

# Changes in Withdrawals for Public Water Supply in the Great Lakes-St. Lawrence River Basin, 1998-2018

Prepared for the Conference of Great Lakes and St. Lawrence Governors and Premiers

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May 2020

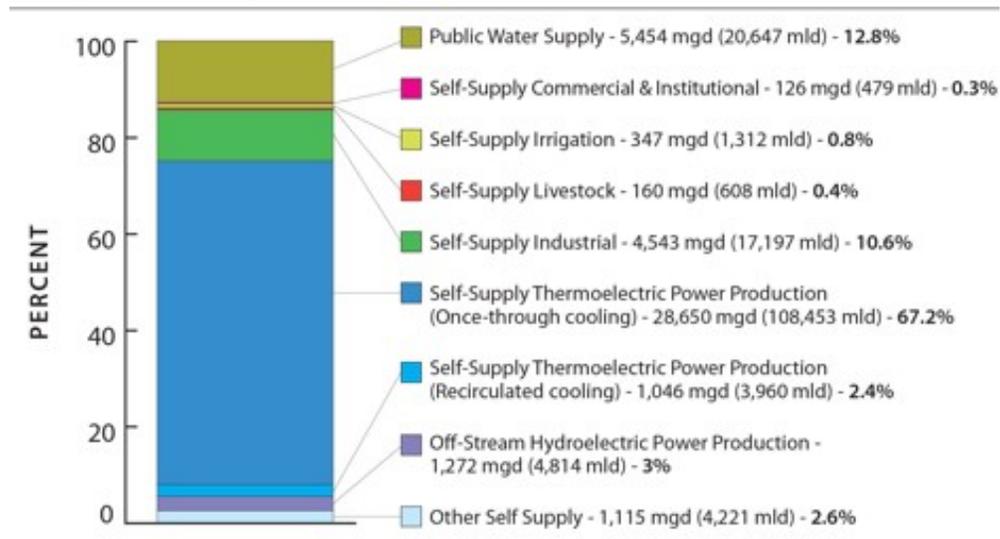
# Changes in Withdrawals for Public Water Supply in the Great Lakes-St. Lawrence River Basin, 1998-2018

## Introduction

This paper summarizes changes in withdrawals for public water supply (PWS) in the Great Lakes Basin-St. Lawrence River Basin (Basin). As Parties to the Great Lakes—St. Lawrence River Basin Sustainable Water Resources Agreement (Agreement), Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Ontario, Pennsylvania, Quebec, and Wisconsin annually report withdrawals for PWS from the part of their Jurisdiction within the Basin (see map on title page). The withdrawal data are entered into the Great Lakes-St. Lawrence River Regional Water Use Database, and the Great Lakes Commission (GLC) compiles these data in annual reports.

The PWS data presented in this paper were taken from the GLC annual reports from 1998-2018. A water manager in each Jurisdiction was communicated with to discuss the data. In some cases where a Jurisdiction had corrected the reported data, this paper presents the corrected data from the Water Use Database. Causes of changes in withdrawals for PWS are not discussed, except where they relate to changes in reporting practices of a Jurisdiction. A related paper investigates causes of changes in a few selected municipalities in the Basin.

As Secretariat to the Great Lakes-St. Lawrence River Water Resources Regional Body (Regional Body) and the Great Lakes-St. Lawrence River Basin Water Resources Council, (Compact Council), the Conference of Great Lakes and St. Lawrence Governors and Premiers (The Conference) regularly evaluates the cumulative impact of withdrawals, consumptive uses, and diversions in accordance with provisions in the Great Lakes—St. Lawrence River Basin Sustainable Water Resources Agreement (Agreement) and the Great Lakes—St. Lawrence River Basin Water Resources Compact (Compact). The Conference proposed examining changes in withdrawals for PWS because it is a significant sector of water use (figure 1), and it also is a sector with fairly reliable long-term data for most Jurisdictions.

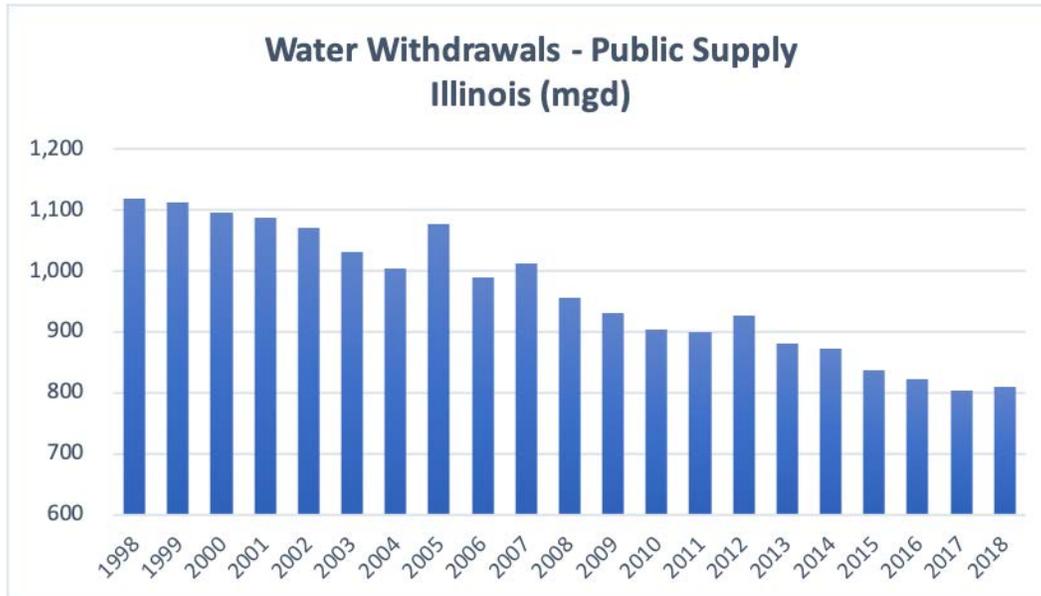


**Figure 1.**—Water Withdrawals by Water Use Sector (excluding in-stream hydroelectric water use). (Source Great Lakes Commission, 2015)

## Jurisdiction Withdrawals for Public Water Supply

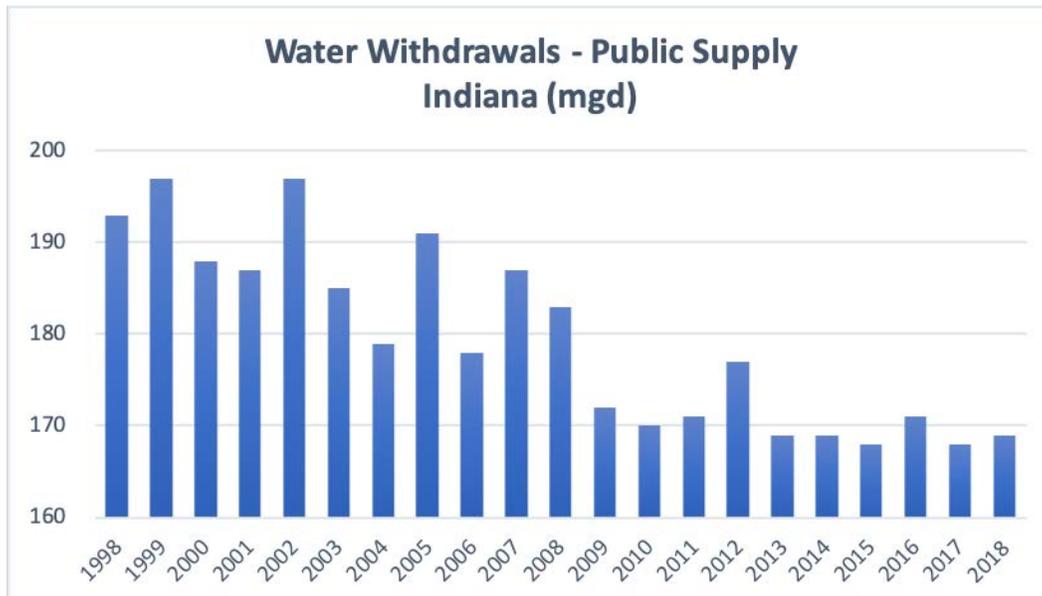
Withdrawals for PWS are discussed separately for each Jurisdiction and expressed in millions of gallons per day (mgd). Data are shown as bar graphs from 1998-2012. Because of the large variability in the amount of withdrawals among Jurisdictions, the y-axis scale varies in each Jurisdiction-specific section of the paper.

### Illinois



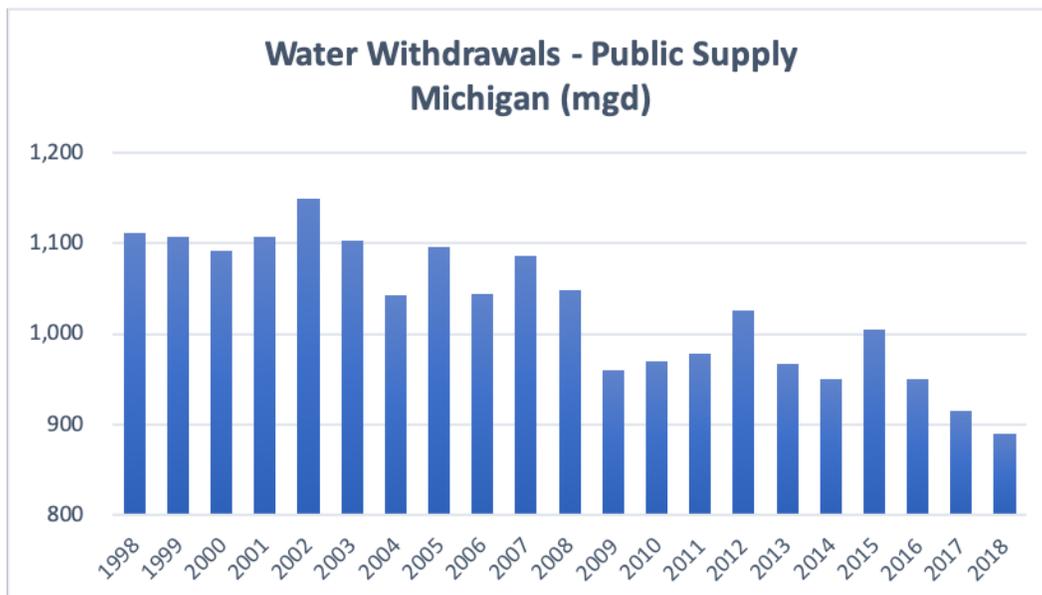
Withdrawals for PWS in Illinois declined from about 1100 to 800 mgd from 1998-2018, which is a 27 percent change. Reporting practices were consistent throughout this time period because of the need to adhere to the 1967 U.S. Supreme Court decree limiting the diversion at Chicago to 3200 cubic feet per second (2068 mgd).

## Indiana



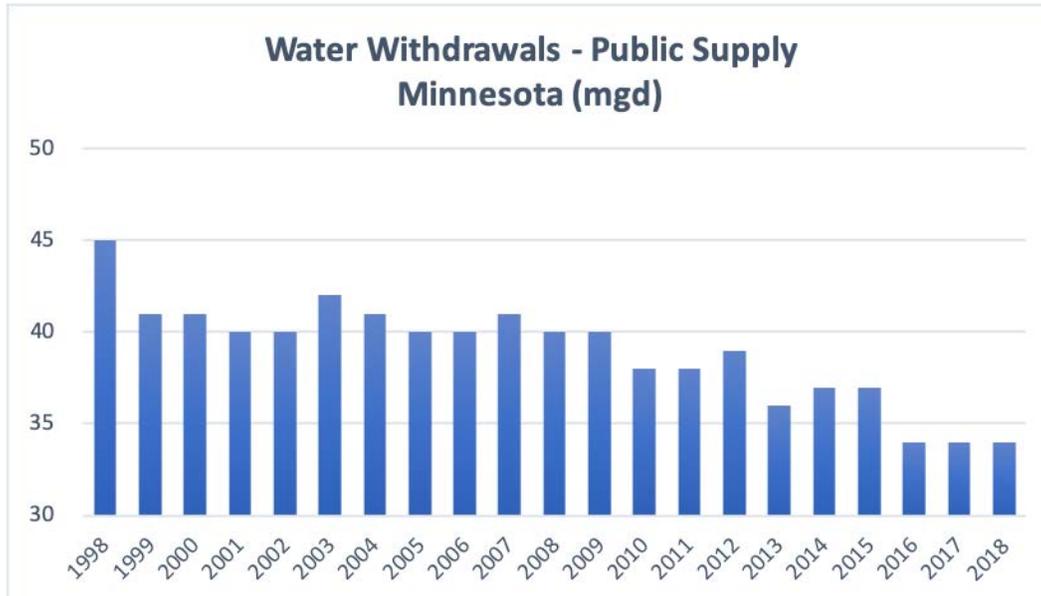
Withdrawals for PWS in Indiana declined from about 195 to 170 mgd from 1998-2018, which is a 13 percent change. Reporting practices were consistent throughout this time period.

## Michigan



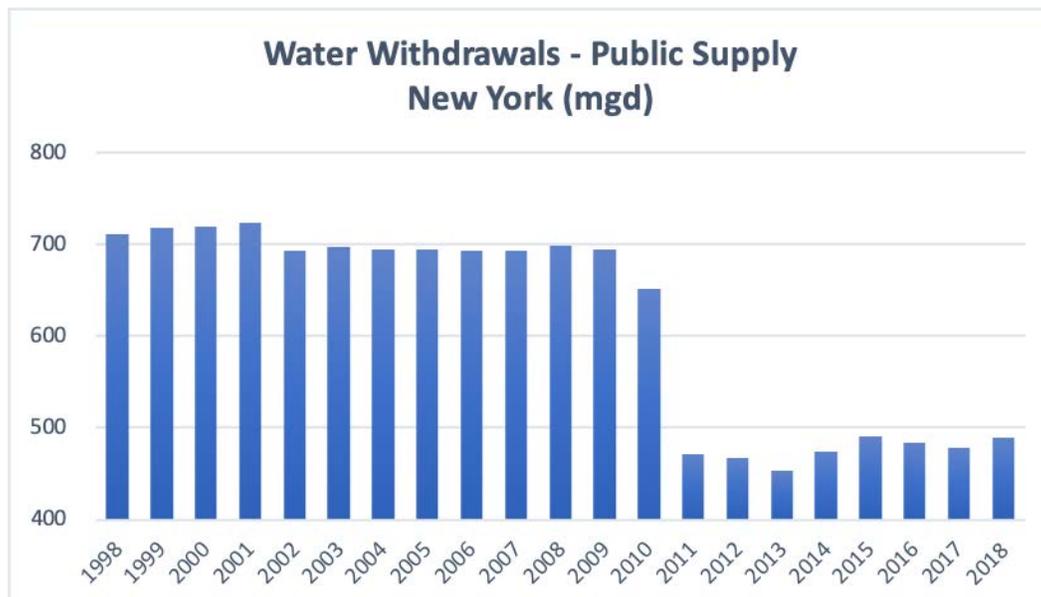
Withdrawals for PWS in Michigan declined from about 1100 to 900 mgd from 1998-2018, which is an 18 percent change. Reporting practices were consistent throughout this time period, however the data presented are recently corrected data that are not in the GLC annual reports. The corrected data for 2012-2018 have been entered in the Water Use Database.

## Minnesota



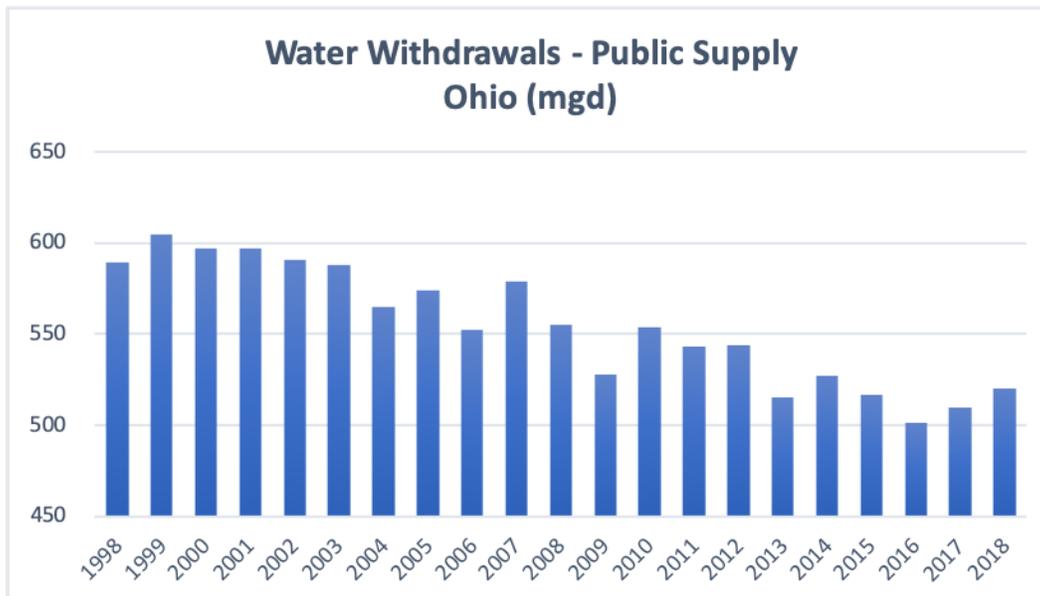
Withdrawals for PWS in Minnesota declined from 45 to 34 mgd from 1998-2018, which is a 24 percent change. Reporting practices were consistent throughout this time period.

## New York



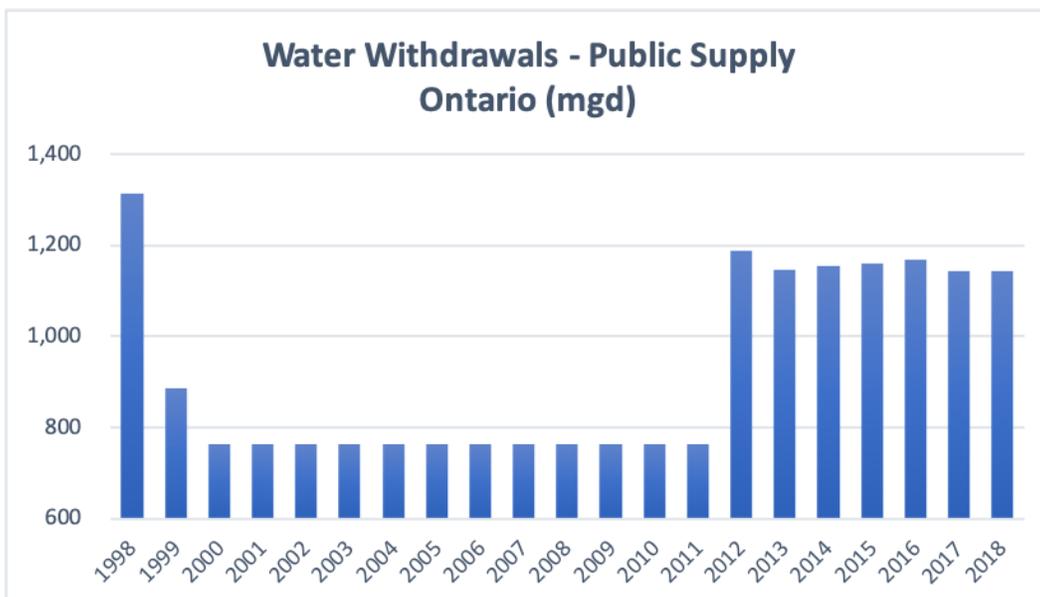
Reporting of withdrawals for PWS in New York has changed during the period 1998-2018. From 1998-2010, facilities were encouraged to self-report withdrawals if they were in the Basin. New York estimated the total withdrawals, because it was clear not all facilities were reporting. From 2011-2018, facilities began reporting metered data. Requirements for facilities to report began in 2011 (6 NYCRR Part 601.5), so compliance has improved, probably the cause for increases in withdrawals from 2011-2018.

## Ohio



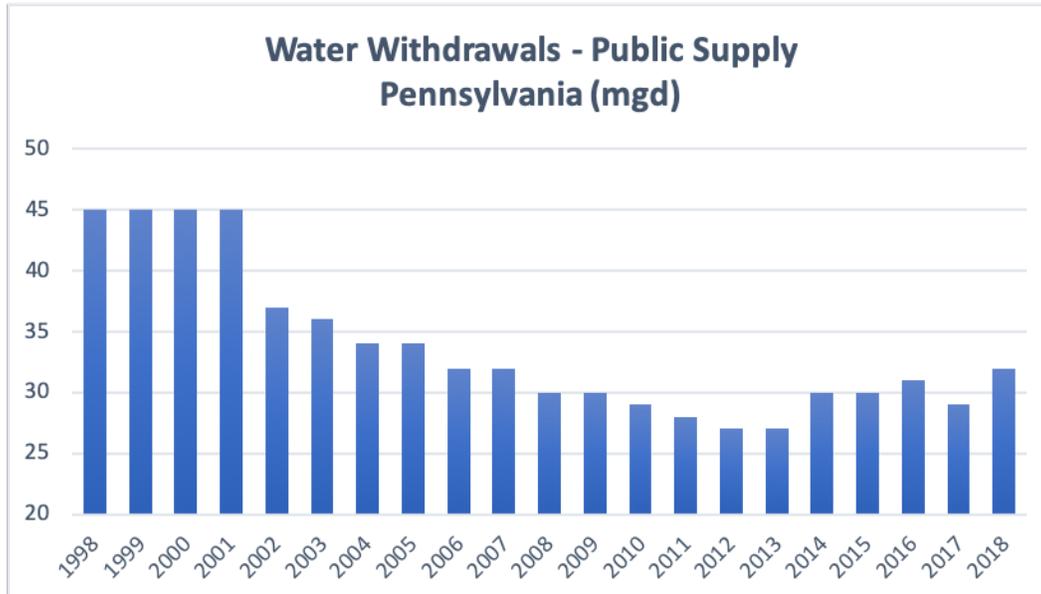
Withdrawals for PWS in Ohio declined from about 600 to 515 mgd from 1998-2018, which is a 14 percent change. Reporting practices were consistent throughout this time period.

## Ontario



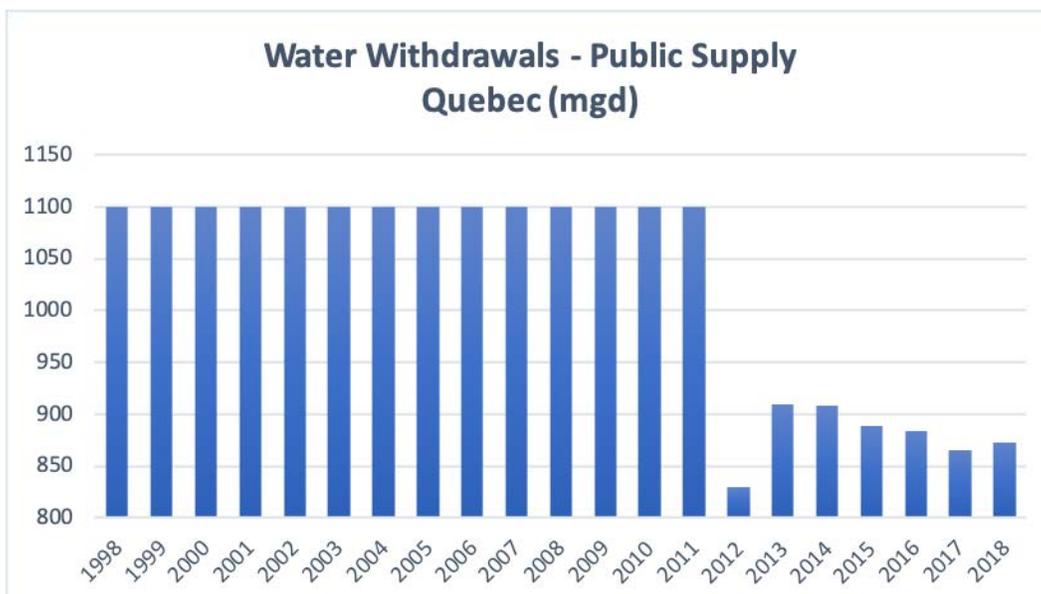
Reporting of withdrawals for PWS in Ontario has changed during the period 1998-2018. No metadata are available for data prior to 2012. Early data are from statistical surveys. In 2005 a policy change required monitoring and annual reporting of water use for withdrawals greater than 50,000 liters per day (0.013 mgd) for permit holders. In 2006 a water use database was built to allow permit holders to report their water use volumes on-line. By 2012, compliance by permit holders with reporting to the province's on-line database was consistent enough for Ontario to begin using these data to report to the GLC.

## Pennsylvania



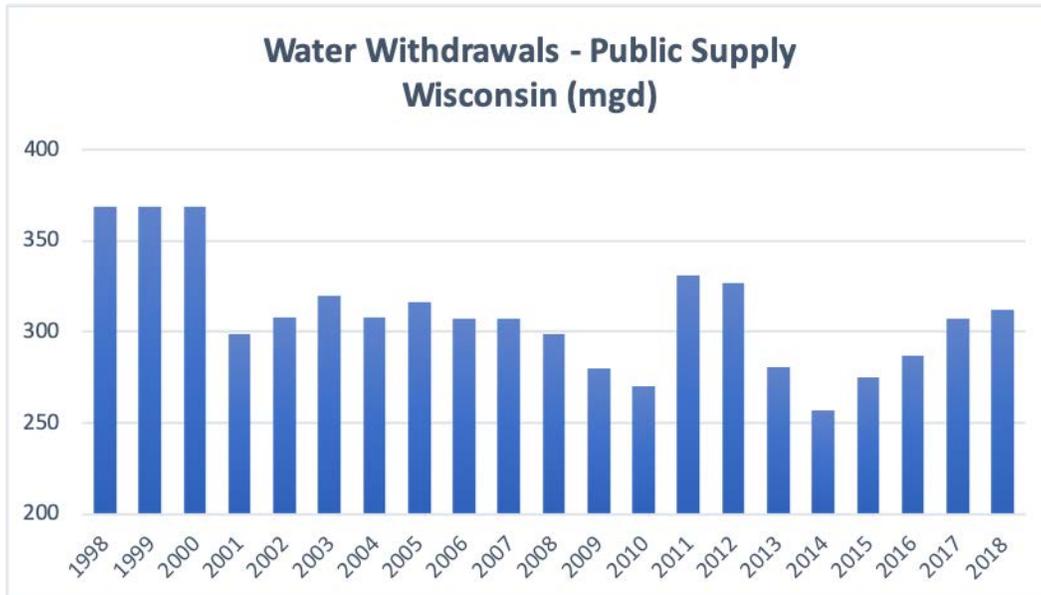
Withdrawals for PWS in Pennsylvania declined from about 45 to 30 mgd from 1998-2018, which is a 33 percent change. Considering the period 2002-2018, withdrawals decreased from 45 to 32 mgd, which is a 29 percent change. Reporting for PWS changed during this time period. The source of estimates for 1998-2001 is unknown. About 85 percent of Basin withdrawals for PWS in Pennsylvania are for the City of Erie, which has had an increase in domestic and commercial connections in recent years, as well as an increase in water loss.

## Quebec



Reporting of withdrawals for PWS in Quebec has changed during the period 1998-2018. Data were estimated from 1998 to 2011. An on-line reporting system began in 2012, but not all facilities reported that year. From 2013-2018, facilities were reminded of their legal obligations to use the on-line reporting system.

## Wisconsin



Withdrawals for PWS in Wisconsin do not show a trend for the period 1998-2012, partly because of changes in reporting practices. From 1998-2000 withdrawals were estimated. From 2001-2010 facilities reported to the Public Service Commission and the Department of Natural Resources (DNR) obtained withdrawal data from them. Beginning in 2011, facilities use the DNR water use reporting system.

## Summary of Jurisdiction Withdrawals for Public Water Supply

Half of the Jurisdictions had consistent reporting of withdrawals for PWS from 1998-2018. Withdrawals in those 5 Jurisdictions decreased, with the percent decrease ranging from 13 to 27. In 2012 reporting practices became consistent in most Jurisdictions, so a future look at changes in withdrawals for PWS since 2012 should have a reliable data set across the Basin

## Basin Withdrawals for Public Water Supply

The figure below illustrates the differences in amount of withdrawal for PWS among Jurisdictions. All graphs have identical y-axis scales.



The figure below totals the withdrawal for PWS of all Jurisdictions. As the previous section noted, reporting practices for some Jurisdictions changed from 1998-2018, so data prior to 2012 are inaccurate. Withdrawals declined from about 5900 to 5300 mgd from 1998-2008, which is a 10 percent change. From 2012-2018, withdrawals declined from about 5600 to 5300, which is a 5 percent change.

