2019 Legislative Recommendations- Legislative Water Commission Recommendation Overview Details in Accompanying Documents November 2018

In 2008 Minnesota's citizens passed the Clean Water, Land and Legacy Amendment to the Constitution that dedicated a portion of the state sale's tax for the environment. These resources created significant opportunities to achieve a sustainable water future for our state. Much has been accomplished, including research, monitoring, mapping, planning and implementation. However, recent information suggests that improvements to our state's water, when the amendment expires in 2034, may not meet citizen expectations. As the amendment period reaches a half-way point, there is need to reflect and refocus on a future state for water for 2034 and beyond. The citizens of Minnesota, local government, environmental stakeholders, the Clean Water Council, the Lessard-Sams Outdoor Heritage Council, the Legislative-Citizen Commission on Minnesota's Recourses, the Administration, and the Legislature each have important roles and responsibilities to work together in prioritizing, funding, implementing, and evaluating environmental programs aimed at improving our water, increasing our return on investment, and reaching a desired future state for water in Minnesota. Statewide, water regulation and management is coordinated by state agencies. However, rigorous processes, involving multiple agencies often could be better coordinated. This coordination could be improved by establishing an interagency/legislative water policy process that con considers the Future State of Water.

Our natural environment is changing and we need to plan for an uncertain future. We need to prepare policy to manage water in the face of uncertain future conditions that considers emerging contaminants, emerging technology, changing demographics, changing land use, and changing climate as well as economic uncertainty and aging infrastructure. A coordinated State policy should address the impacts of long-term variations in precipitation and temperature on water supply and on ecological services and to adopt a climate-change adaptation policy. New technology needs to be considered in addressing remedial opportunities as well as possible unintended consequences. Funding priorities should be evaluation, within established funding programs, that involve technological uncertainty. In to order initiate a futurestate process, we need to strengthen communication between the Legislative Water Commission, legislative committees and state agencies.

To ensure adequate and clean water for the future, we need to balance long-term plans for conserving and protecting our natural resources with those for ensuring a healthy public and healthy economy. These are long-term issues that will require that our elected leaders think beyond the next several years. There are many good plans and reports that lay the groundwork for a strategy for the desired future for our water resources. The recommendations, that are briefly summarized tin the following text, provide a framework for an interdisciplinary approach to plan to protect our water for future generations. The recommendations are the result of a thorough review of existing documents and excellent input from stakeholders as well as members of the Legislative Water Commission. They provide a first step in a process to address an uncertain future for waters of our state.

Recommendation Summaries

(Required resource needs are estimates and need discussion with agency partners)

First Issue--A7: Addressing Inflow and Infiltration Infrastructure Problems

Action: Water infiltration into broken sewer lines affects our ability to successfully treat waste water and the problem will continue to grow over time. Legislation is needed to allow sanitary districts the use of existing revenue for public and private property inflow and infiltration mitigation, in the same way as cities are allowed to address these problems Resources Required: Staff time—Staff from sanitary districts across the state A 7) Legislation to allow wastewater districts to use existing revenue to address the significant inflow and infiltration problems associated public and private wastewater infrastructure. Inflow and infiltration infrastructure repair needs affect groundwater quality and wastewater treatment demands. Legislation is needed to allow sanitary districts to use existing revenue for public and private property inflow and infiltration mitigation.

<u>Second Issue--B8): Healthy Soil and Healthy Water</u> <u>Action: Soil improvement is good for agriculture and for our water. Legislative support is needed for</u> <u>the UM Office of Soil Health that includes recognition and support for funding needs for long- term</u> <u>research as well as support for a state-wide soil-health action plan</u> <u>Resources Required: One-half FTE support for each office: MDA, BWSR, UM Water Resources Center</u>

B 8) In conjunction with the University of Minnesota, create and support a programs focused on healthy soil and healthy water. Encourage the expansion of existing programs to improve soil health, aimed at increasing agricultural productivity and water retention.

