

Minnesota Department of Natural Resources

Division of Waters

Hydrologic Conditions Report

July 2009

Executive Summary

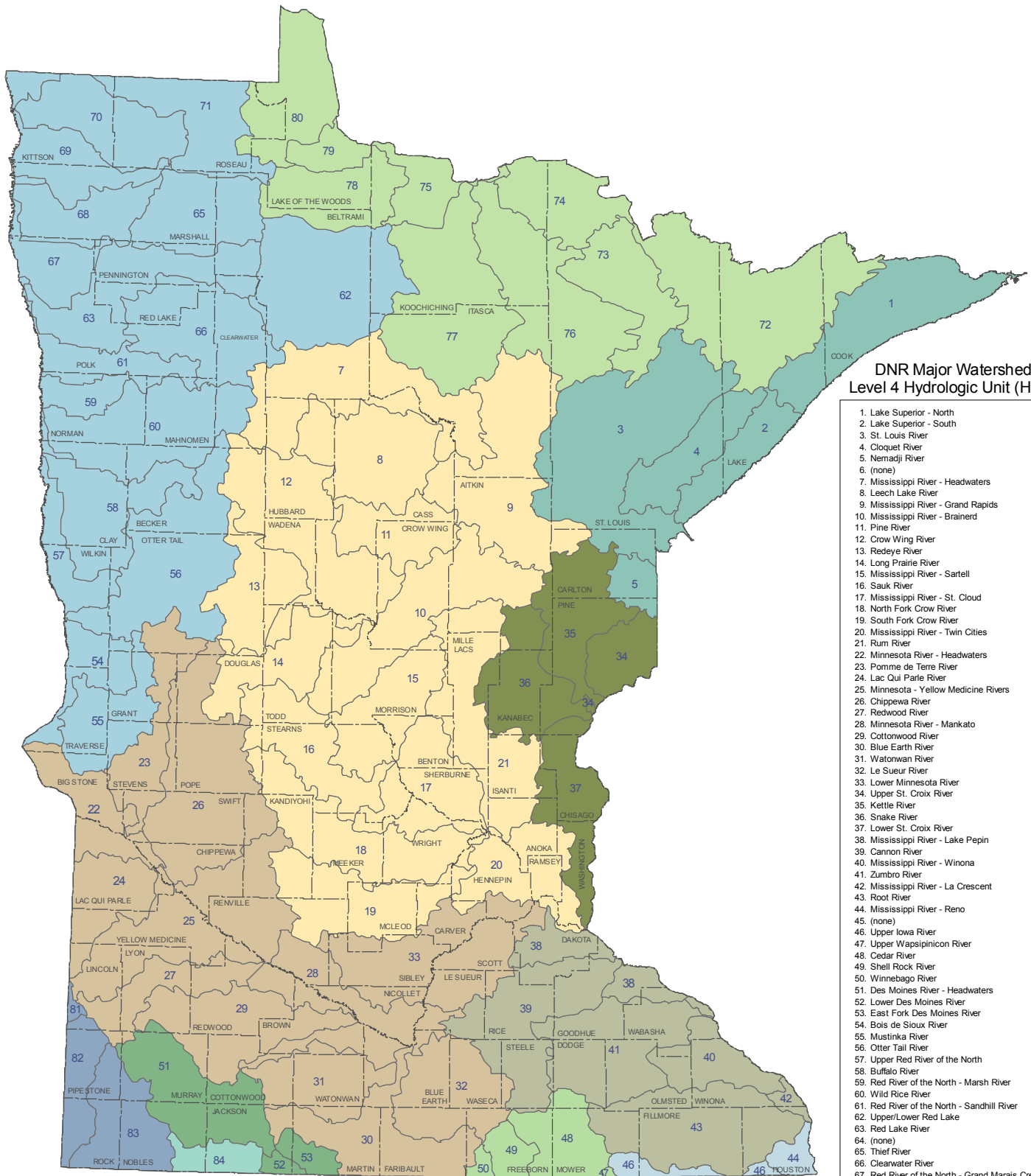
This report is the first installment of a new monthly product from the Department of Natural Resources and provides general information on the various water resources across the state. The information in this report is provided by DNR through long term programs committed to recording and tracking the long term status of our water resources. The current conditions of precipitation, stream flows, lake levels and ground water levels in this report provide valuable information for natural and economic resource management on a state, county and watershed level.

