16 WEBBER POND

HISTORY

Formerly Camden Lake, Webber was named in 1939 for Charles C. Webber, a citizen whose donations greatly enhanced the park. His donations were made in memory of his only son, John Deere Webber, who died at an early age. The 2-acre lake was created through installation of a dam across Shingle Creek in 1905. Overflow water was used to fill the swimming pool that was donated by the Webber's. In the winter, the lake was used for ice skating.

In the 1950's, as a direct consequence of increased development, Shingle Creek became a planning problem for the communities that bordered it. It was determined that as the stream approached the Mississippi River, the creek bed would need to have a drop of about five feet in order to accommodate the additional flow of water. The creek was naturally very flat through Minneapolis with only a 1.5 foot drop between the northern city limits and Webber Park. City engineers designed a plan for diverting Shingle Creek north of the Webber bathhouse rather than through the lagoon. As part of this project, the dam that created the lagoon in Webber Park was removed and Webber Pond was created.

Webber Pond (Figure 16A) is a shallow, clear water body that is dominated by aquatic vegetation. It is located in Webber Park on Webber Parkway between Dupont Ave. N. and Colfax Ave. N. The mean depth is 0.9 meters (3 feet) and according to the Minnesota Department of Natural Resources (MDNR), the maximum depth is 1.5 meters (5 feet). The surface area of the pond is approximately 3 acres. The perimeter is approximately 1,200 feet. Table 16A shows the morphometric data of Webber Pond. The watershed area is 2 acres composed primarily of parkland (MPRB, 2002). The level of Webber Pond is maintained artificially by groundwater pumping and kept at a consistent elevation. Webber Pond currently receives no storm sewer or creek inputs.

Figure 16A. Webber Pond shoreline in 2006.

Table 16A. Webber Pond morphometric data.

Surface Area (acres)	Mean Depth (m)	Maximum Depth (m)	Volume (m^3)	Watershed Area (acres)	Watershed: Lake Area (ratio)
3	0.9	2.0	$1.10x10^4$	2	0.7

AUGMENTATION WELL

An augmentation well is used to maintain the water level at Webber Pond and is occasionally used for winter ice rinks. The MDNR issues the permit and determines the pumping limit for the augmentation well. The MPRB is not allowed to exceed these limits without paying fines.

Tables 16B and 16C show the 2006 augmentation well readings and annual usage from 2004-2006. In 2006, the Webber Pond augmentation well was below the MDNR allotted groundwater pumping volume.

Table 16B. 2006 Webber Pond monthly augmentation well volumes (gallons).

Jan-April	May	June	July	August	September	October	November	December
0	803,400	763,200	901,800	601,200	798,600	474,000	467,400	0

Table 16C. Webber Pond yearly augmentation well volumes (gallons).

Gallons Permitted	2004 Total	2005 Total	2006 Total
7,000,000	3,819,000	3,909,000	4,809,600

WATER QUALITY TRENDS (TSI)

Figure 16B shows the Webber Pond linear regression to be increasing as the TSI score increases. A detailed explanation of TSI can be found in Section 1. Webber Pond has a positive slope indicating degradation in water quality; however, the trend is very weak (R^2=.08) and may indicate that this small waterbody has high natural variability. The TSI trend analysis must also be viewed with some caution since there is only limited secchi data available for Webber Pond.

