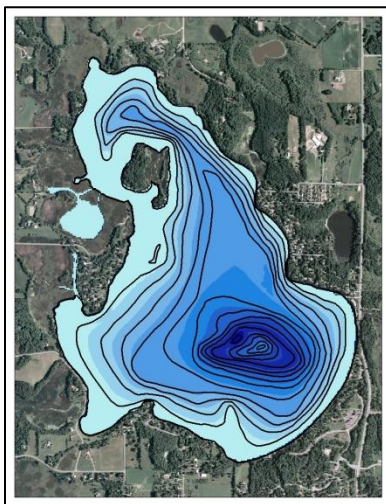
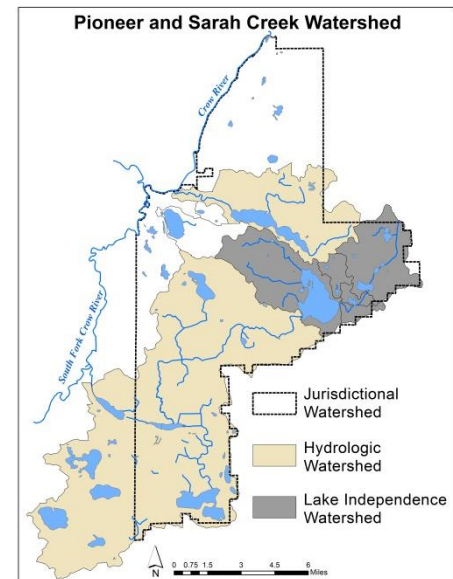
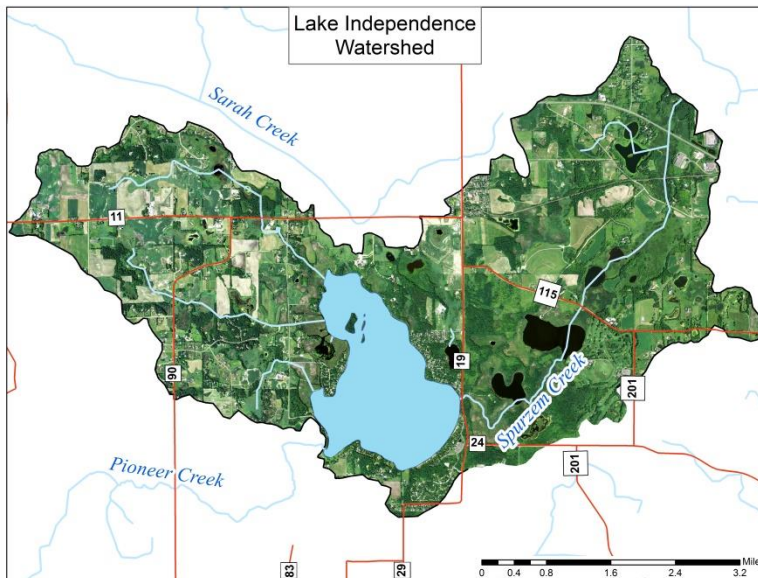
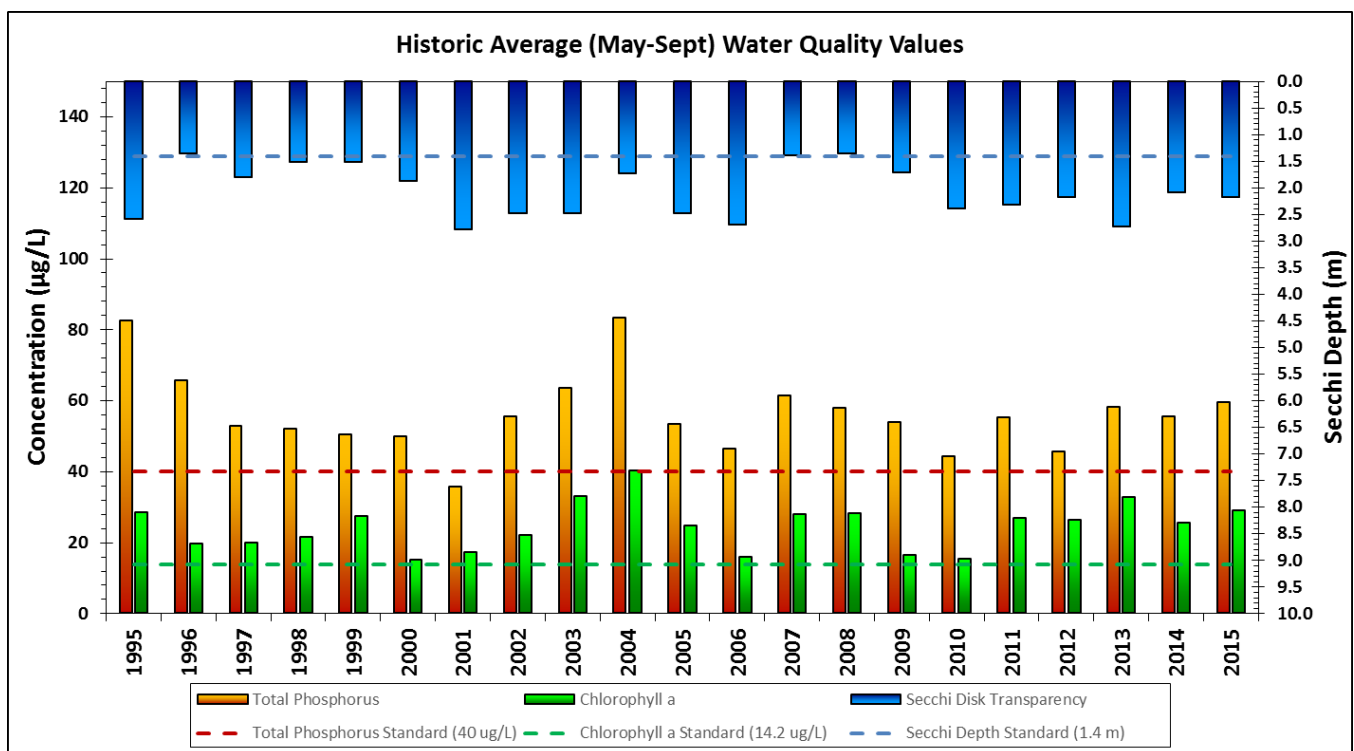


