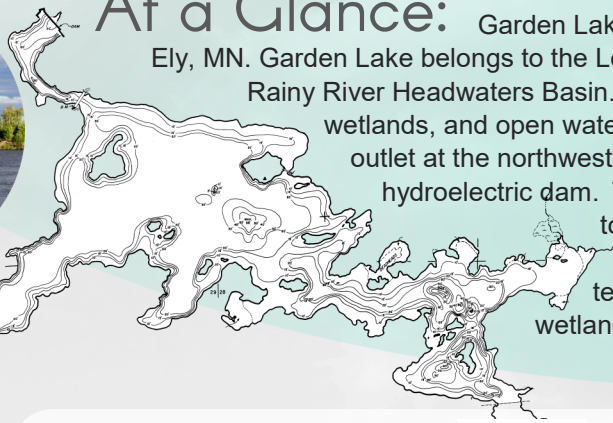




Get to Know: Garden Lake Rainy River Headwaters

At a Glance:

Garden Lake is located approximately four miles northeast of Ely, MN. Garden Lake belongs to the Lower Kawishiwi River subwatershed within the larger Rainy River Headwaters Basin. The majority of the watershed is composed of forest, wetlands, and open water. Garden Lake's water flows in from Farm Lake and its outlet at the northwest corner is controlled by the Minnesota Power hydroelectric dam. Water levels are managed by the dam which is required to remain within target parameters, including a two foot winter drawdown. The water in Garden Lake has a tea-stained appearance due to the abundance of wetlands in the watershed. For water quality and invasive species data, see reverse side.



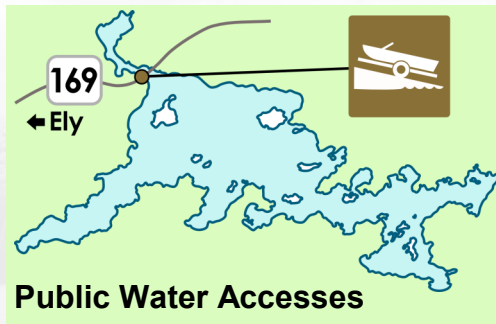
Good to Know:

Citizen scientists have been monitoring the water quality of Garden Lake since 2005 with the support of the Minnesota Pollution Control Agency (MPCA). See the reverse side for a summary of their findings.

There are **protected slots** for Northern Pike and Walleye on Garden Lake. If you plan to fish, make sure to check the DNR website first.

The Minnesota Power **hydroelectric dam** at the outlet of Garden Lake was first built in 1923. The Winton hydro station has a four megawatt capacity, with the Birch Lake reservoir providing the water necessary for winter power generation.

A **paleolimnological study** was performed on the White Iron chain of lakes, including Garden Lake, in 2013 by UMD's Natural Resources Research Institute. They used chemical and biological clues found in lake sediment to better understand conditions in the lakes and on land prior to European settlement.



Public Water Accesses

Stats:

- Max depth: 55 ft
- Avg depth: ~20 ft
- Area: 653 acres
- % Littoral area: 37%
- Shoreline length: 17 mi
- % Public ownership of shoreline: 16%
- Water level range: 3.2 ft
- Avg transparency: 5.3 ft
- Trophic State: mesotrophic
- Fish species include: black crappie, bluegill, burbot, hybrid sunfish, lake whitefish, largemouth bass, northern pike, pumpkinseed, rock bass, smallmouth bass, tullibee (cisco), walleye, yellow perch, white sucker, golden shiner, logperch, spottail shiner

Areas of Concern:

Garden Lake has one confirmed **aquatic invasive species**: Rusty Crayfish (pictured below, left). Other threats in the area include: Spiny Waterflea, and Curly-leaf Pondweed. For more information on Garden Lake invasive species, see reverse side.

As with many Minnesota lakes, fish in Garden Lake have elevated levels of **mercury**. Refer to the Minnesota Department of Health guidelines for advice on how much fish can safely be eaten.

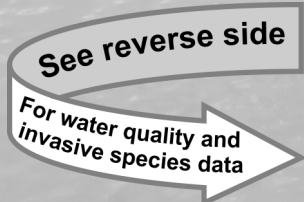


Climate change may present multiple challenges, including warming waters. Lakes that thermally stratify in the ice-free season, as Garden Lake does, are showing signs of warmer temperatures in combination with increased oxygen depletion. This reduces the amount of habitat available for fish like walleye.

Care about Garden Lake? Get Involved!

There are many ways you can make a difference. Here are some resources for learning more and getting started:

White Iron Chain of Lakes Association (WICOLA): www.wicola.org
Lake County Soil and Water Conservation District:
www.LakeCountySWCD.org/Volunteer.php



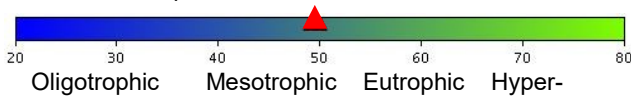
Water Quality

Updated July 18, 2018



Garden Lake
 Rainy River Headwaters
 Get to Know:

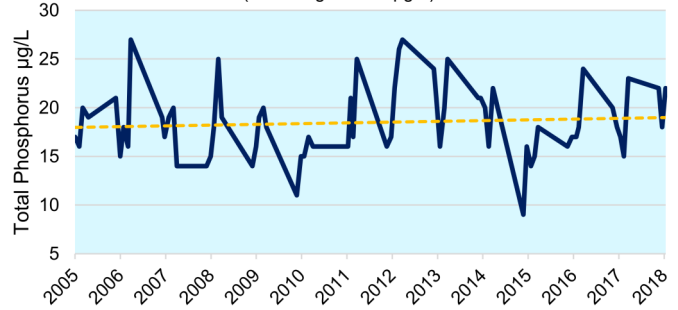
Garden Lake has over ten years of water quality data courtesy of volunteers who have been sampling through Citizen Lake Monitoring Plus, a program of the MPCA. Volunteer measurements for Total Phosphorus, Chlorophyll-a, and Secchi depth are shown at right. Chlorophyll-a has improved slightly since 2005, and Secchi depth has declined. This indicates that something other than algae is causing the reduction in transparency. Total Phosphorus and Chlorophyll-a numbers are within expected ranges for lakes of the Northern Lakes and Forests (NLF) ecoregion. While Secchi depth is not, this is due to bog stained water, rather than an impairment. Total Phosphorus, Chlorophyll-a, and Secchi depth measurements are used to generate a Trophic State Index (TSI) number - a way of characterizing a lake's productivity. Garden Lake's mean TSI is **48.7**, which is mesotrophic:



Find water quality data from Citizen Lake Monitoring here:
www.rmbel.info/data/

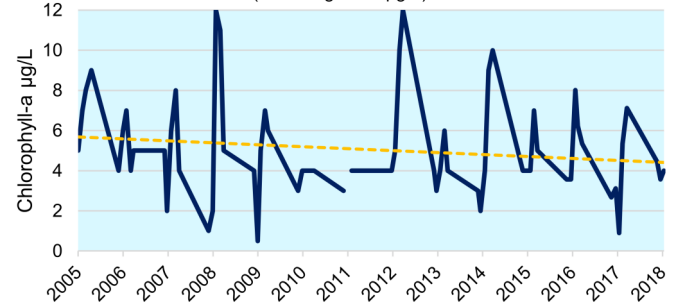
Total Phosphorus

(NLF range 14-27 µg/L)



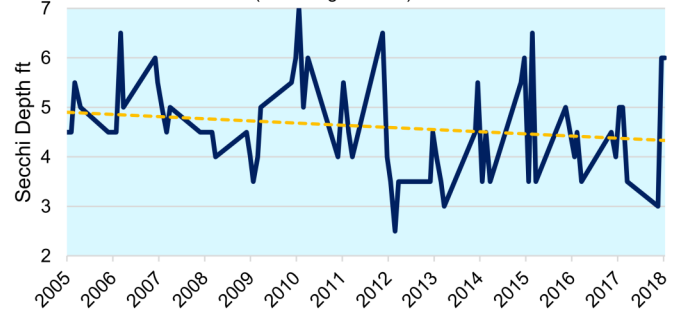
Chlorophyll-a

(NLF range <10 µg/L)



Secchi Depth

(NLF range 8-15 ft)



Invasive Species

Curly Leaf Pondweed



Spiny Waterflea

Eurasian Watermilfoil



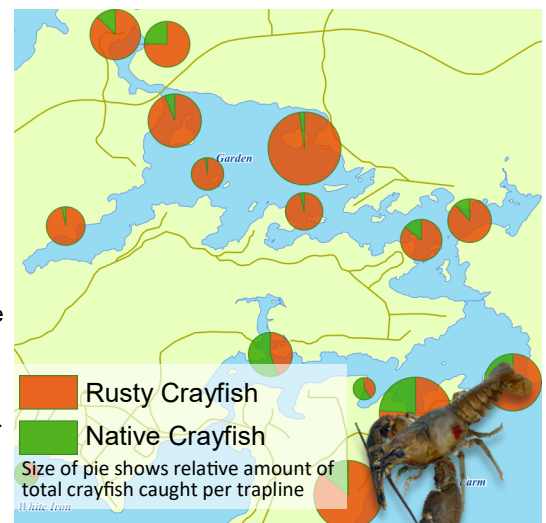
What is an aquatic invasive species (AIS)?

- Non-native: a species not normally found in an area
- Invasive: a non-native species which causes harm - environmental, economic, or to human health; generally threatens natural resources

Garden Lake has one confirmed invasive species: Rusty Crayfish. Trapping by Lake County SWCD and WICOLA members shows the distribution of the rusty crayfish infestation (right). As of 2017, rusty crayfish have nearly replaced all native crayfish in the Garden Lake. Some nearby AIS to watch out for are shown on the left.

Because of the potential for harm, prevention and early detection are essential to keep new invasive species from becoming established. Lake County SWCD is training citizen "sentries" to perform monthly surveys of lakes they frequent, and report on the plants and animals they observe. We are seeking more sentries for Garden Lake to provide timely knowledge of new invasions.

Do you want to be trained as a citizen sentry? Do you live on Garden Lake and want to participate in crayfish trapping? Visit wicola.org for the latest events and information on how you can get involved!



Garden Lake 2017
 Rusty Crayfish distribution

