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July 29, 1999

Gulf of Mexico Hypoxia Working Group
National Centers for Coastal Ocean Science
WS 13446 SSMC4
1305 East-West Highway
Silver Spring, MD 20910

To Whom It May Concern:

Enclosed you will find a copy of the Mississippi River Stewardship Initiative, a proposal to significantly reduce polluted runoff in the Upper Mississippi River Basin. Please include this letter and the proposal as comments to the "Topical Scientific Reports for an Integrated Assessment of the Causes and Consequences of Hypoxia in the Gulf of Mexico."

The Mississippi River Stewardship Initiative was developed over three years of collaboration among citizens of the five Upper Mississippi River Basin states of Minnesota, Wisconsin, Iowa, Illinois and Missouri. Through the Upper Mississippi River Summit, citizens, agency officials, local advocacy groups, and legislators came together to discuss river issues in an open and non-confrontational manner. After several years of discussion about "doing something" about such issues as habitat loss, navigation improvements and flood control, participants have agreed resoundingly that the primary threat to the Upper Mississippi River is polluted runoff from throughout the basin.

The recognition of the severity of the threat of sediment and nutrient runoff led to the development of the Mississippi River Stewardship Initiative. The Initiative proposes to use existing federal authorities to identify high priority watersheds and sub-watersheds in the Upper Basin, increase and target technical assistance to landowners, develop new and innovative solutions to polluted runoff, expand information sharing among federal agencies, and expand monitoring efforts.

Polluted runoff impacts a watershed locally as well as downstream. The benefits of reducing sediment and nutrient inputs into the Upper Mississippi River Basin will cut across many social and economic interests in the basin. In addition, such reductions also have the great potential of contributing to a suite of efforts to reduce Gulf of Mexico Hypoxia.

The Upper Mississippi River is a river on the decline. Critical fish and wildlife habitat is lost faster than it can be replaced by federal programs. Farmers lose $300 million annually in applied nitrogen loss, navigation channel dredging costs exceed $100 million annually, and habitat restoration efforts on the Upper Mississippi River exceed $33 million. Implementation of the Mississippi River Stewardship Initiative on the Upper Mississippi River would provide federal agencies and private landowners the tools they need to reduce polluted runoff, potentially reducing the cost of channel maintenance, minimizing nitrogen loss from farm fields, and protecting critical river habitat.

As with all rivers, the effects of local actions are not just felt locally, but travel downstream. The Mississippi River Stewardship Initiative has the potential to have significant positive impacts on local watersheds, but it also has the potential to have similar impacts downstream.

Sincerely,

Jeffrey A. Stein
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Mississippi River Stewardship Initiative:
A Public-Private Partnership to Reduce Sediment and Nutrient Loss in the Upper Mississippi River Basin

Prepared by:
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Public and private interests from the states of Minnesota, Wisconsin, Illinois, Iowa and Missouri have developed a citizen-led, incentive-based initiative to reduce the amount of sediment and nutrients entering the Upper Mississippi River.

Each year, sediment and nutrients are inadvertently washed off the landscape, into feeder streams, and ultimately into the Mississippi River - reducing farm income, increasing channel maintenance costs, threatening drinking water supplies and filling side channels used by river wildlife. The costs associated with sediment and nutrient loss are enormous -- farmers annually lose more than $300 million in applied nitrogen, dredging costs annually top $100 million, and habitat preservation efforts will soon reach $33 million a year.

Although agencies, institutions and individuals have struggled to reduce nutrient and sediment loss, only modest gains have been made. Most rivers and streams in the Upper Mississippi River basin continue to suffer from the effects of sediment and nutrients. There are many reasons - insufficient resources, inadequate information sharing, failure to set priorities, and lack of effective coordination.

To reduce the amount of sediment and nutrients entering the Upper Mississippi River, Congress should implement the Mississippi River Stewardship Initiative. This public-private partnership will identify major sources of sediments and nutrients, increase and target technical and financial assistance, develop and implement new solutions, expand efforts to share information, create a basinwide monitoring network, and establish a 15-member advisory group to coordinate public and private activities.

Sediment and Nutrient Loss

Although landscapes naturally erode, human activities like residential and commercial development, road construction, and agriculture accelerate the movement of sand and silt into rivers. Larger particles fill in the Mississippi's navigation channel, increasing the cost of providing a reliable transportation link to foreign markets. Today, annual channel maintenance costs top $100 million. As the channel continues to fill with sediment and adequate dredged disposal sites grow rare, the movement of 90 million tons of cargo, including grain and petroleum products, could be threatened.

Larger particles also fill wetlands and side channels - important nurseries for river wildlife. As these side channels are lost, scientists predict that the Upper Mississippi River will feature fewer areas that can support migratory waterfowl and will experience a shift away from desirable game fish toward less desirable species. Smaller particles increase the cloudiness of river water, reducing the penetration of sunlight needed for the growth of aquatic plants, an important food source for fish and waterfowl. As they reach the Mississippi, smaller particles tend to settle in slow-moving backwaters, smothering mollusks and other invertebrates and contributing to a loose river bottom that is not suitable for aquatic plant growth. In combination, the loss of side channels and aquatic plants threatens the river's $1.2 billion recreation-industry.

Nutrients are released into the Upper Mississippi River and its tributaries from many sources, including wastewater treatment plants, suburban backyards and farm fields. Once nutrients like nitrogen and phosphorous reach rivers and streams, they ignite a biological and

chemical chain reaction that reduces the amount of oxygen dissolved in river water, limiting the diversity of species that can survive. In rare cases, nutrient levels exceed federal safety standards, threatening drinking water supplies.

Although wastewater treatment plants are a significant source of nitrogen and phosphorus, nutrient loss is accelerated by the remarkable amount of food production in basin states. More of the land drained by the Upper Mississippi River and its tributaries is used to grow crops than in any other river basin in the nation. The states of Minnesota, Illinois, and Iowa are among those with the greatest percentage of cultivated land, the highest rate of nitrogen fertilizer application, and the greatest amount of artificially drained soils. Although the Upper Mississippi River contributes 22% of the water flowing into the Lower Mississippi River, the Upper Mississippi contributes 31% of the nitrogen.

Current Constraints

Many people do not understand their contribution to the sediment and nutrients that accumulate in the Upper Mississippi River. Though many know that the Mississippi suffers from excess "pollution," few link their actions with the fate of the river. Backyards, construction sites, farm fields, storm drains all contribute sediment and nutrients - but homeowners, developers, farmers and city officials rarely link their actions with a river which may be miles away. Resource managers and policymakers also ignore variations in the landscape, leading to a "one-size-fits-all approach" to soils with remarkably different characteristics.

In addition, many people underestimate the costs of sediment and nutrient loss, the role they can play to reduce those costs, and the savings associated with practices which reduce sediment and nutrient loss. Conversely, resource managers and policymakers often underestimate the economic risks taken by landowners that are asked to adopt new practices. Many incentive programs fail to reflect the risk landowners take when they adopt new technologies or land management practices.

Although there are more than 75 local, state and federal public and privately- funded programs designed to address sediment and nutrient loss in the Upper Mississippi River basin, resource managers do not collaborate to identify and address significant sources, monitor results, share information or set priorities. Consequently, programs often overlap, gaps are left unfilled, and scarce resources not used efficiently.

Mississippi River Stewardship Initiative

In order to reduce sediment and nutrient loss, policymakers must adopt a coordinated public-private approach that takes action, monitors the results, shares information and makes adjustments. The Mississippi River Stewardship Initiative is designed to identify major sources of sediment and nutrients, increase and target technical and financial assistance, develop and demonstrate new solutions, use water quality monitoring and computer models to set goals and measure success, expand efforts to share information, and coordinate public and private programs to collaboratively set and meet priorities. By increasing resources and collaboration, and by establishing a feedback loop to support periodic adjustments, the Stewardship Initiative is designed to make wiser use of scarce resources.

In particular, the Stewardship Initiative will:

- **Create a Basin-Wide Monitoring Network** - Expanding public and private monitoring efforts to create a basin-wide monitoring network will allow resource managers to identify which subwatersheds are major sources of nutrients and sediments, target program resources, measure success, and make adjustments. Citizen-led monitoring, in combination with computer modeling by the U.S. Army Corps of

Engineers, will help decision-makers target resources to address major sediment and nutrient sources.

- **Coordinate Activities** - Although agencies will retain control of budget and program administration, a public-private interagency advisory group will be established to provide direction and guidance through annual recommendations to resource managers, grant-making agencies and legislatures. This 15-member advisory group will represent the diverse community of public and private stakeholders concerned about the Upper Mississippi River. The group, administered by the Resource Studies Center, will provide regular updates to basin interests through a website, newsletter, and other media, and coordinate public and private watershed management efforts. A series of teams will be created to address specific issues, including water quality monitoring, modeling, and outreach.

- **Develop New Solutions** - A new grant program will fund universities, private organizations, and local governments to develop new practices, measure the economic risks associated with new practices, identify proper incentives, and predict the social and economic costs and benefits of alternative solutions.

- **Expand Outreach Efforts** - Existing but difficult to access information and new information developed through this partnership will be made widely available to create a common understanding of the problems created by nutrient and sediment loss, successful solutions, and what we are learning through our efforts. Both success stories and failures will be communicated to all stakeholders concerned about better sediment and nutrient management.

- **Increase and Target Technical and Financial Assistance** - Once monitoring and modeling efforts have identified high priority watersheds and long-term needs, federal programs which provide voluntary technical and financial assistance to urban and rural landowners and wastewater treatment plants will be expanded to address these areas. New incentive problems will also be implemented.