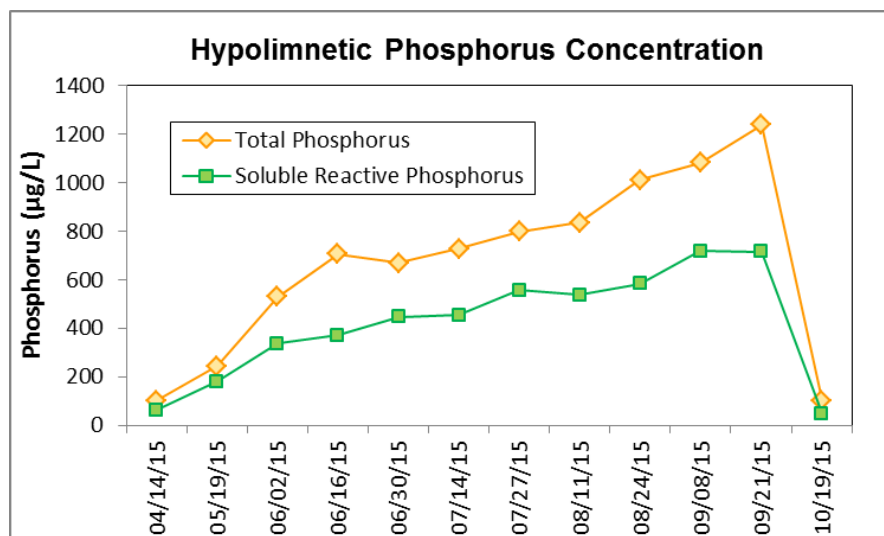
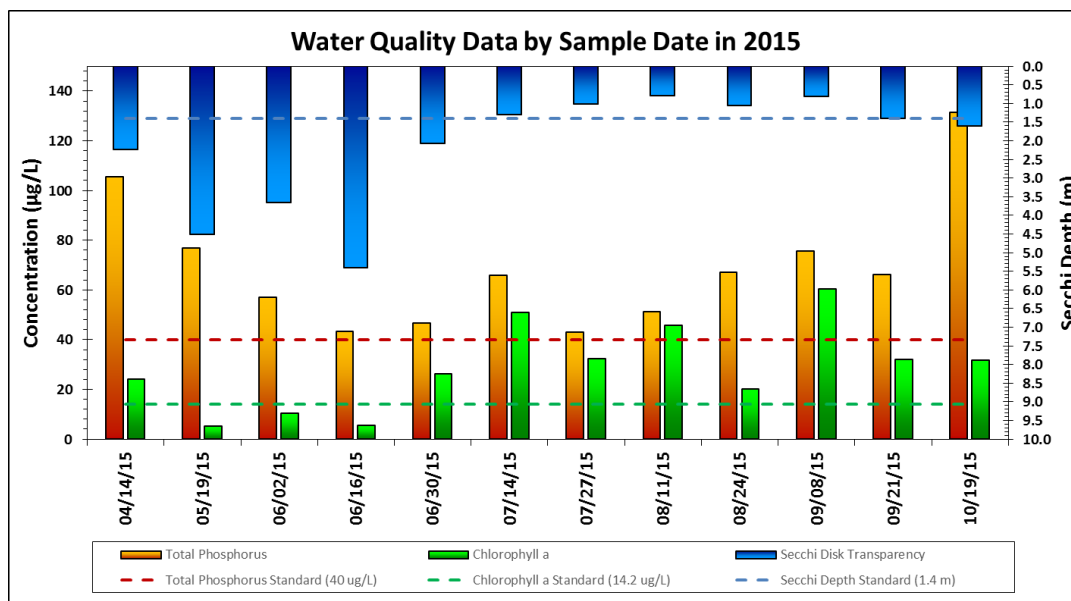
Lake Independence



