

9710

Diag. Cht. No. LS-5

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT  
(HYDROGRAPHIC)

Type of Survey .. Hydrographic ..  
Field No. .... MI-50-3-77 ..  
Office No..... H-9710 ..

LOCALITY

State ..... Michigan ..  
General Locality Lake Huron ..  
Locality ..... Offshore Presque Isle ..

1977

CHIEF OF PARTY  
James S. Midgley

LIBRARY & ARCHIVES

DATE ..... September 27, 1978 ..

9710

*Handwritten notes:*  
10-1-78  
10-1-78

HYDROGRAPHIC TITLE SHEET

H-9710

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.

MI-50-3-77

State MICHIGAN

General locality LAKE HURON

Locality OFFSHORE PRESQUE ISLE

Scale 1:50,000 Date of survey AUGUST 21 - 25, 1977

Instructions dated APRIL 21, 1977 Project No. OPR-520-MI-77

Vessel NOAA SHIP MT MITCHELL S222

Chief of party CAPT JAMES S. MIDGLEY, NOAA

Surveyed by SEE REMARKS

Soundings taken by echo sounder, hand lead, pole ROSS MODEL 5000 FINELINE

Graphic record scaled by DAW, VEN, DRR, MEH, PMD, TDR, MLM, WGP

Graphic record checked by PWS, NGP, MAW, EEM, JTK, RAK, FDS Verification Branch (AMC)  
NOAA SHIP MT MITCHELL S222

Protracted by N/A Automated plot by HYDROPLOT SYSTEM

Verification by N/A i.G. Crane

Soundings in ~~fathoms~~ feet at ~~MLW~~ ~~MLLW~~ LWD (IGLD-1955: 576.8 FEET)

REMARKS: SURVEYED BY LCDR G. MILLS, LT D.A. WALTZ, LTjg V. NEWELL, LTjg D. RICE

LTjg M. HENDERSON, ENS P. DAUGHERTY, ENS T. RULON, ENS W. PRINGLE, ENS M. MURPHY

All corrections and/or additions made in red ink during

verification by i.G. Crane

appd to stadi  
1-9-79 WJ

A. PROJECT /

This survey was carried out in accordance with Project Instructions OPR-520-MI-77 issued 21 April 1977 and amended by Changes 1 through 3 dated 5 May 1977, 24 May 1977, 10 June 1977 respectively.

B. AREA SURVEYED /

This survey was conducted in Lake Huron, offshore. The limits of the survey are described by lines connecting the following points in a clockwise manner:

45°22.5'N	83°16.8'W ✓
45°41.0'N	83°16.8'W
45°41.0'N	83°14.0'W
45°22.5'N	82°35.0'W

This survey was conducted between 20 August 1977 (JD 232) and 25 August 1977 (JD 237).

C. SOUNDING VESSEL /

Soundings for this survey were obtained by the NOAA SHIP MT MITCHELL S222 (Vessel Number 2220 for all survey records) utilizing a fully automated Hydroplot System.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS /

The following equipment was used to obtain soundings for this survey:

Equipment:	Serial No:
Ross Model 5000 Fineline Depth Sounder	1050
Ross Model 4000 Transceiver	1053
Ross Digitizer	1050

Soundings were taken with a skeg transducer (antenna distance - 32.0 m). All survey records were scanned by trained Survey Department personnel and checked by the Officer in Charge. Peaks and deeps considered significant that occurred between soundings were inserted, digitizing errors were corrected, and the effects of the seas were meaned and corrected on the electronic corrector tape.

Phase calibration checks were made at frequent intervals. Any necessary adjustments were made and noted in the sounding volume and on the fathogram. In addition, any departures of the trace from the calibration due to phase differences were corrected during the scanning process.

Velocity corrections were obtained from 1 Nansen Cast and 4 XBT'S on the following locations:

Cast No:	Latitude:	Longitude:	Date:
G3	45°24.0'N	82°37.9'W	8/21/77
XBT No:			
G1-1	45°23.0'N	83°14.8'W	8/20/77
G2-1	45°24.1'N	83°01.6'W	8/20/77
G3	45°24.0'N	82°37.9'W	8/21/77
G4	45°35.1'N	83°07.5'W	8/25/77

Salinities determined by salinometer were found to be less than .2 parts per thousand and were considered to be negligible in determining sound velocities. Corrections for velocity were made from the data obtained from the Nansen Cast and three of the four XBT'S using the RK530 computer program. An explanation of how the velocities were derived, along with the printouts of the velocity tapes and all tables is included at the end of this report.

