

Examination of the
Upper Mississippi River Basin States'
Nonpoint Source Pollution Reports

Introduction

The latest National Water Quality Inventory has identified nonpoint sources of pollution as the primary cause of degraded water quality. The regulation of point sources and construction of wastewater treatment facilities has reduced the effect of point sources on water quality. The biggest threat to our nation's water bodies now comes from nonpoint sources of pollution.

Nonpoint sources of pollution include agricultural practices, urban run-off, hydrologic modifications, land disposal practices, construction activities, and other sources. These activities contribute nutrients, suspended solids, sediment, metals, and toxics to water bodies. Since nonpoint sources cannot be traced back to specific sources such as discharges from industrial facilities or wastewater treatment plants, identification and control of nonpoint sources is difficult.

To address the problem of nonpoint source pollution, Congress authorized a nonpoint source management program in Section 319 of the 1987 amendments to the federal Clean Water Act. Section 319 requires the states to prepare nonpoint source assessment and management reports and authorizes grants for implementation of these management programs. While no funds have yet been appropriated for the program, the states have developed their assessment and management reports and have submitted them for Environmental Protection Agency (EPA) approval. This paper examines how the states in the Upper Mississippi River Basin address nonpoint pollution of the Mississippi River in their statewide nonpoint source assessment and management reports.

Section 319 Requirements

Section 319 of the Water Quality Act of 1987 requires that states prepare an assessment report that identifies nonpoint source problems throughout the state and a management plan to deal with these problems. The assessment report and management report were to be submitted for EPA review by August 4, 1988.

The EPA guidelines for the assessment report require that the states:

- 1) identify the navigable waters which, without additional action to control nonpoint source pollution, could not be expected to attain or adhere to applicable water quality standards or the fishable/swimmable goal of the act,
- 2) identify nonpoint sources which add pollution to each portion of the degraded navigable waters,
- 3) describe the process for identifying best management practices and measures to control and minimize the identified nonpoint sources, and
- 4) identify and describe state and local programs for controlling nonpoint source pollution.

The states were directed to use existing data to conduct the assessment. Any navigable waters that had insufficient information to conduct the assessment were to be noted in the report with a timetable for completing the assessment.

The purpose of the state management report is to provide an overview of a state's nonpoint source programs as well as a summary of plans for the next four fiscal years. The EPA guidelines for the management program require that the program include:

- 1) best management practices (BMPs) that will be used to reduce nonpoint source pollution,
- 2) programs to achieve implementation of the BMPs,
- 3) a schedule for implementation of the BMPs,
- 4) certification that the state has the authority to implement the BMPs,
- 5) sources of funding for implementing the BMPs, and
- 6) the federal financial assistance programs and federal development projects which the state will review for their effect on water quality.

The EPA directed that the management reports be developed on a watershed-by-watershed basis and that they focus on areas where implementation of nonpoint source controls is considered to be a priority.

State Assessment Reports

According to EPA guidelines for the assessment report, the state 305(b) reports (State Water Quality Inventory Reports) were to be used as the formal mechanism for reporting the list of waters impacted by nonpoint source pollution. State 305(b) reports are due biennially and are used by the EPA to determine the quality of the nation's waters. The states in the Upper Mississippi River Basin complied with the 305(b) nonpoint reporting requirements but utilized various reporting methods.

Illinois provided a list in both the 305(b) report and the nonpoint assessment report of river segments impacted by point and nonpoint sources. The list indicates the nonpoint sources and the pollutants that cause the river to not fully support its uses. Since both point and nonpoint source pollutants are listed together, it is not possible to determine which pollutants are from nonpoint sources.

Iowa did not list the impacted waterbodies but provided maps in both reports which showed the degree of use support and the causes of partial support or non-support due to nonpoint sources. As part of the process in producing the 305(b) report, Iowa compiled a computerized listing similar to Illinois' of point and nonpoint sources affecting the river. This list is not an official part of either report.

Minnesota provided a list in both the 305(b) and nonpoint assessment reports of stream segments impacted by nonpoint source pollution. A total of 12.5 of the 174 commercially navigable river miles were assessed for nonpoint source impacts based on water quality parameters. The entire 174 navigable miles of the river were assessed for nonpoint source pollution based on fish tissue contamination.

