Water Quality Monitoring Trends

1991 - 2024

EAGAN

Introduction to Water Quality Monitoring

What data are you collecting?

The City of Eagan has been collecting water quality data since 1991. Every summer between June and September, City staff collect samples from between 12 and 16 waterbodies across Eagan. Those samples are sent to a lab to be analyzed for the following parameters:

- Total phosphorous
- Ortho phosphorous
- Chlorophyll-a
- Secchi depth (clarity)
- Temperature
- Dissolved oxygen
- pH
- Conductivity
- Total dissolved solids
- Kjeldahl nitrogen
- Nitrate / nitrite

What do you do with this information?

At the end of the year, we compare these results against the State of Minnesota's Water Quality Standards, and look at the overall trends in each waterbody over time. Collectively, this gives us a snapshot of ecosystem health - and tells us where we need to focus improvement efforts moving forward.

The Water Resources Team will meet in the fall to discuss the monitoring data, along with any other observations collected over the summer season. We then assemble our list of Capital Improvement Projects for the coming cycle. Every spring, the Public Works Department presents a comprehensive, updated 5-year CIP list to City Council for approval.

What's in this guide?

Surface waterbodies are complex systems that respond to a wide range of natural, and unnatural, variables. Climate change, development, and the introduction of invasive plants and animals are just some of the factors that have significant impacts on the quality of our surface waters from one year to the next.

The City has been conducting water quality improvement projects since the early 1990's - these sheets only include the last 5 years of improvements for the sake of space. These fact sheets and the accompanying data tables are designed to provide a more complete picture of each waterbody that we have data for. Values for each year is calculated as the median value of all the samples collected during that sampling season.

Total Phosphorous (TP)

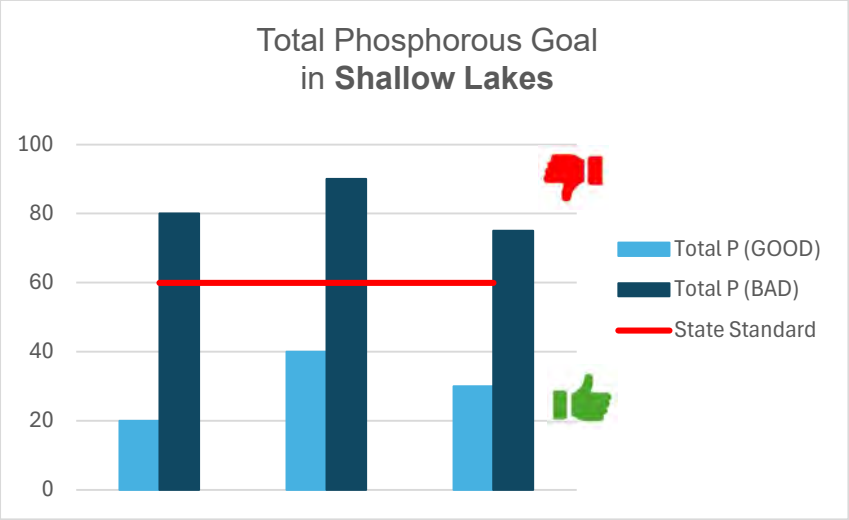
Phosphorous is an important component in lakes, ponds, and wetlands. Plants and algae are the foundation of these aquatic ecosystems - and they can't exist without phosphorous. However, excess phosphorous from stormwater runoff can overload a waterbody - leading to algae blooms which can choke out other aquatic vegetation. This vegetation provides critical habitat and food sources, and supports dissolved oxygen levels that other aquatic organisms need to survive.

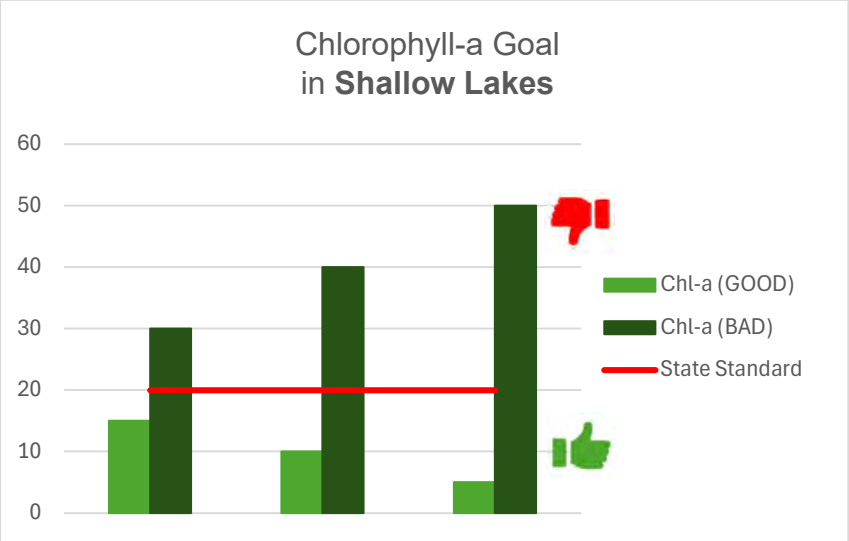
Chlorophyll-a (Chl-a)

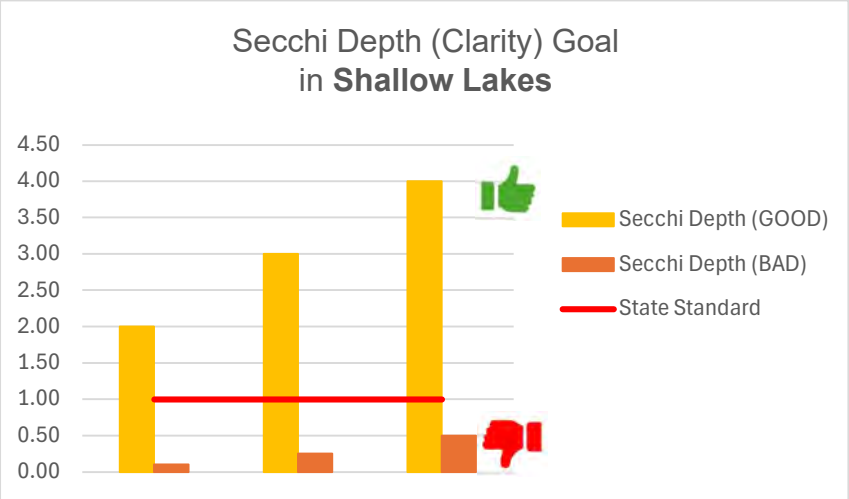
Algae cells need chlorophyll to absorb sunlight and turn it into oxygen - which in turn is used by other organisms in a waterbody in a cycle. Monitoring chlorophyll-a tells us how many active algae cells are in a sample. When levels are too high, the balance is thrown off and algae cells can replicate too quickly, or 'bloom.'

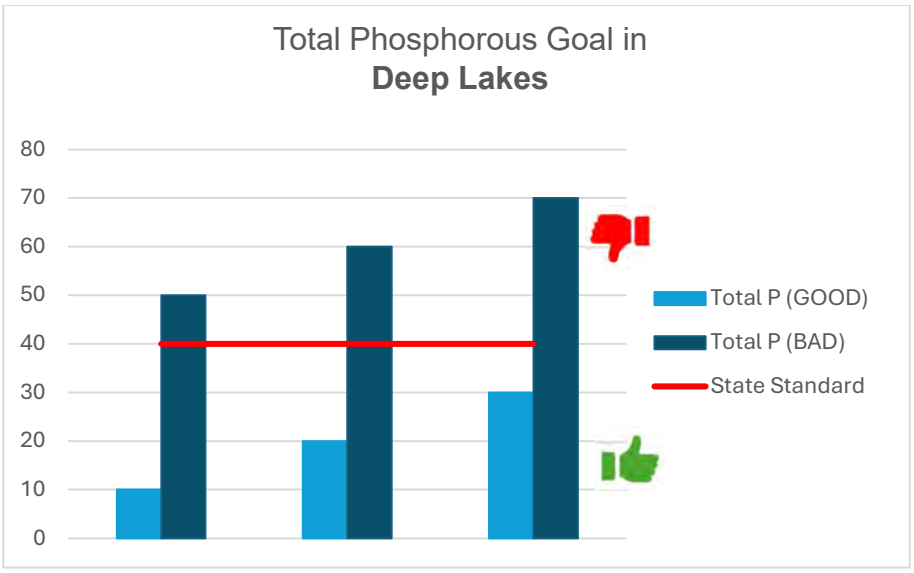
Secchi Depth (Clarity)

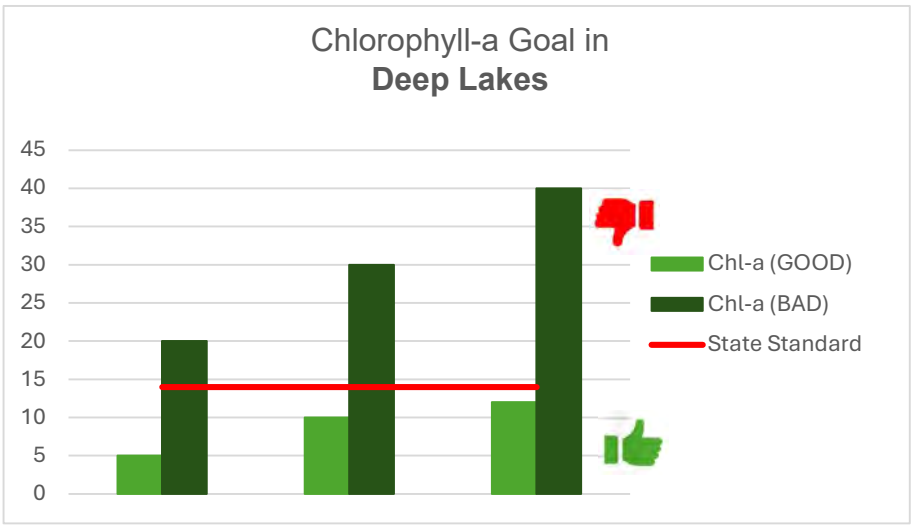
Secchi depth tells us how clear the water is at a given time. Better clarity means that light can penetrate further, which allows aquatic plants to grow in their natural cycle. Aquatic plants release dissolved oxygen, and provide critical habitat and food sources for fish and other wildlife.

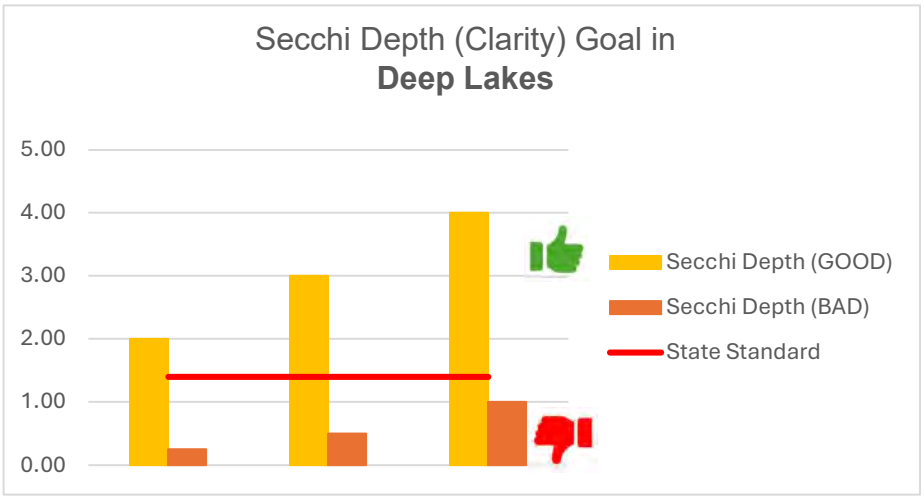

Total Phosphorous Goal
in **Shallow Lakes**
100
80
60
40
20
0
Total P (GOOD)
Total P (BAD)
State Standard


Chlorophyll-a Goal
in **Shallow Lakes**
60
50
40
30
20
10
0
Chl-a (GOOD)
Chl-a (BAD)
State Standard


Secchi Depth (Clarity) Goal
in **Shallow Lakes**
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Secchi Depth (GOOD)
Secchi Depth (BAD)
State Standard


Total Phosphorous Goal in
Deep Lakes
80
70
60
50
40
30
20
10
0
Total P (GOOD)
Total P (BAD)
State Standard


Chlorophyll-a Goal in
Deep Lakes
45
40
35
30
25
20
15
10
5
0
Chl-a (GOOD)
Chl-a (BAD)
State Standard


Secchi Depth (Clarity) Goal in
Deep Lakes
5.00
4.00
3.00
2.00
1.00
0.00
Secchi Depth (GOOD)
Secchi Depth (BAD)
State Standard

Jump to Your Lake!

Click on the name of the lake below to jump to that section.

Almquist Lake

City ID:	BLP-4
Waterbody type:	Wetland
Surface area:	9.36 acres
Maximum depth:	5.50 feet
Public access:	No
Supported uses:	Habitat, Education, Aesthetics

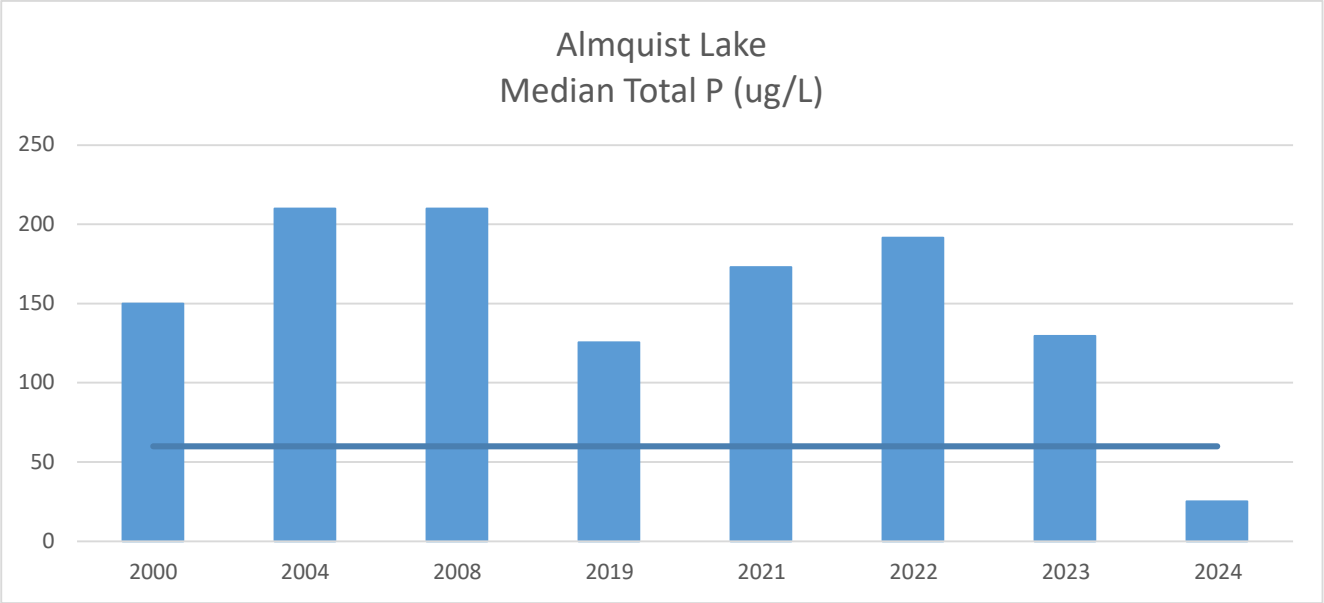
WATER QUALITY IMPROVEMENTS [2020–PRESENT]

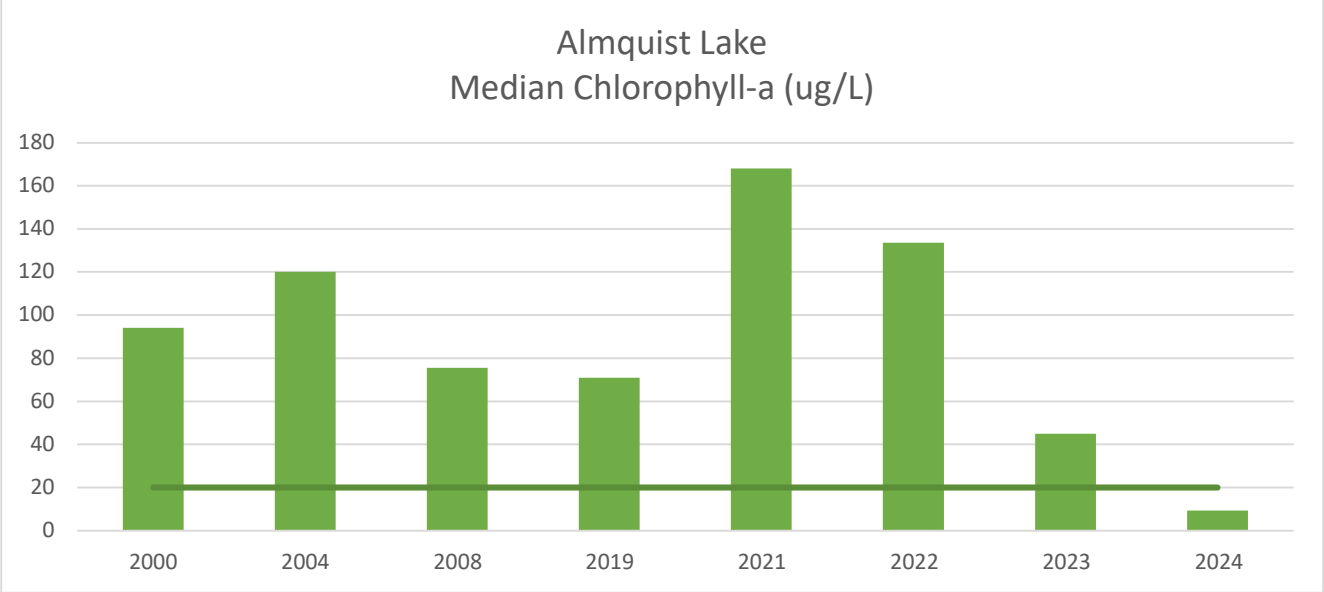
2021 — Fish population survey completed to assess overall health of the lake's fishery (results were excellent)

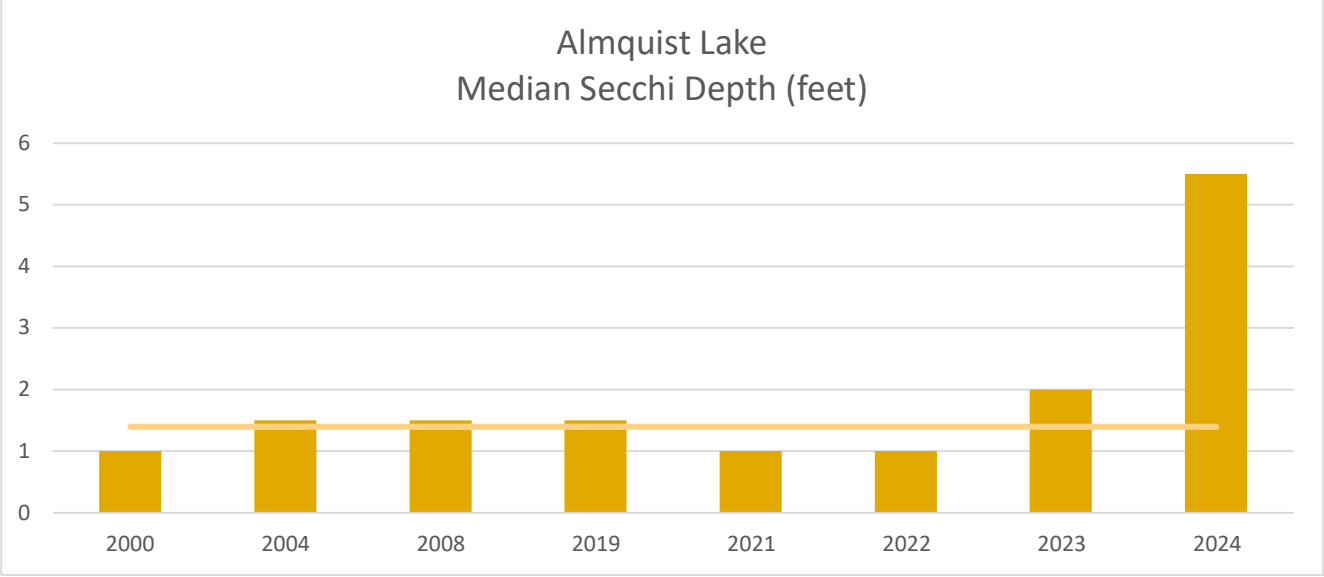
2022 — Rotenone treatment to eliminate goldfish infestation

2023 — Alum application to reduce in-lake nutrient load; Electroshocking to remove additional goldfish

2024 — 450 bluegill sunfish stocked to compete with few remaining goldfish and add native fish species


Almquist Lake
Median Total P (ug/L)
250
200
150
100
50
0
2000
2004
2008
2019
2021
2022
2023
2024


Almquist Lake
Median Chlorophyll-a (ug/L)
180
160
140
120
100
80
60
40
20
0
2000
2004
2008
2019
2021
2022
2023
2024


Almquist Lake
Median Secchi Depth (feet)
6
5
4
3
2
1
0
2000
2004
2008
2019
2021
2022
2023
2024

Bald Lake

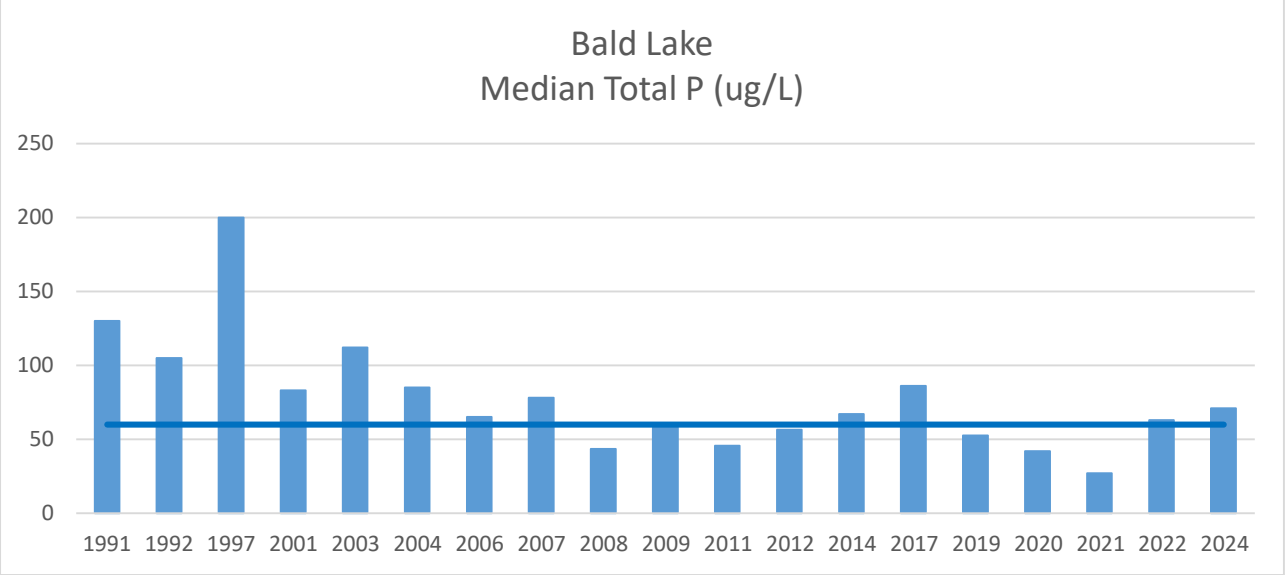
City ID:	JP-20
Waterbody type:	Shallow Lake
Surface area:	10.30 acres
Average depth:	4.10 feet
Maximum depth:	8.50 feet
Public access:	Yes
Supported uses:	Fishing, Canoeing/ Kayaking

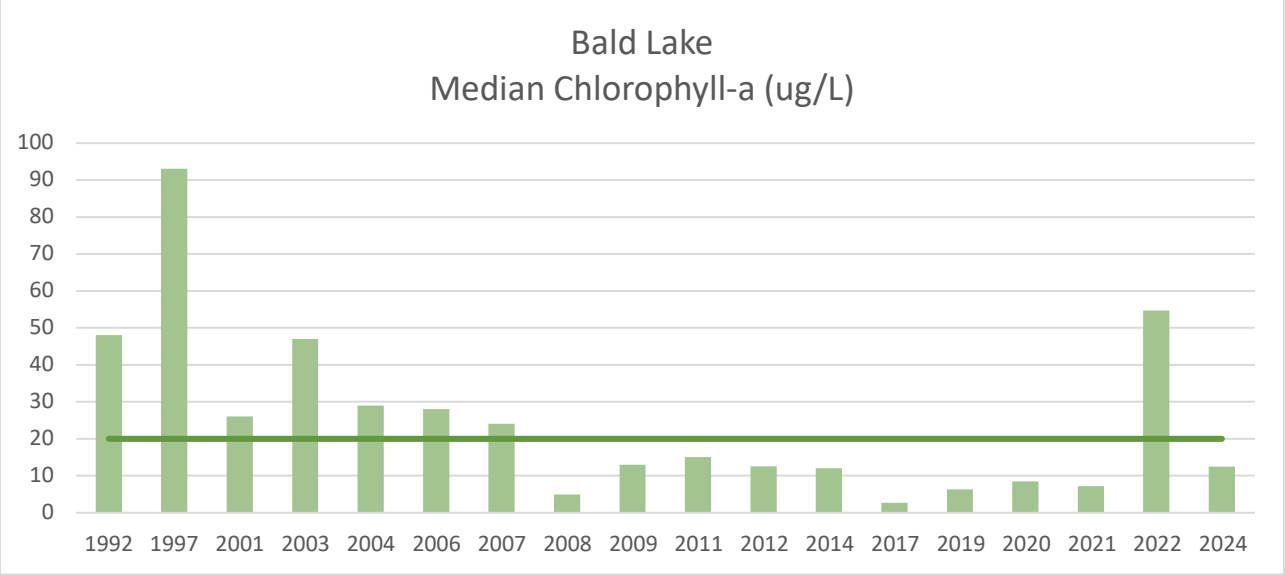
WATER QUALITY IMPROVEMENTS [2020–PRESENT]

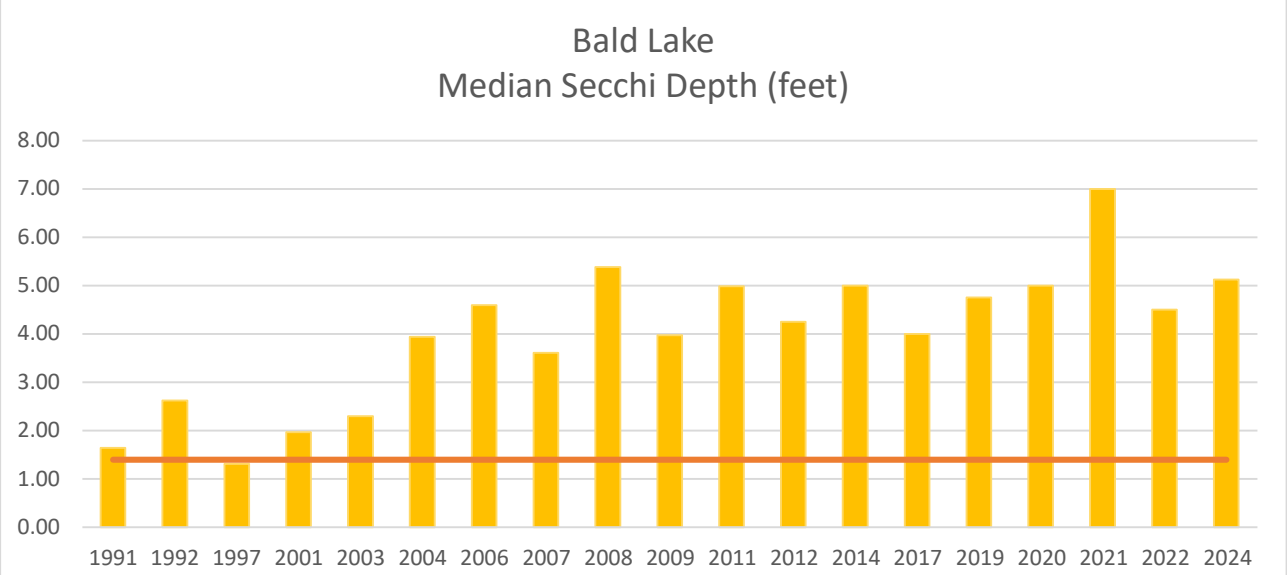
As needed — Aerated in winter as needed to prevent fish kills

2020 — Stocked: 200 pounds of fathead minnows

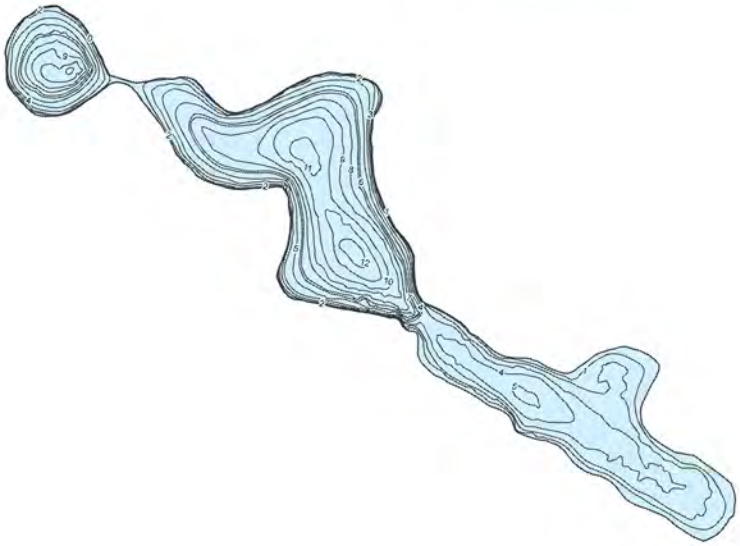
Alum application to reduce in-lake nutrient load


Bald Lake
Median Total P (ug/L)
250
200
150
100
50
0
1991 1992 1997 2001 2003 2004 2006 2007 2008 2009 2011 2012 2014 2017 2019 2020 2021 2022 2024


Bald Lake
Median Chlorophyll-a (ug/L)
100
90
80
70
60
50
40
30
20
10
0
1992 1997 2001 2003 2004 2006 2007 2008 2009 2011 2012 2014 2017 2019 2020 2021 2022 2024


Bald Lake
Median Secchi Depth (feet)
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1991 1992 1997 2001 2003 2004 2006 2007 2008 2009 2011 2012 2014 2017 2019 2020 2021 2022 2024

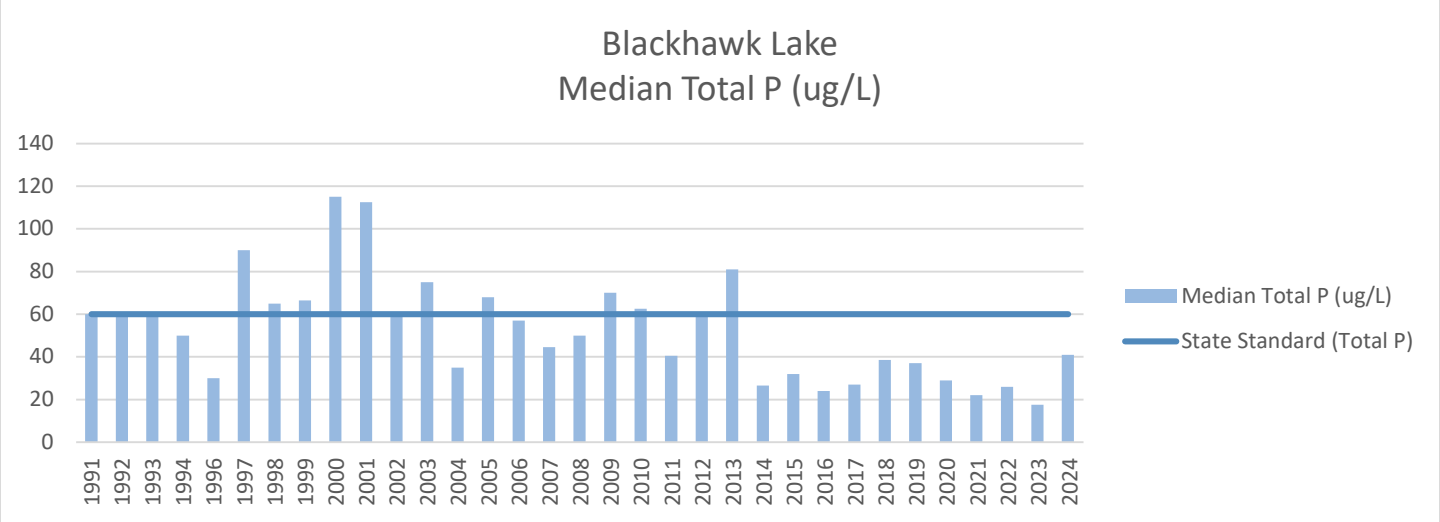
Blackhawk Lake

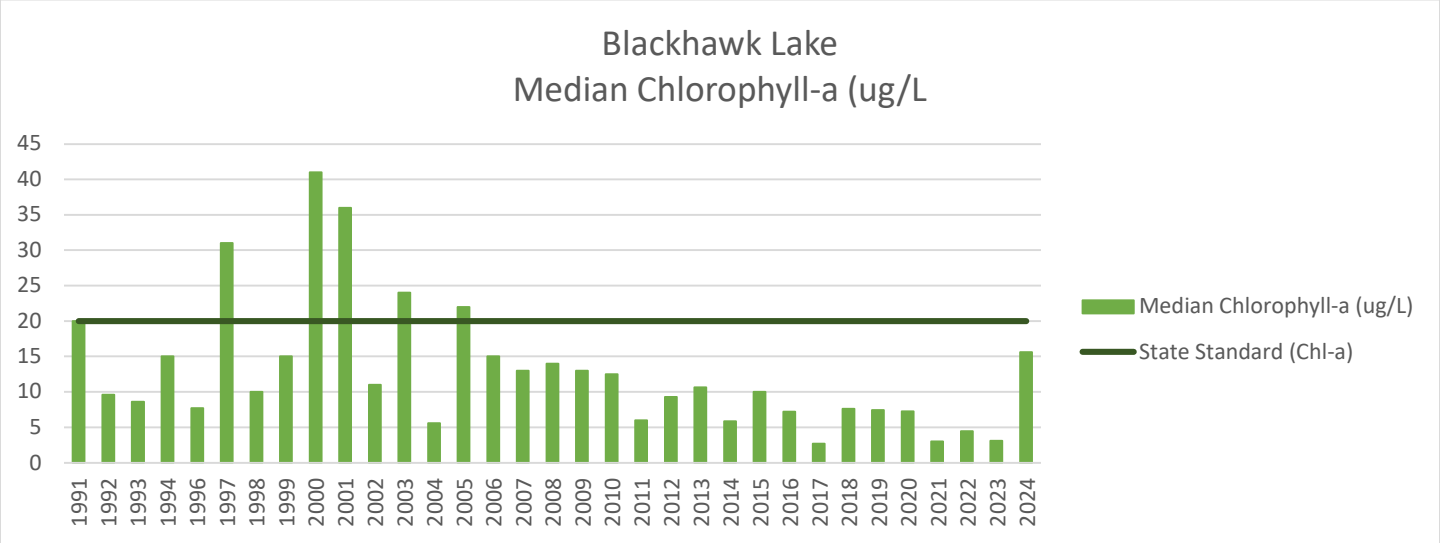


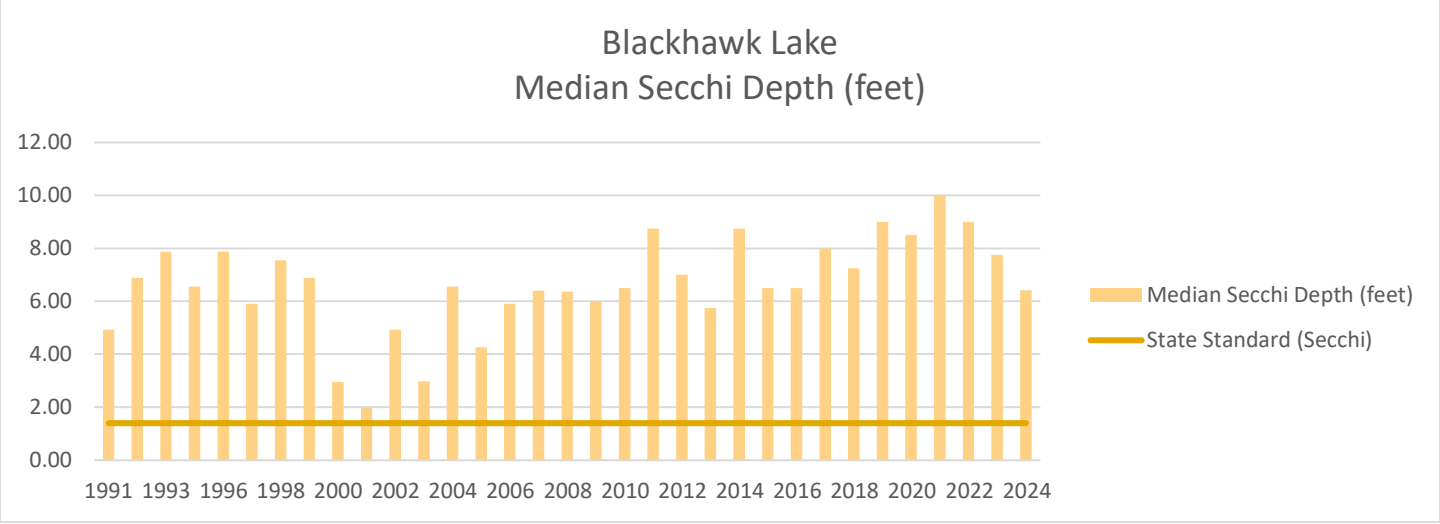
City ID:	BP-1
Waterbody type:	Shallow Lake
Surface area:	46.40 acres
Average depth:	5.00 feet
Maximum depth:	12.20 feet
Public access:	Yes
Supported uses:	Fishing, Canoeing/ Kayaking

WATER QUALITY IMPROVEMENTS [2019–PRESENT]

As Needed	Aerated in winter to prevent fish kills
As Needed	Lake plants harvested in summer months to reduce biomass
2019	Alum application to reduce in-lake nutrient load
2021	Stocked: 450 walleye (6–8 inches)


Blackhawk Lake
Median Total P (ug/L)
140
120
100
80
60
40
20
0
1991 1992 1993 1994 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024
Median Total P (ug/L)
State Standard (Total P)


Blackhawk Lake
Median Chlorophyll-a (ug/L
45
40
35
30
25
20
15
10
5
0
1991 1992 1993 1994 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Blackhawk Lake
Median Secchi Depth (feet)
12.00
10.00
8.00
6.00
4.00
2.00
0.00
1991 1993 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024
Median Secchi Depth (feet)
State Standard (Secchi)

Impairment Summary

Blackhawk Lake

Year Listed:	2006
Impairment:	Mercury in Fish Tissue
TMDL Approved:	Yes; Southwest Region Mercury TMDL
Impaired Use(s):	Aquatic Consumption

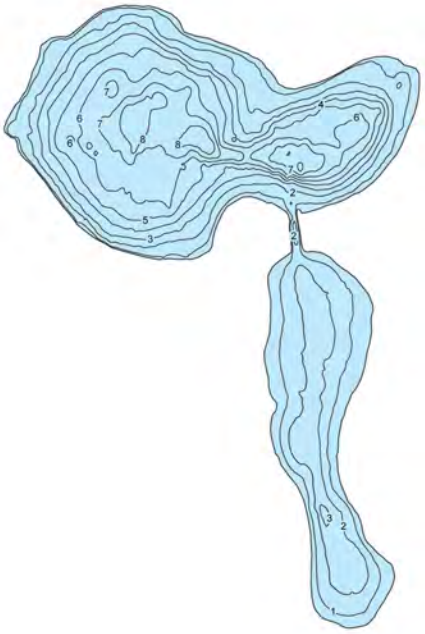
A waterbody is listed as impaired for mercury when more than 10% of a fish species fillets have a mercury concentration of at least 0.20 parts per million (ppm). Mercury accumulates in fish tissue, specifically as 'methylmercury,' which is the most hazardous form of mercury for humans. Once a waterbody is contaminated with mercury, it is very difficult to remove it.

Mercury is a naturally occurring element that is highly toxic to both humans and animals. While most people associate mercury with the liquid, silvery substance from old thermometers, it can also evaporate and become airborne - and in this form can come from a variety of sources.

In Eagan's case, the primary source is atmospheric deposition from coal-fired power plants in North Dakota. Because the source of these contaminants is not local, the state of Minnesota oversees a statewide 'total maximum daily load' or TMDL to manage the sources of mercury accumulating in our surface waters.

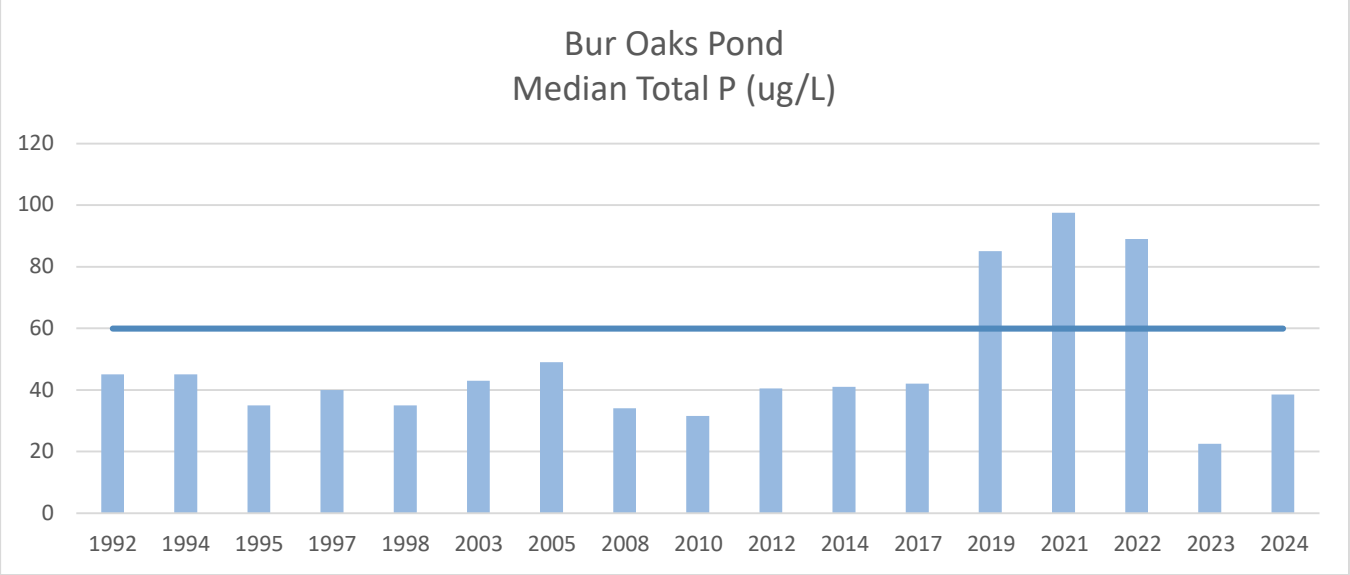
Bur Oaks Pond

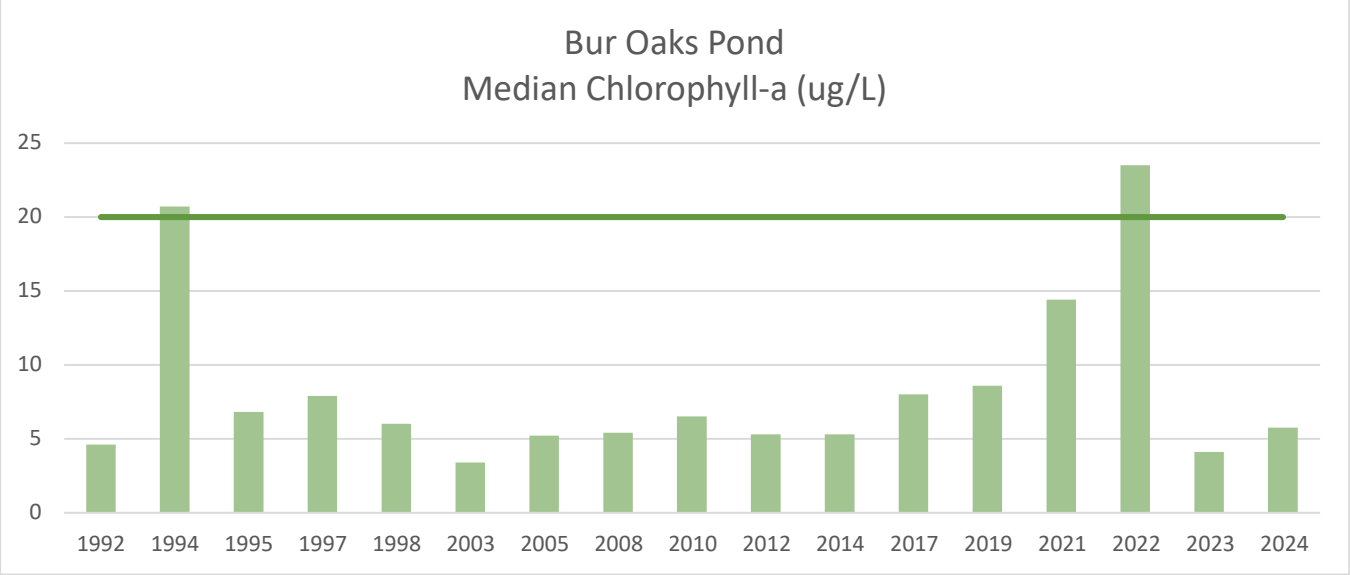
City ID:	GP-1
Waterbody type:	Shallow Lake
Surface area:	15.50 acres
Average depth:	3.51 feet
Maximum depth:	8.92 feet
Public access:	Yes
Supported uses:	Fishing, Canoeing/ Kayaking

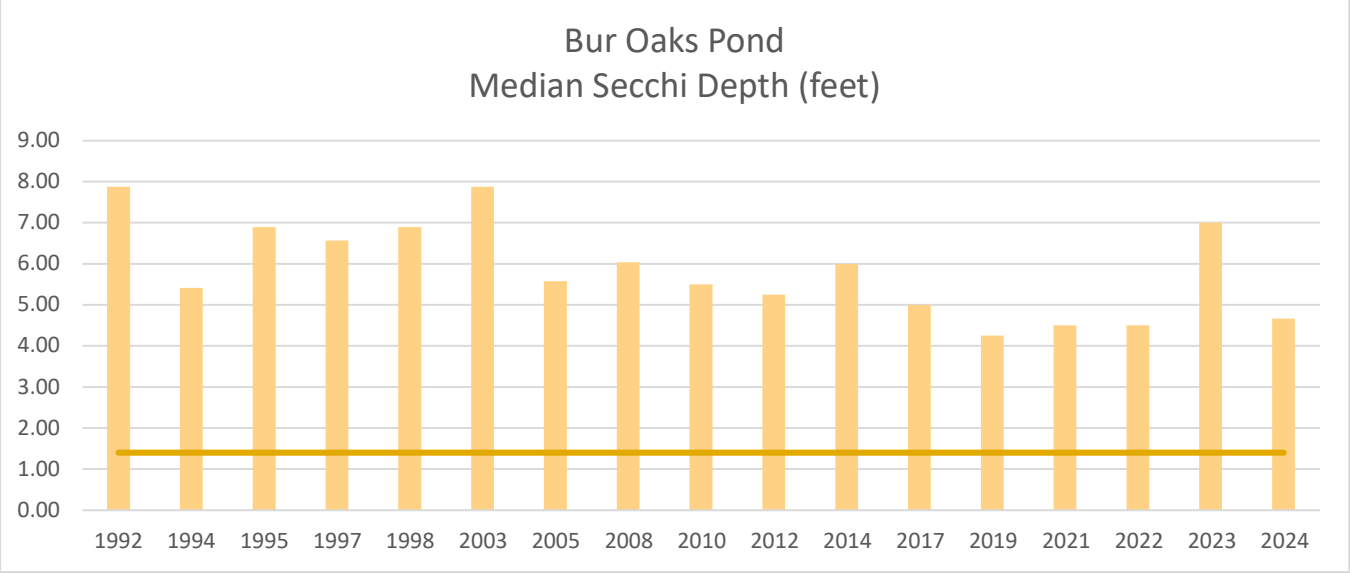


WATER QUALITY IMPROVEMENTS [2020–PRESENT]

As needed	Aerated in winter as needed to prevent fish kills
2020	Fish population survey completed to assess overall health of the lake's fishery. Stocked: 850 bluegills (2–4 inches) and 300 pounds of fathead minnows
2022	Alum application to reduce in-lake nutrient load
2023	Stocked: 1,300 green sunfish (yearlings)

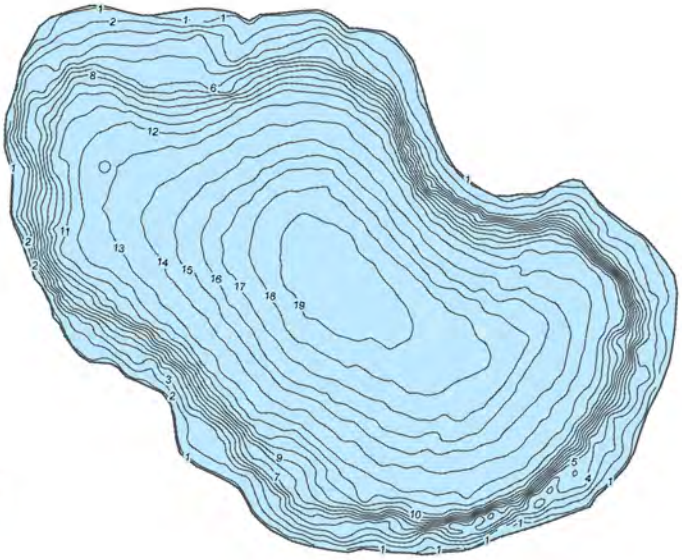

Bur Oaks Pond
Median Total P (ug/L)
120
100
80
60
40
20
0
1992
1994
1995
1997
1998
2003
2005
2008
2010
2012
2014
2017
2019
2021
2022
2023
2024


Bur Oaks Pond
Median Chlorophyll-a (ug/L)
25
20
15
10
5
0
1992
1994
1995
1997
1998
2003
2005
2008
2010
2012
2014
2017
2019
2021
2022
2023
2024


Bur Oaks Pond
Median Secchi Depth (feet)
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1992
1994
1995
1997
1998
2003
2005
2008
2010
2012
2014
2017
2019
2021
2022
2023
2024

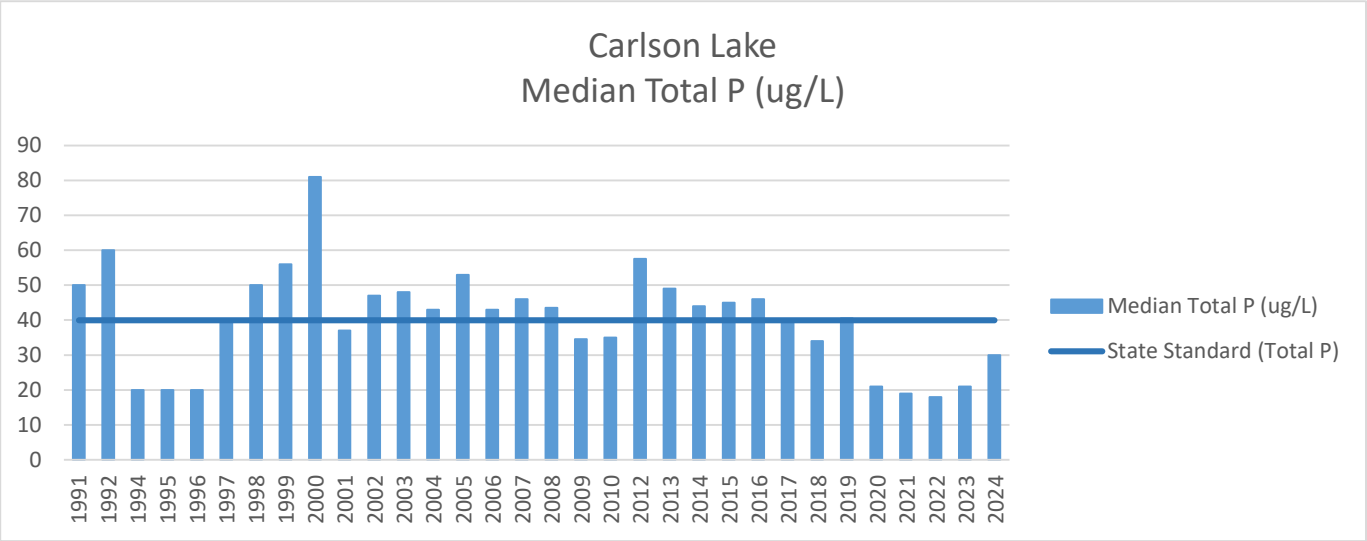
Carlson Lake

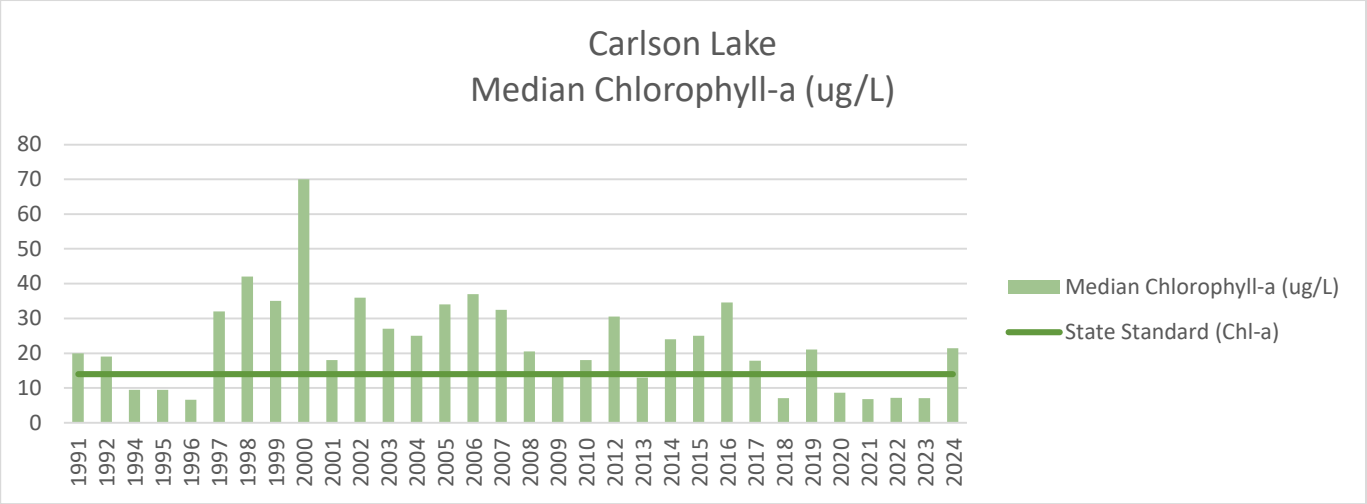
City ID:	LP-42
Waterbody type:	Deep Lake
Surface area:	13.10 acres
Average depth:	10.60 feet
Maximum depth:	20.00 feet
Public access:	Yes
Supported uses:	Fishing, Canoeing/ Kayaking, Swimming

