

10278

Diagram IS-62

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey .. Hydrographic
Field No. HFP-10-3-88
Registry No. ... H-10278

LOCALITY

State Michigan
General Locality St. Marys River
Sublocality Sawmill Point to Lake Nicolet

19 88

CHIEF OF PARTY
LCDR D.A. Waltz

LIBRARY & ARCHIVES

DATE September 12, 1990

82201
10278

GP
clt 19883

14884
14800
14900-61 } ne

HYDROGRAPHIC TITLE SHEET

H-10278

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

FIELD NO.

HFP-10-3-88

State Michigan

General locality St. Marys River

Locality Sawmill Point to Lake Nicolet

Scale 1:10,000 Date of survey 06/06²⁴/88-09/28/88

Instructions dated March 16, 1987* Project No. OPR-X278-HFP-87-88

Vessel Hydrographic Field Parties Section-Launch 519

Chief of party LCDR David A. Waltz

Surveyed by LTJG Catherine J. Bradley

Soundings taken by echo sounder, hand lead, pole _____

Graphic record scaled by CJB, BAL, GDH, CEP, MCB **

Graphic record checked by Same as scaled by CJB, BAL, GDH, CEP, MCB

Protracted by PDP/8e (field sheet) Automated plot by AMC (smooth sheet) ^{XYNETICS 1201 PLOTTER (AHS)}

Verification by Atlantic Marine Center HYDROGRAPHIC SECTION PERSONNEL

Soundings in ~~XXXX~~ fathoms feet at ~~XXXX~~ ~~XXXX~~ LWD (IGLD-1955)

REMARKS: *Change No. 1-04/1⁴7/87 **CJB-Catherine J. Bradley

2-03/15/88 BAL-Brian A. Link

3-04/19/88 GDH-Glen D. Hendrix

4-08/31/88 CEP-Castle E. Parker

MCB-Mark C. Brown

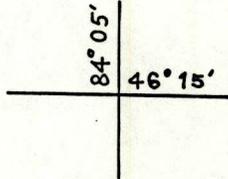
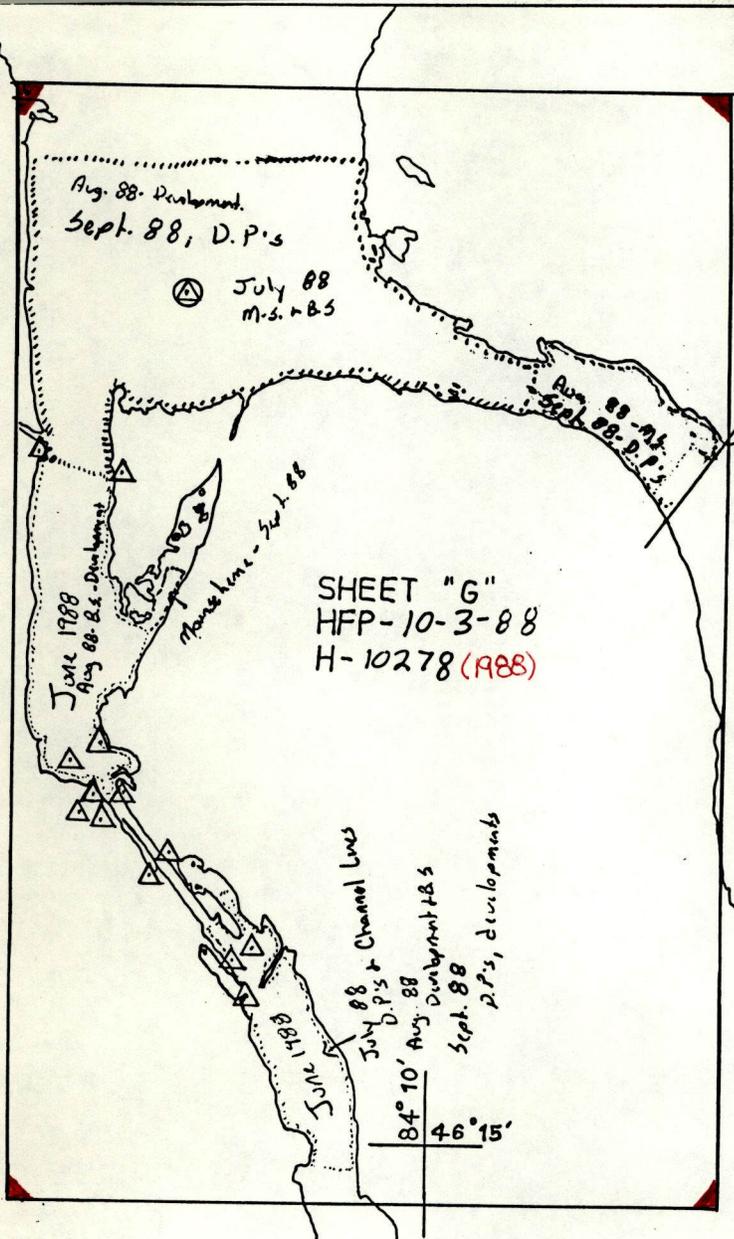
NOTES IN THE DESCRIPTIVE REPORT WERE MADE IN RED DURING OFFICE PROCESSING.

AWOIS/SURF MSA 9/27/90

SC 3-28-97

RWV. 9/26/90

PROGRESS SKETCH
 OPR-X278
 ST MARYS RIVER, MI./ONT.
 May 88 - October 88
 HFPS, HFP 2
 LCDR. D.A. Waltz (COMD G)
 from Chart 14833 (1:80,000 scale)



May	June	July	Aug.	Sept.	Oct.
0	1.4	3.1	2.0	0.2	
0	25.5	63.5	75.7	22.9	
0	6.0	46.0	58.0	30.0	
0	90.0	57.0	79.0	20.0	
0	0	31	28.0	0	
13 set, 1 rec.	0	0	0	0	
1 (leveled)	0	0	0	0	
0	114	66	28	25	

LEGEND
 SQ NM Sounding
 LNM Sounding
 LNM Dist. to and from
 LNM Misc. Dist.
 Bottom Samples
 Control Stations
 Water Level Gages
 D.P.'s

INDEX

	Page
Hydrographic Title Sheet.....	1
Boatsheet Layout.....	2
A. Project.....	3
B. Area Surveyed.....	3
C. Sounding Vessel.....	4
D. Sounding Equipment and Corrections to Echo Soundings.....	4
E. Hydrographic Sheets.....	5
F. Control Stations.....	5
G. Hydrographic Position Control.....	5
H. Shoreline.....	7
I. Crosslines.....	7
J. Junctions.....	7
K. Comparison with Prior Surveys.....	8
L. Comparison with Chart.....	8
M. Adequacy of Survey.....	9
N. Aids to Navigation.....	9
O. Statistics.....	9
P. Miscellaneous.....	9
Q. Recommendations.....	10
R. Automated Data Processing.....	10
S. Reference to Reports.....	11
Projection Parameters.....	12*
Field Tide or Water Level Notes.....	13*
Geographic Names List.....	17
Abstract of Corrections to Echo Soundings/TC-TI.....	18*
Abstract of Corrections to Electronic Position Control.....	43*
List of Stations (Signal List).....	45
Abstract of Positions.....	46*
Bottom Samples (NOAA Form 75-44).....	49*
Landmarks for Charts (NOAA Form 76-40).....	54
Infomational photos	57
Coast pilot Report	59*
User evaluation report	67*
Agent visit report	68*
Danger to navigation letter	74
Dive investigation report	76
AWIOS item descriptions	77
Approval sheet	87

*DATA REMOVED FROM ORIGINAL DESCRIPTIVE REPORT AND FILED WITH
FIELD DATA.

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10278
HFP-10-3-88

Scale: 1:10,000

Chief of Party: LCDR David A. Waltz

Officer in Charge: LTJG Catherine J. Bradley

Hydrographic Field Parties Section

Hydrographic Field Party # 2

Launch # 0519

A. PROJECT

This survey was conducted in accordance with the Project Instructions for OPR-X278-HFP, St. Marys River, Michigan, CY 1988, dated March 16, 1987. These instructions were amended by Change No. 1, dated April 17, 1987, Change No. 2, dated March 15, 1988, Change No. 3, dated April 19, 1988, and Change No. 4, dated August 31, 1988.

The sheet letter is "G" as specified in the Project Instructions.

The purpose of this project is to provide contemporary hydrography for the maintenance of existing charts, and construction of new large scale charts.

B. AREA SURVEYED

The area surveyed was St. Marys River from Sawmill Point to Lake Nicolet. The survey limits are as follows:

North - Lat. 46° 20' 38"N
East - Long. 84° 13' 27"W
South - Lat. 46° 15' 00"N
West - Long. 84° 07' 42"W
37

Bottom samples included mud, light brown and gray sand near shore, and rocks and hard bottom in the channel. The majority of the survey area is rocky. CONCOR

Depths on this survey range from zero to 39 feet.

This survey was conducted from June 20, 1988 (DN 172) to September 28, 1988 (DN 272).

C. SOUNDING VESSEL

NOAA Launch 519 (EDP No. 0519), a 21-foot MonArk was used to collect all survey data. There were no unusual vessel configurations or problems encountered.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

A Raytheon Fathometer Model DE-719C, S/N 9221 was used during this survey. There were no sounding equipment problems encountered.

A graduated sounding pole was used for soundings taken in shoal waters (two feet or less), and to determine least depth on some features and PSR items. A graduated lead line was used to obtain a least depth on PSR item 6312.

When using the Raytheon, Model DE-719C, Fathometer, calibration checks were made at frequent intervals on each day of hydrography. Any necessary adjustments were made and noted on the fathogram. Any departure from the initial zero was corrected during the scanning process.

Weather permitting, two bar checks were taken on each day of hydrography. The lengths of the bar check chains were measured on July 1, 1988 to insure the depth markings were correct.

