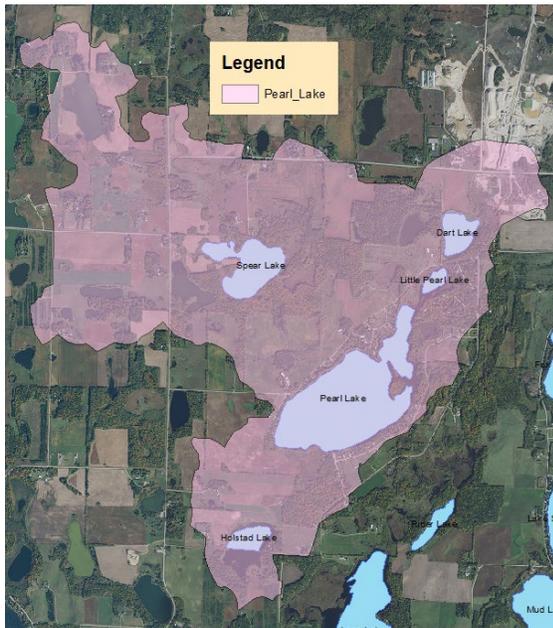


Overall Strategy:
Maintain Water Quality

Impairment: Not listed as impaired

Subwatershed Lake Cover/Use:
14.6% Open Water
5.8% Developed
2.6% Wetlands
22.0 Cultivated Crops
30.9% Forest
24.2% Grassland



Water Quality	10-Year Average (2008-2017)	Trend
Secchi	9 ft.	Stable
Total Phosphorus	28 µg/L	Stable
Ortho Phosphate	Insufficient Data	Insufficient Data
Chlorophyll-a	9.5 µg/L	Insufficient Data

Short Term Goals - Year 2025

- Achieve a 5-year mean summer phosphorus concentration between 25-29 µg/L
- Maintain mean summer Secchi depth no less than 9 ft

Long Range Goals – Year 2035

- Achieve a 5-year mean summer phosphorus concentration between 25-29 µg/L
- Maintain mean summer Secchi depth no less than 9 ft

Basic Facts

DNR ID/ Becker No	MN03-0486-00 / 486
Township(s)	Lake Eunice (Sec 11-14)
Lake Classification	Recreational Development
Lake Area	281 acres
Littoral Area	168.2 acres (59.8%)
Sub-watershed Area	3534 acres
Inlet(s)	None
Outlet(s)	Wetland Stream
Outlet Elevation*	1356.5
Control Structures	None
Highest Recorded*	1358.24 feet (7/8/2002)
Lowest Recorded*	1354.83 feet (9/25/2012)
Ordinary High Water Level*	1356.6 feet
Recorded Range*	3.41 feet
Maximum Depth	54 feet
Main Fish Species	Black crappie, Bluegill, Largemouth bass, Northern pike, Walleye
Secondary Fish Species	Black/Brown bullhead, Hybrid sunfish, Pumpkinseed, White sucker, Yellow perch
MN DNR/ Private Fish Stocking	Walleye
Aquatic Invasive Species (2015)	Curly-leaf pondweed
Public Access Sites	S Shore just E of peninsula (DNR)
Marinas	None
Public Beach	None
References	DNR Lake Finder, Becker County

*Elevations NGVD 29

** Elevations NAVD 88

Overall Assessment

Pearl Lake is a 281 acres lake located along the western edge of the Pelican River Watershed District boundary. It reaches a depth of 54 feet with a littoral area (<15feet) accounting for 60% (168 acres) of its surface area. The drainage area of Pearl Lake includes several other small lakes and wetlands including Little Pearl, Dart, Bijou, and Holstad Lakes. Other than the lakes within its drainage area, Pearl is poorly connected to any downstream lake or other lakes within the watershed. Historically, Pearl Lake experience large fluctuations in water levels, ranging from **xx** to **xx** feet. A well defined outlet was constructed in the southwest corner of the lake and maintains water levels at more constant elevation.

The MN DNR maintains an asphalt public boat access ramp along the southern shoreline, allowing both public and private use of the lake. Curly leaf pond was first observed in a **xx** acre area in 2010. A permit to chemically treat the plant was applied for in 2010, but was denied by the DNR. By 2011, populations were widespread and now are found in all portions of the lake.

There has been substantial increases in residential development in the past 20 years. In 1983 there were two riparian residences. By 2003, that had grown to 32 and by 2013, there were a total of 57 riparian residences. The remaining undeveloped riparian properties is not suitable for development with wetlands and poor drainage.

Water quality exhibits large year-to-year fluctuations with a 10 year average of 28 ppb phosphorus and clarity of 9.5 feet. A diagnostic study for Pearl Lake was completed in 2012 which determined that the primary source of in-lake phosphorus was from internal loading from nutrient rich sediments. The lake stratifies strongly between 4-6 meters and develops anoxia in the lower layer, further increase release of phosphorus from lake bottom sediments in to the lower water layer.

There is cultivated cropland on both the east and west sides of the lake that drain via private ditch to Pearl Lake. Study work from 2010 and 2011 show that during dry periods, there is very limited input from those source to the lake, but during wet periods, a significant amount of sediment loads are observed. Due to the flashy nature of the monitoring locations, annual loads from those sources could not be determined.

Land cover (excluding open water) of the contributing drainage area is primarily forested (36%) and grassland (28%). Cultivated crops account for 778 acres (26%) of the land surface area. Developed land total 204 acres (7%) while wetlands account for 92 acre (3%).

Implementation

Planned/Potential Projects:

Investigate internal loading reduction opportunities.
Investigate phosphorus load reduction practices in agricultural regions

Investigate feasibility of AIS management practices

Projects & Programs

Ongoing Programs:

Continue to monitor biological integrity by vegetation survey every 5 years.

Promote shoreline best management practices

Recruit volunteer lake monitors

Past Studies