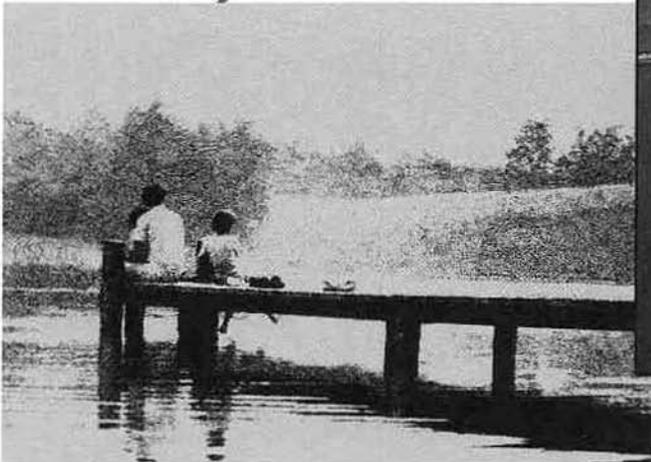
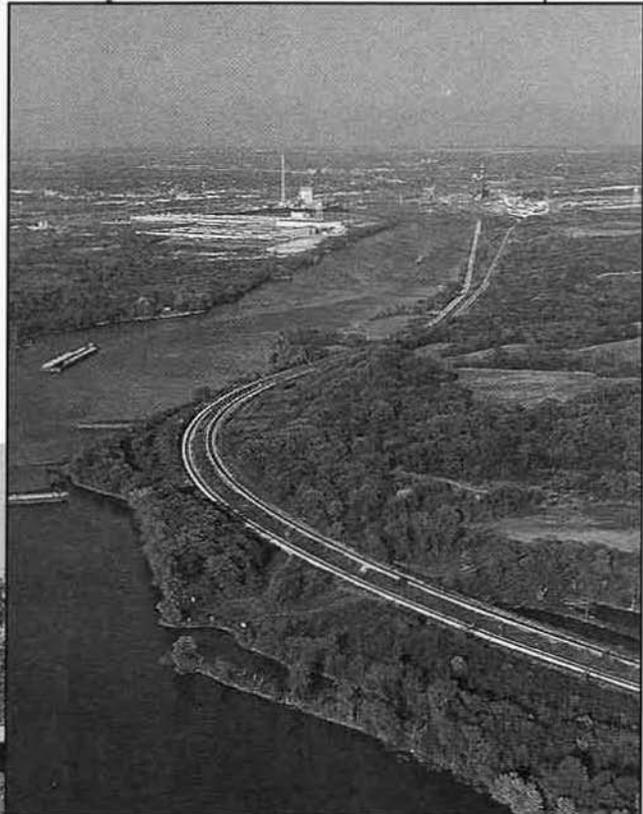
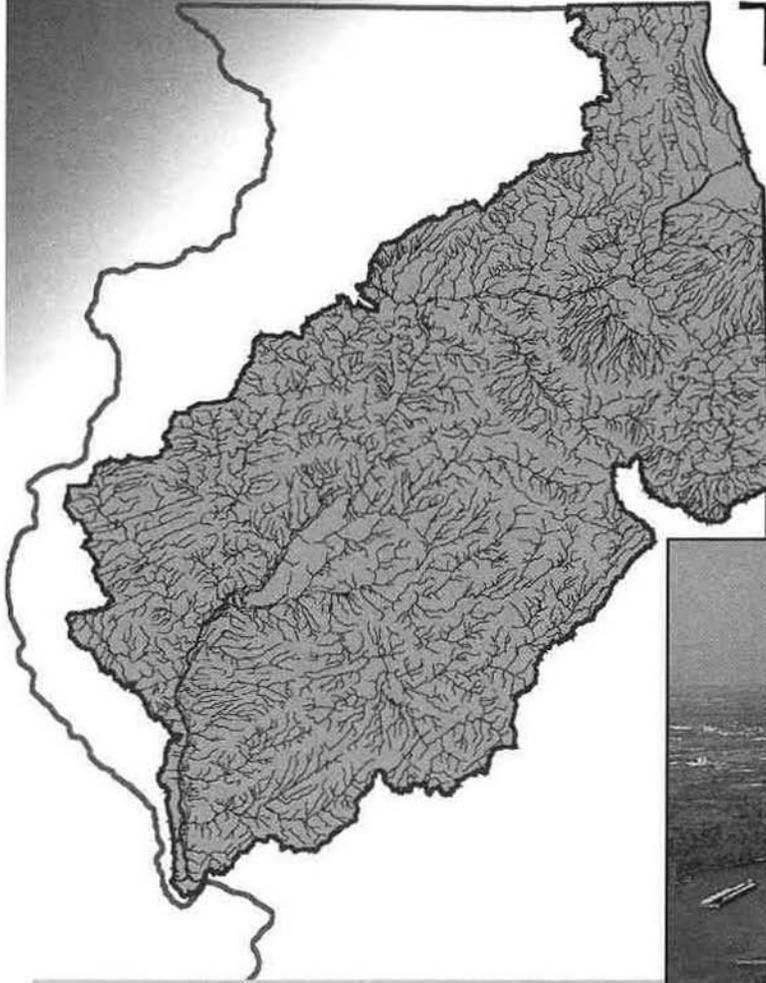


Integrated Management Plan for the

ILLINOIS RIVER WATERSHED

**TECHNICAL
REPORT**



January 1997



*The mighty Illinois River has been a tremendous resource our state,
First and foremost, it has been a source of beauty and solace for us,
Its total contribution to our economy--from commercial fishing to recreational marinas
to the shipment of grain and manufactured goods --simply cannot be quantified.*

*Whether we live in the Illinois River valley or live so far from the river that it is nothing
more than a thin line on a map, all our lives have been touched by the Illinois River.*

And now all of us must work to save and restore the river that has given so much to us.

*For the past 12 months, more than 100 Illinoisans contributed thousands of hours to discussing and sometimes heatedly debating
what steps are needed to preserve and improve the Illinois River watershed.*

*There is no single, easy "quick fix" for the river. The sometimes costly, long-term solutions were subject to intense debate by the
diverse communities that care about and rely on the river.*

*The process leading up to the creation of this Integrated Management Plan was intended to bring about discussion and
consensus--to find common ground. We succeeded in detailing 34 separate recommendations and steps for implementation, and I
am grateful for the time devoted and contributions made by the many men and women from across the watershed.*

*Carrying out these recommendations will go a long way toward saving the Illinois River for future generations. In the future, we
must monitor our progress and reevaluate our efforts, and we certainly must never forget just how important and fragile this river
is.*

*We have everything to gain by implementing this plan and everything to lose if we do not care for this vital economic,
ecological, and aesthetic resource.*

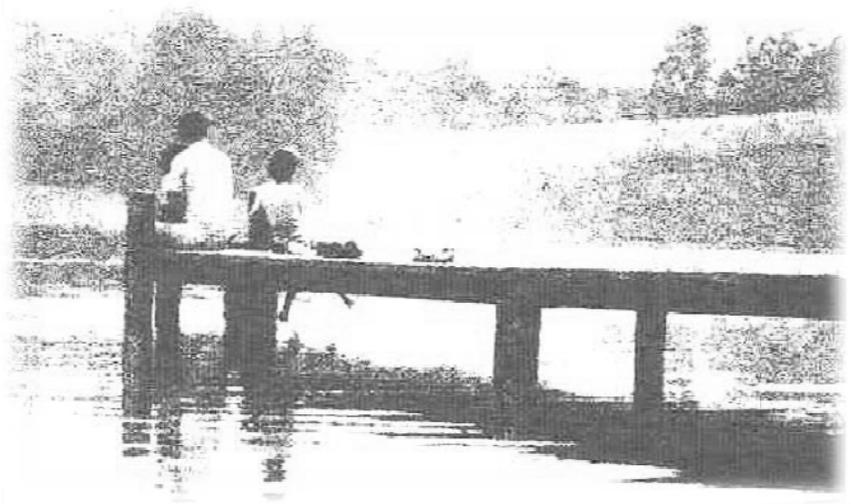
A handwritten signature in black ink that reads "Bob Kustra".

*Bob Kustra
Lieutenant Governor
State Of Illinois*



Integrated Management Plan for the
**ILLINOIS RIVER WATERSHED
TECHNICAL
REPORT**

LIEUTENANT GOVERNOR BOB KUSTRA
CHAIRMAN, ILLINOIS RIVER STRATEGY TEAM



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INTRODUCTION

The Illinois River flows diagonally across the State of Illinois, beginning southeast of Chicago and then joining the Mississippi River at Grafton, near St. Louis. Waters flow into the Illinois River from Lake Michigan, the Chicago River, and eight major tributaries:

- Des Plaines River
- Kankakee River
- Fox River
- Vermilion River
- Mackinaw River
- Spoon River
- Sangamon River, and
- La Moine River.

Eighty percent of the lands that drain into the Illinois River (the "watershed") are in the State of Illinois. More than 90 percent of the state's population lives in this 55-county area, bounded by portions of McHenry County in the north, Iroquois County in the east, Calhoun County in the south, and Hancock County in the west. Because of the ways we have used the river and the land, the river has experienced both decline and recovery. In many respects, the condition of the Illinois River has markedly improved--yet it must be more sustainable economically and ecologically. In fact, the National Research Council which is associated with the National Academy of Science and the National Academy of Engineering, named the Illinois River as one of three river-floodplain ecosystems in the United States that are priorities for restoration.

To know why there is concern about the Illinois River watershed today, it is essential to review the past.

PAST: During the last 100 years, the state's population, industrial and agricultural sectors, forests and prairies, rivers and streams, and the Illinois River itself experienced profound changes. In the 1800s, the bounty of the river was shared by all -- unlimited hunting for waterfowl and furbearing animals, harvesting mussels for a booming button industry, and carving out slabs of ice in winter for refrigeration. In 1908, more than 2,000 commercial fishing operations harvested nearly 25 million pounds of fish. In subsequent years, as land along the river came into private ownership, conflicts arose, with historical accounts describing vigilante stand-offs on armed barges. Because the laws determining ownership of land were clearer than those involving water, landowners built levees and drained their property. By the 1930s, more than 100,000 acres of floodplains had been separated from the river and converted to agricultural production.

In the early 1900s, industrial and residential wastes from the Chicago region were directed south toward the Illinois River. The burgeoning growth in Chicago and other downstate cities resulted in releases of vast amounts of waste into the river from cities, industries and stockyards. This pollution decimated much of the river's fish, wildlife and vegetation. Modifications to the river to accommodate the growing navigation industry began with construction of dams in Henry, Fulton, Brown and Calhoun counties in the late 1800s. Dams were built to maintain a 7-foot deep navigation channel for large steamboats. From 1919 to 1939, the " Illinois Waterway" was built, which provided a 9-foot deep navigation channel through the Chicago River, Chicago Sanitary & Ship Canal, the Des Plaines River, and through a lock and dam system on the Illinois River, with eight navigation pools from Lockport to Alton.

By the 1950s, virtually all aquatic vegetation had vanished from the Illinois River and its backwater lakes, due to water pollution and modified water levels. As a result, fish, mammals, waterfowl, clams and other related life forms declined drastically. Without the vegetation, sediment was no longer anchored to the bottom of the riverbed and lakes, but rather stirred up in the water by wind and boat movement. To this point in the state's history, agricultural productivity soared, as did population growth and urban growth. The increasing movement of soil from the land, due to channelized streams, eroding streams, and land conversion greatly increased the amount of sediment reaching the Illinois River.

PRESENT: Since the 1950s, agricultural practices have been modified to keep more of the productive soil in place. Industries and municipalities have markedly improved sewage and wastewater treatment methods under the Clean Water Act. More than 60 million tons of commodities are shipped on the Illinois River annually; more than one third are farm products. Coal, iron, petroleum products, chemicals, steel, sand and gravel are also shipped on the river. Over 50 percent of the commercial traffic on the Mississippi above St. Louis comes from the Illinois Waterway. Illinois ranks third among the 50 states, behind Alaska and Louisiana, in domestic waterborne commerce.

As of 1995, more than three-fourths of the state's farmland is at "T," the tolerable rate of soil loss where soil-building processes replace the amount of soil lost. Nearly half of the state's agricultural land is in the Illinois River Basin, where the rate of soil loss is below the state average. In the Upper and Lower Illinois River Basins, more than 4.2 million acres of cropland are in conservation tillage systems. The Illinois River and its backwater areas occupy about one-third of the floodplain (105,000 acres), of which 47,000 acres are in state and federal ownership, and 34,000 acres are owned by private sporting clubs. Forests along the Middle and Lower Illinois River are among the largest remnant forest ecosystems in the state north of the Shawnee National Forest. Today, more than 20 communities rely on the waters of the Illinois and its tributaries for their drinking water, and sportfish and waterfowl populations are growing.

Despite the seemingly remarkable recovery, the future of the watershed and river corridor are truly imperiled.

Each year 14 million tons of sediment are transported through the watershed. More than half of this sediment load is deposited in the Illinois River Valley, and the balance is carried to the Mississippi River. Most backwater lakes have lost more than 70 percent of their storage capacity, destroying wildlife and recreational areas. In northeastern Illinois, during a recent 20-year span, land conversion for residential purposes grew by nearly 50 percent while population increased by less than five percent. Erosion control is needed on 4.1 million acres of cropland in the Upper and Lower Illinois River Basins. Stormwater management is a vexing problem throughout the watershed. Sudden flooding, from both large and small storm events, occurs due to past alterations to speed water from the land. Swiftly moving waters take more sediment, carving away at streambanks. The sediment, coupled with unseasonal flooding, yield a river system less capable of "managing" its sediment through a natural pattern of deposition, drying and compaction. Operation and maintenance of the navigation system is increasingly difficult, due to accumulation of sediment in the channel and rapidly fluctuating water levels.

The diversity of interests and stakeholders throughout the watershed is evident in reviewing the history of the region. When issues and interests overlap and compete, disagreements often arise about which management approaches to take. Yet there is agreement that the future condition of the watershed of the Illinois River and its tributaries will greatly influence the region's capacity for navigation, recreation, economic prosperity, and ecological balance.

Illinois River Valley Partnership: During the last several decades, concern about the future of the watershed and the river has increased. The need for a sustained, focused effort, involving diverse public and private interests, became apparent. In 1994, Lt. Governor Bob Kustra launched the Illinois River Valley Partnership, saying:

"Phase One will focus on the selection of innovative and reproducible model projects. It is my hope that these efforts will be repeated throughout the Illinois River Valley .. "to enhance the river's capacity as a recreation, transportation, and wildlife habitat resource. [This initiative resulted in the publication of the Directory of Model Projects and Model Approaches for the Illinois River Valley in July 1995.]

"Then we will get on with developing an ecosystem restoration plan for the entire Illinois River system. We will consider alternative management strategies for ecosystem recovery and sustainability, and examine the economic constraints or benefits." [These statements refer to the development of this Integrated Management Plan for the Illinois River Watershed.]

Lt. Governor Kustra convened the Illinois River Strategy Team, a group of leaders in business, agriculture, and conservation. They adopted the vision of "A naturally diverse and productive Illinois River Valley that is sustained by natural ecological processes and managed to provide for compatible social and economic activities."

The Integrated Management Plan: An integrated management plan considers and balances the needs of human communities and ecological resources, seeking solutions and remedies that are healthy for both. People who live and work in the watershed contributed to the plan with decision-making by consensus. During 1996, nearly 150 Illinoisans participated in a year-long effort to develop and reach agreement on specific actions that now constitute this plan. Participants included members of the Illinois River Strategy Team, Illinois River Planning Committee, and six Action Teams (see Appendices).

A total of 93 recommendations were created by the Action Teams and submitted to the Planning Committee. The Planning Committee chose to focus on recommendations for new initiatives. Recommendations for continuation of existing programs were not approved, but rather are summarized in the appendix "Existing Programs." The Planning Committee submitted 55 recommendations to the Illinois River Strategy Team. Most recommendations were approved, with some modification and combining of related issues, to yield 34 final recommendations. Estimates of benefits and costs are included for many of the recommendations. The estimates are just that--estimates--but these estimates are intended to aid those participating in implementation, by providing a sense of the teams' perspectives at the time the recommendations were developed.

The Technical Report divided into six sections. **In the Corridor** addresses the Illinois River and its associated backwater lakes and floodplains. The other sections address issues throughout the watershed: **Soil & Water Movement, Agricultural Practices,**

Economic Development, Local Action and Education. This information is also available from the Office of Lt. Governor Kustra in summary form as the 21-page *Integrated Management Plan for the Illinois Watershed*.

All recommendations are based on the following assumptions adopted by the participants:

- The Illinois River is a national treasure.
- Long-term economic health and ecological health are interdependent.
- Each generation desires a better quality of life for its children and successive generations.
- Understanding our relationship to the landscape shapes our concerns for it.
- Natural resources are intrinsically valuable.
- Responsible stewardship is the key to our future quality of life.
- Natural processes provide guidance for ecological improvement.
- Education with sound information provides a foundation for wise decisions.
- Progress from committed group effort can surpass any individual results.
- Individuals are responsible for their actions.
- By their actions, individuals make a difference.

All recommendations meet the following criteria adopted by the participants:

- Efforts must be based on planning and grassroots coalition-building that includes local citizens and all levels of government.
- Both the public interest and private property rights must be recognized, and all actions must strive to maintain a balance between the two.
- All actions must appropriately reflect scientific and economic data, as well as possess practical applications.
- Efforts should focus on areas that currently possess the highest ecological integrity and hold the greatest potential for recovery. It also must be recognized that great benefits to the system may arise from addressing stresses in highly altered areas.
- Priority should be given to voluntary and incentive-based actions.
- Actions should be consistent with ecosystem-based management strategies that are being developed at the local, state and regional levels; as well as serve as a template on a broader scale with the ecological and economic needs of the upper Mississippi River Basin.
- Efforts should capture the natural and free energies of the system.
- All efforts must be based on the recognition of the importance of ecological phenomena.

