

10279

Diagram No. 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-10-4-88
Registry No. ... H-10279.....

LOCALITY

State Michigan--Ontario
General Locality St. Marys River
Sublocality Lime Island to Munuscong
..... Lake

1988

CHIEF OF PARTY
LCDR D.A. Waltz

LIBRARY & ARCHIVES

DATE September 13, 1990

62201

14882
14883
14860
14880

HYDROGRAPHIC TITLE SHEET

H-10279

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 10-4-88

State MICHIGAN--ONTARIO

General locality ST. MARYS RIVER

Locality LIME ISLAND
~~RABBIT POINT~~ TO MUNDUSCONG LAKIE

Scale 1:10,000 Date of survey 27 JUNE - 27 SEPT 1988

Instructions dated 16 MARCH 1987 Project No. X 278-HFP-87-88

Vessel NOAR LAUNCH 0520. HYDROGRAPHIC FIELD PARTY - 4

Chief of party LCDR D. A. WALTZ

Surveyed by LTJG J. H. MADDOX, E. L. MARTIN, M. J. BRISQDE, B. RAMSEY, P. KEARNEY

Soundings taken by echo sounder, hand lead, pole _____

Graphic record scaled by J.M., E.M., M.B., B.R., P.K.

Graphic record checked by J.M., E.M., M.B., B.R., P.K.

Protracted by _____ Automated plot by XWECTIC 1201 PLOTTER (AHS)

Verification by ~~ANLC~~ W/MOA 22 ATLANTIC HYDROGRAPHIC SECTION (AHS)

Soundings in fathoms feet at MLW MLW LWD

REMARKS: CHARTER NO 1 dated 14 APR 1987

" " 2 " 15 MAR 1988

" " 3 " 19 APR 1988

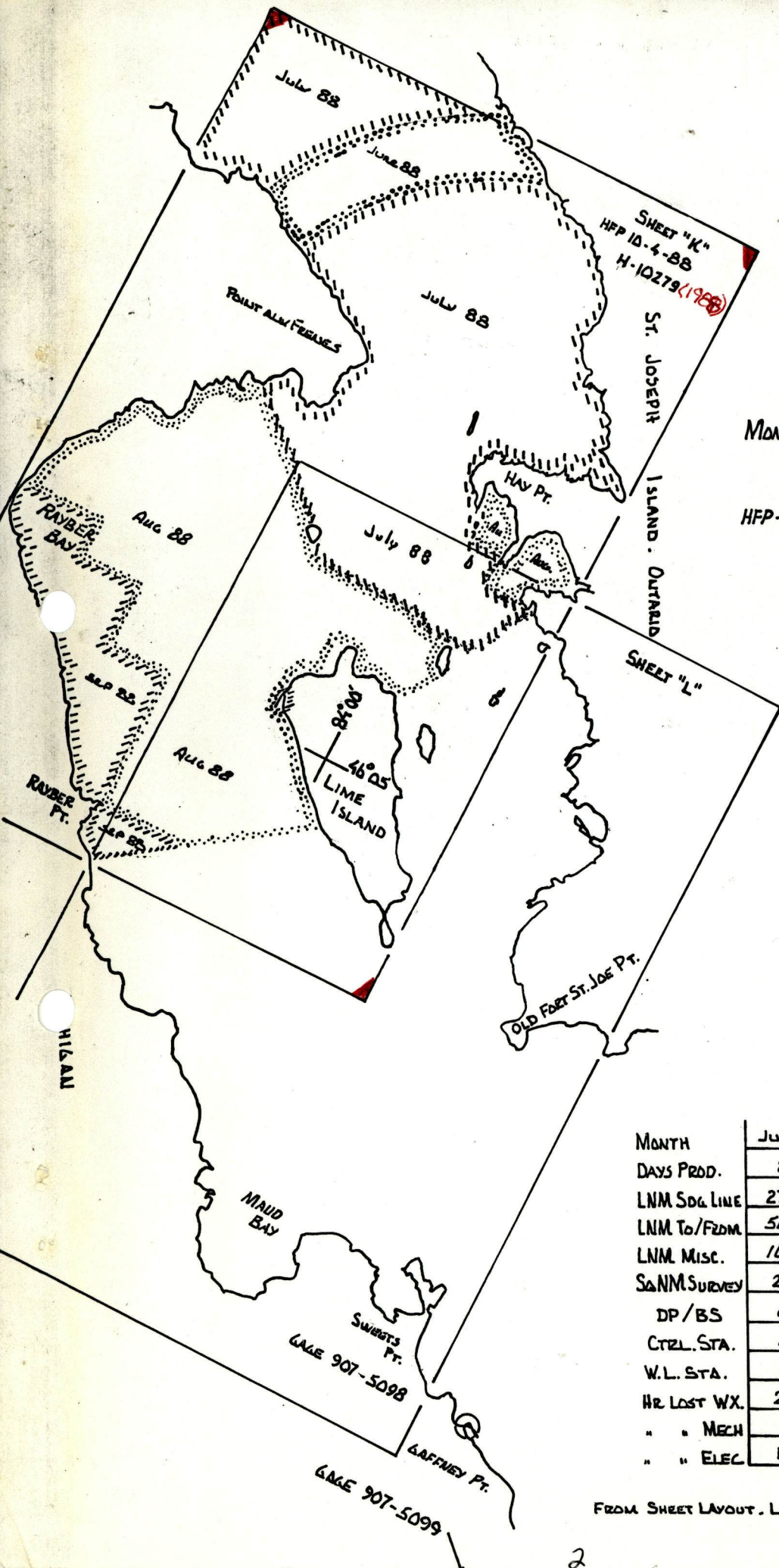
" " 4 " 31 AUG 1988

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

AWOIS/SURF MSA 9/27/90

SA 3-28-97

K.W.W. 9/26/90



MONTHLY PROGRESS SKETCH
 OPR X278-HFP
 ST. MARYS RI..MI.
 HFP-4, LCDR. D.A. WALTZ, CHIEF

MONTH	June	July	Aug	Sept
DAYS PROD.	8	15	14	11
LNM SOG LINE	27.0	147.3	171.2	53.7
LNM TO/FROM	56.0	300.0	392.0	252.0
LNM MISC.	10.0	65.0	65.0	58.0
SANM SURVEY	2.0	5.5	5.0	3.0
DP/BS	0	48/48	29/21	23/19
CTRL. STA.	0	0	0	0
W.L. STA.	2	0	0	2
HR LOST WX.	24	24	68	32
" " MECH	0	8	0	0
" " ELEC	16	0	0	0

FROM SHEET LAYOUT. LIMITS OF HYDROGRAPHY, 3-29-88

H-10279

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

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10279
HFP-10-4-88

Scale: 1:10,000

Chief of Party: LCDR David A. Waltz
Officer in Charge: LTJG Jason H. Maddox
Hydrographic Field Party Section
Hydrographic Field Party #4
NOAA Launch #0520

A. PROJECT

This survey was conducted under Project Instructions OPR-X278-HFP, St. Marys River, Michigan, dated March 16, 1987 and amended by Change No. 1, dated April 14, 1987; Change No. 2, dated March 15, 1988; Change No. 3, dated April 19, 1988; and Change No. 4, dated August 31, 1988.

B. AREA SURVEYED

The area surveyed was the St. Marys River extending from Raber Point to Munuscong Lake, Michigan, at a scale of 1:10,000.

