

**Great Lakes- St. Lawrence River Basin Water Resources Compact
Annual Water Conservation and Efficiency Assessment
November 24, 2015**

State of Minnesota

Note: All underlined items are linked to the referenced Websites

1. Lead agency/agencies and contact person(s).

Minnesota Department of Natural Resources (DNR), [Division of Ecological and Water Resources](#) (EWR)

- Julie Ekman, Conservation Assistance and Regulation Section Manager
- Carmelita Nelson, Water Conservation Program Consultant

2. Status of Minnesota's water conservation and efficiency goals and objectives consistent with the Basin-wide goals and objectives.

Minnesota's water conservation and efficiency goals and objectives are consistent with the Basin-wide goals and objectives. While our current laws, rules and policies address all of the Goals and Objectives identified in the Compact, Sustainable Water Resources Agreement, and of the Basin-wide Conservation and Efficiency Initiative, we are implementing additional management tools to enable the state to achieve a more sustainable use of its limited water resources as we face water resource management challenges. The laws cited and programs described in Item 3 a) and b) provide a framework for sustainable water management that promotes efficient use of the state's water resources. Minnesota's DNR applies an adaptive approach to its water management, so that expanding scientific knowledge and improvements in technology lead to improvements in natural resource use and protection. [State-wide programs](#) that monitor and protect water resources are managed by several Minnesota agencies, including the DNR, the Pollution Control Agency, Department of Health, Department of Agriculture, and the Board of Water and Soil Resources.

3. Water Conservation and Efficiency Program Overview.

a) Citations to implementing laws, regulations and policies.

The statutes and rules listed below are available at <http://www.leg.state.mn.us>

Primary:

- [Minnesota Statutes, chapter 103A. Water Policy and Information](#)
- [Minnesota Statutes, chapter 103G. Waters of the State \(DNR's primary regulatory statute for management of water resources\)](#)
- [Minnesota Statutes, chapter 103G. 271 Appropriation and Use of Water](#)
- [Minnesota Statutes, section 103G.801, Great Lakes – St. Lawrence River Basin Water Resources Compact](#)
- [Minnesota Rules, parts 6115.0600 – parts 6115.0600 – 6115.0810. Water Appropriations and Use Permits and Use Management Plans](#)

Related:

- [Minnesota Statutes, section 103B. Water Planning and Project Implementation](#)
- [Minnesota Statutes, section 103F. Protection of Water Resources](#)

- [Minnesota Statutes, chapter 103H. Groundwater Protection](#)
- [Minnesota Statutes, chapter 103I. Wells, Borings and Underground Uses](#)
- [Minnesota Statutes, section 116B.01 Environmental Rights](#)
- [Minnesota Statutes, chapter 116D. Environmental Policy](#)

b) Summary of program elements both mandatory and voluntary.

Minnesota's water conservation program is integrated with permitting and planning requirements.

Mandatory:

- A water appropriation (use or withdrawal) permit is required for all users withdrawing more than 10,000 gallons of water per day or 1 million gallons per year. The efficient use of water can be required through the permitting process ([Minnesota Rules, part 6115.0770](#)).
- Water users must measure water volumes appropriated within 10% accuracy. Flow meters are required but other fairly accurate methods, such as timers or electrical use meters, can be approved for smaller water users.
- [Preliminary approval](#) from the DNR is required before drilling a well that will need a water use permit (will be used to withdraw more than 10,000 gallons of water per day or 1 million gallons per year). The DNR informs the applicant whether the anticipated water use request is likely to meet the applicable requirements in law. This process helps prospective well owners to make informed decisions by providing relevant information prior to their financial investment in equipment and well construction.
- Public Water Suppliers must meet demand reduction measures:
 - Public water suppliers serving more than 1,000 people are required to prepare a [Water Supply Plan](#) every ten years that is approved by the DNR. In these plans, suppliers identify water demand projections, development plans, water sources, and demand reduction and conservation measures. We have started meeting with communities to begin the next water supply planning process that includes greater emphasis on water conservation and efficiency.
 - Before requesting approval to construct a public water supply well or to increase authorized water volumes, demand reduction measures must be employed by the public water suppliers. A [demand reduction measure](#) serves to reduce water demand, water losses, peak water demands, and nonessential water uses. Demand reduction measures must also include a conservation rate structure, or a uniform rate structure with a conservation program that achieves demand reduction
 - [Benchmarks](#) for public water suppliers were developed in consultation with the Minnesota Section of the American Water Works Association. The benchmarks, which include standards for unaccounted water, per capita use, rate structure and peak demand are used in reviewing water supply plans and for water appropriation permit review.
- [Landscape irrigation systems](#) that operate automatically are required to have technology that inhibits or interrupts operation during periods of sufficient moisture.
- *Minnesota Statutes* establish water use priorities for the allocation of waters during periods of limited supplies. Non-essential uses are the lowest priority and are subject to restrictions prior to other higher priority uses [[Minnesota Statutes, section 103G.261](#)].
- [Minnesota's Statewide Drought Plan](#) provides a framework for preparing for and responding to droughts including steps for public water suppliers to take for reducing water use.

- Groundwater withdrawals for [once-through HVAC systems are prohibited](#). Large existing systems have been converted to water efficient systems. Smaller systems cannot be expanded and must convert to a water efficient alternative within the design-life of existing equipment.
- Applicants for water appropriation permits may be required to provide alternatives to proposed actions, including conservation measures to improve water use efficiencies and reduce water demand [[Minnesota Statutes, section 103G.301](#), subd. 1 (b)(3)]
- Applicants for wastewater discharge permits are required to evaluate potential reuses of the discharged wastewater [[Minnesota Statutes, section 115.03](#), subdivision 1, item (e), sub item (10)].
- Surface water use can be and has been suspended during low flow periods in Minnesota based on water use priorities stated in law [[Minnesota Statutes, section 103G.261](#)]. [Published procedures](#) lay out when surface water users will be suspended. The current standard is that when flow in streams and rivers reach or fall below a flow rate that is exceeded 90% of the time (the Q90) for that watercourse, all direct appropriation must be suspended. Ecologically-based low flow thresholds can and have been developed for some surface waters.

Voluntary:

- A number of public water suppliers provide water conservation information to customers.
- *Minnesota Statutes* that require demand reduction measures for new public water supply wells or increased water volumes also provide consideration for voluntary programs to retrofit water fixtures. Some local governments have partnered with private industry to offer water-saving fixtures and other items such as soil moisture sensors.
- *Minnesota Statutes* encourage the reuse of non-consumptive water and the evaluation of reuse options as part of applications for water discharge permits.
- *Minnesota Statutes* waive water use fees to encourage the use of storm water runoff.
- All public water suppliers and the general public are referred to a [website developed by the Metropolitan Council](#), in cooperation with the DNR, which contains water conservation tips and resources for individual water users and program guidance for public water suppliers.

4. Identify how the State/Provincial program is consistent with the regional objectives: As shown below, Minnesota’s program is consistent with the regional objectives in the promotion of environmentally sound and economically feasible water conservation measures.

OBJECTIVE 1: Guide programs toward long-term sustainable water use.

- The DNR, through appropriations from the legislature is investing about \$5.2 million per year to enhance surface water and groundwater monitoring networks. Of that amount \$3.0 million is from the Clean Water Land and Legacy Amendment, and \$2.2 million from the general fund that resulted from a new budget initiative starting in FY14.
- In 2013 the DNR’s Division of Ecological and Water Resources conducted an evaluation of its water management programs and developed a [strategic plan](#) to lead all water users toward sustainable groundwater use. The plan proposes strategies to improve information about Minnesota’s groundwater resources and improve compliance with existing regulations. Three areas in Minnesota have been identified where high groundwater use is of concern. Although none of [these areas](#) is within the Great Lakes Basin, the collaborative process and resulting groundwater management area plans are helping us to address difficult groundwater related resource challenges throughout Minnesota.

- The 2013 Minnesota legislature provided significant financial resources to the DNR to enhance its groundwater management programs to meet sustainability requirements in state law. This money is used for several positions and additional equipment for expanded attention to mapping, monitoring and management of groundwater resources.
- Minnesota agencies coordinate with each other and with local governments to protect drinking water, preserve habitat and maintain recreational opportunities. These agencies were active partners in preparation of “[Beyond the Status Quo: 2015 EQB Water Policy Report](#)” developed under the guidance of the Minnesota Environmental Quality Board (EQB). This report identifies 4 goals to ensure that our fish are safe to eat, that our water is safe to drink and our lakes are safe for swimming.
- Progress has been made since the 2011 publication of the University of Minnesota’s [Water Sustainability Framework](#): The state’s geological county atlases and hydrologic mapping efforts have been accelerated by legislative investments; improvements to the DNR water appropriations permits are currently being implemented; MPCA’s Watershed Restoration and Protection Strategy (WRAPS) process integrates land and water planning.

OBJECTIVE 2: Adopt and implement supply and demand management to promote efficient use and conservation of water resources.

- All North Shore water suppliers serving over 1,000 people have begun work to update their ten-year Water Supply Plan. These plans will be due to the DNR Dec. 31, 2016. Public water suppliers are required to include demand reductions measures and eight specific water conservation objectives. Water efficiency benchmarks are used for evaluating water supply plans, permit actions and well installation requests.
- The DNR, in cooperation with the owners of water supply systems, can analyze water use practices and require more efficient water use practices to be employed.
- Public water suppliers must implement [demand reduction measures](#) before requesting approvals for new wells or increases in authorized water volumes.
- Reuse of water is encouraged and funding was provided by the legislature in 2009 for projects that reuse municipal wastewater for the conservation and protection of water resources. Law changes in 2014 provide an incentive to use storm water runoff [[Minnesota Statutes 103G.271, Subd. 6 \(g\)](#)]. Plumbing codes allowing additional rainwater use without a variance will go into effect Jan. 16, 2016.
- DNR works with large water-using industries in the Great Lakes basin in Minnesota to transition to a sustainable water supply. Lutsen Mountain Corporation (LMC), Sappi Paper, and many mining companies are being encouraged to incorporate innovative water conservation strategies into their operations.
- The DNR is developing thresholds that identify negative impacts to surface waters from groundwater withdrawals (see more description in Objective 4). These thresholds will inform water allocation decisions.
- Groundwater Management Area Plans (introduced in Objective 1) are developed through a collaborative process with affected water users. The Plan describes actions that the DNR will take to evaluate water availability in a defined area and adjust authorized water withdrawals to ensure that demand doesn’t exceed supply or harm ecosystems.

OBJECTIVE 3: Improve monitoring and standardize data reporting among State and Provincial water conservation and efficiency programs.

- Minnesota tracks the effectiveness of water conservation measures through [annual water use](#) reporting. Public water suppliers report water use by customer categories and the amount of water pumped is compared to the amount of water distributed to help assess system losses. Information on water rates and peak use volumes is also requested.
- Groundwater and surface water monitoring improvements have occurred due to the influx of funding from the state's dedicated Clean Water Funds. Since 2010 DNR has added 152 stream gages and 411 water level monitoring wells to the state networks bringing the current total to 238 stream gages and 986 monitoring wells. We use this information to better understand the hydrology of watersheds in our state. Live readings from several gaging stations in the Great Lakes Basin can be seen on [DNR's website](#).
- Two years ago the DNR launched its online system for water use reporting, water permit applications and change requests. The [Minnesota DNR Permitting and Reporting System \(MPARS\)](#) is designed to provide a simple, convenient and easy-to-use system that standardizes information collection and data reporting. The system reduces data entry errors and makes monitoring data more readily available enabling evaluation of impacts from projects.

OBJECTIVE 4: Develop science, technology and research.

- DNR encourages innovative management practices by promoting aquifer [water use management planning](#). This concept involves the definition of a management area and the involvement of a wide range of interests in the development of these plans. Plans are currently being drafted for three areas of the state and DNR will begin implementation of these plans within the next few months.
- A Clean Water Funded project is underway to assess channel stability and stressors, with an emphasis on hydrologic impacts caused by various in-channel and watershed based impairments.
- DNR is collaborating with a number of other agencies to advance improved ways to display existing conservation plan priorities in a GIS format. This can lead to land management choices that integrate multiple conservation objectives (e.g., habitat protection, water quality restoration, etc.). In addition, the DNR has advanced additional GIS data for watershed health scores, and work is underway to deliver these spatial source data to field staff and the public via the [Watershed Health Assessment Framework](#).
- The DNR is evaluating lake level and streamflow data to better understand the characteristics of various lake types and streams. This evaluation will help the DNR set protection levels for individual streams and basins based on sensitivity to reductions in water levels or flows. Using a water budget the DNR can establish withdrawal limits to protect surface waters from negative impacts.

OBJECTIVE 5: Develop education programs and information sharing for all water users.

- [Minnesota Project WET](#) trains classroom and other educators in hands-on, interactive lessons that are focused on water and encourage critical thinking. By providing training, materials, and support to these educators, MN Project WET works to improve Minnesotans' understanding of our water resources. Educators from the Basin have participated in these lessons. A Project WET workshop will be held in Duluth Dec. 3 & 4, 2015.
- The DNR, [Minnesota Rural Water Association](#) and other organizations help promote

conservation with presentations at workshops and other events. They will also provide water audits, assist with rate structure analysis, and provide sample water conservation ordinances and promotional material templates on their website. Sources of [water conservation information](#) are available through the DNR's website.

- [Minnesota's Lake Superior Coastal Program](#) is a voluntary federal-state partnership dedicated to the comprehensive management of our coastal resources. The Program provides technical and financial resources for local communities in the Lake Superior coastal area.
- The DNR's website devotes [a page for Great Lakes Compact](#) information and links.
- The DNR is a Promotional Partner in [EPA's WaterSense Program](#), which seeks to promote water efficiency and water efficient products and the PCA GreenStep Cities.
- The [Minnesota Technical Assistance Program](#) (MnTAP) is an outreach program at the University of Minnesota that helps Minnesota businesses develop and implement industry-tailored solutions that prevent pollution at the source, maximize efficient use of resources, and reduce energy use and cost to improve public health and the environment.
- The DNR refers water suppliers and water users to the newly updated Metropolitan Council website's [Water Conservation Toolbox](#). The toolbox provides tips and resources for Residents and businesses, suppliers, communities and learners. The water conservation toolbox offers everything from games and fun activities for kids, to resources for elected officials and planning departments.
- DNR is working with MPCA and other partners to link water conservation strategies into the [Minnesota GreenSteps Cities](#) Program for a more effective outreach and support to communities on both energy and water conservation efforts and various efforts to promote the EPA Water Sense Program
- The DNR is also working with the Minnesota Department of Health and the Metropolitan Council to promote grants that can assist with source water protection, water conservation, improve water quality and sustainability.
- The DNR is also working with the MN Golf Course Superintendents' Association on a Golf Environmental Stewardship Certification Program to educate and promote water efficiency on golf courses around the state.

5. Description of Minnesota's conservation and efficiency program implementation timeline and status.

- On Oct. 14, 2015 the DNR held a water supply plan and conservation workshop for all water suppliers on the North Shore serving over 1,000 people. Attending were representatives from Duluth, Two Harbors, Silver Bay, Grand Marais, Superior, Wisconsin and MN Rural Waters Association.
- Some of the issues and concerns that were brought up by the water suppliers include the frequency and high cost of water main breaks. Duluth estimates that their frequent water main breaks average \$7,000/break to repair. Because the water comes from Lake Superior and leaks go back to Lake Superior, Duluth does not attempt to repair all breaks. Often the pipes are cut into bedrock and have a tangle of cables and wires on top of them, so they are extremely difficult to access. Another water issue is cabin owners being concerned about pipes freezing so they are told to leave the water running a pencil width. There are numerous campgrounds along the North Shore and these often do not have enough liquid flow to return sewage to the treatment plant. So the city must come and flush extra water at the dump stations to prevent clogging.

- The third generation of Water Supply Plans places a stronger emphasis on monitoring and tracking water use. They are asked to review their conservation progress from the previous ten year water supply plan and identify gaps and areas for improvement. There is a stronger emphasis on using smart meters and technology to monitor water use.
- The new water supply plan template requires every public water supplier to identify how they plan to achieve eight conservation objectives. The objectives include:
 - 1) Reduce unaccounted (non-revenue) water loss to less than 10%
 - 2) Achieve less than 75 residential gallons per capita per day (GPCD)
 - 3) Achieve at least a 1.5% per year water reduction for industrial, commercial, agricultural GPCD over the next 10 years or a 15% reduction in ten years
 - 4) Achieve a decreasing trend in total per capita per day
 - 5) To reduce summer water use, reduce peak day demand so that the ratio of the maximum day to the average day is less than 2.6
 - 6) Implement a conservation water rate structure and/or a uniform rate structure with a water conservation program
 - 7) Additional strategies to reduce water use and support wellhead protection planning
 - 8) Tracking success: how will success be measured through the next ten years
- Minnesota has a number of water conservation measures that are currently in place and integrated with the water appropriation permit program; we continue to explore ways to expand our water conservation efforts.