The 20.8 miles of river in Lake Pepin were assessed based on trophic status (nutrient levels). The entire river was evaluated by resource managers through the use of a survey. While the 36 miles of river in the Twin Cities were evaluated, they were not reported as nonpoint source impacted. Since the managers had different opinions on the effect and source of nonpoint source pollution, some river reaches on the Mississippi River have up to 5 different evaluations as shown in Table 1. However, the evaluation by each manager varied little or none by river reach. For example, the Minnesota DNR Fishery Section evaluation concluded that the same nonpoint sources (AGR(11,19), HAB, URB, LND(65), CON, OTH) and the same 9 nonpoint source effects occur in all reaches of the river they evaluated. Therefore, while the evaluations of the different managers differ, the evaluations by a single individual vary little or none by river reach.

Missouri provided a list of nonpoint sources and their impact to waterbodies in the assessment report, and briefly discussed the point and nonpoint pollutant sources in the 305(b) report. The Mississippi River was divided into two river segments -- 165 miles above the confluence of the Missouri River and 195 miles below the confluence.

In its assessment report, Wisconsin listed the nonpoint sources affecting the Mississippi River. A map in the 305(b) report showed waterbodies affected by nonpoint source pollution. Wisconsin evaluated the entire 231 miles of river as one river segment.

Table 1 lists the nonpoint sources of pollution and their effect on the Mississippi River as identified by the five states. The information is derived from tables and maps in the nonpoint assessment reports required by EPA. To shorten the table, river segments (reaches) with identical nonpoint sources were grouped together. Figure 1 shows the river reaches listed in the table.

The states assessed different lengths of river segments. Illinois and Minnesota provided the most detailed assessment by reporting nonpoint source evaluations of the river in 79 and 23 river segments respectively. Missouri divided the river into two segments and Wisconsin evaluated the entire river as one reach. Since Iowa provided only maps in their assessment report it is not possible to determine the scale at which the river was examined. Since the effect of nonpoint source pollution is often localized, the smaller the river segment examined, the more likely the assessments will reflect discrete nonpoint source problems.

In addition, the way in which the assessment was conducted affects the usability of the data. Illinois listed both point and nonpoint source pollutants together in the table making it impossible to determine only the nonpoint source pollutants. Iowa and Wisconsin listed sources of nonpoint pollution but not pollutant types (not required in the EPA guidelines). Missouri, on the other hand, listed a pollutant but no source. Minnesota listed both sources and effects of the nonpoint pollutants.

Agricultural activity, more specifically non-irrigated crop production, is identified by all the states as a nonpoint pollutant source and is considered the major source of nonpoint pollution to the river. Hydrologic/habitat modification is considered a nonpoint pollutant source by all the states except Iowa and Missouri. (Missouri did not list any sources of nonpoint pollutants.) Hydrologic/habitat modification consists of activities such as channelization, dredging, and streambank modification. Urban runoff was listed as a nonpoint source by Illinois, Iowa, and Minnesota for some of the river reaches they examined.