FUTURE: In considering the future of the watershed of the Illinois River and its tributaries, participants identified the greatest threats and opportunities:

Threats:

- the prior alteration of natural patterns of water and sediment movement, and
- the previous lack of commitment to the long-term shared interest of the people and the land.

Opportunities:

- the fact that the river still has the ability to "heal," with our help, and
- the belief that we possess the collective will to solve environmental and economic problems.

Following this Integrated Management Plan, Illinoisans are invited to engage in local planning and look anew at the resources that we share upstream and downstream from one another, and how our actions affect the landscape.

Realizing that changes throughout the watershed occurred over many years and as a result of the activities of millions of people, the solutions require a concentrated approach, with broad support and recognition of the need for change. This plan is a call for a new concept of our home, our town, our county and our role in the watershed as stewards not only of the landscape, but also as stewards of the water.

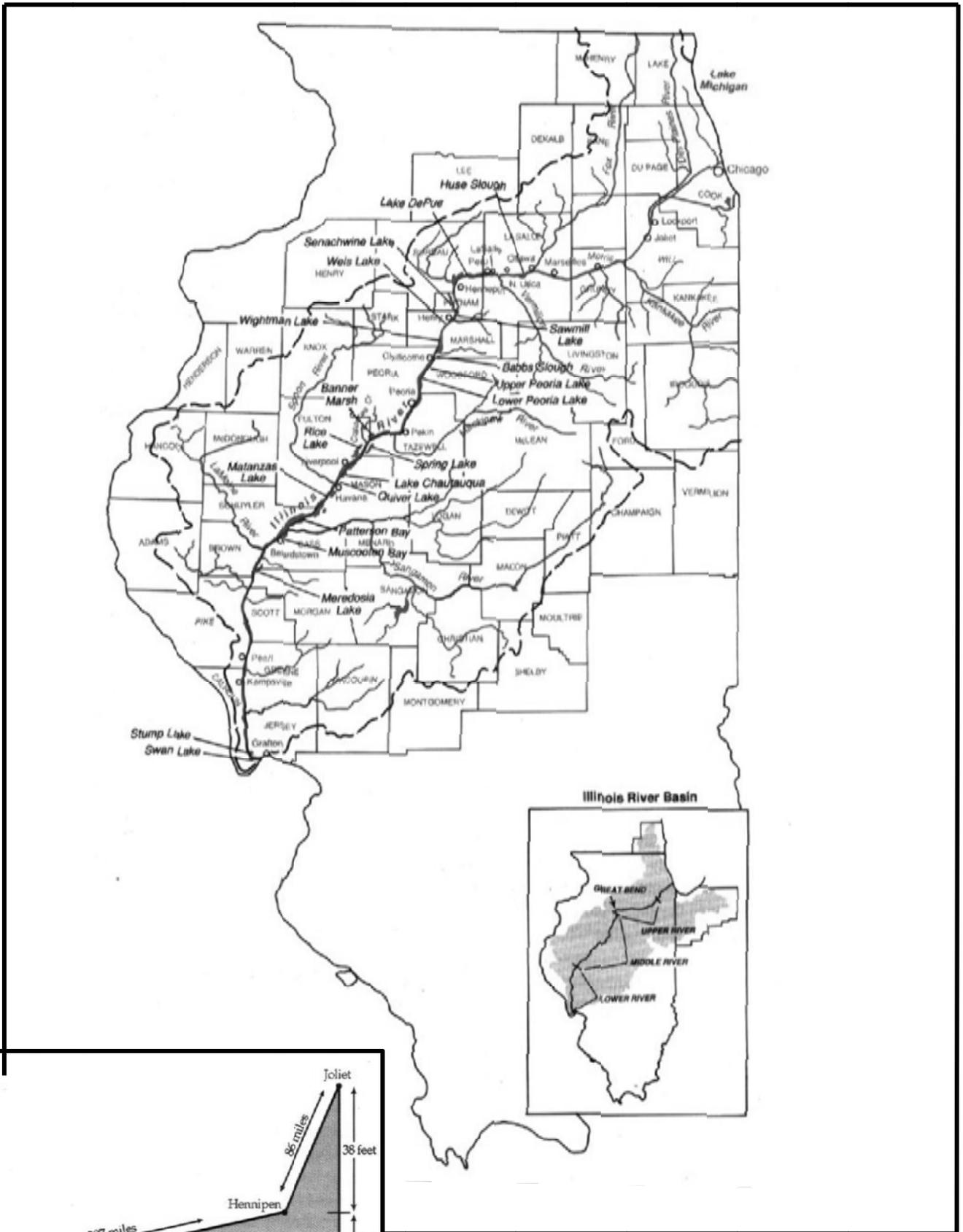
The Flood of '93 and flooding again in '95 made the tremendous power of nature evident to all of us. While massive amounts of rainfall contribute mightily to flood events, it is our altered landscape and channelized streams throughout the watershed that strongly influence what happens to the rainfall. The key to reducing our susceptibility to other flood events is to better understand the factors that contribute to such events and to manage water when it is less powerful and more diffuse. Voluntary actions across the watershed, with technical assistance and incentives, occur one parcel at a time and one stream segment at a time.

Participants determined that the success of this plan can be measured against these objectives:

- 1) Healthy levels of abundance, distribution, and diversity of plant and animal communities
- 2) Restoration of highly-eroded streams: one percent by the year 2000; ten percent by the year 2010.
- 3) In all stream segments, the attainment of water quality standards and, every ten years, a ten percent improvement in the Index for Biotic Integrity (a state index of biodiversity related to water quality).
- 4) Reduce the river's deviation from the natural hydrograph (volume, depth, and duration of water flows).
- 5) For floods with 2-5 year frequencies, reduction of peak flows to the river by 2-3 percent.
- 6) A viable economy that enhances the ecological value of the watershed through high-quality job creation.
- 7) A measurable reduction of the amount of sediment entering the Illinois River and its tributaries.

Completion of this report is just the beginning. The Illinois River Strategy Team is committed to implementation of the plan and future evaluation of progress throughout the watershed of the Illinois River and its tributaries, from Chicago to Alton.

Now we must see that these written recommendations become reality. Seize those that are important to you, as a developer ... farmer ... city planner ... elected official ... scientist ... parent ... landowner ... conservationist entrepreneur ... volunteer ... educator ... or whatever your vocation or avocation may be. Be a partner with individuals and organizations that share the opportunities and responsibilities that this plan offers. As a starting point, please turn the page to key recommendations identified by the Illinois River Strategy Team.



The Illinois River Basin and the Gradients of the Illinois River.
 The decline from Joliet to Hennipen (a) ranges from 1.14 to 2 feet Per mile, while the gradient from Hennipen to Grafton (b) Ranges from 0.12 to .2 foot per mile

KEY RECOMMENDATIONS FOR THE ILLINOIS RIVER WATERSHED

(Each item below is followed by a number-to guide the reader to the corresponding recommendation number in the plan.)

Expand and revise voluntary cost-share programs for more flexibility and technical assistance to assist landowners/operators in establishing soil conservation and water quality practices on cropland and non-cropland areas (14).

Identify the causes of unnatural and natural water level fluctuations; disseminate results and implement solutions as appropriate (7).

Establish water level management programs throughout the watershed for sediment management, waterbanking, and flood crest reduction (8).

Enhance local awareness and capabilities to address watershed/water resource concerns through education and technical assistance and by providing funding for volunteer watershed management planning for each watershed. Planning funds would be a one-time allocation, likely expended during one or more years (27).

Encourage municipalities and counties to adopt and enforce comprehensive stormwater management ordinances tailored to address local needs and consistent with state-provided model ordinances and watershed plans (30). *

Implement regional strategies to protect, restore, and expand critical habitats through public/private partnerships, voluntary incentive programs, management agreements, and technical assistance:

- Lower Illinois River/Great Rivers confluence --upland/lowland forests, floodplain.
- Lower Middle Illinois River --floodplain and riparian areas.
- Upper Middle Illinois River --forested bluffs, forested and wetland floodplain/riparian.
- Starved Rock to Headwaters Confluence --potential floodplain habitat.
- Tributary headwaters in northeastern Illinois, in collaboration with local partnership councils.
- Key high-quality tributaries throughout the watershed (4, 33).

Build wetlands and other water retention capacity in urban and rural areas in the Illinois Basin, in collaboration with appropriate public landowners and volunteering private landowners (13).

Promote and implement cost-effective efforts for reducing soil erosion from forests, bluffs, woodlands, gullies, pastures, and stream banks (15).

Encourage compatible economic development in the Illinois River watershed by: identifying barriers on or contiguous to the river that impede waterborne, river-related, or river-located commerce and by working to remove or remedy these impediments to compatible development; identifying and marketing the economic benefits of the river to prospective investors; developing regional approaches to stimulate entrepreneurship, business expansion, and the establishment of non-traditional businesses (21).

Increase public awareness of the history of conditions in the Illinois River, past beneficial efforts, and the need to implement the recommendations in this plan throughout the Illinois River watershed (34).

* This recommendation did not have unanimous support of the Illinois River Strategy Team (see page 57).

IN THE CORRIDOR (Recommendations 1-6)

(1) Encourage beneficial use of sediments through three options for use of dredge materials (also see #24).

- Dredge spoil sites along the Illinois River are limited and not efficient.
- Flood water readily washes dredge spoil back into the main channel or the Illinois River which impedes commercial navigation and recreational boat traffic.
- Frequent dredging consumes a substantial amount of money and negatively impacts fish and wildlife habitat.

Proposed Solution A: Establish discharge ports at appropriate intervals along the Illinois River which allow dredge spoil to be pumped through levees into an internal containment basin. The appropriate interval could be ascertained in coordination with the U.S. Army Corps of Engineers and interested drainage districts using dredging operation records and dredge disposal needs. Internal sediment basins could be cash rented on a per acre basis and a low level berm could be established to retain the dredge spoil. Sediment that is discharged into a drainage district could potentially dry, compact and be farmed in the same year or the following year.

Proposed Solution B: Use dredge spoil to increase the thickness (internal and external) of levees along the Illinois River.

Proposed Solution C: Create islands or increase the topographic diversity of existing islands using dredge spoil in support of native floodplain plant communities.

Benefits: Under all three proposals, dredge spoil will be removed from the Illinois River system.

Proposed Solution A: Deposition on cash-rented ground within a drainage district will increase the field elevation which will help keep pace with the external hydrostatic pressure caused by flood events and sediment deposition along the Illinois River (\$100/acre). The discharge ponds will minimize the energy to lift the dredge spoil and the ponds can be capped when not in use (\$75,000/port). The incremental increases in field elevation will facilitate gravity drainage and less pumping.

Proposed Solution B: Existing levees will be made stronger and be less susceptible to seep water; pumping costs reduced.

Proposed Solution C: Will facilitate topographic diversity and plan community diversity within the floodway of the Illinois River.

Costs: See costs noted above for discharge ports and cash-rented ground.

(2) Implement backwater and side channel sediment management measures at selected locations.

It has been well documented that sedimentation in backwater lakes in the Illinois River Valley has been excessive. As a result, most backwater lakes have lost more than 70 percent of their storage capacity, and some have been completely filled in with sediment. The development and implementation of appropriate management strategies is thus essential to manage the sediment in some of the lakes if they are to be maintained as lakes and used for fishing, recreation, and wildlife habitat. Future soil erosion control measures in the watershed will not remove all the sediment that has already accumulated in the lakes over the years. If appropriate sediment management strategies are not developed and implemented, all the bottomland lakes will eventually fill in with sediment, becoming mudflats and wetlands, even under the most optimistic soil erosion rates. To save some of these lakes from extinction, the following actions should be implemented.

- 1) **Identify the most important and valuable lakes in the valley.** It is very unlikely that all the backwater lakes in the Illinois River Valley will be saved and restored. It is therefore important that state agencies, local governments, and conservation groups identify those lakes that need to be saved. The selection process could depend on past and future use of the lake, the importance of the lake for the region, and the ecological diversity of the Illinois River Valley.
- 2) **Conduct sedimentation surveys.** It is necessary to conduct a detailed sedimentation survey of each lake identified to determine the amount, type, and quality of the sediment it contains. This important step needs to be taken before any rehabilitation program is implemented. For some of these lakes, the last time any reliable sedimentation survey was conducted was in 1976. Considering the higher rates of sedimentation in recent periods, it is necessary to obtain the current sediment volume in the lakes.
- 3) **Review Current Lake Management Programs.** There is no unified backwater lake management program in Illinois. However, different agencies that are responsible for the management of state or federal lands have some management programs for the lakes. These management programs should be reviewed and their objectives and procedures evaluated. It is also important to identify if the programs have been successful in reducing sedimentation in the lakes.
- 4) **Develop techniques to control sediment inflow from the Illinois River.** The two sources of sediment to backwater lakes are the Illinois River and local tributaries, if any. The relative significance of sediment from the Illinois River as compared to local tributaries depends on many factors: The flow pattern and frequency of overflow of Illinois River water into the backwater areas, the outlet geometry from the backwater lakes, and the existence of local drainage into the backwater lakes. In any case, the Illinois River will be found to be one of the main contributors of sediment to the backwater lakes. It is therefore essential that techniques are developed to reduce the flow of sediment from the Illinois River to these lakes. The available options will, of course, depend on the local physical constraints.
- 5) **Develop techniques to control sediment inflow from local tributaries.** As mentioned in the preceding paragraph, local tributaries are also a major source of sediment to backwater lakes. The highest sedimentation rates in backwater lakes are found where significant tributary streams drain directly into them. The flow of water from tributary streams to the lakes might be important, but the flow of sediment is not. Therefore it is important to develop techniques to control or totally prevent the flow of sediment from tributary streams to the lakes. The need to develop the techniques and the methods that can be effective will depend on local conditions.
- 6) **Develop appropriate sediment removal techniques.** As has already been mentioned, most of the backwater lakes have lost over 70 percent of their capacity to sedimentation, but the accumulation of sediment still continues today. If some of these lakes are to be maintained as lakes and provide deep water habitat and recreation, sediment from selected areas needs to be removed. However, these are not typical lakes or reservoirs where dredging operations have been carried out before. Because of the locations and characteristics of the backwater lakes, special sediment removal techniques need to be developed that do not adversely affect the surrounding environment.

- 7) **Develop appropriate sediment disposal techniques.** Along with the development of appropriate sediment removal techniques in these unique environments, it is necessary to develop appropriate sediment disposal techniques that could enhance the environment. Sediment in the Illinois River Valley lakes consists mostly of silt and clay, which are more difficult to handle than sand. Therefore, there is a need to develop appropriate sediment disposal techniques for these types of sediment in this type of environment.
- 8) **Develop shoreline management technology, especially wetland restoration, as a component of an overall lake management plan.** Shoreline management of lakes is an important management tool to enhance the aesthetics and recreational potential of a lake. In the Illinois River Valley, most of the backwater lakes are surrounded by wetlands inundated by varying depths of water. The quality of these wetlands is not well known. It may be possible to improve the quality of the wetlands around these lakes and the overall aesthetics of the lakes. The wetlands would stabilize the shoreline and provide excellent breeding and feeding environments for fish and other organisms.

Benefits:

- Maintenance of diverse habitats in the Illinois River Valley by sustaining backwater lakes and side channels with variable water depth.
- Increased recreational opportunities with adequate lakes and channels that can be accessed by boats.
- Increased habitat for fisheries.

Costs:

- Staff time of interested agencies that will be involved in the review of the conditions of the lakes and in the development of appropriate sediment management alternatives.
- Funding for a sedimentation survey crew to conduct sedimentation surveys of the lakes selected. This could cost about \$100,000 per year depending on the number of lakes and side channels selected for protection and restoration.
- Funding for a research engineer to collect and analyze data collected in Illinois and other states for preparing a review of present conditions and past experience with sediment management in backwater lakes along large rivers. The cost is estimated at \$50,000 per year.

(3) Assess the feasibility of implementing a temporary drawdown in conjunction with scheduled maintenance of the navigation system to dry out and compact deposited sediments.

Background: Assessing a temporary drawdown involves consideration of a diversity of variables, such as:

- the duration of the drawdown event (weeks or months).
- the amount that the water level would be lowered (inches or feet).
- the area of sediment exposed (hundreds, thousands, or tens of thousands of acres)
- the extent of the actual drawdown (in selected navigation pool(s), throughout the river corridor simultaneously, or a phased approach).

- 1) Work with Corps of Engineers to identify a long-term maintenance program and identify opportunities within scheduled maintenance program and other opportunities for potential drawdown events.
 - a. Review maintenance program for project opportunities at each annual State-Corps budget and program conference.
 - b. Review maintenance program for project opportunities at each RRCT (River Resources Coordinating Team) meeting.
- 2) Within the long-term maintenance program, identify general nature of drawdown events and plan, design and program for implementation. Include area impacted, timing, duration, notification of impacted parties (i.e. water supply intakes, waste water treatment sites, marinas, recreational sites, etc.). Plan for required mitigation activities.
 - a. Conduct an outreach program to all potentially affected parties for planning purposes.
- 3) Submit design plan and program for implementation to RRCT for review and comment.
- 4) RRCT recommend selected drawdown plans for program and budget consideration at each annual State-Corps budget and program conference.

Reference: see " River Drawdowns" by Torn Edwards, October 15,1996.

Benefit s:

- Depending on project site, thousands of acres of restored habitat and increased water depth.
- Increased opportunities for hunting, fishing and general recreational use.

Costs :

- Time spent by agency staff to plan and design for implementation.
- Unknown mitigation costs, assumed to be minimal.

(4A) Implement regional strategies to protect, restore, and expand critical habitats:

For the **Lower Illinois/Great Rivers Confluence**, protection should be focused on the upland and lowland forests and other floodplain habitats, in coordination with the Great Rivers Confluence local partnership council:

- 1) Identify key areas where upland and lowland connectivity and large contiguous areas of upland forest exist.
- 2) Protect these areas using a variety of voluntary methods (willing seller easement or acquisition, management agreements, incentive programs, etc.).
- 3) Provide coordination of natural resource-related programs within public agencies for better information dissemination to landowners.
- 4) Provide additional natural resource staff or coordinate among existing staff to meet the technical assistance needs of landowners within this natural resources base.
- 5) This area is also key for pool-level management and voluntary protection of floodplain habitat.

Benefits:

- Better coordination and targeting of existing funds: Conservation 2000, Stewardship Incentives Program , Wetland Reserve Program, Partners for Wildlife (USFWS), Wildlife Habitat Incentive Program, Environmental Quality Incentive Program (EQIP), Conservation Reserve Program.
- Reduction in erosion and forest fragmentation in uplands.
- Greater sediment deposition/flood storage and higher quality aquatic and riverine habitat.
- Protection of connectivity between floodplain and river and/or uplands and lowlands.
- Increase in habitat acreage and quality for wildlife=increase revenue. Migratory Waterfowl and Bird Hunting: \$88,945,000 (retail sales); Non-consumptive Waterfowl and Bird Use: \$234,429,000 (retail sales).
- High potential for ecotourism with Alton as a central base for hotels, restaurants, transportation, etc. and Pere Marquette State Park as a large public facility.

Costs:

- Inventory and identification of key areas: \$ 10,000
- Salary and equipment for natural resource staff: \$40,000 [could be contracted by local planning council (Conservation 2000 funds) or as a staff position within one of the natural resource agencies].
- Buying/administering acquisition or easements @\$500 to \$2,000 per acre (some existing funds available).

For the **Lower Middle Illinois River**, protection should be focused on the extensive floodplain and riparian areas.

- 1) Agencies and organizations should coordinate to work with private landowners to develop system-level management and protection of floodplain and riparian areas.
- 2) This is a prime area for pool-level management and voluntary, incentive-based protection of habitats.
- 3) As one of the two unique areas of sand habitat in the basin, representative types of all sand communities/habitats should be protected.

Benefits:

- Increased protection and management of backwater systems for aquatics, waterfowl, migratory birds, etc., as well as permanent protection of sand communities and habitats.
- Protection of key migratory stopover areas for waterfowl, shorebirds and wading birds. See enclosed for estimated revenues from consumptive wild life use. High potential for revitalization of river towns through eco-tourism, fishing/hunting businesses, etc.
- Opportunity to forge a regional partnership between agencies, organizations, and private landowners for ecosystem-level management of riverine areas.
- One of the best areas to attempt pool-level management--best returns ecologically and possibly economically (flood storage, sediment deposition in protected areas, etc.).
- Historically, this is one of the most productive areas on the river (in fish, mussel, and waterfowl production and/or use) due to the wide floodplain and backwater lake system. High potential for restoration.

Costs:

- Existing agency staff available.
- Possible easement/acquisition costs, e.g., \$500 to \$2000 per acre. Some moneys are already allocated within agencies, but additional funds could be needed.
- Possible economic development grants for Havana or other river towns to develop eco-tourism, fishing/hunting businesses, etc.

For the **Upper Middle Illinois River (Peoria to Starved Rock)**, protection should be focused within the bluffs as well as the floodplain/riparian habitats, in coordination with the Illinois River Bluffs local partnership council.

- 1) Identify key areas where upland and lowland connectivity and large contiguous areas of upland forest exist.
- 2) Protect these areas using a variety of voluntary methods (willing seller easement or acquisition, management agreements, incentive programs, etc.).
- 3) Provide coordination of natural resource-related programs within public agencies for better information dissemination to landowners.
- 4) Provide additional natural resource staff or coordinate among existing staff to meet the technical assistance needs of landowners within this natural resources base.
- 5) This area is also key for pool-level management and voluntary protection of floodplain habitat.

Benefits:

- Better coordination and targeting of existing funds: Conservation 2000, Stewardship Incentives Program, Wetland Reserve Program, Partners for Wildlife (U.S. Fish and Wildlife Service), Wildlife Habitat Incentive Program, Environmental Quality Incentive Program (EQIP), Conservation Reserve Program.
- Reduction in erosion and forest fragmentation in uplands.
- Greater sediment deposition/flood storage and higher quality aquatic and riverine habitat.
- Protection of connectivity between floodplain and river and/or uplands and lowlands.
- Potential for compatible tourism with Peoria area providing hotels, restaurants, etc. for hunters, fishermen, and other wildlife enthusiasts and several public conservation areas in the region.

Costs:

- Salary and equipment for natural resources staff in this region: \$40,000 [could be contracted by local planning council (Conservation 2000 funds) or as a staff position within one of the natural resource agencies].
- Buying possible easement/acquisition costs, e.g. . \$500 to \$2000 per acre. Some moneys are already allocated within agencies, but additional funds could be needed.

From **Starved Rock to Headwater Confluence**, protection should focus on potential floodplain habitat.

- 1) Identify potential areas for wetland and forest floodplain habitat protection.
- 2) These areas should be protected using a variety of voluntary methods (willing seller easement or acquisition management agreements, incentive programs, etc.).

Benefits:

- Protection of connectivity between floodplain and river and/or uplands and lowlands.
- Starved Rock State Park is a large draw for tourists and this base could be expanded for further compatible uses along the riverine areas (funds could be used to further conservation within this area of the river).
- Due to increasing population in this area, greater awareness about the Illinois River will have an ever increasing impact among adjoining urban, suburban, and rural citizens (reduction of runoff, pollution, etc.).

Costs:

- Inventory: \$3,000 to \$5,000
- Buying possible easement/acquisition costs, e.g., \$500 to \$2000 per acre. Some moneys are already allocated within agencies, but additional funds could be needed.

(4B) Throughout the regions identified in 4A:

Projects which promote the goals of the Illinois River Valley Partnership should receive high priority within Conservation 2000, the conservation provisions of the 1995 Farm Bill, related Illinois Environmental Protection Agency programs (such as lake management), and other forms of assistance, including private forestry assistance.

- A) Work directly with local partnership councils (LPCs) to educate local stakeholders about the Illinois River Valley Partnership mission and goals. LPCs could provide a local mechanism for effective promotion of regionally-based funding and assistance for protection of critical habitats in each area.
- B) Funding should be designated for ecological inventories to increase ongoing work on neotropical migrants and other migratory fauna, and in the Upper Middle, Lower Middle, and Great Rivers' Confluence areas, inventory bluff to floodplain areas and delineate key aquatic resource areas.
- C) Protect remaining Illinois Natural Areas Inventory sites and identify additional funding needs.
- D) Protect additional outstanding landscape areas (e.g. Midewin National Grasslands) through public and private ownership and management (*not solely through government action*).
 - 1) Identify potential areas that encompass landscape-level critical habitats (e.g., bluff to floodplain).
 - 2) Work with owners to develop voluntary protection and management of these areas using local partnership councils and other appropriate watershed groups to coordinate the effort where applicable.
 - 3) If property taxes decline, develop a mechanism, when possible, to mitigate losses to local taxing bodies.

Benefits:

- Coordinated and efficient use of state and federal program funds.
- Increased local interest and participation in decision-making for implementation.
- Better awareness--for managers as well as citizens--of critical habitat areas within a region.
- Better information for local partnership councils to target resources for protection and management of these habitats within public/private ownerships.
- Better identification of critical areas for protection of connectivity between uplands and lowlands as well as floodplain to channel areas; able to manage multiple habitat areas within a system or watershed.
- Protection of remaining highest quality examples of natural areas in all regions (key parts of our natural heritage in Illinois) and significantly add to overall biodiversity conservation in the watershed.
- Add to preserve system which can help educate public about natural systems, management, exotics control, identification of native and non-native species, etc.
- Larger, more contiguous areas protected containing multiple critical habitat areas.
- Potential for public/private partnerships in protection, management, restoration, and education. Better targeting of resources and transfer of technology.
- Potential for greater reduction of stresses to the watershed, such as runoff, sedimentation, pollution, etc.
- Better ability to manage across multiple habitats and ownerships, providing contiguous areas for migratory fauna, range-limited fauna, and fauna which need aquatic or terrestrial connectivity.

Costs:

- Coordination between the Office of Lieutenant Governor and the Illinois Department of Natural Resources' Conservation 2000 Program.
- Multiple region inventories including support of existing efforts: \$10,000 to \$20,000.
- Existing agency and organization staff can help coordinate.
- Existing programs could provide funding (Conservation 2000, Partners for Wildlife, etc.).
- Tax revenues could either decline or increase, depending upon the entity which owns the conservation area.

(5) Complete the ongoing work to determine the extent of shoreline erosion on the Illinois River due to boat-generated waves and pursue recommended controls or remedies accordingly.

Introduction: A study of bank erosion along the 880 miles of the Upper Mississippi and 300 miles of the Illinois River is being completed, involving the Illinois State Water Survey (ISWS) with close coordination and active participation by the USACOE Rock Island District (RID), Huntington District, St. Paul District, and St. Louis District; University of Iowa; Illinois Department of Natural Resources; and National Biological Service. As part of this project, field reconnaissance on boats was undertaken in the summer and fall of 1995 during which all bank erosion sites were identified on Navigation Charts. During this field trip, 29 sites on the Illinois River and 43 sites on the Mississippi River were selected for further analyses. At all sites, some preliminary data on stream cross sections, bank profiles, vegetation, and bank materials and other pertinent and related information were collected. This outline has been prepared to show how a step by step action could be initiated to determine the rate(s) of bank erosion due to the repeated movement of boats in the river. This action plan is similar that done by Bhowmik et al. (1991) for determining wave characteristics generated by recreational traffic on the Illinois and Mississippi rivers. It will be necessary to conduct actual field experimentation on the Illinois River to determine the numerical ranges of bank erosion rates due to river traffic. Presently there is no mathematical model for estimating the rate of bank erosion due to boating activity. Moreover, the rate of erosion is dependent upon the composition of the bank materials, profiles of the banks, hydraulic characteristics of the river, traffic characteristics, variability of the river stages, and a host of other variables. Field experimentation on selected and representative sites, supported by thorough analysis, is needed to extrapolate the site-specific results to a systemwide application.

Objectives

1. Select four to six representative sites on the river where field experiments should be conducted, essentially based on the field visit in 1995 done by the ISWS and USACOE.
2. Conduct field experiments and collect necessary and associated data to determine bank erosion rates due to the movement of river traffic.
3. Perform necessary analyses to determine various parameters, such as erosion rates, the threshold(s) when erosion becomes significant, and other related attributes.
4. Prepare a report indicating how site-specific results can be applied systemwide.

Scope: This action plan is not intended to cover every site on the entire river. However, representative sites must be selected to determine what could happen on a larger, broader scale. Focus on waves and shoreline erosion rates due to traffic movement.

Tasks

Step 1: Select several sites from the river for detailed field experiments based on the 1995 field reconnaissance study. Narrow the number of sites to four or five.

Step 2: Conduct field experiments and collect wave and bank erosion data. It is expected that for each site, data collection may last for a continuous period of two or more weeks. Obtain background information:

- a) Topographic survey for characterizing the sites.
- b) Bank and near-bank (channel border area) bed material samples.
- c) River cross-sectional profile at least three times during the data collection.
- d) Daily river stage, water and air temperature data.
- e) Two discharge measurements, one before the start of the field experiment and one near the end of the field experiment.
- f) Lateral distribution of suspended sediment concentrations at the same verticals on the main transect where velocity data are to be collected (for discharge measurement).
- g) Water surface slopes utilizing temporary bench marks.

Instrumentation and Field Setup: The following should be installed:

- 1) A recording wind gauge at the site; collect wind data continuously for the experimental period.
- 2) Temporary bench marks at the site.

- 3) Three to four erosion pins both above and below the water line at each bank erosion measuring section.
- 4) Three sets of erosion pins at each site at a longitudinal interval of about 30 m.
- 5) Two wave gauges, one about 1 to 3 m from the shore and one about 10 to 15 m from the shore.
- 6) Guide buoys at three to five specified distances from the shore where recreational boats will be instructed to move at a specified and constant speed.

Experimentation: Recreational crafts of various sizes, shapes and drafts traverse site at specified distances/speeds.

Data Collection: During the experiment, collect the following data:

- 1) Wave heights at all the wave gauges.
- 2) Wave run-up for each event using video and still photography and markings on the slopes.
- 3) Bank profiles after every set of "boat runs."
- 4) Changes in bank profiles utilizing still and video photography.
- 5) Detailed bank changes at each erosion pin at the end and the beginning of the day.
- 6) Threshold of major erosion at each section, noting the associated type and frequency of boating activity.
- 7) Normal navigation activity during the field experiment.

Step 3. Data Analyses--Bank Erosion Rates

- a) Establish relationship between wave characteristics and bank erosion rates.
- b) Determine the threshold of severe erosion.
- c) Postulate and recommend how site-specific information might be used for systemwide application.

Step 4. Report Writing: Summarize all data collected and analyses performed.

Benefits:

- Relative estimation of the shoreline erosion of the Illinois River due to boat-generated waves.
- Identification of the shorelines susceptible to erosion.
- Development of stabilization techniques to protect the highly valuable shorelines.
- Development of management alternatives to protect environmentally sensitive areas.
- Reduction in the loss of valuable real estate and creation of aesthetically pleasing shorelines.
- Reduction of direct sediment delivery to the Illinois River thus enhancing partially the long-term viability of the backwater lakes.

Costs: Approximately \$55,000 per site; cost for five representative sites would equal \$275,000.

References Cited: Bhowmik, N.G., T.W. Soong, W. F. Reichelt, and N.M.L. Seddi k. 1991. Waves Generated by Recreational Traffic on the Upper Mississippi River System. Illinois State Water Survey Research Report 117.68p.

(6) Evaluate the need for mandatory safety training and licensing for recreational boat operators on the major waterways in the Illinois basin, particularly in relation to commercial barge traffic.

- 1) Convene a group of representatives from groups such as insurance companies, marinas, navigation industry, coast Guard, and Illinois Department of Natural Resources to measure the magnitude of the problem from an economic viewpoint and limited to major Illinois rivers, i.e., Illinois, Mississippi, and Ohio.
- 2) Investigate the possibility that an improved boat safety environment on the major waterways will increase a boater's desire to use the river by conducting a sample survey of existing users.
- 3) Based on the outcome of #1 above, take the appropriate action which may include doing nothing, improving the existing boater and jet ski operator safety procedures, mandating stricter safety and operator procedures.

SOIL & WATER MOVEMENT (Recommendations 7-13)

(7) Identify the causes of unnatural and natural water level fluctuations; disseminate results and implement solutions as appropriate:

- 1) Determine contribution of changing precipitation pattern by updating Singh and Ramamurthy 1990, Climate change and resulting hydrologic response: Illinois River Basin.
- 2) Since precipitation changes alone do not fully explain fluctuations (especially sudden drops in water level), identify causes of excessive fluctuations during normal low flow seasons (midsummer and midwinter).

Use measurements and hydraulic models to determine why the Illinois River currently fluctuates more during low flow seasons than it did prior to 1900. Quantify effects of dam operations, releases of water from L. Michigan and the canals in northeastern Illinois, reduction of storage and conveyance capacity for small floods along the mainstem river (due to sedimentation and leveeing), and increased water yields from tributary basins. Quantify both positive and negative effects of current land uses; e.g., water detention in levee districts during flood crests may reduce the crests.

Specifically determine the relationship between water level fluctuations and the high spot in the channel at Beardstown. The Sangamon River deposits sediment at its canalized mouth at Beardstown, causing shoaling in the channel. When tows are in danger of grounding at Beardstown, the downstream dam at La Grange is operated to provide greater depths, perhaps contributing to excessive fluctuations in water levels in La Grange reach during the normal low flow season. The point of this analysis is to determine what factors contribute the most to the fluctuations and, therefore, which solutions are likely to be most cost-effective.

- 3) Use the model developed in #2 above to assess effectiveness of alternative management strategies and recommend adjustments to on-going soil and water management programs in the basin.
- 4) If the above low-flow models and measurements do not also indicate why the frequency and stage of major floods are increasing, conduct similar analyses for high flows.
- 5) Use models and measurements to assess the feasibility and effectiveness of flood crest reduction by allowing controlled flooding of selected leveed areas during record flood events where agreements might be reached with landowners on compensation for income loss.
- 6) Make versions of the model and the data bases available to decision-makers, landowners, and schools to promote understanding of watersheds and to demonstrate the consequences of management alternatives.
- 7) Evaluate the interrelated flood protection issues, to reduce flood damage:
 - Flood protection for existing and potential critical infrastructure.
 - Develop voluntary plan for establishing floodway easements.
 - Evaluate flood design criteria (10, 25, 50, 100, 500-year, etc.).
 - Investigate restoring existing levees to design levels.
- 8) Support a program to accelerate updating of Federal Emergency Management Agency flood hazard maps in urban areas.

Background: Existing Federal Emergency Management Agency flood hazard maps are in most cases 10-20 years old. There are many instances where maps depict areas that are above the floodplain elevation to be in the floodplain and vice-versa. Additionally, flood elevations in some

areas have changed due to new structures (i.e., larger replacement bridge) or changing land use and hydrology. Funding for map update is so inadequate as to delay for many years the availability of accurate map information.

Benefits:

- Cost-effective solutions that address the underlying causes of excessive water fluctuations rather than ineffective solutions that just address symptoms. Partitioning specific contributions of the various sources of water level fluctuations will permit fine-tuning of management activities in the most appropriate areas (e.g., if dam management is determined to be a major source of fluctuations, efforts toward improving stage and weather data to dam operators may be a cost-effective approach).
- Coordinated management of water levels for multiple uses rather than the current, ineffective and costly approach where one agency or group of landowners attempt to mitigate the actions of others.
- Various versions of the simulation models could be used by decision-makers, schools, and landowners.
- Analyses are critical in order to fine-tune the river level management to the point where small fluctuations, which adversely affect floodplain plants, fish and wildlife, can be effectively addressed.
- Analyses have applications across the boundaries of fishery, waterfowl, and moist soil plant management and are important information for professionals working in all of these areas.
- Analyses provide the opportunity to gain understanding into the finer points of dam operation, fishery and migratory bird requirements, navigation and other issues which revolve around the problem of water level fluctuations.

Costs:

- Personnel to assemble data, assemble and modify models, calibrate models, run and analyze simulations.
- If current data are inadequate, there will be equipment and operating costs to obtain sufficient data. Time will be required to acquire improved data, although some analyses can be done with currently available data.

(8) Establish water level management programs throughout the watershed for sediment management, waterbanking, and flood crest reduction.

- 1) Convene a task force (March 1997) to identify opportunities and develop strategies (June 1997) to alter the operation of the navigation system (within the scope of the operating plan) to promote sediment management, native plant communities, and stable river levels for the inherent economic and environmental benefits.
- 2) Establish goals for water yields from tributary basins and subbasins. Include water banking: new developments must not increase rate of water runoff beyond certain limits without compensation. Storm water detention and low flow releases also should be retrofitted on existing developments and land uses.
- 3) Establish experimental watersheds to compare alternative approaches, or combinations of approaches: (a) selective stream dechannelization; (b) wetland and riparian restoration; (c) small detention basins (simulated beaver ponds). Watersheds should include both public and private lands. Programs on private lands should be voluntary. Incentive programs are part of the experiment; i.e., try several, determine which are most effective, which ones landowners favor. Use models developed above, to assess downstream impacts of basin-wide application. Costs and benefits of basin-wide application of incentives should be evaluated.
- 4) Determine whether navigation and diversion structures need to be modified to smooth hydrograph.
- 5) Determine whether dam operating procedures could be modified and coordinated to smooth hydrograph.
- 6) Determine whether real time gauging data on tributaries would assist lockmasters in smoothing hydrograph and, if so, provide such a basin-wide gauging system.
- 7) If analyses indicate that flood crest reduction during record floods is both effective and feasible, try a crest reduction experiment utilizing controlled flooding of preselected leveed areas during record flood events. Preselected experimental areas should be floodproofed and fitted with spillways or gates to allow flooding and dewatering without damage, or with minimal damage.

Benefits:

- Greater predictability in shipping rates and grain prices at river terminals.
- Better fish and wildlife habitat at reduced cost; increases in fish and game; more opportunities for outdoor recreation and tourism; greater diversification of local economies; reduced flood damage.
- Excessive erosion and sedimentation are likely to be reduced as well as excessive water fluctuations.
- Minimizing unseasonable water level fluctuations will optimize production of moist soil plants in the floodplain which are a critical food source for migratory birds as well as resident species.
- Minimizing unseasonable water level fluctuations will decrease the likelihood of fishes and mussels being stranded during river drawdown.
- This approach would address the underlying causes of water level fluctuations rather than attempting to manage around them.

Costs:

- Some upstream landowners and municipalities will have to provide more stormwater detention and retention, with some losses in production and development opportunities.
- Flooded areas will have some losses in production; compensation is proposed in this recommendation.
- Under the flood crest reduction scenario in part 8 above, effects from flooding in state and federal conservation areas which could adversely affect backwater lakes, moist soil plant production, and floodplain forests.

(9) Provide incentives for selective dechannelization of tributaries on a voluntary basis.

The major hydraulic result of removing the structures which had channelized selected streams will be to slow the delivery of water to main stem channels. The effect will be to decrease the peak discharge and spread out the storm flow over a longer span of time. The increased flow times will increase the duration of water on some portions of the floodplain. Therefore, potential sites must be chosen carefully to minimize impacts that might result from increased duration of flood waters. The sites should be located in degraded channelized stream segments and probably will require accompanying riparian corridor strips to reduce landowner impacts and maintenance. The process should be deliberate and step by step incorporating the following. Three years' work is proposed:

- concentrate on headwaters areas.
- seek out willing landowners for beginning demonstration projects.
- physical site conditions should minimize impacts of increased duration.
- incorporate riparian corridors in plans.
- must maintain existing drainage of contiguous areas. Dechannelization does not have to mean bringing a stream back to some preexisting shallow configuration if entrenchment was part of the channelization process.

Year I:

- a) Identify the sub watersheds that will be the focus. The criteria should be set by the committee.
- b) Identify potential sites within the focus watersheds.
- c) A local "leader" should be found for each site before it goes to planning or construction.
- d) Use local, state, and federal agency personnel to identify sites with willing landowners.
- e) Coordinate existing programmatic funds to provide economic help to landowners (i.e. drainage district funds, non-point EPA funds, etc.) including state tax incentives if possible.

Year 2:

- a) Planning of chosen sites. State and federal agency personnel should be utilized when possible.
- b) Construction of demonstration sites. As many sites as leadership and economics will allow.
- c) Publicize efforts extensively by reports to biennial Illinois River Conference held in Peoria, field trips in all phases of project and continued effort to involve local media and local service organizations.

Year 3:

- a) Select additional sites from the list identified during the first year.
- b) Proceed with plans and construction as done in year two.

In succeeding years the process of selection should move gradually to less degraded headwater areas and finally towards main stems of tributary streams as needed and funds allow. Plans for monitoring the success of the initial and succeeding projects should be built into the projects. Some type of agency review will allow a feed-back loop to form so that success is documented and failure not repeated.

Benefits:

- Slow the delivery of water to mainstem channels.
- Decrease the peak discharge.
- Increase the habitat value of tile stream segments.

Costs:

- Land costs if buffer areas are purchased.
- Planning and construction costs for each project.
- To choose the most appropriate sites, the modeling of the system must be done--there could be shared costs or even subbasin costs to bring the model into the upper reaches of a given watershed.
- Special attention will be made to encourage landowners' participation and minimize any off-site impacts.

(10) Stabilize unstable streams in urban and rural areas.

The Hydrology and Hydraulics Action Team recommended that a preamble be developed for this recommendation that defines what is meant by an "unstable stream". From an engineering perspective an unstable stream channel is one whose rate or magnitude of erosion is great enough to generate public concern (e.g., it threatens public safety or engineered structures) (Brice, 1982). From a geomorphological perspective, an unstable stream is one that exhibits abrupt, episodic, or progressive changes in location, geometry, gradient, or pattern because of natural or human-induced changes in water or sediment inputs from the watershed and/or spatial imbalances between sediment inputs and outputs within the stream system (Rhoads, 1995).

Adjustments to channel form include vertical changes in the channel bed (aggradation/ degradation) and erosion or deposition along the channel banks (widening or channel migration). Rapid enlargement or infilling of a stream channel is a sign of an imbalance between sediment inputs or outputs. This type of instability is common in urban areas where rates of runoff may be increased without corresponding increases in sediment load. Lateral or down valley migration of meandering streams is part of the natural dynamics of these streams and should not automatically be viewed as a sign of instability. All meandering streams will erode their banks to some extent. The key is to identify rates of erosion that are progressively increasing through time, especially in conjunction with progressive human-induced changes in land use in the watershed. Also, a rate of migration for a meandering reach that is far in excess of rates for other meandering reaches in a watershed may in some cases reflect instability.

Year 1:

- a) Establish precise assessment criteria for identifying unstable streams in each subwatershed, such as critical rates of channel enlargement or infilling and critical rates of increase in rates of lateral migration. It is recommended that assessment criteria be based primarily on scientific information about the geomorphology of the stream system, rather than on public concern about the severity of erosion at particular locations.
- b) Perform assessments in each sub watershed to identify unstable sites.
- c) Focus on unstable reaches experiencing the highest levels of stream erosion for site-level geomorphological investigations.

Year 2:

- a) Conduct site-level geomorphological investigations to generate site-specific information on causes of instability.
- b) Coordinate site-level investigations at the watershed scale and formulate holistic management strategies based on a mixture of non-interventional (natural adjustment) and interventional (engineered) stabilization techniques (Thorne et al., 1996).
- c) Begin implementation of remediation projects throughout the watershed.

Year 3:

- a) Continue implementation
- b) Initiate low-cost, long-term monitoring programs at selected sites to evaluate effectiveness of remediation strategies

Benefits:

- The major benefit of stabilizing unstable streams will be a reduction in the amount of sediment delivered to the Illinois River by tributary streams
- Other benefits include enhancement of habitat conditions in the tributaries, mitigation of property loss associated with bank erosion, and improvement of river aesthetics.

Costs:

- The major costs associated with this effort will be to assess the extent and severity of stream-channel instability and to implement stabilization strategies.
- Care must be taken not to treat erosion problems on a local, piecemeal basis, which could simply transfer these problems to nearby stream locations.
- Instead, holistic management strategies must be formulated that take into account the interconnectedness of various streams and stream segments in the drainage network of the Illinois River.
- The development of such strategies requires an adequate knowledge base concerning the factors governing stream-channel dynamics throughout each subwatershed.
- At present, this knowledge base is insufficient to support a holistic strategy aimed at stabilizing unstable streams throughout the entire Illinois River basin.

Reference Cited:

Brice, J.C. 1982. Stream channel stability assessment. U.S. Dept. of Transportation. FHWA/RD-82/021.

Rhoads, B.L. 1995. Stream power: a unifying theme for urban fluvial geomorphology. in E. Herricks (ed.), Stormwater Runoff and Receiving Systems, Lewis. Boca Raton, Fl. 65-75.

Thorne, C.R., Reed, S., and Doornkamp, J.C. 1996. A procedure for assessing river bank erosion problems and solutions. University of Nottingham R&D Report 28. National Rivers Authority. Bristol, UK.

(11) Implement all actions called for in the Great Lakes Memorandum of Understanding (July 29, 1996):

Background: Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, Wisconsin, the Metropolitan Water Reclamation District of Greater Chicago and the Solicitor General of the U.S. Department of Justice reached an agreement during 1996 that may resolve a decades-long dispute over withdrawals from Lake Michigan. Six million Illinoisans, through more than 200 water communities and other water users, rely on this water source. Instead of more lengthy legal disputes, implementation of the actions below will effectively solve the controversy.

The State of Illinois will:

- 1) reduce discretionary diversion to a maximum annual average of 240 c.f.s. in WY 1996 and WY 1997* as long as the reduction in discretionary flows does not result in significant exceedances of water quality standards, and to 270 c.f.s. in WY 1998 through 2010, as long as the reduction in discretionary flows does not result in significant exceedances of water quality standards (with the concurrence of the Illinois legislature, when necessary);
- 2) initiate leakage repairs at the Chicago River Controlling Works in WY 1996;
- 3) initiate allocation proceedings by the start of WY 1998 regarding all domestic and industrial Illinois Lake Michigan water users;
- 4) install AVMs** in WY 1996 (subject to appropriations from the Illinois General Assembly);
- 5) initiate construction of a wall across the mouth of the Chicago River Turning Basin by December 1, 1998 (subject to appropriations from the Illinois General Assembly);
- 6) promptly initiate steps to reduce navigation makeup to the Metropolitan Water Reclamation District below 50 c.f.s. (subject to maintaining navigation depths in accordance with the Code of Federal Regulations, 33 C.F.R. 207.420); and
- 7) install by WY 1999 one or more pumps at the lakefront for the purpose of returning water to Lake Michigan (subject to appropriations from the Illinois General Assembly);

By WY 2000, and subject to water quality and navigation regulations, the State of Illinois will pump back to Lake Michigan not less than an annual average of 50 c.f.s., or an amount equal to the total leakage and navigational waters at Chicago for the months in which there is no discretionary flow.

a) _____

*WY = water year, a unit of measure used by the U.S. Geological Survey. For example, WY 1997 water year was October 1, 1996 to September 31, 1997.

**acoustic velocity meters

(12) Improve monitoring of water and sediment of Illinois streams.

Background: Most of the issues related to the Illinois River are related to the variability of the quantity and quality of water and sediment in the Illinois River over time. The amount of water and sediment that is delivered to the Illinois River Valley depends on many natural and human-induced factors in the watershed and along the thousands of miles of stream channels. Both the natural and human-induced factors change over time and from region to region. Streamflow and sediment records at selected gauging stations provide us with the most reliable scientific data to measure and evaluate trends in the watershed hydrology and stream dynamics. Monitoring stations located at different parts of the watershed provide us information on how the different regions, either in terms of topography, soils, vegetation, or climate, behave under different land use practices. Long-term monitoring stations provide us with the data to evaluate the impacts of natural climatic variations and man-made changes on the hydrology of different watersheds. The data generated through monitoring is the most trustworthy information in evaluating trends and impacts. Most controversies related to natural resources issues are related to lack of reliable data or understanding about the dynamics of the system.

Systematic monitoring of streamflow and sediment has been on the decline in recent years due to budgetary constraints. The sediment monitoring program is almost to the point of being discontinued. These problems reduce our abilities to formulate reliable and efficient water and land use management options. It is extremely important some meaningful monitoring program be maintained in the state as a long-term investment to manage our resources with the best scientific and engineering data and information.

- 1) Identify stakeholders that use and have need for water and sediment data including federal and state agencies, counties, cities.
- 2) Document existing water and sediment monitoring stations in the state.
- 3) Evaluate the quality of data being collected.
- 4) Review literature to assess the adequacy or deficiency of the data collection.
- 5) Assess if adequate representative watersheds are included in the monitoring program.
- 6) Identify data collection needs.
- 7) Prioritize monitoring stations.
- 8) Develop budget needs.
- 9) Submit proposal to funding entity.
- 10) New technology.

Benefits:

- Improved water resources management plans and less controversy.
- Better sediment management plans.
- Better floodplain and flood protection programs.
- Millions of dollars in flood damage reduction.
- Millions of dollars in savings in reservoir sedimentation.
- Better stream bank erosion programs.

Costs:

- time spent by state and federal agency personnel to evaluate the status and develop program.
- initial equipment costs.
- annual data collection costs.

(13) Build wetlands and other water retention capacity in urban and rural areas in the Illinois Basin, in collaboration with appropriate public landowners and volunteering private landowners.

- 1) Designate a lead agency and establish a work group to assist the agency specifically in the implementation of this recommendation.
- 2) Identify and agree on the process and criteria to be used in order to select sub-basins (See map on the following page and Tables 1-4, which suggest an approach and are cited below).
- 3) Identify and agree upon the sub-basins which will be used (see map).
- 4) Determine which set of wetlands and surface water data will be used to evaluate the surface waters within each sub-basin (Table 1). The National Wetlands Inventory is the only source of wetland and surface water data available for each sub-basin).
- 5) Evaluate the current status of surface waters by each sub-basin (Table 1).
- 6) Project goals for surface waters for each sub-basin as a percent of surface water per sub-basin (Table 2).
- 7) Determine the difference between the current amount of surface waters and the goals for surface waters in each sub-basin (Table 3).
- 8) Identify the anticipated impact that achieving restoration/creation goals will have on the hydrology of each sub-basin and the mainstem.
- 9) Project the costs of creating/restoring surface waters in each sub-basin (Table 4).
- 10) Establish restoration/creation goals for each sub-basin based upon the results of steps 7-9.
- 11) Prioritize each sub-basin based upon creation/restoration and preservation/protection needs.
- 12) Evaluate the following existing programs and possible sources of funding for creation/restoration efforts: Wetland Reserve Program, Environmental Quality Incentive Program, Conservation Reserve Program, Partners for Wildlife, Marsh Program, North American Waterfowl Management Program, Conservation easements, Conservation 2000 (Resource Rich Areas), and Forestry Incentive Program.
- 13) Identify the amount of public lands within each sub-basin along with the amount of wetlands and other surface waters currently in public ownership.
- 14) Evaluate existing public lands for suitability of creating/restoring new wetlands and other surface waters.
- 15) Initiate wetland restoration/creation efforts in priority sub-basins.
- 16) Obtain appropriate funding for priority sub-basins.
- 17) Monitor efforts by sub-basin for each of the following;
 - Number of Acres Protected
 - Number of Acres Restored
 - Number of Acres Enhanced
 - Location of Protection/Restoration/Enhancement
 - Evaluation of Impact on Hydrology
- 18) Adopt a zero wetland loss goal and encourage willing private and public landowner participation in a program to restore 0.5% per year (i.e., 16,000 acres) of destroyed or modified wetlands over the next 15 years (totaling about 223,000 acres). This would include both rural and urban landscapes and all wetland types (upland, Palestrina, and riverine).
- 19) Evaluate the capacity of local governments to raise funds to finance flood control facilities.

Benefits:

- Reduction in peak flows reduces flood damage and improves conditions for navigation, recreation.
- Increase in low flow levels which benefits plants, fish and wildlife, navigation, and recreation.
- Reduction in streamflow velocity reduces bank and in-channel erosion rates.
- Maintain and improve water quality.
- Decrease in the amount of sediment deposition.
- Increase in essential habitat for plants, fish, wildlife in general, and threatened and endangered species.
- Increase in recharge of aquifers.
- Increase in revenues from fishing and other outdoor activities.
- Cooperative and partnership ventures may improve the economy of the region and save overall restoration costs by having the various private, county, state and federal programs contribute.

Costs:

- Expense of Land Acquisition.
- Expense of Actual Creation/Restoration.
- Time to develop resolution for Governor and/or General Assembly's action of a zero wetland loss goal.
- Staff time to develop promotional materials for agencies' staff and public; implement program.
- Goal of 16,000 acres/year @ \$1,000/acre = \$16 million dollars (possibly share program cost among several agencies or partners or reallocate funding from other programs, instead of new moneys).
- Crop production reduced by those acres that are taken out of production.

Table 1. Amount of wetlands (including all surface waters) in the 19 sub-basins of the Illinois River according to National Wetlands Inventory (NWI) data

Current Illinois River Basin Wetland Acreage Information as per the NWI*					
Illinois River	Total Acreage	Acres of Wetlands	% of Land in Wetlands	Rank by Acreage	Rank by%
Kankakee River	551595	9263	1.7	16	12
Iroquois River	820217	10026	1.2	14	15
Chicago River/Canals	370772	8060	2.2	18	8
Des Plaines River	83 55 16	36783	4.4	5	3
Illinois River, Will Co. Line to Ottawa	638163	11467	1.8	13	11
Fox River, Upper	396773	37867	9.5	3	1
Fox River, Lower	706742	13483	1.9	12	10
Illinois River, Ottawa to East Peoria	1248 11 8	49366	4	2	4
Vermilion River	845433	46 14	0.5	19	17
Illinois River, East Peoria to Beardstown	976555	57903	5.9	1	2
Mackinaw River	728475	8308	1.1	17	16
Spoon River	1186265	19039	1.6	9	13
Sangamon River					
Sangamon River, Upper	916577	19734	2.2	7	8
Sangamon River, South Fork	740284	15548	2.1	10	9
Sangamon River, Lower	603037	20867	3.5	6	5
Sangamon River, Salt Fork	1182422	13662	1.2	11	15
LaMoine River	855079	19423	2.3	8	7
Illinois River, Beardstown to Mississippi River	1445918	37177	2.6	4	6
Macoupin Creek	616958	94 13	1.5	15	14
Totals	15664899	402003	2.6		

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* Acres of wetlands figures adjusted to reflect estimated net loss of wetlands since the 1988 edition of the NWI. Estimated rate of loss since 1988 is .375% / year.

Table 2. Suggested range of preliminary surface water restoration/creation goals for each of the 19 subbasins

Acreage of Specific Target % of Surface Water per Drainage Area			
	2.5%	5.0%	7.5%
Illinois River			
Kankakee River	13790	27580	41 370
Iroquois River	20505	4101 1	61516
Chicago River/Canals	9269	18539	27808
Des Plaines River	20888	41776	62664
Illinois River, Will Co. Line to Ottawa	15954	31908	47862
Fox River, Upper	9919	19839	29758
Fox River, Lower	17669	35337	53006
Illinois River, Ottawa to East Peoria	31203	62406	93609
Vermilion River	21136	42272	63407
Illinois River, East Peoria to Beardstown	24414	48828	73242
Mackinaw River	18212	36424	54636
Spoon River	29657	59313	88970
Sangamon River			
Sangamon River, Upper	22914	45829	68743
Sangamon River, South Fork	18507	37014	55521
Sangamon River, Lower	15076	30152	45228
Sangamon River, Salt Fork	29561	59121	88682
LaMoine River	21377	42754	64131
Illinois River, Beardstown to Mississippi River	36148	72296	108444
Macoupin Creek	15424	30848	46272
Totals	397622	783245	1174867

Table 3. Difference between the acreage of the possible restoration/creation goals and the current surface water acreage as per the NWI in each sub-basin

Difference Between Possible Acreage of Surface Water & Current Acreage of Surface Water			
	2.5%	5.0%	7.5%
Illinois River	4527	18317	32 107
Kankakee River	10479	30985	51490
Iroquois River	1209	10479	19748
Chicago River/Canals	-15895	4993	25881
Des Plaines River	4487	20441	36395
Illinois River, Will Co. Line to Ottawa	-27948	-18028	-8109
Fox River, Upper	4186	21854	39523
Fox River, Lower	-18163	13040	44243
Illinois River, Ottawa to East Peoria	16522	37658	58793
Vermilion River	-33489	-9075	15339
Illinois River, East Peoria to Beardstown	9904	28116	46328
Mackinaw River	10618	40274	69931
Spoon River			
Sangamon River	3180	26095	49009
Sangamon River, Upper	2959	21466	39973
Sangamon River, South Fork	-5791	9285	2436 1
Sangamon River, Lower	15899	45459	75020
Sangamon River, Salt Fork	1954	23331	44708
LaMoine River	-1029	35119	71 267
Illinois River, Beardstown to Mississippi River	6011	21435	36859
Macoupin Creek	-10381	381244	772866
Totals			

Table 4. Gross estimate of the cost of creating/restoring each potential areas of surface waters in each sub-basin

Cost of Creation/Restoration in Multiples of \$1,000,000			
	2.5%	5.0%	7.5%
Illinois River			
Kankakee River	11.3	45 .8	80.3
Iroquois River	26.1	77.5	128.7
Chicago River/Canals	3.0	26.2	49 .4
Des Plaines River	N/A	12.5	64.7
Illinois River, Will Co. Line to Ottawa	11.2	51.1	91.0
Fox River, Upper	N/A	N/A	N/A
Fox River, Lower	10.5	54 .6	98.8
Illinois River, Ottawa to East Peoria	N/A	32 .6	110.6
Vermilion River	41.3	94. 1	147.0
Illinois River, East Peoria to Beardstown	N/A	N/A	38.3
Mackinaw River	24.8	70.3	115.8
Spoon River	26.5	100.7	174.8
Sangamon River			
Sangamon River, Upper	8.0	65.2	122.5
Sangamon River, South Fork	7.4	53.7	99.9
Sangamon River, Lower	N/A	23 .2	60.9
Sangamon River, Salt Fork	39 .7	113.6	187.6
LaMoine River	4.9	58.3	111. 8
Illinois River, Beardstown to Mississippi River	N/A	87.8	178.2
Macoupin Creek	15.0	53 .6	92 .1
Totals	229.7	1020.9	1952.5

AGRICULTURAL PRACTICES (Recommendations 14-20)

(14) Expand and revise voluntary cost-share programs for more flexibility and technical assistance to assist landowners/operators in establishing soil conservation and water quality practices on cropland and non-cropland areas.

- A) Because existing cost-share programs have gaps in eligible practices as well as a shortage of adequate funding in relation to the amount needed to achieve the overall goals in soil conservation and water quality:
- 1) Identify existing program and financial gaps in the Wetland Reserve Program and Conservation Reserve Program cost-share availability for landowners (i.e. cropland/non-cropland). Assemble a group of farmers, landowners, and cost-share agencies to evaluate current cost-share limitations and to make suggestions to improve cost-share through amendments that allow for greater flexibility (such as approval and billing requirements of existing programs which do not consider cropping and weather patterns. Construction of waterways and other practices as limited to poor construction seasons. Multi-year opportunities for projects which cannot be accomplished in one year). Report findings to the state Natural Resources Coordinating Council and the Natural Resource Conservation Service State Technical Committee.
 - 2) Develop funding or program support for practices on situations that fall into gaps (i.e. bluff areas, streambank).
 - 3) Promote / create awareness of availability.
 - 4) Hold sign-up.
 - 5) Prioritize proposals
 - 6) Implementation of funded proposals.
- B) Because there are limited funds and personnel to accomplish these programs with the quality of technical assistance that is needed at the local level for watershed projects:
- 1) Develop grant procedures emphasizing interagency teamwork and partnerships with watershed groups.
 - 2) Provide a minimum of 10-year funding contracts, etc., for soil and water conservation district staff positions with additional funds available for supplemental program support.

Benefits:

- More thoroughly address water quality issues in non-cropland areas.
- Provides new funding source cost share for non-crop areas.
- Stimulate actions by landowners to implement conservation practices; more participation in programs.
- Reduction of soil erosion/sedimentation rates and improvement of water quality.
- Alleviate shortage of technical expertise.
- Increase landowner awareness and personal contact.
- Provide increased cost-effectiveness of soil erosion control and water quality practices

Costs:

- \$23 million (new money) with overhead capped at 10 percent.
- \$50,000 per county per year x 55 counties in the watershed=\$2.75 million per year.

(15) Promote and implement cost-effective efforts for reducing soil erosion from forests, bluffs, woodlands, gullies, pastures, and streambanks:

- 1) Recommend USDA give higher priority for CRP contracts for reforestation of most erosion-prone lands;
- 2) Provide cost-share funds to reforest targeted CRP lands.
- 3) Target existing reforestation programs to lands that cannot meet "T" erosion standards.
- 4) Provide funding for permanent livestock fencing materials to keep livestock away from stream corridors and steep forested slopes (for volunteering landowners);
- 5) Provide funding to cost-share interior fencing in forests, possibly through Conservation 2000;
- 6) Educational efforts:
 - Distribute more educational materials regarding the use of prescribed burning to improve forested lands.
 - Expand educational efforts to keep livestock out of forested land.
 - Promote Forestry Development Act Program/cost-share for interior fencing
 - Encourage landowners to develop optimum wildlife habitat in fenced areas; promote re-establishment of native herbaceous forest ground cover.
 - Enhance efforts to reduce damage to forests by livestock (and white-tailed deer).

Benefits:

- Fencing of 1% of stream corridors would provide 9,000 acres of wildlife habitat, reduce soil erosion, improve water quality and aquatic habitats.
- Would reduce sediment loads in major river systems.
- Promote better stewardship of our forest resources by educating forest owners of the importance of forests.
- Increase health of forest resources and the conservation of our native fauna and flora.
- Increase growth rates and quality of forest crops.
- Reduce the extent and severity of soil loss in forests of the state.
- Encourage the establishment of higher quality pasture and forage crop areas.

Costs:

- If 1% of the streams or 600 miles were fenced on both sides, the cost of 1200 mile of fencing material would be \$1,400,000 at \$1,200/mile for high tensile steel .
- Cost of planting materials for trees and native grasses would be absorbed in existing IDNR Private Lands Program .
- Staff time to prepare meeting with stakeholders to develop education programs to enhance efforts to reduce damage to forests by livestock.
- Staff time to develop education programs and publish materials.
- Staff time to promote Forestry Development Act and other forestry stewardship programs.
- Staff time to develop and find funding for fencing cost-share program .
- Loss of grazing area to individual landowners.
- Cost to develop better pasture and forage production areas which may result in loss of row crop production.

(16) Increase funding for C-FAR (Council on Food and Agriculture Research) and encourage C-FAR to give higher priority for funding of interagency research projects pertaining to soil conservation and water quality.

Purpose: To increase the funding level of soil conservation and water quality research and to focus funding on issues pertinent to the Illinois River System, given the fact that funding is limited.

Background: Created in 1994. C-FAR is a coalition of 45 diverse organizations in the food and agriculture sector. The coalition's goals are to improve state funding for food and agricultural research and to represent the public in providing input on research directions to the four publicly-funded agricultural research institutions in Illinois (University of Illinois at Urbana-Champaign, Southern Illinois University at Carbondale, Western Illinois University, and Illinois State University).

- 1) Develop coalition of interested groups, agencies and associations.
- 2) Work with C-FAR Steering Committee to develop strategy to persuade the Governor's Office and C-FAR Board to reach soil conservation and water quality objectives in this plan.
- 3) Determine level of additional funding.
- 4) Work with legislative leaders to create funding appropriations.
- 5) Pass bill.
- 6) Work with C-FAR to focus more on soil conservation and water quality in the Illinois River watershed.
- 7) Lobby all key agencies and associations to produce priority project list of soil conservation and water quality objectives for the watershed.
- 8) Provide public awareness of key soil conservation and water quality objectives that are developed by the coalition.

Benefits:

- Much needed research will replace guesses and assumptions.
- Maximizes and coordinates research funds.
- Insures dollar for dollar return.
- Provides increased cost effectiveness of soil erosion control and water quality practices.
- Builds on conservation partnership.
- Improved communication between farmers and researchers to identify conservation problems, develop practical research, and implement the solutions.

Costs:

- As much as possible--(hopefully 3-4 million \$ / year).
- Time to develop coalition and strategy; coalition develops subsequent costs.
- Research and administrative cost for lead agency.
- Redirection of existing resources.
- Overall one-time cost of \$10,000 to form coalition.

(17) Expand voluntary farmer involvement with research teams in identification of problems and use of on-farm research trials for making no-till corn more viable, quantifying how Best Management Practices affect surface water quality, and solutions to non-cropland soil erosion.

Background: Given the importance of research and its linkage to education, this recommendation promotes the involvement of local conservation farmers in the identification of problems, research of high potential conservation practices and techniques, and the sharing of local conservation knowledge through informal meetings of producers.

Organize a local committee of agriculture agencies/organizations to identify procedures for obtaining farmer/producer involvement with research projects related to soil conservation and water quality issues as well as for disseminating the research findings through local farmer groups (i.e. machine shed meetings, tours, etc.) and the Internet.

A) No-till Corn.

- 1 Create a research team of agencies and producers (representing cross-section of watershed).
- 2 Identify problems affecting no-till corn production (such as cold soils, wet soils, residue management, herbicides, etc.).
- 3 Identify and select target farms within watershed that are willing and able to do whole farm research.
- 4 Empower the committee to develop and implement the research procedures.
- 5 Seek C-FAR and other funding assistance to support research and publication of results.
- 6 Change emphasis of no-till research. Direct farmers to identify practical methods to make no-till successful as compared to conducting comparative tillage systems research.
- 7 Funding sources to change focus of grants.

B) More data on the positive results of Best Management Practices is required for more producer/landowner adoption (not only soil erosion; also water runoff, nutrient and pesticide loading, sediment delivery).

- 1 Identify voids (knowledge gaps) in available water quality research (i.e. effectiveness of filter strips).
- 2 Identify methods to test the effectiveness of BMP's (Best Management Practices).
- 3 Identify funding sources, partnerships, and primary researchers.
- 4 Conduct necessary research and disseminate results through publications that will reach most farmers.

C) Promote cost-effective alternatives/solutions to non-cropland soil erosion (i.e. bluff, woodland, gullies, pasture, streambank, etc.). In many cases these non-cropland areas are less carefully managed and capable of delivering high sediment loads into the watershed.

- 1 Create a research team (including individuals that have technical expertise and/or a personal interest in finding alternative solutions).
- 2 Identify key areas needing low-cost control measures (i.e. Bluff, woodland erosion, gullies in woodlands and pastures, streambank, etc.).
- 3 Identify research projects already in progress and bring research team up to speed on their findings. Target new research on existing gaps and needed expansion of existing research.
- 4 Create research plan with feasible alternatives.
- 5 Draw in financial, technical, and labor assistance as possible for the research implementation.
- 6 Implement research plots in cooperation with willing landowners/operators within target areas of watershed.
- 7 Measure results and costs of implementation.
- 8 Publish results through agency and special interest group newsletters and the Illinois River Basin Information Bureau.

Benefits:

- Much needed research will replace guesses and assumptions.
- Maximizes and coordinates research funds.
- Insures dollar for dollar return.
- Provides increased cost effectiveness of soil erosion control and water quality practices.
- More thoroughly address water quality.
- Reduces soil erosion/sedimentation rates and improves of water quality.
- Increases landowner awareness and personal contact.
- Transferable technology (on long-term whole field research).
- Stimulates actions by landowners to implement conservation practices.
- Creates new opportunity for non-governmental funding sources (conservation partnerships and coalitions).
- Educates and improves awareness of conservation issues through farmer involvement.
- Improves communication between farmers and researchers to identify conservation problems, develop practical research, and implement the solutions.

Costs:

- Research and administrative cost for lead agency.
- Overall cost of \$3 million per year for a minimum of 10 years.
- Time to develop a coalition and strategy.
- Redirection of existing resources.

(18) To increase soil and water conservation and stewardship by landowners, seek legislation to improve tax incentives for:

- A) Establishing riparian filter strips along tributary streams.
- B) Reestablishing riparian corridors and voluntary conversion of cropland to permanent vegetative cover.
- C) Comprehensive soil and water conservation planning and implementation.

A) Based on consideration of local factors that influence soil and water conservation, the purpose of eliminating the property tax for riparian filter strips in the watershed is to encourage landowner's voluntary involvement in improving water quality and to send a clear message that this is matter of public importance. Included in this recommendation is adjusting the width requirement for the filter strip to a minimum range of 10-25 feet (depending on land slope), as set forth in the Natural Resource Conservation Service Technical Guide, and up to a maximum 66 foot width. The action steps to accomplish this are as follows:

- 1) Site assessment and specification for width and vegetation to be developed by USDA-Natural Resources Conservation Service (NRCS) and concurred by Illinois Department of Agriculture.
- 2) Minimum width of 10 feet is acceptable if approved by NRCS specifications.
- 3) Elimination of property tax assessment for designated permanent areas.
- 4) Lobbying activity in support of legislation.
- 5) Dissemination of the law to producers and landowners by appropriate agencies and organizations.
- 6) Sponsor sign-ups through the local soil and water conservation district and coordinate with the local tax assessor.
- 7) Amend current legislation to reduce minimum width to 10 feet (or research -based width) and assessment to zero dollars.

Benefits:

- Provide increased cost effectiveness of soil erosion control and water quality practices.
- Stimulate actions by landowners to implement conservation practices.
- Reduction of soil erosion/sedimentation rates and improvement of water quality.

Costs:

- Redirection of existing resources to implement and monitor program (NRCS, soil and water conservation districts, tax assessors).
- Lost tax revenues.

B) To enhance plant and wildlife habitat and encourage the reestablishment of permanent vegetative cover in the watershed, particularly in riparian corridors along tributary streams, development of legislation to allow an annual state income tax credit for conversion, to permanent vegetative cover, for cropland as well as riparian corridors (as approved in a private land wildlife habitat plan) is recommended.

Benefits:

- Protection of 5% of stream corridors would provide 45,000 acres of wildlife habitat, reduce stream bank erosion, reduce soil erosion, improve water quality and aquatic habitats.
- Would reduce sediment loads in major river systems.

Costs:

- Reduction in state tax revenues

C) Based on consideration of attitudes that influence soil and water conservation, the purpose of this concept is to appropriately tax land that is being managed with sound conservation and stewardship. Develop a land tax incentive program to encourage comprehensive farm (soil and water) conservation planning and implementation. A model for possible consideration is that which is in place in Peppin County, Wisconsin. Providing a tax incentive for good stewardship would reduce one of the reasons that marginal land is brought into production. At the same time, the local units of government would need to have a stable income source.

- 1) Assemble Task Force to investigate/evaluate tax issues associated with incentive program (Illinois Department of Revenue, County Tax Assessor, County Board, Farm Bureau, Illinois Department of Agriculture, etc.).
- 2) Check feasibility (consider off setting reimbursements to units of local government).
- 3) Develop coalition of organizations and interest groups to lobby for legislation.
- 4) Advocate legislation for expanded tax relief.
- 5) Designate lead agency/group.
- 6) Develop rules and guidelines and monitoring.
- 7) Promote through media/public awareness.
- 8) Implement program.
- 9) Monitor participants.

Benefits:

- Stimulate actions by landowners to implement conservation practices.
- Reduction of soil erosion/sedimentation rates and improvement of water quality.
- Builds on conservation partnership.
- Recognizes and rewards positive efforts.
- Removes an incentive to bring marginal land into production and provides an incentive to take marginal land out of production.
- Improves wildlife habitat.
- Reduces capital cost outlay for downstream degradation/restoration.

Costs:

- Time to develop a coalition and strategy.
- Time costs from existing staff.
- Reduced real estate taxes collected.

(19) Expand existing programs to reach more producers with new conservation technology.

- 1) Provide Revised Universal Soil Loss Equation (RUSLE) in user-friendly (Windows) computer format for use by producer /landowners and also posted on the Internet.
- 2) Provide more one-on-one technical assistance to landowners/farmers to help the adoption of good conservation practices.
Examples of technical assistance:
 - a. Nitrogen management (Champaign County Soil & Water Conservation District);
 - b. Crop residue measurements (DeKalb County Soil & Water Conservation District);
 - c. FarmAsyst;
 - d. Max (Conservation Tillage Information Center)
- 3) Expand use of field demonstrations, tours, and hands-on workshops to introduce new conservation technology.
- 4) Develop and conduct effective education programs aimed at erosion in streambank, pasture, bluff, timber, and other non-crop areas.
- 5) To increase the utility of soil-mapping data provided by the USDA-Natural Resources Conservation Service, provide that data on digital orthophoto quadrangles so that both the soil data and the base map can be manipulated in Geographic Information System environments.

Benefits:

- Provide increased cost effectiveness of soil erosion control and water quality practices.
- Stimulate actions by landowners to implement conservation practices.
- Reduction of soil erosion/sedimentation rates and improvement of water quality.
- Increase landowner awareness and personal contact.
- Educates and improves awareness of conservation issues through famer involvement.
- Improved communication between fanners and researchers to identify conservation problems, develop practical research, and implement the solutions.
- Use of new marketing approaches (i.e. Internet, computer programs, computer modeling)

Costs:

- Research and administrative cost for lead agency.
- Postage and handling costs (etc.) and minimal administrative costs.
- Redirection of existing resources; additional staff and equipment needs.

(20) Investigate dedicated funding source(s) for soil erosion and water quality initiatives to ensure sustained technical assistance and voluntary incentives.

Investigate dedicated funding for soil erosion and water quality initiatives, due to the limited funding available. Providing a dedicated source would allow sustaining programming and incentives for landowners and research. This recommendation does not limit the scope of funding sources that could be considered. Two possibilities for consideration include a voluntary check-off for Illinois River (state income tax) or a riverboat gambling tax.

- 1) Generate potential ideas and determine feasibility.
- 2) Create Coalition.
- 3) Lobby in support of Legislation.

Benefits: Dedicated conservation funding.

Costs:

- Time to develop coalition, strategy and to conduct a successful campaign.
- \$ 50 million in annual funding may be achievable; source of funds to be determined.

ECONOMIC DEVELOPMENT (Recommendations 21-26)

(21) Encourage compatible economic development in the Illinois River Watershed by:

- **Develop a list of businesses using the river for commercial purposes and utilize that list as a resource to request information on current practices, successes and barriers and to distribute information on how the Council used that information to encourage compatible development opportunities.**
 - **Identifying constraints on or contiguous to the river that impede transportation of products, river-related commerce and by working to remove or to remedy these constraints.**
 - **Identifying and marketing the economic benefits of the river.**
 - **Developing ways to stimulate entrepreneurship, to help retain and expand businesses and to encourage the establishment of non-traditional businesses related to the watershed.**
- 1) Through the Department of Commerce and Economic Opportunity, develop a business retention and expansion report that would track business development along the Illinois River and identify the impediments, advantages and opportunities of doing business in the watershed. The study should include a section on what small businesses and industries appear suited to using the river that are missing from the current business mix along the river. Distribute the report to agencies-and stakeholders the Illinois River Coordinating Council.
 - 2) Request input from Council stakeholders and others, including those from economic development, tourism, and municipal sectors, on ways to further develop economic opportunities, including proposals for legislative change, administrative change and proactive programs to encourage business development along the Illinois River.
 - 3) Encourage the development of local and regional intergovernmental models to foster more comprehensive collaboration and coordination of public bodies with jurisdiction in the Illinois River Watershed, especially in counties contiguous to the river.
 - 4) Monitor and disseminate the results of proposed actions.

(22) Create a one-stop-shop for the coordination of all local, state and federal water permits.

- 1) Establish a working group of appropriate permitting agencies including, but not limited to, the Illinois Environmental Protection Agency, the Illinois Department of Natural Resources, the Illinois Historic Preservation Agency, the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers, to assemble and review permits needed to develop business activities on or along the river.
- 2) Compile the list of permits with contact information and special instructions. Publish and distribute the information.

(23) Encourage the development of outdoor recreational opportunities including hunting and fishing tours, hiking, bird watching and nature observation to stimulate local economics and to encourage landowners to preserve and to restore natural habitats.

- 1) Survey successful outdoor recreational businesses both in and around Illinois and relevant public agencies, including Illinois Small Business Innovation Resource Center, the University of Illinois Extension, the Illinois Department of Natural Resources, Illinois Department of Agriculture and NRCS Resource Conservation & Development and their councils, to identify factors contributing to the success of these types of business developments, current constraints and possible solutions in Illinois.
- 2) Consult with Illinois Landowners to determine what incentives or factors would encourage them to develop outdoor recreational businesses.
- 3) Survey other states to develop a list of "best practices" that they use to encourage the commercialization of hunting clubs and other outdoor recreational businesses.
- 4) Develop a list of recommended governmental actions to either remove impediments to the growth of recreational businesses and/or create incentive programs and services to assist new and emerging commercial ventures such as hunting clubs, fishing tours, wildlife watching and recreational boating businesses.

Benefits:

- Increased acres of natural habitats restored; reduced soil erosion.
- Possible revenue for participating landowners.
- Sales generated by visiting recreationists.

Costs:

- Staff time studying recreational opportunities.
- Promotional costs.

(24) Through established public economic development entities, like Illinois Department of Commerce and Economic Opportunity, Illinois Chamber of Commerce and USDA Rural Development, work to develop and promote business opportunities and technologies that utilize river basin resources in order to encourage business development in the watershed.

The coordinated effort should:

- 1) Identify the potential economic resources of the watershed.
- 2) Develop strategies to integrate new and existing technologies that may be beneficial to economic development.
- 3) Identify mutual economic and environmental impediments that technology can resolve.
- 4) Promote compatible economic development.
- 5) Support an efficient inland navigation system, including locks and dams, along the Illinois River that sustains environmental values and promote improvements that address economic and environmental needs together.
- 6) Identify potential uses for sediment which create economic incentives for the removal and utilization of the material.
- 7) Coordinate the development and utilization of technologies for harvesting sediment through n-containment techniques.

(25) Provide development assistance to watershed communities, especially those lacking professional development staff to improve the communities' ability to create economic opportunities.

Convene all federal, state and regional community and economic development organizations with a stake in the economic vitality of the Illinois watershed counties including, but not limited to, the Illinois Department of Commerce and Economic Opportunity, the United States Department of Agriculture Rural Development, the University of Illinois Extension, the Illinois Institute for Rural Affairs, the Illinois Finance Authority, the Illinois Community College Board, the Illinois Department of Natural Resources, and the Illinois Department of Agriculture, etc. to:

- 1) Identify smaller communities that desire these programs and services.
- 2) In conjunction with a group of community representatives, compile a list of available programs and services that have particular and specific relationships to river development, e.g., grants for private marinas, bond authority for municipal marinas, etc., as well as a list of best practices for river development.
- 3) Select a lead organization to identify delivery mechanisms for increasing the knowledge and decision-making capacity of the communities (through satellite down links at community colleges, community roundtables, etc.).
- 4) Conduct a series of workshops utilizing the delivery mechanisms developed.

(26) Increase private sector production of native plant materials for use in restoration.

- 1) Promote the private sector production of native plant materials.
- 2) Develop network of public and/or private producers that can maintain genetic variability and provide the requested material.
- 3) Identify areas where these materials can be marketed successfully.
- 4) Promote the creation of market-based opportunities, where feasible, to help meet the goals of restoration under the plan.

Benefits:

- Increased native plant production will help meet increased demand.
- Contracting through private production should encourage small businesses and develop support for programs through local business communities.
- Plant propagation by growers from around the state should help match plant genotypes with regions of the state.
- Increase in native vegetation will reduce the abundance of exotic species and, in some locations, buffer high quality areas from exotic species invasions.

LOCAL ACTION (Recommendations 27-33)

(27) Enhance local awareness and capabilities to address watershed/water resource concerns through education and technical assistance and by providing funding for volunteer watershed management planning for each watershed.

Much of the land in the Illinois River basin is owned privately, not publicly. Therefore, any regulatory action will meet resistance from landowners concerned about their private property rights. With this proposal, landowners would have the opportunity to establish their own direction and priorities to address the future of their watershed. However, interested volunteers cannot be expected to organize without providing some assistance, encouragement and incentives. Funding of \$150,000 to \$500,000 per watershed will address the above concern and allow the involvement of outside speakers to assist in the designing of a plan. Expand the local watershed planning process to maximize the benefits of local involvement and coalition-building, encouraging community leaders and local organizations to participate. Provide interagency support to groups that are active; encourage groups to address identified resource concerns and to utilize the NRCS approach.

The lead agency (such as the Natural Resources Conservation Service, soil and water conservation districts, and the Cooperative Extension Service) should:

- 1) Identify target audiences (e.g. local, state and federal officials, industry and agricultural representatives, environmental groups, property owners and the general public) within communities and distribute facts to these audiences about their watershed via videos, newspaper ads, radio programs, presentations, and demonstrations.
- 2) Work with these target audiences to create local watershed steering committees. NRCS, EPA, environmental groups, etc. have proven approaches that can be used by the lead agency to create local steering committees in the communities.
- 3) Provide the local steering committees' subcommittees (e.g. technical and education) with detailed economic and ecological information about their watershed, key components of watershed plans, model watershed plans, standards, and other supporting data that will help the communities develop technically feasible, economically viable, and ecologically sound watershed management plans.
- 4) Allocate funding for volunteer watershed management plans.

Action items:

- a) Identify lead agency to coordinate project.
- b) Assess the potential and interests within each watershed for involvement in this program and prioritize.
- c) Establish target number of watersheds to work with on a biannual basis.
- d) Utilize watershed management plan model to assist watersheds with designing their own plan.

Benefits:

- Increase landowner buy-in, awareness, personal contacts; longer lasting stewardship by involved landowners.
- Improved public perception toward project initiatives due to local involvement.
- Reduction in conflicts between stakeholders.
- More thoroughly address water quality issues in non-cropland areas.
- Stimulate actions by landowners to implement conservation practices; builds on conservation partnership.
- Reduction of soil erosion/sedimentation rates and improvement of water quality.
- Creates new opportunity for non-governmental funding sources.

Costs:

- Depending upon the size of the watershed, \$150,000 to \$500,000 per watershed (scope of estimates range from Mackinaw at approximately \$150,000 to the Sangamon or Des Plaines at \$500,000).
- Postage and handling costs (etc.), administrative costs; redirection of existing staff resources.

(28) Develop a local watershed plan with full community participation.

[Plan components should include community goals, flood-prone area delineations, natural resource inventories, problem identification, including flooding, pollution, resource degradation. etc., opportunities, public information, alternative solution analysis (programs and projects), remedial recommendations, prevention recommendations, cost-effectiveness analysis, prioritization and a specific action plan.] The local, lead entity should:

- 1) Decide on the appropriate watershed scale and scope of work.
- 2) Identify problems in the watershed, decides on the appropriate economic, ecological, and other criteria to judge the seriousness of the problem, assesses the current situation, identifies possible solutions to mitigate problems, and assesses the consequences of adopting the solutions according to the criteria identified earlier.
- 3) Develop a draft watershed plan, uses public forums to modify the plan, and writes the final report. (The watershed plan should consist of solutions that most effectively balance the community's economic, ecological, social, and other objectives and comply with local, state, and federal rules and regulations.)
- 4) Develop implementation steps including funding.
- 5) Use public forums for finalizing the implementation steps and time frame.
- 6) Monitors implementation and tracks variables to assess economic and ecological consequences.
- 7) Use educational material and other services provided by the lead agency to inform the community about its role, how the watershed plan was developed and steps for implementing the plan.

(29) The local steering committee selects and adopts an organizational structure, involving appropriate agencies, to ensure that implementation of the watershed plan has sustained attention in the future throughout the watershed. Steps to accomplish this include the following actions by the local steering committee, stakeholders, and appropriate agencies:

- 1) Review known local, state and federal institutional frameworks (e.g. watershed management boards, stormwater commissions, etc.) that can effectively implement a community's watershed plans.
- 2) Survey agencies' jurisdictions in order to identify current roles, responsibilities, and available resources for solving watershed problems.
- 3) Identify gaps in services and delivery, key stakeholders already involved in the process, and stakeholders who need to be part of the effort for implementing watershed plans.
- 4) Outline formal institutional framework(s) that would contribute to the successful implementation of the watershed plan, and reach agreement on whether to create a new body or modify the steering committee.
- 5) Review the instruments needed to establish this new local institution, if necessary (such as enabling legislation, intergovernmental agreements, local ordinances, etc.) The framework may be an informal alliance, a formal alliance or a legislatively-created body.
- 6) Create the new institution or formalize the existing committee, including rules of operation.

(30) Encourage municipalities and counties to adopt and enforce comprehensive stormwater management ordinances that are tailored to address local needs and consistent with model ordinances and watershed plans. This recommendation is key for establishing new standards throughout the watershed for reducing runoff. To accomplish this, local governments should:

- 1) review development-related, recurrent problems in the area.
- 2) identify patterns of population density, land use, and water retention efforts in the area.
- 3) review the state's model ordinances and incentives provided by the State of Illinois.
- 4) develop draft ordinances that are tailored to #2 above.
- 5) make information packages about the draft ordinances and distribute them to the public.
- 6) hold public forums to obtain public input; finalize and adopt the ordinances.
- 7) reallocate staff and funding and/or acquire new funding and staff to implement the ordinances.
- 8) develop enforcement procedures and a monitoring program to assess compliance and measure the economic and ecological consequences of the ordinances. *
- 9) develop educational material and programs and present them to the businesses and members of the public in the area addressed by the ordinances.

* This recommendation (#30) did not have unanimous support of the Illinois River Strategy Team (see page 20).

(31) Encourage local governments (or appropriate groups of local governments) to adopt and implement wastewater management plans, including septic system inspection/maintenance programs, beneficial reuse of wastewater, preventive maintenance, and other elements of facilities planning.

- 1) Local governments identify wastewater problems, review other governments' response to similar problems, and visit demonstration sites to learn about current wastewater treatment technologies.
- 2) Local governments review the state's model wastewater management plans, incentives, and other information provided by the Illinois Environmental Protection Agency.
- 3) Local governments prepare or update facilities plans to identify long-term wastewater treatment systems (public vs. private) for their communities.
- 4) Local governments make recommendations for on-site wastewater disposal zones for private systems and sewer use for public systems.
- 5) Local governments develop educational material and programs and present them to businesses and members of the public impacted by the ordinances.
- 6) Local governments hold public forums to obtain public input; finalize and adopt ordinances.
- 7) Local governments reallocate staff and/or funding and acquire new funding and staff to implement the ordinances and facilities plan.

**(32) Reduce runoff rates throughout the watershed during the next 15 years through remedial and preventive efforts.
This recommendation is key for establishing new standards for reducing runoff.**

- 1) Encourage landowners to voluntarily control/reduce runoff rates from rural landscapes.
- 2) Provide economic incentives to develop temporary wetlands/water storage (i.e. "time shared") during the non-growing season (October/November-March) on prior converted farmed wetlands.
- 3) Develop educational materials which promote alternative landscaping methods, materials, and techniques that will retard the rate of surface runoff.
- 4) Increase inspection and monitoring of erosion control practices in road construction.
- 5) Offer training for public and private entities involved in road construction; offer contractor certification.
- 6) Encourage soil and water conservation districts and upland drainage districts to provide water management services that will control/reduce runoff rates from rural landscapes.
- 7) Provide incentives for soil and water conservation districts and upland drainage districts to provide for water storage at the end of subsurface tile systems.
- 8) Create/modify storm water systems and structures (where practical) to restrict discharge rates to predevelopment levels. [For example, in northeastern Illinois, for a 100-year flood event, the recommended discharge rate is 0.15 cu.ft./sec.(source: Northeastern Illinois Planning Commission).]
- 9) Provide funds for workshops on storm water management and control, with urban and rural demonstrations.
- 10) Adopt model ordinances to reduce erosion and stormwater runoff.*

Benefits:

- Vegetation reduces runoff; may provide additional wildlife habitat, may reduce annual maintenance cost; also economic opportunity for nurseries to expand inventory with "new" (e.g., native) landscape materials.
- Less dependence on "hard surface" drains will allow more infiltration, possible groundwater recharge.
- Pollutants and silt may be trapped before reaching surface or subsurface drainage systems. Less silt deposited in system may reduce maintenance activities for storm drains.
- Additional storage of runoff water on a seasonal basis provides an opportunity to trap silt, increase subsoil moisture, improve water quality, provide additional wildlife habitat on a seasonal basis.
- Opportunity for landowners and resource agencies to demonstrate to the general public that rural landowners are concerned about environmental problems and are willing to work together to solve them.
- Targeting high-priority areas will give a greater impact in reducing runoff and erosion rates and improving water quality. May provide economic benefits to some farm operations and stimulate interest among absentee farm owners/managers to participate.
- Improve the quality and quantity of plant, fish and wildlife habitat. May provide recreational opportunities.
- Provide opportunity for existing local units of government to address regional resource problems.
- Could provide additional income and other economic benefits to units of local government. Also cooperation among public and private agencies and organizations; new partnerships for solving mutual problems.
- Reduce damage to outlet drainage systems by temporary storage of surface and subsurface discharges.

Costs:

- Staff time to develop educational materials, which promote alternate techniques that will meet goals; the needs for water management and storage services from drainage districts.
- Obtain funding for and develop demonstration projects.
- Funding could come from a variety of public and private sources.
- Staff time to plan and conduct meetings with shareholders in developing this program.
- Staff time to increase monitoring, create workshops and contractor certification program in road construction.
- Funds to provide incentives for partners and for inspection of projects.
- Could reduce crop yields during wet years.

*This recommendation did not have unanimous support of the Illinois River Strategy Team (see page 20).

(33A) Implement regional strategies to protect, restore, and expand critical habitats in

- **key high-quality tributaries throughout the watershed, and**
- **headwaters of tributaries in northeastern Illinois.**

- 1) Workshops should be developed to use existing watershed planning models such as the Mackinaw River effort to facilitate new efforts among local stakeholders in other watersheds.
- 2) Coordinate with existing conferences or fund new efforts to promote a workshop/symposium highlighting innovative urban watershed protection, management, and restoration strategies.
- 3) For those tributaries with headwaters outside of Illinois (Kankakee and Fox rivers), ensure interstate cooperation with local watershed planning efforts.
- 4) Work with local partnership councils in the area, including the Fox River, Des Plaines River, Kankakee River., Chicago Wilderness, and Midewin, to help coordinate these efforts.
- 5) Target resources toward Local Partnership Councils in priority, high quality watershed in the basin. Have this group commit to targeting a coordinated funding effort for at least one other major effort (with local support in place) by 1998.

Benefits:

- Protection of high-quality habitats/refuge areas in our best remaining tributary streams in the watershed.
- Protection of key biota and habitats which are unique to these tributaries.
- Reduction of runoff/sediment input from tributaries into the main channel of the Illinois River.
- Better coordination among agencies/organizations to target resources to work with local groups leading these efforts (Conservation 2000 and Illinois Environmental Protection Agency Nonpoint source programs).
- Opportunity for transfer of existing watershed planning models to new watershed projects.
- Largest regional population in the watershed; high education benefits.
- Affect urban runoff rates/pollution through coordination with local groups and promotion of the Illinois River Valley Partnership's goals and objectives.
- Promotion of urban restoration and management practices should have region-wide and perhaps watershed-wide technology transfer benefits.
- Potential for bi-state cooperation for tributaries which have headwaters in other states.

Costs:

- For workshop, including coordinator (partial time of existing staff): \$3,000 to \$5,000 for one large or several smaller workshops.
- Workshop/symposium (\$5,000 to \$10,000 or more), paid through registration fees.

(33B) Throughout the regions identified in 33A:

Projects which promote the goals of the Illinois River Valley Partnership should receive high priority within Conservation 2000, the conservation provisions of the 1995 Farm Bill, related Illinois Environmental Protection Agency programs (such as lake management), and other forms of assistance, including private forestry assistance.

- 1) Work directly with local partnership councils (LPCs) to educate local stakeholders about the Illinois River Valley Partnership mission and goals. LPCs could provide a local mechanism for effective promotion of regionally-based funding and assistance for protection of critical habitats in each area.
- 2) Funding should be designated for ecological inventories to increase ongoing work on neotropical migrants and other migratory fauna, and delineate key aquatic resource areas.
- 3) Protect remaining Illinois Natural Areas Inventory sites and identify additional funding needs.
- 4) Protect additional outstanding landscape areas (e.g., Midewin National Grasslands) through public and private ownership and management (*not solely through government action*).
 - a) Identify potential areas that encompass landscape-level critical habitats.
 - b) Work with owners to develop voluntary protection and management of these areas using local partnership councils and other appropriate watershed groups to coordinate the effort where applicable.
 - c) If property taxes decline, develop a mechanism, when possible, to mitigate losses to local taxing bodies.

Benefits:

- Coordinated and efficient use of state and federal program funds.
- Increased local interest and participation in decision-making for implementation.
- Better awareness--for managers as well as citizens--of critical habitat areas within a region.
- Better information for local partnership councils to target resources for protection and management of these habitats within public/private ownerships.
- Better identification of critical areas for protection of connectivity between uplands and lowlands as well as floodplain to channel areas.
- Increases ability to manage multiple habitat areas within a system or watershed through a combination of public and private ownerships.
- Protection of remaining highest quality examples of natural areas in all regions (key parts of our natural heritage in Illinois) and significantly add to overall biodiversity conservation in the watershed.
- Add to preserve system which can help educate public about natural systems, management, exotics control, identification of native and non-native species, etc.
- Larger, more contiguous areas protected, containing multiple critical habitat areas.
- Potential for public/private partnerships in protection, management, restoration, and education.
- Better targeting of resources and transfer of technology.
- Potential for greater reduction of stresses to the watershed, such as runoff, sedimentation, pollution, etc.
- Better ability to manage across multiple habitats and ownerships, providing contiguous areas for migratory fauna, range-limited fauna, and fauna which need aquatic or terrestrial connectivity.

Costs:

- Coordination between the Office of Lieutenant Governor and the Illinois Department of Natural Resources' Conservation 2000 Program.
- Multiple region inventories including support of existing efforts: \$10,000 to \$20,000.
- Existing agency and organization staff can help coordinate.
- Existing programs could provide funding (Conservation 2000, Partners for Wildlife, etc.).
- Tax revenues could either decline or increase, depending upon the entity which owns the conservation area.

EDUCATION (Recommendation 34, A through K)

(34) Increase public awareness of the history of conditions in the Illinois River, the past efforts that have been beneficial, and the need to implement the recommendations in this plan throughout the Illinois River watershed.

(A) Create an Illinois River Watershed Speaker's Bureau, coordinated by one distinct entity, to

- 1) Offer potential speakers having the expertise to address elements of the plan and/or describe their successful participation in conservation programs, and provide fact sheets, slides, video, and/or hands-on materials that support the plan, for use in meetings where the host is not an expert
- 2) Send questionnaire to organizations and media to make them aware of the speaker's bureau and learn of upcoming conventions, field days, opportunities where speakers would be welcome.
- 3) Provide host/hostess with an "Answers to Frequently Asked Questions About the Integrated Management Plan for the Illinois River Watershed" document.
- 4) Provide host/hostess with postcards for persons to mail in questions that couldn't be answered during the event.

Benefits:

- Reach many different types of groups in the watershed; focus on specific topics with appropriate groups.

Costs: approx. \$50,000 first year

- \$30-40,000 to produce one hour video; 12-minute video appropriate for many audiences.
- \$10,000 to prepare slide show of 25 slides and script or cassette tape.
- Create at least 10 complete slide sets for lending out.
- Obtain "Everyone lives downstream" video (\$25.00) and UMRCC video.
- Collaborating with state agencies or a university may offer some cost savings.

(B) Create several mobile Illinois River Watershed exhibits, working with museums in the watershed, that could tour regions of the watershed for one or more years, then become installations in the museums.

- 1) Convene meeting of private and public entities that have created or directed the creation of mobile exhibits (U.S. Army Corps of Engineers; Illinois and US Environmental Protection Agency, several divisions and offices of the Illinois Department of Natural Resources, and museums participating in the Illinois State Board of Education Scientific Literacy-funded partnership between classrooms and museums.
- 2) Scale of exhibit could vary, depending upon total size and the size of its constituent parts. Possibilities include a semi-truck, train car, barge, home trailer, mobile home, medium-sized moving and storage truck.
- 3) In evaluating scale and cost, include exploration of insurance liability concerns, and the essential inclusion of an understandable "How to" manual for the display.
- 4) Display could be exhibited in public libraries, school gymnasiums, riverfront parks such as Chillicothe, Peoria, Havana, Beardstown; chambers of commerce, community colleges, county and state fairs; tent for summer.
- 5) Seek corporate sector sponsors, foundation funds, public agency grants, etc.
- 6) Utilize appropriate data from "Harvesting the River," which is now a permanent display at the Jake Wolf Fish Hatchery, in preparing the exhibit.
- 7) Create materials for pre-and post-visit activities for school groups.

Benefits:

- Job creation, increased business activity; spin-off activities arranged by host communities.
- High interest level, especially in small communities; increased civic pride.
- Feature it at events such as festivals, homecomings, throughout the watershed.
- Reaches large numbers of general public: informal education for non-school groups.

Costs: Rough estimate of \$500,000 for three years (one year for development; two years for touring).

(C) In an 18-month period, develop four comprehensive education modules (early elementary, late elementary, middle school and high school) that help achieve state standards and pertain to the Illinois River's history, the plan, and what students can do to make a difference.

- 1) Convene teachers from each grade level and education-oriented persons from the State Museum and various state agencies to develop the modules. Educators should formulate the models; hydrologists and biologists should check the facts.
- 2) Put all four modules on one CD-ROM; video and graphics would be shared among all modules. (Technical Support contacts in regional offices of education can assist; also seven technology hubs connected to Planet Earth program).
- 3) Offer 1/2 day workshops at "Teacher Institute Day" to launch the modules, then offer follow-up institutes.
- 4) Design middle and high school modules to be implemented through team teaching.
- 5) Conduct pilot and field testing, including preparation of reports to convey recommended changes; revise modules.
- 6) Include interactive exercises and hands-on performance assessment (where students are graded on one or more activities that require critical thinking and problem solving of issues related to the plan).
- 7) Have workshops for teachers to earn Continuing Education Credits through colleges/universities.

Benefits:

- job creation.
- improves science education at low or no cost to individual schools.
- useful throughout the state, not just Illinois River Valley.
- casual use by web-users -increased public awareness -useful to home-schoolers.
- teachers trained to access these materials will be able to access other areas.
- having a curriculum that is specific to the watershed.
- Inspiring students who then take this information home; promote stewardship in their watershed.

Costs:

- Development of CD-ROM: \$30,000 (if collaborate with a university that has the production capability).
- If sold each CD for \$50 schools, duplication cost covered and some expenses recouped.
- Equip each of the 25 Regional Offices of Education with several complete kits for lending to classrooms.
- Conduct pilot: 4 levels x 10 teachers x 2 days x \$/day stipend x 2 sites.
- Field test: 4 modules x 15 days x \$/day stipend.

(D) Compile and distribute a Guide to Illinois River Watershed Information Sources, to be available on-line and in hardcopy, for use in formal (Item I) and non-formal education (Item II).

- 1) Research existing sources, hotlinks, and information gaps (particularly through Illinois State Board of Education, departments of Agriculture, Natural Resources, Public Health, and state and federal EPA).
- 2) Decide electronic format and hardcopy format, including ability to retrieve information by county and/or geographic region; grade level, if applicable; topic; each entry must include complete "how to obtain" information (mailing address, phone number, and/or homepage address, and any cost); hardcopy in loose-leaf binder for easy updates.
- 3) Determine who will staff this and compile, maintain, distribute and update database.
- 4) Printing and Distribution decisions: Once created, perhaps each participating organization could print and distribute through its network.

I. Formal Education.

A team working on behalf of the Conservation Education Advisory Board is in the midst of evaluating educational materials presently available statewide, determining which should be publicized, revised, duplicated, or eliminated, and subsequently publishing a Conservation Guide. Organizers of that database may add an "Illinois River" field to be marked or tagged when the information is relevant for this plan (estimated completion 1997-98).

II. Non-Formal Education:

Focus on agencies and organizations that would not have been covered under the scope or the state agency materials in Item 1. For example, the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Heartland Water Resources Council, River Network in Washington D.C., The Nature Conservancy, Izaak Walton League, Farm Bureaus, Future Farmers of America, various professional associations (engineers, planners, etc.), and the Chicago Environmental Network *c/o* Brookfield Zoo.

Benefits:

- People throughout the watershed will know how to obtain information about the various types/topics of interest.

Costs:

- Rough, conservative estimate, averaged across at least three years: \$65,000 per year.
- Minimum one year staff time for development; plus computer, phone, postage, etc. in out years, as well as maintenance activities.

(E) Promote incentive-based programs to assist individuals on the floodplains and in the uplands to convert lands into natural areas.

Numerous public and private incentive-based programs are available to public and private landowners. The following documents contain an excellent selection of potential sources for technical and financial assistance for a variety of environmental interests, initiatives, or challenges within the Illinois River Valley.

- **Landowners Guide to Natural Resource Management Incentives, Illinois Natural Resources Coordinating Council, November, 1994.**

The guide provides information concerning a selection of existing programs which affords the participant property tax incentives, cost share funds, and technical assistance.

Source: Illinois Department of Natural Resources
524 South Second Street
Springfield, IL 62701-1787
Phone: (217) 524-3349 FAX: (217) 785-9236

- **Watershed Tools Directory (841-B-95-005), U.S. Environmental Protection Agency, December, 1995.**

The directory is a useful collection of 250 watershed tool summaries which are administered by Federal agencies and other States.

Source: U.S. Environmental Protection Agency (NCEPI)
11029 Kenwood Road
Cincinnati, OH 45242

- **Site Planning for Urban Streams, Center for Watershed Protection, December, 1995.**

The handbook examines nonstructural approaches to reducing pollutant loads and protecting aquatic resources. The handbook also offers insight into the importance of imperviousness, watershed based zoning, concentration of development, and other land planning topics.

Source: Center for Watershed Protection
S737 Colesville Road, Suite 300
Silver Spring, MD 20910
Phone: (301) 589-1890 FAX: (301) 589-8745

- **Clearing and Grading Strategies for Urban Watersheds, Metropolitan Washington Council of Governments, December, 1995.**

The handbook examines water quality impacts of clearing and grading in urban watersheds. The primary focus is on minimizing sediment loading to urban streams.

Source: Metropolitan Washington Council of Governments
777 North Capitol Street, NE, Suite 300
Washington, DC 20002-4226
Phone: (202) 962-3200 FAX: (202) 962-1201

- **Riparian Buffer Strategies for Urban Watersheds, Metropolitan Washington Council of Governments, December, 1995.**

The handbook provides guidelines for using riparian buffers to mitigate stream impacts in urban areas. The handbook includes information pertaining to pollutant removal, potential, and prevention techniques associated with chemical, biological, and physical processes in buffers and offers design recommendations.

Source: Metropolitan Washington Council of Governments
 777 North Capitol Street, NE, Suite 300
 Washington, DC 20002-4226
 Phone (202) 962-3200 FAX, (202) 962-3201

(F) Promote reestablishing riparian corridors along tributary streams with permanent vegetation.

- 1) Develop promotional packet to be sent to entities that provide technical assistance to landowners in Illinois, including soil and water conservation districts.
 - a) Include complete information on PA 89-606 which provides real estate tax reduction for creation of vegetative filter strips along streams.
 - b) Provide information on real estate tax reduction for woodlands and woodland development.
 - c) Provide information on existing technical assistance and plant materials (tree and prairie plants) available free to landowners.
- 2) Develop signs to post on riparian corridor development areas.
- 3) Hold field demonstrations in cooperation with soil and water conservation districts and the Illinois Department of Natural Resources.
- 4) Publicize program details and benefits in soil and water conservation district newsletters, farm magazines, rural newspapers, etc.

Benefits:

- All soil and water conservation districts would be aware of existing real estate tax incentives, technical assistance, and plant materials available to landowners.
- Signs, field demonstrations, and news articles would encourage landowners' participation, recognize landowners' contributions, and publicize program.

Costs:

- Assemble and mail 98 information packages at estimated cost of \$10each for assembly time, printing and postage -total cost \$1,000.
- Order 250 signs @ \$20 each -cost \$5,000.
- Field demonstrations held in up to 50 counties as part of existing Conservation Day activities. Cost absorbed in existing soil and water conservation district budgets.
- News articles to appear in existing magazines and newsletters -no additional cost.

(G) Establish a "Friends of the Illinois River Watershed" organization.

- 1) Assemble founding members group to determine legal status of organization: location, staffing and equipment needs; affordable/varied dues structure, with mechanisms for affiliate organizations and corporate donors; possible legislator category; member benefits/responsibilities; how funds will be used, develop promotional flyer.
- 2) Publish full-page ad in strategic publications with board/founding members listed to solicit additional memberships.
- 3) Garner enough supporters to yield \$5,000 as a start-up budget. (For example, 300 individual members @ \$10 ea. plus 20 corporate or institutional members @ \$100 each would yield \$5,000). Initiatives could grow with revenue.
- 4) Advertise "Friends" group in newspapers and newsletter throughout watershed.
- 5) Publicize successes of local groups in Illinois River watershed newsletter/homepage; co-host Governor's Conference on the Illinois River; convene fly-over and flow-down and provide communities with "how to " packet for conducting their own fly-overs or flow-downs.

Benefit s:

- Membership/commitment to watershed.
- Funding from dues for future actions.
- Central information avenue through newsletter.
- Find contacts/connections throughout the watershed for other support, information, etc.

Costs: \$5,000 (core budget).

- Design and print (1,000s) of brochures \$2,000.
- Communication: Postage, telecommunications, advertising (when not donated).

(H) Adopt-a-Reporter Program targeting television viewing areas that overlap a watershed; Adopt-A-Farm classroom project regarding Best Management Practices (BMPs), seasonal activities related to the watershed.

- 1) Identify local key contacts (coordinator) in or near media centers.
- 2) Provide training and video for coordinator.
- 3) Designate and connect farmer (producers) with media contacts/classrooms.
- 4) Develop seasonal questions (suggested).
- 5) Develop after-market connections.
- 6) Connect classroom projects from "Adopt a Farm" program.
- 7) Create local video (compiled) of class tracking projects for rebroadcasting in schools and prime time television viewing (available to local organizations).

Benefits:

- Stimulate actions by landowners to implement conservation practices.
- Builds on conservation partnership.
- Educates and improves awareness of conservation issues.
- Creates a foundation for building coalitions.

Costs:

- Money needed to implement should focus on the marketing of the program.
- Time to develop a coalition and strategy.
- Postage and handling costs (etc.) and minimal administrative costs.
- Redirection of existing resources.
- Video production cost of \$50,000-100,000.