Velocity correctors were determined using the bar check data for each fathometer. Tables 1 through 3 are to be used for the days of hydrography as follows:

<u>DN</u>	<u>Velocity Table</u>
172-202	1
204-235	2
242-272	3

Velocity tapes were used for the plotting of the semi-smooth sheet and the final field sheets. Also the velocity tapes have been provided for smooth plotting at the Atlantic Marine Center.

All graphic records were scanned and checked by trained field survey personnel. Peaks and deeps considered significant that occurred between regular intervals were inserted on the generated master tape or corrector tape.

The final field sheets and the semi-smooth sheets were plotted using unverified actual water levels measured from Lookout Station No. 4, (No. 907-6028), lat. 46° 17.3'N, long. 84° 13.1'W. Smooth water levels were requested from the Sea and Lake Levels Branch, N/OMA12, in a letter dated October 31, 1988. *Smooth water levels were applied during office processing.*

Settlement and squat correctors were determined on June 8, 1988 for launch 519. The test were run using the level method. A copy of the field data and graphs of the settlement and squat correctors vs. RPMs, is included in the appendix. These correctors will be applied via the TC/TT tape during processing of the smooth sheet at the Atlantic Marine Center. *CORRECTIONS WERE APPLIED DURING OFFICE PROCESSING.*

E. HYDROGRAPHIC SHEETS *(FIELD SHEETS)*

One boat sheet (east), one boat sheet (west), one rough sheet (east), one rough sheet (west), one semi-smooth sheet (east), and one semi-smooth sheet (west) were prepared in the field office using the PDP8/e computer and Houston Instrument Complot DP-3 plotter to monitor and evaluate the survey data. Four sheets were prepared by the same method for the final field sheets. One east and one west sheet has mainscheme hydrography, splits, signals, and shoreline. There is one overlay sheet for each mainscheme sheet showing detached positions, crosslines, developments, mainscheme splits, and bottom samples.

Soundings on the final field sheets are corrected for transducer draft, velocity, and actual unverified water levels.

F. CONTROL STATIONS *SEE SECTION 2.2. OF THE EVALUATION REPORT.*

Nine monumented control stations (signals 001, 002, 003, 010, 011, 012, 014, 015, and 020), and twelve fixed aids to navigation (signals 045, 048, 050, 053, 057, 058, 060, 062, 063, 064, 065 and 068) were used to control this survey. All signals were established as Third-order, Class I stations by N/MOA2222, and Hydrographic Field Party 2/3 in 1987 and 1988.

G. HYDROGRAPHIC POSITION CONTROL *SEE SECTION 2.2. OF THE EVALUATION REPORT.*

The methods used to control this survey were Range-Range, and Range Azimuth using Motorola, Falcon 484, Mini-Rangers.

The following is a list of control equipment used during the survey:

<u>ITEM</u>	<u>MANUFACTURER/MODEL</u>	<u>SER. NUM.</u>
RPU	Motorola/Falcon 484	E0146
CDU	Motorola/Falcon 484	E0006
R/T	Motorola/Falcon 484	C2096
R/T	Motorola/Falcon 484	F3410
R/S	Motorola/Falcon 484	C2058
R/S	Motorola/Falcon 484	E2915
R/S	Motorola/Falcon 484	E2091
R/S	Motorola/Falcon 484	E2909
R/S	Motorola/Falcon 484	F3237
NT-2D	Nikon Theodolite	031033

Baseline calibration of the Motorola, Falcon 484, equipment was performed on the following days:

<u>Date</u>	<u>R/T</u>	<u>R/S</u>
06/15/88	C2096	E2915 E2091 C2058
07/14/88	C2096	E2909 C2058 C2091
07/21/88	F3410	E2909 C2091 C2058
09/15/88	F3410	E2909 E2091
09/29/88	F3410	E2909 E2091

The baseline distance was 2815 meters.

Baseline calibration forms, Attachment 1 and 2, are contained in the accordion fan folder with the survey data. An abstract of the baseline correctors is recorded on Attachment 12 and is included in the appendix of this report.*

R/S E2915 was returned to AMC for repairs on 06/27/88, no final baseline was possible. R/T C2096 failed on 07/11/88 and was replaced with R/T F3410 on 07/21/88. On 09/15/88 R/S C2058 was giving erratic values during baselining and was returned to AMC.

Daily calibrations of the Falcon 484 were taken statically between horizontal control stations prior to and at the end of each day of hydrography, weather permitting. True distances for static checks were determined by inverse computation between third-order stations and fixed aids. Acceptable tolerances were observed throughout the survey and were supported by baseline values.

Correctors used on the final field sheet were obtained from the baseline correctors. Attachment "12" reflects the correctors found while baselining and is included in the appendix of this report.*

*DATA REMOVED FROM ORIGINAL DESCRIPTIVE REPORT AND FILED WITH FIELD DATA.

H. SHORELINE SEE SECTION 2.D. OF THE EVALUATION REPORT.

Shoreline detail shown on the final field sheet was transferred from TP-00353. The photo manuscript was compiled at 1:20,000 scale and enlarged to 1:10,000 scale, photographically.

Shoreline verification was accomplished by comparison of the mainscheme hydrography which junctions at shore, or by visual inspection.

Shoreline details were verified by detached positions. These features were transferred to the final field sheet in black ink when verified or in red ink if not shown on the manuscript.

Apparent shoreline changes worth noting are:

---There are numerous piers in the survey limits. Piers found both on the T-sheet and on the field sheet are drawn in black. Those piers not showing on the T-sheet are drawn in red on the field sheet. Any pier not shown on the field sheet that is indicated on the T-sheet no longer exist.

---The dike at the North end of Neebish Island appears to be slightly north of the position on the T-sheet. On the T-sheet it is drawn as a straight line between the navigation aids, when actually lights "50", and "58" extend about twenty feet south of the center of the dike. SEE SECTION 2.D. OF THE EVALUATION REPORT.

---Erosion has taken place on the north shore of the Charlotte River. SEE ALSO SECTION 6.D. OF THE EVALUATION REPORT.

---The shoreline at long. $84^{\circ} 12' 20''$ ³¹, between lat. $46^{\circ} 19' 04''$ ⁰⁵ N, and lat. $46^{\circ} 19' 12''$ N, has receded.

---A bulkhead has been built at station Eng (signal 014), position lat. $46^{\circ} 15' 51.85''$ N, long. $84^{\circ} 11' 27.04''$ W.

I. CROSSLINES SEE SECTION 3.Q. OF THE EVALUATION REPORT.

Crosslines run constituted 8.0% of the mainscheme hydrography. The agreement between crosslines and mainscheme lines was good.

J. JUNCTIONS SEE SECTION 5. OF THE EVALUATION REPORT.

Survey No. H-1025⁴~~9~~, completed in 1988, junctions with this survey, to the North.

Comparison with junction soundings is good. Junction soundings from H-1025⁴~~9~~ agree within one foot throughout the whole area.

K. COMPARISON WITH PRIOR SURVEYS SEE SECTION 6. OF THE EVALUATION REPORT.

Three presurvey review items (No. 04534, 06312, and 06313) assigned to OPR-X278 are within the survey limits. A complete discussion of the resolution of these items can be found in the Item Investigation Reports appended to this report.

This survey was compared with survey LS-1696 a 1:10,000-scale survey, from 1936. Since 1936 the spoil areas have been changed. As a result in these spoil areas the bottom is littered with rock piles. The soundings representing the bottom compare favorably with LS-1696, but many shoaler soundings appear in both the active and inactive spoil areas.

L. COMPARISON WITH THE CHART SEE SECTION 7. OF THE EVALUATION REPORT.

This survey was compared with the 36th Edition of Chart 14883 dated July 31, 1986. For the comparison, the 1:40,000-scale chart was photographically enlarged to 1:10,000 scale.

All shoal areas within the limits of the survey were developed by running 50-meter splits of the mainscheme and 50-meter lines perpendicular to the mainscheme. CONCUR

One Danger to Navigation Letter was submitted to the Commander, Ninth Coast Guard District, Cleveland, Ohio. The letter is appended to this report and contains the following information:

--- A 27 foot sounding was obtained in the West Neebish Channel Rock Cut which has a project depth of 28.5 feet. The 27 ft. sounding has been ~~field~~ reduced to low water datum, and is found at position 46° 16' 55" N, 84° 12' 30"W. CONCUR
.37 .38

--- At position 46° 15' 07.45' N, 84° 11' 03.64" W an uncharted pier ruins was found. The least depth was found to be 1.5 ft. at 1505z, DN 187. The depth was obtained using a graduated pole and has ~~not~~ been reduced to low water datum. CONCUR

--- An uncharted rock pile at position 46° 15' 29.26" N, 84° 11' 22.40" W, was found on DN 231 at 1731z. A graduated pole was used to determine a least ~~depth~~ of 1.5 ft. The least depth depth has ~~not~~ been reduced to low water datum. CONCUR
59.25

Other changes to the chart are as follows:

--- A five foot charted sounding, at lat. 46° 19' 36" N, long. 84° 08' 30" W, is in an area with zero to three feet of water. CONCUR

--- A prior spoil area North West of Neebish Island and South of lat. 46° 20' N is not clearly represented by the chart. The chart shows the area to have four to six feet of water. Actually the area is littered with rock piles with least depths to one foot. CONCUR

--- An area east of the channel to shore between lat. 46° 16' 00" N and lat. 46° 15' 30" N is charted as having six to eight feet of water. Actually there are several shoals in this area as shallow as two ft. *CONCUR*

It is the hydrographer's opinion that the area behind the dike on the North end of Neebish Island is foul with rocks. *CONCUR*
IT IS RECOMMEND THAT THE AREA BE CHARTED AS SHOWN ON PRESENT SURVEY.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to warrant its use to supersede prior surveys for charting in the common areas.

