9703

9703

Diag. Cht. No. LS-7

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. HSB-10-3-77

Office No. H-9703

LOCALITY

State .... Wisconsin

General Locality .... Lake Michigan

Locality .... Approaches to Milwaukee Harbor Entrances

1977

CHIEF OF PARTY
William R. Daniels

LIBRARY & ARCHIVES

DATE .... January 19,1979

Area 7
Chts
14924
14904
14901
14900

☆U.S. GOV. PRINTING OFFICE: 1976—669-441

NOAA FORM 77-28 (11-72) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTER NO.
HYDROGRAPHIC TITLE SHEET	H-9703
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. HSB-10-3-77

State Wisconsin

General locality ~~Milwaukee~~ Lake Michigan

Locality ~~Entrance~~ Approaches to Milwaukee Harbor Entrances

Scale 1:10,000 Date of survey Jul 8, 1977 - Aug 30, 1977

Instructions dated Feb 2, 1977* Project No. OPR-301-HFP-77

Vessel Launch 1282 and Launch 1280

Chief of party LCDR WILLIAM R. DANIELS

Surveyed by LT. K. W. Perrin, JMR, BAL, JB, ETH, SKP, RD

Soundings taken by echo sounder, XXXXXXX, pole Echo sounder and pole

Graphic record scaled by KUP, JMR, BAL, ETH, JB. SKP, GS, RD, TDK

Graphic record checked by KUP, JMR, BAL, ETH, JB, SKP, GS, RD, TDK

Protracted by Field Sheet - K. Perrin - JMR Automated plot by AMC CalComp 618

Verification by AMC Verification Branch

Soundings in XXXXXX feet at XXX XXXX ~~International Great Lakes Datum~~ LWD (IGLD 1955: 576.8 ft.)

REMARKS: Time Merdian is 0°

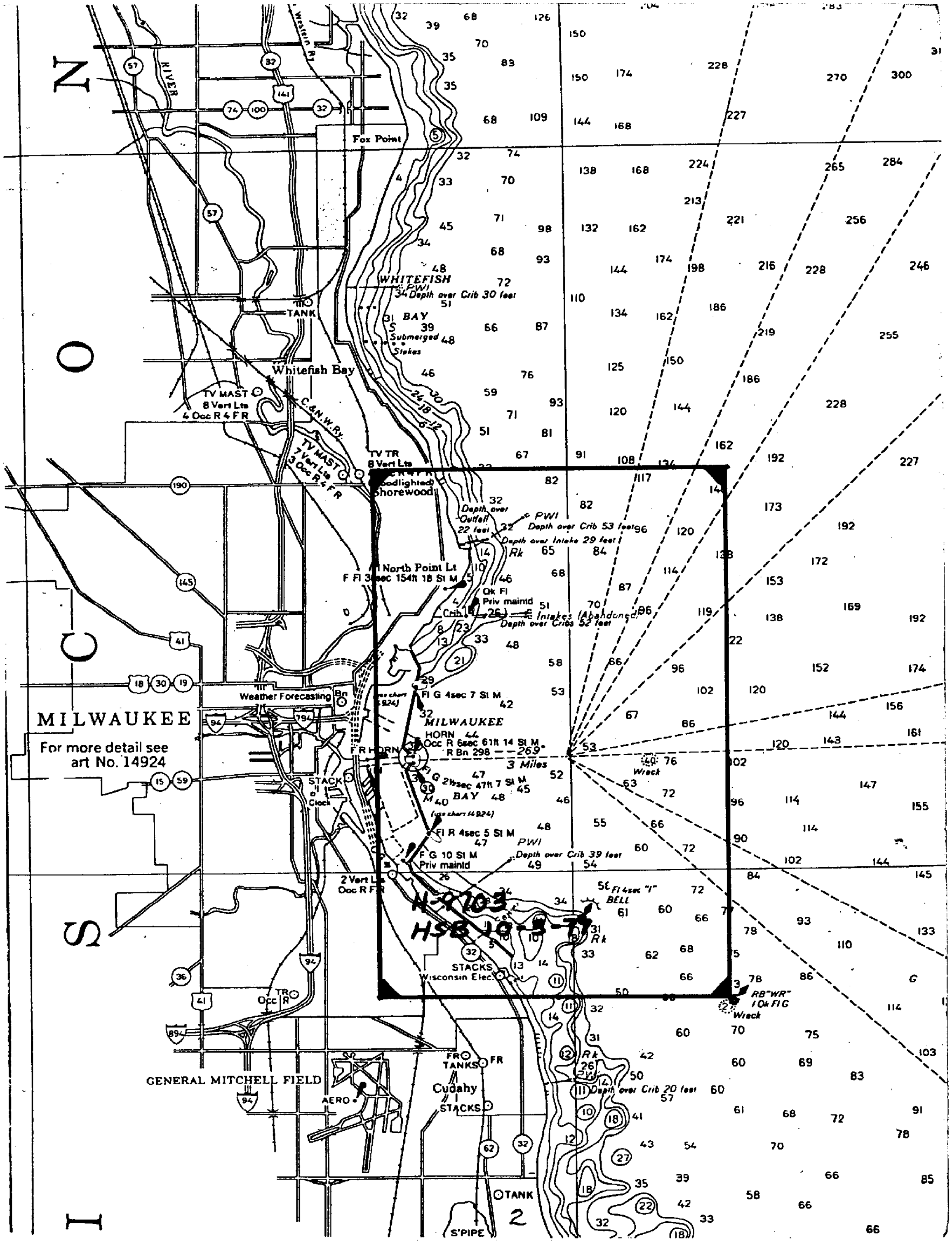
*Changes to Project Instructions. Change No. 1 dated March 14, 1977 and Change No. 3 dated May 2, 1977 and Change No. 4 dated August 22, 1977.

All notes in red by verifier

"Misc. data filed with field records."

Appd. to standards
WJT - 5-14-79

☆ U.S. G.P.O. 1972-769-565/519 REG.#6



N
O
C
S
I
Fox Point
WHITEFISH
BAY
Depth over Crib 30 feet
Submerged Stakes
Whitefish Bay
TV MAST
8 Vert Lts
4 Occ R 4 F R
C.&N.W.Ry.
TV MAST
7 Vert Lts
3 Occ R 4 F R
TV TR
8 Vert Lts
Shorewood
Depth over Outfall 22 feet
PWI
Depth over Crib 53 feet
Depth over Intake 29 feet
Rk
North Point Lt
F Fl 30sec 154ft 18 St M
Qk Fl
Priv maintd
Crib
Intakes (Abandoned)
Depth over Cribs 52 feet
Weather Forecasting
MILWAUKEE
For more detail see
art No. 14924
Fl G 4sec 7 St M
MILWAUKEE
HORN
Occ R 6sec 61ft 14 St M
R Bn 298
3 Miles
Wreck
F R HORN
STACK
Clock
BAY
Fl R 4sec 5 St M
PWI
Depth over Crib 39 feet
F G 10 St M
Priv maintd
2 Vert Lts
Occ R F R
Fl 4sec "1"
BELL
H-9703
HSB 10-3-7
Rk
STACKS
Wisconsin Elec
RB "WR"
I Qk Fl G
Wreck
TANKS
Cudahy
STACKS
GENERAL MITCHELL FIELD
AERO
Depth over Crib 20 feet
TANK
S'PIPE

DESCRIPTIVE REPORT
To Accompany
Hydrographic Survey H-9703
Field No. HSB-10-3-77

HFP Launches 1282 and 1280 1977 Scale: 1:10,000
Kenneth W. Perrin, Lt., NOAA, OIC William Daniels, Chief of Party

A. PROJECT

This survey is a part of Project OPR-301-HFP-77, entrance to Milwaukee Harbor, Wisconsin done in accordance with project instructions dated 2 Feb, 1977 and Change No. 1 dated 4 March, 1977, Change No. 3 dated 2 May, 1977, and Change No. 4 dated 22 Aug., 1977.

B. AREA SURVEYED

This survey covers the area of Milwaukee Harbor entrance from the breakwater east to the limits of the Chart 14924.

This area of the survey is enclosed by approximate limits:

Latitude N	Longitude W
42°58'35"	87°53'15"
43°04'40"	87°50'20"

The survey was conducted from July 8, 1977 through August 30, 1977.

C. SOUNDING VESSEL

Launch 1282 and 1280 were the sounding vessels used to accomplish all hydrography. Launch 1282 was used from July 8, 1977 (J.D. 189) through July 27, 1977 (J.D. 208). Launch 1280 was used August 30, 1977 (J.D. 242).

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

All soundings were recorded to the nearest two tenths of a foot. For depths less than 2.0 feet or when the echo sounder had an unreadable trace, pole soundings were taken. For depths greater than 2.0 feet, echo sounders were used to obtain soundings.

