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To: Representative Kathy Tingelstad, Senator Dallas Sams, David Hartwell, Co-Chairs  
Legislative Citizens Commission on Minnesota Resources

From:   
Dana B. Badgerow, Chair  
Environmental Quality Board

Re: Environmental Quality Board Response to LCCMR Request

The Environmental Quality Board asked member agencies to respond to the questions Representative Tingelstad poses in her August 1<sup>st</sup> memo. The departments of Administration, Agriculture, Natural Resources, Health and Transportation, the Pollution Control Agency and the Board of Water and Soil Resources responded. Their responses are attached to this summary note. The agencies have diverse interests in natural resources and, consequently, wide-ranging views of pressing natural resources issues and possible solutions. Yet a number of common themes emerged from our collective response to your request.

First, we share widespread recognition of the connection between Minnesota's social, economic and environmental welfare. Doing what is right for our environment and natural resources can and should be good for people, our economy and communities. Commissioner Moore calls our attention to the basic principle that integration of social, economic and environmental sciences is critical in policy and problem solving. When we make business ventures profitable and environmentally sound, everybody wins.

Second, we understand that global issues affect Minnesota's natural resources and decisions about these resources. As Commissioner Hugoson points out, the global economy has transformed the state economy and the practice of agriculture. Global issues like climate change may present profound new challenges to the world and to Minnesotans. But with such challenges come opportunities. By addressing renewable energy needs, such as in our design of buildings or on the farm, we can help the nation become energy independent while we reduce water and air pollution, and fight climate change. And we can also help Minnesota's economy thrive.

Third, we have come to better understand that small actions often create a larger concern. Whether from habitat destruction, economic growth, land use or water pollution, our natural resources often are put at risk by activities that on their face may seem inconsequential. Understanding where, how and when such activities may have significant cumulative implications is essential to protecting and managing Minnesota's natural resources.

Fourth, we need better information and assessment of Minnesota's resources to understand limits and vulnerability. The study of where ground water is located, trends in its quality and how much of it we can pump without depleting resources may not be glamorous, but such work can be important to the economic and environmental health of the state's communities. The same is true for our understanding of agriculture and the environment, public health and consumer behavior, and land use and water quality.

Further, an emerging challenge with today's natural resource issues is the need for information systems that integrate air, land, water, fish, wildlife and other resource data, and that help people understand threats, trends and opportunities to manage and protect at risk resources.

Fifth, our institutions and programs could offer increased conservation opportunities if we would adjust our approaches to problems and devise integrated strategic plans to address them. Several commissioners mention this need. For example, as the state develops transportation projects, Lieutenant Governor Molnau frequently observes opportunities where a substantial environmental benefit or enhancement could be provided. Yet, funds may not be available or possible funding and project schedules may be out of synch. We cannot afford to miss such opportunities to enhance natural resources.

Finally, one overarching concern is whether our problems will act in an insidious way to disconnect Minnesotans from their environment. Commissioner Merriam put it this way: "*Habitat loss, changing forest ownership patterns, harmful invasive species and disease, and clean water all affect Minnesotan's access to natural resources for hunting, fishing, timber extraction and wildlife watching. Furthermore, reduced access contributes to the growing physical disconnect between people and natural resources. If Minnesotans lose their connection to natural resources we risk losing citizen's support for natural resource conservation.*"

Some of the more significant issues that surfaced in member responses follow. More detailed descriptions of these and other important concerns can be seen in the attached agency responses.

## **Air**

### **▪ Keeping our air healthy**

Minnesota's clean clear air is a key ingredient in the quality of life we strive for in our state. The state currently meets federal standards for all key air pollutants; however, recent scientific evidence indicates concentrations of fine particles in Minnesota's air are unhealthy. Several times a year ozone and fine particle levels are unhealthy for sensitive individuals and trigger air alerts.

Concentrations of all but one of the toxic air pollutants measured in Minnesota are below cancer health benchmarks at most locations. The greatest concern with toxics is that people are exposed to many chemicals at any given time, and very little is known about the effects of exposure to multiple pollutants. In addition, new scientific studies are showing a link between adverse health effects and proximity to major roads and vehicle exhaust. More studies are needed to better understand the risk to people living near busy streets. (See Pollution Control Agency comments.)

Airborne mercury from sources inside and outside the state is at levels that result in fish consumption advisories for nearly all our lakes, and health effects may be severe for those not observing consumption advisories. The occurrence and quantities of elemental mercury in school indoor air resulting from spills and the use of mercury in manufactured flooring is also a serious concern. (See PCA and Health comments.)