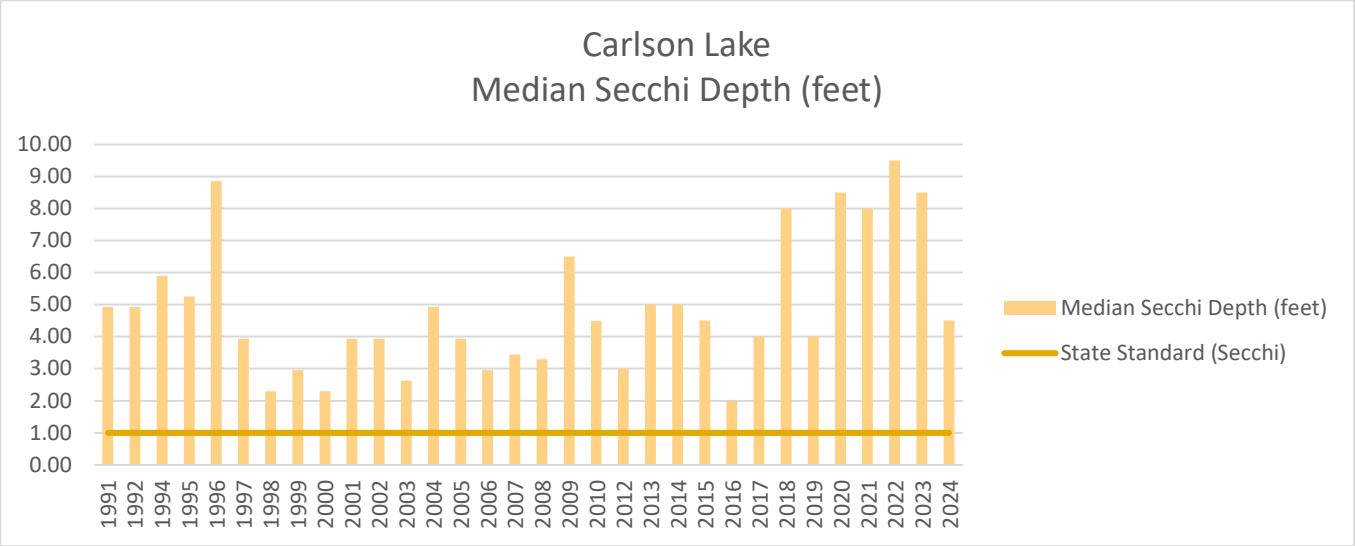


WATER QUALITY IMPROVEMENTS [2019–PRESENT]

As needed	Aerated in winter as needed to prevent fish kills
2019	Alum application to reduce in-lake nutrient load
2022	Subsurface stormwater filters installed upstream to remove nutrients from stormwater entering the lake


Carlson Lake
Median Total P (ug/L)
90
80
70
60
50
40
30
20
10
0
1991 1992 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024
Median Total P (ug/L)
State Standard (Total P)


Carlson Lake
Median Chlorophyll-a (ug/L)
80
70
60
50
40
30
20
10
0
1991 1992 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Carlson Lake
Median Secchi Depth (feet)
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1991 1992 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024
Median Secchi Depth (feet)
State Standard (Secchi)

Impairment Summary

Carlson Lake

Year Listed:	2014
Year Delisted:	*Pending* (2026)
Impairment:	Nutrients (Stormwater)
TMDL Approved:	Yes; 2015
Impaired Use(s):	Aquatic Recreation

Excessive nutrient loading is one of the most common sources of impairment in surface waterbodies, especially those in urban areas like Eagan. In our landscape, nutrients mainly come from developed areas - referred to as 'impervious surfaces' - where water can't soak into the ground. Rather, it runs off the surface into nearby waterways, carrying whatever pollutants have accumulated with it.

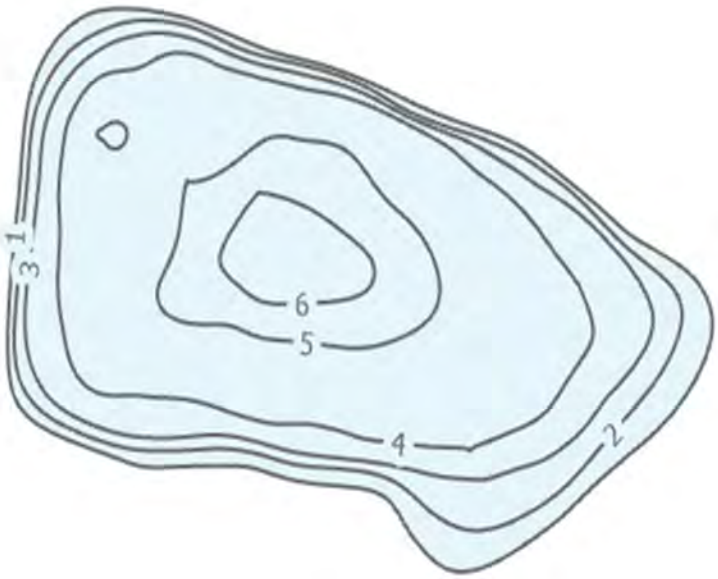
Nutrient pollution can lead to excessive algae growth, low dissolved oxygen levels, and ultimately toxicity to aquatic life.

The City of Eagan has used several strategies to reduce nutrient levels in our lakes. Alum applications, watershed management practices, and regulating developments to require that they treat stormwater before it leaves their properties are just some of the ways we have restored these waters back to meeting standards.

As of 2026, the City will have no nutrient impaired waters listed on the State of Minnesota's 3030(d) List of Impaired Waters. This is a direct result of Eagan's restoration efforts - supported by our community each year!

Cliff Lake

City ID:	AP-11
Waterbody type:	Shallow Lake
Surface area:	11.76 acres
Average depth:	2.77 feet
Maximum depth:	4.76 feet
Public access:	Yes
Supported uses:	Fishing, Canoeing / Kayaking

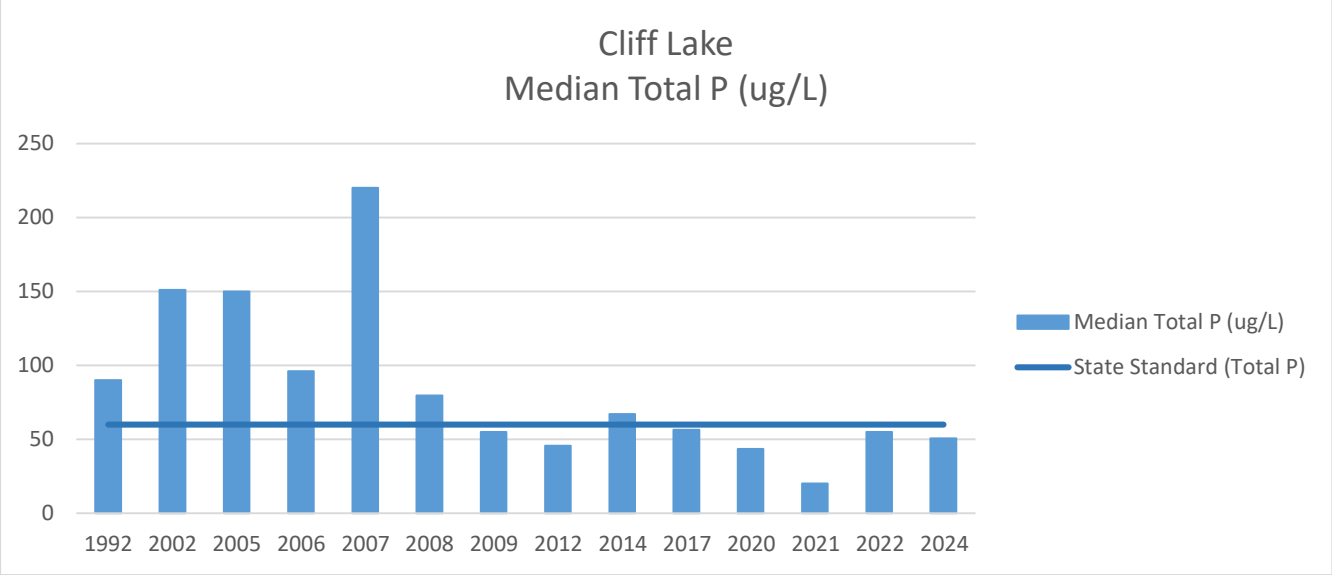


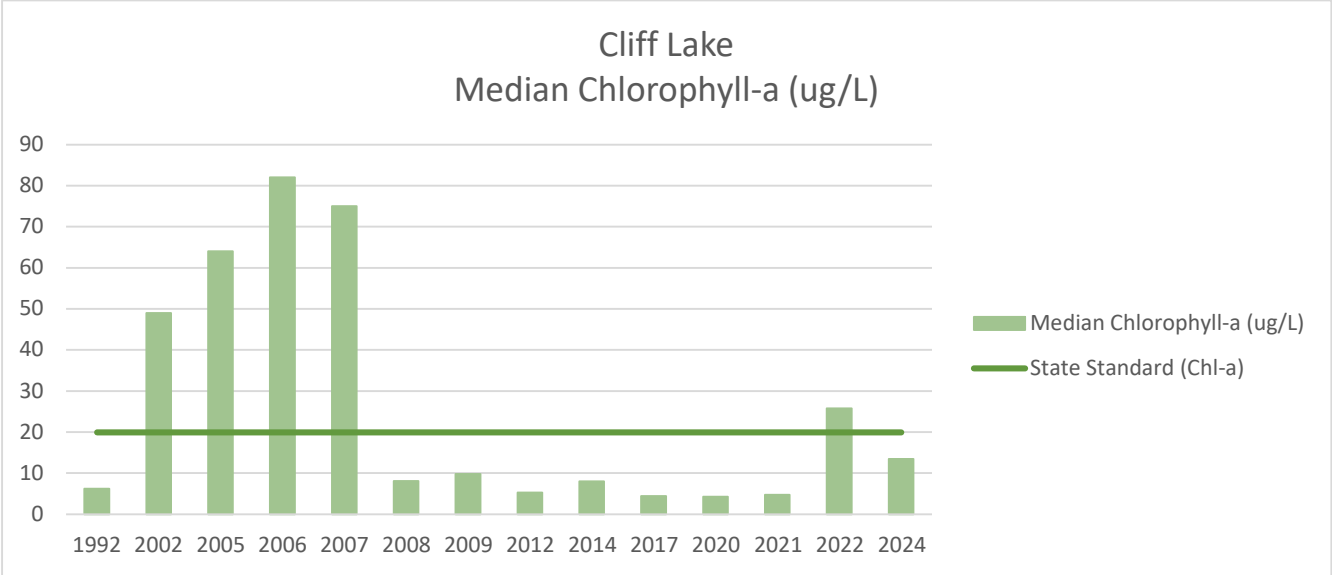
WATER QUALITY IMPROVEMENTS [2020–PRESENT]

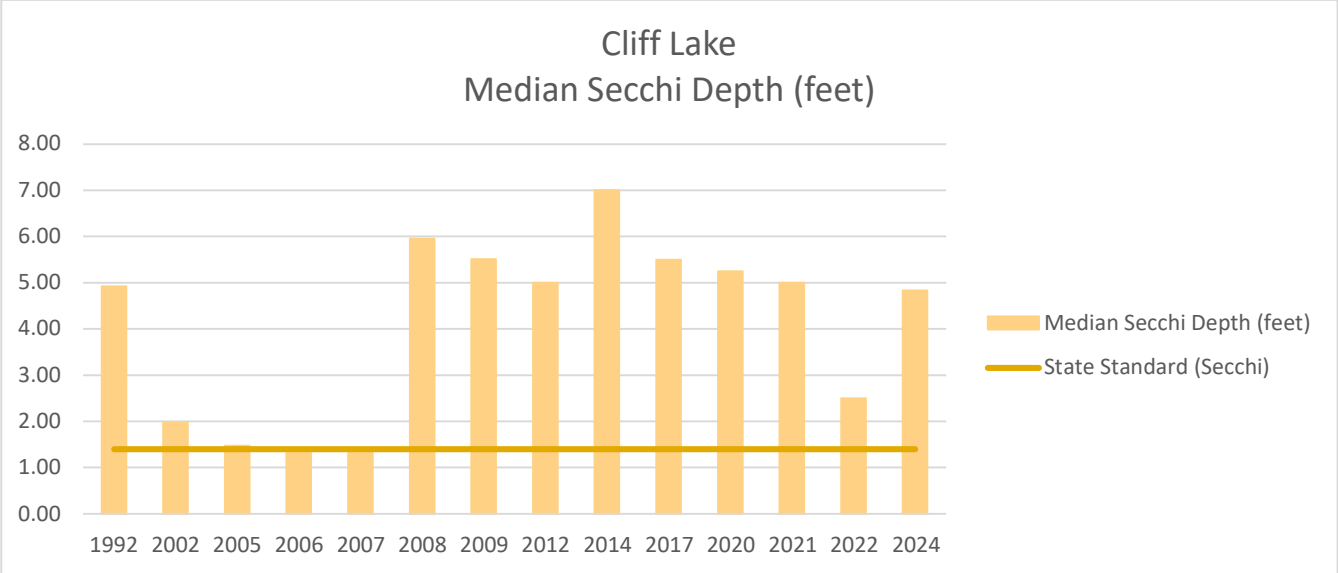
As needed — Aerated in winter as needed to prevent fish kills

2020 — Alum application to reduce in-lake nutrient load

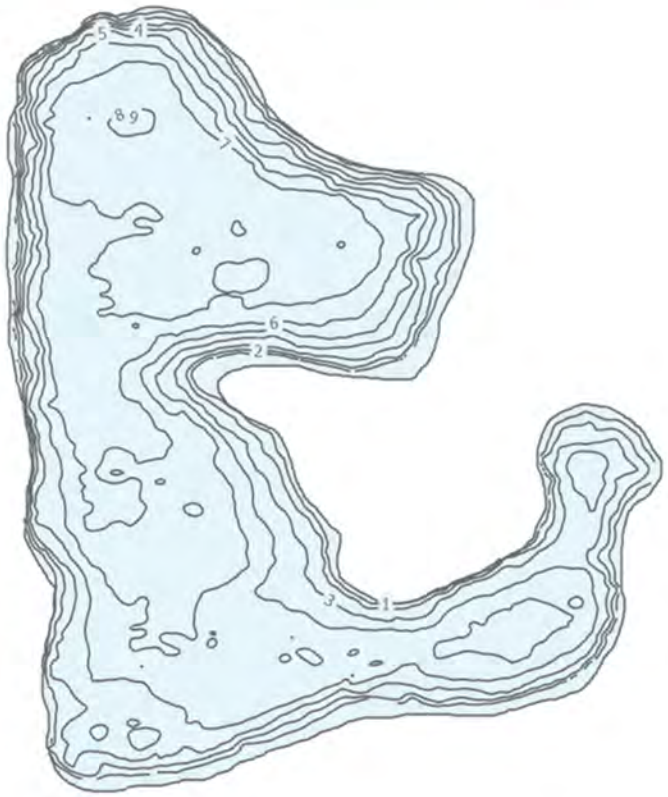
2024 — Fish population survey completed to assess overall health of the lake's fishery


Cliff Lake
Median Total P (ug/L)
250
200
150
100
50
0
1992 2002 2005 2006 2007 2008 2009 2012 2014 2017 2020 2021 2022 2024
Median Total P (ug/L)
State Standard (Total P)


Cliff Lake
Median Chlorophyll-a (ug/L)
90
80
70
60
50
40
30
20
10
0
1992 2002 2005 2006 2007 2008 2009 2012 2014 2017 2020 2021 2022 2024
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Cliff Lake
Median Secchi Depth (feet)
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1992 2002 2005 2006 2007 2008 2009 2012 2014 2017 2020 2021 2022 2024
Median Secchi Depth (feet)
State Standard (Secchi)

East Thomas Lake



City ID: BP-8

Waterbody type: Shallow Lake

Surface area: 9.20 acres

Average depth: 4.80 feet

Maximum depth: 9.50 feet

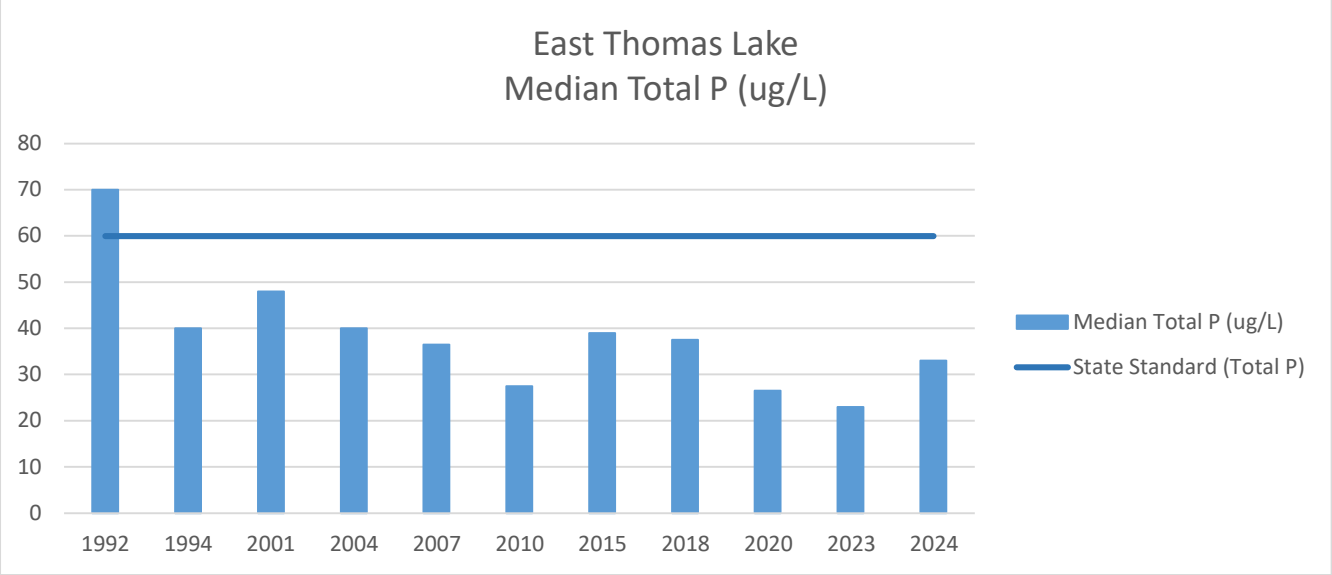
Public access: No

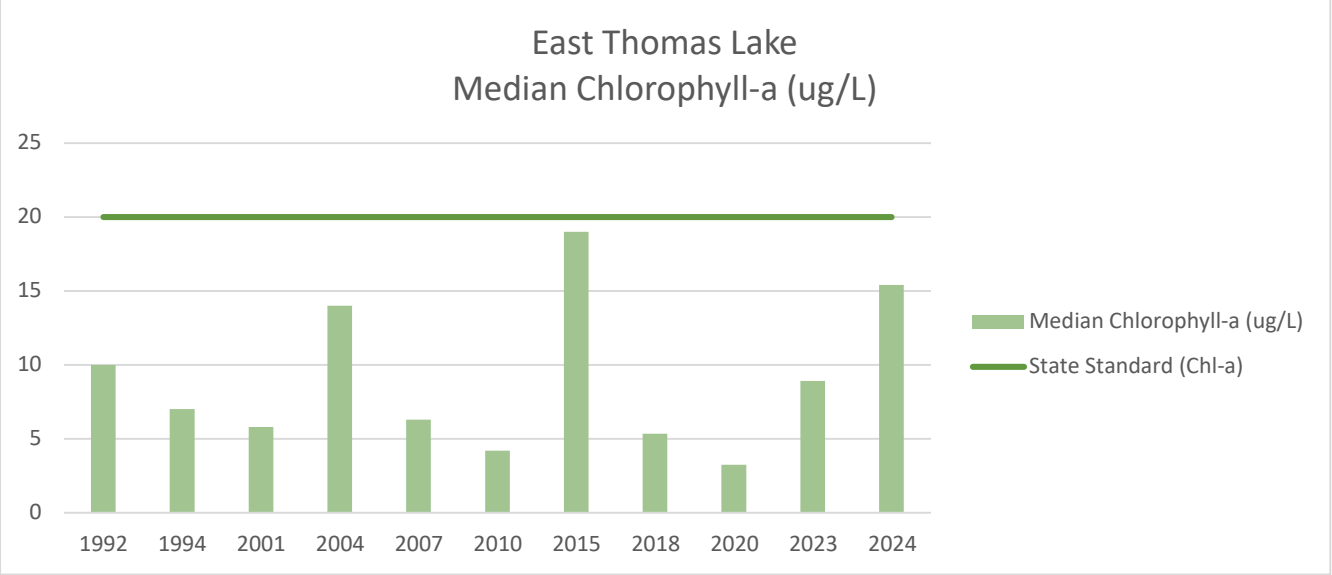
Supported uses: Fishing, Canoeing/ Kayaking

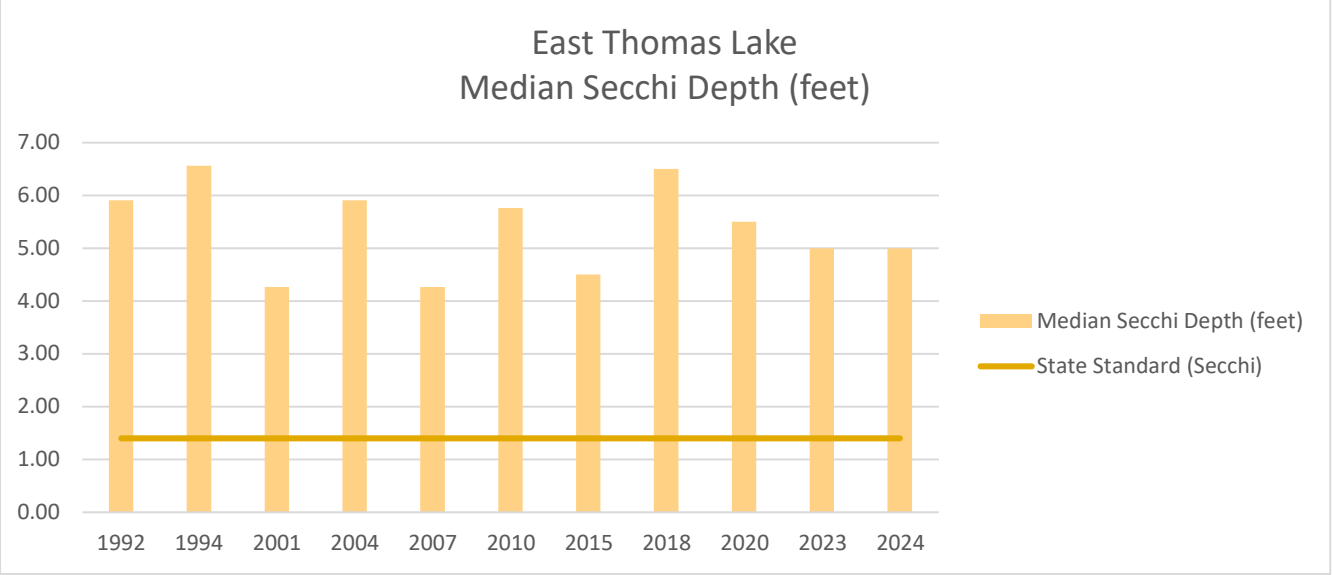
WATER QUALITY IMPROVEMENTS [2020–PRESENT]

As Needed — Aerated in winter as needed to prevent fish kills

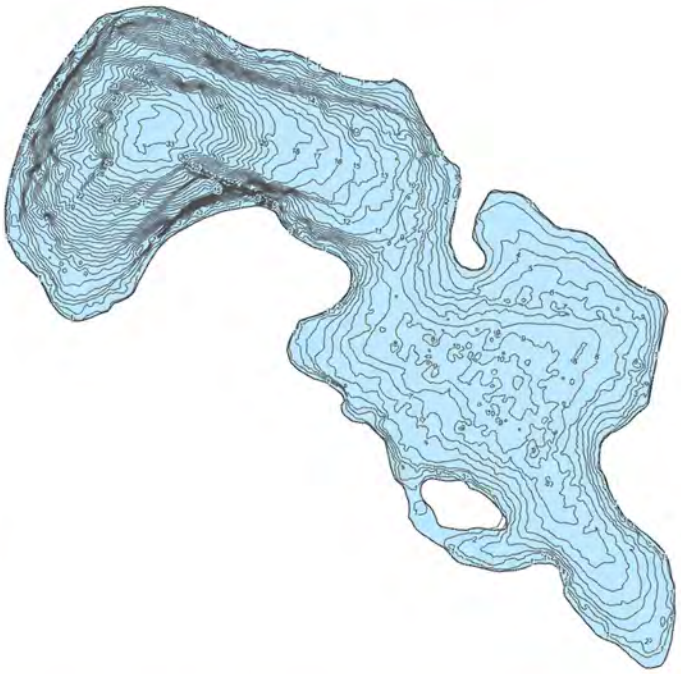
2021 — Fish population survey completed to assess overall health of the lake's fishery (results were excellent)


East Thomas Lake
Median Total P (ug/L)
80
70
60
50
40
30
20
10
0
1992
1994
2001
2004
2007
2010
2015
2018
2020
2023
2024
Median Total P (ug/L)
State Standard (Total P)


East Thomas Lake
Median Chlorophyll-a (ug/L)
25
20
15
10
5
0
1992
1994
2001
2004
2007
2010
2015
2018
2020
2023
2024
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


East Thomas Lake
Median Secchi Depth (feet)
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1992
1994
2001
2004
2007
2010
2015
2018
2020
2023
2024
Median Secchi Depth (feet)
State Standard (Secchi)