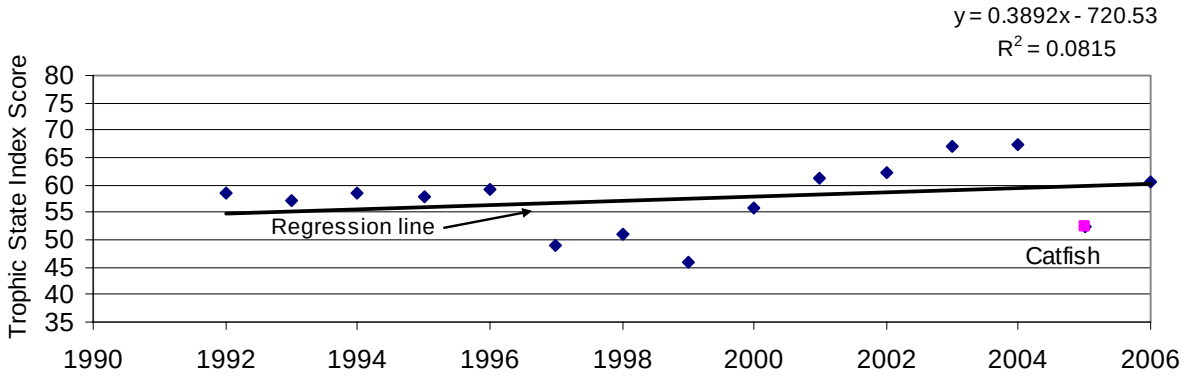
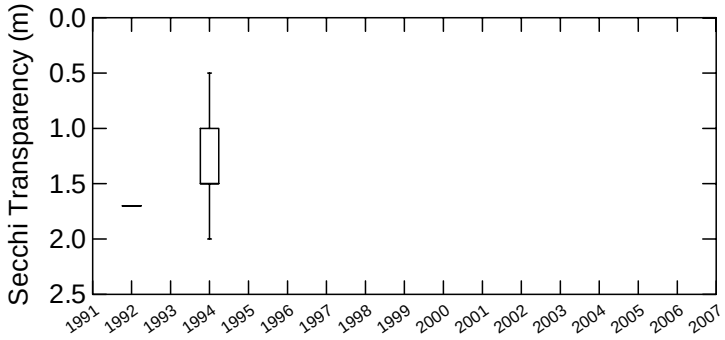


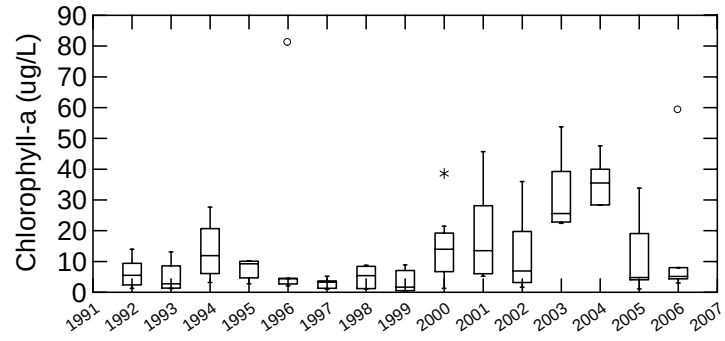
Figure 16B. TSI scores and regression analysis at Webber Pond. Channel catfish were added to the pond in 2005 as predator.

Native shoreline plantings were installed in 2004. There may have been some increased phosphorus loading to the pond from soil erosion, until the plantings became established. The pond is a popular spot and receives quite a bit of foot traffic. The positive 2005 TSI data are welcome but it is unknown why the 2005 Webber Pond TSI score changed so dramatically. It may be related to the 2004 shoreline restoration, increased public stewardship, or a trophic structure change due to stocking channel catfish.

Box and Whisker Plots

The box and whisker plots show in more detail the scatter within the years data set for the Secchi, chlorophyll-*a* and total phosphorus. Long-term lake monitoring is necessary to evaluate the seasonal and year-to-year variations seen in each lake and predict trends. A detailed explanation of box and whisker plots can be found in Section 1. Figure 16C shows the box and whisker plots of TSI data.





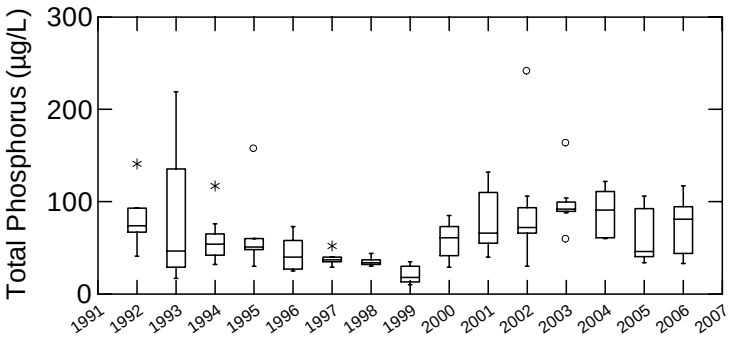


Figure 16C. Box and whisker plots of Webber Pond TSI data.

