

10152

Diagram No. LS-9

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. HFP-10-3-84
Office No. H-10152

LOCALITY

State Michigan
General Locality St. Mary's River
Locality Old Vessel Point to
..... Pointe Louise
..... 1985-86

CHIEF OF PARTY

.... LCDR. R.W. Jones & LCDR. K.W. Perrin

LIBRARY & ARCHIVES

DATE October 6, 1986

☆U.S. GOV. PRINTING OFFICE: 1980-766-230

Area 7

CW

14884

14962

HYDROGRAPHIC TITLE SHEET

H-10152

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

FIELD NO.

HFP-10-3-84

State Michigan

General locality St. Marys River

Locality Old Vessel Point to Pointe Louise

Scale 1:10,000 Date of survey 8/13/84 to 9/21/84
7/06/85 to 9/25/85

Instructions dated May 7, 1984 Project No. OPR-X278-HFP-84 and 85

Vessel HFP 2, Launch 0519, Skiff 0812

Chief of party Ronald W. Jones, LCDR, NOAA (until Jan. 1985)
Kenneth W. Perrin, LCDR, NOAA (From Jan. 1985)

Surveyed by Brian A. Link, OIC-HFP-2 (1985), LTJG J.W. Humphrey, OIC-HFP 2 (1984)

Soundings taken by echo sounder, ~~hand read~~, pole XXXXXXXX DSF 6000N

Graphic record scaled by B.A. Link, J.M. Robinett, M.J. McMann, C.S. Weisner,
T. A. Taylor, T.R. Owens, J.W. Humphrey

Graphic record checked by B.A. Link, J.M. Robinett

Verification PM

~~Extracted~~ by E. Domingo, T.O. Jones Automated plot by Xynetics Plotter

Evaluation PM

~~XXXXXXXX~~ by C.R. Davies

Soundings in ~~fathoms~~ feet at ~~MLW MLW~~ Lake Superior Low Water Datum (IGLD 1955)

REMARKS: Marginal Notes in black by evaluator. All Times in U.T.C. Misc.
attachments removed from Descriptive Report and filed with the hydrographic data.

STANDARDS C&D 10-8-86ClayCH-21-97AWOIS + SUPP ✓ RWD 5/87

Descriptive Report to Accompany
Hydrographic Survey H-10152

Scale: 1:10,000

Chief of Party: Lt. Cdr. Ronald W. Jones (Until Jan. 1985)

Lt. Cdr. Kenneth W. Perrin (From Jan. 1985)

Officer in Charge: Lt. (jg) J.W. Humphrey (1984), Brian A. Link (1985)

Hydrographic Field Parties Section

Hydrographic Field Party 2

Launch 0519

A. PROJECT✓

This project was carried out in accordance with Project Instructions for OPR-X278-HFP-84 dated May 7, 1984 and amended by Change No. 1, dated May 25, 1984, Change No. 2, dated December 19, 1984, and Change No. 3, dated May 9, 1985. Change No. 3, Section 1, updates the Project Number to 1985.

B. AREA SURVEYED✓

This survey was conducted in the St. Marys River, between the Michigan and Ontario, Canada borders. The eastern survey limit is Old Vessel Point, LON. 84°24.0'W. The western survey limit is in the vicinity of Pointe Louise, LON. 84°28.5'W. The survey area includes Leigh, Point Aux Pins, and the eastern half of Izaak Walton Bays.

The American shoreline from Brush Point east, to due south of Old Vessel Point is developed with private residences. The shoreline in Izaak Walton Bay, from Brush Point south, is undeveloped brush.

The Canadian shoreline from Pointe Louise to one third the way around Pt. Aux Pins Bay is developed with private residences. The remainder is undeveloped. The shoreline around Leigh Bay is scattered with private residences. Old Vessel Point is an industrial slag dump.

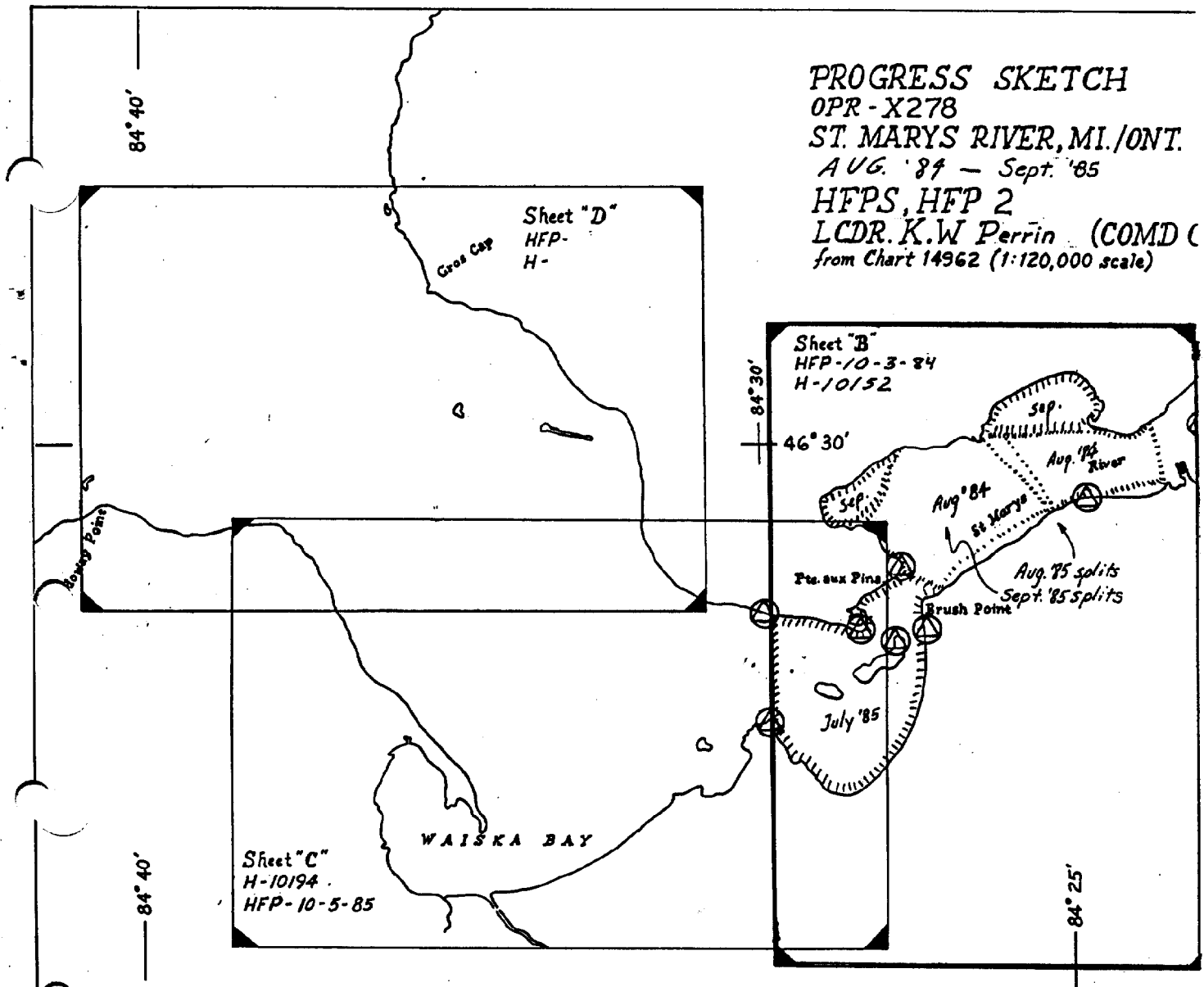
Bottom composition is primarily hard packed sand, with some grassy patches, throughout the survey area. Depths in the survey area range from 0 to 60 ft.

This survey was conducted from 13 August 1984 (^{DN}JD 226) to 21 September 1984 (^{DN}JD 265) and from 1~~7~~⁶ July 1985 (^{DN}JD 196) to 25 September 1985 (^{DN}JD 268) inclusive.

C. SOUNDING VESSEL✓

NOAA Launch 0519 (EDP No. 0519) and Skiff 0812 (EDP No. 0812), were used to obtain all survey data in 1984. Launch 0519 (EDP No. 0812) was used to obtain all data in 1985. No unusual vessel configurations or problems with the vessels were encountered.

PROGRESS SKETCH
 OPR - X278
 ST. MARYS RIVER, MI./ONT.
 AUG. '84 - Sept. '85
 HFPS, HFP 2
 LCDR. K.W. Perrin (COMD)
 from Chart 14962 (1:120,000 scale)



AUG 84	July '85	AUG. '85	Sept. '85	
4.2	5.0	2.0	0.0	
77.3	70.5	57.2	12.5	
25.0	70.0	70.0	40.0	
15.0	20.0	35	25.0	
0	0	81	0	
0	6 rec.	5 set/3 rec.	1 set	
0	2 (leveled)	0	2 (leveled)	
0	0	43	33	

LEGEND

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

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS ✓

A Raytheon Fathometer Model 719C, Serial No. 9955 was the only echo sounding equipment used on Launch 519 in both 1984 and 1985.

A graduated sounding pole was used for all soundings taken with Skiff 0812, as well as in shoal waters (2 ft. or less) with Launch 519.

Fathometer calibration checks were made at frequent intervals on each day of hydrography. Any necessary adjustments were made and noted on the fathogram. Any departure of the trace from the initial zero was corrected during the scanning process. All graphic records were scanned and checked by trained field survey personnel. Peaks and deeps considered significant that occurred between regular sounding intervals, were inserted on the generated master or corrector tapes.

Two velocity corrector tables were tabulated from bar check data, and are included in Appendix IV. Bar checks were taken on each day of hydrography, two whenever conditions permitted, using Launch 519. Bar check chains were measured to insure the 5 ft. interval marks were accurate, prior to the start and at the end of the project each year. No corrections were necessary. Corrections from Velocity Table I, are to be applied to all applicable 1984 data, while those from Table II, are to be applied to 1985 data. *All velocity tables and bar check data is filed with the hydrographic data.*

Velocity correctors were not applied on the field sheet. When the velocity tape was used to plot with the PDP8E, erroneous soundings were plotted. When the velocity tape was eliminated, the soundings were plotted correctly. The velocity tapes are included with the survey data for plotting the smooth sheet at PMC.

Settlement and Squat correctors were determined on 21 June 1984 and 27 August 1985, using the level method. A copy of the field data and graphs of the settlement and squat correctors vs. RPM for Launch 519 are included in Appendix IV. These correctors will be applied via the TC/TI tape during processing of the smooth sheet at the Pacific Marine Center. *All tables and graphs are filed with the hydrographic data.*

This survey was plotted using unverified actual water levels reduced to the Low Water Datum, when Lake Superior is at elevation 600.0 ft. (IGLD) and the gage above the locks reads 599.8 ft. Water levels were obtained from the gage at Southwest Pier, USCOE Base, Sault Ste. Marie, Michigan, Station No. 907-6070. (see also section P.)