Generally hydrologic conditions shown on the following maps are highly variable across the state, but for the most part indicate below normal conditions in the southeast and higher than normal conditions in the northwest.

- Abnormally dry to severe drought conditions remain over much of the state with the exception of the northwest and along the Iowa border.
- Rain fall over two thirds of the state remains below normal. Rainfall was 8 inches above normal in the northwest and 16 inches below normal in the metro and southeast.
- Stream flows remain above normal in the northwest, below normal along Lake Superior and the eastern border and average for this time of year for the rest of the state.
- Lake levels are below normal in the metro and eastern edge of the state, generally above normal northwest and average throughout the south west and north east.
- Ground water conditions are variable across the state. Ground water indicator wells show average conditions in the southwest and northeast and below normal levels in the south central, metro area, and northwest.

If you have questions on the content of this report please contact Greg Spoden: 651-296-4214, greg.spoden@state.mn.us













Minnesota Counties and Major Watershed Index



DNR Major Watershed - Level 4 Hydrologic Unit (HUC8)

1. Lake Superior - North
2. Lake Superior - South
3. St. Louis River
4. Cloquet River
5. Nemadji River
6. (none)
7. Mississippi River - Headwaters
8. Leech Lake River
9. Mississippi River - Grand Rapids
10. Mississippi River - Brainerd
11. Pine River
12. Crow Wing River
13. Redeye River
14. Long Prairie River
15. Mississippi River - Sartell
16. Sauk River
17. Mississippi River - St. Cloud
18. North Fork Crow River
19. South Fork Crow River
20. Mississippi River - Twin Cities
21. Rum River
22. Minnesota River - Headwaters
23. Pomme de Terre River
24. Lac Qui Parle River
25. Minnesota - Yellow Medicine Rivers
26. Chippewa River
27. Redwood River
28. Minnesota River - Mankato
29. Cottonwood River
30. Blue Earth River
31. Watonwan River
32. Le Sueur River
33. Lower Minnesota River
34. Upper St. Croix River
35. Kettle River
36. Snake River
37. Lower St. Croix River
38. Mississippi River - Lake Pepin
39. Cannon River
40. Mississippi River - Winona
41. Zumbro River
42. Mississippi River - La Crescent
43. Root River
44. Mississippi River - Reno
45. (none)
46. Upper Iowa River
47. Upper Wapsipicon River
48. Cedar River
49. Shell Rock River
50. Winnebago River
51. Des Moines River - Headwaters
52. Lower Des Moines River
53. East Fork Des Moines River
54. Bois de Sioux River
55. Mustinka River
56. Otter Tail River
57. Upper Red River of the North
58. Buffalo River
59. Red River of the North - Marsh River
60. Wild Rice River
61. Red River of the North - Sandhill River
62. Upper/Lower Red Lake
63. Red Lake River
64. (none)
65. Thief River
66. Clearwater River
67. Red River of the North - Grand Marais Creek
68. Snake River
69. Red River of the North - Tamarac River
70. Two Rivers
71. Roseau River
72. Rainy River - Headwaters
73. Vermilion River
74. Rainy River - Rainy Lake
75. Rainy River - Black River
76. Little Fork River
77. Big Fork River
78. Rapid River
79. Rainy River - Baudette
80. Lake of the Woods
81. Upper Big Sioux River
82. Lower Big Sioux River
83. Rock River
84. Little Sioux River

