Wisconsin DNR – Lake Level Monitoring 9/22/2025

Staff Gauge Survey Data Sheet

Lake Information

Lake Name: Horseshoe Lake County: Polk

Data Collectors

Primary Data Collector: _____ Email: _____ Phone No. ( ) -

Additional Data Collector(s): _____

Reference Mark and Staff Gauge Information

Reference Mark #1 (RM1) Reference Mark Type: NE Cor. concrete step

Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1215.79 Photograph ☐

Location Description: _____

Reference Mark #2 (RM2) Reference Mark Type: Gin Spike east side of Maple

Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1218.29 Photograph ☐

Location Description: _____

Reference Mark #3 (RM3) Reference Mark Type: PK Nail west side of Oak

Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1217.29 Photograph ☐

Location Description: _____

Staff Gauge

Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1211.18 Photograph ☐

Location Description: _____

Date: _____ Time: _____ AM/PM Check one: Install ☐ Midseason ☐ Removal ☐

Survey Stage 1 - Instrument at first height*

	Reference Mark 1		Fore sight (FS1)	Calculated Elevation (CE1)
Given Elevation (GE_{RM1})	1215.79			
Back sight 1 (BS1)	+ 3.39			
Height of Instrument (HI1)	1219.18	- Staff Gauge	8.01	= 1211.17
	HI1	- Ref Mark 2	0.89	= 1218.29
	HI1	- Ref Mark 3	1.88	= 1217.30

Water FS1 6.04
Elev. = 1213.14

Survey Equations:

$HI1 = GE_{RM1} + BS1$

$CE1 = HI1 - FS1$

Survey Stage 2 – Reset instrument at different height

	Staff Gauge		Fore sight (FS2)	Calculated Elevation (CE2)
Calculated Elevation1	1211.17			
Back sight 2 (BS2)	+ 7.97			
Height of Instrument (HI2)	1219.14	- Ref Mark 1	3.35	= 1215.79
	HI2	- Ref Mark 2	0.85	= 1218.29
	HI2	- Ref Mark 3	1.83	= 1217.31

Survey Equations:

$HI2 = CE_{SG1} + BS2$

$CE2 = HI2 - FS2$

Quality Assurance Checks:

Reference Mark 1:	BS1 3.39	FS1 8.01	
GE = CE2	BS2 + 7.97	FS2 + 3.35	
	11.36	= 11.36	

QA Equations:

$BS1 + BS2 = FS1_{SG} + FS2_{RM1}$

$GE_{RM1} = CE2_{RM1}$

*Accept Survey Stage 1 if QA checks within 0.01 ft. Use calculated elevations 1 for the rest of the season unless the gauge moves.

EGAD # 3200-2018-45

WISCONSIN DEPT. OF NATURAL RESOURCES

Wisconsin DNR – Lake Level Monitoring

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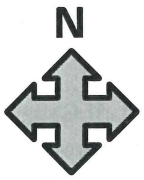
Lake Level Reading: 5.32 ft

Revised 2016

Site Diagram (including Staff Gauge and Reference Marks)

Board starts at 3.32 (not zero) so lake level reading was adjusted to 2.00 feet for data entry purposes for data calculations to be correct.



Notes

Data Management

Survey Data uploaded to SWIMS?	Yes ☐ No ☐	Date: _____	Name: _____
Data Sheet scan uploaded to SWIMS?	Yes ☐ No ☐	Date: _____	Name: _____

Equipment Maintenance

Replace bolts/screws on staff gauge?	Yes ☐ No ☐	Date: _____	Name: _____
Replace gauge plate on staff gauge?	Yes ☐ No ☐	Date: _____	Name: _____
Replace post or wooden board?	Yes ☐ No ☐	Date: _____	Name: _____

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