



Minnesota Department of Natural Resources
Division of Ecological and Water Resources



Hydrologic Conditions Report

August 2022

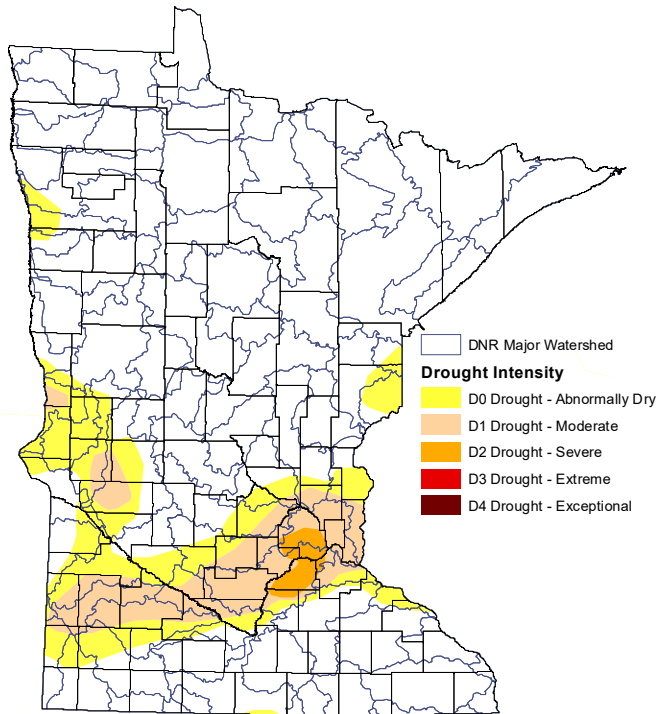
Previous reports at: https://www.dnr.state.mn.us/current_conditions/hydro_conditions.html

- Minnesota continued to be on the dividing line between the hot dry conditions over the Great Plains and somewhat cooler and wetter conditions across Minnesota. August 2022 brought some welcome relief to the drought across the central and southern parts of the state. The rains were still hit or miss though, with a wide range of precipitation totals. One of the largest August 2022 rainfalls found so far from a National Weather Service Cooperative Observer was seven miles northwest of Two Harbors in Lake County with 7.13 inches or 3.48 inches above normal. One of the drier locations was at Crookston in Polk County with 0.57 inches or 2.40 inches below normal. The preliminary statewide average precipitation was 4.05 inches or 0.37 inches above normal. The August 30 U.S. Drought Monitor map depicts 11% of the state in the Abnormally Dry category, 8% in the Moderate Drought category and 1% in the Severe Drought category. At this time last year, only 3% of the state that was free of any drought designation. The U.S. Drought Monitor index is a blend of science and subjectivity where drought categories (Moderate, Severe, etc.) are based on several indicators.
- Flows were similar at many locations, although overall still lower compared to last month. 7 watersheds ranked High (>90th percentile), 15 ranked Above Normal (75 – 90th percentile), 54 ranked Normal (25 – 75th percentile), 4 ranked Below Normal (10 – 25th percentile), and 1 ranked Low (\leq 10th percentile). The gage for watersheds 7 and 8 didn't have enough data available to provide a ranking.
- Eleven of the 23 lakes surveyed in the Lake Level Status map showed Normal percentiles when looking at only August lake level comparisons. Five lakes were Below Normal percentiles and two lakes ranked Low percentile. Five of the 23 lakes ranked at the High or Above Normal percentile. Fifty-three percent of the statewide reporting lakes were at Normal percentiles, when comparing August 2022 lake levels to their entire historic record. Thirty-six percent ranked Low or Below Normal percentile, while only 11% ranked High or Above Normal percentiles. Fifty-seven percent of the statewide reporting lakes ranked below their average lake level for the entire historic record, while 31% of the lakes remained above their average.
- For the month of August, 143 of the 334 total groundwater observation wells reported water level measurements. Six percent of reporting wells ranked as High water level (> 90th percentile). Seven percent of wells ranked Above Normal water level (75th to 90th percentile). Fifty-seven percent of wells ranked Normal water level (25th to 75th percentile). Seventeen percent of wells were ranked Below Normal (10th to 25th percentile). Thirteen percent of wells were ranked Low water level (\leq 10th percentile).

