O'Conners Lake

DNR ID #82-0200	Municipality: Denmark Township
Surface Area: 23 Acres	Watershed Area: 6,018 Acres
Mean Depth:	Maximum Depth: 11 feet
SWWD Maximum Allowable Phosphorus Load: Pending	
SWWD Trophic State Index (TSI) Goal: Pending	

Map 16: O'Conners Lake

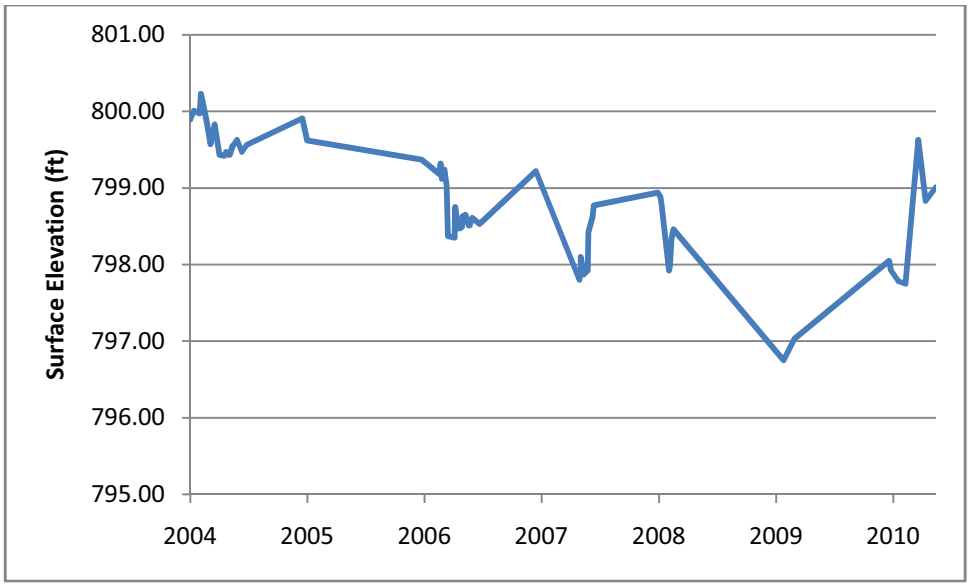
O'Conners Lake sits at the terminus of O'Conners Creek in a closed basin. The lake collects drainage from approximately 6,000 acres of agricultural and rural residential lands and drains into bedrock. O'Conners Lake and Creek were added to SWWD jurisdiction in 2010; however, monitoring through the CAMP program began in 2005.

Results

Lake level has been recorded at O'Conners Lake since 2004. Lake levels from 2004 through 2010 are displayed in Figure 26. Lake water quality was monitored 9 times during the 2010 season. Water Quality results are below in Table 22. Annual growing season averages of total phosphorus, chlorophyll

a, and secchi transparency are shown graphically in Figures 27-29. O'Conners Lake's 2010 trophic status and historical lake grades are summarized in Table 23.

Figure 26: O'Conner's Lake Surface Elevation, 2004 to 2010



Date	Secchi Depth (m)	Water Temperature °C	Surface Elevation (ft)	Chloride (mg/L)	Pheophytin a Corrected Chlorophyll a (ug/L)	Trichromatic Uncorrected Chlorophyll a (ug/L)	TKN (mg/L)	TP (mg/L)
04/15/10	1.2	19	798.05		21	25	0.97	0.072
05/14/10	1.3	13.7	797.78		7.1	7.9	0.81	0.05
06/05/10	1.9	22.7	797.75		7.4	7.5	0.77	0.03
06/26/10	0.2	24.3			5.4	6.5	0.8	0.14
07/15/10	0.7	25.5	799.63		20	23	1.2	0.213
07/25/10	0.8	26.7			26	27	2.5	0.14
08/07/10	0.9	29.6	798.83		19	22	0.99	0.099
08/28/10	0.6	23.7			31	35	1.3	0.145
09/08/10	0.3	20.3	799.01		130	140	1.9	0.151

Table 22: O'Conner's Lake 2010 Water Quality Data Collected for Met Council's Citizen Assisted Monitoring Program (CAMP)

Figure 27: O'Conner's Lake Historical Mean Growing Season Total Phosphorus Concentrations

