

Hydrologic Conditions Report

October 2011

This is the sixth and final installment of the monthly Hydrologic Conditions Report for 2011. For comparative purposes please reference the previous reports at:

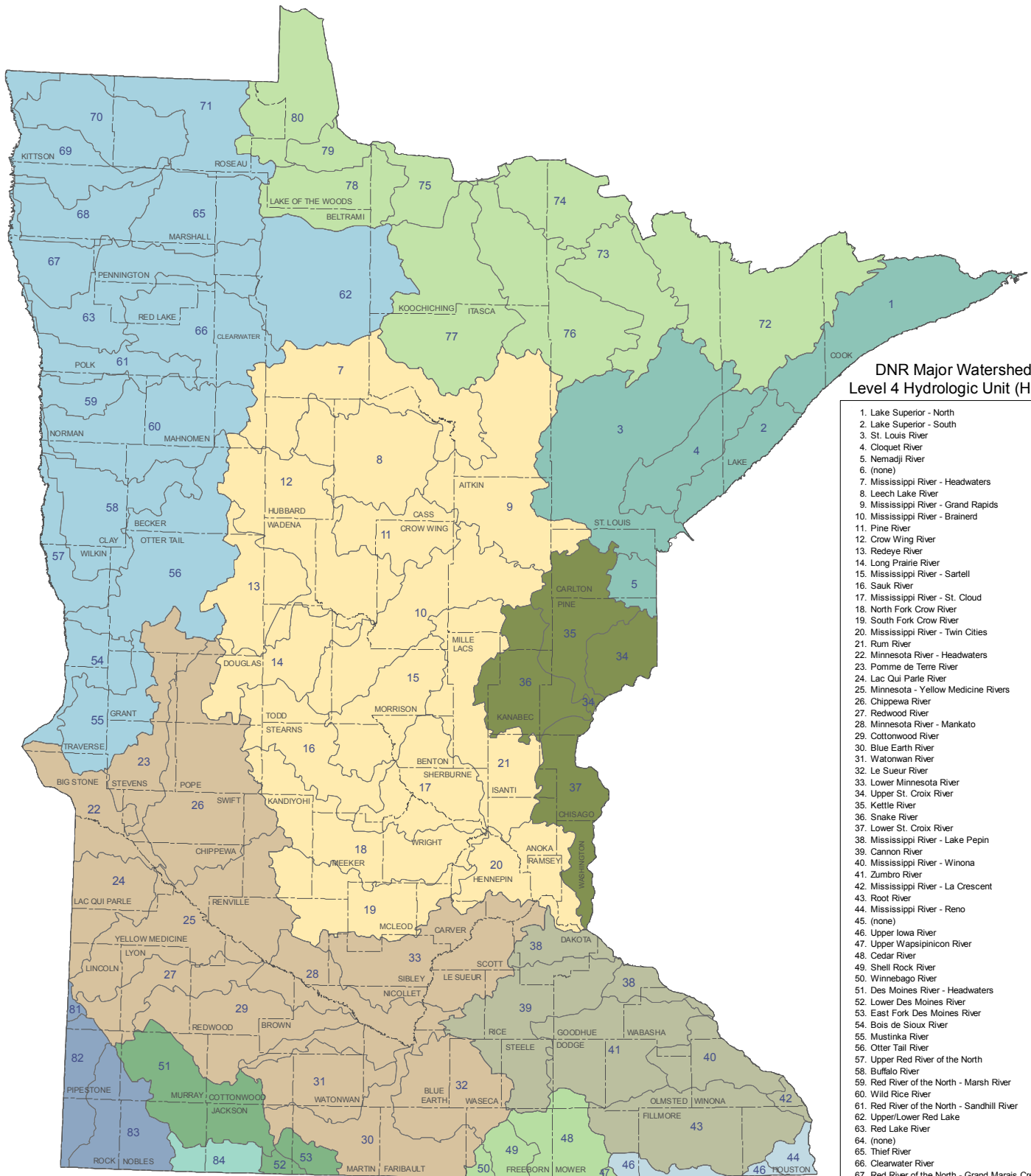
http://mndnr.gov/current_conditions/hydro_conditions.html