A draft of 14.0 feet was applied to all soundings during the on line process. To determine the actual drafts for the survey, a straight line plot was constructed using the beginning and ending dates of the survey. A draft correction was determined for every .2 feet. The draft varied from 13.8 to 13.4 feet for this survey. Settlement and squat corrections for the ship were determined on 25 July 1977 (JD 206) in Lake Huron at St. Ignace, Michigan. A corrector of +.2 feet is accurate for all survey speeds  $\pm .1$  feet. A copy of the data abstract for ship's speed versus settlement and squat correctors is included in the survey support data. The change in the draft along with the settlement and squat is incorporated into the TC/TT tape included with the survey data. A printout of this tape is included with this report.

A vertical cast was conducted on June 18, 1977 at Harrisville, Michigan to determine fathometer instrument error. The results are included in this report. The error was less than .1 feet and was considered to be zero due to the accuracy of the cast.

Water level corrections were not applied at the time of the survey. A copy of the request for the actual water levels for the area surveyed is included with this report.

#### E. HYDROGRAPHIC SHEETS

This survey was plotted on two mylar complot roll plotter sheets by the MT MITCHELL Hydroplot System. The skew used was 0,21,54, for both sheets.

The survey was plotted offline using an electronic corrector tape and a velocity corrector tape. Soundings on the field sheets are corrected for draft, initial and digitizing errors, and sound velocity. They are not corrected for water levels, settlement and squat, and instrument error. The final smooth sheet will be plotted at the Atlantic Marine Center, Norfolk, Virginia.

All field records and the following tapes have been forwarded to the Atlantic Marine Center:

Master Range-Range Data Tapes  
Electronic Corrector Tape  
Velocity Correction Tape  
Parameter Tapes  
ASC II Signal Tapes  
Transducer Corrector/Table Indicating Tape

F. CONTROL STATIONS ✓

Electronic control stations used for this survey were:

Signal Number and Name:	Latitude:	Longitude:
100 H-7A-MI-77 Sturgeon Pt Hydrotrac	44°42'46.709"N	83°16'19.031"W
207 H-17-MI-77 Presque Isle "Turcotte"	45°20'56.482"N	83°29'06.080"W
300 H-13-MI-77 40 Mile Pt Hydrotrac	45°29'11.010"N	83°54'48.836"W

All shore stations were located by personnel from the Operations Division, Atlantic Marine Center with assistance from MT MITCHELL officers. Stations were erected and maintained by ship's personnel.

G. HYDROGRAPHIC POSITION CONTROL ✓

An Odum Offshore Hydrotrac system, operating at a frequency of 1618.650 Khz, in Range-Range mode, was used to provide positioning control on the following days:

Stations:	Dates:
100, 207	August 20 through August 24, 1977 (JD 232 - 236)
207, 300	August 25, 1977 (JD 237)

The following Odum Offshore Hydrotrac equipment was used:

Type:		Serial No:
Shipboard	JD 232 - JD 236 1600Z	
	MDU	122
	Receiver	328
	Power Amplifier	536
	Navigation Interface	102
	Sawtooth	8501
	Coupler	134
Station 100	SDU	216
	Power Amplifier	538
	Coupler	131
Station 207	SDU	215
	Power Amplifier	537
	Coupler	133
Shipboard	JD 236 1600Z - JD 237	
	MDU	122
	Receiver	328
	Power Amplifier	539
	Navigation Interface	102
	Sawtooth	8501
	Coupler	134
Station 207	Receiver	215
	Power Amplifier	540
	Coupler	133
Station 300	Receiver	216
	Power Amplifier	538
	Coupler	131

A frequency of 1620.38 Khz was used in the parameters to compensate for the difference in propagation velocity between salt and fresh water. ~~An assumed velocity of 299350 Km/Sec was used.~~

The following Del Norte equipment and stations were used:

Station No:	Signal Name:	Equipment:	Serial No:	Code:
Ship		DMU	173	78
		Master	273A	
		360° Antenna	056	
		Parallel Buffer	123	
185	Rockport	Remote	248	72
		180° Antenna	125	
210	Presque Isle	Remote	1063	76
		180° Antenna	088	

Initially the Del Norte was calibrated over a measured baseline. To ensure no drift due to movement to the station the Del Norte was calibrated again using three sextant fixes and comparing observed ranges with computed values by use of Hydroplot Calibration Program RK 561. A simultaneous check fix was taken with each calibration. Only those fixes with inverses less than five (5) meters were accepted. The resultant correctors were then used until a new calibration was obtained. These Del Norte stations were used to determine Hydrotrac correctors for positioning buoy Mt Mitchell 2. This buoy plus the US/Canada buoy 2 were circled whenever it was necessary to establish a whole lane count:

Bouy Name:	Latitude:	Longitude:
Mt Mitchell II	45°25.4'N	83°00.3'W
US/Canada II	45°30.1'N	82°50.1'W

The lane count was constantly monitored by the Survey Department, by comparing the navigation interface readout with a running count on the sawtooth recorder. Lane jumps were thus detected and confirmed at calibrations and buoy circlings. Undetected lane jumps were determined by off line rescanning of the sawtooth record. An abstract of the calibration data is included with the records accompanying this report.