Smooth water levels were requested from the Water Level Section, N/OMS 124, in a letter dated September 27, 1985.

E. HYDROGRAPHIC FIELD SHEETS ✓

One rough field sheet was prepared in the field office using the PDP8E and Houston Instrument Complot DP-3 plotter, to monitor and evaluate the survey data. Two sheets were prepared by the same method for the final field

sheets. One has all main scheme hydrography, signals, channel splits, and shoreline, the other, detached positions, main scheme splits, crosslines, buoys, and bottom samples.

Soundings on the final field sheet are corrected for transducer draft and unverified actual water levels. Velocity correctors were not applied, as explained in Section D. *Velocity correctors were applied to processed data.*

All field records and data will be forwarded to the Pacific Marine Center for verification and Smooth Sheet plotting.

F. CONTROL STATIONS ✓

Four monumented control stations (Signals 101, 102, 113, 119), two landmarks (Signals 110, 111), and five fixed aids to navigation (Signals 112, ~~115~~, 116, 117, 118) were used to control this survey. All control is Third-Order, Class I. Signals 101, 102, and 110 were located in 1984, by personnel from AMC, Program Services Division. The remaining signals have published NGS positions. The signal list is included as Appendix VI of this report. Signals 120 - 123 were used as sextant checks only. Signal 115 and 124 were used as azimuth check pointings.

*See section
2 of EAC
Report*

G. HYDROGRAPHIC POSITION CONTROL ✓

Range/Range and Range/Azimuth positioning methods were used to control this survey. During Range/Azimuth, initial azimuth checks were obtained and recorded at the beginning of each applicable day in 1985. An initial azimuth of 00°00.0', was used in all cases, checked and recorded at frequent intervals throughout the day.

Three point sextant fixes were observed at all detached positions where practical. In some instances, weak fixes were the only alternative. In these cases, only the left or right angle was retained as a cursory check and the other rejected in the volume. When check fixes were not obtained, it was due to rough seas preventing the launch from being held at or over the object.

Several days of hydrography were run with the Del Norte set at a station remote from the azimuth station. (Refer to the appended abstract of positions for days that apply.)

Equipment used to control this survey was:

DMU(S/N)/Master(S/N)	Remote(S/N)	Year
=====	=====	=====
123 263	222	1984
172 263	222	1984
395 263	1322	1984
162 1060	222	1985
162 1060	247	1985
505 1060	222	1985
505 1070	222	1985
505 1070	247	1985

A Nikon NT2D 20" Theodolite, S/N 031033 was used for all azimuth control on this survey.

Del Norte Equipment was calibrated over baselines of 1863, 2477, and 3312 meters, measured with an HP-3808A or computed by inverse. Baseline calibration abstracts are included in the fan folder for the 1985 field work. Abstracts for the 1984 field work on H-10152 were submitted with data for H-10141.

Daily static checks of the equipment were performed prior to and at the end of each day of hydrography, except ~~on~~ 239, when dead batteries prevented a check at the end of the day. True distances for these checks were determined by inverse computation between Third-Order stations used or measuring with the HP-3808A. Acceptable tolerances were observed throughout the survey and were supported by baseline values. Correctors were applied to the position data (via the corrector tapes) based on the daily check readings, which in the opinion of the hydrographer, can be considered near baseline calibrations on a daily basis. *Daily correctors were used to plot the smooth sheet.* CONCUR

In 1984, DMU S/N 172 failed and was replaced with S/N 395. No closing baseline was obtained for the failed DMU. In 1985, Master S/N 263 failed on ~~19~~ 197 prior to the start of hydrography and was replaced with S/N 1060. DMU S/N 162 failed on ~~19~~ 211 and was replaced with S/N 505. On ~~19~~ 254, Master S/N 1060 failed and was replaced with S/N 1070. These failures did not affect hydrography on this survey. *CONCUR*

The Electronic Corrector and Equipment Used Abstract is in Appendix V of this report. *Filed with the hydrographic data.*

H. SHORELINE ✓

Shoreline details shown on the final field sheet were transferred from TP-00363 and TP-00205, 1:10,000 scale manuscripts.

Shoreline details were verified by detached position or visual verification. These features have been transferred to the field sheet. Shoreline verification was accomplished by comparison of main scheme hydrography junctioning at shore or by visual inspection. The shoreline is accurately shown on the manuscripts used. No changes were found. *CONCUR*

The Canadian shoreline along Pt. Aux Pins and Leigh Bays, from LON. 84°27'12", east to LON. 84°25'09", is characterized by reed grass growing offshore. This was not considered the apparent shoreline by the hydrographer and is shown on the final field sheet as limit lines of grass. These areas were defined by detached positions or by the junctioning of main scheme hydrography with the offshore limits of these areas of grass. (See also Section Q.) *See smooth sheet for graphic portrayal pertaining to this area.*

One control station, U-Bolt, signal 102, lies seaward of the shoreline. This station is on the pier ruins, assigned as PSR item No. 3469.

I. CROSSLINES ✓

Crosslines run accounted for 15% of the total nautical miles of hydrography run. Comparison of crosslines with main scheme hydrography shows excellent agreement, within 1 ft., when there is little or no displacement of soundings compared. This excellent agreement applies *concur* throughout the survey area.

J. JUNCTIONS ✓

This survey junctions at the east limit with H-10141, a 1:5,000 scale survey completed in 1984, and with H-10194 at the west limit, a 1:10,000 scale survey being run concurrently, scheduled to be completed in 1986. *See Section 5 of EVAL Report*

Comparison of junction soundings shows good agreement between the west end of sheet H-10141 and the east end of H-10152. Continuation of contour lines shows no abrupt changes when crossing from one sheet to the other. *concur*

Likewise, the junction of the west end of H-10152 with H-10194, shows excellent agreement with no abrupt changes to contour crossings, from one to the other. Junction soundings from the respective surveys are shown on the final field sheet in red ink.

K. COMPARISON WITH PRIOR SURVEYS ✓

Six presurvey review items (No.'s 3467, 3468, 3469, 3470, 3471, 3472) assigned to OPR-X278, lie within the limits of H-10152, and were resolved during the course of this survey. A complete discussion of these items, on item investigation reports, is included in Appendix XII of this report.

This survey was compared with:

Registry No.	Scale	Date
=====		
LS 1-1687	1:20,000	1936

Very little change exists between the compared prior survey and H-10152, relative to depths on the two surveys. No general areas vary by more than 1 foot between the two surveys. *See EVAL Report Section 6*

Two spoil islands, not seen on the prior survey, have been developed, centered at LAT. 46°22'30"N, LON. 84°28'00"W, since 1936. These are accurately shown on the shoreline manuscripts. A third spoil island, to the southwest falls within the limits of H-10194. *concur*

Significant shoreline change has occurred at Pt. Aux Pins, where an island shown on the prior survey has become part of a peninsula. Likewise, Old Vessel Point has changed significantly, a result of slag dumping from the nearby steel mill. *chart according to smooth sheet.*

A log boom, shown on the prior survey in Pt. Aux Pins Bay, running NNE from LAT. 46°29'00"N, LON. 84°28'00"W, no longer exists. This area is currently charted with numerous piles. The area was investigated and found to contain countless deadhead piles, situated both horizontal on the bottom and floating vertically in the bay. *Dashed limit line and accompanying note has been added to the smooth sheet.*

The origin of these piles was discussed with Jack DeCourcy, a longtime resident of Pt. Aux Pins, Ontario (phone-705-779-3339). Years ago, logs were floated into the area by tugs, boomed in, and stored for later use by the Abitibi Paper Co. of Sault Ste. Marie, Ontario. When other methods of transportation became more economical, i.e. train or trucking, the paper mill abandoned the logs that remained in the bay, resulting in the area becoming littered with the deadheads and logs lying on the bottom.

This area is exempt from the strong currents of the St. Marys River. Therefore, the movement of these deadheads is only affected by an ESE wind, which tends to keep the deadheads pushed into the bay. The area is protected by land from a strong northwest wind.

While the hydrographer recommends retention of the charted pile symbols, *See EVAL* it was determined more feasible to delineate a foul area, by detached positions, *Report* taken along the offshore limits of this area. The bottom was clearly visible *section 7* to 25 ft. and an accurate limit line could be determined. *chart according to smooth sheet.*

The limit line is intended as confirmation of the hazardous nature of *See EVAL* the area. The hydrographer feels the current chart representation is adequate, *Report Section 7* with the addition of a warning note stating: "Pt. Aux Pins Bay foul with deadheads. Mariners are advised to use extreme caution when transitting the *CMCUT* area."

A crib shown on the prior survey at LAT. 46°30'00"N, LON. 84°26'24"W, was searched for visually in depths to 3 feet and not seen. This feature is recommended for deletion from the chart. The log boom shown northeast of the crib on the prior, but not charted, does not exist. *CMCUT*

The remaining features shown on the prior survey, all lying between Brush and Big Points, on the American shoreline, were addressed as presurvey review items. Item No.'s 3467, ³⁴⁶⁸3470, 3471, and 3472 originated from Prior Survey ~~4~~₁₅-1687.

L. COMPARISON WITH THE CHART ✓

This survey was compared with Chart 14884, 33rd Ed., Feb.26/83. This is a 1:40,000 scale chart. Comparison was made using a 1:10,000 scale blow-up from chart 14884 of the area covered by this survey.