<u>Third Issue--A2): Wastewater, Storm Water and Drinking Water Infrastructure</u> <u>Action: Legislative budget support for MPCA, MDH and PFA</u> <u>Resources Required: One FTE each at MDH, MPCA, and PFA</u>

A 2) Minnesota's water-related infrastructure is aging and presents threats to our economy and to public health, particularly for small towns and cities. We need to continue to be proactive in addressing these issues. Legislative support is needed to o increase the Public Facilities Authority's (PFA) General Obligation Bond appropriation, on a continuing basis, to address aging water infrastructure. This would provide additional support for upgrading and finding efficiencies for wastewater, storm water and drinking-water infrastructure. Support and accelerate PFA's costeffectiveness reviews for treatment-alternative research to optimize operations. Support increases in MPCA and MDH efforts to encourage alternative best-management practices at drinking water, wastewater and storm-water facilities. This could involve accelerated technical assistance for facility efficiencies through training, tools and technical support. Support increased agency resources to conduct asset-management reviews and to assess, encourage and implement efficient infrastructure alternatives based on pilot study results currently underway. These could include regionalization and administrative and staff cooperation among willing communities. Provide implementation support for marked-based water-quality trading options (storm water and waste water) among willing municipalities. For example, consider implementing storm water-quality credit trading options based on work being conducted through a LCCMR grant to the Shell Rock River Watershed District. Increase support to address risks to public health, such as lead service-line replacements. Accelerate programs that address the worst of our leaking septic system problem areas.

Fourth Issue--A6): MPCA peer review of new wastewater standards Action: Legislation Resources required: none

A6) Provide independent peer review of wastewater standards—memorialize, in statue, the current MPCA practice: Incorporate the exiting MPCA Commissioner's order into statute. This recommendation would support MPCA efforts to provide additional scientific and public review of new and revised waterquality standards, and would ensure that the process continues on under future administrations. Background: A Minnesota Pollution Control (MPCA) Commissioner's Order (Order) was issued in July 2017 to address ongoing confusion about MPCA's reliance on independent, scientific peer review in the development of water quality standards. The Order establishes a transparent process for peer review of the scientific basis for proposed water quality standards, and allows for public comment on both the scientific information and the peer review. The order applies to only new, or revised, numeric waterquality standards that differ from U.S. Environmental Protection Agency's (EPA) criteria that have been through peer review. The MPCA peer-review process identified in the order is based on the EPA's Peer Review Handbook (4th Edition, 2015). A technical-support document (TSD) is developed to document the scientific basis for a proposed standard and under the Order each TSD must undergo external, scientific peer review. A draft TSD is released for public comment prior to peer review. The MPCA takes public comments on questions to pose to the peer reviewers. The TSD is then revised in response to public comments, and peer review, and becomes the basis for the water-quality standard rulemaking effort. The MPCA's Web site identifies water-quality standards under development, the lead agency scientist for each development effort, and opportunities for public input. The full Commissioner's Order: (115.035) is available from the MPCA.

<u>Fifth Issue—(A6): Reducing excess use of chloride as a de-icing agent</u> <u>Action: Limited liability legislation, applicator training, MPCA coordinating</u> <u>Resources required: \$500K for training and coordination-- MPCA</u>

A 1) **Excess use of de-icing salt is impairing our lakes, rivers and groundwater.** We can reduce the use of excess chloride deicing chemicals on public and commercial parking lots and sidewalks without affecting public safety. Propose of support legislation to limit liability for deicing applicators and property owners, after providing training and certification. Support the Clean Water Councils policy to expand applicator training statewide. Begin by implementing a plan for the Capitol grounds.

<u>Sixth Issue: Legislation to continue the Legislative Water Commission</u> <u>Action: Legislation</u> <u>Envy/legislative planning process and report to the Legislature</u> <u>Resources required: One FTE, LWC</u>

Water is vital to all Minnesotans. The issues surrounding it are wide-ranging and highly varied across Minnesota's many landscapes and interest groups. Because water is important, complex, controversial, and costly, the development of water policy must be undertaken thoughtfully. The LWC is needed to coordinate statewide policy and plans for the future. The 12 member, bi-cameral and bipartisan commission brings value to the Legislature by:

- Having a dedicated staff person gather and disseminate pertinent information from a large array of stakeholders so members can develop a broad and independent understanding of current and emerging water issues
- Providing a venue for members to equitably receive and discuss detailed technical information
- Creating a public forum for regular, in-depth interactions between legislators that can then inform legislative work on this subject
- Developing water expertise within a larger cadre of Legislators so they can become leaders on water policy

<u>Seventh Issue (C6) Water Retention: Keeping Water on the Land</u> <u>Action: Legislation and legislative direction to increase state agency programs through program</u> <u>enhancement and general fund support.</u>