- The U. S. Drought Monitor, released on November 3, depicts every Minnesota county as experiencing some level of drought. Large portions of north central and northeast Minnesota are said to be undergoing "Severe Drought" or "Moderate Drought". Stream flow in those areas are very low due to the ongoing impact of precipitation deficits accrued during the 2010 growing season and spotty rainfall this season. The Drought Monitor also places a large portion of southern Minnesota in the "Severe Drought" or "Moderate Drought" categories. Late-summer and autumn precipitation has been minimal in the southern one-third of Minnesota. When compared with the same three-month period in the historical database, late-summer through autumn 2011 precipitation totals rank among the lowest on record.
- Stream flows continued to drop through the month of October. Dry conditions persisted in the northeast and higher flows to remain in west central Minnesota.
- Scattered lakes in the "center slice" of Minnesota remained high or above normal. Many lakes that had remained at above normal to high water levels over the past few years continued to decrease but are well within the normal range for October comparison records. Lakes in parts of St. Louis, Cook, Carlton, and Nobles Counties decreased to low water levels. White Bear Lake has decreased steadily since mid-August and remained low, with a lake level equal to levels last occurring in Fall 2009. Below normal Chisago County lakes decreased even more than White Bear Lake, edging toward their 2009 – 2010 low drought levels.
- Ground water conditions are relatively unchanged from last month. Ground water levels in west central Minnesota have risen slightly. In the metropolitan area, levels are mixed with some wells seeing a rise in water levels, some wells decreasing, and the rest remaining unchanged.

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.

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













Minnesota Counties and Major Watershed Index



DNR Major Watershed - Level 4 Hydrologic Unit (HUC8)

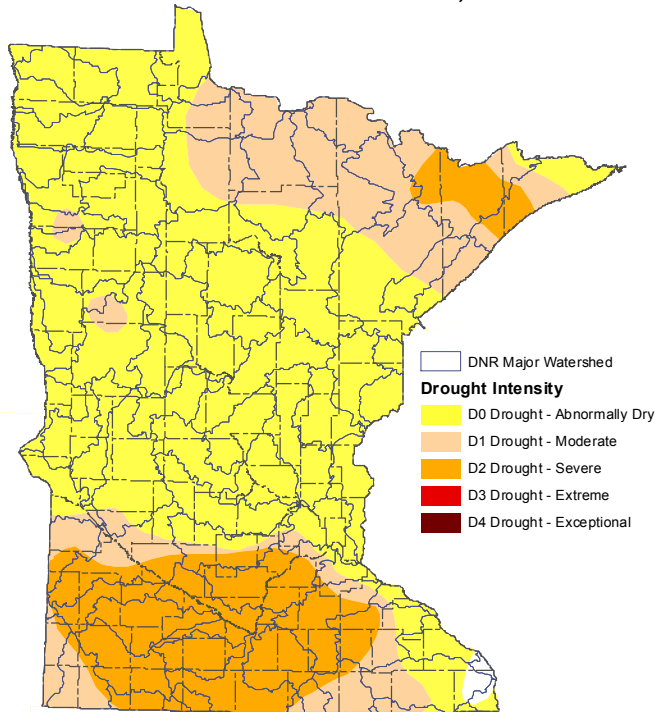
1. Lake Superior - North
2. Lake Superior - South
3. St. Louis River
4. Cloquet River
5. Nemadji River
6. (none)
7. Mississippi River - Headwaters
8. Leech Lake River
9. Mississippi River - Grand Rapids
10. Mississippi River - Brainerd
11. Pine River
12. Crow Wing River
13. Redeye River
14. Long Prairie 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 Wapsipinicon 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)