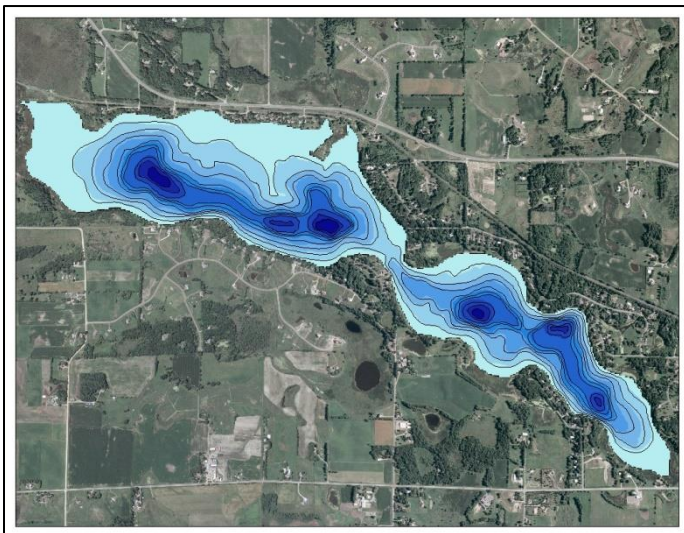
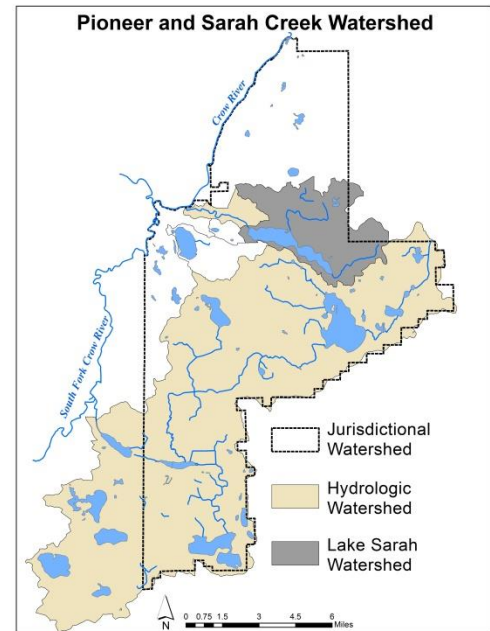
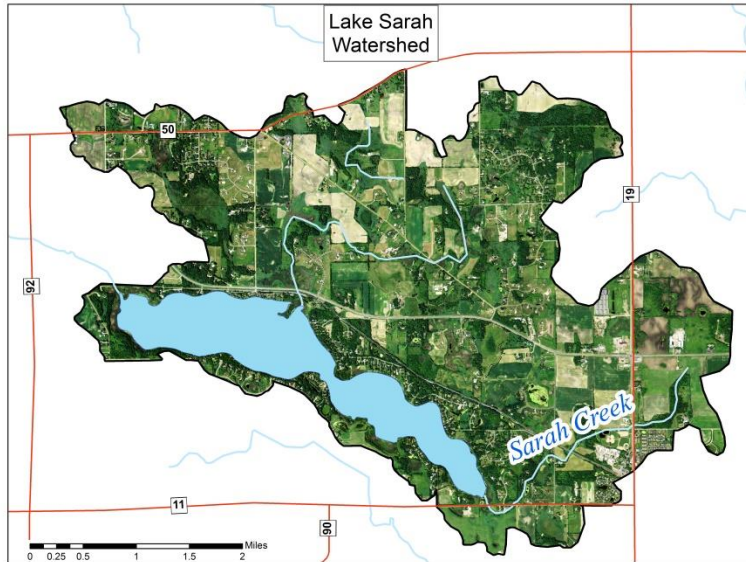
Lake and Watershed Characteristics	
DNR #	27017600
Watershed Area	7632 Acres
Lake Area	832 Acres
% Littoral Area	51%
Average Depth	15.9 ft
Maximum Depth	58.0 ft
Watershed/Lake Area Ratio	9.2 : 1
Impairment	Excessive Nutrients 2002
Classification	Deep Lake



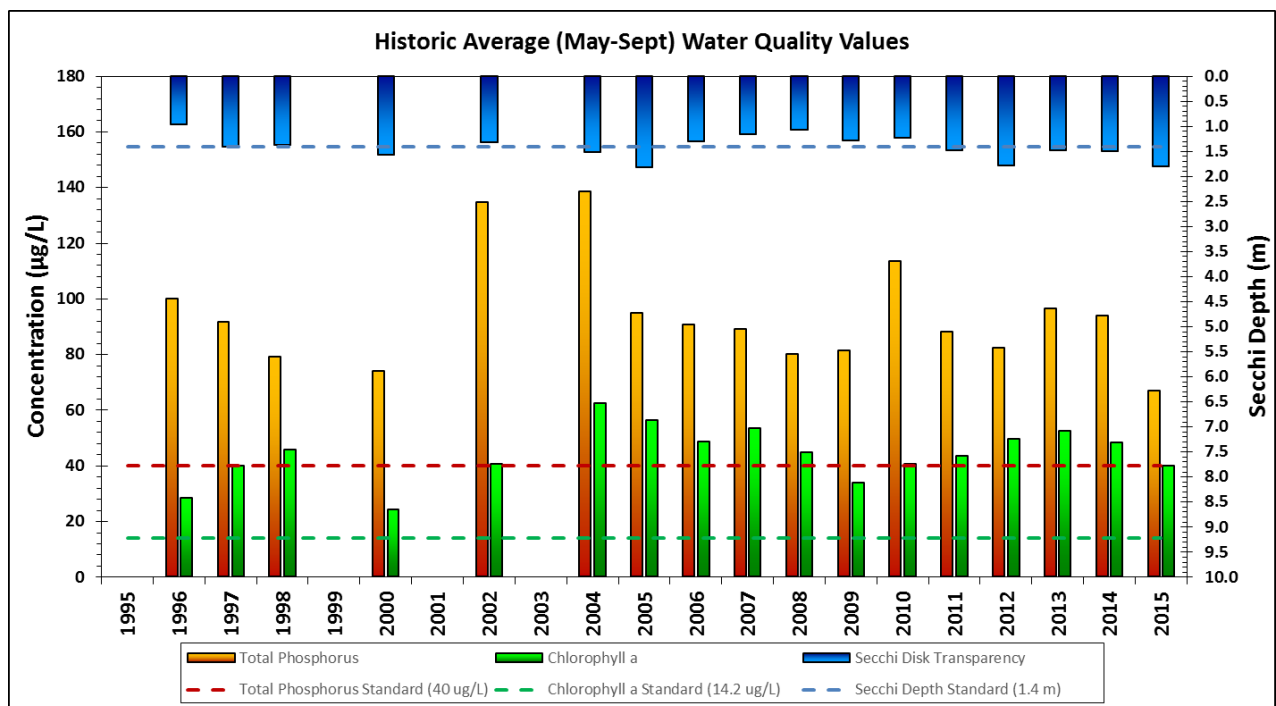
Lake Independence Water Quality Report Card				
Year	TP	Chl-a	Secchi	Avg Grade
1995	D	C	B	C
1996	C	B	C	C+
1997	C	B	C	C+
1998	C	C	C	C
1999	C	C	C	C
2000	C	B	C	C+
2001	C	B	B	B
2002	C	C	B	C+
2003	C	C	B	C+
2004	D	C	C	C
2005	C	C	B	C+
2006	C	B	B	B
2007	C	C	C	C
2008	C	C	C	C
2009	C	B	C	C+
2010	C	B	B	B
2011	C	C	B	C+
2012	C	C	C	C
2013	C	C	B	C+
2014	C	C	C	C
2015	C	C	C	C