Fish Lake



City ID:	JP-4
Waterbody type:	Shallow Lake
Surface area:	30.30 acres
Average depth:	9.50 feet
Maximum depth:	33.80 feet
Public access:	Yes
Supported uses:	Fishing, Canoeing/ Kayaking, Swimming

WATER QUALITY IMPROVEMENTS [2020–PRESENT]

As needed

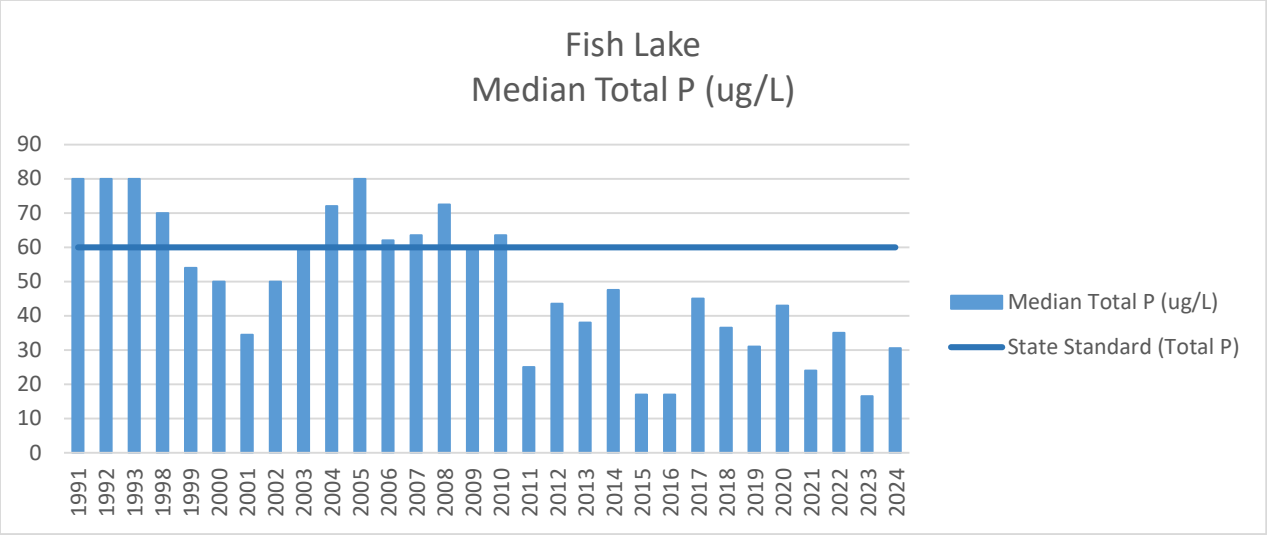
- Aerated in winter as needed to prevent fish kills
- Lake plants harvested in summer months to reduce biomass
- Alum station in place to provide ongoing dosing throughout the summer months when necessary

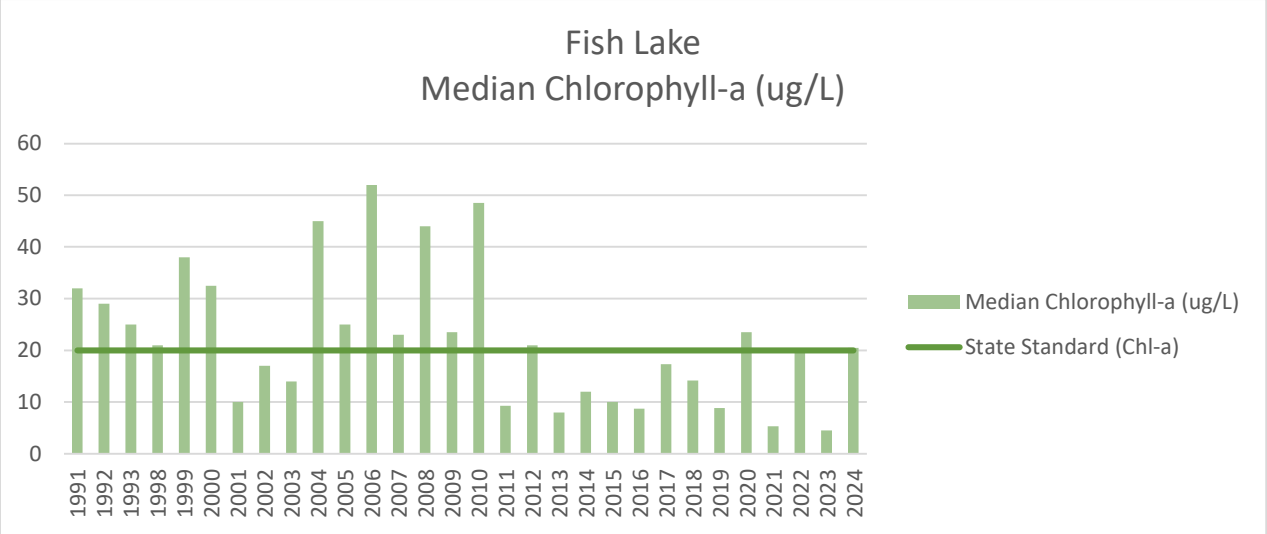
2021

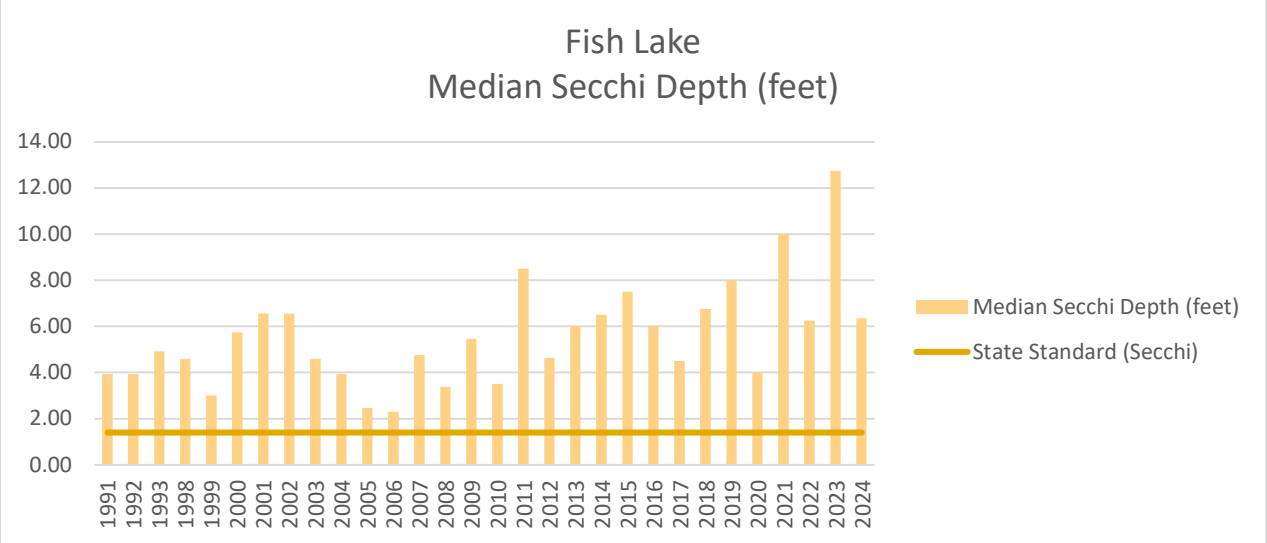
- Stocked: 450 walleye (6–8 inches)

2022

- Alum application to reduce in-lake nutrient load


Fish Lake
Median Total P (ug/L)
90
80
70
60
50
40
30
20
10
0
1991 1992 1993 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024
Median Total P (ug/L)
State Standard (Total P)


Fish Lake
Median Chlorophyll-a (ug/L)
60
50
40
30
20
10
0
1991 1992 1993 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Fish Lake
Median Secchi Depth (feet)
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
1991 1992 1993 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024
Median Secchi Depth (feet)
State Standard (Secchi)

Impairment Summary

Fish Lake

Year Listed:	2006
Impairment:	Mercury in Fish Tissue
TMDL Approved:	Yes; Southwest Region Mercury TMDL
Impaired Use(s):	Aquatic Consumption
Additional Impairments:	Previously impaired for nutrients, delisted in 2014 due to restoration efforts.

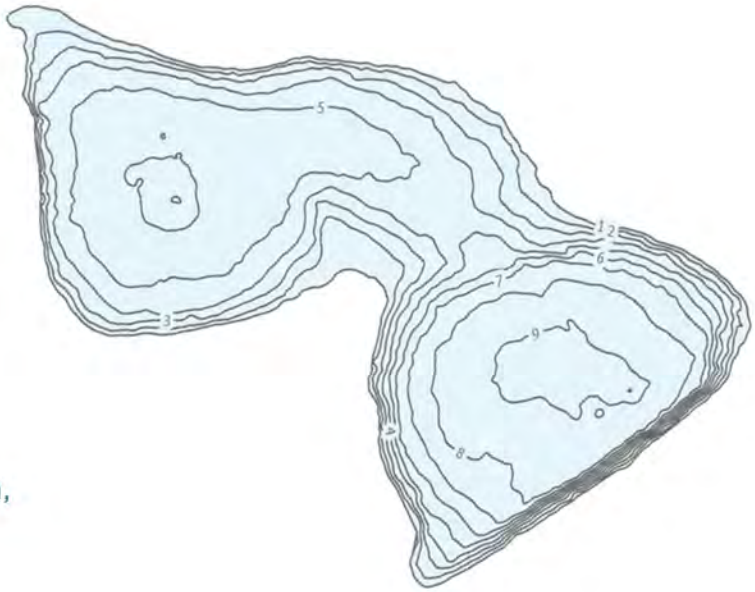
A waterbody is listed as impaired for mercury when more than 10% of a fish species fillets have a mercury concentration of at least 0.20 parts per million (ppm). Mercury accumulates in fish tissue, specifically as 'methylmercury,' which is the most hazardous form of mercury for humans. Once a waterbody is contaminated with mercury, it is very difficult to remove it.

Mercury is a naturally occurring element that is highly toxic to both humans and animals. While most people associate mercury with the liquid, silvery substance from old thermometers, it can also evaporate and become airborne - and in this form can come from a variety of sources.

In Eagan's case, the primary source is atmospheric deposition from coal-fired power plants in North Dakota. Because the source of these contaminants is not local, the state of Minnesota oversees a statewide 'total maximum daily load' or TMDL to manage the sources of mercury accumulating in our surface waters.

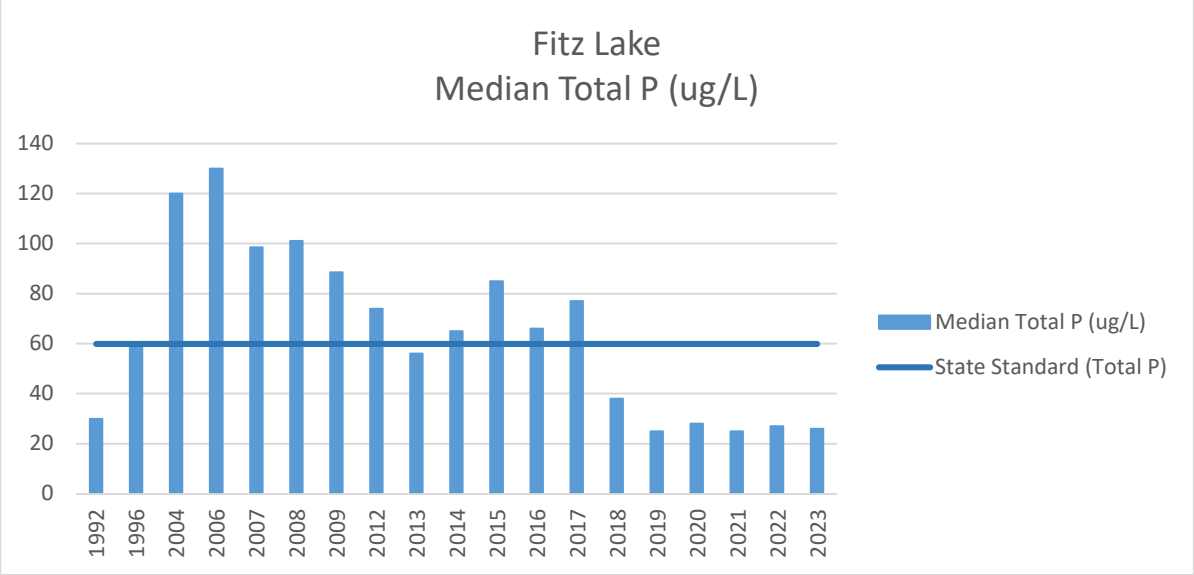
Fitz Lake

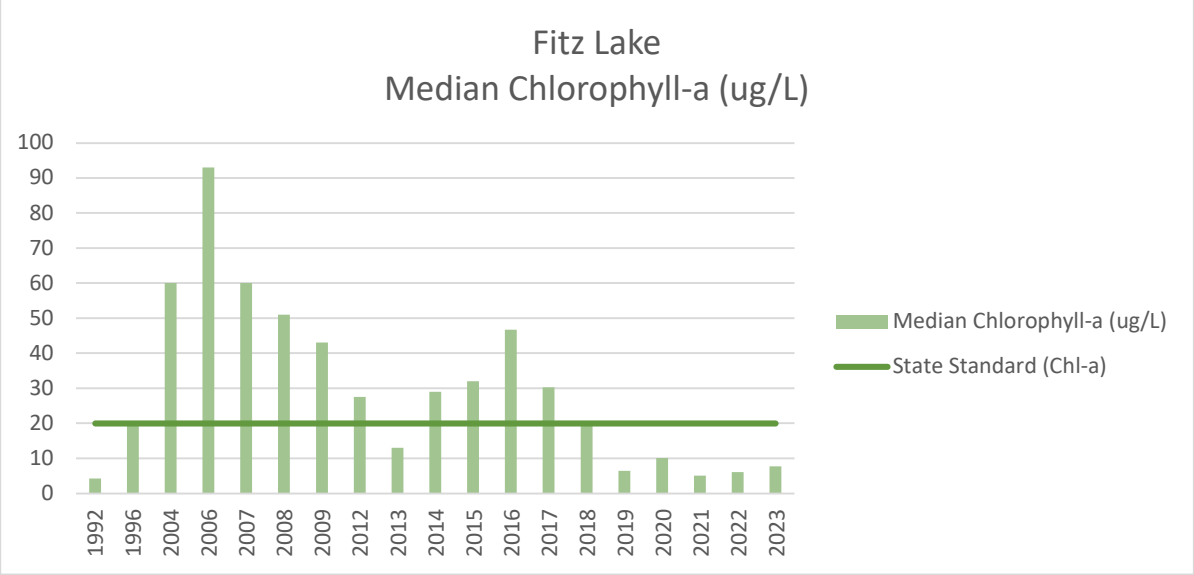
City ID:	LP-26
Waterbody type:	Shallow Lake
Surface area:	14.00 acres
Average depth:	5.10 feet
Maximum depth:	9.40 feet
Public access:	No
Supported uses:	Habitat, Education, Aesthetics

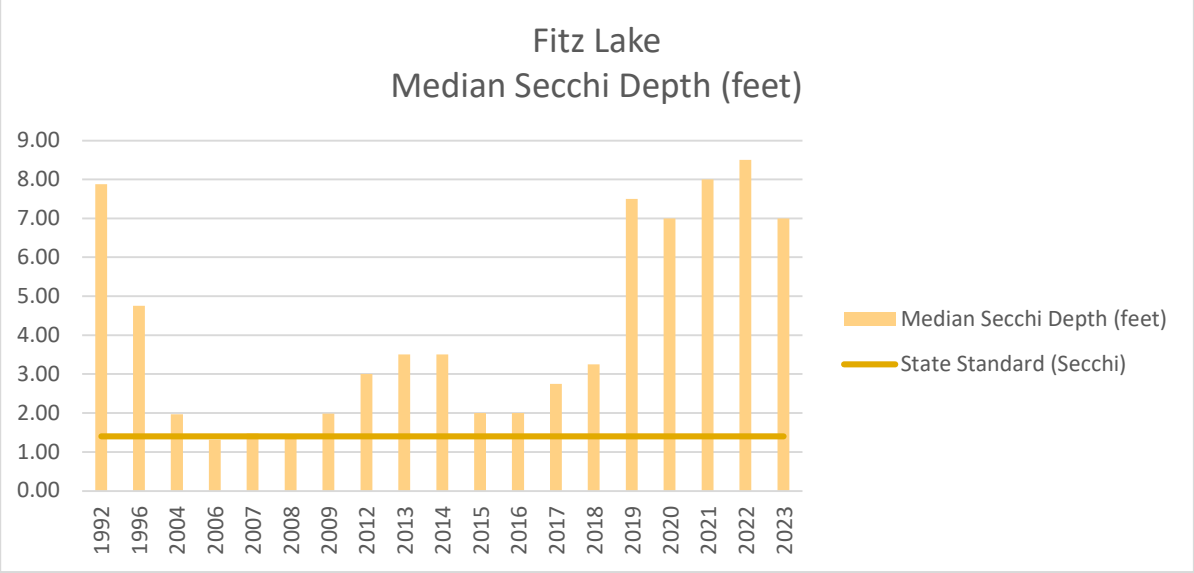


WATER QUALITY IMPROVEMENTS [2020–PRESENT]

No recent improvements. Fitz Lake was removed from the State's list of impaired waters in 2024, following installation of two iron-enhanced sand filters to manage stormwater inputs, and an in-lake alum application in 2017. The lake is known to contain bass, black bullhead, minnows, and non-native goldfish - but is not maintained for public fishing due to a lack of dedicated access.


Fitz Lake
Median Total P (ug/L)
140
120
100
80
60
40
20
0
1992
1996
2004
2006
2007
2008
2009
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Median Total P (ug/L)
State Standard (Total P)


Fitz Lake
Median Chlorophyll-a (ug/L)
100
90
80
70
60
50
40
30
20
10
0
1992
1996
2004
2006
2007
2008
2009
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Fitz Lake
Median Secchi Depth (feet)
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1992
1996
2004
2006
2007
2008
2009
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Median Secchi Depth (feet)
State Standard (Secchi)

Impairment Summary

Fitz Lake

Year Listed:	2014
Year Delisted:	2022
Impairment:	Nutrients (Stormwater)
TMDL Approved:	Yes; 2015
Impaired Use(s):	Aquatic Recreation

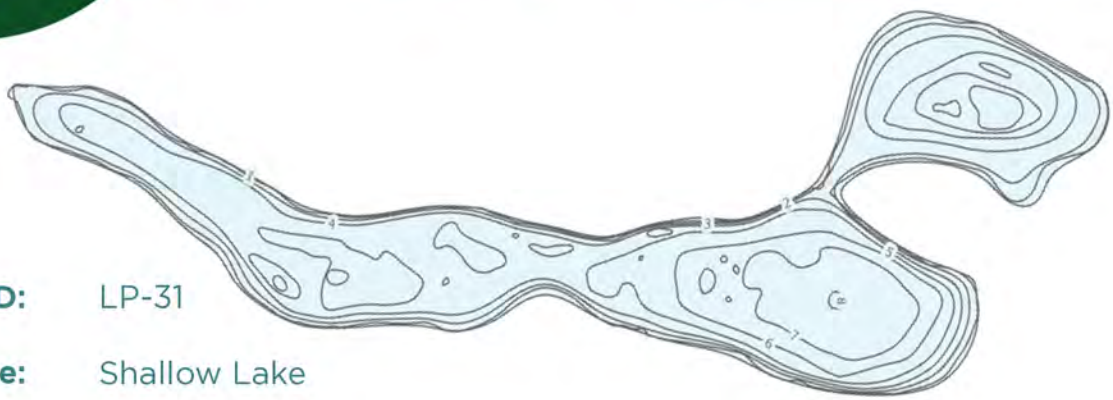
Excessive nutrient loading is one of the most common sources of impairment in surface waterbodies, especially those in urban areas like Eagan. In our landscape, nutrients mainly come from developed areas - referred to as 'impervious surfaces' - where water can't soak into the ground. Rather, it runs off the surface into nearby waterways, carrying whatever pollutants have accumulated with it.

Nutrient pollution can lead to excessive algae growth, low dissolved oxygen levels, and ultimately toxicity to aquatic life.

The City of Eagan has used several strategies to reduce nutrient levels in our lakes. Alum applications, watershed management practices, and regulating developments to require that they treat stormwater before it leaves their properties are just some of the ways we have restored these waters back to meeting standards.

As of 2026, the City will have no nutrient impaired waters listed on the State of Minnesota's 3030(d) List of Impaired Waters. This is a direct result of Eagan's restoration efforts - supported by our community each year!

Hay Lake



City ID: LP-31

Waterbody type: Shallow Lake

Surface area: 23.05 acres

Average depth: 3.40 feet

Maximum depth: 9.87 feet

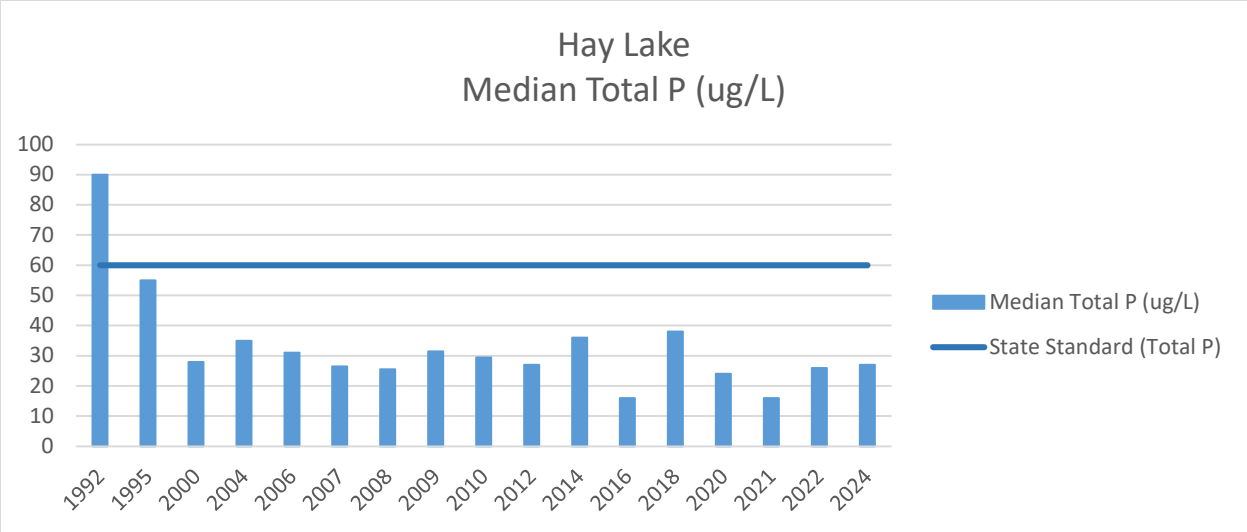
Public access: Yes

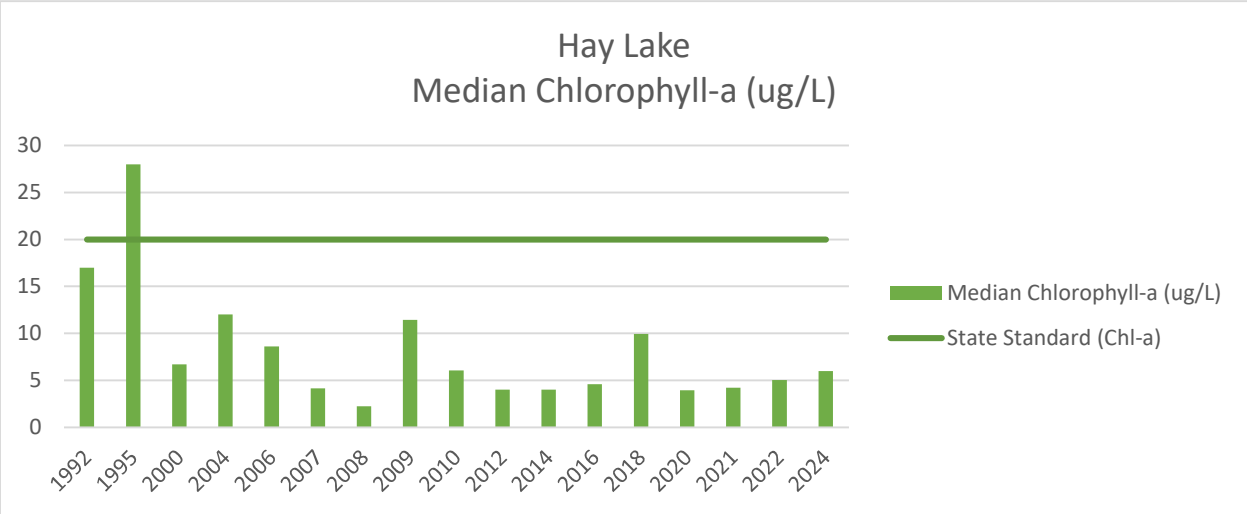
Supported uses: Fishing, Canoeing/ Kayaking

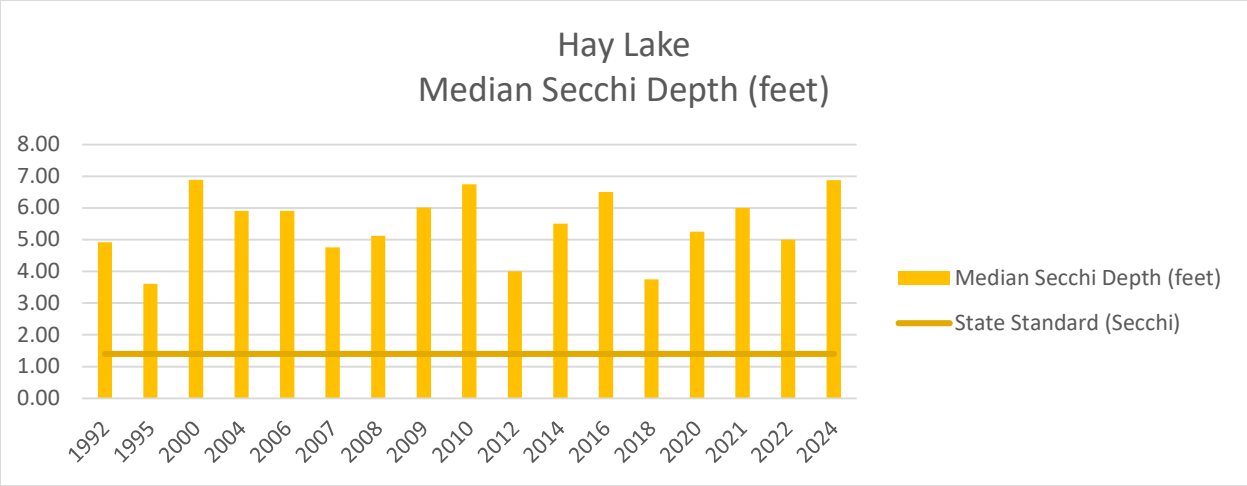
WATER QUALITY IMPROVEMENTS [2020–PRESENT]