The actual boundaries of the survey are as follows:

Lat. 46°10' ¹ 00" N	Lat. 46°10' ⁰² 00" N
Long. 84°05' ^{04 28} 00" W	Long. 83°58' ⁵¹ 30" W
Lat. 46°03' ²⁸ 30" N	Lat. 46°06' ^{03 28} 00" N
Long. 84°05' ^{04 28} 00" W	Long. 83°58' ⁵¹ 30" W

This survey was conducted from June 27, 1988 (DN 179) to Sept. 27, 1988 (DN 271).

The purpose of this survey was to provide modern survey data for the maintenance of existing and proposed charts in the area.

C. SOUNDING VESSEL

Soundings were obtained from NOAA Launch 0520, a 21-foot MonArk. All survey records are annotated with the vessel's hull number.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Soundings were obtained using a Raytheon DE719B Fathometer, S/N 7727.

Bar checks were taken twice per day for good weather, once for incumbent weather, and not accomplished for poor weather. Martek casts were taken in conjunction with Bar check data. The data from the Bar checks were grouped together until a significant change occurred in the velocity correction for each depth, then graphed with the Martek information taken during that time period. The Martek information was then used for the velocity corrections and the Bar check data was used for instrument error. Four velocity tables were produced for this survey.

There were no problems encountered during the operation of the DE719B Fathometer

A Settlement and squat test was run on June 21, 1987 (DN 173) at Bosely's Boat Yard, Detour Village, Michigan. Due to changing of the prop on launch 0520, another settlement and squat test was conducted on July 26, 1988 (DN 208) at Bosely's Boat Yard. Correctors for settlement and squat are applied via TC/TI tape. All data pertaining to the fore mentioned corrections to soundings are appended at the end of this text. *DATA REMOVED FROM ORIGINAL DESCRIPTIVE REPORT AND FILED WITH FIELD DATA.*

Bar check lines were measured at the beginning and end of this project. No corrections are to be applied to the bar check lines.

No water level correction was applied to any sounding data acquired in this survey. Water level data was collected and hourly heights were recorded from the nearest water level station to the survey. This data is filed with the survey records. *Water level correctors were applied during office processing.*

E. HYDROGRAPHIC SHEETS *(FIELD SHEETS)*

All field sheets were prepared by HFP-4 personnel using a Digital PDP8/e computer and a Houston DP-3 Complot plotter. Boatsheets, blowups, and final field sheets are included with this survey.

F. CONTROL STATIONS *SEE SECTION 2.a. OF THE EVALUATION REPORT.*

All horizontal control stations were historic Third-order, Class 1 horizontal control stations or new stations established by N/MQA2222. All are referred to the North American 1927 Datum and are listed in the appendix of this report.

G. HYDROGRAPHIC POSITION CONTROL

The positioning control system for this survey was the Motorola Mini-Ranger Falcon 484 positioning system.

The electronic equipment used for this survey follows:

Mini-Ranger	Unit	S/N
Launch 0520		
	Range Processing Unit	F0244
	Master R/T Unit	F3404
Shore Stations		
	Remote Unit Code 2	G3471
	Remote Unit Code 5	E2912
	Remote Unit Code 7	F3244
Other electronic Equipment		
	HP-3810B	1929A00411
	Nikon NT-20 Theodolite	031005

All Mini-Ranger Falcon units were baselined once each month. Critical system checks were performed every day by means of fixed point calibrations. Baseline calibration forms are filed in the fan folder.

No problems with the Mini-Ranger Falcon system were encountered during this survey.

On June 3, 1987 (DN 154) the HP-3810B and Topcon ET-1 were baselined at Milville Airport.

H. SHORELINE *SEE SECTION 2.B. OF THE EVALUATION REPORT.*

Shoreline for this survey was transferred to the final field sheet from registered shoreline maps and revision prints. The following shoreline map revision prints were used:

Shoreline Map	Scale	
TP-00357	1:20,000	Job CM-8412
TP-00360	1:20,000	"
TP-00361	1:20,000	"

Shoreline was also drawn from Special Purpose Shoreline Manuscript CRS 002988, B/P 135353-1984, Job CM-8412.

All shoreline features were verified within the project limits of this survey and no gross discrepancies were observed. In areas where hydrography was not conducted to the low water line, there was impenetrable grass encountered. Delineation of the grass line was drawn on the field sheets of this survey.

I. CROSSLINES - *See also section 3.a. of the Evaluation Report.*

~~Removed~~

Crosslines comprise 11.5 percent of the mainacheme acquired during this survey. All crosslines compare excellently with mainscheme with one foot or less disagreement.

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

There are no junction surveys within the survey limits.

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

This survey was compared to prior survey 1-1700, 1:10,000 scale, 1936. This prior survey compares very well with present soundings with only ten percent of the prior soundings disagreeing up to three feet. Contours are similar to that of the present survey with very little changes since this prior survey was conducted 52 years ago.

This survey was compared to prior survey 1-1701, 1:10,000 scale, 1936. This prior shows excellent agreement with this present survey with less than five percent of the soundings disagreeing three feet or more. Contours are almost identical to the contours of this survey. There is very little disagreement to note.

A chart markup dated March 4, 1988 provided by Rockville was compared for prior survey soundings that got on the chart and disagreed the most. It was interesting to observe that one particular survey did disagree at a higher percentage than the others. This prior is an Army Corps of Engineers blueprint dated 1961. However, this survey was not provided for a complete comparison for this project.

L. COMPARISON WITH THE CHART SEE SECTION 7.9. OF THE EVALUATION REPORT.

Comparison was made with Chart 14882 1:40,000 scale, 28th Edition, dated August 2, 1986.

All Presurvey Review Items were investigated. A copy of the item investigation forms are located in the fan folder.

Comparison made with the chart show very good agreement with the soundings acquired in this survey. Ten percent of the charted soundings disagree three feet or more, another ten percent disagree two feet, and the rest of the soundings are within one foot or less. Contours are very similar on the northern portion of the survey were it was observed that the present contours of this survey tend closer to shore than what the chart depicts. On the southern portion of the survey, the contours compare very well with the survey very little change or tendency. CONCUR

The charted rocks located at lat. 46°08'47"N, long. 083°59'45"W, were visually verified on July 6, 1988 (DN 188). A position was taken on a six foot diameter boulder further offshore from these charted

rocks (position 648). A distinct discoloration in the water was observed running from this boulder to shore indicating the area is possibly fouled by rocks. A line of hydrography was conducted on the following day through the foul area on a predetermined course. Rocks were observed at close quarters to the boat in this area. No other attempts to cross this area was conducted for the safety of the vessel. ~~Recommend area be depicted as foul as shown on the final field sheet.~~
 SEE SECTION 7.9.4) OF THE EVALUATION REPORT FOR CHARTING RECOMMENDATION.

The charted islets located at lat. 46°08'30"N, long. 084°02'15"W, and lat. 46°08'25"N, long. 084°01'57"W, were not shown on the shoreline manuscript. Hydrography was conducted at the charted location of the islets, observing a depth ranging from ~~two~~^{ONE} to ~~four~~^{THREE} feet. Water levels were observed to be near datum during the project. Thus, a visual inspection was conducted with negative results. Recommend islets be deleted from chart. SEE SECTION 6.9.2.) AND 6.9.3) OF THE EVALUATION REPORT.