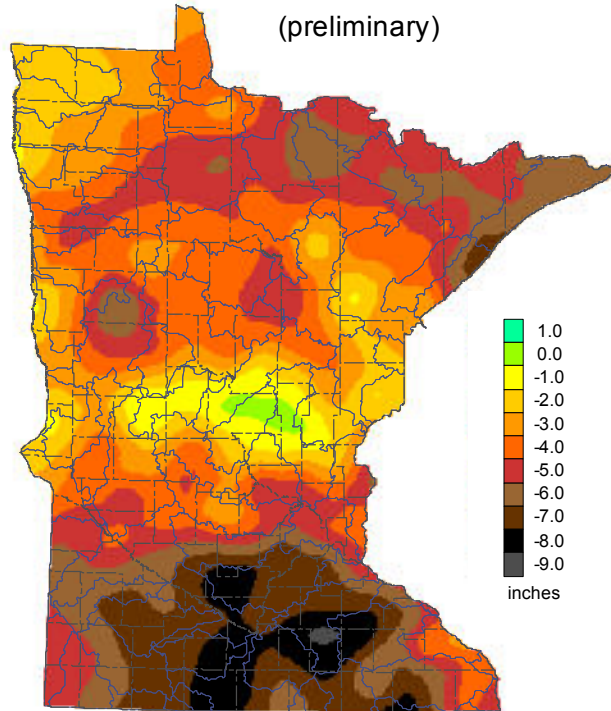
- | | |
|---|--|
|  Cedar River |  Missouri - Big Sioux Rivers |
|  Des Moines River |  Missouri - Little Sioux Rivers |
|  Lower Mississippi River |  Rainy River |
|  Minnesota River |  Red River of the North |
|  Mississippi - Upper Iowa Rivers |  St. Croix River |
|  Mississippi River - Headwaters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

Climatology

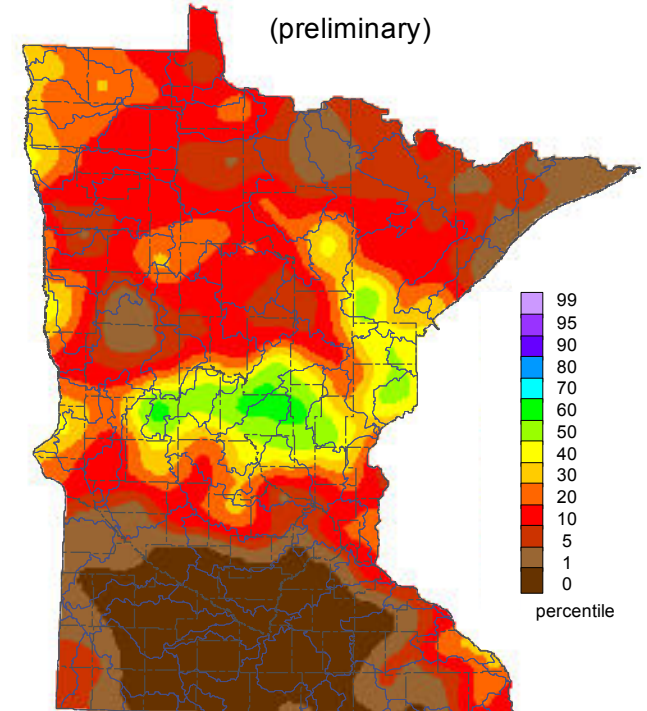
U.S. Drought Monitor
November 1, 2011



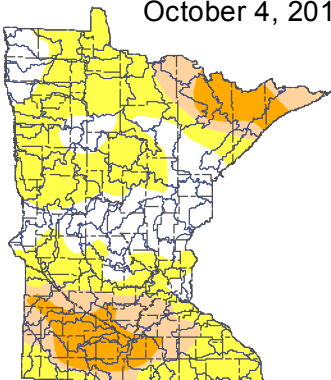
Precipitation Departure from Normal
for July 26 - October 31, 2011
(preliminary)



Precipitation Ranking *
July 26 - October 31, 2011
(preliminary)