#### H. SHORELINE

There was no shoreline within the limits of this survey.

#### I. CROSSLINES

Crosslines were run at least 45° to the main scheme sounding lines. Mileage of crosslines amounted to 6% of the regular sounding lines. The crossline soundings generally agree within 1/2 feet of the main scheme soundings which is good agreement considering the rough bottom topography.

J. JUNCTIONS ✓

This survey junctions with the following surveys:

Area of Junction:	Field No:	Register No:	Scale:	Ship:
NORTHWEST	CANADIAN <del>3963</del>	3963	50,000	
South	MI-50-2-77	H-9709	50:000 ✓	Mt Mitchell
West	MI-50-4-77	H-9720	50:000	Mt Mitchell
NORTHWEST	CANADIAN SURVEY	3962	25:000 (1977)	
NORTHERST	CANADIAN SURVEY	3961	25:000 (1978)	

Excellent junctions were made with MI-50-2-77 and MI-50-4-77 and contours continued smoothly to these sheets. *Junction with H-9720 will be examined during quality control of that survey.*

The survey also junctions to the east with a 1977 Canadian Survey being conducted by the CSS Bayfield at a scale of 1:200,000. This survey was not available for comparison at the time of the report. *No, see above for correct Canadian junctional surveys.*

K. COMPARISON WITH PRIOR SURVEYS ✓

The following prior surveys were conducted within the area of this survey:

Survey No:	Date:	Scale:
I-1838	1945	120,000
I-1844	1946	120,000

Comparison between all these prior surveys and the present survey is fair in areas of flat bottom and poor in areas of rugged bottom. Only one third of all prior survey soundings agree within 10 feet of the present survey soundings, but about two thirds are within 200 meters of agreement within one foot. The improved quality of position control for the present survey is the probable cause of these poor comparisons. *concur*

There were no pre-survey review items to be investigated within the survey limits of ~~MI-50-3-77~~ for Project OPR-520-77. *H-9710*

L. COMPARISON WITH CHART ✓

This area is covered by NOAA Chart 14860, 24th Edition, 10-25-76, at 1:500,000 scale and NOAA Chart 14864, 19th Edition, 12-4-76 at 1:120,000 scale.

As previously stated in comparisons with prior surveys, depths agree fairly well in areas of flat topography but disagree by as much as 50 feet in areas of rugged bottom. Again, this disagreement is attributed to the increased accuracy of this surveys positioning control. *concur*



M. ADEQUACY OF THE SURVEY /

This survey is considered complete and adequate to supercede prior surveys for charting.

N. AIDS TO NAVIGATION /

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

O. STATISTICS

Linear Nautical Miles of Main Scheme Hydrography	632.5
Linear Nautical Miles of Crosslines	37
Linear Nautical Miles Hydrography	0
Total Miscellaneous Miles	525
Total Miles	1194.5
Square Miles of Hydrography	230
Total Number of Positions	702
Nansen Casts	1
XBT'S	4
Bottom Samples	24

P. MISCELLANEOUS /

Three different velocity tables apply to the data on this sheet and are dependent on area. To prevent undue shipboard processing time all data was plotted with velocity table Number 3 after approval from AMC Processing Division. All appropriate velocity tables are included in the TRA Correction Abstract and TC/TI tape.

Q. RECOMMENDATIONS /

None

R. AUTOMATED DATA PROCESSING

The following Hydroplot Programs were used to acquire and process data for this survey:

Program Name:

RK 111	Range-Range Real Time	1-20-76
RK 201	Grid, Signal, and Lattice Plot	4-18-75
RK 211	Range-Range Non-Real Time Plot	1-15-76
RK 300	Utility Computations	2-10-76
PM 360	Electronic Tape Abstract	2-12-76
RK 530	Velocity Correction Computations	5-10-76
RK 561	H/R Geodetic Calibration	2-19-75
RK 602	Extended Line Oriented Editor	5-21-75

S. REFERENCE TO REPORTS

Horizontal Control Report and Mt Mitchell-CSS Bayfield comparisons  
(both to be submitted at the end of the field season).