Table 1. Nonpoint Sources of Pollution to the Upper Mississippi River

River* Reach	Number of River Miles	Nonpoint Sources	Nonpoint Effects/Pollutants (Not required by EPA)
WISCONSIN 1	231	AGR (11,16), HAB	---
ILLINOIS**			
2	107.9	AGR, HAB (71,74)	NUT, SLT, FLA
3	280.5	AGR, HAB	NUT, SLT, FLA, OHA
4	22.8	AGR (11), HAB	NUT, SLT, OHA, PR, SS
5	4.2	AGR (11), HAB, URB	NUT, SLT, OHA, PR, SS, MTL
6	9.7	AGR (11), HAB	NUT, SLT, OHA, PR, SS, MTL
7	191.1	AGR (11), HAB, URB	NUT, SLT, OHA, PR, SS, MTL
MINNESOTA+			
A	20.2	AGR(11,19), HAB, URB, LND(65), CON, OTH AGR(11, 19), HAB(72, 74), URB(41,43), LND(62), CON(32)	A, B, C, D, E, F, G, H, I B, C, D, E, F, G
B	31.2	AGR(11,19), HAB, URB, LND(65), CON, OTH AGR(11, 19), HAB(72, 74), URB(41,43), LND(62), CON(32)	A, B, C, D, E, F, G, H, I B, C, D, E, F, G
C	48.6	AGR(11) AGR(11,19), HAB, URB, LND(65), CON, OTH AGR(11,14,19), HAB(76,77), URB(41), LND(63,66)	A, B, C, D, E A, B, C, D, E, F, G, H, I A, D, E, F, G
D	8.2	AGR(11,19), HAB, URB, LND(65), CON, OTH AGR(11,14,19), HAB(76,77), URB(41), LND(63,66)	A, B, C, D, E, F, G, H, I A, D, E, F, G
E	11.3	AGR(11,19), HAB, URB, LND(65), CON, OTH AGR(11,14,19), HAB(76,77), URB(41), LND(63,66)	A, B, C, D, E, F, G, H, I A, D, E, F, G
F	0.8	AGR(11,19) AGR(11,19), HAB, URB, LND(65), CON, OTH AGR(11,19), HAB(72), URB(41), LND(61,62,66)	D A, B, C, D, E, F, G, H, I A, B, D, E, G
G	4.3	AGR(11,19), HAB, URB, LND(65), CON, OTH AGR(11,14,19), HAB(76,77), URB(41), LND(63,66) AGR(11,19), HAB(72), URB(41), LND(61,62,66) AGR(11,19)	A, B, C, D, E, F, G, H, I A, D, E, F, G A, B, D, E, G D
H	12.9	AGR(11,19), HAB, URB, LND(65), CON, OTH AGR(11,14,19), HAB(76,77), URB(41), LND(63,66) AGR(11,19) AGR(11,14,19) UNK	A, B, C, D, E, F, G, H, I A, D, E, F, G D D, E, F, G C
I	?	AGR(11,19), HAB, URB, LND(65), CON, OTH AGR(11,14,19), HAB(76,77), URB(41), LND(63,66) AGR(11,19)	A, B, C, D, E, F, G, H, I A, D, E, F, G D
J	?	AGR(11,14,19) HAB(76,77), URB(41), LND(63,66) AGR(11,19)	A, D, E, F, G D
IOWA			
K	240	AGR, URB, NAT, NAV	---
L	38	AGR, URB, NAV	---
M	35	AGR, URB, LND, NAT, NAV	---
MISSOURI N	362	---	Chlordane in fish

* The map in Figure 1 shows the location of the river reaches.

** The nonpoint effects for Illinois include both point and nonpoint sources since it is not possible to separate them.

+ There are several evaluations listed for each reach of the river in Minnesota due to differing opinions of resource managers.

KEY

Nonpoint Sources

- AGR - Agricultural
 - 11 - non-irrigated crop production
 - 14 - pasture land
 - 16 - animal waste
 - 19 - agri-chemical application (pesticides and fertilizers)
- HAB - Hydrologic/habitat modification
 - 71 - channelization
 - 72 - dredging
 - 74 - flow regulation/modification
 - 76 - removal of riparian vegetation
 - 77 - streambank modification/destabilization
- URB - Urban Runoff
 - 41 - storm sewers (source control)
 - 43 - surface runoff
- LND - Land disposal
 - 61 - sludge
 - 62 - wastewater
 - 63 - landfills
 - 65 - on-site wastewater systems
 - 66 - hazardous waste
- CON - Construction
 - 32 - land development
- NAT - Natural causes
- NAV - Navigation
- OTH - Other sources
- UNK - Unknown

Nonpoint Effects/
Pollutants

- Illinois
 - NUT - Nutrients
 - SLT - Siltation
 - FLA - Flow alterations
 - OHA - Other habitat alterations
 - PR - Priority organics/toxics
 - SS - Suspended solids
 - MTL - Metals
- Minnesota
 - A - Oxygen depletion
 - B - Eutrophication (heavy algal blooms, etc.)
 - C - Bacteria contamination
 - D - Bottom sedimentation
 - E - Toxicity due to pesticides, dissolved metals, etc.
 - F - Turbid waters
 - G - Physical habitat alteration
 - H - Unknown
 - I - Other

Figure 1. River Reaches Affected By Nonpoint Source Pollution (See Table 1)