October 4, 2011

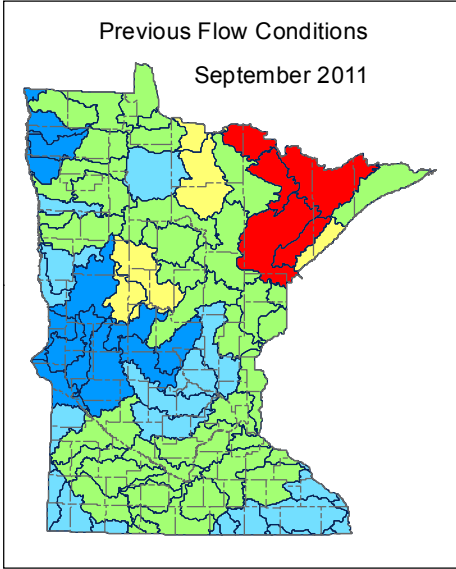
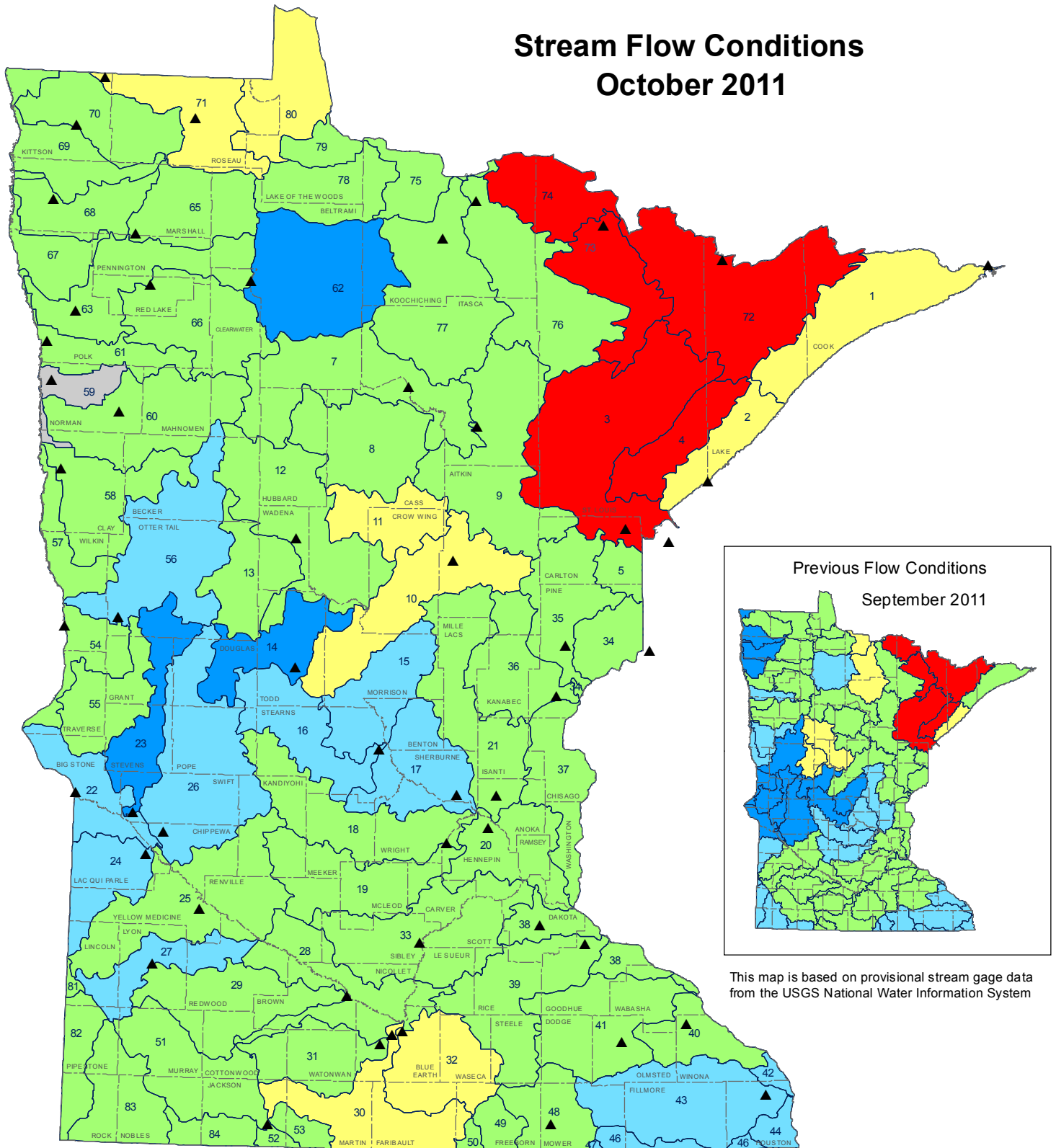


Notes:

The U. S. Drought Monitor, released on November 3, depicts every Minnesota county as experiencing some level of drought. Large portions of north central and northeast Minnesota are said to be undergoing "Severe Drought" or "Moderate Drought". Stream flow and lake levels in those areas are very low due to the ongoing impact of precipitation deficits accrued during the 2010 growing season and spotty rainfall this season. The Drought Monitor also places a large portion of southern Minnesota in the "Severe Drought" or "Moderate Drought" categories. Late-summer and autumn precipitation has been minimal in the southern one-third of Minnesota. When compared with the same three-month period in the historical database, late-summer through autumn 2011 precipitation totals rank among the lowest on record.

