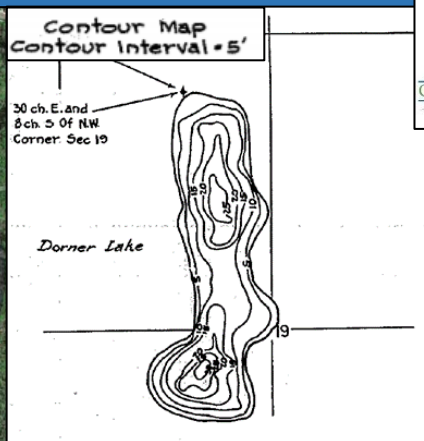
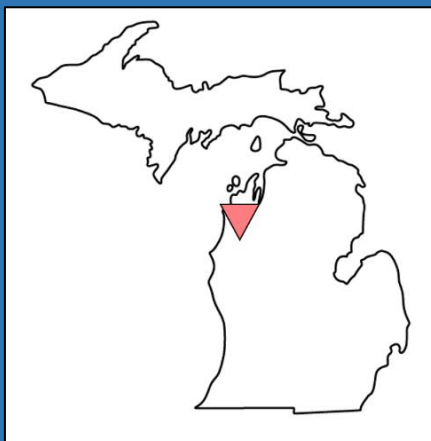


# Dorner Lake

## Water Quality Report – 2017



Michigan DNR bathymetric map

### Overview:

Dorner Lake is located in the northwest portion of Michigan's Lower Peninsula, within the Manistee National Forest. It has a maximum depth of 33 feet and has a surface area of 21 acres. The land surrounding Dorner Lake is dominated by white pine and the soil consists of well-drained sand with some areas of muck. Great Lakes Restoration Initiative funding was provided by the US Forest Service to complete this project. All data was collected using the Michigan Clean Water Corps' Cooperative Lakes Monitoring Program which enables citizen volunteers to monitor the health of their lakes. To learn more about the CLMP program or any of the water quality parameters used in this report, visit <https://micorps.net/lake-monitoring/>.

**We need your help.** Collecting consistent data year after year is critical to ensuring the long-term health of Dorner Lake. We need the help of local volunteers to keep this monitoring going. To become a volunteer, contact the Manistee Conservation District 231-889-9666 or Chris Riley (USFS) 231-723-2211 x3122

### Parameters:

**Secchi Transparency** refers to the depth to which a black and white Secchi disk can be seen in the lake water. Water clarity is affected by two primary factors, algae and suspended particulate matter.

**Chlorophyll-a** is the most dominant chlorophyll pigment in algae and is often used as a direct estimate of algal mass.

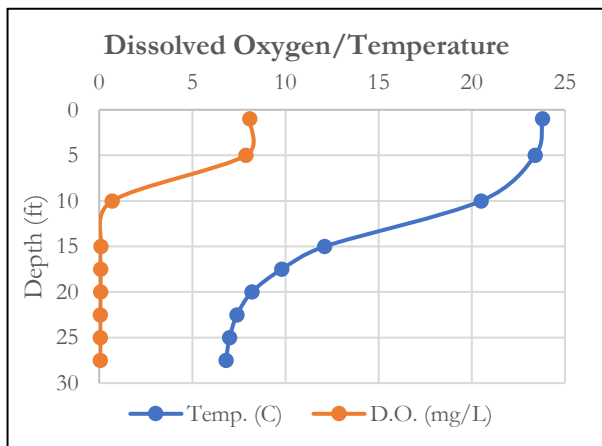
**Phosphorus** is an essential plant nutrient and most often controls aquatic plant growth. It is found in fertilizers, animal waste, and yard waste.

**Dissolved Oxygen (DO)** is the dissolved gaseous form of oxygen. It is essential for respiration of fish and other organisms. In general, a minimum of 7 mg/L is required to support cold-water fish and 5 mg/L is needed for warm-water fish.

**Carlson TSI Score** uses summer measurements of secchi transparency, total phosphorus, and chlorophyll-a to assign a trophic state index value to a lake. Values range from 0-100.

### Summer 2017 Water Quality Results:

Parameter	# Readings	Min	Max	Average	St. Dev	Carlson TSI
Secchi Disk Transparency (feet)	9	7	10	7.9	0.9	47
Chlorophyll-a (parts per billion)	5	3	5	4.0	0.8	44
Spring Total Phosphorus (parts per billion)	1	3	3	3.0	NA	NA
Summer Total Phosphorus (parts per billion)	1	7	7	7.0	NA	32



### Summary:

With an **average TSI score of 41** based on secchi transparency, chlorophyll-a, and summer total phosphorus, this lake is rated as a mesotrophic lake. Mesotrophic lakes are characterized by having medium nutrient content, medium levels of algae, and moderately clear water. Dorner Lake keeps some dissolved oxygen in the bottom waters through late spring, but by June the lake has stratified and bottom water is devoid of oxygen.

Overall, water quality in Dorner Lake is good but long-term monitoring is necessary for establishing a baseline and investigating trends.

## Score the Shore:

Shorelines are the primary habitat for many animals that live on or near a lake. Healthy shorelines are vital for preventing erosion, maintaining water quality, and slowing and filtering rain runoff. Shorelines are threatened by excessive development including construction of lawns, beaches, and sea walls. Using MiCorps' Score the Shore assessment, each 1000' section of the lake was rated based on three categories: littoral (aquatic) zone, riparian zone (land near shore), and shoreline erosion control practices. Section 5 of Dorner Lake shoreline was rated as 'Fair' due to a long vertical sea wall which negatively impacts shoreline quality. To learn more about shoreline health, visit <http://www.mishorelinepartnership.org/>

Section	Littoral Zone Score	Riparian Zone Score	Erosion Control Score	Overall Section Score	Section Rating
1	93	91	100	95	Good
2	87	91	100	93	Good
3	93	100	100	98	Good
4	87	82	89	86	Good
5	87	55	78	73	Fair
6	81	91	100	91	Good

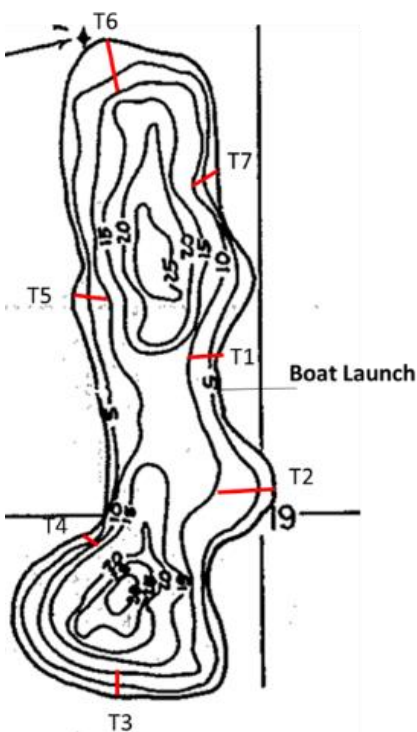


## Aquatic Plant Mapping:

The 2017 Dorner Lake plant survey resulted in 15 native species and only one invasive species (non-native water lily; T7). Aquatic plants are an essential part of the lake and provide many services including holding sediments in place, reducing erosion and maintaining stability. They also provide habitat and food for many organisms. Overall, Dorner Lake supports a healthy community of native plant species and should be protected from new invasions of potentially harmful invasives.

Learn more: [michiganlakes.msue.msu.edu/uploads/files/WQ-55-1.pdf](http://michiganlakes.msue.msu.edu/uploads/files/WQ-55-1.pdf)

Plant Name	Density	Rating
water bulrush	1.95	Sparse
white water lily	1.67	Sparse
pipewort	1.05	Sparse
bladderwort	0.76	Found
water shield	0.76	Found
riparian fern	0.57	Found
swamp loostrife	0.33	Found
narrow-leaf pondweed	0.29	Found
aquatic moss	0.10	Found
cattails	0.10	Found
nitella	0.10	Found
marsh bedstraw	0.05	Found
non-native water lily	0.05	Found
ribbon-leaf pondweed	0.05	Found
leather leaf	0.05	Found
bur-reed	0.05	Found



### Plant Density Rating

Density	Rating
4 - 5	Dense
3 - 4	Heavy
2 - 3	Moderate
1 - 2	Sparse
0 - 1	Found

