

Overall Strategy:

Improve Water Quality

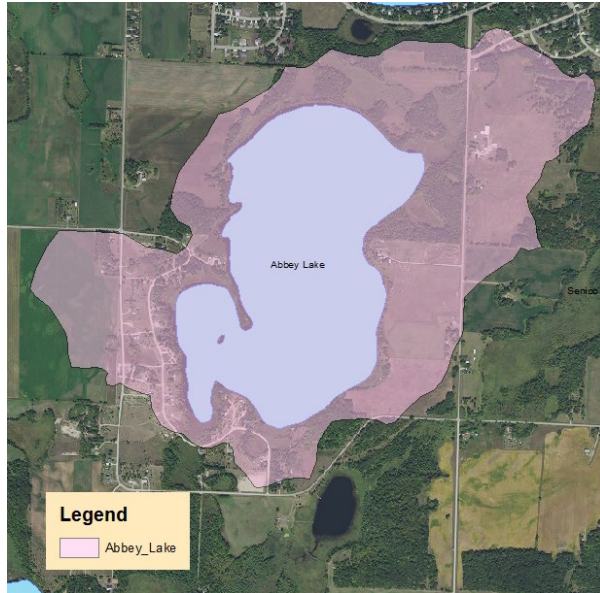
Impairment:

Not listed as impaired

Subwatershed

Lake Cover/Use:

- 35.9% Open Water
- 8.3% Developed
- 4.1% Wetlands
- 10.0% Cultivated Crops
- 18.2% Forest
- 23.4% Grassland



Basic Facts

DNR ID/ Becker No	MN03-0366-00 / 366
Township(s)	Lake View (Sec 14,23)
Lake Classification	Natural Environment
Lake Area	269 acres
Littoral Area	269 acres (100%)
Sub-watershed Area	772 acres
Shoreline Length	3.7 miles
Inlet(s)	None
Outlet(s)	Wetland Stream
Control Structures	None
Highest Recorded*	1340.07 (09/20/2005)
Lowest Recorded*	1340.07 (09/20/2005)
Ordinary High Water Level*	1339.9 feet
Recorded Range*	0
Maximum Depth	7 feet
Main Fish Species	N/A
Secondary Fish Species	N/A
MN DNR/ Private Fish Stocking	N/A
Aquatic Invasive Species (2015)	None listed
Public Access Sites	No Access
Marinas	None
Public Beach	None
References	DNR Lake Finder, Becker County Zoning

Water Quality	10-Year Average 2008-2017	Previous 10-year average 1998-2007	Trend
Secchi (clarity)	5 ft.	4 ft.	Improving
Total Phosphorus	37 µg/L	50 µg/L	Improving
Orthophosphate	Insufficient Data	Insufficient Data	N/A
Chlorophyll-a	11 µg/L	22 µg/L	Improving

Short Term Goals - Year 2025

- Maintain a 5-year mean summer phosphorus concentration at or below 40 µg/L ± 4%
- Maintain mean summer Secchi depth no less than 5 ft

Long Range Goals – Year 2035

- Maintain a 5-year mean summer phosphorus concentration at or below 40 µg/L ± 4%
- Maintain mean summer Secchi depth no less than 5 ft

*Elevations NAVD 29 ** Elevations NAVD 88

Overall Assessment

Abbey Lake is a 269 shallow, natural environment lake with a maximum depth of 7 feet that is listed as a priority shallow lake with the MN DNR. The entire lake is considered littoral with significant macrophyte growth throughout the lake. Abbey is considered mildly eutrophic with significant late season algal blooms and supports only warm fisheries. The lake's watershed had no inlets and drains out of the wetland on the south shore of the lake and into Reeves Lake. The contributing watershed has a total area of 772 acres resulting in a watershed-to-lake area ratio of approximately 2:1.

Heavy residential development is located on the southwest portion of the lake with very few residential homes on other portions of the lake. Land use in the Abbey Lake watershed consists predominantly of grassland and forested land totaling 37% (181 acres) and 28% (141 acres) of land area, respectively. Other land use includes 16% cropland (77 acres), 13% developed land (64 acres) and 6% (32 acres) of wetlands.

Water quality has increased over the past 20 years and now remains stable. Comparing the last ten year period to the ten prior period, the lake has shown an increase in water clarity of one foot and a decrease in total phosphorus concentrations to 37 ppb, over a 25% increase. Abbey is currently above the state standard for shallow lakes which is 60 ppb phosphorus and 3.2-foot Secchi depth. There are no current water resource concerns.

Past Studies

Implementation

Planned/Potential Projects:

Capital Improvement Projects:

Projects & Programs

Ongoing Programs:

