

Wisconsin DNR – Lake Level Monitoring
Staff Gauge Survey Data Sheet

5/15/2025

Lake Information

Lake Name Sand 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: 9" Spike Set

Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1123.52 Photograph ☐

Location Description: Polk County Coordinates #103,N=260720.483,E=482536.258,Elev=1123.52

Reference Mark #2 (RM2)

Reference Mark Type: 9" Spike Set

Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1115.89 Photograph ☐

Location Description: Polk County Coordinates #102,N=260651.269,E=482512.379,Elev=1115.919

Reference Mark #3 (RM3)

Reference Mark Type: PK Nail set in Stump

Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1115.45 Photograph ☐

Location Description: Polk County Coordinates #101,N=260674.875,E=482620.624,Elev=1115.45

Staff Gauge

Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1113.96 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 11.29 Elev. = 1112.94
Given Elevation (GE_{RM1})	<u>1123.52</u>				
Back sight 1 (BS1)	+ <u>0.71</u>				
Height of Instrument (HI1)	<u>1124.23</u>	- Staff Gauge	<u>13.48</u>	= <u>1110.75</u>	Survey Equations: $HI1 = GE_{RM1} + BS1$ $CE1 = HI1 - FS1$
	HI1	- Ref Mark 2	<u>8.33</u>	= <u>1115.90</u>	
	HI1	- Ref Mark 3	<u>8.76</u>	= <u>1115.47</u>	

Survey Stage 2 – Reset instrument at different height

	Staff Gauge		Fore sight (FS2)	Calculated Elevation (CE2)	
Calculated Elevation1	<u>1110.75</u>	←			
Back sight 2 (BS2)	+ <u>13.44</u>				
Height of Instrument (HI2)	<u>1124.19</u>	- Ref Mark 1	<u>0.67</u>	= <u>1123.52</u>	Survey Equations: $HI2 = CE_{SG1} + BS2$ $CE2 = HI2 - FS2$
	HI2	- Ref Mark 2	<u>8.29</u>	= <u>1115.90</u>	
	HI2	- Ref Mark 3	<u>8.72</u>	= <u>1115.47</u>	

Quality Assurance Checks:

Reference Mark 1: BS1 0.71 FS1 13.48
GE = CE2 BS2 + 13.44 FS2 + 0.67
14.15 = 14.15

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.

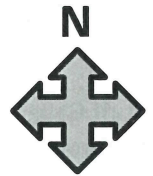


Staff Gauge Survey Data Sheet

Lake Level Reading: 2.20 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: _____