Webber Pond is eutrophic, with considerable amounts of algae. Secchi readings have not been taken at Webber because the water is clear to the bottom. Chlorophyll-*a* concentrations appear to be increasing the past few years followed by a drop in 2005 and 2006. The 2005 median total phosphorus and chl-*a* appear lower than previous years. 2006 chl-*a* was, on average, much lower than in previous years; however, there was an extreme outlier that was equal to high readings in previous years.

The 2003 herbicide and algaecide treatment may be responsible for some of the phosphorus increase in 2003 and 2004. These treatments release phosphorus into the water and can worsen conditions the next year.

Winter Ice Cover

Ice came off Webber Pond on April 1, 2006, which is average. Ice was on the pond for the winter on November 30, 2006, which is one day later than average. See Section 1 for details on winter ice cover records and Section 18 for a comparison with other lakes.

Exotic Aquatic Plant Management

The aquatic plants, also known as macrophytes, found in Webber Pond form the foundation of a healthy lake ecosystem. They produce oxygen and protect water quality by absorbing nutrients like phosphorus and nitrogen that could otherwise stimulate algae blooms. Plant beds stabilize soft lake bottoms and limit shoreline erosion by dampening the effect of waves and current. Aquatic plants provide important habitat for insect larvae, snails and other invertebrates which are food sources for fish, frogs, turtles and birds. Aquatic plants also provide shelter for fish and food for waterfowl. The health of a lake depends upon having a healthy plant community.

Algae blooms occur from time to time. Filamentous algae are responsible for the green scum sometimes seen floating on the surface of lakes and ponds. At Webber Pond, filamentous algae have been observed growing attached to sediments and to macrophytes. They can grow as part of large colonies. As the colonies die, they float to the surface and are sometimes aesthetically unpleasing. Other types of algae can also cause problems. Algae decrease the clarity of the water. As algae die and decompose, oxygen is used up which can create additional problems, such as fish kills or odor problems. Despite these issues, algae are a necessary part of the food

chain.

Lakes with macrophytes are usually clearer than lakes without macrophytes. The plants stabilize sediments and shorelines and prevent the suspension of sediments (from wind or fish) that would otherwise result in turbid, murky waters. Large zooplankton use aquatic plants as a refuge against fish. This improves water clarity as the zooplankton consume microscopic algae. Aquatic plants also use nutrients to grow that otherwise could be used by algae. Lakes with a vegetation-dominated clear state are characterized by having a more diverse fish community and larger numbers and diversity of waterfowl.

In July of 2003, Webber Pond was treated with Reward and Cutrine Plus by Lake Restoration Inc. in response to citizen complaints regarding aquatic plants and algae. These treatments may be responsible for some of the increase to phosphorus and chlorophyll-*a* values in 2003 and 2004.

PHYTOPLANKTON

Phytoplankton are the microscopic plant life that form part of the basic food web of lake ecology. The greenness of a lake is measured by chlorophyll-*a* (chl-*a*) as an expression of the phytoplankton present. Figures 16D and 16E show the 2006 dominant phytoplankton and chlorophyll-*a* data, respectively. Chrysophyta (golden algae) and bacillariophyta (diatoms) were dominant throughout the sampling season. Cryptophyta (cryptomonads) and euglenophyta (euglenas) peaked in April/May. Webber Pond was the only lake monitored that had a significant bloom of euglenophyta. Chlorophyta (green algae) were dominant in mid-summer. Chl-*a* was relatively low, below 10 µg/L, for most of the summer, but climbed towards fall. The fall increase could have been due to a die-off of filamentous algae or other macrophytes, since there was no corresponding bloom in a phytoplankton species which contained significant amounts of chl-*a*. Zooplankton data are not collected for this shallow waterbody.

