

Water Governance Evaluation Appendix D: Literature Survey

Addendum to 2013 Report to the Legislature.



Minnesota Pollution Control Agency

January 2013

Legislative Charge

The statutory requirement for this report is found in Minnesota Session Laws, 1st Special Session, Chapter 2, Article 4, Section 33, which reads:

EVALUATION REQUIRED

(a) The Pollution Control Agency, in conjunction with other water agencies and the University of Minnesota, shall evaluate water-related statutes, rules, and governing structures to streamline, strengthen, and improve sustainable water management.

(b) The Pollution Control Agency must submit the study results and make recommendations to agencies listed under paragraph (a) and to the chairs and ranking minority party members of the senate and house of representatives committees having primary jurisdiction over environment and natural resources policy and finance no later than January 15, 2013.

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Literature Survey:

Water Governance Studies and Planning Documents, 1970-2011

This supplementary report is a survey and summary of over 50 water governance and water management studies and plans produced between 1970 and 2011. These documents contributed to the findings and recommendations of the full “Water Governance Evaluation” report. The reports are presented in chronological order, grouped by decade, in order to trace emerging trends and shifts in water policy over more than forty years.

1970s-1980s

1970

State Planning Agency, Water Resources Coordinating Committee. 1970. Minnesota Water and Related Land Resources: First Assessment.

“Stimulated by the passage of the Federal Water Resources Planning Act of 1965, the Minnesota State Planning Agency, in May 1967, activated an advisory Water Resources Coordinating Committee to prepare a statewide water and related land resources plan... The creation of this Committee was necessary because the water management function in Minnesota State government is fragmented among a number of separate agencies. None of them have the authority and the responsibility individually to prepare or administer a statewide plan of water and related land resources development.”

Ten working papers were developed in 1969-70 on various aspects of water and related land resources, then condensed into this report. Assumptions and policy basis for the subsequent Framework Plan (WPB 1979) are outlined for each topic area – water supply, pollution control, recreation, drainage, power, etc. Information gaps are identified. Policy questions focus on roles and responsibilities. Options suggested include:

- No action
- WRCC given authority to plan and coordinate water management
- Transfer most functions to one agency

Minnesota House of Representatives Land and Water Resources Committee Final Report, Interim 1969-1970.

Prescribed by HF 32, joint effort of two subcommittees (Water Resources and Pollution; Minnesota River Flooding and Drainage).

- Identifies “uncoordinated, piece-meal and compartmentalized approach” to management of water and related land resources – 30 different state & federal agencies!
- Recommends development of an act that would establish a unified comprehensive state water policy; abolish the Soil and Water Conservation Commission and Water Resources Board; create a Water and Related Land Resources Board; and establish a joint Senate-House Standing Commission on water and related land resources.
- Other recommendations: grant-in-aid loan program for wastewater treatment plants, WWTP operator training and certification, improve MPCA capabilities. (Were policy statements incorporated in subsequent water law? (not obviously in MS 103). Did proposed Board prefigure the EQB?)

Office of Governor Levander. 1971. Natural Resources Organization for Minnesota. Briefing paper by Laurence Koll and David Durenberger.

Purpose: "draw on the recent experience at the State Executive level concerning the organizational effectiveness of government to respond to the natural resource needs of Minnesota." Examines roles of WRB, Soil & Water Conservation Commission and MPCA as they relate to DNR. Recommendations:

- A full-time "three-man" Natural Resources Council within Governor's office to improve inter-agency coordination. Could convene annual Minn. Environmental Quality Congress to assess progress.
- Transfer watershed district assistance from WRB to DNR; transfer Soil and Water Conservation Commission to DNR; consider merging WRB and SWCC.
- Retain PCA and DNR as separate agencies.

1973

University of Minnesota Center for Studies of the Physical Environment. 1973. Environmental Decision-Making in Minnesota: An Overview, Applicability of Innovations in Other States to Minnesota, and Alternatives. Report to the State Planning Agency. On-line: <http://archive.leg.state.mn.us/docs/2012/other/120425.pdf>

Minnesota's water agencies and water laws were created to deal with specific areas and issues. Problems include fragmentation of responsibilities, proliferation of special purpose districts, lack of effective methods of coordination or conflict resolution, lack of overall policy formulation, and inability to adequately enforce existing policy.

Recommendations:

- Establish a state water-use policy, a data-sharing system, and a conflict resolution mechanism (i.e. an environmental policy board)
- Reorganize water resource agencies: abolish the WRB, give watershed responsibilities to DNR.
 - PCA: regulatory
 - DNR: planning and management
 - SPA: policy decisions
- Allow greater citizen input into policy-making process

1979

Minnesota Water Planning Board. 1979. Toward Efficient Allocation and Management: A Strategy to Preserve and Protect Water and Related Land Resources.

This document is considered the first state water plan, followed by the EQB's plan of 1990, to be updated at 10-year intervals. Developed in response to drought of 1976 and LCMR concerns. Examines water withdrawals and consumption, localized supply and demand, water quality, and related land use decisions.

- Five topical areas:
 - Water resources planning and environmental review
 - Water quality management
 - Water quantity management
 - Related land resources management
 - Wildlife and recreation management
- Recommendations:
 - Create a water resource coordinating body
 - RDCs should provide link between state policy and local plans
 - Watershed districts (or if none, local governments) should be focal points for local water management planning

1980

Minnesota Pollution Control Agency. 1980. Water Quality Management: Minnesota's 208 Plan. Division of Water Quality, Planning Section On-line: <http://archive.leg.state.mn.us/docs/pre2003/other/801228.pdf>

"Initial Water Quality Management (WQM) Plan prepared by the State of Minnesota pursuant to federal regulations 40 CFR, Parts 130 & 131, and Sections 208 and 303 of the 1972 Federal Water Pollution Control Act (amended in 1977 as the Federal Clean Water Act)."

- Purpose is to examine non-point sources and urban runoff in 10 focus areas: 1) construction activities; 2) roadside erosion; 3) highway de-icing chemicals; 4) agriculture; 5) feedlots; 6) pesticides; 7) forestry; 8) mining; 9) urban runoff; and 10) residual wastes (industrial)
- Recommends various regulatory, educational and assistance programs in most focus areas
- Priority rankings by state task force gave highest priority to agriculture, followed by feedlots, pesticides, urban runoff and construction

1981

Minnesota Water Planning Board. 1981. Toward Efficient Allocation and Management: Special Study on Local Water Management. A Report of the Minnesota Water Planning Board to the Legislative Commission on Minnesota Resources and Governor Albert H. Quie.

Recaps previous water planning efforts and local role in water management. Recommendations to clarify and improve local authorities and relationships. These include:

- Counties and other "general-purpose governments" should be fundamental decision-makers
- County water planning /management should be based on hydrologic units
- SWCDs and watershed districts should be tied to and consistent with general-purpose government
- Joint powers agreements encouraged
- RCDs may act as planning advisors
- Approval of local plans triggers delegation of state management responsibilities to LGUs

Solutions must be: flexible, simplifications of current system, efficient, within fiscal/technical capabilities of local government, accountable to its supporters, and acceptable to the public.

Three alternatives were studied: 1) Extension of watershed districts across the state; 2) Realignment and strengthening of SWCDs and primary planning units; 3) Establishment of regional watershed management districts. Alternative 1 was selected.

1982

Minnesota Water Planning Board. 1982. Partnerships in Water Management: Minnesota's Challenge of the 1980s. Summary of the Special Study on Local Water Management.

Citizens' guide to the 1981 study: Minnesotans take water for granted, but that needs to change; new challenges at local level; local leaders believe change is necessary. Recaps recommendations of 1981 study.

1984

Governor's Briefing on Water Issues, December 10, 1984 (working document).

- Identifies priority environmental issues, based on EQB assessment:
 - State and local water planning and management
 - Soil conservation and water quality
 - Surface and ground water protection, including non-point source pollution
 - Toxic contamination – hazardous waste and pesticides
 - (remainder are not water-related)
- Water is next resource crisis – must act now
- Examines flood protection, water quality
- State level organization: coordination or consolidation?

- Supports a statewide comprehensive local water management act – similar to later BWSR establishment

State and Local Water Planning Issue Team Report. 1984. Minnesota State Government Issues: Executive Branch Policy Development Program.

Purpose: "Define process and recommend actions for improving the effectiveness of water and related land resources planning, research and management programs in Minnesota through more coordinated use of state, federal and local resources."

- Findings:
 - Fragmentation of programs leads to problems in public and legislative perception of water management, and to efficient and effective program operation
 - No reorganization options will eliminate the need for coordination among agencies, governments, etc.
 - No one local organization serves as a focus for water management decisions
 - Further study, analysis and research to implement framework plan
- Recommendations:
 - EQB should adopt an explicit process to negotiate priorities and resource assignments among participating public agencies
 - EQB should establish permanent water and related land resources subcommittee
 - Enact comprehensive local water management act for counties outside Metro; give them responsibility for developing water and related land use plans. (Became 103B.311)
 - Biennial preparation of water/related land resources recommendations to LCMR for project funding
 - EQB should develop updated state water management organizational options.
- Appendix includes outline for negotiated investment process, led by SPA. Participants are convened, asked to agree on priorities for action and policy reform. "Participants are asked to think of the commitment of time and resources as 'investments' which are expected to pay off in longer-term benefits to the state." Purpose is to establish consensus implementation plan.

1985

Citizens League. 1985. A Strategy for the Waterbelt. A Citizens League Report. Approved November 22, 1985. Minneapolis. [available online at [http://www.citizensleague.org/publications/reports/402.Report.A%20Strategy%20for%20the%20Waterbelt%20\(Groundwater%20contamination\).PDF](http://www.citizensleague.org/publications/reports/402.Report.A%20Strategy%20for%20the%20Waterbelt%20(Groundwater%20contamination).PDF)]

Report focuses on groundwater supply, pollution and structure (governance). Recommendations in each category include:

- Supply: state government should take a leading role in establishing interstate water transfer policy. Drought water allocation plan should be developed and priorities revised, giving household and municipal use top priority. DNR withdrawal fees should be increased and proceeds used for groundwater protection initiatives.
- Pollution: EQB, PCA, DNR and MDH should develop health risk standards, cleanup priorities and standards, a "report card" on agency performance.
- Structure: EQB should be reconstituted with majority of citizen members; greater coordinating powers. Ag chemical regulation should be transferred to PCA.

Ground Water Management Strategy Issue Team Report. 1985. Minnesota State Government Issues: Executive Branch Policy Development Program.

Findings/ Recommendations:

- Accurate baseline information on quality and quantity of ground water is lacking
- Present multi-agency governance structure is workable

- Interdisciplinary involvement among agencies is needed – a) a policy-level coordinating body; b) a mid-management technical group; c) interagency technical team; d) annual briefing of Governor
- Ground water should be managed at state rather than local level
- Recommendations on formal agreements for data-gathering and sharing

State Planning Agency. 1985. Water Agency Merger Study, 1984-1985. Compendium of study documents. [available online at <http://archive.leg.state.mn.us/docs/2010/other/101000.pdf>]

Compendium of study documents and recommendations of study, which included all water-related state agencies and selected interest groups.

- Goal of Perpich Administration is to make government more rational in structure and more cost efficient in operation. Expressions of concern from Citizens' League, League of Women Voters, etc. drive the effort.
- Status quo is unacceptable. Integrated state approach to local government is needed. Various restructuring options considered.
- Selected option led to creation of BWSR out of the SWCB, WRB and Southern Minn. Rivers Basin Council. BWSR designated as primary coordinator of state water management efforts with local governments.
- Recommended creation of EQB's "Water Subcommittee" (Water Resources Committee, Water Program)

1986

Helland, John, 1986. House Research Information Brief: State Water Management: Reorganization and Consolidation

Recaps the history of water management reorganization legislation and studies from 1955 through 1986, tracing organizational structures such as the Water Resources Board, Water Planning Board and EQB. Identifies pros and cons of consolidation of state agency water management functions, and introduces concept of an advocacy system:

"...strong, competing agencies, each concerned with its own duties and specific goals. In political terms, an 'advocacy' system promotes competition and increases the public representation of each goal or interest and highlights political choices. Conflicts and tradeoffs in such a system are meant to be solved through the political rather than the administrative process."

Nonpoint Source Pollution Issues Team Report. 1986. Presented to Energy/Environment/Resources Subcabinet. Minnesota State Government Issues: Executive Branch Policy Development Program.

Identifies sources of NPS pollution and trends of declining water quality due to NPS. Recommends Clean Water Partnership Program with financial assistance, and water quality management improvements in several areas:

- Pesticides and fertilizers
- Agricultural runoff
- Animal feedlots
- Urban runoff/Infiltration and construction
- On-site sewage systems
- Hydrologic modifications (wetlands, drainage)
- Forestry runoff
- Mining runoff
- Highway de-icing chemicals
- Special erosion problems (streambank, lakeshore, roadside)

PCA to coordinate programs through EQB Water Resources Committee.

1987

EQB (Environmental Quality Board). 1987. Protecting Minnesota's Waters: An Agenda for Action in the 1987-1989 Biennium. Minnesota State Planning Agency.

We have much to learn about water distribution, quality, and related land use issues. EQB WRC has reviewed prior studies. "Make the current system work at its best" – dramatic changes are not required. Better integration and coordination is EQB's role.

Goals:

- Safeguarding public health – Ground water protection and management; toxic substances / health risk assessment
- Enhancing environmental quality – Nonpoint source pollution; drainage law reform; comprehensive lake management
- Fostering wise economic development – flood damage reduction; water quantity management
- Improving government support – communication, coordination, local water planning, water board reorganization (BWSR creation), water information system development, financing

1988

EQB. 1988. A Strategy for the Wise Use of Pesticides and Nutrients. Prepared by the EQB Water Resources Committee. Minnesota State Planning Agency.

Prepared as a follow-up to 1988 Ground Water Protection Strategy. Outlines actions to be taken to protect water resources from pesticide and nutrient contamination. Four agencies primarily responsible for water quality impacts: MDA, MDH, DNR and PCA.

Initiatives and Recommendations:

Information, education and incentives:

- Water resources education advisory committee
- Public information and training programs, demonstration projects and financial incentives

Resource evaluation and research

- Develop coordinated monitoring plan
- Establish interagency and academic technical committee;
- Identify BMPs; ongoing research

Preventive planning and regulatory efforts

- Adopt nondegradation goal and numerical limits
- Expand drinking water protection efforts, including enforcement of water well construction code
- MDA develop state pesticide management plan (per EPA suggestions)
- Integrate pest and nutrient management into existing efforts, including SWCD plans
- Enhance control efforts in areas such as fertilizer application through irrigation systems, waste disposal

1989

EQB. 1989. Protecting Minnesota's Waters: Priorities for the 1989-1991 Biennium. Minnesota State Planning Agency.

Under the same state goals as the 1987 EQB agenda, priorities include:

- Protect ground water – Sensitive areas, research into minor aquifers, recharge areas, local government regulatory role
- Local water management and comprehensive water planning with BWSR assistance

Accomplishments from 1987-89 recommendations include:

- BWSR established
- Pilot comprehensive local water planning program

- Water-related legislation – Clean Water Partnership, Flood Mitigation Act, Metro ground water planning

EQB. 1989. The 10-Year Agenda for Protecting Minnesota's Waters. Working Paper. EQB Water Resources Committee, November, 1989.

The Committee identified six priority areas for water resource protection in the 1990s: 1) water supply protection; 2) infrastructure; 3) information, monitoring and assessment; 4) reduction of environmental pollutants; 5) managing the use of land and water; 6) communication and education. Recommendations include:

- Groundwater models, geologic atlas studies and hydrogeologic assessments
- Evaluating pollutant sources; management of agricultural chemicals, phosphorous
- Research into long-term carrying capacity of specific water bodies, aquifers, etc.
- Convene biennial environmental congresses to establish priority environmental issues

Minnesota State Planning Agency. 1989. The Minnesota Ground Water Protection Act of 1989: A Summary.

Guide to new law: state agency groundwater responsibilities and management actions. Highlights include:

- MDH will adopt health risks limits for groundwater pollutants, notification, permits and fees for wells; well-sealing program is strengthened
- New Legislative Water Commission will review state water policy and programs
- EQB will prepare new state water plan every five years; will remain focus for state water policy/priorities
- MDA: various programs for pesticide education, IPM, training; will monitor pesticide use
- MDA has authority to order corrective action, remedies and penalties
- EQB / PCA to develop water monitoring plan, information system and database
- Water conservation: limits on once-through heating and cooling systems, fee structures changed, water allocation priorities during shortages are changed
- Grants to develop local water plans available to counties through BWSR
- Funding from fees for well construction, water use, fertilizer and pesticide use.