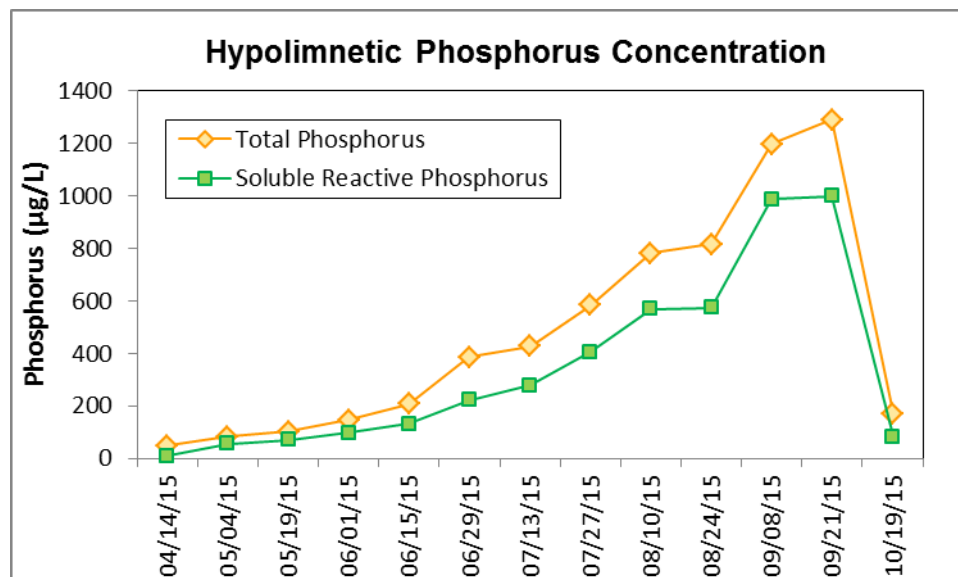
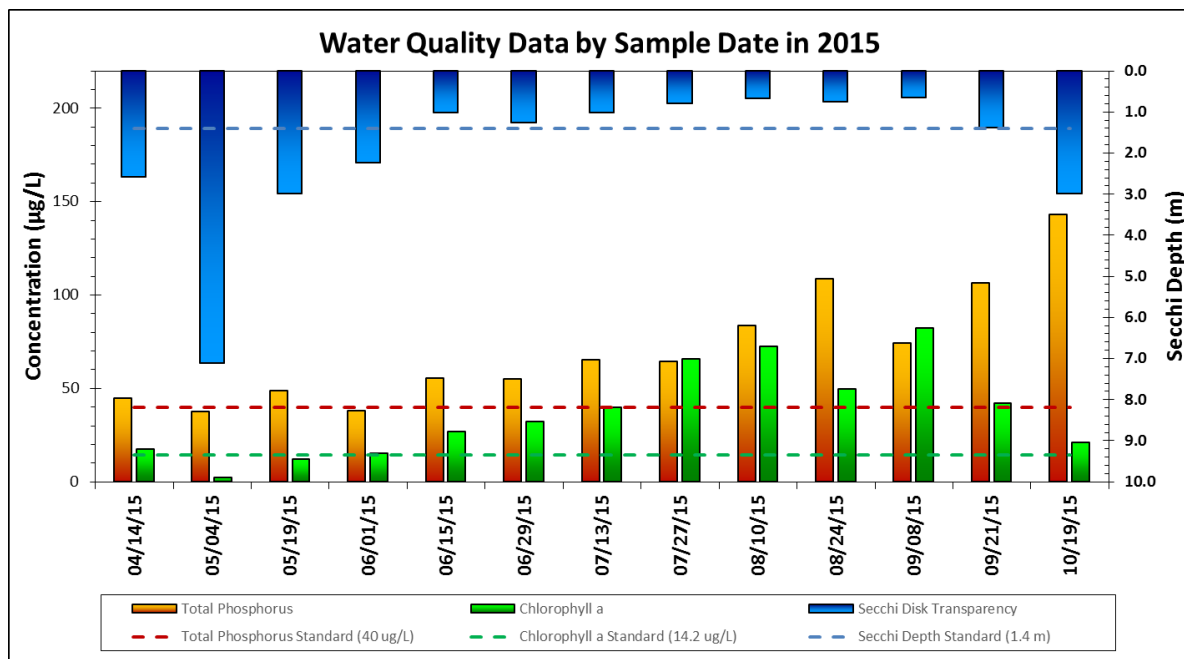
Lake Sarah



Lake and Watershed Characteristics	
DNR #	27019100
Watershed Area	4518.6 Acres
Lake Area	536.1 Acres
% Littoral Area	61%
Average Depth	13.7 ft
Maximum Depth	49.9 ft
Watershed/Lake Area Ratio	8.4 : 1
Impairment	Excessive Nutrients 2006
Classification	Deep Lake



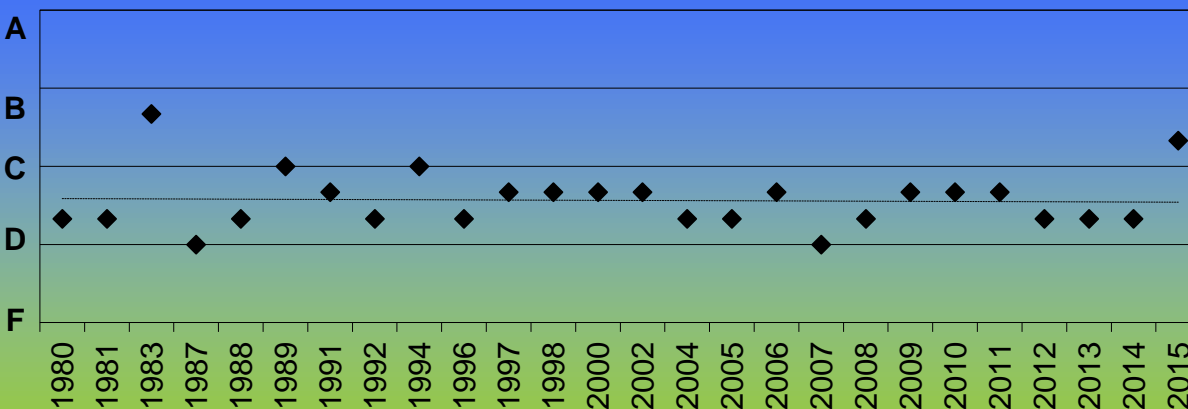
Lake Sarah Water Quality Report Card				
Year	TP	Chl-a	Secchi	Avg Grade
1995				
1996	D	C	D	D+
1997	D	C	C	C
1998	D	C	C	C
1999				
2000	D	C	C	C
2001				
2002	D	C	C	C
2003				
2004	D	D	C	D+
2005	D	D	C	D+
2006	D	D	C	D+
2007	D	D	D	D
2008	D	C	D	D+
2009	D	C	C	C
2010	D	C	C	C
2011	D	C	C	C
2012	D	D	C	D+
2013	D	D	C	D+
2014	D	D	C	D+
2015	C	C	C	C



NAME: Sarah (West basin)
WATERSHED: Pioneer Sarah
MONITORED BY: Three Rivers Park District/HCD

DNR ID#: 17-0191 01

ENVIRONMENTAL INDICATORS Lake Sarah Annual Grades



10 Year Average = D+

10 Year Trend = Steady

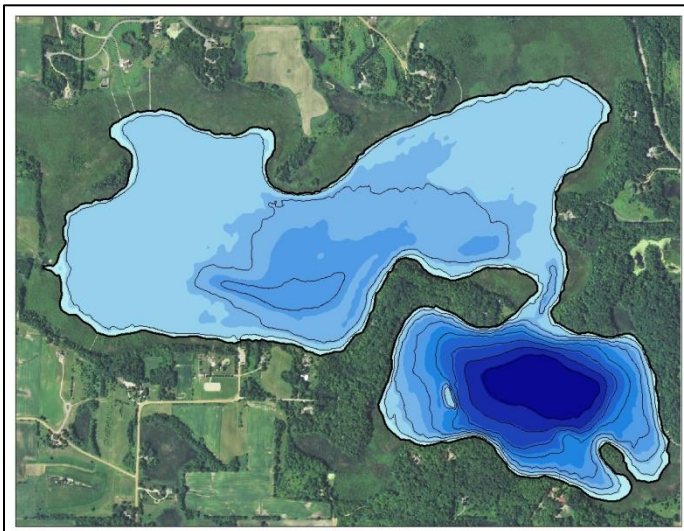
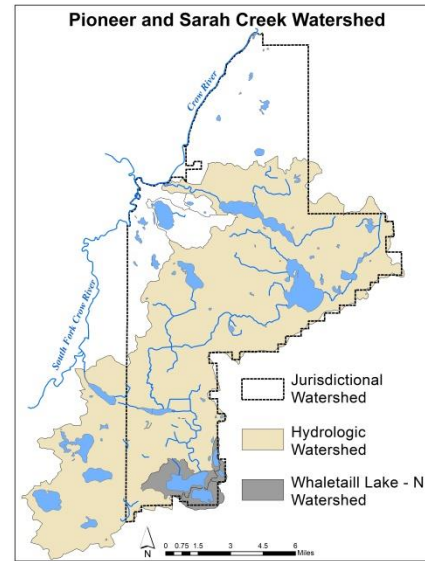
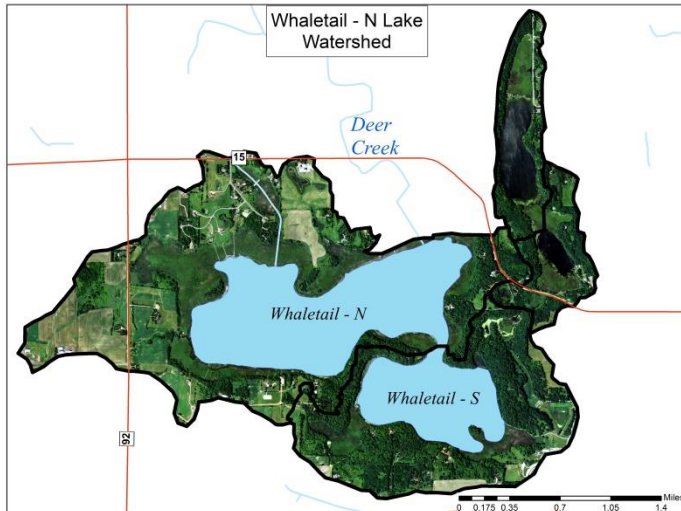
Year	TP (ug/L)	Grade	CLA (ug/L)	Grade	Secchi (m)	Grade	Final Grade	Numerical Grade
1980	61.0	C	55.0	D	1.1	D	D+	1.33
1981	61.0	C	56.0	D	0.9	D	D+	1.33
1983	7.0	A	43.0	C	1.6	C	B-	2.67
1987	41.0	C	103.6	F	1.0	D	D	1.00
1988	58.6	C	54.2	D	1.0	D	D+	1.33
1989	32.3	C	30.0	C	1.3	C	C	2.00
1991	107.8	D	20.4	C	1.4	C	C-	1.67
1992	92.8	D	26.4	C	1.1	D	D+	1.33
1994	57.0	C	48.0	C	1.8	C	C	2.00
1996	100.1	D	28.3	C	1.0	D	D+	1.33
1997	91.6	D	39.9	C	1.4	C	C-	1.67
1998	79.1	D	45.7	C	1.4	C	C-	1.67
2000	82.1	D	24.1	C	1.8	C	C-	1.67
2002	146.3	D	41.2	C	1.3	C	C-	1.67
2004	138.6	D	62.3	D	1.5	C	D+	1.33
2005	94.9	D	56.3	D	1.8	C	D+	1.33
2006	79.6	D	46.8	C	1.4	C	C-	1.67
2007	92.1	D	54.6	D	1.1	D	D	1.00
2008	83.8	D	44.8	C	1.1	D	D+	1.33
2009	81.2	D	33.9	C	1.3	C	C-	1.67
2010	113.4	D	40.7	C	1.2	C	C-	1.67
2011	88.0	D	43.7	C	1.5	C	C-	1.67
2012	82.2	D	49.6	D	1.8	C	D+	1.33
2013	96.3	D	52.4	D	1.5	C	D+	1.33
2014	93.8	D	48.2	D	1.5	C	D+	1.33
2015	26.9	B	40.0	C	1.8	C	C+	2.33