The echo sounder in Launch 1282 was a Raytheon DE-719B, Serial #5799 from July 8, 1977 through July 27, 1977. The echo sounder used in Launch 1280 was a Raytheon DE-719B, Serial #5441 on Aug. 30, 1977.

The graphic records were scanned and checked scanned by trained personnel in accordance with the requirements specified in the Provisional Hydrographic Manual.

Bar checks were taken daily on days that hydrography was actually run when possible to ensure an accurate echo sounder correction to depth. Bar check cables were measured before, during and after this survey. A cable correction is to be applied to JD 194-196. See bar check Abstract #1.

The echo sounder initial was checked and kept at zero. The calibration line was checked and kept at 60 cycles per second. The draft/tide adjustment was checked and kept at zero.

E. HYDROGRAPHIC SHEETS

This survey consists of a 1:10,000 scale boat sheet and one 1:10,000 overlay. All soundings and buoys were plotted on one sheet. All bottom samples and developments were plotted on the overlay. Field sheets were prepared by AMC-Cal Comp 618. Limits are:

Latitude N	Longitude W
42°58'00"	87°54'00"
43°05'00"	87°50'00"

All records and boat sheets will be sent to Processing Division at the Atlantic Marine Center, Norfolk, Virginia for verification and smooth plotting.

F. CONTROL STATIONS

All triangulation stations for Del Norte were of third order or better. Stations were recovered and verified by Launch 1282, 1280 and revisory. A list of geographic positions are included. See Signal List.

G. HYDROGRAPHIC POSITION CONTROL

The survey was done by either range-azimuth method, one Del Norte distance and one intersecting azimuth angle; or by range-range, two intersecting Del Norte distances. "See Boat Sheet" methods were used when line of sight prevented use of theodolite for obtaining the azimuth angle. Position data was scaled for all "SBS" fixes.

Del Norte serial #189 was used on the shore station from July 8, and July 13 through July 16, 1977. Del Norte serial #927 was used on the shore station from July 12 through July 27, 1977. Del Norte serial #250 was used on Launch 1282 during the same time period.

Del Norte serial #927 was used on the shore station from August 8, 1977 through August 30, 1977 and Del Norte serial #250 was used on Launch 1280 from August 8, 1977 through August 30, 1977.

The Del Norte was calibrated twice daily to ensure its accuracy; once in the morning and once in the evening. Calibration of Del Norte was made over a measured baseline to enable two calibrations every day.

The azimuth angle was obtained with the use of a theodolite Wild T2-12121. The instrument was checked frequently to ensure its accuracy.

H. SHORELINE See Verifier's Report

Shoreline details were taken from the following T-sheet: TP-00266. The sheet was at the scale of 1:10,000.

I. CROSSLINES

The percentage of crosslines run was 10.6% of the regular system of sounding lines. The agreement between crosslines and the sounding lines were very good with differences not varying more than one foot. Any large discrepancies can be accredited to the jagged bottom profile on the outer limits.

J. JUNCTIONS See Verifier's Report

This survey H-9703, HSB-10-3-77 has no junctions with any prior surveys. The project area does junction with contemporary survey H-9702, HSB-5-6-77. The junction soundings are in good agreement with differences not more than one foot.

K. COMPARISON WITH PRIOR SURVEYS See Verifier's Report

No prior surveys were provided for comparison.

L. COMPARISON WITH CHART See Verifier's Report

The survey H-9703, HSB-10-3-77 was compared with NOS Chart 14924 (LS 743) 21st Edition, July 12, 1975.

In a comparison with the chart depths, the soundings from this survey were in general, deeper. The soundings from this survey did not agree very well in the deeper areas. Depths varied from one foot to as much as ten feet. This can probably be accounted to the very jagged bottom profile in the deeper areas.

Due to the jagged bottom profile as many as 11 very extensive developments were run at 10 meter spacing in order to determine the shoalest depth. In addition, there were a large number of 25 meter developments run to delineate the bottom contours.

The bottom contours have moved in closer to the shore as compared to the chart.

The shoreline on the northern end of this survey area has changed considerably. Refer to T-sheet TP-00266, the latest aerial photography of the area.

There were no buoys charted on the chart in the survey area. There were three private maintained buoys located in the area. Their locations are as follows:

Identification	Latitude N.	Longitude W.
"W"	~~43°00.05'~~ 42°59.98'	87°51.~~93'~~ 96'
"SW"	42°59.35'	87°51.50'
"X"	42°59.91'	87°50.69'

These buoys are seasonal markers.

There were two sets of private maintained swim limit buoys which are also seasonal. Their locations are as follows:

Latitude N	Longitude W
43°03.27'	87°52.80'
43°03.14'	87°52.92'
43°03.73'	87°52.33'
43°03.56'	87°52.47'

M. ADEQUACY OF SURVEY

This survey H-9703, HSB-10-3-77 is complete and adequate and should supersede all prior surveys.

N. AIDS TO NAVIGATION

All floating and non-floating aids to navigation were located to verify their charted positions. All buoys and markers adequately serve the purpose for which they were established.

O. STATISTICS

	Launch 1282	Launch 1280	Total
Miles sounding line	182.7		182.7
Miles Development sounding lines		123.1	123.1
Miles Crosslines	18.0		18.0

Percent crosslines	10.6%		10.6%
Total Area of boat sheet			8.5 SNM
Total number of positions	1657	1391	3048
Number of water level gages			1
Number of bottom samples	73		73

Launch 1282	Pos #001 thru 1657	July 8, 1977 thru July 27, 1977
Launch 1280	Pos #2001 thru 3391	Aug. 8, 1977 thru Aug. 30, 1977

P. MISCELLANEOUS

On the northern limit of the chart at the location of approximately 43°04'10"N, 87°51'55"W, there is a gun club which has a gun range that is directed out towards Lake Michigan. There is no indication on the chart and no limits designating the limits of the gun range north and south along the shoreline or out into the water. A copy of a city engineers drawings was - Not included with records. obtained that shows the location of the gun club and range. The range extends out into the water 500 yards and is 200 yards wide north to south along the shorelines. The location and limits of this gun club and range should be charted on the chart and a designation indicating "DANGER ZONE" be placed on the chart. The gun club and range have been plotted on the overlay to show the approximate location and limits. See "attached city engineer's drawing" (not included) and boat sheet overlay.

At this time, there are no buoys marking the gun range limits in the water. The Corps of Engineers and the Gun Club are in the process of seeing about having buoys put in to mark the limits.

The U. S. Coast Guard and NOAA Headquarters have been notified ✓ of this situation.

Q. RECOMMENDATIONS

It is recommended that the Gun Club and range limits be charted on the next edition of the chart. Ref. C/L 941 (1978)

R. AUTOMATED DATA PROCESSING

The raw data from this survey was put on paper tape in a logger format. All the data was put on paper tape by party personnel while out in the field. All data will be forwarded to the Atlantic Marine Center where the data will be verified and smooth plotted.

S. REFERENCES TO REPORTS

Electronic Control Report, OPR-301-HFP-1977.

Respectfully Submitted
Kenneth W. Perrin
Kenneth W. Perrin
Lt., NOAA
OIC, Launch 1282/1280

FIELD WATER LEVEL NOTE

Field reduction of soundings was done by using data from a Stevens ADR Water Level Gage located as follows:

908-7057 Milwaukee Lat. 43°00.12'N, Long. 87°53.25'W

All soundings were reduced to the International Great Lakes Datum before plotting.

The average of hourly heights was taken for each day and applied before plotting.

No zoning is required.