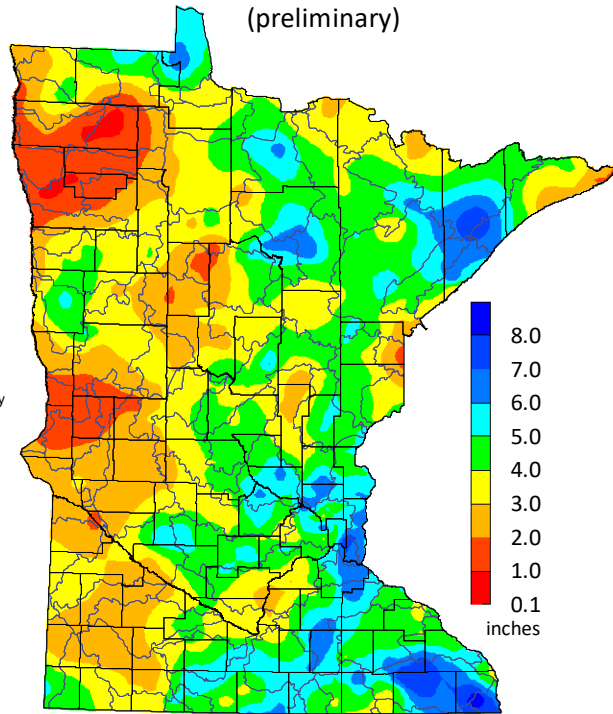
The information in this report is provided by DNR through long term programs committed to recording and tracking the long term status of our water resources. The current conditions of precipitation, stream flows, lake levels, and groundwater levels in this report provide valuable information for natural and economic resource management on a state, county, and watershed level. If you have questions on the content of this report please contact the report team: csg.dnr@state.mn.us