1990s

1991

EQB. 1991. Water Quality Program Evaluation Survey.

Survey of all state water management programs at PCA, DNR, MDA, MDH, BWSR, Office of Waste Management and Mn/DOT, with information collected from program managers, to inform subsequent study.

EQB. 1991. Water Quality Program Evaluation. Overview Adopted by Minnesota EQB.

Summarizes survey results, trends, recent efforts, impediments and opportunities. State has a “robust array of program to protect water quality.” Trends include:

- Gaining ground on point sources; changing emphasis to nonpoint sources
- Heightened focus on prevention
- Continuing need for cleanup
- Shift from construction of wastewater treatment facilities to maintenance
- Increasing role for local government

EQB. 1991. Minnesota Water Plan: Directions for Protecting and Conserving Minnesota's Waters. Minnesota State Planning Agency.

Authorized by MS 103B.151, "develop a new plan and strategy" by 11-15-90

First Minnesota Water Plan since 1979 – signals state's commitment to local water planning, understanding water's interconnections and integrating government efforts to address them. "Focus on the resource" rather than specific programs. Establishes principles, objectives and recommendations:

- Integrating Water Management: Establish "Minnesota Coordination Strategy" that "makes water management more understandable, efficient and directed toward meeting state goals." Emphasizes role of local water plans and of joint water planning efforts at regional levels (i.e., Mississippi Headwaters, Redwood-Cottonwood)
 - Communication and Education: Develop information and education plan, using Office of Environmental Education and regional clearinghouses, curriculum development.
 - Information and Research – GIS, LMIC Ground Water Clearinghouse, etc.
 - Liability and Enforcement – consistent state approach, enhance compliance strategy
 - Infrastructure – water and wastewater treatment – effective operation and maintenance
 - Financing
- Focusing on the Resource:
 - Integrated lake management strategy
 - A state-local "no net loss" program for wetlands, including agricultural drainage reforms
 - Watershed and basin focus on rivers, including river basin coordinating teams
 - Groundwater research and priority aquifer management
- Protecting and Conserving Water Resources: Build degradation prevention goals into all state programs and practices affecting water – including pollutant discharges, agricultural activities, well management, water conservation
- Managing Water's Interconnections: Build water protection needs into land use decisions, identify barriers and program changes

1992

EQB. 1992. 1991 Minnesota Water Research Needs Assessment. EQB Water Research Advisory Committee. Minnesota State Planning Agency.

Authorized by MS 103A.43: EQB required to evaluate and report to Legislative Water Commission and LCMR on statewide water research needs and recommended priorities

Establishes priorities for water research using principles of 1991 MWP. Priority areas include 1) ground water; 2) surface water; 3) fate and reduction of environmental pollutants; and 4) integrated water management. Project-level priorities include: a) delineate and quantify factors that determine wetland functions; b) effects of climate change on surface and ground water availability; c) investigate contaminant movement through the unsaturated zone.

EQB. 1992. The Minnesota Water Monitoring Plan. Minnesota State Planning Agency.

Authorized by MS 103B.151: EQB required to develop a plan for monitoring the state's water resources

Identifies state agencies responsible for water monitoring and legislative authorities:

- PCA: broadest authorities re surface and groundwater
- MDH: public drinking water supplies; well data
- MDA: impact of pesticides; groundwater monitoring for ag chemicals, water quality testing for dairy wells
- DNR: habitat management; supply management; identify sensitive areas

Discusses data compatibility, monitoring system components, information system characteristics and integration. Recommendations include:

- Break down barriers to integrated data management
- Build comprehensive system of leading environmental indicators
- Support comprehensive system of monitoring ambient groundwater quality
- Revamp surface water monitoring network – away from chemical analysis toward integrated assessments
- Intensify groundwater assessments
- Expand Safe Drinking Water Act monitoring efforts

1995

EQB. 1995. Meeting Minnesota's Water and Wastewater Needs: A Working Paper. Minnesota State Planning Agency and EQB Water Resources Committee.

Water: The existing water system is complex, with nearly 10,000 public water systems (both public and privately-held systems supplying the public). Water supply needs are increasing, while treatment requirements are variable. Information on fiscal needs is limited, as is funding, while new federal requirements could be costly.

Wastewater: Treatment facilities are regulated by the state (PCA) and managed by individual municipalities and special districts (sanitary districts and subordinate service districts). Minnesota has over 480,000 individual sewage treatment systems, and regulation of these systems varies – by PCA, counties, cities, etc. Both ISTS and public system needs are extensive.

Funding: Available through 12 programs, generally supplied to local governments. State Revolving Fund role is expanding. Wastewater Infrastructure Fund inadequate to meet needs. Local capacity to pay varies greatly.

Land Use: Most land use regulation is local in nature, with a few state and federal regulation covering areas such as wetlands, shoreland and wellhead protection areas. Land use requirements outside Twin Cities metro vary widely and comprehensive planning is generally optional. Local water plans could address water supply and wastewater needs. RDCs could do the same. (Metropolitan area planning has a unifying framework, but some conflicts exist.)

1996

EQB. 1996. Saving Resources: Meeting Minnesota's Water and Wastewater Needs.

Summary of findings from 1995 working paper, with recommendations:

- Focus on a unifying mission to guide water supply and wastewater treatment issues: effective land use management, water demand reduction, reclamation of water, etc.
- Develop sustainable guidelines on water; include water in local sustainable development plans
- Include water supply and wastewater management in local water plans
- Define local communities' role; expand educational efforts
- Expand state's ability to correct problems; target state grant and loan funding based on needs identified in sustainable development plans

Minnesota Planning. 1996. Crosscurrents: Managing Water Resources.