A Danger to Navigation report was filed September 20, 1985. Copies were sent to the Commander, Ninth Coast Guard District, Cleveland, Ohio; N/CG222, Chart Information Section; and the St. Marys Falls Canal Branch of the Corps of Engineers, Detroit District. A second report was filed September 27, 1985, describing shoals mentioned in this section, and is appended to this report. *See attached letters*

The first report describes dangers found while conducting Survey H-10152 as follows:

Danger	Latitude(N)	Longitude(W)	Pos. No.
Channel Shoaling	46°28'41"	84°27'00"	area around 89
Breakwater ^{water} (uncovers 1-2 ft at LWD)	46°29'00"	84°28'11"	1975-1977
Line of Rocks { 2085 * (3) 2087 * (2) 2088 O (6) Islet	46°27'29".7	84°28'11".6	2085-2088
Pt. Aux Pins Bay Deadheads	46°29'30"	84°28'00"	2229-2237, 1822
Rock (4)	46°30'46"	84°24'47"	2180
Rock (4)	46°30'44"	84°24'44"	2182
Pile	46°29'40".1	84°23'55".2	1932

With the exception of the deadheads in Pt. Aux Pins Bay (discussed in Section K.) these dangers are not currently charted. A copy of the Danger to Navigation Letter is in Appendix XI. *See attached letters*

A line of crib ruins was located between position 2044 and 2046, LAT. 46°28'20".04N, LON. 84°26'59".23 and LAT. 46°28'25".13N, LON. 84°26'50".73W, respectively. These are exposed from 1.8 ft. to 2.0 ft. at LWD, lie less than 5 meters offshore, and did not warrant inclusion in the letter. This feature is not currently charted. *Depicted on smooth sheet with a dashed limit line and annotated with descriptive information as provided above.*

The general agreement between charted soundings and those found on this survey is good. Comparisons worth noting include:

The northeast portion of Izaak Walton Bay, found to contain numerous 5 and 6 foot peaks surrounded by 7 and 8 foot depths. While the field sheet interpretation over emphasizes these minor irregularities, the charted six foot contour does not.

The same can be said for Leigh Bay, an area found to contain numerous 3 to 6 foot peaks in 7 to 12 feet of water. While this was not done on the field sheet, by including the deep depths within the six foot contour, it could be drawn more closely resembling that currently charted. Due to the irregular bottom, line spacing was reduced to 50 meters in this area.

The isolated 12 foot contour charted from LAT. 46°29'30"N, LON. 84°27'15"W, NNE to LAT. 46°30'12"N, LON. 84°26'00"W, has shoaled to 12 feet on the north-east end when compared to H-10152, while a deepening trend is seen around LAT. 46°30'06"N, LON. 84°25'45"W. *CONCUR*

An isolated shoal, not currently charted, with a least depth of 9 feet at Low Water Datum, was found centered at LAT. 46°29'57".N, LON. 84°25'21".W. Line spacing in this area was reduced to 50 meters. ^{30 81} (DNR Filed) ¹⁸

Two isolated 6 foot depths, one at LAT. 46°29'24"N, LON. 84°26'40".5W, the other at LAT. 46°29'26".N, LON. 84°26'31".5W, were found on either side of a charted isolated 6 foot depth. This area with surrounding depths of 7-18 ft. was reduced to 50 meter line spacing. The charted 6 foot depth does not appear on Prior Survey 4-1687. ^{LS}

A 12 foot shoal was found at LAT. 46°30'08"5N, LON. 84°24'51"W, and is not currently charted. This was developed with line spacing reduced to 50 meters. A yellow spar buoy was located offshore of this shoal and apparently serves to mark this shoal. (DNR Filed) *Also a 10 foot sounding was located 275 meters to the southwest.*

Other changes to charted features are addressed on the appended item investigation reports. *See attached reports.*

Charted shoreline should be superseded by that shown on TP-00363 and TP-00205.

M. ADEQUACY OF SURVEY ✓

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

N. AIDS TO NAVIGATION ✓

All floating aids to navigation within the area covered by H-10152 were located by detached position. They are:

Pos.#	1985 L.L.#	Latitude(N)	Longitude(W)	Description
2238	13575	46°29'53"27	84°23'26"66	"5"/G Lt./G Struct <i>(on H-10141)</i>
1931	13580	46°29'47"78	84°23'54"63	"7"/G Can
*1930	Canadian	46°29'58"18	84°24'22"65	"P8"/R Nun <i>(checked as N26 - 1st 884 33rd 50)</i>
1929	Canadian	46°30'06"60	84°24'52"51	Yellow Spar
1928	13585	46°29'30"97	84°25'14"91	"9"/G Lt./G Struct.
1927	13655	46°29'39"45	84°25'29"88	"10"/R Lt./R Struct.
1926	13660	46°29'12"95	84°26'21"20	"14"/R Nun
1925	13665	46°28'44"08	84°27'13"30	"P16"/R Lt./R Struct.
1924	13670	46°28'22"92	84°27'27"89	"17"/G Lt./G Struct.
2201	13680	46°28'21"20	84°27'52"12	"P18"/R Lt./R Struct.
2202	13685	46°27'54"41	84°27'54"29	"19"/G Can
2203	13695	46°27'43"42	84°28'04"18	"21"/G Lt./G Struct.
2204	13705	46°27'38"87	84°28'43"54	"P22"/R Lt./R Struct.
2205	13700	46°27'27"51	84°28'40"27	"P23"/G Lt./G Struct.

All floating aids were found to serve the apparent purpose for which they were established. Buoy "P8" was found at the charted location of RN"26". *(MLW)* This buoy is not listed in the 1985 Light List, Vol. IV, and lies within Canadian waters. All buoys were found at their charted locations except buoy "16", found 125 meters southwest and buoy "14" found 80 meters southwest. Both, still adequately mark the channel. The yellow spar buoy listed, is neither charted nor shown in the Light List, and apparently marks a shoal, discussed in Section L.

All fixed aids to navigation within the survey area were verified as currently charted with NGS positions, with one exception. Brush Point R/W daybeacon with QW Light, a winter marker showing from Nov. 15 to Apr. 15,

* Canadian Notice to Mariners 52-84 changed buoy number from N26 to N P8, the P= Pointe Aux Pies Buoy. Buoy is unlighted and unlighted aid are not shown in the Canadian light list. Per conversation with Al Lundberg N/C62222, 5-22-86.

was located to Third-Order, Class I standards. The position for this light is on the appended NOAA Form 76-40.

NAVAIDS verified as presently charted with NGS positions are:

Description	Latitude(N)	Longitude(W)	1985 L.L.#	Sig.#
Brush Pt. Rge. Rear Light	46°27'49"88096	84°27'18"99606	13715	116
Brush Pt. Rge. Front Light	46°27'44"37889	84°27'46"65700	13710	115
Pt. Aux Pins Main Light	46°27'50"69626	84°28'22"12728	13690	112
Pt. Aux Pins Range R Lt.	46°27'58"500	84°28'30"660	13650	118
Pt. Aux Pins Range F Lt.	46°28'03"810	84°28'20"440	13645	117

Inverses were run between range light positions, for comparison of azimuths and distances shown in the USCG 1985 Light List, Vol. IV. All azimuths checked. Distance checks, referenced by L.L. number were:

L.L.#	L.L. Dist.	True Dist.
13555	2700 m	2720 m
13650	920 m	895 m
13715	2000 m	2015 m

One landmark, a Radio Mast, charted at LAT. 46°30'46"N, LON. 84°25'33"W, is recommended for deletion from the chart. The radio mast no longer exists. *concur*
See attached 76-40

No landmarks fall within the sheet limits for this survey, however the following were best verified as presently charted, from the area covered by this survey:

Description	Latitude(N)	Longitude(W)	Pos. Source
Ontario Airport Tank	46°29'10"72172	84°29'38"27612	NGS, 1981
Lake Ann Ra Screen	46°29'31"69	84°29'27"20	DIPFILE (<i>position taken from T-sheet # 00205</i>)

Notes to hydrographer, indicated a discrepancy between the photogrammetric position and the charted position of the listed Ra Screen. One theodolite cut was observed by the field party. This agreed with the charted position. The control tower charted at LAT. 46°29'05"59N, LON. 84°29'58"55W, (DIPFILE position) was not seen from seaward, but does exist. Location and adequacy of these landmarks will be addressed as part of survey H-10194.

The only evidence of submarine pipelines charted between Brush Point and Pt. Aux Pins, was found at position 2043, where a "Pipeline Crossing" sign was located with a detached position. These pipelines, as well as the submarine cable charted just north of the Brush Point Range line, should be retained on the chart. No bridges or overhead cables lie within the survey limits. Position 2043 location: latitude $46^{\circ}28'29.19''N$, longitude $84^{\circ}27'48.70''W$

O. STATISTICS ✓

Statistic	Launch 0519	Skiff 0812	Total
No. of Positions	*1953	*269	2222 ⁸³
Nautical Miles of Sounding Line	204	9.5	213.5
Square Naut. Miles of Hydrography	9		9
No. of Bottom Samples	59		59
PSR Item Investigations	6		6
Detached Positions	79		79

* Approximate

P. MISCELLANEOUS ✓

Throughout the period during which this survey was run, no current greater than approximately 0.5 knots was observed on the river. Virtually no current was observed in Izaak Walton, Pt. Aux Pins, and Leigh Bays. During this survey, the St. Marys Rapids were shut off due to construction of a retaining wall to divert water into the power plants. The rapids were re-opened in mid-September.

Water Levels in all five Great Lakes are running extremely high in 1985. Consequently, holding back the flow of water from Lake Superior to relieve the affect of high water on the lower lakes, was common this year. This resulted in record or near record high water levels on Lake Superior.

Bottom samples obtained on this survey were submitted to the Department of Paleobiology, Smithsonian Institution.

While running hydrography on the western limit of this survey, collected data exceeded the sheet size constraint of 76 centimeters. The over run data were rejected from survey H-10152 and transcribed in sounding volumes for H-10194. Data were split in such a way as to avoid dividing days. When this was necessary, ^{DN}JD 221 and ^{DN}JD 214, because of overlapping data, the fathogram was cut, leaving the original data as part of H-10152 and a copy of the graphic record as part of H-10194. The transcribed records were checked for accuracy.

Estimated water level heights were used on ^{DN}JD 259 and ^{DN}JD 268, to facilitate final processing of the final field sheet. These estimates were based in part on the Monthly Bulletin of Lake Levels for the Great Lakes, published by the Corps of Engineers, Detroit District.

The sublocality shown in the sounding volumes is St. Marys River, this should read Pointe Louise to Old Vessel Point. St. Marys River is the general locality.

Q. RECOMMENDATIONS ✓

Specific recommendations concerning hydrography, hydrographic features, presurvey review items, and aids to navigation are made in sections K, L, M, and N of this report.

Concerning the marsh grass areas discussed in section H. of this report, a recommendation is made to use the small area symbol, page 2, No. 17, of Chart No. 1, with blue tint, to chart these areas. This symbol is currently used in some areas around Sugar Island on Chart 14884.

R. AUTOMATED DATA PROCESSING ✓


Program	Version
RK201 Grid, Signal, and Lattice Plot	4/18/75
RK211 Range/Range Non Real Time Plot	2/02/81
RK212 Visual Station Table Load	4/01/74
RK216 Range/Azimuth Non Real Time Plot	2/09/81
RK300 Utility Computations	10/21/80
RK330 Reformat and Data Check	5/04/76
RA362 RK330 and AM602 Combined	8/20/84
AM500 Predicted Tide Generator	11/10/72
AM602 ELINORE	12/08/82

S. REFERENCE TO REPORTS ✓

The Descriptive Report for H-10141, submitted in 1984, should be reviewed in conjunction with this survey.