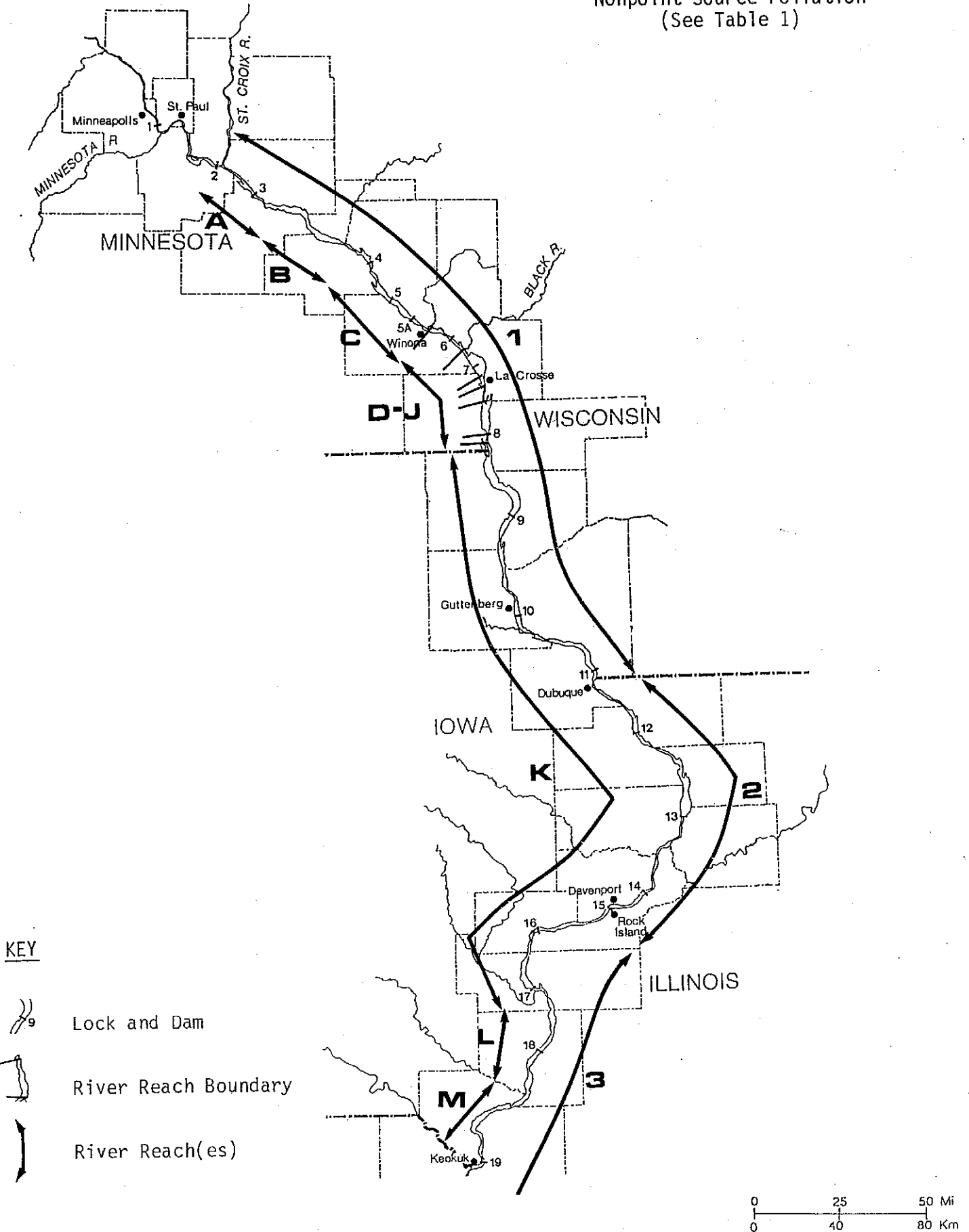