Authorized by 1995 Laws c 248, art. 5

The major water governance assessment of the 1990s. Required by 1995 legislature, which "presented 5 goals and 11 outcomes and authorized a study of how services could be better delivered by reorganizing related functions." Report highlights past accomplishments, barriers to integration, and options for change. Also includes summary of state and local structures; inventory of recent improvements.

- "Agency missions demonstrate diversity and advocacy" – i.e., the current system works well within this advocacy framework; gives local governments and citizens many choices for actions
- History of water management reorganization studies
- Improvements:
 - Cooperative planning efforts on local water plans; improvements still needed
 - Agency coordination initiatives on financial assistance, permits, data-sharing

- Permitting simplified by DNR (general permits for multiple projects by one LGU) and PCA (general permits for similar operations)
- Focus on sustainable development (Roundtable, etc.)
- Barriers:
 - Agency funding restrictions can restrict change and cooperation (funding “by program” sets expectations)
 - Changing statutes and rules is a lengthy process, hindered by competing interests and advocates
 - Planning is often disconnected among agencies – EQB’s 1991 Mn Water Plan has not been tracked, other EQB plans lack follow-through. Most agencies lack resources for coordinated planning.
 - Authorities sometimes unclear and overlapping – programs evolved under different mandates, but have begun to ‘blend at the edges’
 - Data uncoordinated; decision-making in central offices cumbersome for locals; lack of resources hampers local efforts
 - Special purpose districts (SWCDs, etc.) difficult to modify
- Options:
 - Continue to build on current management structure (citizen input: prefer existing structure)
 - Develop plan to merge regional offices
 - Simplify procedures for modifying special purpose districts
 - Build on local water planning
 - Integrate financial assistance programs
 - Identify additional general permit options
 - Seek waivers from federal mandates
 - Invest in technology
 - Continue to integrate sustainable development into state efforts

1998

EQB. 1998. Soundings: A Minnesota Water Plan Assessment.

A status report on progress in carrying out the objectives of the 1991 state water plan. Finds progress in key areas:

- More efforts are focused on big-picture management, including sustainable development and ecosystem management
- Local water planning is progressing
- Interagency coordination is increasing
- Electronic communication is changing methods of educating, information-sharing and accessing data
- More monitoring is providing better information
- New efforts are preventing and correcting problems, i.e., sealing unused wells, leaking tank removal

Other areas need more work:

- Priority setting (i.e., for state assistance) is variable and not systematic
- Coordination needs more emphasis
- Funding assistance may not relate to priorities
- Coordination needs more emphasis – more systematic, inclusive and long-term
- More systematic program evaluation is needed

2000 - 2011

2000

EQB. 2000. Watermarks: Gauging the Flow of Progress 2000-2010. Minnesota Planning.

This document is the 10-year update of the State Water Management Plan. Summarizes an 18-month interagency process to “set a new direction for water management in Minnesota” (Ventura administration’s Water Management Unification Initiative). Defines goals and initiatives for seven major water basins. Common goals focus on improving water quality in rivers, streams, lakes and groundwater; maintaining adequate groundwater supplies; restoring and maintaining healthy aquatic ecosystems; and providing water-based recreation opportunities. Good basin-by-basin overview of issues.

2001

Minnesota House of Representatives Research Department. 2001. A Survey of the Groundwater Act of 1989. Prepared by John Helland, Legislative Analyst.

Survey of accomplishments stemming from the act, unfulfilled goals, and future groundwater concerns, based on a survey of agency staff. Accomplishments include stronger water conservation measures; new or increased water use fees to reflect the cost of the resource; greater monitoring and testing of pollutants in groundwater; comprehensive waste pesticide collection and well-sealing programs; and expanded monitoring of community water supplies; and additional support for local water management planning. Shortcomings include lack of information on nitrate in groundwater, disconnect between surface water, groundwater and land use in the current water management system, a failure to tie water use to particular aquifers, and unmet data needs on water quality trends.

Minnesota Planning. 2001. Water Program Reorganization Study: Results of the September, 2001, Survey. October 19, 2001. (working papers).

Background study for reorganization project, surveyed state, county, local government employees, watershed districts, rural water providers, lake associations, consultants, etc. Interesting set of perspectives on current programs and reorganization options.

2002

Gieseke, Timothy. 2002. Draft Water Unification Plan.

Per its subtitle, this independently prepared study calls for “coordinating state agencies through an activity-based structure that utilizes the spectrum of state, local and federal agencies’ resources to effectively manage Minnesota’s water resources.” Contrasts the current agency-based structure with an activity-based structure. Activities and roles include: 1) monitoring; 2) regulation and enforcement; 3) implementation; 4) data collection and storage; 5) research and emerging issue; and 6) education and public outreach. Each agency would participate in some or all of these activities. This approach seems to prefigure the PCA’s current structure compared to the previous media-based one.

Minnesota Planning. 2002. Charting a Course for the Future: Report of the State Water Program Reorganization Project.

Findings / Recommendations:

- Legislative committee structure is fragmented in regard to water policy and programs, which may result in fragmented policy direction. Recommend recreation of Legislative Water Commission or similar coordinative body.
- Executive Coordination. Operational level coordination is effective between agencies; policy level coordination is often thorny, especially with emerging issues. EQB coordination of water issues has varied in effectiveness. Recommend EQB examining current coordinative structures.

- Greater support to local governmental units, which are taking increasing roles in water management and protection, through local water plans and other programs. Recommend integration of comprehensive and water planning.
- Water monitoring is increasingly well-coordinated but common strategy and methodologies are still needed. Develop a strategic plan for water monitoring as well as for each of Minnesota's water basins. Conduct independent study of water monitoring and whether structural change is necessary to improve the situation. Integrate data using GIS.
- Examine use of administrative penalty orders. Consider authorizing penalty orders for all state agencies with regulatory programs (i.e., lacking for DNR waters permits).