Both the "Horizontal Control Report, OPR-X278-HFP-85" and an "Addendum to H-10141" letter, were submitted to the Atlantic Marine Center, MOA233, for review and disposition on 27 August 1985.

Respectfully Submitted,



Brian A. Link
Officer in Charge, HFP 2

Field Water Level Note

Field water level reduction of soundings was based on unverified actual heights from the water level gage above the Corps of Engineers Locks, at Sault Ste. Marie, Michigan. This is station Southwest Pier, No. 907-6070. Data from this station were interpolated using program RK500 on the Digital PDP/8e computer. Water level records were recorded in Eastern Standard Time, while the computer output was in GMT.

Water Level Gages required to be in operation by the Project Instructions for the area covered by this survey (west of the Locks) were:

Site	Station No.	Latitude	Longitude
Southwest Pier	907-6070	46°30.0'N	84°22.4'W
Pt. Iroquois	909-9004	46°29.1'N	84°37.4'W

Levels were run at both sites, prior to collecting data for hydrography and again after data collection ceased for the field season on OPR-X278. Comparison of levels run at station Southwest Pier, showed a difference of 0.014 ft. on the ETG between the before and after levels. Comparison of levels run at station Pt. Iroquois showed a difference of 0.006 ft. on the ETG between the before and after levels.

Contact was maintained with the Corps of Engineers Southwest Pier gage observer to insure proper operation and obtain actual water level readings. Contact was made with the Pt. Iroquois gage observer to insure proper operation was maintained at that station.

The only problem encountered with either site occurred with the Southwest Pier gage on August 8, 1985, when readings between 0200 and 0700 EST were not recorded. This did not affect the survey, as operations on this day did not begin until after 0800, and then only bottom samples were taken.

Appendix II

SIGNAL LIST

OPR-X278-HFP-85

HFP-10-3-84

H-10152

101	0	46	30	01451	084	22	40733	250	0000	000000	USE W (AMC, 1984)
102	0	46	29	23660	084	25	06081	250	0000	000000	U-Bolt (AMC, 1984)
110	0	46	29	28707	084	21	30935	139	0000	000000	S.S. Marie Marie Standpipe (AMC, 1984)
111	0	46	29	15864	084	21	45742	139	0000	000000	S.S. Marie Marie Short Tank (NGS, 1981)
112	0	46	27	50696	084	28	22127	250	0000	000000	Pt. Aux Pins Light (NGS, 1981)
113	0	46	26	48739	084	29	49311	250	0000	000000	15 Ripley USLS 1893 (NGS)
114	0	46	20	00077	084	30	33671	250	0000	000000	10A USE (NGS, 1981)
115	0	46	27	44379	084	27	46657	139	0000	000000	Brush Point F Rng Lt (NGS, 1981)
116	0	46	27	49881	084	27	18996	139	0000	000000	Brush Point R Rng Lt (NGS, 1981)
117	0	46	28	03810	084	28	20440	139	0000	000000	Pt. Aux Pins F Rng Lt (NGS, 1943)
118	0	46	27	58500	084	28	30660	139	0000	000000	Pt. Aux Pins R Rng Lt (NGS, 1943)
119	0	46	28	34575	084	27	43135	250	0000	000000	Pines IBC (NGS, 1943)
120	0	46	29	10721	084	29	38276	139	0000	000000	Ontario Airport Tank (NGS, 1981)
121	0	46	30	14337	084	22	34832	139	0000	000000	Northwest Dump USLS 1895 (NGS)
122	0	46	29	53216	084	20	25936	139	0000	000000	S.S. Marie Marie Obs Tr FP (NGS, 1981)
123	0	46	32	17076	084	19	01059	139	0000	000000	S.S. Marie Marie Ontario Tank (NGS, 1981)
124	0	46	30	16123	084	21	49279	139	0000	000000	Vidal Shoals Channel Rng F Lt. (HFP 84)

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

NONFLOATING AIDS ~~ON LANDMARKS FOR CHARTS~~

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

ORIGINATING ACTIVITY

☒ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT
(Field Party, Ship or Office)

HFP 2

STATE

Michigan

LOCALITY

Great Lakes
St. Marys River

DATE

9/85

☒ 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.

X278

JOB NUMBER

SURVEY NUMBER

H-10152

DATUM

North American 1927

POSITION

LATITUDE

LONGITUDE

° /
D.M. Meters

° /
D.P. Meters

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

OFFICE

FIELD

CHARTS
AFFECTED

CHARTING
NAME

DESCRIPTION

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

Daybeacon

Brush Point Daybeacon (1985 USCGLL#
13675) Has QW Lt from 11/15 to 4/15

46 28

20.551

84 27

27.436

F-6-2-3-L
9/19/85

14884

Note: Position shown is from field
computations and is unadjusted

MC

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD	Brian A. Link, OIC HFP 2	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	Brian A. Link, OIC HFP 2	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		<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,		
<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>OFFICE</p> <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 P - Photogrammetric L - Located Vis - Visually V - Verified 1 - Triangulation 5 - Field Identified 2 - Traverse 6 - Theodolite 3 - Intersection 7 - Planetable 4 - Resection 8 - Sextant</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> </div> <div style="width: 48%;"> <p>FIELD (Cont'd)</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> </div> </div>		

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)

<input type="checkbox"/> TO BE CHARTED	REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
<input type="checkbox"/> TO BE REVISED	HFP 2	Ontario	Great Lakes St. Marys River	9/85
<input checked="" type="checkbox"/> TO BE DELETED				

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

[illegible]

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD	(Not Seen) Brian A. Link, OIC HFP 2	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED		FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		<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,

<p>OFFICE</p> <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 P - Photogrammetric L - Located Vis - Visually V - Verified 1 - Triangulation 5 - Field Identified 2 - Traverse 6 - Theodolite 3 - Intersection 7 - Planetable 4 - Resection 8 - Sextant</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>FIELD (Cont'd)</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>
--	--

IV. DANGERS: Mention those of concern to the navigator where special caution should be indicated in the Coast Pilot.

V. CURRENTS: Indicate places you have experienced conditions of current where special caution should be mentioned in the Coast Pilot.

VI. ANCHORAGES: Mention best anchorage in the area and other secure anchorages having good holding ground.

LOCATION (Include anchorage bearings and natural ranges if available)

TYPE OF BOTTOM OBSERVED:

	EXCEL	GOOD	FAIR	POOR	COMMENT	RECOMMENDED FOR VESSELS:	
HOLDING QUALITY						LENGTH	DRAFT
PROTECTION OFFERED							
ACCESSABILITY						TO FT.	TO FT.

VII. REMARKS: No changes to Coast Pilot #6, April 1985 for the area covered by survey H-10152. St. Marys River - Pointe Louise to Old Vessel Point.

VIII. OTHER COAST PILOT CHANGES

U.S. COAST PILOT			
NUMBER	EDITION	PAGE	LINE(S)

NOTE: Any chart(s) submitted with your report to show conditions will be replaced free of charge.

READ: STRIKE OUT: INSERT AFTER: (Circle one)



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY

Atlantic Marine Center
Hydrographic Field Party 2
439 West York Street
Norfolk, VA 23510

Sept. 20, 1985 N/MOA233:BAL

TO: Commander, Ninth Coast Guard District
Cleveland, Ohio

FROM: *Brian A. Link*
Brian A. Link, PIC-HFP 2

SUBJECT: Dangers to Navigation Notice for Local Notice to Mariners
Chart 14884, 33rd Ed., St. Marys River

The following Dangers to Navigation were found while conducting a basic hydrographic survey of the St. Marys River (Registry No. 10152), between Old Vessel Point and Pt. Louise:

- Shoaling to a depth less than the 28 ft. Project Depth has been found in the Pt. Aux Pins Channel, between Brush Point Lighted Buoy "17" (1985 USCGLL No. 13670) and Pt. Aux Pins Channel Buoy "14" (USCGLL No. 13660). An area of 27 ft. soundings (at Low Water Datum) was found within the channel limits, along the southerly side. This area extends from LAT. 46°28'38"N, LONG. 84°27'05"W, northeast (bearing 51° from true north) to LAT. 46°28'44"N, LONG. 84°26'54"W. This shoaling is 75m X 350m in size and bearing 48° true and 1.25 nautical miles from Pt. Aux Pins Main Light. The 27ft. soundings have been reduced to Low Water Datum using unverified actual water levels obtained from the USCOE SW Pier Water Level Gage (No. 906-6070).
- An uncharted shore protection breakwall has been constructed along the northeast shore of Pt. Aux Pins and is currently submerged with the extreme high water in the area. The breakwall lies approximately 50m offshore, and extends from LAT. 46°29'04"41N, LONG. 84°28'19"83W, southeast to LAT. 46°28'56"77N, LONG. 84°28'05"84W. The above locations are exposed 1.2 ft. at Low Water Datum, with the approximate mid-point of the wall exposed 1.7 ft. at Low Water Datum.
- An uncharted line of rocks has been located off the northwest shore of the northernmost spoil island in Izaak Walton Bay. This line of rocks extends southeast to shore from LAT. 46°27'29"67N, LONG. 84°28'11"61W. The inshore end of this rock pile lies at LAT. 46°27'27"97N, LONG. 84°28'09"33W. Rocks bare from 1 ft. at Low Water Datum to 3 ft. at Low Water Datum.