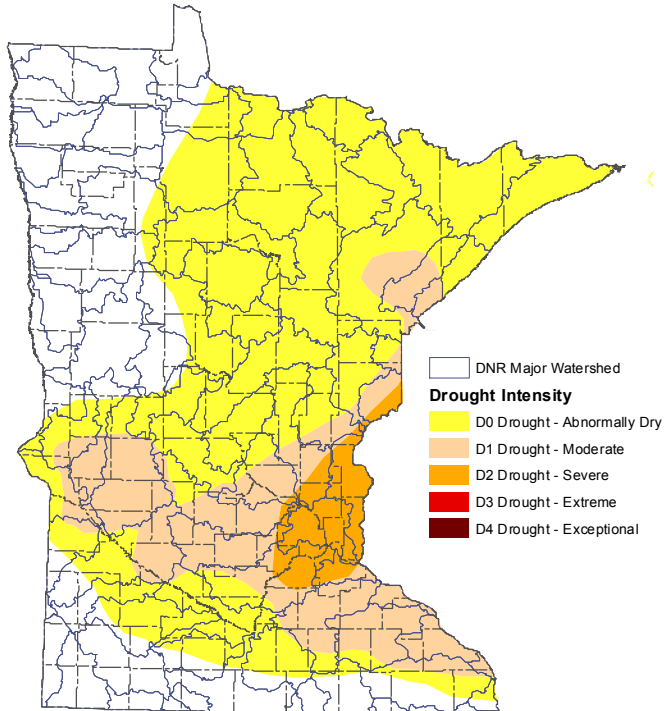
Level 2 Hydrologic Unit (HUC4)

- | | |
|---|--|
|  Cedar River |  Missouri - Big Sioux Rivers |
|  Des Moines River |  Missouri - Little Sioux Rivers |
|  Lower Mississippi River |  Rainy River |
|  Minnesota River |  Red River of the North |
|  Mississippi - Upper Iowa Rivers |  St. Croix River |
|  Mississippi River - Headwaters |  Western Lake Superior |

