

## Water Clarity on Duck Lake (by Oral Carper)

The Green Lake and Duck Lake Association (GLDLA) was formed in 1985 with the mission of maintaining water quality and preventing invasive species contamination through regular testing, education, and cooperation with government, scholastic and other watershed associations. Over the past several years (during the summer months) the association has taken readings to determine water clarity. By examining the changes to water clarity the association can share this information with other agencies, better understand and possibly improve water quality in our lake.

**Determining water clarity.** The way that the GLDLA has determined water clarity has been with the use of a Secchi disk. Pioneered by Italian physicist Pietro Angelo Secchi in 1865, the Secchi disk is an 8-inch disk painted in an alternating black and white pattern with a measuring tape attached that allows for reading maximum vertical visibility in the lake.



**(SECCHI DISK)**



**MEASUREMENT BEING TAKEN Note  
black measurement markings on tape  
attached to disk**

**Duck Lake Measurements.** A person in a boat lowers the disk into the lake and records the depth at which it disappears from sight. This depth, known as the Secchi depth, is the measure of water clarity. So what is the visibility-clarity like in Duck Lake? The following Secchi disk measurements were taken this summer in the deeper part {depth of 99 ft} of Duck Lake.

**SECCHI DISK  
READING**

**DUCK LAKE (2017)**

| READING | DATE       | TIME     | WIND   | LOCATION   | COORD     | COORD   | Sky Condition     |
|---------|------------|----------|--------|------------|-----------|---------|-------------------|
| 24 ft   | June 23rd  | 10:15 AM | calm   | 98ft depth |           | 085     | clear             |
| 16 ft   | July 6th   | 11:05 AM | 3-5kts | 99ft depth | 44 37.40N | 44.986W | clear             |
| 9.5 ft  | July 22nd  | 13:15 PM | 5 kts  | 99ft depth | 44 37.40N | 44.986W | Broken-Overcast   |
| 11 ft   | July 23rd  | 5:00 PM  | 7kts   | 99ft depth | 44 37.40N | 44.986W | Broken            |
| 10.5 ft | August 8th | 9:15 AM  | 2 kts  | 99ft depth | 44 37.40N | 44.986W | clear w High Haze |
| 12 ft   | Sept 9th   | 9:45 AM  | calm   | 99ft depth | 44 37.40N | 44.986W | clear             |

**Why are these readings taken?** The Secchi disk data allows us to determine when the algae growth in the lake has reached its peak. When compared over a several year period one can also use this type of data to help determine if the lake algae growth is generally increasing or decreasing in the lake.

**Improving accuracy through NASA.** Over the past few years NASA has used satellite imagery to help determine increases in algae growth in lakes around the mid west. However; this is the first year that the GLDLA has been taking its readings at the same time as NASA has been receiving its satellite data. GLDLA is passing its data on to NASA. It is our hope that NASA will compare our Secchi disk readings with the satellite data and then use this information to further calibrate and improve the accuracy of future satellite provided information. When the NASA data is finally adjusted to agree with our Secchi disk data then the association will only be required to take occasional readings to ensure overall satellite accuracy. But; for now and at least into next year the GLDLA will continue to take Secchi disk readings. When the project is completed, the comparisons of the clarity of water in Duck Lake with other lakes around the mid west should also be possible.

{If you would like to know more about what the GLDLA is doing for our lakes -- information is available at the: web site: { <http://www.gldla.org> }  
or on facebook: { <https://www.facebook.com/Green-Duck-Lakes-Association-1642508239318965/> } }