



## Shoreline Assessment Sprague Lake

Survey Completed October 2022

Report Created June 2023



### Background

The Cannon River Watershed Joint Powers Organization (CRWJPO) conducted a baseline lakeshore survey of Dora Lake as part of the Comprehensive Watershed Management Plan 2020-2030. The activity in the Plan is to “establish a baseline of existing natural shoreline conditions and achieve no-net loss (from the baseline) of existing natural shoreline on 10 Natural Environment Lakes” (see page 155 of the Plan). One of the lakes chosen for a baseline shoreline assessment was Sprague Lake.

Sprague Lake is 185 acres of surface water with approximately 15,400 feet of shoreline and is approximately 1 mile southwest of Morristown, MN in Rice County. The general geology of the area is hummocky terrain. The supraglacial deposits of the most recent advance of the pre-late Wisconsin Des Moines lobe have many small hills and depressions. These depressions contain lakes and wetlands of varying sizes. The combination of hummocky terrain, abundant lakes and wetlands, and the low relief result in very slow drainage. Leakage into and out of lakes and wetlands provides both discharge and recharge to local surficial water-table systems.

*Geology data from: Geologic Atlas of Rice County, MN. Water-Table Hydrology, 1997.*

Sprague is considered a groundwater dominant lake, as the contributing watershed is relatively small. The shoreline survey was conducted during a drought and levels appeared low. There are not enough historical water level readings to determine the typical amount of fluctuation. Water levels can fluctuate both seasonally and annually on groundwater dominated lakes due to their strong connection with the water table. This may explain why the water level readings collected during the survey were low. Sprague Lake is not considered a flow through lake, therefore it is susceptible to increased nutrient and sediment loading. Water flows and seeps out of Sprague Lake toward the Cannon River.

There is a MNDNR carry-in only access on the south side of the lake. All shoreline is in private ownership and there is very minimal development on the lake. The land surrounding the lake is primarily farmed with some wooded lots.

## Lake Assessment Methodology

The MNDNR has developed a lakeshore assessment tool called “Score Your Shore” designed to be used by lakeshore property owners to evaluate their shoreland habitat. The tool provides a standardized method to evaluate the type, quantity, and quality of lakeshore habitats including upland, shoreline, and aquatic zone areas. The upland zone is defined as the area from the house (if present) to the top of the lakeshore bank, the shoreline zone is defined as the area from the top of the lakeshore bank to the edge of water, and the aquatic zone is defined as the area from the edge of water to the deep end of the macrophyte bed. Scores are assigned for each of the three main habitat types assessed, with a combined maximum point value of 100 for upland and shoreline zone areas and a maximum point value of 100 for the aquatic zone (for a maximum total of 200 points). The overall combined score provides an indication of lakeshore quality over a point range from 0-200, with 0 points indicating a severely degraded shoreline that does not provide any functional habitat, to 200 points indicating a very healthy and functional shoreline with intact habitat in all three habitat zones. To support the Score Your Shore assessment, photographs were taken in conjunction with drone videography to document existing lakeshore conditions.

## Results

The following is a summary of the shoreline assessment and includes individual lakeshore scores derived from the Score Your Shore evaluation. A total of 9 parcels were assessed around Sprague Lake. The average score for the lake is 187. Most lots are not developed and those that are, have buildings that are set back from the lake. Upland scores were generally good, wooded areas scored high while scores were lower in some areas due to farmland and pastureland. Overall aquatic vegetation both emergent and submerged scored high.

There was minimal need for installation of best management practices. No shoreline erosion was observed. Baseline conditions appear to be good, so the goal would be to maintain quality shoreline and make slight improvements in some upland areas.

Below is the table for Score Your Shore for the 9 parcels on Sprague Lake, listed counterclockwise starting at the MNDNR access. The flight path and time stamp of the video is also noted on the map in Appendix A. The drone video is posted on the CRWJPO YouTube page:

<https://www.youtube.com/@crwjpo>

Parcel ID	Linear Feet	Upland Total	Shoreline Total	Aquatic Total	Total Score
1328375001	2,960	33	30	90	216
1328400001	2,430	65	35	100	300
1328100001	270	65	35	100	300
1328200001	2,840	50	30	100	260
1329175002	1,470	65	35	100	300
1329425002	920	65	35	100	300
1329425003	1,200	48	35	100	266
1329450003	140	48	35	100	266
1329475001	2,600	48	35	100	266

## **Shoreline Ordinance Review**

Shoreland ordinances are in place to guide development in shoreland areas and are critical on waterbodies that lie in direct conflict with impending development. From review of the Rice County Zoning ordinance, it provides a balanced approach on Sprague Lake, which is listed as a Natural Environment Shoreland (NES) lake. NES lakes are generally small, shallow and have limited capacity to assimilate the impacts of development. The ordinance meets the MDNR Dimensional Standards for NES Shoreland Districts and are clearly described in the ordinance. Sprague Lake does not appear to be facing development pressure. The current Rice County shoreland ordinance was updated and approved by MDNR in 2015 and reflects the MNDNR shoreland standards at that time. The MNDNR model ordinance was most recently updated in spring 2022 and additional language was added that could be reviewed and integrated into the current ordinance. Given the structure of the Rice County Zoning Ordinance, this is a significant undertaking as language in one section, even unrelated to shoreland development, can have a dramatic impact on other sections. In discussions with Rice County and MNDNR staff, the ordinance, and the county/agency interaction in application reviews is working well. The only exception being the number of variances that are being requested and approved.

## **Appendix A – Map of Flight Path**