Climatology

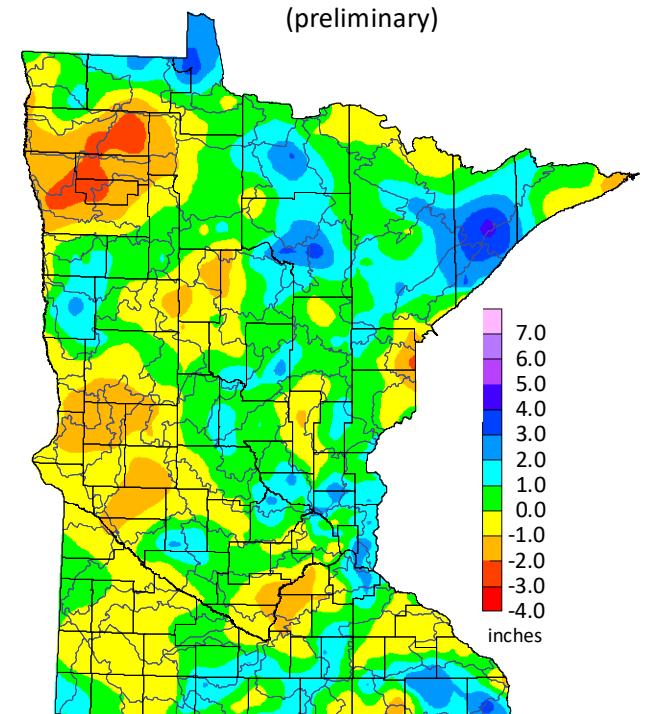
U.S. Drought Monitor
August 30, 2022



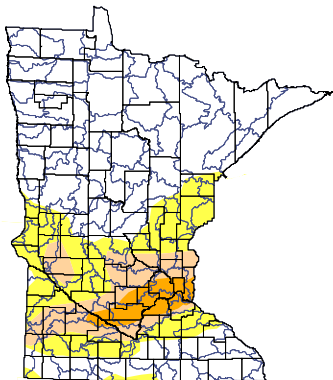
Total Precipitation
August 2022



Total Precipitation
Departure from Normal:
August 2022



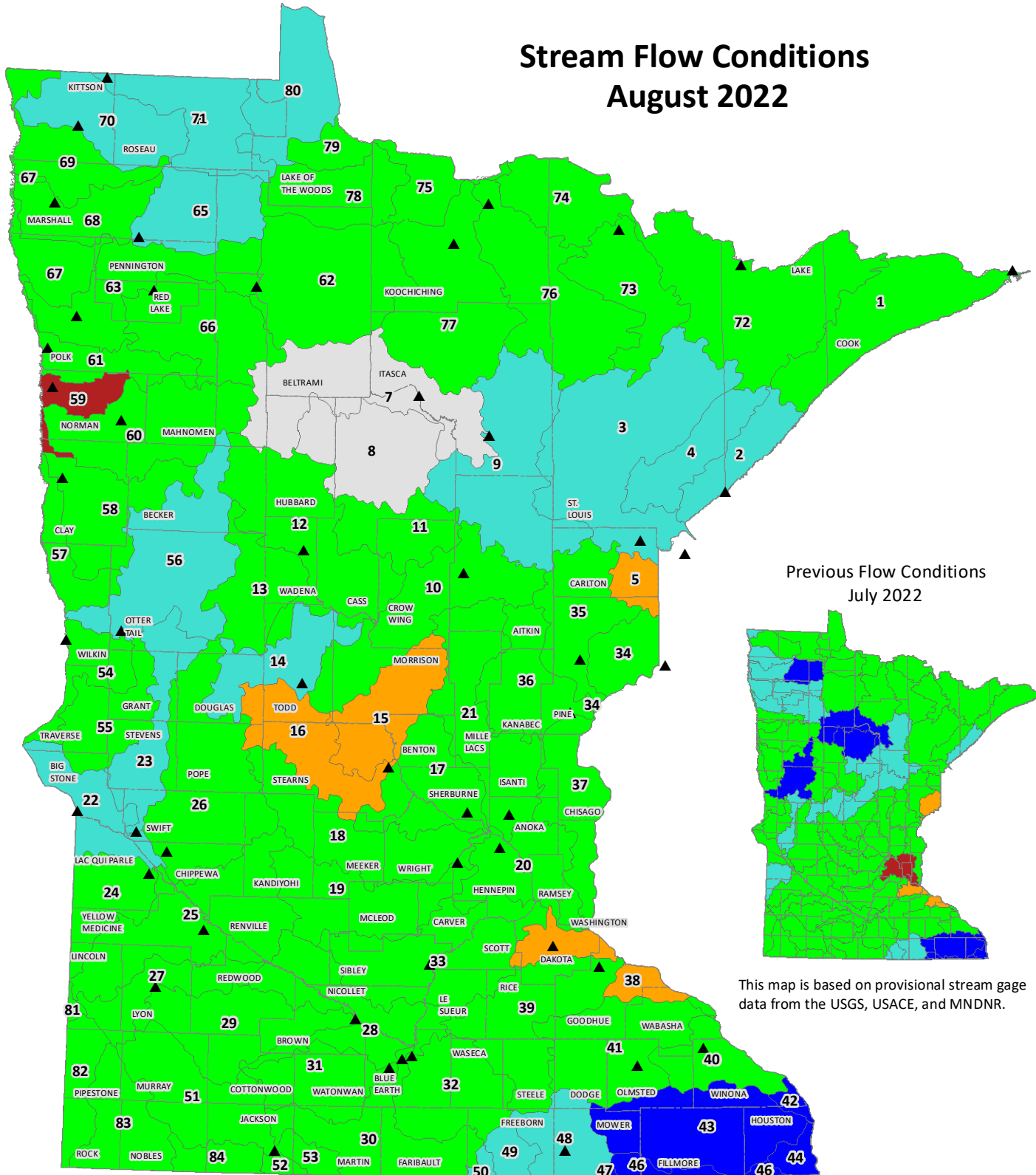
August 2, 2022



Minnesota continued to be on the dividing line between the hot dry conditions over the Great Plains and somewhat cooler and wetter conditions across Minnesota. August 2022 brought some welcome relief to the drought across the central and southern parts of the state. The rains were still hit or miss though, with a wide range of precipitation totals. One of the largest August 2022 rainfalls