As Needed — Aerated in winter as needed to prevent fish kills

2020 — Alum application to reduce in-lake nutrient load

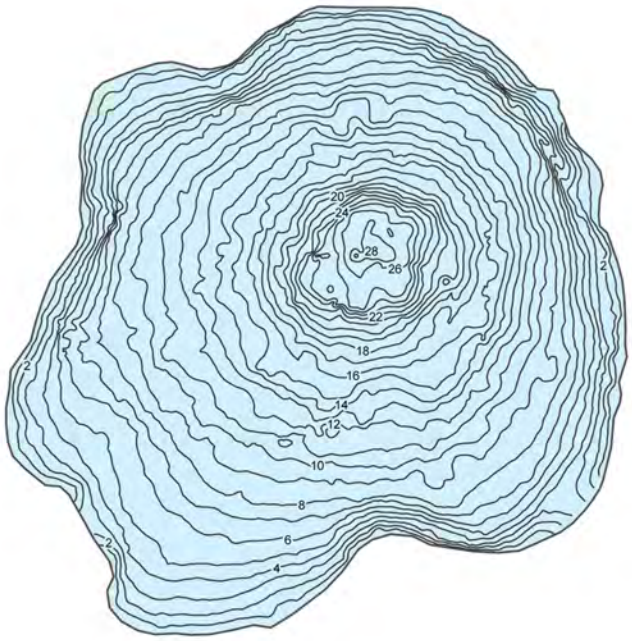

Hay Lake
Median Total P (ug/L)
100
90
80
70
60
50
40
30
20
10
0
1992
1995
2000
2004
2006
2007
2008
2009
2010
2012
2014
2016
2018
2020
2021
2022
2024
Median Total P (ug/L)
State Standard (Total P)


Hay Lake
Median Chlorophyll-a (ug/L)
30
25
20
15
10
5
0
1992
1995
2000
2004
2006
2007
2008
2009
2010
2012
2014
2016
2018
2020
2021
2022
2024
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Hay Lake
Median Secchi Depth (feet)
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1992
1995
2000
2004
2006
2007
2008
2009
2010
2012
2014
2016
2018
2020
2021
2022
2024
Median Secchi Depth (feet)
State Standard (Secchi)

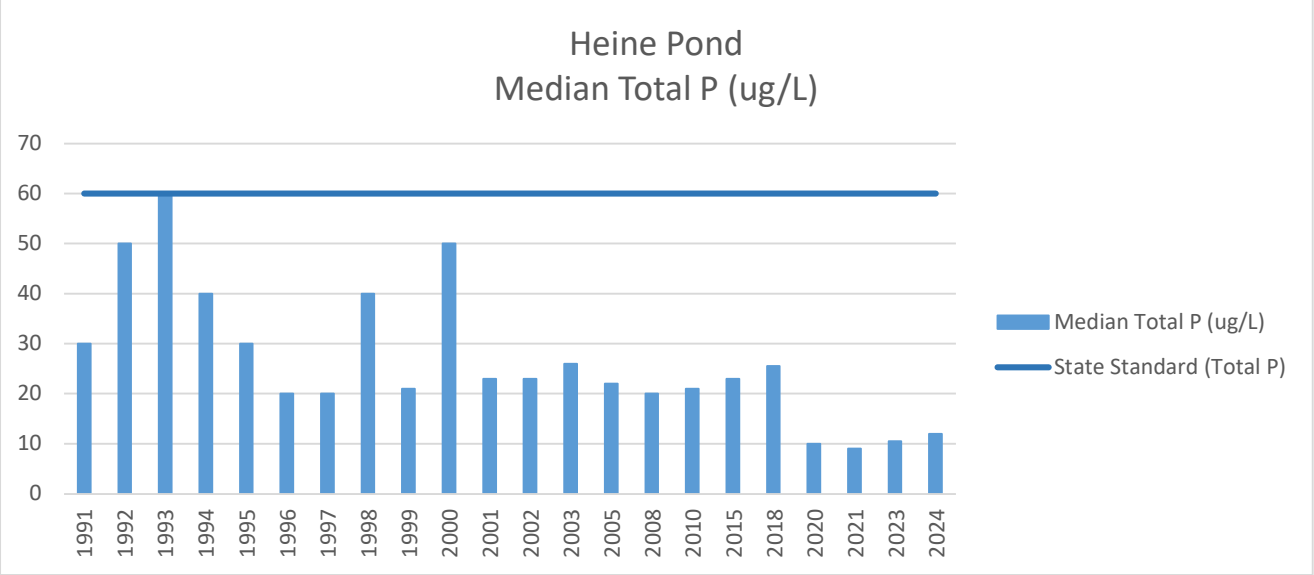
Heine Pond

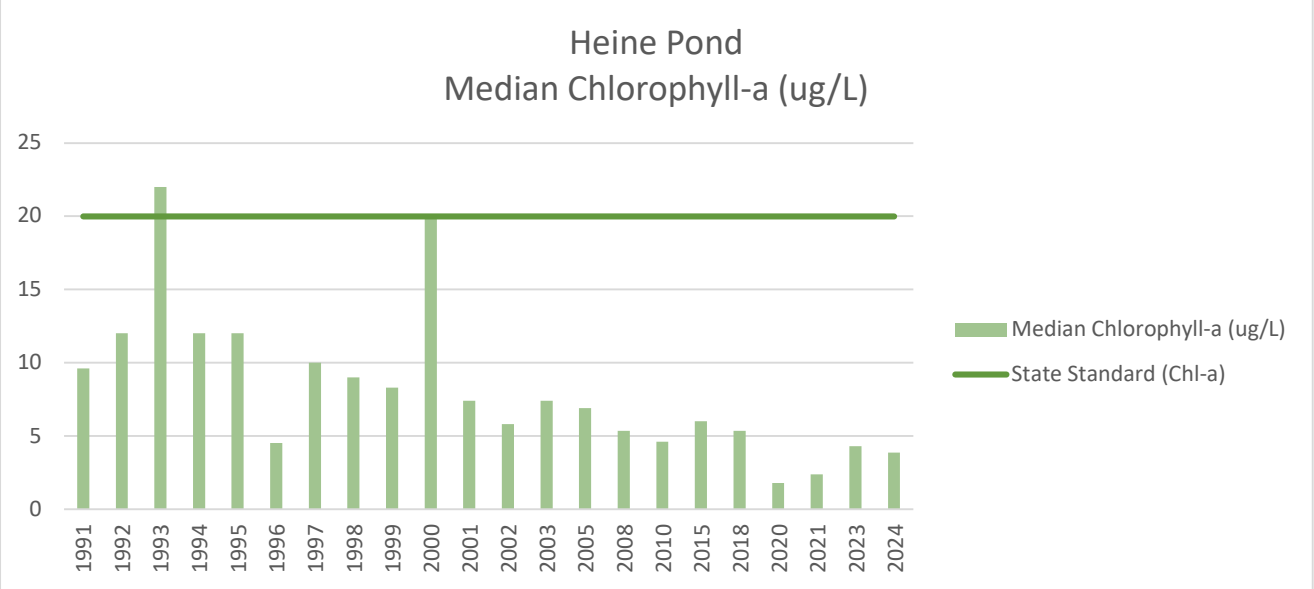
City ID:	BP-5
Waterbody type:	Shallow lake
Surface area:	7.40 acres
Maximum depth:	28.97 feet
Public access:	Yes
Supported uses:	Fishing, Canoeing/ Kayaking, Swimming

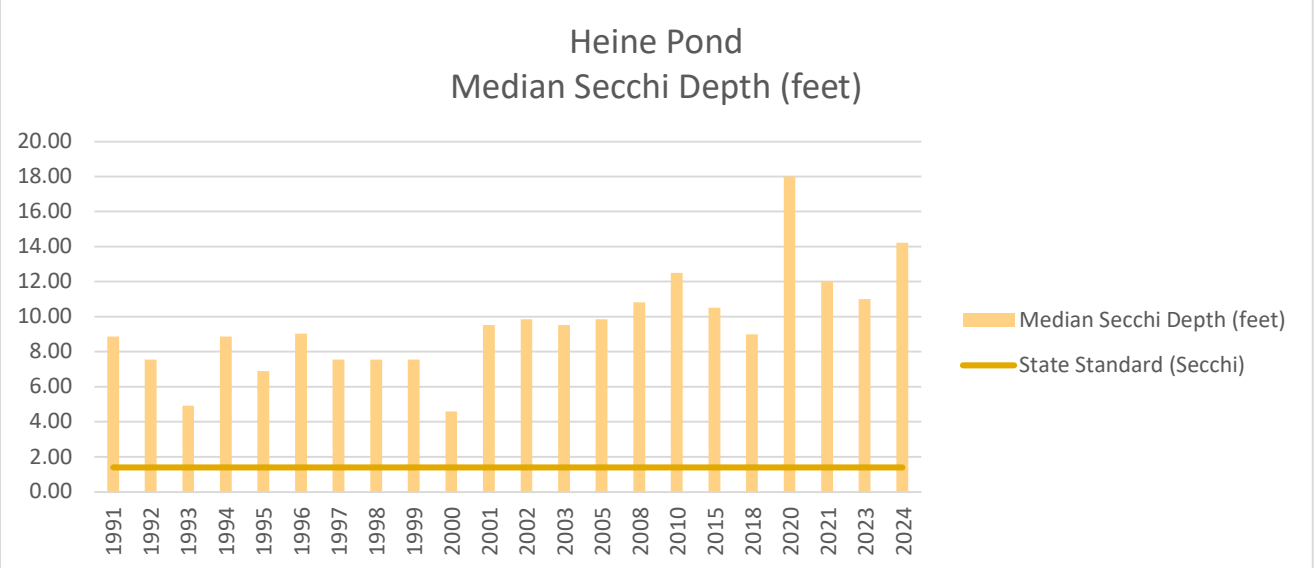


WATER QUALITY IMPROVEMENTS [2019–PRESENT]

As needed	Aerated in winter as needed to prevent fish kills
2019	Alum application to reduce in-lake nutrient load
2022	Stocked: 425 Walleye (6–8 inches)


Heine Pond
Median Total P (ug/L)
70
60
50
40
30
20
10
0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2005
2008
2010
2015
2018
2020
2021
2023
2024
Median Total P (ug/L)
State Standard (Total P)


Heine Pond
Median Chlorophyll-a (ug/L)
25
20
15
10
5
0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2005
2008
2010
2015
2018
2020
2021
2023
2024
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Heine Pond
Median Secchi Depth (feet)
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2005
2008
2010
2015
2018
2020
2021
2023
2024
Median Secchi Depth (feet)
State Standard (Secchi)

Holz Lake

City ID: LP-28

Waterbody type: Shallow Lake

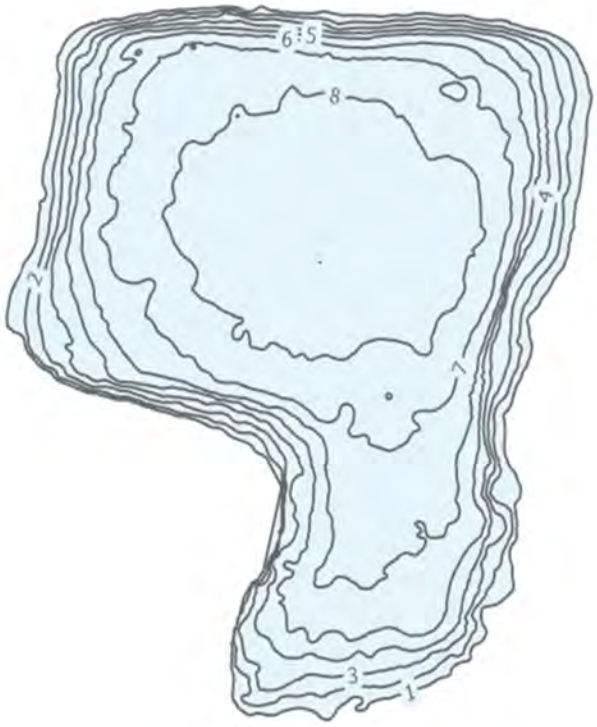
Surface area: 11.26 acres

Average depth: 5.50 feet

Maximum depth: 9.90 feet

Public access: Yes

Supported uses: Fishing, Canoeing/ Kayaking

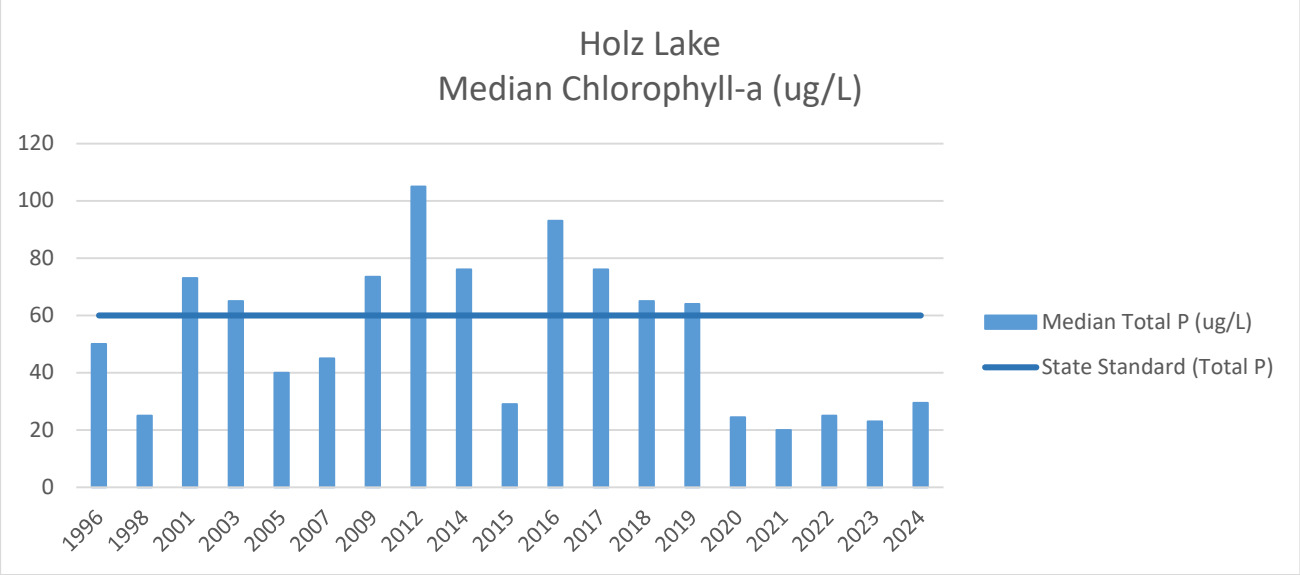


WATER QUALITY IMPROVEMENTS [2019–PRESENT]

As Needed — Aerated in winter as needed to prevent fish kills

2019 — Alum application to reduce in-lake nutrient load

Stocked - 700 Green Sunfish (yearlings)


Holz Lake
Median Chlorophyll-a (ug/L)
120
100
80
60
40
20
0
1996
1998
2001
2003
2005
2007
2009
2012
2014
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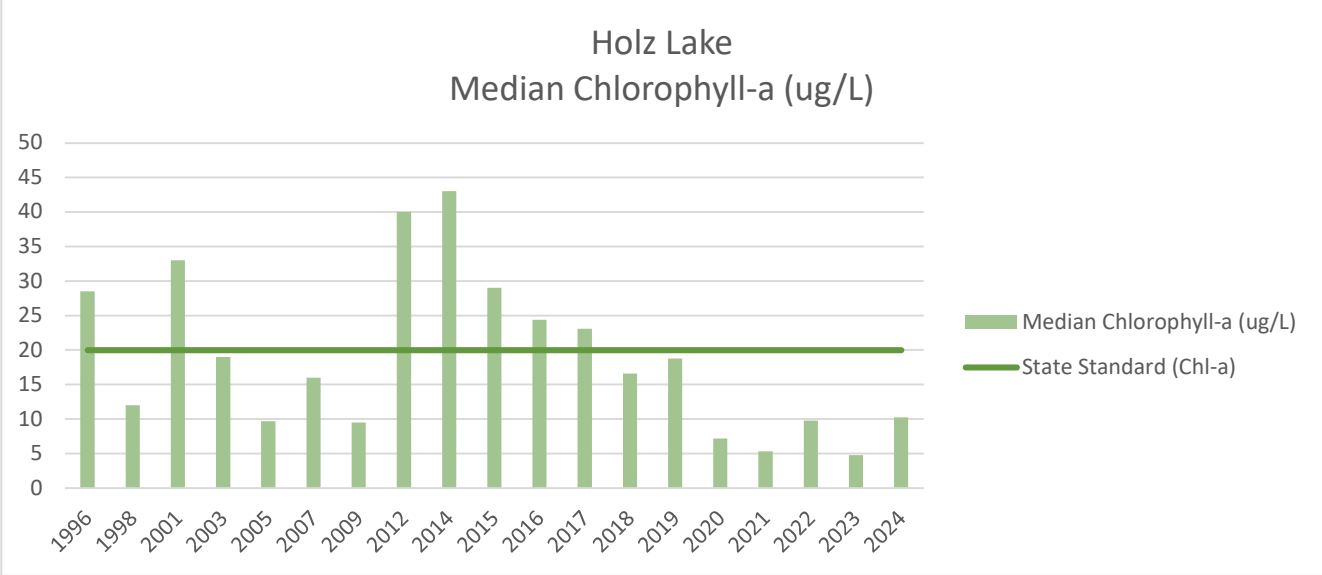
2016
2017
2018
2019
2020
2021
2022
2023
2024
Median Total P (ug/L)
State Standard (Total P)


Holz Lake
Median Chlorophyll-a (ug/L)
50
45
40
35
30
25
20
15
10
5
0
1996
1998
2001
2003
2005
2007
2009
2012
2014
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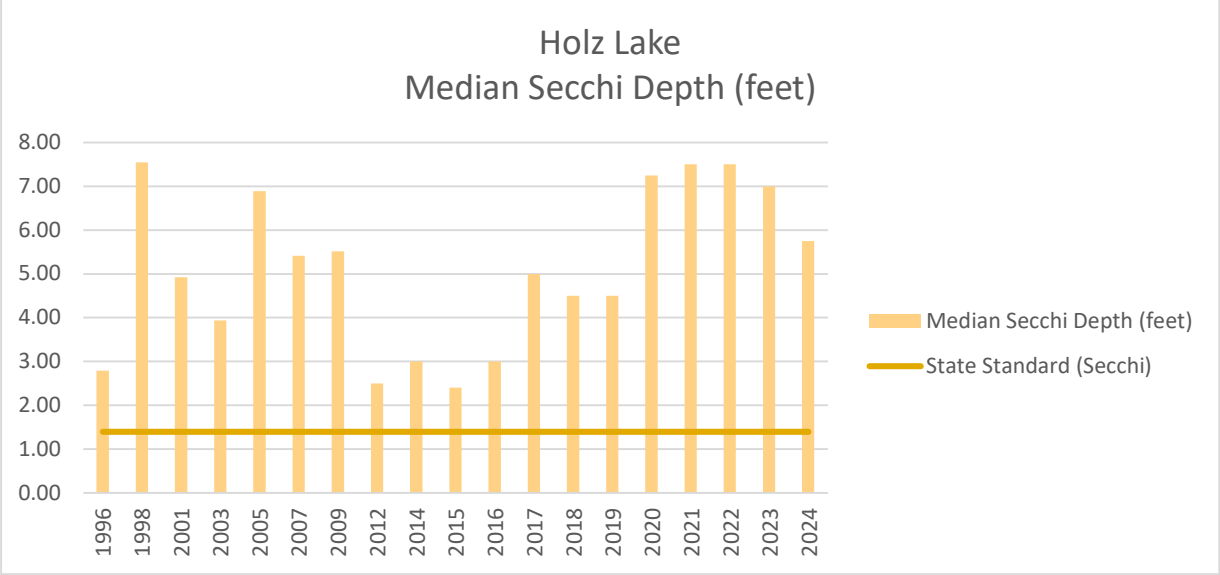
2017
2018
2019
2020
2021
2022
2023
2024
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Holz Lake
Median Secchi Depth (feet)
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1996
1998
2001
2003
2005
2007
2009
2012
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Median Secchi Depth (feet)
State Standard (Secchi)

Impairment Summary

Holz Lake

Year Listed:	2014
Year Delisted:	*Pending* (2026)
Impairment:	Nutrients (Stormwater)
TMDL Approved:	Yes; 2015
Impaired Use(s):	Aquatic Recreation

Excessive nutrient loading is one of the most common sources of impairment in surface waterbodies, especially those in urban areas like Eagan. In our landscape, nutrients mainly come from developed areas - referred to as 'impervious surfaces' - where water can't soak into the ground. Rather, it runs off the surface into nearby waterways, carrying whatever pollutants have accumulated with it.

Nutrient pollution can lead to excessive algae growth, low dissolved oxygen levels, and ultimately toxicity to aquatic life.

The City of Eagan has used several strategies to reduce nutrient levels in our lakes. Alum applications, watershed management practices, and regulating developments to require that they treat stormwater before it leaves their properties are just some of the ways we have restored these waters back to meeting standards.

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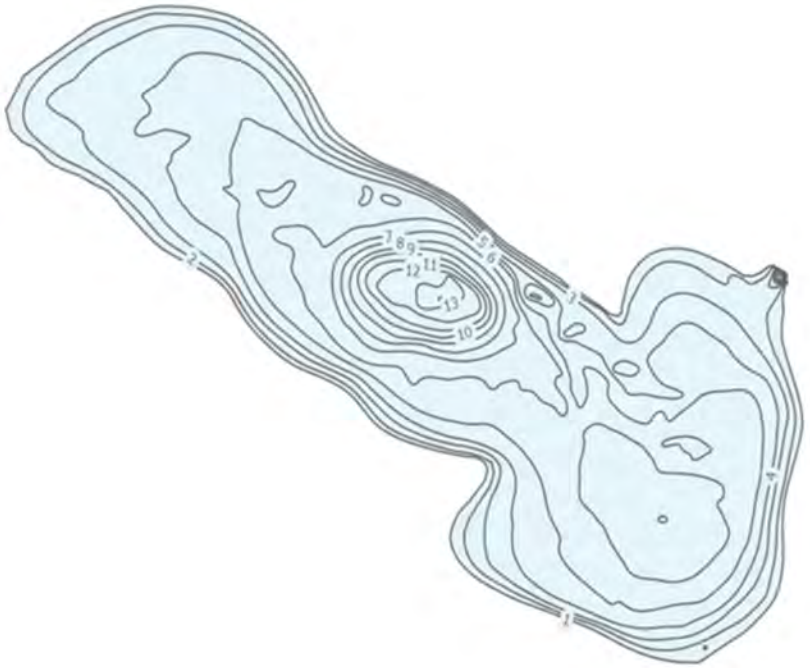
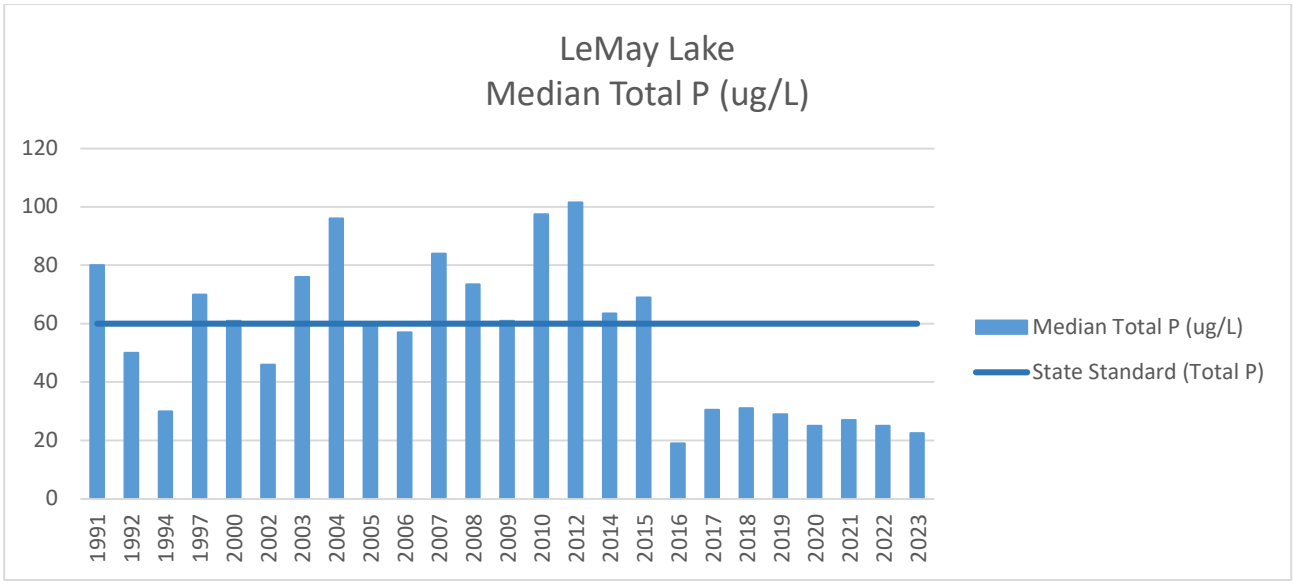
LeMay Lake

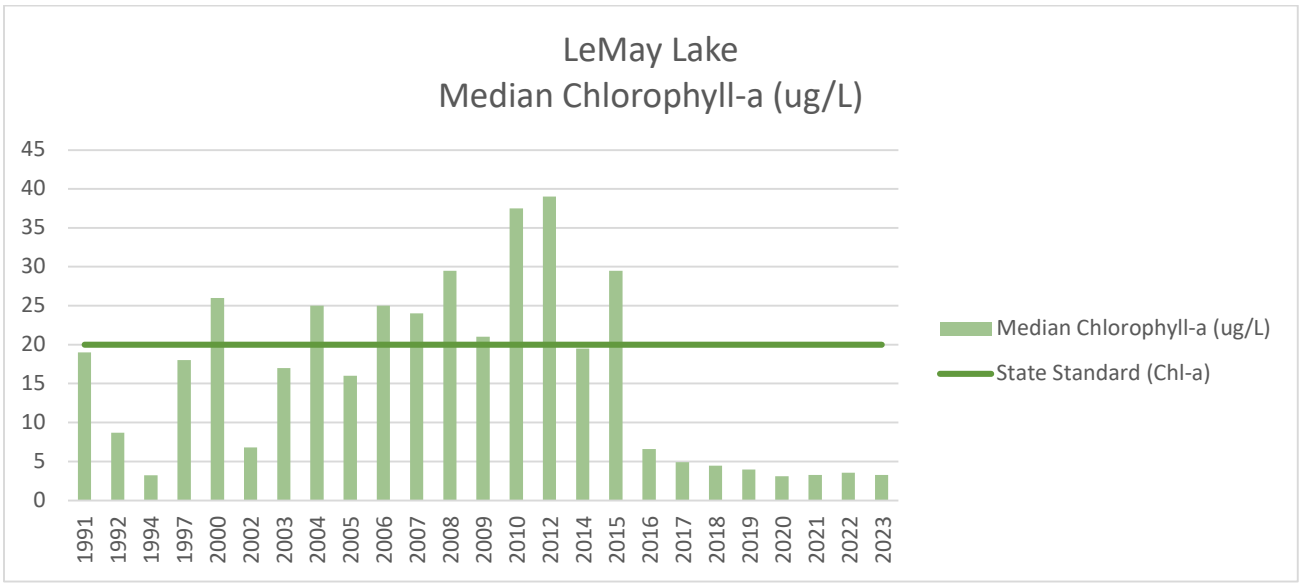
City ID:	DP-2
Waterbody type:	Shallow lake
Surface area:	36.46 acres
Average depth:	4.59 feet
Maximum depth:	14.51 feet
Public access:	Yes
Supported uses:	Fishing, Canoeing/ Kayaking