Pos # 2085 * (3)

Pos # 2087 * (2)

Pos # 2088 @ 0 (6) Islet

Appendix XI



Subject: Danger to Navigation Notice

- Pt. Aux Pins Bay, currently charted with numerous exposed piles was found to contain numerous deadheads, both floating vertically and laying on the bottom. Mariners are urged to use extreme caution when transiting this area.
- Two uncharted rocks were found in the northeast corner of Leigh Bay. They are located at LAT. 46°30'46"N, LONG. 84°24'47"W and LAT. 46°30'44"N, LONG. 84°24'44"W. These rocks bare 3.7ft. at Low Water Datum.
- A pile was found at LAT. 46°29'40"08N, LONG. 84°23'55"22W and bares 5 ft. at Low Water Datum. *Pos from 1932*

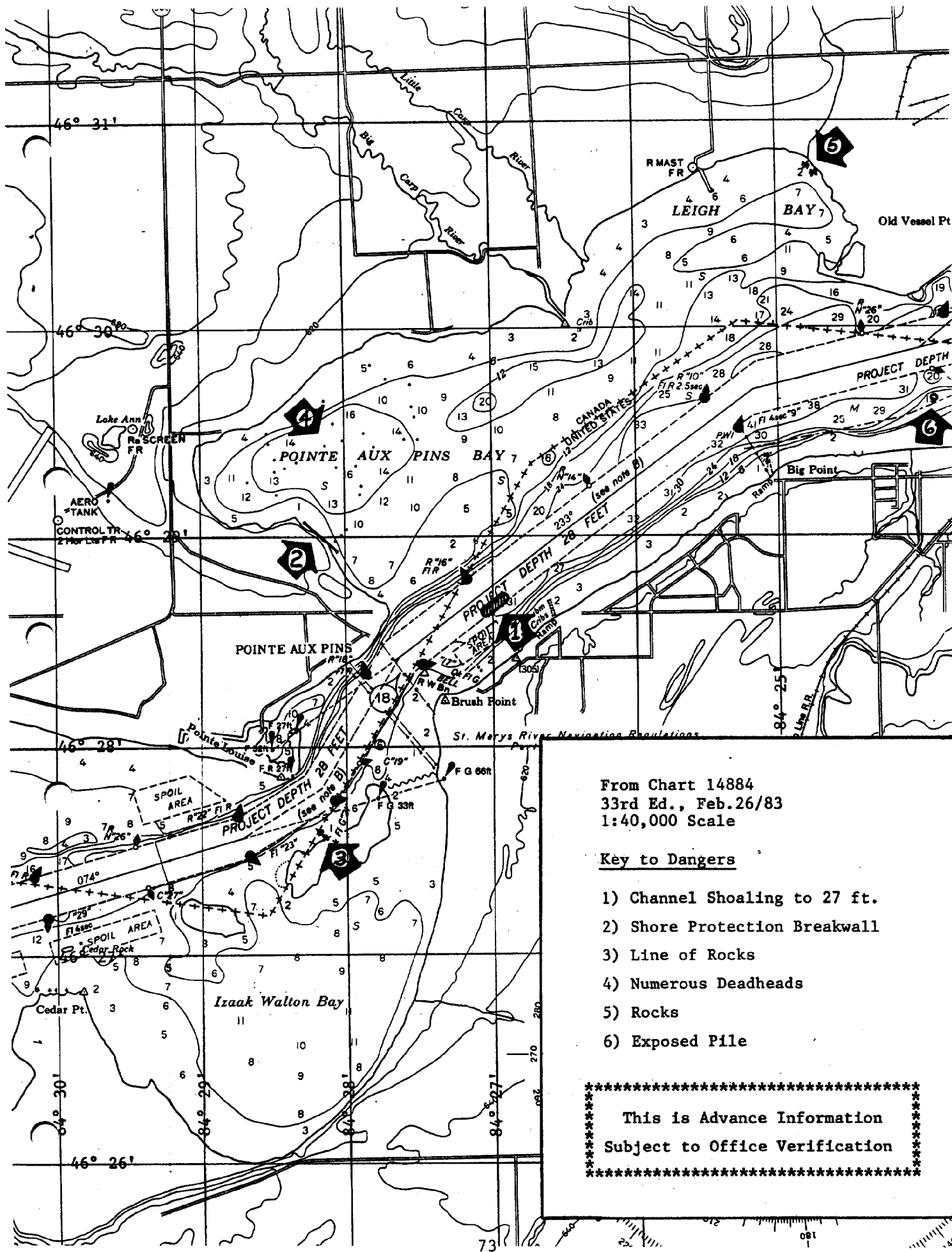
These dangers to navigation were located using range/azimuth positioning methods from Third Order, Class I geodetic control stations. Del Norte Electronic positioning system was used to obtain the distances and a Nikon NT2D 20" Theodolite for the azimuths. Depths were recorded with a Raytheon 719C Survey Fathometer or by graduated sounding pole, and were reduced to Low Water Datum using unverified actual water levels from the USCOE SW Pier Gage (Sta. No. 906-6070).

A chart section from 14884, 33rd Ed., showing the location of these dangers is attached. A section of the survey field sheet is also attached, showing the channel shoaling.

* THIS IS ADVANCE INFORMATION *
* SUBJECT TO OFFICE VERIFICATION *

Note: The information contained in this letter was delivered to QMCS Howard of the USCG Station Sault Ste. Marie, for RAPIFAX to the Local Notice to Mariners office, Cleveland, Ohio.

cc: MOA233
MOA2X1
N/CG222
USCOE



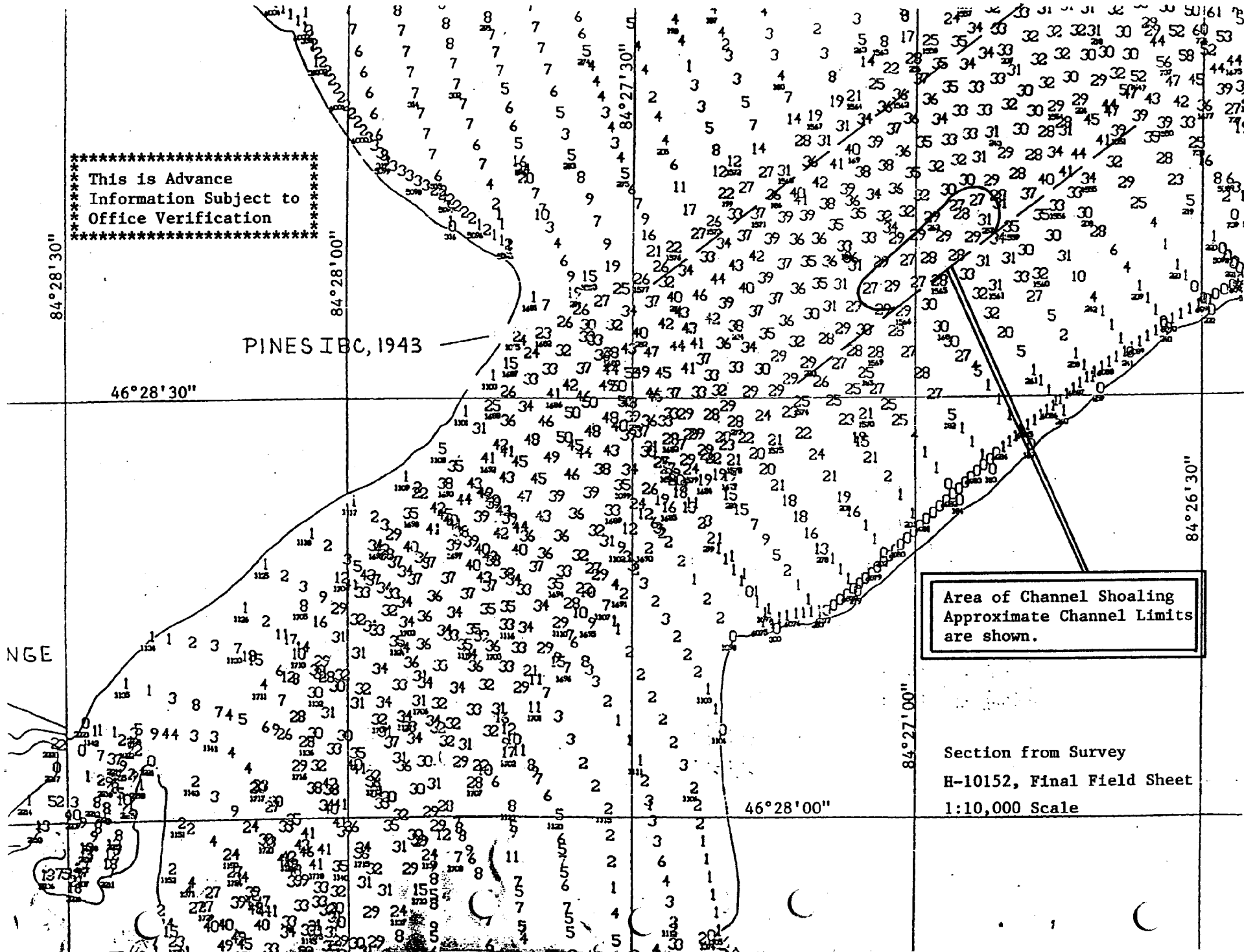
From Chart 14884
33rd Ed., Feb.26/83
1:40,000 Scale

Key to Dangers

- 1) Channel Shoaling to 27 ft.
- 2) Shore Protection Breakwall
- 3) Line of Rocks
- 4) Numerous Deadheads
- 5) Rocks
- 6) Exposed Pile

This is Advance Information
Subject to Office Verification

 ** This is Advance
 ** Information Subject to
 ** Office Verification





U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY

Atlantic Marine Center
Hydrographic Field Party 2
439 W. York St.
Norfolk, VA 23510

September 27, 1985 N/MOA233:BAL

To: Commander, Ninth Coast Guard District
Cleveland, Ohio
From: *Brian A. Link*
Brian A. Link, OIC-HFP 2
Subject: Danger to Navigation Notice for inclusion in the
Local Notice to Mariners, Chart 14884, 33rd Ed.
St. Marys River

The following uncharted shoals were found while conducting a basic hydrographic survey of the St. Marys River (Registry No. 10152), between Old Vessel Point and Pt. Louise. These were not reported in a previous letter dated September 20, 1985.

An isolated shoal, not currently charted, with a least depth of 9 feet at Low Water Datum, was found centered at LAT. 46°29'57"N, LON. 84°25'21"W. This area is currently charted with depths to 18 feet.

A 12 foot shoal was found at LAT. 46°30'08"N, LON. 84°24'51"W, and is not currently charted. This area is currently charted with depths to 24 feet. A yellow spar buoy located at LAT. 46°30'06"N, LON. 84°24'52"W, marks the shoal.