GPA 1.56
C-

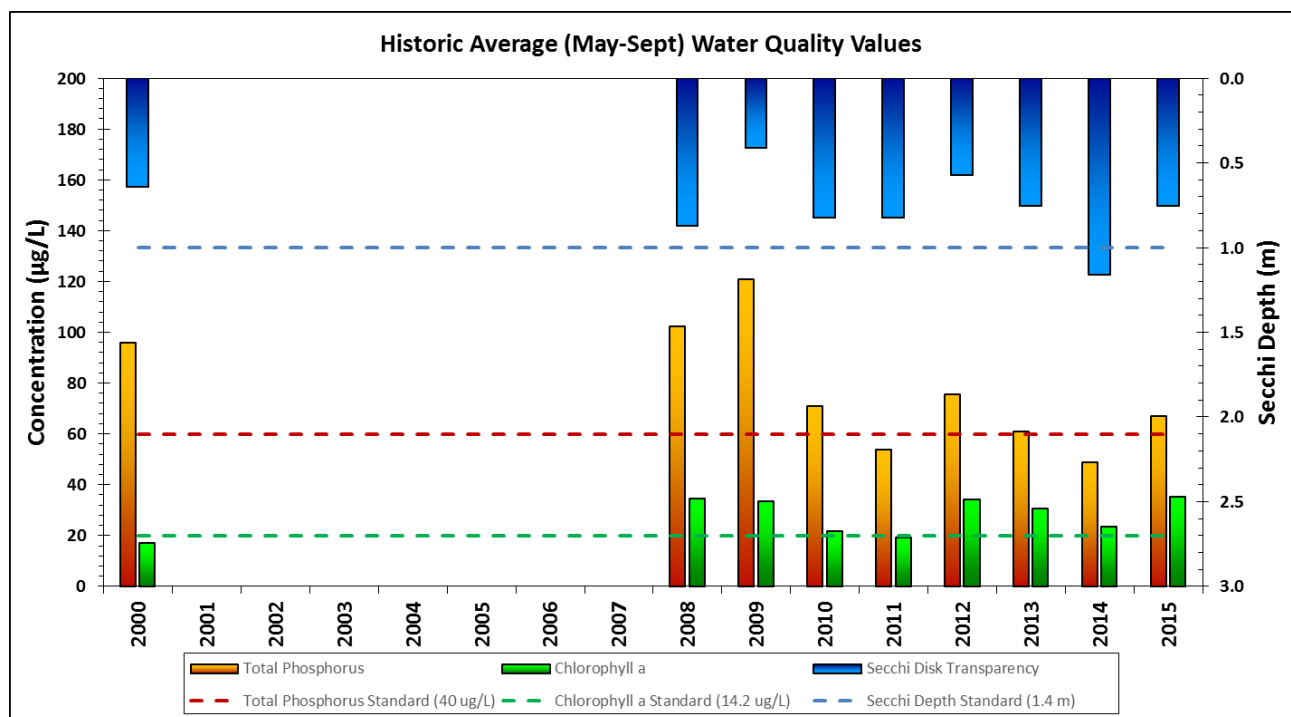
THREE FACTORS IN THE LAKE GRADE	
Total Phosphorus (TP)	The total phosphorus measure. Increased phosphorus relates closely to increased algae, frequency of algae blooms and the increased quantity of blue-green algae.
Chlorophyll-a (CLA)	Chlorophyll-a or the green pigment in plants is essential to photosynthesis. A measure of its presence in water estimates algae abundance.
Secchi Disk (SD)	The Secchi disk transparency. The deeper the Secchi disk is visible, the clearer the water appears.

COUNTYWIDE STATISTICS OF LAKES MONITORED			
Metropolitan Council Ranking	Hennepin County Avg. Grades using 2005-2014 monitoring data (50 lakes)	Hennepin County 2014 Grades (50 lakes)	General Description
A (10%)	8.8 lakes (17.6%)	10 lakes (20%)	Crystal Clear, beautiful. These lakes are exceptional and are enjoyed recreationally without question or hesitation. No impairment.
B (10%)	9.9 lakes (19.8%)	10 lakes (20%)	These lakes generally have good water quality, but algae may limit swimming, particularly toward the end of summer. Some impairment.
C (60%)	19.7 lakes (39.4%)	17 lakes (34%)	Average quality. Swimming, boating and fishing may be undesirable relatively early in the season. Algae blooms occasionally. Impaired.
D (10%)	10.6 lakes (21.2%)	13 lakes (26%)	These lakes have severe algae problems. People are generally not interested in recreation on these lakes. Severely impaired.
F (10%)	1 lakes (2.0%)	0 lakes (0%)	Not enjoyable. Such lakes would have severe limitations to recreational use. Very limited uses.