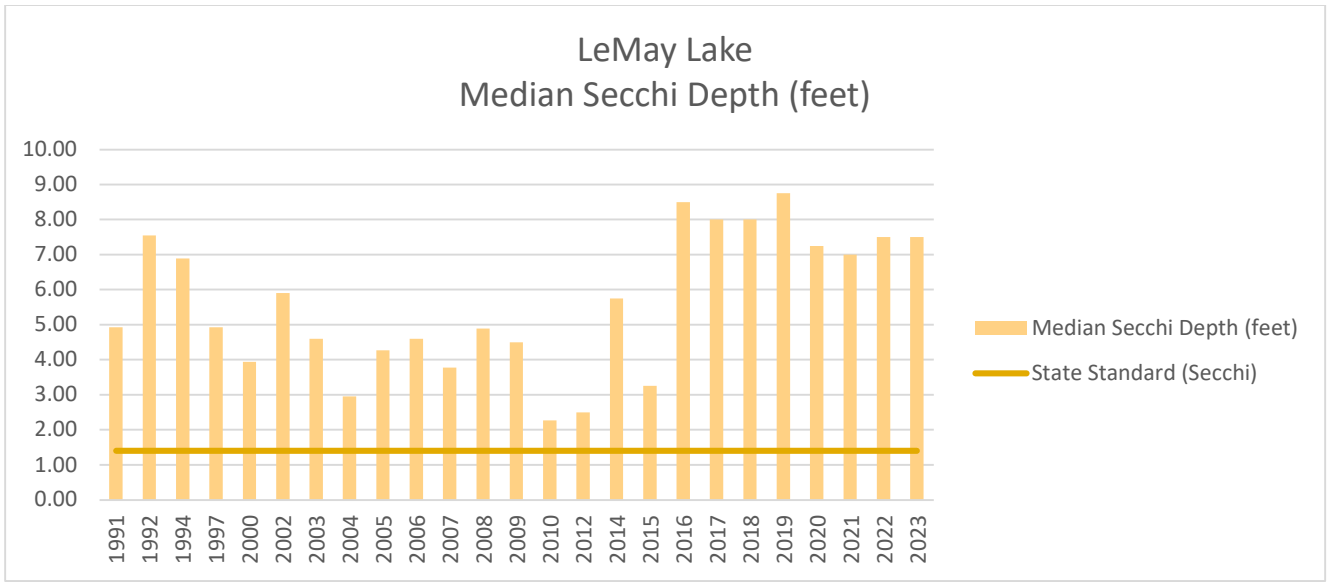


WATER QUALITY IMPROVEMENTS [2019–PRESENT]

As needed	Aerated in winter as needed to prevent fish kills
2019	Alum application to reduce in-lake nutrient load


LeMay Lake
Median Total P (ug/L)
120
100
80
60
40
20
0
1991
1992
1994
1997
2000
2002
2003
2004
2005
2006
2007
2008
2009
2010
2012
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Median Total P (ug/L)
State Standard (Total P)


LeMay Lake
Median Chlorophyll-a (ug/L)
45
40
35
30
25
20
15
10
5
0
1991
1992
1994
1997
2000
2002
2003
2004
2005
2006
2007
2008
2009
2010
2012
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


LeMay Lake
Median Secchi Depth (feet)
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1991
1992
1994
1997
2000
2002
2003
2004
2005
2006
2007
2008
2009
2010
2012
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Median Secchi Depth (feet)
State Standard (Secchi)

Impairment Summary

LeMay Lake

Year Listed:	2014
Year Delisted:	2022
Impairment:	Nutrients (Stormwater)
TMDL Approved:	Yes; 2015
Impaired Use(s):	Aquatic Recreation

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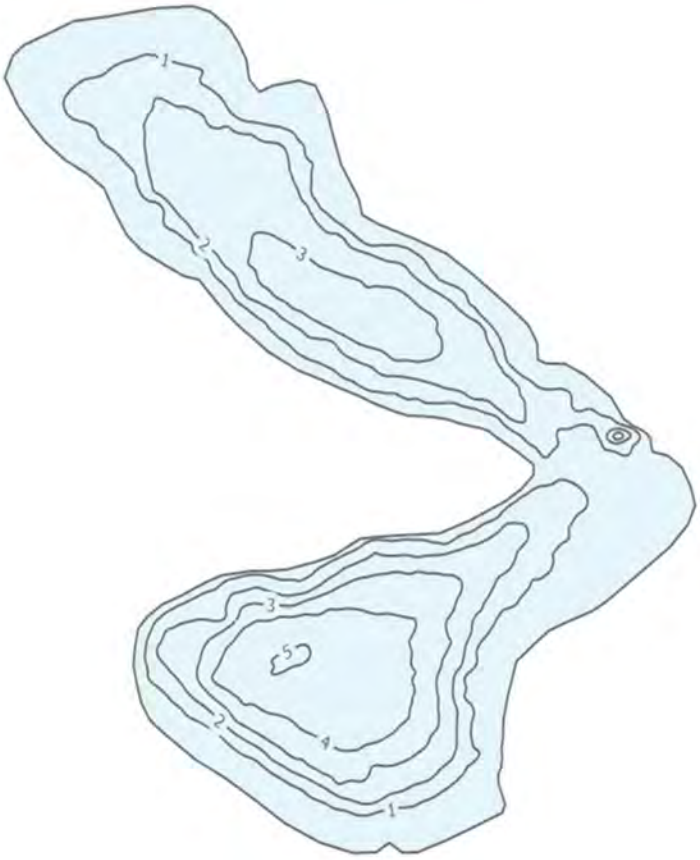
McCarthy Lake

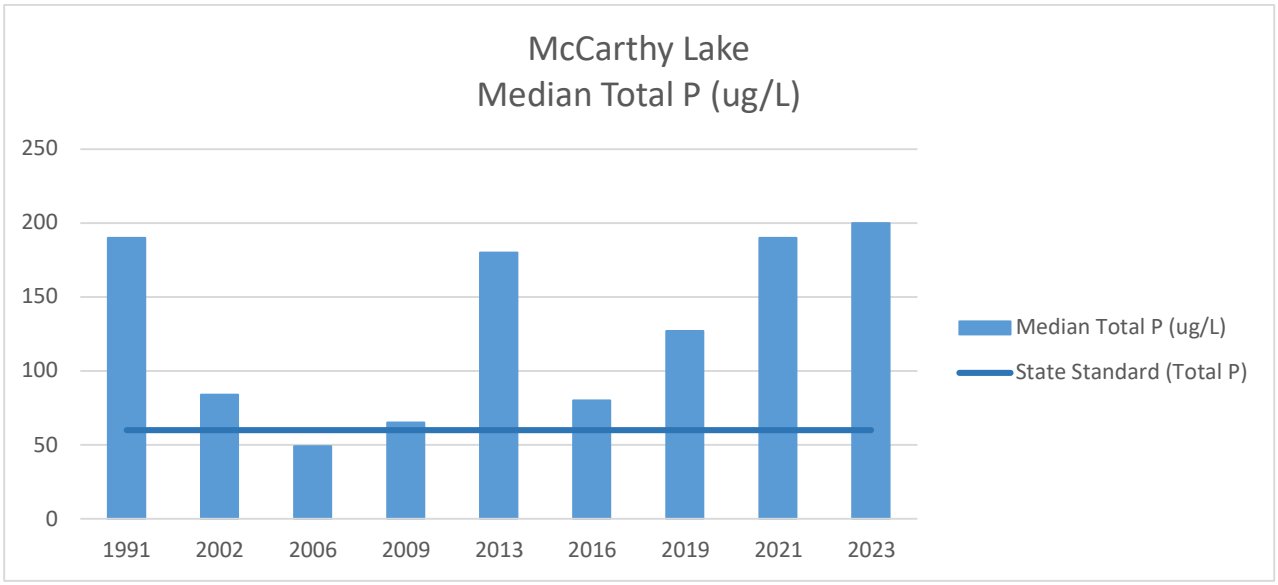
City ID:	JP-9
Waterbody Type:	Shallow Lake
Surface Area:	11.42 acres
Maximum Depth:	5.00 feet
Public Access:	Yes
Supported Uses:	Habitat, Education, Aesthetics

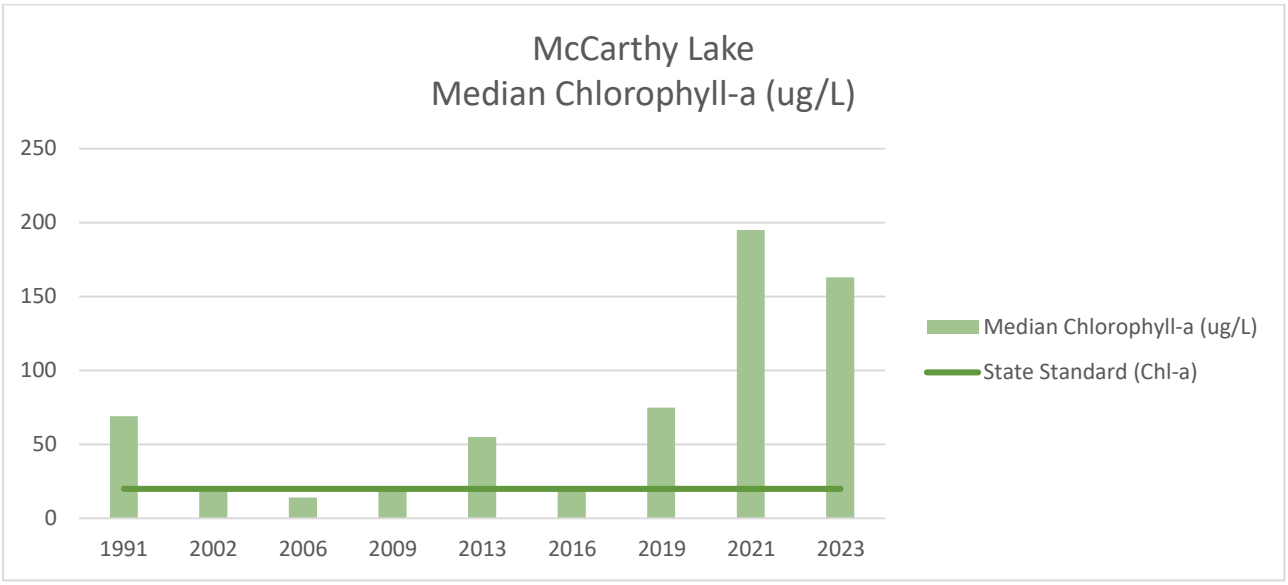


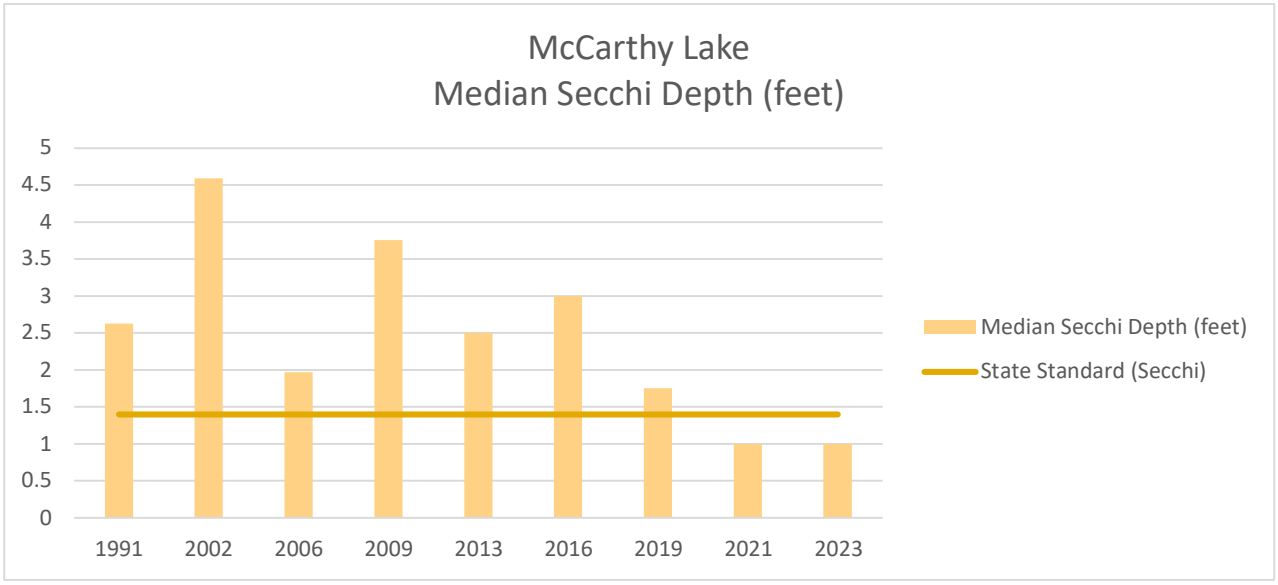
WATER QUALITY IMPROVEMENTS [2020–PRESENT]

2025

Iron-enhanced sand filter installed as part of the new Eagan Art House construction project, designed to capture and treat stormwater from existing and new impervious surfaces prior to discharge into McCarthy Lake

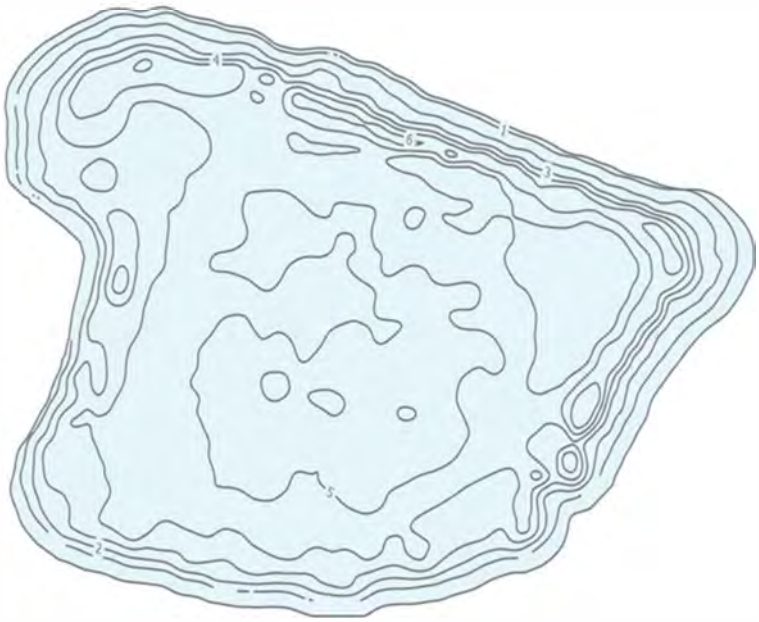

McCarthy Lake
Median Total P (ug/L)
250
200
150
100
50
0
1991
2002
2006
2009
2013
2016
2019
2021
2023
Median Total P (ug/L)
State Standard (Total P)


McCarthy Lake
Median Chlorophyll-a (ug/L)
250
200
150
100
50
0
1991
2002
2006
2009
2013
2016
2019
2021
2023
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


McCarthy Lake
Median Secchi Depth (feet)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1991
2002
2006
2009
2013
2016
2019
2021
2023
Median Secchi Depth (feet)
State Standard (Secchi)

Mooney Pond

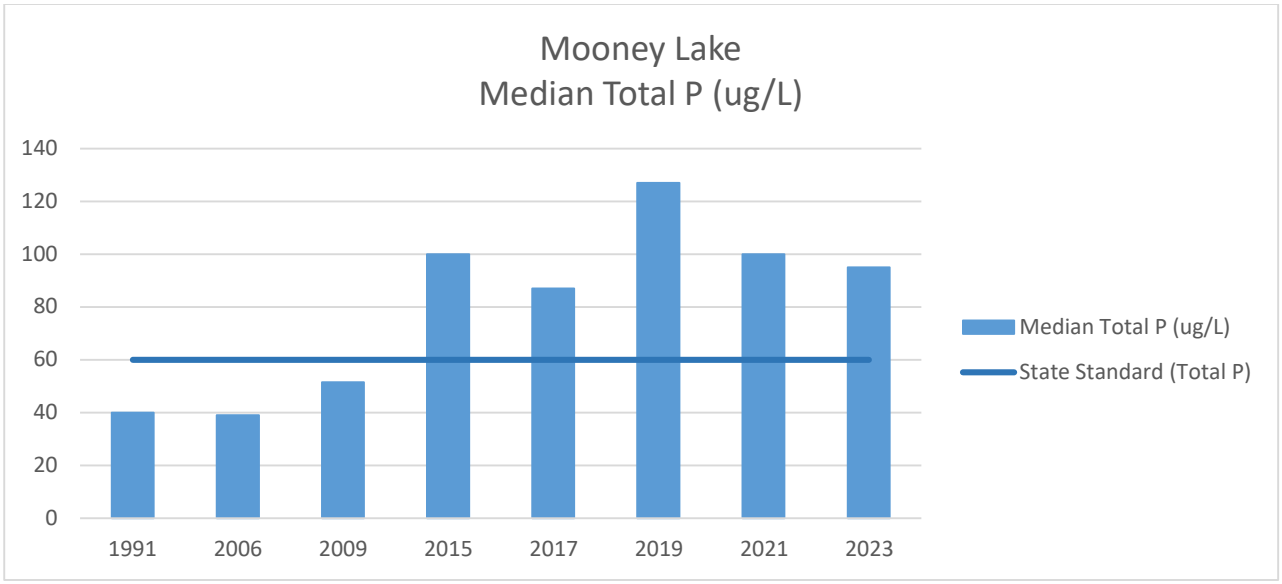
City ID:	JP-7
Waterbody Type:	Shallow Lake
Surface Area:	7.56 acres
Average Depth:	4.02 feet
Maximum Depth:	7.71 feet
Public Access:	Yes
Supported Uses:	Habitat, Education, Aesthetics

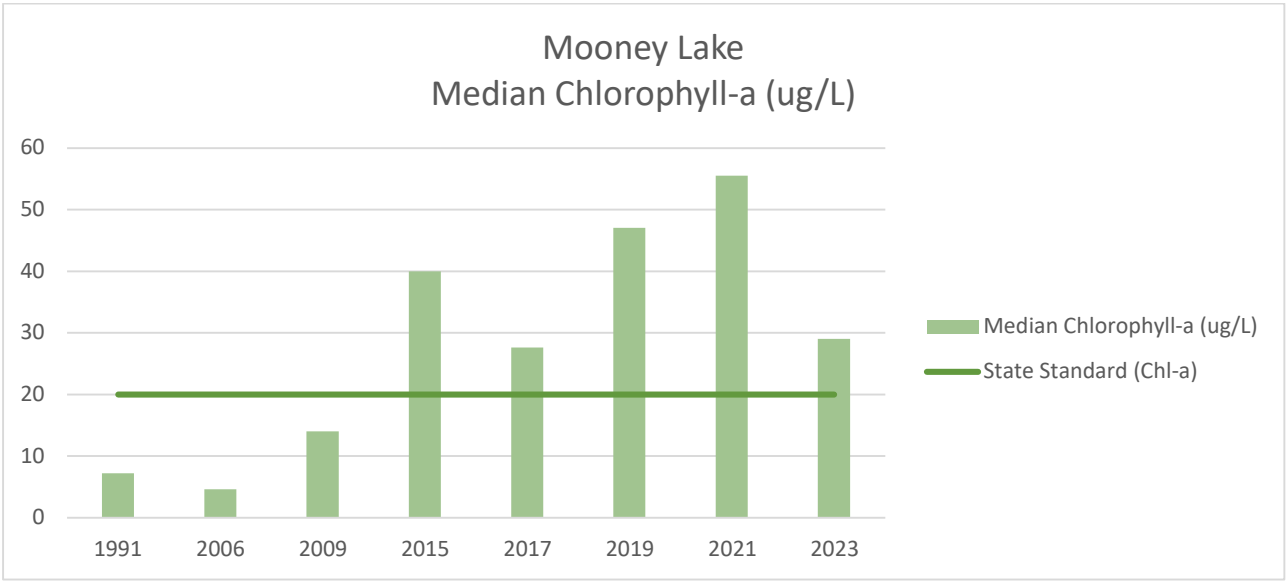


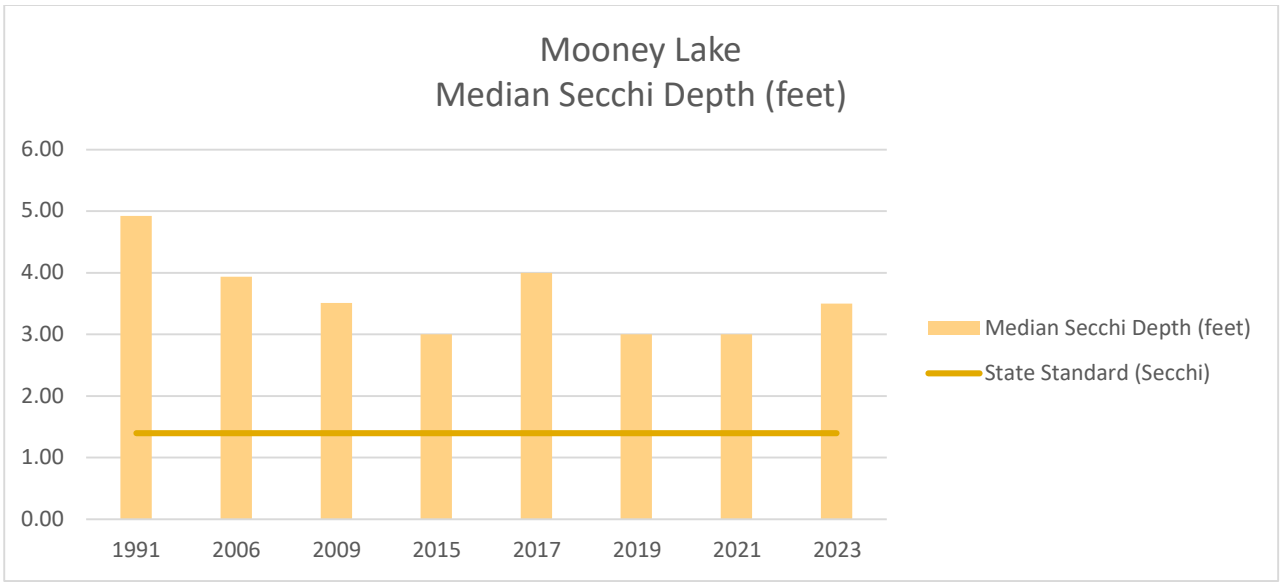
WATER QUALITY IMPROVEMENTS [2020–PRESENT]

Known to support small minnow species, frogs, insects, and native aquatic plants. The surrounding area is accessible for birdwatching and trail walking,

Not currently maintained for recreational fishing.

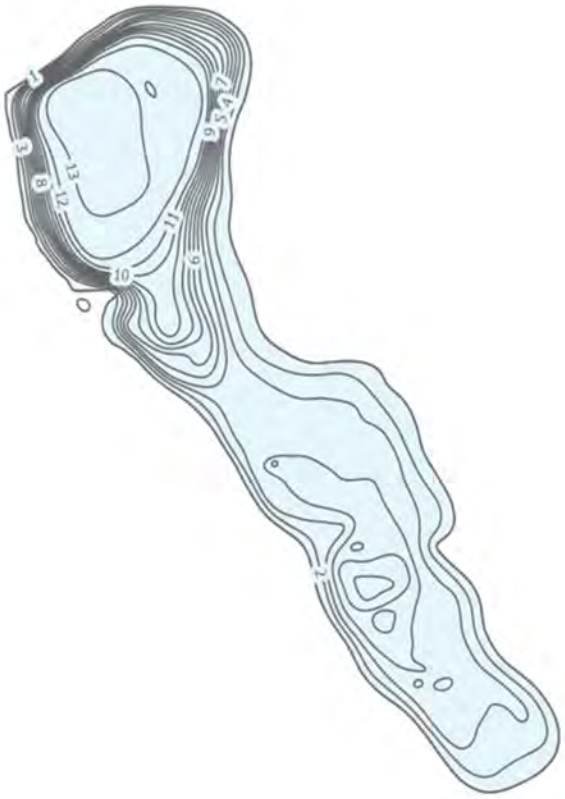

Mooney Lake
Median Total P (ug/L)
140
120
100
80
60
40
20
0
1991
2006
2009
2015
2017
2019
2021
2023
Median Total P (ug/L)
State Standard (Total P)


Mooney Lake
Median Chlorophyll-a (ug/L)
60
50
40
30
20
10
0
1991
2006
2009
2015
2017
2019
2021
2023
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Mooney Lake
Median Secchi Depth (feet)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1991
2006
2009
2015
2017
2019
2021
2023
Median Secchi Depth (feet)
State Standard (Secchi)