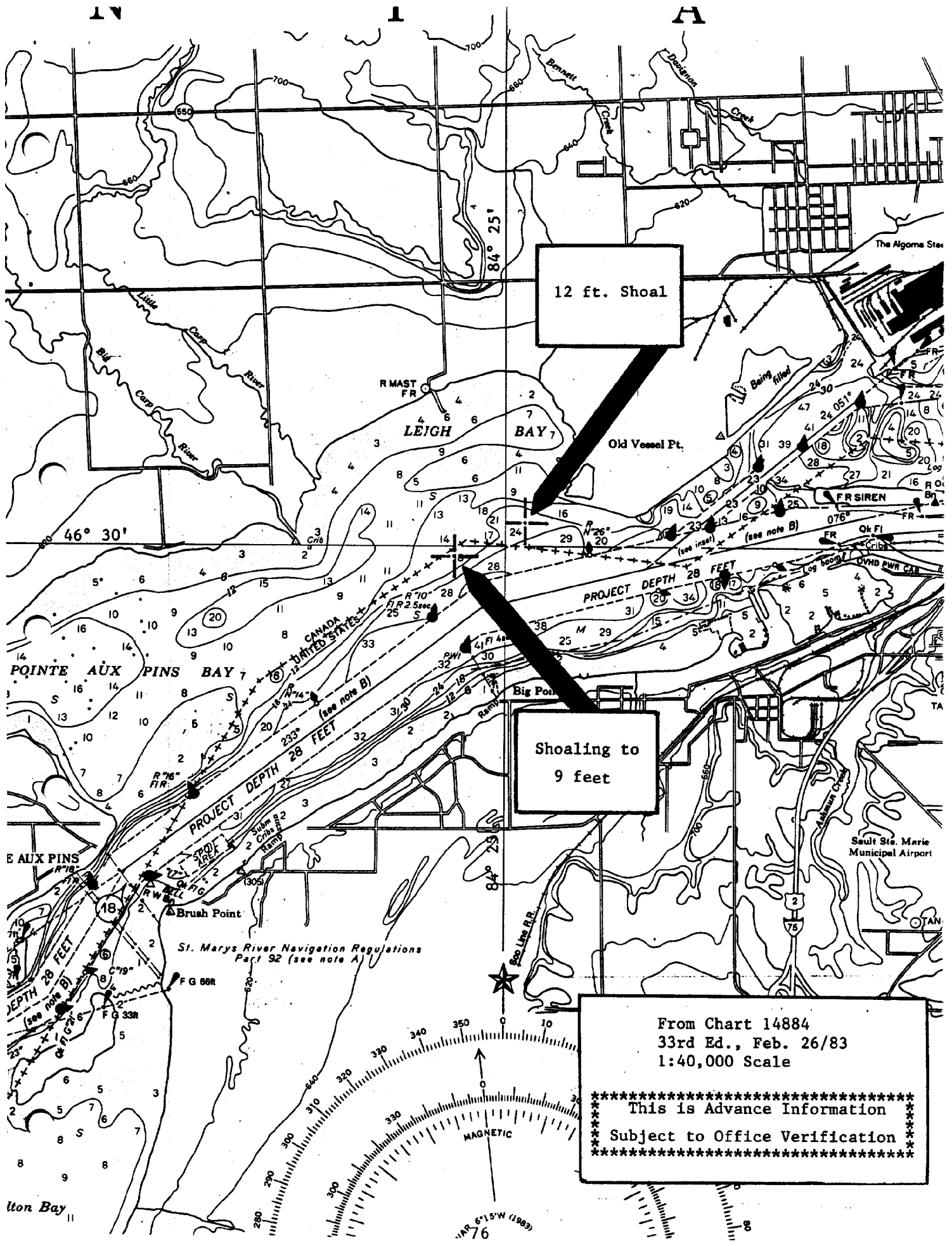
These dangers to navigation were located using range/azimuth positioning methods from Third Order, Class I geodetic control stations. Del Norte Electronic positioning system was used to obtain the distances and a Nikon NT2D 20" Theodolite for the azimuths. Depths were recorded with a Raytheon 719C Survey Fathometer, and were reduced to Low Water Datum using unverified actual water levels from the USCOE SW Pier gage (Sta. No. 906-6070).

A chart section from 14884, 33rd Ed., showing the location of these shoals is attached. A section of the survey field sheet is also attached.

* THIS IS ADVANCE INFORMATION *
* SUBJECT TO OFFICE VERIFICATION *

cc: MOA233
MOA2X1
N/CG222



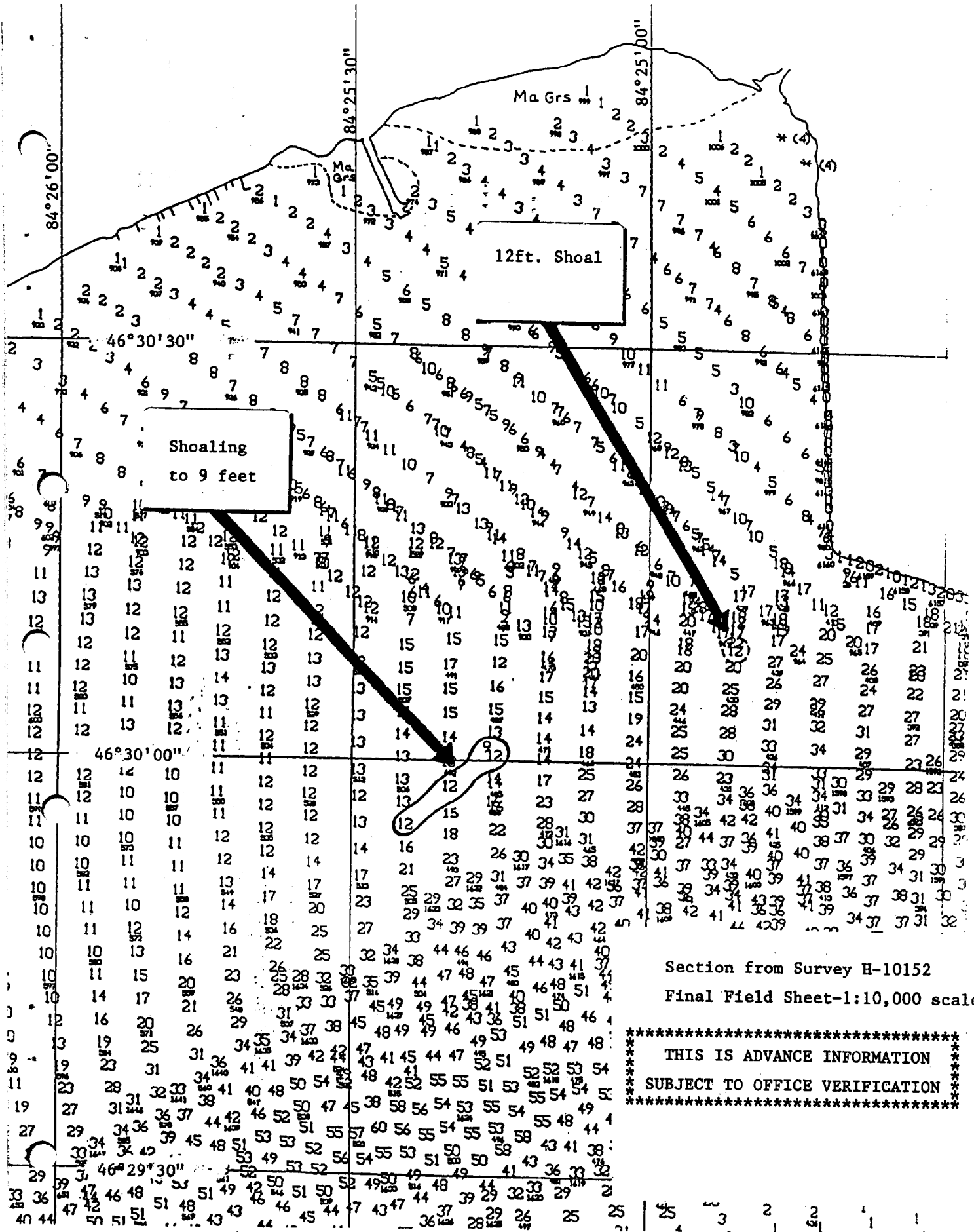


12 ft. Shoal

Shoaling to
9 feet

From Chart 14884
33rd Ed., Feb. 26/83
1:40,000 Scale

* This is Advance Information *
* Subject to Office Verification *



Section from Survey H-10152
Final Field Sheet-1:10,000 scale

THIS IS ADVANCE INFORMATION
SUBJECT TO OFFICE VERIFICATION

CHART # 14884

PRE-SURVEY REVIEW ITEM # 3467

Submerged Crib

SOURCE LS 1687/36

INVESTIGATION DATE 27 August 1985

TIME 1730 Z

VESSEL Launch 0519

OIC Brian A. Link

REFERENCE OPR-X278, H-10152

POSITION # 2026

VOLUME: 9

PAGE: 13

CORRECTORS APPLIED:

VELOCITY: YES

TRA CORRECTORS: YES

PREDICTED TIDES: NO

Unverified Actual Water Levels: YES

GEODETIC POSITION:

LATITUDE

LONGITUDE

CHARTED:

46°29'30"40N

84°25'16"20W

OBSERVED:

46°29'29"12N

84°25'15"65W

POSITION DETERMINED BY: Range(Del Norte)/Azimuth(NT2D 20" Theodolite)

METHOD OF ITEM INVESTIGATION: Local Knowledge from Mr. Larry Crumley, an employee of the Sault Ste. Marie Water Treatment Plant (phone-906-632-6512) which is located directly inshore from the item, confirmed the existence of a potable water intake at the charted location of the item.

A fathometer investigation of the area located the crib, and a detached position was taken over the least depth, after several passes over the crib. A fathometer least depth of 28.4 ft. @ LWD was found at position 2026. The crib lies in about 40 ft. of water.

CHARTING RECOMMENDATIONS: Chart PWI crib at the above observed position.

cmclur

CHART

COMPILATION USE

APPLIED AS

14884

charted crib

CEART # 14884

PRE-SURVEY REVIEW ITEM # 3468

Submerged Wreck

SOURCE Unknown

INVESTIGATION DATE 14 August 1985

TIME 1658 Z

VESSEL Launch 0519

OIC Brian A. Link

REFERENCE OPR-X278, H-10152

POSITION # 1935

VOLUME: 8

PAGE: 54

CORRECTORS APPLIED:

VELOCITY: NO

TRA CORRECTORS: NO

PREDICTED TIDES: NO

Unverified Actual Water Levels: YES

GEODETIC POSITION:

L A T I T U D E

LONGITUDE

CHARTED:

46°29'20"50N

84°25'05".00W

OBSERVED:

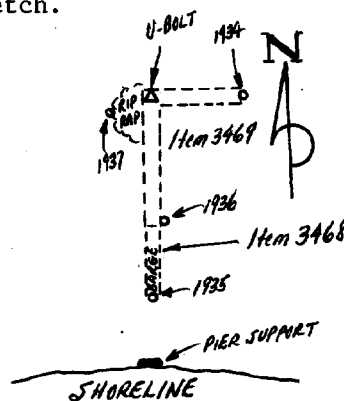
46°29'21"19N

84°25'04".43W

POSITION DETERMINED BY: Range(Del Norte)/Azimuth(NT2D 20" Theodolite)

METHOD OF ITEM INVESTIGATION: The submerged wreck referred to in Item 3468, appears to be an extension of the pier ruins from Item 3469. The inshore end of the wreck, a derelict barge, was located with a detached position at Lat. 46°29'21"19N, Long. 84°25'04"43W. The wreck bares ^{2.8}~~2.7~~ ft. @ LWD at position 1935, and lies between this position and position 1936 (from Item 3469). See sketch. The wreck lies in a north/south orientation.