* 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 October 2011



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

▲ Designated major watershed gage

October 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)
- No data - station monitored seasonally

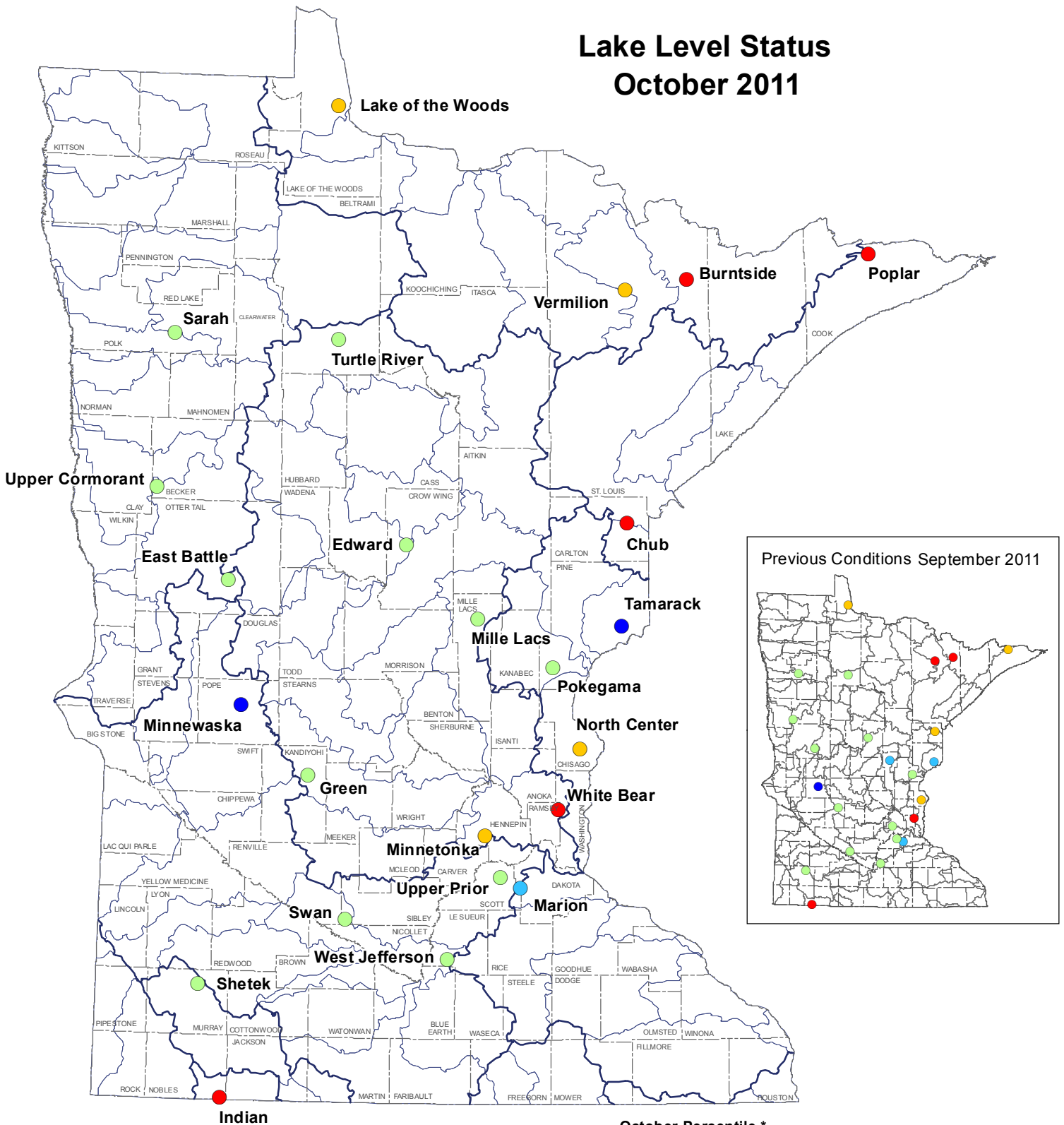
* Percentile ranking based on mean daily flows for the current month averaged and ranked with all historical mean daily flows for that month.