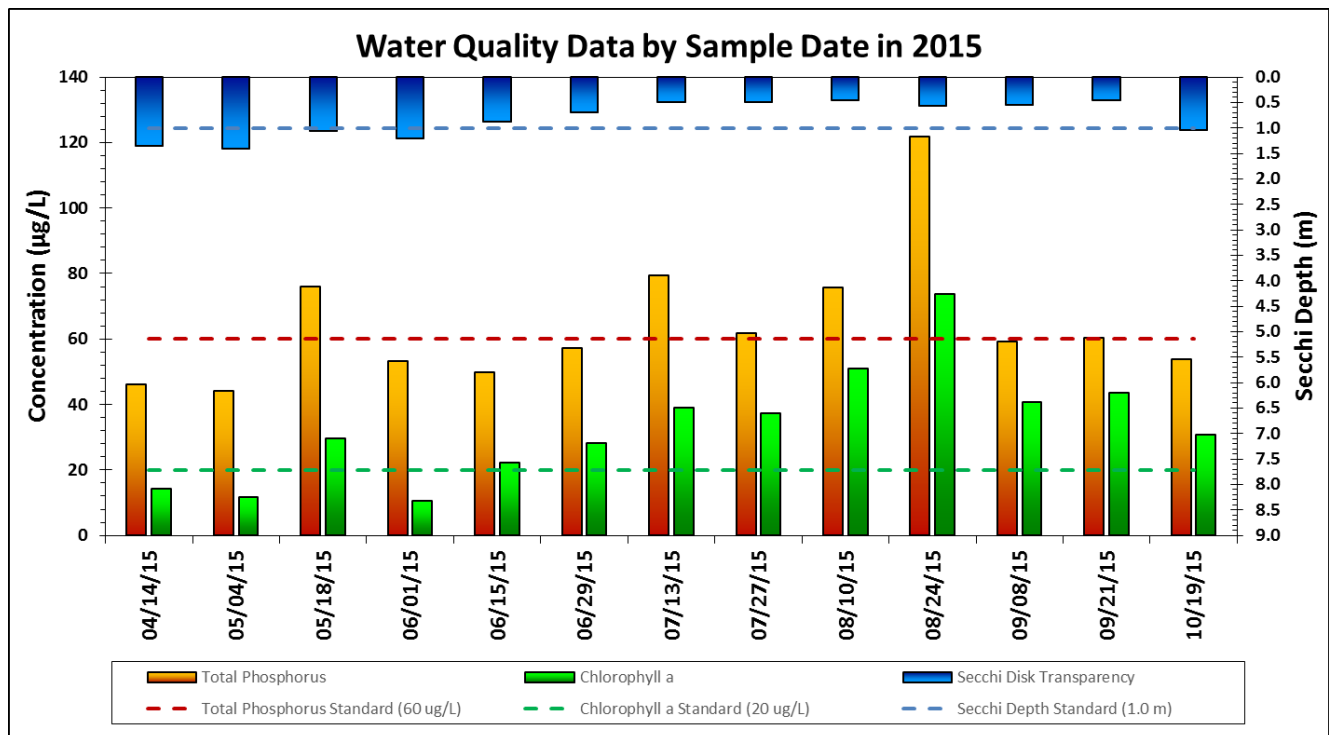
Whaletail North



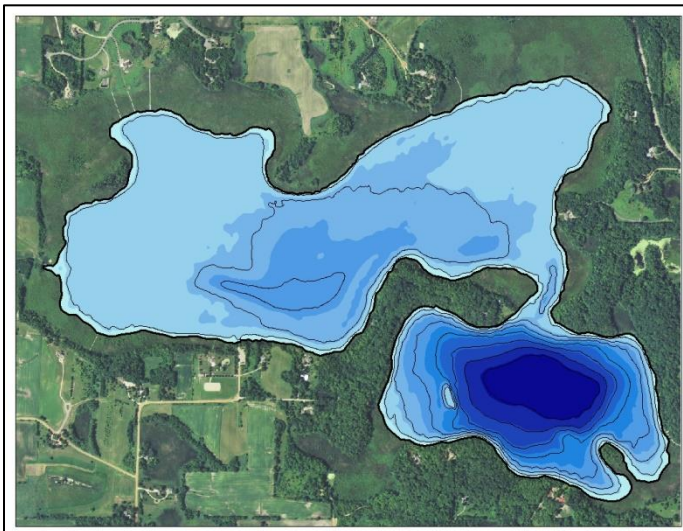
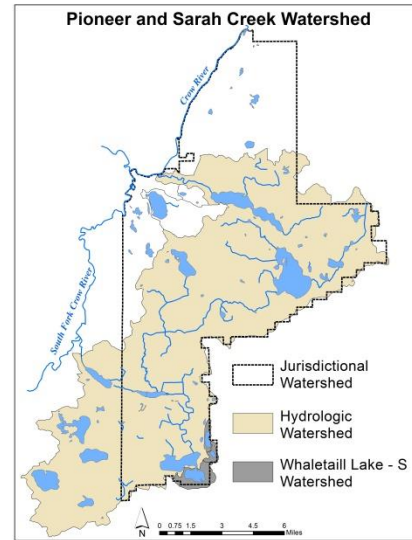
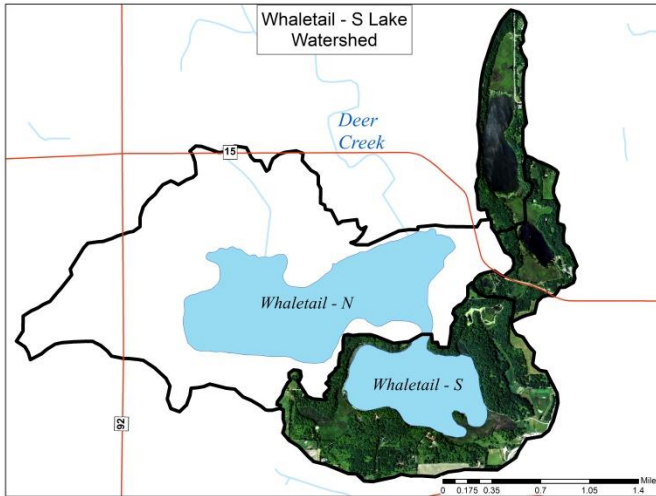
Lake and Watershed Characteristics	
DNR #	27018401
Watershed Area	1584.5 Acres
Lake Area	369.9 Acres
% Littoral Area	100%
Average Depth	5.2 ft
Maximum Depth	10.3 ft
Watershed/Lake Area Ratio	4.3 to 1
Impairment	Proposed Listing 2016
Classification	Provisional Shallow Lake