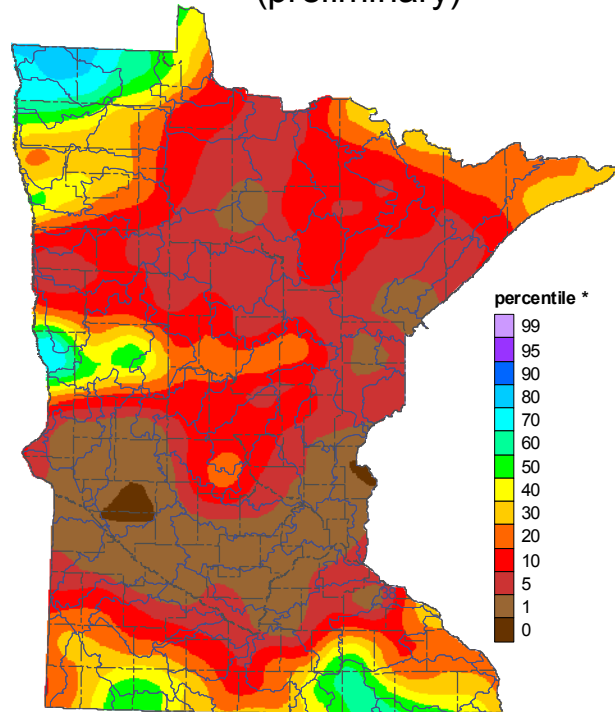


Climatology

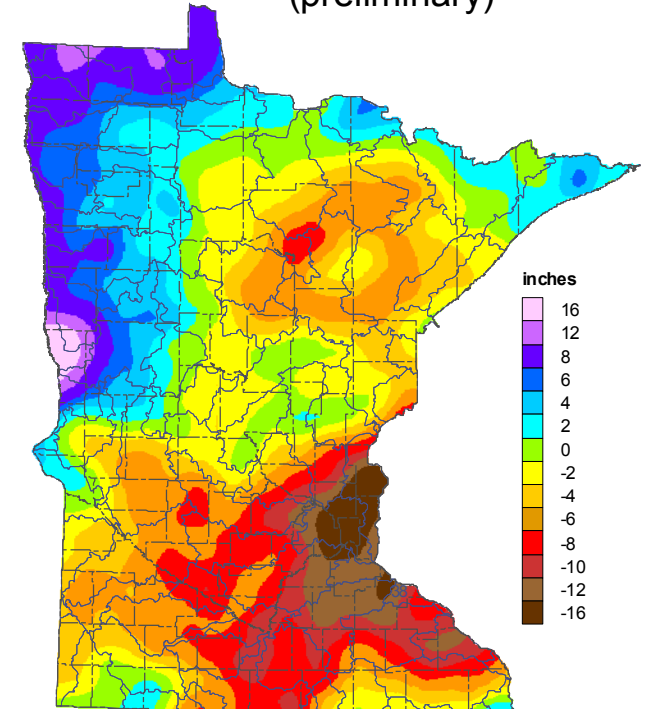
U.S. Drought Monitor
July 21, 2009



Precipitation Ranking
April 1, 2009 - July 20, 2009
(preliminary)

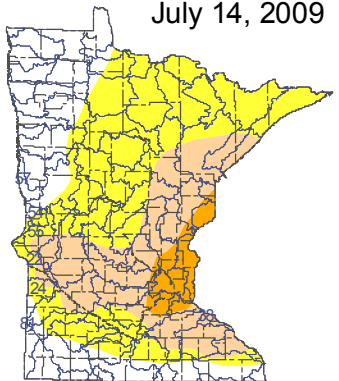