The charted cribs located at lat. 46°07'49"N, long. 083°59'30"W, and lat. 46°07'47"N, long. 083°59'40"W, could not be found at the charted position.⁵¹ It was observed that extremely shallow water and sand bars dominate this area making navigation virtually impossible. ~~Recommend charted cribs be deleted.~~ SEE SECTION 6.6.6) OF THE EVALUATION REPORT.

The charted cribs located at lat. 46°05'38"N, long. 084°04'15"W, were searched for but not found. On September 1, 1988 (DN 245), a detached position was obtained on scattered rocks within the heavy grass-line at lat. 46°05'41.1"N, long. 084°04'16.1"W. It was unsure that this scattered group of rocks, about 15-20 meters in diameter, was a crib or not. This was the only feature that could be found in that area. On September 14, 1988 (DN 258), a single line of hydrography was conducted in this area searching for any shoaling or discoloration in the water. Nothing was found. ~~Recommend retaining charted cribs revising to existence doubtful.~~ SEE SECTION 6.6.18) OF THE EVALUATION REPORT.

AWOIS item # 5597 is an charted 25 foot sounding reported at lat. 46°05'15.0"N, long 084°00'43.0"W. On 15 Sept. 1988 (DN 259), pos. ~~1553~~³³⁶⁷ thru pos. ~~1740~~³⁴¹³, the area inside the Lime Island pier from lat. 46°05'05"N to lat. 46°05'18"N was developed using echo sounder and pole soundings along a system of east-west lines spaced 25 meters apart. Keel lines were run north-south approximately 15 meters from the pier facings. The area is correctly portrayed by shore line manuscript TP-00357, 1985, with the exception of a submerged isolated rock pile, pos. 3379, located at lat. 46°05'00.00"N, long. 084°00'00.00"W. The charted rock island baring 8 feet at the south entrance to the dock is actually the west offshore end of a partly awash riprap breakwater protecting the piers along the east side of the dockage. A submerged wood Dolphin, pos. 3386, lat. 46°05'00.00"N, long. 084°00'00.00"W marks the south end of rock breakwater and submerged wood bulkheading, pos. 3393, lat 46°05'00.00"N, long. 084°00'00.00"W marks the north end of the rock breakwater. Mr. Lynn Carr, office phone (906) 297-2581, Department of Natural Resources, (DNR) informed this hydrographer that Lime Island is currently owned by the state of Michigan and managed by the DNR, as a recreational facility. The DNR is renovating the piers along the east side of the

dockage area. ~~Recommend that the information provided by this survey be applied as necessary, SEE SECTION 7.9.1) OF THE EVALUATION REPORT.~~

Awois item # 5598 is charted as a dangerous submerged wreck at lat. 46°06'57.70"N, long. 084°02'09.30"W. On 9 Sept 1988 (DN 253), a system of lines at a spacing of 25 meters were run using echo sounder and visual methods in a radius of 100 meters from the charted position. A mound of loose rock was visually observed extending in a north-south direction, with the approximate dimensions of 70 meters long and 20 meters wide. A uncorrected pole sounding least depth of 1.9 feet was obtained at position 3302, lat. 46°06'58.⁸⁰02"N, long. 084°02'10.⁸²52"W. Water clarity to bottom was exceptional throughout the search area. No indication of wreckage in the conventional sense was found in the search area. No private individual could be found to substantiate the existence, past or present, of the charted wreck. ~~Recommend notation of dangerous submerged wreck be removed and replaced with dangerous submerged rocks notation. SEE SECTION 6.b.2) OF THE EVALUATION REPORT.~~

Awois item # 6314 was reported as a four foot sounding in 1895, then revised as a submerged rock in 1958. On September 27, 1988 (DN 271), a system of lines at a spacing of 25 meters were run using echo sounder and visual methods in a radius of 200 meters from the charted position. Water clarity to bottom was exceptional throughout the search area. The results of the fatho-search was negative. Chain drag operations were not conducted on the belief that dragging the bottom with evidence of a high amounts of weed would restrict the vessel's movement. ~~Recommend retaining the submerged rock symbol revising it to position doubtful. SEE SECTION 6.b.3) OF THE EVALUATION REPORT.~~

All other charted features within this survey area have been located. All have been compared to the charted positions and there are no recommendations suggested.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede the presently charted soundings and prior surveys.

N. AIDS TO NAVIGATION

All fixed aids and landmarks within the survey area were positioned by N/MOA222 prior to commencement of hydrographic survey operations.

All fixed aids to navigation in this survey area were compared between their charted, Light List (Vol VII, 1987). All aids were found to be adequately described and charted for the purpose of which they were intended. With the exception of Round Island Light, lat. 46°06'33.217"N. long. 084°01'11.595"W, structure should be revised to NG on pole. On September 27, 1988 (DN 271), a measurement was conducted on the Red Sector of Round Island Light by a sextant along the horizontal to the Edge of heavy foliage on the island. From the

horizontal, an angle of 46°23'00" was measured by two observers looking to the northern portion of the sector. The rest of the red sector south of this angle is obscured by the island and should be noted on the chart as obscured.

The charted position of Point Aux Frenes Passing light compares with a light platform in ruins, (pos 3462, DN 171), not with the Third-Order Class 1 position obtained by N/MOA222. Standard form 76-40 is appended at the end of this text.

All floating aids within the survey limits were located and their characteristics compared to the Light List (Vol. VII, 1987). All aids were found to be adequately described and charted for the purpose of which they were intended.

O. STATISTICS

Days of Production (Days at Sea)	37
<u>VESNO 0520</u>	<u>TOTAL</u>
Total Number of Positions	3525
Nautical Miles of Sounding Lines	399.2
Square Miles of Hydrography	15.5
Bottom Samples	98
Detached Positions	100
Tide Gage Stations	3

P. MISCELLANEOUS

Ninety eight bottom samples were taken for this survey, copies of the Oceanographic Log Sheet-M are included in Appendix "H" of this report. Bottom Samples were sent to the Smithsonian Institute. No strong currents were observed in the survey area. There were no anomalous magnetic differences observed during operations.

Q. RECOMMENDATIONS

Specific recommendations can be found in sections K and L of this report.

R. AUTOMATED DATA PROCESSING

Programs used for the field processing of this survey are as follows:

PROGRAMS	DESCRIPTIONS	VERSION
RK201	Grid, Signal, Lattice Plot	4/18/75
RK211	Range-Range, Non-Real Time Plot	2/13/84
RK212	Visual Station Load and Plot	4/01/74
RK216	Range-Az, Non-Real Time Plot	2/09/81

RK300	Utility Computations	2/05/76
RK330	Reformat and Data Check	5/04/76
RA362	RK330 & AM602 Combined	8/20/84
RK407	Geodetic Inverse/Direct Comp.	9/25/81
RK530	Velocity Correction Comp.	5/10/76
AM602	ELINORE	12/08/82

S. REFERRAL TO REPORTS

The following reports for project OPR-X278-HFP have been submitted:

REPORTS

Coast Pilot Report
Current Report
Magnetics Report
Chart Inspection Report

SUBMITTED TO

Coast Pilot Section-N/CG223
Data Control-N/CG243
Data Control-N/CG243
Chart Information - N/CG222