(I) Develop a focused conservation education program to reach "uninvolved" landowners who are not involved in the day-to-day operation of the farm/land.

- 1) Prepare a series of professionally developed landowner awareness videos and hand outs to be distributed to absentee landowners.
- 2) Seek private funding (i.e. grain processors, food manufacturers, chemical companies, seed companies).
- 3) Develop distribution system.
- 4) Publicize availability; distribute; utilize Internet.

Benefits:

- Stimulate actions by landowners to implement conservation practices.
- Reduction of soil erosion/sedimentation rates and improvement of water quality.
- Increase landowner awareness and personal contact.
- Educates and improves awareness of conservation issues.
- Use of new marketing approaches (for example, the Internet, computer programs, computer modeling)
- Broadens the knowledge base.

Costs:

- Overall, onetime cost estimated at \$1,000,000-\$2,000,000. (production, promotion, distribution).

(J) Develop educational materials outlining:

- 1) The great strides agriculture has made in improving the environmental quality through such programs as "T by 2000," Conservation 2000, and the Farm Bills of 1985 and 1990.
- 2) The problems and solutions in the watershed, what individuals can do. Will require a cooperative effort between public natural resources agencies in the state.

Benefits:

- Helps correct society's misconception that agriculture is the source of most of the environmental degradation by listing the accomplishments of the various Farm Bills and T by 2000. Provides information about the cost effectiveness of federal and state conservation programs and thereby promoting the need for greater public support of these and other programs.
- Identifies public benefits derived from the Illinois River, as well as its problems. Helps promote the concept that everyone in the watershed contributes to the problem and that everyone is part of the solution. Provides list of simple things they can do as individuals to help correct the problems. Suggest solutions that need society's action.

Costs:

- Staff time to organize meeting with other stake holders and develop an outline and prepare text for publication. Production staff to edit, develop a layout, and prepare printing bids.
- Printing and distribution cost for x copies of materials.

(K) Implement measures to prevent the introduction of exotic or invasive species.

- 1) Public agencies should promote the use of native species in restoration and management on public and private lands by developing instructional booklets and videos and posting on the Internet voluntary incentive programs.
- 2) Develop targeted education programs about exotic species management to specific groups and projects: fishing and hunting organizations, watershed groups, local partnership councils within resource rich areas, Illinois River Valley Partnership model projects, etc.
- 3) Use existing literature or consider update of current publications to target specific groups within the watershed.
- 4) Work with local and regional groups to educate their members about exotic species identification and prevention.
- 5) Identify natural areas in each region which have specific invasive or exotic weed problems and develop these as model "sites" for management of exotic species as well as education and research on experimental approaches. Train managers, volunteers, and citizens to recognize target species and educate them about management alternatives through the use of model sites.

Benefits:

- More effective dispersal of literature. This approach should reach groups who can specifically educate their members and implement management on their own lands and projects, as well as preventing transport of exotic species through their activities [zebra mussels via boats; seed dispersal on clothing, etc.].
- Greater awareness throughout the regions about identification of exotics, preventive measures to control invasions, management, and the economic and environmental costs of controlling exotics in the watershed.
- Model sites would provide "on the ground" opportunities for training in identification and management of exotic species, and research may yield alternative management practices for landowners and managers. Training sessions could, at the same time, provide a larger workforce of volunteers to combat exotics at these sites.

Costs:

- Existing publications which could be used. If new publications are needed, budget \$5,000 to revise existing literature or produce new pamphlets or flyers.
- Natural areas in the watershed which are currently being managed for exotics could be used as demonstration sites.
- Existing staff of the Illinois Department of Natural Resources could act as educators.
- A small fee could be charged for the workshops to defray the administrative costs and any additional materials needed (herbicide, tools, etc.).

STATE OF ILLINOIS
OFFICE OF THE LIEUTENANT GOVERNOR



BOB KUSTRA
LIEUTENANT GOVERNOR

The Process Used to Develop the Integrated Management Plan for the Illinois River Watershed

An Integrated Management Plan balances the needs of human communities and ecological resources, seeking solutions and remedies that are healthy for both. People who live and work in the watershed, directly and indirectly related to the river and its tributaries, contribute to the plan. The Illinois River Planning Committee and Action Teams shared primary responsibility for developing the plan for the Illinois River Strategy Team.

- Jan.-Feb. '96 **Planning Committee** meets and evaluates economic and natural resource information
- March '96 **Planning Committee** identifies up to six issues to be addressed by separate Action Teams. Interested persons are encouraged to participate on Action Teams. To explore participation, write to Gretchen Bonfert, Liaison, Office of Lieutenant Governor Kustra, in Springfield (address below). Each team will address a specific issue and will involve participants whose lives and careers are related to that issue.
- April-June '96 **Action Teams** meet several times to develop possible solutions within each issue.
- July '96 **Planning Committee** provides direction back to the action teams.
- Aug.-Oct. '96 **Action Teams** prepare action plans with suggested implementation schedules.
- November '96 **Planning Committee** considers results of Action teams and make recommendations to the Illinois River Strategy Team.
- December '96 **Illinois River Strategy Team** acts upon Integrated Management Plan recommendations.



The Illinois River Planning Committee's deliberations were facilitated by Mr. Lawrence Huggins, who has assisted communities in successfully addressing complex environmental, social, and economic issues in 12 states and in Canada. The Planning Committee and the Action Teams were coordinated by Ms. Gretchen Bonfert, Liaison to Lieutenant Governor Kustra.

The Illinois River Valley Partnership includes individuals and organizations who have signed on to receive periodic updates as well as notification of opportunities for public participation. Interested persons should send their complete address to the Illinois River Valley Partnership, c/o Lieutenant Governor Kustra's Springfield Office.

14 State Capitol Building Springfield, Illinois 62706
James R Thompson Center, Suite 15-200 100 West Randolph Chicago, Illinois 60601



"Improve the economic well-being of agriculture and enrich the quality of farm family life."

January 10, 1997

The Honorable Bob Kustra
Lt. Governor of Illinois
Springfield, IL 62706

Dear Lt. Governor Kustra:

Thank you for the opportunity to serve on the Illinois River Strategy Team. The efforts to plan programs for the Illinois River Basin and specific watersheds within the basin have been beneficial. You, the Strategy Team, members of the Illinois River Planning Committee and the six Action Teams have worked diligently and we appreciate your efforts.

Much progress has been made over the past two years in developing positive recommendations in the Plan. Some of these recommendations contain continued support for voluntary efforts in agriculture to improve water quality. Recommendations that stress the importance of cost-share incentives, education and technical assistance are also very positive. This approach will enhance ongoing local watershed efforts and effectively address natural resource issues.

We have reservations with recommendations that focus on the adoption of county ordinances to address water quality issues. Such ordinances place burdensome mandates on farmers and others. Farmers have no choice but to absorb increased costs brought about by regulation. "One-size-fits-all" ordinances often fail to recognize the variances found from one farm to another. Circumstances beyond a farmer's control, such as the weather, can make it extremely difficult to comply with an ordinance. We too often find that ordinances seek to inappropriately regulate farm practices instead of focusing on "outcome-based" programs.

The trends in agriculture derived through voluntary programs are good. Soil erosion in Illinois has been reduced by 30% from 1982 to 1992. We still have work to do, but we have shown that voluntary, incentive based programs can be effective. In voluntary watershed planning activities in counties like Pike, Macoupin and Champaign, farmers (working with a variety of local interests) are proactively addressing local natural resource concerns.

Relying on ordinances could pit agriculture against urban interests to achieve goals. A more positive approach is watershed planning with local people, urban and agriculture alike, working together to address natural resource issues. This approach could echo the work done by the Action Teams and capture the positive energy they generated. This energy could help various groups individualize, fine-tune and implement programs described in the Plan.

Once again, thank you for the opportunity to be on the Strategy Team. We look forward to helping implement the many positive elements of the Plan for the benefit of Illinois citizens.

Sincerely,

ILLINOIS FARM BUREAU

Ronald R. Warfield
President



ILLINOIS AGRICULTURAL ASSOCIATION®

1701 N. Towanda Avenue • P.O. Box 2901 • Bloomington, Illinois • 61702-2901
Phone: 309.557.2111 • Fax: 309.557.2559

Action Teams

More than 100 persons participated on one or more of six action teams, each having a separate focus.

Hydrology and Hydraulics: Recover the natural hydrologic function of the watershed to the extent possible.

Co-Chairs: Dr. Nani Bhowmik, Illinois State Water Survey, Illinois Department of Natural Resources
Mr. Gary Clark, Office of Water Resources, Illinois Department of Natural Resources

Plants, Fish and Wildlife: Develop a comprehensive program to identify, protect, and enhance representative natural communities in the Illinois River watershed in sufficient abundance to endure.

Co-Chairs: Mr. Bob Montgomery, Max McGraw Wildlife Foundation
Mr. Matt Nelson, The Nature Conservancy

Agricultural Practices: Reduce the rate and amount of agricultural runoff, soil erosion, and non point source pollution by building upon the T by 2000 program, by adopting conservation practices, and by implementing land treatment methods.

Chair: Mr. Jon Hubbert, U.S. Department of Agriculture -Natural Resources Conservation Service

Economic Development: Identify and nurture community and business development that creates economic growth and enhances ecological stability.

Chair: Mr. Doug Dougherty, Rural Affairs Council

Citizens and Communities: Develop agreements with local governments, developers, and businesses to limit flood runoff, pollution, and soil loss.

Co-chairs: Mr. Ward Miller, Lake County Stormwater Management Commission
Dr. Richard Farnsworth, University of Illinois

Education: Develop an effective public awareness and education program, using technology to the fullest by focusing on multiple methods of media technology to reach diverse populations and involve the total community (in collaboration with marketing and education professionals).

Chair: Ms. Gretchen Bonfert, Green Strategies; Liaison to Lt. Governor Kustra

Members of Action Teams

[A=Agricultural Practices, C=Citizens& Communities, E=Economic Development, Ed=Education, Hydrology & Hydraulics, P=Plants, Fish & Wildlife. Many thanks to all members; apologies for any omissions or errors.]

O.R. Adkins	Farmers Drainage District, Mason/Cass Co.	Chandlerville	H
Scott Ballard	Illinois Department of Natural Resources (IDNR)	Marion	P
Sukendu Banerjee	Two Rivers Regional Council	Quincy	E
Deborah Beal	Illinois College	Jacksonville	P, Ed
Nani Bhowmik	Illinois State Water Survey, IDNR	Champaign	H
Subhash Bhagwat	Illinois State Geological Survey, IDNR	Champaign	E
Tom Biessel	Wildlife Resources, IDNR	Sterling	P
Michael Bonansinga	Mayor	Beardstown	E
Gretchen Bonfert	Green Strategies; Liaison to Lt. Governor	Springfield	E, Ed
Tom Book	USDA· Natural Resources Conservation Serv.	Champaign	C
Michael Brillhart	Tri-County Regional Planning Commission	East Peoria	C
Tom Butts	Illinois State Water Survey	Peoria	E
Gary Clark	Office of Water Resources, IDNR	Springfield	H
Bill Crook	Artist, Sierra Club	Springfield	P
George Czapar	Cooperative Extension Service	Springfield	A
James Daugherty	Cooperative Extension Service	East Peoria	A
Michael Davey	Western Illinois University	Macomb	E, Ed
Dora Dawson	Historical Society	Meredosia	E
Mike Demissie	Illinois State Water Survey	Champaign	H
Jim Dobson	Farmer	Cerro Gordo	A
Doug Dougherty	Rural Affairs Council	Springfield	E
Charles Douglass	Youth Attention Center	Jacksonville	P
Dennis Dreher	Northeastern Illinois Planning Commission	Chicago	C
Tom Edwards	Concerned Citizen	Peoria	H
Kent Elwood	Illinois College	Jacksonville	P, Ed
Nancy Erickson	Illinois Farm Bureau	Bloomington	A
Bill Ettinger	Illinois Environmental Protection Agency	Springfield	P
Richard Farnsworth	University of Illinois	Urbana-Champaign	C
Paul G. Fiedler	Illinois Farm Bureau Board Member	Batchtown	H
Steve Frank	Agricultural Lands Mgr., IDNR	Springfield	A
Bill Franz	US Environmental Protection Agency	Chicago	Ed
Bob Frazee	Cooperative Extension Service	East Peoria	A
Chuck Frazee	Farmer	Divernon	A
Andrew French	U.S. Fish and Wildlife Service	Havana	H
Duane Friend	Morgan/Scott Extension Unit	Jacksonville	Ed
Fetena Grebrewold	Western Illinois University	Macomb	E
Alan Gulso	Illinois Department of Agriculture	Springfield	A
Lisa Haderlein	Peoria County	Peoria	E
Todd Hill	Illinois Department of Transportation	Springfield	E
Mary Hoeft	Tazewell County Farm Bureau	Delavan	C, Ed
Dan Holm	Wildlife Resources, IDNR	Havana	P
Marvin Hubbell	Wetlands, Watershed & EMP, IDNR	Springfield	H
Jon Hubbert	USDA-Natural Resources Conservation Serv.	Peoria	A
Steve John	Environmental Planning & Economics	Decatur	C
Al Kellerstrass	Illinois Department of Transportation	Springfield	E
Yvonne Knapp	Schuyler County Economic Development	Rushville	E
Paul Krone	USDA -Natural Resource Conservation Service	Champaign	A
Richard Longwell	Illinois Institute for Rural A	Macomb	E, Ed

Chris Manheim	Grundy Co. Economic Devel. Council	Morris	E
Bill Max	First National Bank	Decatur	A
Clark McCammon	Western Illinois University	Macomb	P
John McQuown	Spoon River College	Canton	E
Chris Merrett	Illinois Institute for Rural Affairs	Macomb	E
Jim Mick	Streams Program, IDNR	Springfield	H
Karen Miller	Environmental Assessment, IDNR	Springfield	H, Ed
Ward Miller	Lake County Stormwater Management Comm.	Libertyville	C
Rick Mollahan	Illinois Environmental Protection Agency	Springfield	A
Bob Montgomery	Max McGraw Wildlife Foundation	Dundee	P
Lynn Morford	Ill Dept of Commerce & Community Affairs	Springfield	E
Matt Nelson	The Nature Conservancy	Peoria	H,P
Rich Nichols	Illinois Department of Agriculture	Springfield	A, Ed
John Nikolai	Illinois River Carriers Association	Naperville	E
Cynthia Olmstead	The Nature Conservancy	Peoria	P
Jerry Paulson	The Wetlands Initiative	Chicago	P
Mark Phipps	Natural Heritage, IDNR	Alton	P
Gary Pike	McClure Engineering	Ottawa	C
Mike Platt	Heartland Water Resources Council	Peoria	H,E
Gwen Pollock	State Board of Education	Springfield	Ed
Jim Powell	Hartwell Drainage District	Hillview	H
Randy Prince	Macon County Farm Bureau	Decatur	A
Mike Rausch	Adwell Corporation, and the Upper Mississippi, Missouri, & Illinois Rivers Assoc.	Jacksonville	H,E
Bruce Rhoads	Dept of Geography, University of Illinois	Champaign	H
Scott Ristau	Illinois Environmental Protection Agency	Springfield	C
Blake Roderick	Pike/Scott Co. Farm Bureau	Pittsfield	H
Keith Runyon	Wolters Drug Store	Havana	P
Jim Rutherford	Farmer	McLean Co.	P
Chris Ryan	Kingery Durree Wakeman & Ryan Assoc.	Peoria	C
Sam Santell	Planning, Kane County Government Center	Geneva	C
Darell Sarff	Illinois Farm Bureau Board Member	Chandlerville	E
Terry Savko	Illinois Department of Agriculture	Springfield	C
Richard Selby	BioResearch International Inc	Bloomington	E
Willard Severns	Farmer	Decatur	A
Kenn Shoemaker	Corps of Engineers	Rock Island	H
Bill Simmons	University of Illinois	Urbana	A
Doug Simpson	Woodford County Farm Bureau	Eureka	H
Kent Sims	USDA—Natural Resources Conservation Service	Naperville	C
N. Smith-Sebasto	Cooperative Extension Service	Urbana-Champaign	Ed
Mary Kay Solecki	Illinois Nature Preserves Commission	Sidney	P
Richard Sparks	Illinois Natural History Survey, IDNR	Havana	H
Ruth Sparks	Education	Havana	P, Ed
Chuck Spencer	Illinois Farm Bureau	Bloomington	P
John Taylor	Hillview Drainage District	Virginia	C
Max Thompson	Hav-a-vision Committee	Havana	E
Christy Trutter	Ill Environmental Protection Agency	Springfield	A, Ed
Richard Warner	University of Illinois	Urbana-Champaign	A
Rodney Weinzierl	Illinois Corn Growers Association	Bloomington	E
Bob Williamson	Fisheries, IDNR	Springfield	P
Eleanor Zimmerlein	Illinois Agri-Women	LaMoille	P

Existing Programs

Among the 93 recommendations considered during development of this plan, a portion supported the continuation of existing programs. Such recommendations do not appear among the 34 that were approved (for new initiatives), but rather are highlighted here because they contribute to the implementation of the Integrated Management Plan for the Illinois River Watershed. Readers are encouraged to contact the organizations below to learn more about the programs listed.

<u>Organization</u>	<u>Program Name</u>
Illinois Department of Agriculture	T by 2000 Farm Asyst
Association of Illinois Soil & Water Conservation District	“Take Pride in America” Conservation Farm recognition
Illinois Department of Natural Resources	Conservation 2000 Conservation Foundation Riverwatch
The Nature Conservancy	Volunteer Stewardship Network
U.S. Department of Agriculture Natural Resources Conservation Service	Conservation provisions of the Farm Bill <i>Illinois Urban Manual</i> Soli Erosion Control Guidelines

To obtain the 21-page plan, which is a summary of this technical report, contact the Illinois River Valley Partnership, c/o Lt. Governor Kustra, 214 State House, Springfield, Illinois 62706 (217/782-7884 or 800/843-5848; TDD 217/785-5946 or 800/526-0844).

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