U-BOLT 1934



CHARTING RECOMMENDATIONS:

Chart wreck between position 1935 and 1936 as shown in sketch.

Chart visible wreck which uncovers 3 feet at LWD

COMPILATION USE

CHART

APPLIED AS

14884 - Revised wreck to visible 1961 H-1456

PRE-SURVEY REVIEW ITEM # 3469

Obstruction (Pier)

SOURCE Unknown

INVESTIGATION DATE 14 August 1985

TIME 1653 Z

VESSEL Launch 0519

OIC Brian A. Link

REFERENCE OPR-X278, H-10152

POSITION # 1934, 1936, 1937

VOLUME: 8

PAGE: 54-55

CORRECTORS APPLIED:

VELOCITY: NO

TRA CORRECTORS: NO

PREDICTED TIDES: NO

Unverified Actual Water Levels: YES

GEODETIC POSITION:

LATITUDE

LONGITUDE

CHARTED:

46°29'24"00N

84°25'05"50W

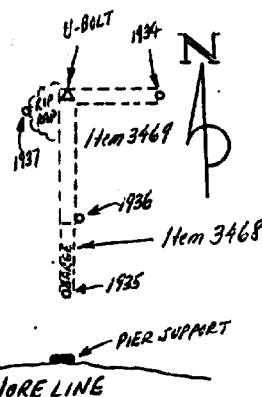
OBSERVED:

46°29'23".66N

84° 25' 06" 08W

POSITION DETERMINED BY: Range(Del Norte)/Azimuth(NT2D 20" Theodolite)

METHOD OF ITEM INVESTIGATION: The Pier Ruins were located with detached positions from station U-Bolt (signal 102), located on the offshore end and at the angle point of the L-shaped pier ruins (observed position above). Position 1934 (Lat. 46°29'23"97N, Long. 84°25'05"15W) located the eastern end of the east/west portion of the ruins. Position 1936 (Lat. 46°29'23"00N, Long. 84°25'05"18W) located the inshore end of the north/south portion of the ruins. Position 1937 (Lat. 46°29'23"30N, Long. 84°25'06"41W) located the western extreme of rip-rap fill surrounding the offshore west side of the ruins. The ruins are composed of an 8"X 12" timber framework supported by 6" diameter pilings. A barge wreck (Item 3468) lies south of position 1936, and probably served as a portion of the original pier. Nothing exists between the south end of the barge wreck and the ruins junction with shore, at which point a pier support exists. Ruins bare 4-25 ft. @ LWD at their highest point. The inshore area was visually inspected in shallow water, and nothing was seen.



CHARTING RECOMMENDATIONS:

Chart ruins as shown in sketch, at the above observed and listed positions. *chart according to smooth sheet*

CHART

COMPILATION USE

APPLIED AS

Charted ruins & wreck

CHART # 14884

PRE-SURVEY REVIEW ITEM # 3470
Pier, Submerged Crib

SOURCE LS 1687/36, RS 1941, TP 00205

INVESTIGATION DATE 13 September 1985

TIME 1625Z

VESSEL Launch 0519

OIC Brian A. Link

REFERENCE OPR-X278, H10152

POSITION # 2197

VOLUME: #9

PAGE: 61

CORRECTORS APPLIED:

VELOCITY: NO

TRA CORRECTORS: NO

PREDICTED TIDES: NO

Unverified Actual Water Levels: YES

GEODETIC POSITION:

LATITUDE

LONGITUDE

CHARTED:

46°28'39"70N

84°26'35"70W

OBSERVED:

46°28'38"02N
7.87

84°26'35"20W
15

POSITION DETERMINED BY: Range/Range(Del Norte)

METHOD OF ITEM INVESTIGATION: A chain drag with 35' of scope was used to locate this obstruction. Arcs were run at 10 meter intervals in a 100 meter radius of the charted position between the shoreline and the 12' contour. An obstruction was located at the above observed position and upon visual inspection (visibility 10') the submerged crib ruins were identified. A least depth of 0.7' LWD pole sounding was taken. Further visual inspection of the area revealed no evidence of a pier, pier ruins, or any other cribs.

CHARTING RECOMMENDATIONS: Chart ^{correct 1 ft at LWD} submerged crib at the above observed position and delete all other cribs referred to in this item. concur

CHART

COMPILATION USE

APPLIED AS

14884

chtd ~~sub~~ visible Crib.

CHART # 14884

PRE-SURVEY REVIEW ITEM # 3471

SOURCE LS 1687/36, RS 1941, RS 1954, TP 00205

INVESTIGATION DATE 13 September 1985

TIME 1710 Z

VESSEL Launch 0519

OIC Brian A. Link

REFERENCE OPR-X278, H10152

POSITION # 2200

VOLUME: #9

PAGE: 62

CORRECTORS APPLIED:

VELOCITY: NO

TRA CORRECTORS: NO

PREDICTED TIDES: NO

Unverified Actual Water Levels: YES

GEODETIC POSITION:

LATITUDE

LONGITUDE

CHARTED:

46°28'32"40 N

84°26'54"20 W

OBSERVED:

46°28'31"82 N

84°26'53"40 W

POSITION DETERMINED BY: Range/Range (Del Norte)

METHOD OF ITEM INVESTIGATION: A fathometer search at the above charted position revealed a large spike. Further visual inspection of the spike found it to be that of a submerged crib and a least depth of 3.7' @ LWD was obtained using a graduated sounding pole. A visual search of the surrounding area was conducted and no evidence of piles, pier, or pier ruins was found. Clarity of the water was excellent with visibility being approximately 10'.

CHARTING RECOMMENDATIONS: Chart ^{3 obstr (crib)} ~~submerged crib~~ and delete piles at the above observed position.

CONCUR

CHART

COMPILATION USE

APPLIED AS

14884

added sabin pile out
~~change pile to sabin and~~

CHART # 14884

PRE-SURVEY REVIEW ITEM # 3472

SOURCE LS 1687/36, TP 00205

INVESTIGATION DATE 13 September 1985

TIME 1641, 1643 Z

VESSEL Launch 0519

OIC Brian A. Link

REFERENCE OPR-X278, H10152

POSITION # 2198, 2199

VOLUME: #9

PAGE: 61, 62

CORRECTORS APPLIED:

VELOCITY: NO

TRA CORRECTORS: NO

PREDICTED TIDES: NO

Unverified Actual Water Levels: YES

GEODETIC POSITION:

LATITUDE

LONGITUDE

CHARTED:

46°28'22"10 N

84°27'06"60 W

OBSERVED:

46°28'21"74 N

84°27'05"89 W
44

POSITION DETERMINED BY: Range/Range (Del Norte)

METHOD OF ITEM INVESTIGATION: A visual inspection was made at the above charted position. Clarity of the water was excellent, approximately 10', and upon inspection of the area, the piles as well as a submerged crib were located. The piles were at the offshore end of the crib and a least depth of 2.4' @ LWD was obtained using a graduated pole. The least depth of the crib was 0.9' @ LWD using the same pole. Further visual inspection of the area revealed no other obstructions.

CHARTING RECOMMENDATIONS: Chart ~~submerged~~ ^{crib at LWD} at the above observed position. And piles (3) at latitude 46°28'21.67" N, longitude 84°27'05.89" W. COV. 3ft at LWD

COMPILATION USE

CHART

APPLIED AS

14884

applied piles & submerged

APPROVAL SHEET
SURVEY H-10152 (HFP-10-3-84)

The hydrographic records transmitted with this report are complete and adequate.

No direct supervision was given by me or the former Chief of Party, Lt. Cdr. Ronald W. Jones.

This survey is complete and adequate with no additional field work recommended.

Kenneth W. Perrin
Kenneth W. Perrin
Lt. Cdr., 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: Pacific Marine Center: N/MOP21

Hourly heights are approved for: See Remarks
Water Level Station

Period: August 13 to September 21, 1984 and July 15 to September 25, 1985

HYDROGRAPHIC SHEET: H-10152

OPR- X278-HFP-84 and 85

Locality: St. Marys River

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

Remarks:

Above the locks:

Station 907-6070 Southwest Pier, MI

Low Water Datum 599.8 feet, IGLD 1955

Harry A. Thompson
Chief, Great Lakes Acquisition Unit

GEOGRAPHIC NAMES

H-10152

Name on Survey	A ON CHART NO. 14994										B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP ATLAS	G RAND MCNALLY	H U.S. LIGHT LIST	I TP-00 TP-0
Old Vessel Point to Pointe Louise																		
Big Carp River	x	x															363	1
Big Point	x	x					x							x			363	2
Brush Point	x	x					x							x			205	3
Carpin Beach																	205	4
Cedar Point	x	x					x							x			205	5
Izaak Walton Bay (Mosquito Bay on Local Maps & Prev. Survey)	x																363	6
Lehigh Bay	x																205	7
Little Carp River	x																205	8
Old Vessel Point	x	x															363	9
Pointe Aux Pins	x	x					x							x			205	10
Pointe-Aux-Pins Bay	x	x					x										205	11
Pointe Louise	x						x							x			205	12
St. Marys River	x																363	13
																		14
																		15
																		16
																		17
																		18
																		19
																		20
																		21
																		22
																		23
																		24
																		25

HYDROGRAPHIC SURVEY STATISTICS

H-10152

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	7
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	2

DESCRIP- TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR- GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS
ACCORDION FILES	1				
ENVELOPES					
VOLUMES	2				
CAHIERS					
BOXES					

SHORELINE DATA

SHORELINE MAPS (List): TP-00205, TP-00363

PHOTOBATHYMETRIC MAPS (List):

~~NOT TO BE COMPLETED~~ Other: Copy of H-10141

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List): Chart Enlargement 14884

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			2203
POSITIONS REVISED			1985
SOUNDINGS REVISED			374
CONTROL STATIONS REVISED			0
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	66.5		66.5
VERIFICATION OF SOUNDINGS	183.5		
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	78.5		78.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS		11	11
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		20.5	20.5
GEOGRAPHIC NAMES			
OTHER: Digitizing			
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	328.5	31.5

Pre-processing Examination by

LT. John Wilder

Beginning Date

11/27/85

Ending Date

12/6/85

Verification of Field Data by

E. Domingo, T.O. Jones

Time (Hours)

328.5

Ending Date

7/8/86

Verification Check by

J. Stringham, B. Olmstead, J. Green

Time (Hours)

71.0

Ending Date

7/18/86

Evaluation and Analysis by

C.R. Davies

Time (Hours)

31.5

Ending Date

7/18/86

Inspection by

D. Hill

Time (Hours)

4

Ending Date

7/21/86

PACIFIC MARINE CENTER EVALUATION REPORT
H-10152

1. INTRODUCTION

H-10152 was accomplished by the Hydrographic Field Party Number 2 in accordance with the following project instructions:

OPR-X278-HFP-84, dated May 7, 1984
Change Number 1, dated May 25, 1984
Change Number 2, dated December 19, 1984
Change Number 3, dated May 9, 1985

This is a basic hydrographic survey of St. Marys River between Old Vessel Point, longitude 84°23'30"W and Pointe Louise, longitude 84°28'45"W. The river is characterized by a main channel running in a northeastern-southwestern direction through the center of the survey area. Numerous cultural features and undeveloped areas exist along-shore. The north side of the river is typically grassy with isolated patches visible on the surface. Elsewhere weeds are generally covered. Bottom characteristics are generally sand and clay. Sand waves with a maximum height of 5 feet were found to exist in the center of the main channel.

