



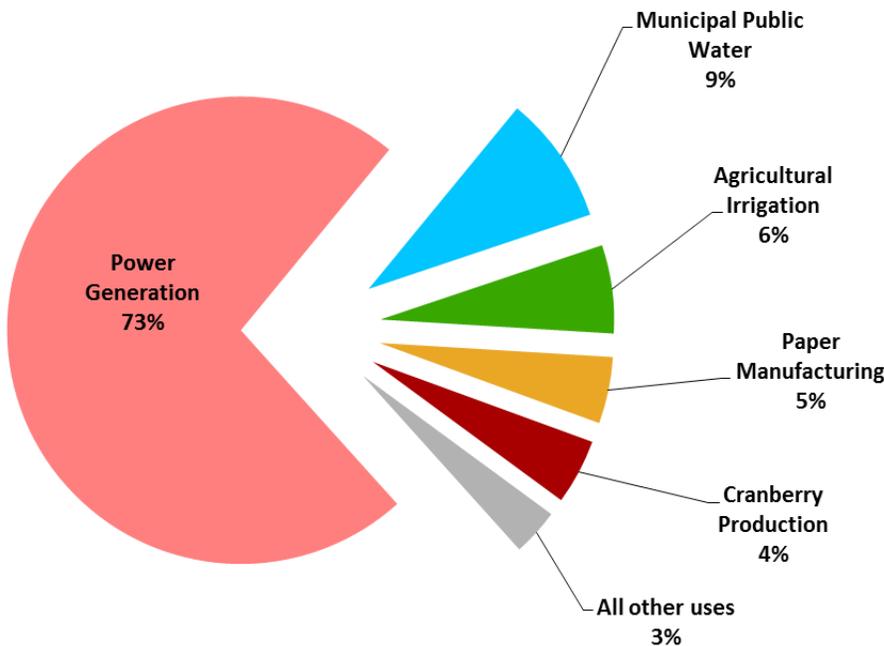
Wisconsin Water Use

2012 Expanded Withdrawal Summary

Water supply systems in Wisconsin capable of withdrawing 100,000 gallons per day are required to register and report withdrawals. In 2012, total statewide withdrawals exceeded 2.25 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 about 2 inches of water. Total 2012 withdrawals were up 4.80% from 2011.

2012 Withdrawals by Use

Total Withdrawals = 2.258 Trillion Gallons

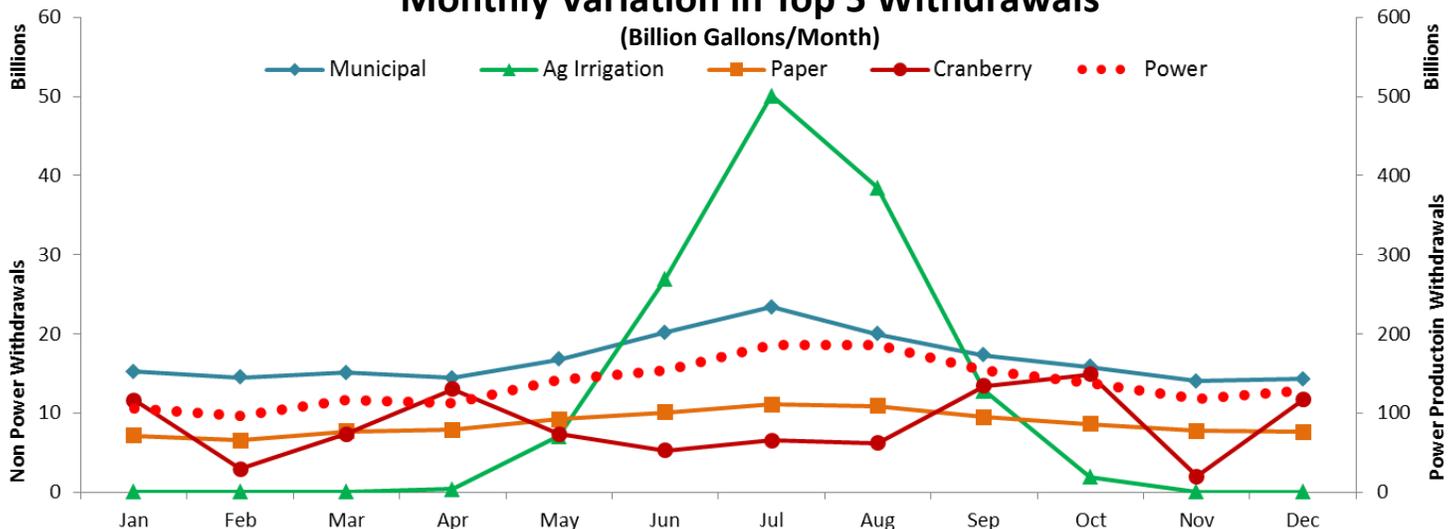


How and when water is withdrawn varies seasonally. Monthly withdrawal volumes typically vary throughout the year following temperatures and precipitation patterns. Extreme weather events in 2012 amplified monthly variation for irrigation and cranberry production.

- Summer heat drives municipal water demand and cooling water demand for power and paper production.
- Agricultural irrigation withdrawals in July and August nearly doubled from 2011 withdrawals due to drought.
- In addition to the usual flooding for fall harvest and winter frost protection, many cranberry growers needed to flood cranberry beds in the unseasonably warm March and April to prevent their crop from growing too early.

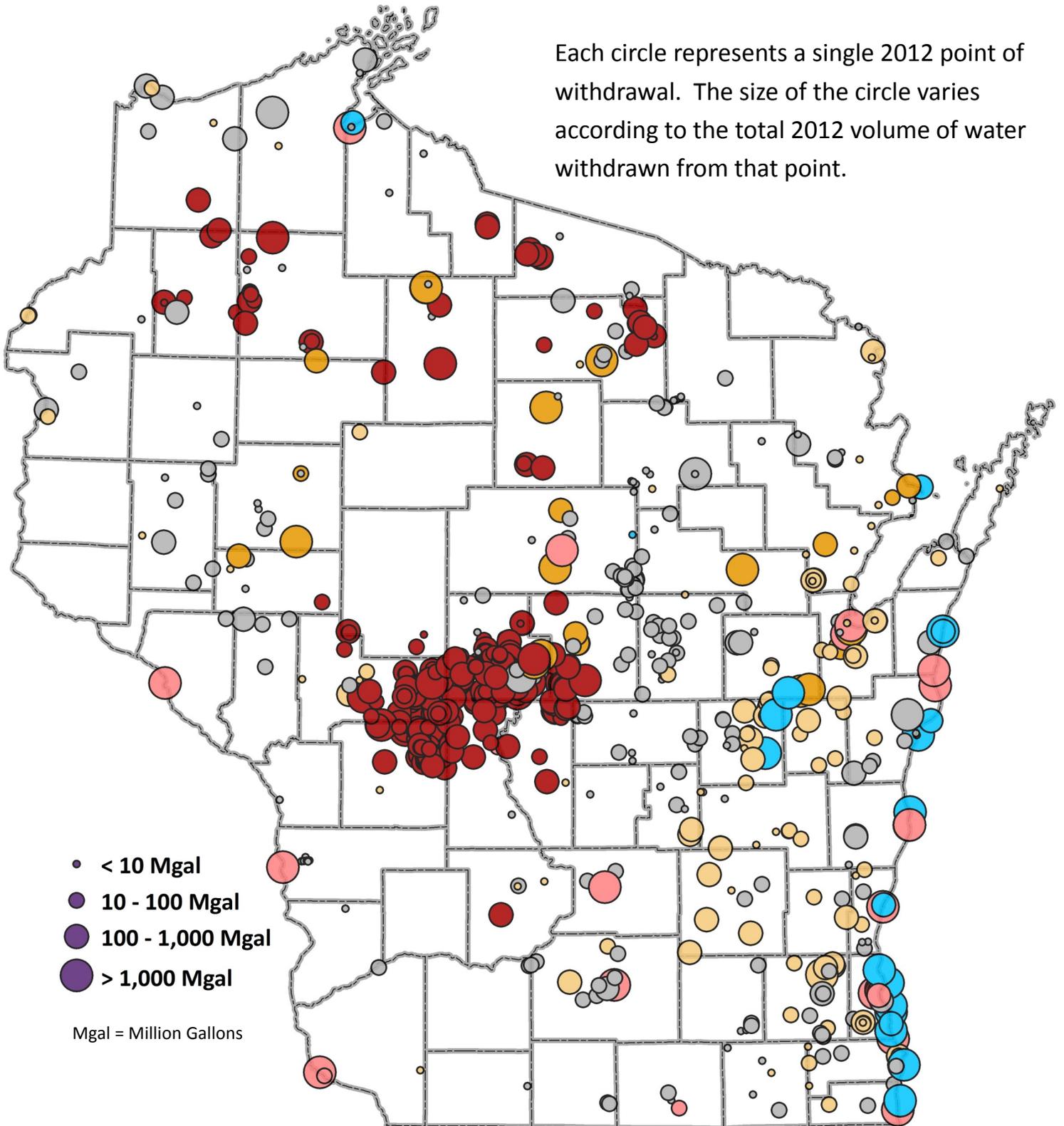
Monthly Variation in Top 5 Withdrawals

(Billion Gallons/Month)



2012 Surface Water Annual Withdrawals

Each circle represents a single 2012 point of withdrawal. The size of the circle varies according to the total 2012 volume of water withdrawn from that point.



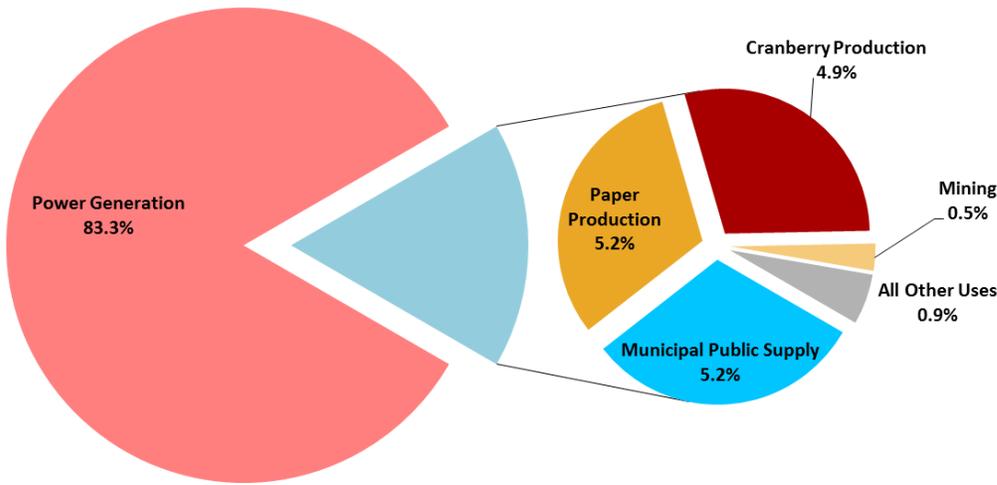
- < 10 Mgal
- 10 - 100 Mgal
- 100 - 1,000 Mgal
- > 1,000 Mgal

Mgal = Million Gallons

- Power Generation
- Municipal Water Supply
- Mining
- Paper Production
- Cranberry Production
- All other uses

2012 Total Surface Water Withdrawals by Water Use

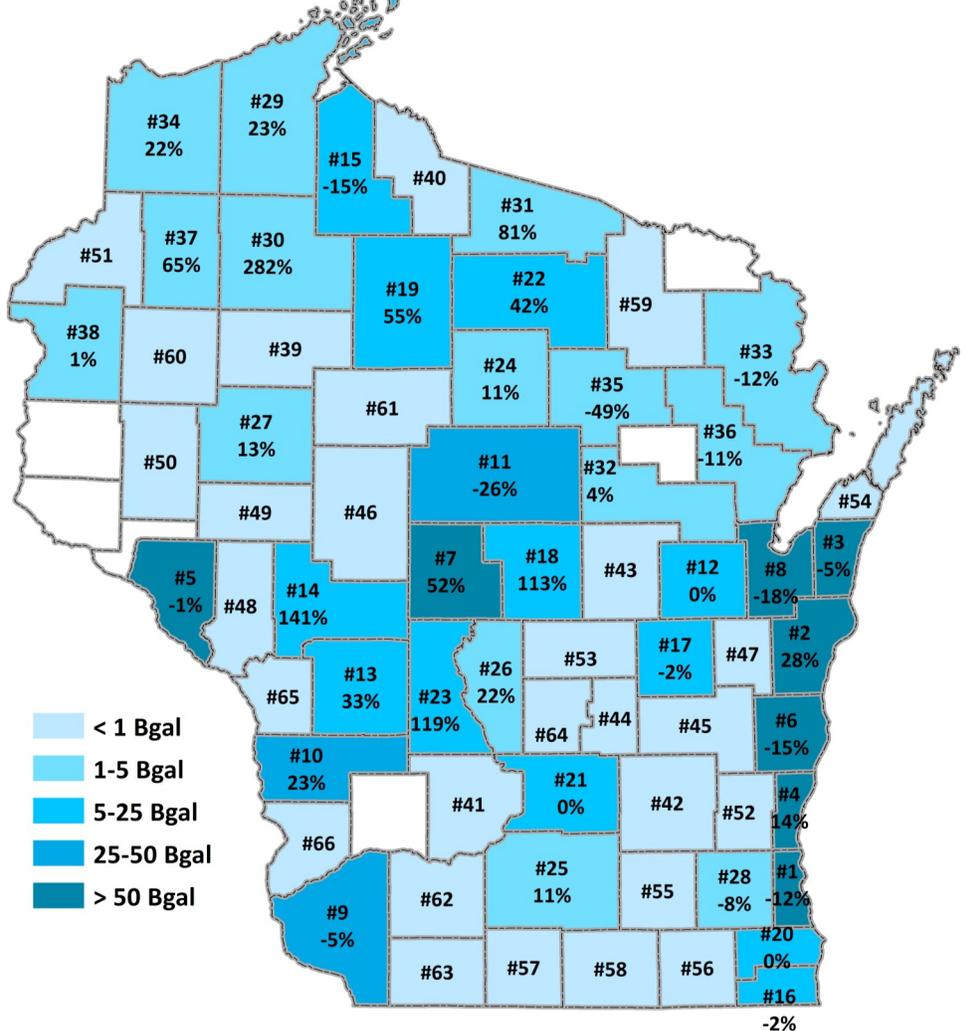
1.963 trillion gallons statewide



- Surface water withdrawals totaled 1.963 trillion gallons from 995 sources.
- The largest volume of water withdrawn in the state (1.64 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.

2012 Total Surface Water Withdrawals by County

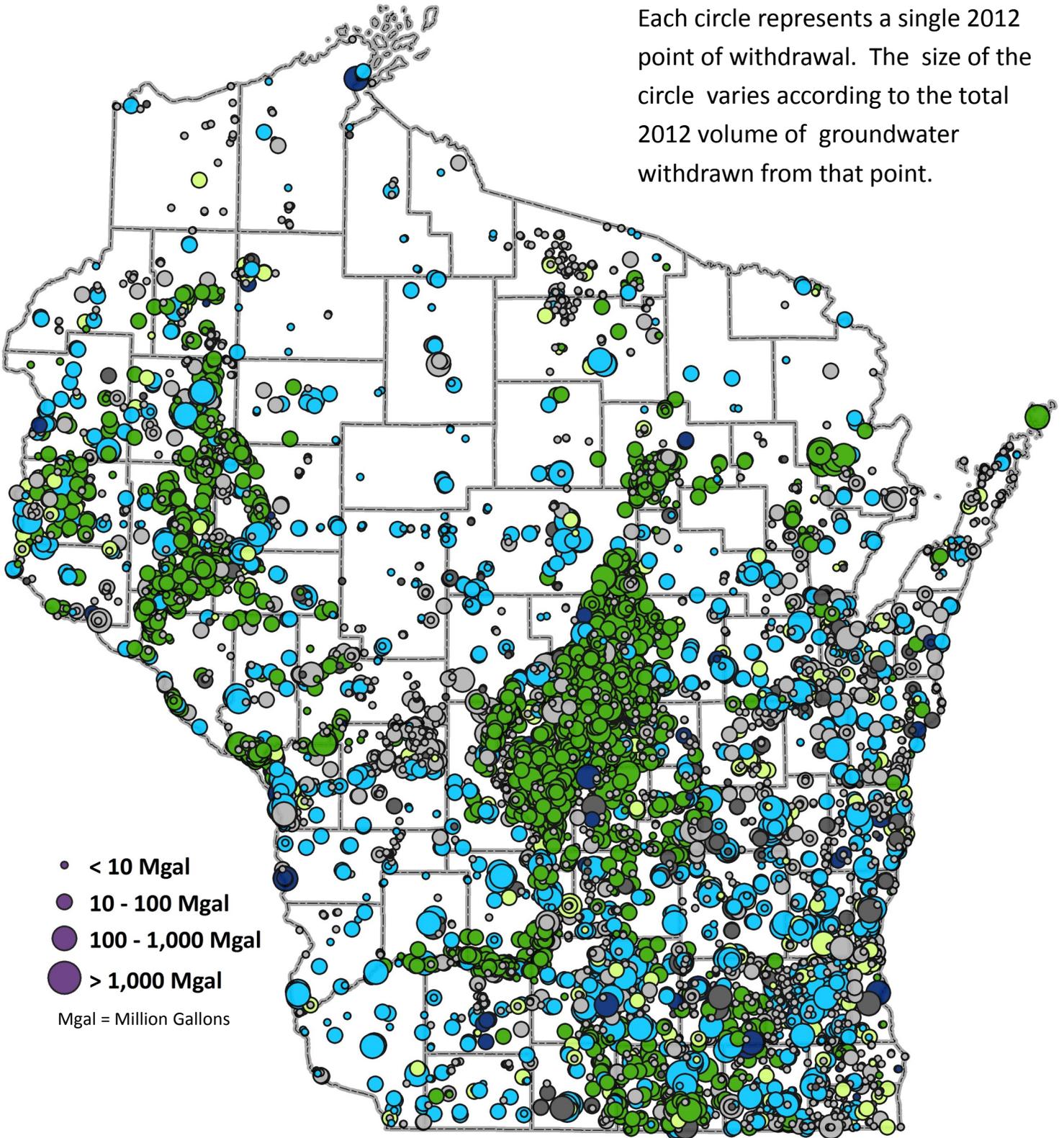
Top number indicates ranking of total withdrawal (#1 = highest, #66 = lowest)
 For counties with > 1 Bgal, the bottom number represents % change from 2011
 Blank counties have no registered surface water withdrawals



- Surface water withdrawals increased by about 1% from 2011 to 2012.
 - ◊ Several sectors decreased including Aquaculture (-10%), Mining (-8%), Power (-2%), and Municipal Supply (-2%).
 - ◊ Increases were seen in Paper (+5%) and Cranberry Production (+122%)
- Power plants represented the majority of withdrawals in the five top ranked counties of Milwaukee (#1), Manitowoc (#2), Kewaunee (#3), and Ozaukee (#4) and Buffalo (#5)
- Surface water is key to producing some of Wisconsin's top products:
 - ◊ Paper in Brown (#8), Wood (#7), Marathon (#11) and Outagamie (#12) counties.
 - ◊ Cranberry in Wood (#7), Monroe (#13), and Jackson (#14).

2012 Groundwater Annual Withdrawals

Each circle represents a single 2012 point of withdrawal. The size of the circle varies according to the total 2012 volume of groundwater withdrawn from that point.



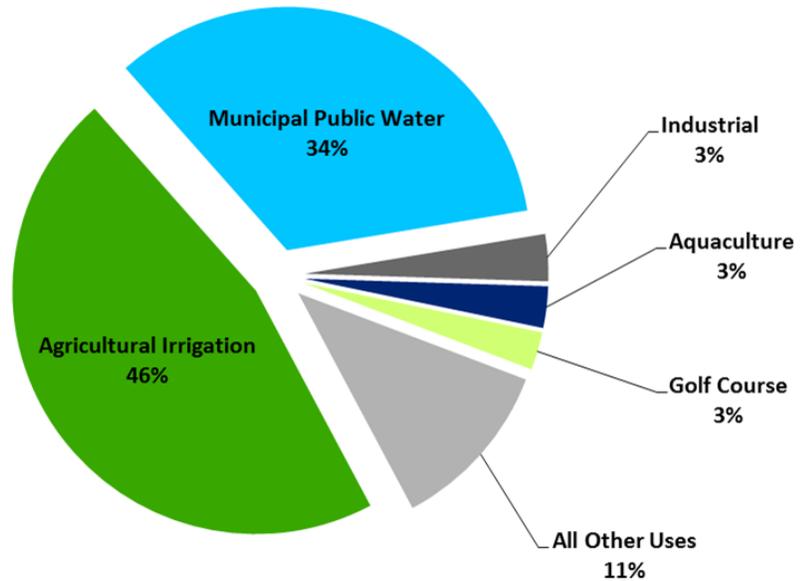
- < 10 Mgal
 - 10 - 100 Mgal
 - 100 - 1,000 Mgal
 - > 1,000 Mgal
- Mgal = Million Gallons

- Agricultural Irrigation
- Aquaculture
- Golf Course
- Municipal Public Water
- Industrial
- All other uses

2012 Total Groundwater Withdrawals by Water Use

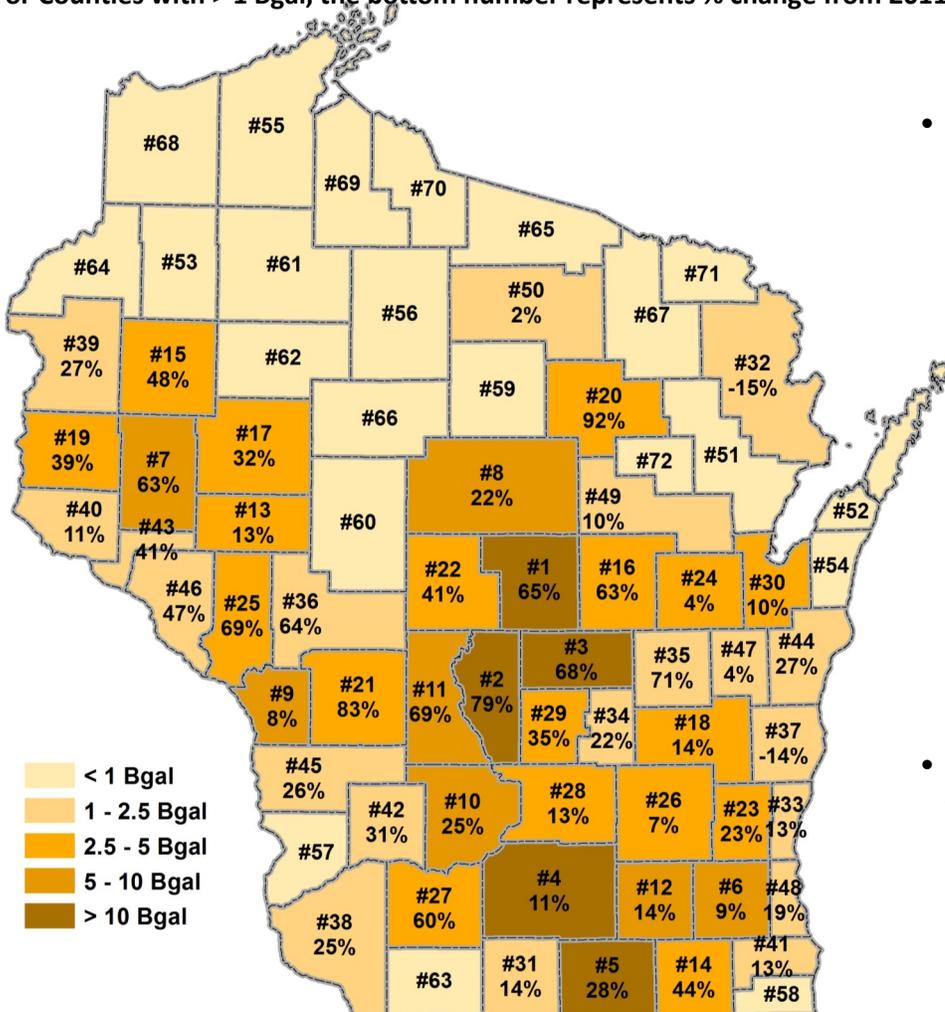
292 billion gallons statewide

- Groundwater withdrawals totaled 292 billion gallons from over 13,000 high capacity wells .
- Agricultural irrigation represented the largest use of groundwater in the state, up from second place in 2011. Agricultural irrigation withdrawals increased 83%: from 74 billion gallons in 2011 to 135 billion gallons in 2012.
- Municipal Public Water Suppliers are typically owned by cities and deliver water for residential, commercial, institutional and industrial uses. These providers represented the second largest groundwater withdrawal at 99 billion gallons.



2012 Groundwater Total Withdrawals by County

Top number indicates ranking of total withdrawal (#1 = highest, #72 = lowest)
 For Counties with > 1 Bgal, the bottom number represents % change from 2011

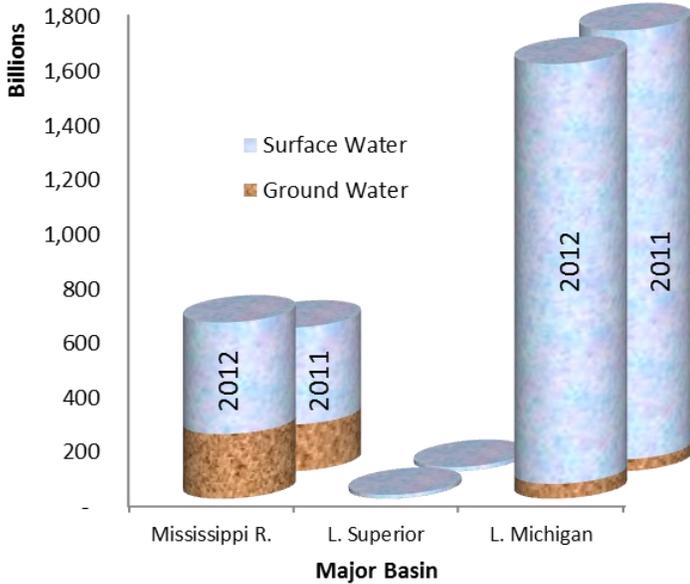


- Withdrawals were most concentrated in urban areas not supplied by surface water and vegetable-producing regions with high irrigation demand.
 - ◊ Portage (#1), Adams (#2), and Waushara (#3) comprise much of the central sands area of the state. This area is known as a globally significant vegetable and potato producing region.
 - ◊ Dane (#4), Rock (#5), and Waukesha (#6) have large urban/suburban populations that rely on groundwater to meet their needs.
- 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 gallon per day or 70 gallons per minute.
- For 2012, there were 14,184 registered high capacity withdrawal sources in the state: 13,191 wells and 995 surface water sources.
- 87% of the statewide withdrawals by volume were made from surface water. 13% 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.
- 13% of registered sources were reported as unused in 2012.
- Reports were not supplied for 5% of the state's sources. The DNR estimated withdrawal amounts for these sources based on typical water use for its category and each source's capacity.

Withdrawals by Basin and Source
(Bgal)



Changes from 2011

- Power production withdrawals declined in 2012 mostly due to decreased withdrawals at several large coal-fired plants.
- Withdrawals for irrigation spiked in 2012 due to the prolonged drought. Agricultural irrigation withdrawals increased 83.3% and golf course irrigation withdrawals increased 87.3% from 2011.
- Cranberry production withdrawals were up dramatically in 2012 due to the record heat in early spring, increased irrigation demand during summer and low reservoir levels in autumn.
- Municipal public water withdrawals were up 2.6%. This increase was somewhat reduced by conservation strategies and ordinances implemented by municipalities .
- Non-metallic mining withdrawals were down 4.3% mostly because lowered water tables decreased the need for quarry pit dewatering.

	Number of Sources	% of 2012 Sources	% of 2012 Total Withdrawal	% Change from 2011 Withdrawal
Agricultural Irrigation	4042	28.5%	6.1%	83.3%
Other	2924	20.6%	0.4%	19.0%
Non-Municipal Public	2263	16.0%	0.4%	8.9%
Municipal Public	1729	12.2%	8.9%	2.6%
Industrial	583	4.1%	0.6%	-3.8%
Dairy Farming	540	3.8%	0.2%	34.0%
Cranberry Production	506	3.6%	4.5%	122.2%
Golf Courses	499	3.5%	0.4%	87.3%
Mining	387	2.7%	0.6%	-4.3%
Commercial	379	2.7%	0.1%	-8.3%
Aquaculture	168	1.2%	0.7%	-6.5%
Paper Manufacturing	94	0.7%	4.6%	4.9%
Power Generation	70	0.5%	72.6%	-1.8%
Total	14184			4.8%

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