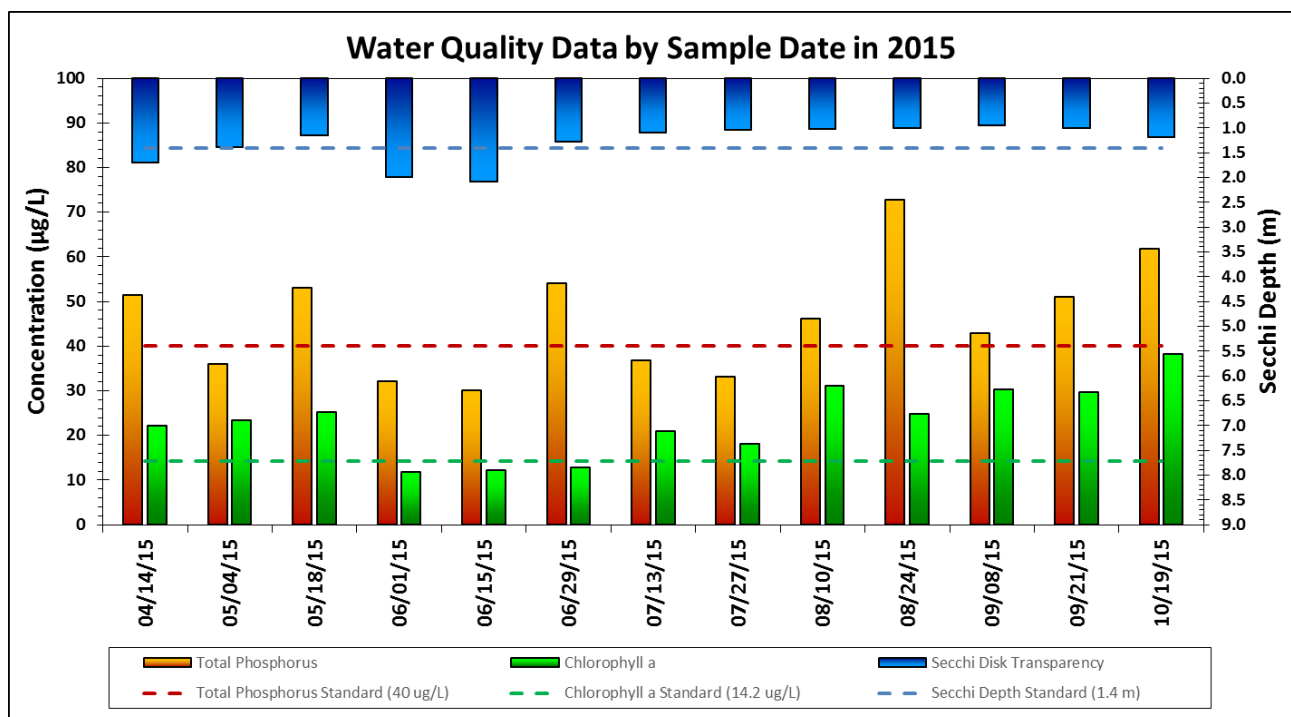
Whaletail North Water Quality Report Card				
Year	TP	Chl-a	Secchi	Avg Grade
2000	D	B	F	D+
2001				
2002				
2003				
2004				
2005				
2006				
2007				
2008	D	C	D	D+
2009	D	C	F	D
2010	D	C	D	D+
2011	C	B	D	C
2012	D	C	F	D
2013	C	C	D	C
2014	C	C	D	C



Whaletail South



Lake and Watershed Characteristics	
DNR #	27018402
Watershed Area	661 Acres
Lake Area	156.1 Acres
% Littoral Area	66%
Average Depth	12.1 ft
Maximum Depth	23.3 ft
Watershed/Lake Area Ratio	4.2 to 1
Impairment	Proposed Listing 2016
Classification	Provisional Deep Lake



Whaletail South Water Quality Report Card				
Year	TP	Chl-a	Secchi	Avg Grade
2000	C	B	C	C+
2001				
2002				
2003	C	C	C	C
2004				
2005	C	C	D	C
2006				
2007	C	C	C	C
2008	C	C	D	C
2009	D	C	D	D+
2010	C	B	C	C+
2011	C	B	C	C+
2012	C	C	D	C
2013	C	C	C	C
2014	C	C	C	C
2015	C	C	C	C

