

# I. EXECUTIVE SUMMARY

Clean, fresh water is vital to all life.

It is key to our image of who we are as Minnesotans and what we want for our children, and it is essential for our regional and national economies.

Despite our wealth of water in Minnesota, we cannot presume our access to unspoiled drinking water is sustainable into the future. We know our rivers, lakes and streams are contaminated by runoff from sources near and far.

For 40 years, the Freshwater Society (FWS) has worked for the conservation and rational management of freshwater resources. As part of that effort, the society sought the assistance of eight distinguished Minnesotans to examine our water resources, question our water policies and advise the Society's board on fulfilling the Society's mission.

Members of that group, the Society's Guardianship Council, are:

- Robert Elde, dean of the University of Minnesota College of Biological Sciences
- Luella Gross Goldberg, board member of several large corporations
- Michael Kilgore, director of the University of Minnesota Center for Environmental and Natural Resources Policy
- Lonni McCauley, executive director of the League of Women Voters Minneapolis
- Ronald Nargang, former director of the Minnesota Chapter, Nature Conservancy
- Michael Osterholm, director of the University of Minnesota Center for Infectious Disease Research and Policy
- Jack Pichotta, founder of the Wolf Ridge Environmental Learning Center
- Paige Winebarger, member of the Minnesota Pollution Control Agency board

The Guardianship Council spent six months studying our ground and surface waters and the threats they face. Members reached a consensus that the biggest freshwater challenges demanding attention from Minnesota citizens and policy makers are the sustainability of ground water and the nonpoint source pollution of surface waters, chemicals washed into lakes and rivers from multiple sources.

**The Council's findings and conclusions on water resources and policies included:**

**Ground Water Sustainability**

- Ground water is the source of all or part of the drinking water consumed by nearly 90% of Minnesotans. It also is used for a multitude of other purposes. Ground water use increased 26%—up 52 billion gallons a year—between 1991 and 2005. Minnesota's population increased 18% during the same period.
- Minnesota is blessed with a lot of water, including abundant ground water, but not in all parts of the state. Supplies are limited in southwestern, northwestern and northeastern Minnesota. The Metropolitan Council last year identified 18 Twin Cities suburbs where ground water could be inadequate to meet projected future demand or might meet the demand only through pumping that would dry up streams and wetlands.
- Since the 1960s, a series of official reports has attempted to assess ground water sustainability in the Twin Cities. Many have urged prompt action to prevent future shortages; some have predicted the region's ground water was virtually limitless.
- There is a startling lack of consensus among ground water experts on whether our current use is sustainable and on how to measure the ground water we can safely use.
- The Minnesota Department of Natural Resources issues pumping permits for wells on a case-by-case basis. The agency does not deny permits based on the anticipated cumulative impact of each new well it approves, and the agency lacks authority to restrict development where ground water is scarce.

**The Council recommended:**

- Time and energy should be devoted to producing a scientifically rigorous study of sustainability that will inspire consensus among experts and citizens. The study should examine water quality and quantity. It should evaluate whether it is sound policy to use ground water in excess of the amount regularly renewed through precipitation.

- While scientists and policy makers debate sustainability, all of us should commit ourselves to conservation. We need to determine the optimal mix of ground and surface water use and find ways to recycle and reuse water.
- Current practices on the permitting of wells should be changed to weigh the anticipated cumulative impact of new water withdrawals.

### **Ground Water Quality**

- Everything we do on the land around us—every natural feature we disturb, every chemical we overuse or carelessly discard—affects water recharging aquifers beneath the land.
- Nitrogen compounds from farm fertilizers and septic systems have been found at elevated concentrations in a number of monitoring wells in central and southeastern Minnesota and the Twin Cities metropolitan area.
- About 40% of Minnesota septic systems do not comply with state standards, jeopardizing ground and surface water quality.
- Some parts of the state, such as central Minnesota and areas near Hastings, have aquifers in which the ground water is close to the land's surface and is particularly vulnerable to agricultural and industrial chemicals.
- Perfluorochemicals (PFCs), an emerging class of ground and surface water contaminants, have been found in private wells in Washington County, in municipal wells in six east metro suburbs, in wastewater effluent discharges throughout the state, in fish tissue in several Twin Cities lakes and in fish from the Mississippi River, between St. Paul and Winona.