Respectfully Submitted,

Robert Snow for

Jason H. Maddox, LTJG, NOAA
OIC, HFP-4

SIGNAL TAPE LISTING

OPR X278

HFP 10-4-88

H-10279

022	5	46	06	33222	084	01	11432	250	0000	000000	RILT, 1988
023	1	46	07	24049	084	01	51326	250	0000	000000	205-2, 1988
024	7	46	05	24749	084	03	59001	250	0000	000000	RABER, 1988
025	7	46	03	57485	084	01	52634	250	0000	000000	GLENN, 1988
031	7	46	09	26351	084	05	09282	250	0000	000000	201 USLS, 1988 1894, 1988
032	5	46	08	46650	084	03	37315	250	0000	000000	203- 3 , 1988
033	2	46	09	40927	084	00	46141	250	0000	000000	204-2, 1988
034	5	46	08	14820	084	01	17036	139	0000	000000	PAF 21, 1988
071	7	46	07	36449	083	59	58533	250	0000	000000	HAY POINT RANGE FRONT LT, 1988
072	7	46	07	29802	083	59	46510	250	0000	000000	HAY POINT RANGE REAR LT, 1988
073	7	46	05	17638	084	00	46675	139	0000	000000	LIME ISLAND DOCK NORTH LT, 1988
074	7	46	05	09880	084	00	46763	250	0000	000000	LIME ISLAND DOCK SOUTH LT, 1988
100	7	46	08	14900	084	01	17029	139	0000	000000	POINT AUX FRENES LT 21, 1988
101	3	46	06	33217	084	01	11595	139	0000	000000	ROUND ISLAND LIGHT, 1988
102	3	46	06	32298	084	01	11598	139	0000	000000	ROUND ISLAND LIGHTHOUSE, ABUD, 1988
103	3	46	07	53086	084	01	35528	139	0000	000000	POINT AUX FRENES PRESSING LIGHT, 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, Ship or Office)

NFP-4

STATE

MICHIGAN

LOCALITY

ST. MARYS RIVER

DATE

9-29-88

The following objects HAVE been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.

4218

HAVE NOT

JOB NUMBER

ORR 10-4-88

DATUM

NAD 827

POSITION

DESCRIPTION

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

PONST AUX PELED'S PASSAGE LIGHT

LATITUDE

//

D.M. Meters

46 07

LONGITUDE

/

D.P. Meters

84 01 35.528

CHARTING NAME

LIGHT

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

OFFICE

FIELD

F-2-10-L
5-88

CHARTS AFFECTED

14882

Ref E-3-90

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	ADR 222
POSITIONS DETERMINED AND/OR VERIFIED	.
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	

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>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>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>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>

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

TO BE CHARTED
 TO BE REVISED
 TO BE DELETED

REPORTING UNIT
(If field party, ship or office)

HFP-4

STATE

MICHIGAN

LOCALITY

ST. MARYS RIVER

DATE

9-20-88

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)

The following objects HAVE HAVE NOT been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.

X 278

JOB NUMBER

OPR 10-4-88

SURVEY NUMBER

N-10279

DATUM

NAD 1927

POSITION

CHARTING NAME

LIGHT

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

TOUET AUX FRENES PASSING LIGHT

LATITUDE
D.M. Meters

//

46 07

D.M. Meters

54.00

LONGITUDE

//

30.00

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

OFFICE

FIELD

F-8-L
9-27-88

CHARTS
AFFECTED

14882

Ref L-3(90)

RESPONSIBLE PERSONNEL

TYPE OF ACTION		NAME		ORIGINATOR	
OBJECTS INSPECTED FROM SEAWARD		LTK J.H. MAOOST WCP-4		<input type="checkbox"/> PHOTO FIELD PARTY	
POSITIONS DETERMINED AND/OR VERIFIED		11		<input checked="" type="checkbox"/> HYDROGRAPHIC PARTY	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES				<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

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

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



**UNITED STATES 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

July 26, 1990

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

Dear Sir,

The following items are being submitted for inclusion into the dangers to navigation report:

REPORT OF DANGER TO NAVIGATION

Hydrographic Survey Registry Number...H-10279
State.....Michigan/Ontario
General Locality.....St. Marys River
Locality.....Lime Island to Munuscong
Lake
Project Number.....OPR-X278
Surveyed by.....Atlantic Hydrographic Party
2

Objects Addressed:

1) An uncharted dangerous rock which covers and uncovers at the level of chart datum was found in the vicinity of Latitude 46°08'45.89"N, Longitude 83°59'51.34"W. It was determined that this feature bares 1-foot at Low Water Datum. The presently charted depths at this location are 5 to 6 feet.

2) An uncharted dangerous rock awash at the level of chart datum was found in the vicinity of Latitude 46°07'42.87"N, Longitude 84°00'20.32"W. The presently charted depths at this location are 10 to 15 feet.

3) Uncharted dangerous rocks which cover and uncover at the level of chart datum were found in the vicinity of Latitude 46°07'09.71"N, Longitude 84°02'11.80"W. It was determined that these features bare 0 to 1-foot at Low Water Datum. The presently charted depths at this location are 5 to 7 feet.

4) An uncharted dangerous rock awash at the level of chart datum was found in the vicinity of Latitude 46°07'05.17"N, Longitude 84°02'13.03"W. The presently charted depths at this location are 5 to 6 feet.

5) An uncharted shoal was found in the vicinity of Latitude 46°07'18.24"N, Longitude 84°00'20.76"W. The least depth of the



shoal was determined to be 3 feet at Low Water Datum; however, the presently charted depths at this location are 7 to 21 feet.

6) An uncharted shoal was found in the vicinity of Latitude 46°07'13.54"N, Longitude 84°00'19.99"W. The least depth of the shoal was determined to be 3 feet at Low Water Datum; however, the presently charted depths at this location are 7 to 21 feet.

7) An uncharted dangerous underwater rock which is covered by 2 feet at the level of chart datum, was found in the vicinity of Latitude 46°06'32.78"N, Longitude 84°03'27.27"W. The presently charted depths at this location are 2 to 5 feet.

8) Uncharted dangerous rocks which are awash at the level of chart datum were found in the vicinity of Latitude 46°06'35.37"N, Longitude 84°03'09.88"W. The presently charted depths at this location are 4 to 7 feet.

9) An uncharted dangerous rock which covers and uncovers at the level of chart datum was found in the vicinity of Latitude 46°06'46.61"N, Longitude 83°59'41.37"W. It was determined that this feature bares 1-foot at Low Water Datum. The presently charted depths at this location are 3 to 12 feet.

10) An uncharted dangerous rock awash at the level of chart datum was found in the vicinity of Latitude 46°06'45.82"N, Longitude 83°59'13.89"W. The presently charted depths at this location are 3 to 9 feet.

11) An uncharted shoal was found in the vicinity of Latitude 46°03'58.18"N, Longitude 84°01'44.02"W. The least depth of the shoal was determined to be 3 feet at Low Water Datum; however, the presently charted depths at this location are 4 to 6 feet.