Field reduction of soundings to low water datum was based on unverified recorded heights from the water level gage above the Corps of Engineers locks, at Sault Ste. Marie, Michigan. Water level correctors used for the final reduction of soundings reflect approved hourly heights from water level station Southwest Pier, MI (907-6070).

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. The revised data is listed in the smooth position/sounding printout.

A digital file for this survey has been generated and includes categories of information required to comply with N/CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983. Certain descriptive information, however, may not be included in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete information.

2. CONTROL AND SHORELINE

Horizontal control and hydrographic positioning are adequately discussed in section F and G of the hydrographer's report.

Horizontal control station positions used during hydrography are either published or field values based on the North American Datum of 1927.

Applicable shoreline manuscripts are TP-00363 and TP-00205. These are registered Class III maps, and originate from photography dated June 1982.

3. HYDROGRAPHY

Soundings at line crossings are in good agreement. Hydrography within the limits of the sheet is adequate to:

- a. Delineate the bottom configuration, determine least depths, and to draw the standard depth curves.
- b. Reveal that there are no significant discrepancies or anomalies requiring further investigation.
- c. Show that the survey had been properly controlled and soundings are plotted correctly.

4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change Three, except as noted in the Preprocessing Examination Report, dated December 10, 1985.

5. JUNCTIONS

H-10152 junctions with the following surveys:

Survey	Year	Scale	Color	Area
H-10141	1984	1:5000	Red	East
H-10194	1985-86	1:10000	Brown	West

The junction with H-10141 was not formally completed because the survey was processed earlier and is not at the Pacific Marine Center; however, comparison was made with a copy of the survey and soundings and depth curves are in agreement. One rock and foul limit line were transferred from H-10141.

H-10194 (1985-86) adjoins H-10152 to the west. This survey is in the field and a junction could not be accomplished. A comparison was made with soundings from H-10194 which were plotted on the final field sheet and no discrepancies were noted. Curves will be brought into coincidence when H-10194 is processed.

6. COMPARISON WITH PRIOR SURVEYS

LS-1687 (1936) 1:20,000

The present survey soundings compare within 1 to 2 feet of the prior survey soundings in all areas except the eastern portion of Leigh Bay just west of Old Vessel Point where depths have shoaled to 3 feet as a result of slag dumping from a local steel mill. The other area where significant change has occurred is in the eastern portion of Izaak Walton Bay where spoil islands have developed.

The fixed aid to navigation, Brush Point Front Range Light, in the vicinity of latitude 46°27'41"N, longitude 84°28'15"W no longer exists. While a specific investigation was not conducted to determine the extent

of submerged remains if any, for charting purposes the existence of the light is considered disproven. Had there been concern regarding the possibility of submerged remains an appropriate obstruction symbol would have been added to the chart and a specific investigation assignment would have been made during survey planning. The present survey smooth sheet does not show an obstruction in this area; however, to insure that an error has not occurred in revising the chart it is recommended that the documentation which caused the original deletion of the aid be reviewed to insure that it provides reasonable justification for the complete removal of the aid from the chart.

All AWOIS items originate from the prior survey and are adequately discussed in attachments to the hydrographer's report. H-10152 is adequate to supersede the prior survey within the common area.

7. COMPARISON WITH CHART

Chart 14884, 33rd Edition, dated February 26, 1983; scale 1:40,000

a. Hydrography - Most charted information originates from the prior survey discussed in Section 6 of this report. Other soundings and charted features originate from miscellaneous sources. For more details see section I of the hydrographer's report.

All charted piles inside the foul limit line shown on the smooth sheet in Pointe Aux Pins Bay should be retained. All charted piles outside the foul limit line should be removed from the chart.

Geographic names appearing on the smooth sheet originate with this chart and the topographic manuscripts.

H-10152 is adequate to supersede charted hydrography within the common area.

The area covered by H-10152 was examined for dangers to navigation. Eight hazards were found by the hydrographer and reported to the Ninth Coast Guard District. No additional dangers to navigation were found during office processing.

b. Controlling Depths - The data obtained during the survey are consistent with the charted controlling depths except for several 27 foot depths in an area of 28 foot project depths between latitude 46°28'44"N, longitude 84°26'54"W and latitude 46°28'38"N, longitude 84°27'06"W.

c. Aids to Navigation - Charted aids to navigation have been located and adequately serve their intended purpose. One additional aid to navigation was located during hydrographic operations: a yellow spar buoy at latitude 46°30'06.60"N, longitude 84°24'52.51"W which apparently marks an adjacent shoal. It is recommended that this buoy be added to the chart.

8. COMPLIANCE WITH INSTRUCTIONS

H-10152 adequately complies with the project instructions noted in section 1 of this report.

9. ADDITIONAL FIELD WORK

This is an excellent basic hydrographic survey. No additional field work is recommended.

Respectfully submitted,

Charles R. Davis

Cartographer

This survey has been examined and it meets Charting and Geodetic Services standards and requirements for use in nautical charting. The survey is recommended for approval.

Dennis Hill

Dennis Hill
Chief, Hydrographic Section

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10152

I have reviewed the smooth sheet, accompanying data, and reports of this hydrographic survey. Except as noted in the Evaluation Report, the hydrographic survey meets or exceeds Charting and Geodetic Services (C&GS) standards, complies with instructions, and is accurately and completely represented by the smooth sheet and digital data file for use in nautical charting.

Dennis Hill
For Chief, Nautical Chart Branch (Date)

CLEARANCE:

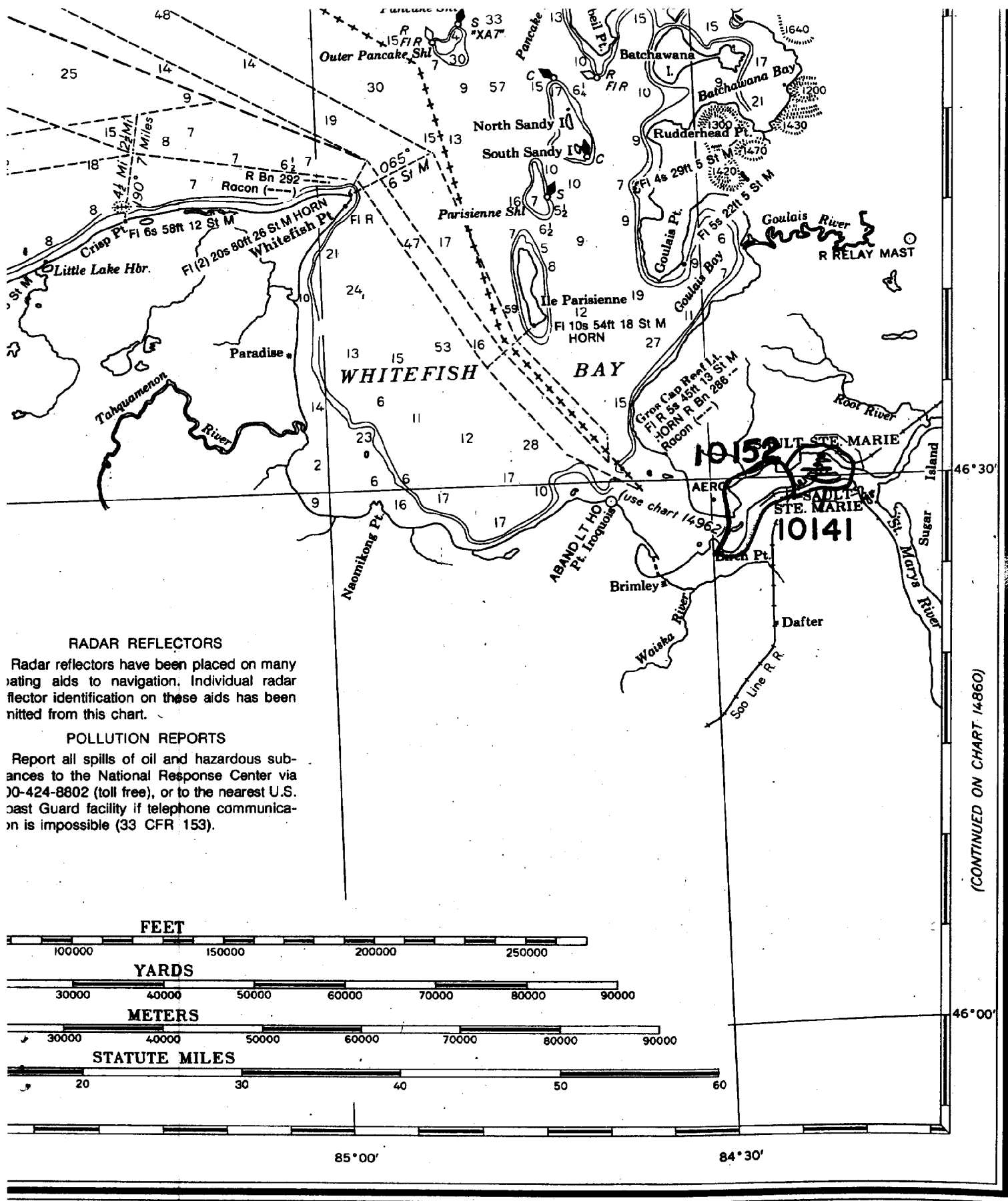
N/MOP2:LWMordock

SIGNATURE AND DATE:

L. W. Mordock

After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards with only the exceptions as noted above. The above recommendations are forwarded with my concurrence.

Robert L. Sargent 7-25-86
Director, Pacific Marine Center (Date)



(Lake Superior)

SOUNDINGS IN FEET & FATHOMS - SCALE 1:600,000

LS-9

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10152

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.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED