Red Willow Lake
(47.64576 N, -98.37293 W)
Griggs County

- Red Willow Lake is a natural lake in east-central North Dakota (Figure 1). See map at (https://gf.nd.gov/gnf/maps/fishing/lakecontours/redwillow2004.pdf).
- There is one public, paved boat ramp on Red Willow Lake on the southeast side of the lake.
- The Red Willow Lake watershed is about 3,400 acres of mostly grassland/pasture and agriculture (Table 1). Agricultural production in the watershed is dominated by other hay/non-alalfa, spring wheat and oats.
- Red Willow Lake is a Class II, cool-water fishery, which are “capable of supporting natural reproduction and growth of cool water fishes (e.g., northern pike and walleye) and associated aquatic biota.”
- Red Willow Lake is managed for walleye, with fingerlings stocked annually. Walleye, northern pike, bluegill and yellow perch were captured during the last sample by the ND Game and Fish. Muskellunge are also present in the lake.
- Red Willow Lake was previously assessed in 1992-1993 and 2004-2005.

Temperature and Dissolved Oxygen

- Red Willow Lake can stratify in the open-water season.
- Thermal stratification was not recorded 2020. Top-to-bottom temperature changes of 1.3°C, 1.4°C, 3.1°C and 0.0°C were recorded in May, June, July and October, respectively.
- Dissolved oxygen concentrations were relatively high throughout the water column during all samples, but did decline sharply with weak stratification in July.
Trophic state is a measure used by scientists to assess the condition (where lower scores indicate better water quality) of a lake using three common measures: total phosphorus (TP), Secchi disk transparency and chlorophyll-a concentration.

Red Willow Lake is a mesotrophic lake (Figure 3) that has moderate nutrient concentrations and moderate algal growth.

Current trophic state is improved compared to historical data.

There have been no confirmed harmful algal (cyanobacteria) blooms at Red Willow Lake as of 2020.

Median concentration of total nitrogen (TN) in 2020 was less than the historical median for the lake and similar to the median for natural lakes in the Drift Plains Level IV Ecoregion (hereafter, Ecoregion) where Red Willow Lake is located (Figure 4).

Median concentration of dissolved TN was slightly less than TN.

Median total phosphorus (TP) concentration in 2020 was less than the median for the lake and less than the median for the Ecoregion (Figure 4).

Median concentration of dissolved phosphorus was similar to TP.

Neither ammonia nor nitrate-plus-nitrite were detected at Red Willow Lake in 2020.

Bicarbonate is the dominant anion in Red Willow Lake, while magnesium and calcium are co-dominant cations (Figure 5).

Median concentrations of most cations and anions are similar to the historical median for the lake but less than the median for the Ecoregion.