Affected nautical chart (Items 1 -11):

CHART NUMBER	EDITION NUMBER	DATE	HORIZ DATUM
14880	28	4/28/90	NAD 83
14882	29	2/10/90	NAD 83

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. D. Lawrence

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

Attachments

CHART # 14882

ITEM # 5597

ITEM DESCRIPTION: CHARTED 25 FT REP

SOURCE: CL 2133/82 CES

INVESTIGATION DATE: 15 SEP. 1988 TIME: 1553 - 1740 VESNO: 0520
(DN 259)

OIC: LTJG J.N. MADDOX

REFERENCES:

Position No. 3367 THRU 3413 Volume 15 pg. 55 THRU 64

CORRECTIONS APPLIED:

Velocity (TABLE 3) TRA Corrections DRAFT & INST. ERROR.
~~Predicted or Actual Tide Correctors~~

GEODETIC POSITION:

	Latitude	Longitude
Charted:	46° 05' 15.00 N	84° 00' 43.00 W
Observed:	46° 05' 15.00 N	84° 00' 43.00 W

Position Determined By: FICON MINIRANGER IN R/R MODE

METHOD OF ITEM INVESTIGATION: THE AREA INSIDE THE CHARTED LINE ISLAND PER FROM LAT 46° 05' 05" N TO LAT 46° 05' 18" N WAS DEVELOPED USING A SYSTEM OF EAST-WEST LINES AT A SPACING OF 25M. KEEL LINES WERE RUN NORTH AND SOUTH APPROXIMATELY 15M FROM THE CONCRETE PIER FACING. SOUNDINGS WERE OBTAINED THROUGHOUT THE AREA USING ECHOSOUNDER AND POLE. SHORELINE WAS VISUALLY COMPARED TO TP-00357.1985 BUREAU HYDRO, AND FOUND TO BE CORRECT WITH THE EXCEPTIONS NOTED IN THIS SURVEY.

CHARTING RECOMMENDATIONS: ~~APPLY INFORMATION AS FOLLOWS IN THIS SURVEY.~~
SEE SECTION 7.9.1) OF THE EVALUATION REPORT.

Compilation Use Only

CHART

APPLIED AS

CHART # 1488Z

ITEM # 5598

ITEM DESCRIPTION: CHARTED SUBM WK

SOURCE: LS 1701/36

INVESTIGATION DATE: 9 SEP. 1988 (DN 253) TIME: 141900 VESNO: D520

OIC: LTJG J. H. MADDOX

REFERENCES:

Position No. 330Z Volume 15 pg. 31

CORRECTIONS APPLIED:

~~Velocity~~ ~~TRA Corrections~~
~~Predicted or Actual Tide Correctors~~

GEODETIC POSITION:

	Latitude	Longitude
Charted:	46° 06' 57.70" N	84° 02' 09.30" W
Observed:	46° 06' 58.82" N	84° 02' 10.52" W

Position Determined By: FALCON MULTIBEAMER IN R/R MODE

METHOD OF ITEM INVESTIGATION: A SYSTEM OF LINES AT A SPACING OF 25m WERE RUN USING ECHOSOUNDER AND VISUAL METHODS IN A RADIUS OF 100m FROM THE CHARTED POSITION. A MOUND OF LOOSE ROCK WAS VISUALLY OBSERVED EXTENDING IN A NORTH SOUTH DIRECTION, WITH THE APPROXIMATE DIMENSION OF 70m LONG AND 20m WIDE. WATER CLARITY TO BOTTOM WAS EXCEPTIONAL THROUGHOUT SEARCH AREA. A UNCORRECTED POLE SOUNDING LEAST DEPTH OF 1.9 WAS OBTAINED AT THE ABOVE OBSERVED POSITION.

CHARTING RECOMMENDATIONS: ~~REMOVE DANGEROUS SUBM ROCK AND REPLACE WITH DANGEROUS SUBM ROCK NOTATION. SEE SECTION 6. b. 2) OF THE EVALUATION REPORT.~~

Compilation Use Only

CHART

APPLIED AS

CHART # 1488Z

ITEM # 6314

ITEM DESCRIPTION: Obstruction

SOURCE: S1701/36--4ft. SNDG Unknown Source revisery to SUBM RK in 1958

INVESTIGATION DATE: 27 Sept. 1988 TIME: 144700 VESNO: 0520

OIC: J. H. Maddox

REFERENCES:

Position No. 3472-3525 Volume 16 pg. 22-35

CORRECTIONS APPLIED:

Velocity X TRA Corrections X
Predicted or Actual Tide Correctors

GEODETTIC POSITION:

Charted: Latitude 46°05'51.8" N. Longitude 084°04'08.1"W.

Observed: Not Found

Position Determined By: R/R Mini-Ranger Falcon

METHOD OF ITEM INVESTIGATION:

On September 27, 1988 (DN 271), a system of lines at a spacing of 25 meters were run using echo sounder and visual methods in a radius of 200 meters from the charted position. Water clarity to bottom was exceptional throughout the search area.

The results of the fatho-search was negative. Chain drag operations were not conducted on the belief that dragging the bottom with evidence of a high amounts of weed would restrict the vessel's movement. ~~Recommend retaining the submerged rock symbol revising it to position doubtful: SEE SECTION 6.5.3) OF THE EVALUATION REPORT.~~

Compilation Use Only

CHART

APPLIED AS

APPROVAL SHEET

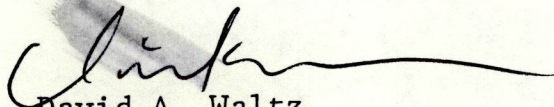
FOR

H-10279

The hydrographic records transmitted with this survey are complete and adequate to supersede prior surveys for charting with no additional field work recommended.

No direct supervision was given by me during the field work.

Approved and forwarded.



David A. Waltz
LCDR, NOAA

Chief, Hydrographic Field Parties Section

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

Hourly heights are approved for: See Remarks
 Water Level Station

Period: June 27, 1988 to September 27, 1988

HYDROGRAPHIC SHEET: H-10279

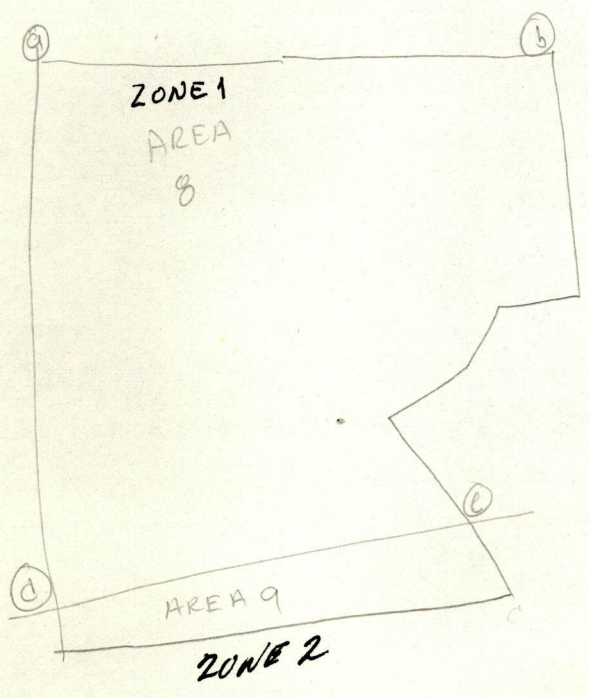
OPR- X278-HFP-88

Locality: St. Mary's River

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'
Site#2 Munro	(907-6036)	577.1'
Lookout Station #4	(907-6028)	577.1'
Rocky Point	(907-6010)	576.9' ✓
Detour Dock	(907-5098)	576.8' ✓
Detour Village	(907-5099)	576.8' ✓