Respectfully Submitted:

*Ronald R. Wacker* CST

*td*  
Timothy D. Rulon  
Ensign, NOAA

APPROVAL SHEET

MI-50-3-77

H-9710

The field work on this Hydrographic Survey was under my daily supervision. The boat sheet and records have been reviewed and approved by me.

*for* *Gerald B. Mills*  
James S. Midgley  
Captain, NOAA  
Acting Commanding Officer

SIGNAL NAMES LIST  
MI-50-3-77 H-9710

100 H-7A-MI-77 STURGEON POINT HYDROTRAC; AMC OPS  
170 H-12A-MI-77 SOUTH-NINE-MILE PT. AMC OPS  
175 H-11A-MI-77 MONAGHAN AMC OPS  
180 MIDDLE IS. LT. HOUSE MICHIGAN QUAD 450832, #1018  
185 H-10A-MI-77 ROCKPORT AMC OPS  
207 PRESQUE I. "TURCOTTE" H'TRAC;H-17-MI-77;AMC OPS  
210 PRESQUE ISLE LT. HOUSE DEL NORTE ;AMC OPS  
300 40 MILE PT. HYDROTRAC H-13-MI-77 AMC OPS

SIGNAL TAPE PRINTOUT  
MI-50-3-77 H-9710

100	4	44	42	46709	083	16	19031	250	0000	162038
170	4	45	08	31220	083	18	58489	139	0000	000000
175	4	45	09	40925	083	20	55022	139	0000	000000
180	4	45	11	35470	083	19	15701	139	0000	000000
185	4	45	12	11242	083	22	47977	250	0000	000000
207	4	45	20	56482	083	29	06080	250	0000	162038
210	4	45	21	23359	083	29	32378	250	0000	000000
300	4	45	29	11010	083	54	48836	250	0000	162038

DETERMINATION OF VELOCITY CORRECTIONS

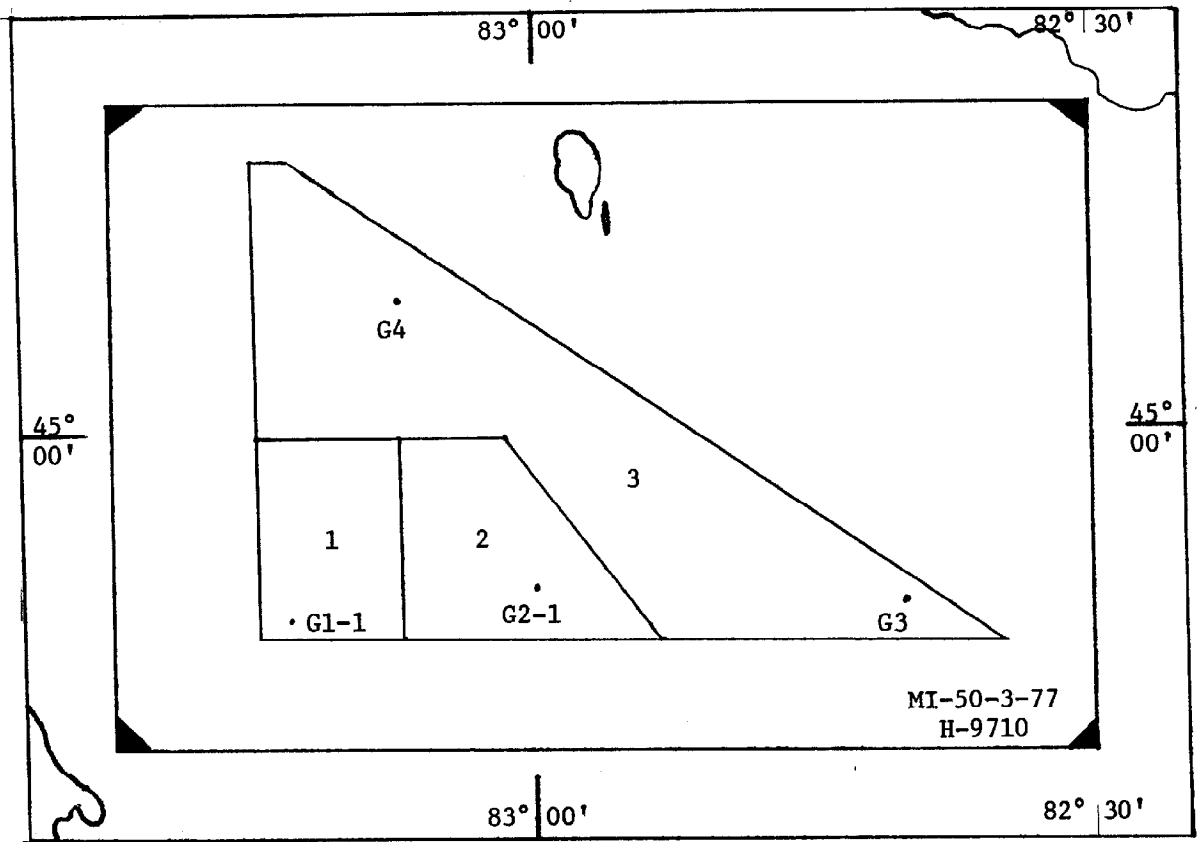
Simultaneous Nansen Casts and XBT'S disagreed from  $-2.2^{\circ}\text{C}$  to  $+1.2^{\circ}\text{C}$  with 70.0% of all temperatures agreeing within  $0.5^{\circ}\text{C}$ . Since the errors caused by the use of the XBT'S were small, they were used alone at some stations for velocity determinations.