Program Development and Timeline

The Mississippi River Stewardship Initiative will be developed in two phases.

During the first phase, a basinwide water quality monitoring network will be developed. The monitoring network, along with computer models, will be used to identify subwatersheds which are major sources of sediment and nutrients and create a baseline against which progress can be measured. The Resource Studies Center will lead coordination activities, including the creation of the 15-member advisory council and establishment of teams to develop the monitoring, modeling and outreach components of the initiative. This phase is expected to take two years.

During the second phase, the advisory council, in collaboration with basin stakeholders, will implement a basinwide plan which increases and targets funding for voluntary practices that reduce sediment and nutrient loss, develops and demonstrates new solutions, and expands outreach efforts. Federal funding to landowners implementing voluntary practices would be gradually increased during the second phase. Existing programs, such as the Environmental Quality Incentives Program and Section 319 Program, would be used to provide new funds to urban and rural landowners in high priority watersheds, but new programs may be created.

This strategy was developed by diverse interests to ensure inclusiveness, and the 15-member advisory group will continue to reflect these diverse interests as the program evolves.

Revised

Upper Mississippi River Stewardship Initiative - Ten year Proposed Budget ($000,000)

Task	Proposed Additional Annual Funding												
	FY-99/00	FY-01	FY-02	FY-03	FY-04	FY-05	FY-06	FY-07	FY-08	FY-09	FY-10	Total	% of Total
Phase I													
Water Quality Monitoring Program	0.10	15.00	10.00	10.50	11.03	11.58	12.16	12.76	13.40	14.07	14.77	125.37	10.86
Preplanning and Scoping	0.10											0.10	0.01
Setup Program (Facilities, Networks, Staffing)+ Agencies		1.20										1.20	0.10
Citizen-Based Monitoring Program Equipment and Supplies		0.80										0.80	0.07
Gage Installation		3.00										3.00	0.26
Data Collection and Analysis		5.00	5.00	5.25	5.51	5.79	6.08	6.38	6.70	7.04	7.39	60.13	5.22
Program and Information Management		3.00	3.00	3.15	3.31	3.47	3.65	3.83	4.02	4.22	4.43	36.08	3.13
Grants for Citizen-based Program		2.00	2.00	2.10	2.21	2.32	2.43	2.55	2.68	2.81	2.95	24.05	2.09
Research and Modeling	0.10	21.30	12.50	17.10	17.30	13.40	6.10	6.10	4.10	2.10	0.90	101.00	8.77
Preplanning and Scoping	0.10											0.10	0.01
Evaluating Agricultural Practices (U of MN - Waseca and USDA)		3.50	4.60	7.70	7.90	8.00	5.30	5.30	3.30	1.30	0.30	47.20	4.10
Basin Sediment and Nutrient Models (COE)		2.50	2.50	4.00	4.00	4.00	0.25	0.25	0.25	0.25	0.25	18.25	1.58
GIS Data Development and Modeling (RSC Research support)		0.90	0.90	0.90	0.90	0.90	0.25	0.25	0.25	0.25	0.25	5.75	0.50
Soils Data Development (Required for Targetting)		4.00	4.00	4.00	4.00							16.00	1.39
** Elevation Data Development (Required for Targeting)		10.00										10.00	0.87
Economic Risk Assessment (USDA)		0.40	0.50	0.50	0.50	0.50	0.30	0.30	0.30	0.30	0.10	3.70	0.32
Education/Outreach		1.00	1.05	1.10	1.16	1.22	1.28	1.34	1.41	1.48	1.55	12.58	1.09
Coordination (Advisory Team)	0.45	1.00	1.05	1.10	1.16	1.22	1.28	1.34	1.41	1.48	1.55	13.03	1.13
Preplanning, Scoping, and Program Development (RSC)	0.30											0.30	0.03
Public and Agency Advisory Group	0.15	0.15	0.16	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.23	2.04	0.18
Facilitation, Information Collection, Management, and Dissemination		0.85	0.89	0.94	0.98	1.03	1.08	1.14	1.20	1.26	1.32	10.69	0.93
Phase II													
Financial and Technical Assistance to Landowners												900.00	78.13
*note - Specific Program Allocations Defined During Phase I													
Environmental Quality Incentives Program (EQIP)													
Conservation Technical Assistance (CTA)													
Section 319 of the Clean Water Act													
Conservation Reserve Program (CRP)													
Wildlife Habitat Improvement Program(WHIP)													
Farmland Protection Program (FPP)													
Watershed and River Basin Planning and Management - PL566													
Wetland Reserve Program (WRP)													
Other Appropriate Authorities													
Totals													
		38.3	24.6	29.8	30.6	27.4	20.8	21.5	20.3	19.1	18.8	1152.0	