

# Summary of Streamflow Conditions and USGS Low-Flow Activities

**State Drought Task Force Meeting  
Aug. 2, 2012  
St Paul, MN - Webinar**

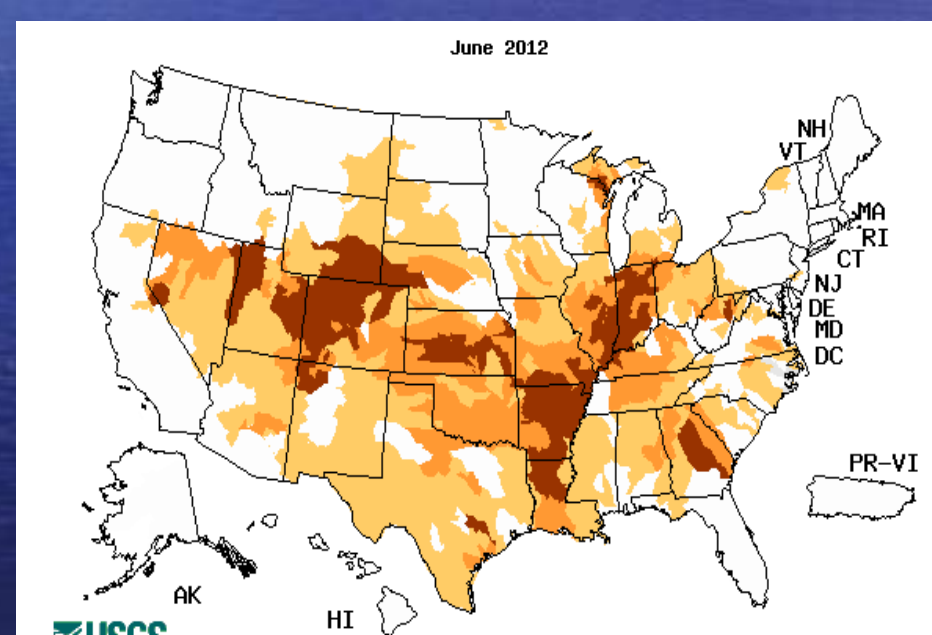
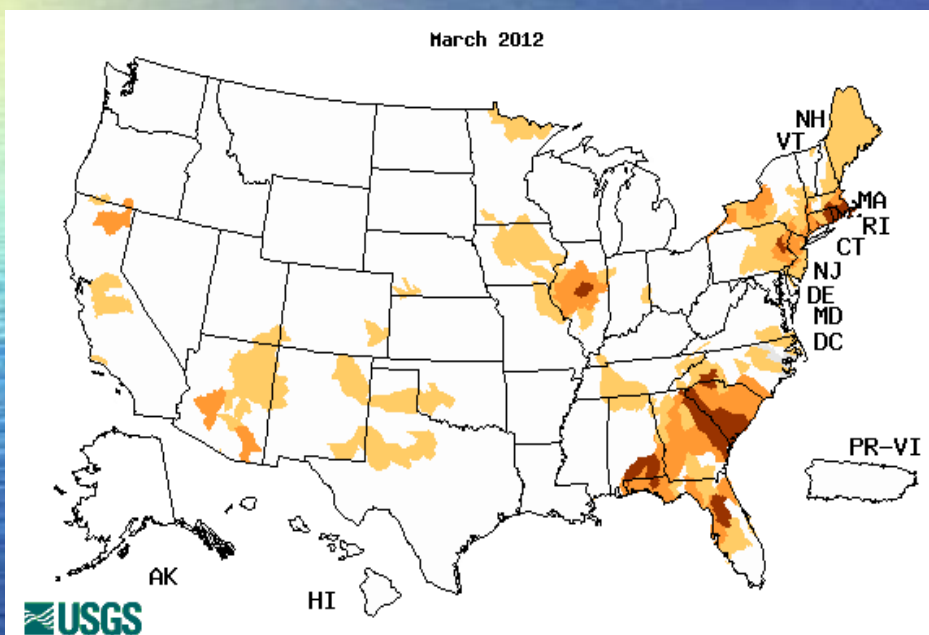
**Greg Mitton, USGS, Mounds View, MN**

**[mitton@usgs.gov](mailto:mitton@usgs.gov)**

**763-783-3201**

# Much of U.S. experiencing below-normal streamflow

Comparing lowflow conditions nationally – March and June, 2012



Explanation - Percentile classes				
Low	≤5	6-9	10-24	Insufficient data for a hydrologic region
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