C 6) Keeping **water on the land reduces erosion, improves** soil health and water quality, increase groundwater recharge and improves agricultural production... *Based on feedback from the Governor's Town Hall meetings, citizens want water funding allocated for activities at the regional level rather than by state agencies. Citizens also want measurable outcomes and accountability and clear assessments*

about the improvement being made to our waters. Therefore, programs need to be supported to help to identify and incentivize the most efficient best-management practices at priority locations on the landscape. A cost/benefit/return-on-investment analysis of conservation drainage practices needs to be included to identify the most productive incentive programs, for specific locations, and specific land-use conditions. Look for ways to cooperate with agro-industry because that data is abundant and detailed. Increase incentives for local implementation of clean water programs by providing additional general fund revenue and additional technical support. Promote existing programs and incentives to leverage state and federal funding programs to maximize land-owner involvement and enrollment in conservation practices. Some of these options may include more efficient agricultural practices, in- watercourse BMP implementation, cover crops, and land set-aside options. Support consensus statements from the Drainage Working Group that make changes to drainage authority rules that allow for assessments to account for downstream water quality, accelerate the buffer-strip initiative, and allow for model results to be used as a tool for ditch assessments. Encourage inter-jurisdictional water planning through the one-watershed/one-plan process. Support legislation, similar to HF 3908 that simplifies and combines planning for programs such as the TMDL, WRAPS and one watershed/one-plan programs. Promote and encourage pilot watershed-scale pollutant trading and banking programs for storm water and wastewater, as potential management practices to reduce nutrients and sediments to rivers and lakes based on pilot programs being funded by the LCCMR. Enabling legislation exists. However, implementation funding and an efficient credit- exchange mechanism are need to increase implementation. Support program to provide a better understanding of the extent of tile drains and ditches as well as their hydrologic consequences

Eight Issue-C 1: Information, Education and Public Awareness to Address Water Sustainability Action: Legislative support for existing programs 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, and SWCD's to pilot an integrated plan

Eight Issue (C 1) Information, Education and Public Awareness: **Continued agency support of data collection and analysis is needed to manage and improve the 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.

Ninth Issue (B1) Preserving and protecting our lakes

Action: Legislative direction and support for an Interagency Lake Program Resources required: Staff time from Governor's office, Environmental Quality Board, environmental agencies and the Legislative Water Commission to plan an inter-agency program to preserve and protect our lakes (Estimate: \$300,000 in staff time) B 1) Fund a comprehensive agency program to provide policy and plans to protect our lakes. Increase data collection and analysis of lakes. Incorporate water-budget information about lakes. Establish an interagency working group to coordinate data collection and analysis that includes continuous monitoring. Support systematic lake assessments by re-assessing existing data programs in to collect information that is needed. Establish a status of statewide lake-priority document for accelerated lake-management. Prepare an interagency plan to integrate lake-assessment results into regulatory programs to protect all lakes and to preserve and protect our most significant and valuable lakes Coordinate, prioritize, and encourage funding, within established programs (LCCMR, LSOHC), that increase environmental and conservation easements in watersheds that contain our most important lakes. Provide legislation focused on stopping the progression of invasive species across lakes. Provide additional agency support to understand stressors and best-management practices to preserve and to enhance deep lakes. Provide assessments of lakes focused on the potential effects of climate change and management practices that can mitigate those impacts

<u>Tenth Issue (B3) Expand Source Water Protection Programs</u> <u>Action: Legislative direction to expand source-water protection to all sources of Drinking water</u> <u>including rivers and private drinking water sources</u> <u>Resources required: Support of two FTEs at MDH and needed financial resources</u>

B 3) Expand source-water protection programs to protect all drinking water including streams, and aquifers that supply drinking water for public <u>and</u> private water supplies. Identify our most-vulnerable aquifers used as sources of private drinking water. Adopt policy and incentives to protect vulnerable aquifers and groundwater used as sources of drinking water, including domestic wells. Begin a program of real-time, water monitoring detect potential threats to water supplies, develop early responses, and provide public reporting. Improve monitoring, public information and education, about contaminants in drinking water used for private wells. Support the Clean Water Council's recommendations by adopting policy and market- driven approaches to increase continuous vegetative cover on cropland with an initial focus on wellhead protection areas and vulnerable aquifers. This may include new agricultural production systems, markets, and supply chains.

