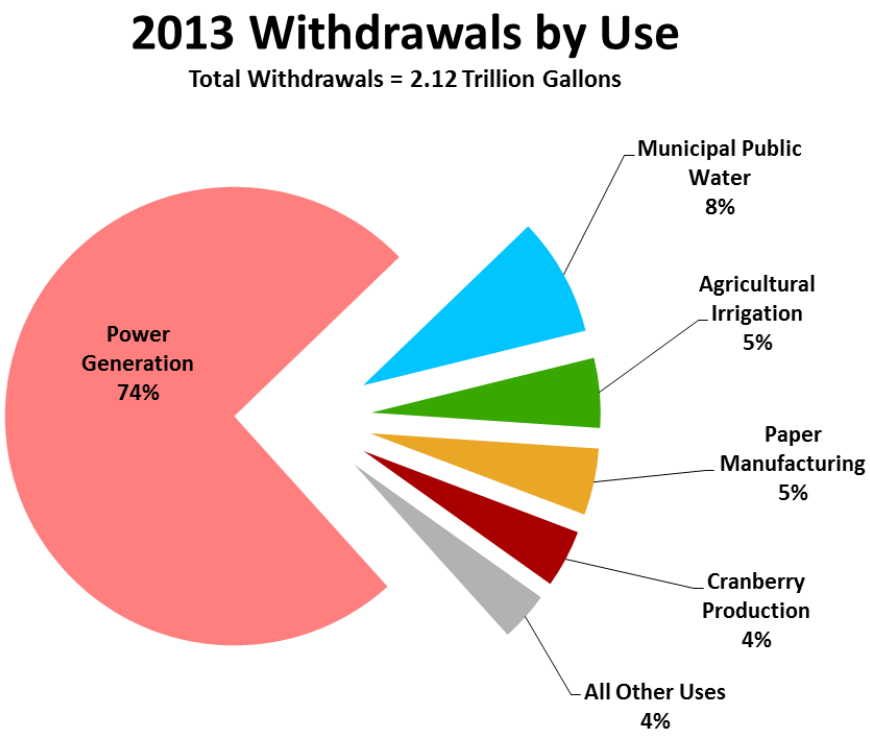
Wisconsin Water Use

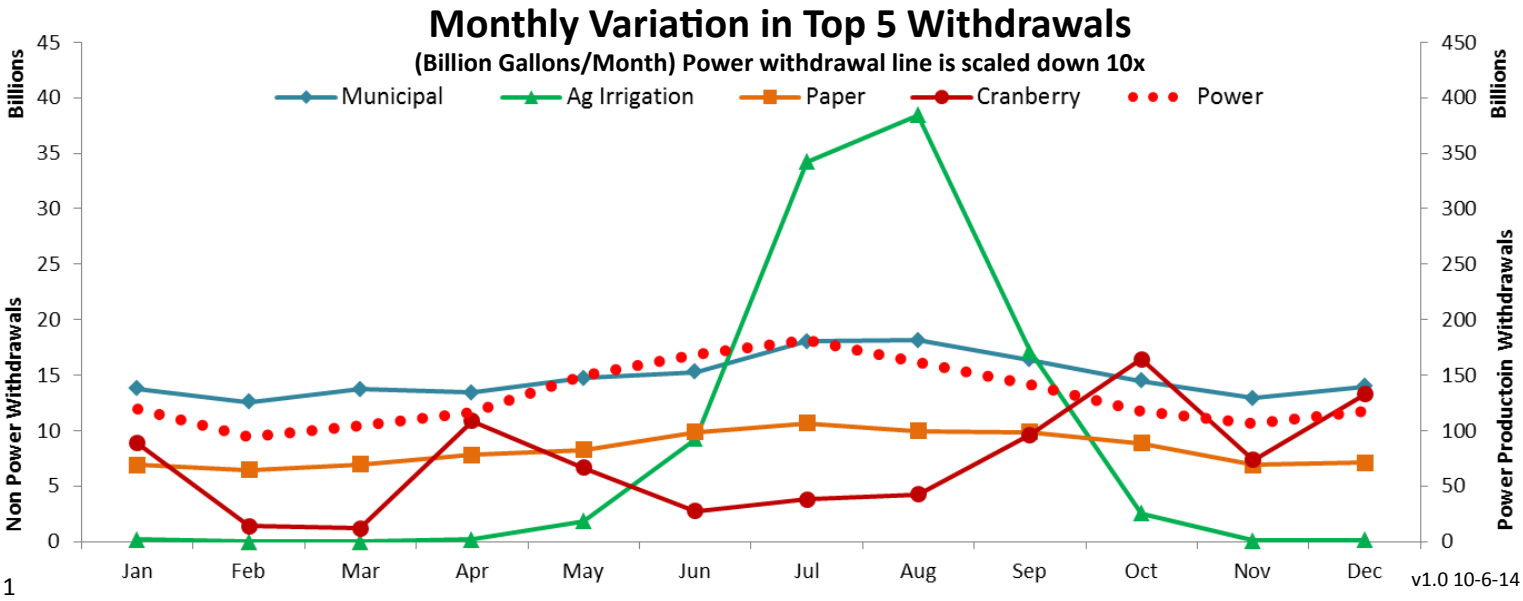
2013 Expanded Withdrawal Summary

Water supply systems in Wisconsin capable of withdrawing 100,000 gallons per day are required to register and report withdrawals. In 2013, total statewide withdrawals exceeded 2.12 trillion gallons of water from over 14,000 wells, ponds, streams, rivers and lakes. This amount is roughly equal to 3 times the volume of water in Lake Winnebago or enough water to cover the surface area of Wisconsin in nearly 2 inches of water. Total 2013 withdrawals were down 6.1% from 2012.



How and when water is withdrawn varies seasonally. Monthly withdrawal volumes typically vary throughout the year following temperatures and precipitation patterns. Withdrawals decreased in most categories as temperatures and precipitation stabilized from the extreme weather events in 2012.

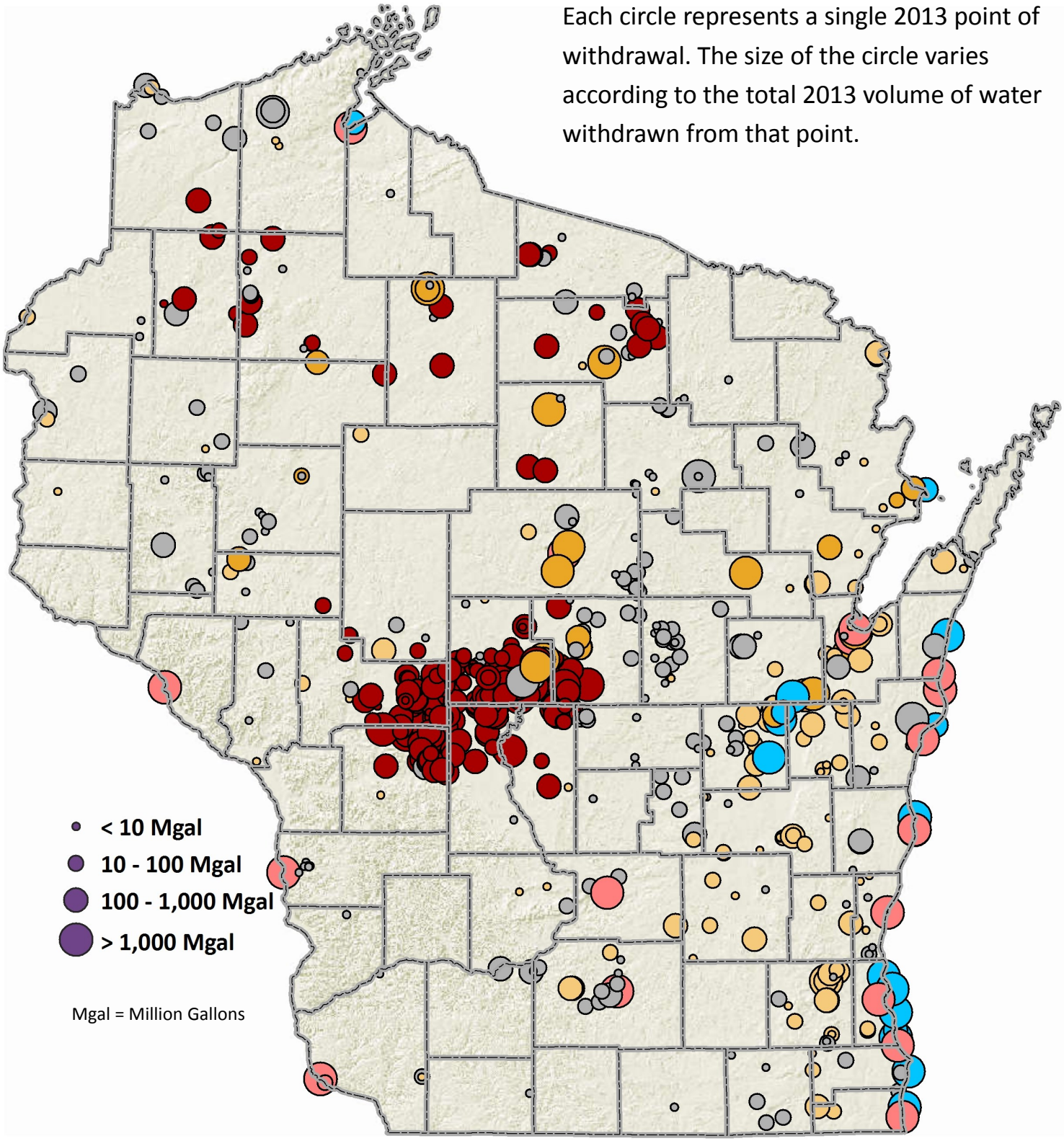
- Municipal water demand and cooling water demand for power and paper production increases with the heat of summer.
- Agricultural irrigation withdrawals in July were down 32% from 50 billion gallons in 2012 to 34 billion gallons in 2013.
- Cranberry production withdrawals were down 84% in March from 7.4 billion gallons in 2012 to 1.2 billion gallons in 2013 as temperatures stabilized after the record March heat in 2012.



v1.0 10-6-14

2013 Surface Water Annual Withdrawals

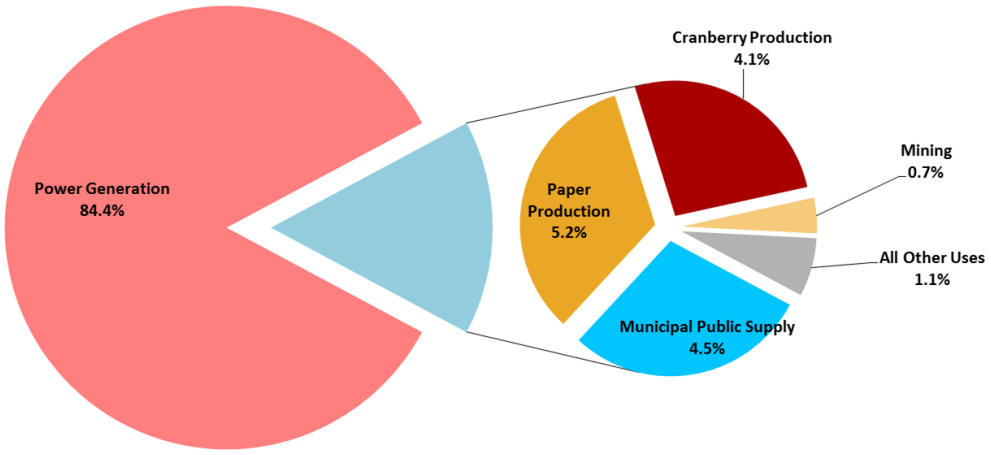
Each circle represents a single 2013 point of withdrawal. The size of the circle varies according to the total 2013 volume of water withdrawn from that point.



Power Generation
Municipal Water Supply
Mining
Paper Production
Cranberry Production
All Other Uses

2013 Total Surface Water Withdrawals by Water Use

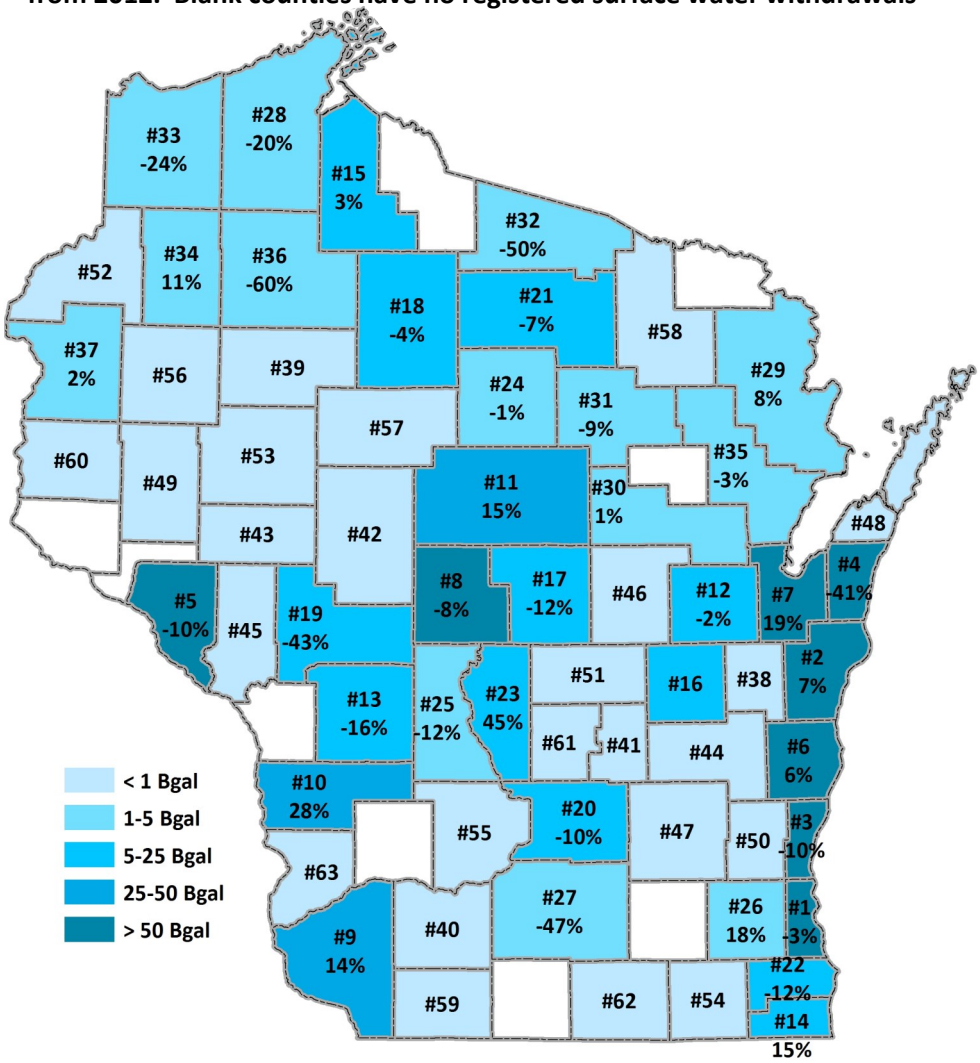
1.87 trillion gallons statewide



- Surface water withdrawals totaled 1.87 trillion gallons from 682 active sources.
- The largest volume of water withdrawn in the state (1.58 trillion gallons) was used by power production facilities. These facilities are concentrated along Lake Michigan and the Wisconsin and Mississippi Rivers.
- Many surface water withdrawals are used and discharged near their point of withdrawal. This results in little water lost from the original source relative to the size of the withdrawal.

2013 Total Surface Water Withdrawals by County

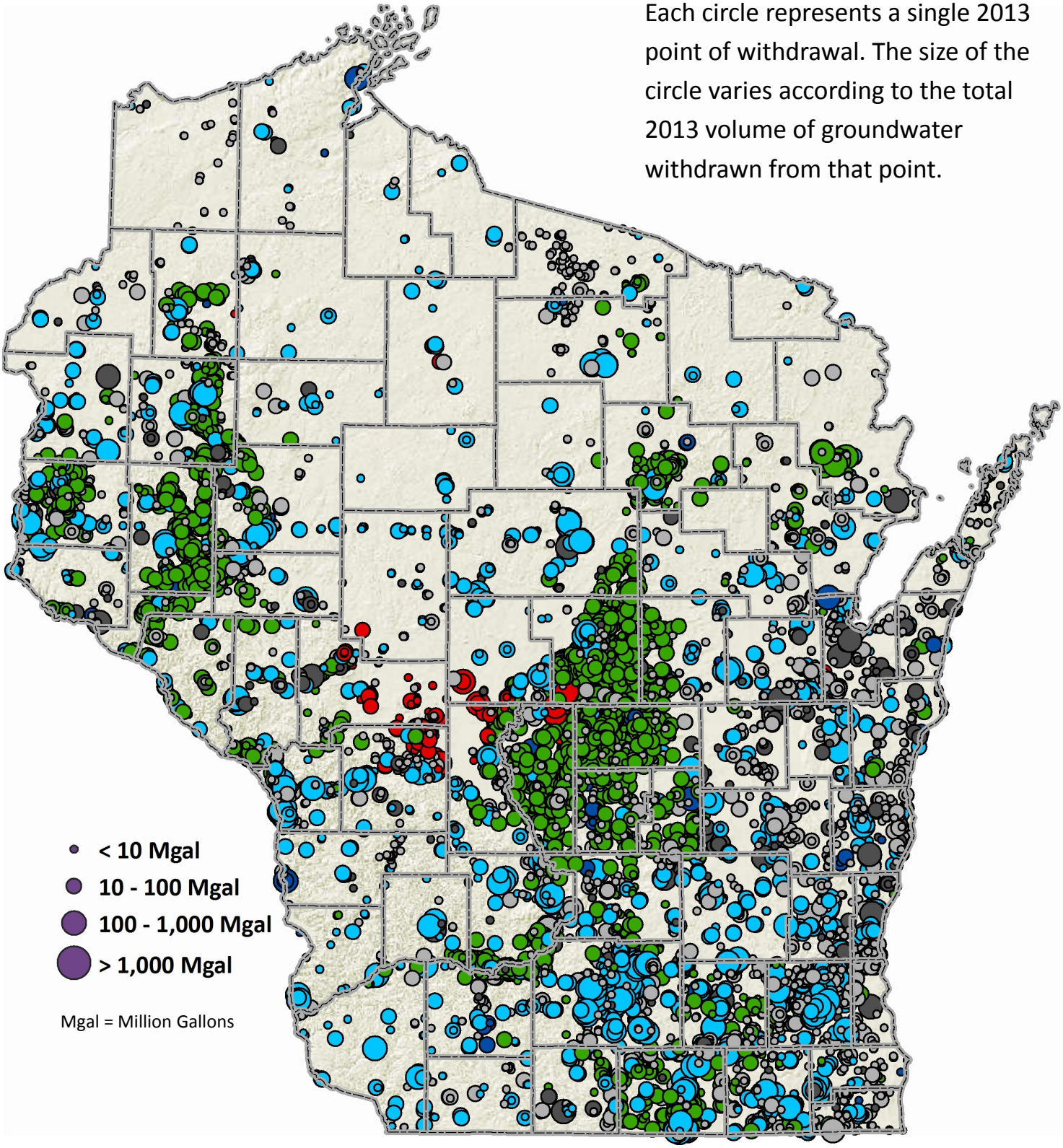
Top number indicates ranking of total withdrawal (#1 = highest, #72 = lowest). For counties with withdrawals > 1 Bgal, the bottom number represents % change from 2012. Blank counties have no registered surface water withdrawals



- Surface water withdrawals decreased by about 5% from 2012 to 2013.
  - ◊ Several sectors decreased including Municipal Supply (-17%) , Cranberry Production (-19%), Power (-3%), and Paper Production (-4%).
  - ◊ An increase was seen in Non-Metallic Mining (+25%) due mostly to increased dewatering.
- Power plants represented the majority of withdrawals in the five top ranked counties of Milwaukee (#1), Manitowoc (#2), Ozaukee (#3), and Kewaunee (#4) and Buffalo (#5)
- Surface water is key to producing some of Wisconsin's top products:
  - ◊ Paper in Brown (#7), Wood (#8), Marathon (#11) and Outagamie (#12) counties.
  - ◊ Cranberry in Wood (#8), Monroe (#13), and Jackson (#19).

2013 Groundwater Annual Withdrawals

Each circle represents a single 2013 point of withdrawal. The size of the circle varies according to the total 2013 volume of groundwater withdrawn from that point.

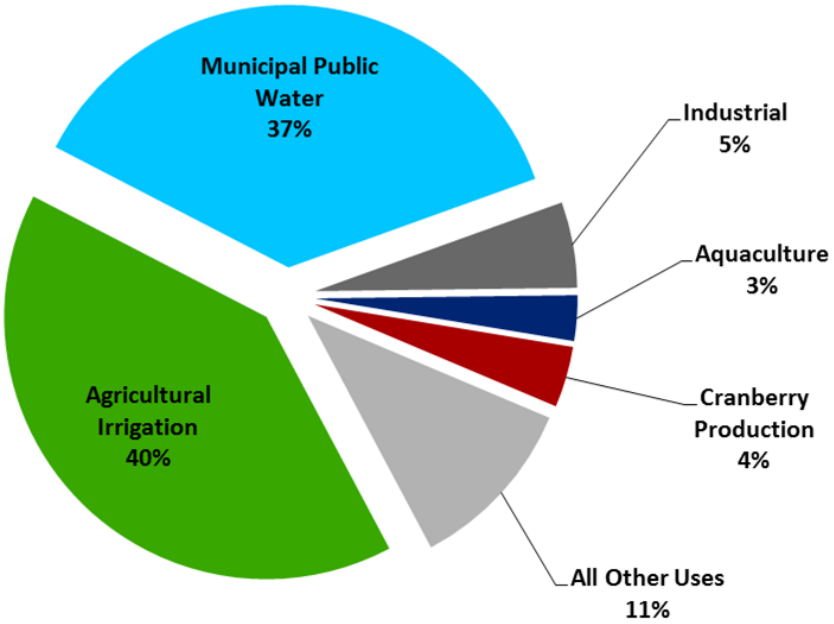


Agricultural Irrigation
Aquaculture
Cranberry Production
Municipal Public Water
Industrial
All other uses

2013 Total Groundwater Withdrawals by Water Use

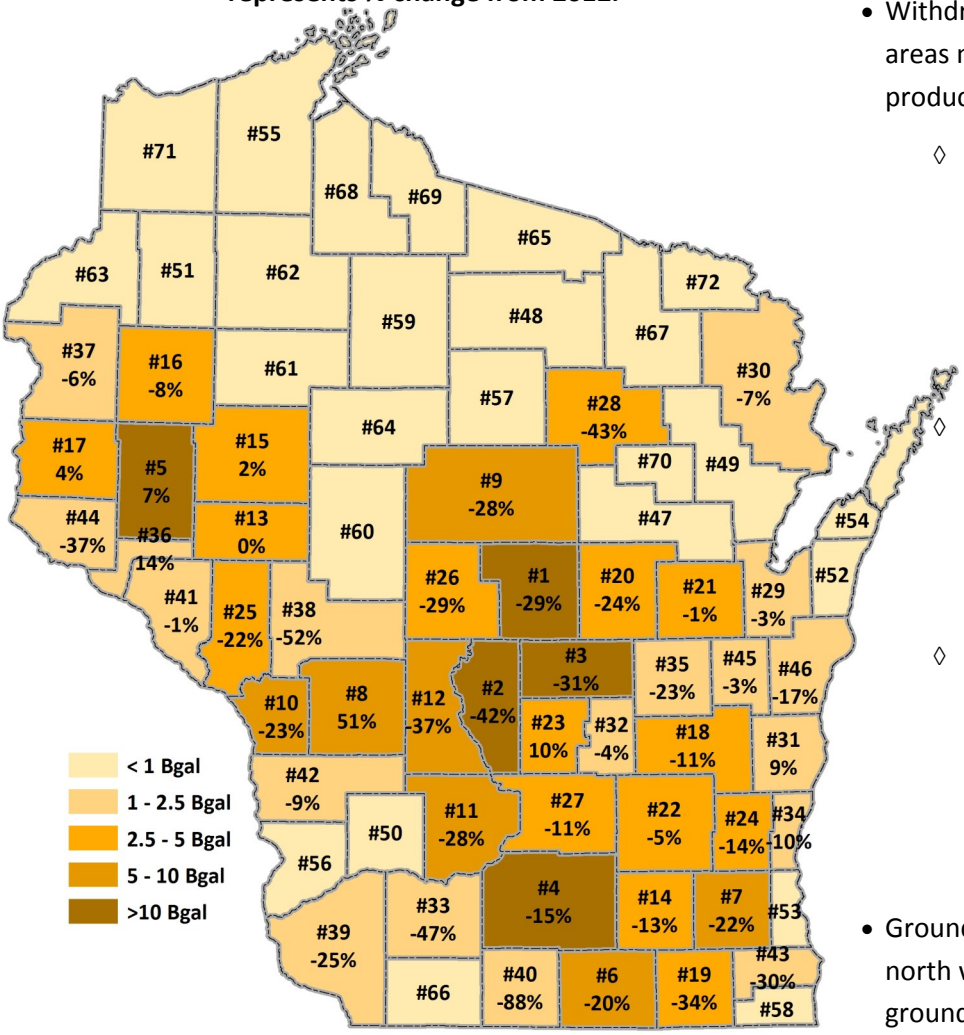
250 billion gallons statewide

- Groundwater withdrawals totaled 250 billion gallons from over 13,000 high capacity wells .
- Agricultural irrigation remained the largest use of groundwater in the state. Agricultural irrigation withdrawals decreased 25% from 135 billion gallons in 2012 to 101 billion gallons in 2013.
- Municipal Public Water Supplies are typically owned by cities and deliver water for residential, commercial, institutional and industrial uses. These providers represented the second largest groundwater withdrawal at 92 billion gallons, down 7% from 99 billion gallons in 2012.

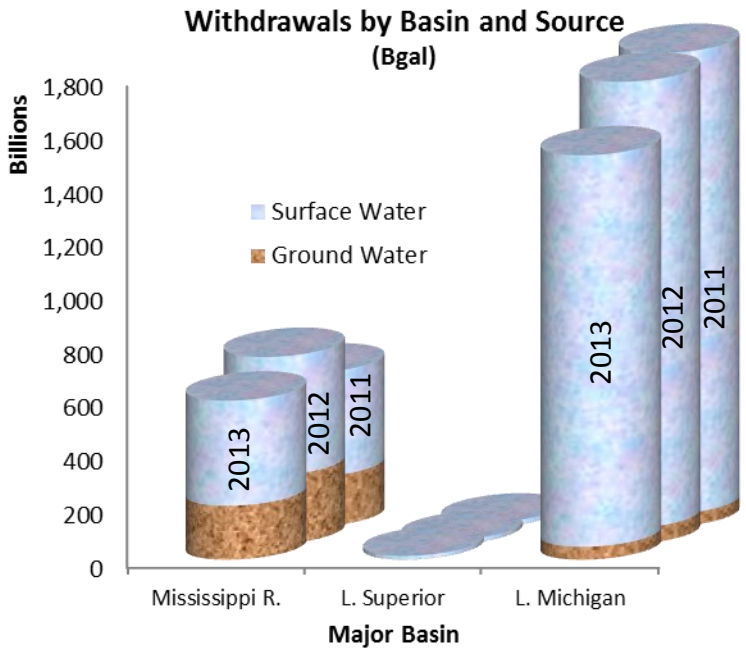


2013 Groundwater Total Withdrawals by County

Top number indicates ranking of total withdrawal (#1 = highest, #72 = lowest). For counties with withdrawals > 1 Bgal, the bottom number represents % change from 2012.



- Withdrawals were most concentrated in urban areas not supplied by surface water and vegetable-producing regions with high irrigation demand.
  - ◊ Portage (#1), Adams (#2), and Waushara (#3) comprise much of the central sands area of the state. This area is a globally significant vegetable and potato producing region. Withdrawals decreased significantly in each of these counties from 2012.
  - ◊ Dane (#4), Rock (#6), and Waukesha (#7) have large urban/suburban populations that rely on groundwater to meet their needs. Withdrawals decreased significantly in each of these counties.
  - ◊ Despite statewide decreases, several counties had increased groundwater withdrawals including Monroe (+51%), Pepin (+14%) Marquette (+10%), Sheboygan (+9%), Dunn (+7%), and St. Croix (+4%)
- Groundwater withdrawals are smallest in the far north where populations are lower and groundwater is less readily accessible.



Withdrawal Reporting Facts

- High capacity sources are any wells or surface water intakes on a property with the capacity to withdraw at least 100,000 gallons per day or 70 gallons per minute.
- For 2013, there were 14,475 registered high capacity withdrawal sources in the state: 13,415 wells and 1,018 surface water sources.
- 88% of the statewide withdrawals by volume were made from surface water; 12% were made from groundwater.
- Wisconsin water withdrawers rely much more heavily on surface water in the Great Lakes Basin than in the Mississippi River Basin.
- 14% of registered sources were reported as unused in 2013.
- Reports were not supplied for 2.7% of the state's sources.

Changes from 2012

- Power production withdrawals continued to decline and were down 3.7% from 2012. They declined 1.8% from 2011 to 2012. This is due in part to changes in customer demand, cooler temperatures and the closing of the Kewaunee Nuclear Power Station.
- Withdrawals decreased significantly for agricultural irrigation (-24.5%) and golf course irrigation (-39.2%) as precipitation and temperatures were closer to average compared to the drought of 2012.
- Municipal public water withdrawals were down 11.7% from 2012 as summer water demand decreased.
- Cranberry production *surface* water withdrawals were down nearly 20% from 2012. However, *groundwater* withdrawals increased for cranberry production due in part to producers supplementing drought depleted reservoirs with groundwater.
- Non-metallic mining withdrawals were up 13.8% mostly due to the increased need for dewatering due to precipitation and higher aquifer levels.

	Number of Active Sources	Number of Sources	% of 2013 Sources	% of 2013 Total With-drawal	% Change from 2012 With-drawal
Agricultural Irrigation	3495	4236	29.30%	4.91%	-24.50%
Other	1974	2873	19.80%	0.41%	-2.30%
Non-Municipal Public	1842	2302	15.90%	0.33%	-20.80%
Municipal Public	1585	1711	11.80%	8.37%	-11.70%
Dairy Farming	594	638	4.40%	0.21%	0.70%
Industrial	424	604	4.20%	0.84%	42.30%
Golf Courses	422	499	3.40%	0.24%	-39.20%
Cranberry Production	412	501	3.50%	4.08%	-15.20%
Commercial	320	431	3.00%	0.08%	18.60%
Non–Metallic Mining	280	378	2.60%	0.71%	13.80%
Aquaculture	154	166	1.10%	0.67%	-9.30%
Power Generation	65	67	0.50%	74.46%	-3.70%
Paper Manufacturing	54	69	0.50%	4.70%	-4.20%
Total	11621	14475			

For more information regarding the Water Use Reporting program or to request more specific information on withdrawals, please visit our website or contact Water Use Program staff:
dnr.wi.gov keyword "**Water Use**"
DNRWaterUseRegistration@Wisconsin.gov 606.266.2299