Station:	Latitude:	Longitude:
G 1	$45^{\circ}23.0'\text{N}$	$83^{\circ}14.8'\text{W}$
G 2	$45^{\circ}24.1'\text{N}$	$83^{\circ}01.6'\text{W}$
G 3	$45^{\circ}24.0'\text{N}$	$82^{\circ}37.9'\text{W}$
G 4	$45^{\circ}35.1'\text{N}$	$83^{\circ}07.5'\text{W}$

The following shows how velocity tables were determined:

Velocity Table:	Area Table:	Survey Dates:	Cast/XBT'S	Date (JD)
1	1	232-234	G1-1	8-20 (232)
2	2	232-235	G2-1	8-20 (232)
3	3	232-237	G3, G4	8-21 (233) 8-25 (237)

See the accompanying illustration for the approximate boundaries of each table.



Scale of Chart #14860

The above illustration shows the areas covered by each velocity table and the stations (G1-G4) occupied with XBT'S and the Nansen Cast.

VELOCITY TAPE PRINTOUT  
MI-50-3-77 H-9710  
TABLE 1

001080	0	0000	0001	000	222000	050377
001194	1	0002				
001396	1	0005				
001601	1	0010				
001809	1	0015				
002010	1	0020				
002210	1	0025				
002410	1	0030				
002600	1	0035				
002800	1	0040				
002990	1	0045				
003200	1	0050				
003380	1	0055				
003590	1	0060				
003780	1	0065				
003980	1	0070				
004170	1	0075				
004360	1	0080				
004550	1	0085				
004740	1	0090				
004930	1	0095				
999999	1	0100				

VELOCITY TAPE PRINTOUT  
MI-50-3-77 H-9710  
TABLE 2

000641	0	0000	0002	000	222000	050377
000779	1	0002				
000890	1	0004				
000985	1	0006				
001072	1	0008				
001152	1	0010				
001234	1	0012				
001420	1	0015				
001622	1	0020				
001790	1	0025				
002000	1	0030				
002190	1	0035				
002390	1	0040				
002580	1	0045				
002770	1	0050				
002970	1	0055				
003180	1	0060				
003370	1	0065				
003570	1	0070				
003760	1	0075				
003970	1	0080				
004170	1	0085				
004360	1	0090				
004540	1	0095				
004750	1	0100				
004950	1	0105				
005140	1	0110				
005360	1	0115				
999999	1	0120				



VELOCITY TAPE PRINTOUT  
MI-50-3-77 H-9710  
TABLE 3

000970	0	0000	0003	000	222000	050377
001086	1	0002				
001167	1	0004				
001243	1	0006				
001451	1	0010				
001640	1	0015				
001829	1	0020				
002000	1	0025				
002200	1	0030				
002380	1	0035				
002570	1	0040				
002760	1	0045				
002950	1	0050				
003130	1	0055				
003330	1	0060				
003510	1	0065				
003710	1	0070				
003900	1	0075				
004090	1	0080				
004280	1	0085				
004470	1	0090				
004620	1	0095				
004840	1	0100				
005010	1	0105				
005220	1	0110				
005390	1	0115				
005580	1	0120				
005770	1	0125				
005960	1	0130				
006140	1	0135				
006330	1	0140				
006520	1	0145				
999999	1	0150				