ZONE 1 (AREA 8)	a. Lat 46° 09' 00.0" Long 84° 08' 18.0"	b. Lat 46° 09' 00.0" Long 83° 57' 40.0"
GAGE ROCKY POINT DATUM 576.9	c. Lat 46° 06' 36.0" Long 83° 56' 06.0"	d. Lat 46° 03' 03.0" Long 84° 03' 51.0"
ZONE 2 (AREA 9)	a. Lat 46° 03' 03.0" Long 84° 03' 51.0"	b. Lat 46° 06' 36.0" Long 83° 56' 06.0"
GAGE DETOUR VILLAGE DATUM 576.8	d. Lat 46° 00' 00.0" Long 84° 03' 51.0"	c. Lat 46° 00' 00.0" Long 83° 56' 06.0"

Harry G. Hippinger
 Chief, Great Lakes Acquisition Unit

R10279

GEOGRAPHIC NAMES

H-10279

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			
BASS REEF ISLAND											1
FRENES, POINT AUX											2
HAY POINT											3
LIME ISLAND											4
LOVE ISLAND											5
MICHIGAN											6
MUNUSCONG LAKE											7
ONTARIO											8
RABER											9
RABER BAY											10
RABER POINT											11
ROUND ISLAND											12
ST. JOSEPH ISLAND											13
ST. MARYS RIVER											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

Approved:

Charles E. Harrington

Chief Geographer - N/CG2x5

JUL - 9 1990

09/04/90

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10279

NUMBER OF CONTROL STATIONS

16

NUMBER OF POSITIONS

3521

NUMBER OF SOUNDINGS

17869

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	48	12/22/88
VERIFICATION OF FIELD DATA	516	03/28/90
QUALITY CONTROL CHECKS	140	
EVALUATION AND ANALYSIS	102	08/14/90
FINAL INSPECTION	22	08/03/90
TOTAL TIME	828	
MARINE CENTER APPROVAL		08/29/90

OFFICE OF CHARTING AND GEODETIC SERVICES
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT

SURVEY NO.: H-10279

FIELD NO.: HFP-10-4-88

Michigan--Ontario, St. Marys River, Lime Island to Munuscong Lake

SURVEYED: 27 June through 27 September 1988

SCALE: 1:10,000 and
1:2,500 Inset

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

SOUNDINGS: RAYTHEON DE-719B Fathometer, Sounding Pole

CONTROL: MOTOROLA Falcon 484 Mini-Ranger (Range/Range),
HP-3810B/Mini-Ranger (Range/Azimuth), NIKON NT2D-20
Theodolite/Mini-Ranger (Range/Azimuth)

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

Surveyed by.....J. H. Maddox
.....E. L. Martin
.....M. J. Briscoe
.....R. J. Ramsey
.....P. L. Keane

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

1. INTRODUCTION

a. No unusual problems were encountered during office processing.

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

2. CONTROL AND SHORELINE

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

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1927 (NAD 27). Office processing of this survey is based on these values. The smooth sheet has been annotated with ticks showing the computed mean shift between the survey datum and the North American Datum of 1983 (NAD 83). To place this survey on the NAD 83 datum move the projection lines 0.042 seconds (1.3 meters or .13 mm at the scale of the survey) north in latitude, and 0.380 seconds (8.2 meters or .82 mm at the scale of the survey) east in longitude.

b. Shoreline originates with 1:10,000 scale enlargement of 1:20,000 scale final reviewed Class III photogrammetric manuscripts TP-00357 and TP-00360 of 1984-85, and shoreline manuscript CRS 002988, B/P 135353-1984, Job CM-8412. Shoreline revisions originating with the present survey are shown in red on the smooth sheet.

Photogrammetric manuscript surveys in this area were compiled at a scale of 1:20,000. The present survey was conducted at scale of 1:10,000. The enlargements of the shoreline manuscripts provided were not at 1:10,000 scale, as a result the transfer of the shoreline and alongshore features to the smooth sheet and the reconciliation of hydrography and shoreline proved to be a formidable task requiring additional time and effort by office personnel.

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 not be drawn in their entirety. The 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. Brown and 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. The following should be noted:

The field unit did not submit a dangers to navigation report as required by section 5.9. of the HYDROGRAPHIC MANUAL and HYDROGRAPHIC SURVEY GUIDELINE No. 46. See also section 7.c. of the Evaluation Report and Danger to Navigation Report submitted by Atlantic Hydrographic Section, dated 26 July 1990.

5. JUNCTIONS

H-10299 (1989) to the northwest
H-10302 (1989) to the south

Adequate junctions were effected with junctional surveys H-10299 (1989) and H-10302 (1989).

6. COMPARISON WITH PRIOR SURVEYS

LS-1700	(1936)	1:10,000
LS-1701	(1936)	1:10,000
LS-1702	(1936)	1:10,000
<u>LS-2045</u>	<u>(1953)</u>	<u>1:10,000</u>

The four (4) prior surveys listed above cover the present survey area in its entirety. The prior surveys used for comparison are a compilation of soundings obtained during the year of the survey and earlier survey data. The three LS-1700 series surveys contain data acquired in 1936 and data from surveys of 1895. Survey LS-2045 contains the data acquired in 1953 and data from surveys of 1936. During the prior survey comparison phase of office processing, it is difficult to discern the different survey data shown on the copies used by the evaluator.

a) Prior survey depths from LS-1700 (1936) show a general trend of varying plus or minus (\pm) one to two feet from present survey soundings. Soundings within the channel shown on the present survey are three (3) to five (5) feet deeper than the prior survey depths. Changes noted between prior survey LS-1700 (1936) and the present survey are as follows:

1) Numerous shoreline changes between the present and prior surveys are apparent throughout the common area. These changes may be attributed to either natural changes, differences in the plane of reference, water levels at the time of the survey, or any combination of the reasons listed.

2) A charted islet, in the vicinity of Latitude 46°08'30.8"N, Longitude 84°02'13.5"W, which is shown on prior survey LS-1700 (1936) was visually investigated by the present survey. The islet is not shown on the shoreline manuscript. No indication of a islet was observed by the field unit. Present survey depths range from one (1) to two (2) feet. It is recommended that the charted islet be deleted and the area charted as shown on present survey.

3) A charted islet, in the vicinity of Latitude 46°08'21.5"N, Longitude 84°01'57.0"W which is shown on prior survey LS-1700 (1936) was disproved by the present survey. The islet is not shown on the shoreline manuscript. Two (2) to three (3) foot soundings were obtained in the vicinity of the charted islet. It is recommended that the charted islet be deleted and the area charted as shown on present survey.

4) A twenty-nine (29) foot sounding in the vicinity of Latitude $46^{\circ}09'45.8''\text{N}$, Longitude $84^{\circ}03'50.0''\text{W}$ from prior survey LS-1700 (1936) was disproved by the present survey. Surrounding depths from the present survey are 32 to 39 feet. This sounding lies within the limit of the charted channel.

b) Prior survey depths from LS-1701 (1936) compare favorably and show a general trend of being one (1) foot deeper than present survey soundings. Changes noted between prior survey LS-1701 (1936) and the present survey are as follows:

1) Numerous shoreline changes between the present and prior surveys are apparent throughout the common area. These changes may be attributed to either natural changes, differences in the plane of reference, water levels at the time of the survey, or any combination of the reasons listed.

2) AWOIS item #5598, a charted dangerous sunken wreck, in Latitude $46^{\circ}06'57.7''\text{N}$, Longitude $84^{\circ}02'09.0''\text{W}$, originates with the prior survey. The search area was investigated by echo sounder development. A mound of loose rocks lying in a north south direction was located. A pole sounding of zero (0) feet in the center of the rocks was observed in Latitude $46^{\circ}06'58.0''\text{N}$, Longitude $84^{\circ}02'10.82''\text{W}$. The charted dangerous sunken wreck is approximately 15 meters to the southwest of the rocks located by the present survey. It is recommended that the charted dangerous sunken wreck be deleted and the area be charted as shown on the present survey.

3) AWOIS item #6314, a charted submerged rock, in Latitude $46^{\circ}05'51.8''\text{N}$, Longitude $84^{\circ}04'08.1''\text{W}$, originates with prior survey LS-1701 (1936) as a four (4) foot sounding. The sounding was later revised by an unknown source to a submerged rock. The area was investigated by echo sounder development by the present survey. No evidence of a submerged rock was found within the search area. Three (3) to four (4) foot soundings were found by the present survey in the vicinity. It is recommended that the charted submerged rock be deleted and the area charted as shown on the present survey.

4) A forty-one (41) foot sounding in the vicinity of Latitude $46^{\circ}06'19.0''\text{N}$, Longitude $84^{\circ}02'03.0''\text{W}$ is six (6) feet deeper than present survey soundings. Surrounding depths from present survey are twenty-nine (29) to thirty-five (35) feet. It is recommended that present survey soundings in this area be charted.

5) A charted island, in the vicinity of Latitude 46°07'51.0"N, Longitude 84°00'18.0"W, originates with the prior survey. The present configuration of the island has changed considerably from the charted configuration. It is recommended that the charted island be revised and charted as shown on the present survey.

6) Charted cribs, in the vicinity of Latitude 46°07'52.0"N, Longitude 83°59'35.0"W, which originate with the prior survey were investigated by the present survey. However, the field unit did not discuss what specific type of item investigation was performed. The charted crib to the west now falls on the shoreline. The eastern crib was brought forward from the prior survey to supplement the present survey. It is recommended that the western crib be deleted from the chart and the eastern crib be retained as charted.

7) Charted submerged rocks on the east side of Hay Point, in the vicinity of Latitude 46°07'36.0"N, Longitude 84°00'05.0"W, which originate with the prior survey are within a foul area delineated by the present survey. It is recommended that the area be charted as shown on the present survey.

8) A charted foul area with submerged rocks, in the vicinity of Latitude 46°06'46.0"N, Longitude 83°59'57.0"W, originates with the prior survey. The area was verified by the present survey. Several submerged rocks and rocks which cover at the chart datum were located within the area. It is recommended that the foul area be revised and charted as shown on the present survey.

9) Charted submerged rocks and an island, in the vicinity of Latitude 46°07'14.5"N, Longitude 84°00'03.0"W, originating with the prior survey were investigated by the present survey. A submerged rock to the northwest of the island was not located. The island and submerged rock to the southeast of the island both fall within a foul area delineated by the present survey. The submerged rock to the northwest was brought forward from the prior survey to supplement the present survey. It is recommended that the area be revised and charted as shown on the present survey.

10) Charted islands and islets, in the vicinity of Latitude 46°07'09.5"N, Longitude 83°59'45.00"W, which are shown on the prior survey, fall within a grass area delineated by the present survey. It is recommended that the area be revised and charted as shown on the present survey.

11) A charted island and islets, in the vicinity of Latitude $46^{\circ}07'03.5''N$, Longitude $83^{\circ}59'45.1''W$, which are shown on the prior survey, fall within a foul area delineated by the present survey. It is recommended that the area be revised and charted as shown on the present survey.

12) A charted island, in the vicinity of Latitude $46^{\circ}06'58.0''N$, Longitude $83^{\circ}59'22.0''W$, is shown on the prior survey as part of the shoreline. The area was surveyed by the present survey, and no island was found. It is recommended that the island be deleted and the area be charted as shown on the present survey.

13) A charted island, in the vicinity of Latitude $46^{\circ}06'51.00''N$, Longitude $83^{\circ}59'39.0''W$, is shown as two (2) islands on the prior survey. The present survey located one (1) island. It is recommended that the area be revised and charted as shown on the present survey.

14) A charted island, in the vicinity of Latitude $46^{\circ}06'45.0''N$, Longitude $83^{\circ}58'57.0''W$, is shown on the prior survey. The area was not thoroughly investigated. No hydrography was run in the immediate area; no island is shown on the present survey. Chart the area as shown on the present survey.

15) In the vicinity of Latitude $46^{\circ}06'10.0''N$, Longitude $83^{\circ}59'51.0''W$ charted islets, islands, and a submerged rock are shown on the prior survey. The area was surveyed by the present survey and a new configuration delineated. It is recommended that the area be revised and charted as shown on the present survey.

16) A dangerous sunken wreck, in the vicinity of Latitude $46^{\circ}05'12.5''N$, Longitude $84^{\circ}00'43.8''W$, was investigated by the present survey. The dangerous sunken wreck is now covered by bulkhead in ruins. There are also two charted piers in the vicinity of Latitude $46^{\circ}05'12.0''N$, Longitude $84^{\circ}00'42.0''W$ that fall within the limits of the bulkhead in ruins. It is recommended that charted piers be deleted and the area be charted as shown on the present survey.

17) Charted rocks, in the vicinity of Latitude $46^{\circ}07'24.0''N$, Longitude $84^{\circ}01'47.0''W$, which originate with the prior survey were investigated by the present survey. The northernmost rock falls within a foul area delineated by the present survey. The southernmost rock was not found. The southernmost rock was brought forward from the prior survey to supplement the present survey. It is recommended the area be revised and charted as shown on the present survey.

18) Five (5) charted submerged cribs, in the vicinity of Latitude 46°05'39.0"N, Longitude 84°04'09.0"W, originate with the prior survey. The area was not thoroughly investigated by the present survey. A crib ruin was located in Latitude 46°05'41.29"N, Longitude 84°04'15.89"W. The crib ruin is awash at LWD. This crib ruin corresponds to one of the five (5) charted submerged cribs. The four (4) charted submerged cribs that were not found were brought forward from the prior survey to supplement the present survey. It is recommended that they be charted as shown on the present survey.

19) Charted visible piles, in the vicinity of Latitude 46°05'26.0"N, Longitude 84°03'51.0"W, are shown as three (3) piers with the note "ruins" at the offshore ends. The piles were investigated by the present survey and a foul area was delineated. It is recommended that the visible piles be deleted and the area be charted as shown on the present survey.

20) Pilings, in the vicinity of Latitude 46°05'30.0"N, Longitude 84°04'00.0"W, shown on the prior survey were neither verified nor disproved by the present survey. Substantial shoreline change has taken place since the prior survey was conducted. The pilings were brought forward from the prior survey as submerged piles to supplement the present survey. It is recommended that the area be charted as shown on the present survey.

