

**2019 Legislative Recommendations
Legislative Water Commission
Information, Education and Public Awareness
November, 2018**

IssueC1) Information, Education and Public Awareness to address Water Sustainability

What's needed: Legislative Support for existing programs and support for an integrated plan

Resources required: \$1,000,000: MDR, BWSR, MGS, SWCD's to pilot an integrated plan

C 1) Information, Education and Public Awareness: Continue to support agency efforts to collect information needed to manage and improve waters of the state. Support and enhance the County Geologic Atlas Program. Increase emphasis on collecting information to understand groundwater and surface-water interactions. Improve understanding of water balances (water bank accounts) needed for water planning. Incorporate this effort into existing programs, such as the County Atlas Program and the One Watershed/One Plan program. Use existing information about groundwater recharge, streamflow, and water use to identify priorities for sustainability implementation. Apply these analyses to assess priority areas for future groundwater management area programs. Increase efforts to construct and apply groundwater models, to assess regional groundwater availability and sustainability. Incorporate groundwater modeling into watershed planning in areas of groundwater concern. Increase public education based on these programs. The role of education is undervalued in protecting water resources. The Governor's Town Hall meetings recognized the need for additional water-resources training and education. Minnesotans understand the need to change behavior in order to reach sustainable water-resource goals.

Background: Minnesota is a water-rich state with a great deal of water stored in aquifers, lakes and streams. We are not running out of water. However, in many parts of the state we are using so much water that aquifer levels are declining and we are affecting our streams, lakes and wetlands and the ecosystems that rely on water. In those areas, we are approaching limits to water sustainability.

Water sustainability is a complicated topic. The sustainable use of water is based on an assessment of the consequences of withdrawals and human priorities for water. Like our personal bank accounts, any use of water has an effect on our balance. The real question we need to address is this: "What do we want to sustain?" If the answer is to maintain the wetlands, lakes, and streams at un-impacted levels, less groundwater will be available for other purposes. Much has been written about water sustainability in our state and many plans have been put forward. State agencies, and their partners, have made good progress in collecting information needed to understand the effects of groundwater withdrawals on aquifers, surface water, and on aquatic ecosystems. A great deal has been accomplished through funds from the Legacy Amendment. However, agencies, and the legislature, should be doing more to ensure that we maximize benefits of water while minimizing adverse impacts by making changes to our legislative and regulatory systems to empathize the value of water. Following are some areas that need to be addressed to ensure sufficient and clean groundwater for the future. The list is intended to cover the most important recommendations.

- Enable groundwater recharge and re-use: Allow managed recharge where feasible and needed. Protect areas where managed recharge makes hydrologic sense. Assess and allow water reuse where feasible and needed—assess and define appropriate areas

- Recognize and manage water as single resource: Groundwater/surface water Interactions: Develop programs to better integrate groundwater and surface-water interactions into agency operations. Increase programs to collect information to understand groundwater and surface water interactions.
- Collect needed information: Maintain, promote and fund water information and monitoring programs. Continue and accelerate the County Geologic Atlas Program. Increase emphasis on collecting information to understand groundwater and surface water interactions. Prepare a strategy for generating and managing information needed to integrate water-sustainability assessment results into regulatory programs on a statewide basis. Support systematic water sustainability assessments by re-assessing data programs in order to collect data that are needed.
- Understand our water balance (Water Bank Account): Incorporate robust water- budget information into water planning. Improve understanding of statewide water balances (bank account) and water sustainability by enhancing the one watershed/one plan program. Use existing information about groundwater recharge, streamflow, and water use to identify priorities for sustainability implementation, based on objective criteria. Use this analysis to assess priority areas for future groundwater management area programs. Use the best tools to manage our water (Groundwater Analysis and Modeling) Increase efforts to construct and apply groundwater models, like the Metro Model, to assess regional groundwater availability and sustainability. Incorporate groundwater modeling into watershed planning in areas of groundwater concern. Enhance and expand the DNR's groundwater management program.
- Enhance our Understanding of Connections between Hydrology and Aquatic Biology. Increase programs to understand the interrelationships between hydrology and aquatic ecology as well as the associated eco-services. Continue to develop criteria for assessing the critical water levels or flow conditions required to support ecosystems. Include in these analyses habitat- and population-based minimum flow, high flow protection standards for habitat-forming and silt-flushing high flows, protections for downstream needs, and protection for natural variability of flows over time (hydrograph shape). Economic Analyses: Assess costs and benefits of ensuring water sustainability. Quantify the economic value of ecosystem services provided by adequately managed streams and lakes. Assess problems and cost associated with of aging infrastructure and leaking water system
- Importance of Sustainable Water: Dedicate a portion of Clean Water Funds for water sustainably efforts
- Enhance the Water Appropriation Process: Develop an automated water-appropriation tool that assesses streamflow deletion based on the cumulative effects of groundwater pumping. Simplify the appropriation-permit process for small appropriators. Assess pumping volumes relative to watershed size, median streamflow and stream thermal regime. Expand DNR's authority to designate water-resources management areas. Expand DNR's authority to adjust appropriations when needed. Stakeholder suggestion: There is presently very little economic incentive to conserve groundwater (or pumping surface water). The DNR Appropriations fee schedule is a relic of its inception 40 years ago. An approach that recognizes areas of the state where pumping is of particular concern may be warranted – with increased fees and restrictions /considerations.
- Protect our sensitive aquifers (Provide Incentives to Protect Groundwater used as Sources of Drinking Water): The Clean Water Council recommends that the State of Minnesota enhance clean water by increasing continuous vegetative cover on cropland, with an initial focus on wellhead protection areas, through development of new agricultural production systems, markets, and supply chains. Establish a Minnesota Agricultural Diversification Steering Council with agriculture- focused representation. Create a Minnesota Agricultural Diversification Network to accelerate the development and commercialization of new crops that enhance continuous productive vegetative cover that produce marketable commodities. The University of Minnesota's Forever Green Initiative (FGI) is the national leader in this new approach to achieving clean water via enhancing continuous vegetative cover. Expand this

program to vulnerable aquifers that supply water to domestic wells. Promote the identification and analysis of activities that cause water degradation with the intent of finding alternatives. There are powerful incentives for activities that can cause that water degradation. Personal liability from slips and falls creates a powerful incentive to over-apply salt, because it is cheap to do so and prevents potential high costs. Similar incentives exist in some kinds of agriculture. For example, crop yields create incentives to apply nitrate at high rates. Restricting application rates or areas where it can be applied would create financial hardship, and make farmers uncompetitive with peers in other states. A solution may be to create incentives for alternative practices. Different crops, different ways to be paid for crops, and new markets for crops that don't cause water degradation should be promoted--the growing market for organic food is an example. Better technology may also address some of these practices. The loss of nitrogen common to current practices is wasteful, harmful, and suggests the technology for using it isn't very effective. Currently the costs of nitrate contamination are borne by society at large. We build RO plants and drill deeper wells and denigrate the Gulf fishery. However, those costs are not borne directly by those who caused them. Public funds that goes into mitigating water degradation might be redirected to programs and actions that prevent it. (suggested recommendation)

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