Velocity Tables

H-9703 (HSB-10-3-77)

ØØØØ85	Ø	ØØØØ	ØØØ1	ØØØ	1282ØØ	ØØ97Ø3
ØØØ29Ø	Ø	ØØØ2				
ØØØ334	Ø	ØØØ4				
ØØØ4Ø6	Ø	ØØØ2				
ØØØ5ØØ	Ø	ØØØØ				
999999	1	ØØØ2				
ØØØØ81	Ø	ØØØØ	ØØØ2	ØØØ	1282ØØ	ØØ97Ø3
ØØØ127	Ø	ØØØ2				
ØØØ177	Ø	ØØØØ				
ØØØ2Ø6	1	ØØØ2				
ØØØ345	1	ØØØ4				
999999	1	ØØØ6				
ØØØ2Ø1	Ø	ØØØØ	ØØØ3	ØØØ	128ØØØ	ØØ97Ø3
999999	1	ØØØ2				
ØØØØ55	Ø	ØØØØ	ØØØ4	ØØØ	128ØØØ	ØØ97Ø3
ØØØ295	Ø	ØØØ2				
ØØØ346	Ø	ØØØØ				
ØØØ42Ø	Ø	ØØØ2				
999999	Ø	ØØØ4				
ØØØØ3Ø	Ø	ØØØØ	ØØØ5	ØØØ	128ØØØ	ØØ97Ø3
ØØØØ82	Ø	ØØØ2				
ØØØ155	Ø	ØØØ4				
ØØØ29Ø	Ø	ØØØ6				
ØØØ35Ø	Ø	ØØØ4				
999999	Ø	ØØØ2				

~~(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)~~

CORRECTIONS IN FEET [redacted]

Velocity Table #1

Fath. #5799

NOAA FORM 75-21 (10-72) U.S. DEPARTMENT OF COMMERCE NOAA NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship HSB - Reursery - Launch 1282

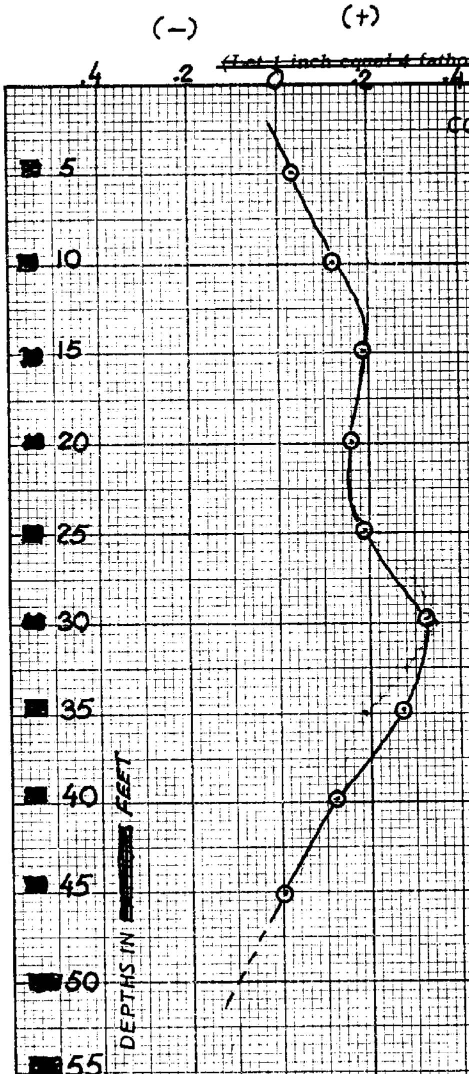
LCDR. William R. Daniels Comdg.

These corrections are to be used

between 8 July 1977 and 27 July 1977

in the locality Milwaukee Harbor and Entrance

for hydrographic surveys Nos. H-9702 & H-9703



see table #2

(For deep water add a 0 to these figures)

Depth	Corr.
0.0 - 8.5	0.0
29.0	0.2
33.4	0.4
40.6	0.2
50.0	0.0
999999	-0.2

Drawn & Tab RL

✓ JMR

NOAA 59-11

Bar check Abstract
H-9702 (HSB-05-6-77)
H-9703 (HSB-10-4-77)

Velocity Table #1

Launch 1282
Fath. #5799

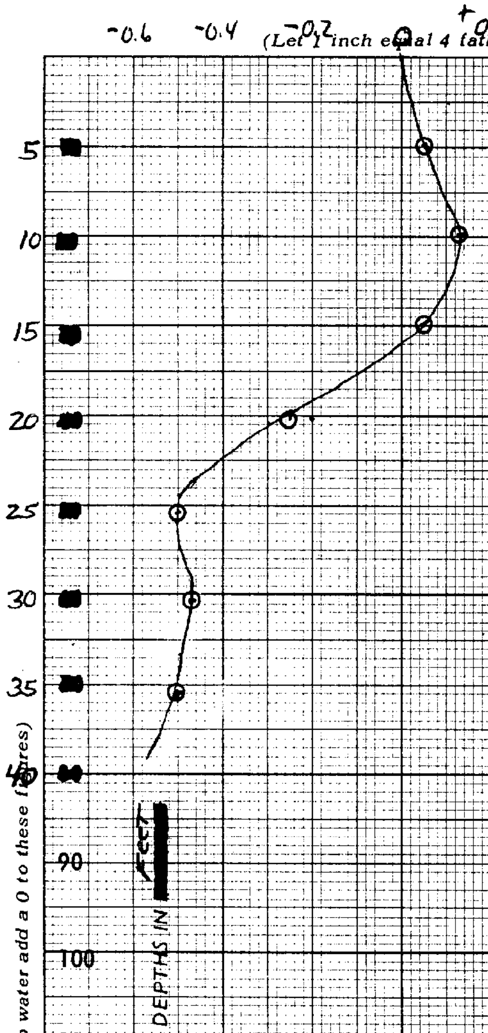
V.D.	5	10	15	20	25	30	35	40	45
189	0.9	0.9	0.9	0.9	1.0				
	0.8	1.0	1.0	0.9	1.0				
	0.8	0.9	0.9	0.9	0.8	~~0.9~~	0.9	0.8	
	0.9	0.9	1.0	0.9	0.9	~~0.9~~	0.9	0.8	
193	0.8	0.9	0.9	1.1	~~1.2~~	1.3			
	0.8	0.9	1.0	1.1	1.1	1.2			
Line corr to be applied to J.D. 194-196	0.0	0.0	0.1	0.2	0.2	0.3	0.2	0.2	0.3
194	0.8	0.8	0.8 (0.9)	0.7 (0.9)	0.7 (0.9)	0.8 (1.1)	0.8 (1.0)		
	0.8	0.8	0.8 (0.9)	0.8 (1.0)	0.8 (1.0)	0.9 (1.2)	0.9 (1.1)		
195	0.8	0.8	0.9 (1.0)	0.8 (1.0)	0.8 (1.0)	0.8 (1.1)			
	0.8	0.9	0.8 (0.9)	0.7 (0.9)	0.7 (0.9)	0.8 (1.1)			
196	0.8	0.8	0.8 (0.9)	0.7 (0.9)	0.6 (0.8)	0.8 (1.1)	0.8 (1.0)	0.8 (1.0)	0.5 (0.8)
	0.8	0.8	0.8 (0.9)	0.7 (0.9)	0.6 (0.8)	0.7 (1.0)	0.7 (0.9)	0.7 (0.9)	0.5 (0.8)
199	0.8	1.1	1.1	1.1	1.1				
	0.8	1.1	1.1	1.1	1.1				
204	0.8	1.0	1.1	1.0	~~1.2~~	~~1.4~~			
	0.9	1.1	1.1	1.0	~~1.2~~	1.3			
207	0.8	0.9	1.0	0.9	1.0	1.2	~~1.4~~		
	1.0	1.0	~~1.2~~	1.0	1.0	1.2	~~1.4~~		
208	0.8	0.8	1.1	0.9	0.9	1.1	1.1	1.0	
	0.9	1.0	0.9	0.8	0.9	~~0.9~~	1.0	1.0	
Avg. Corr	0.83	0.92	~~0.99~~ 1.00	0.96	0.99	1.12 5	~~1.07~~ .99	0.92	0.8
Draft Corr	-.80	-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.8
Corr to be applied	.03	.12	.19	.16	.19	.32	.27 .19	.12	0.0

Tab KWP
✓ RL

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, [redacted]

Velocity Table #2
Fathometer #5799



NOAA FORM 76-21 (10-72)

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship HSB- REVISORY - LAUNCH 1282

LCDR William R. Daniels Comdg.