## TRA CORRECTION ABSTRACT

VESSEL: NOAA SHIP MT MITCHELL S222

SHEET: MI-50-3-77

REGISTRY NO: H-9716

Vol.	Jul. Day	GMT From Time	GMT To Time	Velocity Table Ft/Fms	Draft	Instru- ment Error Corr.	Initial Corr.	S & S Corr.	TRA Corr. Ft/Fms	Remarks
1	232	053800	060320	1	13.6	0.0	0.0	+0.2	13.8	
1	232	060400	070000	2	13.6	0.0	0.0	+0.2	13.8	
1	232	070040	083500	3	13.6	0.0	0.0	+0.2	13.8	
1	232	083600	093055	2	13.6	0.0	0.0	+0.2	13.8	
1	232	093120	102800	1	13.6	0.0	0.0	+0.2	13.8	
1	232	102840	111540	2	13.6	0.0	0.0	+0.2	13.8	
1	232	111600	193720	1	13.6	0.0	0.0	+0.2	13.8	
1	232	193800	195600	2	13.6	0.0	0.0	+0.2	13.8	
1	232	195640	223840	3	13.6	0.0	0.0	+0.2	13.8	
1	232	223920	234540	2	13.6	0.0	0.0	+0.2	13.8	
1	232	234620	235940	3	13.6	0.0	0.0	+0.2	13.8	
1	233	000020	015550	3	13.6	0.0	0.0	+0.2	13.8	
1	233	015630	024430	2	13.6	0.0	0.0	+0.2	13.8	
1	233	024510	034050	1	13.6	0.0	0.0	+0.2	13.8	
1	233	034130	042730	2	13.6	0.0	0.0	+0.2	13.8	
1	233	042810	055700	3	13.6	0.0	0.0	+0.2	13.8	
1	233	055720	063935	2	13.6	0.0	0.0	+0.2	13.8	
1	233	064015	073620	1	13.6	0.0	0.0	+0.2	13.8	

TRA CORRECTION ABSTRACT

VESSEL: NOAA SHIP MT MITCHELL S222

SHEET: MI-50-3-77

REGISTRY NO: H-9710

Vol.	Jul. Day	GMT From Time	GMT To Time	Velocity Table Ft/Fms	Draft	Instru- ment Error Corr.	Initial Corr.	S & S Corr.	TRA Corr. Ft/Fms	Remarks
1	233	073700	081740	2	13.6	0.0	0.0	+0.2	13.8	
1	233	081820	094540	3	13.6	0.0	0.0	+0.2	13.8	
1	233	094620	102500	2	13.6	0.0	0.0	+0.2	13.8	
1	233	102540	134040	1	13.6	0.0	0.0	+0.2	13.8	
1	233	134120	141600	2	13.6	0.0	0.0	+0.2	13.8	
1	233	141640	160230	3	13.6	0.0	0.0	+0.2	13.8	
1	233	160250	163550	2	13.6	0.0	0.0	+0.2	13.8	
1	233	163630	175340	1	13.6	0.0	0.0	+0.2	13.8	
1	233	175420	182500	2	13.6	0.0	0.0	+0.2	13.8	
1	233	182540	200320	3	13.6	0.0	0.0	+0.2	13.8	
1	233	200400	203040	2	13.6	0.0	0.0	+0.2	13.8	
1	233	203105	234520	1	13.6	0.0	0.0	+0.2	13.8	
1	233	234540	235940	2	13.6	0.0	0.0	+0.2	13.8	
1	234	000020	001140	2	13.4	0.0	0.0	+0.2	13.6	
1	234	001220	012520	3	13.4	0.0	0.0	+0.2	13.6	
1	234	012600	014920	2	13.4	0.0	0.0	+0.2	13.6	
1	234	015000	024520	1	13.4	0.0	0.0	+0.2	13.6	
1	234	024600	030520	2	13.4	0.0	0.0	+0.2	13.6	



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

WATER LEVEL NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center: CAM3

Hourly heights are approved for

Water Level Station Used: 'See Remarks'

Period: August 21-25, 1977

HYDROGRAPHIC SHEET: H-9710

OPR-520-MI-77

Locality: Lake Huron

Plane of reference: Low Water Datum (IGLD 1955 : 576.8 Feet)

Remarks:

DeTour Dock, Michigan (907-5098)  
Alpena, Michigan (907-5065)

Presque Isle, Michigan gage (907-5069) was installed by the Hydrographic Field Party, but they have been unable to locate any data for the gage for 1977.

Use linear interpolation between gages when the difference equals or exceeds 0.2 feet.

*Philip C. Morris*  
\_\_\_\_\_  
Chief, Water Level Section

*Don M. Spillman 11/11/78*  
\_\_\_\_\_  
Chief, Tides & Water Levels Branch

GEOGRAPHIC NAMES

H-9710

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			
LAKE HURON										1	
<del>THUNDER BAY ISLAND (TITLE)</del>										2	
PRESQUE ISLE										3	
										4	
										5	
										6	
										7	
										8	
										9	
										10	
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										24	
										25	

APPROVED

*Chas. E. Harrington*

CHIEF GEOGRAPHER - C 328

21 Nov. 1978

APPROVAL SHEET  
FOR  
SURVEY H- 9710

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verifier's Report.