N. AIDS TO NAVIGATION *SEE SECTION T.d. OF THE EVALUATION REPORT,*

Twenty seven floating aids to navigation are in the boundaries of this survey. All are listed in the light list, and serve the apparent purpose for which they were established.

All but one of fixed aids in the survey area were located to Third-Order, Class I standards, by N/MOA2222 and HFP-2/3, as required in the project instructions. Lower Nicolet W Range R Lt was not located during this survey.

The fixed aids and there positions are listed on the appended NOAA Form 76-40.

O. STATISTICS

<u>Type of Production</u>	<u>Launch ></u>	<u>519</u>
Number of Positions		2638
Days of Production (Days at Sea)		30
Nautical Miles of Mainscheme		136.6
Nautical Miles of Crosslines		15.0
Nautical Miles of Developments		42.9
Total Nautical Miles of Hydrography		194.5
Number of Detached Positions		294
Number of Bottom Samples		68
Number of PSR Items Investigated		3

P. MISCELLANEOUS

No anomalous currents were observed throughout most of the survey area.

Bottom samples were submitted to the Curator, Department of Paleobiology, Natural History Museum, Smithsonian Institute.

On the final field sheet the fifty meter channel splits, in the West Neebish Channel North of the Rock Cut, plotted about twenty meters north their true positions. This is a plotter error and not a positioning problem. *CONCUR*

The survey area had a very irregular bottom profile. As a result, when all the peaks and deeps were plotted the survey sheet was illegible. The hydrographer felt that the shoaler soundings should be represented so special master tapes were made for the semi-smooth plot and the final field sheet, that deleted many of the deeper soundings so that the shoaler soundings could be read. To avoid confusion only the original master tapes were sent to verification. At verification the ~~exercise~~ program can be used in plotting. *CONCUR*
EXCESS

In some of the dredged channels it was impossible to draw all the contour lines, therefore only the shallowest and deepest contour between two soundings were drawn. For example, if two adjacent soundings are 4 ft and 20ft. the six foot contour ~~and~~ the eighteen foot contour were drawn. *CONCUR* *AND*

Photographs of several features are included with this report.

Q. RECOMMENDATIONS

See sections H, K, L, and N for specific recommendations.

R. AUTOMATED DATA PROCESSING

Programs used during field data acquisition and field processing of this survey are as follows:

<u>PROGRAM</u>	<u>DESCRIPTION</u>	<u>VERSION DATE</u>
RK201	Grid, Signal, and Lattice Plot	04/18/75
RK211	Range/Range Non-Real Time Plot	01/15/76
RK216	Range/Azimuth Non-Real Time Plot	02/09/81
RK212	Visual Station Table Load	04/01/74
RK300	Utility Computations	02/05/76
RK330	Reformat and Data Check	05/04/76
RK407	Geodetic Inverse/Direct Computation	09/25/78
AM500	Predicted Tide Generator	11/10/72
RK530	Layer Corrections For Velocity	05/10/76
AM602	ELINORE - Line Oriented Editor	05/20/75

S. REFERENCE TO REPORTS

Horizontal control report submitted in 1988.
Coast Pilot Report.
User Evaluation Report.

Respectfully Submitted,

Robert Snow for

Catherine J. Bradley, LTJG, NOAA
OIC, HFP-2

Signal List Sheet "G"
 OPR-X278 (CY 88 OPS)
 ST. MARY'S RIVER

001	7	46	21	33453	084	13	02320	250	0000	000000	LEE
002	7	46	21	48780	084	11	12894	250	0000	000000	SHINGLE
003	7	46	19	57537	084	11	02906	250	0000	000000	AMC 61
010	7	46	19	02356	084	13	10091	139	0000	000000	MYERS
011	7	46	18	51614	084	12	38418	250	0000	000000	CHAR
012	7	46	17	19902	084	13	12488	250	0000	000000	MOE
014	7	46	15	51853	084	11	27042	250	0000	000000	ENG
015	7	46	15	06148	084	10	33552	250	0000	000000	LOW
020	7	46	17	33162	084	12	43945	250	0000	000000	OAK
045	7	46	14	19700	084	10	39720	139	0000	000000	W NEEBISH CHAN LT 17
046 A7	46	15	06196	084	10	33512	139 250	0000	000000	ROCK CUT LOWER LEADING LT	
047 E7	46	16	48818	7 084	12	57452	1 139	0000	000000	OAK RIDGE RANGE R LT	
048	7	46	17	08017	084	12	56724	46 139	0000	000000	OAK RIDGE RANGE F LT
049 H7	46	17	10038	084	12	50206	139	0000	000000	W NEEBISH CHAN LT 33	
050	7	46	17	07462	3 084	12	40423	4 139	0000	000000	W NEEBISH CHAN LT 32
051 F7	46	16	54264	084	12	32322	139	0000	000000	W NEEBISH CHAN LT 29	
052 G7	46	16	56131	084	12	28623	139	0000	000000	W NEEBISH CHAN LT 30	
053	7	46	16	27054	084	12	03076	139	0000	000000	W NEEBISH CHAN LT 27
054 D7	46	16	29012	084	11	59538	139	0000	000000	W NEEBISH CHAN LT 28	
055 B7	46	16	00041	084	11	34082	139	0000	000000	W NEEBISH CHAN LT 25	
056 K7	46	19	28186	084	10	35027	139	0000	000000	LOWER NICOLET W RNG F LT	
057	7	46	19	24592	084	08	54179	250	0000	000000	MID NEEBISH CHAN LT 50
058	7	46	19	46998	084	10	14745	250	0000	000000	MID NEEBISH CHAN LT 58
059 L7	46	19	56209	084	11	04233	139	0000	000000	MID NEEBISH S RNG F LT	
060	7	46	20	16696	084	12	17973	139	0000	000000	MID NEEBISH S RNG R LT
061 M7	46	19	57593	084	11	03033	139	0000	000000	MID NEEBISH LT 61	
062	7	46	20	07157	084	11	00406	139	0000	000000	MID NEEBISH LT 62
063	7	46	19	35722	084	09	34529	139	0000	000000	MID NEEBISH CHAN LT 54
064	7	46	20	16702	084	12	18008	250	0000	000000	PK RANGE
065	7	46	20	44252	084	12	50420	250	0000	000000	WEST NEEBISH CHAN LT 45
066	7	46	21	33422	084	13	02299	139	0000	000000	WEST NEEBISH CHAN LT 49
068 S7	46	19	19116	084	11	47201	139	0000	000000	W NEEBISH ^{CHANNEL} UPPER RNG R LT	
069 C7	46	16	01920	084	11	30444	139	0000	000000	W NEEBISH CHAN LT 26	
070 7	46	18	56100	084	10	08400	243	0000	000000	LOWER NICOLET W RNG R LT	

All signals are Third Order, Class I, established by AMC, MOA22, in 1987 and 1988, with the exception of signal 070. Position for signal 070 was taken from the DIPFILE listing and was used only for plotting of the navaid on the final field sheet. Signals 001-003, 056-068 were located in 1987. Signals 010-055, and signal 069 were located in 1988.

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

ORIGINATING ACTIVITY

- HYDROGRAPHIC PARTY
 - GEODETIC PARTY
 - PHOTO FIELD PARTY
 - COMPILATION ACTIVITY
 - FINAL REVIEWER
 - QUALITY CONTROL & REVIEW GRP.
 - COAST PILOT BRANCH
- (See reverse for responsible personnel)

REPORTING UNIT: **Field Party #2**
 STATE: **Michigan**
 LOCALITY: **St. Mary's River**
 DATE: **9/30/88**

OPR PROJECT NO.: **OPR-X278**
 JOB NUMBER: **H-10278**
 SURVEY NUMBER: **H-10278**
 DATUM: **North American 1927**

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION				METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED
		LATITUDE		LONGITUDE		OFFICE	FIELD	
		° /	' /	° /	' /			
Mast	Barbeau Radio Mast	46 17	03.30	084 1243.935			F-3-6-L 05/1988	#14883
Light	Rock Cut Lower Leading Light (1987 USCGLL #12935)	46 15	06.19	084 1033.512			F-3-6-L 05/1988	#14883
Light	Oak Ridge Range Rear Light (1987 USCGLL #12855)	46 16	48.81	084 1257.451			F-3-6-L 05/1988	#14883
Light	Oak Ridge Range Front Light (1987 USCGLL #12850)	46 17	08.01	084 1256.705			F-3-6-L 05/1988	#14883
Light	West Neebish Channel Light #33 (1987 USCGLL #12925)	46 17	10.03	084 1250.206			F-3-6-L 05/1988	#14883
Light	West Neebish Channel Light #32 (1987 USCGLL #12930)	46 17	07.46	084 1240.424			F-3-6-L 05/1988	#14883
Light	West Neebish Channel Light #29 (1987 USCGLL #12950)	46 16	54.26	084 1232.322			F-3-6-L 05/1988	#14883
Light	West Neebish Channel Light #30 (1987 USCGLL #12945)	46 16	56.13	084 1228.632			F-3-6-L 05/1988	#14883
Light	West Neebish Channel Light #27 (1987 USCGLL #12960)	46 16	27.05	084 1203.075			F-3-6-L 05/1988	#14883
Light	West Neebish Channel Light #28 (1987 USCGLL #12955)	46 16	29.01	084 1159.538			F-3-6-L 05/1988	#14883

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	Lt.Jg. Catherine Bradley & Field Party Personnel
POSITIONS DETERMINED AND/OR VERIFIED	Coastal Mapping Section Moa/2222
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
	FIELD ACTIVITY REPRESENTATIVE
	OFFICE ACTIVITY REPRESENTATIVE
	<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