Appendix includes examples of water management initiatives from other states. See also "Chart of state agency programs" prepared in 2001.

Minnesota Planning. 2002. Connecting with Minnesota's Urban Rivers: Helping Cities Make Sustainable Choices for the Future.

Authorized by 2001 Laws, Special Session, c 10, a 1, s 11

Legislature's intent: to evaluate need for DNR rules implementing Mississippi River critical area order (EO 79-19) and examine other legislation and guidance for urban rivers. Findings include:

- Critical area plan review process should be simplified and shortened;
- Decisions about river management should be made before the need for a Mississippi River critical area rule can be determined.
- Identifies range of options to improve river corridor management: give DNR clear authority to do critical area rules; change lead from DNR to Metropolitan Council; split responsibility between plan oversight (Metro Council) and enforcement (DNR) etc.

Also includes principles for sustainable development of urban rivers: 1) enlightened community interest; 2) asset management; 3) endowment protection; 4) implications analysis; 5) results management. Includes discussion of urban river issues and examples of design guidelines.

2005

EQB. 2005. Protecting Minnesota's Waters: Priorities for the 2005-2007 Biennium. A Biennial Report of the Environmental Quality Board.

Identifies "core state water activities" – research, monitoring, data management and assessment, regulation and enforcement, implementation, and education and outreach. Other priorities include restoring impaired waters and Metro area water supply sustainability.

Recommendations:

- Find long-term funding for core functions; overhaul Environment and Natural Resources Trust Fund process and replace with independent citizen-led panel; evaluate wetland conservation efforts; increase selected water-related fees. Discusses Governor's Clean Water Initiative pilot projects and milestones.
- New funding for clean water initiatives through increased sewer fees (Impaired Waters Initiative).
- Twin Cities regional water supply development fund and advisory committee to monitor water supply; water supply master plan.

2006

EQB and Clean Water Cabinet. 2006-2008. Preliminary Water Supply Vision and Strategies. (working papers)

Preliminary water supply vision and strategies by Clean Water Cabinet (EQB subcommittee). Strategies: targeted research to improve understanding of water; assess water availability; simplify regulation; ensure planning; reserve supplies to meet future needs. Recaps progress made through Clean Water Legacy Act, priorities and pilot projects. Lessons learned: power of focus – "better to do a few things well;" advantages of collaboration and teamwork.

EQB. 2007. Protecting Minnesota's Waters: Priorities for the 2008-2009 Biennium. A Biennial Report of the Environmental Quality Board.

Recaps Clean Water Cabinet vision of 2005 report. Priorities are:

- 1) Water quality and the CWLA – completion of TMDLs;
- 2) Water supply – Metro Council planning activities, Minneapolis-St. Paul water interconnect, assess water sustainability statewide;
- 3) Wetlands – can “no net loss” be verified?

EQB and DNR. 2007. Use of Minnesota's Renewable Water Resources: Moving Toward Sustainability.

directed by MS 103A.43

DNR's definition of sustainable water use: “the use of water to provide for the needs of society, now and in the future, without unacceptable social, economic or environmental consequences.” Report examines current and future water demand and quantity of water that could be removed on long-term renewable basis, at the county scale. Comparisons made for reported use in 2005 and estimated use in 2030.

Conclusions:

- “Water rich” label no longer as applicable to Minnesota, especially in growth corridor
- All estimates of availability and sustainable use have elements of uncertainty
- Monitoring and research are needed to aid future management
- Next assessment should focus on geographic areas with supply & demand issues, etc. – should use both science- and citizen-based advisory committees

MPCA. 2007. Minnesota's Groundwater Condition: A Statewide View.

MPCA and MDH report focusing on groundwater quality, monitoring status and primary human-caused impacts, mainly associated with land use. Focus is on chloride, nitrate, VOCs, pesticides and other emerging contaminants. Identifies “growing need to better incorporate ground water and surface water interaction into water resource management activities.”

Office of the Legislative Auditor. 2007. Evaluation Report: Watershed Management.

Findings:

- Minnesota's watershed management structure is a complex network: at least 14 federal and state agencies provide services; 11 different types of local entities carry out “on-the-ground” watershed management activities.
- Performance of local water management entities has been mixed.
- State oversight of local entities is inadequate – BWSR has not established standards, systematically monitored their performance, or adequately held them accountable for their performance. BWSR has limited authority but is also reluctant to fully use authority.

Recommendations: Legislature should:

- Require BWSR to provide greater oversight; i.e. establish performance and operational standards, monitor and assess local watershed management entities.
- Give BWSR a wider range of enforcement tools to manage and improve performance of low-performing local entities.
- Change the governing structure of BWSR – director appointed by Governor, confirmed by Senate; BWSR Board should change from a governing board to an advisory commission.
- Ensure BWSR has adequate resources to perform new oversight responsibilities.

EQB. 2008. Managing for Water Sustainability: Report of the EQB Water Availability Project.

Report prepared in response to request from MPCA; EQB convened interagency stakeholder group.

Recommendations in three general areas:

- Achieve protective standards: generate and manage information, enhance water quality monitoring network, refine aquifer protection threshold concept, including thresholds for regional systems. Identify defensible criteria for assessing critical water level or flow conditions required to support ecosystems.
- Plan for water sustainability: Manage water area-wide through water appropriation and use management areas. Develop system of incentives to encourage local governments to incorporate water sustainability considerations into their plans and actions. Encourage consideration of alternative water supplies, gray water reuse, etc.
- Define water information needs. Areas needing accelerated study include changes in groundwater recharge and water availability.