Date: 9-14-78

Signed:

Billy J. Stephenson

Title, Chief, Verification Branch

jr

HYDROGRAPHIC SURVEY STATISTICS

H-9710

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS (4 parts each)	4
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. ARC, EXCESS	2

DESCRIP-TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES	X					1- MISC. DATA
CAHIERS	1-with fathograms		X			
VOLUMES	X					1- SOUNDING
BOXES						

T-SHEET PRINTS (List)

2- CHARTS (14860 & 14864)

SPECIAL REPORTS (List)

1- BUNDLE OF SAWTOOTH RECORDS

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			702
POSITIONS CHECKED		70	
POSITIONS REVISED		2	
SOUNDINGS REVISED		10	
SOUNDINGS ERRONEOUSLY SPACED		0	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	

TIME - HOURS

CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	10		
VERIFICATION OF CONTROL		0	
VERIFICATION OF POSITIONS		39	
VERIFICATION OF SOUNDINGS		70	
COMPILATION OF SMOOTH SHEET		28	
APPLICATION OF TOPOGRAPHY		0	
APPLICATION OF PHOTOBATHYMETRY		0	
JUNCTIONS		8	
COMPARISON WITH PRIOR SURVEYS & CHARTS		16	
VERIFIER'S REPORT		16	
OTHER		0	
<b>TOTALS</b>	<b>10</b>	<b>177</b>	<b>187</b>

Pre-Verification by  
M. Holloway

Beginning Date  
12/02/77

Ending Date  
12/03/77

Verification by L. Cram  
M. Holloway, H. Smith, S. Kelley

Beginning Date  
12/14/77

Ending Date  
09/05/78

Verification Check by  
B. Stephenson

Time (Hours)  
4

Date  
09/06/78

Marine Center Inspection by  
Hydrographic Inspection Team, AMC

Time (Hours)  
8

Date  
09/13/78

Quality Control Inspection by

*E. Meyer*

Time (Hours)  
15

Date  
10/24/78

Requirements Evaluation by

*J. Baumgardner*

Time (Hours)  
1

Date  
12/7/78



REGISTRY NO. #-9710

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey, the following shall be completed:

CARDS CORRECTED

DATE \_\_\_\_\_ TIME REQUIRED \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

REGISTRY NO. \_\_\_\_\_

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE \_\_\_\_\_ TIME REQUIRED \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

ATLANTIC MARINE CENTER  
VERIFIER'S REPORT

REGISTRY NO. H-9710

FIELD NO. MI-50-3-77

Michigan, Lake Huron, Offshore Presque Isle

SURVEYED: August 20 through August 25, 1977

SCALE: 1:50,000

PROJECT NO.: OPR-520

SOUNDINGS: Ross Fineline Depth  
Sounder

CONTROL: Odum Offshore  
Hydrotrac  
(Range-Range)

Chief of Party ..... J. S. Midgley  
Surveyed by ..... G. B. Mills  
..... D. A. Waltz  
..... V. E. Newell  
..... D. R. Rice  
..... M. E. Henderson  
..... P. M. Daugherty  
..... T. D. Rulon  
..... W. G. Pringle  
..... M. L. Murphy  
Automated Plot by ..... CALCOMP-618 Plotter (AMC)  
Verified and Inked by ..... L. G. Cram  
September 5, 1978

1. Introduction

a. No unusual problems were encountered during the verification of this survey.

b. The projection parameters were revised during verification. Changes in the Descriptive Report were made in red ink by the verifier during verification.

c. The formal water level note has been requested but not received prior to verification. It is requested that Quality Control obtain this note from Water Levels, C3314.

2. Control and Shoreline

a. The source of control is adequately described in the Descriptive Report.

b. No shoreline is shown on this survey.

3. Hydrography

a. The agreement at crossings on this survey is adequate.

b. The standard depth curves are drawn in their entirety. Brown curves were added to the survey to provide better delineation of the bottom configuration.

c. This survey is considered adequate to delineate the bottom configuration and least depths.

#### 4. Condition of Survey

The smooth sheet and accompanying overlays, hydrographic records, and the Descriptive Report are adequate and conform to the requirements and procedures prescribed by the Hydrographic Manual.

#### 5. Junctions

H-9709 (1977) to the south  
 H-9720 (1977) to the west *Junction with H-9720 will be determined during quality control of that survey.*  
 Canadian survey 3962 (1977) to the northwest  
 Canadian survey 3963 (1977) to the northwest  
 Canadian survey 3961 (to be completed in 1978) to the northeast

Junctions were not effected with the three Canadian surveys, as they were not available at the time of verification. It will be necessary for Quality Control to complete all phases of these junctions. Junctional strips for effecting a junction with Canadian surveys will be <sup>provided</sup> ~~provided~~ by AMC to C352.