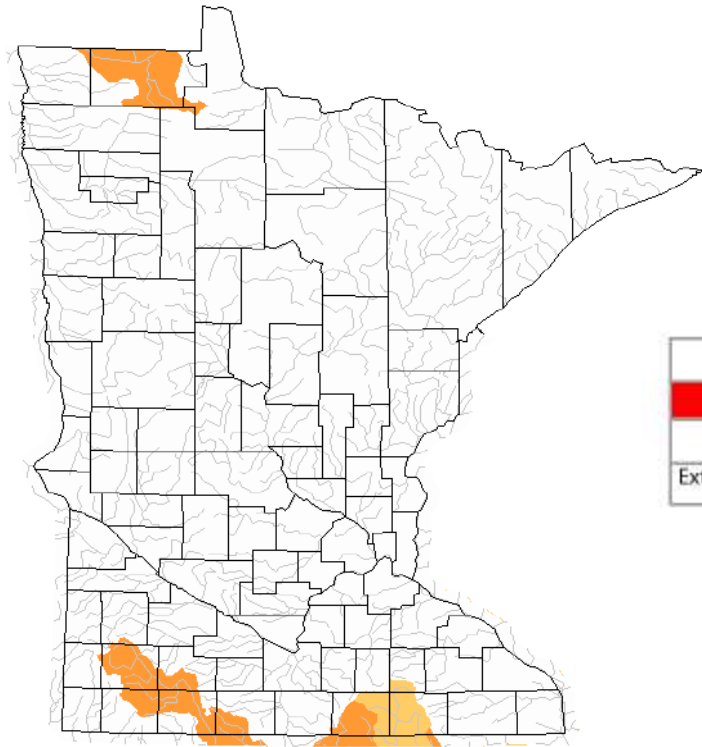
<http://waterwatch.usgs.gov/new/index.php?id=dryw>

# Lowflow conditions for Minnesota July 30, 2012

**Map** of below normal 7-day average streamflow compared to historical streamflow for the day of year (Minnesota)

State

Monday, July 30, 2012



USGS

Explanation - Percentile classes				
Low	<=5	6-9	10-24	Insufficient data for a hydrologic region
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

<http://waterwatch.usgs.gov/new/index.php?id=dryw>

USGS

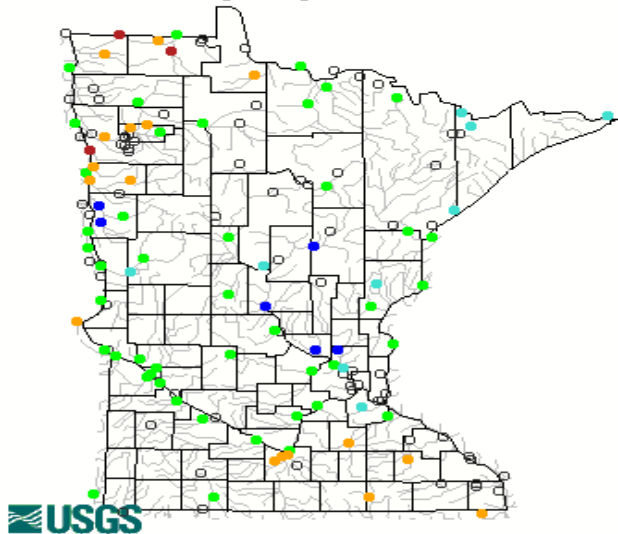


# Flow Conditions at USGS gages in Minnesota

## Daily Streamflow Conditions

Select a site to retrieve data and station information.

Tuesday, July 31, 2012 11:30ET



### Explanation

- High
- > 90th percentile
- 76th - 90th percentile
- 25th - 75th percentile
- 10th - 24th percentile
- < 10th percentile
- Low
- Not ranked

The colored dots on this map depict streamflow conditions as a [percentile](#), which is computed from the period of record for the current day of the year. Only stations with at least 30 years of record are used. The **gray circles** indicate other stations that were not ranked in percentiles either because they have fewer than 30 years of record or because they report parameters other than streamflow. Some stations, for example, measure stage only.