Freshwater Society. 2008. Water is Life: Protecting a Critical Resource for Future Generations. Report to the Freshwater Society Board by the Freshwater Society Guardianship Council.

Society's Guardianship Council analyzed ground and surface waters and the threats they face. Consensus was that the biggest freshwater challenges involve sustainability of groundwater and the nonpoint source pollution of surface waters. Findings and recommendations include:

- Groundwater:
 - "Startling lack of consensus" as to whether current use is sustainable – need scientifically rigorous study
 - DNR issues permits on case-by-case basis, not anticipated cumulative impact; lacks authority to restrict development; practices should be changed.
- Surface water:
 - Great strides in managing point source pollution, but not nonpoint – 40% of water bodies tested fail to meet standards
 - Agricultural runoff and urban/suburban development are biggest sources – adopted BMPs in both settings
 - Endocrine disruptors and emerging threat – more research needed
- Other recommendations: change water pricing structure to encourage conservation; emphasize environmental education; prepare for climate change.
- Further study: agricultural practices, stewardship and water allocation

Smith Partners and Emmons & Olivier Resources, 2008. Integrating Stormwater Permitting and Watershed Management. A Report to the Minnesota Board of Water and Soil Resources and the Minnesota Stormwater Steering Committee.

Explores feasibility of a watershed-based approach to stormwater and watershed planning; to streamline planning and permitting. Conclusions presented to Stormwater Steering Committee:

- No significant legal barriers to integrated permitting by MS4s and watershed organizations. Increased liability exposure from collaboration is manageable, with further MPCA guidance. Cost savings are likely.

- Continue and expand local collaboration among MS4s and watershed organizations, especially in inspections and BMP maintenance.
- BWSR, MPCA, MDH and Metro Council should collaborate to improve alignment of water planning processes.
 - Adopt WMO plans 2-3 years prior to comp land revision deadlines
 - BWSR should place all WMO plan revisions in same cycle, or scheduled by regions
 - BWSR should supplement 10-year WMO plan review cycle with 5-year reviews to incorporate SWPPP changes
 - MPCA adjust 5-year municipal stormwater permit to align with WMO planning cycle for metro watersheds
 - MDH should explore how wellhead protection plans could best be coordinated with local water plan updates
- MPCA should evaluate potential changes to the General Permit to allow SWPPPs to be integrated into local water plans.
- MPCA and BWSR should convene a work group to implement recommendations, through an interagency MOU.

(According to agency participants, recommendations were not adopted due to concern regarding legal exposure and the feasibility of 'delegation').

University of Minnesota, Institute on the Environment, 2008. Statewide Conservation and Preservation Plan. Final Plan – June 30, 2008. [http://www.lccmr.leg.mn/statewideconservationplan/SCPP_FinalPlan.html]

Habitat recommendations of plan include water-related recommendations:

- Protect critical shorelands, acquire high-priority shorelands (economic incentives, etc.)
- Restore and protect shallow lakes, targeting prairie and forest-prairie transition zones, focus on conservation easements
- Restore wetlands, protect critical in-water habitat of lakes and streams
- Keep water on the landscape
- Review and analyze drainage policy
- Research near-shore habitat vulnerability

Land Use recommendations include recommendations for reduction of streambank, upland and gully erosion, and storm water management in urban areas.

2009

BWSR, 2009. Wetlands Restoration Strategy: A Framework for Prioritizing Efforts in Minnesota. (DNR, Mn/DOT, MPCA, MDA) [http://www.bwsr.state.mn.us/wetlands/Restoration_Strategy.pdf]

Builds on recommendations of Statewide Conservation and Preservation Plan to recommend prioritizing wetland restoration based on desired outcomes: water quality improvements, habitat gains, flood damage reduction, etc. Principles include:

- Restoration of depressional wetlands with long retention times
- Riverine wetlands restoration to improve floodwater retention, wildlife habitat, and water quality
- Restorations in the upper reaches of tributaries provide greatest benefits
- Restorations for groundwater recharge can be a priority anywhere in the state.

Minnesota Environmental Initiative, 2009. Land and Water Policy Project Report, July 7, 2009. Compendium of project recommendations. [http://www.environmental-initiative.org/images/files/LWPPStakeholderRecommendations.pdf]

“Land and water policies in Minnesota are remarkably compartmentalized, falling under separate bodies or regulation and various agency jurisdictions at all levels.” Draws on recommendations from six major reports, reviewed and prioritized through stakeholder work group.

Three major action steps:

- Create a shared vision, building on existing state and regional agency mission statements. Recommends multi-year process to build support.
- Develop a coordinated planning cycle based on geographic areas, with a five-year planning sequence. (See BWSR-Smith Partners 2008 study for details.)
 - Improve alignment of planning requirement dates
 - Integrate major watershed monitoring and assessment findings into local government plans
 - BWSR, MPCA, MDH and Met Council should collaborate to provide improved alignment of water planning processes; MPCA should evaluate the MS4 permit to allow stormwater pollution prevention programs to be integrated into local water plans; MPCA and BWSR should convene a work group to implement the recommendations.
 - Don't use MPCA's major watershed approach – instead, state agencies should adjust timelines to match local planning cycles.
- Design a three-tiered integrated community assistance structure primarily to streamline service to and obligations of local government. (“Community Assistance Pyramid”)

Citizens League, 2009. To the Source: Moving Minnesota's Water Governance Upstream. Report of the Citizens League Water Policy Study Committee. [http://www.citizensleague.org/publications/reports/482.RPT.To%20the%20Source.pdf]

Report developed to address use of Legacy Amendment funding. Findings and conclusions:

- Strong public commitment to water resources in MN is a great asset in addressing water challenges
- Minnesota's waters face serious and new challenges – notable nonpoint source pollution
- Insufficient data available to demonstrate water quality trends
- MN system of water governance is “fragmented, incoherent, and poorly coordinated to the extent that it is failing Minnesota” on five evaluative principles: transparency, effectiveness, equity, accountability and appropriate scale.
- Citizens and local organizations must play a stronger role
- Recommendations:
 - Build collaborative model of governance that promotes public ownership and responsibility, incentives, etc. (Models include Wisconsin Buffer Initiative and Independent Certification in forestry.)
 - Redesign government roles and responsibilities
 - Create single online water resource information hub

2010

MPCA, 2010. Continuing Planning Process: State of Minnesota's Water Quality Management Program. [http://www.pca.state.mn.us/index.php/view-document.html?gid=15647]

Report required by Section 303(e) Clean Water Act, to establish management program and framework for programmatic commitments and goals for plans prepared under CWA. Summarizes MPCAs and interagency

water management programs and water quality standards, federal legislation and state rules authorizing water quality programs.

DNR (Department of Natural Resources), 2010. Long-Term Protection of the State's Surface Water and Groundwater Resources. [http://files.dnr.state.mn.us/publications/waters/long-term_protection_surface_ground_water_201001.pdf]

directed by 2009 Laws c 37 s4 subd 3

Responds to legislative directive to evaluate protection strategies and required funding. Recommendations include:

- Three categories of BMPs: retain enhance watershed storage to replicate natural runoff rates and volumes; manage nutrients and potential pollutants; create buffers or easements between land-disturbing activities and water resources.
- Enhance data collection and sharing and simplify public access to data
- Systems approach to integrated groundwater and surface water management protection

DNR. 2010. Evaluation of Models and Tools for Assessing Groundwater Availability and Sustainability. Groundwater Technical Workgroup.

Consensus approach of Groundwater Technical Workgroup recommending focus on three broad categories: mapping, monitoring and managing. Compares existing programs and studies.

2011

Smith, Louis and Charles B. Holtman, 2011. Minnesota Drainage Law Analysis and Evaluation. Report to the Legislative-Citizen Commission on Minnesota Resources (LCCMR).

Comprehensive review of drainage law and management. Legal and policy recommendations center on updating MN drainage laws to embrace a multipurpose watershed-based approach. Recommendations include:

- Give drainage authorities more tools and resources for:
 - watershed-based planning, including cost-sharing with watershed districts and counties
 - integrated drainage, flood control, conservation and water quality benefits
- Integrate effects on wetlands and water quality into drainage authority decisions
- Integrate drainage and wetlands management through CWPMP process

Includes draft legislation to implement recommendations.

University of Minnesota, Water Resources Center. 2011. Minnesota Water Sustainability Framework.

[http://wrc.umn.edu/watersustainabilityframework/]

directed by Laws 2009, c 172, a 2, s 33

Addresses many aspects of water sustainability, including drinking water, stormwater, agricultural and industrial use, surface and groundwater interactions, infrastructure needs, climate change, demographics and land use. Governance recommendations include

- Convene Minnesota Water Congress
- Enact Water Sustainability Act
- Re-establish Legislative Water Commission
- Create a Water Sustainability Board to replace current Clean Water Council and water responsibilities of EQB
- Create watershed-scale Watershed and Soil Conservation Authorities combining functions of current SWCDs and watershed planning entities. Integrate water planning into land use plans.
- Create comprehensive, accessible interagency water data portal (action currently underway)

University of Minnesota, Center for Science, Technology and Public Policy. 2011. Hennepin County Water Governance Project: An Application of Design Thinking to Governance.
[<http://www.hennepin.us/files/HennepinUS/Commissioners/Jeff%20Johnson,%20District%207/Henn%20Co%20Water%20Governance%20Report.pdf>]

Project identified ways in which Hennepin County surface water governance system could be updated and strengthened to address new water management issues. Explores geographic challenges of water governance. Four desired outcomes for the system are: 1) supply, quantity and sustainability; 2) ecosystem quality; 3) systematic and science-based governance; 4) effectively mobilizing resources. Recommendations:

- Consolidate number of watershed districts and WMOs from 11 to four based on existing hydrological boundaries
- All water organizations need taxing authority
- Improve water management planning coordination between WDs/WMOs and cities
- Some level of coordination, oversight or enforcement between watershed organizations and the state is needed – i.e., county or regional scale

Easter, K. Willian and Jim Perry, eds., 2011. Water Policy in Minnesota: Issues, Incentives, and Action. RFF Press, New York – London.

See specific chapters below.

Johansson, Rob and Fay Sleeper, 2011. Implementing the Federal Water Pollution Control Act and Minnesota's Clean Water, Land, and Legacy Amendment. In Water Policy in Minnesota, 46-70.

History of early water pollution control efforts in Minnesota, the state's response to federal Clean Water Act, implementation successes and challenges, and the development and enactment of the Legacy Amendment partially in response to clean water concerns. Includes timeline of federal water pollution legislation and Minnesota actions.

Karkkainen, Bradley C., 2011. Minnesota Water Law: A Unique Hybrid. In Water Policy in Minnesota, 71-88.

Overview of Minnesota water law from its common-law origins to multiple subsequent legislative enactments. Notes both the effectiveness and complexity of the body of law. Topics covered include water ownership, definition of public waters, water use permits, rights of access to surface water, wetlands, drainage authorities, watershed districts and management organizations, protected lakes and streams, shoreland management and floodplain regulation, specific river and river basin programs, water quality regulation, and well permits and regulations.

Conclusions: complexity of system may make compliance more difficult, may deter investment; may produce costly inefficiencies and redundancies, and may include large gaps in the "jerry-built" structure.