These corrections are to be used

between July 19 1977 and 20 1977

in the locality Milwaukee, Wisconsin

for hydrographic surveys Nos. H- 9703

DEPTH (ft)	CORR
8.1	0.0
12.7	0.2
17.7	0.0
20.6	-0.2
34.5	-0.4
99999	-0.6

130
140
150
160
170
180
190

NOTE: No explanation can be given for the difference between tables 1 & 2. Fath. 5799

Drawn & Tab KWP
✓ JMR

46 40

NOAA 59-11

☆ U.S. GPO: 1976--665-661/1267 Region 6

Bar Check Abstract

OPR-301-HFP-77

Launch 1282

Fathometer S799

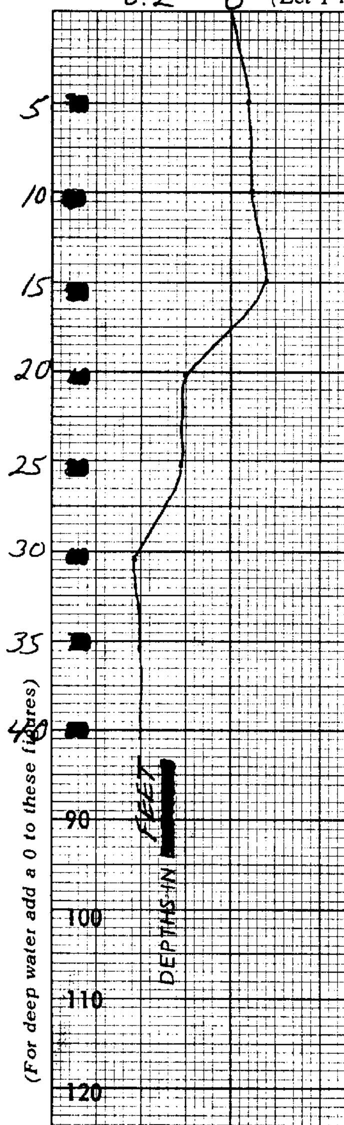
Velocity Table #2

Bar Check Depth Correction HSB-10-3-77

J.D.	5	10	15	20	25	30	35
200	0.8	0.9	0.8	0.5	0.3	0.4	0.4
	0.8	1.0	0.8	0.6	0.2	0.2	0.2
201	0.8	0.9	1.0	0.5	0.5	0.4	0.3
	1.0	0.9	0.8	0.6	0.2	0.3	0.3
Aver. Corr	0.85	0.93	0.85	0.55	0.30	0.33	0.30
Draft Corr.	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
Corrections to be applied	0.05	0.13	0.05	-0.25	-0.50	-0.47	-0.50 ✓
	✓	✓	✓	✓	✓	✓	✓

✓ KWP

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)



LAUNCH 1280

Velocity Table #3 Fathometer 541

NOAA FORM 76-211 (10-72) U.S. DEPARTMENT OF COMMERCE NOAA NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship HYDROGRAPHIC SURVEYS BRANCH - Rockson

LCDR WILLIAM R. DANIEL Comdg.

These corrections are to be used

between AUG 11 1977 and AUG 15 1977

in the locality ENTRANCE TO MILWAUKEE HARBOR, WISCONSIN

for hydrographic surveys Nos. H 9703

DEPTH TO	CORR
20.1	00
999999	-0.2

Drawn & Tab. KWP

✓ JMR

☆ U.S. GPO: 1976--665-661/1267 Region 6

BAR CHECK ABSTRACT
LAUNCH 1280
Fathometer 5441

H-9703
HSB-10-3 -77

Velocity Table #3 BAR CHECK DEPTH CORRECTION

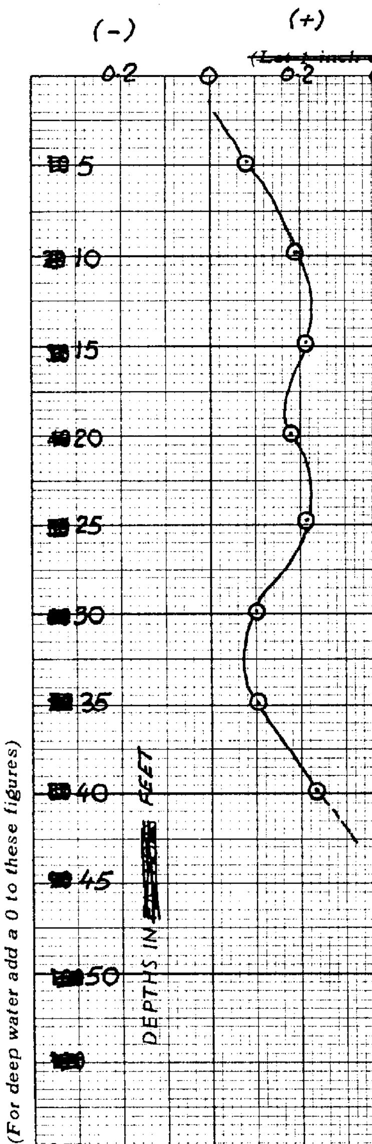
J.D	5	10	15	20	25	30	35		
213	1.0	1.0	1.1	0.8	0.9	0.8			
	0.9	1.0	1.0	0.8	0.8	0.6			
223	1.0	1.0	1.0	0.8	0.7	0.6	0.6		
	1.0	1.0	1.0	0.8	0.7	0.6	0.8		
224	1.0	0.8	0.8	0.7	0.7	0.7	0.7		
	0.9	0.9	0.9	0.8	0.8	0.7	0.7		
227	0.8	0.9	1.0	0.9	0.8	0.8	0.7		
	0.9	1.0	1.0	0.8	0.8	0.7	0.7		
Aver Corr	0.94	0.95	0.98	0.80	0.79	0.69	0.70		
Draft Corr	-0.90	-0.90	-0.90	-0.90	-0.90	-0.90	-0.90		
Corr to be Applied	0.04	0.05	0.08	-0.10	-0.11	-0.21	-0.20		
	✓	✓	✓	✓	✓	✓	✓		

✓KWP

4 18 ✓

Launch 1280

Velocity Table #4 Fath. 5441



NOAA FORM 75-21 (10-72)

U.S. DEPARTMENT OF COMMERCE NOAA NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship Hydrographic Surveys Branch - Reassory

LCDR W. R. Daniels Comdg.

These corrections are to be used

between 17 Aug. 19 77 and 30 Aug. 19 77

in the locality Milwaukee Harbor + Entrance

for hydrographic surveys Nos. H-9703

Depth ft.	corr. ft.
0.0 - 5.5	0.0
29.5	0.2
34.6	0.0
42.0	0.2
999999	0.4

Drawn + Tab. KWP

✓ RL

46 · 10

K+E 20 X 20 TO THE INCH • 7 X 10 INCHES KEUFFEL & ESSER CO. MADE IN

NOAA 59-11

☆ U.S. GPO: 1976--665-661/1267 Region 6

BAR CHECK ABSTRACT
LAUNCH 1280
Fathometer 5441

H-9703
MSB-10-3-77

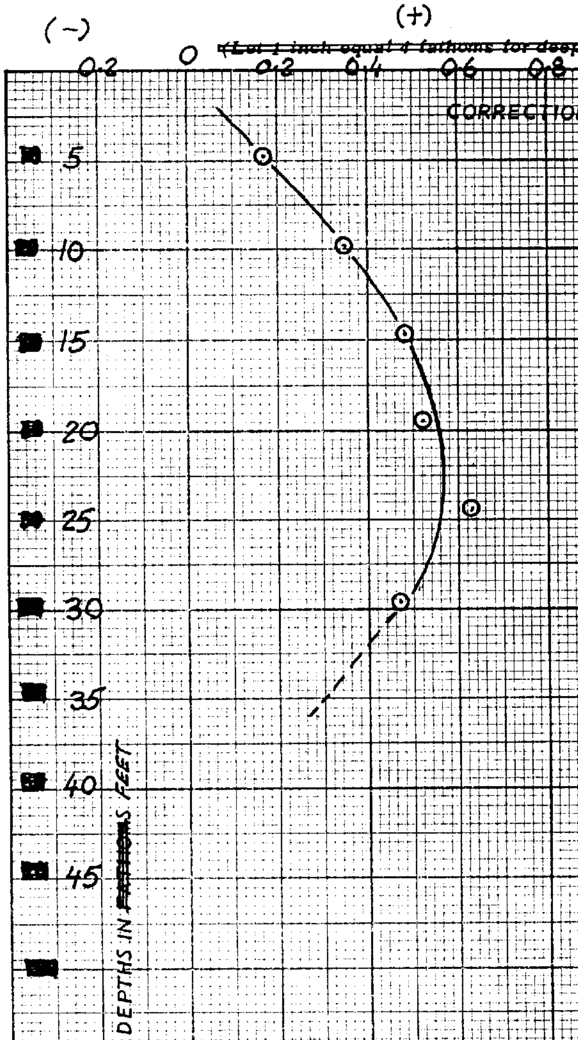
Velocity Table #[redacted]4 BAR CHECK DEPTH CORRECTION

J.D.	5	10	15	20	25	30	35	40
217	1.0	1.1	1.1	1.1	1.2	1.0	1.1	1.2
	0.9	1.2	1.2	1.2	1.2	1.1	1.1	1.2
230	1.1	1.1	1.2	1.2	1.0	0.8	0.8	
	1.0	1.2	1.1	1.0	1.0	0.8	0.8	
234	1.0	1.1	1.2	1.1	1.1	1.1		
	0.9	1.0	1.1	1.0	1.1	1.1		
235	1.0	1.2	1.0	1.0	1.0	0.9	1.0	
	1.0	1.0	1.2	1.3	1.2	0.9	0.9	
242	1.0	1.1	1.0	1.0	1.3	1.2	1.1	1.1
	0.9	0.9	1.0	0.9	1.0	1.1	1.2	1.0
Avg Corr	0.98	1.09	1.11	1.08	1.11	1.00	1.00	1.13
Draft Corr	-0.90	-0.90	-0.90	-0.90	-0.90	-0.90	-0.90	-0.90
Corr to be Applied	0.08	0.19	0.21	0.18	0.21	0.10	0.10	0.23
	✓	✓	✓	✓	✓	✓	✓	✓