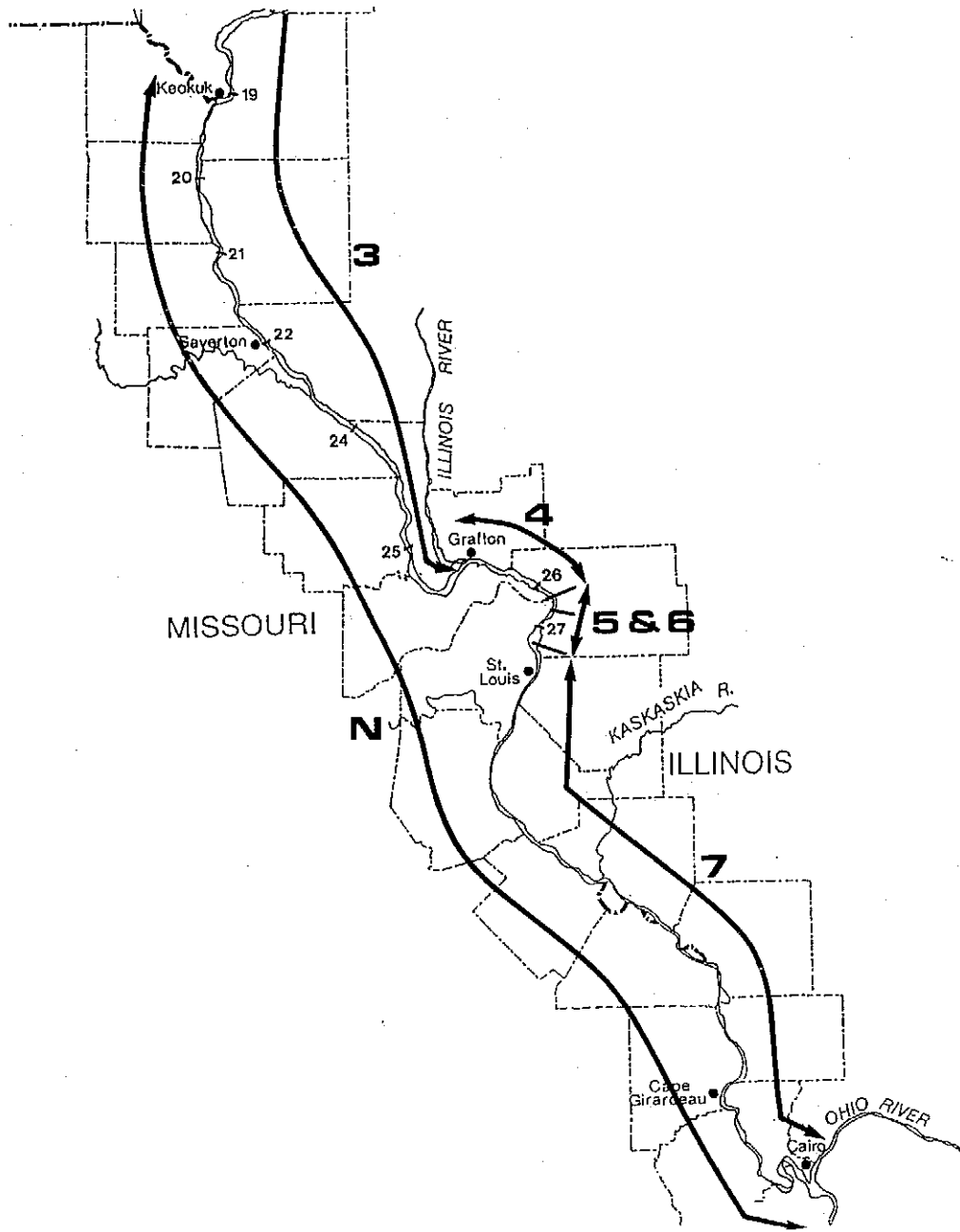