<u>Eleventh Issue (A 4) Increase MDH Drinking Water Service Connection Fee</u> <u>What's needed: Legislation?</u> Resources Required: Staff time from MDH

A 4) Increase funding to ensure the safety of publicly-supplied drinking water. Legislation to increase the MDH drinking-water service-connection fee. This needed increase will allow MDH to complete condition assessments and asset management plans for drinking-water supply systems

<u>Twelfth Issue (B9): Statewide Water Policy: We need to begin to plan for an uncertain future</u> <u>Action: Legislative direction for an interagency/legislative planning process and report to the</u> <u>Legislature</u>

<u>Resources required: Staff time from Governor's office, Environmental Quality Board, environmental agencies and the Legislative Water Commission over the next year</u>

B9) Develop a Statewide Water Policy: Water-quality and quantity regulation and management is coordinated by state agencies. However, there is a great need for an administrative/legislative effort to prepare policy that recognized an uncertain future. Policy is needed to guide adaptation to adjust to changes that likely will occur to climate, landscapes, biota, hydrology and infrastructure. Establish an interagency/legislative water-policy process that encompasses the Future State of Water. The policy should include specific and emerging issues such as a statewide guide for mineral development and plans to manage our water for uncertain future conditions that include constraints, goals, and expectations. Incorporate a better understand the importance that water plays in providing ecological services. Include a process to address the impacts of long-term variations in precipitation and temperature on water supply and on ecological services.

Last name	First name	Organization
Aasness	Perry	MN Agrigrowth Council
Acomb	Patty	
Albright	Bruce	brrwrd
Almendinger	Jim	SMM- St Croix
Anderson	Jackie	Comfort Lake WD
Anfinson	John	NPS Mississippi
Austin	Paul	Conservation Minnestoa
Ayers	Lynn	Diamond A Farm
Barber	Gary	
Barten	John	
Bathke	Jill	USCOE
Becker Kudelka	Angie	BWSR
Belfiori	Phil	Rice Creek WD Administrator
Berg	Jeffrey	
Berquam	Jennifer	MN Counties
Biewen	Todd	MPCA
Bilotta	John	UM
Birr	Adam	MN Corn Growers Assoc.
Biske	Rich	TNC
Blackburn	Julie	RESPEC Consulting
Blair	Lori	MN Rural Water Association
Blann	Kristin	Nature Conservance
Blixt	Pam	Clean Water Fund
Bohn	Ray	MAWD Lobbyist
Bohn	Maddy	MAWD Lobbyist
Bohrer	Greg	Environmental Initiative
Brigham	Mark	USGS
Broberg	Jeff	Citizen - Retired
Buatch	Lee	
Buck	LeAnn	MASWCD
Burke	Anna	Metro Cities
Calow	Peter	U of M
Capel	Paul	USGS
Carstens	Tina	Ramsey Metro Watershed

INDIVIDUALS REGISTERED FOR ONE OR MORE STAKEHOLDER MEETINGS

Chen	CheFei	St. Paul Regional Water Services
Clark	Whitney	Friends of the Mississippi
Clendenin	Laura	Dow Chemical Water Solutions
Coleman	Jean	МРСА
Colvin	Steve	DNR
Considine	Ellen	MN GW Association
Crow	Liz	The Nature Conservancy
Daleiden	Mark	Wright County
Daniels	Jeanne	
Day	Sharon	Indigenous Peoples Task Force
De Gross	Bob	NPS voyagers
deAlwis	Deepa	MN Clean Water Council
Deede	Lowell	
DeMuth	Vanessa	Dakota County Environmental Resources Dept.
DeVitt	Stephanie	sdkcommunications
Dittrich	Mark	MDA
Donath	Alexis	MPCA
Doneux	Mark	Capitol Region WD
Doucette	Sharon	Woodbury, MN
Duval	Michael	DNR
Eaton	Chris	Senator
Ekman	Julie	DNR
ElHassan	Ali	METC
Ellingboe	Randy	MDH
Elvrum	Chris	MDH
Erickson	Judy	Conservation Strategies
Eshenauer	Tannie	MDH
Everett	Leslie	U of M
Fallon	James	USGS
Felix-Gerth	Annie	BWSR
Fenski	Steve	Townships
Feyereisen	Gary	USDA
Finlay	Jacques	U of M
Fischer	Georg	Dakota County
Formo	Warren	MAWRC
Freeman	Jeff	PFA
Frenette	Lisa	Frenette Legislative Advisors
Furchong	Peg	CURE
Gauthier	Greta	MPCA
Gerads	Glenn	City of Minneapolis
Gerber	Darrell	MCEA
Gerhardt	Todd	City of Chanhassen
Gerkovich	Kasey	LCC

Geslius	Todd	SW MN Beet Sugar Coop
Godfrey	Ryan	Tonka Water
Golonska	Julie	NPS- St Croix
Gran	Karen	U of M - Duluth
Gross	David	Senate - LA for Sen. Eaton
Grove	Tyler	American Crystal Sugar
Gunderson	Larry	MDA
Haga	Celi	BWSR
Handmaker	Orli	U of M
Hansen	Gretchen	U of M
Hansen	Donald	St. Croix River Association
Hansen	Rick	MN House ~ Representative
Harley	Mike	Environmental Initiative
Harnack	Ron	Citizen
Heiniger	Ryan	Ducks Unlimited
Henderson	Anna	Governor's Office
Henrich	David	MN Water Well Association
Herb	William	U of M
Hoff	Paul	MPCA
Hoffman	Mark	MDA
Holman	Todd	Nature Conservancy
Норріе	Bryce	MNSU
Huberty	Barb	MPCA
Hubinger	Greg	LCC
Huser	Steven	League of MN Cities
Hynes	Patrick	Messerli Kramer
Ingebrigtsen	Bill	MN Senate ~ Senator
Jaschke	John	BSWR
Javins	Emily	MAWD
Jennings	Carrie	Freshwater
Jewell	Frank	MN Clean Water Council
Johnson	Craig	League of MN Cities
Johnson	Mark	LSOHC
Johnson	Lucinda	U of M - Duluth ~ NRRI
Jordan	Leonard	NRCS - State Conservationist
Jordan	Nick	UMD
Josephson	Kara	Friends of the BWCA MN Homeland Security & Emergency
Kallunki	Aaron	Management
Karnowski	Marni	MPCA
Kean	Al	BWSR
Kelley	Steve	Humphrey School of Public Affairs
King	Bobby	Land Stewardship Project

Kjaersgaard	Jeppe	
Klein	Phillip	
Klemz	Aaron	Friends - BWCA
Knutson	Kristofer	Moorhead Public Service
Kohno	Satomi	
Kramer	Adam	PCE
Kwilas	Tony	MN Chamber of Commerce
LaPlante	Elizabeth	EPA
Larson	Joel	U of M
Larson	Kris	MN Land Trust
Leach	Jim	DNR
Lenczewski	John	Trout Unlimited
Lenhart	Chris	UM
Levers	Lucy	Water Resources Center
Lewandowski	Ann	U of M
Lewis	Melissa	BWSR
Livingston	Nancy	Senate - Wiger
Lotter	Dean	City of New Brighton
Lotthammer	Shannon	MPCA
Luckstein	Aaron	MPCA
Lynch	Diane	
Maanum	Riley	Mn Farm Bureau
Magner	Joe	U of M
Main	Rylee	Lake PepinLegacy Alliance
Maki	Ryan	NPS
Maloney	Mark	City of Shoreview
Marcotty	Josephine	Strib
Marohn	Kristi	MPR
Martin	Joe	USDA
Marty	John	Senate
Matteson	Shanai	WaterBar
Meier	Bob	DNR
Meilleur	Lee	LCC
Meyer	Gene	
Meza Prado	Kelly	U of M
Missaghi	Shahram	U of M Climate Change
Moeckel	Jason	DNR
Montgomery	Bruce	MDA
Mooers	Howard	U of M - Duluth
Morris	Susan	
Morse	Steve	MN Environmental Partnership
Moyer	Sam	Rep. Torkelson's LA
Mulla	David	U of M USE for Stakeholder reply

Mulla	Dave	U of M
Musser	Kimberly	Mankato Water
Naramore	Barb	DNR
Nash	Весса	LCCMR
Nauman	Patricia	metrocitiesmn
Nehl-Trueman	Laura	MnDOT
Nelson	Jessica Anne	MSU Mankato
Neprash	Randy	Stantec
Nerbonne	Brian	DNR
Neuschler	Catherine	
Newville	Darren	East Ottertail SECD
Nieber	John	U of M
Overholster	Michelle	Yellow Medicine WD
Paske	Sam	Metropolitan Council
Paulsen	Nels	Conservation MN
Pavelko	Joe	LSOHC
Petersen	Jeff	MN Townships
Peterson	Jeffrey	U of M
Peterson	Karla	
Pierce	Ann	DNR
Pinkalla	Stephanie	TNC
Pratt	Katie	EQB
Priebe	Bill	PFA
Putzier	Paul	DNR
Rainforth	Doug	City of Fairmont
Reeths	David	U of M
Robins	James	Small Cities Association
Robinson	Michael	Chisago County
Rosen	Carl	UM
Ross	Lanya	MAWSAC
Roth	Jason	USDA
Rummel	Sandy	METC
Runkel	Tony	U of M
Russell	Trevor	Friend of the Mississippi
Ryun	Deb	St Croix River Association
Sabel	Gretchen	League of Women Voters
Sands	Gary	U of M
Schmidt	Lorna	MN Counties
Schmitt	Mark	MPCA
Schneider	Steve	City of St. Paul
Schoenfuss	Hieko	St. Cloud State University
Schuldt	Nancy	Fond Du Lac Band
Schulenberg	David	NGWA

Schultz	Steve	Clean Water Action
Schurbon	Jamie	
Scott	Neuman	Senate
Seifert	Marty	GCMC/MESERB ~ Lobbyist w/Flaherty & Hood
Setterholm	Dale	U of M - MN Geo Survey
Short	Gene	Currie City Council
Siekmeier	John	MnDOT
Sierra Club	Sierra Club	Sierra Club
Sip	Rob	Red River Watershed Mgmt Board
Skuta	Glenn	MPCA
Slunecka	Тот	MN Soybeans Growers
Smith	Sandy	LSOHC
Stanley	Ben	MN Senate
Stark	Jim	LWC
Stark	Stacey	UMN Geospatial Center
Steenberg	Julia	
Sterner	Robert	U of M - Duluth ~ Large lakes Lab
Stevens	Joe	MN Wate Well Association
Stoddard	Dan	MDA
Straka	Joshua	Representative Betty McCollum
Strock	Jeff	U of M
Strommen	Sarah	DNR
Stuewe	Luke	MN Dept of Agriculture
Texer	Mary	
Thomas	Doug	BWSR
Thompson	Leisa	METC
Thorleifson	Harvey	U of M - MN Geo Survey
Tipping	Bob	U of M
Torgerson	Dave	MN Wheat Growers
Torkelson	Paul	Representative
Trust for Public Land	Trust for Public Land	Trust for Public Land
UM Invasive Species	UM Invasive Species	UM Invasive Species
Van Amburg	Gerald	
Vanderbosch	Dana	<u>MPCA</u>
Vollbrecht	Lisa	City of St. Cloud
Wagenius	Jean	MN House ~ Representative
Wallace	Kristen	UMBRA
Waskins	Margarete	Grand Portage Band
Wefel	Elizabeth	GCMC/MESERB ~ Lobbyist w/Flaherty & Hood
Westerlund	Julie	BSWR
Westrick	Marcey	BWSR
White	Sherry	Minnehaha Creek WD
Wiger	Chuck	Senate

Willenbrine	Duane	
Wolf	Allison	MCEA
Woods	Steve	Freshwater
Wright	Skip	DNR
Wuolo	Ray	Barr Engineeering (Sr Hydrologist)
Wyse	Donald	UM
Young	Della	Young Environmental Consulting Group
Ziegler	Laura	Metro Cities

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Education Resources

A Citizen's Guide to Influencing Local Land-Use Decisions - Minnesota Waters <u>http://www.1000fom.org/sites/default/files/CitizensGuide.pdf</u>

A Citizen's Guide to Using Monitoring Data - Minnesota Waters <u>http://www.minnesotawaters.org/what-</u> we-do/support/water-quality-monitoring

Aquatic Wild (Project Wild) <u>http://www.projectwild.org/ProjectWILDK-12AquaticcurriculumandActivityGuide.htm</u> Best Education Practices for Field Days - U of MN Extension <u>http://www.extension.umn.edu/FieldDays/</u> Capitol Region Watershed District: A Study of Resident Attitudes and Behaviors Related to Water Quality <u>http://www.capitolregionwd.org/documents/newsletter_winter10.pdf</u> Educating Young People - UW <u>http://www.uwex.edu/erc/eypaw/</u>

Environmental Literacy Report Card http://www.seek.state.mn.us/eemn_b.cfm

Environmental Literacy Scope and Sequence <u>http://www.seek.state.mn.us/eemn_c.cfm</u> GreenPrint for MN: State Plan for Environmental Education (3rd Ed.) <u>http://www.seek.state.mn.us/eemn_d.cfm</u> Groundwater Education Contact Chris Elvrum at the Metropolitan Council Hands On, Feet Wet: The Story of River Crossing Environmental Charter School <u>http://www.portage.k12.wi.us/faculty/rydbergv/handson_feetwet.cfm</u> Healthy Rivers <u>http://www.dnr.state.mn.us/healthyrivers/index.html</u>

Lake Ecology - Minnesota Waters <u>http://www.minnesotawaters.org/what-we-do</u> Minnesota Academic Standards (Science K–12, 2009; Geography, History, Social Studies, etc.) htt<u>p://education.state.mn.us/MDE/Academic Excellence/Academic Standards/Science/index.ht</u> <u>ml</u>

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Minnesota Environmental Initiative-Land and Water Policy Project (7/7/09) - Integrated Community Assistance Recommendations <u>http://www.mn-ei.org/projects/Land.html</u>

Minnesota's Nonpoint Source Pollution Prevention Plan (used for 319 planning) http://www.pca.state.mn.us/water/nonpoint/mplan.html

Minnesota Statutes, 115A.073 – defines state environmental education objectives <u>https://www.revisor.mn.gov/statutes/?id=115A.073</u>

Mississippi and St. Croix Rivers Online Curriculum - National Park Service <u>http://www.nps.gov/learn/curriculum.cfm</u>

Mississippi Watershed Management Organization - Hmong Study Jenny Winkleman, <u>http://www.mwmo.org/staff.html</u>

MNAQUA

http://www.dnr.state.mn.us/minnaqua/index.html

My Story as Told by Water - David Duncan <u>http://search.barnesandnoble.com/My-Story-as-Told-by-Water/David-James-</u> <u>Duncan/e/9781578050833/?itm=1&USRI=my+story+as+told+by+water%2c+david+duncan</u>

Project 2016 - American Association for the Advancement of Sciences; reforms on science, math, and technical education <u>http://www.project2061.org/</u>

Project WET (Water Education for Teachers) <u>http://www.projectwet.org/</u>

Project WET Companion - Water Ways: A Minnesota Primer [DRAFT] <u>http://www.projectwet.org/</u>

Project WET Conceptual Framework (7 key principles) <u>http://projectwet.org/water-education-project-wet/project-wet-publications/education-</u>

<u>conceptual-framework/</u>

Project WET offshoot curriculum guides (e.g., Healthy Waters, Healthy People) http://www.seek.state.mn.us/region_detail.cfm?region=All%20Minnesota

River Education Network and River Institutes (CGEE) Rivers Project from Acorn Naturalists <u>http://www.acornnaturalists.com/store/RIVERS-PROJECT-CURRICULUM-GUIDE-</u> <u>LANGUAGE-ARTS-P327C0.aspx</u> **Minnesota Water Sustainability Framework Education Technical Work Team Report January 2011** River Watch (extracurricular student monitoring, being applied in the Red River Basin) -International Water Institute <u>http://www.internationalwaterinstitute.org/riverwatchmain.htm</u>

School-specific curricula (e.g., River's Edge Academy, Riverway Learning Community, District 196 School of Environmental Studies) Contact specific schools for this information

Stormwater Steering Committee Education Work Group Recommendations http://www.pca.state.mn.us/water/stormwater/steeringcommittee/index.html#workgroups To the Source: Moving Minnesota's Water - Citizens League http://www.citizensleague.org/what/policy/advancement/water-1/ Volunteer Surface Water Monitoring Guide - MPCA 2003 http://www.pca.state.mn.us/index.php/water/water-monitoring-and-reporting/volunteer-water-monitoring/volunteersurface-water-monitoring-guide.html Water on the Web http://waterontheweb.org/ Water Science for Schools - USGS http://ga.water.usgs.gov/edu/ Waters to the Sea - CGEE http://www.hamline.edu/cgee/waters2thesea/ Watershed Dynamics - NSTA - Carlsen, Trautmann, Environmental Inquiry Team http://search.barnesandnoble.com/Watershed-Dynamics/William-S-S-Carlsen/e/9780873552134/?itm=1&usri=Watershed+Dynamics

Water Works Institute - American Water Works Association and MN Dept. of Health <u>http://www.mnawwa.org/education/youtheducationprogram.html</u>

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