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

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

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

TO BE CHARTED
 TO BE REVISED
 TO BE DELETED

REPORTING UNIT
(Field Party, Ship or Office)

Field Party #2

STATE

Michigan

LOCALITY

St. Mary's River

DATE

9/30/88

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY

- HYDROGRAPHIC PARTY
 - GEODETIC PARTY
 - PHOTO FIELD PARTY
 - COMPILATION ACTIVITY
 - FINAL REVIEWER
 - QUALITY CONTROL & REVIEW GRP.
 - COAST PILOT BRANCH
- (See reverse for responsible personnel)

OPR PROJECT NO. OPR-X278

JOB NUMBER

H-10278

SURVEY NUMBER

H-10278

DATUM

North American 1927

The following objects HAVE BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION			METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED
		LATITUDE		LONGITUDE	OFFICE	FIELD	
		D.M. Meters	° /				
Light	West Neebish Channel Light #25 (1987 USCGLL #12970)	46 16	00.041084	1134.082		F-3-6-L 05/1988	#14883
Light	Lower Nicolet West Range Front Lt (1987 USCGLL #12700)	46 19	28.186084	1035.027		F-3-6-L 06/1987	#14883
Light	Middle Neebish Channel Light#50 (1987 USCGLL # 12650)	46 19	24.592084	0854.178		F-3-6-L 06/1987	#14883
Light	Middle Neebish Channel Light#58 (1987 USCGLL #12675)	46 19	46.998084	1014.745		F-3-6-L 06/1987	#14883
Light	Middle Neebish Chann. S. Rng. Ft. Lt. (1987 USCGLL #12610)	46 19	56.209084	1104.233		F-3-6-L 06/1987	#14883
Light	Middle Neebish Chann. S. Rng. Ft. Lt. (1987 USCGLL #12615)	46 20	16.696084	1217.973		F-3-6-L 06/1987	#14883
Light	Middle Neebish Channel Light #61 (1987 USCGLL #12605)	46 19	57.593084	1103.032		F-3-6-L 06/1987	#14883
Light	Middle Neebish Channel Light #62 (1987 USCGLL #12710)	46 20	07.157084	1100.406		F-3-6-L 06/1987	#14883
Light	Middle Neebish Channel Light #54 (1987 USCGLL #12660)	46 19	35.722084	0934.529		F-3-6-L 06/1987	#14883
Light	West Neebish Channel Light #45 (1987 USCGLL #12865)	46 20	44.251084	1250.419		F-3-6-L 06/1987	#14883

RESPONSIBLE PERSONNEL		ORIGINATOR
TYPE OF ACTION	NAME	
OBJECTS INSPECTED FROM SEAWARD	Lt.Jg. Catherine Bradley & Field Party Personnel	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	Coastal Mapping Section Moa/2222	FIELD ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		OFFICE ACTIVITY REPRESENTATIVE <input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

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

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.
EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

- F - Field
- L - Located
- V - Verified
- 1 - Triangulation
- 2 - Traverse
- 3 - Intersection
- 4 - Resection
- 5 - Field identified
- 6 - Theodolite
- 7 - Planetable
- 8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.
EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.
EXAMPLE: V-Vis.
8-12-75

**PHOTOGAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

NOAA FORM 76-40 (8-74) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

Replaces C&GS Form 567. REPORTING UNIT (Field Party, Ship or Office) Field Party #2 STATE Michigan LOCALITY St. Mary's River DATE 9/30/88

OPR PROJECT NO. OPR-X278 HAVE HAVE NOT been inspected from seaward to determine their value as landmarks. SURVEY NUMBER H-10278

CHARTING NAME DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)

CHARTING NAME	DESCRIPTION	LATITUDE		LONGITUDE		DATE	DATUM	POSITION	METHOD AND DATE OF LOCATION (See instructions on reverse side)	CHARTS AFFECTED
		D.M. Meters	° / ' "	D.M. Meters	° / ' "					
Light	West Neebish Channel Light #49 (1987 USCGLL #12840)	46 21	33.421084	1302.298					F-3-6-L 06/1987	#14883
Light	West Neebish Channel Light #54 (1987 USCGLL #12815)	46 22	50.548084	1337.771					F-3-6-L 06/1987	#14883
Light	West Neebish Upper Range Rear Lt (1987 USCGLL #12810)	46 19	19.116084	1147.201					F-3-6-L 06/1987	#14883
Light	West Neebish Channel Light #26 (1987 USCGLL #12965)	46 16	01.919084	1130.444					F-3-6-L 05/1988	#14883

ORIGINATING ACTIVITY										
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
HYDROGRAPHIC PARTY	GEODETIC PARTY	PHOTO FIELD PARTY	COMPILATION ACTIVITY	FINAL REVIEWER	QUALITY CONTROL & REVIEW GRP.	COAST PILOT BRANCH	(See reverse for responsible personnel)			

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	It.Jg. Catherine Bradley & Field Party Personnel
POSITIONS DETERMINED AND/OR VERIFIED	Coastal Mapping Section Moa/2222
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
	FIELD ACTIVITY REPRESENTATIVE
	OFFICE ACTIVITY REPRESENTATIVE
	<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

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

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



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL OCEAN SERVICE
 ATLANTIC MARINE CENTER
 Atlantic Hydrographic Section
 439 West York Street,
 Norfolk, VA 23510-1114.

September 14, 1989

Commander, Ninth Coast Guard District
 Aids to Navigation Office
 1240 East 9th Street
 Cleveland, OH 44199-2060

Dear Sir,

The following item was previously reported as a danger to navigation on October 2, 1988:

REPORT OF DANGER TO NAVIGATION

Hydrographic Survey Registry Number...H-10278
 State.....Michigan
 General Locality.....St. Mary's River
 Locality.....Sawmill Pt. to Lake Nicolet
 Project Number.....OPR-X278
 Surveyed by.....Hydrographic Field Party 2

Object Addressed:

The location of an "uncharted rock pile" was incorrectly reported in Latitude 46°15'29.26"N, Longitude 84°11'22.4"W (NAD 27). The correct location of this feature is Latitude 46°15'59.25"N, Longitude 84°11'22.4"W (NAD 27) which is now identified as a "rock awash" at Low Water Datum.

Affected Nautical Chart:

CHART NUMBER	EDITION NUMBER	DATE	HORIZ DATUM	GEOGRAPHIC POSITION LATITUDE	LONGITUDE
14893	37TH	June 3/89	NAD 83	46°15'59.31"N	84°11'22.50"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section, Atlantic Marine Center by calling 804 441-6746 or FTS 827-6746.

Sincerely,

for *R. O. Sanscki*
 Christopher B. Lawrence, CDR, NOAA
 Chief, Atlantic Hydrographic
 Section

Attachments

RLH
2/12/90





U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

NATIONAL OCEAN SERVICE

Atlantic Marine Center
439 W. York St.
Norfolk, Va. 23510
N/MOA233

October 2, 1988

To: Commander, Ninth Coast Guard District
Cleveland, Ohio

From: LTJG Catherine J. Bradley, OIC-HFP 2

Subject: Danger to Navigation Notice for inclusion in the
Local Notice to Mariners, Chart 14883, 36th Ed.,
St. Marys River, Munuscong Lake to Sault Ste Marie.

While conducting a basic hydrographic survey of the St. Marys river, (Registry NO. H-10278), the following potential Dangers to Navigation were found.

----Submerged metal pier ruins with a least depth of 1.5 ft. at 1505z DN 187. (depth is not reduced to low water datum) The ruins are located at position 46° 15' 07.45" N., 84° 11' 03.64" W. The depth was obtained using a graduated pole and has not been reduced to Low Water Datum.

----A 27 foot sounding was obtained in the West Neebish Channel Rock Cut which has a project depth of 28.5 feet. The 27 ft. sounding has been field reduced to low water datum, and is found at position 46° 16' 55" N, 84° 12' 30" W.

----An uncharted rock pile at position 46° 15' ⁵⁹29.26"N, 84° 11' 22.40"W, was found on DN 231 at 1731z. A graduated pole was used to determine a least depth of 1.5 ft. The least depth has not been reduced to Low Water Datum.