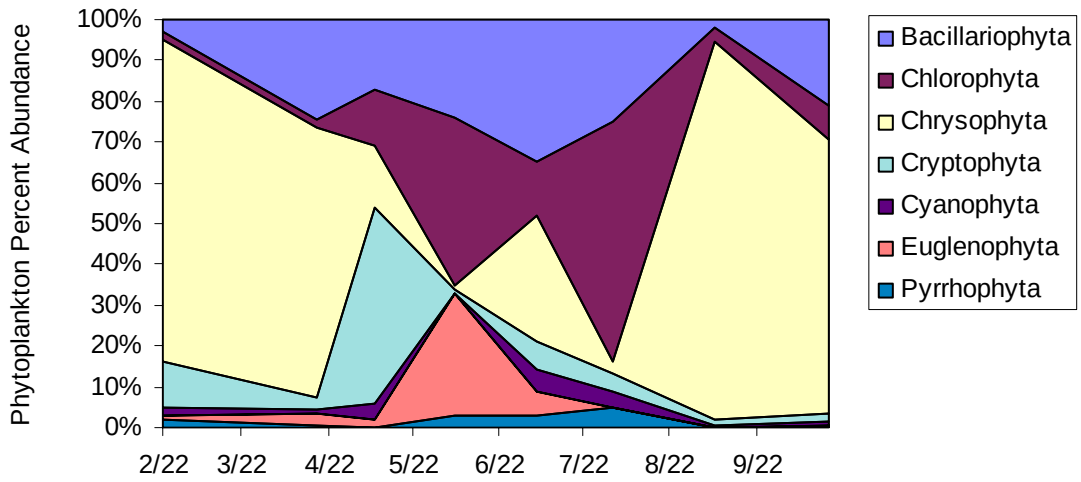


Figure 16D. Webber Pond 2006 phytoplankton abundance.

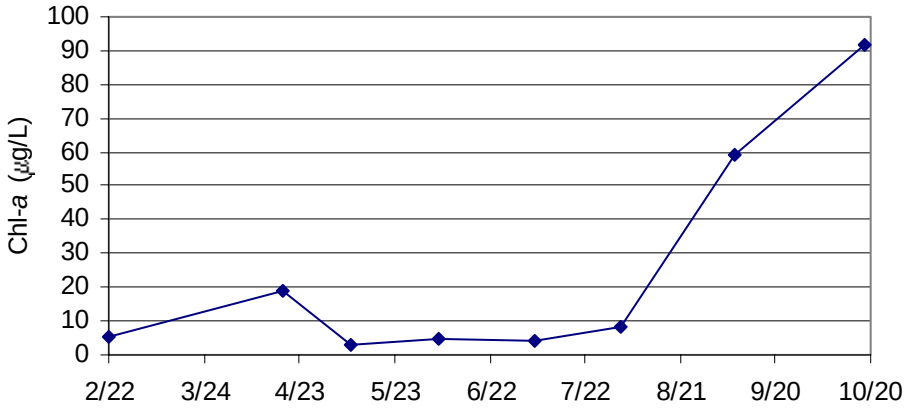


Figure 16D. Webber Pond 2006 chlorophyll-*a* data.

FISH STOCKING

Webber Pond is stocked with fish by the MDNR as part of the Fishing in the Neighborhood program (FIN). Additional information and a definition of fry, fingerling, yearling and adult fish can be found in Section 1.

Webber Pond was stocked in:
1998 with 319 adult Bluegill Sunfish
1999 with 499 adult Bluegill Sunfish
2000 with 5 adult Black Crappie, 837 adult Bluegill Sunfish, 8 adult Largemouth Bass
2001 with 409 adult Bluegill Sunfish
2002 with 399 adult Bluegill Sunfish
2003 with 420 adult Bluegill Sunfish
2004 with 531 adult Bluegill Sunfish
2005 with 415 adult Bluegill Sunfish, 25 adult Channel Catfish
2006 with 400 adult Bluegill Sunfish, 25 adult Channel Catfish

WATER QUALITY PROJECTS

In 2004, a shoreline restoration was completed at Webber Pond to address some of the major concerns of the park including waterfowl feces on the shoreline and trash on the pond. Mowed turf to the waters edge was replaced with native plantings. This will help deter geese from using the area and will help enhance the habitat and aesthetics of the park. The buffer will also aid in trapping garbage before it can blow onto the pond. The plants will take several years to become fully established and will require ongoing maintenance efforts. Several access points were left along the shoreline to allow for fishing. Fishing platforms were installed in 2005.