✓ KWP

#5

Lch 1280
Fath. 5441



NOAA FORM 75-21 (10-72)

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship Hydro Surveys Branch (Lch 1280)

W. R. Daniels Comdg.

These corrections are to be used

between Aug. 8 1977 and Aug. 10 1977

in the locality

Milwaukee Harbor

for hydrographic surveys Nos. H-9702 & H-9703

Vel. Tab. 5

Depth	Corr.
0.0 - 3.0	0.0
8.2	0.2
13.5	0.4
29.0	0.6
35.0	0.4
9999	0.2

Drawn & Tab. KWP
✓ Jmc

NOAA 59-11

BAR CHECK ABSTRACT
LAUNCH 1280
Fathometer 5441

H-9703
HSB-10-3-77

Velocity Table #5 — BARCHECK DEPTH CORRECTION

J.D	5	10	15	20	25	30	35		
216	1.1	1.3	1.4	1.5	1.7	1.6			
	1.1	1.4	1.5	1.5	1.6	1.6			
220	0.9	1.2	1.2	1.2	1.4	1.3			
	1.0	1.2	1.2	1.3	1.4	1.2			
222	1.1	1.2	1.5	1.4	1.6	1.3			
	1.1	1.2	1.5	1.6	1.5	1.2			
AVER CORR	1.07	1.25	1.38	1.42	1.53	1.37			
DRAFT CORR	-0.90	-0.90	-0.90	-0.90	-0.90	-0.90			
CORR To be Applied	0.17	0.35	0.48	0.52	0.63	0.47			
		✓	✓	✓	✓	✓			

✓ KWP

SETTLEMENT AND SQUAT TEST
May 14, 1977
J.D. 134
Launch 1280

Five runs were made at 1100 rpm, 1500 rpm, 2000 rpm, 2500 rpm, and 3000 rpm. These speeds are the boat's range of hydro speed.

The procedure was to have a person with a level on shore and a person holding a level rod on the boat. The vessel would run by the observer at each speed and a reading was taken from the level rod. After a comparison of data was made, the average valve for each speed was determined, a curve constructed, and a settlement and squat table was prepared. There was no change in water level during the runs.

Run #1	1100 rpm	1500 rpm	2000 rpm	2500 rpm	3000 rpm
Still	6.05	6.05	6.05	6.05	6.05
Underway	6.10	6.15	6.25	6.30	6.10
S&S corr.	+0.05	+0.10	+0.20	+0.25	+0.05

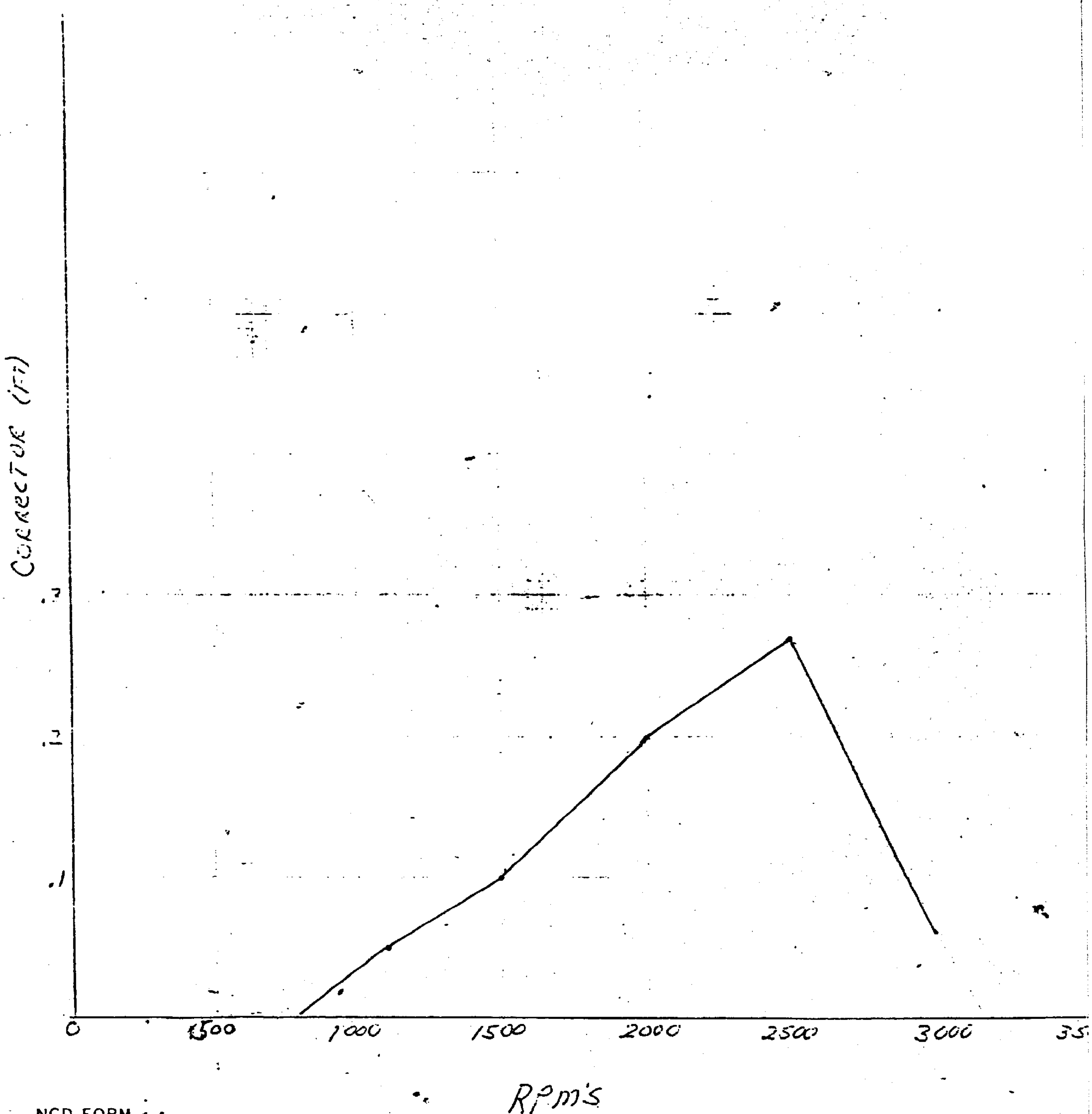
Run #2	1100 rpm	1500 rpm	2000 rpm	2500 rpm	3000 rpm
Still	6.05	6.05	6.05	6.05	6.05
Underway	6.10	6.15	6.25	6.30	6.10
S&S corr.	+0.05	+0.10	+0.20	+0.25	+0.05

Run #3	1100 rpm	1500 rpm	2000 rpm	2500 rpm	3000 rpm
Still	6.02	6.02	6.02	6.02	6.02
Underway	6.05	6.10	6.20	6.30	6.10
S&S corr.	+0.03	+0.08	+0.18	+0.28	+0.08

Run #4	1100 rpm	1500 rpm	2000 rpm	2500 rpm	3000 rpm
Still	6.00	6.00	6.00	6.00	6.00
Underway	6.05	6.10	6.20	6.30	6.05
S&S Corr.	+0.05	+0.10	+0.20	+0.30	+0.05

AVERAGE CORRECTIONS FOR EACH SPEED

1100 rpm	+0.05
1500 rpm	+0.10
2000 rpm	+0.20
2500 rpm	+0.27
3000 rpm	+0.06


CORRECTOR (FT)
.3
.2
.1
0
500
1000
1500
2000
2500
3000
35
RPM's

SETTLEMENT AND SQUAT TEST
June 15, 1977
J. D. 166
Launch 1282

Four runs were made at 1100 rpms, 1500 rpms, 2000 rpms and 2500 rpms. These speeds are the boats range of hydro speeds.

The procedure was to have a person with a level on shore and a person holding the level rod on the boat. The vessel would run by the observer at each speed and a reading was taken from the level rod. After a comparison of data was made, the average value for each speed was determined, a curve constructed, and a settlement and squat table was prepared. There were no changes in water level during the runs.