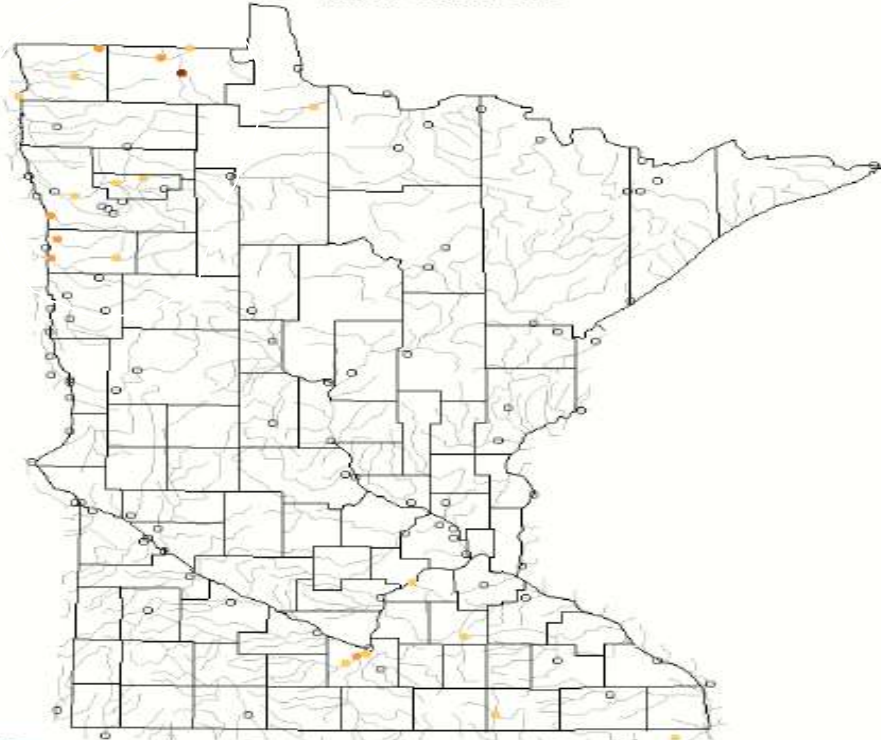
<http://waterdata.usgs.gov/mn/nwis/current/?type=intro>

# Below normal 7-day average flows at USGS streamgages

## Map of below normal 7-day average streamflow compared to historical streamflow for the day of the year (Minnesota)

Minnesota  OR Water-Resources Regions  All Days

Monday, July 30, 2012



Choose a data retrieval option and select a location on the map

List of all stations  Single station  Nearest stations

### Explanation - Percentile classes

New low	<=5	6-9	10-24	Not ranked
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

[WaterWatch 7-day average streamflow](http://waterwatch.usgs.gov/)  
[Compared to historical streamflow for July 30.](http://waterwatch.usgs.gov/)