### **▪ Confronting climate change**

Scientific evidence indicates the earth is experiencing warmer temperatures, due in part to increased emissions from the burning of fossil fuels. In Minnesota, observed changes in climate include higher temperatures and more frequent heavy rainfalls and flooding. (See PCA comments.)

The changing climate may affect Minnesota's efforts to protect natural resources and sustain our economy. We need to understand not only how we may contribute to the problem, but how we might address it in a way that provides economic opportunity and protects environmental quality. (See Administration, Agriculture and PCA comments.)

## **Water**

### ▪ **Managing agricultural drainage, soil nutrients and pesticides to achieve water quality goals**

We need to demonstrate that agricultural production and water quality protection are not mutually exclusive. Farming depends upon soil productivity, which depends in turn on proper soil moisture and the return to the soil of nutrients taken up by crops. Pesticides may be needed to address invasive pests, weeds and plant diseases. Farm drainage is an essential part of soil moisture management, and rural drainage (farm and non farm) offers promising opportunities for improving water quality. Soil nutrients and pesticides must be managed to prevent or minimize water pollution. Managing nutrients and pesticides is a challenge that requires information and expertise on soils, application rates, and modern cropping and manure management. (See Agriculture and PCA comments.)

Responsibility for administering Minnesota's 17,000 miles of public drainage systems is vested in various local government units, which exhibit varying abilities to manage historical records, environmental permitting, current maintenance and future opportunities. There are good examples of how ditch law has been used to improve habitat, water quality and flood retention, but disseminating success stories is difficult when no one agency has responsibility for working with the authorities and serving as "caretaker" for clarifications and updates to state drainage law. Improving the management of drainage systems promises significant benefits to water quality and wildlife. (See Board of Water and Soil Resources comments.)

### ▪ **Optimizing the federal farm bill**

Federal dollars for undertaking conservation work have currently spiked to a level well above historical funding levels. This may be good for the state's impaired waters strategy, but landowners signing up for these programs face a bottleneck due to technical staff shortages. The longer it takes for a landowner to receive technical assistance, the greater the risk that they will become disenchanted and walk away. (See BWSR comments.)

### ▪ **Managing demands on our water**

The health of Minnesota's freshwater habitats is threatened by physical and chemical changes from many causes, including runoff and water appropriation. A rapidly growing population, increased water consumption rates, emerging water demands, and other factors challenge our ability to maintain adequate water supplies for Minnesota's people and habitats. Between 1990 and 2000, water use grew almost twice as fast as population. Population will grow another third by 2030. We must act strategically to clean up impaired waters, protect ground water and ensure sustainable water use to meet the needs of an increasing, and increasingly demanding, population. This will take coordinated approaches to managing water availability and demand, water quality, watersheds and aquifers, land use, and local involvement. It will take accelerated research, monitoring and assessment, and a willingness to consider new partnerships and a long range view of what Minnesotans want their state to look like in the future. (See Department of Natural Resources, Health, PCA and Administration comments.)

### ▪ **Understanding water and public health**

The state needs a better understanding of the potential public health risks from nitrate, arsenic and other key contaminants in private wells and from pharmaceuticals and other consumer by-products in surface and ground water. It also needs to understand how much water people consume at home where tap water is the primary or sole source of water intake. This heavily influences the state's assessment of risks from water contaminants, but the data is currently only available from national studies and important Minnesota populations have not been studied. (See Health comments.)

## **Land use**

### ▪ **Halting habitat loss and fragmentation**

Loss of wetland, grassland, forest, shoreland and shallow lake habitats is increasing, especially due to urban and residential development and changing agricultural practices. In the greater Twin Cities metropolitan area, nearly 60 acres of undeveloped land is converted to other land uses every day. By 2030, more than one million new residents and nearly 500,000 new homes are projected in the 11-county metropolitan area alone. Along Minnesota lakeshores, the median number of homes per mile has grown from fewer than three in 1950 to more than 16 today, and even more are expected as baby boomers retire. Development and removal of lakeshore vegetation can degrade lake water quality, diminish fish and wildlife populations, and limit recreation. (See DNR comments.)