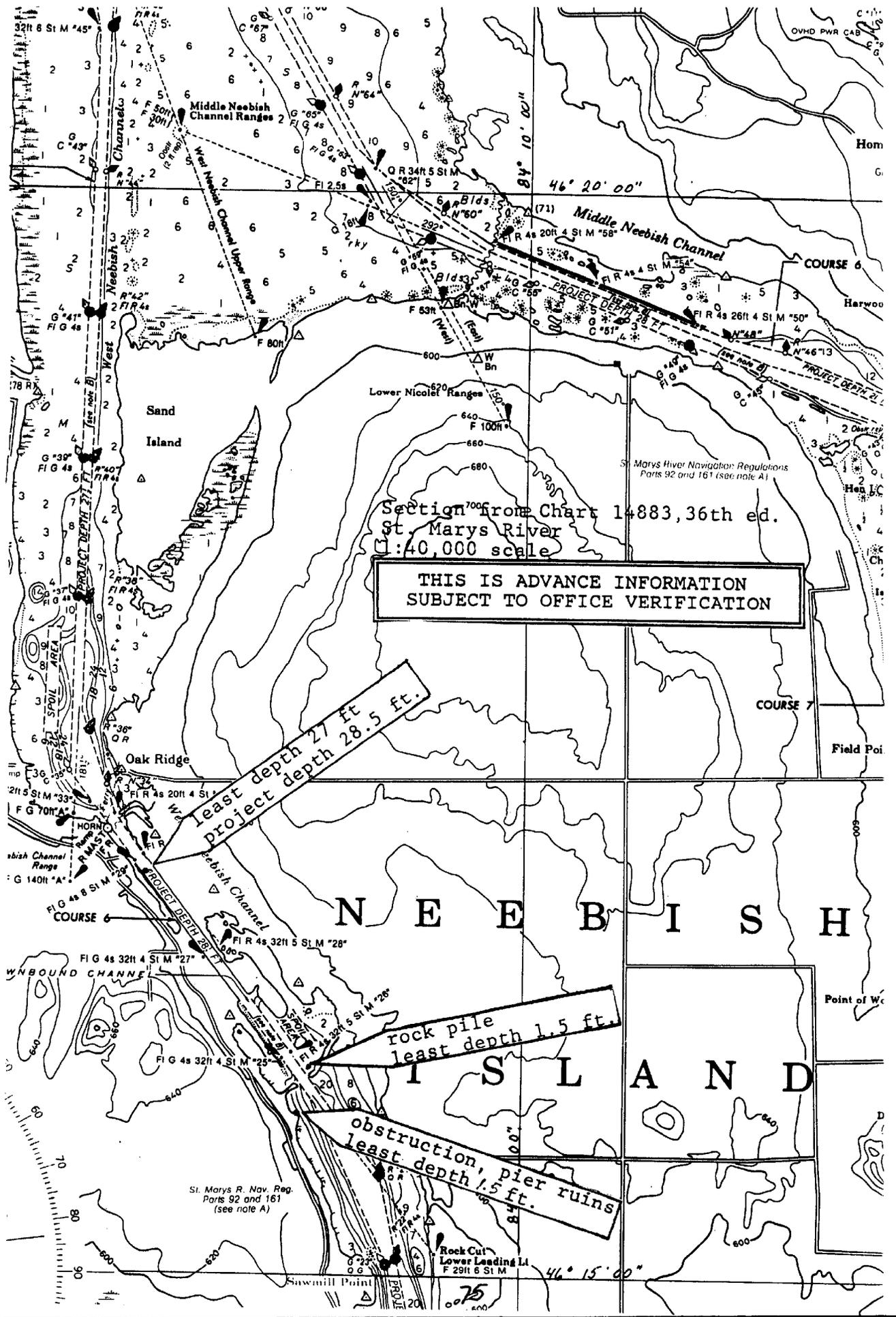
These dangers to navigation were located using Range/Azimuth positioning methods, from Third Order, Class I, geodetic control stations (NAD 1927). Motorola Falcon 484 electronic positioning system was used to obtain distances, and a Nikon NT2D theodolite was used for the angle. Depths were recorded using a Raytheon 719C Survey Fathometer or, where indicated, a graduated sounding pole.

A section from Chart 14883 36th ed., showing the locations of these dangers, is attached.

THIS IS ADVANCE INFORMATION
SUBJECT TO OFFICE VERIFICATION

cc: MOA233
MOA2X1
N/CG222





Section from Chart 14883, 36th ed.
 St. Marys River
 1:40,000 scale

THIS IS ADVANCE INFORMATION
 SUBJECT TO OFFICE VERIFICATION

least depth 27 ft.
 project depth 28.5 ft.

N E E B I S H

rock pile
 least depth 1.5 ft.

I S L A N D

obstruction, pier ruins
 least depth 1.5 ft.

St. Marys R. Nav. Reg.
 Paris 92 and 161
 (see note A)

Rock Cut Lower Landing Lt.
 F 29h 6 St M

DIVE INVESTIGATION REPORT
PROJECT NUMBER OPR-X278
SURVEY H-10278
FIELD NUMBER HFP-10-3-88

DIVE NUMBER 1

DIVE DATE 8/31/88

I. AREA OF INVESTIGATION

- A. State/Country Michigan Sub-Locality St. Mary's River
- B. Position: Latitude 46°15'05.98 Longitude 084°10'58.02
(Dive site or center of search area)
- C. Method of Positioning Range Azimuth

II. PURPOSE OF INVESTIGATION

- A. AWOIS item number: #6312
- B. Source of item being investigated (if other than AWOIS listing): _____
- C. Contacts (e.g. USCG, C of E, Harbor Masters, Owners, etc.):

- D. Names, Addresses and Phone Numbers etc. of contacts:

III. SURVEY PROCEDURES

- A. Determination of dive site (e.g. wire drag, side scan, development): Fatho search and compass course swim.
- B. Search Procedure(e.g. following a groundwire, circle search, sweep along known feature, etc.)

Item previously positioned by Field Party and recovered by echo sounder. Marked by buoy at spike and then found during dive.

- C. Known reference to features nearby:
Sawmill Point

- D. Area and depths covered:
50 meter radius in 7 to 18 feet of water.

IV. DIVE DATA

- A. Divers: D. Elliott, C. Bradley, M. McMann
- B. Time of Dive (in UTC) - Real 151500
Elapsed 153500
- C. General Bottom Depths (units and method of determination):
7 to 18 feet by leadline and fatho.
- D. Current and conditions: One knot with light chop.
- E. Visibility (number of feet - horizontally and vertically):
5 to 6 ft. Hor. & Vert.
- F. Bottom type (mud, sand, rocks, etc.): Mud /Silt

IV. RESULTS

- A. Detached Positions Number(s): 2043
Time of D.P.'s (UTC): Describe if other time zone: 151300
Least Depth and Fix Numbers (raw depth): 19.0 ft.
Method of determining depth (The raw sounding should be recorded. The reduced least depth should be plotted on the field sheet.) Leadline
- B. Description of findings:
Wooden row boat 15 feet long and approx. 6 feet wide partially submerged in silt at inshore end.
- C. Dimensions of item or feature (attach sketch if appropriate):
15 x 6 ft. Deteriating rapidly
- D. Unusual Conditions:
None

VI. CHARTING RECOMMENDATIONS

Remain as charted.

Position Lat. 46°15'05.38⁷" Long. 084°10'58.22"
Reduced Depth 17^φ
Type of Feature (Reference Chart No.1) Subm. Wreck

Chart as 17Wk

CHART:14883

PRESURVEY REVIEW ITEM #4534
Obstruction (ruins)

SOURCE: LNM2/77, CL212/82

INVEST. DATE: 9/28/88 (DN 272) TIME: 160500 Z VESSEL #519

OIC: LT(jg) Catherine J. Bradley

REFERENCE: H-10278 (OPR-X278 CY 88 OPS)

POSITION: 2638

Volume: 11

PAGE: 42

CORRECTORS APPLIED: None

VELOCITY: no

TRA CORRECTORS: no

Unverified Actual Water Levels: no

GEODETTIC POSITION:

LATITUDE

LONGITUDE

CHARTED:

46°20'16.37"N

84°12'16.31"W

OBSERVED:

46°20'16.62"N

84°12'16.⁶⁰~~55~~"W

POSITION DETERMINED BY: Range/Azimuth

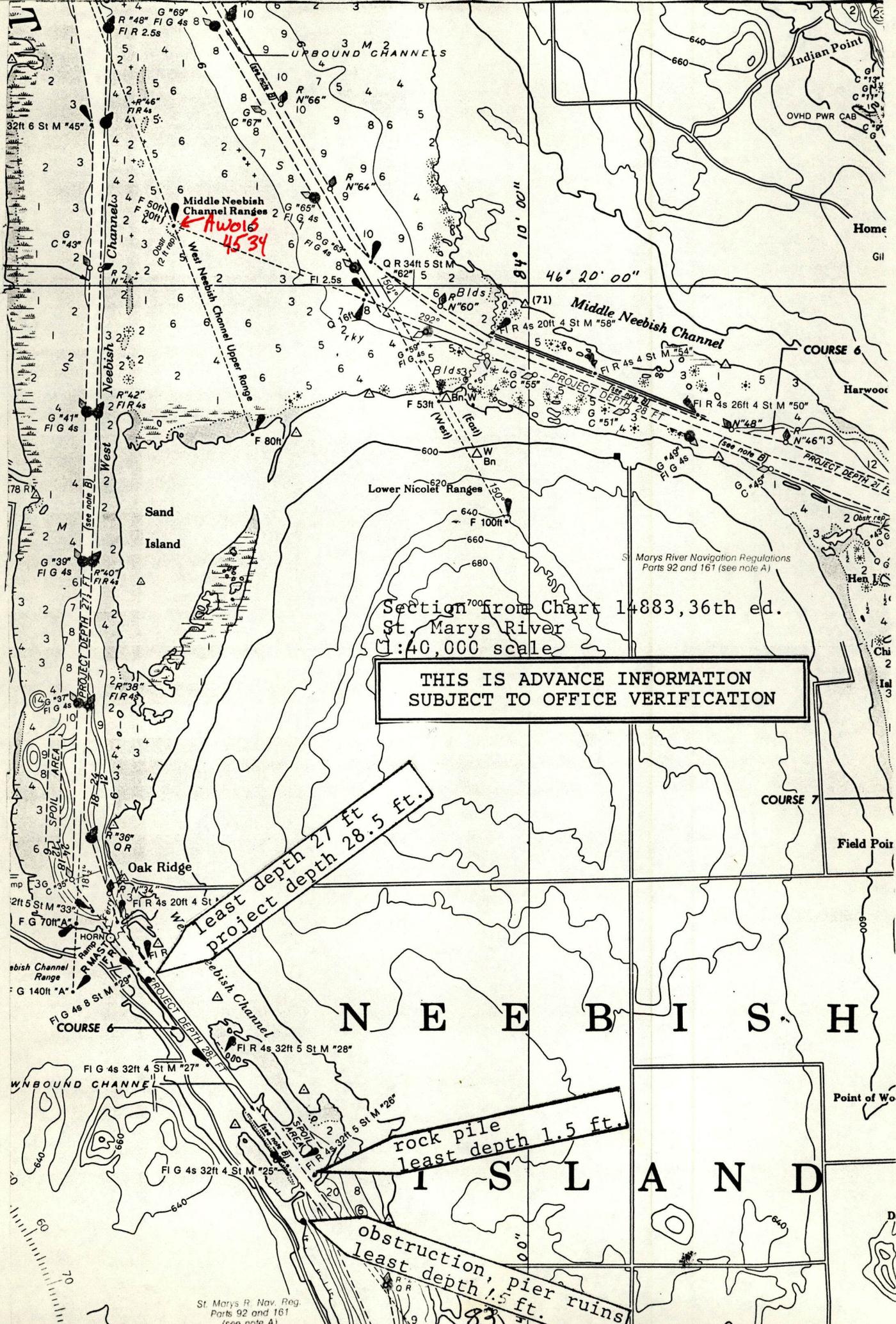
METHOD OF ITEM INVESTIGATION: Item was found by visual search in calm water. The ruins of the old light structures lie scattered with a diameter of approximately 20 ft. The least depth, of ~~3.3~~^{2.0} ft, was determined using a graduated pole. Position number 2638 is near the center of the ruins

CHARTING RECOMMENDATIONS: ~~The ruins should be charted at the observed position.~~ IT IS RECOMMENDED THAT THE CHARTED OBSTR (2FT REP) BE DELETED. IT IS ALSO RECOMMENDED THAT A DANGEROUS SUBMERGED OBSTRUCTION WITH A KNOWN DEPTH OF 2 FEET (2OBSTR) AND A DANGER CURVE BE CHARTED IN PRESENT SURVEY LOCATION.