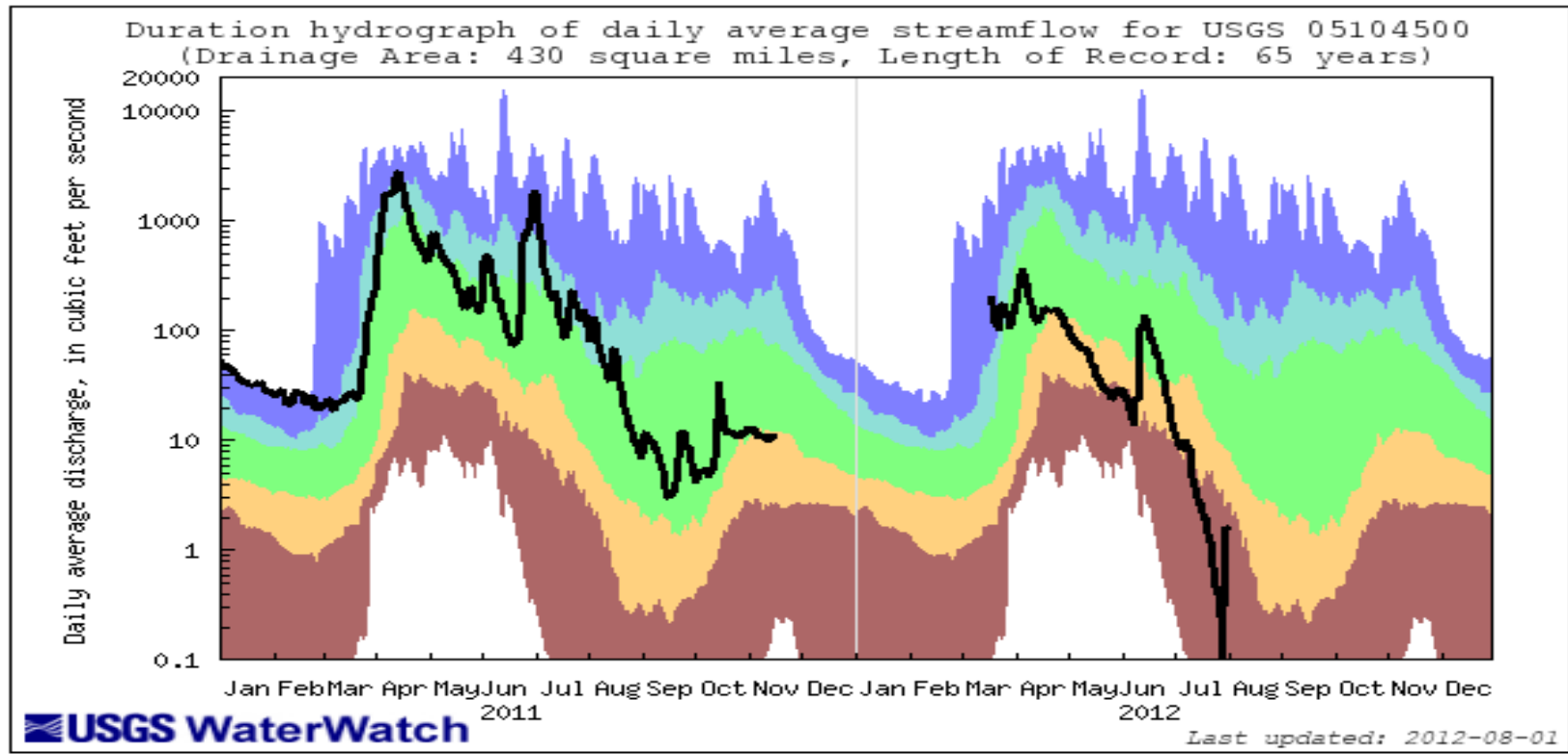
[http://waterwatch.usgs.gov/?m=pa07d\\_dry&r=mn&w=dryw%2Cmap](http://waterwatch.usgs.gov/?m=pa07d_dry&r=mn&w=dryw%2Cmap)



# USGS Streamflow Duration Hydrograph Builder

Site Number: 05104500 Year: 2012 Flow type: Daily streamflow GO

**For some streams, flow statistics may have been computed from mixed regulated and unregulated flows; this can lead to inaccurate depictions of flow conditions.**



Explanation - Percentile classes					
lowest-10th percentile	10-24	25-75	76-90	90th percentile-highest	Flow
Much below normal	Below normal	Normal	Above normal	Much above normal	

# USGS Streamflow Duration Hydrograph Builder

Site Number:

05320500

Year:

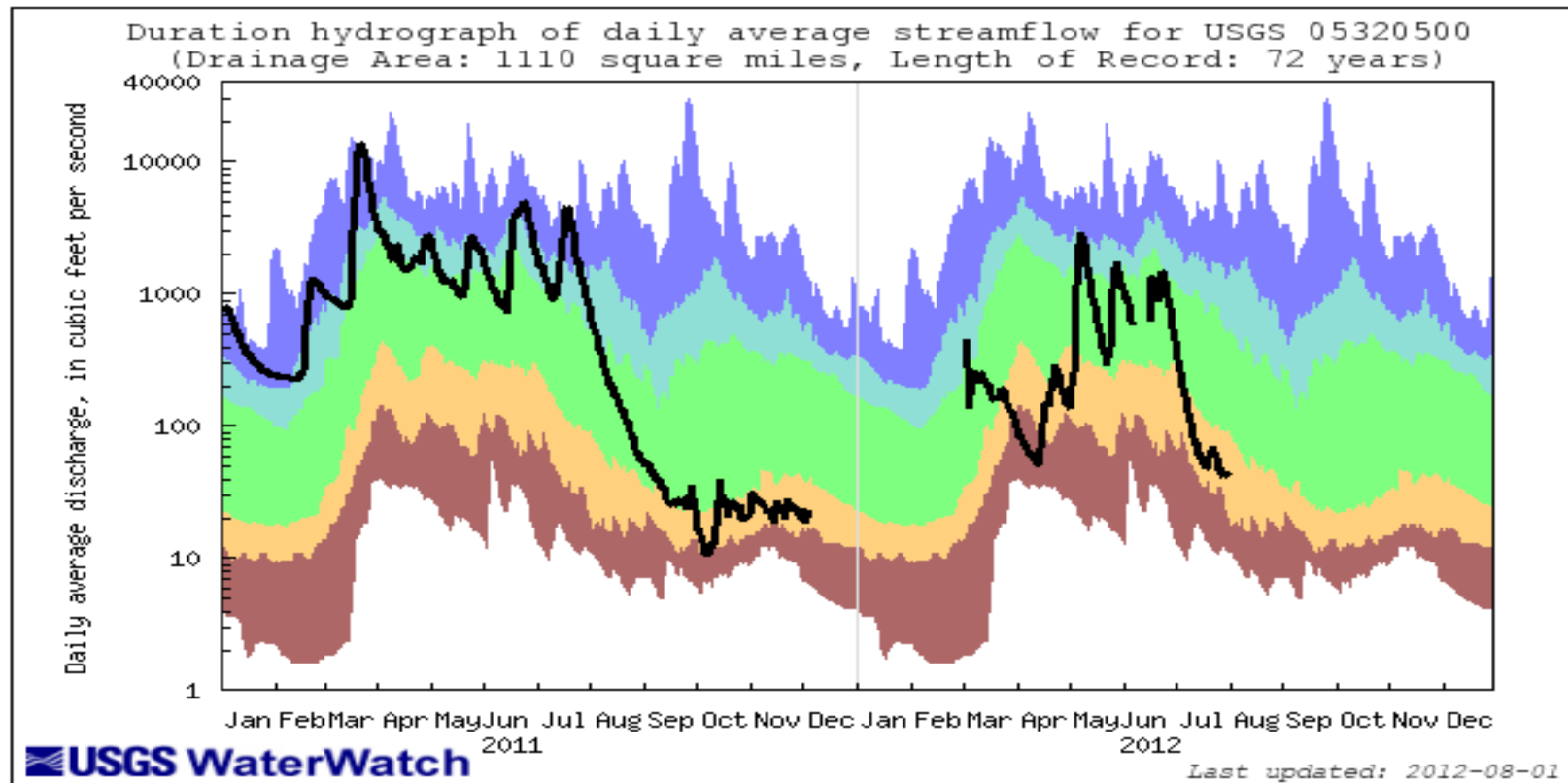
2012

Flow type:

Daily streamflow

GO

**For some streams, flow statistics may have been computed from mixed regulated and unregulated flows; this can lead to inaccurate depictions of flow conditions.**



Explanation - Percentile classes

lowest-10th percentile	10-24	25-75	76-90	90th percentile-highest	Flow
Much below normal	Below normal	Normal	Above normal	Much above normal	



# Additional Drought Resources

## Drought-related Web Page

## Low-Flow Statistics Web Page

**USGS**  
science for a changing world

**Minnesota DroughtWatch**

Home Information/Data Projects Publications Drought Flood NAWQA Office Contact Other USGS Internal

droughtwatch: Home Surface Water Ground Water National

### Minnesota DroughtWatch

This map (from USGS's [National Drought Watch](#) Web site) shows the 7-day average streamflow conditions in hydrologic units. Thus, the map shows conditions adjusted for this time of the year. The colors represent 7-day average streamflow percentiles for the day of the year. USGS sites having at least 30 years of record are used. The data used to produce this map are provisional and have not been reviewed or edited. They may be subject to significant change.

#### Minnesota DroughtWatch Maps

Average streamflow maps:

- Area map: [Below normal 7-day](#)
- Site map: [Below normal 7-day](#)
- Site map: [Below normal 14-day](#)
- Site map: [Below normal 26-day](#)

[Minnesota Lowflow Site Map](#)

#### Drought Analyses

- USGS Fact Sheet OFR93-642: [Drought](#)
- Drought and [climate](#) • [evapotranspiration](#) • [fires](#)

#### Drought Management

- Management of [water resources](#) for drought conditions
- [Management alternatives](#) for a hypothetical severe drought on the Colorado River
- [Drought and ranching](#) in Arizona
- [Statement](#) by Robert Hirsch, USGS Associate Director for Water, delivered at the [2002 Drought Summit](#)

#### Drought Links

- [Precipitation](#) required to end or ameliorate the current drought and the probabilities of that occurring
- NOAA's [climate outlook maps](#)
- U.S. Drought Monitor [map and summary](#)
- NOAA's [Drought Information Center](#)
- NRCS [weekly drought reports](#), [SNOTEL data](#), [water-equivalent](#), and [precipitation](#) graphs by basin
- [National Weather Service](#)

**Map of below normal 7-day average streamflow compared to historical streamflow for the day of year**

July 19, 2002

Explanation - Percentile classes				
Low	4-5	6-9	10-24	Above 25% of normal
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

View a [larger map](#).

#### Drip Calculator

Check your faucets at home -- do any of them drip? Enough unchecked drips in enough houses can add up to a flood of wasted water—a disturbing fact in those parts of the country in drought conditions. Use our handy [drip calculator](#) to see how many gallons of water can go down the drain if your drippy faucets keep dripping.

### Low-flow Data for Minnesota Streams

Map Satellite Hybrid

**Time Since Last Lowflow Measurement (in years)**

- Continuous
- 0-1
- 2-5
- 6-10
- 10-15
- 16-25
- 25-49
- 50+





# WaterWatch

[Home](#)

[Current Streamflow](#)

[Flood](#)

[Drought](#)

[Past Flow/Runoff](#)

[Animation](#)

[Toolkit](#)

[Toolkit \(internal\)](#)

[Additional Information](#)

[About WaterWatch](#)

Search

## Retrieve Summary of 7-day Flow Conditions

**(Warning: These Data are Provisional and May be Prone to Error)**

<b>Geographic area</b> Minnesota	<b>Water Res. Region</b> 	<b>SW:</b> 	<b>NE:</b> 	<b>Box</b> <b>Choose</b>
<b>Begin Date</b> 2012-07-25	<b>End Date</b> 2012-08-01	<b>Output</b> Table	<input type="checkbox"/> <b>Sites at or Near New Record Low</b>	<b>Sort by:</b> Rank <b>Sort order:</b> <input checked="" type="radio"/> ascend <input type="radio"/> desc

# WaterWatch

Sea

[Home](#)

[Current Streamflow](#)

[Flood](#)

[Drought](#)

[Past Flow/Runoff](#)

[Animation](#)

[Toolkit](#)

[Toolkit \(internal\)](#)

[Additional Information](#)

[About WaterWatch](#)

## Retrieve Summary of 7-day Flow Conditions

(Warning: These Data are Provisional and May be Prone to Error)

<b>Geographic area</b> Minnesota	<b>Water Res. Region</b> 	<b>SW:</b> <input type="text"/>	<b>Box Choos</b>
		<b>NE:</b> <input type="text"/>	
<b>Begin Date</b> 2012-07-25	<b>End Date</b> 2012-08-01	<b>Output</b> Table	<input type="checkbox"/> <b>Sites at or Near New Record Low</b>
			<b>Sort by:</b> Rank <b>Sort order:</b> <input checked="" type="radio"/> ascend <input type="radio"/>

### Summary of Recent 7-day Average Flow Conditions

(2012-07-25 – 2012-08-01)

["-", no data; ">", greater than all historical minimum values]

USGS station number	USGS station name	Drain. area [mi <sup>2</sup> ]	No. of days with zero flows	2012-07-25 to 2012-08-01			No. of year
				Lowest 7-day average flow			
				Date	Stream flow [ft <sup>3</sup> /s]	Rank	
<a href="#">05067500</a>	MARSH RIVER NEAR SHELLY, MN	220	8	2012-07-25	0	Tie 1	68
<a href="#">05078470</a>	JUDICIAL DITCH 64 NEAR MENTOR, MN (SW4)	9.6	7	2012-07-25	0	Tie 1	8
<a href="#">05078730</a>	COUNTY DITCH 140 NEAR BENOIT, MN (SW1)	11.8	4	2012-07-27	0	Tie 1	8
<a href="#">05046475</a>	OTTER TAIL RIVER DIVERSION AT BRECKENRIDGE, MN	--	8	2012-07-25	0	Tie 1	8
<a href="#">05079200</a>	COUNTY DITCH 72 (BURNHAM CK) NR. MAPLE BAY (SW3)	10.7	4	2012-07-25	0	Tie 1	8
<a href="#">05383950</a>	ROOT RIVER NEAR PILOT MOUND, MN	565	0	2012-08-01	132	4	11