### ▪ **Managing a changing landscape**

Rural Minnesota has changed dramatically in the past 50 years. Wetlands have been drained, grasslands have been converted to row crops, and fewer livestock roam the landscape. Larger, less diverse farms support fewer habitats for wildlife. In Minnesota's prairie pothole region, less than 10 percent of the wetlands and less than one percent of its native grassland remain. In some agricultural regions, expanding drain tiling continues to move more water off the land and degrade water quality and wetland habitat. Although drainage systems help maintain crop production, their environmental consequences need to be evaluated and minimized. With 400,000 acres of conservation reserve contracts expiring in 2007 and another 400,000 in 2008, habitat in agricultural landscapes is further threatened. Habitat losses have contributed to the large number of wildlife species in greatest conservation need and directly reduce Minnesotan's access to and connection with natural resources. (See DNR and BWSR comments.)

### ▪ **Protecting agricultural production lands**

Urban areas have pushed into farming areas, and more non-farmers have chosen to live in rural areas, resulting in higher land prices, higher property taxes, and more complaints over the smells, sounds, and hours of operation of farms and agriculturally-related businesses. Infrastructure for transportation, public services and energy is built or expanded in rural areas, sometimes providing services for agriculture, but also sometimes unnecessarily consuming or damaging agricultural land and interfering with future agricultural growth. (See Agriculture comments.)

### ▪ **Mitigating forest ownership pattern changes**

Thousands of acres of forest lands owned by timber and mining companies are being sold in large chunks to timber investment management organizations. While timber companies traditionally managed large land holdings for trees, wildlife habitat and permitted recreational access, these management organizations and the investors they represent generally see such lands as worth more in real estate transactions. Nearly one million acres of large, mostly undeveloped private forest are at risk of being converted into smaller parcels with significant implications for habitat and public access. This results in decreased forest tract size and price escalation, which can translate to decreased value as habitat, decreased access for recreation, decreased access for timber harvesting and increased challenges to forestland conservation. (See DNR comments.)

### ▪ **Making the most of land use planning opportunities**

As communities develop, the way they design neighborhoods can have significant resource implications. An approach called low impact design can be a key to effective management of stormwater quality, runoff and natural resource protection. The state should seek widespread adoption of such design measures by, among other moves, supporting watershed management organizations and cities that help implement them. Minnesota has invested broad authorities for local governments to manage water resource issues. State funds have been crucial to implementing the on-the-ground land and water treatment projects identified within county and watershed management plans. (See PCA and BWSR comments.)

## **Fish and wildlife**

### ▪ **Addressing harmful, invasive species and disease**

Invasive species threaten natural resources and their use. DNR has identified invasive species as one of the greatest land and water challenges facing the state. Invasive species can displace native species, degrade habitat for fish and wildlife, reduce productivity and limit recreation. Strategic programs have limited the spread of such harmful species as Eurasian watermilfoil, zebra mussels and purple loosestrife, and are staged to do the same for European buckthorn and garlic mustard. However, invasive species such as Emerald ash borer and Asian carp, and diseases such as chronic wasting disease, are poised to invade Minnesota from neighboring states and threaten forests, fisheries and wildlife. A proactive approach to identification of emerging invasive species threats is urgently needed. (See DNR, Agriculture and Transportation comments.)

## **Related resource issues**

### ▪ **Assessing toxic chemicals exposure**

The state should assess children's exposure to arsenic from treated lumber or soil on and around playgrounds; study the occurrence and quantities of elemental mercury in school indoor air resulting from spills and the use of mercury in manufactured flooring; and study the incidence of carboxyhemoglobin in sensitive populations at risk of high exposures to carbon monoxide. The state also needs a better understanding of the potential exposure of Minnesotans to bio-accumulative contaminants in fish (mercury, PCBs, PBDEs and other persistent contaminants). (See Health comments.)

### ▪ **Characterizing natural resources**

To adequately address environmental issues for agriculture, as well as other sectors, better information is needed to make informed decisions; particularly in the characterization of our natural resources through monitoring, measuring and mapping. (See Administration, Agriculture, DNR and PCA comments.)

### ▪ **Enhancing geographic information systems**

An emerging challenge of today's natural resource issues is the need for information systems that cut across agency boundaries, that integrate air, land, water, fish, wildlife and other resource data, and that help people understand threats, trends and opportunities to manage and protect resources put at risk. To address the critical issues we have identified will require high-quality contemporary geo-spatial data, coordinated in its collection, integration and dissemination. Investment in geo-spatial data that conforms to GIS compatibility standards will help ensure that natural resource managers and decision makers have the information they need to make effective, informed decisions. (See Administration comments.)