:2500
SOUNDINGS IN FEET AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 4 OF 7
AWOIS ITEM NO. 4406
3

73° 41' 30" 73° 41' 00" 73° 40' 30"

44° 56' 30" 44° 56' 30"

34 RK

44° 56' 00" 44° 56' 00"

FE-317 SS
NEW YORK
LONG ISLAND SOUND
MAMARONECK HARBOR TO MANTINECOCK POINT
DATE OF SURVEY: 01-08 SEPT 1988
SCALE = 1:10,000
SOUNDING IN FEET AT MLLW
HORIZONTAL DATUM = NAD 1983
SHEET 5 OF 7
AWOIS ITEM NO. 4408

73° 41' 00"
NAD 27 40° 55' 30"
XYNETICS 1201
F.S 4/03/1989

44° 55' 30" 44° 55' 30"

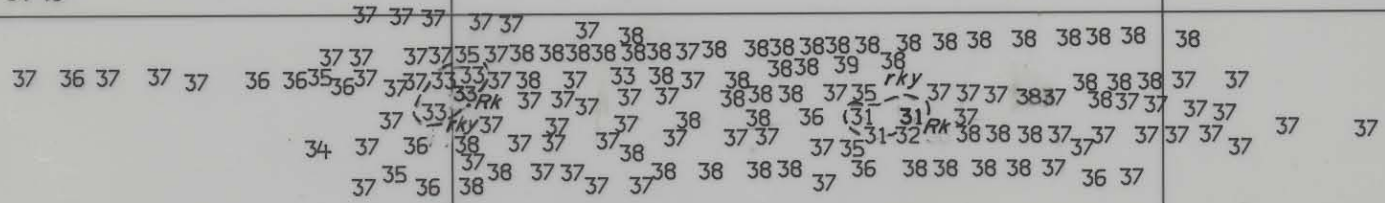
73° 41' 30" 73° 41' 00" 73° 40' 30"

73° 40' 00"

73° 39' 50"

40° 57' 10"

40° 57' 10"



73° 40' 00"

40° 57' 00"

NAD 27

XYNETICS 1201

✓F.S 04/10/1989

40° 57' 00"

40° 57' 00"

FE-317 SS
NEW YORK
LONG ISLAND SOUND
MAMARONECK HARBOR TO MANTINECOCK POINT
DATE OF SURVEY: 01-02 SEPT 1988
SCALE=1:2,500
SOUNDING IN FEET AT MLLW
HORIZONTAL DATUM=NAD 1983
SHEET 6 OF 7
AWOIS ITEM NO. 4409

73° 40' 00"

73° 39' 50"

73°44'00" 73°43'30" 73°43'00"

40°55'00" 40° 55' 00"

34 Wk (20ft long by 6ft wide)

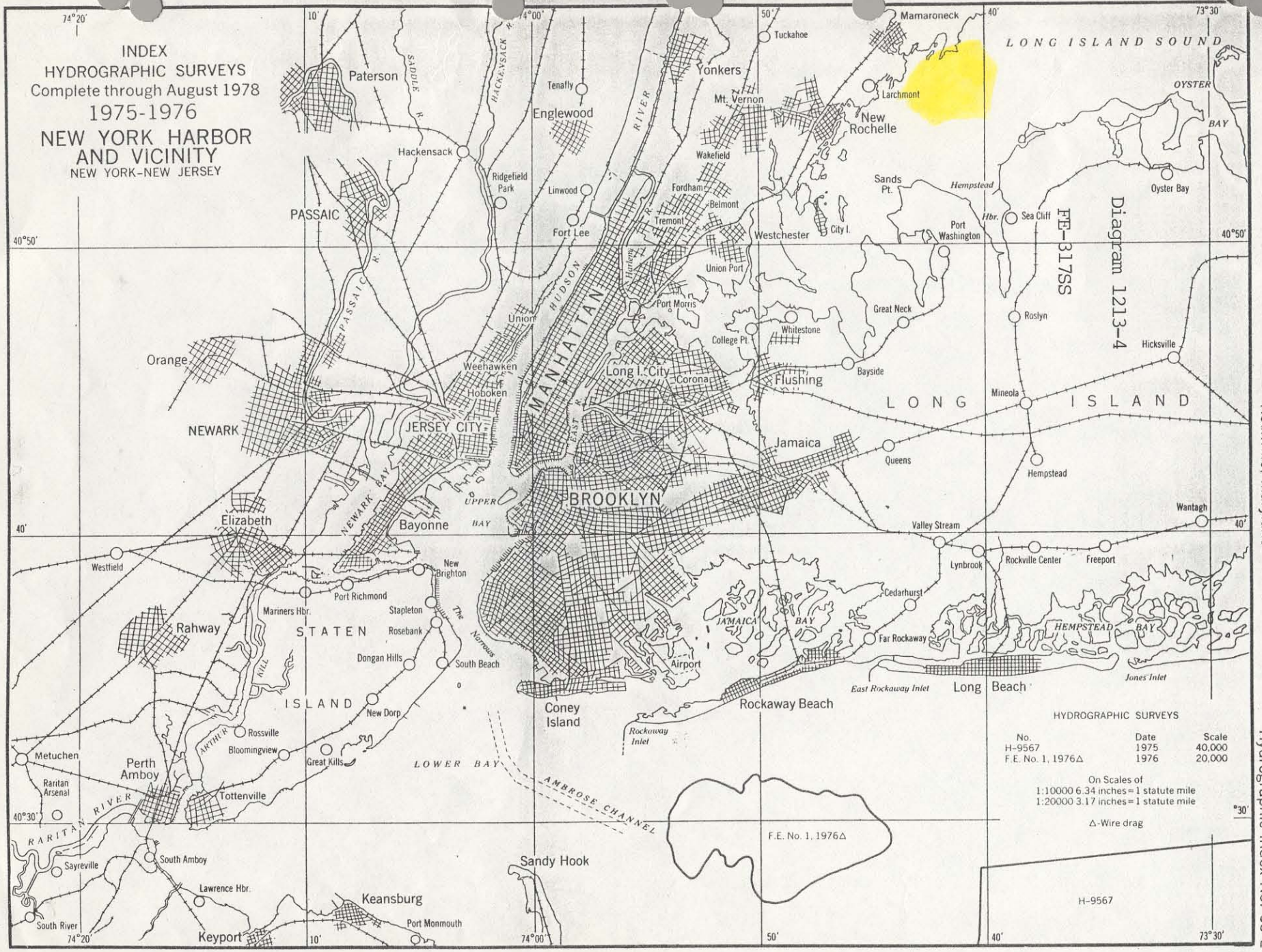
40°54'30" 40° 54' 30"

FE-317 SS
NEW YORK
LONG ISLAND SOUND
MAMARONECK HARBOR TO MATINECOCK POINT
DATE OF SURVEY: AUGUST 24 & 30, 1988
SCALE: 1:10,000
SOUNDINGS IN FEET AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 7 OF 7
AWOIS ITEM NO. 4415

73° 43' 30"
NAD 27 40° 54' 00"
XYNETICS 1201
F.S 4/03/1989

40°54'00" 40° 54' 00"

73° 44' 00" 73° 43' 30" 73° 43' 00"



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

Diagram 1213-4
FE-317SS

Hydrographic Index No. 65 L

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-317SS

EXAMINED FOR NM 12367
GDBU 12364E
3-19-91 P 12363
Applied critical Wks, Rks, + Obstns.

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
12363	2-12-91	John Pierce	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 51
12367	4-19-91	R. A. Lillis	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 34
12364	4-26-91	John Pierce	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 27
			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.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.