COMPILATION USE

CHART:

APPLIED AS:



AWOL 4534

Section from Chart 14883, 36th ed.
 St. Marys River
 1:40,000 scale

THIS IS ADVANCE INFORMATION
 SUBJECT TO OFFICE VERIFICATION

least depth 27 ft.
 project depth 28.5 ft.

rock pile
 least depth 1.5 ft.

obstruction, pier ruins
 least depth 1.5 ft.

NEEBISH

ISLAND

St. Marys R. Nav. Reg.
 Parts 92 and 161
 (see note A)

CHART # 14883

ITEM # 6312

ITEM DESCRIPTION: Subm. Wreck

SOURCE: AWOIS Listing

INVESTIGATION DATE: 8/31/88

TIME: 151500

VESSEL: Launch 0519

OIC: Lt. Jg. Catherine Bradley

REFERENCES:

Position No: 2043

Volume 9 pg. 8

CORRECTORS APPLIED:

Velocity TRA Correctors

Predicted or Actual Tide Correctors

GEODETTIC POSITION:

	Latitude	Longitude
Charted:		
Observed:	46°15'05.38" ⁷	084°10'58.22"

POSITION DETERMINED BY: Range Azimuth

METHOD OF ITEM INVESTIGATION: Fatho search and Diver Investigation.

CHARTING RECOMMENDATIONS: ~~Remain as charted~~

SEE SECTION 6.C. OF THE EVALUATION REPORT.

Compilation Use Only

CHART

APPLIED AS

6

CHART #14883

PRESURVEY REVIEW ITEM #06312
Submerged wreck

SOURCE: Unknown, LS-1698/36-WK

INVEST: DATE: 08/29/88 (DN 242)

OIC: LTJG Catherine J. Bradley

REFERENCE: H-10278 (OPR-J278 CY 88)

Position: 2043

Volume: 9

Page: 8

CORRECTORS APPLIED: VELOCITY: none

TRA CORRECTORS: none

Unverified Actual Water Levels: no

GEODETTIC POSITION:

LATITUDE

LONGITUDE

CHARTED:

46°15'06.00"

84°10'58.20"

OBSERVED:

46°15'05.38"

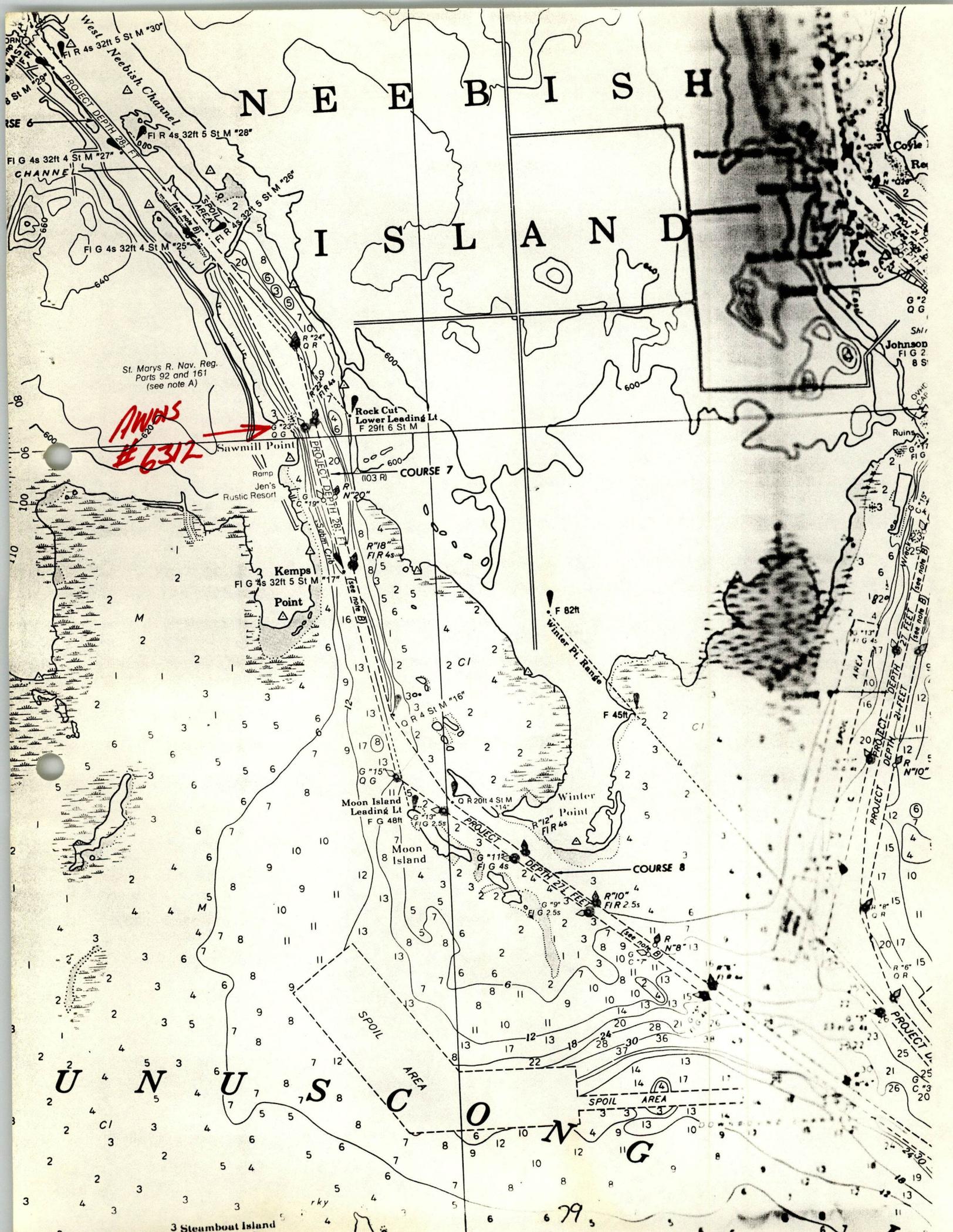
84°10'58.22"

POSITION DETERMINED BY: Range/Azimuth

METHOD OF ITEM INVESTIGATION: Fathometer search and diver investigation. Item was initially recovered and positioned using a fathometer search on 08/29/88. Later, on 08/31/88 divers found a small wooden row boat approximately 15 ft. long and 6 ft. wide, with a least depth of ~~19~~⁷ ft. The least depth was obtained using a calibrated leadline.

CHARTING RECOMMENDATIONS: ~~Remain charted as a wreck symbol.~~
SEE SECTION 6.C. OF THE EVALUATION REPORT.

COMPILATION USE



N E N E B I S H
I S L A N D

West Nenebishi Channel
PROJECT DEPTH 28 FT
FI R 4s 32ft 5 St M *28*
FI G 4s 32ft 4 St M *27*
FI G 4s 32ft 4 St M *25*St. Marys R. Nav. Reg.
Parts 92 and 161
(see note A)

AWAYS
#6312

Sawmill Point
Ramp
Jen's Rustic Resort
Rock Cut Lower Leading Lt
F 29ft 6 St M
COURSE 7

Kemps Point
FI G 4s 32ft 5 St M *17*

Moon Island Leading Lt
F G 48ft
Moon Island
Winter Point
R *12*
FIR 4s

U N U S C O N G

3 Steamboat Island

79

CHART #14883

PRE-SURVEY REVIEW ITEM #06313
Obstruction (buoy sinkers)

SOURCE: LNM8/79

INVEST. DATE: 09/28/88

TIME:

VESSEL #519

OIC: LT(jg) Catherine J. Bradley

REFERENCE: H-10278 (OPR-J278 CY 88)

POSITION: not found

VOLUME:

PAGE:

CORRECTORS APPLIED: None

VELOCITY: no

TRA CORRECTORS: no

GEODETTIC POSITION:

LATITUDE

LONGITUDE

CHARTED:

46°18'57.00"N

84°07'38.00"W

OBSERVED:

-- Not Found --

POSITION DETERMINED BY:

METHOD OF ITEM INVESTIGATION: A fathometer search of the area was conducted, by running radial lines to bouy "43". The area has a very irregular bottom with depths from 10-35 ft, obstruction could be discerned on the fathometer. Mr. Pink, the Aids To Navigation Officer on the buoytender "Buckthorn" was contacted with regard to these sinkers. Mr. Pink said that the sinkers had not been recovered and were probably covered in silt by this time. Due to the fact that the position description on the sinkers relied solely on a buoy that is removed anually, the depth of the area and the bottoms irregularity, a chain drag was not feaseble.