Run #1	1100 rpm	1500 rpm	2000 rpm	2500 rpm
Still	8.42	8.42	8.42	8.42
Underway	8.47	8.57	8.85	9.04
S&S Corr.	+0.05	+0.15	+0.43	+0.62

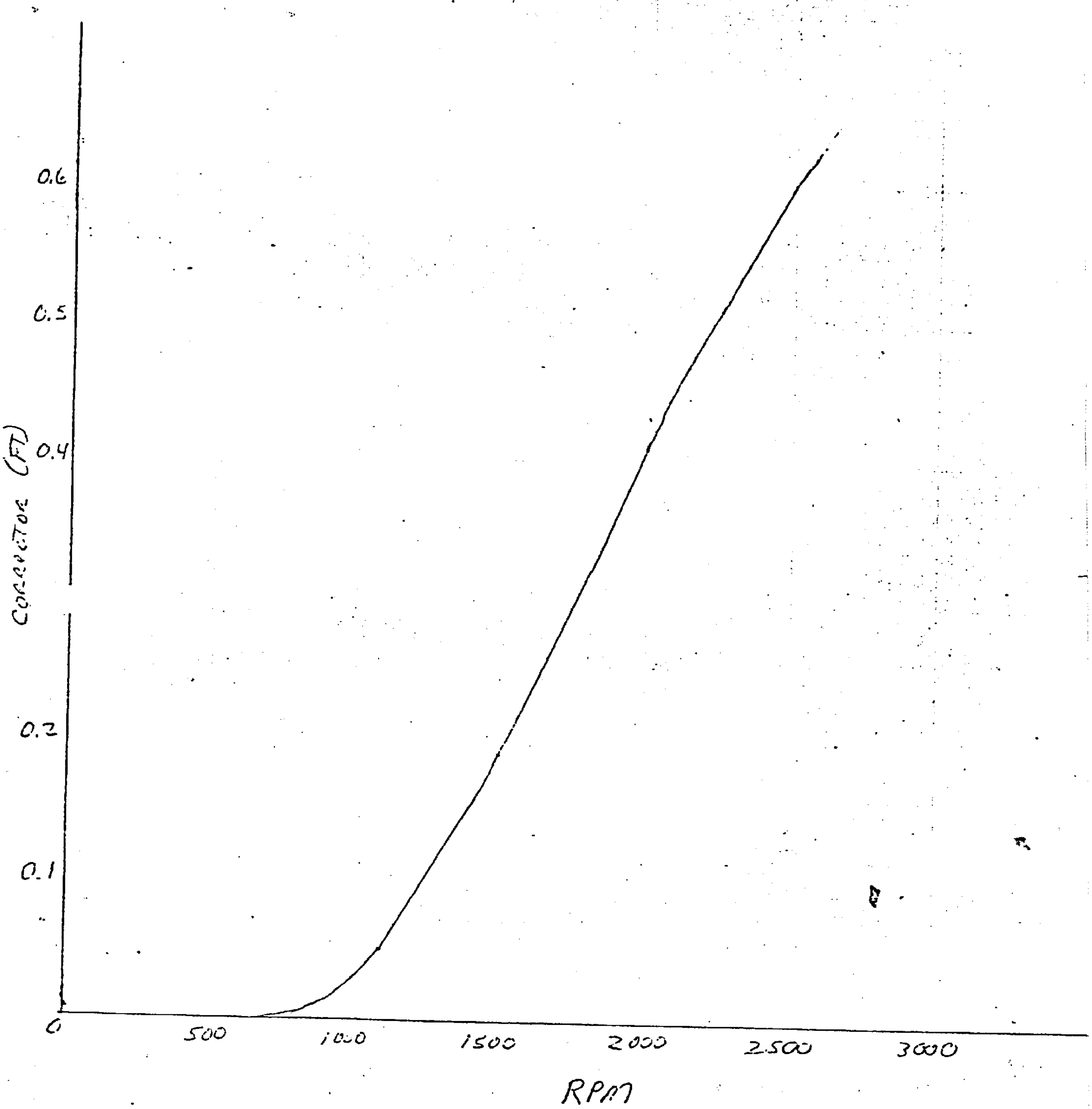
Run #2	1100 rpm	1500 rpm	2000 rpm	2500 rpm
Still	8.37	8.37	8.37	8.37
Underway	8.42	8.52	8.69	8.95
S&S Corr.	+0.05	+0.15	+0.32	+0.58

Run #3	1100 rpm	1500 rpm	2000 rpm	2500 rpm
Still	8.20	8.20	8.20	8.20
Underway	8.25	8.45	8.65	8.78
S&S Corr.	+0.05	+0.25	+0.45	+0.58

Run #4	1100 rpm	1500 rpm	2000 rpm	2500 rpm
Still	8.20	8.20	8.20	8.20
Underway	8.25	8.40	8.65	8.80
S&S Corr.	+0.05	+0.20	+0.45	+0.60

AVERAGE CORRECTORS FOR EACH SPEED

1100	RPM	+0.05	2000	RPM	+0.41
1500	RPM	+0.19	2500	RPM	+0.60



NCD FORM 14
16 OCT 56

SIGNAL LIST
OPR-301
LAUNCH 1282
HSB-10-3-77
H-9703

Kvb

005	7	43	01	36992	087	52	54927	250	0018	000000	BREAKWATER LIGHT, 1953
006	7	43	00	30047	087	52	35428	250	0007	000000	SOUTH ENT. LIGHT, 1953
008	7	43	02	37033	087	52	49823	250	0007	000000	NORTH ENT. LIGHT, 1953

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY

- [x] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [x] TO BE CHARTED
- [x] TO BE REVISED
- TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Revisory Section	Wisconsin	Milwaukee	7/20/77

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

OPR PROJECT NO.	~~JOB~~ NUMBER	SURVEY NUMBER	DATUM
OPP-301-HFP-77 ~~832225~~	~~Org~~. HSB-10-3-77 ~~C6110~~		North American

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° '	LATITUDE " D.M. Meters	LONGITUDE ° '	LONGITUDE " D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
Fl R 4sec 20ft	Privately maintained light, No Geo. Pos. computed prior to this year. (S'ly Lt. S. Pier 2)	43°01'	04.84" / —	87°53'	35.02"		F-3-6-L	14924 formerly (LS743)
Fl 4sec 14ft.	" " " " (Liquid Cargo Pier)	43°00'	51.98" / —	87°53'	28.24"		"	"
Fl G 4sec 20ft	" " " " (N'ly Lt., S. Pier 2)	43°01'	10.00" / —	87°53'	37.73" / —		"	"
F G 12ft. "1"	" " " " (N. Lt., S. Pier 1)	43°01'	16.70" / —	87°53'	40.72"		"	"
F R 12ft "2"	" " " " (Bulk Term. 1)	43°01'	19.72" / —	87°53	42.05"		"	"
Qk Fl 20ft.	" " " " (E'ly Point McKinley Park)	43°02'	46.13" / —	87°52'	54.30"		"	"
Fl R 2½sec 31' "2"	No Prior Geo. New Nav. Aid. Maintained by U.S. C. Guard	43°00'	17.28 / —	87°53'	03.70 / —		"	"
FG 16ft 10 St. M.	Private maint. Lt., no prior geo. (Near C. Guard on Spur Breakwall)	43°00'	08.87" / —	87°53'	05.35"		"	"
Occ. R	Occ R on H. Rise, presently on chart but not geodetically located.	42°59'	31.240 / —	87°53'	12.583 / —		"	"
Occ. R Bn	Shown prior as P.A.'s Marker. Actually is Beacon. (C of E Disks 77-14, 77-13, 77-06)	43°02'	17.86 / —	87°54'	07.21 / —		"	"

(& 77-02 Positioned & Used To Pos. Above Lights)

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD		☐ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Robert DeCroix Ass't Chief	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

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

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	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

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

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

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

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

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

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

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

SUPERSEDES NOAA FORM 76-40 (2-71) WHICH IS OBSOLETE, AND EXISTING STOCK SHOULD BE DESTROYED UPON RECEIPT OF REVISION.

☆ U.S. GOVERNME NTING OFFICE: 1974-665-073/1030 Region 6

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY

- [x] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [ ] TO BE CHARTED
- [ ] TO BE REVISED
- [x] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Revisory Survey	Wisconsin	Milwaukee	7/20/77

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

OPR PROJECT NO.	~~SCD~~ NUMBER	SURVEY NUMBER	DATUM
OPR-301-HFP-77 ~~853323~~	~~Orig.~~ HSB-10-3-77 ~~CG1140~~		North Amer. '1927' [?] 1 CLD

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION: LATITUDE ° ′	LATITUDE ″ D.M. Meters	LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side): OFFICE	FIELD	CHARTS AFFECTED
FG 20ft. 6 St.M (Delete)	Privately maintained in past by Milwaukee Yacht Club. Not maintained for past 8 years. Coast Guard was notified.	43°03′	.1	87°53′	.19			14924 formerly LS-743

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD		☐ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Robert D. Cox	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	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

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

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

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

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

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

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

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

NOAA FORM 76-40 (8-74)

SUPERSEDES NOAA FORM 76-40 (2-71) WHICH IS OBSOLETE, AND EXISTING STOCK SHOULD BE DESTROYED UPON RECEIPT OF REVISION.

