

Wisconsin DNR – Lake Level Monitoring
Staff Gauge Survey Data Sheet

9/22/2025

Lake Information

Lake Name Bone 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)

Latitude: 45-31-19.63 Longitude: 92-22-42.567

Reference Mark Type: Concrete corner SW

Mean Sea Level Yes ☐ No ☐ Elevation: 1155.22 Photograph ☐

Location Description: SW corner of concrete stoop

Reference Mark #2 (RM2)

Latitude: 45-31-19.86 Longitude: 92-22-43.011

Reference Mark Type: Concrete corner SW

Mean Sea Level Yes ☐ No ☐ Elevation: 1155.01 Photograph ☐

Location Description: SW corner of concrete patio @ joint of curve begins

Reference Mark #3 (RM3)

Latitude: 45-31-20.05 Longitude: 92-22-43.011

Reference Mark Type: Concrete corner NW

Mean Sea Level Yes ☐ No ☐ Elevation: 1155.02 Photograph ☐

Location Description: NW corner of concrete patio @ joint of curve ends

Staff Gauge

Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1150.61 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)	Water FS1 6.44 Elev. = 1151.84
Given Elevation (GE_{RM1})	<u>1155.22</u>				
Back sight 1 (BS1)	+ <u>3.06</u>				
Height of Instrument (HI1)	<u>1158.28</u>	- Staff Gauge	<u>7.65</u>	= <u>1150.63</u>	Survey Equations: $HI1 = GE_{RM1} + BS1$ $CE1 = HI1 - FS1$
	HI1	- Ref Mark 2	<u>3.26</u>	= <u>1155.02</u>	
	HI1	- Ref Mark 3	<u>3.25</u>	= <u>1155.03</u>	

Survey Stage 2 – Reset instrument at different height

	Staff Gauge		Fore sight (FS2)	Calculated Elevation (CE2)	
Calculated Elevation1	<u>1150.63</u>	←			
Back sight 2 (BS2)	+ <u>7.63</u>				
Height of Instrument (HI2)	<u>1158.26</u>	- Ref Mark 1	<u>3.04</u>	= <u>1155.22</u>	Survey Equations: $HI2 = CE_{SG1} + BS2$ $CE2 = HI2 - FS2$
	HI2	- Ref Mark 2	<u>3.24</u>	= <u>1155.02</u>	
	HI2	- Ref Mark 3	<u>3.23</u>	= <u>1155.03</u>	

Quality Assurance Checks:

Reference Mark 1: BS1 3.06 FS1 7.65
GE = CE2 BS2 + 7.63 FS2 + 3.04
10.69 = 10.69

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.

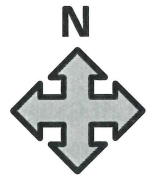


Staff Gauge Survey Data Sheet

Lake Level Reading: 1.22 ft

Revised 2016

Site Diagram (including Staff Gauge and Reference Marks)



Notes

[illegible]

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: _____