Figure 1 continued



KEY



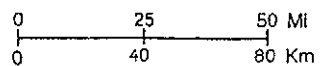
Lock and Dam



River Reach Boundary



River Reach(es)



Several other nonpoint sources were identified by only one or two of the states. Iowa and Minnesota both identified land disposal activities as a source of nonpoint pollution. Iowa was the only state to identify navigation and natural causes as pollutant sources. Minnesota was the only state to identify construction activities as a nonpoint pollutant source and to list "other sources" and "unknown" in their evaluation.

While it was not required by the EPA, both Illinois and Minnesota identified the pollutants and the effects from the nonpoint source pollution. Increased levels of nutrients and siltation were identified as nonpoint effects on all the Illinois river reaches. Nonpoint source pollution was identified as causing flow alterations, other habitat alterations, and increased levels of priority organics/toxics, suspended solids, and metals in various river reaches in the Illinois portion of the river. Minnesota's evaluations identified up to 7 effects of the nonpoint pollution: oxygen depletion, eutrophication, bacterial contamination, bottom sedimentation, toxicity due to such substances as pesticides and dissolved metals, turbid waters, and physical habitat alteration. All of the evaluations of the Minnesota portion of the river vary with respect to the effects of the nonpoint source pollution.

State Management Reports

The nonpoint management reports primarily consist of a generic description of existing state nonpoint source programs and new programs and activities that are planned for the next four years. The management reports do not contain a watershed-by-watershed or site-specific description of programs to be implemented. The programs and activities in the report are discussed on a statewide level. Since the reports were not written on a watershed basis, there are no specific management plans pertaining to the Mississippi River.

The nonpoint source management plans for each of the five states consist of a combination of many differing programs since there is no single program that adequately addresses all the nonpoint pollutant sources. The programs address the different sources of nonpoint pollution such as agricultural practices, habitat modification, and land disposal. Most were not designed as nonpoint source programs but have had the beneficial effect of reducing nonpoint sources.

There is usually one lead agency that implements the major nonpoint source programs and other multiple state agencies and local districts that implement other related programs. For example, the Illinois EPA wrote the management report and administers a large number of the programs that relate to nonpoint source pollution. In addition to these programs, however, there are other programs that deal with different aspects of nonpoint source pollution that are administered by the Department of Agriculture, Department of Energy and Natural Resources, Department of Conservation, Department of Public Health, State Water Survey, Soil Conservation Service, and regional planning commissions and conservation districts.

The nonpoint source programs and activities which each of the states have planned for the next four years are primarily continuations and extensions of existing programs. All the states propose to evaluate the existing programs to determine if they have been effective in reducing nonpoint source pollution. Additional studies and projects are planned to increase the states' understanding of the effects of nonpoint source pollution, to determine where the problem

areas are, and to implement measures to reduce nonpoint source pollution. The states' proposed programs and activities are listed in the appendix.

Iowa and Missouri are the only states which identify as part of their management reports, the priority water bodies that would be targeted for nonpoint source controls if money became available. In Iowa, small trout streams and various lakes are listed as high priority water bodies. In Missouri, water bodies that supply drinking water and lakes are given the highest priority. The Mississippi River is low on the Missouri priority list and not mentioned in the Iowa list.

Wisconsin lists future priority watershed projects that are being developed. Wisconsin's major nonpoint source program deals with nonpoint problems on a watershed level, not statewide. High priority watersheds are determined and money and efforts are directed towards reducing nonpoint pollution in these watersheds. Since Wisconsin prioritizes watersheds not individual water bodies, there is no list of prioritized water bodies. Two of the 11 priority watersheds, however, drain into the Mississippi River and should reduce nonpoint source pollution to the river. Neither Minnesota or Illinois provided a priority list of water bodies in the management report.

Summary and Conclusions

As a result of the requirements of Section 319 of the federal Clean Water Act, the states of the Upper Mississippi River Basin have prepared nonpoint source assessments and management reports which are presently being reviewed by the Environmental Protection Agency. As such, the reports are still in draft form and may undergo minor changes.

Overall the assessment reports provide little detail on the specific river reaches affected by nonpoint source pollution. Even the states like Illinois, Iowa, and Minnesota that reported on individual river reaches rather than the river as a single unit, have little variation in nonpoint sources throughout the river. This may mean that 1) the entire Mississippi River in a state is affected by the same nonpoint sources, and/or 2) that detailed analyses by river reach were not possible but that the data was reported by river reach anyway.

The management reports provide an overview of existing nonpoint source programs and activities for the future. On the whole, future plans call for enhancement and coordination of existing programs rather than specific new initiatives. Where the waterbodies in a state have been prioritized for future funding, the Mississippi River is near the bottom of the list or is not mentioned.

Originally, the Association thought that there may be an opportunity to use the Section 319 reports to develop an interstate action strategy to reduce nonpoint source pollution to the Upper Mississippi River. The assessment reports were to be used to prioritize river stretches that were severely affected by nonpoint sources and to determine the watersheds which are major contributors of nonpoint source pollution to the river. By consolidating and coordinating the different management plans for the river, an interstate action strategy was to be developed for the river. However, given the lack of specificity of the assessment and management reports, this does not appear to be feasible.