CHARTING RECOMMENDATIONS: The obstruction symbol should remain as charted *CONCUR*

SEE ALSO SECTION 7.9.1) OF THE EVALUATION REPORT.

COMPILATION USE

CHART:

APPLIED AS:

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

WATER LEVEL NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center: N/MOA232

*sent
as revised
05/19/89*

Hourly heights are approved for: See Remarks
Water Level Station

Period: June 20, 1988 to September 28, 1988

HYDROGRAPHIC SHEET: H-10278

OPR- X278-HFP-88

Locality: St. Mary's River (Sawmill Point to Lake Nicolet)

Plane of reference: Low Water Datum (IGLD ---- : ----- Feet) See Remarks

Remarks: The following Water Level Stations and their corresponding Low Water Datums, in feet IGLD-1955 should be used for this survey.

U.S. Slip	(907-6060)	577.8'
Lanphears Marina	(907-6046)	577.2'
Site#2 Munro	(907-6036)	577.1'
Lookout Station #4	(907-6028)	577.1'
Rocky Point	(907-6010)	576.9'
Detour Village	(907-5099)	576.8'

Harry G. Harrison
Chief, Great Lakes Acquisition Unit

GEOGRAPHIC NAMES

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND MCNALLY ATLAS	U.S. LIGHT LIST			
CHARLOTTE RIVER	X										1
DOWNBOUND CHANNEL	X										2
HEN ISLAND	X										3
MICHIGAN (title)	X										4
MIDDLE NEEBISH CHANNEL	X										5
NEEBISH ISLAND	X										6
NICOLET, LAKE	X										7
OAK RIDGE (locale)	X										8
SAND ISLAND	X										9
SAWMILL POINT	X										10
ST. MARYS RIVER	X										11
SUGAR ISLAND	X										12
WEST NEEBISH CHANNEL	X										13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

Approved:

Chas. E. Harrington
Chief Geographer - N/CG245

MAR 27 1990

**OFFICE OF CHARTING AND GEODETIC SERVICES
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT**

SURVEY NO.: H-10278

FIELD NO.: HFP-10-3-88

Michigan, St. Marys River, Sawmill Point to Lake Nicolet

SURVEYED: 20 June through 28 September 1988

SCALE: 1:10,000

PROJECT NO.: OPR-X278-HFP-87/88

SOUNDINGS: RAYTHEON DE-719C Fathometer, Sounding Pole,
Leadline

CONTROL: MOTOROLA Falcon 484 Mini-Ranger (Range/Range), NIKON
NT-2D Theodolite/MOTOROLA Falcon 484 Mini-Ranger
(Range/Azimuth)

Chief of Party.....D. A. Waltz

Surveyed by.....C. J. Bradley

.....B. A. Link

.....G. D. Hendrix

.....C. E. Parker

.....M. C. Brown

Automated Plot by.....XYNETICS 1201 Plotter

1. INTRODUCTION

a. No unusual problems were encountered during office processing.

b. Due to the slope of the water levels along the St. Marys River in the area surveyed six (6) water level zones were required for this survey. The six (6) zones were determined using data from four (4) water level gages in the survey area. The water level zones have been used to determine the water level correctors for the present survey. The smooth sheet label does not have a specified datum for the present survey because of the slope in the St. Marys River. See the water level note in the Descriptive Report for information concerning zoning of water levels.

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

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections F., G., and S. of the Descriptive Report.

Horizontal control used for data acquisition for the present survey is based upon the North American Datum of 1927 (NAD 27). Office processing of the present survey is based on these values. The smooth sheet has been annotated with ticks showing the mean computed shift between the present survey datum and the North American Datum of 1983 (NAD 83). To place the present survey on the NAD 83 move the projection lines 0.061 seconds (1.9 meters or 0.19 mm at the scale of the survey) south in latitude and 0.102 seconds (2.2 meters or 0.22 mm at the scale of the survey) east in longitude.

b. Shoreline originates with 1:10,000 scale enlargements of 1:20,000 scale final reviewed Class III photogrammetric manuscripts TP-00353 and TP-00354 of 1984-85. Shoreline revisions originating with the present survey are shown in red on the smooth sheet.

The field unit indicated a shoreline change in the vicinity of Latitude $46^{\circ}19'35.72''N$, Longitude $84^{\circ}09'34.53''W$. During comparison of TP-00353 and TP-00354 (1984-85) the field unit stated in section H., page 7, of the Descriptive Report that a dike in the vicinity of Latitude $46^{\circ}19'35.72''N$, Longitude $84^{\circ}09'34.53''W$ appears to be slightly north of the dike on the present survey. Thus, the field unit submitted a shoreline change on the final field sheet. During office processing it was determined that the field unit performed a very poor shoreline application and comparison. The T-sheets were compiled at a 1:20,000 scale. The comparison was performed with 1:10,000 scale enlargements of the T-sheets. The shoreline change was not applied to the smooth sheet. A discussion of shoreline verification can be found in section 1.6.2. of the HYDROGRAPHIC MANUAL. It is recommended that the dike be retained as charted.

3. HYDROGRAPHY

a. Soundings at crossings are in excellent agreement and comply with the criteria found in sections 4.6.1 and 6.3.4.3. of the HYDROGRAPHIC MANUAL.

b. The standard six (6), twelve (12), eighteen (18), and thirty (30) foot depth curves could be drawn in their entirety. The standard zero (0) curve was not delineated in its entirety because of vessel safety. The supplemental three (3) and twenty-four (24) foot curves were drawn to show additional bottom relief. Dashed curves were also drawn to delineate bottom relief.

c. The development of the bottom configuration and determination of least depths is considered adequate.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports conform to the requirements of the HYDROGRAPHIC MANUAL. See also section 1.a. of this report. The following should be noted:

The field unit did not collect data during the investigation of Automated Wreck and Obstruction Information System (AWOIS) item #6313. As discussed on page 84 of the Descriptive Report the area has a very irregular bottom, making it difficult to make an adequate determination. If data had been collected and submitted it is possible that during verification of the field data a verification or disproval could have been made. If the field unit is performing an item investigation data should be collected. See also section 7.a.1) of this report.

5. JUNCTIONS

H-10254 (1988) to the north
 H-10300 (1989) to the south
C. H. S. survey 8160 (1983) to the east

Standard junctions were effected between the present survey and surveys H-10254 (1988) and H-10300 (1989).

A standard junction could not be effected with the Canadian Hydrographic survey 8160 (1983). The junctional survey is in substantial agreement with the present survey. Depths generally agree to within one (1) foot. Any adjustments to the depth curves in the junctional areas of the present survey will need to be made at headquarters on the chart during compilation.

6. COMPARISON WITH PRIOR SURVEYS

LS-1695 (1936) 1:10,000
 LS-1696 (1936) 1:10,000
LS-1698 (1936) 1:10,000

The three (3) prior surveys listed above cover the present survey area in its entirety.

a) Prior survey depths from LS-1695 (1936) compare favorably and show a general trend of being one (1) to two (2) feet deeper than present survey soundings. Depths from prior survey LS-1695 (1936) within the channel common to each survey show a general trend of being five (5) to seven (7) feet shoaler than present survey depths. This may be attributed to

deeper project depths in the dredged channels. Changes noted between prior survey LS-1695 (1936) and the present survey are as follows:

1) Three (3) rocks shown on the prior survey in the vicinity of Latitude $46^{\circ}19'28.0''N$, Longitude $84^{\circ}08'51.0''W$ and a rock in the vicinity of Latitude $46^{\circ}19'33.0''N$, Longitude $84^{\circ}08'37.0''W$ are charted as three rocks. The area is shown as foul on the present survey. It is recommended that the rocks be deleted and the area charted as shown on present survey.

2) Two (2) charted thin islands in the vicinity of Latitude $46^{\circ}19'04.0''N$, Longitude $84^{\circ}08'12.0''W$ originate with prior survey LS-1695 (1936). The islands were disproved by the present survey. It is recommended that the islands be deleted and the area be charted as shown on present survey.

3) An island in the vicinity of Latitude $46^{\circ}18'50.0''N$, Longitude $84^{\circ}07'44.0''W$ did not exist during the prior survey. A telephone discussion with Mr. Harold Lawson, U. S. Corps of Engineers, (906-632-3311) stated that the island was formed from spoil deposited in 1975. No change in charting is recommended.

4) Shoreline along the northern side of the present survey has receded approximately 100 meters to the south of the prior survey shoreline.

b) Prior survey depths from LS-1696 (1936) show a general trend of varying plus or minus (\pm) four feet from present survey soundings. Changes noted between prior survey LS-1696 (1936) and the present survey are as follows:

1) The following shoreline changes were noted during evaluation of this survey:

In the vicinity of Latitude $46^{\circ}20'18.0''N$, Longitude $84^{\circ}10'18.0''W$ the present survey shoreline has accreted approximately 200 meters to the west of the shoreline shown on the prior survey.

In the vicinity of Latitude $46^{\circ}20'08.0''N$, Longitude $84^{\circ}10'25.0''W$ the present survey shoreline has accreted approximately 180 meters to the southwest of the shoreline shown on the prior survey.

In the vicinity of Latitude $46^{\circ}19'51.0''N$, Longitude $84^{\circ}10'12.0''W$ the present survey shoreline has receded approximately 160 meters to the northeast of the shoreline shown on the prior survey. Only a small portion of

the long finger-like extension is shown on the present survey. The portion shown on the present survey is an islet.

In the vicinity of Latitude $46^{\circ}19'20.0''\text{N}$, Longitude $84^{\circ}09'09.0''\text{W}$ the present survey shoreline has receded approximately 40 meters to the south of the shoreline shown on the prior survey.