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 10/31/2011

Lake Level Status October 2011



October 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 data reported yet for 2011

— Level 2 Hydrologic Unit

□ DNR Major Watershed

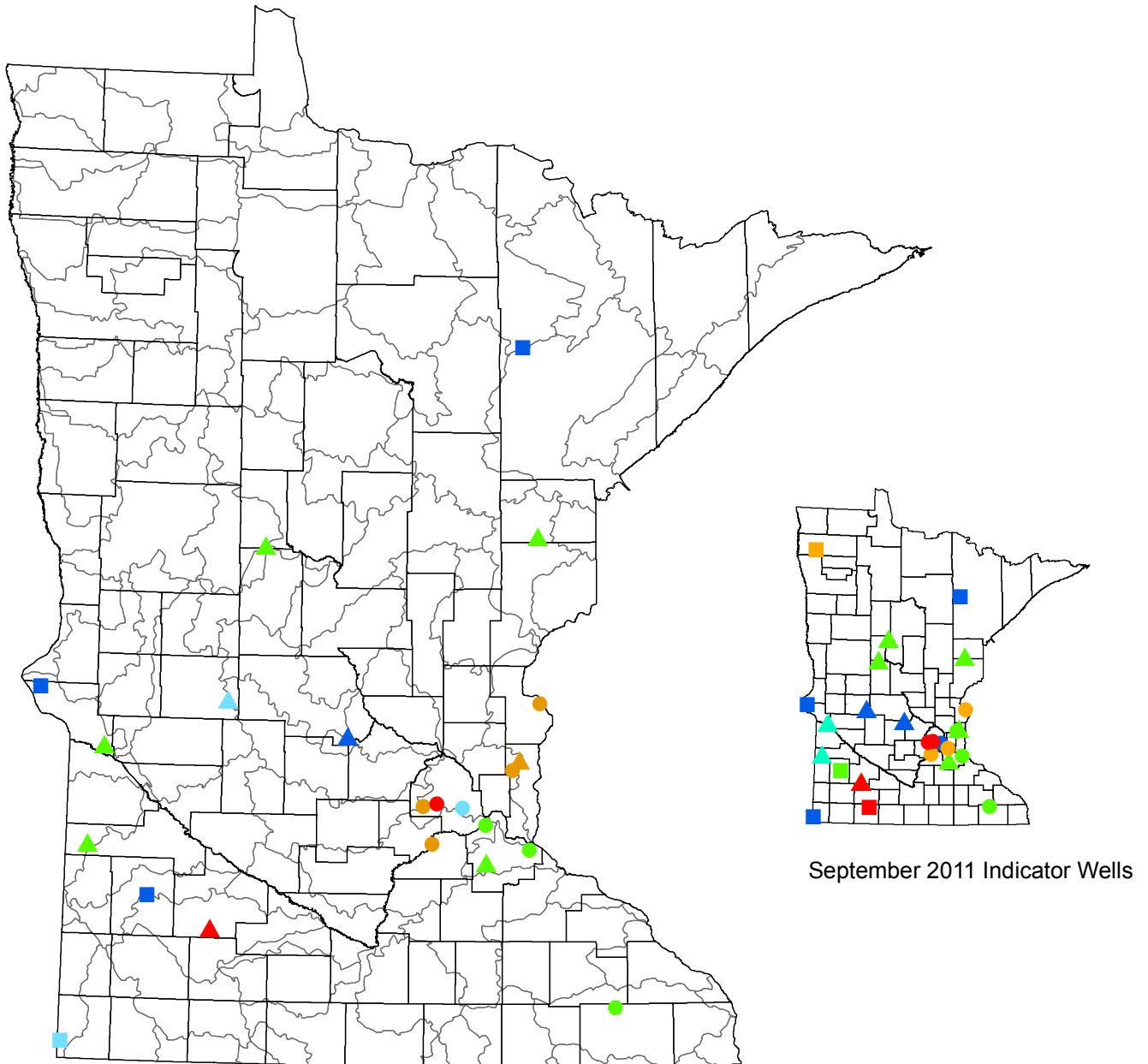
* Percentile ranking based on last reported reading for the current month compared to all historical reported levels for that month. A lake ranked at zero means that the present reported level is the lowest in the period of record; a ranking of 100 indicates the highest in the period of record. A ranking 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 10/31/2011.

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

Ground Water

Ground Water Level Historical Rankings October 2011



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