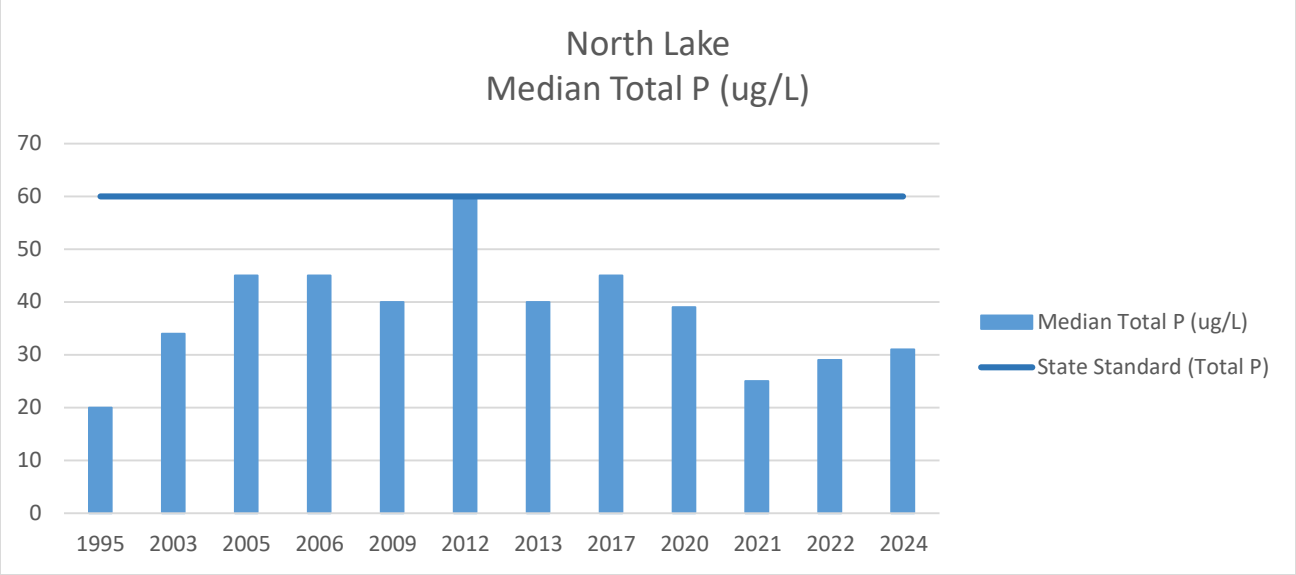
North Lake

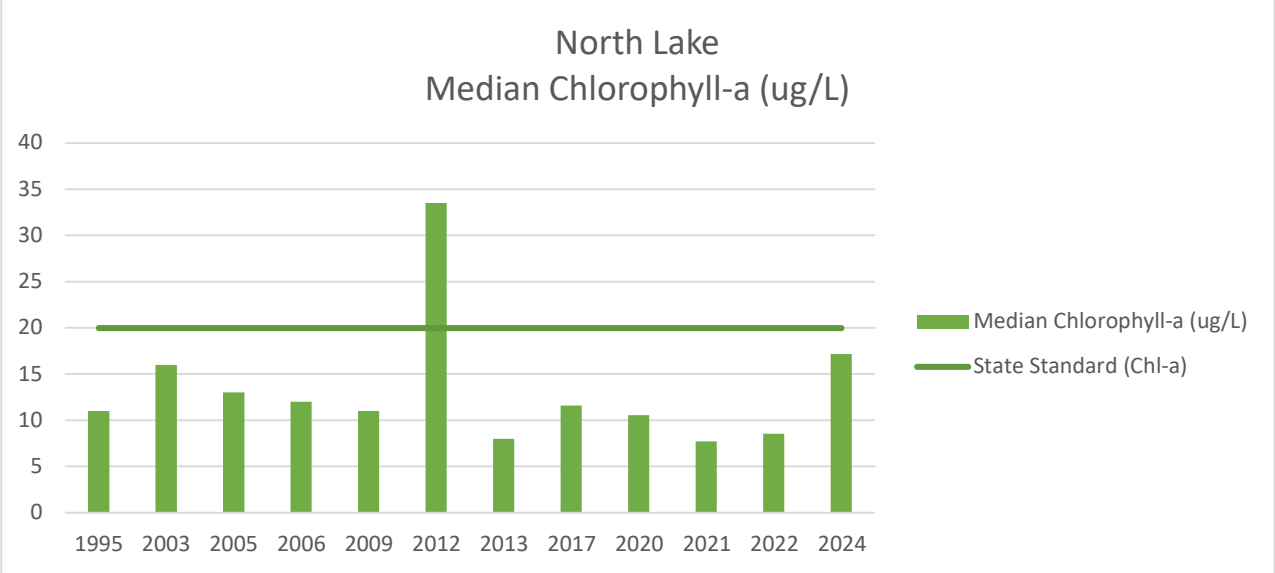
City ID:	EP-2
Waterbody Type:	Shallow Lake
Surface Area:	16.46 acres
Maximum Depth:	12.00 feet
Public Access:	Yes
Supported Uses:	Fishing, Canoeing / Kayaking

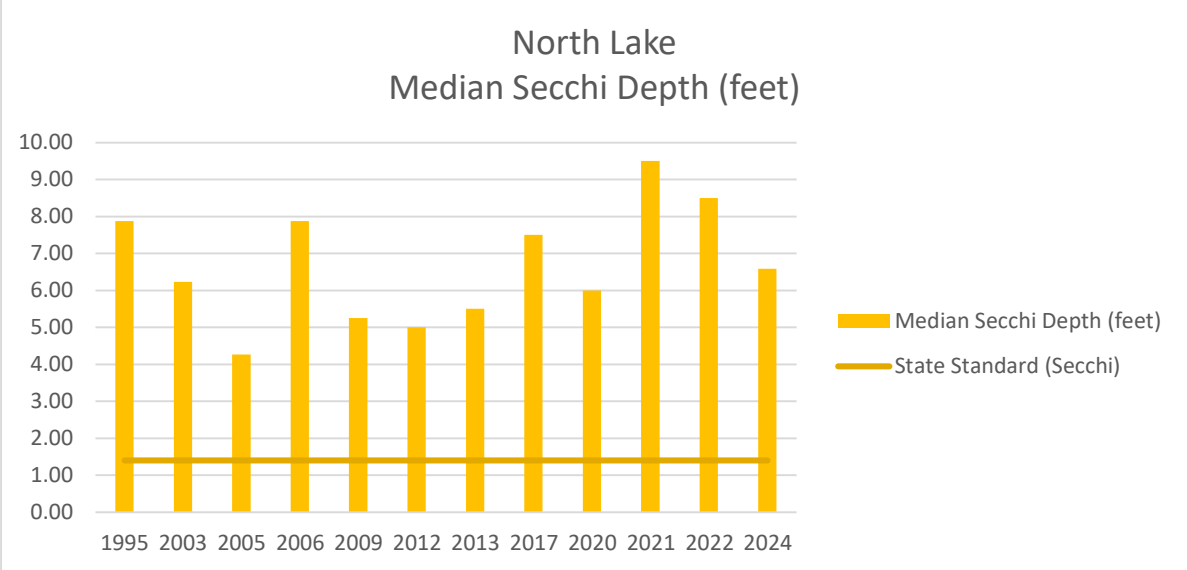


WATER QUALITY IMPROVEMENTS [2020–PRESENT]

2020 — Alum application to reduce in-lake nutrient load


North Lake
Median Total P (ug/L)
70
60
50
40
30
20
10
0
1995
2003
2005
2006
2009
2012
2013
2017
2020
2021
2022
2024
Median Total P (ug/L)
State Standard (Total P)


North Lake
Median Chlorophyll-a (ug/L)
40
35
30
25
20
15
10
5
0
1995
2003
2005
2006
2009
2012
2013
2017
2020
2021
2022
2024
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


North Lake
Median Secchi Depth (feet)
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1995
2003
2005
2006
2009
2012
2013
2017
2020
2021
2022
2024
Median Secchi Depth (feet)
State Standard (Secchi)

Impairment Summary

North Lake

Year Listed:	2008
Impairment:	Mercury in Fish Tissue
TMDL Approved:	Yes; Southwest Region Mercury TMDL
Impaired Use(s):	Aquatic Consumption

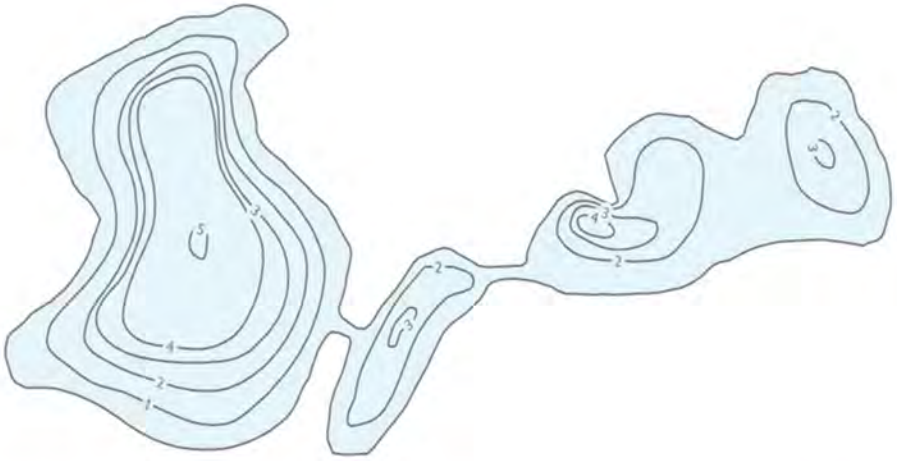
A waterbody is listed as impaired for mercury when more than 10% of a fish species fillets have a mercury concentration of at least 0.20 parts per million (ppm). Mercury accumulates in fish tissue, specifically as 'methylmercury,' which is the most hazardous form of mercury for humans. Once a waterbody is contaminated with mercury, it is very difficult to remove it.

Mercury is a naturally occurring element that is highly toxic to both humans and animals. While most people associate mercury with the liquid, silvery substance from old thermometers, it can also evaporate and become airborne - and in this form can come from a variety of sources.

In Eagan's case, the primary source is atmospheric deposition from coal-fired power plants in North Dakota. Because the source of these contaminants is not local, the state of Minnesota oversees a statewide 'total maximum daily load' or TMDL to manage the sources of mercury accumulating in our surface waters.

O'Leary Lake

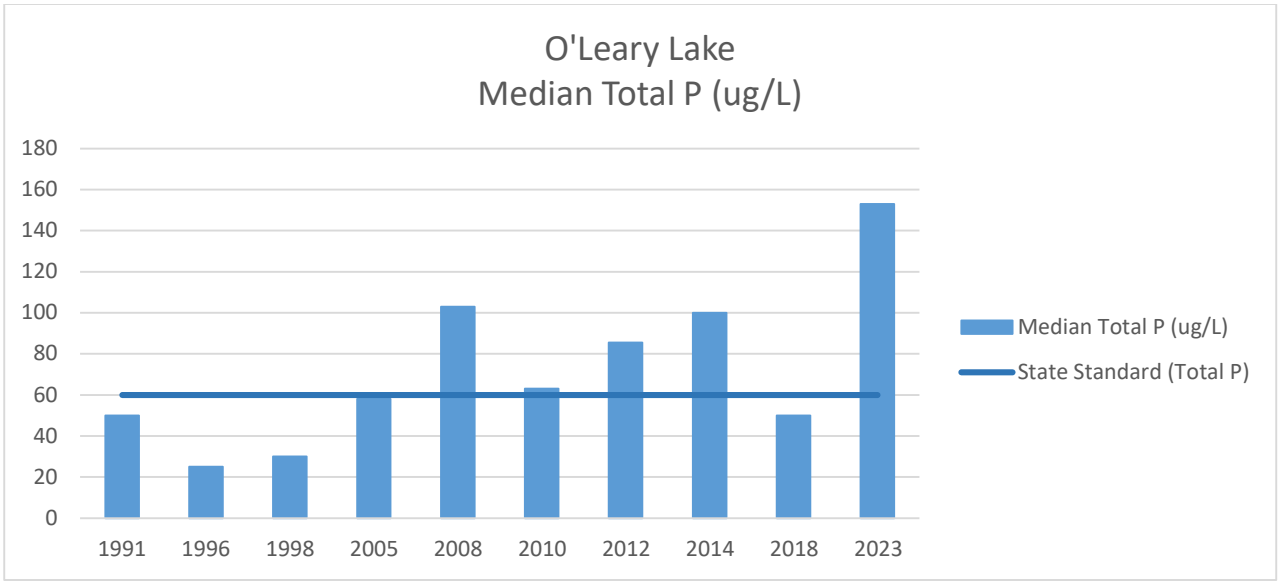
City ID:	DP-7
Waterbody Type:	Shallow Lake
Surface Area:	15.97 acres
Maximum Depth:	4.00 feet
Public Access:	Yes
Supported Uses:	Habitat, Education, Aesthetics

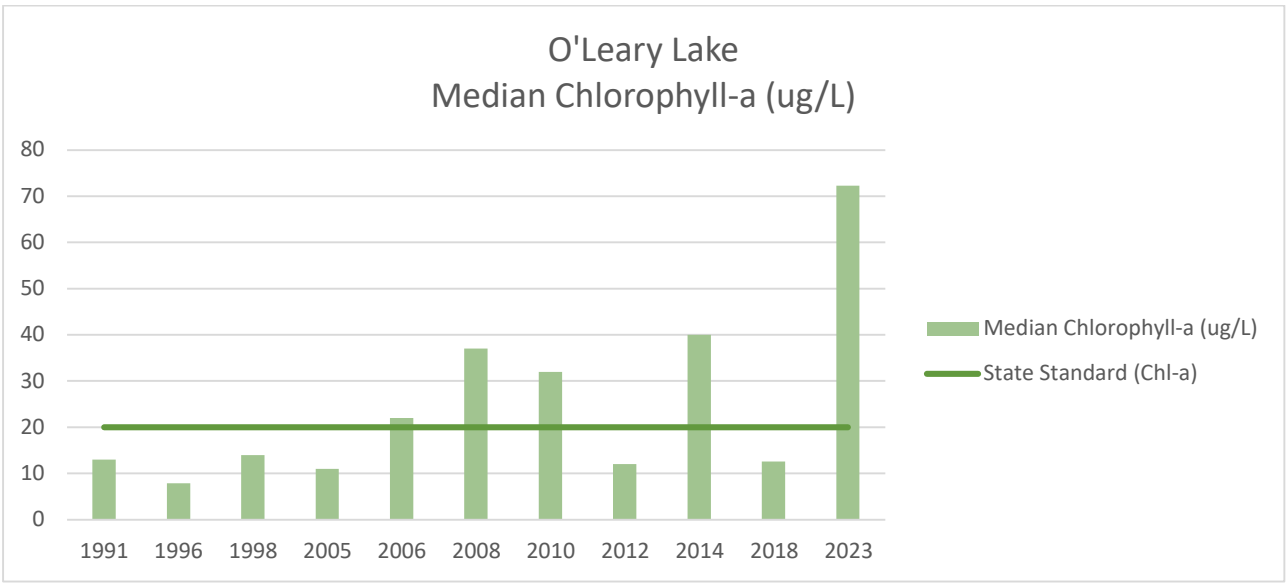


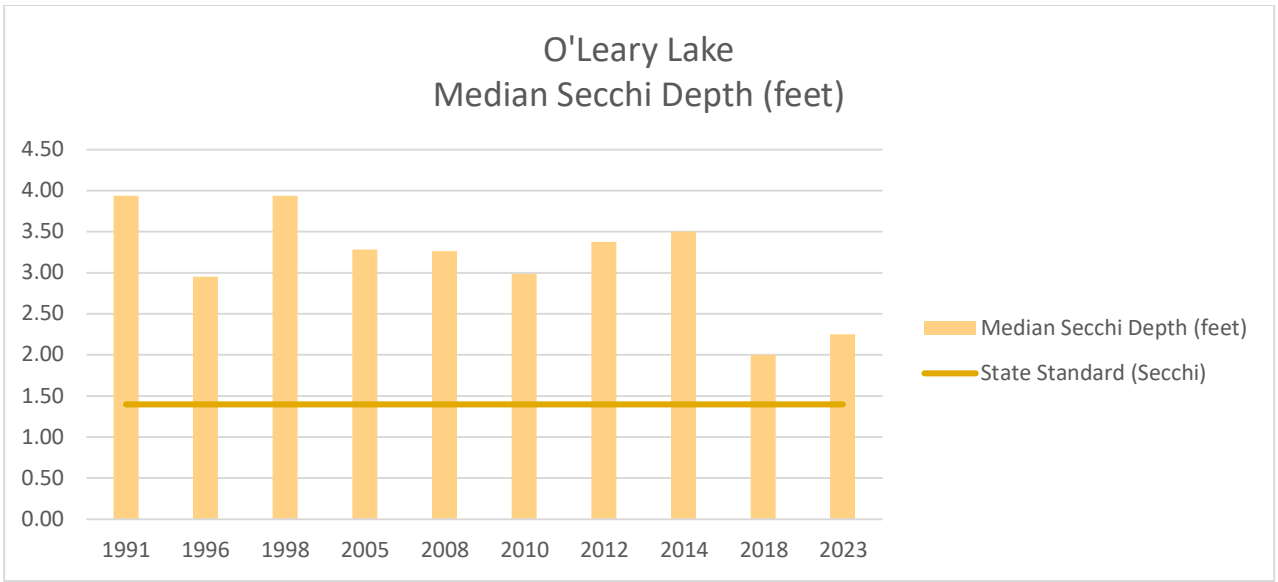
WATER QUALITY IMPROVEMENTS [2020–PRESENT]

Known to support small minnow species, frogs, insects, and native aquatic plants. The surrounding area is accessible for birdwatching and trail walking,

Not currently maintained for recreational fishing.

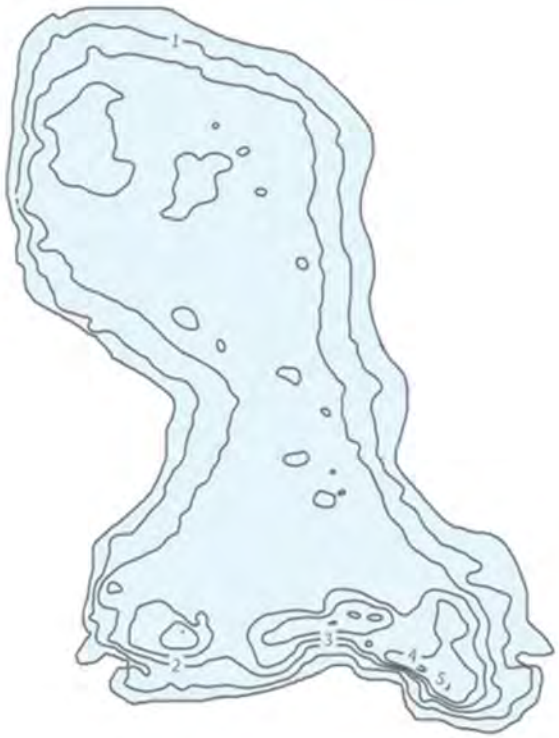

O'Leary Lake
Median Total P (ug/L)
180
160
140
120
100
80
60
40
20
0
1991
1996
1998
2005
2008
2010
2012
2014
2018
2023
Median Total P (ug/L)
State Standard (Total P)


O'Leary Lake
Median Chlorophyll-a (ug/L)
80
70
60
50
40
30
20
10
0
1991
1996
1998
2005
2006
2008
2010
2012
2014
2018
2023
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


O'Leary Lake
Median Secchi Depth (feet)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
1991
1996
1998
2005
2008
2010
2012
2014
2018
2023
Median Secchi Depth (feet)
State Standard (Secchi)

Quigley Lake

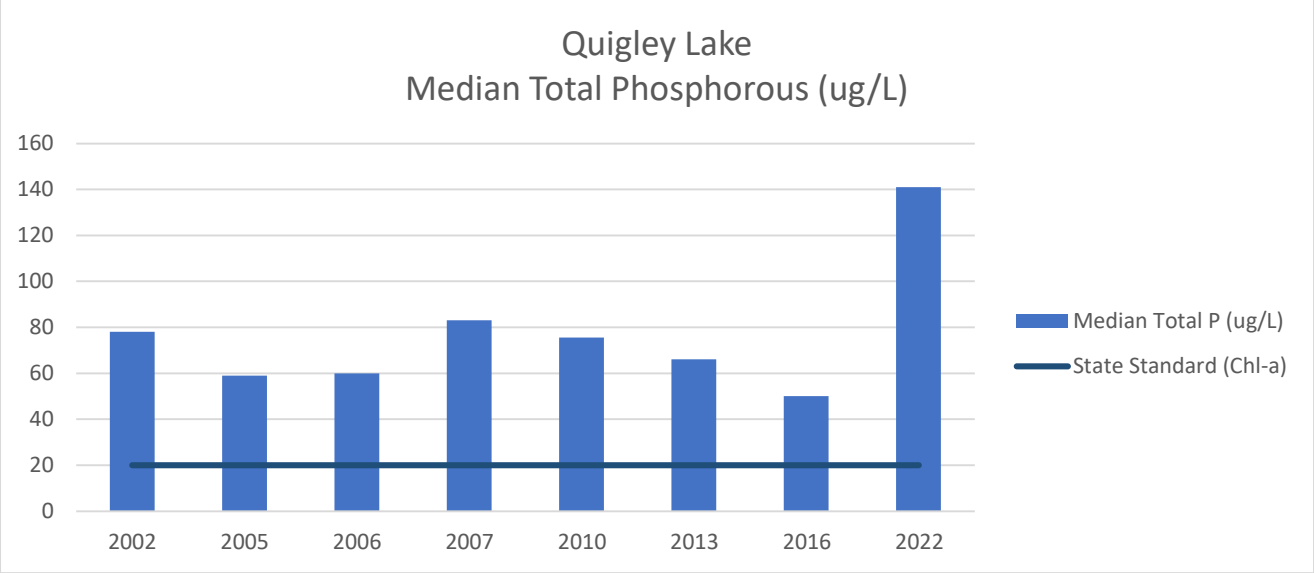
City ID:	LP-43
Waterbody Type:	Wetland
Surface Area:	17.60 acres
Average Depth:	2.00 feet
Maximum Depth:	5.90 feet
Public Access:	Yes
Supported Uses:	Habitat, Education, Aesthetics

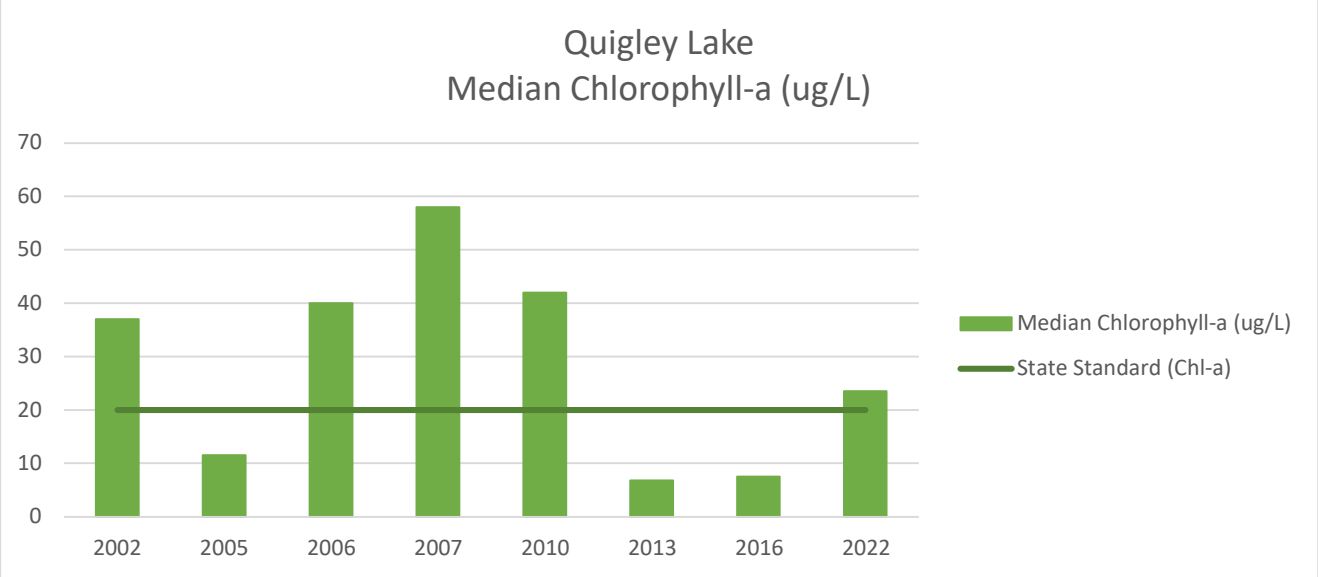


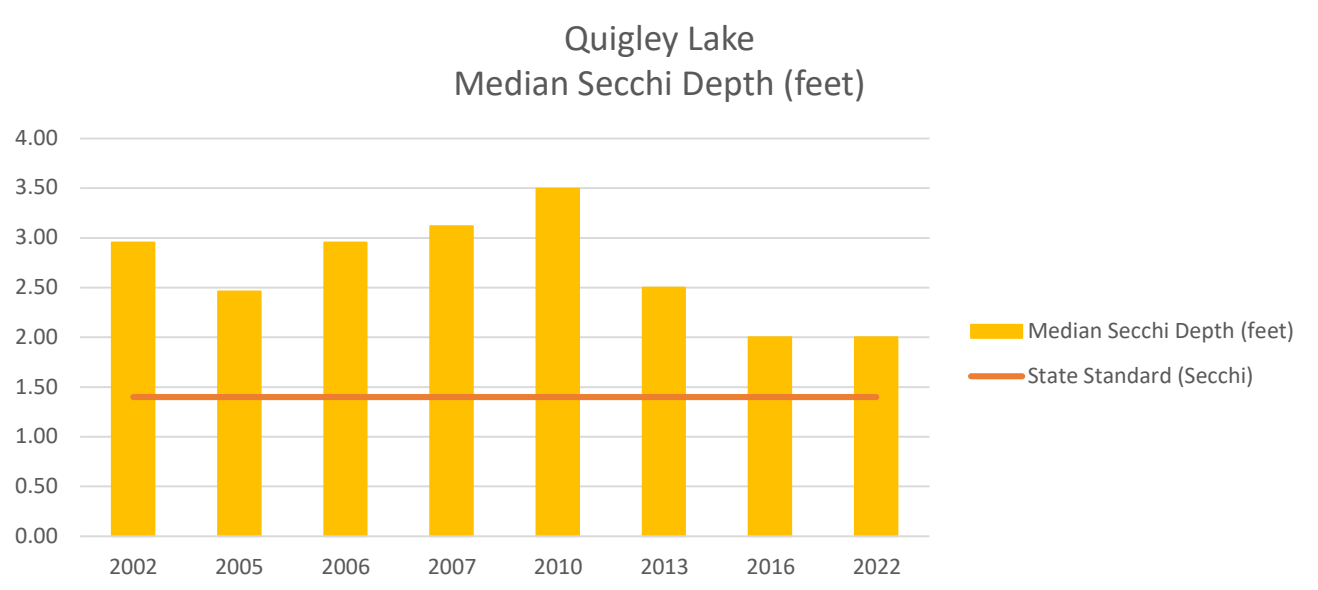
WATER QUALITY IMPROVEMENTS [2020–PRESENT]

Known to support small minnow species, frogs, insects, and native aquatic plants. The surrounding area is accessible for birdwatching and trail walking,

Not currently maintained for recreational fishing.