Total Precipitation
Departure from Normal
June 1, 2008 - July 20, 2009
(preliminary)



State Climatology Office - DNR Waters

Previous Week
July 14, 2009



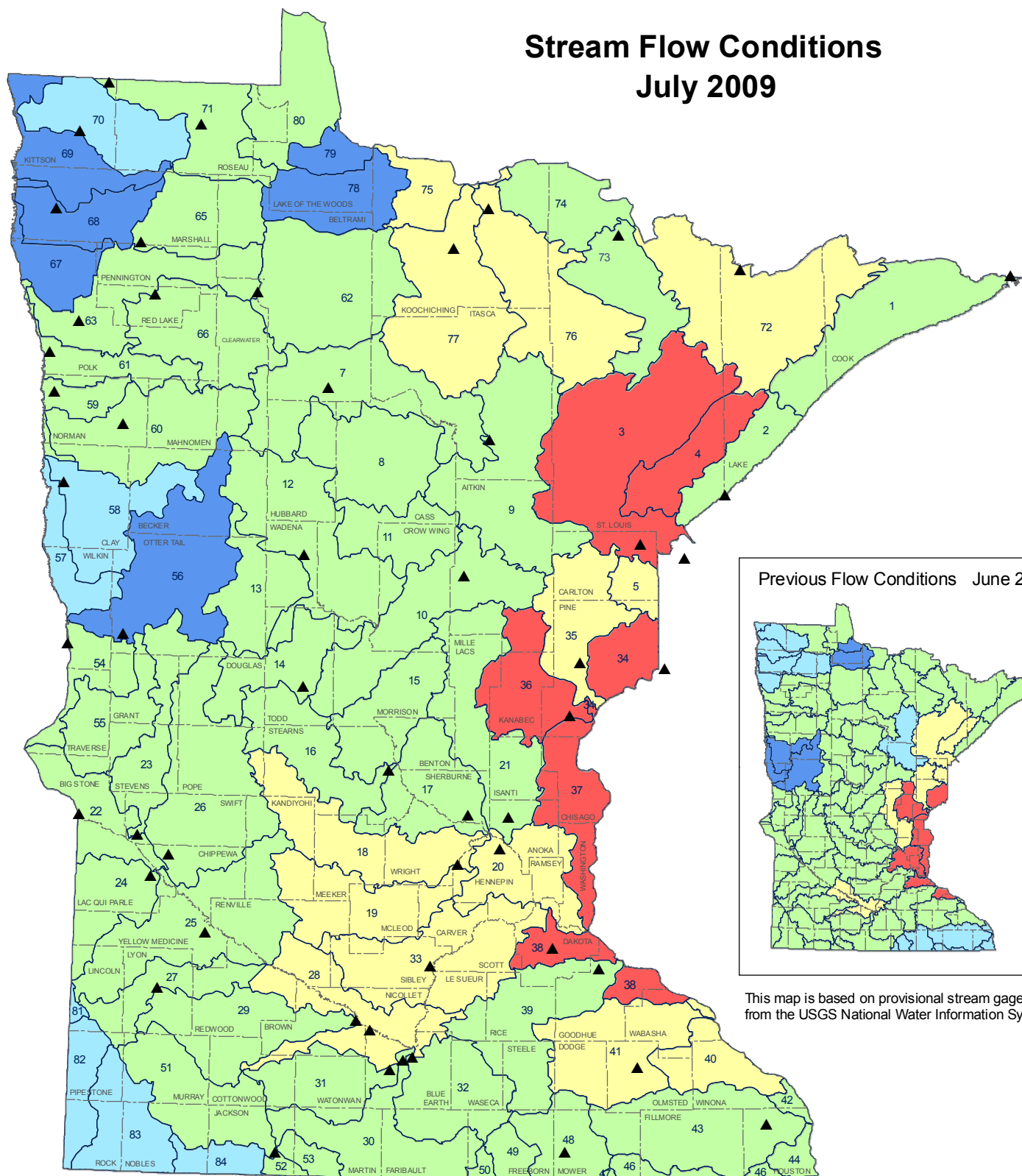
Notes:

- In east central Minnesota, precipitation shortfalls began in mid-June 2008.
- Seasonally cool summer temperatures in 2009 have substantially reduced evaporation rates, mitigating the situation.
- The August outlook calls for a continuation of cool temperatures. The August precipitation outlook offers no tendencies away from climatological probabilities.

* Percentile maps compare current-year seasonal rainfall totals with the long-term climate record. This percentile (ranking) statistic allows the season's rainfall totals to be described using historical context. A location ranked at zero means that the present-year seasonal rainfall total is the lowest found in the historical record; a ranking of 100 indicates the highest on record. A ranking at the 50th percentile (median) specifies that the present-year seasonal rainfall total is in the middle of the historical distribution.



Stream Flow Conditions July 2009



Previous Flow Conditions June 2009

This map is based on provisional stream gage data from the USGS National Water Information System

▲ Designated major watershed gage

July Percentile *

- 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)

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

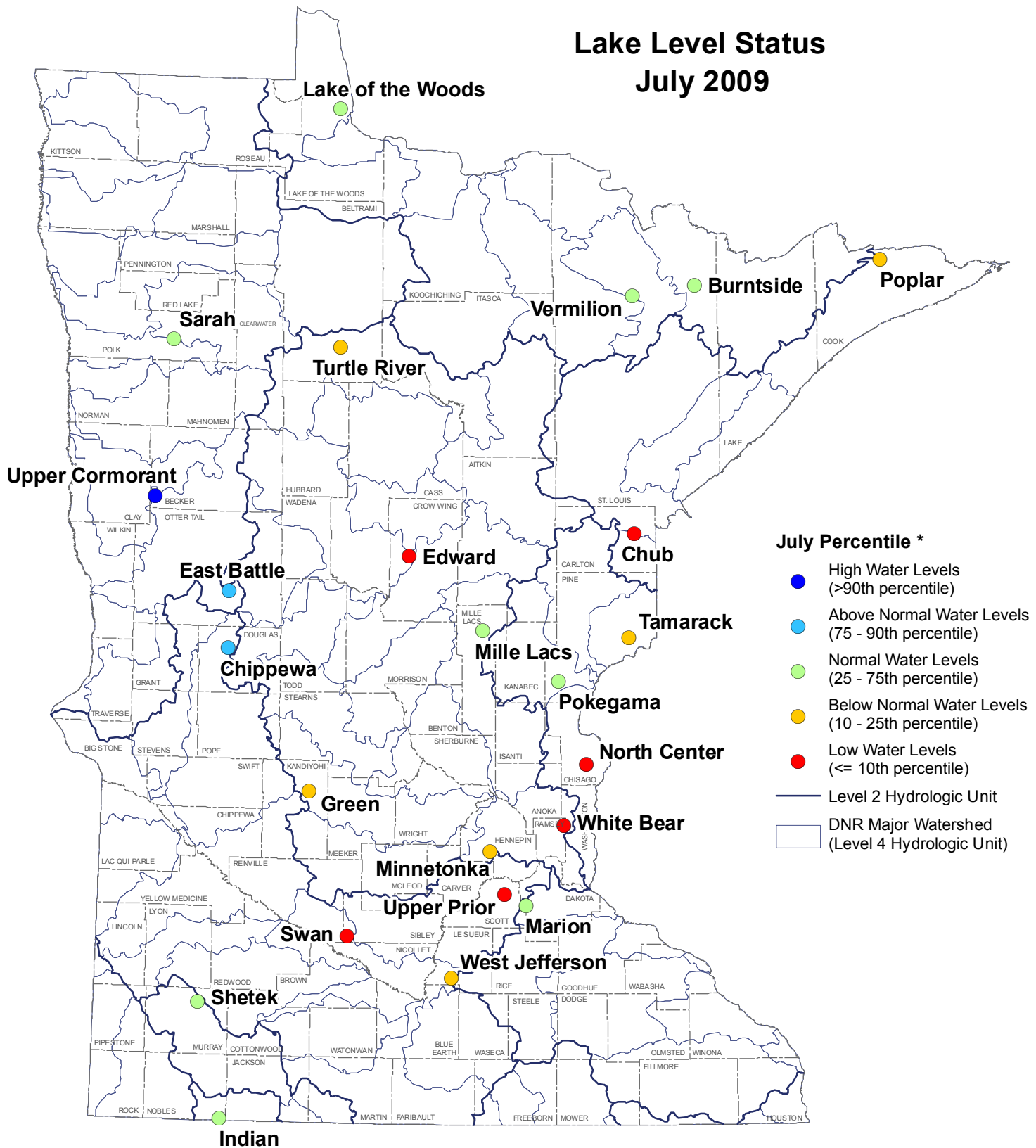
A watershed ranked at zero means that the present month flow is the lowest in the period of record; a ranking of 100 indicates the highest in the period of record.

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

Data are current through 7/20/2009.



Lake Level Status July 2009



* 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.