In the vicinity of Latitude $46^{\circ}19'31.0''\text{N}$, Longitude $84^{\circ}10'39.0''\text{W}$ the present survey shoreline has receded approximately 20 to 100 meters to the south of the shoreline shown on the prior survey.

On the north side of Sand Island the present survey shoreline has receded approximately 10 to 190 meters to the south of the shoreline shown on the prior survey.

In the vicinity of Latitude $46^{\circ}20'00.0''\text{N}$, Longitude $84^{\circ}13'23.0''\text{W}$ the present survey shoreline has accreted approximately 75 meters to the east of the shoreline shown on the prior survey.

In the vicinity of Latitude $46^{\circ}19'30.0''\text{N}$, Longitude $84^{\circ}13'24.0''\text{W}$ the present survey shoreline has accreted approximately 25 to 50 meters to the east of the shoreline shown on the prior survey.

The Charlotte River shoreline shown on the present survey has shifted approximately 50 meters to the south.

In the vicinity of Latitude $46^{\circ}18'28.5''\text{N}$, Longitude $84^{\circ}12'39.5''\text{W}$ the present survey shoreline has receded approximately 10 to 325 meters to the northeast of the shoreline shown on the prior survey.

In the vicinity of Latitude $46^{\circ}18'02.0''\text{N}$, Longitude $84^{\circ}12'24.0''\text{W}$ the present survey shoreline has accreted approximately 550 meters to the south of the shoreline shown on the prior survey.

In the vicinity of Latitude $46^{\circ}16'12.0''\text{N}$, Longitude $84^{\circ}11'34.0''\text{W}$ the present survey shoreline has accreted approximately 140 meters to the southwest of the shoreline shown on the prior survey.

In the vicinity of Latitude $46^{\circ}16'19.0''\text{N}$, Longitude $84^{\circ}11'19.0''\text{W}$ the present survey shoreline has receded approximately 240 meters to the north of the shoreline shown on the prior survey.

2) A ferry dock on the west side of the river in the vicinity of Latitude $46^{\circ}17'21.0''N$, Longitude $84^{\circ}13'12''W$ no longer exists. The location of the ferry dock has been moved to the south to vicinity of Latitude $46^{\circ}17'05.0''N$, Longitude $84^{\circ}12'45.0''W$.

3) A large pier shown on the east side of the river in the vicinity of Latitude $46^{\circ}17'18.0''N$, Longitude $84^{\circ}12'39.0''W$ is now shown as ruins.

4) A lagoon in the vicinity of Latitude $46^{\circ}16'00.0''N$, Longitude $84^{\circ}11'44.0''W$ on the present survey has migrated approximately 110 meters to the southwest of the lagoon shown on the prior survey.

5) The islands on the prior survey that lie within the dumping ground no longer exist. This may be caused by erosion of the islands. It is recommended that the area be charted as shown on present survey.

6) The following six (6) dumping grounds on prior survey LS-1696 (1936) were surveyed by the present survey:

<u>Latitude (N)</u>	<u>Longitude (W)</u>
46°20'13.0	84°12'30.0
46°20'34.0	84°11'50.0
46°19'55.0	84°11'24.0
46°19'54.0	84°12'33.0
46°18'30.0	84°13'06.0
46°18'02.0	84°12'38.0

There are no prior survey soundings in these areas. There are, however, islands shown in four of the six areas. None of these areas are charted as active spoil areas. These islands were not shown on the shoreline manuscripts. Some of the islands are charted as shoals. It is recommended that the areas be charted as shown on present survey.

7) The islet southeast of the mouth of the Charlotte River is new and is charted. No change in charting status is recommended.

c) Prior survey depths from LS-1698 (1936) cover the area of the present survey south of Latitude $46^{\circ}15'30.0''N$ show a general trend of being one (1) to three (3) feet deeper than present survey soundings. Within the limits of the channel the prior survey depths are one (1) to four (4) feet shallower than present survey soundings.

Prior survey LS-1698 (1936) covers the search area of AWOIS item #6312. AWOIS item #6312, a charted dangerous sunken wreck, in Latitude 46°15'06.0"N, Longitude 84°10'58.2"W, originates with the prior survey. The prior survey shows a wreck, (5Wk), in the charted location. The present survey located a wreck in Latitude 46°15'05.37"N, Longitude 84°10'58.22"W with a leadline least depth of 17 feet. The charted dangerous sunken wreck is 19 meters north of the wreck located by the present survey wreck. It is recommended that the charted dangerous sunken wreck be deleted from the chart and a dangerous sunken wreck with a known depth of 17 feet (17 Wk) and a danger curve be charted in present survey location.

The differences between the above prior surveys and the present survey depths may be attributed to natural changes, dredge operations, cultural development, and improved hydrographic surveying methods and equipment.

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

7. COMPARISON WITH CHART 14883 (36th. Ed., 31 May 1986)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and miscellaneous sources not readily available. The previously discussed prior surveys require no further consideration. The hydrographer makes an adequate chart comparison in section L. and pages 76 through 86 of the Descriptive Report. In addition to the recommendations in the Descriptive Report the following should be noted:

1) AWOIS item #6313, a charted obstr rep (buoy sinkers), in Latitude 46°18'57.0"N, Longitude 84°07'38.0"W originates with Local Notice to Mariners 8 of 1979 (LNM 8/79). An investigation was performed by the field unit. As discussed on page 84 of the Descriptive Report the area has a very irregular bottom, making it difficult to make an adequate determination. The field unit did not collect data during the investigation. It is recommended that the obstr, rep (buoy sinkers) be retained as charted.

2) Charted spoil areas in the vicinity of Latitude 46°17'45.0"N, Longitude 84°13'07.5"W and Latitude 46°16'09.0"N, Longitude 84°11'30.0"W were surveyed by the present survey. Present survey depths range from 3 to 24 feet. It is recommended that these spoil areas be retained as

charted.

3) A charted shoal in the vicinity of Latitude 46°19'58.0"N, Longitude 84°12'35.7"W has migrated approximately 50 meters to the north of the present survey shoal. It is recommended that the charted shoal be deleted and a shoal be charted as shown on present survey.

4) The following submerged rocks originating with Monteith's Revisory Survey of 1966 were neither verified nor disproved by the present survey:

<u>Latitude (N)</u>	<u>Longitude (W)</u>
46°19'47.5	84°12'36.0
46°19'40.5	84°12'36.1
46°19'34.5	84°12'36.0
46°17'57.0	84°12'40.0
46°17'49.5	84°12'40.0

It is recommended that the above discussed submerged rocks be retained as charted.

6) The following submerged rocks originating with either Feldsher's Revisory Survey 1954 or Monteith's Revisory Survey of 1966 were verified or disproved by the present survey:

<u>Latitude (N)</u>	<u>Longitude (W)</u>
46°20'33.2	84°12'36.0
46°20'30.0	84°11'47.0
46°20'14.9	84°12'34.8
46°20'04.0	84°12'33.1
46°19'44.0	84°10'38.2

It is recommended that the above discussed submerged rocks be deleted from the chart and the area be charted as shown on present survey.

7) Charted ruins in the vicinity of Latitude 46°18'27.1"N, Longitude 84°13'20.0"W was neither verified nor disproved by the present survey. It is recommended that the charted ruins be revised to submerged ruins.

8) All charted rocks awash were verified or disproved by the present survey. The following should be noted:

A charted rock awash in the vicinity of Latitude 46°19'12.1"N, Longitude 84°10'27.0"W originates with

Kirschner's Revisory Survey of 1941. The rock was neither verified nor disproved by the present survey. In the vicinity of the charted rock awash there is a 1-ft sounding. An inspection of the fathograms showed a peak in the vicinity of the charted rock awash. It is recommended that the rock awash be changed to submerged rock and retained in the charted location.

Except as noted above the present survey is adequate to supersede the charted hydrography within the common area.

b. Controlling Depths

1) There are no conflicts between the present survey depths and the project depths of 21 feet and 28 feet for Middle Neebish Channel shown on the chart.

2) A conflict exist between the present survey and the project depth of 28.5 feet for West Neebish Channel shown on the chart. A 27 foot sounding was found in the vicinity of Latitude 46°16'55.37"N, Longitude 84°12'30.38"W by the present survey. It is recommended that the chart compiler consult the latest Corps of Engineers dredging survey drawings to determine the controlling depth in the channel.

c. Dangers to Navigation

The hydrographer identified three (3) dangers to navigation and submitted information for inclusion into a Local Notice to Mariners, to the Commander, Ninth Coast Guard District, Cleveland, Ohio. A copy of the letter was forwarded to N/CG222, Chart Information Section. After office processing it is recommended that the information be retained.

d. Aids to Navigation

The hydrographer located 27 floating aids to navigation and 24 fixed aids to navigation. These aids appear adequate to serve their intended purpose.

8. COMPLIANCE WITH INSTRUCTIONS

This survey complies with the Project Instructions except as noted in section 4., 6., and 7. of this report.

9. ADDITIONAL FIELD WORK

This is an adequate basic survey. Additional work may be desirable at an opportune time on items discussed in section 7. of this report.

Deborah A. Bland

Deborah A. Bland
Cartographic Technician
Verification of Field Data

Norris A. Wike

Norris A. Wike
Cartographer
Evaluation and Analysis

Robert R. Hill

Robert R. Hill
Senior Cartographic Technician
Verification Check

APPROVAL SHEET
H-10278

Initial Approvals:

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

Robert G. Roberson
Robert G. Roberson
Chief, Evaluation and Analysis Team
Atlantic Hydrographic Section

Date: 28 June 1990

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

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

Date: 5 July 1990

Final Approval:

Approved: Wesley V. Hull
Wesley V. Hull
Rear Admiral, NOAA
Director, Charting and Geodetic Services

Date: 9/25/90