☆ U.S. GOVERNME NTING OFFICE: 1974-665-073/1030 Region 6

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Revisory Section	Wisconsin	Milwaukee	7/20/77

ORIGINATING ACTIVITY

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

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

OPR PROJECT NO.	~~JOB~~ NUMBER	SURVEY NUMBER	DATUM
OPR-J01-HFP-77 ~~832223~~	Org. HSB-10-3-77 CG1110		North American

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION: LATITUDE ° '	LATITUDE " D.M.Meters	LONGITUDE ° '	LONGITUDE " D.P.Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side): OFFICE	FIELD	CHARTS AFFECTED
Qk Fl 4ft Pvt. Maintd	Crib Lt. Not geo. located in past.	43°03'	32.79" —	87°51'	55.69" —		F-3-6-L	14924 formerly LS 743

RESPONSIBLE PERSONNEL

TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD	Robert DeLeroi Asst Chief	☐ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ 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		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	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

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

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

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

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

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

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

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

APPROVAL SHEET
Survey H-9703 HSB-10-3-77

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

The survey was accomplished under the supervision of Lt. K. W. Perrin.

This survey is considered complete with no additional field work recommended.

W. R. Daniels
Lt. Cdr., NOAA
Chief, Hydrographic Surveys Branch

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

WATER LEVEL NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center: CAM 3

Hourly heights are approved for

Water Level Station Used: Milwaukee, Wisconsin 908-7057

Period: 8 July - 30 August 1977

HYDROGRAPHIC SHEET: H-9703

OPR-301-HFP-77

Locality: Lake Michigan

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

Remarks:

Philip C. Morris
Chief, Water Level Section

Don M. Spellman 8/15/78
Chief, Tides & Water Levels Branch

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-9703

Name on Survey	A ON CHART NO. 14924	B ON PREVIOUS SURVEY NO. 1-1557	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
Lake Michigan	X	X								1
MILWAUKEE BAY										2
NORTH POINT										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
					APPROVED					18
					Chas. E. Harrington					19
					CHIEF GEOGRAPHER - C3x5					20
					28 Feb. 1979					21
										22
										23
										24
										25

APPROVAL SHEET
FOR
SURVEY H-9703

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: 1/4/79

Signed: [signature]

Title: Chief, Verification Branch

NOAA FORM 77-27 (5-77)

U. S. DEPARTMENT OF COMMERCE
NOAA

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NUMBER: H-9703

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	4
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. (3) ARC, (1) EXCESS	4

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						1- misc. data
CAHIERS	2 with printouts					
VOLUMES	13					
BOXES			1- Smooth			

T-SHEET PRINTS (List) TP-00266

SPECIAL REPORTS (List) 1- Cht. mark-up

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			3045
POSITIONS CHECKED		3045	3045
POSITIONS REVISED		11	11
SOUNDINGS REVISED		142	142
SOUNDINGS ERRONEOUSLY SPACED		0	0
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	0
	TIME – HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	2		2
VERIFICATION OF CONTROL		4	4
VERIFICATION OF POSITIONS		40	40
VERIFICATION OF SOUNDINGS		39	39
COMPILATION OF SMOOTH SHEET		50	50
APPLICATION OF TOPOGRAPHY		4	4
APPLICATION OF PHOTOBATHYMETRY		0	0
JUNCTIONS		2	2
COMPARISON WITH PRIOR SURVEYS & CHARTS		4	4
VERIFIER'S REPORT		9	9
OTHER			
TOTALS	2	152	154

Pre-Verification by	*Beginning Date*	*Ending Date*
Verification by S. Kelley, R. Hill, R. Roberson	*Beginning Date* 04/10/78	*Ending Date* 12/08/78
Verification Check by H. R. Smith	*Time (Hours)* 6	*Date* 12/12/78
Marine Center Inspection by Hydrographic Inspection Team (AMC)	*Time (Hours)* 4	*Date* 12/28/78
Quality Control Inspection by R.W. Derkazarian	*Time (Hours)* 71	*Date* 2/23/79
Requirements Evaluation by [signature]	*Time (Hours)* 1	*Date* 4/5/79

Carstens 18 hr 3/19/79

Reg. No. 9703

The Computer and Excess Sounding .ards 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 REQ'D__________ INITIALS__________

REMARKS:

Reg. 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 REQ'D.__________ INITIALS__________

REMARKS:

ATLANTIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO. H-9703 | FIELD NO. HSB-10-3-77

Wisconsin, Milwaukee, Entrance to Milwaukee Harbor

SURVEYED: 8 July through 30 August 1977

SCALE: 1:10,000 | PROJECT NO.: OPR-301

SOUNDINGS: Raytheon DE-719B, Pole | CONTROL: Del-Norte (Range-Range & Range-Azimuth, See-Boat Sheet

Chief of Party .... W. R. Daniels
Surveyed by .... K. Perrin
.... R. DeCroix
.... J. Briggs
.... E. Hardison
.... B. Link
.... S. Peterson
Automated Plot by .... CALCOMP-618 Plotter (AMC)
Verified and Inked by .... R. G. Roberson
Date December 10, 1978

1. Introduction

No unusual problems were encountered during verification.

2. Control and Shoreline

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

b. Shoreline originates with Class I unreviewed photogrammetric manuscript TP-00266 of 1976-77. Photo coverage stopped at approximately 42°59'00", 87°51'30". Brown shoreline from Chart 14924 was not applied where photogrammetric manuscripts stopped.

3. Hydrography

a. Agreement at crossings was adequate.

b. The standard and supplemental (24 foot) depth curves were adequately delineated.

c. Development of the bottom configuration and determination of least depths was adequate.

4. Condition of Survey

The smooth sheet, accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual except as follows:

Daily bar checks were not taken as required by Section 1.5.2 of the Hydrographic Manual.

5. Junctions See Q.C. Report, para 1.

An adequate junction was effected with the following survey:

H-9702 (1977) to the west

There were no additional junctional surveys.

6. Comparison With Prior Surveys See Q.C. Report, para 2.

~~1-1657 (1934) 1:15,000~~

A general comparison with the prior survey is good with depths generally varying from one to three feet. There were some soundings in question.

The 26 foot sounding at approximately 43°03'32", 87°51'30" is surrounded by soundings from 39 to 41 feet. No indication of the 26 foot sounding was found on the present survey. Origin 1-1202 (1912) See Q.C. Report

Two 27 foot soundings and a 23 foot sounding at 43°01'20", 87°52'28" are in area of 35 to 37 foot soundings. No indication of these soundings was found. Origin 1-1202 (1912) See Q.C. Report.

~~The four above mentioned soundings were brought forward to the present survey.~~

The present survey except as noted above is adequate to supersede the prior survey in the common areas.

7. Comparison With Charts 14924 (21st Edition, July 12, 1975)
14904 (18th Edition, Sept. 6, 1975)

a. Hydrography

The charted hydrography originates ~~with~~ primarily, as further discussed in para. 2, of the Q.C. Report, with the ~~previously discussed~~ prior surveys, supplemented with depths from unascertainable sources. Attention is directed to the following:

1. 08 The charted crib located at approximately 43°00'~~08~~ 09", 87°51'~~18~~" with a charted depth of 39 feet was not developed; however, a 39 foot sounding was located at 43°00-06.32", 87°51'08.60", and a 36 foot sounding was located at 43°00'03.21", 87°51'15.64". The crib should be retained as charted. Source not available.

2. The three other previously mentioned shoal soundings (23 and 27 foot soundings) fall in an area of 31 to 33 foot soundings. None of these are charted. See Q.C. Report

3. The shoreline in the northern portion of the chart has much noticable difference with present shoreline. This was eliminated on the following chart edition (22nd Edition August 19, 1977).

4. The crib charted at 43°03'32.79", 87°51'55.69" marked by a fixed aid to navigation should be retained as charted. Origin 1-1202 (1912)

The present survey is adequate to supersede the charted hydrography in the common areas, with exceptions noted above, and in para. 3. of the Q.C. Report.

b. Aids to Navigation

All floating aids to navigation were privately maintained and were adequate for their intended purpose.

Fixed aids and landmarks were located, and form 76-40's were submitted by the hydrographer. The majority of charted landmarks are on the adjoining survey, H-9702 (1977).

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-9703

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

Billy J. Stephenson
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

OA/C352:RWD

February 23, 1979

TO: A. J. Patrick
Chief, Hydrographic Surveys Division

a J Patrick

THRU: Chief, Quality Control Branch

FROM: R. W. DerKazarian R.W. DerKazarian
Quality Evaluator

SUBJECT: Quality Control Report for H-9703 (1977), Approaches to Milwaukee Harbor Entrances, Lake Michigan, Wisconsin

A quality control inspection of H-9703 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, shoreline transfer, smooth plotting, decisions and actions taken by the verifier, and the 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 Verifier's Report, the HIT Report, and as follows:

1. Section 5 of the Verifier's Report is supplemented by the following:

No contemporary survey joins the present survey to the east; however, present soundings are in agreement with the charted information.

2. Survey 1-1657 (1934) used for the prior survey comparison in the Verifier's Report does not fall in the area of the present survey. The original soundingson 1-1657 were plotted on a copy of chart LS 743 and fall in the Milwaukee Harbor area to the west of the present survey.

Several prior surveys do fall within the area of the present survey and a comparison has been made with the most recent during quality control inspection. The "Comparison with Prior Surveys" of the Verifier's Report is supplemented by the following:

a.	1-1201	(1912)	1:20,000
	1-1202	(1912)	1:20,000
	1-1204	(1912)	1:10,000
	1-1205	(1912)	1:10,000

These prior surveys cover the entire area of the present survey. Generally differences of ± 1 to 2 feet are found throughout the area when comparing past and present depths; however, 2- to 4-foot scattered deeper depths exist on the present survey in the area common with 1-1204 (1912).

An old pier in latitude 43°03.09', longitude 87°52.44' and an old crib in latitude 43°03.31', longitude 87°52.31' on prior survey 1-1205 (1912) were not verified by the present survey. These features have been deleted from recent chart editions; they should be considered no longer existent.

The 26-foot sounding discussed in paragraph 6 of the Verifier's Report in latitude 43°03'32", longitude 87°51'30" originates with prior survey 1-1202 (1912); it is included in an area swept with an effective depth of 28 feet. The sounding appears to be a detached sounding, possibly from a grounding. It has been retained on the present survey.

The 23- to 27-foot soundings discussed in paragraphs 6 and 7 of the Verifier's Report in latitude 43°01'20", longitude 87°52'28" originate with prior survey 1-1202 (1912) where they appear with the notation "dump." The area has been swept to 25.5 feet. It is considered that the area has eroded and is adequately delineated by present depths.

b. <u>1-1956 (1954-55) 1:120,000</u>

A detailed comparison with this small-scale survey is precluded by the scarcity of prior depths within the common area of the present survey. However, the character of the bottom has remained the same.

With the addition of several soundings and bottom characteristics carried forward, the present survey is adequate to supersede these prior surveys in the common area.

c. Surveys 1-1201 and 1-1202 (1912) both include sweep work. No conflict between the effective swept depths of these prior surveys and the present survey exist.

3. Section 7 of the Verifier's Report is supplemented by the following:

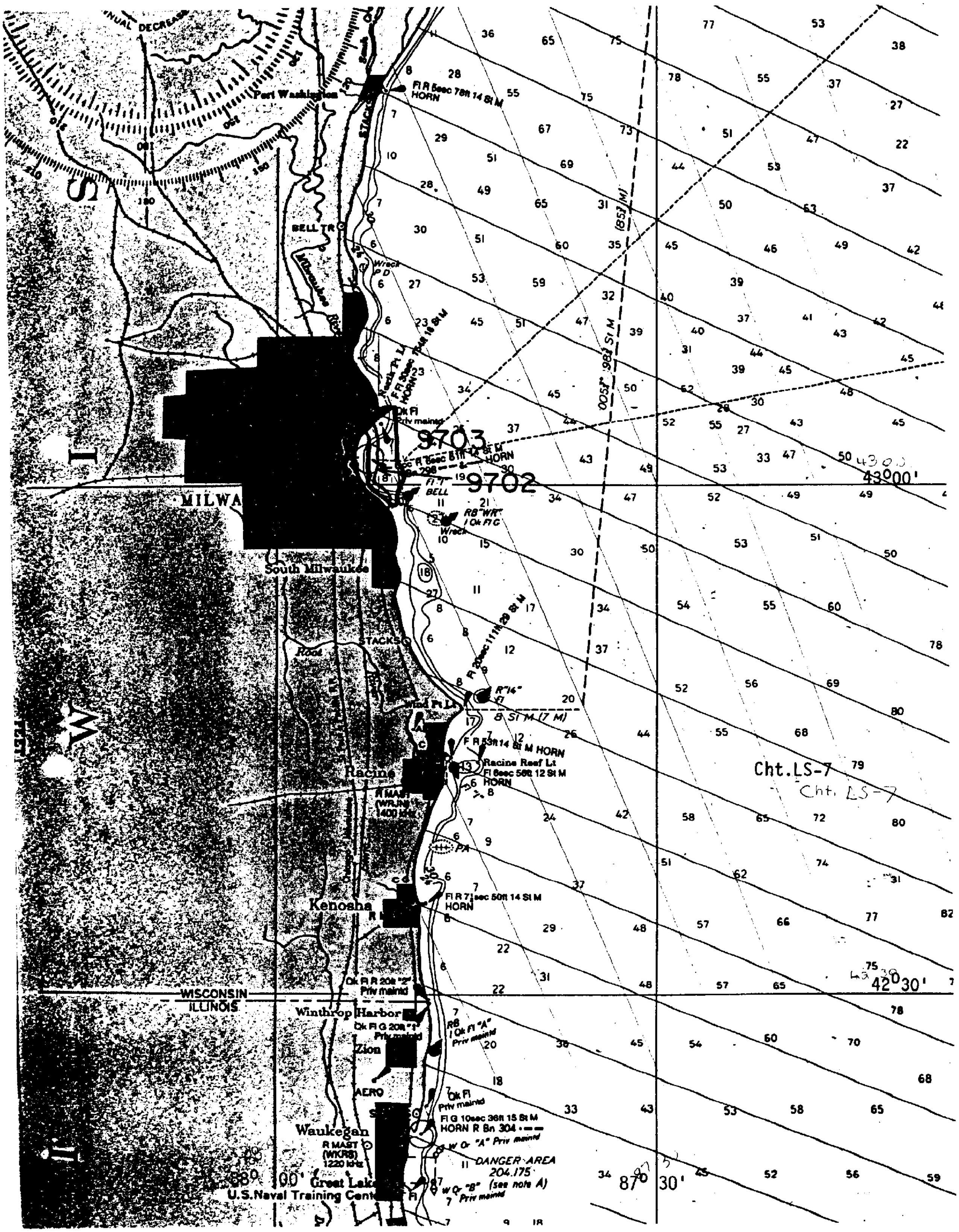
5. A sunken rock charted in latitude 43°03.82', longitude 87°52.07' originates from an unascertainable source; retain as charted.

6. The charted "RK" designation in latitude 43°02.91', longitude 87°51.97' originates as "rock" on prior survey 1-1202 (1912), which should have been appropriately described as "rocky," a bottom characteristic.

4. The Marine Center "Approval Sheet" did not indicate whether or not a new sounding or position printout has been made.

5. Many position numbers on the position overlay falling in congested areas are illegible (attributed to overprinting). Clarification of the overlay has been requested.

cc:
OA/C35
OA/C351


Port Washington
Fl R 6sec 78ft 14 St M HORN
BELL TR
Wreck PD
MILWA
Ok Fl Priv maintd
9703
9702
43°00'
FI "1" BELL
RB "WR" 1 Qk Fl G
Wreck
South Milwaukee
STACKS
Root
Wind Pt Lt
8 St M (7 M)
F R 53ft 14 St M HORN
Racine Reef Lt
Fl 6sec 56ft 12 St M HORN
Racine
R MAST (WRJN) 1400 kHz
Cht. LS-7
Cht. LS-7
PA
Fl R 7½sec 50ft 14 St M HORN
Kenosha
42°30'
Qk Fl R 20ft "2" Priv maintd
WISCONSIN
ILLINOIS
Winthrop Harbor
Qk Fl G 20ft "1" Priv maintd
RB 1 Qk Fl "A" Priv maintd
Zion
AERO
Qk Fl Priv maintd
Fl G 10sec 36ft 15 St M HORN R Bn 304
Waukegan
R MAST (WKRS) 1220 kHz
W Or "A" Priv maintd
DANGER AREA 204.175
W Or "B" (see note A) Priv maintd
88° 00'
Great Lakes
U.S. Naval Training Center
87° 30'

(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9703

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
14901	9-15-81	Ralph B. Rasa	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 4 Exam for Critical corr only (NeCrea)
14924	3-21-83	Rick Thomas	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 3
14904	8-8-83	Gregory R. Norris	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 2 Fully appd thru # 14924
14900	8-8-83	Gregory R. Norris	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 5 Fully appd thru #14904
14901	8-8-83	Gregory R. Norris	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 5 Fully appd thru #14904
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.