Junctions with H-9709 (1977) and H-9720 (1977) are adequate and no further work on these junctions is necessary.

#### 6. Comparison With Prior Surveys

1-1838 (1945) 1:120,000  
 1-1844 (1946) 1:120,000

These prior surveys are the most recent in this area that provide complete coverage.

There are substantial differences (+ or - 100 feet) between the present survey and the two prior surveys. It appears that there might have been some control problems on the prior surveys. The basic bottom configuration appears to be from 3 to 4 feet shoaler on the present survey, when allowances are made for the control on the prior surveys. These differences can be attributed to some natural change and to the less accurate methods used during the prior surveys.

The present survey is adequate to supersede the prior surveys within the common areas. No depths were brought forward from the prior surveys as the positional accuracy of these soundings is suspect and the present survey appears to better delineate the shoal features in the survey area.

7. Comparison With Charts 14860 (24th Edition, October 25, 1975)-  
1927 datum                      14864 (19th Edition, December 4, 1976)-  
1902 datum
- 

a. Hydrography

The charted hydrography originates almost entirely with the previously discussed prior surveys. During the comparison it was noted that soundings were "transferred to the prior surveys in red from surveys of 1929, 1931, field sheets 1-1531, 1-1544, 1-1545, 1-1546." It was apparent that some of these soundings are charted and are so identified on the chart. These prior surveys were not available other than transfers to the prior surveys 1-1838 and 1-1844.

The present survey is adequate to supersede the charted information within the common area.

b. Aids to Navigation

There are no aids to navigation in the survey area.

8. Compliance With Instructions

This survey adequately complies with the Project Instructions.

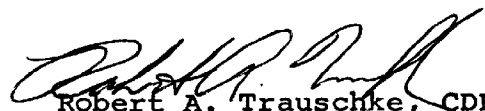
9. Additional Field Work

This is a good basic survey; no additional field work is recommended.

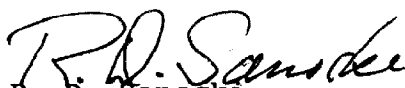
Inspection Report  
H- 9710

Any verification errors regarding procedures and presentation of survey data detected during inspection by the Hydrographic Inspection Team have been corrected before submission for administrative approval. HIT comments regarding quality of field work, compliance with instructions, and adequacy of the survey have been incorporated within the Verifier's Report.

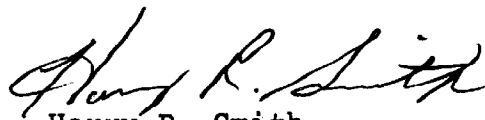
Examined and Approved:  
Hydrographic Inspection Team  
Date:

  
Robert A. Trauschke, CDR, NOAA  
Chief, Processing Division

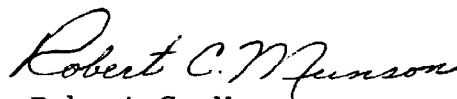
*Absent*  
Charles H. Nixon, CAPT, NOAA  
Chief, Operations Division

  
R. D. Sanocki  
Technical Assistant  
Processing Division

  
C. Douglas Mason, LT, NOAA  
Chief, Electronic Data  
Processing Branch

  
Harry R. Smith  
Team Leader  
Verification Branch

Approved/Forwarded

  
Robert C. Munson  
RADM, NOAA  
Director, Atlantic Marine Center



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SURVEY  
Rockville, Md. 20852

C352/GKM

October 24, 1978

TO: *A. J. Patrick*  
A. J. Patrick  
Chief, Marine Surveys Division

FROM: *G. K. Myers*  
G. K. Myers  
Chief, Quality Control Branch

SUBJECT: Quality Control Report for H-9710 (1977), Michigan, Lake Huron,  
Offshore Presque Isle

A quality control inspection of H-9710 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths, navigation hazards, junctions, sounding line crossings, smooth plotting, decisions and actions by the verifier, and cartographic presentation of data. In general, it was found to conform to the National Ocean Survey's standards and requirements except as stated in the report by the verifier and Hydrographic Inspection Team and as follows:

1. The Water Level Approval Note mentioned in the Verifier's Report was obtained from the Tides and Water Levels Branch during quality control. This note has been inserted in the Descriptive Report.
2. No contemporary survey junctions with the present survey on the east. However, depths in this area are in harmony with charted depths.
3. Some supplemental depth curves were added during quality control.

cc:  
C35  
C351