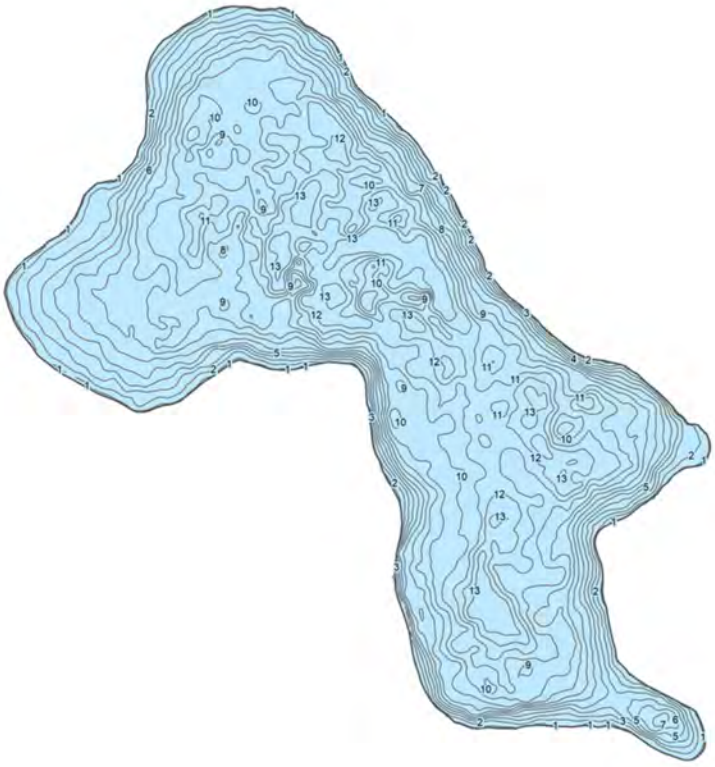

Quigley Lake
Median Total Phosphorous (ug/L)
160
140
120
100
80
60
40
20
0
2002
2005
2006
2007
2010
2013
2016
2022
Median Total P (ug/L)
State Standard (Chl-a)


Quigley Lake
Median Chlorophyll-a (ug/L)
70
60
50
40
30
20
10
0
2002
2005
2006
2007
2010
2013
2016
2022
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Quigley Lake
Median Secchi Depth (feet)
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
2002
2005
2006
2007
2010
2013
2016
2022
Median Secchi Depth (feet)
State Standard (Secchi)

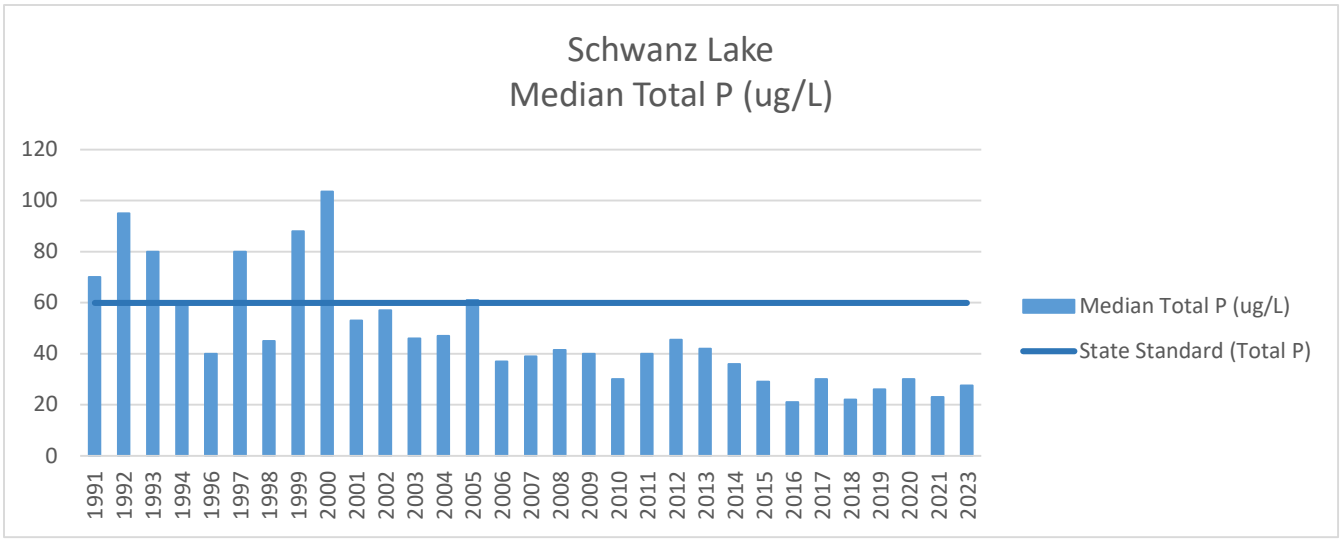
Schwanz Lake

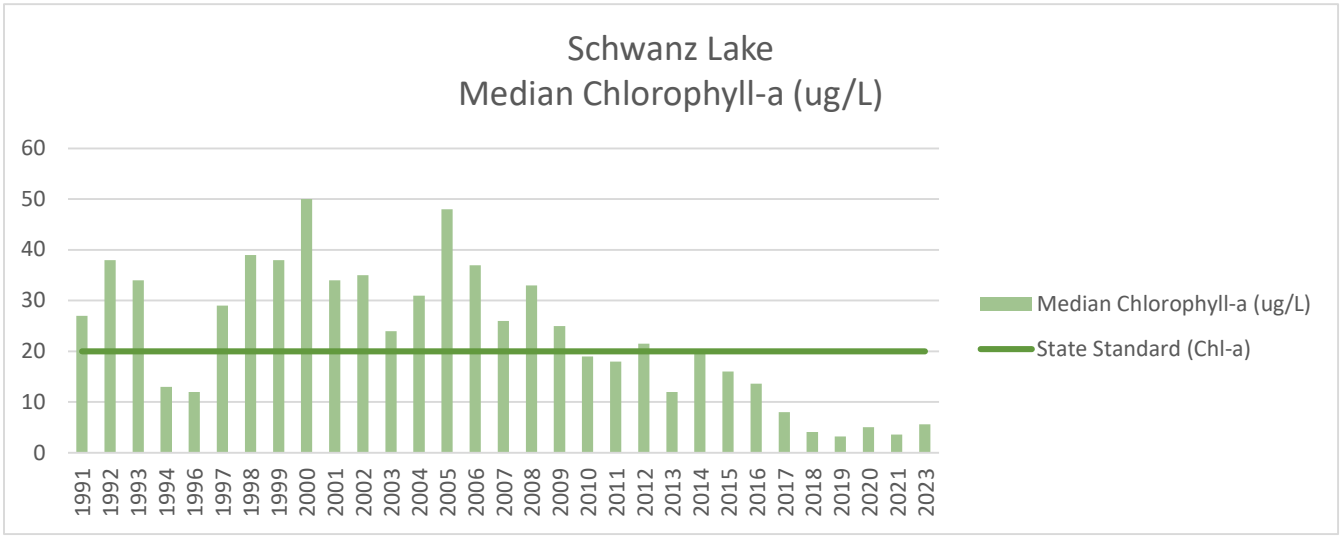
City ID:	LP-32
Waterbody Type:	Shallow Lake
Surface Area:	12.70 acres
Average Depth:	8.20 feet
Maximum Depth:	14.50 feet
Public Access:	Yes
Supported Uses:	Fishing, Canoeing / Kayaking

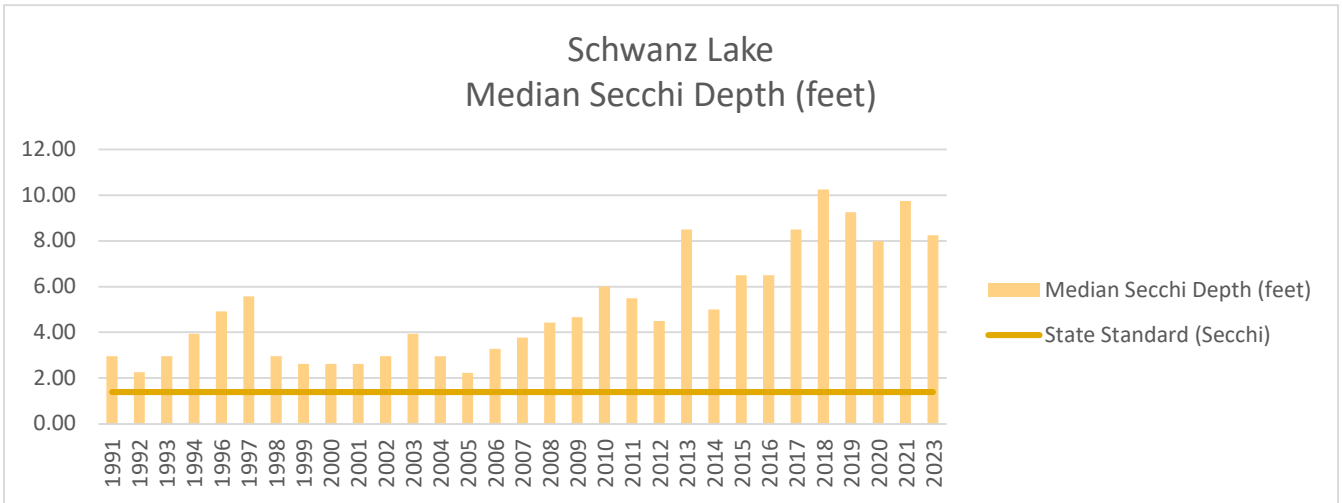


WATER QUALITY IMPROVEMENTS [2020–PRESENT]

As Needed	Aerated in winter as needed to prevent fish kills
2022	Stocked - 425 Walleye (6-8")
2023	Fish population survey completed to assess overall health of the lake's fishery


Schwanz Lake
Median Total P (ug/L)
120
100
80
60
40
20
0
1991 1992 1993 1994 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2023
Median Total P (ug/L)
State Standard (Total P)


Schwanz Lake
Median Chlorophyll-a (ug/L)
60
50
40
30
20
10
0
1991 1992 1993 1994 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2023
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Schwanz Lake
Median Secchi Depth (feet)
12.00
10.00
8.00
6.00
4.00
2.00
0.00
1991 1992 1993 1994 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2023
Median Secchi Depth (feet)
State Standard (Secchi)

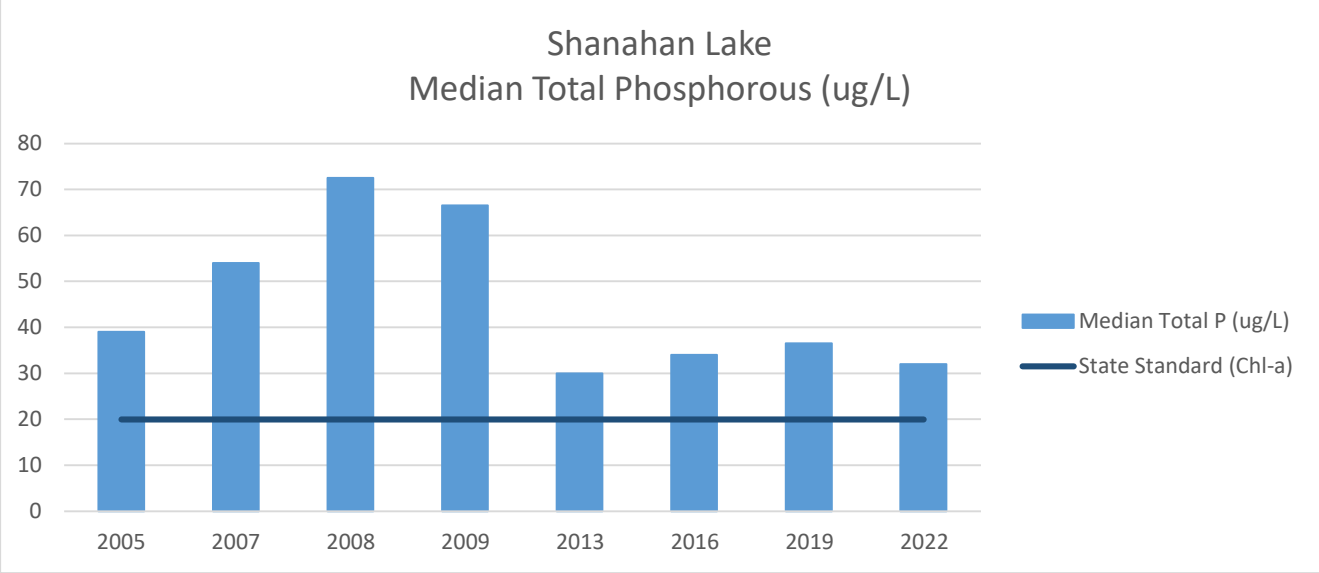
Shanahan Lake

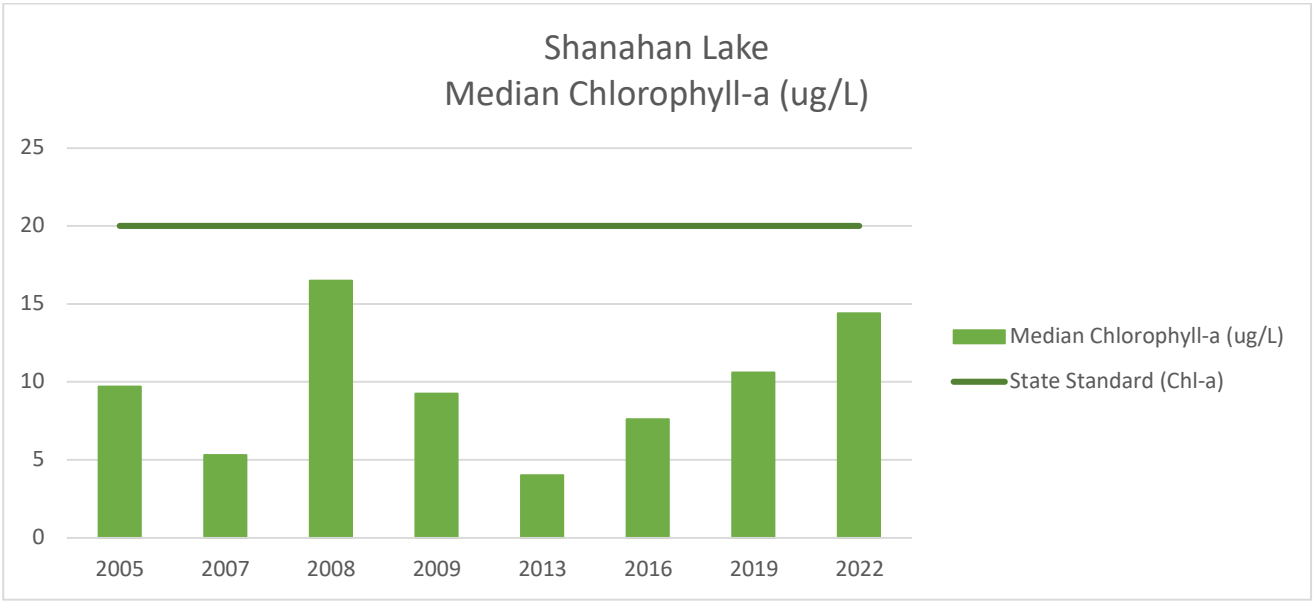
City ID:	FP-8
Waterbody Type:	Shallow Lake
Surface Area:	13.08 acres
Maximum Depth:	9.00 feet
Public Access:	Yes
Supported Uses:	Habitat, Education, Aesthetics

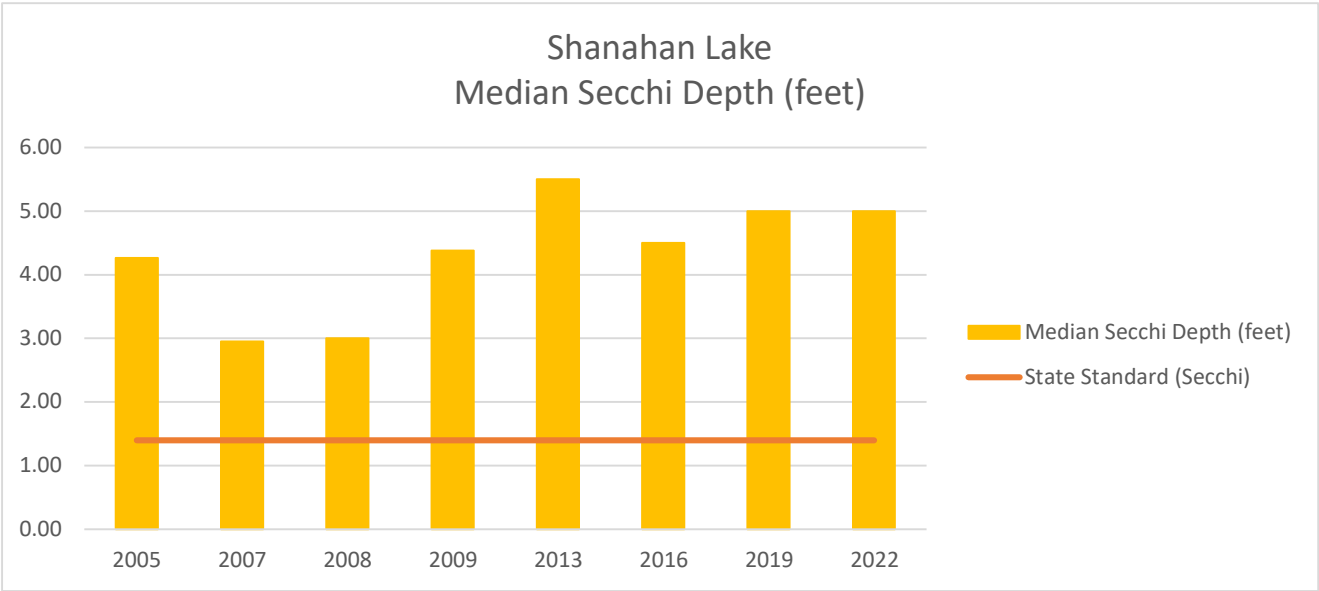
WATER QUALITY IMPROVEMENTS [2020–PRESENT]

Known to support small minnow species, frogs, insects, and native aquatic plants. The surrounding area is accessible for birdwatching and trail walking,

Not currently maintained for recreational fishing.

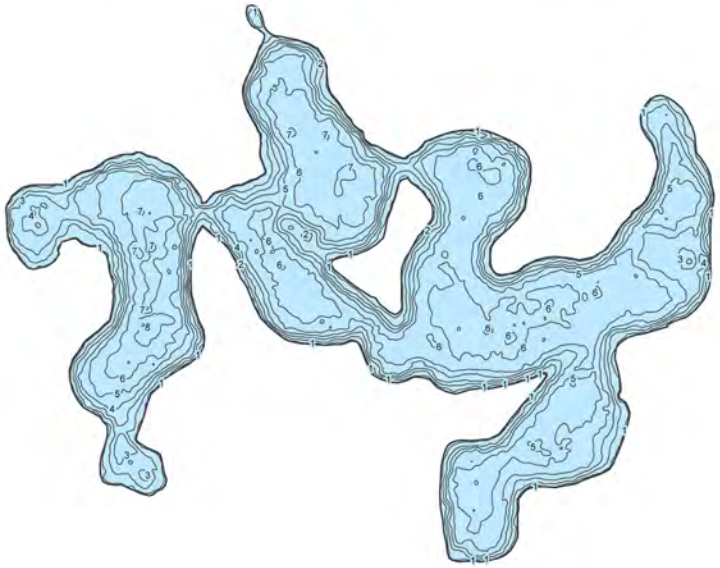

Shanahan Lake
Median Total Phosphorous (ug/L)
80
70
60
50
40
30
20
10
0
2005
2007
2008
2009
2013
2016
2019
2022
Median Total P (ug/L)
State Standard (Chl-a)


Shanahan Lake
Median Chlorophyll-a (ug/L)
25
20
15
10
5
0
2005
2007
2008
2009
2013
2016
2019
2022
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Shanahan Lake
Median Secchi Depth (feet)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
2005
2007
2008
2009
2013
2016
2019
2022
Median Secchi Depth (feet)
State Standard (Secchi)

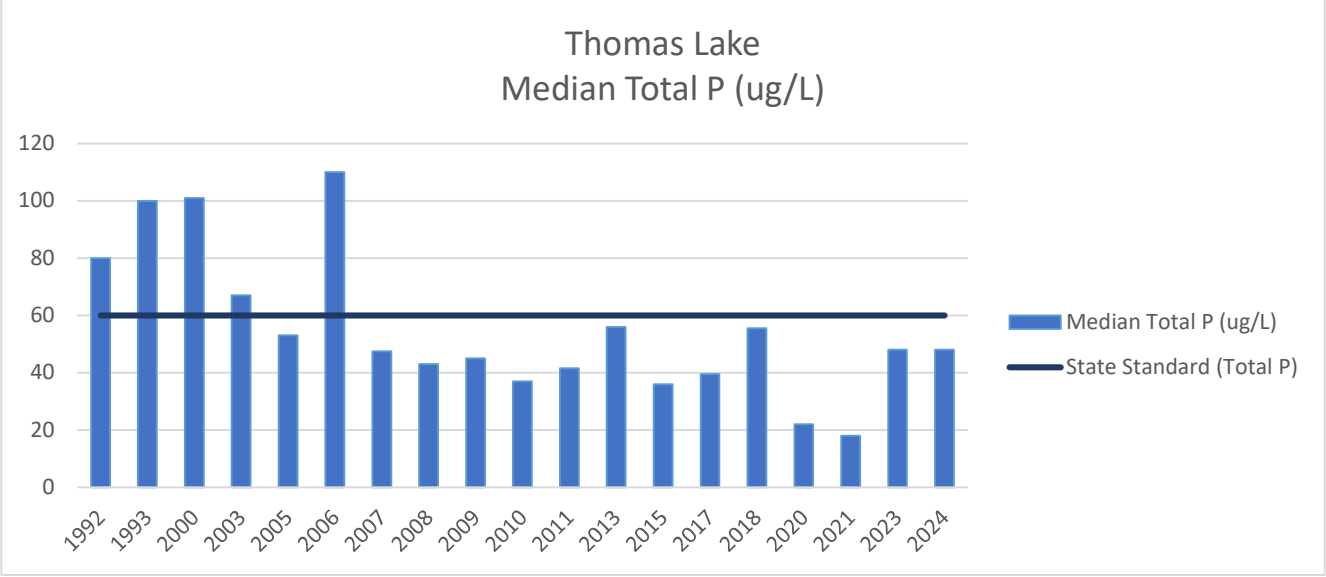
Thomas Lake

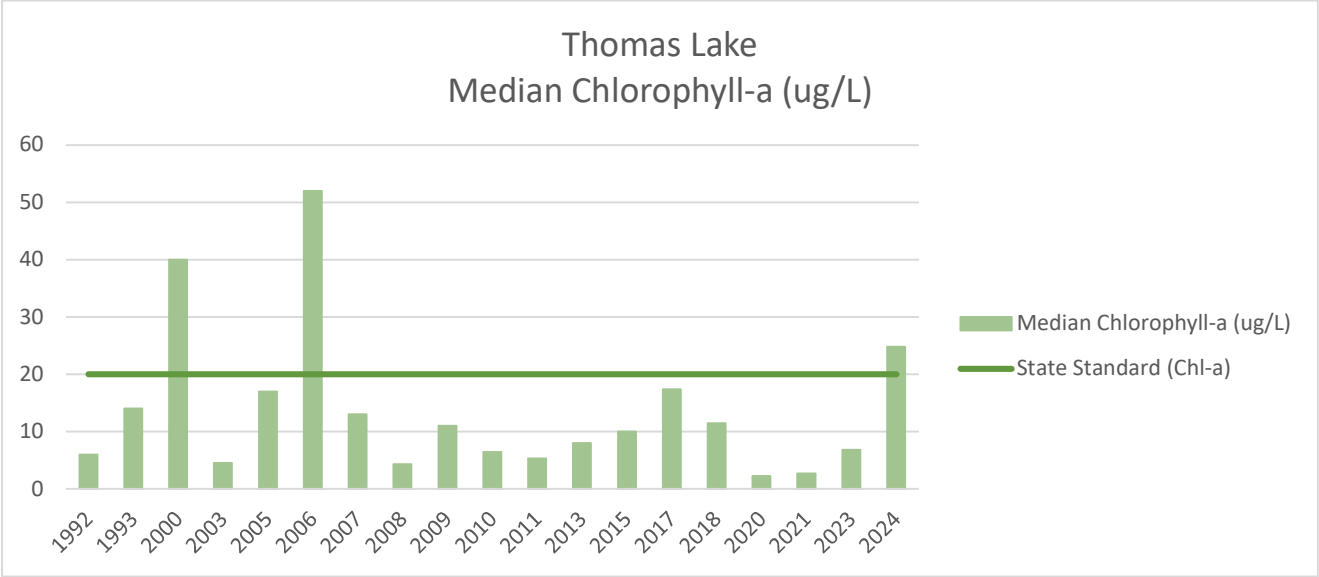
City ID:	BP-7
Waterbody Type:	Shallow Lake
Surface Area:	43.80 acres
Average Depth:	4.20 feet
Maximum Depth:	10.80 feet
Public Access:	Yes
Supported Uses:	Fishing, Canoeing / Kayaking

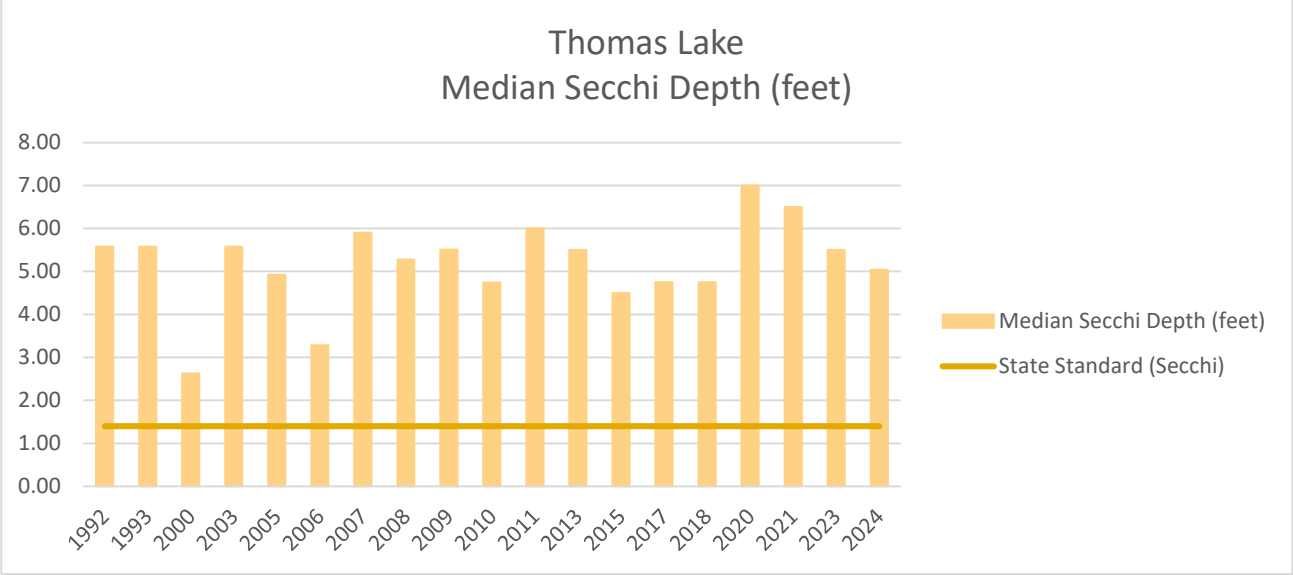


WATER QUALITY IMPROVEMENTS [2019–PRESENT]

As Needed	Aerated in winter as needed to prevent fish kills Lake plants harvested in summer months to reduce biomass
2019	Alum application to reduce in-lake nutrient load
2022	Fish population survey completed to assess overall health of the lake's fishery
2023	Stocked - 1,300 Green Sunfish (yearlings)
2024	Stocked - 465 Bluegill Sunfish (4-6")


Thomas Lake
Median Total P (ug/L)
120
100
80
60
40
20
0
1992
1993
2000
2003
2005
2006
2007
2008
2009
2010
2011
2013
2015
2017
2018
2020
2021
2023
2024
Median Total P (ug/L)
State Standard (Total P)


Thomas Lake
Median Chlorophyll-a (ug/L)
60
50
40
30
20
10
0
1992
1993
2000
2003
2005
2006
2007
2008
2009
2010
2011
2013
2015
2017
2018
2020
2021
2023
2024
Median Chlorophyll-a (ug/L)
State Standard (Chl-a)


Thomas Lake
Median Secchi Depth (feet)
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1992
1993
2000
2003
2005
2006
2007
2008
2009
2010
2011
2013
2015
2017
2018
2020
2021
2023
2024
Median Secchi Depth (feet)
State Standard (Secchi)