found so far from a National Weather Service Cooperative Observer was seven miles northwest of Two Harbors in Lake County with 7.13 inches or 3.48 inches above normal. One of the drier locations was at Crookston in Polk County with 0.57 inches or 2.40 inches below normal. The preliminary statewide average precipitation was 4.05 inches or 0.37 inches above normal. The August 30 U.S. Drought Monitor map depicts 11% of the state in the Abnormally Dry category, 8% in the Moderate Drought category and 1% in the Severe Drought category. At this time last year, only 3% of the state that was free of any drought designation. The U.S. Drought Monitor index is a blend of science and subjectivity where drought categories (Moderate, Severe, etc.) are based on several indicators.

Surface Water: Stream Flow

Stream Flow Conditions August 2022



Previous Flow Conditions
July 2022

This map is based on provisional stream gage data from the USGS, USACE, and MNDNR.

▲ Designated major watershed gage

* Percentile ranking based on mean daily flows for the current month averaged and ranked with all historical mean daily flows for that month.

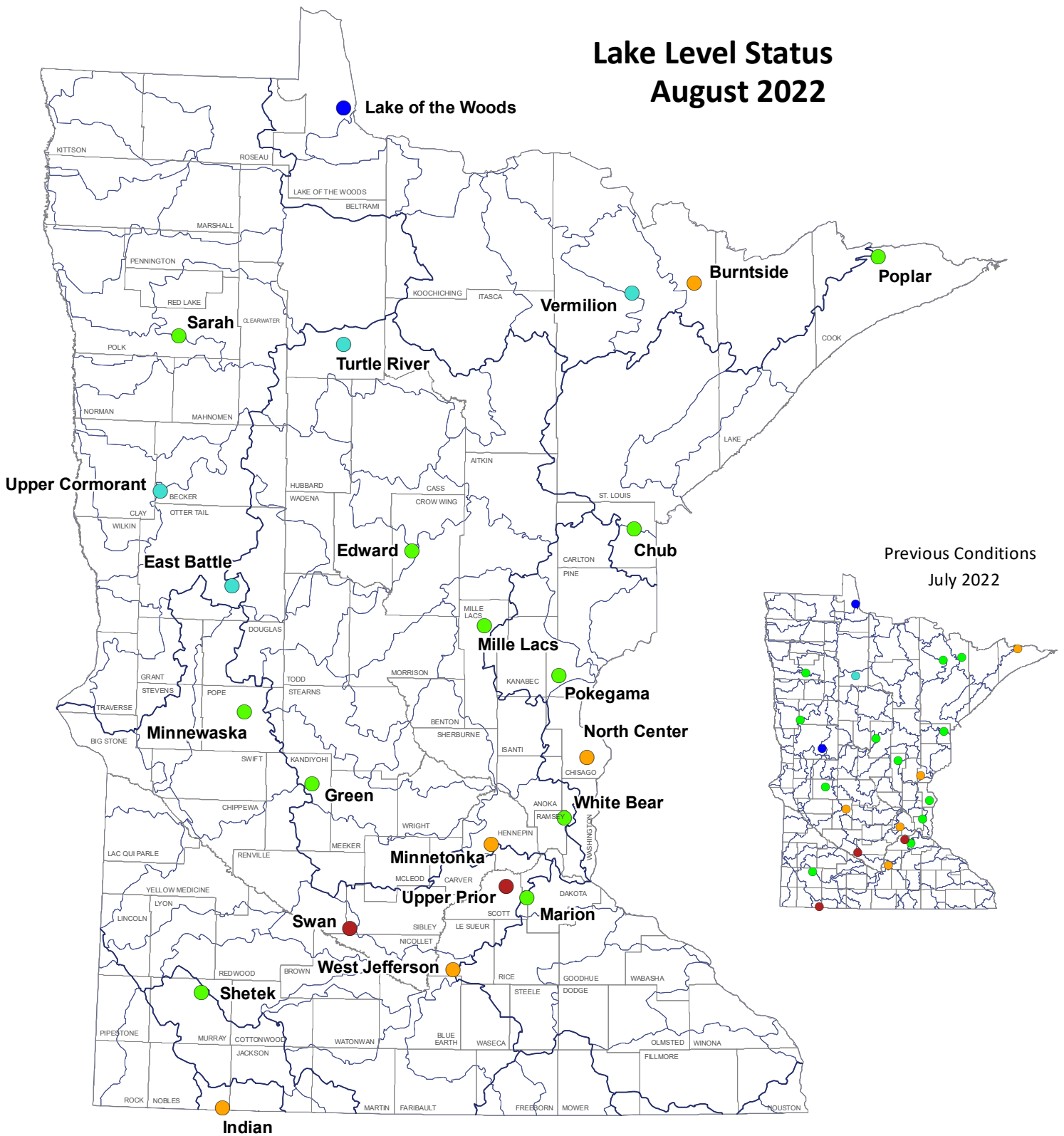
A watershed ranked at zero means that the present month flow is the lowest in the period of record; a ranking of 100 indicates the highest in the period of record.

A ranking at the 50th percentile (median) specifies that the present-month flow is in the middle of the historical distribution.

- High Flows (>90th percentile)
- Above Normal Flows (75 - 90th percentile)
- Normal Flows (25 - 75th percentile)
- Below Normal Flows (10 - 25th percentile)
- Low Flows (<= 10th percentile)
- Flow affected by ice
- Flow affected by backwater
- Rating being developed or revised
- No Data

Surface Water: Lake Levels

Lake Level Status August 2022



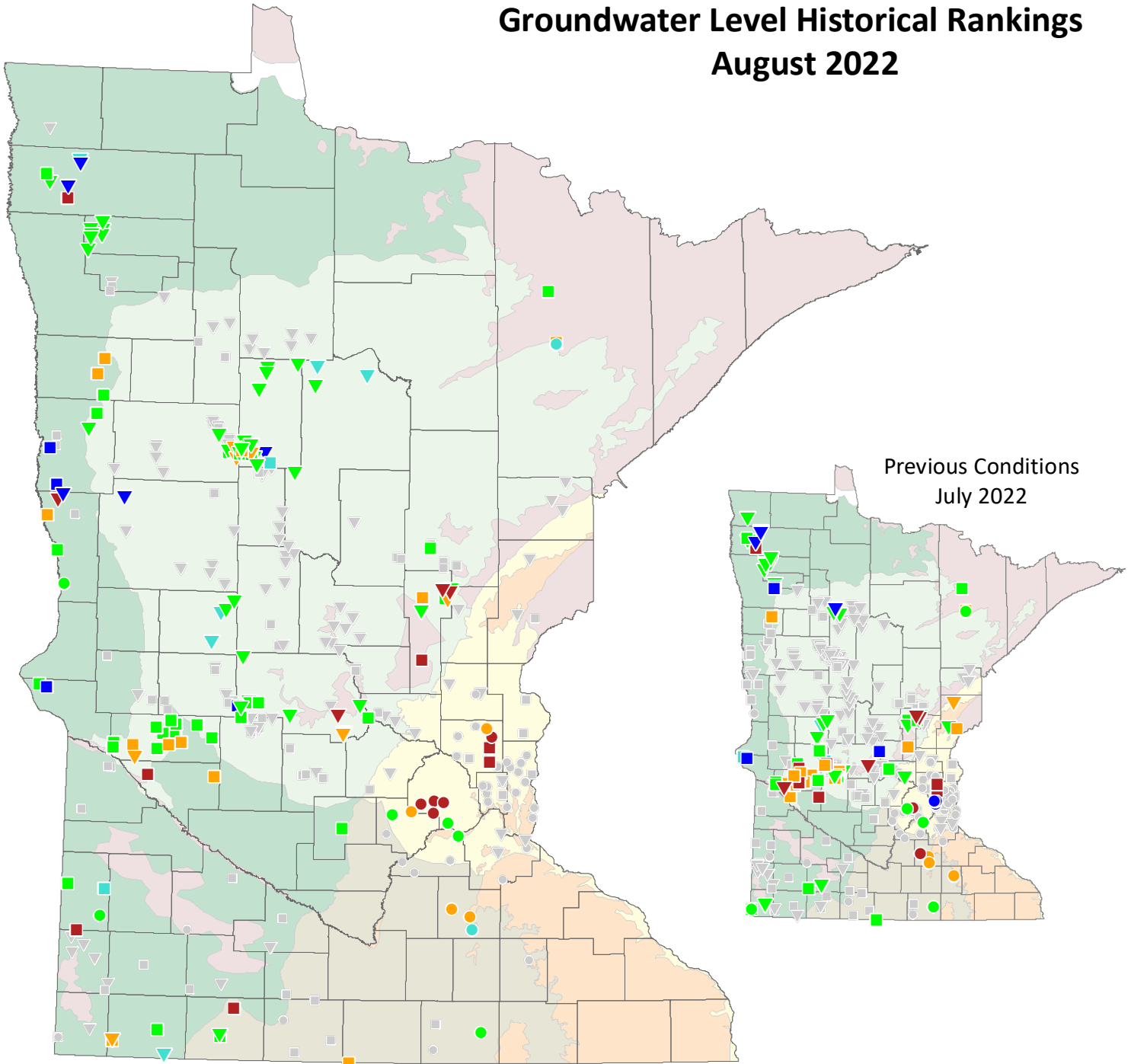
Previous Conditions July 2022

* Percentile ranking based on last reported reading for the current month compared to all historical reported levels for that month. A lake ranked at zero means that the present reported level is the lowest in the period of record; a ranking of 100 indicates the highest in the period of record. A ranking at the 50th percentile (median) specifies that the present-month reported lake level is in the middle of the historical distribution.

Percentile *

- High Water Levels (>90th percentile)
- Above Normal Water Levels (75 - 90th percentile)
- Normal Water Levels (25 - 75th percentile)
- Below Normal Water Levels (10 - 25th percentile)
- Low Water Levels (<= 10th percentile)
- No reading available
- Level 2 Hydrologic Unit
- DNR Major Watershed

Groundwater Level Historical Rankings August 2022



Minnesota Groundwater Provinces 2021

- East-central
- Central
- South-central
- Western
- Karst
- Arrowhead-shallow bedrock

* Percentile ranking based on last reported reading for the current month compared to all historical reported levels for that month. A water level ranked at zero means that the present reported level is the lowest in the period of record; a ranking of 100 indicates the highest in the period of record. A ranking at the 50th percentile (median) specifies that the present month reported water level is in the middle of the historical distribution.

Source data from: MN DNR Groundwater Level Monitoring Program

Percentile *

- High Water Levels (>90th percentile)
- Above Normal Water Levels (75 - 90th percentile)
- Normal Water Levels (25 - 75th percentile)
- Below Normal Water Levels (10 - 25th percentile)
- Low Water Levels (<= 10th percentile)
- No reading available

Aquifer Type

- Water Table
- Bedrock
- Buried Artesian