21) A charted submerged rock and islet, in the vicinity of Latitude 46°07'19.0"N, Longitude 83°59'53.7"W, both fall within a foul area delineated by the present survey. Neither feature is shown on the shoreline manuscript. It is recommended that the charted submerged rock and islet be deleted and a foul area charted as shown on the present survey.

c. Prior survey depths from LS-1702 (1936) compare favorably and show a general trend of being one (1) to two (2) feet deeper than present survey soundings.

d. Prior survey depths from LS-2045 (1953) compare favorably and show a general trend of being one (1) to two (2) feet deeper than present survey soundings except in the dredged channel.

The differences between the above prior surveys and the present survey depths may be attributed to natural changes, dredging, cultural development, and improved hydrographic

surveying methods and equipment.

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

7. COMPARISON WITH CHART 14882 (28th Ed., 2 August 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 adequate chart comparison in section L. and pages 55 through 66 of the Descriptive Report. In addition to the recommendations in the Descriptive Report the following should be noted:

1) AWOIS item #5597, a charted 25 ft rep, in Latitude 46°05'15.0"N, Longitude 84°00'43.0"W, originates with Chart Letter 2133 of 1982 (CL 2133/82). The area was investigated by echo sounder development. No indications of the twenty-five (25) foot depths were determined by the present survey. Soundings from the present survey in the vicinity of the charted 25 ft rep range from four (4) to seven (7) feet. It is recommended that the charted 25 ft rep be deleted and the area be charted as shown on the present survey.

2) A charted submerged rock, in Latitude 46°10'01.1"N, Longitude 84°01'27.1"W, was neither verified nor disproved by the present survey. This rock corresponds with a rock shown on TP-00357 (1984-85). No change in charting status is recommended.

3) Charted submerged rocks, in the vicinity of Latitude 46°09'33.0"N, Longitude 84°00'29.0"W, originate with an unknown source. These submerged rocks were not investigated. No change in charting status is recommended.

4) Charted submerged rocks, in the vicinity of Latitude 46°08'45.5"N, Longitude 83°59'48.0"W, fall within a foul area delineated by the present survey. It is recommended that the charted submerged rocks be deleted and a foul area be charted as shown on the present survey.

5) A charted dumping ground, in the vicinity of Latitude 46°07'04.5"N, Longitude 84°01'15.0"W, was investigated by the present survey using reduced line spacing. No change in charting status is recommended unless the dumping ground is removed from the chart, in that case present survey depths should be charted.

- No correction! CPE will notify when cancelled or removed.

J. D. Daily

6) A charted submerged rock and islet, in the vicinity of Latitude 46°06'00.0"N, Longitude 83°59'45.0"W, were neither verified nor disproved by the present survey. Several one (1) foot soundings appear in the area of the charted items. The islet is not shown on TP-00357 (1984-85). It is recommended that the charted submerged rock be retained and the area charted as shown on the present survey.

7) A charted islet, in the vicinity of Latitude 46°06'06.0"N, Longitude 84°04'11.0"W, was neither verified nor disproved by the present survey. The islet is not shown on TP-00357 (1984-85). It is recommended that the area be charted as shown on the present survey.

8) A charted point of land, in the vicinity of Latitude 46°05'24.0"N, Longitude 84°04'00.0"W, was determined to be detached from the shoreline by the present survey. It is recommended that the shoreline be charted as shown on the present survey.

9) A charted island, in the vicinity of Latitude 46°05'13.5"N, Longitude 84°03'51.0"W, was investigated by the present survey. The island is now attached to the shoreline to form a harbor. It is recommended that the charted shoreline in this area be revised to show the present survey configuration.

10) A charted islet, in the vicinity of Latitude 46°03'58.5"N, Longitude 84°02'03.1"W, was investigated by the present survey. A rock was located by the present survey in Latitude 46°03'59.48"N, Longitude 84°02'03.68"W and bares three (3) feet. The rock falls within a foul area delineated by the present survey. The islet is not shown on the shoreline manuscript. It is recommended that the charted islet be deleted and the area charted as shown on the present survey.

11) A charted islet and submerged rock, in the vicinity of Latitude 46°03'54.0"N, Longitude 84°01'53.0"W, was not located by the present survey. The islet is not shown on TP-00357 (1984-85), and the submerged rock is located in an area on the present survey which is noted rocky. It is recommended that the submerged rock be retained as charted.

12) A charted groin, in Latitude 46°09'52.5"N, Longitude 84° 01'09.0"W, was verified by the present survey. The groin has a different delineation than the one shown on the chart. It is recommended that the groin be charted as shown on the present survey.

13) A charted intake, in the vicinity of Latitude 46°07'38.0"N, Longitude 84°01'45.5"W, was not located by the field unit. The field unit stated that the intake is marked by PVC pipe; no position was determined. It is recommended that the notation (intake) be retained as charted.

14) The present survey located an islet in Latitude 46°06'28.43"N, Longitude 84°01'11.66"W with an elevation of 6 feet. It is recommended that the islet be charted as shown on the present survey.

15) The following uncharted rocks were located by the present survey in the following locations:

<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>
46°08'45.60"	84°03'52.96"
46°07'31.56"	84°01'45.09"
46°06'35.44"	84°03'42.49"
46°06'36.03"	84°03'27.79"
46°06'32.82"	84°03'26.89"
46°06'35.00"	84°03'09.00"
46°06'45.86"	83°59'13.51"
46°06'46.65"	83°58'58.59"
46°05'53.00"	84°00'17.44"
46°05'50.41"	84°00'23.47"
46°05'31.95"	84°00'38.12"
46°03'34.97"	84°01'51.17"

It is recommended that the above rocks be charted as shown on the present survey.

16) An uncharted islet, in Latitude 46°07'46.66"N, Longitude 84°01'39.43"W was located by the present survey. It is recommended that an islet be charted as shown on the present survey.

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

b. Controlling Depths

There are no conflicts between the present survey depths and the project depth of 28 feet shown on the chart.

c. Dangers to Navigation

The hydrographer did not submit information on dangers to navigation. Eleven dangers to navigation were discovered during office processing and the information was submitted to

the Commander, Ninth Coast Guard District, Cleveland, Ohio for inclusion in Local Notice to Mariners. A copy of the letter was forwarded to N/CG222, Chart Information Section, Rockville Maryland. A copy of the danger to navigation letter is included in the Descriptive Report.

d. Aids to Navigation


The hydrographer located eight (8) fixed and thirteen (13) floating aids to navigation in the survey area. 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. 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 sections 6. and 7.a. of this report.



Douglas V. Mason
Cartographic Technician
Verification of Field Data



Norris A. Wike
Cartographer
Evaluation and Analysis



Robert R. Hill
Senior Cartographic Technician
Verification Check

APPROVAL SHEET
H-10279

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 disapproval 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: 14 August 90

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: 29 August 1990

Final Approval:

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

Date: 9/25/90

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10279

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
✓ 14882	12-11-90	Ed Martin	Full Part Before After Marine Center Approval Signed Via Drawing No. 4-25-6 6
✓ 14883	12-11-90	Ed Martin	Full Part Before After Marine Center Approval Signed Via Drawing No. 6
✓ 14880	12-18-90	Ed Martin	Full Part Before After Marine Center Approval Signed Via Drawing No. 86 thru 14882 drg 6
✓ 14860	12-19-90	Ed Martin	Full Part Before After Marine Center Approval Signed Via Drawing No. 9 thru 14880 drg 6
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			Full Part Before After Marine Center Approval Signed Via Drawing No.
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