Appendix

States' Proposed Nonpoint Source Control Activities

Illinois

Agriculture

- Incorporate water quality as a SCS priority
- Assist local governments in developing plans to protect surface waters that are public water supplies
- Compare and analyze NRI data historically
- Implement Conservation Enhancement Act
- Utilize the AGNPS model to review phosphorous, nitrogen, and sediment loads to reservoirs
- Continue 6 Watershed Land Treatment Projects
- Develop rules on pesticide storage, handling, and operational area secondary containment at agrichemical facilities
- Evaluate existing pesticide monitoring data and expand monitoring
- Develop and strengthen existing livestock waste regulations
- Continue participation in Clean Lakes Program and attempt three new projects annually
- Determine the effectiveness of Build Illinois program
- Continue Build Illinois program
- Continue tracking the progress of watershed land treatment programs

Construction

- Develop a Construction Erosion Control Practice Handbook
- Continue to require compliance with Illinois EPA's "Standards and Specifications for Soil Erosion and Sediment Control"

Urban Runoff

- Evaluate the effects of urban pesticide usage on water quality
- Assist counties in preparing stormwater management plans
- Develop stormwater discharge permit program to regulate stormwater discharges
- Continue to assist local governments in applying for funding under the Federal Clean Lakes Program

Hydrologic Modification

- Use National Wetlands Inventory when issuing dredge and fill permits to identify impacts to wetlands
- Review Section 401 water quality certification of Section 404 permits
- Create a more structured review process for hydrologic modification certification under Section 404

Groundwater

- Increase number of wells sampled near agrichemical storage facilities
- Make informational slide presentations on rural groundwater supplies more available for use
- Establish a statewide groundwater assessment through the development of a groundwater data collection and automation program
- Develop a permitting program for non-community water supplies
- Develop regional plans for each designated priority groundwater protection region
- Propose regulations establishing comprehensive groundwater quality standards
- Educate the public and others about the need to protect Illinois' groundwater resources
- Review and coordinate state policy, law, and procedures for groundwater protection
- Continue to administer the minimal hazard certification process
- Provide technical assistance to counties or municipalities to create a groundwater protection needs assessment
- Inventory community groundwater supplies for potential sources and routes of contamination
- Begin the second round of monitoring community water wells for contamination
- Form a consensus of opinion on future legislation needed for sound groundwater resource management

Wetlands

- Develop and implement programs to protect wetlands
- Continue the inventory of wetlands for the National Wetlands Inventory

Monitoring/Evaluation

- Continue and expand the Ambient Water Quality Monitoring Network
- Continue Volunteer Lake Monitoring Program
- Collect intensive river basin information on 100 percent of Illinois' land area
- Increase number of stations and frequency of sampling for toxics/in-place pollutant monitoring
- Continue and expand Fish Contaminant Monitoring Program

Education

- Continue educational activities on nonpoint source pollution in northeastern Illinois
- Continue the development of educational materials and poster contests

Toxics

- Continue development of toxic criteria
- Continue to participate in efforts such as monitoring, standards assessment, and permitting to implement Lake Michigan Toxic Pollutant Control/Reduction Strategy

Miscellaneous

- Develop projects on Peoria Lake to reduce sedimentation effects

Iowa

- Complete On-going Nonpoint Control Projects
 - continue Big Spring Basin Study and Farm Management Demonstration Program
 - continue and update 14 nonpoint control projects
- Establish Additional Nonpoint Control Projects
 - review impact assessment methodology
 - revise assessment methodology
 - publicize assessment results
- Evaluate Nonpoint Source Monitoring Programs
 - assess the adequacy of existing programs
 - evaluate how other states use surface water monitoring programs and ground-water monitoring programs to assess nonpoint source problems and review existing methodology used in the state
- Evaluate State Lake Protection and Restoration Programs
 - conduct individual lake evaluations
 - estimate statewide lake pollution control and restoration needs
 - improve effectiveness of state lake protection and restoration programs
- Administer Nonpoint Source Program
 - prepare annual work plans and review nonpoint source control activities
 - coordinate nonpoint source management activities
 - participate in planning and program development activities of state agencies
- Review Nonpoint Source Impacts of Federal Programs and Projects

Minnesota

- Continue participation in the federal Clean Lakes Program
- Continue Clean Water Partnership Program
- Continue the Minnesota Cost-Share (Conservation Program
- Continue existing nonpoint source and erosion control programs
- Continue the Reinvest in Minnesota (Conservation) Program

Pesticide and Fertilizer Application

- Develop pesticide and fertilizer application program
- Expand Water Well Construction and Abandonment Program
- Develop and implement a Wellhead Protection Program
- Develop a waste pesticide collection project

Shoreland and Flood Plain Management

- Revise shoreland rules, develop training materials, and provide technical assistance to local governments to adopt shoreland ordinances
- Continue to administer the floodplain management program

Individual Sewage Treatment Systems

- Expand training and technical assistance with individual sewage treatment systems
- Develop rules for certification of installers of individual sewage treatment systems
- Continue to administer the Flood Damage Reduction Assistance Program

Monitoring

- Expand list of monitoring parameters for public water supplies
- Increase non-community water supply sampling program
- Conduct site specific studies on groundwater impacts
- Assess impacts and abatement of nonpoint sources on the Minnesota River

Research

- Conduct various research projects on nonpoint source pollution

Information and Education

- Provide educational programs on agricultural impacts on water quality, safe drinking water for communities and families, and waste management and utilization
- Continue and develop joint educational programs on nonpoint source pollution

Projected Waters Permit Program

- Continue to administer Protected Waters Permit Program
- Continue to administer Water Bank Program

Local Water Planning

- Complete the 54 comprehensive local water quality management plans
- Complete the 46 metropolitan surface water management plans

Local Programs

- Identify and assist development of priority nonpoint source assessment projects in the Twin Cities metro area

Planning, Coordination and Education

- Develop Comprehensive Lake Management Program, Groundwater Protection Strategy, Water Resources Strategy for Pest Control and Management of Nutrients, and Nonpoint Source Management Program
- Sponsor environmental congresses to facilitate public input
- Set up tracking system to evaluate Nonpoint Source Management Program
- Identify and develop memo of agreement for Nonpoint Source Management Program
- Prepare grant proposals and reports as required by Section 319

Best Management Practices (BMPs)

- A BMPs guide book on how to Develop Forestry Roads, Harvest Timber, Prepare Mechanical Site, and Prescribing Burning is being developed to be ready by July 1989.

Missouri

- Develop Projects
 - initiate 3 new nonpoint source projects per year
 - plan water quality monitoring for other nonpoint sources that result independently of Section 319 initiatives and funding
- Assess and Prioritize Nonpoint Source Activities
 - update and revise nonpoint source assessment report
 - prioritize areas affected by nonpoint sources for project development
 - develop vulnerability mapping to locate areas with high potential for loss of beneficial uses
 - consider available nonpoint source computer models
- Commit to Nonpoint Source Programs
 - develop memos of agreement with state and local agencies to encourage consideration of water quality impacts
 - evaluate neighboring states' management plans and attempt to coordinate Missouri's plans with others plans
- Increase Public Awareness
 - develop a nonpoint source newsletter
 - develop a clearinghouse of information on nonpoint source technology and implementation assistance

Wisconsin

- Initiate Ground Water Research
 - assess nitrate contamination
 - conduct monitoring in high nitrogen loading areas
 - conduct research on nitrogen loading
 - evaluate effects of nitrogen originating from agricultural sources
 - evaluate extent of pesticide contamination
 - develop pesticide best management practices
 - evaluate effect of urban surface water best management practices
 - evaluate impact of road salting and snow dumping
- Conduct Studies on Effect of Nonpoint Source Pollution
 - determine impact from forestry activities
 - assess impact from highway construction and maintenance
 - classify and rank endangered aquatic resources at risk from nonpoint source pollution
 - evaluate effect of and develop controls to reduce nonpoint source impacts to wetlands
- Evaluate Impacts of Best Management Practices on Fish and Wildlife Habitat
- Evaluate Nonpoint Source Computer Models
- Evaluate Statewide Nonpoint Source Monitoring Strategy
- Evaluate Institutional Approaches Used in the Nonpoint Source Abatement Program
- Develop Unified Nonpoint Source Data Management Systems
- Determine if Tax Incentives Would Be Successful on a Large Scale
- Initiate Demonstration Projects
 - examine lead and arsenic levels in soil and groundwater of northern Door County
 - examine impacts of mine wastes in southwest Wisconsin
- Implement Section 319 Federal Consistency Provisions