### **The Council recommended:**

- Ground water monitoring, including trend analysis of low-level contamination, should be intensified. Increased attention should be paid to private wells.
- Although the impact on human health of many of the pollutants found in small concentrations in ground water has not been proven, we should aggressively research the potential harm of such chemicals and their synergistic interactions.

- We should research and put in place, cost-effective measures to protect aquifers and ground water recharge areas from contamination.

### **Surface Water Quality**

- Like other parts of the country, Minnesota has made huge strides in the last 30 years toward cleaning up our rivers that were being polluted by inadequately treated human sewage and industrial contaminants, typically called point source pollution.
- Minnesota has failed to adequately address harder-to-regulate nonpoint source pollution. About 80% of lakes, rivers and streams have not been assessed for compliance with water quality standards. Of those tested, 40% fail to meet the standards.
- Agricultural runoff and the conversion of rural land into city or suburban developments are the biggest sources of nonpoint source pollution: 60-70% and 10-15%, respectively.
- Recent testing has shown our waters are threatened by chemical compounds known as endocrine disrupters. These chemicals, found in many medicines, soaps and other products, are not effectively removed from water by sewage treatment plants. The chemicals, which potentially are human health threats, are affecting fish in the Mississippi River.

### **The Council recommended:**

- Testing the 80% of waters that have not been assessed should be quickly completed, and the clean-up of contaminated lakes and rivers should be accelerated. More emphasis should be placed on protecting waters that are not now polluted.
- To reduce pollution coming from agricultural runoff, we need to embrace land and water stewardship practices that have been demonstrated to be effective. Best management practices for preventing runoff should be adopted in both rural and urban settings.
- We should rigorously explore the threat of endocrine disruptors. We all should make the effort to learn about and practice the proper disposal of medicines and personal care products and become knowledgeable about product alternatives.

### **Other Factors Affecting the Sustainability of Water Resources**

- A gallon of pure tap water costs us a thousand times less than we now routinely pay for a gallon of gasoline. Yet we know water is more crucial to our existence.
- Available evidence indicates that global climate change is likely to cause dry areas of the United States to become drier, and—in Minnesota—to concentrate precipitation in severe storms, aggravating pollution from runoff.
- Environmental education is a high priority for Minnesotans, but it is not integrated in a comprehensive manner in the state's schools.

**The Council recommended:**

- We need a serious policy discussion of a water pricing structure that will allow our economy to flourish, while spurring us all to conserve water resources for the future.
- We should aggressively work to halt climate change. As we do that, we should prepare now for demands that water from Lake Superior or from Minnesota's aquifers be exported to dry regions. We must also prepare for the possibility of increased runoff resulting from climate change.
- Environmental education must receive a greater emphasis in state education standards, and we must encourage environmental education, outside of schools, for children and adults.

**Questions Meriting Further Study**

Throughout their work, the Guardianship Council members were struck by an apparent lack of definitive information and lack of agreement on essential water issues. The Council urged the Freshwater Society and all Minnesotans to struggle to answer these questions:

- How can we adopt an ethic of stewardship that will lead us to put greater value on water now and in the future? How should we apportion water if it becomes scarce?
- Are current agricultural practices involving drainage, fertilizer and pesticide applications and land use along stream banks consistent with improving water quality? How can we have both clean water and a healthy, growing agricultural economy?

- How much are we currently spending to clean up water we have allowed to become polluted? Are we doing enough to prevent further pollution? Should we be spending more to prevent pollution?

### **Recommendations to the Freshwater Society Board**

To strengthen and focus the Freshwater Society's work, the Guardianship Council recommended:

- The Society should embark on a comprehensive public awareness campaign aimed at helping Minnesotans understand and correct freshwater problems.
- The Society should build coalitions with other environmental groups and stress the Society's traditional role of convening efforts to educate and inspire Minnesotans to conserve and protect water.
- As a mid-term effort, the Society should seek an official proclamation of 2010 as the "Year of Water," and the Society should sponsor activities throughout the year that stress the singular importance of water to our lives and our economy.
- As a longer-term strategy, the Society should explore partnerships that would reduce the significant water pollution caused by agricultural practices. The strategy could seek third-party certification of sustainable farming practices, similar to efforts that have been successfully implemented in the Minnesota forest products industry.