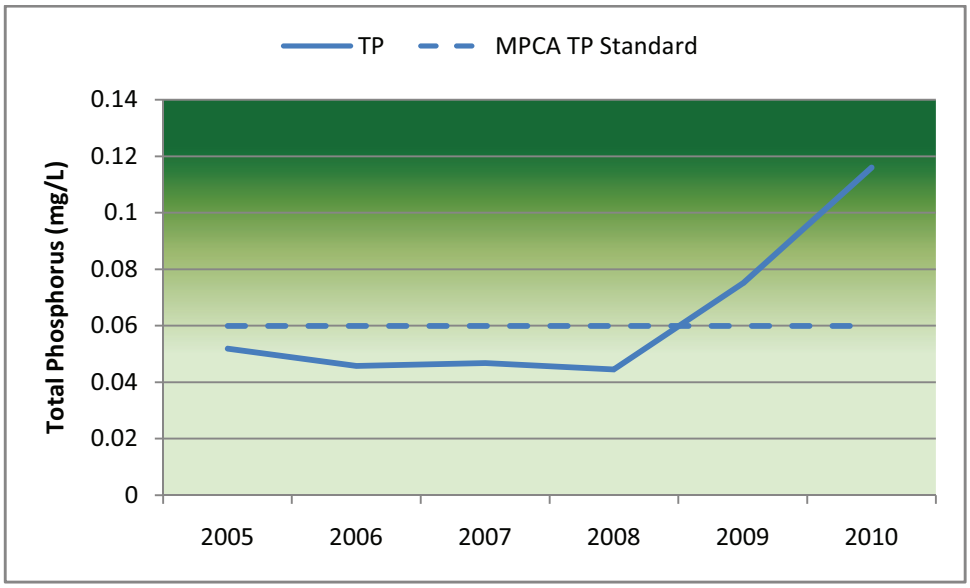
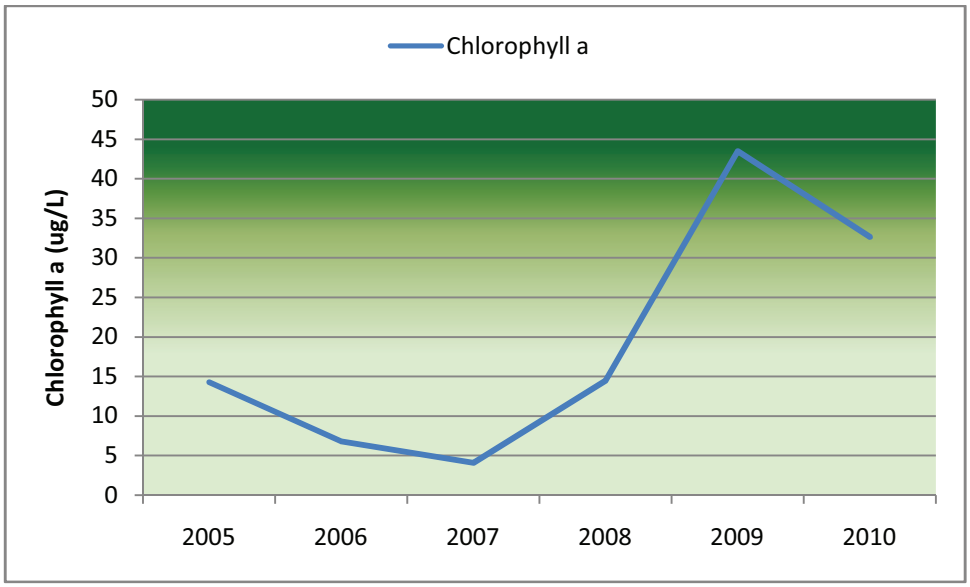
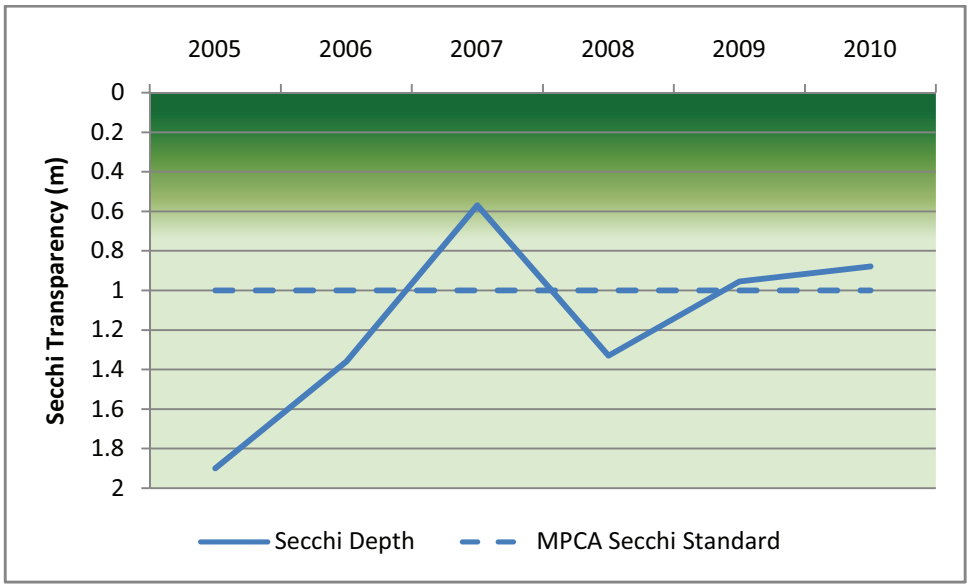


Figure 28: O'Conner's Lake Historical Mean Growing Season Chlorophyll a[1] Concentrations



[1]Uncorrected trichromatic chlorophyll a concentrations are displayed in this figure and are the basis of the Met Council lake grading system. MnPCA standards apply to Pheophytin a corrected chlorophyll a concentrations.

Figure 29: O'Conner's Lake Historical Mean Growing Season Secchi Transparency



Parameter	Trophic Status	Lake Grades 05	06	07	08	09	10
Total Phosphorus	Eutrophic	C	C	C	C	D	D
Chlorophyll a	Eutrophic	B	A	A	B	C	C
Secchi Transparency	Meso-trophic	C	C	F	C	D	D
Overall	Eutrophic	C	B	C	C	D	D

Table 23: O'Conner's Lake 2010 Trophic Status and Historical Lake Grades

Discussion

O'Conner's Lake exhibits characteristics similar to other closed basin systems. Historically, water levels drop slowly during prolonged dry stretches and rise rapidly during wet years (2005, 2010). Water quality however, is a concern at O'Conner's Lake. Total phosphorus, while steady from 2005-2007, has increased rapidly beginning in 2008. While not has clear, chlorophyll a and transparency (as measured by secchi depth) have also followed a general decline since monitoring began. These trends are especially concerning in a closed basin lake as nutrients will continue to cycle within the system.