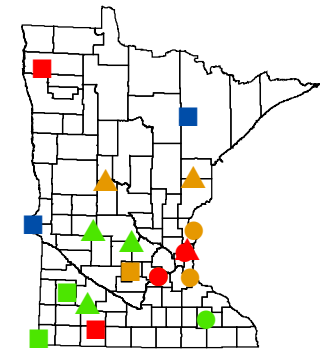
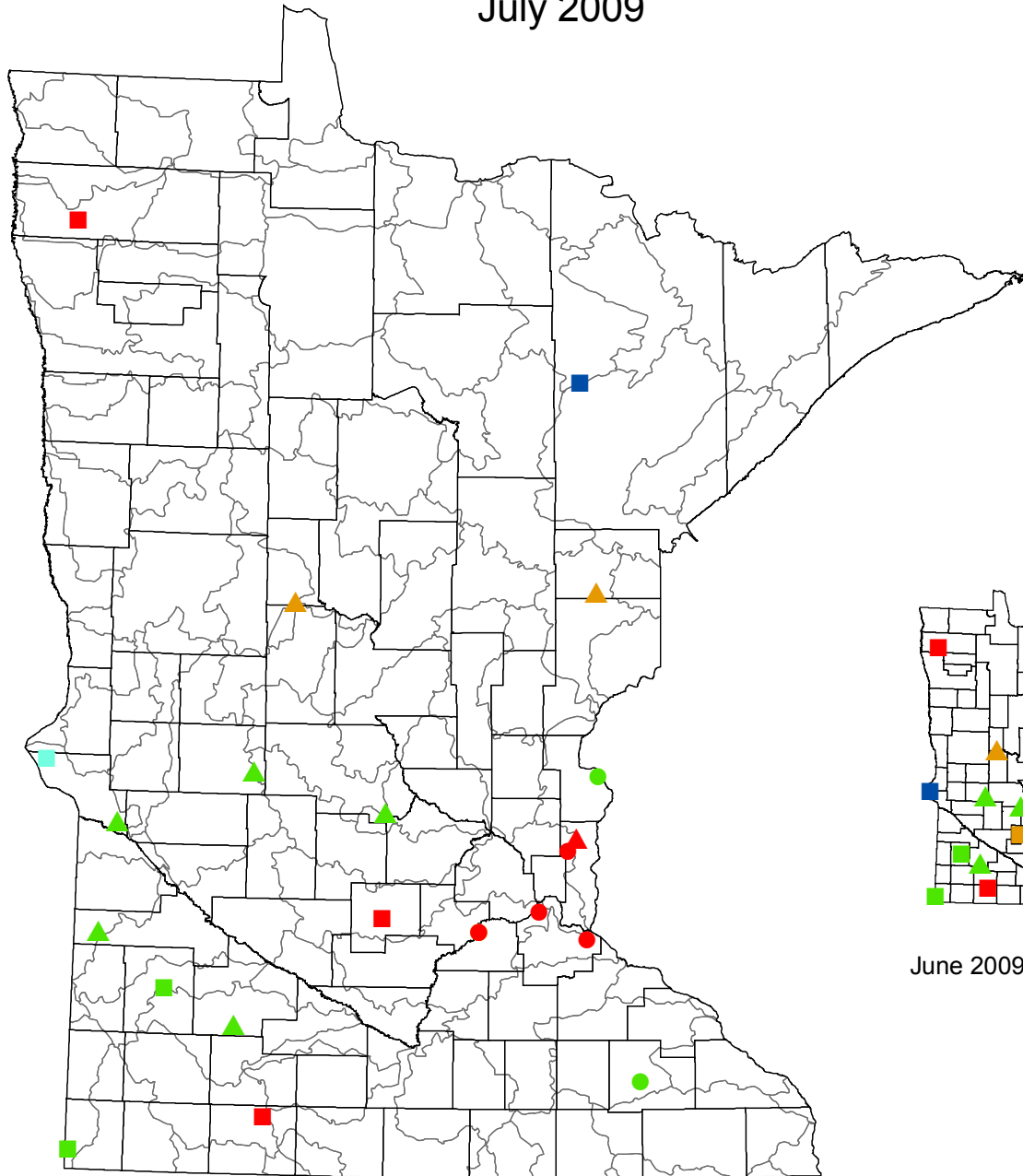
Data are current through 7/19/2009.

Source data from: MN DNR Waters Lake Level Minnesota Monitoring Program



Ground Water

Ground Water Level Historical Rankings July 2009



June 2009 Indicator Wells

Aquifer

- △ Water Table
- Buried Artesian
- Bedrock

Water Level

- High Water Levels (> 90% percentile)
- Above Normal Water Levels (75% - 90% percentile)
- Normal Water Levels (25% - 75% percentile)
- Below Normal Water Levels (10% - 25% percentile)
- Low Water Levels (< 10% percentile)

* 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 level is in the middle of the historical distribution.

Source data from: MN DNR Ground Water Level Monitoring Program

